Risk Management Standards Receive Final ANSI Approval

The following standards received final approval from the American National Standards Institute (ANSI) on January 11, 2011.

- **Vocabulary for Risk Management (ANSI/ASSE Z690.1-2011)**
  (identical national adoption of ISO Guide 73:2009)

  **Scope:** This standard provides the definitions of generic terms related to risk management. It aims to encourage a mutual and consistent understanding of, and a coherent approach to, the description of activities relating to the management of risk and the use of uniform risk management terminology in processes and frameworks dealing with the management of risk.

  This standard is intended to be used by:
  - those engaged in managing risks;
  - those who are involved in activities of ISO and IEC; and
  - developers of national or sector-specific standards, guides, procedures and codes of practice relating to the management of risk.

  For principles and guidelines on risk management, reference is made to ANSI/ASSE Z690.2 (ISO 31000).

  (identical national adoption of ISO 31000:2009)

  **Scope:** This standard provides principles and generic guidelines on risk management.

  This standard can be used by any public, private or community enterprise, association, group or individual.

  Therefore, this standard is not specific to any industry or sector.

  This standard can be applied throughout the life of an organization and to a wide range of activities, including strategies and decisions, operations, processes, functions, projects, products, services and assets.

  This standard can be applied to any type of risk, whatever its nature, whether having positive or negative consequences.

  Although this standard provides generic guidelines, it is not intended to promote uniformity of risk management across organizations. The design and implementation of risk management plans and frameworks will need to take into account the varying needs of a specific organization, its particular objectives, context, structure, operations, processes, functions, projects, products, services or assets and specific practices employed.

  It is intended that this standard be utilized to harmonize risk management processes in existing and future standards. It provides a common approach in support of standards dealing with specific risks and/or sectors and does not replace those standards.

  This standard is not intended for the purpose of certification.

- **Risk Assessment Techniques (ANSI/ASSE Z690.3-2011)**
  (identical national adoption of ISO/IEC 31010:2009)

  **Scope:** This standard provides principles and generic guidelines on risk management.

  This standard can be used by any public, private or community enterprise, association, group or individual.
Scope: This standard is a supporting standard for ANSI/ASSE Z690.1, Vocabulary for Risk Management, (ISO 31000:2009), and provides guidance on selection and application of systematic techniques for risk assessment.

Risk assessment carried out in accordance with this standard contributes to other risk management activities.

The application of a range of techniques is introduced, with specific references to other national and international standards where the concept and application of techniques are described in greater detail.

This standard is not intended for certification, regulatory or contractual use.

This standard does not provide specific criteria for identifying the need for risk analysis, nor does it specify the type of risk analysis method that is required for a particular application.

This standard does not refer to all techniques, and omission of a technique from this standard does not mean it is not valid. The fact that a method is applicable to a particular circumstance does not mean that the method should necessarily be applied.

This standard does not deal specifically with safety. It is a generic risk management standard and any references to safety are purely of an informative nature. Guidance on the introduction of safety aspects into IEC standards is laid down in ISO/IEC Guide 51.

ASSE will now prepare the standards for publication.

A10 Standard Receives Final ANSI Approval
The standard, “Work Platforms Suspended from Cranes or Derricks” (ANSI/ASSE A10.28-2011), received final approval from ANSI on January 28, 2011. ASSE will now prepare the standard for publication.

ISEA Standards Now Available Through ASSE
The following ISEA standards are now available for purchase through ASSE:

- American National Standard for Gas Detector Tube Units—Short-Term Type for Toxic Gases and Vapors in Working Environments (ANSI/ISEA 102-1990 (R2009))
- American National Standard for Classification and Performance Requirements for Chemical Protective Clothing (ANSI/ISEA 103-2010)
- American National Standard for Hand Protection Selection Criteria (ANSI/ISEA 105-2005)
- American National Standard for Fixed and Portable Decontamination Shower Units (ANSI/ISEA 113-2008)
- American National Standard—Minimum Requirements for Workplace First-Aid Kits and Supplies (ANSI/ISEA Z308.1-2009)
- American National Standard for Occupational and Educational Personal Eye and Face Protection Devices (ANSI/ISEA Z87.1-2010)
- American National Standard for Industrial Head Protection (ANSI/ISEA Z89.1-2009)

ANSI ASC 01 Seeks New Members
The ANSI ASC 01 Woodworking Committee is seeking new members. Any safety engineer with experience in the woodworking field will be considered. These persons would not represent ASSE but would be considered members with general interest on the committee. For more information, contact Al Weaver at aweaver1@bellsouth.net.

(continued on page 17)
Cranes & Derricks: Subpart CC, 29 CFR 1926.1400-1442

By Earnest F. Harper, CSP, DABFE, DABFET, CFC

The new cranes and derricks standard was published in the Federal Register on August 9, 2010 and went into effect on November 8, 2010. The previous rule was based on 40-year-old standards. Stakeholders from the construction industry recognized the need to update the safety requirements, methods and practices for cranes and derricks and to incorporate technological advances to provide improved protection for those who work on and around cranes and derricks.

What Has Changed?

One of the most significant changes is the requirement for crane operators to be “qualified and certified,” as outlined in 1926.1427. Other employees working around cranes, such as riggers and signal persons, must also be “qualified.” Since the rule went into effect, you will have up to four years (2014) to ensure that your crane operators are certified.

In addition to certification requirements, the new rule is designed to prevent the leading causes of fatalities, including electrocution, crushed-by/struck-by hazards during assembly/disassembly, collapse and overturn. It sets requirements for ground conditions and crane operator assessment. The rule addresses tower crane hazards and the use of synthetic slings for assembly/disassembly work. It also clarifies the scope of the regulation by providing both a functional description and a list of examples for the equipment covered.

Highlights

• Effective date was November 8, 2010. Subpart CC starts with 1926.1400 and ends with 1926.1442.

• Scope of equipment covered, functionally means that it can hoist, lower and horizontally move a suspended load. To be covered in 1926, the equipment must be engaged in the construction itself. The list is long for equipment covered.

• Specific exclusions include power shovels, excavators and backhoes, and examples with limited exclusions include digger derricks and articulating/knuckle-boom truck cranes.

• Controlling entity must provide adequate conditions as well as firm, drained and graded ground sufficient to support the crane in conjunction with blocking mats. Must inform equipment user and operator of known under ground hazards. Includes all information about ground conditions, including written information in possession of the controlling employer whether or not on site.

• Assembly/disassembly (A/D) has extensive coverage in the standard. Two options, manufacturer or employer procedures. General requirements include using a “competent and qualified” person as the A/D director who must understand procedures, review if using procedure for the first time and verify that crew members understand their tasks and hazards. Must follow manufacturer’s prohibitions. All rigging work must be done by a qualified rigger. When using outriggers, fully extend or deploy as per the load chart.

• During rigging, synthetic slings must be protected by padding during assembly/disassembly (1926.1404). A qualified rigger must rig loads during A/D operations and other activities when workers must be in the fall zone to handle a load. (1926.1425)

• Powerlines must identify and mark boundaries and prohibit operation past boundaries or 360° around the equipment’s max working radius.

• Determine if any part of the load can get within 20 ft of < 350KV or 50 ft for > 350KV.

• Three options if within 20/50 ft: (1) deenergize and ground; (2) use 20/50 clearance or (3) ask utility for voltage and use the table of clearances. Intentionally working closer than the table must show it is infeasible or infeasible to deenergize and ground. (Must meet several requirements not stated here.)

• Encroachment prevention measures include a planning meeting. If tag lines are used, they must be non-conductive and must use elevated warning lines, barricades or a line of signs plus one of the following: proximity alarms, spotter, warning device, range limiter or insulating link.

• Workers must be trained to recognize and avoid hazards. Workers must understand this training by oral or written means provided in a language they understand.
Operators Qualifications
- **November 8, 2010**: State or local license required if (1) working within a state or locality that has licensing requirements and (2) the licensing program meets the licensing and certification criteria listed in 1926.1427 of Subpart CC.
- **November 8, 2010–November 10, 2014**: Employer must ensure that all operators are competent to operate the equipment safely and are trained and evaluated on that training before operating that equipment.

Operator Qualification/ Certification
- Four options: (1) Accredited testing organization; (2) audited employer program; (3) U.S. military (considered non-portable and good only on military bases) and (4) state and local license. Must meet 1926.1427(a), (e) and (j), which were revised since the August 2010 version. The testing criterion, which consists of both knowledge (written test) and a practical test, does not apply to the military option.

Author’s Note: Although 1926.1427(e)(2)(i) requires a written test, you must still verify a full understanding by the affected individual. There is no barrier to testing individuals in their own language [1926.1427(h)] or testing their knowledge orally. Verify with the appropriate OSHA or testing agency if in doubt. If the operator’s test is in any language other than English, it must be noted on the certificate.

- An Option 1 accredited testing organization certification is portable and valid for five years.
- An Option 2 audited employer program is not portable and remains valid for five years.
- The Option 3 U.S. military license is not portable but may become portable depending on whether the military/state training meets accreditation. The issuing authority sets the time the license remains valid.
- Option 4 state and local license is not portable, but this also depends on meeting training accreditation. The time the license remains valid is set by the issuing authority but cannot exceed five years.
- Employers must pay for certification or qualification for their currently uncertified or unqualified operators.

Signals
- **Types**: Hand, voice or new signals if employer can demonstrate equivalency.
- **Cell Phone**: The only time an operator can use a cell phone is when lifting, but it must be hands-free.
- **Signal Person**: Must be used when (1) point of operation is not in full view of the operator, (2) view of direction of travel is obstructed or for (3) site-specific safety concerns. Qualification requirements include knows and understands signals, is competent in using signals and has a basic understanding of crane operations. If qualified by a third-party qualified evaluator, documentation is required and it is portable. If qualified by an employer-qualified evaluator, documentation is required but it is not portable.

Inspections
- Five (5) types. See 1926.1412 & 1926.1413
- Must be inspected by a qualified person if modified, repaired or adjusted.
- If it is post-assembly, inspection requires a qualified person.
- A shift inspection requires a competent person.
- The monthly inspection requires a competent person and must have available documentation for inspectors.
- The annual inspection requires a qualified person and must have available documentation for inspectors.

Operations
- Operators cannot be engaged in any distracting activities while operating equipment, including cell phone use except for signaling purposes.
- Operators must have stop-work authority.
- When workers must be in the fall zone to handle a load, the load must be rigged by a qualified rigger. Limits set as to who can be in the fall zone.

Fall Protection
- For A/D, fall protection is required above 15 ft.
- For non-A/D, fall protection is required above 6 ft except that horizontal lattice booms require 15 ft.
- Anchoring to a load line is allowed if (1) a qualified person determines strength and stability requirements of 1926.502 (subpart M); (2) the operator is at the work station and informed of this use; and (3) no load is suspended from the same line when used as an anchor.

Safety Devices
- Are required and must be operational at all times.
- These include crane-leveling indicator, boom/jib stops (except derricks), integral holding device/check valve for outrigger, stabilizer jacks, locks for foot pedal brakes and horn.
Operational Aids

- Operational aids are required, but temporary alternative measures are also allowed while operational aids are repaired. Alternate methods must be communicated to all affected employees.
- **Category I Aids:** Boom hoist limiting device, luffing jib limiting device and anti two-blocking devices must be repaired within 7 days of deficiency.
- **Category II Aids:** Boom angle or radius indicator, boom length indicator, load-weighing devices, jib angle indicator, outrigger/stabilizer position sensor/monitor and hoist drum rotation indicator must be repaired within 30 days of discovery of the deficiency.

**Exception:** Employer documented that it has ordered the part within seven days and repaired the equipment within seven days of receipt of the part.

Tower Cranes

Additional requirements:
- Foundation and structural supports
- Climbing procedures
- Post-erection load test
- Monthly inspection of tower mast bolts, uppermost tie-in, braces, floor supports and floor wedges
- Size and location of signs
- Specific safety devices and operational aids
- Plumb tolerance 1:500 (1 in in 40 ft)
- When more than one tower crane structures cannot be able to touch each other (may pass over one another)

**Documentation:** Monthly and annual inspection reports for the equipment and wire rope; modifications that effect the safe use of the equipment; operator and signal person qualifications; tower crane foundation/support design; when repairs or adjustments of the equipment are needed.

The author thanks Dale Cavanaugh, P.E., assistant regional administrator for OSHA’s Office of Technical Support, for his contributions to this article.


This special combination package includes the newly revised Z117.1-2009 standard plus the Z117 comparison document, which outlines the differences between the 1995, 2003 and 2009 versions of the Z117.1 standard.

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ANSI Updates

NFPA Standards Under Revision
The National Fire Protection Association’s (NFPA) “Standard for Electrical Safety in the Workplace®” (BSR/NFPA 70E-201x) is under revision. This standard addresses electrical safety requirements for employee workplaces that are necessary for the practical safeguarding of employees during activities, such as the installation, operation, maintenance and demolition of electric conductors, electric equipment, signaling and communications conductors and equipment and raceways for the following:

1. Public and private premises, including buildings, structures, mobile homes, recreational vehicles and floating buildings;
2. Yards, lots, parking lots, carnivals and industrial substations;
3. Installations of conductors and equipment that connect to the supply of electricity; and
4. Installations used by the electric utility, such as office buildings, warehouses, garages, machine shops and recreational buildings, that are not an integral part of a generating plant, substation or control center.

NFPA’s “Standard System for the Identification of the Hazards of Materials for Emergency Response” (BSR/NFPA 704-201x) is under revision. This standard addresses the health, flammability, instability and related hazards presented by short-term acute exposure to a material under conditions of fire, spill or similar emergencies.

AMT Standard Under Revision
The Association for Manufacturing Technology’s (ASC B11) standard, “Safety of Machinery—General Requirements and Risk Assessment” (BSR B11.0-201x), is under revision. The standard applies to new, modified or rebuilt power-driven machines, not portable by hand, used to shape and/or form metal or other materials by cutting, impact, pressure, electrical or other processing techniques or a combination of these processes. This can be a single machine or a machinery system(s). Other industry sectors may benefit from applying this standard.

NFPA’s “Standard for the Prevention of Fires and Dust Explosions in Agricultural and Food Processing Facilities” (BSR/NFPA 61-201x) is under revision. This standard applies to the following:

1. All facilities that receive, handle, process, dry, blend, use, mill, package, store or ship dry agricultural bulk materials, their byproducts or dusts that include grains, oilseeds, agricultural seeds, legumes, sugar, flour, spices, feeds and other related materials;
2. All facilities designed for manufacturing and handling starch, including drying, grinding, conveying, processing, packaging and storing dry or modified starch, and dry products and dusts generated from these processes; and
3. Those seed preparation and meal-handling systems of oilseed processing plants not covered by NFPA 36, Standard for Solvent Extraction Plants.

National Adoption of ASA Standard Proposed
The Acoustical Society of America (ASC S2) proposes to nationally adopt “Evaluation of human exposure to whole-body vibration—Part 1: General requirements—Amendment 1” (BSR/ASA S2.72/Part 1 Amd. 1-2010 / ISO 2631-1 Amd. 1:2010). This amendment to ISO 2631-1: 1997 provides numerous updates and corrections throughout the document. This is the national adoption of a recent amendment to an ISO standard that was nationally adopted several years ago.

ISEA Standard Under Revision
The International Safety Equipment Association’s standard, “Hand Protection Selection Criteria” (BSR/ISEA 105-201x), is under revision. This standard addresses the classification and testing of hand protection for specific performance properties related to mechanical, chemical, heat and flame and anti-vibration protection. Hand protection includes gloves, mittens, partial gloves or other items covering the hand or a portion of the hand that are intended to provide protection against or resistance to a specific hazard.

NFPA Standards Under Revision
NFPA’s “Guide on Alternative Approaches to Life Safety” (BSR/NFPA 101A-201x) is under revision. This guide consists of many alternative approaches to life safety. Each chapter is a different system independent of the others and is to be used in conjunction with the NFPA 101, Life Safety Code.
NFPA’s “Hazardous Materials Code” (BSR/NFPA 400-201x) is under revision. The code applies to the storage, use and handling of the following hazardous materials in all occupancies and facilities:

1. Ammonium nitrate solids and liquids;
2. Corrosive solids and liquids;
3. Flammable solids;
4. Organic peroxide formulations;
5. Oxidizer—solids and liquids;
6. Pyrophoric solids and liquids;
7. Toxic and highly toxic solids and liquids;
8. Unstable (reactive) solids and liquids;
9. Water-reactive solids and liquids; and
10. Compressed gases and cryogenic fluids as included within the context of NFPA 55, Compressed Gases and Cryogenic Fluids Code.

—Adapted from ANSI Standards Action, Volume 41, Number 38

NEMA Standard Under Revision
The National Electrical Manufacturers Association’s (NEMA) (ASC Z535) “Standard for Environmental and Facility Safety Signs” (BSR Z535.2-201x) is under revision. This standard establishes requirements for a uniform visual system of identification related to potential hazards in the environment. Provides for the design, application and use of signs and placards employing this visual alerting system.

—Adapted from ANSI Standards Action, Volume 41, Number 47

NEMA’s (ASC Z535) standard, “Product Safety Information in Product Manuals, Instructions and Other Collateral Materials” (BSR Z535.6-201x), is under revision. This standard sets forth requirements for the design and location of product safety messages in collateral materials for a variety of products.

Revisions of AIHA Standards Proposed
The American Industrial Hygiene Association (AIHA) (ASC Z88) proposes to revise its “Standard for Respirator Protection—Respirator Use—Physical Qualifications for Personnel” (BSR AIHA Z88.6-201x). This standard provides information that is useful for the medical evaluation of respirator users. This standard does not deal with medical surveillance or biological exposure monitoring.

AIHA proposes to revise its “Standard for Recirculation of Air from Industrial Process Exhaust Systems” (BSR AIHA Z9.7-201x). This standard establishes minimum criteria for the design and operation of a recirculating industrial process exhaust ventilation system used for contaminant control.

—Adapted from ANSI Standards Action, Volume 41, Number 48

New AIHA Standard in Development
AIHA’s (ASC Z9) new standard, “Abrasive-Blasting Operations—Ventilation and Safe Practices for Fixed-Location Enclosures” (BSR/AIHA Z9.4-201x), is in development. This standard applies to all operations in fixed-location abrasive-blast enclosures in which an abrasive forcibly comes in contact with a surface by pneumatic or hydraulic pressure or by centrifugal force. This standard shall not apply to steam blasting, steam cleaning, or hydraulic cleaning methods in which work is done without the aid of abrasives. It also shall not apply to abrasive blasting conducted outdoors (e.g., bridges, water towers) even though temporary enclosures may be built at such locations.

—Adapted from ANSI Standards Action, Volume 41, Number 49

NEMA Standards Under Revision
NEMA’s (ASC Z535) standard, “Criteria for Safety Symbols” (BSR Z535.3-201x), is under revision. This standard provides general criteria for the design, evaluation and use of safety symbols to identify and warn against specific hazards and to provide information to avoid personal injury.

NEMA’s (ASC Z535) standard, “Safety Tags and Barricade Tapes (for Temporary Hazards)” (BSR Z535.5-201x), is under revision. This standard sets forth requirements for safety tags and barricade tapes to be used to identify temporary hazards.

—Adapted from ANSI Standards Action, Volume 41, Number 51

ITSDF Working to Reaffirm Standard
The Industrial Truck Standards Development Foundation, Inc. is working to reaffirm its “Safety Standard for Rough-Terrain Forklift Trucks” (BSR/ITSDF B56.6-2005 (R201x)). This standard defines the safety requirements relating to the elements of design, operation and maintenance of rough-terrain forklift trucks. These trucks are intended for operation on unimproved natural terrain as well as the disturbed terrain of construction sites.

—Adapted from ANSI Standards Action, Volume 41, Number 52
Ask ASSE: A10.4

ASSE members regularly submit technical questions through the “Ask ASSE” feature on the Society’s website. ASSE staff answers a question about personnel hoists on construction and demolition sites.

Q: I was told that a motorized pallet jack cannot be used in a personnel hoist on a construction site. The person quoted the standard, “Personnel Hoists and Employee Elevators on Construction and Demolition Sites” (ANSI/ASSE A10.4-2007), specifically Sections 26 or 28. The manufacturer also stated that we cannot do this and referenced A10.4. I understand a new law exists addressing this practice after an incident at a bank resulted in several injuries. We use a motorized pallet jack to load materials.

A: You are referring to Section 28.1 from the A10.4-2007 standard.

Section 28. Use of Hoists for Carrying Materials.
Personnel hoists may be used for carrying personnel and materials provided the hoists are designed to accommodate the type of load to be carried.

When wheelbarrows or other rolling equipment is transported, it shall be held securely in place on the hoist platform. The platform shall be level with the landing when rolling equipment is loaded or unloaded. Power-operated equipment shall not be driven onto the platform at any floor. Power-operated equipment may be loaded at any floor if it is manually pushed onto and off of the platform with the power shut off. The wheels must be adequately blocked in front and in back of at least two wheels.

We are unaware of the new law you mention. A10.4 is a national voluntary consensus standard, so if a law dictates otherwise, you would need to comply with the law. The standard also would not override your manufacturer’s directions.

If you are working with personnel and material hoists on construction and demolition sites, you may want to consider using both the A10.4-2007 and A10.5-2006 standards.
Safety & Health: Large-Scale Public Construction Projects

Tony O’Dea is Vice President and Director of Corporate Safety for Gilbane Building Company. In this interview, O’Dea provides an overview of construction safety and health with respect to large-scale public projects and outlines the hazards such projects can present to both workers and the general public.

Please provide a brief description of your professional background and of your position as vice president and director of corporate safety for Gilbane Building Company.

As vice president and director of corporate safety for Gilbane Building Company, I direct the company’s construction safety program.

I also represent Gilbane Building Company as a member of the Associated General Contractors’ (AGC) National Safety Committee, the ANSI A10 Accredited Standards Committee for Construction and Demolition Operations, the National Construction Safety Executives as well as AGC’s Safety Committees of Massachusetts and Rhode Island.

What unique safety, health and environmental (SH&E) hazards can large-scale public construction projects pose to workers?

On all new construction projects, the greatest sources of injury and loss of life are from falls, electrocutions, being struck by equipment and caught-in-between hazards. In addition, exposures to the general public are of concern, such as injury or property damage due to falling material or equipment, damage to surrounding existing facilities or residences due to settlement or ground vibration or fires.

When working on large-scale construction projects where construction operations are executed close to building occupants or adjacent neighbors or businesses, I believe the greatest hazards are from indoor air quality, hazardous materials, particularly from exposure to existing building materials or previously contaminated sites, fire, security breaches and potential interruptions to existing activities or operations.

Which large-scale public construction projects typically present the most hazards and why?

With respect to large public projects, I believe K-12 schools require the most attention. Schools should be a safe environment at all times for faculty, staff, students and the community, even while construction is taking place.

Typically, the greatest challenge on a large, active K-12 construction site is the development and implementation of a strategy to separate construction from public and educational activities.

Schools present a unique challenge in that users are primarily children or young adults who do not immediately recognize and comprehend danger, are curious of construction sites and equipment, highly distracted by surroundings and can be disrupted by changing activities, noises and smells.

It should be recognized that the entire site is a point of interaction with the school community. Additionally, many schools function as community centers and host a variety of community events after school hours and on weekends. As a result, many schools typically operate on an almost full-time basis.

The location, emergency accessibility, type and service duration of each barrier system must be reviewed by the school administration and any applicable authority that has jurisdiction (i.e., fire marshals) both before the commencement of construction activities or prior to any modifications after initial installation. Barrier systems and pathways around

Tony O’Dea, CSP, is Vice President and Director of Corporate Safety for Gilbane Building Company, where he directs the company’s construction safety program. He has worked in the construction industry for more than 25 years in various positions, including project engineer, surveyor, superintendent and project manager. He is also a construction health and safety technician and holds engineer-in-training certification.

O’Dea represents Gilbane Building Company as a member of the Associated General Contractors’ (AGC) National Safety Committee, the ANSI A10 Accredited Standards Committee for Construction and Demolition Operations, the National Construction Safety Executives as well as AGC’s Safety Committees of Massachusetts and Rhode Island.

He holds a B.S. in Civil Engineering from Northeastern University, where he developed and instructed the fundamentals of construction safety and health course for 10 years. He has been a guest lecturer in construction safety at the University of Florida, Roger Williams University and Harvard University as well as for ASSE, the Associated General Contractors of Rhode Island and the Associated Builders and Contractors of Rhode Island.
the construction site must be maintained in all weather to ensure no inadvertent access to the project site occurs by a curious visitor.

Unauthorized or unsupervised access of visitors to the jobsite can have serious safety and progress implications. When site separation is not effective or maintained, opportunities for disruption, worker injury, vandalism or harm are created.

Deliveries of food and supplies and removal of dumpsters are a daily occurrence at all school facilities. Access to loading docks, kitchens and storage areas cannot be inhibited by construction.

Operations that will create noise must be planned and coordinated with administration prior to the start of work. Hammer drilling or jack hammering, the use of low-velocity, powder-actuated tools, installation of mechanical anchors for roofing, power saws and tools, vibration or compaction equipment, general demolition, heavy equipment engines, drywall installation and even workers’ lunch and break times can create noise.

Unobstructed and safe access for vehicles, including buses and the vehicles of students, parents, visitors and faculty, as well as building entrances and pedestrian paths around the school and construction site, present challenges, requiring coordination and communication with school officials, maintenance of roads and clear, well placed signage.

In addition, controlling the danger of fire emergencies in a large public building with children, as well as maintaining safe and efficient evacuation, make working in K-12 schools more of a safety challenge.

An effective school construction safety program supports the mutual goals of all members of the school community.

To address the unique safety challenges of K-12 projects, Gilbane has pulled together an interdisciplinary team of project management and safety professionals from across the country with extensive K-12 experience to develop a safety whitepaper providing detailed analysis of the unique safety challenges of executing K-12 construction and outlining best execution practices for executing these projects incident- and injury-free.

What are your recommendations for balancing public safety and worker safety during a large-scale project?

Safety at the school construction site is not just about protecting students and the general public, but also about protecting the health and safety of construction workers and Gilbane staff. Schools have a unique relationship with those who build them. The work environment is one where workers often are from the community; they are fathers, mothers, uncles or brothers of the students and faculty of the school. All project stakeholders must be aware that an injury to any worker on a school site affects the community deeply.

A rigorous and job-specific project safety plan for construction workers is a must on all projects. A plan that simply says “shall comply with OSHA” is inadequate. A comprehensive Safety plan on K-12 projects must ensure that the unique safety hazards of working around the schools, as outlined, are mitigated, along with detailed job hazards analysis implemented for each construction bid package to ensure the safety of workers on site. Accidents do not just happen; there are causes, which can be prevented through training, planning and monitoring of activities.

Based on your recent experience, have you seen a rise in any particular types of occupational injuries with respect to large-scale projects?

I am concerned about the increase in soft-tissue injuries among construction workers as we, along with our craft workers, are aging. Construction is physically challenging. Our craft workers work hard to build the facilities that we rely on to education our children, treat our illnesses, supply our lights and power and support our commerce. And, as they have worked hard for most of their working career, while gaining their valued experience and skill, that hard work can take its toll in increased soft tissue injuries.

In construction, work tasks, equipment and medical management, as well as our health and wellness programs, must recognize and adapt to support our aging workforce. Gilbane conducts daily stretching exercises with craft workers on its projects and works closely with occupational clinics and its contractors to ensure that workers receive the best medical care and, consistent with physician and therapist recommendations, are shepherded back to safe and productive work.

Also, and not surprising among craft persons who work with their hands, we have also noticed a high frequency of hand injuries. While these injuries are generally not as serious as a fall or electrocution, the impact on workers’ livelihood or the quality of life of their families may be equally as significant if the craft workers lose their ability to use their hands to perform their task. Gilbane has developed, with feedback from craft workers, our contractor and vendor partners, a progressive hand protection program, including training and glove selection.
What new measures are SH&E professionals taking to protect workers during large-scale projects?

The greatest positive impact we can have on large-scale construction projects is in the design and planning phase. Historically, SH&E professionals have not been engaged to contribute and to influence safety until a design is completed and the owner’s phasing plan has been developed. SH&E professionals can be of significant value in support of improving safety of not just construction workers, but adjacent operations and facilities operations by working with designers and owners, using tools, such as building information modeling (BIM), and by reviewing designs and conducting hazards analysis of planned building activities, construction phasing, proximity to adjacent operations, locations of equipment needing frequent maintenance and service and selection of construction materials.

Also, there has been much discussion about green and sustainable buildings, but a truly sustainable building is one where its construction and regular maintenance contributes positively to the community in reduced injuries and risks during construction execution and facility operation and maintenance. Currently, not much has been developed to specifically address the specific hazards and training in executing green projects. For example, LEED has no provision currently to address safety and health in its requirements, while OSHA is tasking a work group to explore this, and safety professionals involved in “green” jobs are in the process of developing standards.

Which A10 standards for construction and demolition operations do you believe should always be incorporated into SH&E practices for a large-scale project?

Every A10 standard undergoes extensive development, periodic review and comment from the A10 membership. Since I have been a member, I have been impressed with the knowledge, effort and commitment each A10 member devotes to crafting the best standards possible. To pick a specific standard, I would say that every standard is important and is critical if you are the contractor using that standard to ensure the safety of your workers and others on the construction and demolition project.

What aspects of a large-scale public construction project do you feel require more attention to both worker safety and public safety?

Specifically, with respect to K-12 school construction, I believe the primary and unique safety challenges in a K-12 environment are indoor air quality, hazardous material management, fire, security and preventing disruptions to school activities (as outlined here).

Indoor Air Quality: Construction activities generate dust and fumes that can affect the health of students, staff and visitors to the site. Proactive control measures must be put into place to limit and control the spread of dust, fumes and poor air quality to occupied spaces or across a neighborhood.

Hazardous Materials Management: The vast majority of school buildings that have been in service for 30 years or more may have some quantity of asbestos or other hazardous materials. Perfectly safe methods to abate any building are available; however, implementing the appropriate measures requires proper identification of the materials, development of abatement plans and application of all safety requirements.

Proper removal of hazardous waste requires diligent planning, investigations and implementation of the program created for the project by a specialty hazardous waste consultant. Even when proper abatement procedures are used, often there is a greater issue regarding the perceptions the public and staff have about the abatement process. Effective sharing of safety information is critical to bring understanding to the community.

Fire: All construction projects have hazards, which can easily spark fires. Construction safety plans must include control of welding and cutting (hot work), regular housekeeping, flammable liquids controls and egress routes, fire alarm systems, notification systems and fire response procedures. Additionally, the plan must include provisions for the regular maintenance and management of fire control equipment, policies and egress routes.

Security Breaches: Site security must be considered from multiple points of view. Policies suitable and unique to the individual school combined with appropriate barriers to prohibit unauthorized access or egress to the construction zone from the school and to the school from the construction site are required. The barriers must provide for the physical safety of the individuals on each side. The barriers may also assist in the prevention of theft and vandalism of equipment, tools and materials from areas in the facility both occupied and currently under construction.

Disruptions to School Operations and Activities: Construction projects may require specialized portions of the facility to be cut off from education use for access as construction zones or be included in phased renovations. Careful planning and discussion is required to ensure that unique educational opportunities and extracurricular activities are maintained to the administration’s satisfaction. School projects must be planned through open, prompt and honest communication.
facilitated through administrators, teachers, coaches and parents to establish expectations and minimize frustrations.

How do you predict approaches to safety during large-scale public construction projects will change during the next five years?

Currently, most large-scale public construction projects are bid in accordance with public bidding approaches, which specify filed sub bids, with program manager oversight of general contractors. I envision more trust and collaboration between contractors, designers, subcontractors and public entities in the future, which should promote more “construction management at-risk” projects, where all entities are stakeholders in the project’s success.

In the current economy, I envision “public-private-partnerships” to increase as well. In this climate, I believe we have our greatest opportunity to improve the safety and well being of our workers and the general public, while at the same time improving efficiency and productivity, as all project stakeholders begin communicating, coordinating and planning earlier in the process and sharing best practices.

I am also excited about the possibilities of BIM in improving construction site safety by using the model of the construction site to develop detailed logistics and site utilization plans and to use these to better inform all stakeholders, owners, local regulatory agencies, property abutters and contractors of the potential impacts of the construction project, such as cranes, concrete trucks, excavations, steel erection, etc. I believe we have the greatest positive impact on overall construction site safety in the planning phase. BIM also has great potential to reduce significant hazards of working at heights, fires and ergonomic injuries through promotion of prefabrication and better coordination of installed equipment.

BIM allows everyone involved to be better informed and to make key decisions early in the project planning to ensure safe and efficient workflow.

Gilbane has a virtual construction team that develops models of our projects from project conception throughout the execution of the project, working with our architect, contractor partners, owners and others to ensure that activities are planned and executed safely and efficiently.

As importantly, we have a vision that construction projects can and will be executed with no injuries or incidents by applying our incident- and injury-free approach called Gilbane Cares. By applying safety as a personal value and conviction to the planning and execution of our projects, and in the relationships we build with our contractor partners, clients and craft workers, last year more than 70% of our projects were executed with no injuries, while 89% had no injuries requiring time lost from work. Currently, Gilbane is collaborating with many likeminded companies, clients and labor to extend this approach throughout our industry, for the ultimate benefit of improving the safety and quality of life of the families of the men and women with whom we work.

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Outcome of Sustainability Guide
ISO Drafting Group’s First Meeting

This article is excerpted from a letter to members of COPOLCO, the Committee on Consumer Policy of the International Organization for Standardization, regarding the Sustainability Guide Drafting Group’s (SGDG) first meeting.

The ISO/Technical Management Board (TMB) SGDG, established to develop a guide on sustainability aspects in standardization, held its first meeting from September 21-23, 2010 in Geneva, Switzerland.

The planned guide will cover principles and approaches for incorporating sustainability aspects in different types of standards, including the identification of relevant sustainability issues and guidance on how to include them within the different types of standards. SGDG has referred to ISO Guide 64, Guide for addressing environmental issues in product standards as a starting point for development.

SGDG group leader and TMB member, Amanda Richardson (United Kingdom), had invited COPOLCO to nominate a representative to the group, in addition to seeking representatives from TMB. As a result of consultation among the COPOLCO chair’s group members, Robert Duncombe (Switzerland) and Norma McCormick, COPOLCO chair (alternate), have volunteered to serve in that capacity.

Duncombe has attended the first meeting, and two other meetings are planned with work proceeding by correspondence in the interim. The aim is to complete the guide by June 2011.

ISO/TMB SGDG

ISO/TMB established SGDG at its 47th meeting in February 2010, and it was tasked to develop a guide on incorporating sustainability aspects into standards. SGDG was created, following a recommendation of the ISO/TMB Sustainability Task Force, because the TMB recognized that references to sustainability are increasing in international standards and it is important for ISO technical committees (TCs) to address sustainability issues in a consistent and coherent manner.

Consultations with ISO TCs and external organizations also supported the view that a consistent and coherent approach toward addressing sustainability matters is important and that such may be achieved via the creation of a guide for ISO TCs.

SGDG is made up of experts nominated by ISO/TMB members, with additional representation from ISO COPOLCO. The ISO/TMB membership is currently made up of the ISO members of Brazil, Canada, China, France, Germany, India, Japan, Republic of Korea, Malaysia, South Africa, Spain, Sweden, UK, U.S. and Denmark, who holds the chair. SGDG reports directly to the ISO/TMB.

Currently, SGDG membership provides representation from a variety of stakeholder groups, including industry, consumers, nongovernmental organizations, government, certification bodies, academia and national standards bodies (NSBs). The first meeting addressed, inter alia, the balance and composition of SGDG, and SGDG recognizes the importance of continually reviewing the membership and stakeholder participation within the group.

SGDG’s first meeting also agreed on some fundamental issues, including a draft contents and outline structure for further development of the guide. This will cover the introduction, scope, terms and definitions; understanding sustainability in the context of standards writing; guidance/process for integrating sustainability into standards development; and sustainability issues.

The guide will follow a layered engagement process during the development process:

- During the preparatory stage, expert consensus will be built in SGDG (working draft)
- Once SGDG reaches a consensus on the draft guide, there will be a consultation among the national member bodies represented on the group (committee draft)
- Following the committee draft consultation (and revision), there will be a consultation among ISO committees (TCs, project committees, working groups)
- The final stage will be a ballot among all ISO members for approval of the guide (draft industrial standard).

SGDG’s first meeting made excellent progress, and two meetings are planned between now and the end of January 2011. It is anticipated that a committee draft will be available for consultation in February 2011.

For more information, contact Amanda.Richardson@bsigroup.com or clivio@iso.org.
ANSI / ASSE Standards Catalogue


New Standards

ANSI/ISEA Z87.1-2010 American National Standard for Occupational and Educational Personal Eye and Face Protection Devices

ANSI/ASSE A10.11-2010 Safety Requirements for Personnel & Debris Nets


ANSI/ASSE Z390.1-2006 (R2010) (Spanish) Accepted Practices for Hydrogen Sulfide Safety Training Programs

Aerial Work Platforms

ANSI A92.2-2009 Vehicle-Mounted Elevating and Rotating Aerial Devices

ANSI A92.3-2006 Manually Propelled Elevating Aerial Platforms

ANSI A92.5-2006 Boom-Supported Elevating Work Platforms

ANSI A92.6-2006 Self-Propelled Elevating Work Platforms

ANSI A92.8-2006 Vehicle-Mounted Bridge Inspection and Maintenance Devices

ANSI A92.10-2009 Transport Platforms

Construction & Demolition Standards (A10)

ANSI/ASSE A10 Crane Safety Standards Package

ANSI/ASSE A10 Construction Safety Standards Package

ANSI/ASSE A10.3-2006 Powder-Actuated Fastening Systems

ANSI/ASSE A10.3-1995 Powder-Actuated Fastening Systems

ANSI/ASSE A10.4-2007 Personnel Hoists & Employee Elevators on Construction & Demolition Sites

ANSI/ASSE A10.4-2004 Safety Requirements for Personnel Hoists & Employee Elevators

ANSI/ASSE A10.5-2006 Safety Requirements for Material Hoists

ANSI/ASSE A10.6-2006 Safety & Health Program Requirements for Demolition Operations

ANSI/ASSE A10.6-1990 (R1998) Safety Requirements for Demolition Operations


ANSI/ASSE A10.8-2001 Safety Requirements for Scaffolding

ANSI/ASSE A10.9-1997 (R2004) Safety Requirements for Concrete & Masonry Work


ANSI/ASSE A10.11-2010 Safety Requirements for Personnel & Debris Nets

ANSI/ASSE A10.11-1989 (R1998) Safety Requirements for Personnel & Debris Nets (withdrawn)

ANSI/ASSE A10.12-1998 (R2010) Safety Requirements for Excavation

ANSI/ASSE A10.13-2001 Safety Requirements for Steel Erection

ANSI/ASSE A10.14 Fall Protection Systems for Construction & Demolitions (withdrawn)


ANSI/ASSE A10.16-2009 Safety Requirements for Tunnels, Shafts & Caissons

ANSI/ASSE A10.16-2009 with Comparison Document: Safety Requirements for Tunnels, Shafts & Caissons

ANSI/ASSE A10.16-1995 (R2001) Safety Requirements for Tunnels, Shafts & Caissons
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OSHA Standards for Construction Industry, 29 CFR Part 1926 (Book Version)


**Safety Practices, Procedures & Training**

- ANSI/ASSE Z117.1-2009 with Comparison Document
- ANSI/ASSE Z117.1-2009 Safety Requirements for Confined Spaces
- ANSI/ASSE Z117.1-2003 Safety Requirements for Confined Spaces
- ANSI/ASSE Z117.1-1995 Safety Requirements for Confined Spaces (for historical purposes only)
- ANSI/PMMI B155.1-2006 Safety Requirements for Packaging Machinery & Packaging-Related Converting Machinery
- ANSI/ASSE Z490.1-2009 with Comparison Document
- ANSI/ASSE Z490.1-2001 Criteria for Accepted Practices in Safety, Health & Environmental Training (for historical purposes only)

**Personal Protective Equipment**

- ANSI/ISEA Z87.1-2010 American National Standard for Occupational & Educational Personal Eye & Face Protection Devices
- ANSI Z87.1-2003 Occupational & Educational Eye & Face Protection Devices (for historical purposes only)
- ANSI Z87.1-1989 (R1998) Practice for Occupational & Educational Eye & Face Protection (for historical purposes only)
- ANSI/ISEA 103-2010 American National Standard for Classification and Performance Requirements for Chemical Protective Clothing
- ANSI/ISEA 105-2005 American National Standard for Hand Protection Selection Criteria
- ANSI/ISEA 113-2008 American National Standard for Fixed & Portable Decontamination Shower Units
- ANSI/ISEA 207-2006 American National Standard for High-Visibility Public Safety Vests
- ANSI/ISEA Z308.1-2009 American National Standard: Minimum Requirements for Workplace First-Aid Kits & Supplies
- ANSI/ISEA Z89.1-2009 American National Standard for Industrial Head Protection
Fall Protection/Arrest

Z359 Fall Protection Code Version 2.0

ANSI/ASSE Z359.6-2009 Specifications & Design Requirements for Active Fall Protection Systems

ANSI/ASSE Z359.12-2009 Connecting Components for Personal Fall Arrest Systems


Special Offer: 3-Pack Bundle of Z359.6, Z359.12 & Z359.13

ANSI/ASSE Z359.0-2009 Definitions & Nomenclature Used for Fall Protection & Fall Arrest (free download)

ANSI/ASSE Z359.1-2007 Safety Requirements for Personal Fall Arrest Systems, Subsystems & Components

ANSI/ASSE Z359.2-2007 Minimum Requirements for a Comprehensive Managed Fall Protection Program

ANSI/ASSE Z359.3-2007 Safety Requirements for Positioning & Travel Restraint Systems

ANSI/ASSE Z359.4-2007 Safety Requirements for Assisted-Rescue & Self-Rescue Systems, Subsystems & Components


Free Standard
Join the Ergonomics Practice Specialty by March 31, 2011, e-mail tfisher@asse.org your ASSE member number and receive a free electronic copy of the standard, “Reduction of Musculoskeletal Problems in Construction” (ANSI/ASSE A10.40-2007) (up to a $69 value).

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Outcome of NFPA Life Safety Code Meeting
The NFPA Life Safety Code Mercantile and Business Committee met on October 18, 2010. Following is ASSE representative David Dodge’s account of the meeting.

Of the several proposals to make changes to the Life Safety Code, most did not affect the safety of personnel within the mercantile and business buildings, and they were acted upon favorably toward public safety. However, two proposals submitted by the U.S. General Services Administration (which is represented on the committee), although rejected by the committee, will probably come back to the committee in another form and may affect public safety.

The first proposal would have created a definition of a high-density business occupancy, such as a call center, where many people are in a relatively small area. The committee rejected the proposal because there was no definition of the term “concentrated use,” which would have become part of the code. The proposed change may reduce the number of exits required.

The second proposal would have allowed an atrium (a large open space covering several floors vertically) to essentially be a fire break between the sides of a building if the atrium were in the interior of the building, thus allowing a reduction in the now-required two-hour fire separation rating at the atrium wall to one hour. The proposal was intended to reduce building costs. The proposal was rejected by the committee, although it will most likely be resubmitted in a revised form.
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