

Standards of Safety in Construction and Demolition Operations A10 Series: The Systems Approach to Construction Safety

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Standard Comparison is Increasingly Important

The purpose of safety and health standards are to assist in the prevention of accidents and injuries. Standards also serve the purpose of giving guidance to industries, public officials and other parties interested in understanding the science and importance of standard development. Standards should provide technical expertise from experts in the field and raise awareness of solutions to potential hazards. Standards should also help establish best practices that provide effective planning and development of programs, policies and procedures to reduce losses. A problem inherent with standard development is conflict and differences in standard developed by various organizations and nations. Conflicting standards are confusing to the users and lead to the next big step in the standards development process, which is the comparison of various standards and methodologies from various organization and nations.

The Internet has increased the awareness of and accessibility to standards for safety professionals, employers, workers and other interested individuals. Better access to safety and health standards lends itself to the opportunity of comparison and contrast of different techniques, technologies and specifications. There are different types of standards to be examined from performance-oriented standards, specification standards and even preliminary standards that take the form of experiments and technical reviews.

In any form, safety and health standards must be a useful tool for employers, workers, managers, safety professionals and others when their job involves responsibility for or involvement with worker safety and health. Those in responsible positions need to look at a comparison of standards as a resource and they must possess the skill to determine not only the difference between standards which require mandatory compliance but also voluntary and advisory standards which will be useful in their efforts to reduce injuries and illnesses. Successful safety and health professional must be in a position to compare and contrast the content and effectiveness of the various safety and health standards available from many organization and nations. The user can review related standards and utilize the content that will be most effective for creating and sustaining safe and healthful work environments. This is true whether the standards being used are mandatory or voluntary.

In the future, it is likely that there will be greater interest and importance associated with comparison and contrast for all standards. This is an ongoing task for the Standards Development Committee (SDC) of the American Society of Safety Engineers (ASSE). This paper is limited to the comparison and contrast between OSHA standards and ANSI A10 standards for construction and demolition operations.

The Problem

Many OSHA mandatory enforcement standards are out of date and OSHA has had increasing difficulty promulgating new standards for mostly political reasons. These standard delays are affecting the operation of the entire safety and health profession. Many of us recognize that we have been working with OSHA regulations that are not always in touch with modern thinking and technology. OSHA has also recognized this problem and has discussed the need for updating their own standards in numerous publications, including their current initiative to update Federal construction standards. In OSHA's December 6th, 2012 Trade News Release OSHA has been actively soliciting input from safety professionals and interested parties for the update of their construction standards. The following excerpt from that news release provides insights as to the need for updated construction standards.

“OSHA requests recommendations to update its construction industry standards”

WASHINGTON – “The Occupational Safety and Health Administration is issuing a Request for Information to initiate the fourth phase of its Standards Improvement Project (SIP). The purpose of SIP-IV is to improve and streamline existing OSHA construction standards by removing or revising requirements that are confusing or outdated, or that duplicate, or are inconsistent with, other standards. The agency invites the public, including employers, employees, and employee representatives to submit recommendations for revisions to existing construction standards and the rationale for these recommendations.”

In spite of their age, OSHA standards remain the most important standards from the standpoint of compliance and legal liability since they are associated with enforcement activity. OSHA standards set the minimum requirements for safety and health, and they are enforceable with fines and even criminal sanctions. OSHA standards spell out employer responsibilities either explicitly through specification standards, or more generally and with greater latitude through performance-based standards. OSHA has written their share of standards from scratch, but many of the original OSHA standards are consensus standards, which were adopted from voluntary standard setting organizations such as the National Fire Protection Association (NFPA) and the American

Short History of Consensus Standards

National Standards Institute (ANSI). Consensus standards are voluntary standards that are written by professionals representing the interest of parties involved in the standards subject matter. Some of the earliest standards in America include those of the National Fire Protection Association (NFPA) and the National Electrical Code (NEC), which were established in the late 1800's. ANSI's origin occurred in the United States in the late 1910's and early 1920's. The original name of the organization was the American Engineering Standards Committee (AESC). This group was itself a national coalition of professional groups and societies that existed at that

time. The organizations participating were some of the most well-recognized in America including the American Institute of Electrical Engineers (now IEEE), the American Society of Mechanical Engineers (ASME), the American Society of Civil Engineers (ASCE), the American Society for Testing Materials (now ASTM International) and the American Institute of Mining and Metallurgical Engineers (AIME). This alliance was intended to form an objective group that would join forces to develop new standards, which were more widely accepted by all. Many of the OSHA standards as they were adopted from consensus standards did not fully consider the human element. In addition, there was no mechanism established to fully incorporate advances in technology found in some consensus standard. OSHA Standards which were originally designed for equipment and materials were not being modified to effect developments in the safety and health profession, which were increasingly directed towards human interaction. These are areas now known as human factors and ergonomics. The OSHA standards which have in their origin the adoption of consensus standards have not been significantly updated since the implementation of the OSH Act.

The future of standards

Today with websites like goggle and yahoo access to various standards are available with a few clicks. There are also additional web pages dedicated to specific safety and health topics of every imaginable type. There are also links to consensus standards and documents to be referenced to provide additional guidance for almost any area of interest. These sources plus the use of other referenced material, such as those provided by ANSI, NFPA, NIOSH and others, have made it more and more obvious that standards are not always consistent, can be confusing and must be compared and contrasted. At the same time, there is much greater access to important safety and health information. Today if employers and safety and health professionals wish to provide workers with the feasible protection from safety and health hazards, they must be aware of, and utilize a myriad of mandatory and consensus standards. It is only through the utilization of worldwide standards that safety and health professionals can gain an understanding of the state of the art.

The Solution

OSHA itself recognizes that many consensus standards are far more current, updated and consistent than OSHA standards. This recognition by OSHA demonstrates the importance and validity of consensus standards and underscores the need for the continued development and comparison of consensus standards by safety professionals from around the world. It is through the dedication and diligence of today's safety and health professionals that we are able to produce up-to-date consensus standards that are consistent with current thinking and best practices.

Generally, when OSHA inspects a workplace, any citations issued will pertain to alleged violations of established OSHA regulations such as the OSHA Construction Regulations, CFR Part 1926. However, OSHA has a mechanism in place where voluntary consensus standards may be cited in areas where those applicable consensus standards are recognized and accepted in the specific industry sectors to which they pertain.

On occasion, when OSHA inspects a workplace and finds hazards to which employees are exposed and for which no current OSHA standard exists, OSHA will issue a citation to the employer under Section 5 (a) (1) of the Occupation Safety and Health Act. These citations have come to be known as 'General Duty Clause' violations. This is the main means that OSHA has to make compliance with an otherwise voluntary standard mandatory for a particular employer.

This fact illustrates the power and importance of voluntary standards. It is not enough for employers to simply say we comply with OSHA. Employers have a duty to identify and control all potential hazards to which their employees are exposed that are likely to cause death or serious harm. In most cases, such compliance will require the evaluation and comparison of consensus standards.

About the A10

Voluntary standards such as those promulgated and published by ANSI, ASTM, NFPA and many other bodies including the ANSI A10 Subgroup in construction provide current thinking and include best practices. Employers and others who have an interest in providing workers with the best protections available will obtain and use these important consensus standards. The use of and compliance with applicable consensus standards, in addition to mandatory OSHA standards provide employers and safety and health professionals with the tools and framework they need, in order to fulfill their obligation to employees under the General Duty Clause. It is widely recognized that consensus standards augment efforts to help ensure effective protection. Consensus standards like those of ANSI A10 help construction employers recognize, understand and raise their awareness of potential safety and health hazards facing construction workers and provide best practices to be used to help control these hazards.

The ANSI Accredited A10 Committee (ASC) is one of the longest existing voluntary national consensus standards committee in the United States. Founded originally in 1944, the A10 ASC writes and interprets voluntary national consensus standards relating to the protection of employees and the public from hazards arising out of, or associated with, construction and demolition operations.

SH&E professionals working in construction and other industries have particular interest in these standards for a variety of reasons including the fact that they are recognized in both the public and private sectors. Specifically, the A10 Standards have extensive recognition in the standards of the U.S. Department of Labor Occupational Safety and Health Administration and by a series of other national and state government agencies. At the private sector level A10 Standards are widely cited and required in different contracts and work agreements. A10 standards for the construction industry often include new areas of technology and newer concepts such as “best practices” and “leading and lagging indicators” which are needed for modern construction activity.

Fall Protection is a One Good Example

There is new thinking about fall protection and fall protection technology. ANSI's Z359.1 “American National Standard Safety Requirements for Personal Fall Arrest Systems, Subsystems and Components” is much more comprehensive than existing OSHA fall protection requirements. The new ANSI standards include more specific guidance as to the administration of an effective fall protection program. Modern elements included in this consensus standard which are not found in the current OSHA regulation include specific and detailed provisions covering fall protection equipment including the importance of understanding and providing adequate anchorage, which when misunderstood can lead to worker injury or death. Additional modern elements of the ANSI standard include provisions for competent program administrators, documented inspection of equipment, component compatibility, training, rescue, manufacturer's instructions and warnings and hazards to consider for effective job safety analysis.

This is just one example where the ANSI standard is becoming widely disseminated, discussed and used. With this trend, it can be seen that the consensus standard may supplant mandatory standards, and will become the dominant standards used in the industry.

There are additional areas of importance which have represented change in the safety standard arena in which consensus standards are superseding OSHA standards:

- Green technology;
- Leading and lagging indicators (as mentioned above), which are being used increasingly to determine safety management effectiveness, which may have impact on all the standards.
- New standards being developed for wind turbines and telephone towers.
- Ergonomic and human factors standards (A10.40); and
- Health standards for construction (A10.49).

Updating of Standards

The updating of standards is crucial. ANSI and A10 standards are required to be updated every five to ten years.

ANSI A10 Construction Standards provide important updates for standards such as for power actuated fastening tools, elevators, and personnel and material hoists. The A10 Standards are revised and updated and the most current standards are used. A10 standards are more current to the industry and reflect accepted practices, procedures, and useable technology. It is no longer appropriate to continue the recognition of standards written over forty years ago when better and more modern standards are available now.

ANSI and A10 now have a more prominent and important role on the leading edge for safety information to the construction industry. The construction industry must have the latest most modern standards and information. Fall Protection, Ergonomics, Turbine and Telecommunication construction standards are all examples of new and updated ANSI standards which are anticipating and meeting the needs of today's construction industry. Because of standards such as ANSI A10 tomorrow's safety professionals will be more aware of, recognize the importance of, and utilize ANSI standards as a major component of their overall safety and health and compliance programs.

References

'Standards Comments CFR 1926'; Table; Tim Fisher, CSP, Author

'ANSI – Historical Overview'

(http://www.ansi.org/about_ansi/introduction/history.aspx?menuid=1#.UTP9MTe2Yfg)

ANSI/ASSE A10 Accredited Standards Committee (ASC) for Construction and Demolition Operations; Richard King, CSP, Author Source ASSE Professional Development Conference and Exposition, June 11 - 14, 2006, Seattle, Washington Copyright 2006. American Society of Safety Engineers

'History Of The NFPA Codes and Standards-Making System'

(<http://www.nfpa.org/assets/files/pdf/historynfpacodesstandards.pdf>)

'Understanding ANSI Z359' (<https://www.millerfallprotection.com/pdfs/ANSI-Z359Standard/Understanding%20ANSI%20Z359.pdf>)