OSHA’s New Confined Spaces in Construction: 1926.1200 Compared With ANSI Z117.1 Revised 2015

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Introduction

When an employee enters a confined space in construction, the employer is required to be in compliance with the new 1926.1200 standard: Confined Spaces in Construction. This session will compare the regulatory requirements of OSHA’s new standard for confined spaces in construction with the newly revised ANSI Z117.1 standard Safety Requirements for Entering Confined Spaces. The ANSI Z117.1 standard has been used for many years to support a general duty clause citation paragraph 5(a)(1) of the OSH Act -PL91-596, when a construction activity was not covered by a specific section in the 1926 regulations such as but not limited to the following: 1926.21 Safety training and education, 1926.353 Ventilation and protection in welding, cutting and heating, 1926.800 Underground construction, or 1926.956 Underground lines.

This session will present an overview of the new OSHA 1926.1200 confined spaces standard and also compare it with the existing general industry permit-required confined space standard 1910.146 and the applicable sections of the revised ANSI Z117.1 standard. This session will compare the key areas of the new standard such as: definitions, training, testing, permits and rescue for each of the following entry team members: Entry Supervisor, Attendant, Entrant, Atmospheric Tester, and Rescue Personnel. Also discussed are selected new or improved sections in 1926.1200 and ANSI Z117.1. This session is designed with enough detail to reach the intermediate level of attendee’s knowledge of confined spaces, however comprehensive enough to offer technical information to an advanced audience. The attendee will go away with an appreciation of the enforcement aspects of the new construction confined spaces standard, however will also gain knowledge and best practices and recommendations from an accredited standard committee (ASC) that has had a consensus standard for entering and working safely in confined spaces for over 30 years.

The occupational safety and health administration (OSHA) for general industry in 29 CFR 1910 has for over 20 years contained section .146 entitled Permit-required confined spaces, which specifies requirements for employers covered under OSHA, to ensure workers enter, work & exit safely permit spaces.1

This session addresses safe entry into confined spaces in construction. It compares the new section 1926.1200 (Confined Spaces in Construction) with the existing general industry 1910.146 and the newly revised ANSI Z117.1 2015 standard. The new construction standard is very similar to the general industry standard, however is slightly modified to address the construction
industry and some of the differences in activities that make construction unique as compared to 1910.146 and even ANSI Z117.1.

1910.146, which is law in general industry for permit-required confined space entry, first requires that spaces meet the definition of confined space which is identical for 1926.1200, however slightly differs from the ANSI Z117.1 which I have included for comparison:

1910.146 and 1926.1200 definition of confined space.

(1) Is large enough and so configured that an employee can bodily enter and perform assigned work; and

(2) Has limited or restricted means for entry or exit (for example, tanks, vessels, silos, storage bins, hoppers, vaults, and pits are spaces that may have limited means of entry.); and

(3) Is not designed for continuous employee occupancy.

ANSI Z117.1 Confined Space definition.

Enclosed area large enough and configured to allow a person to bodily enter and has the following characteristics:

- Its primary function is other than human occupancy.
- Has restricted entry and exit. (Restricted entry and exit is a physical configuration, which requires the use of the hands for support or contortion of the body to enter into or exit from a confined space.)

Permit-required confined space definition is the same for general industry 1910.146 as it is for the new confined spaces in construction standard 1926.1200 also referred to as (permit space) or PRCS, and states the following: first it must meet the definition of a confined space that:

(1) Contains or has a potential to contain a hazardous atmosphere;

(2) Contains a material that has the potential for engulfing an entrant;

(3) Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or by a floor which slopes downward and tapers to a smaller cross-section; or

(4) Contains any other recognized serious safety or health hazard.

ANSI Z117.1 Permit Required Confined Space (PRCS) definition.

A confined space, which after evaluation, is found to contain actual or potential serious hazards. Because of the severity of the hazards, the confined space requires written authorization for entry.

There are some other definitions that are slightly different in the new construction standard than the general industry standard. I will elaborate on them in my session when the standard becomes official, hopefully prior to the June ASSE safety and health conference.

Training of the Entry Team
Both 1926.1200 and 1910.146 have very similar if not identical training requirements and that is:
The employer shall provide training so that all employees whose work is regulated by this section acquire the understanding, knowledge, and skills necessary for the safe performance of the duties assigned under this section. The employer shall ensure the training is provided:

- To each affected employee
- Before the employee is first assigned duties under this section
- Before there is a change in duties
- Whenever there is a change in permit space operations
- When any new hazards are introduced or employee’s knowledge is deficient
- To establish employee proficiencies

Both federal standards 1910.146 and 1926.1200 discuss the duties of the team members such as knowledge of the hazards and their specific job tasks i.e. the attendant should not leave their post and order evacuation of the entrant and notify the rescue service, however neither standard goes into any great detail. The ANSI standard Z117.1 offers more advice and gives examples and discusses what to do when unforeseen events occur such as sudden weather changes, equipment failure or a rescue service is not available or blocked from getting to the site. These training requirements that OSHA has are minimum requirements. The employer can always go beyond and follow other standards.

The ANSI Z117.1 revised in 2015 elaborates on employee training by following the guidelines in Z490.1 Accepted Practices in Safety Health and Environmental Training. The ANSI Z117.1 section 15 outlines individual team member training in great detail giving examples, best practices and emphasizes proficiency through testing and hands-on workshops. ANSI Z117.1 and ASSE believes Z490.1 and Z117.1 go well beyond the minimum requirements of OSHA.

Atmospheric Testing
The new confined spaces in construction standard addresses that the test instrument needs to be approved for the location and be calibrated. It also goes through the order of testing i.e. % Oxygen first, then LEL and last toxics. Prior to entry, the standard states in 1910.146 paragraph (c)(5) (Alternate entry procedures) the atmosphere shall be tested with a calibrated instrument. This is not specified in 146(d)(5) or appendix B These paragraphs listed are referencing the general industry standard, because at the time of this writing the construction confined space standard has not been finalized, so the paragraph numbers are not known, however both atmospheric testing requirements are very similar to each other and neither federal OSHA standard discusses bump or function testing of the instrument, sensor interferences or how to conduct remote sampling.

The ANSI Z117.1 revised 2015 supplies the reader very detailed information on ensuring the test instrument is functioning properly and how to use it. This is discussed in section 6, Atmospheric Testing and section 15.5 under training of the atmospheric tester. Again the ANSI Z117.1 goes well beyond the minimum requirements specified by OSHA in general industry and construction.

Permits
Entry permits provided in the non-mandatory Appendix D of 1910.146 sample 1 is missing data specified in paragraph (f) Entry Permits. Acceptable limits or ranges are not specified for all substances, a list of the entrants and what time they enter and exit is missing, purpose of the entry is not work to be performed, initial toxic test only lists H2S, etc. Sample 2 is better, however location of the atmospheric test is missing and blank spaces for other toxics like chlorine, CO2, formaldehyde or others.
The confined spaces in construction new standard does a better job of presenting permit examples that reflect construction activities and fairly closely complies with the permit section of the standard. All of the team members are listed and accounted for on these new permits along with the hazards and controls.

The ANSI Z117.1 standard, in the appendices, gives examples of permits that the employer can use that contain all the necessary information required on a permit plus provides an example of a hot work permit the employer can use. Z117.1 offers a more complete choice of permits than the current federal standards.

Rescue Services
The new confined spaces in construction standard has a very complete paragraph on rescue that is more complete than the paragraph 1910.146 (k). 1926.1200 addresses such rescue issues as remote construction sites and the availability of rescue services and 24-hour work activity that may require a rescue service in the middle of the night. It covers rescue equipment, such as harnesses, lifelines and lifting devices in greater detail than 1910.146 by addressing such issues as rescue from elevated heights such as a water tower under construction or the new electric wind turbine towers and many more exciting stuff yet to be revealed.

The ANSI Z117.1 not only addresses the rescue services equipment, capabilities and proficiencies in section 14 but also elaborates on the training of the rescue team in section 15.

Other New or Expanded Sections
The new 1926.1200 construction standard or the general industry standard 1910.146 does not have a section addressing entry into non-permit spaces or spaces that do not meet the definition of confined space, or confined spaces that do not meet the definition of a permit-required confined space.

However the consensus standard, American National Standards Institute, ANSI Z117.1 “Safety Requirements for Confined Spaces” does have requirements for entering non-permit confined spaces in section #4 and there by addresses entry into spaces that do not meet the permit-required confined space definition. This section has been revised in 2015 and includes examples of a SWP.

ANSI Z117.1 2009 states in section 4, the employer shall specify what conditions and precautions must be in place to allow for safe entry…These are requirements for employers who have employees enter non-permit confined spaces. The ANSI standard mandates employers to develop procedures to be followed when employees enter non-permit confined spaces (NPCS). They shall include at a minimum:

1. Controls specifying conditions and precautions for safe entry.
2. Training specific enough to ensure competence.
3. Re-evaluation periodically to ensure the space is still a NPCS.
4. Atmospheric testing and what change in conditions would require a re-evaluation.

For example, the employer after evaluation of the hazards determines that the hazards are low or not serious, the space can be classified as a non-permit space and recommends the following safe work procedures (SWP) to be followed:

1. Test the space prior to entry with a calibrated 4-gas instrument.
2. Train all entrants in all possible hazards and these specific entry procedures.
3. Use a buddy system every time when entering using two or more individuals.
4. Always inform the area supervisor when entering and exiting the space.
5. One entrant carries a 4-gas monitor with them while in the space.

This SWP can be in the form of a checklist or a text message to the supervisor. i.e.

**SWP Checklist**
- Space #422 was tested with a 4 gas meter and was OK
- All entrants were trained in the spaces hazards and these procedures
- List by name who will enter space _____________________ & _____________________
- Document Date & time of entry here. Date: _______________ Time: ____________
- Supervisor ___________________________________ has been notified
- Entrant ________________________________ has a 4 gas meter in space
- Entrant ________________________________ has an effective communication device – NA?

**SWP Text Message Information To Supervisor**
- Space # 422 tested OK
- TWK & LDB to check fluid levels in space
- Entering w/4 gas meter @ 2:15PM for approximately 30 minutes
- TWK & LDB out of space # 422 @ 2:42 PM.
- Conditions in space were stable and predictable

**IN SUMMARY**

The new confined space standard in construction 1926.1200 is almost identical to the permit-required confined space standard in general industry 1910.146 with the differences discussed in this presentation. This session also compared the newly revised ANSI Z117.1 2015 standard and indicated the ANSI standard, in many areas of confined space work activities, goes beyond the minimum requires of the federal regulations to offer the public more technical information and guidance with examples that will assist employers in providing for a safe entry, work and exit from confined spaces.

**Bibliography**


American National Standards Institute (ANSI)/ASSE Z117.1 - 2015 – Safety Requirements for Confined Spaces
Occupational Safety and Health Administration (OSHA) 2013. 29 CFR 1910.147, The control of hazardous energy (lockout/tagout) http://www.osha.gov