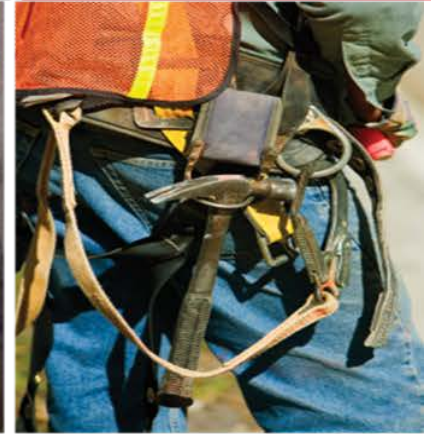


CONSTRUCTION



CONSTRUCTION

OVERVIEW: CONFINED SPACES IN CONSTRUCTION

HOW DO I COMPLY?

CNA



Construction Work in Confined Spaces

CONSTRUCTION

When does it take effect?

- August 3, 2015 - Subpart AA of 29 CFR 1926.1201 – 1926.1213
- Update July 8, 2015: OSHA will postpone full enforcement of the new standard for 60 days from the effective date of August 3, 2015 to October 2, 2015.

What is its purpose?

- Prevent Injuries by eliminating & isolating hazards

Construction is Different from General Industry Confined Spaces...

- If workers are engaged in both construction and general industry work in confined spaces, then OSHA requirements are met if construction standard used (but not necessarily vice versa).



What it Does Not Cover

CONSTRUCTION

- **Deletes 29 CFR1926.21(b)**
 - Enclosed Spaces definition.
- **Subpart P Trenching and Excavation**
 - Although these spaces may meet the criteria & definition of a confined space they are covered by other subparts of the construction standard
- **Subpart S Underground Construction, Cofferdams, Caissons, Compressed Air**
- **Subpart V Power Transmission and Distribution**
 - Enclosed spaces unless hazardous atmosphere then subpart AA applies



Terms to Know

CONSTRUCTION

What is a confined space?

A confined space has:

- Limited means of entry and/or exit
- Is large enough for a worker to enter*, and
- Is not intended for regular/continuous occupancy.
 - Examples include sewers, pits, crawl spaces, attics, boilers, etc.
- A **permit space** is a confined space that may have any additional hazard such as engulfment, electrical, atmospheric, etc.



Manholes/Sewers



Crawl Spaces/Attics



Boilers



Terms to Know

CONSTRUCTION

- **Host employer** is the employer that owns or manages the property where the construction work is taking place
- **Controlling Contractor** is the employer that has overall responsibility for construction at the worksite.
- **Entry Employer** is any employer who decides that an employee it directs will enter a permit space.
- **Entry rescue** is when the rescue service enters a permit space to rescue employees.
- **Competent person** is capable of identifying hazards in workplace and authority to correct them immediately.
- **Engulfment** is the hazard of suffocation or being crushed by liquid or “flowing” solid material: Dirt, sand, gravel, cement, asphalt, grain
- **Early-warning system** is an alert that engulfment hazard may be developing: Remote sensor alarms, lookout persons



FAQ

CONSTRUCTION

“Can anyone work in a permit space?” No.

- Only workers who have been assigned and **trained** to work in a permit space may do so.
- Before workers can enter a permit space, the employer must issue a permit that specifies what safety measures must be taken and who is allowed to enter the space.

“How do I know whether to follow the General Industry or Construction confined space rule?”

- If you are performing construction work - such as building a new structure or upgrading an old one - then you must follow the construction confined space rule.





FAQ

CONSTRUCTION

“I’ve been following the General Industry Confined Space rule. What is new or different about the Construction rule?”

- There are 5 key differences between the General Industry rule and the Construction rule.

The Construction rule:

1. Contains more detailed provisions requiring coordinated activities when there are *multiple employers* at the worksite. This will ensure that hazards are not introduced into a confined space by workers performing tasks outside the space. An example would be a generator running near the entrance of a confined space, causing a buildup of carbon monoxide within the space.



FAQ

CONSTRUCTION

“I’ve been following the General Industry Confined Space rule. What is new or different about the Construction rule?”

- There are 5 key differences between the General Industry rule and the Construction rule.

The Construction rule:

2. Requires a *competent person* to evaluate the work site and identify confined spaces (including those that need to be designated as *permit* spaces).



FAQ

CONSTRUCTION

“I’ve been following the General Industry Confined Space rule. What is new or different about the Construction rule?”

- There are 5 key differences between the General Industry rule and the Construction rule.

The Construction rule:

3. Requires continuous atmospheric monitoring whenever possible.



“I’ve been following the General Industry Confined Space rule. What is new or different about the Construction rule?”

- There are 5 key differences between the General Industry rule and the Construction rule.

The Construction rule:

4. Requires continuous monitoring of *engulfment* hazards. For example, when workers are performing construction work in a storm sewer, an upstream storm could cause flash flooding. An electronic sensor or observer posted upstream from the work site could be used to alert workers in the space at the first sign of the hazard.



“I’ve been following the General Industry Confined Space rule. What is new or different about the Construction rule?”

- There are 5 key differences between the General Industry rule and the Construction rule.

The Construction rule:

5. Allows for the temporary *suspension* of a permit in the event of changes from the entry conditions list on the permit or an unexpected event requiring evacuation of the space. The space must be returned to the entry conditions listed on the permit before re-entry.



FAQ

CONSTRUCTION

“In addition, OSHA has added provisions to the new Construction rule that clarify existing requirements in the General Industry standard.”

The Construction rule:

- Requires that employers who direct workers to enter a space without using a complete permit system prevent workers' exposure to physical hazards through elimination of the hazard or isolation methods such as lockout/tagout.
- Requires that employers who are relying on local emergency services for emergency services to arrange for responders to give the employer **advance notice** if they will be unable to respond for a period of time (in case they are responding to another emergency, attending department-wide training, etc.).
- Requires employers to provide training in a language and vocabulary that the worker **understands**.



“How does the new final Construction rule differ from the rules that previously applied to construction work performed in confined spaces?”

- The new final rule requires employers to determine:
 - What kinds of spaces their workers will be working in
 - What Hazards could be there
 - How hazards should be made safe
 - What training workers should receive
 - How to rescue workers if anything goes wrong



FAQ

CONSTRUCTION

“Are employers required to have a written confined space program?”

- Yes, if workers will enter *permit* spaces.

“Who is affected by the new rules?”

- **All** employees whose workers may be exposed to confined space hazards while performing construction work.

“Do I need to do anything if there are permit spaces at the worksite, but my employees will not need to enter those spaces?”

- Yes, you must take effective steps to prevent your employees from entering those spaces.





FAQ

CONSTRUCTION

“If I hire a contractor (or subcontractor) who will be performing work in a confined space, what are my responsibilities?”

- The rule makes the *controlling contractor*, rather than the *host employer*, the primary point of contact for information about permit spaces at the work site.
- The *host employer* must provide information it has about permit spaces at the work site to the *controlling contractor*, who then passes it on to the employers whose employees will enter the spaces (*entry employers*).
- Likewise, *entry employers* must give the *controlling contractor* information about their entry program and hazards they encounter in the space. The *controlling contractor* then passes that information on to other *entry employers* and back to the *host employer*.

Sharing Information at the Site

CONSTRUCTION

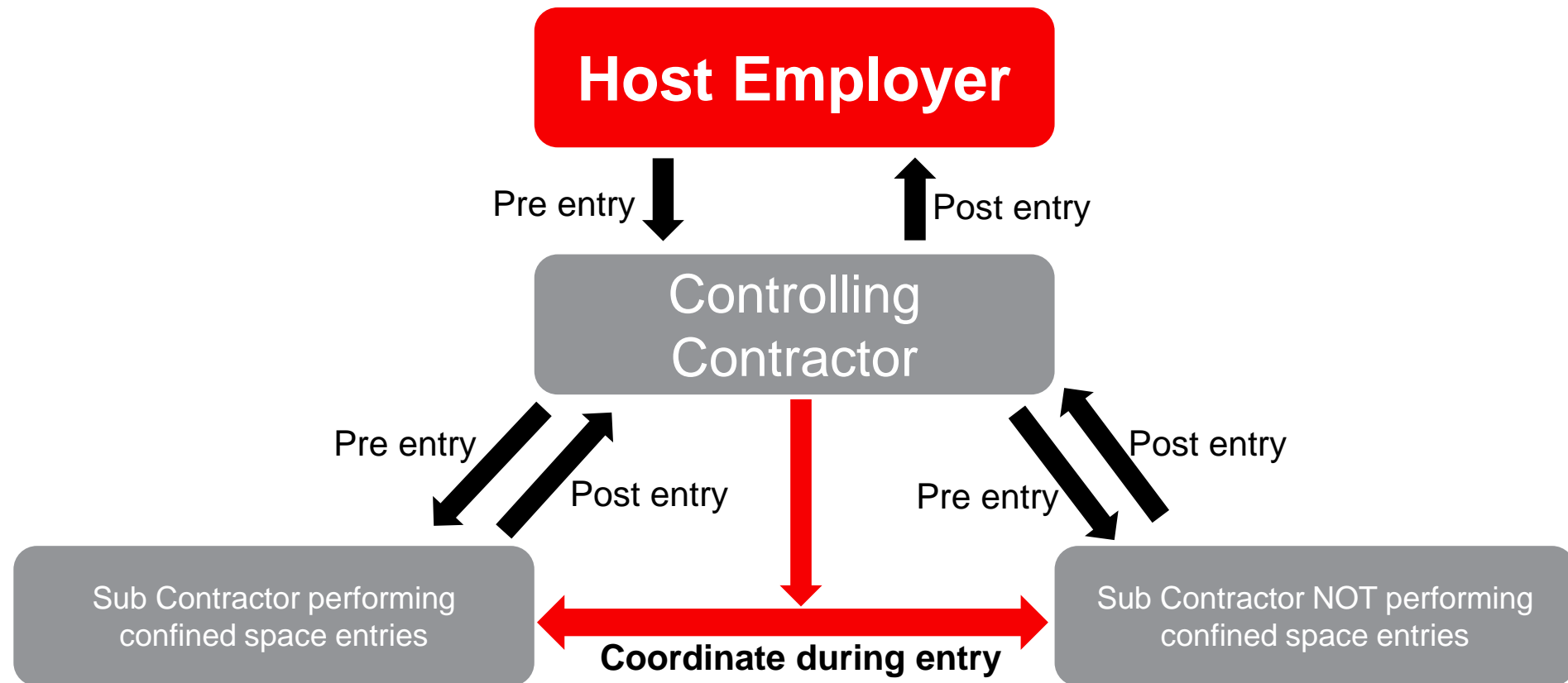
What's Your Role?

- Controlling Contractor vs. Host employer
- Controlling Contractor
 - Share known and discovered hazards with all Entry Employers
- Entry employers
 - Share their entry program and hazards encountered
- Controlling Contractor is responsible
 - Share hazards of confined space with all entry employers
 - Ensure employers outside a space do not create hazards
 - Ensure multiple entry employers do not create hazards for others



Sharing Information at the Site

CONSTRUCTION



The above diagram shows the information flow and coordination between these employers



FAQ

CONSTRUCTION

“What standard should I follow if my workers are performing both construction AND general industry work in confined spaces?”

- An employer whose workers are engaged in both construction and general industry work in confined spaces will meet OSHA requirements if that employer meets the requirements of 29 CFR 1926 Subpart AA – Confined Spaces in Construction.

“Twenty-seven states and territories have their own OSHA-approved safety and health plans; will those states be required to adopt the new standard?”

- Yes. Twenty two states or territories currently operate their own OSHA-approved State Plans (covering private sector and local government employees), and five additional states and one territory (Connecticut, Illinois, New Jersey, New York and the Virgin Islands) operate plans that cover state and local government employees only. Many State Plans adopt OSHA’s standards identically, but some State Plans may have different or more stringent requirements.



How to Confirm the Confined Space is Safe: Test the Space Before Entry

CONSTRUCTION

- Test the atmosphere before entry
- Monitor oxygen content, toxicity, & flammability hazards
- Test all areas at different heights



Source OSHA

Then Record Test Information

CONSTRUCTION

- Date, location, and name of the confined space
- Purpose of entry
- Duration of entry time
- Authorized entrants, attendants, supervisors
- Air testing results
- Emergency services phone numbers
- Signature of the tester

The screenshot displays the OSHA website interface. At the top, the header reads "UNITED STATES DEPARTMENT OF LABOR" and "OSHA". Below the header, a navigation bar includes links for "Home", "Workers", "Regulations", "Enforcement", "Data & Statistics", "Training", "Publications", "Newsroom", and "Small Business". The main content area is titled "Occupational Safety & Health Administration" and "We Can Help". It features a "Regulations (Standards - 29 CFR) - Table of Contents" section with a list of items: "Part Number: 1910", "Part Title: Occupational Safety and Health Standards", "Subpart: J", "Subpart Title: General Environmental Controls", "Standard Number: 1910.146 App D", "Title: Confined Space Pre-Entry Check List", and "GPO Source: e-CFR". Below this, the "Appendix D to §1910.146 -- Sample Permits" section is shown, specifically "Appendix D-1". The form is titled "Confined Space Entry Permit" and includes fields for "Date and Time Issued:", "Date and Time Expires:", "Job site/Space I.D.:", "Job Supervisor:", "Equipment to be worked on:", "Work to be performed:", and "Stand-by personnel:". It also has sections for "1. Atmospheric Checks: Time", "Oxygen", "Explosive", "Toxic", "2. Tester's signature:", and "3. Source isolation (No Entry): N/A Yes No".

UNITED STATES
DEPARTMENT OF LABOR

OSHA

Occupational Safety & Health Administration We Can Help

Home Workers Regulations Enforcement Data & Statistics Training Publications Newsroom Small Business

Regulations (Standards - 29 CFR) - Table of Contents

- Part Number: 1910
- Part Title: Occupational Safety and Health Standards
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- Subpart Title: General Environmental Controls
- Standard Number: 1910.146 App D
- Title: Confined Space Pre-Entry Check List
- GPO Source: e-CFR

Appendix D to §1910.146 -- Sample Permits

Appendix D-1

Confined Space Entry Permit

Date and Time Issued: _____ Date and Time Expires: _____

Job site/Space I.D.: _____ Job Supervisor: _____

Equipment to be worked on: _____ Work to be performed: _____

Stand-by personnel: _____

1. Atmospheric Checks: Time _____

Oxygen _____ %

Explosive _____ % L.F.L.

Toxic _____ PPM

2. Tester's signature: _____

3. Source isolation (No Entry): N/A Yes No

Pumps or lines blinded, disconnected, or blocked () () ()

CNA

Confined Space Permit

CONSTRUCTION

CONFINED SPACE ENTRY PERMIT		1A. NAME OF EMERGENCY CONTACT		1B. TELEPHONE NUMBER	
2. SPECIFIC LOCATION OF SPACE		3. DESCRIPTION OF SPACE			
4. PURPOSE OF ENTRY		5. ENTRY	A. DATE		B. TIME
		6. EXIT	A. DATE		B. TIME
7A. NAME OF SUPERVISOR IN CHARGE OF WORK		7B. TELEPHONE NUMBER		8. NAME OF ENTRANT(S)	
9. NAME OF ATTENDANT		10. NAME OF CONFINED SPACE TESTER		11. WELDING OR "HOT WORK" REQUIRED <input type="checkbox"/> YES <input type="checkbox"/> NO	
12. CONFINED SPACE TEST DATA List specific tests made. Entry is prohibited if reading outside standard permissible entry level (PEL).					
A. SUBSTANCE TESTED	B. PERMISSIBLE LEVEL	C. READING		D. DATE	E. TIME
OXYGEN (%)	>19.5 <22.0				
% OF LOWER EXPLOSIVE LIMIT	10%				
CARBON MONOXIDE	35 ppm				
13A. NAME OF INSTRUMENT(S)		13B. TYPE(S) OF INSTRUMENTS		13C. IDENTIFICATION NUMBER(S)	
				13D. WHEN LAST CALIBRATED	
14. SPECIAL REQUIREMENTS (Explain each "No" answer in item 10)					
YES	NO	ITEM		YES	NO
		A. LOCKOUT - DE-ENERGIZE (Employee retains key)			I. FIRE EXTINGUISHER
		B. SPACE PURGED			J. LIGHTING
		C. VENTILATION			K. EMERGENCY TRIPPOD
		D. AREA SECURED			L. PROTECTIVE CLOTHING
		E. BREATHING APPARATUS			M. LINE CAPPED OR BLANKED
		F. RESUSCITATOR/INHALATOR			N. RESPIRATOR
		G. ESCAPE HARNESS			O.
		H. LIFELINE			P.
15. OTHER SPECIAL REQUIREMENTS (List each and status)					
16A. SPECIFIC PROTECTIVE CLOTHING AND EQUIPMENT REQUIRED				16B. RESPIRATOR	
				<input type="checkbox"/> NEG. PRESS. <input type="checkbox"/> SUPPLIED AIR	
				<input type="checkbox"/> PAPR <input type="checkbox"/> SCBA	
17. COMMUNICATION PROCEDURES DURING ENTRY					
18. ADDITIONAL COMMENTS/REMARKS					
19. RESERVED FOR REGIONAL S&EM DIVISION/BRANCH					
20. I CERTIFY THAT I HAVE READ AND UNDERSTOOD ALL OF THE REQUIREMENTS OF THE CONFINED SPACE ENTRY PROGRAM IMPLEMENTED BY MY GSA FACILITY MANAGER. FURTHERMORE, I WILL COMPLY WITH ALL OF THESE CRITERIA.					
ENTRANT SIGN AND DATE HERE ▶		ATTENDANT SIGN AND DATE HERE ▶			
21. I CERTIFY THAT ALL OF THE ABOVE INFORMATION IS CORRECT AND THE SPACE ENTRANT AND ATTENDANT ARE FULLY COMPETENT TO PERFORM WORK DESCRIBED IN THE ABOVE CONFINED SPACE.					
SUPERVISOR SIGN HERE ▶					DATE
GENERAL SERVICES ADMINISTRATION					

GSA FORM 3625 (10-91)

CNA



Covering Hazardous Conditions

CONSTRUCTION

1. Flammable gas, vapor, or mist in excess of 10% of its lower flammable limit (LFL);
2. Oxygen Deficient <19.5% or Enriched Atmosphere >23.5%
3. Hazardous Airborne Chemical Concentration
4. Temperature Extremes
5. Engulfment Hazards
6. Noise, Slick/Wet Surfaces, Falling Objects, Trip Hazards
7. Mechanical Hazards



Health Effects at Various Carbon Monoxide Gas Levels

CONSTRUCTION

CO ppm	Resulting Condition / Health Effects
35	No noticeable effects, This is OSHA PEL for an 8-hr TWA
200	Possible mild frontal headache in 2 to 3 hours
400	Frontal headache and nausea in 1 to 2 hours
800	Headache, dizziness and nausea in 45 minutes. Collapse and possibly death in 2 hours.
1,600	Headache, dizziness and nausea in 20 minutes. . Collapse and possibly death in 2 hours
3,200	Headache and dizziness in 5 to 10 minutes. . Unconsciousness and danger of death 30 minutes.
6,400	Headache and dizziness in 1 to 2 minutes. Unconsciousness and danger of death 10 to 15 minutes.
12,800	Immediate effect unconsciousness. Danger of death in 1-3 min.



Health Effects at Various Oxygen Deficient Atmosphere Levels

CONSTRUCTION

O2	Resulting Condition / Health Effects
19.5 %	Minimum acceptable oxygen level.
15 - 19%	Decreased ability to work strenuously. Impair coordination. Early symptoms.
12-14%	Respiration increases. Poor judgment. Reduced physical and intellectual performance without awareness.
10-12%	Respiration labored. Lips blue. Nausea and vomiting.
8-10%	Mental failure. Fainting, Nausea, Unconsciousness, Vomiting.
6-8%	4-5 minutes - possible recovery, 6 minutes - 50% fatal, and 8 minutes - fatal.
4-6%	Coma almost instantaneously. Dead



Photoionization detectors can detect volatile organic compounds (VOCs)

CONSTRUCTION

- Common types of PID lamps are 9.8, 10.6 or 11.7 electron volts (eV).
- The 10.6 eV lamp can detect a wide range of VOCs.
- Most PID equipped instruments include a built-in library of correction factors.
- PIDs are usually calibrated using isobutylene gas.
- Correction factors may change as the lamp ages and the signal strength declines.
- Temperature and humidity can adversely affect a PID.

Calibrate Testing Monitors

CONSTRUCTION

Calibration is the Key to Accurate Readings.

- Replace gas sensors
- Follow the manufacturer's guidelines:
 - Bump test or calibration check each day.
 - Use certified test gas, within its expiration date.
 - Keep calibration records.



Source OSHA



Calibration: The Key to Accurate Readings

CONSTRUCTION

Instrument inaccuracy due to improper or irregular maintenance and calibration can lead to exposure to hazardous levels of toxic gases or to an oxygen-deficient atmosphere.

- Follow the manufacturer's guidelines for proper calibration
- Only use a certified traceable test gas, and do so before its expiration date.
- Train Operators on the proper methods of calibration.

For more information, go to OSHA's Confined Spaces Website:

- <https://www.osha.gov/SLTC/confinedspaces/index.html>
- [Permit-Required Confined Spaces in General Industry](#) (PDF*).
- [Calibrating and Testing Direct-Reading Portable Gas Monitors](#).
- http://www.safetysafetyequipment.org/userfiles/file/calibration_statement-2010-mar4.pdf
- [OSHA's FactSheet: Procedures for Atmospheric Testing in Confined Spaces](#)



Contacting OSHA w/Questions

CONSTRUCTION



Protect Yourself Permit-Required Confined Spaces

A confined space has limited openings for entry or exit, is large enough for entering and working, and is not designed for continuous worker occupancy. Confined spaces include underground vaults, tanks, storage bins, manholes, pits, silos, underground utility vaults and pipelines.

Permit-required confined spaces are confined spaces that:

- May contain a hazardous or potentially hazardous atmosphere.
- May contain a material which can engulf an entrant.
- May contain walls that converge inward or floors that slope downward and taper into a smaller area which could trap or asphyxiate an entrant.
- May contain other serious physical hazards such as unguarded machines or exposed live wires.
- Must be identified by the employer who must inform exposed employees of the existence and location of such spaces and their hazards.

What to Do

- Do not enter permit-required confined spaces without being trained and without having a permit to enter.
- Review, understand and follow employer's procedures before entering permit-required confined spaces and know how and when to exit.
- Before entry, identify any physical hazards.
- Before and during entry, test and monitor for oxygen content, flammability, toxicity or explosive hazards as necessary.
- Use employer's fall protection, rescue, air monitoring, ventilation, lighting and communication equipment according to entry procedures.
- Maintain contact at all times with a trained attendant either visually, via phone, or by two-way radio. This monitoring system enables the attendant and entry supervisor to order you to evacuate and to alert appropriately trained rescue personnel to rescue entrants when needed.

For more complete information:

OSHA Occupational
Safety and Health
Administration
U.S. Department of Labor
www.osha.gov (800) 321-OSHA

OSHA 3214-104-06

Directorate of Construction
Room N3468,
OSHA, U.S. Department of Labor,
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www.osha.gov

