SAFETY SERVICES COMPANY®

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TOP OSHA VIOLATIONS OF 2013

The top 10 OSHA violations for 2013 revealed a 45% increase in citations over the same list the year before.

Although there are no surprises to which violations they are, the top 10 violations for 2013 totaled 42,502, more than the 29,179 in 2012. Every regulation on the list accounted for more violations.

The top four violations remained the same:

Fall Protection topped the list. Hazard Communication was second, followed by Scaffolding and then Respiratory Protection.

After that, the General Industry regulation for Electrical Wiring (1910.305) moved into fifth place from eighth in 2012. Powered Industrial Trucks, or Forklifts, (1910.178) moved up from seventh place to sixth.

Citation for improper use of Ladders (1926.1053) fell to seventh.

Lockout / Tagout (1910.147), and Electrical, General (1910.303) both moved to eighth and ninth place from ninth and 10th place.

Machine Guarding (1910.212) rounds out the top 10.

Protect yourself in 2014 by checking out each of these common areas businesses find them on the wrong side of OSHA, and some of the recommendations on what to look for. Safety Services Company also provides detailed OSHA compliance and safety training for each of these topics and many more.

Top 10 OSHA Violations 2013

1. Fall Protection (1926.501)
   chapter / webpage
2. Hazard Communication (1910.1200)
   chapter / webpage
3. Scaffolding (1926.451)
   chapter / webpage
4. Respiratory Protection (1910.134)
   chapter / webpage
5. Electrical, Wiring (1910.305)
   chapter / webpage
6. Powered Industrial Trucks (1910.178)
   chapter / webpage
7. Ladders (1926.1053)
   chapter / webpage
8. Lockout/Tagout (1910.147)
   chapter / webpage
9. Electrical, General (1910.303)
   chapter / webpage
10. Machine Guarding (1910.212)
    chapter / webpage

OSHA'S TOP 10 VIOLATIONS

2012		2013	
1. Fall Protection (1926.501)	7,250	1. Fall Protection (1926.501)	8,241
2. Hazard Communication (1910.1200)	4,696	2. Hazard Communication (1910.1200)	6,156
3. Scaffolding (1926.451)	3,814	3. Scaffolding (1926.451)	5,423
4. Respiratory Protection (1910.134)	2,371	4. Respiratory Protection (1910.134)	3,879
5. Ladders (1926.1053)	2,310	5. Electrical, Wiring (1910.305)	3,452
6. Machine Guarding (1910.212)	2,097	6. Powered Industrial Trucks (1910.178)	3,340
7. Powered Industrial Trucks (1910.178)	1,993	7. Ladders (1926.1053)	3,311
8. Electrical, Wiring (1910.305)	1,744	8. Lockout / Tagout (1910.147)	3,254
9. Lockout / Tagout (1910.147)	1,572	9. Electrical, General (1910.303)	2,745
10. Electrical, General (19.303)	1,332	10. Machine Guarding (1910.212)	2,701
Total Violations:	29,179	Total Violations:	42,502

RELEASED FIGURES FOR 2012 WORKPLACE FATALITIES SHOW FEWER DEATHS EXCEPT CONSTRUCTION

At the end of 2013, the Department of Labor released preliminary results of the 2012 Census of Fatal Occupational Injuries (CFOI) and it shows the fewest workplace deaths in at least 20 years. Last year resulted in 4,383 fatalities which is less than a year ago (4,693 in 2011), 10 years ago (5,534 in 2002), and 20 years ago (6,217 in 1992)

Three of the four most dangerous jobs – agriculture, mining, and transportation – showed a decline, while construction bucked the trend with a small increase.

The results show declining fatalities, despite an increase in total hours worked over the last four years, because of a lowered fatal injury rate. The fatal injury rate represents the number of fatal occupational injuries per 100,000 full-time equivalent workers.

Of the top four most dangerous occupations by industry sector, only construction demonstrated an increase in the fatal injury rate for 2012.

The overall number of fatal injuries for 2012 was 4,383 deaths for 264,374,000 hours worked, for an overall fatal injury rate of 3.2. That rate has steadily declined for the last five years from 3.7 in 2008.

The major industry sector with the highest fatal injury rate "Agriculture, Forestry, Fishing, and Hunting" has a fatal injury rate of 21.2 per 100,000 full-time equivalent workers, dropping from 30.4 in 2008. After that, "Mining" resulted in a 15.6 rate in 2012, down from 18.1 in 2008; and "Transportation and Warehousing" was 13.3 in 2012 and 14.9 in 2008.

The "Construction" sector's 9.5 fatal injury rate in 2012 is less than where it was in 2008, 9.7, but went up from 9.1 in 2011.

10 Most Dangerous Jobs

Logging tops the list of most dangerous jobs per hours worked with a fatal injury rate of 127.8, and includes the usual list of high risk occupations all the way down to construction laborers rounding out the top 10.

1. Logging workers 127.8
2. Fishers and related fishing workers 117.0
3. Aircraft pilots and flight engineers 53.4
4. Roofers 40.5
5. Structural iron and steel workers 37.0
6. Refuse and recyclable material collectors 27.1
7. Electrical power-line installers and repairers 23.0
8. Driver/sales workers and truck drivers 22.1
9. Farmers, ranchers, and other agricultural 21.3
10. Construction laborers 17.4

#1 FALL PROTECTION

For the second year in a row, the construction fall protection regulation, 1926.501, topped OSHA's list of violations.
More importantly, according to the latest numbers released for occupational fatalities, "falls to lower level" were responsible for 12 percent of the deaths in 2012.
Where employees are in danger of falling off ladders, platforms, elevated work surfaces or holes in floors and walls, it's important for employers to take the necessary steps to prevent OSHA violations and costly employee injuries or death.

How to Reduce Falls

Take the time to read the regulation summary below, then check to make sure your worksites comply with every part of it.

- Provide OSHA required fall protection at four feet high in general industry, five feet in shipyards, six feet in construction and eight feet in longshoring.
- Adequately guard employees from falling through, off, or onto: holes, elevated open sided platforms, floors or runways, and dangerous machines or equipment.
- Provide a workplace free of known dangers.
- Keep floors clean and dry.
- Select and provide required PPE to employees.
- Train employees about job hazards.
- Protect employees below elevated work surfaces from falling objects.

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"'falls to lower level' were responsible for 12 percent of the deaths in 2012."

Interpretation of the OSHA Regulation 1926.501 – Duty to have fall protection

Protection from falling objects

Employers must have each employee wear a hard hat and implement one of the following measures where falling object hazards may exist.

1. Erect toeboards, screens or guardrail systems to prevent objects from falling.
2. Erect a canopy and keep objects far enough from the edge so they don't accidentally fall.
3. Barricade the area where objects can fall to keep employees out, and keep objects far enough from the edge so they don't accidentally fall.

Protection at leading edges

First determine the walking/working surface has the needed strength and structural integrity before working on it

And when walking or working six feet or more above a lower level follow the rest of these rules:

Unprotected sides must have a guardrail, safety net or personal fall arrest system.

Employees constructing a leading edge or engaged in precast concrete erection, or residential construction, need protection from falling by guardrail, safety net, or personal fall arrest systems, unless the employer can demonstrate it's infeasible or creates a greater hazard, and develops and implements an alternate fall protection plan that meets all 10 requirements of 1926.502(k).

Employees in a hoist area need to be protected by a guardrail or personal fall arrest system. If parts of the guardrail need to removed, the employee leaning through the access opening or over the edge must be protected by a PFAS.

Use covers on holes like skylights to protect people from tripping or stepping into, or objects falling through the holes. Covers, personal fall arrest, or guardrail systems can also be used to protect employees from falling through such holes.

Personal fall arrest, safety net or positioning device systems are needed to protect employees on formwork or reinforcing steel.

Ramps, runways and other walkways require a guardrail system.

Excavations must be protected by a guardrail system, fences, or barricades when the excavation can't easily be seen. The edge of wells, pits, shafts, or similar excavations need guardrail systems, fences, barricades, or covers.

Employees working six feet or more above dangerous equipment must protected by guardrail, personal fall arrest or safety net system. Employees less than six feet above dangerous equipment need to be protected by guardrail systems or equipment guards.

Employees performing bricklaying and related work need to be protected with guardrails, safety net, personal fall arrest system or a controlled access zone. When reaching more than 10 inches below the working surface, a controlled access zone is no longer sufficient. Bricklaying from scaffolds requires employees to follow the scaffold regulations; this was the third most common violation in 2013.

Employees roofing on low-slope roofs with unprotected sides must be protected with guardrail, safety net, or personal fall arrest systems. It's also possible to use a combination of a warning line system with one of the follow-

ing: guardrail, safety net, or personal fall arrest system, or safety monitoring. On roofs 50 feet or less wide, a safety monitoring system alone is permitted.

Employees on steep roofs with unprotected sides need a guardrail system with toeboards, safety net or personal fall arrest system.

Wall openings, even those with a chute attached, where the inside bottom edge of the wall opening is less than 39 inches high, requires employees to be protected by a guardrail, safety net or personal fall arrest system.

Leading edge protection for surfaces 6 feet or more above lower level

	Guardrail	Personal Fall Arrest	Safety Net	Controlled Access Zones	Warning Line
Surfaces with unprotected sides	X	X	X		
Constructing a leading edge[1]	X	X	X		
Precast concrete erection[1]	X	X	X		
Residential construction[1]	X	X	X		
Formwork or reinforcing steel		X[2]	X		
Bricklaying	X	X	X	X[3]	
Roofing on low slope roofs[4]	X	X	X		X[5]
Roofing on steep roofs	X[6]	X	X		
Wall openings	X	X	X		

[1] Alternate fall protection plan possible if other systems are demonstrably infeasible or creates a greater hazard.
[2] Or positioning device system.
[3] When reaching more than 10 inches below the surface, a controlled access zone isn't sufficient.
[4] On roofs 50 feet or less wide, a safety monitoring system alone is permitted.
[5] Warning line system must be with: guardrail, safety net, personal fall arrest system, or safety monitoring.
[6] Guardrail system must have toeboards.

	Guardrail	Personal Fall Arrest	Covers	Fences	Barricades
Hoist area	X[7]	X			
Holes in walking surface	X	X	X[8]		
Ramps, runways, walkways	X				
Excavations	X			X	X
Wells, pits, shafts	X		X	X	X
6 ft. or more above equipment	X	X			
< 6 ft. above equipment	X[9]				

[7] If parts of the guardrail are removed, the employee leaning through the access opening or over the edge must be protected by a personal fall arrest system.
[8] Personal fall arrest or guardrail system if you need to keep people from falling through the hole.
[9] Or effective equipment guarding.

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Fall Protection Sample Topics

- Wet surfaces
- Falling Correctly
- Elevated Falls
- Same Level Falls
- Accidents
- Definitions
- Prevention
- What is Fall Protection
- Why is it needed
- When is it required
- Fall Protection Systems
- Inspections
- Usage
- Planning
- Roof Types
- Rescues
- and More

CUSTOM SAFETY MANUALS

Custom safety manuals meet the requirements of State and Federal safety OSHA regulators that require you to have a series of health and safety policies talored to the hazards of your workplace.

Related Fall Protection Chapters

- Fall Protection
- Fall Protection for Roofing
- Fall Protection for Steel Erection
- Alternative Fall Protection
- Fall Prevention

SAFETY MEETINGS

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Related Safety Meeting Topics

- M095 Slips, Trips, & Falls (A)
- M096 Slips, Trips, & Falls (B)
- M167 Fall Protection Best Practices
- M180 Fall Protection (Harnesses, Belts, Lines)
- M484 Steel Tower Fall Protection (A)
- M485 Steel Tower Fall Protection (B)
- M486 Fall Protection Checklist
- M487 Fall Protection Emergencies
- M488 Fall Protection Emergency Rescue (Brake-tube System)
- M489 Fall Protection Emergency Rescue (Pulley System)
- M490 Fall Protection for Steel Erection (B Subpart R VOSH)
- M491 Fall Protection Self Rescues (A Foot Wrap and Rappel)
- M492 Fall Protection Self Rescues (B Rappel)
- M493 Fall Protection Guidelines (A)
- M494 Fall Protection Guidelines (B)
- M495 Fall Protection for Steel Erection (A Subpart R VOSH)
- M579 Mobile Fall Protection System
- M740 Highwalls (Fall Prevention/ Protection)
- M851 Focus Four Falls
- M595 Perimeter Safety & Leading Edge Barricade
- M561 Lineman (Body Belts, Safety Straps, Lanyards

#2 HAZARD COMMUNICATION

Already the second most cited violation in 2013 with 6,156 instances, The General Industry Hazard Communication (1910.1200) standard, has only become more complicated with a December 1st, 2013 deadline requiring employers to train employees on the new label elements and Safety Data Dheet (SDS) format.

To make it easy, employees need to know:

1. The type of information on the new labels
2. How to use the labels in the workplace
3. How the elements work together on a label
4. The format of the new Safety Data Sheets (SDS)
5. How the label information is related to the SDS

1. Label elements

Employees will see the following new label elements.

Product Identifier – This can be the chemical name, code number or batch number.

Signal Word – Indicates the severity of the hazard. “Danger” is for more severe hazards and “Warning” is less severe for hazards of that classification. Regardless of how many hazards a chemical may have, if one warrants a “Danger” warning then it will be used on the label.

Pictogram – Know what hazards the following pictograms represent. Each one is described in the sidebar of this chapter.

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Health Hazard – carcinogen, mutagenicity, reproductive toxicity, respiratory sensitizer, target organ toxicity, aspiration toxicity

Hazard Statements – Describes the nature and degree of the hazard. All applicable hazard statements will appear on the label, and specific to the hazard classification category with the same statement for the same hazards regardless of the chemical or who produces it.

Precautionary Statement – Measures to minimize or prevent effects of exposure, improper storage or handling.

Supplier Information – Name, address and phone number of the chemical manufacturer, distributor, or importer.

2. How to Use the labels

The information on the labels will show employees the proper way to use and store the hazardous chemical. Employees will also know how to quickly locate first aid information for emergency personnel.

3. How the elements work together

A chemical with multiple hazards will have all of the necessary images for the corresponding hazard class. Also when there could be similar precautionary statements, the one providing the most information will be on the label.

4. Safety Data Sheets (SDS)

Material Safety Data Sheets (MSDS), which could be in any formats depending on the whim of the manufacturer, are out, and Safety Data Sheets (SDS) with a standardized 16-section format, are in.

By June 1, 2015, all SDSs will adhere to the following sections:

1. Identification – Product identifier; manufacturer or distributor name, address, phone number, emergency phone number; recommended use; restrictions on use.
2. Hazard Identification – All hazards regarding the chemical; required label elements.
3. Composition/Information on Ingredients – Information on chemical ingredients, trade secret claims.
4. First-Aid Measures – Important symptoms / effects, acute, delayed; required treatments.

Flame – flammables, pyrophorics, self-heating, emits flammable gas, self-reactives, organic peroxides

Exclamation Mark – irritant (sking and eye), skin sensitizer, acute toxicity (harmful), narcotic effects, respiratory tract irritane, hazardous to ozone layer (non-mandatory)

Gas Cylinder – gases under pressure

Corrosion – skin corrosion/ burns, eye damage, corrosive to metal

5. Fire-Fighting Measures – Suitable extinguishing techniques, equipment; chemical hazards from fire.
6. Accidental Release Measures – Emergency procedures; protective equipment; proper methods of containment and cleanup.
7. Handling and Storage – Precautions for safe handling and storage, including incompatibilities.
8. Exposure Controls / Personal Protection – OSHA's Permissible Exposure Limits (PEL); Threshold Limit Values (TLV); appropriate engineering controls; Personal Protective Equipment (PPE).
9. Physical and Chemical Properties – The chemical's characteristics.
10. Stability and Reactivity – Chemical stability and possibility of hazardous reactions.
11. Toxicological Information – Ways of exposure; related symptoms, acute and chronic effects; numerical measures of toxicity.
12. Ecological Information – Environmental impact; organism toxicity results; environmental persistence; bioaccumulation potential. Not regulated or enforced by OSHA.
13. Disposal Considerations – Proper disposal, recycling, reclamation. Not regulated or enforced by OSHA.
14. Transport Information – UN number; UN proper shipping name; transport hazard classes; environmental hazard; bulk transportation; special precautions. Not regulated or enforced by OSHA.
15. Regulatory Information – Additional safety, health, and environmental regulations. Not regulated or enforced by OSHA.
16. Other Information – Date of preparation or last revision.

5. Label and SDS Similarities

Employees need to know how the label information is related to information on the SDS.

Precautionary statements are the same. The same product identifier is on the label and in Section 1 of the SDS (Identification).

Use a hazardous chemical in your workplace that employees may be exposed to and go over its label and SDS to find the similarities and what they mean to your workplace.

Exploding Bomb – explosives, self-reactives, organic peroxides

Flame Over Circle – oxidizers

Environment – aquatic toxicity

Skull and Crossbones – acute toxicity (fatal or toxic)

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Hazard Communication Sample Topics

- Safety Data Sheets
- Policy Creation
- Physical Hazards
- GHS
- Chronic Effects
- Spills
- Leaks
- And More

CUSTOM SAFETY MANUALS

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Related Hazard Communication Chapters

- Hazard Communication
- Asbestos
- Lead Exposure
- Molds & Remediation
- PPE
- HAZWOPER
- Silica Dust
- Spraying Polyurethanes
- Hydrogen Sulfide
- Benzene
- Cadmium
- Hexavalent Chromium

SAFETY MEETINGS

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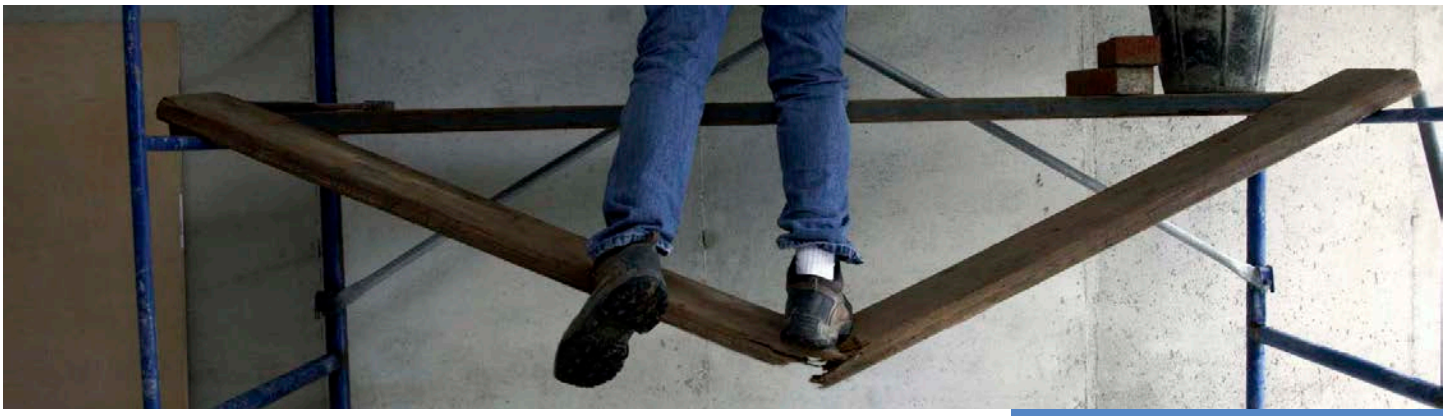
Examples of Related Safety Meeting Topics

- M116 Hazard Communication
- M474 GHS Symbols
- M508 GHS Label Reading
- M777 GHS Physical Hazards (A)
- M778 GHS Physical Hazards (B)
- M779 GHS Physical Hazards (C)
- M780 GHS Health Hazards (A)
- M781 GHS Health Hazards (B)
- M782 GHS Environmental Hazards
- M784 GHS Transport Symbols
- M785 GHS Label Formatting
- M786 GHS SDS versus MSDS (A)
- M787 GHS SDS versus MSDS (B)
- M788 GHS SDS versus MSDS (C)
- M789 GHS SDS versus MSDS (D)
- M035 Lead Exposure
- M047 Hazardous Waste
- M058 First Aid for Poisoning
- M121 Silicosis
- M123 Gasoling (Storage, Handling, Disposal)
- M125 Industrial Acids
- M164 Oil & Oily Waste Disposal
- M172 Asbestos (A)
- M173 Asbestos (B)
- M195 Paint Thinners (Use, Handling, Storage)
- M218 Propane Storage, Handling & Transport
- M219 Herbicides
- M229 Cement Chemical Hazards & Cement Burns
- M232 Mold Remediation (C Exposure)
- M239 Regrigerants R-22/R-410A
- M240 Refrigerant Handling
- M260 MSDS
- M275 Solvnts & Degreasers (A)
- M278 Chlorine
- M299 Methyl Ethyl Ketone (MEK)
- M301 Acetone
- M302 Styrene
- M320 Benzene (C6H6)
- M321 Emergency Eyewash & Showers
- M325 Chemical Spill Clean Up
- M346 Halon
- M363 Formaldehyde (HCHO)
- M364 Cadmium
- M378 Tuberculosis Prevention
- M394 Argon
- M398 Puron Regrigerant (R-410A)
- M892 Respirator Cleaning & Maintenance
- And More



#3 SCAFFOLDS

The third most cited OSHA violation in 2013 was the construction regulation on scaffolding (1926.451). There were 5,423 scaffolding citations given out last year alone, up from 3,814 in 2012. Scaffolding accidents are related to the falls to a lower level mentioned in the Fall Protection chapter.

Falling is the leading cause of death on construction sites, leading what OSHA calls Construction's "Fatal Four" with one of every three construction worker deaths.

OSHA has outlined the key provisions of the scaffolding standard:

- Employees more than 10 feet high on a scaffold have requirements for fall protection, depending on the type of scaffold. For example single-point and two-point adjustable suspended scaffolds need both a personal fall arrest system and a guardrail.
- The toprail height must be 38 to 45 inches high.
- When the crosspoint of crossbracing is used as a toprail it must be 38 to 48 inches high.
- Midrails are installed halfway between the toprail and the platform. When a crosspoint of crossbracing is used as a midrail, it must be 20 to 30 inches high.
- Footings must be level and support the loaded scaffold. Legs, poles, frames and uprights must have base plates and mud sills.
- Platforms must be fully planked or decked.
- Supported scaffolds with a height-to-base ratio more than 4:1 will be restrained by guying, tying, bracing or an equivalently effective method.

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"Falling is the leading cause of death on construction sites"

- The capacity of scaffolds and its components must support four times the maximum intended load. Suspension scaffold rigging capacity must be six times the intended load.
- Employees who work on a scaffold must know the hazards and how to prevent them.

OSHA's Scaffold regulation also describes certain types of employees – competent person, qualified person, and engineer – and the duties that must be performed by them.

Competent Person

According to the code, a competent person is "capable of identifying existing and predictable hazards in the surroundings or working conditions, which are unsanitary, hazardous to employees, and who has authorization to take prompt corrective measures to eliminate them."

Essentially a competent person is a manager or supervisor who has the experience to know what is unsafe and also has permission to make changes to create a safe workplace.

Competent Person Duties

- Manage employees who erect, dismantle, moor, or alter scaffolds.
- Determine if it is safe to work during storms or high winds, taking into account fall protection and wind screens.
- Train employees who erect, disassemble, move, operate, repair, maintain or inspect scaffolds to recognize hazards.
- Inspect scaffold and components for visible defects before work each shift and after any accident which could affect integrity, and ensure broken parts are removed and fixed right away.
- Inspect ropes on suspended scaffolds before each shift and after any event that could affect its structural integrity, and ensure they are fixed promptly.
- Inspect synthetic rope being used as toprails or midrails.
- Check out direct connections of suspension scaffolds to support the load, and decide if two-point and multi-point scaffolds need to be secured to prevent swaying.
- Determine how to provide safe access and fall protection during scaffold erection and dismantling.

Engineer Duties

The following jobs are expressly left to engineers to design:

- The direct connections of masons' multi-point adjustable suspension scaffolds.
- Scaffolds that move when employees are on them.
- Pole scaffolds over 60 feet high.
- Tube and coupler scaffolds over 125 feet high.
- Fabricated frame scaffolds over 125 feet higher than their base plates.
- Brackets on fabricated frame scaffolds used to support cantilevered loads in addition to workers.
- Outrigger scaffolds and scaffold components.

- Determine if a scaffold made of parts from different manufacturers will be structurally sound.
- Determine if galvanic action (corrosion from attraction between different metals) has affected capacity

Qualified Person

OSHA defines a qualified person as a person who "by possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training, and experience – has successfully demonstrated his ability to solve or resolve problems related to the subject matter, the work, or the project." This is a higher standard of knowledge, specific to the design elements of the specific scaffold used.

Qualified Person Duties

- Design and load scaffolds accordingly.
- Train employees working on scaffolds to recognize hazards and understand how to control or minimize them.
- Design rigging for single point adjustable suspension scaffolds.
- Design platforms on two-point adjustable suspension types less than 36 inches wide.
- Make swaged attachments or spliced eye wires on wire suspension ropes.
- Design parts' construction according to the design.

TYPE OF SCAFFOLD	FALL PROTECTION REQUIRED
Aerial Lifts	Personal fall arrest system
Boatswains' chair	Personal fall arrest system
Catenary scaffold	Personal fall arrest system
Crawling board (chicken ladder)	Personal fall arrest system, or a guardrail system, or a 3/4 inch diameter grabline or equivalent handhold securely fastened beside each crawling board
Float scaffold	Personal fall arrest system
Ladder jack scaffold	Personal fall arrest system
Needle beam scaffold	Personal fall arrest system
Self-contained scaffold	Both a personal adjustable scaffold arrest system and a guardrail system
Single-point and two-point suspension scaffolds	Both a personal fall arrest system and a guardrail system
Supported scaffold	Personal fall arrest system or guardrail system
All other scaffolds	Personal fall arrest system or guardrail systems that meet the required criteria

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Supported Scaffolding Sample Topics

- Capacity
- Criteria for supported scaffolds
- Falling object protection
- Fall protection
- Use Requirements

Suspended Scaffolding Sample Topics

- Capacity
- Criteria for suspended scaffolds
- Falling object protection
- Fall protection
- Use requirements

Scissor Lift Sample Topics

- Electrical hazards
- Fall hazards
- Falling object hazards
- Erecting, maintaining and disassembling
- Proper use
- Proper material handling

CUSTOM SAFETY MANUALS

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Related Scaffold Chapter Examples

- Scaffolds & Work Platforms
- Swing Stage Scaffolds

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Examples of Related Safety Meeting Topics

- M546 Ladder Jack Scaffolds
- M584 Scaffolds (Moving & Erecting)
- M603 Pole Scaffolds
- M617 Pump Jack Scaffolds
- M628 Rolling Scaffolds (A)
- M629 Rolling Scaffolds (B)
- M642 Scaffold Checklist
- M643 Scaffolds (A)
- M644 Scaffolds (B)
- M676 Suspended Scaffolds (A)
- M677 Suspended Scaffolds (B)
- M867 Two-Point (Swing-Stage) Scaffold
- M899 Scaffold Training Requirements

#4 RESPIRATORY PROTECTION

With more than a thousand additional violations to the previous year (3,879 in 2013), Respiratory Protection continued the trend among all of the top 10.

The regulation obligates employers to when needed: select the correct respirator; provide medical evaluations; require fit testing and proper use; ensure proper care, maintenance and use; provide training and information.

What are businesses getting in trouble for? Just two examples of OSHA inspections resulting in serious violations gives insight.

In April 2013, OSHA issued a press release that it cited a ceramic mold manufacturing facility in Cudahy, Wisconsin for six violations with $50,050 in proposed penalties.

Four were serious violations of the respiratory protection standards:

- Lack of medical evaluation for a worker required to wear a respirator
- Not conducting initial fit testing
- Not conducting annual fit testing,
- Allowing a respirator to be worn with a beard

In May 2013, OSHA announced citations to an industrial cleaning company in Wheeling IL that included five serious violations.

- Failing to evaluate the respiratory hazards
- Failing to select appropriate respiratory protection based on the hazards
- Not providing a written respiratory protection program
- Not training workers on the program
- Neglecting proper fit testing

Top 10 OSHA Violations 2013

1. Fall Protection (1926.501)
   chapter / webpage
2. Hazard Communication (1910.1200)
   chapter / webpage
3. Scaffolding (1926.451)
   chapter / webpage
4. Respiratory Protection (1910.134)
   chapter / webpage
5. Electrical, Wiring (1910.305)
   chapter / webpage
6. Powered Industrial Trucks (1910.178)
   chapter / webpage
7. Ladders (1926.1053)
   chapter / webpage
8. Lockout/Tagout (1910.147)
   chapter / webpage
9. Electrical, General (1910.303)
   chapter / webpage
10. Machine Guarding (1910.212)
    chapter / webpage

Some of the respiratory protection citations OSHA hands out (not having a written program) show, barring negligence, some businesses are not aware they need a Respiratory Protection Program.
If you aren't confident on both grounds, take a look at the following small business OSHA guidelines.

Do you need a Respiratory Protection Program?
If your workplace meets one of these four tests, then the Respiratory Protection standard may apply.
A hazardous atmosphere that has:

1. Insufficient oxygen
2. Harmful levels of chemical, biological or radiological contaminants
3. Known and reasonably foreseeable emergencies related to…
4. Unknown exposure levels or exposures to substances without an OSHA PEL

If not, congratulations, you are halfway to not needing a Respiratory Program. But if you met one of them, the standard may apply if you do not meet both of the following checks that ensure sufficient employee protection without a written, workplace specific respiratory protection plan.

1. Sufficient engineering controls (ventilation, isolation, enclosure, or substitution of non-hazardous materials) to prevent illness or disease from breathing hazardous air
2. Sufficient administrative controls (worker rotation, scheduling)
3. Elements of a written Respiratory Protection Program

To ensure your respiratory protection program meets OSHA standards, make sure it includes:

- Specific workplace
- Selecting respirators
- Medical evaluations of employees required to wear respirators
- Fit testing
- Routine and emergency respirator use instructions
- Schedules for cleaning, disinfecting, storing, inspecting, repairing, discarding, and maintaining respirators
- Ensuring adequate air quality for supplied-air respirators
- Training in respiratory hazards

- Training in proper use and maintenance of respirators
- Program evaluation
- Ensuring that employees who voluntarily wear respirators (excluding filtering facepieces) comply with the medical evaluation and cleaning, storing and maintenance requirements of the standard
- A designated program administrator who is qualified to administer the program
- Updating the written program as necessary to account for changes in the workplace affecting respirator use
- Providing equipment, training and medical evaluations at no cost to employee

CONTAMINANT	COLOR CODING ON CARTRIDGE/CANISTER
Acid gases	White
Hydrocyanic acid gas	White with 1/2 inch green stripe completely around the canister near the bottom.
Chlorine gas	White with 1/2 inch yellow stripe completely around the canister near the bottom.
Organic vapors	Black
Ammonia gas	Green
Carbon Monoxide	Blue
Acid gases & organic vapors	Yellow
Hydrocyanic acid gas and chloropicrin vapor	Yellow with 1/2 inch blue stripe completely around the canister near the bottom.
Acid gases, organic vaports, and ammonia gases	Brown
Radioactive materials, except tritium & noble gases	Purple (magenta)
Pesticides	Organic vapor canister plus a particulate filter.
Mult-Contaminant and CBRN agent	Olive
Any particulates - P100	Purple
Any particulates - P95, P99, R95, R99, R100	Orange
Any particulates free of oil - N95, N99, or N100	Teal

OSHA COMPLIANCE & SAFETY TRAINING SERVICES

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Respiratory Safety Sample Topics

- Maintenance
- Voluntary Use
- Selection
- Types
- Medical evaluation
- Fit testing
- Seal check
- And More

CUSTOM SAFETY MANUALS

Custom safety manuals meet the requirements of State and Federal safety OSHA regulators that require you to have a series of health and safety policies talored to the hazards of your workplace.

Related Respiratory Safety Chapters

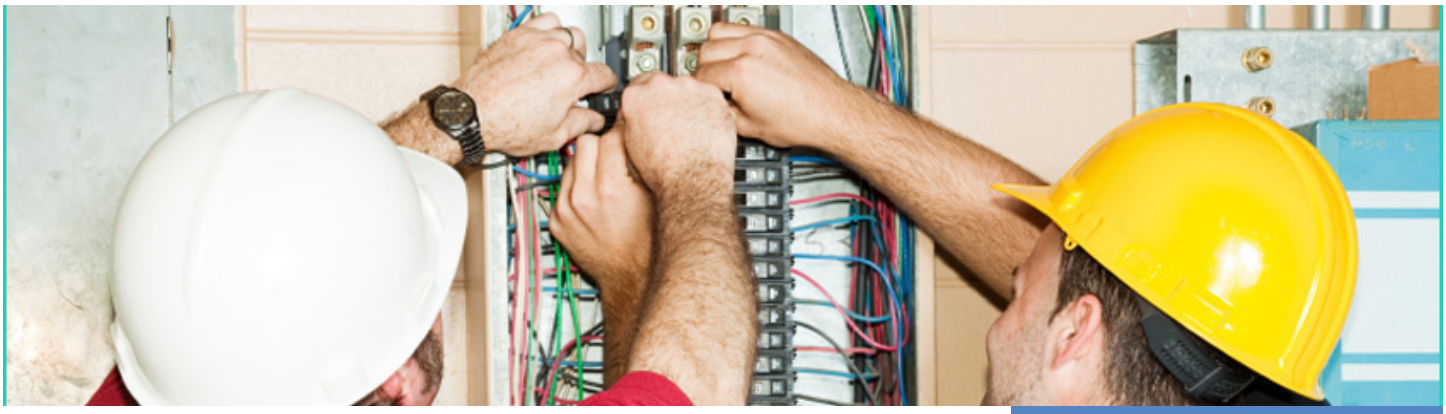
- Respiratory Protection
- Asbestos
- Molds & Remediation Tips
- Rock Crushers
- Silica Dust
- Hydrogen Sulfide
- Confined Spaces
- Histoplasmosis
- Mold Abatement
- PPE

SAFETY MEETINGS

Meet Safety Training and Compliance Goals with Quick-and-Easy Safety Meetings. Safety Meetings are easy to read and quick to deliver, allowing supervisors to efficiently incorporate and document safety into their day-to-day operation without stopping production.

Examples of Related Safety Meeting Topics

- M005 Respiratory Protection (A)
- M006 Respiratory Protection (B Medical Evaluation & Fitting)
- M007 Respiratory Protection (C Respirator Use)
- M892 Respirator Cleaning & Maintenance
- M893 Respirator Inspection Checklist
- M894 Full Face Respirator Field Inspection Checklist
- M034 PPE Requirements
- M049 Dust Masks
- M121 Silicosis (Crystalline Silica Exposure)
- M172 Asbestos (A)
- M173 Asbestos (B)
- M181 Fiberglass Insulation
- M182 PPE Types
- M225 Confined Spaces (A)
- M232 Mold Remediation (C Exposure)
- M320 Benzene (C6H6)
- M386 Spray Finishing (Powder Coating)
- M472 Dust Control
- M534 Hydrogen Sulfide Gas in Drilling/Excavation
- M552 Lead Paint Removal (A)
- M553 Lead Paint Removal (B)
- M554 Lead Paint Removal (C)
- M717 Wood Dust (Health Hazards)
- M822 Lead Awareness
- M857 Hierarchy of Controls PPE
- And More



#5 ELECTRICAL, WIRING

The non-descript General Industry regulation 1910.305 which governs wiring methods, components and equipment for general use was responsible for 3,452 violations in 2013.
Actually the number of violations this regulation garnered effectively doubled from the previous year (1,744 in 2012).
So if you haven't already, please read the regulation and ensure that if your business and employees deal with wiring, they are doing it correctly. Included is an interpretation of the parts of this regulation that deals with the requirements for wiring a home or business: conductors, cable trays, insulators, enclosures, switches, wet locations, and when it's okay to use flexible cords and cables such as extension cords.

Wiring methods
Grounding conductors need to be effectively bonded where necessary to ensure electrical continuity and safely conduct their current. Also keep threads, contact points and contact surface free of paint or other non-conductive coating unless the fittings are designed to make removing the coatings unnecessary.
You can isolate an equipment enclosure supplied by a branch circuit from a raceway of circuits supplying only that equipment by using one or more listed nonmetallic fittings where it attaches to the equipment closure.
Do not install wiring where there will be dust, loose stock, flammable vapors or any ducts used for vapor removal or commercial cooking ventilation.

Temporary Wiring
All the regulations for permanent wiring generally apply to any

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   chapter / webpage
9. Electrical, General (1910.303)
   chapter / webpage
10. Machine Guarding (1910.212)
    chapter / webpage

temporary wiring.
Extension cords, factory-manufactured or assembled at work sites and shops, are considered temporary wiring. When assembled at work sites and shops they need to be made from parts approved by a nationally recognized testing laboratory, meet applicable requirements and then assembled and inspected by a qualified person.
You can only use temporary electrical power and lighting installations of 600 volts, nominal or less for:

- Remodeling, maintenance or repairing buildings, structures or equipment.
- Decorative lighting of 90 days or less for purposes like Christmas and carnivals
- Experimental or developmental work
- During emergencies
- Immediately remove temporary wiring after completing the project

Only use temporary wiring more than 600 volts during tests, experiments, emergencies or construction.
Feeders begin in an approved distribution center. Conductors must be run as multiconductor cord or cable assemblies and may be run as single insulated conductors only if installed correctly and only accessible to qualified persons.
Branch circuits begin in an approved power outlet or panelboard. Conductors can be multiconductor cord or cable assemblies or open conductors. Open conductors need to be fastened at ceiling height every 10 feet, and must have a separate equipment grounding conductor if it supplies receptacles or fixed equipment. Do not lay branch circuit conductors on the floor. Receptacles need to ground. Each branch circuit must have its own equipment grounding conductor and all receptacles electrically connected to the grounding conductor.
Do not use bare conductors or earth returns on temporary circuits. Install disconnecting switches or plug connectors to permit the disconnection of ungrounded conductors of temporary circuits. Multiwire branch circuits need to be able to simultaneously disconnect all ungrounded conductors where the branch circuit originated, like circuit breakers with handles connected by approved handle ties.
Protect lamps from accidental contact and breaking with a suitable fixture or lampholder with a guard.
Protect flexible cords and cables from accidental damage like

Switchboards
Ensure switchboards with exposed live parts are place in a permanently dry area and accessible only by qualified persons.
Mount panelboards only in cabinets, cutout boxes or enclosures designed for them, and with a dead front. If it is only accessible to qualified persons, panelboards other than the dead front externally-operable are permitted.
Exposed blades of knife switches in switchboards or panelboards will be dead when open.

sharp corners and doorways; securing them in place at sufficient intervals to keep them in place with staples, cable ties, or straps that do not cause damage.

Cable Trays

Make sure you are using one of the many approved wiring methods allowed in cable trays by checking 1910.305(a)(3)(i)
Where qualified persons are needed to service the cable tray use these cables in ladder, ventilated-trough, or ventilated-channel cable trays: single conductor cables No.1/0 or larger marked for use in cable trays and sunlight resistant when exposed to direct sunrays; welding cables in dedicated cable trays; single conductors used as equipment grounding conductors No. 4 or larger; Type MV multiconductor cables.
Only use metallic cable trays as equipment grounding conductors where continuous maintenance and supervision ensure qualified persons service it.
Only use the types of cables permitted in the classification of hazardous locations the cable tray is located.
And finally, do not use cable trays in hoistways where they can be damaged.

Open Wiring on Insulators

Limit open wiring on insulators to 600 volts, nominal or less for industrial or agricultural establishments where subject to corrosive vapors and for services.
Support conductors smaller than No. 8 rigidly on noncombustible, nonabsorbent insulation so they do not contact other objects.
Supports must be installed accordingly: within 6 in. from a tap or splice, within 12 in. of a dead-end connection to a lampholder or receptacle, at intervals up to 4.5 ft. or closer if additional support is needed because they might be disturbed.
In dry locations, where there will not be severe physical damage, conductors may be separately enclosed in flexible nonmetallic tubes that aren't more than 15 ft. long each, and are secured by straps less than 4.5 ft. apart.
Ensure open conductors don't contact walls, floors, wood cross members or partitions by using tubes of noncombustible, nonabsorbent, insulating bushings. If the bushing is shorter than the hole, insert a waterproof nonconductive sleeve into the hole and an insulating bushing into the sleeve at each end so the conductor doesn't touch the sleeve. Each conductor must be carried through a separate tube or sleeve. Protect open where they cross ceiling

Covers and Canopies

Use covers identified for the purpose all pull boxes, junction boxes and fittings. Metal covers need to be grounded. Each outlet box needs a cover, faceplate or fixture canopy to be considered completely installed. Provide bushings or have smooth well rounded holes for outlet boxes with flexible cord pendants.
Cover combustible wall or ceiling finish exposed between the edge of the canopy or pan and the outlet box.
For pull and junction boxes for systems over 600 volts, nominal: provide a complete enclosure for the contained conductors or cables; close boxes with securely fastened suitable covers; mark covers for boxes with "HIGH VOLTAGE" permanently outside the box cover so it is visible and legible.

joints and wall studs and are exposed to physical damage, like being less than 7 ft. off the floor.

Cabinets, boxes and fittings

Protect conductors entering cutout boxes, cabinets, or fittings from abrasion. Close openings where conductors enter, and unused openings.

Secure cables to the cabinet, cutout box or meter socket enclosure.

Where entirely nonmentallic sheathed cables enters the top of a surface-mounted enclosure through one or more nonflexible raceways at least 18 in. or more than 10 ft. long, the cable doesn't have to be secured as long as it meets the following conditions:

Cables fastened within 12 in. of the outer end of the raceway.

The raceway extends directly above the enclosure and doesn't penetrate a structural ceiling.

A fitting is provided at each end of the raceway to protect the cable from abrasion

The fittings remain accessible

The raceway is sealed or plugged at the outer end, preventing access to the enclosure

The cable sheath is continuous through the raceway and goes into the enclose at least 0.25 in. beyond the fitting

The raceway is fastened at its outer end and at other points where needed

The cable installed as conduit or tubing doesn't exceed that permitted for complete conduit or tubing systems.

Switches

Place single-throw knife switches so gravity will not close them, unless it's an approved and has a locking device that ensures the blades remain open. Vertically mounted double-throw knife switches also need a locking device to ensure the blades remain open.

Connect single-throw knife switches and switches with butt contacts so the blades are deenergized when open.

Connect single-throw knife switches, molded case switches, switches with butt contacts, and circuit breakers used as switches so the terminals supplying the load are deenergized with the switch open.

However, blades and terminals supplying the load of a switch may be energized when the switch is open where it is connected to circuits or equipment inherently capable of providing backfeed

Damp or Wet Locations

Install the following to prevent moisture or water from collecting in the enclosures and mounted so there is at least a 0.25 in. airspace between the enclosure and the supporting surface.

- Cabinets
- Cutout boxes
- Fittings
- Boxes
- Panelboards

Nonmetallic enclosures may be installed without the airspace on a concrete, masonry, tile, or similar

Use weatherproof enclosures in wet locations.

power. In this case, install a permanent sign on the switch enclosure or next to open switches that read: WARNING – LOAD SIDE TERMINALS MAY BE ENERGIZED BY BACKFEED.
Install faceplates on snap switches in boxes that completely cover the opening and seat against the finished surface.
Ground and ensure there is a way to ground metal faceplates of snap and dimmer switches. Only use snap switch without a grounding connection for replacements. If they are located within reach of conducting surfaces the faceplate needs to be nonconducting and noncombustible.

Conductors
Insulated conductors approved for the voltage, operating temperature and location is the default requirement for conductors in general wiring. They also need to be distinguishable as grounded, ungrounded or equipment grounding conductors.

1910.305(G)(1) APPROVED USES FOR FLEXIBLE CORDS AND CABLES:	FLEXIBLE CORDS AND CABLES MAY NOT BE USED:
Pendants	As a substitute for the fixed wiring of a structure
Wiring of fixtures	Where run through holes in walls, ceilings, or floors
Connection of portable lamps or appliances	Where run through doorways, windows, or similar openings
Portable and mobile signs	Where attached to building surfaces
Elevator cables	Where concealed behind building walls, ceilings, or floors
Wiring of cranes and hoists	Where installed in raceways, except as otherwise permitted in this subpart
Connection of stationary equipment to facilitate their frequent interchange	
Prevention of the transmission of noise or vibration	
Appliances where the fastening means and mechanical connections are designed to permit removal for maintenance and repair	
Data processing cables approved as a part of the data processing system	
Connection of moving parts	
Permitted temporary wiring	

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Electrical Safety Sample Topics

- Electrical Shock
- How Electricity Works
- Lockout/tagout
- Injuries from electrical shock
- Grounding
- And More

CUSTOM SAFETY MANUALS

Custom safety manuals meet the requirements of State and Federal safety OSHA regulators that require you to have a series of health and safety policies talored to the hazards of your workplace.

Related Electrical Safety Chapters

- Electrical Safety
- Hazardous Energy Control
- Electrical Power Generation (Utilities)
- Hazardous Energy Control (Lockout/Tagout)

SAFETY MEETINGS

Meet Safety Training and Compliance Goals with Quick-and-Easy Safety Meetings. Safety Meetings are easy to read and quick to deliver, allowing supervisors to efficiently incorporate and document safety into their day-to-day operation without stopping production.

Examples of Related Safety Meeting Topics

- M012 Grounding & Electrical Tools
- M013 First Aid for Burns (Fire, Electricity, Chemicals)
- M024 Electrical Safety
- M028 Electrical Cords
- M130 Electrical Hazards
- M273 Static Electricity
- M770 Maintenance (Electricity and its Hazards)
- And More

#6 POWERED INDUSTRIAL TRUCKS

If your business uses any kind of forklift, take a moment to check here that you are doing everything needed under the law to provide the proper training to keep employees safe and OSHA off your back. Keep in mind the OSHA forklift regulations also cover: hazard identification and solutions, supervision, operating procedures, maintenance and repair procedures, facility design, and forklift selection criteria.

First off, forklifts must not be operated by anyone under 18-years-old. Also, employees must be trained and certified by their employer as competent to operate a forklift and then evaluated and certified at least once every three years. Begin refresher training whenever an operator shows a lack of knowledge in safe operation, workplace conditions or when using new types of forklifts.

According to OSHA, training includes formal instruction such as a lecture or computer training, practical training with demonstrations and exercises and an evaluation of the employee operating the forklift at the workplace.

Initial PIT Training

- Operating instructions, warnings, and precautions for the forklifts the employee will operate.
- Differences between operating the forklift and another vehicle
- Where forklift controls are located, what they do and how they work
- Engine
- Steering and maneuvering

Top 10 OSHA Violations 2013

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- Visibility restrictions
- Fork and attachment adaptation, operation, and use
- Vehicle capacity and stability
- Inspection and maintenance the employee will complete
- Refueling and/or charging batteries
- Limitations

Initial Workplace Training

- Likely surface conditions
- Composition of likely loads and stability
- Load manipulation
- Likely pedestrian traffic
- Likely restricted areas like narrow aisles
- Hazardous locations where the vehicle will operate
- Ramps and sloped surfaces
- Closed environments
- Unique potentially hazardous workplace conditions

Refresher Training and Evaluation

Evaluate employee performance at least once every three years. Refresher training, and an evaluation of its effectiveness, must be administered when:

- An employee operates the vehicle unsafely
- An employee is involved in an accident or near-miss
- Am employee evaluation reveals they are not safely operating the forklift
- An employee is assigned to drive a forklift type they are not trained on
- Workplace condition changes that could affect safe operation

Developing A Training Program

To develop a Forklift Training Program, you need to be familiar with the OSHA standards and the operator's manuals for existing forklifts.

The Training Program Must:

- Identify the types of workplace forklifts and employees required to operate them
- Identify training methods
- Develop content for training program
- Include refresher training

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PIT Safety Sample Topics

- Fulcrum principles
- Hydraulics
- Manuals
- Propane (LPG)
- Gasoline and diesel refueling
- Stability
- Forklift data plate
- Batteries for PIT

CUSTOM SAFETY MANUALS

Custom safety manuals meet the requirements of State and Federal safety OSHA regulators that require you to have a series of health and safety policies talored to the hazards of your workplace.

Related PIT Safety Chapters

- Powered Industrial Trucks (Forklifts)
- Dump Trucks
- Heavy Equipment
- Landscaping

SAFETY MEETINGS

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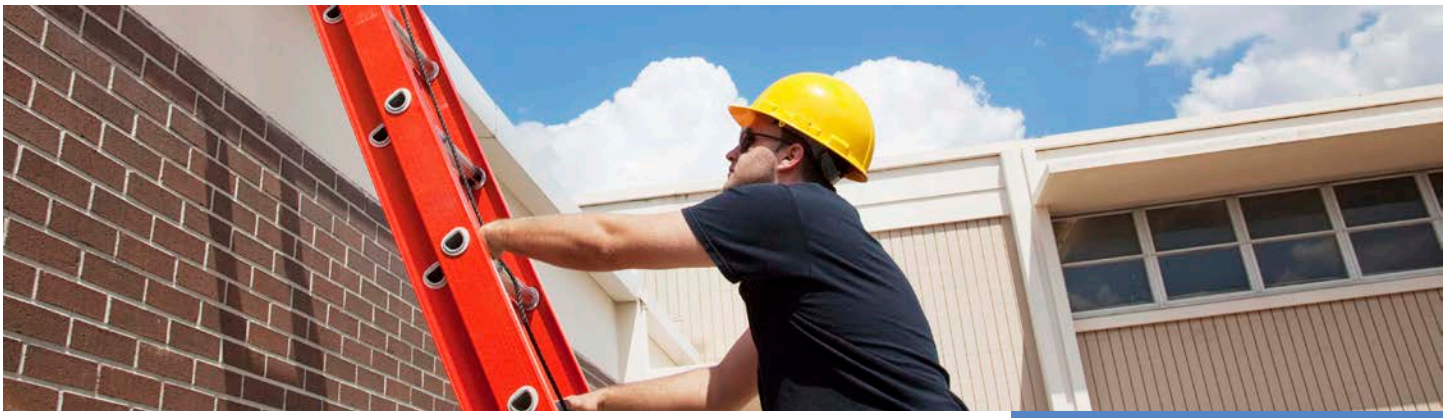
Examples of Related Safety Meeting Topics

- M001 Forklifts (A)
- M115 Forklifts (B)
- M308 Forklift Attachments
- M505 Forklifts for Construction Sites
- Forklift Parking Flowchart
- Forklift Daily Inspection Checklist



#7 LADDERS

Every year, falls from ladders make up a third of the leading cause of death in construction: falling.
Ladders are relatively simple to use (climb up the ladder to reach something high), and deceptively simple to use incorrectly (climbing up to the top rung and/or reaching with both hands).
More importantly, the necessary steps to safely use a ladder are just as simple (make fully extend the ladder and lock the spreader bars).
Unfortunately too often these steps aren't followed and the 1926.1053 code, regulating ladders received 3,311 citations, making it the regulation with the seventh most violations for 2013.

When Not to Use a Ladder

Always use the correct tool for the job, right? Well the ladder is a tool and there are circumstances where using a ladder may get the job done, but because of its temporary nature isn't the safest choice.
With that in mind, do not use a ladder if:

- You have to hold heavy items while on the ladder
- The elevated area is high enough that it means using a long ladder which will be unstable
- You are working at that height for a long time
- You have to stand on the ladder sideways to finish the work

Instead consider using a scaffold, scissor lift or a platform step ladder with a platform and hand rails.

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Check for Visible Defects

Before using the ladder and after it may be damaged, look at it and make sure you don't see anything broken or not working properly.

Do not use a ladder if there is a bent leg

Do not use a ladder with a missing rung

Do not use a ladder with a missing locking device on the spreader bar

Setting Up The Ladder

Use the correct ladder for the job that is high enough to reach the work area without standing on the top rung.

In fact, ensure a ladder used to access another level extends at least three feet above the landing point, and secure it so there is a safe handhold for stepping onto the next level.

Place the ladder on stable and level ground and secure the base of the ladder. If the ladder is not on a level surface then it must be secured so it will not accidentally move.

Always fully extend a ladder before and lock the spreader bar before getting on it.

Avoid using ladders near doorways, but if you do make sure it is locked.

While On The Ladder

Wear proper non-slip flat shoes.

Prevent other people from walking under or near the ladder by using a barrier, cones or getting a coworker to help.

Maintaining three points of contact with the ladder at all times means:

- Do not work on the top rung
- Don't carry tools or materials in your hands
- Don't lean away from the ladder, keep your weight centered between the side rails

TYPE	DUTY RATING	USE	LOAD
1AA	Special Duty	Rugged	375 lbs.
1A	Extra Heavy Duty	Industrial	300 lbs.
1	Heavy Duty	Industrial	250 lbs.
II	Medium Duty	Commercial	225 lbs.
III	Light Duty	Household	200 lbs.

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Ladder Safety Sample Topics

- Load Ratings
- Types of Ladders
- Ladder selection
- Safety Rules
- Defective Ladders
- Ladder Storage
- Training Requirements

CUSTOM SAFETY MANUALS

Custom safety manuals meet the requirements of State and Federal safety OSHA regulators that require you to have a series of health and safety policies talored to the hazards of your workplace.

Related Ladder Safety Chapters

- Ladders & Stairs
- Fall Protection for Roofing
- Fall Protection for Steel Erection
- Communication Tower Safety

SAFETY MEETINGS

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Examples of Related Safety Meeting Topics

- M008 Ladders
- M111 Step Ladders
- M373 Ladders (Fixed and Service)
- M483 Ladders (Extension)
- M647 Sectional Ladders
- M684 Three Legged Ladders
- M700 Trestle Ladders
- M776 Rolling Ladders
- M900 Setting Up Ladders

#8 LOCKOUT TAGOUT (LOTO)

General Industry Regulation 1910.147, The Control of Hazardous Energy – better known as Lockout/Tagout (LOTO) – was the seventh most violated standard in 2013 with 3,254, more than twice as many as in 2012 (1,572).

Keep your business out of trouble in 2014; pay attention to these four elements of the hazard that OSHA has identified as "hot topics" because of the potential to get on the wrong side of the law.

1. Relationship of LOTO standard to Subpart O, Machinery and Machine Guarding Standards
2. Energy Control Program
3. Group Lockout/Tagout
4. Multiple Energy Sources/Multiple Items of Equipment

1. Machine Guarding

LOTO protects against sudden start up, or release of stored energy while servicing or maintaining equipment. Subpart O provides hazardous energy protection during normal work.

But when an employee must remove or bypass machine guarding, or place part of his body into a hazardous area to service equipment during normal production, the LOTO standard applies. You still have to shut down and lockout and tag equipment according to LOTO standards, even if maintaining the equipment does not require disassembling the machine or its components. For the record, servicing and maintenance includes: installing, setting up, inspecting, adjusting, repairing, replacing, constructing, modifying, maintaining or servicing machines or equipment. These activities include lubrication, cleaning or unjamming ,

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    chapter / webpage

making adjustments or tool changes, if they expose employees to unexpected release of hazardous energy. Setting up, includes preparing a machine to perform its normal production.
The only exception is minor servicing that must be done while the machine is running, but it must be routine, repetitive and integral to the machine's operation and there must be acceptable alternative protection.
Some examples include remote oilers, specifically designed tools, remote devices (oilers), interlocked barrier guards, local disconnects, or exclusive control switches for the servicing employee.

2. Energy Control Program
Be sure to have and carry out a comprehensive energy control plan. This includes specific energy control procedures and control circuitry prohibition; periodic inspections, training and retraining.
The procedures must provide the authorized employee specific written instructions on how to remove the potential for unexpected start up or hazardous energy release.
The procedures need to:

- Identify the type and amount of hazardous energy and how the employees will protect themselves.
- Identify the machines and equipment the procedures are to be used on.
- Include steps for placing, removing and transferring lockout/tagout devices.

Also include periodic inspections, at least annually, to ensure the procedures are followed and provide effective protection.
The program also must show that effective training is provided to authorized, affected and other employees, so all employees have the necessary knowledge and skills for the safe application, use and removal of energy controls.

3. Group Lockout/Tagout
When maintenance requires a group of employees, the LOTO standard has specific requirements for procedures and work authorization permits.
A single authorized employee must assume the responsibility for controlling hazardous energy for everybody. This means, the authorized employee must:

- Implement the energy control procedures
- Coordinate the operation
- Ensure all steps are properly completed

All employees must be familiar with the with hazardous energy, and add their own lockout or tagout device to the group device before starting work. The responsible employee must not remove the group device until each employee removes their personal device.
A Work Authorization Permit is a way to comply with the LOTO provisions if included in the written procedures. A permit is completed before any job and identifies the equipment to be serviced, types of hazardous energy,

4. Multiple Energy Sources and equipment
Your program must have a plan for maintenance involving more than one energy source and machines or equipment.
Plan for machines that have more than one type of hazardous energy that must be dissipated or restrained and locked/tagged out, such as: mechanical, hydraulic, pneumatic, chemical, or thermal.
Create energy control procedures for all interconnected machines if the maintenance employee is exposed to hazardous energy release from them.

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LOTO Safety Sample Topics

- Hazards
- Authorized employees
- Usage procedures
- Standards
- Removal Procedures
- PPE

CUSTOM SAFETY MANUALS

Custom safety manuals meet the requirements of State and Federal safety OSHA regulators that require you to have a series of health and safety policies talored to the hazards of your workplace.

Related LOTO Safety Chapters

- Hazardous Energy Control
- Machine Guarding &
- Equipment Safety
- Job Hazard Analysis
- Accident Investigation
- Heavy Equipment

SAFETY MEETINGS

Meet Safety Training and Compliance Goals with Quick-and-Easy Safety Meetings. Safety Meetings are easy to read and quick to deliver, allowing supervisors to efficiently incorporate and document safety into their day-to-day operation without stopping production.

Examples of Related Safety Meeting Topics

- M022 Lockout, Blockout, Tagout
- M903 Lockout Tagout Hot Topics
- M904 Lockout Tagout Procedure
- M147 Machine Guards
- M186 Hazard Assessment
- M207 Tagging Out of Service
- M736 Mulch Blower (B Maintenance)
- M770 Maintenance (Electricity and its Hazards)

#9 ELECTRICAL, GENERAL

General Industry regulation 29 CFR 1910.303, covers OSHA's general electrical requirements, and accounted for 2,745 citations in 2013. The ninth most violated regulation.
It covers the examination, installation and use of electrical equipment; electrical connections; arcing parts; markings; disconnecting means and circuits; minimum space around electrical equipment.
The entire code can be found at OSHA's website for 1910.303. But we also created a common sense guide on the examination, and installation of electrical equipment and a chart of the minimum working space required around electrical equipment.

Examine
Examine electrical equipment to determine it is safe from hazards in regards to:

- Suitability for installation and use
- Mechanical strength and durability
- Wire bending and connection space
- Electrical insulation
- Heating effects
- Arcing effects
- Classification by type, size, voltage, current capacity, and specific use
- Practical safeguards for employees likely to contact electrical equipment

Top 10 OSHA Violations 2013

1. Fall Protection (1926.501)
   chapter / webpage
2. Hazard Communication (1910.1200)
   chapter / webpage
3. Scaffolding (1926.451)
   chapter / webpage
4. Respiratory Protection (1910.134)
   chapter / webpage
5. Electrical, Wiring (1910.305)
   chapter / webpage
6. Powered Industrial Trucks (1910.178)
   chapter / webpage
7. Ladders (1926.1053)
   chapter / webpage
8. Lockout/Tagout (1910.147)
   chapter / webpage
9. Electrical, General (1910.303)
   chapter / webpage
10. Machine Guarding (1910.212)
    chapter / webpage

Install

Install and use equipment according to the instructions on the label or listing. Completed wiring has to be free from short circuits and grounds.

Interrupting equipment must have an interrupting rating for the nominal circuit voltage and current available at the line terminals. Circuit protective devices must be able to clear a fault without extensive damage to the circuit's electrical components.

Unless designed to be safe for the working condition, keep conductors and equipment away from "deteriorating agents", which is simply: damp or wet locations; deteriorating gases, fumes, vapors, liquids or other agents; and excessive temperatures.

Install electric equipment in a neat and workmanlike manner. Close unused box openings, raceways, auxiliary gutters, cabinets, equipment cases and housings. Rack conductors to provide ready and safe access to underground and subsurface for installation and maintenance. Internal electrical components are not contaminated by foreign materials (paint, plaster, cleaners, abrasives, or corrosive residues). There also needs to be no damaged parts that will affect the safe operation or strength of the equipment.

Electrical equipment needs to be firmly secured to the surface it is mounted to. Wooden plugs drilled into material like concrete or plaster is not considered secure.

Air cooled electrical equipment must be installed so walls and adjacent equipment does not prevent the airflow. Do not obstruct ventilated openings. Floor mounted equipment must have clearance between top and adjacent surfaces to dissipate rising warm air.

Working Space

The chart shows the minimum working spaces needed, but there needs to be sufficient space maintained – not used for storage – around electric equipment for safe operation and maintenance. Equipment doors and hinged panels must be able to open at least 90 degrees and the width of the working space must be at least 30 inches, or width of the equipment. The minimum headroom needs to be at least the height of the equipment. Use suitable guarding when exposing enclosed life parts.

Also Covered

1910.303 also include specifics on the following subjects that you may need to be aware of:

- Electrical connections
- Arcing parts
- Marking
- Disconnecting means and circuits
- Guarding live parts
- Enclosures for electrical installations

Minimum Depth of Clear Working Space for Electric Equipment

Nominal voltage to ground	Minimum clear distance for condition [2 3]					
	Condition A		Condition B		Condition C	
	m	ft	m	ft	m	ft
0-150	[1]0.9	[1]3.0	[1]0.9	[1]3.0	0.9	3.0
151-600	[1]0.9	[1]3.0	1.0	3.5	1.2	4.0
601-2500 V	0.9	3.0	1.2	4.0	1.5	5.0
2501-9000 V	1.2	4.0	1.5	5.0	1.8	6.0
9001 V-25 kV	1.5	5.0	1.8	6.0	2.8	9.0
Over 25-75 kV[4]	1.8	6.0	2.5	8.0	3.0	10.0
Above 75 kV[4]	2.5	8.0	3.0	10.0	3.7	12.0

1. Minimum clear distances may be 0.7 m (2.5 ft) for installations built before April 16, 1981.
2. Conditions A, B, and C are as follows:
Condition A -- Exposed live parts on one side and no live or grounded parts on the other side of the working space, or exposed live parts on both sides effectively guarded by suitable wood or other insulating material. Insulated wire or insulated busbars operating at not over 300 volts are not considered live parts.
Condition B -- Exposed live parts on one side and grounded parts on the other side. Concrete, brick, and tile walls are considered as grounded surfaces.
Condition C -- Exposed live parts on both sides of the work space (not guarded as provided in Condition A) with the operator between.
3. Working space is not required in back of assemblies such as dead-front switchboards or motor control centers where there are no renewable or adjustable parts (such as fuses or switches) on the back and where all connections are accessible from locations other than the back. Where rear access is required to work on deenergized parts on the back of enclosed equipment, a minimum working space of 762 mm (30 in.) horizontally shall be provided.
4. Minimum depth of clear working space in front of electric equipment with a nominal voltage to ground above 25,000 volts may be the same as that for 25,000 volts under Conditions A, B, and C for installations built before April 16, 1981.

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Electrical Safety Sample Topics

- Electrical Shock
- How Electricity Works
- Lockout/tagout
- Injuries from electrical shock
- Grounding
- And More

CUSTOM SAFETY MANUALS

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Related Electrical Safety Chapters

- Electrical Safety
- Hazardous Energy Control
- Electrical Power Generation (Utilities)
- Hazardous Energy Control (Lockout/Tagout)

SAFETY MEETINGS

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Examples of Related Safety Meeting Topics

- M012 Grounding & Electrical Tools
- M013 First Aid for Burns (Fire, Electricity, Chemicals)
- M024 Electrical Safety
- M028 Electrical Cords
- M130 Electrical Hazards
- M273 Static Electricity
- M770 Maintenance (Electricity and its Hazards)
- And More

#10 MACHINE GUARDING

Contained within OSHA regulation 1910.212 are the basic instructions for providing guarding on all machines. It is a broad enough topic that it netted 2,704 violations in 2013, good enough to round out the top 10 list.
The regulation is also a very succinct rule with four main points.

1. Guard machines where their operation exposes an employee to injury.
Use multiple methods to protect all employees from point of operation hazards such as: ingoing nip points, rotating parts, flying chips and sparks. Fasten the guards to machine when you can, and somewhere else when you can't. Make sure the guard cannot cause its own hazards. Guards must conform to appropriate standards and prevent the operator from having his body in the danger zone during operation.
Handtools must permit easy handling of material without the operator placing a hand in the danger zone. Any tool supplements other protection and doesn't replace the need for machine guarding.
Some machines explicitly listed as needing guarding include: guillotine cutters, shears, alligator shears, power presses, milling machines, power saws, jointers, portable power tools, and forming rolls and calenders.

2. Revolving drums, barrels, and containers need a guarding enclosure interlocked with the drive mechanism.
So the container doesn't spin unless the guard is in place.

Top 10 OSHA Violations 2013

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4. Respiratory Protection (1910.134)
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5. Electrical, Wiring (1910.305)
   chapter / webpage
6. Powered Industrial Trucks (1910.178)
   chapter / webpage
7. Ladders (1926.1053)
   chapter / webpage
8. Lockout/Tagout (1910.147)
   chapter / webpage
9. Electrical, General (1910.303)
   chapter / webpage
10. Machine Guarding (1910.212)
    chapter / webpage

3. Guard the outside edge of a fan blade less than seven feet above the working level.
Guard openings need to be smaller than ½ inch.

4. Securely anchor machines designed to be in a fixed location.
The prevents the machine from moving or “walking”.

Safeguarding Machinery
Beyond the regulation, OSHA provides the following guidance on safeguarding machinery.
First use the machinery installed by the manufacturer. If used equipment is missing these safeguards try to purchase them from the original or an after-market manufacturer. When designing and building your own safeguards use technically qualified professionals and ask the original manufacturer to review the design to ensure protection without unintended hazards.
The established criteria for machine safeguarding are: prevents employee contact with the hazard, avoids creating additional hazards, is secure, tamper-resistant, and durable, avoids interfering with normal machine operation and allows for safe lubrication and maintenance.
Any safeguard that interferes with easy operation will cause employees to not use them.
The acceptable safeguarding methods are listed below, with guards and some safeguarding devices preferred because they physically keep employees out of the hazardous areas.

- Guard: A barrier that prevents exposure to a hazard.
- Safeguarding device: A device that detects or prevents inadvertent access to a hazard.
- Awareness device: A barrier, signal or sign warning of a hazard.
- Safeguarding method: Arranging the machine through distance, openings or positioning to ensure the operator can’t reach the hazard.
- Safe work procedures: Formal written instructions describing how to safely perform a task.

TYPES OF MACHINE GUARDS

Type	Safeguarding Method	Advantages	Limitations
Fixed	Barrier that allows for stock feeding but does not permit operator to reach the danger area.	• Can be constructed to suit many applications. • Permanently encloses the point of operation or hazard area. • Provides protection against machine repeat. • Allows simple, in-plant construction, with minimal maintenance.	• Sometimes not practical for changing production runs involving different size stock or feeding methods. • Machine adjustment and repair often require guard removal. • Other means of protecting maintenance personnel often required (lockout/tagout).
Adjustable	Barrier that adjusts for a variety of production operations.	• Can be constructed to suit many applications. • Can be adjusted to admit varying stock sizes.	• May require frequent maintenance or adjustment. • Operator may make guard ineffective.
Self-Adjusting	Barrier that moves according to the size of the stock entering point of operation. Guard is in place when machine is at rest and pushes away when stock enters the point of operation.	• Off-the-shelf guards are often commercially available.	• Does not provide maximum protection. • May require frequent maintenance and adjustment.
Interlocking Barrier Guards	Shuts off or disengages power and prevents machine start-up when guard is open. Should allow for inching of machine.	• Allows access for some minor servicing work, in accordance with the lockout/tagout exception, without time-consuming removal of fixed guards.	• May require periodic maintenance or adjustment. • Movable sections cannot be used for manual feeding. • Some designs may be easy to defeat. • Interlock control circuitry may not be used for all maintenance and servicing work.

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Hand & Power Tools Sample Topics

- Accident Prevention
- General Requirements
- Hand toolls
- Jacks
- Abrasive Wheels
- Inspections
- Training Requirements
- And More

CUSTOM SAFETY MANUALS

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Related Machine Guard Safety Chapters

- Machine Guarding & Equipment Safety
- Hand and Power Tools
- Electrical Safety
- Hazardous Energy Control
- Job Hazard Analysis
- Hazardous Energy Control (Lockout/Tagout)
- Heavy Equipment

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Examples of Related Safety Meeting Topics

- M147 Machine Guards
- M069 Power Tools
- M798 Power Take Off
- M387 Pinch Points
- M022 Lockout, Blockout, Tagout
- M903 Lockout Tagout Hot Topics
- M904 Lockout Tagout Procedure
- M207 Tagging Out of Service
- M140 Sheet Metal Worker
- M306 Servicing Heavy Equipment
- M770 Maintenance (Electricity and its Hazards)
- M856 Hierarchy of Controls Engineering