

Name: _____

Date: _____



New York Safety and Training

OSHA 10 Construction Student Workbook

www.NYSafetyandTraining.com

(718) 734-8400

For training purposes only

Revision 180327

NAME

CELL PHONE

CLASS DATE

CLASS LOCATION

INSTRUCTOR'S NAME

Why am I taking this OSHA class? _____

How much do I know about my rights as a worker? _____

How much do I know about hazards at construction sites? _____

What do I want to get out of this OSHA class? _____

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Summary of
NYC Local Law 196 of 2017
Site Safety Training (SST) Cards Requirements

Four Different types of Site Safety Training (SST) cards:

Site Safety Training (SST) card, Limited Site Safety Training (SST) card, Temporary Site Safety Training (SST) card, and Site Safety Training (SST) Supervisor card

Site Safety Training (SST) card

Qualifications: 1 of 3 options:

OSHA 10 plus 30 – 45 additional SST training hours (to include 8 hours of “safeguarding against the dangers posed by falling workers and objects”)

OR

OSHA 30 plus 10 – 25 additional SST training hours (to include 8 hours of “safeguarding against the dangers posed by falling workers and objects”)

OR

100-hour training program (such as an approved apprenticeship)

Expiration: 5 years

Renewal: within a year preceding renewal, attend 8 hours of SST training

Limited Site Safety Training (SST) card

Qualifications: 1 of 3 options:

OSHA 30

OR

OSHA 10 plus 20 other hours of safety training (Must include 8 hours of “safeguarding against the dangers posed by falling workers and objects”)

OR

100-hour training program (such as an approved apprenticeship)

Expiration: May 1, 2019

Renewal: None

Temporary Site Safety Training (SST) card

Qualifications: Entry level card for workers who complete OSHA 10 Construction class.

Expiration: 6 months

Renewal: none

Site Safety Training (SST) Supervisor card

Qualifications: Have an SST card and OSHA 30 card

Expiration: 5 years

Renewal: within a year preceding renewal, attend 16 hours of SST training

TIMELINE OF ENFORCEMENT

March 1, 2018: all workers must have one of the following three:

OSHA 10 card, OSHA 30 card, or 100-hour training program certificate

December 1, 2018 (“SST Second Compliance Date”): All workers must have one of the following three:

Site Safety Training (SST) card, Limited Site Safety Training (SST) card, or Temporary Site Safety Training (SST) card

All site safety managers, site safety coordinators, concrete safety managers, construction superintendents, and competent persons must have Site Safety Training (SST) Supervisor card

May 1, 2019 (“SST Full Compliance Date”): All workers must have one of the following two:

Site Safety Training (SST) card or Temporary Site Safety Training (SST) card

All site safety managers, site safety coordinators, concrete safety managers, construction superintendents, and competent persons must have Site Safety Training (SST) Supervisor card

Thank you for choosing **New York Safety and Training.**

Here are some **Frequently Asked Questions** from our students:

I'm taking an OSHA 10 class. When will I receive my OSHA card?

At the end of Day 2 of your OSHA class, you'll receive a signed temporary certificate. Your certificate is good for 90 days. You can use this certificate on your jobsite and during your job hunt. In the meantime, we order your card from OSHA, which is part of the federal government. OSHA mails your card to NYST, and we mail it to you. We will ask you to write an envelope with your address; it's very important that you put a reliable mailing address on envelope. You should receive your card in the mail sometime within a month. If your card has not arrived by 30 days from the end of class, call NYST to ask him about your card. Please do not call looking for your card before 30 days from the end of your class.

What's the difference between the OSHA 10 General Industry class and the OSHA 10 Construction class?

The OSHA 10 General Industry class teaches workplace safety for general workplaces, such as buildings, offices, hotels, and warehouses. This is sometimes called the "Maintenance" class, and students receive a blue stripe OSHA card. The OSHA 10 Construction class teaches basic workplace safety for construction sites. New York City has a law that says that no worker can be at a major construction site unless that worker has taken this OSHA 10 class within the last 5 years. OSHA 10 Construction students earn a yellow stripe card. If you're going to be doing any type of work, including security, at a construction site, you need to take the OSHA 10 Construction class.

I'm taking an OSHA class. What happens if I miss tomorrow's Day 2 class?

If you miss tomorrow's class, you can make up Day 2 during any NYST OSHA class within the next month, but you will be charged a \$25 administrative processing fee to make up tomorrow's class. If this happens to you, you must make up Day 2 of the class; you cannot repeat Day 1 (as in, you have to attend a Saturday and a Sunday, not two Saturdays).

What if I want to take more classes with NYST?

NYST is very thankful to every person who takes a class with us. Once you've taken one class with us, you receive a \$25 discount on any other class you may ever want to take (except upgrade to OSHA 30).

What is the FLAGGER class?

Flagger: Construction Site Traffic Safety Manager class is training for workers who want to be qualified to direct vehicular and pedestrian traffic around construction sites. Only workers who have taken the Flagger class are allowed to perform flagger operations. Students who complete our Flagger class in Brooklyn or the Bronx receive their Flagger photo ID at the end of class; students at other locations receive a temporary certificate of completion at the end of class and receive a photo ID card in the mail. This is a great certification to help make our students more competitive in the job market.

What is the 4-hour SCAFFOLD class?

New York City has a law that states that only workers who have completed the 4-hour Supported Scaffold User class are allowed to climb and work while on scaffolds. Most construction sites in NYC use scaffolds, and any worker without a scaffold card cannot be on a scaffold and is therefore limited in the work he or she can perform at the site. Students who complete our Scaffold class in Brooklyn or the Bronx receive their Scaffold photo ID card at the end of class; students at other locations receive a temporary certificate of completion at the end of class and receive a Scaffold photo ID card in the mail. This is a great certification to help make our students more competitive in the job market.

What happens if I lose my OSHA card?

If you lose your OSHA card, NYST can order a replacement card for you one time from OSHA. A replacement card will cost you \$50. For us to be able to order your replacement card, we'll need to know the date that you took your OSHA class. This date is on your certificate that you'll receive at the end of tomorrow's class. Take a picture of your certificate with your phone (and take a picture of your OSHA card when it arrives in the mail), and keep this certificate someplace safe, in case you ever lose your card. If you lose your OSHA card a second time, you cannot get a replacement card. You'll have to take the class again.

Does my OSHA card expire?

According to OSHA, no, your OSHA card does not expire. But in New York City, the OSHA 10 Construction card is only good for five years. After five years, you have to retake the class.

Where can I find pictures of our class that the instructor may take?

Class photos are posted on Instagram and Facebook at

NYSafetyandTraining

NYST will not tag any photos of you. If you'd like, tag yourself and Share as you choose. In fact, if you take any good pictures of yourself in class, or with your certificate or card, please "Tag" NYST:

@NYSafetyandTraining

I'm taking the OSHA 10 Construction class and am interested in the OSHA 30. How does that work?

The OSHA 10 Construction class is the basic workplace safety class required by New York City law for all workers at construction sites. The OSHA 30 includes those same 10 hours of training, plus 20 hours of more in-depth topics such as cranes, excavations, and fire safety. The OSHA 30 also covers safety plans and ways to help keep your coworkers safe. The OSHA 30 is ideal for any worker who wants to become a supervisor or take on a leadership role at the job site. The OSHA 30 is 5 or 6 days of class (the first two days are the OSHA 10). If you take your OSHA 10 with NYST, you can count that towards your OSHA 30; after your OSHA 10, you'll only have to pay the difference in price and you can skip the first two classes. We only offer the OSHA 30 about three a year. Your OSHA 10 can only count towards the OSHA 30 if you take the 30 within 6 months of your OSHA 10. After 6 months, you'll have to attend all 30 hours of class of the OSHA 30, but you will still only have to pay the difference to attend the 30.

How do I become a Fire Guard?

There is no required class to be a Fire Guard. To become a Fire Guard, you need to take a computer test at FDNY headquarters at 9 MetroTech in Brooklyn (by Jay Street). Tests are given Monday - Friday, 8:30 AM to 2:00 PM for \$25. If you're working in Construction, get your F-60 Fire Guard for Torch Operations and Construction Sites Certificate of Fitness. If you're working in Building Maintenance or Security, get your F-01 Citywide Fire Guard for Impairment Certificate of Fitness. NYST offers fire guard study classes at our Brooklyn Training Center for only \$100. You can pick up a study book at 9 MetroTech or download the study material from the FDNY website at

http://www.nyc.gov/html/fdny/html/c_of_f/cof_study_materials.shtml

Will anyone at NYST try to sell me anything while I'm here?

No. While you're with NYST for your training, NYST instructors and staff will NOT attempt to sell you any items or equipment. No NYST personnel may sell any items to students other than official NYST safety training. Neither New York Safety and Training nor any NYST instructor has proprietary interest in any product, instrument, device, service, or material discussed during the learning event.

OSHA 10 Construction Course

Goal

Upon successful completion of this course, participants will have an improved attitude about the importance of safety and will be able to identify the most common hazards associated with the construction industry. Students will understand the role of OSHA and know their rights to safety and health as workers.

DAY 1

Lesson 1 – Introduction to OSHA	7
Refusing to Work Because Conditions Are Dangerous	8
OSHA Poster	9
OSHA Inspections	10
Filing an OSHA Complaint	11
OSHA FactSheet: Your Rights as a Whistleblower	15
Safety and Health Resources	17
Navigating the OSHA Website	18
Identifying Safety and Health Problems in the Workplace	20
Lesson 2 – Fatality Catastrophe Report	21
Lesson 3 – Health Hazards in Construction:	26
Safety Data Sheet (SDS) Breakout Session	28
Safety Data Sheet	32
GHS Pictograms	36
Quiz: Health Hazards in Construction	37
Health Hazards: Silica	38
Lesson 4 –Personal Protective Equipment	41
Employers Must Provide and Pay for Most PPE	43
OSHA Quickcard: Construction PPE	45
<i>Elective</i> – Respiratory Protection	
OSHA Quickcard: Protect Yourself – Respirators	46
<i>Elective</i> – Ladder Safety	47
Ladder Inspection Form	49

DAY 2

Lesson 1 – Focus Four: Fall Hazards	54
Personal Fall Arrest Systems Summary	55
Suspension Trauma (<i>from TagSafety.com</i>)	58
Guardrail and Safety Net Systems Summary	59
Lesson 2 – Focus Four: Electrical Hazards	60
Toolbox Talk: Extension Cord Safety	62
Lesson 3 – Focus Four: Struck-By Hazards	63
Quiz: Struck-By	66
Lesson 4 Focus Four: Caught-in or -Between Hazards	67
Quiz: Caught-in or -Between	69
<i>Elective</i> – Trench and Excavation Hazards	
OSHA Quickcard: Protect Yourself – Trench Safety	70
<i>Review</i> – OSHA Quickcard: Top Four Construction Hazards	71
<i>Elective</i> – Scaffold Safety Basics	72
<i>Elective</i> – Confined Spaces in Construction	74
Class Conclusion	78

INTRODUCTION TO OSHA

Goal: To introduce students to OSHA and what OSHA does for them.

OBJECTIVES

Upon successful completion of this lesson, students will be able to

1. Explain why OSHA is important to workers
2. Explain worker rights under OSHA
3. Discuss employer responsibilities under OSHA
4. Discuss the use of OSHA standards
5. Explain how OSHA inspections are conducted
6. Utilize helpful worker safety and health resources

NOTES

1. "OSHA" stands for _____ and _____
2. The mission of OSHA is to _____
3. In NYC, the OSHA 10 Construction card expires in _____
4. The tragedy that occurred in 1911 is known as _____
5. Some of the hazards that contributed to the deaths in this 1911 event include _____

6. OSHA states that you have the right to a _____ and _____ workplace.
7. When refusing to perform unsafe work, if you leave the worksite, _____

8. True or False: You can report a hazard to OSHA confidentially.
9. If you are retaliated against for exercising your safety rights, you have _____ days to contact OSHA

Refusing to Work because Conditions are Dangerous

Workers have the right to refuse to do a job if they believe in good faith that they are exposed to an imminent danger. "Good faith" means that even if an imminent danger is not found to exist, the worker had reasonable grounds to believe that it did exist.

The United States Supreme Court, in the Whirlpool case, issued the landmark ruling which more clearly defined a worker's right to refuse work where an employee has reasonable apprehension that death or serious injury or illness might occur as a result of performing the work. **However, as a general rule, you do not have the right to walk off the job because of unsafe conditions.**

REFUSING WORK IS PROTECTED IF:

Your right to refuse to do a task is protected if **ALL** of the following conditions are met:

- ✓ Where possible, you have asked the employer to eliminate the danger, and the employer failed to do so; **and**
- ✓ You refused to work in "good faith." This means that you must genuinely believe that an imminent danger exists. Your refusal cannot be a disguised attempt to harass your employer or disrupt business; **and**
- ✓ A reasonable person would agree that there is a real danger of death or serious injury; **and**
- ✓ There isn't enough time, due to the urgency of the hazard, to get it corrected through regular enforcement channels, such as requesting an OSHA inspection.

CONDITIONS ARE MET, NEXT STEPS:

When all of these conditions are met, you take the following steps:

- ✓ Ask your employer to correct the hazard;
- ✓ Ask your employer for other work;
- ✓ Tell your employer that you won't perform the work unless and until the hazard is corrected; **and**
- ✓ Remain at the worksite until ordered to leave by your employer.

The table below offers a few "IF/THEN" scenarios to follow.

IF	THEN
You believe working conditions are unsafe or unhealthful.	Call your employer's attention to the problem.
Your employer does not correct the hazard or disagrees with you about the extent of the hazard.	You may file a complaint with OSHA.
Your employer discriminates against you for refusing to perform the dangerous work.	Contact OSHA immediately.

Source: <http://www.osha.gov/as/opa/worker/refuse.html>



Job Safety and Health IT'S THE LAW!

All workers have the right to:

- A safe workplace.
- Raise a safety or health concern with your employer or OSHA, or report a work-related injury or illness, without being retaliated against.
- Receive information and training on job hazards, including all hazardous substances in your workplace.
- Request an OSHA inspection of your workplace if you believe there are unsafe or unhealthy conditions. OSHA will keep your name confidential. You have the right to have a representative contact OSHA on your behalf.
- Participate (or have your representative participate) in an OSHA inspection and speak in private to the inspector.
- File a complaint with OSHA within 30 days (by phone, online or by mail) if you have been retaliated against for using your rights.
- See any OSHA citations issued to your employer.
- Request copies of your medical records, tests that measure hazards in the workplace, and the workplace injury and illness log.

This poster is available free from OSHA.

Contact OSHA. We can help.

Employers must:

- Provide employees a workplace free from recognized hazards. It is illegal to retaliate against an employee for using any of their rights under the law, including raising a health and safety concern with you or with OSHA, or reporting a work-related injury or illness.
- Comply with all applicable OSHA standards.
- Report to OSHA all work-related fatalities within 8 hours, and all inpatient hospitalizations, amputations and losses of an eye within 24 hours.
- Provide required training to all workers in a language and vocabulary they can understand.
- Prominently display this poster in the workplace.
- Post OSHA citations at or near the place of the alleged violations.

FREE ASSISTANCE to identify and correct hazards is available to small and medium-sized employers, without citation or penalty, through OSHA-supported consultation programs in every state.



OSHA INSPECTIONS

PRIORITY	CATEGORY OF INSPECTION
1st	Imminent Danger: Reasonable certainty an immediate danger exists
2nd	Fatality/Catastrophe: Reported to OSHA; inspected ASAP
3rd	Complaints/Referrals: Worker or worker representative can file a complaint about a safety or health hazard
4th	Programmed Inspections: Cover industries and employers with high injury and illness rates, specific hazards, or other exposures.

VIOLATION TYPE and PENALTY

WILLFUL: A violation that the employer intentionally and knowingly commits or a violation that the employer commits with plain indifference to the law.

OSHA may propose penalties of up to \$124,709 for each willful violation, with a minimum penalty of \$5,000 for each willful violation.

SERIOUS: A violation where there is substantial probability that death or serious physical harm could result and that the employer knew, or should have known, of the hazard.

There is a mandatory penalty for serious violations which may be up to \$12,471.

OTHER-THAN-SERIOUS: A violation that has a direct relationship to safety and health, but probably would not cause death or serious physical harm.

OSHA may propose a penalty of up to \$12,471 for each other-than-serious violation.

REPEATED: A violation that is the same or similar to a previous violation.

OSHA may propose penalties of up to \$124,709 for each repeated violation.

Filing an OSHA Complaint – Tips for Completing the Complaint Form

INSTRUCTIONS Provided on the Form:

Open the form and complete the front page as accurately and completely as possible. Describe each hazard you think exists in as much detail as you can. If the hazards described in your complaint are not all in the same area, please identify where each hazard can be found at the worksite. If there is any particular evidence that supports your suspicion that a hazard exists (for instance, a recent accident or physical symptoms of employees at your site) include the information in your description. If you need more space than is provided on the form, continue on any other sheet of paper. After you have completed the form, return it to your local OSHA office.

Here are tips for completing the form:

1. Be specific and include appropriate details: The information on the complaint form may be the only description of the hazard that the inspector will see before the inspection. The inspector will base his or her research and planning on this information.
2. Establishment Name, Address, & Type of Business: Be thorough and specific. The inspector's research on the company and the industry's hazards will be based on this information.
3. Hazard Description/Location: The hazard description is the most important part of the form. Your answer should explain the hazards clearly. If your complaint is about chemicals, identify them whenever possible and attach copies of labels or SDSs if you can. Identify the location so the inspector will know where to look.
4. Has this condition been brought to the attention of the employer or another government agency? You should indicate on the form if you have tried to get the employer to fix the hazard before filing the complaint. Also, if another agency, such as a local fire or building department, has been notified of these hazards, OSHA may want to consult with them.
5. Do NOT reveal my name: OSHA will keep your name off the complaint, if you wish. Remember that discrimination for health and safety activity is illegal. If you are a union representative, you may wish to have your name on the complaint.
6. Signature and address: It is important to sign the complaint if you want OSHA to conduct an onsite inspection. Also, your address will allow OSHA to send copies of inspection related materials to you.

U. S. Department of Labor Occupational Safety and Health Administration		1	
Notice of Alleged Safety or Health Hazards			
		Complaint Number	
Establishment Name			
Site Address	Site Phone	2	Site FAX
Mailing Address	Mail Phone		Mail FAX
Management Official	Telephone		
Type of Business			
HAZARD DESCRIPTION/LOCATION. Describe briefly the hazard(s) which you believe exist. Include the approximate number of employees exposed to or threatened by each hazard. Specify the particular building or worksite where the alleged violation exists.			
3			
Has this condition been brought to the attention of:	<input type="checkbox"/> Employer <input type="checkbox"/> Other Government Agency(specify)		
Please Indicate Your Desire:	<input type="checkbox"/> Do NOT reveal my name to my Employer <input type="checkbox"/> My name may be revealed to the Employer		
The Undersigned believes that a violation of an Occupational Safety or Health standard exists which is a job safety or health hazard at the establishment named on this form.	(Mark "X" in ONE box) <input type="checkbox"/> Employee <input type="checkbox"/> Federal Safety and Health Committee <input type="checkbox"/> Representative of Employees <input type="checkbox"/> Other (specify)		
Complainant Name			Telephone
Address(Street, City, State, Zip)	6		
Signature			Date
If you are an authorized representative of employees affected by this complaint, please state the name of the organization that you represent and your title:			
Organization Name:	Your Title:		

Construction Complaint Scenario

Use the following scenario to determine what information should be put on an OSHA complaint form. Is any additional information needed?

You are a construction worker for ABC, Inc, 1000 Sweet Road, Anytown, USA, 40001. ABC does non-residential plumbing, heating and air-conditioning work. You have worked for ABC for 3 years. You, along with 7 co-workers, have been installing sheetmetal ductwork in the lower level of the Anytown Shopping Mall, which is undergoing renovation, for the past few weeks. The site is located in the Northwest quadrant, in the basement of the anchor store, located at 555 Times Drive, in Anytown. One of your co-workers has been operating a 65-horsepower concrete cutting saw in the same area. The saw is being run in the propane mode. You and several co-workers get headaches from the fumes whenever the saw is used and have told your supervisor about the problem. The supervisor said that nothing could be done, because the General Contractor, CAB Management, has control over the site and this job will be complete in another month. You did some research and found out that exposure to propane in a confined, unventilated area can cause headaches, dizziness, difficulty breathing and unconsciousness. There is no ventilation or monitoring of the air in the area.

After talking to your union representative, you decide to file a complaint with OSHA.

NOTES:

Notice of Alleged Safety or Health Hazards

For the General Public:

This form is provided for the assistance of any complainant and is not intended to constitute the exclusive means by which a complaint may be registered with the U.S. Department of Labor.

Sec 8(f)(1) of the Williams-Steiger Occupational Safety and Health Act, 29 U.S.C. 651, provides as follows: Any employees or representative of employees who believe that a violation of a safety or health standard exists that threatens physical harm, or that an imminent danger exists, may request an inspection by giving notice to the Secretary or his authorized representative of such violation or danger. Any such notice shall be reduced to writing, shall set forth with reasonable particularity the grounds for the notice, and shall be signed by the employee or representative of employees, and a copy shall be provided the employer or his agent no later than at the time of inspection, except that, upon request of the person giving such notice, his name and the names of individual employees referred to therein shall not appear in such copy or on any record published, released, or made available pursuant to subsection (g) of this section. If upon receipt of such notification the Secretary determines there are reasonable grounds to believe that such violation or danger exists, he shall make a special inspection in accordance with the provisions of this section as soon as practicable to determine if such violation or danger exists. If the Secretary determines there are no reasonable grounds to believe that a violation or danger exists, he shall notify the employees or representative of the employees in writing of such determination.

NOTE: Section 11(c) of the Act provides explicit protection for employees exercising their rights, including making safety and health complaints.

For Federal Employees:

This report format is provided to assist Federal employees or authorized representatives in registering a report of unsafe or unhealthful working conditions with the U.S. Department of Labor.

The Secretary of Labor may conduct unannounced inspection of agency workplaces when deemed necessary if an agency does not have occupational safety and health committees established in accordance with Subpart F, 29 CFR 1960; or in response to the reports of unsafe or unhealthful working conditions upon request of such agency committees under Sec. 1-3, Executive Order 12196; or in the case of a report of imminent danger when such a committee has not responded to the report as required in Sec. 1-201(h).

INSTRUCTIONS:

Open the form and complete the front page as accurately and completely as possible. Describe each hazard you think exists in as much detail as you can. If the hazards described in your complaint are not all in the same area, please identify where each hazard can be found at the worksite. If there is any particular evidence that supports your suspicion that a hazard exists (for instance, a recent accident or physical symptoms of employees at your site) include the information in your description. If you need more space than is provided on the form, continue on any other sheet of paper.

After you have completed the form, return it to your local OSHA office.

NOTE: It is unlawful to make any false statement, representation or certification in any document filed pursuant to the Occupational Safety and Health Act of 1970. Violations can be punished by a fine of not more than \$10,000, or by imprisonment of not more than six months, or by both. (Section 17(g))

Public reporting burden for this voluntary collection of information is estimated to vary from 15 to 25 minutes per response with an average of 17 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. An Agency may not conduct or sponsor, and persons are not required to respond to the collection of information unless it displays a valid OMB Control Number. Send comment regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to the Directorate of Enforcement Programs, Department of Labor, Room N-3119, 200 Constitution Ave., NW, Washington, DC; 20210.

OMB Approval# 1218-0064; Expires: 03-31-2011

Do not send the completed form to this Office.

Notice of Alleged Safety or Health Hazards

		Complaint Number			
Establishment Name					
Site Address					
		Site Phone			Site FAX
Mailing Address					
		Mail Phone			Mail FAX
Management Official				Telephone	
Type of Business					
<p>HAZARD DESCRIPTION/LOCATION. Describe briefly the hazard(s) which you believe exist. Include the approximate number of employees exposed to or threatened by each hazard. Specify the particular building or worksite where the alleged violation exists.</p>					
Has this condition been brought to the attention of:		~ Employer		~ Other Government Agency(specify)	
Please Indicate Your Desire:		~ Do NOT reveal my name to my Employer			
		~ My name may be revealed to the Employer			
The Undersigned believes that a violation of an Occupational Safety or Health standard exists which is a job safety or health hazard at the establishment named on this form.		(Mark "X" in ONE box)			
		~ Employee		~ Federal Safety and Health Committee	
		~ Representative of Employees		~ Other (specify) _____	
Complainant Name				Telephone	
Address(Street, City, State, Zip)					
Signature				Date	
If you are an authorized representative of employees affected by this complaint, please state the name of the organization that you represent and your title:					
Organization Name:		Your Title:			

OSHA FactSheet

Your Rights as a Whistleblower

You may file a complaint with OSHA if your employer retaliates against you by taking unfavorable personnel action because you engaged in protected activity relating to workplace safety and health, commercial motor carrier safety, pipeline safety, air carrier safety, nuclear safety, the environment, asbestos in schools, corporate fraud, SEC rules or regulations, railroad carrier safety or security, or public transportation agency safety or security.

Whistleblower Laws Enforced by OSHA

Each law requires that complaints be filed within a certain number of days after the alleged retaliation.

You may file complaints by telephone or in writing under the:

- Occupational Safety and Health Act (30 days)
- Surface Transportation Assistance Act (180 days)
- Asbestos Hazard Emergency Response Act (90 days)
- International Safe Container Act (60 days)
- Federal Rail Safety Act (180 days)
- National Transit Systems Security Act (180 days)

Under the following laws, complaints must be filed in writing:

- Clean Air Act (30 days)
- Comprehensive Environmental Response, Compensation and Liability Act (30 days)
- Energy Reorganization Act (180 days)
- Federal Water Pollution Control Act (30 days)
- Pipeline Safety Improvement Act (180 days)
- Safe Drinking Water Act (30 days)
- Sarbanes-Oxley Act (90 days)
- Solid Waste Disposal Act (30 days)
- Toxic Substances Control Act (30 days)
- Wendell H. Ford Aviation Investment and Reform Act for the 21st Century (90 days)

Unfavorable Personnel Actions

Your employer may be found to have retaliated against you if your protected activity was a contributing or motivating factor in its decision to take unfavorable personnel action against you.

Such actions may include:

- Firing or laying off
- Blacklisting
- Demoting
- Denying overtime or promotion
- Disciplining

- Denying benefits
- Failing to hire or rehire
- Intimidation
- Reassignment affecting promotion prospects
- Reducing pay or hours

Filing a Complaint

If you believe that your employer retaliated against you because you exercised your legal rights as an employee, contact your local OSHA office as soon as possible, because you must file your complaint within the legal time limits. OSHA conducts an in-depth interview with each complainant to determine whether to conduct an investigation. For more information, call your closest OSHA Regional Office:

- | | |
|-----------------|----------------|
| • Boston | (617) 565-9860 |
| • New York | (212) 337-2378 |
| • Philadelphia | (215) 861-4900 |
| • Atlanta | (404) 562-2300 |
| • Chicago | (312) 353-2220 |
| • Dallas | (972) 850-4145 |
| • Kansas City | (816) 283-8745 |
| • Denver | (720) 264-6550 |
| • San Francisco | (415) 625-2547 |
| • Seattle | (206) 553-5930 |

Addresses, fax numbers and other contact information for these offices can be found on OSHA's website, www.osha.gov, and in local directories. Some complaints must be filed in writing and some may be filed verbally (call your local OSHA office for assistance). Written complaints may be filed by mail (we recommend certified mail), fax, or hand-delivered during business hours. The date postmarked, faxed or hand-delivered is considered the date filed.

If retaliation for protected activity relating to occupational safety and health issues takes place in a state that operates an OSHA-approved state plan, the complaint should be filed with the state agency, although persons in those states may file with Federal OSHA at the same time. Although the Occupational Safety and

Health Act covers only private sector employees, state plans also cover state and local government employees. For details, see <http://www.osha.gov/fso/osp/index.html>.

How OSHA Determines Whether Retaliation Took Place

The investigation must reveal that:

- The employee engaged in protected activity;
- The employer knew about the protected activity;
- The employer took an adverse action; and
- The protected activity was the motivating factor (or under some laws, a contributing factor) in the decision to take the adverse action against the employee.

If the evidence supports the employee's allegation and a settlement cannot be reached, OSHA will issue an order requiring the employer to reinstate the employee, pay back wages, restore benefits, and other possible remedies to make the employee whole.

Limited Protections for Employees Who Refuse to Work

You have a limited right under the OSH Act to refuse to do a job because conditions are hazardous. You may do so under the OSH Act only when (1) you believe that you face death or serious injury (and the situation is so clearly hazardous that any reasonable person would believe the same thing); (2) you have tried to get your employer to correct the condition, and there is no other way to do the job safely; and (3) the situation is so urgent that you do not have time to eliminate the hazard through regulatory channels such as calling OSHA.

Regardless of the unsafe condition, you are not protected if you simply walk off the job. For details, see <http://www.osha.gov/as/opa/worker/refuse.html>. OSHA cannot enforce union contracts or state laws that give employees the right to refuse to work.

Whistleblower Protections in the Transportation Industry

Employees whose jobs directly affect commercial motor vehicle safety are protected from retaliation by their employers for refusing to violate or for reporting

violations of Department of Transportation (DOT) motor carrier safety standards or regulations, or refusing to operate a vehicle because of such violations or because they have a reasonable apprehension of death or serious injury.

Similarly, employees of air carriers, their contractors or subcontractors who raise safety concerns or report violations of FAA rules and regulations are protected from retaliation, as are employees of owners and operators of pipelines, their contractors and subcontractors who report violations of pipeline safety rules and regulations. Employees involved in international shipping who report unsafe shipping containers are also protected. In addition, employees of railroad carriers or public transportation agencies, their contractors or subcontractors who report safety or security conditions or violations of federal rules and regulations relating to railroad or public transportation safety or security are protected from retaliation.

Whistleblower Protections for Voicing Environmental Concerns

A number of laws protect employees who report violations of environmental laws related to drinking water and water pollution, toxic substances, solid waste disposal, air quality and air pollution, asbestos in schools, and hazardous waste disposal sites. The Energy Reorganization Act protects employees who raise safety concerns in the nuclear power industry and in nuclear medicine.

Whistleblower Protections When Reporting Corporate Fraud

Employees who work for publicly traded companies or companies required to file certain reports with the Securities and Exchange Commission are protected from retaliation for reporting alleged mail, wire, or bank fraud; violations of rules or regulations of the SEC, or federal laws relating to fraud against shareholders.

More Information

To obtain more information on whistleblower laws, go to www.osha.gov, and click on the link for "Whistleblower Protection."

This is one in a series of informational fact sheets highlighting OSHA programs, policies or standards. It does not impose any new compliance requirements. For a comprehensive list of compliance requirements of OSHA standards or regulations, refer to Title 29 of the Code of Federal Regulations. This information will be made available to sensory impaired individuals upon request. The voice phone is (202) 693-1999; teletypewriter (TTY) number: (877) 889-5627.

For more complete information:



U.S. Department of Labor

www.osha.gov (800)

321-OSHA



Government Resources

OSHA: <http://www.osha.gov> Contact the OSHA Office nearest you or contact the toll free number: 1-800-321-OSHA (6742)

NIOSH: <http://www.cdc.gov/niosh/> Phone NIOSH at 1-800-CDC-INFO (1-800-232-4636) or Email at: cdcinfo@cdc.gov

NIOSH is a part of the Centers for Disease Control and Prevention (<http://www.cdc.gov/>). CDC has extensive information on health and safety topics.

Universities

CORNELL UNIVERSITY

School of Industrial and Labor Relations: <http://www.ilr.cornell.edu/healthSafety/>

LABOR OCCUPATIONAL HEALTH PROGRAM, University of California at Berkeley: <http://www.lohp.org/>

NATIONAL LABOR COLLEGE, George Meany Center: <http://www.nlc.edu/>

UCLA, Labor Occupational Safety and Health (UCLA-LOSH): <http://www.iosh.ucla.edu/>

COSH GROUPS

COSH groups are private, non-profit coalitions of labor unions, health and technical professionals, and others interested in promoting and advocating for worker health and safety. *If you don't see a COSH group in your area, check the NATIONAL COSH website for local COSH groups.*

NATIONAL COUNCIL FOR OCCUPATIONAL SAFETY & HEALTH National COSH is a federation of local and statewide "COSH" groups: <http://www.coshnetwork.org/>

CACOSH – Chicago Area Committee on Occupational Safety and Health: <http://www.cacosh.org/>

MASSCOSH –Massachusetts Coalition on Occupational Safety and Health: <http://www.masscosh.org/>

NYCOSH – New York Committee for Occupational Safety and Health: <http://www.nycosh.org/>

PHILAPOSH – Philadelphia Area Project for Occupational Safety and Health: <http://www.philaposh.org/> Prevention (<http://www.cdc.gov/>).

Unions

The following is a sample list of unions with links to useful health and safety information.

AFL-CIO: <http://www.aflcio.org/Issues/Job-Safety>

AFSCME: <http://www.afscme.org/issues/73.cfm>

eLCOSH – The Electronic Library of Construction Safety and Health is a collection of information on construction safety and health developed by CPWR – Center for Construction Research and Training, with funding by NIOSH: <http://www.elcosh.org/>

SEIU (Service Employees International Union) Health and Safety Department: <http://www.seiu.org/a/members/safety-and-health.php>

UAW Health and Safety Department: <http://www.uaw.org/healthsafety>



Navigating the OSHA Website

<http://www.osha.gov>

The elements of this valuable source of occupational safety and health information are featured:

UNITED STATES DEPARTMENT OF LABOR Occupational Safety & Health Administration

A to Z Index | En Español | Contact Us | What's New | About OSHA

A-Z Index: [A](#) [B](#) [C](#) [D](#) [E](#) [F](#) [G](#) [H](#) [I](#) [J](#) [K](#) [L](#) [M](#) [N](#) [O](#) [P](#) [Q](#) [R](#) [S](#) [T](#) [U](#) [V](#) [W](#) [X](#) [Y](#) [Z](#) Search OSHA GO

Highlights
Combustible Dust
 Graphic slideshow of OSHA highlights. Graphics are linked to the respective website.

Latest News
 Links to the most current OSHA news and information.

Worker Fatalities
 Connecticut Power Plant Explosion, Klean Energy Systems, Middletown CT, Sunday, Feb 7. At least 5 workers were killed and at least 12 injured.
 Recent incidents, as well as weekly summaries are posted.

Top Links
 >Regulations/Standards >Enforcement
 >Laws & Rulemaking >Offices >S&H Topics
 >Training >How to File a Complaint >MORE

Featured Videos
 >Videos >Data & Statistics >Other Resources >MORE

Identifying Safety and Health Problems in the Workplace

Identifying health and safety problems can be as easy as answering basic questions. To determine if there are health and safety problems that need to be addressed in your workplace, use these questions:

- ↳ Do you or your co-workers have injuries or health complaints? If so, what types?
- ↳ Who has been hurt or is having symptoms?
- ↳ When do you or your co-workers feel these symptoms?
- ↳ Where in the workplace are safety or health problems occurring?
- ↳ What are the conditions that are causing problems?



The following “**Caution Health Hazards**” and “**Caution Safety Hazards**” tables provide more information.



CAUTION: Health Hazards

Common types of health hazards in the workplace are:
<ul style="list-style-type: none"> Chemical (asbestos, solvents, chlorine) Biological (tuberculosis, HIV, hepatitis, molds) Physical (noise, heat and cold, radiation, vibration) Ergonomics or Repetitive Strain Injuries (carpal tunnel syndrome, back injuries) Psychological (stress)
How health hazards enter your body:
<ul style="list-style-type: none"> Breathing (inhalation) Swallowing (ingestion) Skin (absorption) Cuts (injection)
Harm caused by health hazards depends on:
<ul style="list-style-type: none"> Strength, or potency, of the agent. Amount of the agent that is present. How long you are exposed to the agent. Part of your body that is exposed.
Types of health effects:
<ul style="list-style-type: none"> Acute: the effect shows up right away. Chronic: problems show up after a long period of exposure and/or long after the exposure ends. Local: only the part of the body that was exposed is affected. Systemic: an agent enters the body and affects other parts of the body.
Cancer
<ul style="list-style-type: none"> Cancer is a term for many diseases in different parts of the body. Carcinogens are agents that cause cancer. There is no totally safe level of exposure to something that causes cancer. Cancer from a workplace exposure may develop 10, 20 or more years after exposure.
Sensitization
<ul style="list-style-type: none"> You may become allergic or sensitive to some agents you work with. Sensitization can develop over time. For example, a health care worker may develop a serious allergic reaction to latex used in gloves.
Reproductive effects
<ul style="list-style-type: none"> Both men and women can be affected by reproductive hazards at work. Reproductive hazards cause miscarriages and birth defects.

To “**CAUTION: Safety Hazards**” table

CAUTION: Safety Hazards

Common types of safety hazards in the workplace are:

- Slips, trips and falls
- Being caught in or struck by moving machinery or other objects
- Fire and explosions
- Transportation and vehicle-related accidents
- Confined spaces
- Violence



Slips, Trips and Falls

- Bad housekeeping and poor drainage can make floors and other walking surfaces wet and slippery.
- Electrical wires along the floor pose a tripping hazard.
- You can fall if you are not provided with fall protection equipment, guardrails, and safe ladders.

Caught In or Struck By Moving Machinery/Objects

- Machinery can cause injuries in different ways:
- You can get parts of your body caught in or struck by exposed moving parts if machines are not properly guarded, or not locked out when being repaired.
- You can be struck by flying objects from machines without protective guards.

Fire and Explosions

- Improper labeling, handling or storage of certain materials can pose a risk of fire or explosion.
- Every workplace should have an evacuation plan for getting people out of a building in case of fire and an alarm or alert system to quickly inform employees of an emergency.
- Every worker should be trained on what to do in case of an emergency.

Transportation and Vehicle-Related Accidents

- Operators of vehicles and equipment can be injured or cause injury to pedestrians if equipment is unsafe or if adequate training has not been provided.
- You can be seriously injured or killed after being hit by a vehicle while repairing roads or doing other work in traffic zones. This danger exists when traffic is not properly routed and/or adequate barriers are not placed between the workers and the traffic.

Confined Spaces

- A confined space is an area with small openings for a worker to enter and exit and is not designed for regular work. Examples of confined spaces include manholes, sewer digestors and silos. There are many hazards in confined spaces.
- Workers can become unconscious and die from a lack of oxygen.
- There may be too much oxygen, or other chemicals that can catch fire or explode.
- Poisonous gases and vapors, such as hydrogen sulfide or carbon monoxide, may also build up in a confined space.
- Confined spaces can also pose physical hazards. They can be very hot or cold, very loud, or slippery and wet.
- Grain, sand or gravel can bury a worker.

Violence

- Violence on the job is a growing problem.
- Homicides are the second leading cause of workplace fatalities. Workplace violence includes physical assault as well as near misses, verbal abuse and sexual harassment.

Source: *Safe Jobs Now: An AFSCME Guide to Health and Safety in the Workplace.*

To "CAUTION: Health Hazards" table

WEEKLY FATALITY/CATASTROPHE REPORT

Goal: To expose students to descriptions of real-life workplace fatalities and help students identify common traits and causes of fatalities.

OBJECTIVES

Upon successful completion of this lesson, students will be able to

1. Identify the common factor in almost every workplace fatality
2. Explain the importance of pre-job hazard assessment
3. Identify the leading cause of death in the construction industry
4. Name the four hazards termed Focus Four

NOTES

1. The OSHA Fat-Cat is a database of workplace _____ and can be read at _____
2. According to OSHA, an incident is a “catastrophe” if _____ or more workers are hospitalized from the same incident.
3. The OSHA website is www. _____
4. A safety precaution that you should always take before performing any work is _____
5. According to the Fat-Cat as reviewed in class, a common thing in almost every workplace death is _____
6. The leading type of fatal incident in the Construction Industry is _____
7. According to OSHA, the Fatal Four (sometimes called the Focus Four) types of hazards are

WEEKLY FATALITY / CATASTROPHE REPORT
PRELIMINARY DESCRIPTIONS OF INCIDENTS

Break Out Sessions – Small Group Activity

EXAMPLE

Two workers were doing road surveying each on either side of the road. A civilian driver came over the hill and suddenly applied his brakes, even though no person, equipment, or car was in the road. This caused his car to spin off the road, running over one of the workers.

Whose fault was it? _____

How could it have been prevented? _____

GROUP 1

A. Worker fell from a ladder while working inside an airplane.

Whose fault was it? _____

How could it have been prevented? _____

B. Worker was securing tarp on a roof (not wearing fall protection, although it was available) and fell 35 feet to lower level.

Whose fault was it? _____

How could it have been prevented? _____

GROUP 2

C. Worker was on ground when he was run over by a front loader.

Whose fault was it? _____

How could it have been prevented? _____

D. Security guard worker was shot three times during robbery. The assailants took his weapon.

Whose fault was it? _____

How could it have been prevented? _____

GROUP 3

E. Worker, who is the owner, was doing electrical work and fell through the skylight.

Whose fault was it? _____

How could it have been prevented? _____

F. Worker was found in vehicle with engine running; carbon monoxide over exposure.

Whose fault was it? _____

How could it have been prevented? _____

GROUP 4

G. Worker was repairing a roof insulation and fell 14 feet to the ground.

Whose fault was it? _____

How could it have been prevented? _____

H. Worker was crushed between the forklift he was operating and a concrete bollard next to the loading dock door after stepped off the forklift.

Whose fault was it? _____

How could it have been prevented? _____

GROUP 5

I. Worker was part of a four man tree trimming crew and was in the process of cutting down a 25-foot palm tree. Worker walked into the path of the falling tree and was struck by the tree.

Whose fault was it? _____

How could it have been prevented? _____

J. Worker was installing shingles and moving planks on a roof and fell 20' 6" from the roof to a driveway below.

Whose fault was it? _____

How could it have been prevented? _____

GROUP 6

K. Worker was cleaning up on side of the road and was run over by a dump truck backing up.

Whose fault was it? _____

How could it have been prevented? _____

L. Worker entered a storage bin through a track side access hole that was 15 feet above ground and was engulfed by sunflower seeds.

Whose fault was it? _____

How could it have been prevented? _____

GROUP 7

M. Worker was being elevated from a trash box on a forklift to reach a light pole. The trash box and worker fell to the parking lot.

Whose fault was it? _____

How could it have been prevented? _____

N. Worker was preparing drywall to be painted and found a coil of wire hanging from the ceiling. He attempted to throw the coil over a beam in the ceiling. The coil of wires struck the beam and fell back down. The wires contacted the worker and he was electrocuted.

Whose fault was it? _____

How could it have been prevented? _____

GROUP 8

O. Worker was working beneath an elevated hydraulic platform and the platform failed, crushing the worker.

Whose fault was it? _____

How could it have been prevented? _____

P. Worker was changing the ballast on a light fixture and was electrocuted.

Whose fault was it? _____

How could it have been prevented? _____

GROUP 9

Q. Worker was conducting roofing work, removing sky lights, and fell 50 feet to the lower level.

Whose fault was it? _____

How could it have been prevented? _____

R. Worker performing roofing activities suffered a heat stroke and later died.

Whose fault was it? _____

How could it have been prevented? _____

GROUP 10

S. Worker died from severe head injuries after falling from a tractor trailer

Whose fault was it? _____

How could it have been prevented? _____

T. Worker killed after being pulled through wood chipping machine.

Whose fault was it? _____

How could it have been prevented? _____

HEALTH HAZARDS IN CONSTRUCTION

Goal: To equip students with knowledge of Health Hazards in Construction to help keep themselves safe in the workplace.

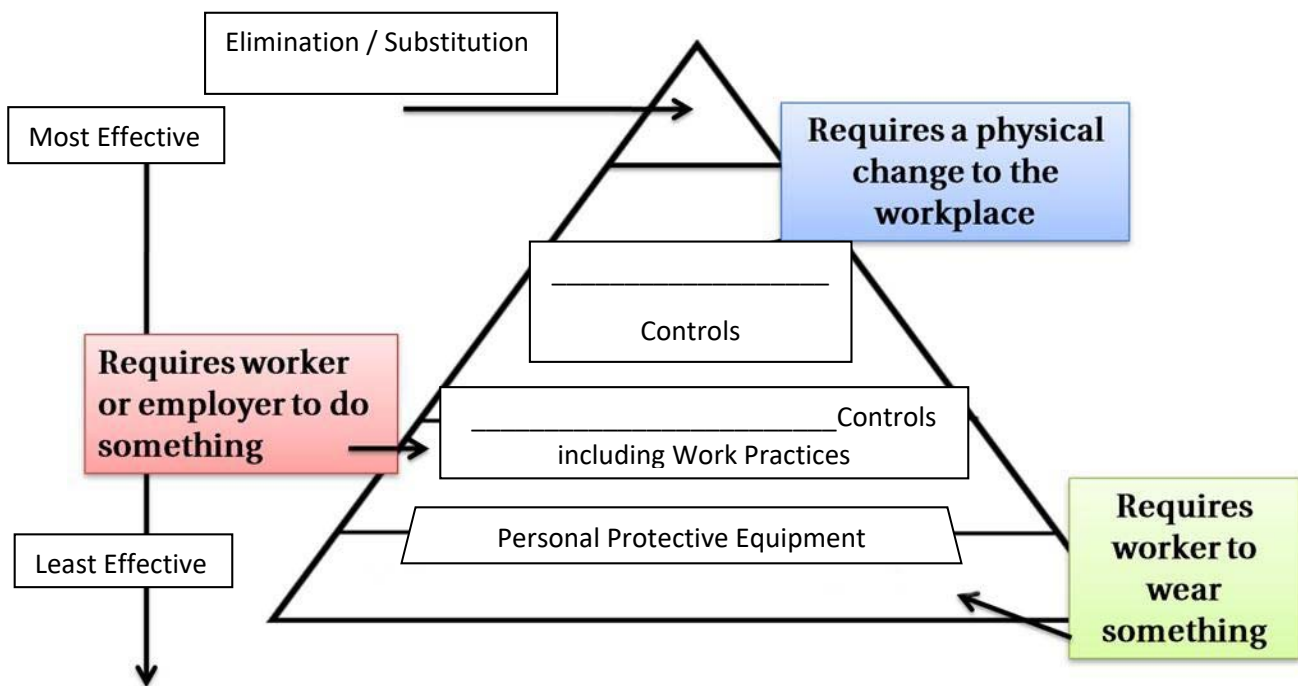
OBJECTIVES

Upon successful completion of this lesson, students will be able to

1. Describe types of common health hazards
2. Apply health hazard protection methods
3. Explain the importance and make-up of chemical Safety Data Sheets

NOTES

1. The four common types of health hazards in construction are _____, _____, _____, and _____.
2. The four chemical routes of entry are _____, _____, Absorption, and Injection.
3. Hierarchy of Controls:



4. "SDS" stands for _____

5. Every SDS has _____ sections.

6. Chemical Hazards numbering:

_____ Severe Hazard

_____ Serious Hazard

_____ Moderate Hazard

_____ Slight Hazard

_____ Minimal Hazard

7. You can find an SDS _____

8. Types of _____ health hazards at construction sites:

Noise, temperature extremes, vibration, radiation

9. Types of _____ health hazards at construction sites:

Insects, animals, mold, plants, water/sewage, blood

10. Types of _____ health hazards at construction sites:

Lifting and pushing, awkward grips and postures, reaching, using wrong tool
or using tool improperly, using excessive force

Protection against ergonomic health hazards:

Remember to always use proper lifting techniques,

maintain good posture,

use the right tool for the right job,

and stretch often throughout the work day

SAFETY DATA SHEET

Break Out Sessions – Small Group Activity

Your instructor will divide you into small groups of 3 – 5 students and assign you a group number, 1 – 10. Discuss with the members of your group the questions listed below under your assigned group number; find the answers to your questions on the Safety Data Sheet.

Fill in your answers, and be prepared to share them with the class.

GROUP 1

A. What's the name of the chemical, and what are the synonyms? _____

In what section did you find this information? _____

K. . How do you safely handle this chemical? _____

In what section did you find this information? _____

GROUP 2

B. How hazardous is this chemical to your eyes? _____

In what section did you find this information? _____

L. How do you safely store this chemical? _____

In what section did you find this information? _____

GROUP 3

C. What are the environmental hazards of this chemical? _____

In what section did you find this information? _____

M. What are the engineering controls that you can use to protect yourself when using this chemical? _____

In what section did you find this information? _____

GROUP 4

D. What are the physical hazards of this chemical? _____

In what section did you find this information? _____

N. What Personal Protective Equipment (PPE) should you wear when using this chemical?

In what section did you find this information? _____

GROUP 5

E. What first aid measure do you do if this chemical gets in your eyes? _____

In what section did you find this information? _____

O. What respiratory protection is required for you to wear when using this chemical?

In what section did you find this information? _____

GROUP 6

F. How hazardous is this chemical to your skin? _____

In what section did you find this information? _____

P. What is the boiling point of this chemical? _____

In what section did you find this information? _____

GROUP 7

G. What first aid measure do you do if you get this chemical on your skin? _____

In what section did you find this information? _____

Q. With what chemicals is this chemical incompatible? With what chemicals should you

not mix this chemical? _____

In what section did you find this information? _____

GROUP 8

H. What are the four pictograms for this chemical? Why are these pictograms on this SDS? _____

In what section did you find this information? _____

R. What are the signs and symptoms that you have been overexposed to this chemical?

In what section did you find this information? _____

GROUP 9

I. What do you do if this chemical catches on fire? _____

In what section did you find this information? _____

S. What are the acute effects of this product? _____

In what section did you find this information? _____

GROUP 10

J. What do you do if you spill this chemical? _____

In what section did you find this information? _____

T. What target organ does this chemical affect? _____

In what section did you find this information? _____



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<< Hazard Communication



Hazard Communication Safety Data Sheets

The Hazard Communication Standard (HCS) requires chemical manufacturers, distributors, or importers to provide Safety Data Sheets (SDSs) (formerly known as Material Safety Data Sheets or MSDSs) to communicate the hazards of hazardous chemical products. As of June 1, 2015, the HCS will require new SDSs to be in a uniform format, and include the section numbers, the headings, and associated information under the headings below:

Section 1, Identification includes product identifier; manufacturer or distributor name, address, phone number; emergency phone number; recommended use; restrictions on use.

Section 2, Hazard(s) identification includes all hazards regarding the chemical; required label elements.

Section 3, Composition/information on ingredients includes information on chemical ingredients; trade secret claims.

Section 4, First-aid measures includes important symptoms/ effects, acute, delayed; required treatment.

Section 5, Fire-fighting measures lists suitable extinguishing techniques, equipment; chemical hazards from fire.

Section 6, Accidental release measures lists emergency procedures; protective equipment; proper methods of containment and cleanup.

Section 7, Handling and storage lists precautions for safe handling and storage, including incompatibilities.

Section 8, Exposure controls/personal protection lists OSHA's Permissible Exposure Limits (PELs); Threshold Limit Values (TLVs); appropriate engineering controls; personal protective equipment (PPE).

Section 9, Physical and chemical properties lists the chemical's characteristics.

Section 10, Stability and reactivity lists chemical stability and possibility of hazardous reactions.

Section 11, Toxicological information includes routes of exposure; related symptoms, acute and chronic effects; numerical measures of toxicity.

Section 12, Ecological information*

Section 13, Disposal considerations*

Section 14, Transport information*

Section 15, Regulatory information*

Section 16, Other information, includes the date of preparation or last revision.

*Note: Since other Agencies regulate this information, OSHA will not be enforcing Sections 12 through 15(29 CFR 1910.1200(g)(2)).

Employers must ensure that SDSs are readily accessible to employees. See Appendix D of 1910.1200 for a detailed description of SDS contents.

For more information: www.osha.gov



(800) 321-OSHA (6742)

U.S. Department of Labor

Section 1 – PRODUCT AND COMPANY INFORMATION

Section 1 – IDENTIFICATION

Product Name: Chemical Stuff **Synonyms:** Methyltoxy Solution **CAS Number:** 00-00-0
Product Use: Organic Synthesis
Manufacturer: My Company **Address:** My Street, Mytown, TX 00000 **Phone:** 713-000-000
Transportation Emergency Number: CHEMTREC: 800-424-9300

Section 2 – HAZARDS IDENTIFICATION

GHS Classification:

Health	Environmental	Physical
Acute Toxicity – Category 2 (inhalation), Category 3 (oral/dermal) Eye Corrosion – Category 1 Skin Corrosion – Category 1 Skin Sensitization – Category 1 Mutagenicity – Category 2 Carcinogenicity – Category 1B Reproductive/Developmental – Category 2 Target Organ Toxicity (Repeated) – Category 2	Aquatic Toxicity – Acute 2	Flammable Liquid – Category 2

GHS Label(s)



Hazard Statements	Precautionary Statements
DANGER! Highly Flammable Liquid and Vapor. Fatal if inhaled. Causes severe skin burns and eye damage. May cause allergic skin reaction. Toxic if swallowed and in contact with skin. May cause cancer. Suspected of damaging the unborn child. Suspected of causing genetic defects. May cause damage to cardiovascular, respiratory, nervous, and gastrointestinal systems and liver and blood through prolonged or repeated exposure. Toxic to aquatic life.	Do not eat, drink or use tobacco when using this prod. Do not breathe mist/vapors. Keep container tightly closed. Keep away from heat/sparks/open flame. - No smoking. Wear respiratory protection, protective gloves and eye/face. Use only in a well-ventilated area. Take precautionary measures against static discharge. Use only non-sparking tools. Store container tightly closed in cool/well-ventilated p. Wash thoroughly after handling.

Section 3 – COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS Number	Weight%
Methyltoxy	000-00-0	80

(See Section 8 for Exposure Limits)

Section 4 – FIRST AID MEASURES

Eye: Eye irritation. Flush immediately with large amounts of water for at least 15 minutes. Eyelids should be held away from the eyeball to ensure thorough rinsing. Get immediate medical attention.

Skin: Itching or burning of the skin. Immediately flush the skin with plenty of water while removing contaminated clothing and shoes. Get immediate medical attention. Wash contaminated clothing before reuse.

Inhalation: Nasal irritation, headache, dizziness, nausea, vomiting, heart palpitations, breathing difficulty, cyanosis, tremors, weakness, red flushing of face, irritability. Remove exposed person from source of exposure to fresh air. If not breathing, clear airway and start cardiopulmonary resuscitation (CPR). Avoid mouth-to-mouth resuscitation.

Ingestion: Get immediate medical attention. Do not induce vomiting unless directed by medical personnel.

Section 5 – FIRE FIGHTING MEASURES

Suitable Extinguishing Media: Use dry chemical, foam, or carbon dioxide to extinguish fire. Water may be ineffective but should be used to cool fire-exposed containers, structures and to protect personnel. Use water to dilute spills and to flush them away from sources of ignition.

Fire Fighting Procedures: Do not flush down sewers or other drainage systems. Exposed firefighters must wear NIOSH-approved positive pressure self-contained breathing apparatus with full-face mask and full protective clothing.

Unusual Fire and Explosion Hazards: Dangerous when exposed to heat or flame. Will form flammable or explosive mixtures with air at room temperature. Vapor or gas may spread to distant ignition sources and flash back. Vapors or gas may accumulate in low areas. Runoff to sewer may cause fire or explosion hazard. Containers may explode in heat of fire. Vapors may concentrate in confined areas. Liquid will float and may reignite on the surface of water.

Combustion Products: Irritating or toxic substances may be emitted upon thermal decomposition. Thermal decomposition products may include oxides of carbon and nitrogen.

Section 6 – ACCIDENTAL RELEASE MEASURES

Keep unnecessary people away; isolate hazard area and deny entry. Stay upwind; keep out of low areas. (Also see Section 8).

Vapor protective clothing should be worn for spills and leaks. Shut off ignition sources; no flares, smoking or flames in hazard area. Small spills: Take up with sand or other noncombustible absorbent material and place into containers for later disposal. Large spills: Dike far ahead of liquid spill for later disposal.

Do not flush to sewer or waterways. Prevent release to the environment if possible. Refer to Section 15 for spill/release reporting information.

Section 7 – HANDLING AND STORAGE

Handling

Do not get in eyes, on skin or on clothing. Do not breathe vapors or mists. Keep container closed. Use only with adequate ventilation. Use good personal hygiene practices. Wash hands before eating, drinking, smoking. Remove contaminated clothing and clean before re-use. Destroy contaminated belts and shoes and other items that cannot be decontaminated.

Keep away from heat and flame. Keep operating temperatures below ignition temperatures at all times. Use non-sparking tools.

Storage

Store in tightly closed containers in cool, dry, well-ventilated area away from heat, sources of ignition and incompatibles. Ground lines and equipment used during transfer to reduce the possibility of static spark-initiated fire or explosion. Store at ambient or lower temperature. Store out of direct sunlight. Keep containers tightly closed and upright when not in use. Protect against physical damage.

Empty containers may contain toxic, flammable and explosive residue or vapors. Do not cut, grind, drill, or weld on or near containers unless precautions are taken against these hazards.

Section 8 – EXPOSURE CONTROLS – PERSONAL PROTECTION

Exposure Limits:

Component, Methyltoxy – OSHA PEL (8-hour TWA): 3 ppm (skin) - STEL: C 15 ppm (15 min).

Engineering Controls: Local exhaust ventilation may be necessary to control air contaminants to their exposure limits. The use of local ventilation is recommended to control emissions near the source. Provide mechanical ventilation for confined spaces. Use explosion-proof ventilation equipment.

Personal Protective Equipment (PPE) Eye Protection: Wear chemical safety goggles and face shield. Have eye-wash stations available where eye contact can occur.

Skin Protection: Avoid skin contact. Wear gloves impervious to conditions of use. Additional protection may be necessary to prevent skin contact including use of apron, face shield, boots or full body protection. A safety shower should be located in the work area. Recommended protective materials include: Butyl rubber and for limited contact Teflon.

Respiratory Protection: If exposure limits are exceeded, NIOSH approved respiratory protection should be worn. A NIOSH approved respirator for organic vapors is generally acceptable for concentrations up to 10 times the PEL. For higher concentrations, unknown concentrations and for oxygen deficient atmospheres, use a NIOSH approved air-supplied respirator. Engineering controls are the preferred means for controlling chemical exposures. Respiratory protection may be needed for non-routine or emergency situations. Respiratory protection must be provided in accordance with OSHA 29 CFR 1910.134.

Section 9 – PHYSICAL AND CHEMICAL PROPERTIES

Flashpoint: 2°C (35°F)

Autoignition Temperature: 480°C (896°F)

Boiling Point: 77°C (170.6°F) @ 760 mm Hg

Melting Point: -82°C Vapor Pressure: 100.0 mm Hg @ 23°C

Vapor Pressure: 100.0 mm Hg @ 23°C

Vapor Density (Air=1): 1.7; air = 1

% Solubility in Water: 10 @ 20°C

Pour Point: NA

Molecular Formula: Mixture

Odor/Appearance: Clear, colorless liquid with mild, pungent odor.

Lower Flammability Limit: >3.00%

Upper Flammability Limit: <15.00%

Specific Gravity: 0.82g/ml @ 20°C %

Volatile: 100 Evaporation Rate (Water=1): 5 (Butyl Acetate =1)

Viscosity: 0.3 cP @ 25°C

Octanol/Water Partition Coefficient: log K_{ow} : 0.5

pH: 7, 8% aqueous solution

Molecular Weight: Mixture

Section 10 – STABILITY AND REACTIVITY

Stability/Incompatibility: Incompatible with ammonia, amines, bromine, strong bases and strong acids.

Hazardous Reactions/Decomposition Products: Thermal decomposition products may include oxides of carbon and nitrogen.

Section 11 – TOXICOLOGICAL INFORMATION

Signs and Symptoms of Overexposure: Eye and nasal irritation, headache, dizziness, nausea, vomiting, heart palpitations, difficulty breathing, cyanosis, tremors, weakness, itching or burning of the skin.

Acute Effects:

Eye Contact: may cause severe conjunctival irritation and corneal damage.

Skin Contact: may cause reddening, blistering or burns with permanent damage. Harmful if absorbed through the skin. May cause allergic skin reaction.

Inhalation: may cause severe irritation with possible lung damage (pulmonary edema).

Ingestion: may cause severe gastrointestinal burns.

Target Organ Effects: May cause gastrointestinal (oral), respiratory tract, nervous system and blood effects based on experimental animal data. May cause cardiovascular system and liver effects.

Chronic Effects: based on experimental animal data, may cause changes to genetic material; adverse effects on the developing fetus or on reproduction at doses that were toxic to the mother. Methyltoxy is classified by IARC as group 2B and by NTP as reasonably anticipated to be a human carcinogen. OSHA regulates Methyltoxy as a potential carcinogen.

Medical Conditions Aggravated by Exposure: preexisting diseases of the respiratory tract, nervous system, cardiovascular system, liver or gastrointestinal tract.

Acute Toxicity Values Oral LD₅₀ (Rat) = 100 mg/kg

Dermal LD₅₀ (Rabbit) = 225-300 mg/kg Inhalation

LC₅₀ (Rat) = 200 ppm/4 hr., 1100 ppm vapor/1 hr

Section 12 – ECOLOGICAL INFORMATION










LC₅₀ (Fathead Minnows) = 9 mg/L/96 hr.

EC₅₀ (Daphnia) = 8.6 mg/L/48 hr.

Bioaccumulation is not expected to be significant. This product is readily biodegradable.

Section 13 – DISPOSAL CONSIDERATIONS

As sold, this product, when discarded or disposed of, is a hazardous waste according to Federal regulations (40 CFR 261). It is listed as Hazardous Waste Number Z000, listed due to its toxicity. The transportation, storage, treatment and disposal of this waste material must be conducted in compliance with 40 CFR 262, 263, 264, 268 and 270. Disposal can occur only in properly permitted facilities. Refer to state and local requirements for any additional requirements, as these may be different from Federal laws and regulations. Chemical additions, processing or other use of this material may make waste management information

Hazard Symbols (to be used in pictograms for substances of the particular class)		
		
FLAME OVER CIRCLE—USED FOR THESE CLASSES : <ul style="list-style-type: none"> ▪ Oxidizers 	FLAME—USED FOR THESE CLASSES: <ul style="list-style-type: none"> ▪ Flammables ▪ Self Reactives ▪ Pyrophorics ▪ Self-Heating ▪ Emits Flammable Gas ▪ Organic Peroxides 	EXPLODING BOMB—USED FOR THESE CLASSES: <ul style="list-style-type: none"> ▪ Explosives ▪ Self Reactives ▪ Organic Peroxides
		
SKULL & CROSSBONES—USED FOR THESE CLASSES: <ul style="list-style-type: none"> ▪ Acute toxicity (severe) 	CORROSION—USED FOR THESE CLASSES: <ul style="list-style-type: none"> ▪ Corrosives 	GAS CYLINDER—USED FOR THESE CLASSES: <ul style="list-style-type: none"> ▪ Gases Under Pressure
		
HEALTH HAZARD—USED FOR THESE CLASSES: <ul style="list-style-type: none"> ▪ Carcinogen ▪ Respiratory Sensitizer ▪ Reproductive Toxicity ▪ Target Organ Toxicity ▪ Mutagenicity ▪ Aspiration Toxicity 	ENVIRONMENTAL HAZARD—USED FOR THESE CLASSES: <ul style="list-style-type: none"> ▪ Environmental Toxicity 	EXCLAMATION MARK—USED FOR THESE CLASSES: <ul style="list-style-type: none"> ▪ Irritant ▪ Dermal Sensitizer ▪ Acute toxicity (harmful) ▪ Narcotic Effects ▪ Respiratory Tract Irritation

HEALTH HAZARDS IN CONSTRUCTION
KNOWLEDGE CHECK: QUIZ

1. Which of the following is a common type of health hazard?
 - A. Chemical hazards
 - B. Economic hazards
 - C. Electrical hazards
 - D. Fall hazards

2. Which of the following is the top of the hierarchy of controls, as the best option for dealing with a hazard?
 - A. Elimination / Substitution
 - B. Engineering Controls
 - C. Administrative Controls
 - D. PPE

3. Which of the following is an example of a physical health hazard?
 - A. Asbestos
 - B. Noise
 - C. Silica
 - D. Lead

4. Which is an appropriate engineering control for protection against noise exposures?
 - A. Audiograms
 - B. Earplugs
 - C. Increasing distance between source
 - D. Constructing sound barriers

5. Which is a requirement of the employer?
 - A. Determine if workers' exposures exceed OSHA PEL's
 - B. Perform medical evaluations on all employees
 - C. Develop silica training programs for all employees
 - D. Provide all workers with safety toe protective footwear

HEALTH HAZARDS IN CONSTRUCTION: SILICA

Goal: To equip students with knowledge of the health hazards of silica and how best to avoid them.

OBJECTIVES

Upon successful completion of this lesson, students will be able to

1. Explain what silicosis is
2. Describe the symptoms of silicosis
3. Name ways construction workers are exposed to airborne silica
4. Identify safety measures that neutralize the hazards of silica

NOTES

What is Silicosis?

Silicosis is permanent _____ damage caused by breathing dust containing extremely fine particles of crystalline silica. Crystalline silica is found in materials such as concrete, masonry, and rock. When these materials are made into a fine dust and suspended in the air, breathing in these fine particles can produce lung damage. Silicosis can be totally disabling and may lead to death.

Symptoms of Silicosis

- Initially there may be no symptoms.
- Later there may be difficulty in breathing, and cough may be present.
- Other symptoms may include fever, weight loss, and night sweats.

See a physician if you experience these symptoms and suspect that you are exposed to crystalline silica. All workers breathing crystalline silica dust should have a medical examination.

How do construction workers get exposed?

Concrete and masonry products contain silica sand. Since concrete and masonry are primary building materials, there are numerous ways for construction workers to be exposed.

Some activities in which silica dust may be present in the air include

- Abrasive blasting using silica sand as the abrasive.
- Abrasive blasting of concrete.
- Chipping, hammering, and drilling rock.
- Crushing, loading, hauling, and dumping rock.
- Chipping, hammering, drilling, sawing, and grinding concrete or masonry.
- Demolition of concrete and masonry structures.
- Dry sweeping or pressurized air blowing of concrete or sand dust.

How is silicosis prevented?

The key to silicosis prevention is to prevent dust from being in the air. The Occupational Safety and Health Administration (OSHA) requires dust to be controlled whenever possible. A simple control may work.

Example: A water hose to wet dust down at the point of generation.

Here are some steps you can take to protect yourself:

- Always use the dust control system, and keep it in good maintenance.
- When sawing concrete or masonry, use saws that provide water to the blade.

- During rock drilling, use water through the drill stem to reduce the amount of dust in the air.
- Use dust collection systems which are available for many types of dust generating equipment. Use local exhaust ventilation to prevent dust from being released into the air.
- Minimize exposures to nearby workers by using good work practices.
- Use abrasives containing less than 1% crystalline silica during abrasive blasting to prevent harmful quartz dust from being released in the air.
- Measure dust levels in the air.

Respirators should only be used until adequate dust controls are in place. Respirators should not be the primary method of protection. If controls cannot keep dust levels below the NIOSH Recommended Exposure Level (REL), then respirators should be used. Select respirators that provide enough protection. Keeping respirators fit for use requires continual maintenance. When respirators are used, OSHA requires employers to establish a comprehensive respiratory protection program.

Medical examinations

- All workers breathing crystalline silica dust should have a medical examination to include Chest X-ray, pulmonary function test, and annual evaluation for TB (tuberculosis).

(Source: NIOSH pamphlet “Construction Workers – It’s Not Just Dust”)

PERSONAL PROTECTIVE EQUIPMENT

Goal: To empower students with their
Personal Protective Equipment rights and responsibilities.

OBJECTIVES

Upon successful completion of this lesson, students will be able to

1. Explain what Personal Protective Equipment is
2. Explain the three lines of defense against workplace hazards
3. Name the PPE responsibilities of the employer
4. Name the PPE responsibilities of the employee
5. Know what type of PPE must be provided by the employer and which types of PPE are exempt from having to be provided
6. Understand the basic types of Personal Protective Equipment

NOTES

1. "PPE" stands for _____
2. _____ is responsible for providing PPE.
3. PPE is the _____ line of defense against injury.
4. The three lines of defense against workplace injury are:
_____: Physically changing the work environment to prevent hazard exposure, such as enclosing stone cutting operations so other workers are not exposed to silica.
_____: Changing the way employees do their jobs to remove the exposure to hazard, such as using water-based tools for wet method stone cutting.
_____: Wearing equipment to protect from exposure to the hazard, such as wearing a respirator while cutting stone.

5. TRUE or FALSE: You can collect unemployment pay if you were fired for not wearing your PPE.

6. Classifications of hard hats:

Class ____ (formerly Class A): General service (e.g., mining, building construction, shipbuilding, lumbering, and manufacturing)

Good impact protection but limited voltage protection

Class ____ (formerly Class B): Electrical work

Protects against falling objects and high-voltage shock/burns

Class ____ : Designed for comfort; offers limited protection

Protects heads that may bump against fixed objects, but does not protect against falling objects or electrical shock

Employer must implement a PPE program where they

Assess the workplace for hazards;

Use engineering and work practice controls to eliminate or reduce hazards before using PPE;

Select appropriate PPE to protect employees from hazards that cannot be eliminated;

Inform employees why the PPE is necessary and how and when it must be worn;

Train employees how to use and care for their PPE, including how to recognize deterioration and failure;

Require employees to wear selected PPE;

Employee Must

Use PPE in accordance with training received and other instructions;

Inspect PPE daily and maintain in a clean and reliable condition.



Personal Protective Equipment (PPE)

The Occupational Safety and Health Administration (OSHA) requires that employers protect you from workplace hazards that can cause injury or illness. Controlling a hazard at its source is the best way to protect workers. However, when engineering, work practice and administrative controls are not feasible or do not provide sufficient protection, employers must provide personal protective equipment (PPE) to you and ensure its use.

PPE is equipment worn to minimize exposure to a variety of hazards. Examples include items such as gloves, foot and eye protection, protective hearing protection (earplugs, muffs), hard hats and respirators.

Employer Obligations	Workers should:
<ul style="list-style-type: none"> ✓ Performing a "hazard assessment" of the workplace to identify and control physical and health hazards. ✓ Identifying and providing appropriate PPE for employees. ✓ Training employees in the use and care of the PPE. ✓ Maintaining PPE, including replacing worn or damaged PPE. ✓ Periodically reviewing, updating and evaluating the effectiveness of the PPE program. 	<ul style="list-style-type: none"> ✓ Properly wear PPE ✓ Attend training sessions on PPE ✓ Care for, clean and maintain PPE, and ✓ Inform a supervisor of the need to repair or replace PPE.

Employers Must Pay for Personal Protective Equipment (PPE)

On May 15, 2008, a new OSHA rule about employer payment for PPE went into effect. With few exceptions, OSHA now requires employers to pay for personal protective equipment used to comply with OSHA standards. The final rule does not create new requirements regarding what PPE employers must provide.

The standard makes clear that employers cannot require workers to provide their own PPE and the worker's use of PPE they already own must be completely voluntary. Even when a worker provides his or her own PPE, the employer must ensure that the equipment is adequate to protect the worker from hazards at the workplace.



Examples of PPE that Employers Must Pay for Include:

- Metatarsal foot protection
- Rubber boots with steel toes
- Non-prescription eye protection
- Prescription eyewear inserts/lenses for full face respirators
- Goggles and face shields
- Fire fighting PPE (helmet, gloves, boots, proximity suits, full gear)
- Hard hats
- Hearing protection
- Welding PPE



Payment Exceptions under the OSHA Rule

Employers are not required to pay for some PPE in certain circumstances:

- Non-specialty safety-toe protective footwear (including steel-toe shoes or boots) and non-specialty prescription safety eyewear provided that the employer permits such items to be worn off the job site. (OSHA based this decision on the fact that this type of equipment is very personal, is often used outside the workplace, and that it is taken by workers from jobsite to jobsite and employer to employer.)
- Everyday clothing, such as long-sleeve shirts, long pants, street shoes, and normal work boots.
- Ordinary clothing, skin creams, or other items, used solely for protection from weather, such as winter coats, jackets, gloves, parkas, rubber boots, hats, raincoats, ordinary sunglasses, and sunscreen
- Items such as hair nets and gloves worn by food workers for consumer safety.
- Lifting belts because their value in protecting the back is questionable.
- When the employee has lost or intentionally damaged the PPE and it must be replaced.

OSHA Standards that Apply

OSHA General Industry PPE Standards

- 1910.132: General requirements and payment
- 1910.133: Eye and face protection
- 1910.134: Respiratory protection
- 1910.135: Head protection
- 1910.136: Foot protection
- 1910.137: Electrical protective devices
- 1910.138: Hand protection

OSHA Construction PPE Standards

- 1926.28: Personal protective equipment
- 1926.95: Criteria for personal protective equipment
- 1926.96: Occupational foot protection
- 1926.100: Head protection
- 1926.101: Hearing protection
- 1926.102: Eye and face protection
- 1926.103: Respiratory protection

There are also PPE requirements in shipyards and marine terminals and many standards on specific hazards, such as 1910.1030: Bloodborne pathogens and 1910.146: Permit-required confined spaces.

OSHA standards are online at www.osha.gov.

Sources:

- *Employers Must Provide and Pay for PPE, New Jersey Work Environment Council (WEC) Fact Sheet*
- *OSHA Standards, 1910.132(h) and 1926.95(d)*
- *Employer Payment for Personal Protective Equipment Final Rule, Federal Register: November 15, 2007 (Volume 72, Number 220)*



Protect Yourself
Construction
Personal Protective
Equipment (PPE)

Eye and Face Protection

- Safety glasses or face shields are worn any time work operations can cause foreign objects to get in the eye. For example, during welding, cutting, grinding, nailing (or when working with concrete and/or harmful chemicals or when exposed to flying particles). Wear when exposed to any electrical hazards, including working on energized electrical systems.
- Eye and face protectors – select based on anticipated hazards.

Foot Protection

- Construction workers should wear work shoes or boots with slip-resistant and puncture-resistant soles.
- Safety-toed footwear is worn to prevent crushed toes when working around heavy equipment or falling objects.

Hand Protection

- Gloves should fit snugly.
- Workers should wear the right gloves for the job (examples: heavy-duty rubber gloves for concrete work; welding gloves for welding; insulated gloves and sleeves when exposed to electrical hazards).

Head Protection

- Wear hard hats where there is a potential for objects falling from above, bumps to the head from fixed objects, or of accidental head contact with electrical hazards.
- Hard hats – routinely inspect them for dents, cracks or deterioration; replace after a heavy blow or electrical shock; maintain in good condition.

Hearing Protection

- Use earplugs/earmuffs in high noise work areas where chainsaws or heavy equipment are used; clean or replace earplugs regularly.

For more complete information:



OSHA 3260-09N-05

Protect Yourself Respirators

Respiratory protection must be worn whenever you are working in a hazardous atmosphere. The appropriate respirator will depend on the contaminant(s) to which you are exposed and the protection factor (PF) required. Required respirators must be NIOSH-approved and medical evaluation and training must be provided before use.

Single-strap dust masks are usually not NIOSH-approved. They must not be used to protect from hazardous atmospheres. However, they may be useful in providing comfort from pollen or other allergens.



Approved filtering facepieces (dust masks) can be used for dust, mists, welding fumes, etc. They do not provide protection from gases or vapors. **DO NOT USE FOR ASBESTOS OR LEAD**; instead, select from the respirators below.



Half-face respirators can be used for protection against most vapors, acid gases, dust or welding fumes. Cartridges/filters must match contaminant(s) and be changed periodically.



Full-face respirators are more protective than half-face respirators. They can also be used for protection against most vapors, acid gases, dust or welding fumes. The face-shield protects face and eyes from irritants and contaminants. Cartridges/filters must match contaminant(s) and be changed periodically.



Loose-fitting powered-air-purifying respirators (PAPR) offer breathing comfort from a battery-powered fan which pulls air through filters and circulates air throughout helmet/hood. They can be worn by most workers who have beards. Cartridges/filters must match contaminant(s) and be changed periodically.



A Self-Contained Breathing Apparatus (SCBA) is used for entry and escape from atmospheres that are considered immediately dangerous to life and health (IDLH) or oxygen deficient. They use their own air tank.



For more complete information:

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

OSHA 3280-10N-05

LADDER SAFETY

Goal: To expose students to the potential dangers of ladders and equip them with knowledge to safely use a ladder.

OBJECTIVES

Upon successful completion of this lesson, students will be able to

1. Properly inspect a ladder
2. Safely set up a stepladder and an extension ladder
3. Correctly and safely climb and descend a ladder
4. Safely perform work while on a ladder
5. Identify common ladder errors that cause injuries

NOTES

Inspecting your ladder (and surroundings)

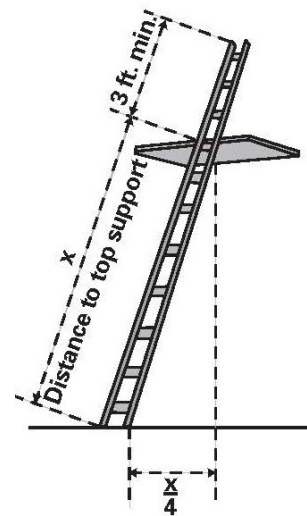
1. Always _____ the ladder prior to using it. If the ladder is damaged, it must be removed from service and tagged until repaired or discarded.
2. Read and follow all _____ on the ladder.
3. Ladders must be free of any slippery material on the rungs, steps, or feet.
4. Avoid electrical hazards! – Look for overhead power lines before handling a ladder. Avoid using a _____ ladder near power lines or exposed energized electrical equipment.

Setting up your ladder

5. Only use ladders and appropriate accessories (ladder levelers, jacks, or hooks) for their designed purposes. Do not use a ladder as support for a scaffold.
6. Use a ladder only on a _____ surface, unless it has been secured (top or bottom) to prevent displacement.

7. Do not place a ladder on boxes, barrels, or other unstable bases to obtain additional height.
8. Do not use a self-supporting ladder (e.g., step ladder) in a closed or partially-closed position. Do not lean a stepladder.
9. Be sure that all locks on an extension ladder are properly engaged.
10. A ladder placed in any location where it can be displaced by other work activities must be secured to prevent displacement, or a barricade must be erected to keep traffic away from the ladder
11. An extension or straight ladder used to access an elevated surface must extend at least _____ feet above the point of support.

12. The proper angle for setting up a straight or extension ladder is to place its base a quarter of the working length of the ladder from the wall or other vertical surface. This is the _____ to _____ rule. (see diagram).



Climbing your ladder

13. Do not exceed the maximum load rating of a ladder. Be aware of the ladder's load rating.



14. Always maintain _____ points of contact (two hands and a foot, or two feet and a hand) on the ladder when climbing.

15. Keep your body near the middle of the step and always face the ladder while climbing (see diagram).

16. Do not move or shift a ladder while a person or equipment is on the ladder.
17. Do not stand on the top _____ rungs of a straight, single, or extension ladder.

Ladder Inspection Form

Provided by Werner Co.

Company Name: _____
Please Print

Ladder Reference Number: _____ Dept. _____

Inspector _____ Date. _____



Stepladder

Size _____ ft.

Fiberglass

Aluminum

Wood



Circle Areas of Damage

Steps: Loose, Cracked, Bent or Missing

Rails: Cracked, Bent, Split or Frayed
 Rail Shields

Labels: Missing or Not Readable

Pail Shelf: Loose, Bent, Missing or Broken

Top: Cracked, Loose or Missing

Spreader: Loose, Bent or Broken

General: Rust, Corrosion or Loose

Other: Bracing, Shoes, Rivets

Yes No

Actions:

Ladder tagged as damaged & removed from use

Ladder is in good condition

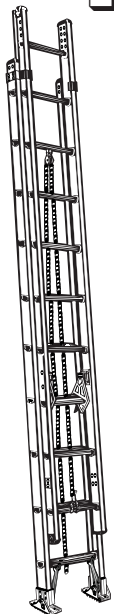


Extension Ladder

Size _____ ft.

Fiberglass

Aluminum



Circle Areas of Damage

Rungs: Loose, Cracked, Bent or Missing

Rails: Cracked, Bent, Split or Frayed

Labels: Missing or Not Readable

Rung Locks: Loose, Bent, Missing or Broken

Hardware: Missing, Loose or Broken

Shoes: Worn, Broken or Missing

Rope/Pulley: Loose, Bent or Broken

Other: Bracing Rivets

General: Rust, Corrosion or Loose

Yes No

Actions:

Ladder tagged as damaged & removed from use

Ladder is in good condition

Name: _____

Date: _____



OSHA 10 Construction Day 2 Quiz

INTRO TO OSHA

1. What does "OSHA" stand for? _____
2. What is the mission of OSHA? _____
3. How long is the OSHA 10 Construction card good for in NYC? _____
4. What happened in 1911? _____
5. What were some of the hazards that contributed to the deaths in this 1911 event? _____

EMPLOYEES' RIGHTS

6. OSHA states that you have the right to a _____ and _____ workplace.
7. When refusing to perform unsafe work, what happens if you leave the worksite? _____
8. True or False: You can report a hazard to OSHA anonymously.
9. If you are retaliated against for exercising your safety rights, how long do you have to contact OSHA? _____

HEALTH HAZARDS IN CONSTRUCTION

10. The four common types of health hazards in construction are _____, physical, biological, and ergonomic.

- A. Chemical hazards
- B. Economic hazards
- C. Electrical hazards
- D. Fall hazards

11. Which of the following is the top of the hierarchy of controls, as the best option for dealing with a hazard?

- A. Elimination / Substitution
- B. Engineering Controls
- C. Administrative Controls
- D. PPE

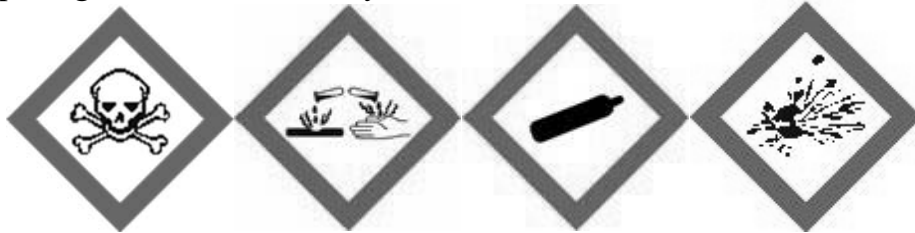
12. Which of the following is an example of a physical health hazard?

- A. Asbestos
- B. Noise
- C. Silica
- D. Lead

HAZCOM

13. What does SDS mean? _____

14. Which pictogram below is the symbol for acute toxicity?



15. In chemical hazards numbering 1 – 5, which number represents severe danger, the most dangerous? _____

16. How many sections are on an SDS? _____

17. What information is on an SDS? _____

18. Where can you find an SDS? _____

19. When should you receive HazCom training? _____
and _____.

PPE

20. What does PPE mean? _____
21. Who is responsible for providing PPE? _____
22. Can you collect unemployment pay if you were fired for not wearing your PPE? _____
23. PPE is the _____ line of defense against injury.
24. Changing the way employees do their jobs to remove the exposure to hazard, such as using water-based tools for wet method stone cutting is known as
A. Engineering control B. Administrative control, including work practice
C. PPE
25. Physically changing the work environment to prevent hazard exposure, such as enclosing stone cutting operations so other workers are not exposed to silica.
A. Engineering control B. Administrative control, including work practice
C. PPE

FAT-CAT

26. What is the OSHA Fat-Cat and where can you read it? _____

27. According to the Fat-Cat as reviewed in class, what is a common factor in almost every workplace death? _____
28. What safety precaution should you always take before performing any work?

29. What is the leading cause of death in the Construction Industry? _____
30. What are the Fatal Four (sometimes called the Focus Four)?

FALL HAZARDS IN CONSTRUCTION

Goal: To expose students to the dangers of fall hazards and equip them with working knowledge of authorized methods of fall protection.

OBJECTIVES

Upon successful completion of this lesson, students will be able to

1. Identify the trigger height for use of fall protection in the construction industry
2. Name the three main types of OSHA authorized fall protection
3. Describe the components of a Personal Fall Arrest System
4. State the weight requirement of anchor points and guardrails
5. Properly inspect, don, and doff a harness
6. Identify fall hazards

NOTES

The leading cause of death in the construction industry is _____.

In the construction industry, trigger height for using fall protection is _____ feet.

Three main types of OSHA-authorized fall protection are

GUARDRAIL SYSTEMS

The three parts of a guardrail system are *Toprails*, *Midrails*, and *Posts*.

The height of the top rail of a guardrail system must be *42 inches*, plus or minus 3 inches.

The top rail must be able to support _____ pounds of outward and downward force.

The purpose of a toe board is to prevent _____.

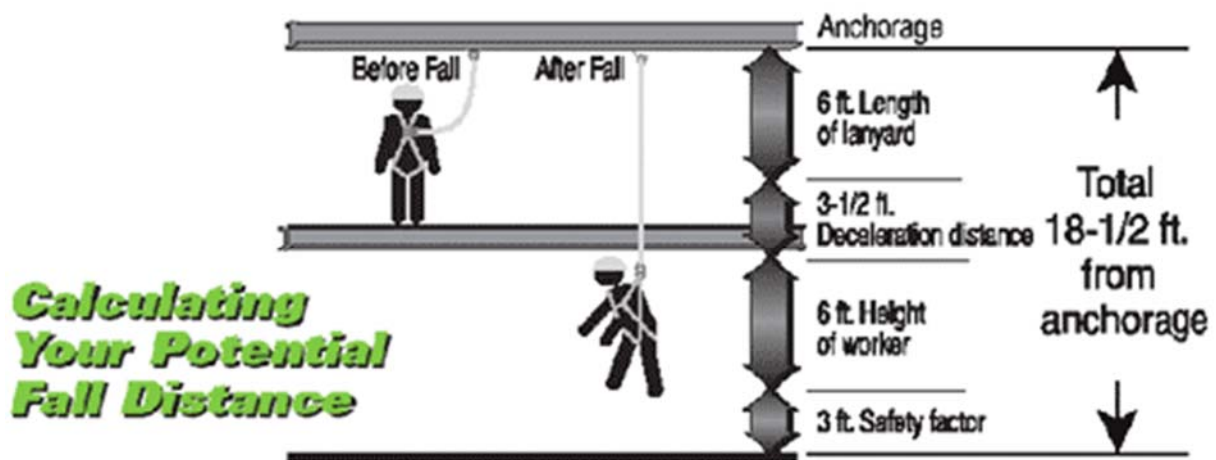
Do not store materials or equipment within *4 feet* of the working edge.

PERSONAL FALL ARREST SYSTEMS

When using personal fall arrest systems, there shall be prompt rescue after a fall to prevent *suspension trauma*, which is the pooling of blood in the legs, which can lead to _____.

The three parts of a personal fall arrest system (PFAS) are *anchorage*, _____, and *connectors*.

An anchorage for a PFAS must be rated to hold _____ pounds.



SAFETY NETS

Safety nets must be installed within *30 feet* of the working platform.

COVERS

Covers must be able to support *twice the weight* of any employees, vehicles, equipment, or materials that may go over cover.

Covers shall be color coded or marked with the word “hole” or “cover.”

WARNING LINE SYSTEMS

Warning lines may be erected no less than *6 feet* from the roof edge.

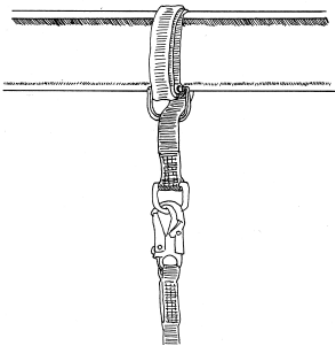
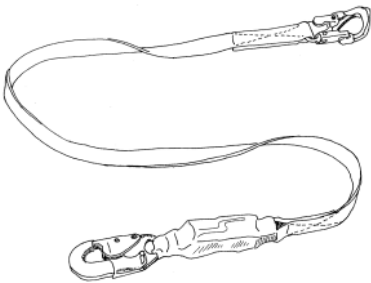

Warning lines must be marked at least every *6 feet* with high visibility material.

Personal Fall Arrest Systems Summary

Personal fall arrest systems are one way to protect workers from falls. In general, workers must have fall protection when they could fall 6 feet or more while they are working.

OSHA **requires** workers to wear a full-body harness, (one part of a *Personal Fall Arrest System*) when they are working on a *suspended scaffold* more than 10 feet above the working surface, or when they are working in *bucket truck or aerial lift*. Employers may also choose to use a Personal Fall Arrest System, instead of a guardrail, when workers are working on a *supported scaffold* more than 10 feet above the working surface.

There are **three** major components of a Personal Fall Arrest System (PFAS):

		
<ul style="list-style-type: none"> • the anchor and the anchorage connector 	<ul style="list-style-type: none"> • the connecting device, which is a lanyard or a retractable lifeline, with snaphooks 	<ul style="list-style-type: none"> • the full-body harness

The following are some things to remember about personal fall arrest systems:

1. A personal fall arrest system is made up of an **anchorage, connecting device, and a full-body harness**. The connecting device may be a lanyard with snaphooks, or a self-retracting lifeline. A lanyard could also include a deceleration device. Make sure you are using components from the same manufacturer to ensure that the system works as it should. If not, any substitution or change must be evaluated or tested by a competent person to ensure that it meets the standard.
2. **Body belts cannot be used** for fall arresting service. However, a body belt is allowed as part of a positioning system. A positioning system is one way to prevent falls from occurring. It involves equipment for keeping your body in a position where you are not able to fall. For all situations where you could actually fall, you need to wear a full-body harness.
3. Your personal fall arrest system must be **inspected for damage** each time before you wear it. [If there are defects, or if someone has taken a fall using the equipment, it must be removed from service.]

4. The **attachment location** of the body harness must be in the center of your back, near the shoulder level or above your head.
5. **Vertical lifelines or lanyards** must have a minimum breaking strength of 5,000 lbs., and be protected against being cut or abraded.
6. Each worker must be attached to a **separate vertical lifeline**. [There is a special exception when constructing elevator shafts.]
7. The **webbing**, which is the materials used for ropes and straps of lifelines, lanyard and harnesses, must be made of **synthetic** fibers.
8. **An anchorage** for workers' personal fall arrest equipment must be **independent of any anchorage** used to support or suspend platforms, and it must be able to support at least 5,000 lbs. per worker attached to it.
9. **Connectors** must be made from **steel or equivalent** materials, with a corrosion-resistant finish and the edges must be smooth.
10. **D-rings and snaphooks** must have a **minimum tensile strength** of 5,000 lbs.
11. **Snaphooks** must be a **locking-type** (they are generally double-locking) and designed to prevent the snaphook from opening and slipping off the connector.
12. **Snaphooks cannot be directly connected** to the webbing, rope or wire, to each other, to a D-ring to which another snaphook or other connector is attached, to a horizontal lifeline, or to any other object that could cause the snaphook to open.

Source: Construction Safety & Health Fall Hazards, Central New York COSH, 2007, OSHA grant product

SYMPTOMS:

- Hot flushes, sweating, anxiety, numbness
- Rapid pulse and breathing
- Sudden loss of consciousness (fainting)
- Death within 10-30 minutes if not rescued

SUSPENSION TRAUMA

Suspension trauma can start within 5 minutes. A fallen climber can become unconscious within 10 minutes and can die within 15. Also, anyone hanging vertically for more than 10 mins can die if they are allowed to lie down after rescue, due to the stale blood returning from their legs and stopping the heart. Suspension trauma will affect anyone hanging motionless with his or her legs dangling. No injury is needed and the harness does not need to be constrictive. It is sudden, unpredictable and always kills. It is caused by blood pooling in the legs due to gravity. Without the pump effect from leg muscles as they contract, the brain is starved of oxygen and begins to die. The only way to stop the progress is to raise the legs immediately after the fall or continually use the leg muscles. Rapid rescue is essential.

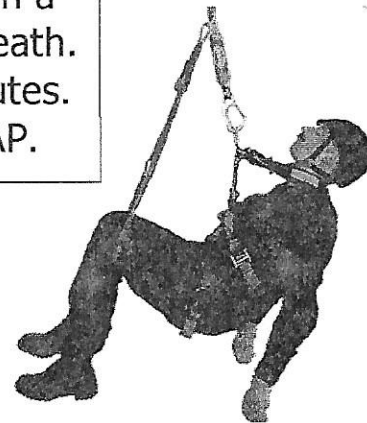
ACTIONS AFTER A FALL:

- **If at all possible, recover the climber within 5-10 minutes**
- If recovery is delayed, raise the knees into a sitting position **within 5 minutes**
→ **If this is not possible, only raise the legs very gradually and carefully.**
- If the climber is unconscious they must be reached and the airway protected
- If recovery is impossible, go for help **after** raising the knees
- During recovery, **never** allow the body to lay flat
- Keep the climber in a sitting position for at least **30 minutes**.
- Anyone who has fainted or been suspended for over 10 minutes **must** go to hospital.
→ Hand this card to the ambulance personnel when they arrive



Anyone hanging motionless in a harness is at risk of sudden death. Raise the knees within 5 minutes. Recover them to safety ASAP.

5 MINUTES



Prevention:

- Always keep legs active. Use a workseat if hanging for long periods.
- Keep hydrated and avoid smoking or alcohol
- Carry an emergency knee sling at all times
- Avoid rear-attachment if there's a risk of free-hanging after a fall
- Rescue should always be possible within 10 minutes
- Your risk assessments must plan for suspension trauma & rescue

This guidance is based on research published by the HSE and other agencies. TAG accept no liability for consequence caused by failure to comply with extant legislation and working practices.



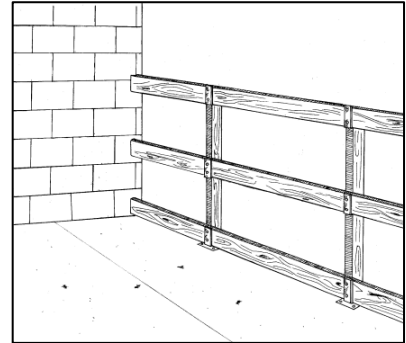
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Guardrail and Safety Net Systems Summary

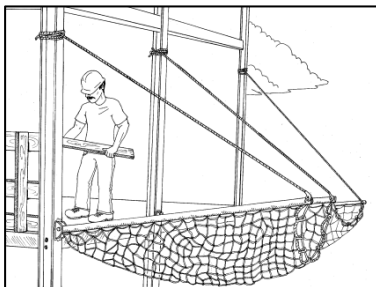
Guardrail and safety net systems are two ways to protect workers from falls on the job. If you are more than 6 feet above the lower surface, some type of fall protection must be used by your employer.

If your employer uses **guardrails**:

- Toprails must be at least 1/4 inch thick to prevent cuts and lacerations; and they must be between 39 and 45 inches from the working surface;
- If wire rope is used, it must be flagged at least every six feet with highly visible materials;
- Midrails, screens or mesh must be installed when there are no walls at least 21 inches high. Screens and mesh must extend from the toprail to the working level.
- There can be no openings more than 19 inches;
- The toprail must withstand at least 200 lbs. of force; the midrail must withstand 150 lbs. of force;
- The system must be smooth enough to protect workers from cuts and getting their clothes snagged by the rail.
- If guardrails are used around holes at points of access, like a ladderway, a gate must be used to prevent someone from falling through the hole, or be offset so that a person cannot walk directly into the hole.



If your employer uses **safety nets**:



- The nets must be as close as practicable under the working surface, but never more than 30 feet below;
- The safety net must be inspected every week for damage;
- Each net must have a border rope with a minimum strength of 5,000 lbs.;
- The safety net must extend outward a sufficient distance, depending on how far the net is from the working surface (OSHA has a formula to follow);
- The safety net must absorb the force of a 400-pound bag of sand dropping on to the net ("the drop test");
- Items in the net that could be dangerous must be removed as soon as possible.

SOURCE: Construction Safety & Health Fall Hazards, Central New York COSH, 2007, OSHA grant product

ELECTRICAL HAZARDS

Goal: To equip students with skills to recognize and avoid hazards of working with and around electrical equipment.

OBJECTIVES

Upon successful completion of this lesson, students will be able to

1. Explain the basic workings of electricity
2. Identify electrical hazards
3. Explain the functions of certain electrical safety items, such as ground prongs and ground-fault circuit interrupters
4. Properly inspect and safely use electrical tools and extension cords

NOTES

1. About _____ workers are electrocuted every week.
2. The four main types of electrical injury are *Electrocution*, *Electrical shock*, _____, and _____.
3. Always stay at least _____ away from overhead powerlines.
4. _____ creates a low-resistance path from the tool to the earth to disperse unwanted current and protect the worker from electrical shock.
5. _____ - _____ (“GFCI”) protects you from shock by detecting difference between black and white wires and shutting off electricity if fault is detected.

EXTENSION CORDS

6. Use extension cords only when necessary and only on a _____ basis.
Do not use extension cords in place of permanent wiring.

7. Do not remove the _____ of an electrical plug. If plug _____ are missing, loose, or bent, do not use the cord.
8. Always _____ the cord prior to use.
9. The correct way to unplug a cord is by pulling on the _____.
10. Before throwing away a defective extension cord, you should _____.

Electrical terms

Current: electrical movement (measured in amps).

Circuit: complete path of the current. Includes electricity source, a conductor, and the output device or load (such as a lamp, tool, or heater).

Conductors: substances, like metals, with little resistance to electricity that allow electricity to flow.

Resistance: restriction to electrical flow.

Grounding: a conductive connection to the earth which acts as a protective measure.

Insulators: substances with high resistance to electricity like glass, porcelain, plastic, and dry wood that prevent electricity from getting to unwanted areas.

EXTENSION CORD SAFETY Toolbox Talk

The U.S. Consumer Product Safety Commission (CPSC) estimates that each year, about 4,000 injuries associated with electric extension cords are treated in hospital emergency rooms. About half of the injuries involve fractures, lacerations, contusions or sprains from people tripping over extension cords. CPSC also estimates that about 3,300 residential fires originate in extension cords each year, killing 50 people and injuring about 270 others. The most frequent causes of such fires are short circuits, overloading, damage and/or misuse of extension cords.

Today we'll look at some tips for use of extension cords

- Use extension cords only when necessary and only on a temporary basis. Do not use extension cords in place of permanent wiring.
- Only use cords rated for outdoor use when using a cord outside.
- Do not run cords above ceiling tiles or through walls.
- Keep electrical cords away from areas where they may be pinched and areas where they may pose a tripping or fire hazard (e.g., doorways, walkways, under carpet, etc.).
- Do not remove the prongs of an electrical plug. If plug prongs are missing, loose, or bent, replace the entire plug.
- Do not use an adapter or extension cord to defeat a standard grounding device. (e.g., Only place three-prong plugs in three-prong outlets; do not alter them to fit in a two-prong outlet.)
- Use extension cords that are the correct size or rating for the equipment in use. The diameter of the extension cord should be the same or greater than the cord of the equipment in use.
- Always inspect the cord prior to use to ensure the insulation isn't cut or damaged. Discard damaged cords, cords that become hot, or cords with exposed wiring.
- Never unplug an extension cord by pulling on the cord; pull on the plug.

STRUCK-BY HAZARDS

Goal: To equip students with skills to recognize and avoid Struck-By hazards at construction sites.

OBJECTIVES

Upon successful completion of this lesson, students will be able to

1. Describe what a struck-by event is
2. Describe types of struck-by hazards
3. Protect themselves from struck-by hazards
4. Recognize employer requirements to protect workers from struck-by hazards

NOTES

What is a Struck-By event?

Struck-by injuries are produced by forcible contact or impact between the injured person and an object or piece of equipment.

Hazards classified as Struck-By include:

Struck-by _____ object

Struck-by _____ object

Struck-by _____ object

Struck-by _____ object

Precautions Against Struck-By Hazards:

A. Heavy equipment [cranes, excavators, etc.]

- Stay away from heavy equipment when it's operating – In fact, be alert to the location of all heavy equipment whether in use or not
- Stay clear of lifted loads, and never work under a suspended load
- Beware of unbalanced loads

- Workers should confirm and receive acknowledgement from the heavy equipment operator that they are visible
- Be aware of the swing radius of cranes and backhoes, and do not enter that zone
- Do not carry personnel unless there is a safe place to ride

B. Motor vehicles [trucks, cars, etc.]

- Wear seat belts when provided
- Check vehicles before each shift to assure that all parts and accessories are in safe operating condition
- Do not drive a vehicle in reverse gear with an obstructed rear view, unless it has an audible reverse alarm or another worker signal that it is safe
- Set parking brakes when vehicles and equipment are parked, and chock the wheels if they are on an incline
- Wear high-visibility reflective clothing
- Do not put yourself at risk of being struck by a vehicle, and do not get caught in a situation where there's no escape route
- Do not direct traffic unless you are the flagger
- Never cross the path of a backing vehicle
- Follow “Exit” and “Entry” worksite traffic plan

C. General safe work practices

- When working with compressed air: *Reduce air pressure to 30 psi if used for cleaning, and use only with appropriate guarding and proper protective equipment; and *Never clean clothing with compressed air
- When working with hand tools: *Do not use tools with loose, cracked, or splintered handles; and *Do not use impact tools with mushroomed heads
- When working with machines, such as jack hammers, pavement saws: *Be sure to be trained on safe operation of machinery. Inspect machinery; *Ensure all guards are in

place and in working order; and *Protect feet, eyes, ears, and hands; wear hearing protection

- When performing overhead work: *Secure all tools and materials; *Use toeboards, screens, guardrails, and debris nets. Barricade the area and post signs; and *Be sure materials stored in buildings under construction are placed farther than 6 feet of hoist way / floor openings, and more than 10 feet from an exterior wall
- When working with power tools, such as saws, drills, grinders: *Be sure to be trained on how to safely use the power tool. Inspect tool(s) before each use; *Wear safety goggles; *Operate according to manufacturer's instructions; and *Ensure that all required guards are in place
- When pushing or pulling objects that may become airborne: *Stack and secure materials to prevent sliding, falling or collapse; *Keep work areas clear; and *Secure material against wind gusts
- Avoid using cell phones at the job site, unless required by the site for official communication (when a site does not use radios). *Never take a personal call at the job site, and always be fully aware of your surroundings

D. Personal Protective Equipment (PPE)

**Wear it!*

STRUCK-BY HAZARDS QUIZ

1. Struck-by injuries are produced by forcible contact or impact between the injured person and a/n _____.
 - a. High voltage power line or other energy source
 - b. Object or piece of equipment
 - c. Co-worker or employer
2. The following are examples of struck-by hazards. Which one is an example of a struck-by flying hazard?
 - a. Hit by a nail from a nail gun
 - b. Hit by a load dropped from a crane
 - c. Run over by a vehicle in a roadway work zone
3. As a load is mechanically lifted, the materials _____.
 - a. May strike workers if the load swings, twists, or turns
 - b. Will not be affected by windy conditions or bad weather
 - c. Can weigh any amount without causing a problem with the equipment
4. Among the list of ways workers can protect themselves when working on or near any construction zone, is to _____.
 - a. Direct traffic in and out of the work zone
 - b. Work behind moving vehicles
 - c. Wear high-visibility reflective clothing
5. A struck-by hazard can be described as anytime a worker _____.
 - a. Falls from a height of greater than ten feet
 - b. Is hit by a falling, swinging, flying, or rolling object
 - c. Can get any part of his/her body caught in or in between objects
6. Employers must protect workers from struck-by hazards by _____.
 - a. Providing PPE such as hard hats and safety glasses
 - b. Establishing guidelines that allow only contractors access in the crane work zone
 - c. Ensuring guards on tools and equipment are removed when it is absolutely necessary to get the job done

CAUGHT-IN OR -BETWEEN HAZARDS

Goal: To equip students with skills to recognize and avoid Caught-in or Caught-between hazards at construction sites.

OBJECTIVES

Upon successful completion of this lesson, students will be able to

1. Describe what a caught-in or -between event is
2. Describe types of caught-in or -between hazards
3. Protect themselves from caught-in or -between hazards
4. Recognize employer requirements to protect workers from caught-in or -between hazards

NOTES

What is a Caught-in or -Between event?

Injuries resulting from a person being squeezed, caught, crushed, pinched, or compressed between two or more objects or between parts of an object. This includes individuals who get caught or crushed in operating equipment, between other mashing objects, between a moving and stationary object, or between two or more moving objects.

Events classified as *Caught* include:

Cave-ins (trenching)

Being pulled into or caught in machinery and equipment (this includes strangulation as the result of clothing caught in running machinery and equipment)

Being compressed or crushed between rolling, sliding, or shifting objects such as semi-trailers and a dock wall, or between a truck frame and a hydraulic bed that is lowering

Common types of Caught-in or -Between Hazards in construction include:

- Machinery that has unguarded moving parts causing caught-in or -between
- Buried in or by
- Pinned between

Tips for avoiding Caught-in or -Between hazards:

Use machinery that is properly _____.

Use other methods to ensure that machinery is sufficiently supported, secured or otherwise made safe.

Avoid wearing loose _____ or jewelry that could become caught in moving parts.

Protect yourself from being pinned between equipment, materials, or other objects.

Protect yourself on excavation sites.

Receive proper training.

Four protective systems for trenching include:

Sloping: _____

Benching: _____

Shoring: _____

Trench Box or Shielding: _____

CAUGHT-IN OR -BETWEEN QUIZ

1. Caught in or -between hazards are related with excavations [trenches]; therefore, the hazard considered to be the greatest risk is:
 - a. Cave-ins
 - b. Severing of underground utilities
 - c. Equipment falling into trenches

2. One who is capable of identifying existing and predictable hazards in the surroundings, or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them is a/n _____:
 - a. Competent person
 - b. OSHA Compliance Officer
 - c. Qualified person

3. To protect against caught-in or –between hazards, a worker should not only avoid wearing loose clothing or jewelry, but also a worker should avoid:
 - a. Operating equipment/machinery while wearing a seatbelt
 - b. Working with equipment/machinery that has not been locked-out
 - c. Using equipment/machinery that is guarded

4. Providing worker training on the safe use of the equipment being operated is the responsibility of the:
 - a. Employer
 - b. Worker
 - c. State OSHA consultation

5. Workers should not work in an unprotected trench that is 5 feet deep or more. The type of protection installed may be sloping or benching; trench box or shield; and
 - a. Stabilizing
 - b. Steadying
 - c. Shoring

6. To prevent being pinned between equipment or other objects, workers should avoid
 - a. Using a trench box or shield during excavation work
 - b. Placing themselves between moving vehicles and an immovable structure, vehicle, or staked materials
 - c. Removing a safety guard when a tool, such as a circular saw or power drill, is being used.

Protect Yourself Trench Safety



- **Do not enter an unprotected trench!**
- Trench collapses cause dozens of fatalities and hundreds of injuries each year.
- Trenches **5 feet** deep or greater require a **protective system**.
- Trenches **20 feet** deep or greater require that the protective system be **designed by a registered professional engineer**.

Protective Systems for Trenches

- **Sloping** protects workers by cutting back the trench wall at an angle inclined away from the excavation.
- **Shoring** protects workers by installing aluminum hydraulic or other types of supports to prevent soil movement.
- **Shielding** protects workers by using trench boxes or other types of supports to prevent soil cave-ins.

Competent Person

OSHA standards require that trenches be inspected daily and as conditions change by a competent person prior to worker entry to ensure elimination of excavation hazards.

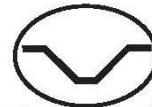
Safety Tips

- Inspect trenches at the start of each shift, following a rainstorm or after any other hazardous event.
- Test for low oxygen, hazardous fumes and toxic gases before entering a trench.
- Keep heavy equipment and excavation spoils at least two feet away from the trench edge.
- Provide stairways, ladders, ramps or other safe means of access in all trenches 4 feet or deeper.

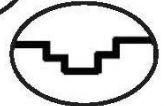
Working Safely in Trenches

Two workers are killed every month in trench collapses. Each worker in a trench shall be protected from a cave-in by an adequate protective system. Some of the protective systems for trenches are:

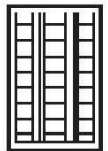
- Sloped for stability; or



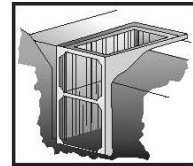
- Cut to create stepped benched grades (Type A or B soil only); or



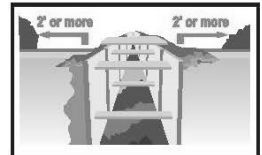
- Supported by a system made with materials such as posts, beams, shores or planking and hydraulic jacks; or



- Shielded by a trench box to protect workers in a trench.



Excavated or other materials and equipment must be at least 2 feet back from the edge of a trench; and



A safe way to exit must be provided within 25 feet of workers in a trench.



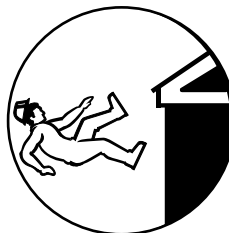
A competent person must inspect trenches daily and when conditions change. An unprotected trench is an early grave. Do not enter an unprotected trench.

Top Four Construction Hazards

The top four causes of construction fatalities are: Falls, Struck-By, Caught-In/Between and Electrocutions.

Prevent Falls

- Wear and use personal fall arrest equipment.
- Install and maintain perimeter protection.
- Cover and secure floor openings and label floor opening covers.
- Use ladders and scaffolds safely.



Prevent Struck-By

- Never position yourself between moving and fixed objects.
- Wear high-visibility clothes near equipment/vehicles.



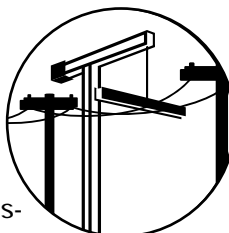
Prevent Caught-In/Between

- Never enter an unprotected trench or excavation 5 feet or deeper without an adequate protective system in place; some trenches under 5 feet deep may also need such a system.
- Make sure the trench or excavation is protected either by sloping, shoring, benching or trench shield systems.



Prevent Electrocutions

- Locate and identify utilities before starting work.
- Look for overhead power lines when operating any equipment.
- Maintain a safe distance away from power lines; learn the safe distance requirements.
- Do not operate portable electric tools unless they are grounded or double insulated.
- Use ground-fault circuit interrupters for protection.
- Be alert to electrical hazards when working with ladders, scaffolds or other platforms.



For more complete information:

Scaffold Work Can Be Dangerous: Know the Basics of Scaffold Safety

There are thousands of scaffold-related injuries – and about 40 scaffold-related deaths – every year in the U.S. If you are doing work on scaffolds, know how to work on them safely – it could save your life!



Here are some rules about scaffolds that must be followed if you want to work safely:

1. A **competent person** must be available to direct workers who are constructing or moving scaffolds. The competent person must also train workers, and **inspect** the scaffold and its components **before every work shift, and after any event that could affect the structural integrity of the scaffold**. The competent person must be able to identify unsafe conditions, and be authorized by the employer to take action to correct unsafe conditions, to make the workplace safe. And a **qualified person**, someone who has very specific knowledge or training, must actually design the scaffold and its rigging.
2. Every **supported** scaffold and its components must **support, without failure, its own weight and at least four times the intended load**. The intended load is the sum of the weights of all personnel, tools and materials that will be placed on the scaffold. Don't load the scaffold with more weight than it can safely handle.
3. On **supported** scaffolds, working platforms/decks must be planked close to the guardrails. Planks are to be overlapped on a support at least 6 inches, but not more than 12 inches.
4. Inspections of **supported** scaffolds must include:
 - Checking metal components for bends, cracks, holes, rust, welding splatter, pits, broken welds and non-compatible parts.
 - Covering and securing floor openings and labeling floor opening covers.
5. Each rope on a **suspended** scaffold must support the scaffold's weight and at least **six times** the intended load.
6. Scaffold **platforms** must be at least **18 inches wide**, (**there are some exceptions**), and guardrails and/or personal fall arrest systems must be used for fall protection any time you are working 10 feet or more above ground level. **Guardrails** must be between 39 and 45 inches high, and **midrails** must be installed approximately halfway between the toprail and the platform surface.
7. OSHA standards require that workers have **fall protection when working on a scaffold 10 or more feet above the ground**. OSHA requires the following:

- The use of a **guardrail OR a personal fall arrest system** when working on a *supported scaffold*.
- **BOTH a guardrail AND a personal fall arrest system** when working on a *single-point or two-point suspended scaffold*.
- A **personal fall arrest system** when working on an *aerial lift*.

8. Your lifeline must be tied back to a **structural anchorage** capable of withstanding **5,000 lbs** of dead weight **per person** tied off to it. Attaching your lifeline to a guardrail, a standpipe or other piping systems will not meet the 5,000 lbs requirement and is not a safe move.

9. Wear hard hats, and make sure there are toeboards, screens and debris nets in place **to protect other people from falling objects**.

10. **Counterweights** for *suspended scaffolds* must be able to resist at least **four times the tipping moment**, and they must be made of materials that cannot be easily dislocated (no sand, no water, no rolls of roofing, etc.). [This would be calculated by the *qualified person* who designs the scaffold.]

11. Your employer must provide safe access to the scaffold when a platform is more than two (2) feet above or below the point of access, or when you need to step across more than 14 inches to get on the platform. **Climbing on cross braces is not allowed!** Ladders, stair towers, ramps and walkways are some of the ways of providing safe access.

12. All workers must be **trained** on:

- how to use the scaffold, and how to recognize hazards associated with the type of scaffold they are working on;
- the maximum intended load and capacity;
- how to recognize and report defects;
- fall hazards, falling object hazards and any other hazards that may be encountered, including electrical hazards (such as overhead power lines); and,
- having proper fall protection systems in place.

SOURCE: Construction Safety & Health Fall Hazards, Central New York COSH, 2007, OSHA grant product

Confined Spaces in Construction: Pits

Confined spaces can present conditions that are immediately dangerous to workers if not properly identified, evaluated, tested, and controlled. This fact sheet highlights many of the confined space hazards associated with pits and how employers can protect their workers in these environments.

OSHA has developed a new construction standard for Confined Spaces (29 CFR 1926 Subpart AA)— any space that meets the following three criteria:

- Is large enough for a worker to enter it;
- Has limited means of entry or exit; and
- Is not designed for continuous occupancy.

A space may also be a **permit-required confined space** if it has a hazardous atmosphere, the potential for engulfment or suffocation, a layout that might trap a worker through converging walls or a sloped floor, or any other serious safety or health hazard.

Fatal Incidents

Confined space hazards in pits have led to worker deaths. Several tragic incidents included:

- Two workers suffocated while attempting to close gate valves in a valve pit.
- A worker lost consciousness, fell, and was killed while climbing down a ladder into an unventilated underground valve vault to turn on water valves.
- While replacing a steam-operated vertical pump, an equipment repair technician died from burns and suffocation after falling into an industrial waste pit.

Training

The new Confined Spaces standard requires employers to ensure that their workers know about the existence, location, and dangers posed by each permit-required confined space, and that they may not enter such spaces without authorization.

Employers must train workers involved in permit-required confined space operations so that they can perform their duties safely and understand

the hazards in permit spaces and the methods used to isolate, control or protect workers from these hazards. Workers not authorized to perform entry rescues must be trained on the dangers of attempting such rescues.

Safe Entry Requirements

The new Confined Spaces standard includes several requirements for safe entry.

Preparation: Before workers can enter a confined space, employers must provide pre-entry planning. This includes:

- Having a competent person evaluate the work site for the presence of confined spaces, including permit-required confined spaces.
- Once the space is classified as a permit-required confined space, identifying the means of entry and exit, proper ventilation methods, and elimination or control of all potential hazards in the space.
- Ensuring that the air in a confined space is tested, before workers enter, for oxygen levels, flammable and toxic substances, and stratified atmospheres.
- If a permit is required for the space, removing or controlling hazards in the space and determining rescue procedures and necessary equipment.
- If the air in a space is not safe for workers, ventilating or using whatever controls or protections are necessary so that employees can safely work in the space.

Ongoing practices: After pre-entry planning, employers must ensure that the space is monitored for hazards, especially atmospheric hazards. Effective communication is important because there can be multiple contractors operating on a site, each with its own workers

needing to enter the confined space. Attendants outside confined spaces must make sure that unauthorized workers do not enter them. Rescue attempts by untrained personnel can lead to multiple deaths.

Confined Spaces in Pits

Even though a pit is typically open on top and over 4 feet deep, it can still be a confined space or permit-required confined space. Additionally, pits can be completely underground or below grade, such as a utility vault within a sewer



system or a pit within a pit in a wastewater treatment plant.

Pits are found in many environments. Examples include sump pits, valve pits or vaults (e.g., wastewater treatment plants, municipal

water systems), electrical pits/vaults, steam pits/vaults, vehicle service/garage pits, elevator pits, dock leveler pits, industrial chemical waste pits, and many more. Many of these spaces qualify as permit-required confined spaces.

Employers must take all necessary steps to keep workers safe in confined spaces, including following the OSHA Construction Confined Spaces standard. This standard applies to both new construction in a pit and alterations and/or upgrades. Among the pit-related tasks covered by the standard are:

- Opening or closing valves during renovation work.
- Installing or upgrading pump equipment, cables, or junction boxes.

Construction work can create confined spaces, even if there are none at the start of a project. Changes to the entry/exit, the ease of exit, and air flow could produce a confined space or cause one to become permit-required.

Personal protective equipment: Employers should assess the worksite to determine what personal protective equipment (PPE) is needed to protect workers. Employers should provide workers with the required PPE and proper training on its use and about any related hazards before the work starts.

How to Contact OSHA

For questions or to get information or advice, to find out how to contact OSHA's free on-site consultation program, order publications, report a fatality or severe injury, or to file a confidential complaint, visit www.osha.gov or call 1-800-321-OSHA (6742).

Additional Information

[OSHA's Confined Spaces in Construction Standard \(29 CFR 1926 Subpart AA\)](#)

[Confined Spaces: OSHA Construction Industry Topics by Standard](#)

[OSHA Fact Sheet: Procedures for Atmospheric Testing in Confined Spaces](#)

[Confined Spaces: NIOSH Workplace Safety and Health Topics Page](#)

[State Plan Guidance:](#) States with OSHA-approved state plans may have additional requirements for confined space safety.

[Help for Small and Medium-Sized Employers:](#) OSHA's On-site Consultation Program offers free and confidential advice to businesses nationwide.

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U.S. Department of Labor

Confined Spaces in Construction: Sewer Systems

Confined spaces can present conditions that are immediately dangerous to workers if such conditions are not properly identified, evaluated, tested, and controlled. This fact sheet highlights many of the confined space hazards associated with sewer systems and how employers can protect workers in these environments.

OSHA has developed a new construction standard for Confined Spaces (29 CFR 1926 Subpart AA)—any space that meets the following three criteria:

- Is large enough for a worker to enter it;
- Has limited means of entry or exit; and
- Is not designed for continuous occupancy.

A space may also be a **permit-required** confined space if it has a hazardous atmosphere, the potential for engulfment or suffocation, a layout that might trap a worker through converging walls or a sloped floor, or any other serious safety or health hazard.

Fatal Incidents

Confined space hazards in sewer systems have led to worker deaths. Several tragic incidents in sewers have included:

- A worker who lost consciousness and died when he climbed into a sewer vault to retrieve a tool. His co-worker also died when he attempted a rescue.
- While repairing a natural gas leak, a worker entered a drainage pipe to retrieve survey equipment. The natural gas ignited, killing the worker.

Training

The new Confined Spaces standard requires employers to ensure that their workers know about the existence, location, and dangers posed by each permit-required confined space, and that they may not enter such spaces without authorization.

Employers must train workers involved in permit-required confined space operations so that they can perform their duties safely and understand the hazards in permit spaces and the methods used to isolate, control or protect workers. Workers not authorized to perform entry rescues must be trained on the dangers of attempting such rescues.

Safe Entry Requirements

The new Confined Spaces standard includes several requirements for safe entry.

Preparation: Before workers can enter a confined space, employers must provide pre-entry planning. This includes:

- Having a competent person evaluate the work site for the presence of confined spaces, including permit-required confined spaces.
- Once the space is classified as a permit-required confined space, identifying the means of entry and exit, proper ventilation methods, and elimination or control of all potential hazards in the space.
- Ensuring that the air in a confined space is tested, before workers enter, for oxygen levels, flammable and toxic substances, and stratified atmospheres.
- If a permit is required for the space, removing or controlling hazards in the space and determining rescue procedures and necessary equipment.
- If the air in a space is not safe for workers, ventilating or using whatever controls or protections are necessary so that employees can safely work in the space.

Ongoing practices: After pre-entry planning, employers must ensure that the space is monitored for hazards, especially atmospheric hazards. Effective communication is important because there can be multiple contractors operating on a site, each with its own workers needing to enter the confined space. Attendants outside confined spaces must make sure that unauthorized workers do not enter them. Rescue attempts by untrained personnel can lead to multiple deaths.

Confined Spaces in Sewer Systems

Types of sewer systems include sanitary (domestic sewage), storm (runoff), and combined (domestic sewage and runoff). Sewer systems are extensive

and include many different components that are considered confined spaces, including pipelines, manholes, wet wells, dry well vaults, and lift/pump stations. Therefore, employers conducting work in sewer systems will likely have workers who will encounter confined spaces.

Sewer systems also consist of wastewater treatment plants, where confined spaces include digestion and sedimentation tanks, floating covers over tanks, sodium hypochlorite tanks, and wastewater holding tanks, among others. Many of these components may also qualify as permit-required confined spaces.

Employers must take all necessary steps to keep workers safe in confined spaces, including following the OSHA Construction Confined Spaces standard. This standard applies to both new construction within an existing sewer and alterations and/or upgrades. For example:

- Installing or upgrading a manhole.
- Altering or upgrading sewer lines.
- Making nonstructural upgrades to joints, pipes, or manholes.
- Demolition work.
- Installing new or upgraded pump equipment, cables, wires, or junction boxes.

Construction work can create confined spaces, even if there are none at the start of a project. Changes to the entry/exit, the ease of exit, and air flow could produce a confined space or cause one to become confined or permit-required.

Hazards Associated with Sewer Systems

Sewer systems can present a host of confined space hazards, including:

- Atmospheric hazards (low oxygen, toxic or flammable gases).
- Chemicals in piping and from roadway runoff (may harm lungs, skin, or eyes).
- Engulfment and drowning.

- Electrocution (e.g., using electrical equipment in wet working conditions).
- Slips, trips, and falls.
- Falling objects.
- High noise levels, low visibility, limits to communication, and long distances to exits.

Personal protective equipment: Employers should assess the work site to determine what personal protective equipment (PPE) is needed to protect workers. Employers should provide workers with the required PPE and proper training on its use and about any related hazards before the work starts.

How to Contact OSHA

For questions or to get information or advice, to find out how to contact OSHA's free on-site consultation program, order publications, report a fatality or severe injury, or to file a confidential complaint, visit www.osha.gov or call 1-800-321-OSHA (6742).

Additional Information

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CLASS CONCLUSION

What is one specific thing that I will remember, that I will take away, from this OSHA 10 Construction class?

What is something that I will do differently from now on because of what I learned in this class?

Assorted notes:

Contacts to keep in touch with (name and cell):

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