



OSHA Construction 10-Hour Course

Student Materials
Consultation Education and Training Division
Michigan Occupational Safety and Health Administration
Michigan Department of Labor and Economic Opportunity
www.michigan.gov/miosha
517-284-7720



OSHA 10 – Hour Construction Safety Course Presented by MIOSHA

	Table of Contents	Page
1	Introduction to MIOSHA and OSHA	2
2	General Rules (Part 1)	18
3	Focus Four: Struck by / Caught Between	20
4	Fall Protection (Part 45)	24
5	Electrical (Part 17)	28
6	Personal Protective Equipment (Part 6)	30
7	Cranes (Part 10: Lifting and Digging)	33
8	Health Hazards in Construction	38
9	Excavations (Part 9)	57
10	Ladders (Part 11)	62
11	Scaffolds (Part 12)	63
12	Aerial Work Platforms (Part 32)	67

About the OSHA 10-Hour Construction Safety Course

1. It takes ten hours of actual instruction time, plus breaks, and lunch.
2. At the end of the class, you get:
 - a. Certificate of completion
 - b. MIOSHA 10-hour card
 - c. The Federal OSHA 10-hour card will be mailed to you
3. If you lose the card, you have to contact your trainer and pay a fee to replace it.
4. 10-hour cards never expire, but we recommend you re-take the class every three to five years.
5. The rules we present are often paraphrased. Use the rule number to look up the exact rule language to assist you in compliance.

Introduction to OSHA and MIOSHA

- ▶ OSHA stands for Occupational Safety and Health Administration.
- ▶ OSHA's responsibility is worker safety and health protection.
- ▶ On December 29, 1970, President Nixon signed the OSH Act
- ▶ MIOSHA was created in 1974 by the passage of Act 154 (the MIOSHA Act).
- ▶ MIOSHA is responsible for worker safety and health protection in Michigan.

Your Notes

1. _____
2. _____
3. _____
4. _____
5. _____

Activity # 1: Weekly Fatality/Catastrophe Report

1. Pick a partner to work with.
2. Quickly review the list of fatalities on the next page and circle one to discuss.
3. List things that could have been done to prevent that fatality.

What could have prevented the fatality?

1. _____
2. _____
3. _____
4. _____
5. _____

OSHA Weekly Fatalities / Catastrophes Report for June 9, 2012

The table below contains brief summaries of preliminary information, as reported to OSHA, of fatalities and catastrophes.

Date	Employer of Incident	Preliminary Description if Incident
4/27/2017	Lydick Hooks Roofing Company, ABILENE TX	Worker fatally injured in fall from roof.
4/27/2017	MHP Real Estate Services, NEW YORK NY	A worker died after falling from a 6-foot ladder.
4/26/2017	Brown's Tree Service & Landscaping LLC, HAMILTON OH	Worker died after being struck by a front-end loader.
4/26/2017	McGee Roofing LLC, TONGANOXIE KS	Worker fatally injured in fall from roof.
4/24/2017	RMCI Construction, DALLAS TX	One worker fatally injured and another hospitalized in crane collapse.
4/20/2017	A and B Property Preservation, Richmond, IN	Worker fatally injured after being thrown out of bucket truck.
4/20/2017	Atlas Environmental Services, LLC, FLOWERY BRANCH GA	Worker fatally injured when wall collapsed.
4/20/2017	W.E.L Inc., Bonsack, VA	Worker performing building demolition killed when walls and roof collapsed.
4/19/2017	Riveras Roofing, MILWAUKEE WI	Worker died in 20-foot fall to ground.
4/18/2017	B & T Construction Inc., LEWISTON NY	Worker crushed between arial lift basket and roof.
4/15/2017	Urban Concrete Contractors, FALLS CITY TX	Worker suffered fatal head injuries in trench collapse.
4/13/2017	Jeff Decker & Son Inc., RHINEBECK NY	Worker died after being struck by bulldozer.
4/11/2017	Residential Design Works Inc, Village of Clarkston, MI	Worker killed in fall from residential roof.
4/4/2017	Hawkeye Paving Corporation, Davenport, IA	Road crew worker fatally injured when vehicle collided with oncoming traffic.
3/29/2017	Bali Construction, El Monte, CA	Worker struck and killed by excavator.
2/16/2017	Donegan Painting, Tarzana, CA	Worker dies in fall from scaffold.
2/8/2017	BAKER CONCRETE CONSTRUCTION, INC., MIAMI FL	One worker died and another was hospitalized after train struck aerial lift.
2/2/2017	Forterra Pipe & Precast, LLC, NEW ORLEANS LA	Worker died in fall through floor opening.
1/13/2017	Kalkreuth Roofing & Sheet Metal, Lexington, KY	Worker died after falling through hole in roof.
1/11/2017	Whiting Services, Inc., Dearborn, MI	Worker inspecting crane died in fall when walkway collapsed.
1/5/2017	Raymark Air Conditioning and Heating, Inc., HOUSTON TX	Worker killed in fall from skylight.

Your Rights and Responsibilities Under OSHA and MIOSHA

- ▶ You have the right to:
 - A safe and healthful workplace - the “General Duty Clause”.
 - Know about hazardous chemicals.
 - Report an injury to your employer.
 - Complain or request hazard correction from employer.
 - ▶ In Michigan, go to www.michigan.gov/miosha or call 1-800-2MIOSHA
 - ▶ In other states, go to www.osha.gov
 - ▶ Find OSHA-7 form to file the complaint online.
 - Training.
 - Be informed about hazard exposure and medical records.
 - File a complaint with OSHA.
 - Participate in an OSHA inspection.
 - Be free from retaliation for exercising safety and health rights.

Your Notes

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

Job Safety and Health

It's the law!



EMPLOYEES:

- You have the right to notify your employer or OSHA about workplace hazards. You may ask OSHA to keep your name confidential.
- You have the right to request an OSHA inspection if you believe that there are unsafe and unhealthful conditions in your workplace. You or your representative may participate in that inspection.
- You can file a complaint with OSHA within 30 days of retaliation or discrimination by your employer for making safety and health complaints or for exercising your rights under the *OSH Act*.
- You have the right to see OSHA citations issued to your employer. Your employer must post the citations at or near the place of the alleged violations.
- Your employer must correct workplace hazards by the date indicated on the citation and must certify that these hazards have been reduced or eliminated.
- You have the right to copies of your medical records and records of your exposures to toxic and harmful substances or conditions.
- Your employer must post this notice in your workplace.
- You must comply with all occupational safety and health standards issued under the *OSH Act* that apply to your own actions and conduct on the job.

EMPLOYERS:

- You must furnish your employees a place of employment free from recognized hazards.
- You must comply with the occupational safety and health standards issued under the *OSH Act*.

This free poster available from OSHA –
The Best Resource for Safety and Health

[Print Note: Check "Print Scaling" setting, original is 9.5"x14"]



Free assistance in identifying and correcting hazards or complying with standards is available to employers, without citation or penalty, through OSHA-supported consultation programs in each state.

1-800-321-OSHA
www.osha.gov

OSHA 3185-12 06R

MICHIGAN SAFETY AND HEALTH PROTECTION ON THE JOB

THE MICHIGAN OCCUPATIONAL SAFETY AND HEALTH ACT, 1974 P.A. 154, AS AMENDED, REQUIRES POSTING OF THIS DOCUMENT IN A CENTRAL AND CONSPICUOUS LOCATION. FAILURE TO DO SO MAY RESULT IN A PENALTY.

The Michigan Occupational Safety and Health Act (MIOSH Act), Act No. 154 of the Public Acts of 1974, as amended, provides job safety and health protection for Michigan employees through the maintenance of safe and healthful working conditions. Under the MIOSH Act and a state plan approved in September 1973 by the U.S. Department of Labor, the Michigan Department of Licensing and Regulatory Affairs is responsible for administering the Act. Department representatives conduct job site inspections and investigations to ensure compliance with the Act and with safety and health standards.

The contents of this poster describe many important provisions of the Act. These provisions apply equally to employers and employees in either private industry or the public sector.

EMPLOYER REQUIREMENTS: MIOSHA requires that each employer:

1. Furnish to each employee employment and a place of employment which is free from recognized hazards that are causing or are likely to cause death or serious physical harm to the employee.
2. Comply with promulgated rules and standards and with orders issued pursuant to the Act.
3. Post this and other notices and use other appropriate measures to keep his or her employees informed of their protection and obligations under the Act, including the provisions of applicable rules and standards.
4. Notify the Michigan Department of Licensing and Regulatory Affairs within 8 hours of any fatality, or the hospitalization of 3 or more employees suffering injury or illness from the same incident. Notification may be accomplished by calling 1-800-858-0397.
5. Make available to employees, for inspection and copying, all medical records and health data in the employer's possession pertaining to that employee.
6. Afford an employee an opportunity with or without compensation to attend all meetings between the Department of Licensing and Regulatory Affairs and the employer relative to any appeal of a citation by the employer.
7. Give the representative of employees the opportunity to accompany the department during the inspection or investigation of a place of employment and to prohibit the suffering of any loss of wages or fringe benefits or discriminate against the representative of employees for time spent participating in the inspection, investigation, or opening and closing conferences.
8. Provide personal protective equipment, at the employer's expense, when it is specifically required by a MIOSHA standard.
9. Not permit an employee, other than an employee whose presence is necessary to avoid, correct or remove an imminent danger, to operate equipment or engage in a process which has been tagged by the Department and which is the subject of an order issued by the Department identifying that an imminent danger exists.
10. To promptly notify an employee who was or is being exposed to toxic materials or harmful physical agents in concentrations or at levels which exceed those prescribed by a MIOSHA standard.

EMPLOYEE REQUIREMENTS: MIOSHA requires that each employee:

1. Comply with promulgated rules and standards and with orders issued pursuant to the Act.
2. Not remove, displace, destroy, or carry off a safeguard furnished or provided for use in a place of employment, or interfere in any way with the use thereof by any other person.

INSPECTIONS/INVESTIGATIONS: Inspections and investigations are conducted by trained personnel. The Act requires that an employer representative and a representative of employees be given an opportunity to accompany the department representative for the purpose of aiding in the inspection or investigation.

If a representative of employees does not participate, the department representative will consult with a number of employees concerning matters of safety or health in the place of employment.

COMPLAINTS: Employees and employee representatives who believe that an unsafe or unhealthful condition exists in their workplace have the right to request an inspection by giving written notice to the Department of Licensing and Regulatory Affairs. If a condition exists which may present an immediate danger, the Department should be notified in the most expedient manner without regard to a written notice. The names of complainants will be kept confidential and not revealed upon the request of the employee. Employees also have the right to bring unsafe or unhealthful conditions to the attention of the department representative during the conduct of an inspection or investigation.

The Act provides that employees may not be discharged or in any manner discriminated against for filing a complaint or exercising any of their rights under the Act. An employee who believes he or she has been discriminated against may file a complaint with the Michigan Department of Licensing and Regulatory Affairs within 30 days of the alleged discrimination.

The U.S. Department of Labor is monitoring the operation of the Michigan Occupational Safety and Health Administration (MIOSHA) to assure the effective administration of the state act. Any person may make a written complaint regarding the state administration of the state act directly to the Regional Office of OSHA, 230 South Dearborn, Chicago, Illinois 60604.

CITATIONS: If upon inspection or investigation the Department of Licensing and Regulatory Affairs believes that a requirement of the Act has been violated, a citation alleging such violation and setting a time period for correction will be issued to the employer. The citation must be prominently posted at or near the place of the alleged violation for three days or until the violation is corrected, whichever is later.

The Act provides for first instance penalties of up to \$7,000 for a violation. Penalties of up to \$7,000 per day may be assessed for failure to correct a violation within a proposed abatement period. Any employer who willfully or repeatedly violates the Act may be assessed penalties of up to \$70,000 for each such violation. Employers may appeal the alleged citation, the proposed penalties or the abatement periods to the Department and to the Board of Health and Safety Compliance and Appeals. Employees may appeal the abatement period in a similar manner. Employees also may appeal to the Board of Health and Safety Compliance and Appeals any decision issued by the Department in response to an employer appeal.

Criminal penalties also are provided for in the Act. A person who knowingly makes a false statement or report pursuant to the Act upon conviction is punishable by a fine of up to \$10,000 or may be imprisoned for not more than 6 months or both. Any willful violation resulting in death of an employee, upon conviction, is punishable by a fine of up to \$10,000 or by imprisonment for not more than one year or both. A second conviction doubles the maximum monetary penalty and is punishable by imprisonment for up to three years.

VOLUNTARY ACTIVITY & COMPLIANCE ASSISTANCE: The act encourages employers and employees to reduce workplace hazards voluntarily.

The Michigan Department of Licensing and Regulatory Affairs offers limited on-site consultation assistance to employers to assist them in achieving compliance with occupational safety and health standards. Training specialists are available and can give advice on the correction of hazardous conditions and on the development of safety and health systems. Department staff are available to conduct seminars and training relative to occupational safety and health for both employer and employee groups. Requests for service should be addressed to the department at the address shown below.

The U.S. Department of Labor will continue to enforce federal standards governing maritime operations of long shoring, shipbuilding, ship breaking and ship repairing. These issues are not covered by the Michigan Plan for Occupational Safety and Health.

MORE INFORMATION:

Department of Licensing and Regulatory Affairs
Michigan Occupational Safety & Health Administration
7150 Harris Drive, Box 30643
Lansing, Michigan 48909-8143

THIS IS AN IMPORTANT DOCUMENT - DO NOT COVER!



MIOSHA Complaint Hotline..... 1-800-866-4674
Fatality Hotline 1-800-858-0397
Consultation and Training Assistance 1-517-322-1809

Additional information is available on our website at www.michigan.gov/miosha



The Department of Licensing and Regulatory Affairs will not discriminate against any individual or group because of race, sex, religion, age, national origin, color, marital status, disability, or political beliefs. If you need assistance with reading, writing, hearing, etc., under the Americans with Disabilities Act, you may make your need known to this agency. (10,000 copies printed at \$705.54 or \$0.07 per copy.)

MIOSHA/CET 2010 (5/11)

10-Hour Construction Safety Course

Refusing to Work Because Conditions are Dangerous

<https://www.whistleblowers.gov/>

When you believe working conditions are unsafe or unhealthful, you should call your employer's attention to the problem. If your employer does not correct the hazard or disagrees with you about the extent of the hazard, you also may [file a complaint](#) with OSHA.

Refusing to do a job because of potentially unsafe workplace conditions is not ordinarily an employee right under the [OSH Act](#). (Your union contract or state law may, however, give you this right, but OSHA cannot enforce it.) Refusing to work may result in disciplinary action by the employer. However, employees do 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.

But, as a general rule, you do not have the right to walk off the job because of unsafe conditions. If you do and your employer fires or disciplines you, OSHA may not be able to protect you. So, stay on the job until the problem can be resolved.

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.

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.

If your employer discriminates against you for refusing to perform the dangerous work, **contact OSHA immediately**.

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

DEP 11/2007

10-Hour Construction Safety Course

Employer Responsibilities Under OSHA

- ▶ Provide a workplace free from recognized hazards and comply with OSHA standards.
- ▶ Provide training required by OSHA standards.
- ▶ Keep records of injuries and illnesses.
- ▶ Provide medical exams when required by OSHA standards and provide workers access to their exposure and medical records.
- ▶ Do not discriminate against workers who exercise their rights under the Act (Section 11(c)).
- ▶ Post OSHA citations and abatement verification notices.
- ▶ Provide and pay for PPE.

What are OSHA Standards?

- ▶ A group of rules that describe the methods employers must use to protect employees from a wide range of hazards.
- ▶ OSHA standards fall into four categories:
 - General Industry
 - Construction
 - Maritime
 - Agriculture
- ▶ Where there are no specific OSHA standards, employers must comply with The General Duty Clause.

Your Notes

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

Activity 2: Reading Construction Standards

- ▶ What is the topic (standard title) for Part No. 2? _____
- ▶ What number is the MIOSHA Fall Protection Standard? _____
- ▶ What standard would you look at to find out about safety data sheets (SDS) and the right to know about hazardous chemicals? _____

MIOSHA Construction Safety and Health Standards

CONSTRUCTION SAFETY STANDARDS			
Part Number	Standard Title To view a PDF, download a copy of Adobe Reader	Effective Date	Related Information
1	General Rules	11/4/15	Compared to OSHA Sample Accident Prevention Program (SP #1) Job Site Safety Review Standard Interpretation Implementation Strategy
2	Masonry Wall Bracing	5/28/10	Compared to OSHA, 2010 Amendment, Fact Sheet, Poster, Fact Sheet Q&A
6	Personal Protective Equipment	11/16/16	Compared to OSHA Implementation Strategy
7	Welding and Cutting	10/29/15	Compared to OSHA Implementation Strategy
8	Handling and Storage of Materials	11/16/16	Compared to OSHA Standard Interpretations Implementation Strategy
9	Excavation, Trenching & Shoring	3/21/13	Compared to OSHA Fact Sheet Fact Sheet MISS Dig Fact Sheet Implementation Strategy
10	Cranes and Derricks	3/22/16	Compared to OSHA Fact Sheet Contractor's Directory to Overhead Power Line Safety Information
11	Fixed and Portable Ladders	12/16/14	Compared to OSHA Fact Sheet Portable Ladder Fact Sheet Implementation Strategy

10-Hour Construction Safety Course

12	Scaffolds and Scaffold Platforms	8/17/16	Compared to OSHA Fork Trucks Fact Sheet Work Platform Fact Sheet Standard Interpretations Scaffolding Fact Sheet Implementation Strategy
13	Mobile Equipment	7/30/99	Compared to OSHA Struck-By Fact Sheet Fork Trucks Fact Sheet
14	Tunnels, Shafts, Cofferdams and Caissons	4/10/14	Compared to OSHA Implementation Strategy
15	Excavators, Hoists, Elevators, Helicopters, and Conveyors	3/22/16	Compared to OSHA
16	Power Transmission & Distribution	3/2/16	Compared to OSHA Implementation Strategy
17	Electrical Installations	1/16/13	Compared to OSHA Implementation Strategy
18	Fire Protection and Prevention	4/14/15	Compared to OSHA Implementation Strategy
19	Tools	10/13/16	Compared to OSHA Implementation Strategy
20	Demolition	3/21/13	Compared to OSHA Implementation Strategy
21	Guarding of Walking & Working Areas	6/15/16	Compared to OSHA Implementation Strategy
22	Signals, Signs, Tags, and Barricades	1/21/14	Compared to OSHA MDOT Local Tech Assistance Program Fact Sheet Implementation Strategy
24	Tar Kettles	1/16/13	Compared to OSHA Implementation Strategy
25	Concrete Construction	8/17/16	Compared to OSHA Declaratory Ruling - Lansing Ice & Fuel Implementation Strategy
26	Steel Erection	4/10/14	Compared to OSHA Fact Sheet Slip Resistance Memo Column Setting Fact Sheet Standard Interpretation Implementation Strategy
27	Blasting and Use of Explosives	4/14/15	Compared to OSHA Implementation Strategy
28	Personnel Hoisting in Steel Erection	3/29/07	Compared to OSHA, Headache Ball Compliance Instruction
29	Communication Towers	4/10/09	Compared to OSHA
30	Telecommunications	1/27/17	Compared to OSHA Implementation Strategy
32	Aerial Work Platforms	9/24/13	Compared to OSHA Fact Sheet Working Safely on Roadways Fact Sheet Scissor Lift Fact Sheet Implementation Strategy
35	Confined Space in Construction	10/29/15	Compared to OSHA, Confined Space Initiative

42	Hazard Communication (29 CFR 1910.1200)	2/5/14	Compared to OSHA Agency Instruction RTK Hazard Communication Compliance Guideline (SP #22) Hazard Communication / GHS Training
45	Fall Protection	4/13/15	Compared to OSHA Fact Sheet Division Instruction Fact Sheet (doc/ pdf) Residential Fall Protection Compliance Criteria (March 25, 2011) Updated Enforcement Policy for Residential Fall Protection Residential Fall Protection (SP #35)
91	Process Safety Management of Highly Hazardous Chemicals	10/13/16	Compared to OSHA
GI 7	Guards for Power Transmission	1/25/13	Compared to OSHA Implementation Strategy
GI 49	Slings	1/17/14	Compared to OSHA Implementation Strategy

Note: The effective date of each standard as shown is not necessarily the original publication date but is the date of the latest amendment to the standard.

CONSTRUCTION HEALTH STANDARDS			
Part Number	Standard Title To view a PDF, download a copy of Adobe Reader	Effective Date	Related Information
303	Methylenedianiline (MDA)	4/14/15	Compared to OSHA
304	Ethylene Oxide	3/3/15	Compared to OSHA
306	Formaldehyde	12/16/14	Compared to OSHA
307	Acrylonitrile	3/3/15	Compared to OSHA
308	Inorganic Arsenic	4/11/14	Compared to OSHA Implementation Strategy
309	Cadmium	6/5/13	Compared to OSHA Fact Sheet Implementation Strategy
311	Benzene	8/12/14	Compared to OSHA Implementation Strategy
312	1,3-Butadiene	1/21/14	Compared to OSHA Implementation Strategy
313	Methylene Chloride	9/26/13	Compared to OSHA Fact Sheet
314	Coke Oven Emissions	9/25/13	Compared to OSHA Implementation Strategy
430	Hazard Communication (29 CFR 1910.1200)		Compared to OSHA Hazard Communication / GHS Training

		2/5/14	
431	Hazardous Work in Laboratories	1/17/14	Compared to OSHA Implementation Strategy
432	Hazardous Waste Operations and Emergency Response	3/27/14	Compared to OSHA Implementation Strategy
451	Respiratory Protection (29 CFR 1910.134)	1/21/14	Compared to OSHA Implementation Strategy
470	Employee Medical Records and Trade Secrets	1/17/14	Compared to OSHA Implementation Strategy
504	Diving Operations	4/19/13	Compared to OSHA Implementation Strategy
523	Abrasive Blasting	3/11/16	Compared to OSHA
591	Process Safety Management of Highly Hazardous Chemicals	9/26/13	Compared to OSHA
601	Air Contaminants for Construction	3/1/17	Compared to OSHA Hex Chromium Fact Sheet Isocyanate Fact Sheet
602	Asbestos for Construction	6/12/13	Compared to OSHA Asbestos Homepage Fact Sheet Implementation Strategy
603	Lead Exposure in Construction	2/13/14	Compared to OSHA Fact Sheet Lead Fact Sheet Implementation Strategy
604	Chromium (VI) in Construction (29 CFR 1926.1126)	8/18/16	Compared to OSHA Fact Sheet
620	Ventilation Control for Construction	10/26/07	Compared to OSHA
621	Health Hazard Control for Specific Equipment and Operations for Construction	11/19/14	Compared to OSHA Implementation Strategy
665	Underground Construction, Caissons, Cofferdams, and Compressed Air	12/16/04	Compared to OSHA
680	Noise Exposure for Construction	10/6/00	Compared to OSHA Fact Sheet
681	Radiation in Construction: Ionizing and Nonionizing	10/14/05	Compared to OSHA
690	Silica in Construction	3/1/17	Compared to OSHA, Silica Outreach Training PPT

Note: The effective date of each standard as shown is not necessarily the original publication date but is the date of the latest amendment to the standard.

Most Frequently Cited Standards

OSHA maintains a list of the most frequently cited (MFC) standards here:

<http://www.osha.gov/pls/imis/citedstandard.html>

To search MFC data on this webpage:

- ▶ “Select number of employees in establishment,” select **ALL** or one of the options listed.
- ▶ “Federal or State Jurisdiction,” select **Federal** or, from the dropdown menu, a specific state.
- ▶ “SIC,” select **ALL for all Industry groups, C for Construction, D for Manufacturing** (General Industry), or **373 and 449 for Maritime**.
- ▶ Shown are search results for: All sizes of establishments, in Federal jurisdiction, with Construction SIC codes.

UNITED STATES DEPARTMENT OF LABOR

OSHA QuickTakes | RSS Feeds | Print This Page | Post Box | Was this page helpful?

Occupational Safety & Health Administration | We Can Help | What's New | Offices

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

Frequently Cited OSHA Standards

This page allows the user to list the most frequently cited Federal or State OSHA standards for a specified 6-digit North American Industry Classification System (NAICS) code. Also available is [Industry Profile for OSHA Standards](#) which lists NAICS classifications having the most occurrences of citations for a specified OSHA standard.

Select number of employees in establishment:

All
 1-9
 1-19
 1-99
 20-49
 20-99
 50-99
 100-249
 1-249
 250+

Federal or State Jurisdiction: Federal | NAICS: (Submit empty for NAICS list)

The data shown reflects OSHA citations issued by the Federal or State OSHA during the specified fiscal year; see [definitions](#). If you are interested in obtaining the NAICS code for a particular industry, references are available on the [NAICS Manual](#). This manual contains descriptions of every NAICS sector.

Freedom of Information Act | Privacy & Security Statement | Disclaimers | Important Web Site Notices | International | Contact Us

U.S. Department of Labor | Occupational Safety & Health Administration | 200 Constitution Ave., NW, Washington, DC 20210
Telephone: 800-321-OSHA (6742) | TTY: 877-889-9637
www.OSHA.gov

NAICS Code: 23 Construction

Listed below are the standards which were cited by Federal OSHA for the specified NAICS Code during the period October 2012 through September 2013. Penalties shown reflect current rather than initial amounts. For more information, see [definitions](#).

Standard	Citations	Inspections	Penalty	Description
Total	36,962	14,785	\$63,364,196	All Standards cited for Construction
19260501	7,849	7,589	\$19,876,277	Duty to have fall protection.
19260451	5,047	2,337	\$9,020,334	General requirements.
19261053	3,184	2,522	\$4,259,552	Ladders.
19260503	2,093	2,041	\$1,891,722	Training requirements.
19260102	1,143	1,139	\$1,505,096	Eye and face protection.
19101200	1,142	635	\$471,054	Hazard Communication.
19260100	1,097	1,097	\$1,502,875	Head protection.
19260453	972	859	\$1,728,872	Aerial lifts.
19260651	948	606	\$2,126,971	Specific Excavation Requirements.
19260020	933	793	\$1,273,680	General safety and health provisions.
19100134	732	375	\$462,792	Respiratory Protection.
19260404	725	628	\$718,547	Wiring design and protection.
19260502	723	539	\$1,026,627	Fall protection systems criteria and practices.
19260405	711	572	\$551,802	Wiring methods, components, and equipment for general use.

Citations and Penalties

VIOLATION TYPE	PENALTY
WILLFUL Employer intentionally and knowingly commits a violation OR a violation that the employer commits with plain indifference to the law.	Up to \$70,000 Minimum \$5,000
SERIOUS Substantial probability that death or serious physical harm could result. Employer knew, or should have known, of the hazard.	Up to \$7,000
OTHER-THAN-SERIOUS Direct relationship to safety and health, but probably would not cause death or serious physical harm.	Up to \$7,000
REPEATED The same violation within three years.	Up to \$70,000

Multi-Employer Worksite Agreement

Citations May be Issued to:

1. EXPOSING EMPLOYER (95% of the time) - The employer of the employees exposed to the hazard.
2. CREATING EMPLOYER - The employer actually creates the hazard.
3. CORRECTING EMPLOYER -The employer has the responsibility for actually correcting the hazard.
4. CONTROLLING EMPLOYER - The employer who is responsible for safety and health conditions on the worksite. The employer who has the authority for ensuring that the hazardous condition is corrected.

Your Notes

1. _____
2. _____
3. _____
4. _____

Topic 6: Where Can You Go For Help?

Sources Within the Workplace:

- ▶ Supervisor, co-workers, safety director, and union representatives.
- ▶ Safety Data Sheets (SDS) for information on chemicals.
- ▶ Labels and warning signs.
- ▶ Employee orientation manuals, written safety program, training materials.
- ▶ Job Safety Analysis.
- ▶ Manufacturers' information about equipment and tools you are using.

Sources Outside the Workplace:

- ▶ OSHA and MIOSHA websites: www.osha.gov
www.michigan.gov/miosha
- ▶ OSHA Compliance Assistance Specialists
- ▶ MIOSHA Consultants
- ▶ National Institute for Occupational Safety and Health (NIOSH) – OSHA's sister agency
- ▶ OSHA Training Institute Education Centers
- ▶ Doctors, nurses, other health care providers
- ▶ Public libraries
- ▶ Other local, community-based resources
- ▶ Local safety equipment vendors

Your Notes

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

General Rules: MIOSHA Part 1

- ▶ Accidents are predictable and preventable. Near-misses and first aid incidents should act as a warning signal and prompt corrective action.
- ▶ 114 (1) An employer shall develop, maintain, and coordinate with employees an **accident prevention program**, a copy of which shall be available at the worksite. It requires:
 - ▶ **Training** on operating procedures, job hazards, MIOSHA rules.
 - ▶ **Inspection** of the construction site, tools, materials, and equipment.
- ▶ **Instruction** in accident and emergency procedures.
- ▶ 115 (1) **unsafe tools or equipment** shall be locked out, made inoperable, or be physically removed from the jobsite.
- ▶ 115 (4) At least 10' back from **power lines**. Further if over 50kv.

Your Notes

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____

Washing Facilities

- ▶ 130 (1) Must be provided if engaged in the application of paints, coatings, herbicides, or insecticides or in other operations where contaminants may be harmful to employees.

Medical Services and First Aid

- ▶ 132 (3) At least one person with a valid **certificate in first aid** training at the worksite.
- ▶ 132 (5) A **first aid kit** sufficient for the number of employees and the types of hazards must be provided.

Illumination

- ▶ 133 (1) Minimum of 10 footcandles where work is being performed.
- ▶ 133 (2) Minimum of 5 footcandles where workers may pass through.

MIOSHA Hotline: 1-800 -2MIOSHA

- Report a workplace hazard, file a complaint, request info
- Fatality / Catastrophe Line – 800-858-0397
 - www.michigan.gov/miosha

Your Notes

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

Focus Four

- ▶ Four types of accidents result in 79% of all fatalities in construction.
 1. _____
 2. _____
 3. _____
 4. _____
- ▶ Many MIOSHA standards represented by these types of fatalities.
 - Fall Protection, Scaffolds, Ladders, Excavations, Electrical covered later.
- ▶ Info here is on struck by and caught in/between, much of which is from Part 8: Material Handling and Part 13: Mobile Equipment.

Your Notes

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____

Focus Four Activity: What Causes Struck By and Caught In / Caught Between Accidents?

- ▶ Work with a partner for five minutes.
- ▶ List at least three things that could happen on a jobsite that would result in YOU being struck by something. Example: Crane tips over and lands on you.
- ▶ Do the same for caught in or caught between something.
 - Example: Got out of your truck, walked in front of it to move something, it rolled forward crushing you between truck and object.

Things that could result in you being struck by:

1. _____
2. _____
3. _____
4. _____
5. _____

Things that could result in you being caught in or caught between:

1. _____
2. _____
3. _____
4. _____
5. _____

Focus 4: Struck By/ Caught In / Caught Between:

1. 831 (3) If the drop is more than 20' outside of the building, then use a **chute**.
2. 833 All **slings** shall meet the requirements of Part 49 Slings. Remove from service if: Multiple broken wires, kinking, crushing, bird-caging, any other damage causing distortion, evidence of heat damage.
3. 1926.1425 (c)(2) **Hooks** with self-closing latches or their equivalent shall be used. Exception: "J-hooks" are permitted to be used for setting wooden trusses.
4. 836 (3 and 4) No **makeshift** hook, link, or fastener, or other lifting accessory.
5. 1926.601 (b)(8) Vehicles used to transport employees shall have **seats**...
6. 1926.601 (b)(9) and 1926.602 (a)(2)(i) **Seat belts** shall be provided on all vehicles and equipment
7. 1926.600 (a)(3)(i) **Block or crib** any heavy machinery, equipment, or parts thereof, to prevent falling or shifting onto employees.
8. **Lower or block** bulldozer and scraper blades, end-loader buckets, dump bodies, etc. when being repaired or when not in use.
9. All **controls in neutral**, motors stopped and brakes set, unless work being performed requires otherwise.
10. 1926.600 (5) All **cab glass** shall be safety glass, or equivalent, that introduces no visible distortion affecting the safe operation.

Your Notes

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

Focus 4: Struck By/ Caught In / Caught Between:

11. 1926.601 (b)(14) and 115 (2)(a) **All** vehicles shall be **inspected** at the beginning of each shift to assure that it is in safe operating condition. **Defects corrected** before use.
12. 1926.602 (d)(6) Powered industrial truck (forklift) operators shall be trained and evaluated.
13. 2223 (1) **Traffic control devices** shall be installed and maintained as prescribed in Part 6 of the Michigan Manual of Uniform Traffic Control Devices (**MMUTCD**), available from the Department of Transportation.
14. 1024a (1)(b) Barricade around rotating and moving equipment. Train workers to recognize struck by and crush hazards.
15. 204 (2) The mason contractor shall establish a restricted zone using warning signs around masonry walls. The mason contractor is responsible for installing a wall bracing system.
16. 205 (3) Employers must provide training to all employees who enter a restricted zone of a masonry wall.
17. 208 Wind speed shall be monitored.
18. 209 Evacuate at 20 mph for walls less than 24 hours old.
19. 210 Evacuate at 35 mph for wall more than 24 hours old.

Your Notes

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

Fall Protection: MIOSHA Part 45

- ▶ Falls are the leading cause of death in construction. We are all exposed.
- ▶ General Rule: Protection at _____ feet or more.
- ▶ 501 (2) All walking / working surfaces inspected before work begins.

1926.501 Duty to Have Fall Protection for These 15 Situations:

Check the situations that might apply to you.

- ___ 1. Unprotected sides and edges
- ___ 2. Leading edges
- ___ 3. Hoist areas
- ___ 4. Holes
- ___ 5. Formwork and reinforcing steel
- ___ 6. Ramps, runways, and other walkways
- ___ 7. Excavations
- ___ 8. Dangerous equipment
- ___ 9. Overhand bricklaying and related work
- ___ 10. Roofing work on Low-slope roofs
- ___ 11. Steep roofs
- ___ 12. Precast concrete erection
- ___ 13. Residential construction
- ___ 14. Wall openings
- ___ 15. Walking/working surfaces not otherwise addressed

Your Notes

- 1. _____
- 2. _____
- 3. _____
- 4. _____

Fall Protection: MIOSHA Part 45

1926.502 Nine Types of Fall Protection

Conventional Fall Protection:

1. Guardrails
 2. Safety nets
 3. Personal fall arrest system
 4. Hole covers
- ▶ These four systems should be used for most situations.
 - ▶ The other five systems are for special situations that have unique fall protection methods OR where conventional fall protection is infeasible.

1. Guardrails

- ▶ **Top rails** 42 inches high, plus or minus _____ inches.
- ▶ **Midrails** half-way.
- ▶ **Toe-board** is necessary when..._____.

3. Personal Fall Arrest System

- ▶ **Anchor points** must support 5000 pounds.
- ▶ Never tie a **knot** for a connection.
- ▶ Deceleration devices must **limit deceleration** distance to 42".
- ▶ 1926.502 (d)(16)(ii) **Limit arresting force** to 1800 lbs.
- ▶ 1926.502 (d)(21) Inspected prior to each use (daily).
- ▶ Limit free-fall to 6' or less.

Your Notes

1. _____
2. _____
3. _____
4. _____
5. _____

4. Holes

- ▶ Holes, including skylights, are a gap or void 2” or more in its least dimension.
- ▶ All holes must be:
 - Covered
 - Secured
 - Marked with word “hole” or “_____”
- ▶ Covers must support twice the weight imposed.

6. Warning Line System

- ▶ Barrier erected on a roof to warn employees of an unprotected roof side or edge.
- ▶ 1926.502(f)(2)(i) Flagged every 6’.
- ▶ 1926.502(f)(3) Workers must stay inside warning line.
- ▶ Six feet back from edge for roofers only.
- ▶ 15 feet back for all others (Federal OSHA Interpretation).
- ▶ 1926.502(f)(1)(iii) Points of access, storage areas, and hoisting areas must be connected to work area by an access path with 2 warning lines.

Your Notes

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

7. Controlled Access Zones

- ▶ An area in which certain work may take place without the use of guardrails, PFAS, or safety nets.
- ▶ Used only for: precast concrete, overhand bricklaying, leading edge, residential

8. Safety Monitoring System

- ▶ 1926.502 (h) Use only allowed for roofers on low slope roof or as part of a site-specific fall protection plan.

9. Fall Protection Plan

- ▶ Available only to:
 - Leading edge work
 - Precast concrete erection work
 - _____ construction work
- ▶ ONLY if you can demonstrate that it is infeasible or creates a greater hazard to use conventional fall protection systems.
- ▶ MIOSHA believes that conventional fall protection is nearly always feasible!

Your Notes

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

Electrical: MIOSHA Part 17

- ▶ To prevent electrocutions:
 - Put warning signs under the powerlines.
 - Train truck drivers, equipment operators, ladder users.
 - Everybody stays back at least 10'.
- ▶ Rule 115 (4) No **closer than 10 ft.** Over 50 kv, add .4 inches per kv.
- ▶ 822 (1) **Material stored** near an electrical line shall maintain 10 feet plus length of material clearance. Add 4 inches for each 10 kv over 50 kv.
- ▶ 822 (2) **Spotter** required if the operator has difficulty maintaining the prescribed clearance by visual means.
- ▶ 1723 (1) Electrical work only by a **licensed electrician**, or under the supervision of a licensed electrician.
- ▶ Rule 1721: Temporary outlets used for construction shall have approved **ground fault circuit interrupters**.
- ▶ Rule 1725 (10) A portable electric tool shall be protected by a **GFCI**.

Your Notes

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

Electrical: MIOSHA Part 17

Lock Out / Tag Out

- ▶ Rule 1724 (3) An employee shall not be permitted to be in proximity to any part of an electric power circuit that he or she may contact unless the employee is protected against electric shock by de-energizing the circuit and locking out and tagging it, or unless the employee working on an energized circuit is guarded by insulation, insulated tools, or insulating matting or blankets sufficient to protect against the voltage involved.
- ▶ 127 (1) The power source of any machine that is to be repaired, serviced, or set up, where unexpected motion or an electrical or other energy source would cause injury, shall be locked out by each employee doing the work.

Trailing Cords and Extension Cords

- ▶ Rule 1725 (7)
 - (a) Shall be protected against damage.
 - (e) Have a plug body... to prevent strain.
- ▶ 1725 (3) An extension cord used with a portable electric tool or appliance shall be a 3-wire type.

Guarding Against Live Parts

- ▶ 1723 (2) The employer shall insure that all live parts of electrical equipment operating at 50 volts or more are properly guarded against accidental contact.

Your Notes

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

Personal Protective Equipment: MIOSHA Part 6

PPE is Your Last Line of Defense

- ▶ First option is engineering controls.
 - Example: tools with a vacuum attachment to lower dust.
- ▶ Next option is administrative controls.
 - Example: Frequent clean-up to lower the dust level.

Employer Responsibility

- ▶ 617 (1) Employer shall provide PPE.
 - Replace it due to reasonable wear and tear.
- ▶ 617 (2) Must require employees to wear it.
- ▶ Train employees on how, when, where, what, why.

Head Protection

- ▶ 1926.100 (a) Used where a hazard or risk of injury exists from:
 - Falling objects
 - Flying objects or particles
 - Other harmful contacts or exposures.
- ▶ Employee shall not physically alter, and shall guard against damage.

Your Notes

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

Personal Protective Equipment: MIOSHA Part 6

Face and Eye Protection

- ▶ 1926.102 (a)(1) Shall be used when any of these hazards are present:
 - Flying objects or particles (metal shavings or sawdust).
 - Harmful contacts (objects dropped onto head).
 - Liquids that may splash.
 - Intense light from welding, lasers, electrical flash.
- ▶ Safety glasses must be stamped with: ANSI Z87.1
- ▶ 1926.102 (a)(3) Ordinary prescription glasses do *not* provide the required protection.

Foot Protection

- ▶ 625 (2) Shall be provided if conditions of the job are likely to cause a foot injury.
 - Heavy objects (barrels or tools).
 - Sharp objects such as nails or spikes that might pierce ordinary shoes.
- ▶ 625 (2) The Employer Employee shall provide the foot protection.
(circle one)
- ▶ In some cases, employers must provide the foot protection: 625 (4) Where a hazard is created from a process, a chemical or mechanical irritant which could cause injury or impairment to the feet by absorption or from physical contact other than from impact, footwear shall be worn by the employee and provided for by the employer.

Your Notes

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

Personal Protective Equipment: MIOSHA Part 6

Hand Protection

- ▶ 626 (1) Employee who handles rough, sharp edged, abrasive materials or whose work subjects the hands to lacerations, punctures, burns, or bruises shall wear hand protection suitable for the work being performed.

Body Protection

- ▶ 626 (4) An employee shall not wear:
 - loose clothing
 - neckwear encircling the neck
 - exposed jewelry such as rings and necklaces...near a machine having reciprocating or rotating shafts or spindles OR when handling material that could catch on clothing or jewelry and cause injury.
- ▶ A ring shall not be worn on the finger unless covered by a glove or tape.

Your Notes

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

Part 10: Lifting and Digging

- ▶ New MIOSHA Part 10: Lifting and Digging effective September 2021
- ▶ Many changes. Important to review all!

Who is at Risk?

- ▶ Operators.
- ▶ Everybody Else!

Major Causes of Crane Accidents

1. Contact with power lines.
2. Failure of rigging.
3. Overturned cranes.
4. Dropped loads.
5. Boom collapse.
6. Crushing by counterweight.
7. Outrigger use.
8. Falls.
9. Assembly / disassembly accidents.

Your Notes

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

Part 10: Lifting and Digging

Ground Conditions

- ▶ 1926.1402(b) The equipment shall not be assembled or used unless ground conditions are firm, drained, and graded to a sufficient extent so that, in conjunction with the use of supporting materials if necessary, the equipment manufacturer's specifications for adequate support and degree of level of the equipment are met.
- ▶ 1926.1402(c) The controlling entity shall do both of the following:
 1. Ensure ground preparations necessary to meet the requirements.
 2. Inform the user of the equipment and the operator of the location of hazards (voids, tanks, utilities, unstable soil) beneath the equipment set-up area.

Assembly / Disassembly (A/D)

- ▶ 1926.1404(a)(1) "Assembly / Disassembly director" is required.
- ▶ Must review immediately prior to A/D and understand the A/D procedures.
- ▶ Must notify crew of their tasks, hazards, and any hazardous locations.
- ▶ Follow manufacturer's prohibitions.
- ▶ When using outriggers - fully extend or deploy as per the load chart.

Your Notes

1. _____
2. _____
3. _____
4. _____

Part 10: Lifting and Digging

Required Inspections

WHEN	Inspector Qualifications	Documented?	What to Inspect? ***
Post Assembly	Qualified Person	Not addressed	See 1926.1412(c)
Shift (Daily)	Competent Person	No	See 1926.1412(d)
Monthly	Competent Person	Yes. Save 3 months	See 1926.1412(e)
Annual	Qualified Person	Yes. Save 12 months	See 1926.1412(f)
Modifications	Qualified Person	Yes	See 1926.1412(a)
Repairs or Adjustments	Qualified Person	Not addressed	See 1926.1412(b)
Severe Service	Qualified Person	Not addressed	See 1926.1412(g)
Not in Regular Use (3 months)	Qualified Person	Yes	See 1926.1412(h)

Part 10: Lifting and Digging

New Power Line Rules

- ▶ Stay 20' back for powerlines under 350 kv.
- ▶ Stay 50' back for powerlines over 350 kv.
- ▶ Can use Table A to get closer if you call the utility to determine exact voltage.

Required Powerline Encroachment Prevention Measures

- ▶ If your crane could possibly come closer than 20' (or Table A distance) then you must do the following:

During Assembly/Disassembly 1926.1407(b)	During Operations 1926.1408(b)
Planning Meeting	Planning Meeting
Non-Conductive Tag Line	Non-conductive Tag Line
At least one of the following: <ul style="list-style-type: none"> • dedicated spotter, • proximity alarm, • range control warning, • Range limiting device, • elevated warning line, barricade, or line of signs in view of the operator 	Erect and maintain an elevated warning line, barricade, or line of signs, in view of the operator (Spotter needed if out of view), equipped with flags or similar high-visibility markings, at 20 feet or applicable clearance from Table A.
	At least one of the following: <ul style="list-style-type: none"> • dedicated spotter (if already in use, must use 1 of the following also): • proximity alarm, • range control warning, • Range "slew" limiting device • Insulating Link

Your Notes

1. _____
2. _____
3. _____
4. _____

Part 10: Lifting and Digging

Operations

- ▶ 1926.1417(n) The competent person shall adjust the equipment, or operations, or both, to address the effect of wind, ice, and snow on equipment stability and rated capacity.
- ▶ 1926.1404(q)(1) The outriggers or stabilizers shall be either fully extended or, if the manufacturer's procedures permit, deployed as specified in the load chart.
- ▶ 1926.1417(o)(1) The equipment shall not be operated in excess of its rated capacity.
- ▶ (o)(3) The operator shall verify that the load is within the rated capacity.
- ▶ 1926.1418 When there is a concern about safety, the operator may stop and refuse to handle loads until a qualified person has determined that safety has been assured.

Certification, Qualification

- ▶ Crane operators must be "certified" by November 2014.
 - Pushed back to Nov. 2017, due to a policy change by Federal OSHA.
 - Tested by a third-party evaluator.
- ▶ Signal persons must be "qualified".
 - Tested by a third-party evaluator OR by the employer's qualified evaluator.
- ▶ Riggers must be "qualified"
 - Designated by employer's qualified person.

Your Notes

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

Health Hazards in Construction

Construction Health Hazards

- ▶ Chemical exposures
- ▶ Noise
- ▶ Musculoskeletal disorders (ergonomics)
- ▶ Biological hazards
- ▶ Temperature extremes (heat and cold)
- ▶ Radiation

Toxicity of Substances

- ▶ Dose (how much)
- ▶ Route of entry:
 - Inhalation, absorption, ingestion, and injection
- ▶ Duration and frequency of exposure
 - Acute versus chronic effects
- ▶ Individual susceptibility
- ▶ Exposure limits:
 - PEL = Permissible Exposure Limit

Your Notes

1. _____
2. _____
3. _____
4. _____

Health Hazards in Construction

Part 601: Air Contaminants for Construction

- ▶ Lists approximately 400 substances.
- ▶ Maximum allowable concentrations (MACs)
- ▶ Hazard Designation
 - A = zero exposure
 - C = ceiling limit
 - S = skin hazard

Some of the Air Contaminants Addressed by Expanded MIOSHA Standards

- ▶ Part 308 Inorganic Arsenic
- ▶ **Part 309 Cadmium**
- ▶ Part 311 Benzene
- ▶ Part 313 Methylene Chloride
- ▶ Part 314 Coke Oven Emissions
- ▶ **Part 602 Asbestos Standards for Construction**
- ▶ **Part 603 Lead Exposure in Construction**
- ▶ Part 604 Chromium (VI) in Construction

Part 42 / 92 / 430: Hazard Communication (HazCom)










- ▶ Written program
- ▶ Multi-employer worksites
- ▶ Labeling
- ▶ Safety data sheets (SDSs)
 - Used to be called “Material Safety Data Sheets (MSDSs)”
- ▶ Employee information and training

What is GHS?

- ▶ **G**lobally **H**armonized **S**ystem of Classification and Labeling of Chemicals.
- ▶ Adopted by 67 countries to standardize the formatting of labels and SDSs.

Health Hazards in Construction

Labels


HCS Pictograms and Hazards		
Health Hazard 	Flame 	Exclamation Mark 
<ul style="list-style-type: none"> • Carcinogen • Mutagenicity • Reproductive Toxicity • Respiratory Sensitizer • Target Organ Toxicity • Aspiration Toxicity 	<ul style="list-style-type: none"> • Flammables • Pyrophorics • Self-Heating • Emits Flammable Gas • Self-Reactives • Organic Peroxides 	<ul style="list-style-type: none"> • Irritant (skin and eye) • Skin Sensitizer • Acute Toxicity (harmful) <ul style="list-style-type: none"> • Narcotic Effects • Respiratory Tract Irritant • Hazardous to Ozone Layer (Non Mandatory)
Gas Cylinder 	Corrosion 	Exploding Bomb 
<ul style="list-style-type: none"> • Gases under Pressure 	<ul style="list-style-type: none"> • Skin Corrosion/ burns • Eye Damage • Corrosive to Metals 	<ul style="list-style-type: none"> • Explosives • Self-Reactives • Organic Peroxides
Flame over Circle 	Environment (Non Mandatory) 	Skull and Crossbones 
<ul style="list-style-type: none"> • Oxidizers 	<ul style="list-style-type: none"> • Aquatic Toxicity 	<ul style="list-style-type: none"> • Acute Toxicity (fatal or toxic)

Your Notes

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

Health Hazards in Construction

Labels

SAMPLE LABEL	
PRODUCT IDENTIFIER CODE _____ Product Name _____	HAZARD PICTOGRAMS 
SUPPLIER IDENTIFICATION Company Name _____ Street Address _____ City _____ State _____ Postal Code _____ Country _____ Emergency Phone Number _____	SIGNAL WORD Danger
PRECAUTIONARY STATEMENTS Keep container tightly closed. Store in cool, well ventilated place that is locked. Keep away from heat/sparks/open flame. No smoking. Only use non-sparking tools. Use explosion-proof electrical equipment. Take precautionary measure against static discharge. Ground and bond container and receiving equipment. Do not breathe vapors. Wear Protective gloves. Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling. Dispose of in accordance with local, regional, national, international regulations as specified. In Case of Fire: use dry chemical (BC) or Carbon dioxide (CO ₂) fire extinguisher to extinguish. First Aid If exposed call Poison Center. If on skin (on hair): Take off immediately any contaminated clothing. Rinse skin with water.	HAZARD STATEMENT Highly flammable liquid and vapor. May cause liver and kidney damage.
	SUPPLEMENTAL INFORMATION Directions for use _____ _____ _____ Fill weight: _____ Lot Number _____ Gross weight: _____ Fill Date: _____ Expiration Date: _____

Your Notes

- _____
- _____
- _____
- _____
- _____
- _____

Activity: Using a Safety Data Sheet (SDS)

1. What is the hazardous chemical in this product?

2. What type of personal protective equipment (PPE) is required to be used?

3. Circle the health effects listed on the SDS.
4. What are the hazardous decomposition products?

INEOS Chlor METHYLENE CHLORIDE
SAFETY DATA SHEET
ACCORDING TO EC-REGULATIONS 1907/2006 (REACH) & 1272/2008 (CLP)

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product Identifier
GHS Product Identifier: METHYLENE CHLORIDE
EC Index No.: 602-004-00-3
Alternative names: Dichloromethane
REACH Registration No.: 01-01-18430404-1-0000

1.2 Relevant identified uses of the substance or mixture and uses advised against
Identified use(s): Colouring agent, foaming or blowing agent, anti-set off and adhesive agent, heat transfer agent, chemical intermediate, laboratory chemical, solvent, plating agent, metal surface treating agent, processing aid
Uses advised against: None


1.3 Details of the supplier of the safety data sheet
Company identification: INEOS Chlor Limited
Runcorn, WA, UK
South Parade, PO Box 9
Runcorn, Cheshire, WA7 4JZ
Tel: (01524) 561111, Fax: (01524) 516658
E-Mail (competent person): mchc@ineos.com

1.4 Emergency telephone number
In an emergency call 999 (UK only) or 112 (EU)
For specialist advice in an emergency telephone Runcorn +44 (0)1528 572000

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture
Directive 67/548/EEC & Directive 1999/45/EC: EU Category 2 Carcinogen (Xn - Harmful)
P203/208 (irritating to eyes, respiratory system and skin),
R60 (limited evidence of a carcinogenic effect),
R67 (vapour may cause drowsiness and dizziness).

Regulative (EC) No. 1272/2008 (CLP): Carc. 2, Skin Irrit. 2, Eye Irrit. 2, STOT RE 3, STOT RE 2

2.2 Label elements
Hazard Statements: H315: Causes skin irritation.
H332: Causes serious eye irritation.
H334: May cause respiratory irritation.
H335: May cause respiratory irritation.
H350: May cause drowsiness or dizziness.
H351: Suspected of causing cancer.
H373: May cause damage to liver / blood through prolonged or repeated exposure.
Signal word(s): WARNING
Hazard pictogram(s): 

Precautionary statements: P203: Do not breathe mist/vapour/spray.
P202: Do not get in eyes, on skin, or on clothing.
P271: Use only outdoors or in a well-ventilated area.
P280: Wear protective gloves/protective clothing/eye protection/face protection.
P304 + P340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P308 + P313: IF IN CONTACT WITH EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Additional label requirements: None

Revision: (CHS UKR7) Revision Date: 11/2010 Page: 1 / 7

SAFETY DATA SHEET
 ACCORDING TO EC-REGULATIONS 1907/2006 (REACH) & 1272/2008 (CLP)

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

- 1.1 Product identifier**
 GHS Product Identifier METHYLENE CHLORIDE
 EC INDEX No. 602-004-00-3
 Alternative names Dichloromethane
 REACH Registration No. 01-2119480404-41-XXXX
- 1.2 Relevant identified uses of the substance or mixture and uses advised against**
 Identified use(s) Colouring agent, foaming or blowing agent, anti-set off and adhesive agent, heat transfer agent, chemical intermediate, laboratory chemical, solvent, plating agent, metal surface treating agent, processing aid
 Uses advised against None
- 1.3 Details of the supplier of the safety data sheet**
 Company Identification INEOS Chlor Limited
 Runcorn Site HQ
 South Parade, PO Box 9
 Runcorn, Cheshire, WA7 4JE
 Tel : (01928) 561111, Fax : (01928) 516636
 E-Mail (competent person) msds.chlor@ineos.com
- 1.4 Emergency telephone number**
 IN AN EMERGENCY DIAL 999 (UK only) or 112 (EU)
 For specialist advice in an emergency telephone Runcorn +44 (0)1928 572000

2. HAZARDS IDENTIFICATION

- 2.1 Classification of the substance or mixture**
 Directive 67/548/EEC & Directive 1999/45/EC EU Category 3 Carcinogen , Xn : Harmful
 R36/37/38 Irritating to eyes, respiratory system and skin.
 R40 Limited evidence of a carcinogenic effect.
 R67 Vapours may cause drowsiness and dizziness.
 Regulation (EC) No. 1272/2008 (CLP) Carc. 2 , Skin Irrit. 2 , Eye Irrit. 2 , STOT SE 3 , STOT RE 2
- 2.2 Label elements**
 Hazard Statements H315: Causes skin irritation.
 H319: Causes serious eye irritation.
 H335: May cause respiratory irritation.
 H336: May cause drowsiness or dizziness.
 H351: Suspected of causing cancer.
 H373: May cause damage to liver / blood through prolonged or repeated exposure.

Signal word(s) WARNING

Hazard pictogram(s)



Precautionary statement(s)

- P260: Do not breathe mist/vapours/spray.
 P262: Do not get in eyes, on skin, or on clothing.
 P271: Use only outdoors or in a well-ventilated area.
 P280: Wear protective gloves/protective clothing/eye protection/face protection.
 P304 + P340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
 P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Additional label requirements
 None

2.3 Other hazards

Continued or high exposures by inhalation will cause anaesthetic effects. This may result in a loss of consciousness and could prove fatal. Methylene chloride is converted to carbon monoxide in the body, which reduces the oxygen carrying capacity of the blood. Due to the risk of explosion DO NOT weld, cut or burn drums or other vessels which contain or have contained methylene chloride.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Hazardous ingredient(s)	%(w/w)	CAS No.	EC No.	H - Codes
Dichloromethane (Methylene Chloride)	100	000075-09-2	200-838-9	H315, H319, H335 H336, H351, H373

4. FIRST AID MEASURES

4.1 Description of first aid measures

Inhalation	Remove patient from exposure, keep warm and at rest. Administer oxygen if necessary. Apply artificial respiration if breathing has ceased or shows signs of failing. In the event of cardiac arrest apply external cardiac massage. Obtain immediate medical attention.
Skin Contact	Remove contaminated clothing. After contact with skin, wash immediately with plenty of water. If symptoms (irritation or blistering) occur obtain medical attention.
Eye Contact	Immediately irrigate with eyewash solution or clean water, holding the eyelids apart, for at least 10 minutes. Obtain immediate medical attention.
Ingestion	Do not induce vomiting. Provided the patient is conscious, wash out mouth with water and give 200-300 ml (half a pint) of water to drink. Obtain immediate medical attention.

4.2 Most important symptoms and effects, both acute and delayed

High atmospheric concentrations will lead to anaesthetic effects and adverse effects on the central nervous system. Symptoms may include lightheadedness, nausea, vomiting and headache. Exposure to concentrations of 1000 ppm methylene chloride for 20 minutes causes lightheadedness. Continued or high exposures by inhalation will cause anaesthetic effects. This may result in a loss of consciousness and could prove fatal.

4.3 Indication of the immediate medical attention and special treatment needed

Remove contaminated clothing immediately. In case of accident by inhalation remove casualty to fresh air and keep at rest. Seek medical treatment when anyone has symptoms apparently due to inhalation, contact with skin or eyes, or swallowing. Adrenaline and similar sympathomimetic drugs should be avoided following exposure as cardiac arrhythmia may result with possible subsequent cardiac arrest.

5. FIRE-FIGHTING MEASURES

5.1 Extinguishing media

Suitable Extinguishing Media	Normal extinguishing media. As appropriate for surrounding fire. Water spray should be used to cool containers.
Unsuitable Extinguishing Media	None anticipated

5.2 Special hazards arising from the substance or mixture

Explosive mixtures of methylene chloride and air can be formed, but are difficult to ignite and require high intensity sources of heat, such as welding arcs, sparks and flames or high temperatures and pressures; addition of small amounts of flammable substances to methylene chloride (such as flammable liquids or gases) and / or an increase in the oxygen content of the local atmosphere, may strongly enhance these effects. Thermal decomposition and burning will evolve toxic and corrosive vapours of hydrogen chloride and phosgene. Containers may burst if overheated due to thermal expansion of the contents.

5.3 Advice for fire-fighters

A self contained breathing apparatus and full protective clothing must be worn in fire conditions.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Ensure suitable personal protection during removal of spillages. Do not breathe vapour. Avoid contact with skin and eyes.

6.2 Environmental precautions

Avoid release to the environment. Use appropriate containment to avoid environmental contamination.

6.3 Methods and material for containment and cleaning up

Do not allow to enter drains, sewers or watercourses. Adsorb onto earth or sand and remove to safe place. Transfer to a container for disposal or recovery.

6.4 Reference to other sections

See Section: 8, 13

6.5 Additional information

Spillages or uncontrolled discharges into watercourses must be alerted to the Environment Agency or other appropriate regulatory body.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Do not breathe vapour. Use only in well ventilated areas. The vapour may be invisible, heavier than air and spread along ground. Avoid contact with skin and eyes. Keep away from sources of ignition - No smoking.

7.2 Conditions for safe storage, including any incompatibilities

Keep only in the original container in a cool, well-ventilated place. Keep away from direct sunlight. All bulk storage vessels should be made of steel and require a suitable vent or pressure relief valve and secondary containment to prevent uncontrolled losses from accidental release. Do not use aluminium or its alloys in the construction of storage vessels, pipework and ancillary equipment, including internal components e.g. pump impellers. Due to the risk of explosion DO NOT weld, cut or burn drums or other vessels which contain or have contained methylene chloride.

7.3 Specific end use(s)

See Section: 16

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control Parameters

HAZARDOUS INGREDIENT(S)	CAS No.	LTEL 8 hr TWA ppm	LTEL 8 hr TWA mg/m ³	STEL ppm	STEL mg/m ³	Note:
Dichloromethane (Methylene Chloride)	000075-09-2	100	350	300	1060	WEL, BMGV, Sk

DNEL	oral	Inhalation	Dermal
Industry - Long Term - Local effects	-	353 mg/m ³	4750 mg/kg/day
Industry - Long Term - Systemic effects	-	-	-
Industry - Short term - Local effects	-	706 mg/m ³	-
Industry - Short term - Systemic effects	-	-	--
Consumer - Long Term - Local effects	-	88.3 mg/m ³	-
Consumer - Long Term - Systemic effects	-	-	-
Consumer - Short term - Local effects	0.06 mg/kg bw/day	353 mg/m ³	2395 mg/kg bw/day
Consumer - Short term - Systemic effects	-	-	--

Environment	PNEC
Aquatic Compartment (including sediment)	0.54 mg/l Fresh water 0.194 mg/l Marine water 0.27 mg/l Intermittent releases 0.972 mg/kg Dry Sediment Fresh water 0.349 mg/kg Dry Sediment Marine water 26 mg/l sewage treatment plant
Terrestrial Compartment	0.972 mg/kg Dry Soil
Atmospheric Compartment	No data.

8.2 Exposure controls

Appropriate engineering controls

Provide adequate ventilation to ensure that the occupational exposure limit is not exceeded.

Personal Protection

Eye/face protection Wear eye/face protection.

Skin protection Wear suitable protective clothing and gloves. Gloves should be changed when permeation is likely. PVC has a breakthrough time of approximately 5 minutes for methylene chloride. PVA gives longer protection, but is weakened by alcohols and water and will provide less effective protection as a result. Check with protective equipment manufacturer's data.

Respiratory protection

Wear suitable respiratory protective equipment if exposure to levels above the occupational exposure limit is likely. Positive air supplied RPE is recommended.

9. PHYSICAL AND CHEMICAL PROPERTIES**9.1 Information on basic physical and chemical properties**

Form	volatile liquid
Colour	clear
Odour	Sharp penetrating
Odour Threshold (ppm)	approx 200ppm
Boiling Point (Deg C)	40
Melting Point (Deg C)	-97
Vapour Pressure (mm Hg)	355 at 20 Deg C , 529 at 30 Deg C
Solubility (Water)	slightly soluble 1.3% at 25 Deg C
Solubility (Other)	Miscible with most organic solvents.
Specific Gravity	1.32 (Water = 1 at 4 Deg C)
Vapour Density (Air= 1)	2.93
Additional properties	Flash point (BS EN 22719:1994) : None Small Scale Test for Combustibility (BS 3900) : Non-combustible. Explosive limits (Company test method) : at 25 Deg C LEL 18.8% v/v, UEL 19.5% v/v at 50 Deg C LEL 17.5% v/v, UEL 20.1% v/v at 100 Deg C LEL 16.1% v/v, UEL 21.5% v/v

9.2 Other information

Explosive limit data from Company measurements using 5 litre ASTM flask with 6 Amp hot wire or fusing wire ignition source.

10. STABILITY AND REACTIVITY**10.1 Reactivity**

Keep away from direct sunlight.
Keep away from moisture.

10.2 Chemical Stability

Stable in the presence of inhibitor.

10.3 Possibility of hazardous reactions

Forms a detonable mixture with nitric acid.
May react with certain amines, e.g. polyurethane catalysts.

10.4 Conditions to avoid

Avoid contact with heat and ignition sources.

10.5 Incompatible materials

Prolonged contact with aluminium or light alloys may cause a reaction resulting in the generation of hydrogen chloride gas and heat.

10.6 Hazardous Decomposition Product(s)

hydrogen chloride , phosgene.

11. TOXICOLOGICAL INFORMATION*Test result / data***Acute oral toxicity**

The swallowing of small splashes is unlikely to cause any adverse effects. Large amounts may produce internal irritation, nausea, vomiting and diarrhoea and can lead to drowsiness and unconsciousness.
LD50 (rat, oral) >2000 mg/kg

Acute inhalation toxicity	High concentrations of vapour may be irritant to the respiratory tract. High atmospheric concentrations will lead to anaesthetic effects and adverse effects on the central nervous system. Symptoms may include lightheadedness, nausea, vomiting and headache. Exposure to high atmospheric concentrations (>1000 ppm) methylene chloride may cause lightheadedness. Exposure to very high concentrations may result in loss of consciousness and may cause an abnormal heart rhythm and prove suddenly fatal. Methylene chloride is converted to carbon monoxide in the body, which reduces the oxygen carrying capacity of the blood. This is reflected by a raised carboxyhaemoglobin concentration in the blood. Value used for Chemical Safety Assessment LC50 (8 hr mouse) 56230 mg/m ³
Acute dermal toxicity	Can be absorbed through skin but not in sufficient amounts to cause adverse effects. LD50 (rat, dermal) >2000 mg/kg bw
Skin irritation.	Irritating to skin. Will remove the natural greases resulting in dryness, cracking and dermatitis. Repeated and/or prolonged skin contact may cause reddening, burning and blisters.
Serious eye damage/irritation	Irritating to eyes.
Respiratory irritation	Classified as irritating to the respiratory system.
Sensitisation	Skin: No animal data available. Following many years of use no cases of skin sensitisation are noted There is no evidence that methylene chloride causes respiratory tract sensitisation.
Germ cell mutagenicity	Methylene chloride induces gene mutations in bacteria, but not in mammalian cells. It is clastogenic in vitro at high concentrations but not clastogenic in vivo via several routes of exposure and there is no evidence of it causing gene mutation in vivo. It is not classified as genotoxic.
Carcinogenicity	Chronic inhalation studies in mice have shown increases in lung and liver tumours, when exposed to concentrations of methylene chloride well in excess of the occupational exposure limit. Extensive mechanistic research has shown that these carcinogenic effects are specific to the mouse and are not relevant to human health. This is due to well established differences in metabolic pathways between rodents and man. Several major studies on humans occupationally exposed to methylene chloride have shown no demonstrable link with cancer.
Reproductive toxicity	No effects in fertility were seen in a two generation toxicity study. No developmental effects were seen in studies of rats and mice.
Specific target organ toxicity — single exposure (STOT SE)	Vapours may cause drowsiness and dizziness. May cause respiratory irritation.
Specific target organ toxicity — repeated exposure (STOT RE)	May cause damage to the liver and red blood cells through prolonged or repeated exposure.
Aspiration hazard	Not an aspiration hazard

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Acute aquatic toxicity
 LC50 (96 hour) (Fish) Fresh water 193 mg/l
 LC50 (96 hour) (Fish) Marine water 97 mg/l
 LC50 (48 hour) Aquatic invertebrates: Fresh water 27 mg/l
 LC50 (48 hour) Aquatic invertebrates: Marine water 109 mg/l
 NOEC Fresh water Algae 550 mg/l

12.2 Persistence and degradability

Methylene chloride is not hydrolysed under normal environmental conditions. The product is slowly biodegradable in water. Methylene chloride is photochemically oxidised in the troposphere (half life, DT50 is calculated at 79.3 days).
 Biodegradability : half-life (bacteria) approximately 18 months. Biodegradability : psuedomonas strain - 0.8g/l/hr.
 The product is slowly biodegradable in soil. (TD50 = 14.2 d) The product is substantially removed in biological treatment processes.
 There is no evidence of inhibition to the aerobic treatment process at a concentration (mg/l) of 200

- 12.3 Bioaccumulative potential**
The product has low potential for bioaccumulation. Bioconcentration factor (BCF) : 0.91 to 40 l/kg
- 12.4 Mobility in soil**
The product is predicted to have high mobility in soil.
- 12.5 Results of PBT and vPvB assessment**
Not classified as PBT or vPvB.
- 12.6 Other adverse effects**
None

13. DISPOSAL CONSIDERATIONS

- 13.1 Waste treatment methods**
Disposal should be in accordance with local, state or national legislation. Transfer solvent residues to a labelled, sealed container for disposal or recovery. Waste disposal must be by an accredited contractor. Large volumes may be suitable for redistillation by solvent recovery contractors. Solvent residues must not be allowed to enter drains, sewers or watercourses or to contaminate the ground.
- Due to the risk of explosion DO NOT weld, cut or burn drums or other vessels which contain or have contained methylene chloride.
- 13.2 Additional information**
Dispose of this material and its container as hazardous waste.

14. TRANSPORT INFORMATION

- 14.1 Road/Rail**
- | | |
|-------------------------|-----------------|
| UN No. | 1593 |
| Proper Shipping Name | Dichloromethane |
| ADR/RID Class | 6.1 |
| Packing Group | III |
| Label. | 6.1 |
| Tunnel Restriction Code | (E) |
- 14.2 SEA (IMDG)**
- | | |
|----------------------|---------------------------------------|
| UN No. | 1593 |
| Proper Shipping Name | Dichloromethane |
| IMDG Class | 6.1 |
| Packing Group | III |
| Label. | 6.1 |
| Marine Pollutant | Not classified as a Marine Pollutant. |
- 14.3 Air (ICAO/IATA)**
- | | |
|----------------------|-----------------|
| UN No. | 1593 |
| Proper Shipping Name | Dichloromethane |
| ICAO-TI Class | 6.1 |
| Packing Group | III |
| Label. | 6.1 |
- 14.4 Additional Information**
None

15. REGULATORY INFORMATION

- 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**
Control of Substances Hazardous to Health Regulations (COSHH) 2002 SI 2002/2677 and COSHH Essentials: Easy steps to control chemicals - Control of Substances Hazardous to Health Regulations HSG193.
- Inventory Status*
Listed in: Australia (AICS) Canada (DSL/NDL) China (IECSC) European Union (EINECS/ELINCS) Japan (ENCS) South Korea (KECI) Philippines (PICCS) New Zealand Inventory (NZIoC) United States (TSCA)

15.2 Chemical Safety Assessment

A Chemical Safety Assessment (CSA) has been completed for this substance.

16. OTHER INFORMATION**Indication of changes**

All sections revised according to CLP/GHS requirements.

LEGEND

WEL : Workplace Exposure Limit (UK HSE EH40)

COM : The company aims to control exposure in its workplace to this limit

TLV : The company aims to control exposure in its workplace to the ACGIH limit

TLV-C: The company aims to control exposure in its workplace to the ACGIH Ceiling limit

MAK : The company aims to control exposure in its workplace to the German limit

Sk : Can be absorbed through skin

Sen : Capable of causing respiratory sensitisation

Bmgv: Biological monitoring guidance value (UK HSE EH40)

ILV : Indicative Limit Value (UK HSE EH40)

IOELV : Indicative Occupational Exposure Limit Value

Key literature references

GESTIS -database on hazardous substances

Chemical Safety Report: Dichloromethane

Further information

Information in this publication is believed to be accurate and is given in good faith, but it is for the Customer to satisfy itself of the suitability for its own particular purpose. Accordingly, INEOS Chlor Limited gives no warranty as to the fitness of the Product for any particular purpose and any implied warranty or condition (statutory or otherwise) is excluded except to the extent that such exclusion is prevented by law. Freedom under Patent, Copyright and Designs cannot be assumed.

INEOS™ is a trade mark, the property of INEOS Capital Limited.

Restriction in Annex XVII to Regulation (EC) No 1907/2006. Marketing and use of paint strippers containing methylene chloride

Health Hazards in Construction

Asbestos

- ▶ Microscopic fibers, mined from the Earth
- ▶ Resists heat, corrosion, and chemicals
- ▶ Used in over 3,500 products
- ▶ Likely to find in pre-1981 buildings
- ▶ Exposure route of concern – Inhalation
- ▶ Health Hazards: Lung cancer, mesothelioma, laryngeal cancer, asbestosis

Part 602 (29 CFR 1926.1101) Asbestos Standards for Construction

- ▶ Applies to all construction work involving asbestos
- ▶ Permissible exposure limit (PEL) and excursion limit
- ▶ Regulated areas
- ▶ Exposure assessments and monitoring
- ▶ Methods of compliance:
 - Respiratory protection
 - Protective clothing
 - Hygiene facilities and practices for employees
 - Housekeeping
 - Communication of hazards, medical surveillance, recordkeeping
 - Competent person

Asbestos Building Surveys

- ▶ Applies to buildings constructed prior to 1981.
- ▶ Surveys must include presence, location, and quantity.
- ▶ Survey results must be shared with those affected, including contractors.

Asbestos in Construction Assistance

- ▶ The MIOSHA Asbestos Program can be reached at (517) 284-7680
- ▶ www.michigan.gov/asbestos

Health Hazards in Construction

Lead

- ▶ Found in coatings, cable/wire sheathing, pipe, filler, solder, and alloys.
- ▶ Found in older factories, homes, and bridges.

- ▶ Routes of exposure – inhalation and ingestion
- ▶ Health effects
 - Cumulative blood and neurological effects
 - Reproductive hazards
 - Possibly carcinogenic
 - Symptoms include weakness, insomnia, eye irritation, facial paleness, anorexia, low-weight, colic, malnutrition, anemia, and tremors and paralysis of the wrists and ankles

Part 603: Lead Exposure in Construction

- ▶ Applies to all construction work where an employee may be exposed
- ▶ Exposure assessment and interim protection
- ▶ Action Level = 30 µg/m³, Permissible Exposure Limit (PEL)= 50 µg/m³
- ▶ Methods of compliance
 - Respiratory protection
 - Protective work clothing and equipment
 - Housekeeping
 - Hygiene facilities and practices
 - Medical surveillance and medical removal protection
 - Employee information and training, recordkeeping

Your Notes

1. _____
2. _____
3. _____
4. _____

Health Hazards in Construction

Interim Employee Protection (until we have air monitoring data)

- ▶ Includes:
 - Appropriate respiratory protection
 - Appropriate personal protective clothing and equipment
 - Change areas
 - Hand washing facilities
 - Biological monitoring
 - Training/education

Lead Based Paint (LBP) Training and Certification

- ▶ Required when disturbing lead-based paint in child occupied facilities
 - Regulated by Michigan Department of Community Health Lead Hazard Remediation Program
 - Toll Free: 866-691-LEAD (5323)
 - www.michigan.gov/leadsafe
- ▶ Accreditation/certification requirements, similar to asbestos are required in Michigan

Your Notes

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

Health Hazards in Construction

Part 309 : Cadmium

- ▶ Most commonly found on demolition and renovation projects.
- ▶ Uses:
 - Corrosion resistant plating (nuts, bolts, rivets)
 - Pigments in coatings
 - Stabilizers in plastic (wire insulation)
 - Various alloys and solders
- ▶ Applies to all occupational exposure in all industries
- ▶ Action Level (AL= 2.5 µg/m³) and Permissible Exposure Limit (PEL= 5 µg/m³)
- ▶ Exposure monitoring
- ▶ Methods of compliance are similar to Part 603: Lead in Construction

Your Notes

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

Health Hazards in Construction

Part 601 : Silica

- ▶ Crystalline silica
 - Respirable – particulate size is the most concern
- ▶ Found in:
 - Abrasive blasting operations
 - Cutting concrete building materials
 - Demolition
- ▶ Controls:
 - HEPA-vac
 - Wet methods
 - Respirators
- ▶ Route of entry = inhalation
- ▶ Health effects: Silicosis, carcinogenic

Your Notes

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

Part 601 : Carbon Monoxide (CO)

- ▶ Colorless, odorless and tasteless gas
- ▶ Byproduct of incomplete combustion
 - Yellow/orange flame
- ▶ Common indoor CO sources:
 - Fuel-powered vehicles (fork lift trucks) and equipment (heaters)
 - Malfunctioning furnace or hot water heater
 - Cracked heat exchangers
- ▶ Back drafting
- ▶ Health effects: headache, dizziness, nausea, weakness, confusion
- ▶ Preventive measures
 - Provide adequate make-up air ventilation
 - Tune engines for lowest possible CO concentrations
 - Use electric equipment vs. fuel powered equipment

Isocyanates

- ▶ Found in some two part adhesives or foaming agents
- ▶ Can cause respiratory and/or skin sensitization or occupational asthma
- ▶ Controls:
 - Supplied air respirator
 - Avoid all skin contact

Your Notes

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

Part 680 : Noise Exposure

- ▶ Permissible noise exposure limit (PNEL)= 90 dBA, 8-hour TWA
- ▶ Impact noise: 140 dB
- ▶ If the PNEL is exceeded:
 - Utilize feasible administrative or engineering controls
 - Implement a hearing conservation program (unspecified content)
 - Provide and ensure the use of hearing protection
- ▶ Earmuffs, ear plugs

Part 451 : Respiratory Protection

- ▶ Required when excessive exposures to air contaminants cannot be controlled by engineering or administrative controls.
- ▶ Two types of respirator use in the workplace:
 - Required use
 - Voluntary (comfort) use (see Appendix D of Part 451)
- ▶ Written program
- ▶ Proper selection and use
- ▶ Medical evaluations
- ▶ Fit testing – documented
- ▶ Information and training
- ▶ Recordkeeping

Your Notes

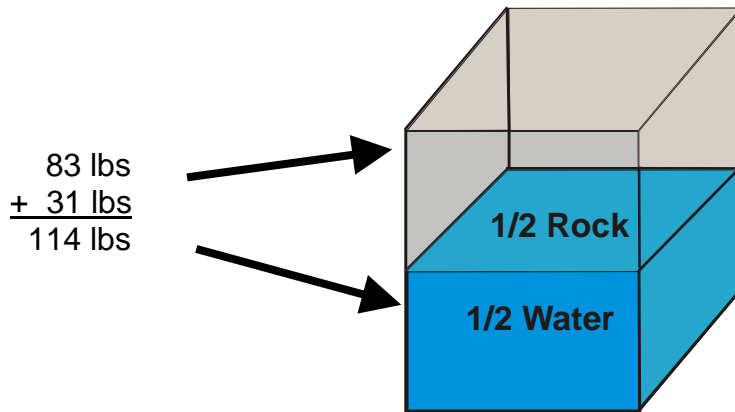
- 1. _____
- 2. _____
- 3. _____
- 4. _____
- 5. _____
- 6. _____

Excavations, Trenching, and Shoring: MIOSHA Part 9

- ▶ **Qualified Person Definition:** A person who by possession of a recognized degree or certificate of professional standing OR who, by extensive knowledge, training, and experience, has successfully demonstrated the ability to solve or resolve problems relating to the subject matter and work.

Soils: Cubic Yard Weight

One cubic foot



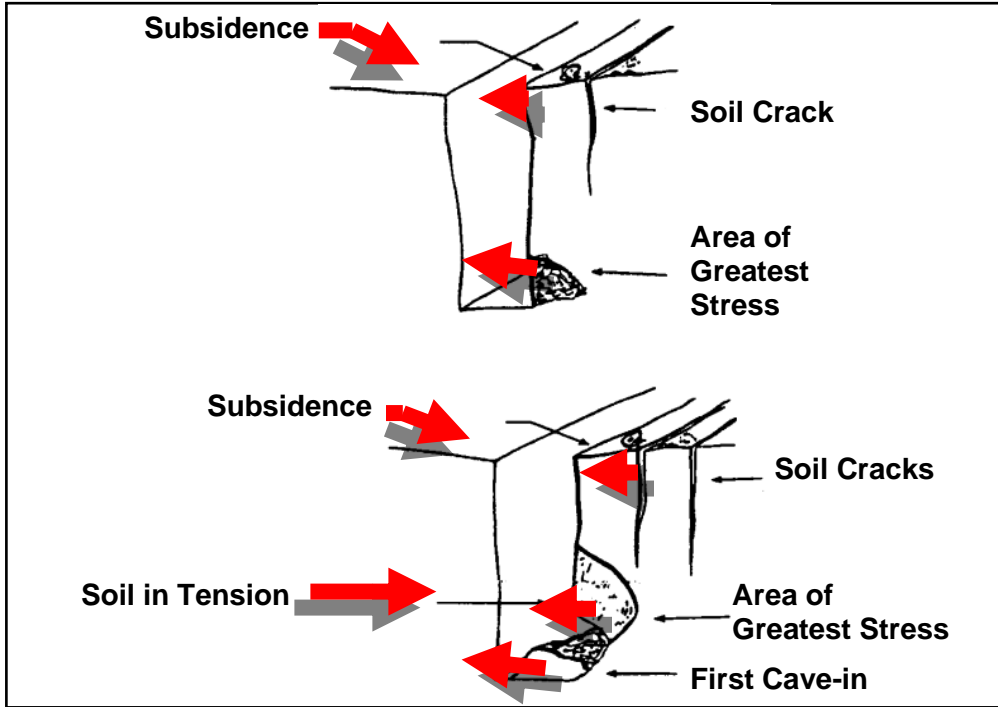
$$\begin{aligned} 1 \text{ yard} &= 27 \text{ cubic feet} \\ 27 \times 114 &= 3078 \text{ lbs per cubic yard} \end{aligned}$$

Your Notes

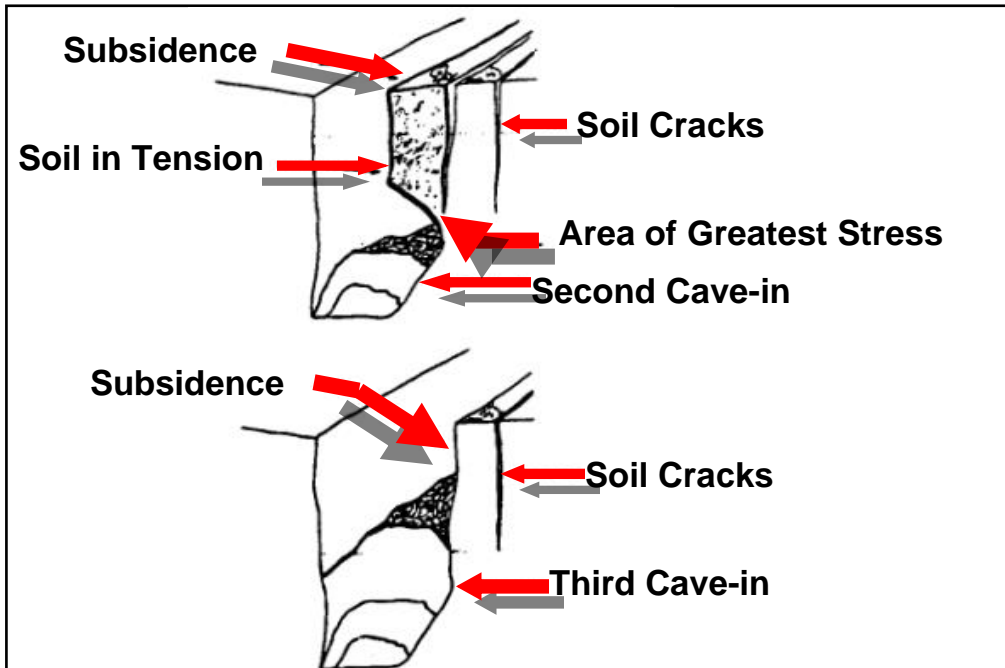
1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

Excavations, Trenching, and Shoring: MIOSHA Part 9

How Cave-Ins Happen



Subsidence: To sink to a lower or normal level.



Excavations, Trenching, and Shoring: MIOSHA Part 9

Underground Utilities

- ▶ 931(1) Locate underground utilities before digging.
- ▶ 931(2) Expose by hand digging.
- ▶ 931(3) Notify utility of damage.

Water Accumulation

932 (2) An employee shall not work in an excavation in which there is accumulated water or in which water is accumulating unless precautions have been taken to protect employees against the hazards posed by water accumulation.

This is important because water saturation makes soil unstable, while drying causes soil to crack.

What Do You Know: Inspections

1. How often should inspections be conducted?

2. Who should conduct them?

3. What do you do if there is evidence of a possible cave-in?

Your Notes

1. _____

2. _____

3. _____

4. _____

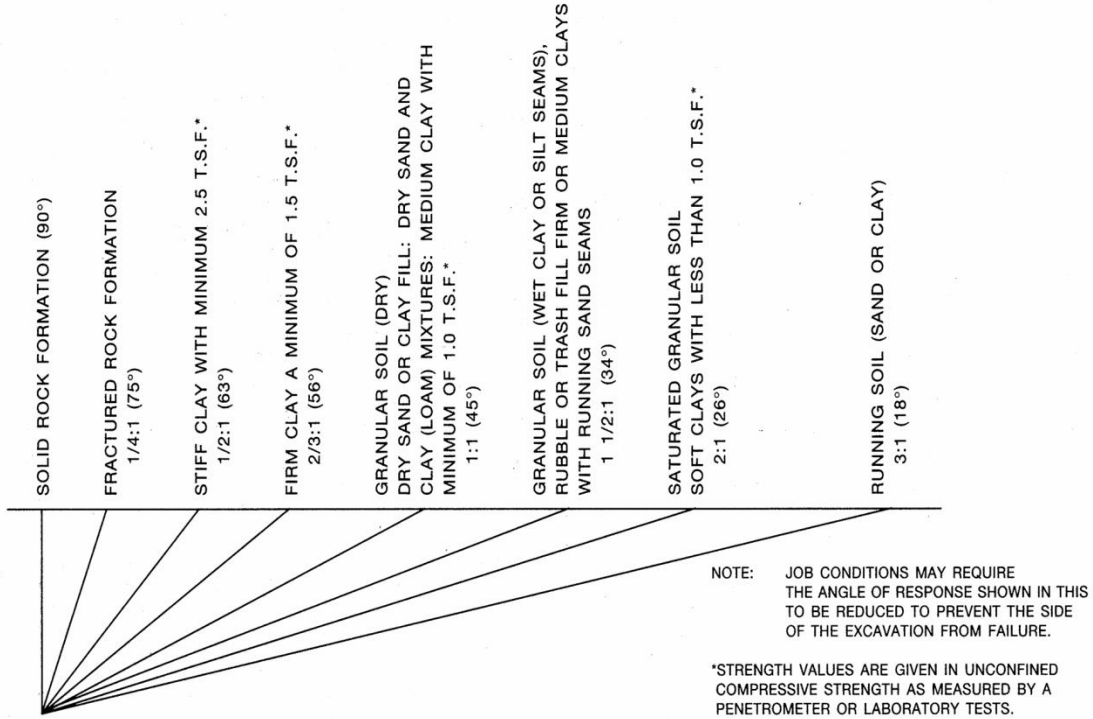
Excavations, Trenching, and Shoring: MIOSHA Part 9

- ▶ 932(4) An **ongoing inspection** of an excavation or trench shall be made by a **qualified person**.
 - After every rainstorm or other hazard-producing occurrence, an inspection shall be made by a qualified employee for evidence of possible slides or cave-ins.
 - Where these conditions are found, **all work shall cease** until additional precautions, such as additional shoring or reducing the slope, have been accomplished.
- ▶ 933(1) A tree, boulder, rock fragments, or other obstructions whose movement could cause injury to an employee shall be removed or supported.
- ▶ 933(2) An excavation that an employee is required to enter shall have excavated and other material stored and **retained not less than 2 ft** from the excavation edge.
- ▶ 933(4) An excavation **4 ft in depth** and occupied by an employee shall be provided with either **a ladder extending not less than 3 ft** above the top as a means of access or with a ramp meeting the requirements of sub-rule (6).
- ▶ Lateral travel along the wall of a trench to a ladder or other means of egress shall not exceed 25 feet.
- ▶ 941(1) The side of an excavation **more than 5 ft deep shall be sloped as prescribed in table 1**, unless supported as prescribed in this part.
- ▶ (2) An excavation less than 5 feet in depth shall also be effectively protected when examination of the ground indicates hazardous earth movement may be expected.

Your Notes

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

TABLE 1
MAXIMUM ALLOWABLE ANGLE OF REPOSE FOR THE
SIDE OF AN EXCAVATION IN EXCESS OF 5' DEPTH



Four Choices to Protect

1. Slope
2. Bench
3. Shore
4. Trench Box (shield)

Your Notes

1. _____
2. _____
3. _____
4. _____

Ladders: MIOSHA Part 11

- ▶ 2127 (1) A means of access, such as a stairway, ladder, or ramp shall be provided at all personnel points of access where there is a break in elevation of 19 inches or more.
- ▶ 1121 (3) A ladder that has faults or defects shall be tagged “Dangerous – Do Not Use” and be withdrawn from service.
- ▶ 1122 (2) A ladder shall be placed on a substantial and stable base to prevent accidental displacement. Keep the area around the top and bottom clear.
- ▶ 1122 (4) Use at least one hand to grasp the ladder when climbing up or down the ladder. Do not carry any object or load that could cause the employee to lose balance and fall.
- ▶ 1122 (5) Do not overreach. (Both shoulders are outside a side rail).

Portable Ladders - Extension

- ▶ 1124 (5) Side rails shall extend at least 3 feet above the upper landing.
- ▶ 1124 (1) 4 to 1 Pitch.

Portable Ladders - Electricity

- ▶ 1124 (7) A metal ladder shall not be used unless a minimum of 20 feet is maintained from power lines.
- ▶ Call the power company to have them de-energize the service drop to the house.

Portable Ladders – Step Ladders

- ▶ 1126 (2) Unless the stepladder is equipped with a handrail, the top step and cap shall not be used to stand on.
- ▶ 1126 (1) An employee shall not use the backside of a stepladder for climbing.
- ▶ 1126 (3) A stepladder shall not be used as a straight ladder by leaning it against a wall or other support.

Your Notes

1. _____
2. _____
3. _____
4. _____

Scaffolds: MIOSHA Part 12

Construction and Capacity

- ▶ 1210 (1) A scaffold shall be designed by a qualified person.
- ▶ 1926.451(f)(7) A scaffold shall not be erected, moved, dismantled or altered, except under the supervision of a competent person.
- ▶ 1926.451(f)(3) Scaffolds and scaffold components shall be inspected for visible defects by a competent person before each work shift and after any occurrence that could affect a scaffolds structural integrity.
- ▶ 1926.451(c)(3) The poles, legs, or uprights of scaffolds shall be plumb and shall be securely and rigidly braced to prevent swaying and displacement.
- ▶ 1210 (2) Unstable objects, such as barrels, boxes, pallets, brick, or concrete blocks, shall not be used to support a scaffold or platform.
- ▶ 1210 (2) Poles, legs, posts, frames, and uprights shall bear on base plates and mudsills or adequate firm foundation.
- ▶ 1926.451(f)(15) A ladder shall not be used on a scaffold to increase the working level height of employees.

Competent Person Definition

- ▶ 1926.450(b) A person who is experienced and capable of identifying an existing or potential hazard in surroundings, or under working conditions, that are hazardous or dangerous to an employee and who has the authority and knowledge to take prompt corrective measures to eliminate the hazards.

Your Notes

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

Scaffolds: MIOSHA Part 12

Access to Scaffolds

- ▶ 1211 (1) You may use:
 - A ladder.
 - Hook-on or attachable metal ladders.
 - Direct access from an adjacent scaffold, the structure, or personnel hoist...not more than 14 inches horizontally and 24 inches vertically.
 - A ramp, runway, or stairway.

Windy Conditions

- ▶ 1212 (2) Work on or from scaffolds is **prohibited during storms or high winds** unless a competent person has determined that it is safe for employees to be on a scaffold and that the employees are protected by a personal fall arrest system.
- ▶ Wind screens shall not be used unless the scaffold is secured against the anticipated wind forces imposed.

Electrical Hazards

- ▶ 1212 (4) An employee shall not be allowed within 10 feet of uninsulated electrical energized lines.

Guardrails

- ▶ 1213 (1) A guardrail shall be installed on any open side or end of a scaffold work platform that is 10 or more feet above the floor or ground.
- ▶ 2150 (2) Must withstand 200 lbs
- ▶ 2150 (1) Top rail height must be between 36" and 42"
- ▶ 1213 (5) A cross brace may be used as part of the guardrail system

Your Notes

1. _____
2. _____
3. _____
4. _____

Scaffolds: MIOSHA Part 12

Planking and Scaffold Platforms

- ▶ 1217 (1) The platform shall consist of a minimum of 2 planks laid side by side.
- ▶ Each platform on all working levels shall be fully planked or decked between uprights.
- ▶ All wood planks shall be scaffold-grade, a minimum of 1500 psi.
- ▶ Planks shall be not less than 2" x 10".
- ▶ 1217 (2) All defective wood planks, laminated planks, manufactured work platforms, and picks shall be removed from service.
- ▶ 1217 (5) Extend over the bearer a minimum of 6 inches, but not more than 12 inches.
- ▶ Be cleated or fastened to prevent shifting.
- ▶ 1217 (12) The front of platforms shall not be more than 14 inches from the face of the work, unless guardrails are erected along the front edge, or personal fall arrest systems are used.

Guys, Ties, and Bracing

- ▶ 1223 (10) A guy, tie, and brace shall be installed:
 - according to the manufacturer's recommendations OR
 - at the closest horizontal member to the 4 to 1 ratio in height.

Cantilevered Loads

- ▶ 1926.452 (c)(5) Brackets used to support cantilevered loads shall be used only to support personnel.

Your Notes

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

Mobile Scaffolds

- ▶ 1241 (1) Height of a mobile scaffold shall not be more than 4 times the minimum base dimension.
- ▶ 1241 (3) Locking devices shall be used to secure the casters to frame or adjusting screw.
- ▶ 1241 (4) Vertical members of the scaffold shall be braced by cross bracing and diagonal bracing.
- ▶ 1241 (5) A scaffold platform shall cover the full width of the scaffold and shall be secured in place.
- ▶ 1241 (8) Only manual force shall be used to move a scaffold, as close to the base as possible, unless the work platform is 4 feet or less from the floor.
- ▶ 1241 (10) An employee shall not ride on a mobile scaffold, unless all of the following conditions exist:
 - The floor is within three degrees of level and free of pits, holes, or obstructions.
 - The maximum height of a scaffold is not more than two times the minimum base dimension.
 - All tools and materials are secured or removed before scaffold is moved.
 - The scaffold has guardrails on all sides.

Rough Terrain Forklift Platforms

- ▶ 1243 (7) A lift truck platform shall be returned to the ground before a lift truck is repositioned. The forklift shall be moved as close to the work area as possible for final positioning. An employee shall exit the landed platform and reboard the platform only after the lift truck repositioning is completed.
- ▶ Many rules for using these safely to lift people. Please refer to this section of the scaffold standard.

Your Notes

1. _____
2. _____
3. _____
4. _____

Aerial Work Platforms: MIOSHA Part 32

Types of Aerial Work Platforms: Scissor

FIGURE 2
MANUALLY PROPELLED ELEVATING WORK PLATFORMS

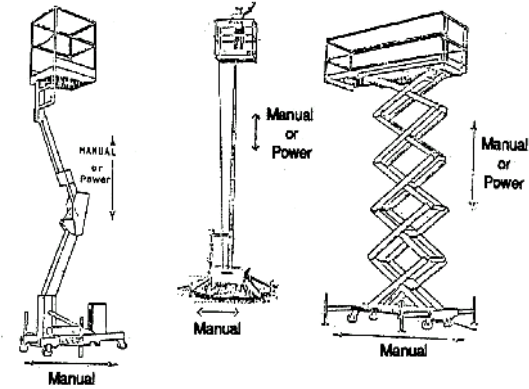
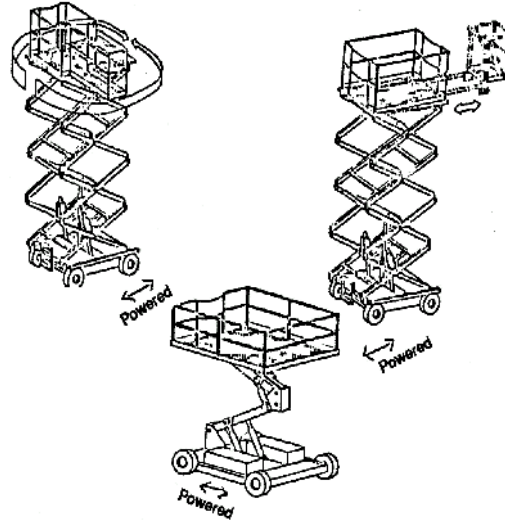


FIGURE 4
SELF-PROPELLED ELEVATING WORK PLATFORMS



Types of Aerial Work Platforms: Boom

FIGURE 1
VEHICLE-MOUNTED ELEVATING WORK PLATFORM

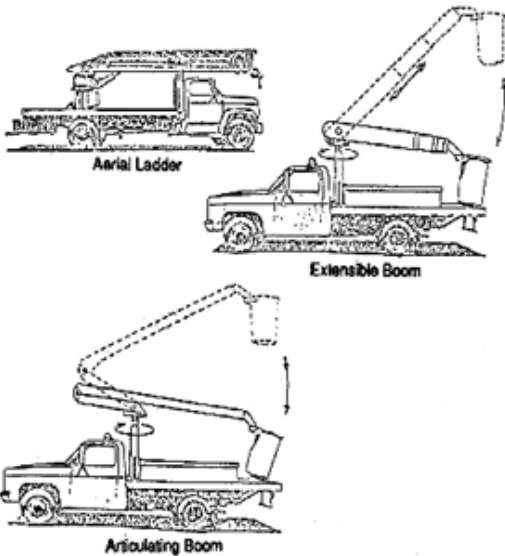
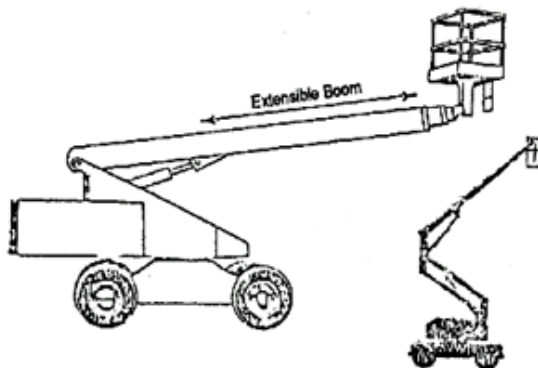


FIGURE 3
BOOM-SUPPORTED ELEVATING WORK PLATFORMS



Aerial Work Platforms: MIOSHA Part 32

- ▶ 3207 (8) Employer shall provide training on:
 - (a) Intended purpose and function of each control.
 - (b) Manufacturer's operating instructions and safety rules.
 - (c) Decals, warnings, and instructions displayed on the AWP.
 - (d) MIOSHA Part 32 rules.
- ▶ 3207 (1-7) Operators permit required to be on the jobsite.
- ▶ 3207 (9) Manufacturer's operating instructions and safety rules shall be provided on each unit.

SAMPLE PERMIT

AERIAL WORK PLATFORM PERMIT			
(Firm Name)			

(Name)			
Type of aerial work platform authorized to operate:			
Date Issued	Type	Authorized by	Expiration Date
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

- ▶ 3209 (1) Maintain clearances from energized **power lines**: Ten feet minimum.
- ▶ 3214 (1) Occupants of vehicle mounted & boom supported work platforms shall wear a safety harness and tie-off.
- ▶ 3214 (3) Tying off to adjacent poles, structures or equipment is prohibited.

Your Notes

1. _____
2. _____
3. _____
4. _____

Aerial Work Platforms: MIOSHA Part 32

- ▶ 3214 (4) Only exit an elevated AWP where elevated areas are inaccessible or hazardous to reach. Use the gate to enter and exit.
- ▶ 3216 (2) Do not exceed load capacities.
- ▶ 3216 (3) Guardrails shall not be used for supporting materials or employees.
- ▶ 3216 (4) Maintain firm footing on the platform.
- ▶ 3216 (7) Outriggers and stabilizers, when provided, shall be used.
- ▶ 3216 (12) Gates or chains closed when elevated.
- ▶ 3216 (6) Before and during driving while elevated, an operator shall:
 - look in the direction of travel, keep a clear view, make sure path is firm and level.
 - maintain a safe distance from drop-offs, holes, electrical, other hazards.
- ▶ 3216 (1) The AWP shall be used only in accordance with the manufacturer's operating instructions and safety rules.

Your Notes

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____



Michigan Department of Labor and Economic Opportunity
Michigan Occupational Safety and Health Administration
Consultation Education and Training Division
525 W. Allegan St., P.O. Box 30643
Lansing, Michigan 48909-8143

For further information or to request consultation, education and training services
call 517-284-7720

or

visit our website at www.michigan.gov/miosha

www.michigan.gov/leo

LEO is an equal opportunity employer/program.