

Motorized Construction Equipment

1. Overview

- a. Dangers of Carbon Monoxide
- b. The Identification and use of some Motorized Equipment
- c. Different hazards associated with Motorized Equipment
- d. Struck By
- e. Caught In-between
- f. Falls
- g. Electrical
- h. Workers Rights

2. Dangers of carbon monoxide

- a. CO- Carbon monoxide is a colorless, odorless, tasteless gas produced by burning gas, wood, propane, charcoal or other fuel. Improperly ventilated appliances and engines, particularly in a tightly sealed or enclosed space, may allow carbon monoxide to accumulate to dangerous levels
- b. OSHA Permissible Exposure Limit (PEL)- 50 PPM
- c. Carbon Monoxide Poisoning
 - i. Carbon monoxide poisoning occurs when carbon monoxide builds up in your bloodstream.
 - ii. When too much carbon monoxide is in the air, your body replaces the oxygen in your red blood cells with carbon monoxide.
 - iii. This can lead to serious tissue damage, or even death
- d. Symptoms
 - i. Headaches
 - ii. Dizziness
 - iii. drowsiness
 - iv. Nausea
 - v. vomiting
 - vi. tightness across the chest
- e. Avoiding carbon monoxide
 - i. Do Not Operate Gasoline/Propane/Diesel engine for long periods of time in confined area
 - ii. Do not operate a combustion engine without adequate ventilation
 - iii. Be careful in cold weather - doors and windows are closed to prevent cold from entering
 - iv. Be careful in smaller rooms
 - v. Install CO monitors
 - vi. Consider Substituting Gas powered tools for hydraulic or battery operated
 - vii. Incorporate a ventilation system
 - viii. Keep windows and doors open
 - ix. Keep an Air Monitor in the work area

- f. Sources of carbon monoxide
 - i. Portable generators/generators in buildings
 - ii. Concrete cutting saws
 - iii. Compressors
 - iv. Power trowels
 - v. Floor buffers
 - vi. Space heaters
 - vii. Welding
 - viii. Gasoline powered pumps
 - ix. High focus on this equipment because of its continued use indoors or in confined areas

3. Motorized construction equipment

- a. Mobile Equipment
 - i. Forklifts
 - ii. Skid steers
 - iii. Aerial Lifts
 - iv. Vehicles
 - v. Horizontal Directional Drillers
- b. Motorized mobile equipment hazards
 - i. Struck by
 - ii. Contact With
 - iii. Caught in or between
- c. Hand powered tools
 - i. Gas powered cut off Saws
 - ii. Power washers
 - iii. Power Trowels
- d. Immobile equipment
 - i. Portable Generators
 - ii. Space Heaters
 - iii. Welders
- e. Fire extinguishers
 - i. Each piece of mobile and immobile equipment should have its own fire extinguisher
 - ii. Fire extinguishers should be checked at the beginning of each shift
 - iii. Each extinguisher must be fully charged
 - iv. Hand power tools must have a fire extinguisher in the near vicinity

4. Focus four

- a. All of the following is OSHA's focus four
 - i. Falls Hazards
 - 1. Railings are not always enough when working in elevation
 - 2. Use of fall harness & lanyard that is properly inspected, worn & connected is Mandatory in Aerial lifts

3. Personal fall arrest systems must be rigged so the employee does not fall more than 6 feet or come in contact with a lower level
 4. 100% Tie Off
 5. Inspect before every use
 - ii. Struck by Hazards
 1. Mobile equipment has many blind spots around it
 2. Minimize with the use of flaggers and spotters
 3. Operator training to ensure proper operation of the equipment
 - iii. Caught in- or –between Hazards
 1. Crushed if vehicle overturns
 2. Death or serious injury likely if Employees are caught in-between Equipment and Object
 3. Minimized with the use of Flaggers and Spotters
 - iv. Electrical Hazards
 1. Exposed Wires
 2. Ground Plug Removed
 3. Ground Fault Circuit Interrupters (G.F.C.I.) not Working
 4. Water
- b. They are the focus because it is where the most injuries and fatalities occur

5. Gas Powered Hand Tools Hazards

- a. Dust/ Fumes
 - i. Prevent by maintaining a well ventilated area
 - ii. Use of a wet saw
 - iii. Use of a dust collector
 - iv. Use of dust/particle masks accurate for the job tasks
 - v. In low oxygen environments Self Contained Breathing Apparatus (SCBA) may be necessary
 - vi. Use Other PPE – eye/face protection
- b. Sharp flying objects
 - i. Grinding and cutting operations
 - ii. Shields and guards need to be in place and working properly
 - iii. Use of PPE – eye/face protection & gloves
- c. Personal protective equipment
 - i. Hardhat
 - ii. Face Shield
 - iii. Safety Glasses/ Goggles
 - iv. Dust Mask
 - v. Gloves
- d. Guarding
 - i. Properly working
 - ii. Not Damaged
 - iii. Manufacturer approved

6. Immobile equipment

a. Generators

1. Ensure located in a well ventilated area
2. Properly maintained
3. Not operated in water
4. Ensure the cords going to the generator are free of nicks in the outer coating

ii. Hazards

1. Electric shock or electrocution
2. Carbon monoxide
3. Trip hazard from running cords

b. Heaters

1. Indirect heat source to ensure exhaust isn't entering the jobsite
2. Proper maintenance to ensure its running correctly
3. Ensure no flammable material is around heat source

ii. Hazards

1. Fire hazard
2. Shocks and electrocution
3. Carbon monoxide

c. Welders

1. Avoid any water on the jobsite
2. Ensure the proper maintenance of the equipment
3. Ensure all electrical components are free of nicks or scratches to the outer coating exposing live wires

ii. Hazards

1. Shocks and electrocution
2. Carbon monoxide
3. Trip hazard

d. Inspections

- i. Make Sure equipment is Properly Maintained
- ii. Equipment records are maintained
- iii. Lines
- iv. Oil Levels
- v. Tires
- vi. brakes

e. Locations

- i. Keep Away From Workers
- ii. Ensure Exhaust isn't blown back into building/Work Area
- iii. If Necessary extend lines going to Equipment to ensure adequate distance from work area

7. Outline employee rights

a. Employee rights and responsibilities

- i. To assure safe and healthful working conditions for working men and women

- ii. By authorizing enforcement of the standards developed under the Act
 - iii. By assisting and encouraging the States in their efforts to assure safe and healthful working conditions
 - iv. By providing for research, information, education, and training in the field of occupational safety and health
- b. A right to
- i. A safe and healthful workplace
 - ii. Know about hazardous chemicals
 - iii. Information about injuries and illnesses in your workplace
 - iv. Complain or request hazard correction from employer
 - v. File a confidential complaint with OSHA to have their workplace inspected.
 - vi. Receive information and training about hazards, methods to prevent harm, and the OSHA standards that apply to their workplace. The training must be done in a language and vocabulary workers can understand.
 - vii. Get copies of their workplace medical records.
 - viii. Participate in an OSHA inspection and speak in private with the inspector.
 - ix. File a complaint with OSHA if they have been retaliated or discriminated against by their employer as the result of requesting an inspection or using any of their other rights under the OSH Act.
 - x. File a complaint if punished or discriminated against for acting as a “whistleblower” under the additional 20 federal statutes for which OSHA has jurisdiction.
- c. Whistleblower Protection
- i. OSHA's Whistleblower Protection Program enforces the whistleblower provisions of more than twenty whistleblower statutes protecting employees who report violations of various workplace safety.