Occupational Health/Environmental Controls

• Course Description
  • Review OSHA Regulations, Subpart D (Construction):
    • Covers requirements for medical services and first aid, sanitation, occupational noise exposure, ionizing radiation, airborne contaminants, illumination, ventilation.
    • Companion courses include Subpart D “Health Hazards in Construction”, Hazard Communication, and How to Read an MSDS.
Course Overview

Course Description

• This course:
  • Estimated Length: 30 minutes
  • Audience: Managers, supervisors, workers.
  • Also basis for completion of the ClickSafety OSHA 30-hour construction safety course.
Course Overview

Course Objective

• Upon Completion the Student Should:
  • Be able to identify and understand general health and environmental requirements for medical services and first aid, sanitation, occupational noise exposure, ionizing radiation, airborne contaminants, illumination, and ventilation as described in subpart D of the construction safety standards.
Course Overview

References

- Primary References:
  - 29 CFR 1926, Subpart D
  - Occupational Health and Environmental Controls for construction.
  - This course conveys many, but not all, of the regulatory requirements found in subpart D.
  - See ClickSafety companion course on subpart D, Health Hazards in Construction.
Course Overview

Get Site-Specific Training!

• This training course:
  • Provides basic occupational safety and health information.
  • Is not a substitute for knowledge of OSHA or other standards.
  • Is not a substitute for specific, hands-on training and information.
Introduction/Medical Services

Medical Personnel

• Medical personnel must be available:
  • For advice and consultation.
  • In case of serious injury provisions must be made for prompt medical attention.
Medical Substitute

- In the absence of an infirmary, clinic, hospital, or physician:
  - A person shall be available with a valid certificate in first aid-training from:
    - U.S. Bureau of Mines
    - The American Red Cross
    - or equivalent training
  - Verifiable by documentation available at the worksite.
First Aid

- First aid supplies:
  - Shall be easily accessible when required.
  - Contents kept in a weatherproof container.
  - Individual sealed packages for each type of item.
  - Checked out on each job by employer and at least weekly.
First Aid Kits

- First aid kits:
  - Must be easily accessible.
  - Larger / multiple operations may need to have additional first aid kits and supplies.
  - Employers should assess the specific needs of worksite and augment the first aid kit appropriately.

- See American National Standard (ANSI) Z308.1-1978 "Minimum Requirements for Industrial Unit-Type First-aid Kits".
Exposure

- For employees exposed to blood or other infectious materials:
  - Employers should provide PPE:
    - Gloves
    - Gowns
    - Face Shields
    - Masks
    - Eye Protection
Introduction/Medical Services

Emergency Medical Equipment

- Proper equipment for transporting injured persons:
  - Shall be provided.
  - Or provide a communication system for contacting ambulance service.
  - In areas without 911, post numbers of the physicians, hospitals, or ambulances.
Introduction/Medical Services

Corrosive Materials

• Potential Exposure?
  • Where the eyes or body of any person may be exposed to injurious corrosive materials, suitable facilities for quick drenching or flushing of the eyes and body shall be provided within the work area for immediate emergency use.
Sanitation

Potable Water

• Potable water is:
  • Water which meets the quality standards prescribed in the:
    • U.S. Public Health Service Drinking Water Standards.
    • Is approved for drinking purposes by State or local authority.
  • An adequate supply of potable water shall be provided.
Sanitation

Containers

For Drinking Water:

• Any container used to distribute drinking water shall be:
  • Clearly marked as to the nature of its contents.
  • Not used for any other purpose.
• The common drinking cup is prohibited.
• Where single service cups are supplied:
  • Provide sanitary container for the unused cups and receptacle.
Sanitation

Nonpotable Water

- Nonpotable water:
  - Is water not fit for drinking.
  - Outlets for nonpotable water shall be identified to indicate clearly that the water is unsafe, not to be used for drinking, washing, or cooking purposes.
  - There shall be no cross-connection between potable water nonpotable water.
Sanitation

Food Handling

For all employees:

- Facilities and operations shall meet the applicable laws, ordinances, and regulations with sound hygienic principles.

- If food for employees is provided, it must be wholesome, free from spoilage, and processed, prepared, handled, and stored in such a manner as to be protected against contamination.
Sanitation

Temporary Sleeping Quarters

• When temporary sleeping quarters are provided, they shall be heated, ventilated, and lighted.
Sanitation

Washing Facilities

- Washing facilities:
  - Shall provide for employees engaged in the application of paints, coating, herbicides, or insecticides, or in other operations where contaminants may be harmful to the employees.
  - Be in near proximity to the worksite.
  - Equipped to enable employees to remove substances.
  - Maintained in a sanitary condition.
Sanitation

Toilet Facilities

• Toilet facilities are:
  • Required at the jobsite.
  • 1 toilet is required for each 20 employees or fraction thereof of each sex (see exceptions in 29 CFR 1926.51.
  • Kept clean and supplied with toilet paper.
  • Not required for mobile crews if transportation available.
Sanitation

Lavatories

- Lavatories shall be:
  - Made available in all places of employment (except to mobile crews or employees working at normally unattended work locations and have transportation readily available).
  - Provided with hot and cold running water, or tepid running water.
  - Provided with Hand soap or similar cleansing agents.
  - Provided with individual hand towels of cloth or paper or with warm air blowers.
Sanitation

Showers

- Showers:
  - May be required by a particular standard.
  - One shower shall be provided for each 10 employees.
  - Body soap or other appropriate cleansing agents.
  - Hot and cold water feeding a common discharge line.
  - Individual clean towels.
Sanitation

Eating and Drinking Areas

Warning:

- No consumption of food or beverages in a toilet room nor in any area exposed to a toxic material.
Sanitation

Vermin Control

• Guidelines:
  • Workplaces constructed, equipped, and maintained, to prevent the entrance or harborage of rodents, insects, and other vermin.
  • Extermination program where presence is detected.
Sanitation

Change Rooms

• Change rooms:
  • May be required by a standard for protective clothing against toxic contamination.
  • Must be equipped with storage facilities for street clothes and separate storage facilities for the protective clothing.
## Exposures and Controls

### Permissible Noise Exposures

<table>
<thead>
<tr>
<th>Time (hours/day)</th>
<th>Soundlevel (dBA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>90</td>
</tr>
<tr>
<td>4</td>
<td>95</td>
</tr>
<tr>
<td>2</td>
<td>100</td>
</tr>
<tr>
<td>1</td>
<td>105</td>
</tr>
<tr>
<td>1/2</td>
<td>110</td>
</tr>
<tr>
<td>1/4 or less</td>
<td>115</td>
</tr>
</tbody>
</table>
Multiple Periods of Noise Exposure

- Combined Effect:
  - Daily noise exposure is two or more periods.
  - Consider the combined effect.
  - Use formula to calculate effect.
  - Formula found in 29 CFR1926.52(d)(2)(ii).
Impulsive/Impact Noise

- Single Exposures Can Be Damaging:
  - Exposure to impulsive or impact noise should not exceed 140 dB peak sound pressure level.
  - Example of impulsive or impact noise is exposure to noise during pile driving at close distance.
Ionizing Radiation

• If work activities involve use of ionizing radiation:
  • Follow provisions of Nuclear Regulatory Commission Standards for Protection Against Radiation (10 CFR Part 20).
Radioactive Materials/X-Rays

Use of radioactive materials or X-rays:

- Performed by persons actually licensed.
- Competent persons specially trained.
Lasers

• Primary hazard from laser equipment is injury to the eyes.
• Only qualified and trained employees to install, adjust, operate.
• Proof of qualification in possession of operator at all times.
Lasers - 2

- Precautions:
  - Exposure to laser light greater than 5 mill watts requires eye protection.
  - Warning signs must be posted in areas where lasers are used.
  - Laser equipment turned off or shielded when unattended.
Lasers - 3

- Guidelines:
  - Laser beams must never be pointed or directed at persons.
  - Must have a label indicating maximum output power.
Exposures and Controls

Airborne Contaminants

- Inhalation, ingestion, skin absorption, or contact:
  - With any material or substance at a concentration above their "Threshold Limit Values" shall be avoided.
Exposures and Controls

Performance Standards
• Specified for some hazardous substances:
  • Asbestos
  • Cadmium
  • Lead
  • Benzene
  • Methylenedianiline
  • Welding fumes
Hazard Control

- Airborne contaminants must be controlled by:
  - Applying engineering controls:
    - Ventilation
    - Use of enclosures
  - Removing employees from exposure.
  - Limiting the daily exposure of employees to the hazard.
Hazard Control - 2

- PPE:
  - Personal protective equipment is the last line of defense.
  - OSHA regulations do allow for respiratory protective equipment:
    - Whenever such engineering are not practicable or fail to achieve compliance.
Illumination

- Adequate light or illumination is necessary to work safely:
  - Construction areas, ramps, runways, corridors, offices, shops, and storage areas shall be lighted while any work is in progress.
### Illumination

**MINIMUM INTENSITIES:**

<table>
<thead>
<tr>
<th>Foot Candles</th>
<th>Areas of Operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>General construction areas, indoor corridors, exitways.</td>
</tr>
<tr>
<td>5-10</td>
<td>Tunnels, general underground work</td>
</tr>
<tr>
<td>10</td>
<td>General construction shops (batch plants, mechanical and electrical equipment rooms, carpentershops, indoor toilets, workrooms)</td>
</tr>
<tr>
<td>30</td>
<td>First aid stations, infirmaries, offices</td>
</tr>
</tbody>
</table>
Exposures and Controls

General

• Whenever hazardous substances produced:
  • Concentrations shall not exceed the THRESHOLD LIMIT VALUES OF AIRBORNE CONTAMINANTS FOR CONSTRUCTION.
  • Limits specified in 1926.55(a).
  • When ventilation is used as an engineering control method, the system shall be installed and operated according to the requirements of this section.
Exposures and Controls

Ventilation

• Ventilation installed and operated according to the requirements of 1926.57.

• This standard specifies detailed requirements for local exhaust, design and operation, disposal of hazardous substances and more.
Exposures and Controls

Local Exhaust Ventilation

• Designed to prevent dispersion into the air of dusts, fumes, mists, vapors, and gases in harmful concentrations.

• Designed that harmful substances not drawn through the work area.
Design and Operation

- Requirements:
  - Exhaust equipment designed, constructed, maintained and operated as to ensure protection.
  - Maintaining a volume and velocity of exhaust air.
  - Convey contaminants to suitable points of safe disposal.
Duration of Operations

- Exhaust system:
  - Shall be in operation during all operations.
  - Continue to operate after the cessation of operations.
Exposures and Controls

Disposal of Exhaust Materials

• Requirements:
  • Air outlet discharge to the outside atmosphere.
  • Harmful concentrations must not accumulate in work area air.
  • Exhaust system discharge must not result in harmful exposure.
Final Considerations

Get Informed

• Do This:
  • Talk with your supervisor, company safety officer, other knowledgeable employer personnel.
  • Observe and report unsafe conditions and work practices.
  • Anticipate, Recognize, Evaluate, and Control hazards on your jobsite.