

**Lesson:** Health Hazards and Controls

- Lesson Objectives:**
- Identify general provisions for occupation health and safety.
  - Recognize safe illumination intensities and ventilation systems at the worksite.
  - Appraise and prevent extreme exposures to extreme heat, cold, and noise.
  - Manage operations that have potential for overexposure to radiation, gases, and lead.
  - Prepare a hazard communication program including compiling Material Safety Data Sheets.
  - Identify the role of industrial hygiene in preventing health hazards.

- Topics:**
- General Health Provisions
  - Lighting and Ventilation
  - Heat, Cold, and Noise Hazards
  - Radiation, Gases, and Lead
  - Health Hazard Communication

**Topic: General Health Provisions**

This topic introduces the management of general health hazard provisions. Having completed this topic, you should be able to:

- Identify the responsibilities that employers have for providing medical services and first aid in the workplace
- Classify the levels of training for the Certified First Aid Provider, CPR, and EMS
- Identify the need to protect yourself from infectious diseases when rendering first aid
- Determine the workplace requirements for drinking water, facilities, showers, and vermin control

Topic summary:

Please take a moment to review these major points before you continue with the next topic.

- As the construction workplace continues to evolve, the industry must revisit its basic medical services.
- Prior to the start of a project, employers must provide (1) a trained first aid person, (2) first aid supplies easily accessible when required, (3) facilities for flushing corrosive materials, and (4) a system to provide emergency transportation.
- Adhere to the basic guidelines for reducing the risk of contracting infectious diseases when rendering first aid care.
- In emergency situations, a Good Samaritan uses common sense and reasonable levels of skill not to exceed the scope of their training.
- There are guidelines for basic sanitation including drinking water, toilet and washing facilities, showers, and vermin control.

## **Topic: Lighting and Ventilation**

This topic discusses the health hazards associated with lighting and ventilation encountered at the worksite. Having completed this topic, you should be able to:

- Identify the three categories of electrical lighting
- Describe the different types of lamps
- Determine the recommended illumination intensities for area and office lighting
- Recognize how a light's CRI (color-rendering index) affects how people and objects look
- Explain the precautions for using local exhaust and abrasive blasting ventilation systems

### Topic summary:

Please take a moment to review these key points before you continue with the next topic.

- General, supplemental, and emergency lighting ensure a safe and productive work environment.
- There are five types of lamps: incandescent, halogen, fluorescent, compact fluorescent, and high-intensity discharge.
- OSHA provides a reference table of minimum illuminations intensities for area and office lighting.
- A color rendering of 70 or more is best for lighting.
- Whenever hazardous substances such as dusts, fumes, mists, vapors, or gases exist or are produced by construction work, their concentrations must not exceed the limits specified by OSHA.
- Local exhaust and abrasive blasting ventilation systems are designed and operated to prevent harmful exposure to employees.

## **Topic: Heat, Cold, and Noise Hazards**

This topic presents the basic methods for preventing illnesses on the job from exposure to extreme heat, cold, and noise. Having completed this topic, you should be able to:

- Identify and prevent heat-related illnesses
- Define hypothermia and explain the correlation between core body temperature, symptoms, and treatment
- Explain the Occupational Noise Exposure Standard and its relation to noise recognition, evaluation, and control

### Topic summary:

OSHA states that heat, cold, and noise levels must be monitored and controlled. Please take a moment to review these key points before you continue with the next topic.

- Heat and humidity combined with physical exertion can lead to these heat-related illnesses: cramps, rash, exhaustion, and heat stroke. Be aware of the basic methods for preventing such illnesses.

- Hypothermia is defined as a decrease in core body temperature to a level at which normal muscular and cerebral functions are impaired. There is specific treatment for the varying symptoms for mild, moderate, and severe cases.
- The safe level of noise is 90 decibels (dB) based on an eight-hour time-weighted average (TWA).
- There are permissible noise exposures that, if exceeded, are subject to administrative, engineering, or PPE controls. As a general rule of thumb, if an individual's voice must be raised to converse at a distance of three feet, the noise action level has been exceeded (85dB).

### **Topic: Radiation, Gases, and Lead**

This topic briefly covers the safety management of radiation, gases, and lead. Future lessons in this program will cover these exposures in more detail. Having completed this topic, you should be able to:

- Identify protection against occupational exposure to radiation
- Describe the administrative and engineering controls to avoid exposure to airborne contaminants
- Assess and implement controls to keep lead exposure at low levels

#### Topic summary:

Please take a moment to review these key points before you continue with the next topic.

- Only competent and trained employees can operate and maintain radioactive, X-ray, and laser equipment.
- Follow OSHA's training levels and operating and employee protection requirements when working with radioactive equipment.
- Airborne contaminants must be controlled within OSHA standards by ventilation systems, PPE, and industrial hygienist supervision.
- Monitoring, medical surveillance, remediation, and recordkeeping are required to control workplace exposure to high levels of lead.

### **Topic: Health Hazard Communication**

This topic covers OSHA's Hazard Communication Standard in detail and points out the role of the industrial hygienist. Having completed the topic, you should be able to:

- Define the Hazard Communication Standard and describe its six major categories
- Understand the purpose of the Material Safety Data Sheet Guidelines and identify its 16 sections
- Define industrial hygienist and explain how the industrial hygienist controls and prevents health hazards

#### Topic summary:

Please take a moment to review these key points before you continue with the next topic.

- A written hazard communication program is required that includes training, labeling, and the availability and use of Material Safety Data Sheets.
- The communication standard is comprised of six major categories:
  - Hazard Determination
  - Material Safety Data Sheets
  - Chemical Labeling
  - Employee Training
  - The Written Program
  - Trade Secrets
- The MSDS has 16 sections that provide consistent hazardous reporting information.
- Industrial hygienists are trained to anticipate, recognize, evaluate, and recommend controls for workplace conditions that may cause workers injury or illness.