Protecting Employees from Workplace Hazards

- Employers must protect their employees from any and all hazards that are present or created in the work environment.
  - These hazards are typically created by machines, work procedures, people and or the environment .
- Employers must:
  - Use all feasible engineering and administrative controls to eliminate and reduce hazards
  - If these controls do not eliminate the hazards then use appropriate personal protective equipment (PPE)

Remember, PPE is the last level of control!

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Engineering Controls

- ***If . . .***The machine or work environment can be physically changed to prevent employee exposure to the potential hazard,
- ***Then . . .***The hazard can be eliminated with an engineering control.
- ***Examples . .***
  - Substitute less harmful material
  - Change process
  - Enclose process
  - Isolate process
  - Ventilation

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Administrative Controls

- ***If . . .***Employees can be removed from exposure to the potential hazard by changing the way they do their jobs,
- ***Then . . .***The hazard can be eliminated with an administrative control.
- ***Examples . . .***
  - Production policies/ scheduling
  - Personal hygiene
  - Housekeeping and maintenance
  - Job rotation of workers

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Training

- Employees required to use PPE must be trained to know at least the following:
  - When PPE is necessary
  - What type of PPE is necessary
  - How to properly put on, take off, adjust, and wear
  - Limitations of the PPE
  - Proper care, maintenance, useful life and disposal

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CAUSES OF EYE INJURIES

- Dust and other flying particles, such as metal shavings or sawdust
- Concrete that might splash
- Acids and other caustic liquid chemicals that might splash
- Blood and other potentially infectious body fluids that might splash, spray, or splatter
- Intense light such as that created by welding and torch cutting

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Safety Glasses

- Made with metal/plastic safety frames
- Most operations require side shields
- Used for moderate impact from particles produced by such jobs as carpentry, woodworking, grinding, and scaling
- Labeled with ‘Z87’ on the frame

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Goggles

- Protect eyes, eye sockets, and the facial area immediately surrounding the eyes from impact, dust, and splashes
- Some goggles fit over corrective lenses

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Welding Shields

Protect eyes from burns caused by infrared or intense radiant light

Protect face and eyes from flying sparks, metal spatter, and slag chips produced during welding, brazing, soldering, and cutting.

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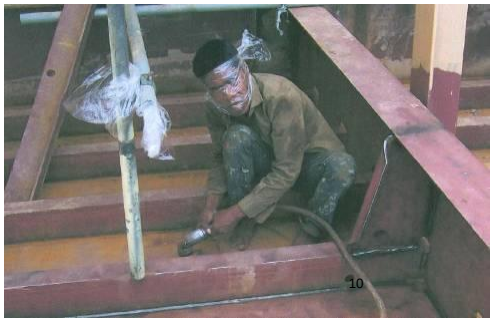
Face Shields

- Protect the face from nuisance dusts and potential splashes or sprays of hazardous liquids
- Do not protect employees from impact hazards



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Head Injuries

- Falling objects
- Bumping head against fixed objects, such as exposed pipes or beams
- Contact with exposed electrical conductors

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Classes of Hard Hats

- **Class G**
  - General service. Good impact protection but limited voltage protection
- **Class E**
  - Protect against falling objects and high-voltage shock and burns
- **Class C**
  - Designed for comfort, offer limited protection

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Classes of Hard Hats

- Safety tips
  - Wear 1 to 1-1/4 inches away from the user's head
  - Do not wear helmets backwards.
  - Do not paint
  - Do not sit on it
  - Inspect every day

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Hearing Protection

- Employees exposed to noise greater than 85 db over an 8-hour period must wear hearing protection
- Hearing protection shall be worn while vibrating concrete or during other high noise operation

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Examples of Hearing Protectors

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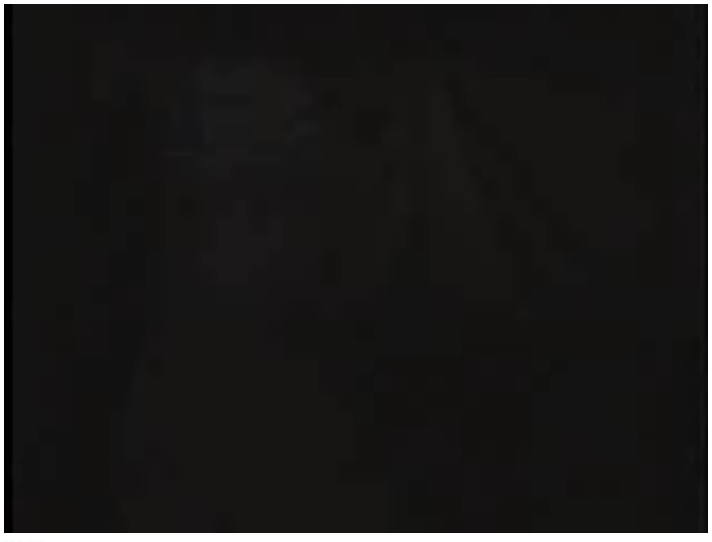
ROLL- PULL- HOLD TECHNIQUE



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Foot Injuries

- Hazards:
  - Heavy objects such as barrels or tools that might roll onto or fall on employees' feet
  - Sharp objects such as nails or spikes that might pierce the soles or uppers of ordinary shoes
  - Pieces of concrete
  - Hot or wet surfaces
  - Slippery surfaces

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Safety Shoes

- Have impact-resistant toes and heat-resistant soles that protect against hot surfaces common in roofing, paving, and hot metal industries
- Some have metal insoles to protect against puncture wounds
- May be designed to be electrically conductive for use in explosive atmospheres, or nonconductive to protect from workplace electrical hazards
- May have metatarsal guards to protect you when using hand tools or working with objects that could fall on feet

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Hand Injuries

- Burns
- Bruises
- Abrasions
- Cuts
- Punctures
- Fractures
- Amputations
- Chemical Exposures

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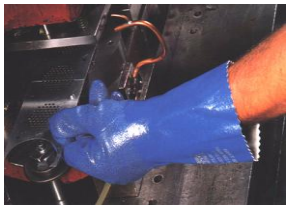
GLOVES

The nature of the hazard(s) and the operation to be performed will determine your selection of gloves

COTTON TO PROTECT AGAINST SMALL ABRASIONS
LEATHER TO PROTECT AGAINST CUTS
RUBBER TO PROTECT AGAINST CONCRETE, LIQUIDS, ETC.



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Body Injuries

- Intense heat
- Splashes of hot metals and other hot liquids
- Impacts from tools, machinery, and materials
- Cuts
- Hazardous chemicals
- Contact with potentially infectious materials, like blood
- Radiation

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Body Injuries

- **Some required protection includes:**
  - **Leather aprons**
  - **Rubber aprons**
  - **Jumpsuits**
  - **Cover-alls**

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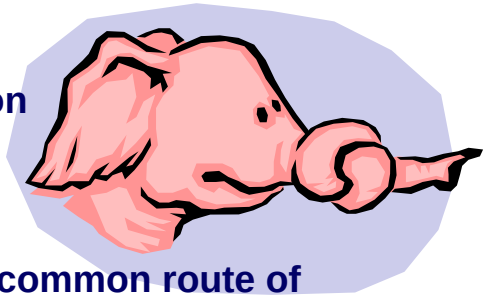
Why Respiratory Protection Is Important

Of the four ways that hazardous materials can enter your body,

1. **Ingestion**
2. **Skin Absorption**
3. **Inhalation**
4. **Injection**



inhalation is the most common route of exposure for most materials which are health hazards. This includes breathing in dust, fumes, oil mist, and vapors from solvents and gases.

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Selecting The Correct Respirator

Respiratory Protection Program

The following is the OSHA respiratory protection program that you must closely follow:

- Written standard operating procedures governing the selection and use of respirators
- Industrial Hygiene survey to determine exposure levels
- Medical evaluation and surveillance
- Fit testing
- User training
- Regularly maintained, cleaned, and disinfected.
- Proper storage

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Respirator Protection

The employer shall provide a medical evaluation to determine the employee's ability to use a respirator, before the employee is fit tested or required to use the respirator in the workplace.

Facial hair, weight gain or loss, dental work are some of the factors which can impact the proper fit of a respirator.

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Summary

- Employers must implement a PPE program where they:
  - Assess the workplace for hazards
  - Use engineering and administrative controls to eliminate or reduce hazards before using PPE
  - Select appropriate PPE to protect employees from hazards that cannot be eliminated
  - Inform employees why the PPE is necessary and when it must be worn
  - Train employees how to use and care for their PPE and how to recognize deterioration and failure
  - Require employees to wear selected PPE in the workplace

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