

# Lecture 9: Hazard Identification & Assessment

**Course:** Health Safety & Environment

**Instructor:** Kashif Liaqat

**Term:** Fall 2021

BUITEMS – DEPARTMENT OF MECHANICAL  
ENGINEERING

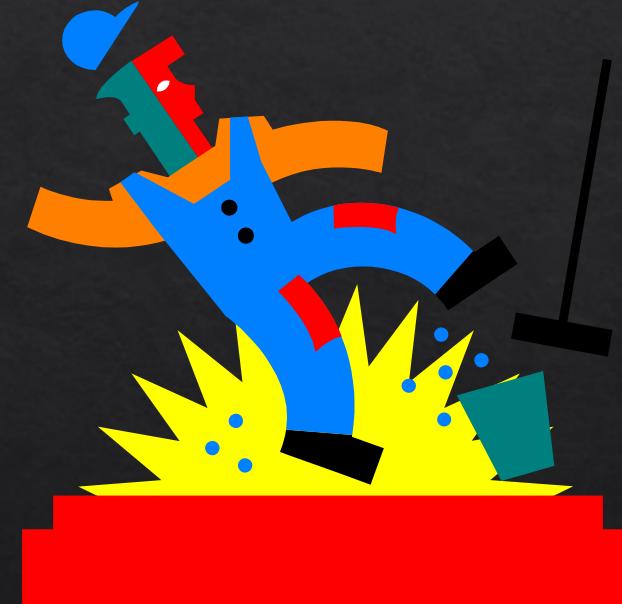


# Definition

- ❖ A hazard assessment is an evaluation of a work place, or work situation, as to the potential for hazards that an employee may encounter while performing the job.

# Where do you begin?

- ❖ If injury and illness reports do not point you towards a place to begin, consider beginning with:
  - ❖ Close calls or near misses
  - ❖ New tasks or positions
  - ❖ Tasks that have changed
  - ❖ Non-routine jobs
  - ❖ Routine jobs



# Work Area Assessment

- ❖ After you have chosen a place to start, perform a walk-through of the work area, looking for hazards as indicated in this training.

Tip: Involve employees in  
this process to gain  
valuable input!

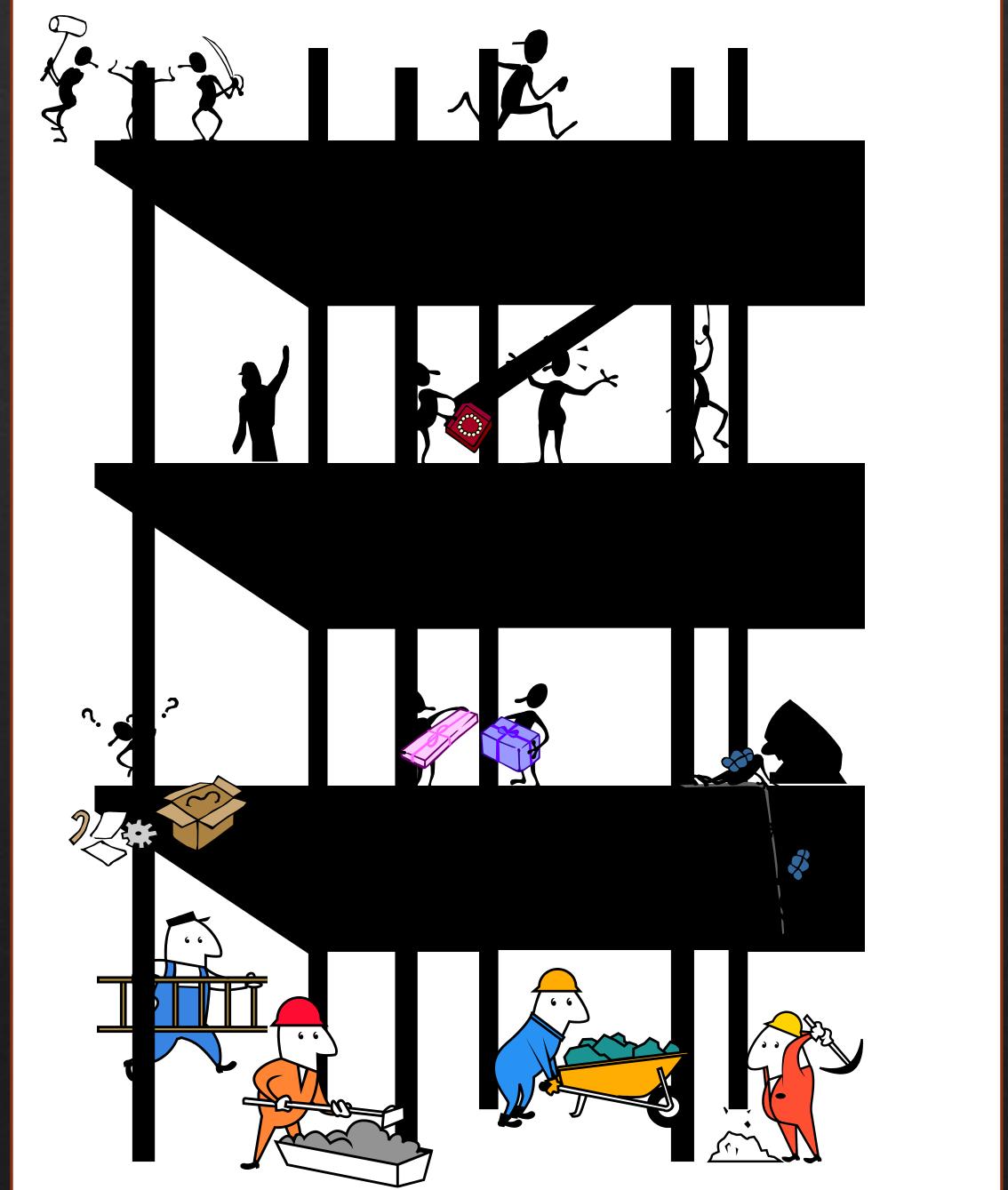


# Identify the Hazards

- ❖ As you walk through the area and discuss work tasks with employees, look for the following hazards.

# Falling Objects

- ❖ Are there objects which may fall from above onto employees?
- ❖ Employees working overhead?
- ❖ Tools or materials handled above your head?



# Harmful Dusts/Mists/Fumes

- ◊ Are employees exposed to chemicals or harmful dusts/mists/fumes? Examples:
  - ◊ Any chemical which poses a health hazard
  - ◊ Asbestos
  - ◊ Welding fumes
  - ◊ Solder fumes
  - ◊ Silica



Reference: Obtain a Material Safety Data Sheet on the product in question from the supplier and review the information provided for health hazards and suggested controls.

# Energy Sources

- ◊ Are there energy sources which could be harmful if accidental release or startup occurs?
  - ◊ Electrical
  - ◊ Pneumatic
  - ◊ Hydraulic
  - ◊ Thermal
  - ◊ Mechanical
  - ◊ Gravity



# Sharp Objects

- ◊ Are there sharp objects which could cut or pierce the body?
  - ◊ Glass
  - ◊ Knife blades
  - ◊ Sheet metal
  - ◊ Nail guns
  - ◊ Needles
  - ◊ Splinters (wood)
  - ◊ Burrs (metal)



# Temperature Extremes

- ◊ Are there hot or cold surfaces which could burn or freeze employees?
  - ◊ Welded parts
  - ◊ Cryogenic materials
  - ◊ Autoclaves
  - ◊ Ovens/stoves
  - ◊ Molten metals



# Light Radiation

- ◊ Is there light radiation which could be harmful to the skin or eyes?
  - ◊ Welding and cutting
  - ◊ Lasers



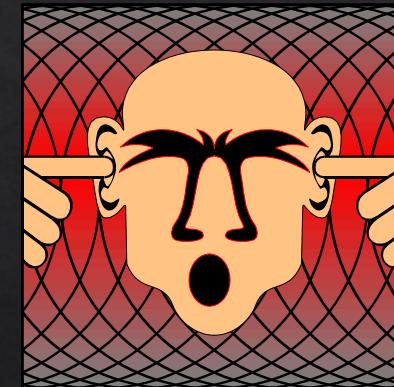
# Flying Debris

- ◊ Will employee be operating, or be exposed to, tools/equipment which may generate flying debris?
  - ◊ Hammering
  - ◊ Sawing
  - ◊ Chipping
  - ◊ Grinding
  - ◊ Drilling
  - ◊ Buffing



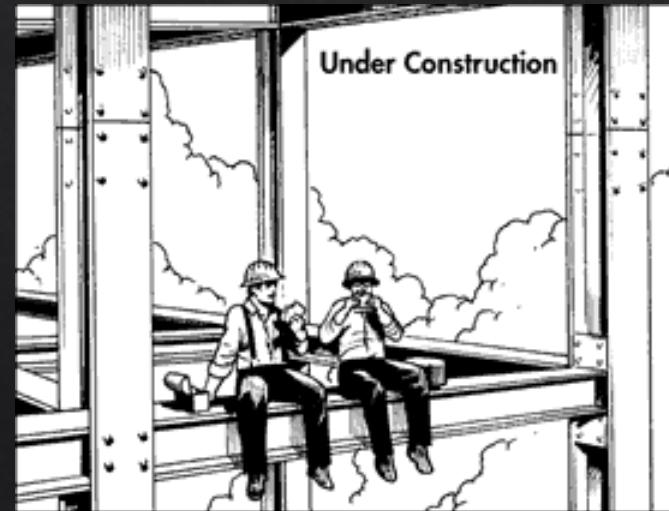
# Excessive Noise

- ◊ Will employee be operating, or be exposed to, tools/equipment which may generate excessive noise?
  - ◊ Jack-hammering
  - ◊ Woodworking machinery
  - ◊ Metalworking machinery
  - ◊ Operating heavy equipment



# Workplace Layout

- ◊ Does the layout of the workplace create a potential hazard?
  - ◊ Fall hazards exceeding 4 feet.
  - ◊ Low clearances
  - ◊ Confined spaces



# Fire/Explosion Hazards

- ❖ Is there the potential for a fire or explosion?



# Step 2

- ❖ Once the hazard has been identified, you must implement an effective control to eliminate the hazard, reduce the hazard to an acceptable manner, or protect the employee.



## Step 3

- ❖ Evaluate the level of risk for each hazard to help determine what type of control should be implemented to reduce exposure.

minimal exposure

serious exposure

# Assessing the Risks

The likelihood of harm may be rated

**1. High**

Where it is certain that harm will occur

**2. Medium**

Where harm will often occur

**3. Low**

Where harm will seldom occur

# Step 4

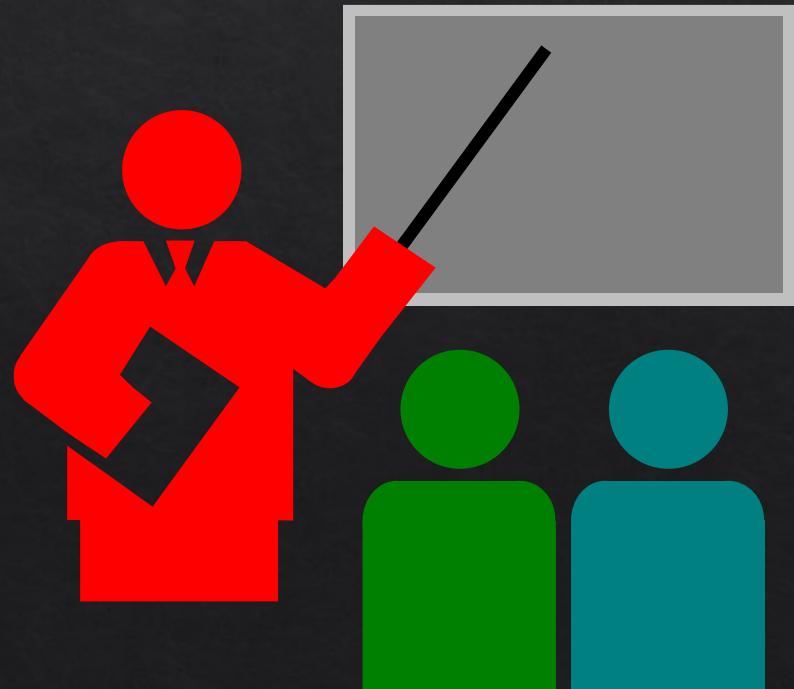
- ❖ Select an appropriate solution to each hazard.
  - ❖ Always consider eliminating the hazard (if possible) first.
  - ❖ If elimination is not possible, consider reducing the hazard to an acceptable level.
  - ❖ If an acceptable level cannot be reached, select and provide appropriate personal protective equipment for the employee.

# Hazard Control Hierarchy

No.	Control Method	Description/Example
1.	Eliminate	Completely remove the hazard from the workplace so that it is not there.
2.	Substitute	Replace the material or process with a less hazardous one.
3.	Isolate	Place a barrier or similar between the hazard and people within the workplace (e.g. a fence surrounding the hazard).
4.	Engineering controls	Install or using additional machinery. (e.g ventilation system, guarding on machinery, sensor system).
5.	Administrative controls	Safety briefings, safety trainings, work procedure, safety awareness signage.
6.	PPE	“Last line of defence” to protect a worker if the above measures have failed.

# Training

- ❖ Can employees be trained to recognize hazards and employ safe work practices?



# Summary

- ❖ Identify hazards in the workplace that could result in injury or illness.
- ❖ Evaluate the level of risk to help determine what controls to implement.
- ❖ Select an appropriate solution to control the hazard and/or protect the employee.

*End of lecture!*