

# Hand & Power Tools, Subpart I

# Safety Rules

To use hand and power tools safely, you should:

- Maintain all tools on a regular basis
- Use the right tool for the job
- Operate the tool according to the manufacturer's instructions
- Use the right personal protective equipment (PPE)
- Use proper guarding devices



# Safety Precautions – Hand Tools

Safety precautions when working with hand tools:



- Use the proper PPE, including safety goggles, hard hats, and gloves to protect you from hazards, such as falling and exposure to harmful vapors and fumes
- Keep floor surfaces in your work area free from debris and tripping or slipping hazards
- Keep cutting tools sharp

# Safety Precautions – Power Tools

Certain precautions must be taken and protection must be worn when working with power tools:

- Disconnect tools when not in use, before servicing and cleaning, and when changing accessories
- Keep people not involved with the work away from the work area
- Secure your work with clamps or a vise, freeing both hands to operate the tool
- Do not hold the switch button while carrying a plugged-in tool
- Keep tools sharp and clean
- Consider what you wear—loose clothing and jewelry can get caught in moving parts
- Remove damaged electrical tools and tag them: “Do Not Use”
- Do not use power tools that are not fitted with guards and safety switches

# Safety Precautions – Electrical Cords

Certain precautions must be taken when working with electrical cords:

- Don't carry portable tools by the cord
- Don't use the electrical cord to hoist or lower tools
- Don't yank the cord or hose to disconnect the tool
- Keep cords and hoses away from heat, sharp edges, and oil



# Safety Precautions – Electrical Power Tools

Certain precautions must be taken and protection must be worn when working with electrical power tools.

- The tool must contain a 3-wire cord plugged into a grounded receptacle
- The tool must be double insulated or it must be powered by a low-voltage isolation transformer
- Use gloves and safety shoes
- Do not wear loose clothing
- Operate within the tool design limits
- Store tool in a dry place
- Do not use in wet locations, unless approved
- Keep work areas well lit
- Ensure cords do not present a tripping hazard

# Abrasive Wheel Safety Precautions

- When working with an abrasive wheel, you must remember that it can throw off flying fragments, which is why guards are essential. A guard is used so that a minimal amount of the wheel is exposed when in use.
- Your wheel should be equipped with guards that:
  - Cover the spindle end, nut, and flange projections
  - Maintain proper alignment with the wheel
  - Don't exceed the strength of the fastenings

# Abrasive Wheel Safety Precautions

- To ensure that your wheel is in good working condition, inspect and test it before mounting.
- To inspect and test:
  - Closely examine the wheel for damage
  - Perform a sound or ring test by tapping the wheel gently with a light, non-metallic instrument to ensure that the wheel is free from cracks/defects
  - Do not use a wheel that sounds cracked or dead since this is an indication the wheel might break during use



# Abrasive Wheel Safety Precautions

- When using an abrasive wheel, make sure that you:
  - Let the tool come up to speed prior to grinding and cutting
  - Do not stand in front of the wheel as it comes up to full speed
  - Do not adjust the wheel while it is rotating
  - Use eye and/or face protection
- To prevent wheel cracking:
  - Fit the wheel on the spindle
  - Tighten the spindle nut enough to hold the wheel in place without distorting the flange
  - Make sure the spindle speed does not exceed the maximum speed marked on the wheel

# Abrasive Wheel Safety Precautions

Abrasive wheels are to be equipped with adjustable work rests attached to compensate for wheel wear. The rests are for supporting the work. The work is to be securely clamped after each adjustment, which is not to be done while the wheel is in motion.

# Pneumatic Tool Safety Precautions



- Pneumatic tools include:
  - Nailers
  - Chippers
  - Sanders
  - Staplers
  - Drills
- The main hazard when working with this type of tool is getting hit by an attachment or a fastener.
- To ensure safety, make sure the tool is fastened securely to the air hose, to prevent a disconnection. Remember to use a short wire or positive locking device when attaching the air hose to the tool.

# Safety Precautions – Liquid Fuel Tools

Liquid fuel tools are usually powered by gas; therefore, the main hazard is fuel vapors. Before refilling fuel-powered tool tanks, shut down the engine and allow it a sufficient amount of time to cool off.

# Safety Precautions – Powder-Actuated Tools

- Powder-actuated tools are very dangerous, and any employees using these tools must be licensed and trained to use them safely.
- Remember these safety tips:
  - Inspect the tool daily before loading to ensure that all safety devices are working properly
  - Do not use in explosive/flammable areas
  - Do not load the tool unless using it immediately
  - Do not leave the loaded tool unattended
  - Keep all hands clear of the barrel end
  - Never point the tool at anyone
  - Store the unloaded tool in a locked box

# Safety Precautions - Jacks

When using a jack, make sure that:

- The base is on a firm, level surface
- The jack is centered
- The jack head is placed against a level surface
- You apply the lift force evenly
- Any jack you use has been lubricated and inspected regularly, or immediately before use.



# Guarding Safety Precautions

Guarding is very important when working with all tools. A guard is used to provide a barrier between the exposed moving parts of tools and you. The guard device is designed to prevent contact between you and the dangerous parts of a tool while it is operating.

# Guarding Techniques – Radial Saw

Radial saws are equipped with an upper and lower blade guard, which prevent you from coming into contact with the rotating blade.

- The upper blade guard completely encloses the upper portion of the blade down to a point that will include the end of the saw arbor. The upper hood should be attached in a way that it protects you from flying debris.
- The lower blade guard is a device that automatically adjusts itself to the diameter of the work. It remains in contact with the work being cut to give the maximum protection possible for the operation being performed.



# Guarding Techniques – Portable Circular Saw

Portable Circular Saws are equipped with an upper and lower guard, which protect you from the dangers of the saw blade.

- The upper guard covers the saw to the depth of the teeth, except for the minimum arc required to permit the base from tilting for level cuts.
- The lower guard covers the saw to the depth of the teeth, except for the minimum arc required, allowing proper retraction and contact with the work. The guard slides up as the blade comes into contact with the work.