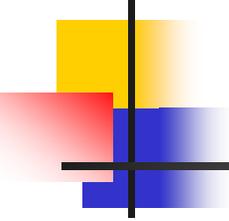


# Fort McCoy Safety Industrial Operations Program

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## Hand and Power Tools

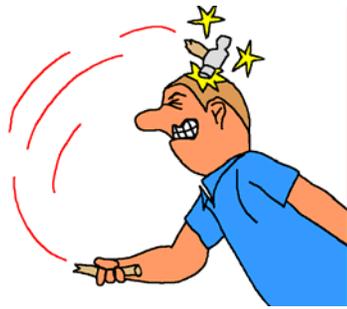
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# General Safety Precautions

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- Use the right tool for the job.
- Operate tools according to the manufacturers' instructions.
- Keep all tools in good condition with regular maintenance:
  - Inspect tools prior to usage
  - Replace/Repair worn out tools
- Store and transport tools properly (screwdriver in back pocket is not safe).
- Properly wear all PPE (personal protective equipment).

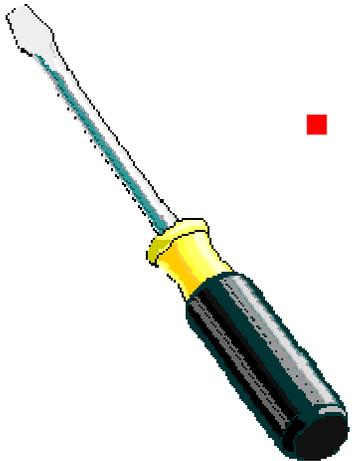


# Hand Tool Hazards

- Greatest hazards result from misuse and improper maintenance.

## ***EXAMPLES:***

- If screwdriver is used as a chisel, the screwdriver may slip and possibly cause a puncture wound.
- If a wooden handle on a tool, such as a hammer or axe is loose, splintered, or cracked, the head may fly off striking an employee.

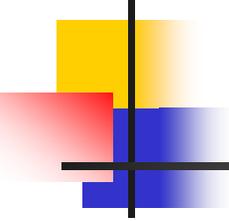


# Power Tool Safety

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- Never carry a power tool by the cord or hose.
- Never yank the cord or the hose to disconnect it from a receptacle.
- Keep cords and hoses away from heat, oil, and sharp edges.
- Disconnect tools when not in use, before servicing and cleaning, and when changing accessories such as blades, bits, and cutters.
- Keep all people not involved with the work at a safe distance from the work area.



# Power Tool Safety

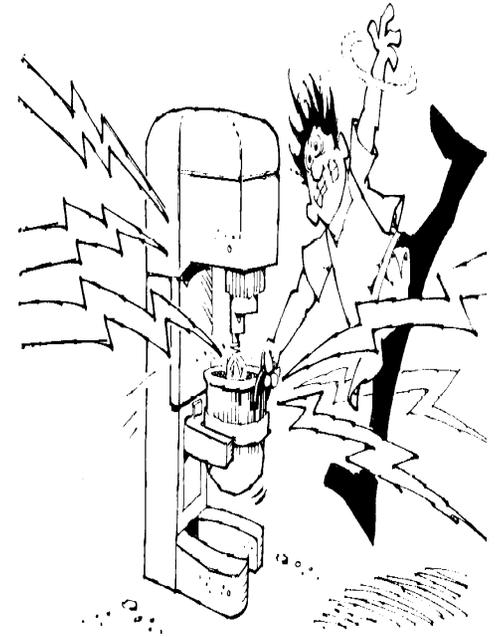
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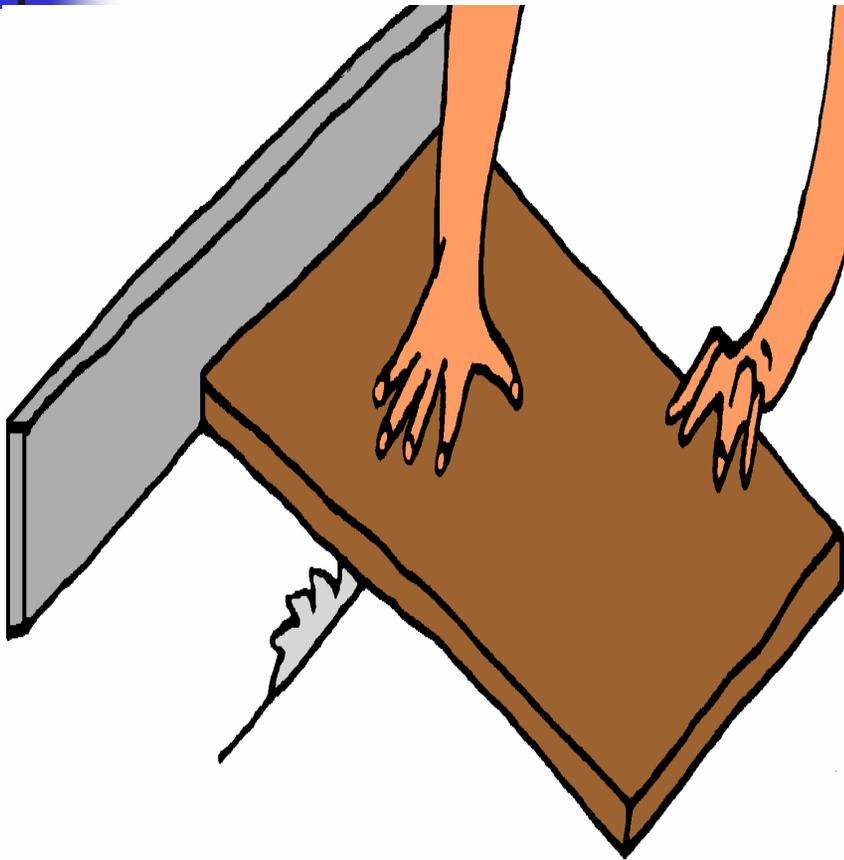
- Secure work with clamps or vise, freeing both hands to operate the tool.
- Avoid accidental starting. Do not hold fingers on the switch button while carrying a plugged-in tool.
- Maintain tools with care; keep them sharp and clean for best performance.
- Follow instructions in the user's manual for lubricating and changing accessories.
- Be sure to keep good footing and maintain good balance when operating power tools.

# Power Tool Safety

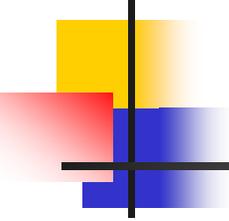
- Use a Ground Fault Circuit Interrupter (GFCI) outlet or cord when in wet or damp locations.
- Wear proper apparel for the task. Loose clothing, ties, or jewelry can become caught in moving parts.
- Remove all damaged portable electric tools for use and tag them: "Do Not Use".



# Machine Guards



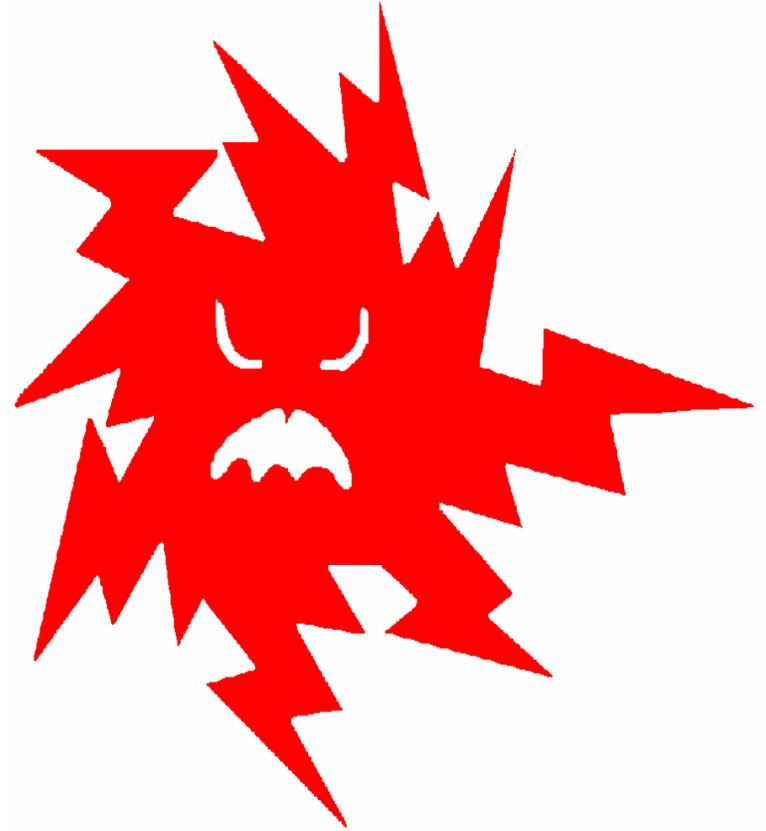
- Provided to protect the operator and others from the following:
  - Point of operation
  - In-running nip points
  - Rotating parts
  - Flying chips and sparks
- Never operate a machine/tool without ensuring machine guards are in place and operational.

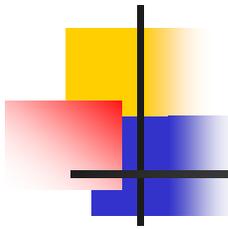


# Electric Tools Hazards & Controls

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- Electrical Burns
- Shock
  - Prevention includes:
    - Have a three-wire cord with ground and be plugged into a grounded receptacle
    - Be double insulated,
    - Powered by a low-voltage isolation transformer
    - Using GFCI outlets and cords



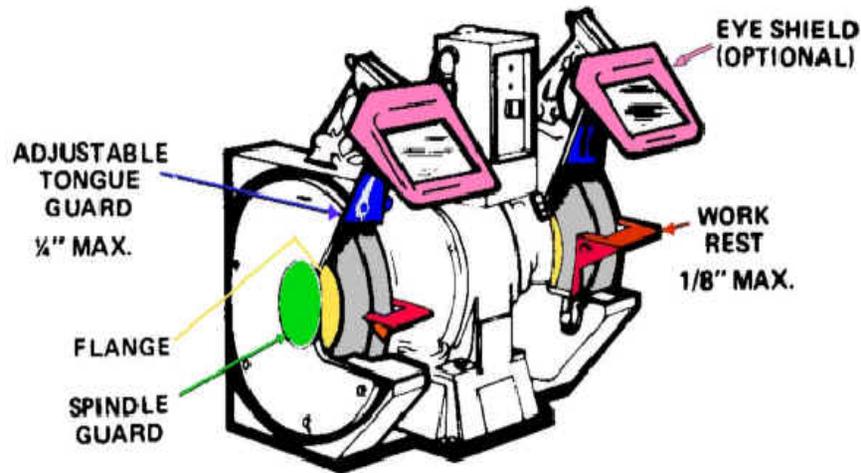


# Electrical Tools

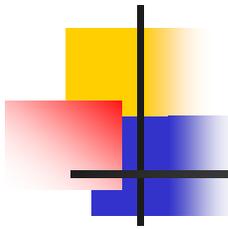
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- Electric tools should be operated within their design limitations.
- Gloves and safety footwear are recommended during use of electric tools.
- When not in use, tools should be stored in a dry place.
- Electric tools should not be used in damp or wet locations (think cordless).
- Work areas should be well lighted.

# Abrasive Wheel Tools



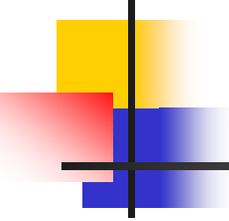
- Must be equipped with guards that:
  - Cover the spindle end, nut, and flange projections
  - Maintain proper alignment with the wheel
  - Do not exceed the strength of the fastenings



# Abrasive Wheel Tools

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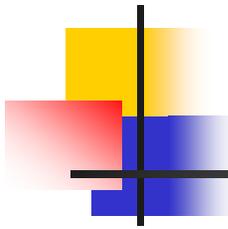
- Before mounting an abrasive wheel:
  - Inspect closely for apparent damage
  - Conduct a “Ring” test
    - Tap gently with a light, non-metallic instrument. If wheel sounds cracked or dead – do not use. Undamaged wheel when tapped will give a clear metallic tone or “ring”



# Abrasive Wheel Tools

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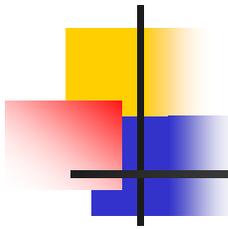
- Ensure the correct wheel is used:
  - Wheel RPM rating consistent with the speed of the grinding machine
  - Wheel designed for grinded material
    - **Avoid using grinding wheels designed for steel on materials that will clog the pores between the abrasive particles – for example plastic and aluminum – unless the wheel is dressed with a special tool, when pores become blocked or it loses its cutting surface, the operator will have to press harder to achieve the same cutting effect, exerting forces that may cause the wheel to shatter**



# Abrasive Wheel Tools

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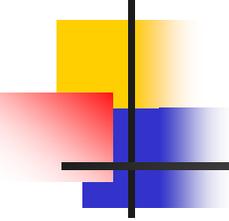
- Before grinding – allow the grinding wheel to run at operating speed for at least one minute. Do not stand directly in front of a grinding wheel when it is first started. Do not use a wheel that vibrates.
- To begin grinding, bring the object into contact with the grinding wheel slowly and smoothly avoiding impact or bumping motions. Move the object being ground back and forth across the face of the wheel (prevents “ruts” or grooves from forming).



# Abrasive Wheel Tools

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- Always use a face shield and eye protection.
- Turn off the power when not in use.
- Never clamp a hand-held grinder in a vise.
- Keep the work rest adjusted to within  $\frac{1}{8}$  inch of the wheel.
- Keep the tongue guards adjusted to with  $\frac{1}{4}$  inch of the wheel.



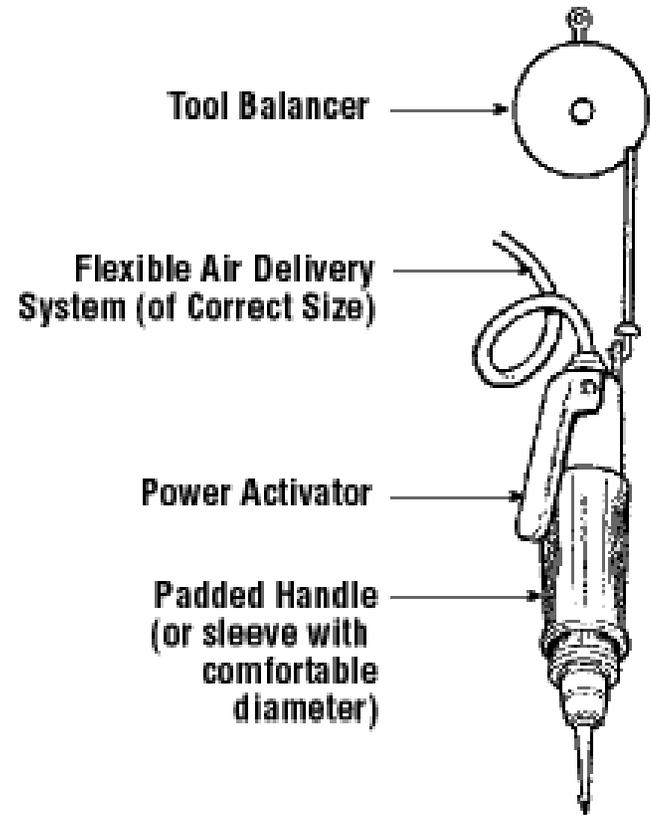
# Pneumatic Tools

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- Powered by compressed air.
  - Common types of these air-powered hand tools can be:
    - Buffers
    - Nailing and stapling guns
    - Grinders
    - Drills
    - Hammers
    - Chippers
    - Sanders
    - Wrenches

# Pneumatic Tool Safety

- Review manufacturer's instructions.
- Wear PPE.
- Post warning signs where pneumatic tools are used.
- Ensure air supplied is clean and dry.
- Keep tools clean and lubricated.
- Use only the attachments recommended by manufacturer.

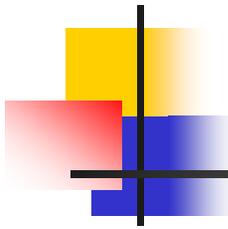


# Air Hose Safety

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- Use proper hose and fittings of correct diameter.
- Use hoses specifically designed to resist abrasion, cutting, crushing and failure from continuous flexing.
- Check hoses regularly for cuts, bulges and abrasions. Tag and replace, if defective.
- Blow out the air line before connecting a tool. Hold hose firmly and blow away from yourself and others.
- Do not operate the tool at a pressure above the manufacturer's rating.
- Turn off the air pressure to hose when not in use or when changing power tools.
- Do not carry a pneumatic tool by its hose.



# Hydraulic Power Tools

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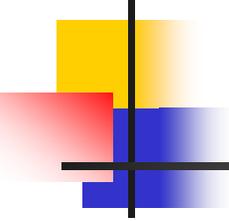
- The fluid used in hydraulic power tools must be an approved fire-resistant fluid and must retain its operating characteristics at the most extreme exposed temperatures. Exception involves all hydraulic fluids used for the the insulated sections of derrick trucks, aerial lifts, and hydraulic tools that are used on or around energized lines. This hydraulic fluid shall be of the insulating type.

# Jacks



***A jack (hydraulic or mechanical) should never be used to support a lifted load. Once the load has been lifted, it must immediately be blocked up with jack stands or similar support.***

- Do not exceed the load capacity of the jack.
- Ensure base rests on firm level surface.
- All jacks must be inspected before each use and lubricated regularly. If a jack is subjected to an abnormal load or shock, it should be thoroughly examined to make sure it has not been damaged.
- Hydraulic jacks exposed to freezing temperatures must be filled with an adequate antifreeze liquid.



# Hand and Power Tool Safety

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**ON THE JOB**

**SAFETY**

**BEGINS WITH YOU!**