

JSC Safety and Health Handbook	JPR No.	1700.1K
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Chapter 8.6 Power and Hand Tool Safety

This could be you . . .

A maintenance worker was severely burned while using a power tool in a flammable atmosphere.

A machine shop worker wasn't wearing eye protection and received an eye injury from flying metal chips.

8.6.1 Applicability of this chapter

You are required to follow this chapter if you use any type of power or hand tool.

8.6.2 Training requirements for this chapter

You shall have training in safe operating practices for each power tool you use. See Chapter 4.1, "Safety and Health Training," of this Handbook for more requirements on training. Training shall include the hazards of the tool in the configuration it will be used, the manufacturer's operating instructions, and any other safe operating practices that shall be readily accessible to anyone who uses the tool.

8.6.3 PPE for use with power and hand tools

You shall wear eye protection when operating power and hand tools, including tools, such as screwdrivers, pliers, and wrenches. Use hearing protection when required. Some powered hand tools may require the use of vibration-damping gloves. Use other PPE as required by the Job Hazard Analysis. See Chapter 5.6, "Personal Protective Equipment," for more requirements on PPE.

8.6.4 Safety devices for using power tools

8.6.4.1 To prevent injury you shall:

- a. Never remove equipment guards and other safety devices for any purpose other than necessary maintenance or adjustments, and only with de-energized equipment.
- b. Shield power tool switches against accidental tripping or activation. Use "dead man" switches that require continuous pressure for operation, as required by 29 CFR 1910.243, "Guarding of Portable Powered Tools," paragraphs (a)(2), (i) and (ii).

8.6.5 Protection from fire or explosion hazards

8.6.5.1 To prevent fire or explosion:

- a. Never use electrically powered tools near flammable or combustible materials or in explosive atmospheres unless they are approved by the NFPA 70, "National Electric Code," for the atmosphere where the tools are to be used.

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b. Use only non-sparking hand tools when working in hazardous locations, as found in NFPA 70, Article 500.

8.6.6 Safely using cords, hoses, and cables and preventing electrical shock

8.6.6.1 To protect cords, hoses, and cables and prevent electrical shock, you shall:

- a. Place cords, hoses, and power supply cables for portable power tools overhead or in floor trenches, or cover them to reduce trip hazards and to protect the cables.
- b. Use only portable electric tools equipped with a ground wire, as required by NFPA 70, Article 250.114, "Equipment Connected by Cord and Plug." Meet this requirement with the correct cords and plugs. The only exception to this requirement is that you may use UL-listed double-insulated power tools that have a double wire system.
- c. Use only cords, portable electric tools, and work lights that:
 - (1) Meet NFPA 70, Article 400, "Flexible Cords and Cables."
 - (2) Are UL-listed.
- d. Never raise or lower power tools by their electric cords.
- e. Use a heavy-duty plug with a strain relief device when replacing a plug.
- f. Use GFCIs to protect personnel from electric shock while using electric power tools.

8.6.7 Inspecting power tools

8.6.7.1 If your organization uses power tools, you shall develop a written process to ensure that the power tools are inspected before each use that:

- a. Includes provisions to tag damaged or unsafe tools with JSC Form 1243, "Out of Service," for repair or disposal.
- b. Provides for inspections that cover the following and any specific items in the manufacturer's instructions:
 - (1) Check the general condition of the tool for any obvious defects or lack of maintenance.
 - (2) Make sure that the grounding prong is intact, that the cord is intact, that the strain relief is intact, and that the outer insulation of the cord is free of damage.
 - (3) Check grounds to ensure continuity.
 - (4) Make sure guards are in place and working.
 - (5) Make sure any accessories to the tool are in good working order.

8.6.8 Transporting hand tools

8.6.8.1 You shall:

- a. Never attempt to carry tools or materials in your hands while climbing a ladder.
- b. Use a hand line when you need to lift or lower tools or material to another level.

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- c. Manage the transportation of tools between levels, ensuring they are secured, to keep from injuring other employees.

8.6.9 Using insulated hand tools

8.6.9.1 You shall use only properly insulated or UL-approved nonconductive tools when you work on or near live electrical parts. This restriction applies to tools such as the following:

- a. Fuse pullers
- b. Screwdrivers
- c. Pliers (all types)
- d. Wire-cutting devices
- e. Wire strippers
- f. Connector and lug crimping tools

Note: Working on or near energized circuits is highly discouraged and requires special training and authorization.

8.6.10 When to stop using striking hand tools

8.6.10.1 You shall:

- a. Never use hammer-struck or striking tools that are cracked, chipped, spalled, or “mushroomed.”
- b. Immediately remove these tools (e.g., punches, chisels, metal stencils, stone drills, or hammers) from service and replace them.
- c. Only use hammers designed for use with striking tools. Don’t use carpenter hammers in the place of striking hammers.
- d. Remove hammers and other tools from service if they have wood or fiberglass handles that are split, cracked, loose, or defective in any way.

8.6.11 Other standards to follow

8.6.11.1 In addition to the requirements of this section, you shall follow hand and portable powered tools and equipment requirements in the following OSHA standards that apply:

- a. 29 CFR 1910.241, “Definitions”
- b. 29 CFR 1910.242, “Hand and Portable Powered Tools and Equipment, General”
- c. 29 CFR 1910.243, “Guarding of Portable Powered Tools”
- d. 29 CFR 1910.244, “Other Portable Tools and Equipment”
- e. 29 CFR 1926.300–307 (for construction)