Chapter 25: Machine and Portable Tools

Portable Tool Requirements

Product ID: 387 | Revision ID: 2529 | Date published: 21 November 2022 | Date effective: 21 November 2022
URL: https://www-group.slac.stanford.edu/esh/eshmanual/references/toolsReqPortable.pdf

1 Purpose

The purpose of these requirements is to ensure the safe use of *portable tools*. They cover the procurement, safeguarding, use, and maintenance of such tools. They apply to workers and supervisors.

2 Requirements

2.1 General

Use of *portable tools*, both *power* and *hand*, must meet the following general requirements. Additional requirements are described by type of tool in the following sections.

2.1.1 Procurement

SLAC will provide portable tools for SLAC employees. Except where approved by line management, SLAC employees must not use their personal tools for work at SLAC. Subcontractors will provide their own equipment. All portable tools must comply with the applicable external requirements (see Chapter 25, "Machine and Portable Tools", Section 6.1, "External Requirements").

2.1.2 Use

- Do not use a tool unless you have been trained to use it safely, know its limitations and hazards, and have been properly authorized.
- Use tools according to training and authorization
- Use the appropriate tool for the task. Notify your supervisor if unsure which tool is appropriate. Select tools that
  - Can be used without the hand or wrist in an awkward position
  - Are well balanced
  - Fit the hand comfortably
  - Are not so heavy that they strain the arm and shoulder
  - Have handles designed to minimize the grip force needed
  - Have soft grips that do not cut into the hand

  - Are spark-resistant (made from brass, plastic, aluminum, or wood) if working around flammable substances (sparks produced by iron and steel tools can be a dangerous ignition source)

- Always visually inspect tools before use and remove from service any found to be defective. Tag the tool OUT OF SERVICE and notify your supervisor.
- Stop work immediately if a tool becomes damaged.

2.1.3 Housekeeping

- Keep the work area free of clutter and debris that could create tripping or slipping hazards.

2.1.4 Cleaning and Maintenance

- Store tools in a dry, secure location, in their supplied case or holder, or in purpose-built storage, when they are not being used.
- Damaged tools may be repaired only in accordance with the manufacturer's specifications. Only authorized personnel will be permitted to maintain or repair power tools. Tools must not be altered from their original state, painted other than by the manufacturer, or have the manufacturer's label obscured.

2.1.5 Personal Protective Equipment

- Wear or use personal protective equipment (PPE) or clothing that is appropriate for the work you are doing; this may include items such as safety glasses or goggles, hearing protection, dust mask, gloves, safety boots or shoes, or rubber boots. (See Chapter 19, "Personal Protective Equipment" for general PPE requirements and the following sections for tool-specific requirements.)

2.2 Power Tools

2.2.1 Use

- Make sure the tool has proper guards (see Section 2.2.3, "Guarding").
- Do not operate tools in an area containing explosive vapors or gases.
- Do not surprise or touch anyone who is operating a tool. Startling a tool operator could end up causing an accident or injury.
- Use clamps, a vice or other devices to hold and support the piece being worked on, when practical to do so. This will allow you to use both hands for better control of the tool and will help prevent injuries if a tool jams or binds in a work piece.

2.2.2 Switches and Controls

Certain types of power tools are required to have specific switches and controls, as follows.

The following power tools must be equipped with a constant pressure switch or control that will shut off the power when the pressure is released:

- Circular saws with blade diameters over two inches
- Chain saws (electric, hydraulic, pneumatic, or gasoline)

- Percussion tools (for example, jackhammers) without positive accessory means

The following power tools must be equipped with a constant pressure switch or control that will shut off the power when the pressure is released but may have a lock-on control provided. The control can be turned off with a single motion:

- Drills
- Tappers
- Fastener drivers (for example, staplers, nailers)
- Grinders with wheel diameters over two inches
- Disc sanders with disc diameters over two inches
- Belt sanders
- Reciprocating, saber, scroll, and jig saws with blade shanks greater than nominal 1/4 inch

All other power tools must be equipped with a momentary contact ON/OFF control or other controls. Operating controls on all power tools must be located to minimize the possibility of accidental operation.

2.2.3 Guarding

Any power tool designed to accommodate guarding, such as circular saws, airless spray guns, belt sanding machines, and portable grinders, must be equipped with that guard during use and the guard must not be altered.

In general, guards are provided to protect the user and others from the following hazards:

- Point of operation
- In-running nip points
- Rotating parts
- Flying chips and sparks

Specifically, the moving parts of a power tool that can be hazardous must be guarded. For example, all of the following parts must be guarded:

- Gears, sprockets, and sprocket chain drives
- Belt and pulley drives
- Hazardous revolving or reciprocating parts
- Pulleys and drums
- Exposed shafts
- Projecting shaft ends
- Collars, clutches, and couplings

For example, portable circular saws must be equipped with guards. An upper guard must cover the entire blade of the saw. A retractable lower guard must cover the teeth of the saw, except when the saw makes

contact with the work material. The lower guard must automatically return to the covering position when the tool is withdrawn from the work.

2.2.3.1 Exclusions

Certain tools are excluded from the guarding requirements due to there being a greater hazard to workers if they are guarded in their working area. These tools include chain and reciprocating saws. These types of tools have other guards to protect workers.

2.2.4 Powering On and Off

- Switch off tools before connecting them to a power supply.
- Disconnect the power supply before making adjustments or changing accessories.
- Do not disconnect the power supply of the tool by pulling or jerking the cord from the outlet.
- Remove any wrenches and adjusting tools before turning on a tool.
- Do not bypass the ON/OFF switch and operate the tools by connecting and disconnecting the power cord.
- Do not walk around with a plugged-in tool with your finger touching the switch.
- Do not brush away sawdust, shavings, or turnings while the tool is running.
- Do not leave a running tool unattended. Do not leave it until it has been turned off, has stopped running completely, and has been unplugged.

2.2.5 Housekeeping

- Suspend power cords over aisles or work areas to eliminate stumbling or tripping hazards.

2.2.6 Cleaning and Maintenance

- Ensure that cutting tools, drill bits, and so on are kept sharp, clean, and well maintained.
- Do not clean tools with flammable or toxic solvents.
- Use mechanical means (brush, broom) to clean surfaces and remove sawdust, metal turnings, and so on. Use compressed air only as a last resort. If compressed air is used for cleaning, the pressure at the nozzle tip must be less than 30 pounds per square inch (psi) and all personnel in the area must wear eye protection (8 CCR 3382).

2.2.7 Personal Protective Equipment

- Do not wear loose clothing or jewelry while using revolving power tools. Tie back long hair or wear appropriate hair protection to prevent hair from getting caught in moving parts of equipment. When using revolving power tools, wear gloves when the tool is taken to the work; do not wear them when the work is taken to the tool.

2.3 Electric Power Tools

2.3.1 General

2.3.1.1 Use

- In areas that are wet or in where flammable vapors may be present, use only electrical tools designed specifically for that purpose.
- Use only tools that are of an approved, double-insulated type and/or grounded to conform to federal Occupational Safety and Health Administration (OSHA) electrical standards (see Chapter 8, "Electrical Safety").
- On construction sites, on temporary wired circuits, or in wet environments, use tools only in conjunction with an approved ground fault circuit interrupter (GFCI).
- Do not power on tools until just before use and power them off immediately afterwards or before changing accessories.
- Do not get near the moving parts of an electrical tool unless the power is off.
- Avoid body contact with grounded surfaces like refrigerators, pipes, and radiators.
- Do not use any tool that is sparking or appears to have an electrical short.
- Do not use an electric grinding wheel, buffer, or wire brush that wobbles or vibrates excessively.
- Do not use excessive force on saws or drills.

2.3.1.2 Electric Cords

- Use only approved extension cords that have the proper wire size for the length of cord and power requirements of the electric tool that being used. This will prevent the cord from overheating.
- For outdoor work, use outdoor extension cords marked W-A or W.
- Do not use light-duty power cords.
- Do not use any tool with a damaged or exposed cord or exposed wiring.
- Check cords regularly for fraying, insulation damage, and crushing or cutting.
- If a power cord feels more than comfortably warm, remove it from service and have it checked by an electrician or other qualified person.
- Do not lay power cords over sharp edges or through doorways or holes in walls.
- Keep power cords away from heat, water, oil, and moving parts. They can damage the insulation and cause a shock.
- Keep power cords clear of tools and the path that the tool will take.
- Protect cords from damage by vehicles, being walked on, and so on. Cords should be put in conduits, placed under a cord cover or protected by placing planks on each side of them.
- Do not lift, lower, or carry tools by their cords.
- When unplugging a tool, pull the plug, not the cord. Pulling the cord causes wear and may adversely affect the wiring to the plug.

- Do not plug several power cords into one outlet by using single-to-multiple outlet adapters or converters (*cube taps*).
- Eliminate *octopus connections*: if more than one receptacle plug is needed, use a power bar or power distribution strip that has an integral power cord and a built-in over-current protection.
- Do not connect or splice extension cords together to make a longer connection: the resulting extension cord may not be able to provide sufficient current or power safely.
- Do not tie power cords in knots. Knots can cause short circuits and shocks. Loop the cords or use a twist lock plug.
- Do not break off the third prong (ground prong) on a plug: replace broken three-prong plugs and make sure the third prong is properly grounded.
- Do not use extension cords as permanent wiring: use extension cords only as a temporary (for example 30 days) power supply to an area that does not have a power outlet.

2.3.2 Belt Sanders

2.3.2.1 Use

- Inspect sanding belts before using them. Replace belts that are worn or frayed.
- Install sanding belts that are the same width as the pulley drum.
- Adjust sanding belt tension to keep the belt running true and at the same speed as pulley drum.
- Secure the sanding belt in the direction shown on the belt and the machine.
- Keep hands away from a sanding belt.
- Use two hands to operate sanders: one on a trigger switch and the other on the manufacturer-supplied hand-hold.
- Keep all cords clear of sanding area during use.

2.3.2.2 Powering On and Off

- Make sure the sander is switched to OFF before connecting the power supply.
- Disconnect power supply or unplug the sander before changing a sanding belt, making adjustments, or emptying dust collector.

2.3.2.3 Cleaning and Maintenance

- Clean dust from the motor and vents at regular intervals.

2.3.2.4 Personal Protective Equipment

- Wear safety glasses and/or a face shield.
- Wear a dust respirator for dusty operations.

2.3.3 Circular Saws

2.3.3.1 Use

- Select the correct blade for stock being cut and allow it to cut steadily. Do not force it.

- Ensure that the blade that you have selected is sharp enough to do the job. Sharp blades work better and are safer.
- Set the depth of the blade, while the saw is unplugged, and lock it at a depth so that the lowest tooth does not extend more than about 0.3 centimeter or 1/8 inch beneath the wood.
- Check the retracting lower blade guard to make certain it works freely. It should enclose the teeth as completely as possible and cover the unused portion of the blade when cutting.
- Check that the retracting lower blade guard has returned to its starting position before laying down the saw.
- Keep upper and retracting lower blade guard clean and free of sawdust.
- Check the saw for proper blade rotation.
- Keep all cords clear of cutting area.
- Secure work being cut to avoid movement.
- Use two hands to operate saws - one on a trigger switch and on the manufacturer-supplied hand-hold.
- Circular saws are designed for right-hand operation; left-handed operation will demand more care to operate safely.

Do Not

- Carry the saw with a finger on the trigger switch.
- Hold or force the retracting lower guard in the open position.
- Place hand under the shoe or guard of the saw.
- Over tighten the blade-locking nut.
- Twist the saw to change, cut, or check alignment.
- Use a saw that vibrates or appears unsafe in any way.
- Force the saw during cutting.
- Cut materials without first checking for obstructions or other objects such as nails and screws.
- Overreach. Keep proper footing and balance.
- Rip stock without using a wedge or guide clamped or nailed to the stock.

2.3.3.2 Powering On and Off

- Disconnect power supply or unplug the saw before adjusting or changing the blade.
- Allow the saw to reach full power before starting to cut.

2.3.3.3 Cleaning and Maintenance

- Keep the motor free from accumulation of dust and chips.

2.3.3.4 Personal Protective Equipment

- Wear safety glasses or a face shield.
- Wear an approved respirator or dust mask when exposed to harmful or nuisance dusts.

- Use appropriate hearing protection equipment in noisy areas.

2.4 Fuel Power Tools

2.4.1 General

- All fuel power tools must be stopped and shut down for refueling, servicing, or maintenance. Fire extinguishers must be available in the immediate area. All fuel power tools must meet the requirements of Chapter 12, "Fire and Life Safety", for combustible materials.
- Fuel power tools must not be used inside of any building. An alternative tool must be used.

2.4.2 Gasoline Power Tools

- Gasoline must be stored in approved containers or portable tanks per Department of Transportation (DOT) regulations.
- Fire extinguishers of the correct type must be available where gasoline is stored.
- An additional extinguisher must be located outside of the room or immediate area where the gasoline is stored.
- When tools are filled, or when gasoline is transferred between containers, proper grounding and bonding procedures must be used.

2.4.3 Gasoline Power Saws

- The saw must have a control that returns to idle when released.
- The clutch must be adjusted to prevent the chain drive from engaging at idle speed.
- The operator must be positioned properly to avoid injury in case of kick back.
- The engine must be stopped when the saw is carried over 100 feet, or when it is being cleaned, refueled, adjusted, or repaired.

2.5 Hydraulic Power Tools

- The fluid used in hydraulic power tools must be fire-resistant and retain its operating characteristics at the most extreme working temperatures to which it will be exposed.
- Users must refer to the manufacturer's manual for the safe operating pressure of tools hoses, pipes, valves, filters, and fittings.
- Hydraulic power tools should have a non-leak feature on the disconnect fittings.

2.6 Pneumatic Power Tools

There are several dangers encountered in the use of pneumatic tools, which are powered by compressed air. The main one is the danger of getting hit by one of the tool's attachments or by some kind of fastener the worker is using with the tool.

2.6.1 General

2.6.1.1 Use

- Check to see that pneumatic tools are fastened securely to the hose to prevent them from becoming disconnected. All pneumatic tools must be secured to the hose or whip by some positive means to prevent the tool from accidentally disconnecting.
- Do not hoist or lower tools by the hose.
- Do not exceed the manufacturer's safe operating pressure for hose, pipe, valves, filters, and fittings.

2.6.1.2 Switches and Controls

- All hoses over 1.27 centimeters (0.5 inch) in diameter must have a safety device (pressure regulator) at the source of supply or branch line to reduce pressure if the hose fails. All connections must be provided with a device to prevent whipping.

2.6.1.3 Guarding

- A safety clip or retainer must be installed to prevent attachments, such as chisels on a chipping hammer, from being unintentionally shot from the barrel.

2.6.1.4 Powering On and Off

- Disconnect from the source and release any pressure in lines before making any adjustments or repairs.

2.6.1.5 Personal Protective Equipment

- Eye protection is required and face protection is recommended for workers using pneumatic tools.
- Protective screens should be used to protect nearby workers from being struck by flying fragments generated by the use of pneumatic tools.

2.6.2 Compressed Air Guns

2.6.2.1 Use

- Compressed air nozzles should not be aimed or pointed at other workers unless the specific operation requires this action. Users should never *dead-end* a compressed air gun against themselves or anyone else.
- Never use compressed air over 30 pounds per square inch gauge (psig) to blow dirt, chips, or dust from clothing while it is being worn.
- Secure the air hose for a pneumatic nailer or stapler at roof level to provide ample, but not excessive, amounts of hose on roofs of 1:4 pitch or greater.

2.6.2.2 Switches and Controls

- Pneumatic nailers and staplers operating at more than 100 psi must have a safety device to prevent operation when the muzzle is not in contact with the surface.

2.6.2.3 Guarding

Hand-held pneumatically powered tools used for driving nails, staples and similar fasteners that operate at 100 psig or more line pressure must have a safety device at the muzzle to prevent the tool from discharging until the muzzle is in contact with a solid surface.

2.6.2.4 Powering On and Off

- Disconnect pneumatic nailers and staplers at the tool from the air supply when not in use.

2.6.2.5 Personal Protective Equipment

- Always wear a securely fastened safety belt and lanyard when using pneumatic nailers and staplers on steep roofs (1:3 pitch or greater).

2.6.3 Portable Compressors

- Wheels must be fixed, locked, or blocked to prevent rolling.
- Fans must be guarded with a shroud or side screens.
- Air tanks must be drained of liquid according to the manufacturer's specifications.
- Air receivers must comply with state regulations (8 CCR 461–466).

2.7 Powder-actuated Tools

Powder-actuated tools operate like a loaded gun and should be treated with the same respect and precautions. All powder-actuated tools must comply with ANSI A10.3), or have a California approval number.[1] (If the tool manufacturer cannot say it meets the ANSI standard then it can request approval for the tool from the California Division of Occupational Safety and Health.)

Powder-actuated tools used in industrial operations must be designed, constructed, operated, and maintained in compliance with 8 CCR 1684–1692.

2.7.1 Use

- Only workers who have been trained in the operation of the particular tool in use are allowed to operate a powder-actuated tool. Training must be provided by someone with both sufficient knowledge regarding the tool and sufficient training ability to successfully convey the information to the worker. The training should include review of the instruction manual for each specific make and model of powder-actuated tool.
- All tools must be tested according to the manufacturer's recommendations before loading to see that the safety devices are working properly. If the tool develops a defect during use it should be tagged and taken out of service immediately until it is properly repaired.
- Inspect the tool before use to determine that it is clean, that all moving parts operate freely, and that the barrel is free from obstructions.

---

1 Title 8, *California Code of Regulations*, "Industrial Relations", Division 1, "Department of Industrial Relations", Chapter 4, "Division of Industrial Safety", Subchapter 4, "Construction Safety Orders", Article 27, "Powder-actuated Tools", Section 1684, "Tool Design Requirements" (8 CCR 1684)

- Do not point tools, whether loaded or empty, at any person.
- Keep hands clear of the barrel end.
- Bystanders are not permitted near the work. Shields for protecting workers against a possible ricochet may be necessary in the working area.
- Warning signs must be conspicuously posted within 50 feet of the area where powder-actuated tools are being used and be removed promptly when no longer applicable.
- Do not use tools in explosive or flammable atmospheres.
- Adequate ventilation must be provided in confined spaces where powder-actuated tools are used.
- Be careful when using tools near live electrical circuits and make sure that projectiles do not enter live circuits buried or hidden in the base material.
- Use tools at right angles to the work surface.
- Make sure the base material has no holes or openings and is of sufficient consistency to prevent a projectile from passing right through.
- Do not force a projectile into a working surface that is harder than the projectile being used. If the base material is unknown, use a hand hammer to drive the projectile, using it as a drift punch.

2.7.2 Switches and Controls

- To prevent the tool from firing accidentally, two separate motions are required for firing: one to bring the tool into position, and another to pull the trigger. The tools must not be able to operate until they are pressed against the work surface with a force of at least five pounds greater than the total weight of the tool.
- All tools must be designed for varying powder charges so that the user can select a powder level necessary to do the work without excessive force.

2.7.3 Guarding

- All tools must be used with the correct shield, guard, or attachment supplied by the manufacturer. The muzzle end of the tool must have a protective shield or guard centered perpendicularly on the barrel to confine any flying fragments or particles that might otherwise create a hazard when the tool is fired. The tool must be designed so that it will not fire unless it has this kind of safety device.

2.7.4 Powering On and Off

- Do not load until immediately before the intended firing time, and do not leave loaded tools unattended.

2.7.5 Cleaning and Maintenance

- Store tools and cartridges when not in use in lockable containers and that have required warning labels on the inside and outside of the container.
- Unload tools before storing.
- Clean and maintain tools according to manufacturers' instructions.

2.7.6 Personal Protective Equipment

- Personal protective equipment will be used: safety glasses or a face shield, hearing protection, and a hard hat.

2.7.7 Cartridges

- Use only cartridges recommended by the tool manufacturer.
- Check the color of the cartridge to make sure it is appropriate for work being done. Charge cartridges are color-coded to show their strength.
- Check cartridges by conducting a first trial using the weakest or lowest strength charge cartridge.
- Cartridges must not be carried loose or in a pocket, but in the manufacturer's package.
- Do not force cartridges into a tool.
- Keep cartridges in a lock up when not in use.
- Do not discard unfired cartridges carelessly.

2.7.7.1 Misfires

If a powder-actuated tool misfires:

1. Wait at least 30 seconds then try firing it again.
2. If it still will not fire, wait another 30 seconds so that the faulty cartridge is less likely to explode, then carefully remove the load.
3. Place the bad cartridge in a bucket of water.
4. Notify your supervisor that a misfire has occurred.
5. Contact Waste Management (WM) for assistance in disposing of the misfired cartridge.

Note *Subcontractors will advise their SLAC contact that a misfire has occurred and will arrange for removing the faulty cartridge from SLAC, following all required laws and regulations.*

2.8 Airless Spray Guns

2.8.1 Guarding

Airless spray guns of the type that atomize paints and fluids at high pressures (1,000 pounds or more per square inch) must be equipped with automatic or visible manual safety devices that will prevent pulling of the trigger to prevent release of the paint or fluid until the safety device is manually released.

In lieu of the above, a diffuser nut that will prevent high pressure, high velocity release, while the nozzle tip is removed, plus a nozzle tip guard that will prevent the tip from coming into contact with the operator, or other equivalent protection, must be provided.

2.9 Jacks

All *jacks* must be designed so that their maximum safe extension cannot be exceeded.

To raise the rated load of a jack, the point of application of the load, the applied force, and the length of lever arm should be those designated by the manufacturer for the particular jack considered.

2.9.1 Use

In the absence of a firm foundation, the base of the jack must be blocked. If there is a possibility of slippage of the cap, a block must be placed in between the cap and the load.

Workers are not permitted to enter the zone beneath a jack-supported load unless it has been effectively blocked or cribbed.

2.9.2 Marking

The rated load of a jack must be legibly and permanently marked on a prominent location on the jack by casting, stamping, or other suitable means.

2.9.3 Cleaning and Maintenance

Hydraulic jacks exposed to freezing temperatures must be supplied with an adequate antifreeze liquid.

All jacks requiring periodic cleaning and lubrication, such as screw jacks, must be properly cleaned and lubricated at regular intervals.

2.10 Portable Winches

Portable winches

- Must be secured against accidental shifting while in use
- Must be fitted with limit switches if workers have access to areas from which it is possible to be drawn into the winch

2.11 Microtomes

2.11.1 Use

Microtomes (manual, automatic, and semi-automatic) must be used, operated, and maintained by qualified persons in accordance with the manufacturer's recommendations and 8 CCR 3558. The provisions 8 CCR 3558 take precedence over manufacturer's recommendations wherever those recommendations are inconsistent with it.

During operation, a minimum clearance of 1 inch must be maintained between the operator's hands and any moving part or blade (point of operation) of the microtome, and the operator's hands must only approach the blade with forceps and/or other appropriate tools.

When operating microtomes, the foot pedal must be so positioned to avoid accidental activation.

Tissue sections or sections of any other material sliced by the microtome must be retrieved by the worker using forceps and/or other appropriate tool(s).

2.11.2 Guarding

When not in use, the foot treadle of each electrically powered microtome must be guarded by a cover or guard that will prevent unintended operation.

2.11.3 Cleaning and Maintenance

- The adjustment, removal, replacement, or maintenance activities of microtomes must comply with the requirements of Chapter 51, "Control of Hazardous Energy".
- At a minimum, microtome operators must be trained in the requirements of 8 CCR 3558.

3 Forms

The following forms and systems are required by these requirements:

- None

4 Recordkeeping

The following recordkeeping requirements apply for these requirements:

- None

5 References

SLAC Environment, Safety, and Health Manual (SLAC-I-720-0A29Z-001)

- Chapter 25, "Machine and Portable Tools"
  - Machine and Portable Tools: Machine Tool Requirements (SLAC-I-730-0A21S-056)
- Chapter 2, "Work Planning and Control"
- Chapter 8, "Electrical Safety"
- Chapter 12, "Fire and Life Safety"
- Chapter 19, "Personal Protective Equipment"
- Chapter 51, "Control of Hazardous Energy"

Other SLAC Documents

- None

Other Documents

- Title 8, *California Code of Regulations*, "Industrial Relations", Division 1, "Department of Industrial Relations", Chapter 4, "Division of Industrial Safety", Subchapter 7, "General Industry Safety Orders", Group 3, "General Plant Equipment and Special Operations", Article 20, "Hand and Portable Powered Tools and Equipment" (8 CCR 3554–3564)
- Title 8, *California Code of Regulations*, "Industrial Relations", Division 1, "Department of Industrial Relations", Chapter 4, "Division of Industrial Safety", Subchapter 1, "Unfired Pressure Vessel Safety Orders", Article 3, "Air Tanks" (8 CCR 461–466)
- Title 8, *California Code of Regulations*, "Industrial Relations", Division 1, "Department of Industrial Relations", Chapter 4, "Division of Industrial Safety", Subchapter 4, "Construction Safety Orders", Article 27, "Powder-actuated Tools" (8 CCR 1684–1692)
- Title 8, *California Code of Regulations*, "Industrial Relations", Division 1, "Department of Industrial Relations", Chapter 4, "Division of Industrial Safety", Subchapter 7, "General Industry Safety Orders", Group 2, "Safe Practices and Personal Protection", Article 10, "Personal Safety Devices and Safeguards", Section 3382, "Eye and Face Protection" (8 CCR 3382)
- American National Standards Institute (ANSI) A10.3, "Safety Requirements for Powder-actuated Fastening Systems" (ANSI A10.3)