Portable Tools: Powder-actuated Tool Requirements

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Program: Portable Tools
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Authority: ES&H Manual, Chapter 25, Portable Tools

Use of portable powder-actuated power tools must meet the following requirements, in addition to those found in Portable Tools: Power Tool Requirements.[1]

Note *Always visually inspect tools before use and remove any found to be defective from service.*

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 American National Standards Institute (ANSI) A10.3-1995, "Safety Requirements for Powder-Actuated Fastening Systems",[2] or have a California approval number.[3] (If the tool manufacturer cannot say it meets the ANSI standard then it can request approval for the tool from the California Department of Occupational Safety and Health.)

Use

1. Operators must be trained and certified by the supplying manufacturer in the use of the particular tool they will operate.
2. 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.
3. 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.
4. 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.
5. 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

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1 Portable Tools: Power Tool Requirements (SLAC-I-730-0A21S-027), http://www-group.slac.stanford.edu/esh/eshmanual/references/toolsReqPower.pdf

2 See the SLAC Library, http://www.slac.stanford.edu/library/, for available standards. For a list of ANSI standards, see the American National Standards Institute "Standards Search", http://webstore.ansi.org/ansidocstore/find.asp

3 Title 8, *California Code of Regulations*, 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), http://www.dir.ca.gov/title8/1684.html

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.

6. Before use, a tool must be inspected to determine that it is clean, that all moving parts operate freely, and that the barrel is free from obstructions.
7. Tools must not be loaded until immediately prior to the intended firing time, and loaded tools must not be left unattended.
8. Tools, whether loaded or empty, must not be pointed at any person.
9. Hands must be kept clear of the barrel end.
10. Personal protective equipment will be used: safety glasses or a face shield, hearing protection, and a hard hat.
11. Bystanders are not permitted near the work. Shields for protecting workers against a possible ricochet may be necessary in the working area.
12. 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.
13. Tools must not be used in explosive or flammable atmospheres.
14. Adequate ventilation must be provided in confined spaces where powder-actuated tools are used.
15. Workers must exercise caution when using tools near live electrical circuits and make sure that projectiles do not enter live circuits buried or hidden in the base material.
16. Workers must use tools at right angles to the work surface.
17. Workers must ensure that the base material has no holes or openings and is of sufficient consistency to prevent a projectile from passing right through.
18. Workers must not force a projectile into a working surface that is harder than the projectile being used. If the base material is unknown, they should use a hand hammer to drive the projectile, using it as a drift punch.

Storage and Maintenance

1. When not in use, tools and cartridges must be stored in lockable containers and have the required warning labels on the inside and outside of the container.
2. Tools must be unloaded before being stored.
3. Tools must be cleaned and maintained according to manufacturers' instructions.

Cartridges

1. Only cartridges recommended by the tool manufacturer must be used.
2. The color of the cartridge must be checked to make sure it is appropriate for work being done. Charge cartridges are color-coded to show their strength.

3. Cartridges must be checked by conducting a first trial using the weakest or lowest strength charge cartridge.
4. Cartridges must be kept in a lock up when not in use.
5. Cartridges must not be forced into a tool.
6. Unfired cartridges must not be discarded carelessly.
7. Cartridges must not be carried loose or in a pocket, but in the manufacturer's package.
8. If a powder-actuated tool misfires, the worker should wait at least 30 seconds then try firing it again. If it still will not fire, the worker should wait another 30 seconds so that the faulty cartridge is less likely to explode, than carefully remove the load. The bad cartridge must be put in a bucket of water. SLAC personnel will advise their supervisor that a misfire has occurred. Personnel or their management will contact the Waste Management Group (WM) for assistance in disposing of the misfired cartridge. Subcontractors will advise their SLAC contact or university technical representative (UTR) that a misfire has occurred and will make arrangements for removing the faulty cartridge from SLAC, following all required laws and regulations.