

EXPLOSIVE (POWDER) ACTUATED TOOL SAFETY

(For assistance, please contact EHS at (402) 472-4925, or visit our web site at <http://ehs.unl.edu/>)

This SOP is a supplement to the EHS SOP titled, ***Hand and Portable Powered Tool Safety***, which discussed tool safety in general. This SOP summarizes federal Occupational Safety and Health Administration (OSHA) standards applicable to explosive (powder) actuated tools. Obviously these tools can be very dangerous due to the extreme force they create when activated; the danger created when they misfire, or a projectile penetrates the intended surface; or the danger of fire when operated in the vicinity of flammable vapors or when used on combustible building materials. The OSHA requirements are designed to minimize these hazards.

- Before use, the operator must inspect to verify that the tool is clean, all moving parts operate freely, the barrel is free from obstructions, and correct shields, guards, or safety attachments recommended by the manufacturer are in place.
- Defective tools must be immediately removed from service until properly repaired. Repairs must be in accordance with the manufacturer's specifications.
- Tools must not be used in an explosive or flammable atmosphere.
- Tools must not be loaded until just prior to the intended firing time. Loaded tools must not be left unattended. An unloaded tool must not be left unattended in a place where it would be accessible to unauthorized persons.
- Neither loaded nor empty tools are to be pointed at any person.
- Keep hands clear of the barrel end.
- In case of a misfire, the operator must hold the tool in the operating position for at least 30 seconds; then try to operate the tool a second time. If the misfire occurs again, the operator must hold the tool in the operating position for another 30 seconds; then proceed to remove the explosive load in strict accordance with the manufacturer's instructions.
- The following apply to driving of fasteners:
 - Fasteners must not be driven into very hard or brittle materials including, but not limited to, cast iron, glazed tile, surface-hardened steel, glass block, live rock, face brick, or hollow tile.
 - Driving into materials easily penetrated must be avoided unless such materials are backed by a substance that will prevent the pin or fastener from passing completely through and creating a flying-missile hazard on the other side.
 - Fasteners must not be driven directly into materials such as brick or concrete closer than 3 inches from the unsupported edge or corner, or into steel surfaces closer than one-half inch from the unsupported edge or corner, unless a special guard, fixture, or jig is used. (Exception: Low-velocity tools

may drive no closer than 2 inches from an edge in concrete or one-fourth inch in steel.)

- When fastening other materials, such as a 2- by 4-inch wood section to a concrete surface, it is permissible to drive a fastener of no greater than 7/32-inch shank diameter not closer than 2 inches from the unsupported edge or corner of the work surface.
- Fasteners shall not be driven through existing holes unless a positive guide is used to secure accurate alignment.
- No fastener shall be driven into a spalled area caused by an unsatisfactory fastening.

In some cases, particularly when used in areas prone to flammable vapors or when joining combustible materials, a hot work permit may be required. See EHS SOP, ***Hot Work Permit Operations***, for additional information.