



POWDER ACTUATED TOOLS

Potential Hazards

1. cuts/lacerations/amputations
2. eye injury / flying objects
3. electrocution
4. respiratory illness
5. repetitive strain injury
6. noise (hearing loss)

Personal Protective Equipment Required

- | | | |
|-----------------|--------------------|-----------------|
| Hard hat | CSA Boots | Eye protection |
| Hand protection | Hearing protection | Skin protection |
| | Face protection | (clothing) |

PRELIMINARY ACTIVITIES

Where multiple trade activity is scheduled, the general contractor is to review in advance the priority of work and schedule the appropriate time frame to allow each trade to complete their scope of work. Prior to any work commencing supervisors must conduct a hazard assessment of all applicable work areas. Any hazards that are found during the hazard assessment must be addressed prior to any work commencing.

DO's:

1. Wear proper personal protection such as eye and face protection.
2. Wear hearing protection.
3. Allow only trained, competent and authorized persons who are familiar with the regulations governing the use of the tool to operate powder-actuated tools (also known as explosive actuated fastening tools).
4. Powder-actuated tools operate like loaded guns. Handle powder-actuated tools with the same respect and safety precautions as guns.
5. Use the Canadian Standards Association Standard series Z166-M85 "Safety Code for Powder-Actuated Tools" as a guide for safe operation and maintenance of the tool.
6. Wear safety glasses or goggles, or a face shield and a hard hat.
7. Brace yourself at all times when working on ladders or scaffolds to maintain good balance.
8. Keep tools pointed in a safe direction.
9. Clean and maintain tools according to the manufacturers' instructions.
10. Check tools before use to ensure that they are in good working order.
11. Tag defective tools "Out of service" and remove from service until properly repaired.
12. Store tools and cartridges in a locked container when they are not in use. Ensure that the tool is unloaded before storing it.
13. Use the tool at right angles to the work surface.
14. Check the chamber to see that the barrel is clean and free from any obstruction, before using the tool.
15. Use only the projectiles (fasteners, nails, studs, etc.) recommended by the tool manufacturer.
16. Ensure that the base material has no holes or openings and is of sufficient consistency to prevent a projectile from passing right through.
17. Use only cartridges recommended by the tool manufacturer.
18. Check that the colour of the cartridge is appropriate for work being done. Charge cartridges are colour-coded to show their strength.
19. Conduct a first trial by using the weakest or lowest strength charge cartridge.
20. Provide adequate ventilation in confined spaces where powder-actuated tools are used.
21. Hold the tool in the fixing position for no less than 5 to 15 seconds when a tool misfires. Keep the tool pointed in a direction that will not cause injury to you or others and unload a cartridge with extreme caution.
22. Use caution when using tools near live electrical circuits. Make sure that the nails (etc.) do not enter live circuits buried or hidden in the base material.
23. Keep cartridges in a lock up when not in use.

DON'Ts:

1. Do not leave loaded powder-actuated tools unattended.
2. Do not allow bystanders near the work. Shields for protecting workers against a possible ricochet may be necessary in the working area.
3. Never point powder-actuated tools at anyone.
4. Do not use the tool where flammable or explosive vapours, dust or similar substances are present.



5. Do not place your hand over the front (muzzle) end of a loaded tool.
6. Do not load a tool until immediately before use.
7. 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 centre punch.
8. Do not attempt to force a cartridge into a tool.
9. Do not discard unfired cartridges carelessly.
10. Do not carry cartridges loose or in a pocket. Carry them in the manufacturer's package.

SAFE WORK PROCEDURE

Powder Actuated Tools have the power to shoot a projectile more than 300 ft. per second and drive a fastener into concrete with such force that it sometimes takes a ton of leverage to extract it. But PATs don't work in every situation. Never attempt to use power fasteners in very hard concrete or stone—or brittle materials like glass, tile or brick. Before using a stud gun, test the hardness of your concrete by conducting a “center punch test.”

1. Only authorized personnel possessing a current Qualified Operations Permit for the specific tool to be used.
2. Inspect the tool prior to each use.
3. Ensure that all parts of the tool operate positively.
4. Ensure that the manufacturer's name and trademark as well as the model and serial numbers are legible on the tool.
5. Check the chamber prior to each use to ensure that the barrel is clean and free from obstruction.
6. Follow the spacings shown for placing drive pins and for working near the edges of concrete slabs.
7. For best results, use power fasteners in concrete aged more than 28 days. “Fresh” concrete fewer than seven days old can't exert a compression bond sufficient to permanently secure a drive pin.
8. Follow the results of the center punch test. Concrete that is either too weak or too strong won't hold power fasteners. Instead, use specialty wedge anchors or expansion shield-type concrete anchors. These are also the right choice if you have only a few furring strips to attach to a wall, if the strongest connection is a must, or if someday you may want to take the project apart.
9. If you use power fasteners, consider the installation permanent. Extracting drive pins wrecks the wood and damages the concrete base.
10. Improve the holding power for permanent installations by using construction adhesives on sill plates and wall framing.
11. “Overdriving” power fasteners occurs when too powerful a powder load pushes the gun piston partially out of the muzzle and drives the fastener too deep into the wood. Overdriving is a sure way to damage a PAT. Find the proper power load by using the weakest power load first (Level 1, gray) and working toward the most powerful (Level 4, yellow)—until you get the proper drive pin penetration. If drive pin heads consistently go below the top of the board or split your wood, use washered power fasteners.
12. If the tool is dropped, check for damage to the barrel and other moving parts and don't use the tool until it has been repaired.

CLEAN AND MAINTAIN THE TOOL

1. Simple maintenance will help you avoid problems like a sticky barrel slide and spent power load casings that will not eject (which is also caused by using drive pins longer than 2-1/2 in.).
2. Each day, after regular use, inspect the unloaded tool for damage and then take a rag and clean out the chamber and around the barrel. Buy barrel brushes from your Powder Actuated tool distributor and clean the gunpowder residue out of the inner working parts. Spray a little WD-40 lubricant on the inside and all over the outside of the tool and then wipe those areas clean and dry.