Powder-Actuated Tool Use Requirements



For more information on this topic, see **“MACHINERY & EQUIPMENT: Take 5 Steps to Comply with Requirements for Powder-Actuated Tools”**

KNOW THE LAWS: Powder-Actuated Tool Use Requirements Here are the specific requirements for using powder-actuated tools in the OHS regulations in each jurisdiction:	
FED	*Canada OHS Regs*.: Every employee who operates an explosive actuated fastening tool must operate it in accordance with CSA Standard Z166-1975, Explosive Actuated Fastening Tools, dated June, 1975 [Sec. 13.7(3)].
AB	*OHS Code 2009*: A worker must not permit the trigger of an actuated fastening tool to be mechanically held in the “ON” position unless the manufacturer’s specifications permit the tool to be used that way [Sec. 374].

BC	*OHS Regs.*: 1. A low velocity powder actuated tool, with a fastener test speed rating of less than 100 m per second, must be used unless no low velocity tool available on the market is capable of doing the fastening task [Sec. 12.52]. 2. A powder actuated tool must not be used in an explosive or flammable atmosphere [Sec. 12.56(4)]. 3. A powder actuated tool may only be loaded when it's being prepared for immediate use, and must be unloaded at once if work is interrupted after loading [Sec. 12.56(5)]. 4. A powder actuated tool must not be pointed at any person [Sec. 12.56(6)]. 5. If a powder actuated tool misfires, the operator must hold the tool firmly against the work surface for at least 5 seconds, then follow the manufacturer's instructions for such occurrences, and until the cartridge has been ejected, keep the tool pointed in a direction which will not cause injury to any person [Sec. 12.56(7)]. 6. A powder actuated tool fastener must not be driven into very hard or brittle materials, such as cast iron, glazed tile, hardened steel, glass block, natural rock, hollow tile, and most brick [Sec. 12.57(1)]. 7. A powder actuated tool fastener may only be driven into easily penetrated or thin materials or materials of unknown resistance if the receiving material is backed by a material that will prevent the fastener from passing completely through [Sec. 12.57(2)]. 8. A powder actuated tool fastener must not be driven into steel within 13 mm of an edge, or within 5 cm of a weld except for special applications permitted by the tool manufacturer [Sec. 12.57(3)]. 9. Except for special applications recommended by the manufacturer, a powder actuated tool fastener may not be driven into masonry materials: a. within 7.5 cm of an unsupported edge with a low velocity tool; or b. within 15 cm of an unsupported edge with a medium or high velocity tool [Sec. 12.57(4)]. 10. A powder actuated tool fastener must not be driven: a. into concrete unless material thickness is at least 3 times the fastener shank penetration; b. into any spalled area; or c. through existing holes unless a specific guide means, as recommended and supplied by the tool manufacturer, is used to assure positive alignment [Sec. 12.57(5)].
MB	*Workplace Safety & Health Regs.*: An employer must ensure that when an explosive-operated tool isn't in use it's not left unattended unless it's stored in a locked container [Sec. 16.23].

NB	*OHS Regs.*: An employee who uses a powder actuated tool must: 1. inspect the tool thoroughly before using it, paying particular attention to the cleanliness of the chamber and barrel; 2. load the tool only after inspection reveals that the breech and barrel are free of foreign matter and only to prepare the tool for immediate use; 3. use only cartridges and fasteners designed for the tool; 4. select cartridges of sufficient power to perform the work without the application of excessive force; 5. not use the tool in the presence of flammable or explosive substances; 6. not fire a fastener: a. through an existing hole unless the tool is specifically equipped by the manufacturer for accurate alignment of the barrel with the hole, b. into cast iron, glazed brick or tile, marble, granite, slate, glass or any other unusually hard or brittle material, c. into a steel surface that's of greater hardness than the fastener being used, d. with a high velocity tool into a hollow concrete block, and e. until the work area has been checked for employees working in proximity to where the fastener is going to be fired; 7. when the hardness of a surface isn't known, use a hand hammer to drive the point of the fastener into the material and not use the tool on that surface if the fastener doesn't penetrate the surface; 8. if a misfire occurs, continue to hold the tool in a firing position for not less than 15 seconds and then, until the cartridge has been ejected, keep the tool pointed in a direction which won't cause injury to the user or others; 9. wear suitable eye protective equipment of the close fitting eyecup or cover-goggle type; 10. return unused cartridges to a proper storage box; and 11. operate it in accordance with the manufacturer's specifications [Sec. 89].

NL	*OHS Regs.*: 1. A low velocity powder actuated tool, with a fastener test speed rating of less than 100 metres a second, must be used unless no low velocity tool available on the market is capable of doing the fastening task [Sec. 106(1)]. 2. A powder-actuated tool must not be used in an explosive or flammable atmosphere [Sec. 106(9)]. 3. A powder-actuated tool may only be loaded where it's being prepared for immediate use, and must be unloaded at once where work is interrupted after loading [Sec. 106(10)]. 4. A powder-actuated tool must not be pointed at a person [Sec. 106(11)]. 5. Where a powder-actuated tool misfires, the operator must hold the tool firmly against the work surface for at least 5 seconds, then follow the manufacturer's instructions for those occurrences and, until the cartridge has been ejected, keep the tool pointed in a direction that cannot cause injury to a person [Sec. 106(12)]. 6. A powder-actuated tool fastener must not be driven into very hard or brittle materials, including cast iron, glazed tile, hardened steel, glass block, natural rock, hollow tile, and most brick [Sec. 107(1)]. 7. A powder-actuated tool fastener may only be driven into easily penetrated or thin materials or materials of unknown resistance where the receiving material is backed by a material that prevents the fastener from passing completely through [Sec. 107(2)]. 8. A powder-actuated tool fastener must not be driven into steel within 13 millimetres of an edge, or within 5 centimetres of a weld except for special applications permitted by the manufacturer [Sec. 107(3)]. 9. Except for special applications recommended by the manufacturer, a powder-actuated tool fastener may not be driven into masonry materials: a. within 7.5 centimetres of an unsupported edge with a low velocity tool; or b. within 15 centimetres of an unsupported edge with a medium or high velocity tool [Sec. 107(4)]. 10. A powder-actuated tool fastener must not be driven: a. into concrete unless material thickness is at least 3 times the fastener shank penetration; b. into a spalled area; or c. through existing holes unless a specific guide means, recommended and supplied by the manufacturer, is used to assure positive alignment [Sec. 107(5)].
NT	*OHS Regs*.: An employer must ensure that a worker who operates an explosive-actuated fastening tool: 1. doesn't leave the tool or explosive charges unattended; 2. stores the tool and explosive charges in a locked container when not in use; and 3. uses an industrial eye or face protector that meets the requirements of Part 7 [Sec. 151(3)].
NS	*OHS General Reg.*: An employer must ensure that a powder-actuated tool is operated by a competent person in accordance with the latest version of ANSI standard A10.3, "American National Standard for Construction and Demolition Operations – Powder-Actuated Fastening Systems – Safety Requirements" [Sec. 108(2)].

NU	*General Safety Reg.*: 1. The operator of an explosive-actuated tool must thoroughly inspect the tool each day before using it, paying particular attention to the cleanliness of the chamber and barrel [Sec. 179(2)]. 2. A defective or unsafe explosive-actuated tool must be removed from service until satisfactory repairs have been made [Sec. 179(3)]. 3. Fasteners must be driven into concrete in accordance with the specifications set out in Schedule B [Sec. 185]. 4. Fasteners must be driven into steel in accordance with the specifications set out in Schedule C [Sec. 186]. 5. A fastener must not be driven so close to corners or edges as to: a. cause the receiving material to break off; or b. render the guard ineffective [Sec. 187]. 6. No person may fire a fastener into any material where there's a possibility of injury to any person by the passage of the fastener through the material [Sec. 188]. 7. No person may use a high-velocity tool to drive a fastener into a hollow concrete block [Sec. 189]. 8. No person may use an explosive-actuated tool to drive a fastener through an existing hole, unless the tool is specifically equipped by the manufacturer for accurate alignment of the barrel with the hole [Sec. 190]. 9. No person may use an explosive-actuated tool to drive a fastener into cast iron glazed block or tile, terra-cotta, marble, granite, slate, glass or any other unusually hard or brittle material, or into a surface that is of greater hardness than the fastener being used [Sec. 192]. 10. Where the hardness of a material or surface isn't known, it must be tested by using a hand-hammer to drive the point of the fastener into the material and if the point of the fastener doesn't penetrate the surface, no attempt must be made to use an explosive-actuated tool to drive a fastener into that surface [Sec. 193]. 11. No person may use an explosive-actuated tool where flammable or explosive gas, vapour, dust or other such substances are present [Sec. 194]. 12. Where an explosive-actuated tool is used in a confined place, adequate ventilation must be provided in that place [Sec. 195]. 13. No explosive-actuated tool may be loaded until an inspection has revealed the breech and barrel to be free of foreign matter [Sec. 196(1)]. 14. An explosive-actuated tool must be loaded only for immediate use and the tool must not be left in a loaded condition [Sec. 196(2)]. 15. An explosive-actuated tool must be fired only when firmly held by an operator having secure footing directly behind the tool [Sec. 197]. 16. If a misfire occurs during the use of an explosive-actuated tool, the operator must continue to hold the tool in the firing position for at least 15 seconds and until the cartridge has been ejected, he or she shall keep the tool pointed away from any person [Sec. 198]. 17. An operator, helper and other person in the immediate vicinity of a place in which an explosive-actuated tool is being used must wear: a. suitable eye protective devices of the close-fitting eyecup or cover-goggle type; b. safety headgear; and c. suitable hearing protection devices [Sec. 199]. ***Note**: The above reflects the current law at the time of publication. The new OHS regulations that took effect in NWT on June 1, 2015 are expected to take effect eventually in NU.

ON	*Industrial Establishments Reg.*: 1. Subject to Sec. 36(2), an explosive actuated fastening tool must: a. not be left unattended where it may be available to a person other than a worker having the designated qualifications; b. whether loaded or unloaded, not be pointed directly at any person; c. not be loaded unless it's being prepared for immediate use; d. be used only: i. by a worker who has been instructed in the proper and safe manner of its use by the manufacturer or the manufacturer's authorized and qualified agent, ii. by a worker wearing both head protection and eye protection, iii. after it has been inspected by a qualified worker to ensure that: A. the tool is clean, B. all moving parts operate freely, C. the barrel is free from any obstruction, D. the tool is adequately equipped for the intended use, and E. it isn't defective, iv. in accordance with the instructions of the manufacturer, v. with an explosive load of a strength adequate to perform the intended work without excessive force, and vi. to drive a stud or other fastener suitable for insertion in the tool; and e. not be used in an atmosphere containing flammable vapours, gases or dusts [Sec. 36(1)]. 2. Secs. 36(1)(e) and (f) don't apply to an explosive actuated fastening tool if the velocity of the stud or other fastener doesn't exceed 90 metres per second measured at a distance of two metres from the muzzle end of the tool when propelled by the maximum commercially available explosive load that the tool is chambered to accept [Sec. 36(2)].
PE	*OHS Regs.*: The latest edition of the CSA CAN3-Z166 Safety Code for Explosive Actuated Tools and any additions or amendments thereto must be used as a guide for the safe operation and maintenance of explosive actuated tools [Sec. 28.1].

QC	*Safety Code for the Construction Industry*: 1. Only a low velocity explosive actuated tool may be used [Sec. 7.1.1]. 2. Any low velocity explosive actuated tool shall be used in accordance with the manufacturer's specifications [Sec. 7.1.2]. 3. Any low velocity explosive actuated tool must: a. be unloaded when not in use; and b. never be left without supervision when it's loaded [Sec. 7.1.3]. 4. The fasteners and the accessories for a low velocity explosive actuated tool must be of the same type as those recommended by the manufacturer [Sec. 7.1.4]. 5. The strength of the explosive charges used with a low velocity explosive actuated tool must not be greater than the maximum strength permitted in accordance with the manufacturer's specifications [Sec. 7.1.5]. 6. No work may be performed by a low velocity explosive actuated tool operator who's less than 18 years of age [Sec. 7.2.2]. 7. An operator may not use a low velocity explosive actuated tool to drive: a. fasteners into: i. curved or rounded objects, except if the tool is equipped with a protective device designed for such work; ii. plaster tiles, hollow bricks or slates; iii. cast iron, marble, granite, glazed linings and other hard and brittle materials; iv. steel or alloys that are harder than the fastener used; v. hard materials in which holes have already been made, except if the tool is equipped with a device that is capable of holding back the fasteners; vi. corner bricks or vertical mortar joints; vii. steel where: A. the steel is less than 4.83 mm thick; B. the point of entry of the fasteners is less than 50 mm from a weld; and C. the point of entry of the fasteners is less than 13 mm from an edge; b. fasteners with a shaft diameter equal to or less than 4.83 mm into concrete where: i. the concrete is less than 65 mm thick or equal to 3 times the depth of penetration of the shaft of the fasteners; ii. the point of entry of the fasteners is less than 50 mm from any unsupported edge; and iii. the point of entry of the fasteners is less than 75 mm from any other fastener that has broken [Sec. 7.3.1]. 8. Before firing, the operator must ensure: a. that the low velocity explosive actuated tool: i. is placed in a stable firing position; and ii. is held so that the barrel of the tool is perpendicular to the firing surface; and b. that there's no other person within firing range [Sec. 7.3.2]. 9. When a firing incident or a misfire occurs, the low velocity explosive actuated tool must be held in its firing position for at least 15 seconds; the tool must then be unloaded. In such a case, the barrel of the tool must: a. not be pointed toward the operator or any other person; b. be held pointing obliquely toward the ground; and c. be held as far as possible from the body of the operator [Sec. 7.3.3]. 10. The employer must prohibit the use of a low velocity explosive actuated tool in shops or any other area where the concentration of inflammable vapours, gases or dust has reached the lower explosive limit [Sec. 7.3.4]. 11. The employer must ensure that: a. any low velocity explosive actuated tool is: i. checked before its first use each day; and ii. regularly inspected to detect worn or damaged parts, in accordance with the manufacturer's recommendations; b. all parts of the low velocity explosive actuated tool have been cleaned after its use; and c. the safety devices on any low velocity explosive actuated tool are in proper working order [Sec. 7.4.1]. 12. No low velocity explosive actuated tool may be used where any of its parts or accessories is defective [Sec. 7.4.3].

SK	*OHS Regs.*: An employer or contractor must ensure that a worker who operates an explosive-actuated fastening tool: 1. doesn’t leave the tool or explosive charges unattended; 2. stores the tool and explosive charges in a locked container when not in use; and 3. uses an industrial eye or face protector that meets the requirements of Part VII [Sec. 143(3)].
YT	*OHS Regs.*: 1. Powder actuated tools must be operated and maintained according to the following: a. A low velocity powder actuated tool with a fastener test speed rating of less than 100 m per second must be used unless no low velocity tool available on the market is capable of doing a particular fastening job; and b. The tool must be securely stored in unloaded condition and be accessible only to qualified and authorized workers [Sec. 4.13]. 2. A powder actuated tool must: a. be used in accordance with the manufacturer’s instructions; b. only be used in a confined space when it’s properly ventilated; and c. not be used in an explosive or flammable atmosphere [Sec. 4.15].