DEPARTMENT OF CONSUMER AND INDUSTRY SERVICES

BUREAU OF SAFETY AND REGULATION

GENERAL INDUSTRY SAFETY STANDARDS COMMISSION

(By authority conferred on the general industry safety standards commission by sections 16 and 21 of Act No. 154 of the Public Acts of 1974, as amended, being SS408.1016 and 408.1021 of the Michigan Compiled Laws)

PART 38. HAND AND PORTABLE POWERED TOOLS

R 408.13801 Scope.

Rule 3801. This part provides for the safe maintenance, operation and use of hand tools and portable powered tools, regardless of ownership in, around or about a place of employment.

History: 1979 AC.

R 408.13804 Definitions; C to F.

Rule 3804. (1) "Chain fall" means a manually powered hoisting device employing a load bearing chain and an endless hand chain to raise or lower loads.

(2) "Explosive load" means a substance capable of producing a propellant force in a powder actuated tool.

(3) "Fastener driver" means a portable powered tool such as a nut runner, impact wrench, stapler, screw driver, nailer and riveter.

History: 1979 AC.

R 408.13805 Definitions; H.

Rule 3805. (1) "Hammer actuated piston tool" means a device which, when struck by a hammer and supplemented by an explosive load, moves a captive piston to drive a fastener into a work surface.

(2) "Hand tool" means an instrument used or worked by hand.

(3) "High velocity tool" means a device which, when used with an explosive load, propels a fastener at a velocity more than 300 feet per second when measured 6 1/2 feet from the muzzle end of the tool.

(4) "Hoist and puller," sometimes called a come-along, means a portable, manually operated device for lifting, lowering or moving by a pulling force.

(5) "Hot stick" means a dielectric tool extension used when working on energized conductors and apparatus.

History: 1979 AC.

R 408.13806 Definitions; J to M.

Rule 3806. (1) "Jack" or "ram" means a device, except an automobile bumper jack, used for lifting, lowering or moving a load by application of a pushing force.

(2) "Low velocity tool" means a device which, when used with an explosive load, propels a fastener at a velocity less than 300 feet per second when measured 6 1/2 feet from the muzzle end of the tool.

(3) "Mushroom" means to overrun the shank or head of a tool by battering the striking end.

History: 1979 AC.

R 408.13807 Definitions; P.

Rule 3807. (1) "Platen sander" means a portable powered tool which has abrasive paper fastened to a base or platen which moves in an orbital oscillating motion.

(2) "Pneumatic powered nut runner" means an air operated wrench used to drive a threaded fastener into or onto a work piece.

(3) "Portable powered stapler and nailer," other than general office staplers, means a tool which drives a staple or nail by mechanical, pneumatic or electrical power into a work piece.

(4) "Portable powered tool" means a tool carried and moved by hand and powered by something other than manual force.

(5) "Powder actuated tool" means a device for making instantaneous forced entry into materials by use of a tool, a fastener and an explosive load.

(6) "Protective shield" means a device or guard attached to the muzzle end of a powder actuated tool to confine flying particles.

History: 1979 AC.

R 408.13808 Definitions; R, S.

Rule 3808. (1) "Rating" means the maximum working load for which an object is designed to handle under given circumstances.

(2) "Stall type tool" means a powered nut runner which stalls out under load but maintains pressure on the fastener until the power supply to the motor is manually terminated by means of a throttle release or other power disconnect.

History: 1979 AC.

R 408.13811 Employer responsibility.

Rule 3811. An employer shall do all of the following:

(a) Ensure that an employee has been trained in the use of hand tools and portable powered tools before authorizing their use.

(b) Maintain, or require to be maintained, hand tools and portable powered tools free of defects that could cause injury to an employee.

(c) Comply with the requirements of this part.

History: 1979 AC; 1983 AACS; 1993 AACS.

R 408.13812 Employee responsibilities.

Rule 3812. An employee shall do all of the following:

(a) Use personal protective equipment where required by the employer or dictated by the hazard of the job.

(b) Not use a tool for other than its designed or approved use.

(c) Report defective hand tools and portable power tools to his or her supervisor.

History: 1979 AC; 1993 AACS.

R 408.13821 Storage and handling.

Rule 3821. (1) A hand tool or portable powered tool shall be stored in a manner to prevent damage which would make the tool unsafe for use.

(2) A sharp or pointed tool, such as, but not limited to, chisels, drill bits, and awls, shall be carried in 1 of the following ways:

(a) With the edges or points protected.

(b) In a tool tray.

(c) In a cart.

(d) In a sheath.

(e) In the hand with the sharp edges turned away from the body.

(3) A sharp or pointed tool, when stored in a rack or bin, shall have the sharp edge or point inward or otherwise protected or stored to prevent injury.

History: 1979 AC; 1983 AACS.

R 408.13822 Inspection.

Rule 3822. (1) A portable pneumatic grinder not legibly marked with the manufacturer's rated speed shall not be used.

(2) A tool shall be inspected visually by the employee using the tool for safe operation before daily use, and, when found defective, it shall be removed from service.

(3) The speed of a portable air grinder shall be checked with a tachometer or other device for reading r.p.m. (revolutions per minute) when purchased, annually, and after repairs to ensure the speed does not exceed the manufacturer's rated speed. A grinding wheel shall not be installed if its rated speed is less than the grinder.

History: 1979 AC; 1983 AACS.

R 408.13823 Controls.

Rule 3823. (1) A hand-held powered circular saw having a blade diameter more than 2 inches; an electric, hydraulic, or pneumatic chain saw; and a percussion tool without positive accessory holding means shall be equipped with a constant pressure switch or control that will shut off the power when the pressure is released. A gasoline-powered, hand-operated tool shall be equipped with a constant pressure throttle. A throttle position lock may be provided for starting only.

(2) All of the following hand-held tools shall be equipped with a constant pressure switch or control and may have a lock-on control if turn off can be accomplished by a single motion of the same finger or fingers that turn it on:

(a) A powered drill.

(b) Tapper.

(c) Fastener driver.

(d) Grinder with a wheel more than 2 inches in diameter.

(e) Disc sander with disc more than 2 inches in diameter.

(f) Belt sander.

(g) Reciprocating saw.

(h) Saber saw.

(i) Scroll saw.

(j) Jig saw with a blade shank more than a nominal 1/4 inch.

(k) Similarly operating power tools.

(3) Other hand-held powered tools, such as, but not limited to the following, may be equipped with either a positive on-off control or other control prescribed in subrules (1) and (2) of this rule:

(a) A platen sander.

(b) Grinder with a wheel 2 inches or less in diameter.

(c) Disc sander with discs 2 inches or less in diameter.

(d) Router.

(e) Planer.

(f) Laminate trimmer.

(g) Nibbler.

(h) Shear.

(i) Saber saw.

(j) Scroll saw.

(k) Jig saw with blade shank of a nominal 1/4 inch or less.

(4) The operating control on a hand-held power tool shall be located so as to prevent accidental operation, if such operation would constitute a hazard to an employee.

(5) A hand-held power tool shall be disconnected from its power source when it is serviced or the point of operation device is changed by a device or tool, except for a hand-held drill less than 3/8 inch, platen sander, 2 inch belt sander, or scroll saw.
(6) Subrule (1) to (5) of this rule do not apply to the following:
(a) Concrete vibrators.
(b) Concrete breakers.
(c) Powered tampers.
(d) Jack hammers.
(e) Rock drills.
(f) Garden appliances.
(g) Household and kitchen appliances.
(h) Personal care appliances.
(i) Medical or dental equipment.
(j) Fixed machinery or equipment.

History: 1979 AC; 1983 AACS.

R 408.13824 Modification.
Rule 3824. A tool and its power source shall not be modified, except by an authorized and trained employee or qualified outside service.

History: 1979 AC.

HAND TOOL PROVISIONS

R 408.13831 General; hand tools.
Rule 3831. A hand tool shall be used only for the purpose for which it was designed or approved.

History: 1979 AC.

R 408.13832 Rescinded.

History: 1979 AC; 1983 AACS.

R 408.13833 Abrasive blast cleaning nozzles.
Rule 3833. (1) An abrasive blast cleaning nozzle shall be equipped with a constant pressure control.
(2) An abrasive blast cleaning nozzle shall be mounted on a support when not in use.

History: 1979 AC.

R 408.13834 Axes, hatchets, hammers, and mauls.
Rule 3834. An axe, hatchet, hammer, or maul handle shall be replaced when it becomes cracked, broken or splintered. A wood handle shall be secured with wedges or equivalent means.

History: 1979 AC.

R 408.13835 Chisels, punches, star drills, drift pins, and wedges.

Rule 3835. (1) A chisel, punch, star drill, drift pin, or wedge with a metal striking end shall not be used when the end becomes mushroomed. The striking end shall be ground with a crowned radius and beveled edge.

(2) The working end of a chisel, punch, star drill, drift pin, or wedge shall be maintained as designed.

History: 1979 AC.

R 408.13836 Files and rasps.

Rule 3836. A file or rasp with a tang shall be equipped with a handle fitted and secured to the tang, when in use.

History: 1979 AC.

R 408.13838 Jacks; use.

Rule 3838. (1) The rated capacity of a jack shall not be exceeded. The rated capacity shall be permanently marked on the jack.

(2) A jack shall be set on or against a firm foundation or blocking. If a jack, at the point of contact with the load, can slip, a wood block or nonslip device shall be placed between the cap and the load.

(3) A jack shall be equipped with a means such as, but not limited to, a stop, a bypass, an indicator or other device which shall be watched to prevent overrun.

(4) After a load has been raised or moved, it shall be secured by cribbing, blocks or stands before work is started under or between the supported load.

(5) A hydraulic jack exposed to freezing temperatures shall be protected by use of an anti-freeze liquid.

History: 1979 AC.

R 408.13839 Jacks; inspection.

Rule 3839. (1) A jack shall be inspected for leaks, mechanical defects and lubrication according to the following requirements:

(a) Not less than semi-annually.

(b) Before and after a special use or abnormal shock.

(c) After repairs or servicing.

(2) A defective jack shall be tagged and removed from service.

History: 1979 AC.

R 408.13840 Knives.

Rule 3840. (1) A fixed blade knife shall be carried in a sheath, in a tray or other equivalent protective means.

(2) A folding knife which cannot be locked in place shall not be used in a manner where the blade could fold on the fingers.

History: 1979 AC.

R 408.13841 Pliers.

Rule 3841. Pliers with sprung jaws, a worn face, or worn joint pin shall be replaced.

History: 1979 AC.

R 408.13843 Screwdrivers.

Rule 3843. (1) An object being worked on with a screwdriver shall not be held in the hand, on the lap or under the arm, except when protection is afforded by the object or other means.

(2) A screwdriver used for electrical work shall be equipped with a nonconductive handle. The shank and fasteners shall not project through the handle.

(3) A blade type screwdriver shall be maintained with a flat tip at right angles to the shank and have almost parallel faces.

(4) A screwdriver with 1 of the following defects shall not be used:

(a) Split or broken handle.

(b) Cracked or broken handle.

(c) Loose shank in handle.

(d) Worn blade.

(e) Bent shank of a straight screwdriver.

History: 1979 AC.

R 408.13844 Wrenches.

Rule 3844. (1) A wrench with spread, distorted or cracked jaws shall not be used.

(2) A wrench, except a wrench designed for that purpose, shall not be subjected to hammering.

History: 1979 AC.

R 408.13845 Chain falls and hoist and pullers; capacity.

Rule 3845. (1) A chain fall or hoist and puller shall be used at not more than its rated capacity.

(2) The capacity of a chain fall or hoist and puller shall be permanently labeled or marked on it.

(3) An accessory, such as a chain or cable used to secure or support a chain fall or hoist and puller, shall have a capacity of not less than the chain fall or hoist and puller.

(4) An object subject to a lift or pull by a chain fall shall have the capacity to absorb the lift or pull without creating a hazard to an employee in the area.

History: 1979 AC.

R 408.13846 Chain falls and hoist and pullers; use.

Rule 3846. (1) A chain fall or hoist and puller shall be secured to an anchorage and the load attached to the chain fall or hoist and puller in a manner which will prevent inadvertent disengagement.

(2) When a chain fall or hoist and puller are under tension of a load, a positive action shall be required to release the tension.

(3) A hoist and puller lever handle shall not be operated with an extension handle except as furnished by the manufacturer.

(4) A chain fall or hoist and puller shall be visually inspected for observable defects before each job use by the employee using the tool.

History: 1979 AC.

R 408.13847 Hot sticks.

Rule 3847. (1) A hot stick and any tool attached to it shall be clean and inspected for damage before use.

(2) A hot stick which has been damaged shall not be used until replaced or repaired by a knowledgeable employee or an outside service and tested to meet the requirements of subrule (3) of this rule.

(3) A new hot stick purchased after the effective date of this part shall not be used unless it has been certified and labeled by the manufacturer to meet the following standards:

(a) Fiberglass, 100,000 volts per foot of length for 5 minutes, or any equivalent test.

(b) Wood, 75,000 volts per foot of length for 3 minutes, or any equivalent test.

(4) A hot stick shall be stored in a manner to protect it from damage. A hot stick made of wood shall be protected from moisture.

(5) A hot stick shall not be used in excess of the rated capacity certified by the manufacturer.

(6) The minimum working distance and minimum clear hot stick distances prescribed in table 1, when using live-line tools, shall not be violated.

(7) Table 1 reads as follows:

TABLE 1

Voltage Range (Phase to Phase) Kivolt	Minimum Working and Clear Hot Stick Distance
2.1 to 15	2 ft. 0 in.
15.1 to 35	2 ft. 4 in.
35.1 to 46	2 ft. 6 in.
46.1 to 72.5	3 ft. 0 in.
72.6 to 121	3 ft. 4 in.
138 to 145	3 ft. 6 in.
161 ti 169	3 ft. 8 in.
230 to 242	5 ft. 0 in.
345 to 362	7 ft. 0 in.
500 to 552	11 ft. 0 in.
700 to 765	15 ft. 0 in

Note: For 345-362 kv., 500-552 kv., and 700-765 kv., the minimum working distance and the minimum clear hot stick distance may be reduced provided that such distances are not less than the shortest distance between the energized part and a grounded surface.

History: 1979 AC; 1983 AACS.

PORTABLE POWERED TOOL PROVISIONS

R 408.13861 Portable powered tools generally.

Rule 3861. (1) An electrically powered tool shall have an approved ground unless it is double-insulated and carries a permanent label or mark so stating.

(2) A pneumatically powered tool shall be equipped with a tool retainer where the absence of a retainer would result in a tool being ejected.

(3) Hose and hose fittings used with pneumatic powered tools shall have pressure ratings not less than the supply source.

(4) Hose connections shall have a positive-locking action or the connecting sections shall have a safety chain to restrain any whipping action if the sections become disconnected.

(5) An air supply line shall be regulated to maintain the pressure at not more than the pneumatic tool rating.

(6) Safety devices and operating controls shall not be made inoperative.

History: 1979 AC; 1983 AACS.

R 408.13863 Portable circular saws.

Rule 3863. (1) A portable, power driven circular saw with a blade more than 2 inches in diameter shall have guards above and below the base plate or shoe. The upper guard shall cover the saw to the depth of the teeth, except for the minimum arc required to permit the base to be tilted for bevel cuts. The lower guard shall cover the saw to the depth of the teeth, except for the minimum arc required to allow proper

retraction and contact with the work. When the tool is withdrawn from the work, the lower guard shall return to the covering position automatically and instantly.

(2) The guard shall not be tied back or removed except for servicing.

(3) A cracked circular saw blade shall be removed from service.

History: 1979 AC.

R 408.13864 Portable pneumatic grinders.

Rule 3864. (1) A portable pneumatic grinder shall be operated at a speed of not more than the grinder's rated speed.

(2) A line supplying air to a portable pneumatic grinder regulated by a governor shall be equipped with a filter to remove water, contaminated oil and dirt.

(3) A portable pneumatic grinder regulated by a governor shall be provided with a continuous lubrication means.

History: 1979 AC.

R 408.13865 Powered stapler and nailers.

Rule 3865. (1) A portable powered stapler or nailer, capable of driving a fastener with a diameter more than .0475 inch - 18 gauge A.W.G., at more than 75 feet per second, shall be designed so that the operator is required to make not less than 2 separate operations to activate the tool with 1 operation being to place the tool against the work surface.

(2) The design shall prevent discharge of the stapler during loading or when dropped.

(3) A portable powered stapler or nailer shall not be pointed or discharged at other than the work piece.

(4) The operator of a portable powered stapler or nailer and those employees within the striking distance of its fastener shall be provided with and use eye protection as prescribed in Part 33. Personal Protective Equipment, being R 408.13301 et seq. of the Michigan Administrative Code.

(5) A positive actuation of the operator control shall be required to propel each fastener from a powered stapler or nailer.

(6) When relieving a jam-up of a fastening device, the source of power shall be disconnected.

(7) At the beginning of each shift, a portable powered stapler and nailer shall be tested for safe operation.

(8) Safety devices and operating controls shall not be made inoperative.

History: 1979 AC; 1983 AACS.

R 408.13866 Pneumatic powered nut runner.

Rule 3866. (1) A pneumatic powered angle nut runner with a trigger type operating control shall have the control located so that the reaction force of the runner does not create additional pressure on the trigger.

(2) A mechanical means shall be provided to absorb torque reaction of a stall type tool and used where:

(a) The resultant sustained force on an operator of an angle head nut runner or an inline tool with dual offset handles is more than 50 pounds.

(b) The reaction torque from an inline nut runner with a single offset handle is more than 100 inch pounds.

(c) The reaction torque of an inline nut runner without an offset handle is more than 30 inch pounds.

(3) A powered nut runner other than a stall type shall be provided a device, such as a reaction bar, when the reaction force on the operator is such that the operator cannot control the tool.

History: 1979 AC.

POWDER ACTUATED TOOLS

R 408.13871 Powder-actuated tools; design and construction.

Rule 3871. A powder-actuated tool shall be designed and constructed as prescribed in section 6 of the ANSI standard, A10.3-1977, powder-actuated fastening systems, which is adopted herein by reference and may be inspected at the Lansing office of the department of labor. This standard may be purchased at a cost of $3.50 from the American National Standards Institute, 1430 Broadway, New York, New York 10018, or from the Michigan Department of Labor, 7150 Harris Drive, Box 30015, Lansing, Michigan 48909.

History: 1979 AC; 1983 AACS.

R 408.13872 Powder-actuated tools generally.

Rule 3872. (1) An employer who uses powder-actuated tools shall establish and maintain, at the place of employment, a list or other record of employees qualified and trained to operate powder-actuated tools of the type provided by the employer.

(2) An employee shall receive training and instruction from 1 of the following:

(a) A dealer or distributor of powder-actuated tools who has been authorized by the tool manufacturer to provide such training.

(b) An authorized employee of a powder-actuated tool manufacturer.

(c) An employer or an authorized employer representative.

(3) A powder-actuated tool which is found not to be in proper working order or which develops a defect during use shall be immediately removed from service, tagged, and not used until repaired. The tag shall be as prescribed in R 408.13731.

(4) The employer shall have a defective powder-actuated tool repaired only by an authorized repairperson.

History: 1979 AC; 1983 AACS.

R 408.13873 Powder-actuated tools; training.

Rule 3873. (1) The training of an employee to use a powder-actuated tool shall, at a minimum, include the following items:

(a) Cleaning.

(b) Inspection.

(c) Operation.

(d) Use limitations.

(e) Power levels.

(f) Misfire procedure.

(2) Before approving an employee as an operator of a powder-actuated tool, the employer shall have the employee demonstrate competence by actually operating the powder-actuated tool in a safe manner.

History: 1979 AC; 1983 AACS.

R 408.13874 Power levels.

Rule 3874. (1) The power level for cased or caseless loads shall be identified by a color and numbering system as prescribed in table 2, except that caseless loads are limited to power levels 1 to 6. The combination of the case color and load color shall designate the load level. Both the explosive load and the carton or box shall provide visual indication of the load level.

(2) Studs or other fasteners used in a powder-actuated tool shall be only those specifically manufactured for use in such tools.

(3) Table 2 reads as follows:

TABLE 2

Power Level	Case Color	Load Color	Nominal Velocity (+,- 45 fps)
1	Brass	Gray	300
2	Brass	Brown	390
3	Brass	Green	480
4	Brass	Yellow	570
5	Brass	Red	660
6	Brass	Purple	750
7	Nickel	Gray	840
8	Nickel	Brown	930
9	Nickel	Green	1020
10	Nickel	Yellow	1110
11	Nickel	Red	1200
12	Nickel	Purple	1290

Note: The nominal velocity applies to 3/8-inch diameter 350-grain ballistic slug fired in a test device and has no reference to actual velocity developed in any specific size or type of tool.

History: 1979 AC; 1983 AACS.

R 408.13875 Powder-actuated tool defects and misfires.

Rule 3875. (1) In case of a misfire, the operator shall hold the powder-actuated tool in the operating position for not less than 30 seconds. The operator shall then try to operate the tool a second time. The operator shall wait another 30 seconds, holding the tool in the operating position, and the the operator shall proceed to remove the explosive load in strict accordance with the manufacturer's instructions.

(2) Misfired cartridges shall be placed carefully in a container filled with water and shall be disposed of in a safe manner.

History: 1979 AC; 1983 AACS.

R 408.13876 Rescinded.

History: 1979 AC; 1983 AACS.

FUEL POWERED TOOLS

R 408.13881 Refueling; operation in enclosed area prohibited; exception.

Rule 3881. (1) A fuel-powered tool shall be stopped while being refueled, serviced, or maintained.

(2) A fuel-powered tool shall not be operated in an enclosed area, unless the toxic fumes are below the maximum allowable limits prescribed by the state department of public health in R 325.2430.

(3) Where refueling is done with a portable container, the container shall be an approved safety can with an automatic closing cap and flame arrestor.

History: 1979 AC; 1983 AACS.

R 408.13882 Chain saws.

Rule 3882. (1) A chain saw shall be used only for cutoff work such as cutting trees, limbs, poles and beams. A chain saw shall not be used to open a hole in a solid object such as a floor, wall, or panel. Chain

saws that are specifically designed for firefighting operations to cut holes in roofs, floors, and walls are exempt from this rule.

(2) A chain saw shall be equipped with a positive-type on-off ignition switch that is conveniently located to allow the operator to move it into the off position without relinquishing his or her grip on the saw.

(3) A manual chain oiler control, if provided on a chain saw, shall be located so that it can be operated without relinquishing a secure grip on the saw.

(4) An engine throttle control, if provided on a chain saw, shall be located so that it can be operated without relinquishing a secure grip on the saw.

(5) A chain saw shall have a guard that protects the throttle lever from casual contact from brush or other foreign objects.

(6) A chain saw that is equipped with a centrifugal clutch shall have a throttle control, carburetor, and clutch system so that the engine idle speed becomes lower than the clutch engagement speed if the throttle control is released, thereby allowing the chain to come to a complete stop.

(7) A chain saw's moving parts, such as a flywheel, rotating screen or clutch, shall be guarded. A saw's chain shall be guarded adjacent to the handle area and the sawdust shall be directed away from the operator.

(8) A saw's chain shall be stopped if it is not being used for sawing.

(9) A chain saw shall be carried by the top handle with the guide bar to the rear.

(10) A chain saw shall not be started within 10 feet of the place where it was refueled.

History: 1979 AC; 1993 AACS.