DEPARTMENT OF LICENSING AND REGULATORY AFFAIRS

DIRECTOR'S OFFICE

GENERAL INDUSTRY SAFETY AND HEALTH STANDARD

(By authority conferred on the director of the department of licensing and regulatory affairs by sections 16 and 21 of the Michigan occupational safety and health act, 1974 PA 154, MCL 408.1016 and 408.1021, and Executive Reorganization Order Nos. 1996-2, 2003-1, 2008-4, and 2011-4, MCL 445.2001, 445.2011, 445.2025, and 445.2030)

PART 81. BAKING OPERATIONS

R 408.18101 Scope.

Rule 8101. (1) This part provides for the safe maintenance and operation of bakery machinery and equipment by the employer and their safe use by the employee in, around, and about a place of employment.

(2) The requirements of this part apply to the design, installation, operation, and maintenance of machinery and equipment used within a bakery.

History: 1979 AC; 2014 AACS.

R 408.18101a Adopted and referenced standards.

Rule 8101a. (1) This standard is adopted by reference in these rules, American Society of Mechanical Engineers Standard ASME "Boiler and Pressure Vessel Code, Section VIII – Unfired Pressure Vessels" 1974 edition, Division 1 and Division 2 with addenda. This standard is available from IHS Global, 15 Inverness Way East, Englewood, Colorado, USA, 80112, USA, telephone number: 1-800-854-7179 or via the internet at the following website: http://global.ihs.com; at a cost as of the time of adoption of these rules of $514.00.

(2) The following standards are adopted by reference in these rules and are available from the National Fire Protection Association (NFPA), 1 Batterymarch Park, Quincy, Massachusetts, USA, 02169-7471, telephone number: 1-800-344-3555, or via the internet at the following website: custserv@nfpa.org, at a cost as of the time of adoption of these rules, as stated in this rule.

(a) NFPA 62 "Code for Pulverizing Systems for Sugar and Cocoa," 1967 edition. Cost: $27.00.

(b) NFPA 656 "Code for the Prevention of Dust Ignitions in Spice Grinding Plants," 1959 edition. Cost: $27.00.

(3) The standards adopted in these rules are available for inspection at the Department of Licensing and Regulatory Affairs, MIOSHA Regulatory Services Section, 530 West Allegan Street, P.O. Box 30643, Lansing, Michigan, 48909-8143.

(4) Copies of the standards adopted in these rules may be obtained from the publisher or may be obtained from the Department of Licensing and Regulatory Affairs, MIOSHA

Regulatory Services Section, 530 West Allegan Street, P.O. Box 30643, Lansing, Michigan, 48909-8143, at the cost charged in this rule, plus $20.00 for shipping and handling.

(5) The following Michigan Occupational Safety and Health Administrative (MIOSHA) standards are referenced in these rules. Up to 5 copies of these standards may be obtained at no charge from the Michigan Department of Licensing and Regulatory Affairs, MIOSHA Regulatory Services Section, 530 West Allegan Street, P.O. Box 30643, Lansing, Michigan, 48909-8143, or via the internet at: www.michigan.gov/mioshastandards. For quantities greater than 5, the cost, at the time of adoption of these rules, is 4 cents per page.

(a) General Industry Safety and Health Standard Part 2. "Walking-Working Surfaces," R 408.10201 to R 408.10241.

(b) General Industry Safety Standard Part 8. "Portable Fire Extinguishers," R 408.10801 to R 408.10839.

(c) General Industry Safety Standard Part 9. "Fixed Fire Equipment," R 408.10901 to R 408.10999.

(d) General Industry Safety and Health Standard Part 14. "Conveyors," R 408.11401 to R 408.11461.

(e) General Industry Safety Standard Part 39. "Design Safety Standards for Electrical Systems," R 408.13901 to R 408.13905.

History: 2014 AACS; 2019 AACS.

R 408.18102 Definitions; A.

Rule 8102. (1) "Aisle" means a path of designated travel for employees and stock moving equipment.

(2) "Automatic fry machine" means a machine with a power driven unit which deposits donuts, pies or other products into a hot edible oil and conveys them out of the oil after frying.

History: 1979 AC.

R 408.18103 Definitions; B.

Rule 8103. (1) "Bag arm conveyor" means an elevating type conveyor with 1 or more chains to which are attached projecting arms for handling objects such as barrels or bags in a vertical or inclined path.

(2) "Bagger" means a machine which receives a bakery product, inserts it into a preformed bag and closes the bag with a recloseable means.

(3) "Bakery" means a place where various ingredients are mixed together and processed to produce frozen or finished bakery products.

(4) "Band bar-type goods cutter" means a cutting device used to cut bakery products to predetermined sizes on an ovenband.

(5) "Bar loader" means a device for pushing pans or products.

(6) "Bun intermediate proofer" means a machine which gives proofing time to dough by conveyance.

History: 1979 AC.

R 408.18104 Definitions; C.

Rule 8104. (1) "Cake depositor" means a machine which measures batter for cakes and deposits it into pans.

(2) "Carton closing machine" means a machine which automatically closes rigid hinged cover cartons after a product has been manually or automatically inserted.

(3) "Carton wrapping machine" means a machine which receives and conveys single and grouped products in containers and overwraps them in flexible wrapping material.

(4) "Continuous mixer" means a machine which continuously mixes ingredients to produce a dough product and dispenses the dough automatically.

History: 1979 AC.

R 408.18105 Definitions; D.

Rule 8105. (1) "Divider" means a unit which divides a large dough mass into a predetermined size.

(2) "Dough brake" means a machine which rolls dough into a flat shape.

(3) "Dough sheeter" means a machine which takes a piece of dough and, by running it between a series of rolls, produces a sheet of dough.

(4) "Dumpbin" means equipment into which dry ingredients in bags are first emptied for distribution.

History: 1979 AC.

R 408.18106 Definitions; F to N.

Rule 8106. (1) "Form, fill, seal pouch or bag machine" means a machine which automatically weighs, counts or measures a product and inserts the product into a formed and partially sealed flexible material pouch.

(2) "Grinder, pulverizer, food chopper and breaker" means machines used to reduce material into small fragments or powder by means of rolls, knives, blades or hammers.

(3) "Horizontal mixer" means a machine which combines ingredients by agitating with beaters rotating in an arc on a horizontal shaft. A horizontal mixer may have a tilting or nontilting bowl.

(4) "Molder" means a unit which forms and shapes a dough piece prior to insertion into a pan.

(5) "Nip point" means that point where a rotating object creates a pinching action with another rotating object.

History: 1979 AC.

R 408.18107 Definitions; O to R.

Rule 8107. (1) "Ovenband" means a continuous moving steel conveyor used in ovens in which the ovenband serves as the pan and hearth.

(2) "Ovenhand bar loader" means a mechanical device consisting of a push bar attached to arms or a conveyor which moves bakery products from a table or platform onto a rack or moving conveyor.

(3) "Pinch point" means a point at which it is possible to be caught between moving parts of a machine or between moving and stationary parts of a machine.

(4) "Rounder" means a machine which rolls the dough, after being divided, to give the dough a desired shape.

History: 1979 AC.

R 408.18108 Definitions; S.

Rule 8108. (1) "Scale cut-off switch" means a control device which shuts off the material feed when the scale has been charged with a predetermined amount of dry ingredient.

(2) "Sifter" means fixed, motorized equipment, either oscillating, vibrating or brush type, which sifts dry ingredients.

(3) "Slicing machine" means a machine equipped with moving cutters which slices bakery products.

(4) "Spindle mixer" means a machine with 1 or more retractable heads which combines ingredients in a trough with beaters on a vertical shaft.

History: 1979 AC.

R 408.18109 Definitions; T to W.

Rule 8109. (1) "Tray or carton forming machine" means a machine which automatically forms magazine-fed flat die-cut blanks of semi-rigid material into trays or hinged cover cartons.

(2) "Trough" means a tub moved on castors, and used to hold or transport masses of ingredients or dough.

(3) "Vertical mixer" means a machine which combines ingredients in a bowl by agitating with beaters revolving on a vertical shaft.

(4) "Weight hopper and scale" means a device which weighs ingredients before dumping.

(5) "Wrapping machine" means a machine equipped with mechanisms for conveying and wrapping bakery products in flexible wrapping material.

History: 1979 AC.

R 408.18111 Employer responsibilities.

Rule 8111. An employer shall comply with both of the following:

(a) Provide training to an employee as to the hazards and safe practices of the assigned job.

(b) Maintain machinery, buildings, ramps, platforms, and aisles free of recognized hazards likely to cause an injury by operation or use.

History: 1979 AC; 1982 AACS; 2019 AACS.

R 408.18112 Employee responsibility.

Rule 8112. An employee shall:

(a) Use personal protective equipment as required by this part.

(b) Not use machinery or equipment unless authorized.

(c) Not remove guards from machinery and equipment except when needed for servicing. The guards shall be replaced before returning to production.

(d) Report defective machinery, equipment and hazardous conditions, when detected, to a supervisor.

History: 1979 AC.

R 408.18113 Illumination.

Rule 8113. Illumination shall be provided at the work station to maintain a minimum of 20 footcandles intensity.

History: 1979 AC.

R 408.18114 Floors, aisles, and platforms.

Rule 8114. (1) An aisle for combined usage of an employee and stock moving equipment must be 2 feet wider than the widest load moved. In a place of employment having less than 10 employees producing hand crafted products in the production area, the aisle must be not less than 30 inches wide. The aisle must be defined.

(2) A platform, walkway, and stairway, where provided, on storage bins and machinery must be constructed as prescribed in General Industry Safety and Health Standard Part 2. "Walking-Working Surfaces," as referenced in R 408.18101a.

(3) A fixed ladder used in place of a stairway must be as prescribed in the General Industry Safety and Health Standard Part 2. "Walking-Working Surfaces," as referenced in R 408.18101a.

History: 1979 AC; 1982 AACS; 2014 AACS; 2019 AACS.

R 408.18115 Power controls and motors.

Rule 8115. (1) Provision shall be made to prevent permanently connected machinery and equipment, other than compressors and air moving equipment used for air conditioning and refrigeration, and fire protection and pumps, from automatically restarting upon restoration of power after a power interruption if unexpected start up could cause injury.

(2) A control device, except a stop button, shall be so arranged or guarded as to prevent accidental activation where activation could cause injury.

(3) Where a hazard exists, a machine shall be equipped with an emergency stop device, red in color, that can be activated from an operator's work station.

(4) When a 2-hand control device is required, it shall require the concurrent use of both hands to activate the machine or equipment. The device shall be located in a manner to prevent bridging. Where more than 1 employee is exposed to the point of operation, a 2-hand control device shall be provided each employee and the controls shall operate concurrently.

(5) An electric motor, control, and other electrical components used on dry ingredient handling and storage equipment shall be dust ignition tight.

History: 1979 AC; 1982 AACS; 2014 AACS.

R 408.18116 Machine installation.

Rule 8116. (1) Electrically powered machinery and equipment must be grounded.

(2) Stationary type machinery and equipment must be secured to a floor, foundation, bench, table, or stand of such strength and design to prevent overturning or unintentional movement.

(3) Permanent machinery and equipment must not be placed so as to require an operator to stand in an aisle. Temporary equipment must not be placed so as to require an operator to stand in an aisle, unless the employee is protected with a guardrail system in compliance with General Industry Safety and Health Standard Part 2. “Walking-Working Surfaces,” as referenced in R 408.18101a.

(4) Machinery or equipment having an access door for body entry must be equipped with a means of opening the door inside and out.

History: 1979 AC; 1982 AACS; 2014 AACS; 2019 AACS.

R 408.18117 Lubrication and maintenance.

Rule 8117. An employee required to work in an explosive atmosphere shall use nonsparking maintenance and cleaning tools to prevent static and mechanical sparking.

History: 1979 AC; 1982 AACS.

R 408.18118 Hot surfaces.

Rule 8118. Steam pipes, hot water pipes and surfaces of machinery and equipment which would cause burns, if exposed to contact, shall be guarded with a heat-resistive or insulating material or a barrier. If guarding is impractical, the exposed employee shall wear personal protective equipment.

History: 1979 AC.

R 408.18119 Housekeeping.

Rule 8119. (1) Flour dust shall be removed not less than monthly from ledges, beams, sills, machinery and equipment in the make up and flour storage areas.

(2) Flour and dough shall be removed from the floor or platform of a work station not less than daily.

History: 1979 AC.

SPECIFIC EQUIPMENT

R 408.18121 Dry ingredients conveyors generally.

Rule 8121. (1) A flour-handling system which has the final delivery end out of sight of the beginning point shall have a control at each point, either of which shall stop the flow of flour.

(2) A bag chute with an incline of more than 30 degrees shall be equipped with a stop at the discharge end or the end shall have a means to slow the bags.

(3) Wherever any of the various pieces of apparatus comprising a flour-handling system are run in electrical unity with one another, the control circuits for magnetic controllers shall be so arranged that the opening of any 1 of several limit switches, which may be on an individual unit, shall serve to de-energize all of the motors of that unit.

(4) A screw conveyor shall be constructed of metal or other non-splintering material.

History: 1979 AC; 1982 AACS.

R 408.18122 Bag-arm conveyors.

Rule 8122. A bag-arm conveyor used for transporting bags of flour or sugar with manual takeoff shall be equipped with a device installed so as to stop the conveyor automatically if any bag fails to clear the bar-arms at the discharge end. The conveyor shall be equipped with a rollback device as prescribed in General Industry Safety Standard Part 14 “Conveyors,” as referenced in R 408.18101a.

History: 1979 AC; 1982 AACS; 2014 AACS.

R 408.18123 Storage bins and silos.

Rule 8123. (1) A dry ingredient storage bin or silo shall be equipped with a dust-tight cover secured with gaskets and latches or other fasteners. A cover over a point of entry used by an employee shall be interlocked with the loading and unloading motors to prevent their operation when the cover is open. The cover shall be locked open when the bin or silo is occupied by an employee.

(2) When an employee enters a bin or silo, he shall wear a safety belt with spark-resistant fittings attached to a lifeline attended by an employee outside the bin. The employee shall be supplied with fresh air during the time work is being performed within a bin or silo.

(3) Illumination provided inside a bin or silo shall be from an explosion-proof light fixture or explosion-proof flashlight.

(4) A storage bin having a side more than 5 feet in depth shall be provided with a standard stationary safety ladder both inside and outside the bin, which shall reach from floor level

to the top of bin, and from the top of bin to the bottom on the inside, with the ladder end kept away from the moving screw conveyor, or shall be provided with some other means of providing equivalent safety for the employee.

(5) A walkway surface shall be maintained in nonslip condition.

History: 1979 AC; 1982 AACS.

R 408.18124 Mechanical dumpbins and blenders.

Rule 8124. (1) An opening in a mechanical dumpbin or blender shall be guarded by 1 of the following:

(a) Parallel bars not more than 3 inches apart on centers.

(b) Not less than 11-gauge wire mesh with openings not more than 3 inches in any direction. If an employee can reach the moving parts of the machine through the guard, then the 3-inch opening shall be reduced until the hazard is eliminated.

(2) A mechanical dumpbin and blender shall be equipped with a suction type dust hood of such capacity as to prevent dust circulation outside the hood.

(3) Where the loading point of a manually filled mechanical dumpbin is more than 24 inches above the floor, a bag rest shall be provided.

(4) A hinged dumpbin cover shall be provided with a means to lock the cover in the open position or shall be counterbalanced so that it cannot accidentally fall down while the dumpbin is in operation.

History: 1979 AC; 1982 AACS.

R 408.18125 Sifters.

Rule 8125. (1) An employer shall ensure that a sifter has both of the following:

(a) All openings constructed with dust tight closures that are readily accessible for inspection purposes.

(b) Refuse tailing receptacles for all types of sifters readily accessible and located at a safe distance from unguarded moving parts.

(2) Oscillating and vibrating sifters must have all moving parts within the outer frame of the sifter or the machine located within a guardrail system in compliance with General Industry Safety and Health Standard Part 2. “Walking-Working Surfaces,” as referenced in R 408.18101a.

History: 1979 AC; 2014 AACS; 2019 AACS.

R 408.18126 Weighing hoppers and scales.

Rule 8126. (1) A dial cover of a scale shall be made of shatter-proof material.

(2) A trolley flour scale shall be equipped with a bar-type handle not less than 3/4 inch in diameter for use in moving the scale.

(3) Trolley wheels on a weigh hopper or scale located less than 8 1/2 feet from a floor or platform shall be guarded with an enclosure on all exposed sides.

(4) A scale cut-off switch shall be totally enclosed and connected to the scale beam in a manner to protect the operator from contact.

(5) A handle for an operating device for a trolley switch which hangs less than 6 feet 8 inches from the floor shall be of pliable material.

History: 1979 AC; 1982 AACS.

R 408.18127 Mixers generally.

Rule 8127. (1) Valves and controls used to regulate the coolant to the mixer shall be located so as not to create a hazard for an employee.

(2) A pressure regulator shall be installed on all mixer coolant supply lines and shall be set at not more than the rated pressure of the jacket.

History: 1979 AC; 1982 AACS.

R 408.18128 Horizontal batch mixers.

Rule 8128. (1) A horizontal batch mixer shall have control devices which require concurrent use of both hands whenever the mixer bowl is opened more than 6 inches and the agitator is energized. The controls shall be located so that the operator has a full view of the mixer bowl.

(2) A horizontal batch mixer with a power dumping device shall have devices which require constant 2-hand control when the bowl closes the final 6 inches.

(3) A horizontal batch mixer shall have a flour gate operating device, ingredient opening and ingredient water inlet which can be operated by the operator from the work area without endangering the operator.

(4) An overhead cover or door on a horizontal batch mixer, which may accidentally close, shall be counterbalanced or provided a device which shall hold the door open until released by the operator.

(5) A horizontal batch mixer shall not be hosed down during cleaning unless all electrical devices are designed for such cleaning.

(6) An ingredient or inspection opening on a horizontal batch mixer shall be not more than 1 1/2 square feet in area. The opening shall have the access limited by a bar-type grating made of not less than 3/16-inch diameter stock, or its equivalent, on 3-inch centers. If it is possible to contact moving parts, a warning sign shall be installed at the opening to caution the employee.

(7) A device or mechanism used to return sponges to a mixer shall be so interlocked with the mixer as to prevent injury to the operator.

History: 1979 AC.

R 408.18129 Horizontal tub-type mixers and beaters.

Rule 8129. (1) A horizontal tub-type mixer or beater shall be guarded and have the control devices prescribed in R 408.18128(1) or shall have an interlocked cover which will stop the agitator when the cover is opened.

(2) A bottom outlet of a horizontal tub-type mixer or beater shall be so designed that an employee cannot reach the agitator or come in contact with the pinch point between the agitator and the tub.

(3) When removing the dough from a horizontal tub-type mixer with the agitator in motion, the operator shall use a jog button, so located that the operator cannot reach the point of operation, or 2-hand constant pressure controls.

History: 1979 AC.

R 408.18130 Vertical batch mixers.

Rule 8130. (1) A bowl locking device on a vertical batch mixer, including an artoflex mixer, shall be designed to require a positive action of the operator to unlock the bowl.

(2) If an employee can reach into a vertical mixing bowl, a warning sign shall be installed to caution the employee.

(3) A mixer with a built-in power unit shall have all drive elements enclosed in such a manner as to prevent injury to an operator or a maintenance employee performing his or her normal duties.

(4) A mixer shall be equipped with an individual motor and control, and with a conveniently located manual switch, to prevent the mixer from being started in the usual manner while the machine is being serviced and cleaned.

(5) A loose access door and cover weighing more than 2 pounds shall not be used on a mixer. The door or cover shall be hinged or otherwise held in proximity to the openings that they cover.

(6) An overhead cover or door that is subject to accidental closure shall be counterbalanced to remain in an open position, or shall be provided with a means to hold it open until positively released by the operator.

(7) An electrical pilot or control circuit shall not be employed at a potential in excess of 240 volts.

(8) A device shall be made available for moving a bowl, weighing more than 80 pounds with contents, into and out of the mixing position of the machine.

History: 1979 AC; 1982 AACS; 2014 AACS.

R 408.18131 Spindle mixer.

Rule 8131. A vertical spindle mixer shall be equipped with a cover which raises and lowers with the spindle head. The cover or head shall be interlocked so that the spindles cannot start when the cover is raised. A jog switch, so located that the operator cannot reach the pinch point, shall be provided for cleaning the blades in a raised position, or 2-hand constant pressure controls shall be provided.

History: 1979 AC.

R 408.18132 Continuous mixers.

Rule 8132. (1) A cover on a continuous mixer shall be interlocked to the power source so that the agitator will not turn when the cover is open.

(2) A continuous mixer which starts automatically shall have a warning device which shall be activated not less than 3 seconds before start-up.

(3) A continuous mixer with a permanent inlet that introduces solids or semisolids shall be of a configuration which would not permit hands to come in contact with moving parts.

History: 1979 AC.

R 408.18133 Dough trough elevator and dump.

Rule 8133. An elevator-type dough trough dump shall be provided with an interlocked gate so that the trough cannot be elevated or lowered until the gate is in position to protect an employee, or the trough shall be controlled constantly by an operator with a full view of the elevator area while dumping and lowering the trough the last 7 feet of travel to the floor.

History: 1979 AC.

R 408.18134 Dividers and depositors.

Rule 8134. (1) A guard at the front of a divider or depositor shall be constructed so that the dough weight can be adjusted without removal of the guard.

(2) A guard at the back of a divider or depositor shall enclose all moving parts. The guard shall be hinged and interlocked with the power source so that the machine will not operate when the enclosure is open.

(3) The oil hole for the knife at the back of a divider shall be of such size that a finger cannot enter the hold.

(4) Any elongated hole in the knife actuating arm on a divider shall be covered with a saddle guard or other protective device.

(5) Start and stop control buttons on a divider or depositor shall be oil-tight and other electrical components shall be either oil-tight or located to prevent the entrance of oil.

History: 1979 AC; 1982 AACS.

R 408.18135 Molders.

Rule 8135. (1) An emergency stop device, as prescribed in R 408.18115(4) shall be provided for the employee feeding and tailing a molder.

(2) A molder shall be so designed or guarded to prevent a shearing action at any clean-out hole.

(3) A hand-fed molder shall have a belt feed device, or the hopper shall be extended high enough or have a barrier to prevent an employee's hand from contact with the in-running rolls. The top edge of such a hopper shall be well rounded to prevent injury when it is struck or bumped by the employee's hand.

(4) A mechanical feed molder shall be provided with a hopper so designed and connected to the proofer that an employee's hands cannot come in contact with the in-running rolls.

(5) Where a removable crank is provided to adjust the molder, brackets shall be provided to hold the crank when it is not in use. The brackets shall be interlocked with the power source so that the molder cannot run until the crank is repositioned on the brackets.

(6) Each molder shall have individual drives and controls.

(7) Electric control buttons and components shall be dust tight.

History: 1979 AC.

R 408.18136 Manually fed dough brakes.

Rule 8136. (1) The in-running roll of a manually fed dough brake shall be enclosed by a guard of not less than 11 gauge metal or material of equivalent strength extending to within 6 inches of the hopper bottom board and at a horizontal distance from the nip point of the rolls sufficient to prevent an employee's hand from being caught. The enclosure may be expanded metal for visual observation.

(2) An emergency stop bar shall be provided on a manually fed dough brake so located, that if the operator slips and falls toward the rolls, or if the operator's hand is caught in the rolls, the body pressure opens a circuit which deenergizes the drive motor and a magnetic spring-set brake stops the rolls immediately. This device shall be maintained operable.

History: 1979 AC.

R 408.18138 Roll-type dough sheeters.

Rule 8138. (1) A roll-type dough sheeter shall be equipped with a barrier guard so located as to prevent fingers from getting into the nip point or an emergency stop bar shall be provided across the length of the rolls so designed that it will stop the rolls on contact with the operator's hand or arm. A material, such as perforated or expanded metal, which allows visual monitoring is preferable for a barrier guard.

(2) A guard, which completely covers the gears, shall be provided and designed to allow adjustment of the gears.

(3) The hopper for a hand-fed sheeter shall be equipped with an emergency stop bar or stopping device readily accessible to the operator or the hopper design shall be such that the operator cannot reach the rolls.

History: 1979 AC.

R 408.18139 Bun intermediate proofers.

Rule 8139. (1) A star wheel feeder on a bun intermediate proofer shall be enclosed by a hinged guard on all sides except for an opening to receive the dough. The hinged portion shall be designed to open up when struck by a hand.

(2) The moving parts of a bun intermediate proofer exposed to contact shall be enclosed.

History: 1979 AC.

R 408.18141 Oven loaders and unloaders.

Rule 8141. (1) A hand-fed overhand bar oven loader shall be equipped with 2-hand controls wired to operate concurrently with the buttons guarded by covers, rings or by location to prevent bridging, or the oven loader shall be hung in a manner that allows the overhand bar itself to be raised to stop the loader drive. The overhand bar shall be made of aluminum or other equivalent light weight material. Pressure shall be maintained on the controls until the pinch point has passed.

(2) Exposed levers, controls, adjustment knobs and handles shall be recessed, flush or guarded to avoid catching of clothing.

(3) A portable oven loader and unloader shall have a locking or clamping device to prevent movement during operation.

(4) The oven loader and unloader drive shall have overload, instant trip delay, clutch or equivalent means to stop equipment in case of a jam.

History: 1979 AC.

R 408.18142 Pan washers and rack washers.

Rule 8142. (1) The safety controls on a pan washer or rack washer shall be inspected and maintained not less than as prescribed in table 1.

(2) A pan washer or rack washer shall have an emergency door latch on the door so an operator may open the door from the inside.

(3) Where the controls of a pan or rack washer are subject to water spray or splash, they shall be the waterproof type.

(4) A pan washer shall be guarded to protect the operator from overspray and the overflow and drain stand pipes shall be arranged to prevent backflow of liquids from hitting the operator.

(5) Table 1 reads as follows:

TABLE 1
SAFETY CONTROL INSPECTION
GUIDE FOR WASHERS AND OVENS

Item	Monthly
Fuel safety shutoff valve	X
Combustion safeguard	X
Time delay switches	X
Fan failure interlocks	X
Conveyor failure interlocks	X
Temperature limit switches	X
Pressure supervising switches	X
Door and damper limit switches	X
Automatic fire checks	X
Explosion venting latches on doors	X

Operation sequencing tests of auxiliaries X

History: 1979 AC; 1982 AACS.

R 408.18143 Pan-cooling towers.

Rule 8143. (1) A pan-cooling tower extending more than 1 floor in height shall have a stop switch at each floor. The conveying means shall be restarted only at the location where stopped or at the main source after the stopped switch has been reset.

(2) Sides of a pan-cooling tower not used for loading and unloading shall be enclosed or barrier guarded to a height of 8 feet.

History: 1979 AC; 1982 AACS.

R 408.18144 Coolers.

Rule. 8144. (1) The drive on a mechanical feed rack or tray-type cooler shall be equipped with an overload device designed to cut the power in case of a jam. The device shall not restart the drive automatically when the jam is cleared.

(2) A mechanical feed rack and tray cooler shall actuate a warning device when it enters a dwell condition caused by the backup of production at a unit downstream.

(3) A cooler having an access door for body entry shall be equipped with a means for opening the door from the inside and the outside.

History: 1979 AC; 1982 AACS.

R 408.18145 Material handling.

Rule 8145. (1) A rack used to transport bake goods within a bakery production area shall be equipped with:

(a) Handles so located that no part of an employee's hand extends beyond the outer edge of the frame when holding the handles.

(b) Castors with an anti-friction bearing swivel arrangement for better control.

(2) A trough shall be mounted on anti-friction bearing castors to make it possible for the operator to move and direct the motion of the trough with a minimum of effort.

(3) A lock or other device shall be provided to hold the handle in a vertical position when a hand-operated lift truck is not in use.

(4) Castors on hand trucks shall be set back from corners to be out of the way of toes and heels, but not far enough back to cause the truck to be unstable. A lock or other device shall be provided to hold the handle in vertical position when the truck is not in use.

(5) A chain tackle shall be prominently, permanently, and legibly marked with maximum load capacity. Safety latches shall be installed on all hooks.

(6) Trough hoists shall be prominently, permanently, and legibly marked with maximum load capacity. Safety devices shall be provided to hold the load in any position. Safety latches shall be installed on all hooks.

(7) Sharp corners and edges on bread and cake boxes and trays shall be eliminated on metal parts. All wooden corners and edges shall be protected to prevent splinters.

History: 1979 AC; 1982 AACS.

R 408.18146 Air conditioner.

Rule 8146. An air conditioner having access doors for body entry shall be equipped with a means of opening the door from the inside and the outside.

History: 1979 AC; 1982 AACS.

R 408.18147 Steam kettles.

Rule 8147. (1) A steam kettle shall have a positive locking device capable of holding the kettle at any desired position.

(2) A kettle with a steam jacket shall be provided with safety valves as prescribed in the ASME Pressure Vessel Code, Section VIII, Unfired Pressure Vessels, 1974 edition, as adopted in R 408.18101a.

History: 1979 AC; 2014 AACS.

R 408.18148 Chocolate melting, refining, and mixing kettles.

Rule 8148. A chocolate melting, refining and mixing kettle shall be equipped with an electrically interlocked cover to stop agitation when the cover is opened.

History: 1979 AC.

R 408.18149 Doughnut machines.

Rule 8149. Separate flues shall be provided for doughnut machines as follows:

(a) For venting vapors from the frying section.

(b) For venting products of combustion from the combustion chamber used to heat the fat.

History: 2014 AACS.

R 408.18151 Slicing machines.

Rule 8151. (1) A slicing machine shall be equipped with a device which shall be used to push the last loaf through the knives without contacting the moving knives.

(2) A slicing machine with reciprocating knives shall have the knife frames guarded by an interlocked cover.

(3) A slicing machine with endless band knives shall have:

(a) The drive motor equipped with an automatic brake which shall be applied when the motor is not energized.

(b) An interlocked cover or door over each point of access which deenergizes the drive motor when the cover or door is opened.

(c) A safety device which deenergizes the drive motor when a knife breaks.

(d) A honing or sharpening device for the knife which shall be so designed as to protect the employee from the knife while doing the work.

(e) Any transparent inspection ports made of shatter-proof material.

(4) An automatically fed slicing machine used in conjunction with a wrapping or bag loading machine shall have starting controls for both machines at 1 location and a stop device at each point of operation.

(5) Where pusher fingers attached to the feed chain enter the bed plate of the crossfeed, the end guard shall be extended to cover the pinch point.

History: 1979 AC.

R 408.18152 Wafer cutting machine.

Rule 8152. A wafer cutting machine shall be guarded to prevent the operator's hand from making contact with the saw or knife.

History: 1979 AC.

R 408.18153 Cutting, panning, embossing, peeling, and bar machines.

Rule 8153. (1) The manually fed rolls of a cutting, panning, embossing, peeling, and bar machine shall be guarded in front of the rolls by 1 of the following:

(a) A mechanical guard across the rolls to prevent entry of fingers into nip points.

(b) An emergency stop bar designed as prescribed in R 408.18136(2) to stop the rolls when contact is made with the bar.

(2) The blade of a cutting machine shall be guarded to prevent contact of the operator's fingers.

(3) The band bar-type goods cutter shall be guarded on each side of the drive mechanism of the ovenband and in the vertical run of the cutter.

History: 1979 AC; 1982 AACS.

R 408.18154 Rotary, pretzel rolling, and pretzel extruding machines.

Rule 8154. (1) The forcing rolls within a dough hopper on a rotary, pretzel rolling and pretzel extruding machine shall be guarded as prescribed for feed hoppers in R 408.18160.

(2) A rotary, pretzel rolling and pretzel extruding machine shall have an emergency stop bar at the operator's station so located that it can be operated by the operator's body.

History: 1979 AC.

R 408.18155 Frying machines and vats; construction.

Rule 8155. (1) A frying machine or vat shall be insulated or guarded where burns can result from accidental contact with the outside covering.

(2) A frying machine or vat shall be equipped with an automatic temperature control. In addition, the machine or vat shall have an over temperature control device unadjustable and preset below the flash point of the frying fat which will turn off the heating device.

(3) An automatic frying machine or vat with an internal heating device shall be equipped with a low level frying fat cut off device designed to turn off the heat device when the fat level is less than 1 inch above the heating tubes or elements.

(4) Where forced draft or an automatic damper is used for exhausting combustion fumes, it shall be interlocked with the fuel supply valve of the frying machine or vat.

(5) If the frying machine or vat is designed with a closed combustion chamber, a time delay relay shall be installed, in connection with the exhauster, to purge the chamber before ignition can be made.

(6) The heat transfer piping shall be installed to allow for natural expansion of the pipe.

(7) Where a separate heat exchanger is used in conjunction with a frying machine or vat, subrules (1), (2), and (8) shall be followed for the heat exchanger.

(8) A frying machine or vat shall be equipped with a device which will shut off the fuel supply if the pilot or burner flames out.

History: 1979 AC.

R 408.18156 Frying machines and vats; ~~,~~ installation.

Rule 8156. (1) A frying machine or vat shall be installed on a noncombustible floor, or a metal pan flanged on 4 sides shall be installed underneath the entire machine. The capacity of the pan shall be not less than the frying tank.

(2) A frying machine or vat shall have not less than 30 inches of work space on all exposed sides, except where other equipment is connected to the machine.

(3) A frying machine or vat shall be protected by a fixed fire extinguishing system as prescribed in General Industry Safety Standard Part 9 “Fixed Fire Equipment,” or portable fire extinguishers as prescribed in General Industry Safety Standard Part 8 “Portable Fire Extinguishers,” as referenced in R 408.18101a.

(4) Where a non-pressure type of indirect heat is used with a frying machine or vat, the welded seams of the plate coils on the frying kettle shall not make contact with the welded seams of the kettle proper.

History: 1979 AC; 2014 AACS.

R 408.18157 Frying machines and vats; maintenance.

Rule 8157. Not less than every 90 days the following shall be accomplished:

(a) The frying machine or vat shall be washed and boiled out to remove all accumulations of gum.

(b) The controls shall be checked for operability.

(c) The gas and oil burners shall be cleaned and adjusted.

History: 1979 AC.

R 408.18158 Icing and topping machines.

Rule 8158. (1) An agitator for an icing and topping machine which is too heavy to lift out shall be hinged to swing up, out of the way, or lifted by mechanical means so the hopper may be removed.

(2) A hot water or steam-jacketed hopper for an icing and topping machine shall have a pressure relief valve set at not more than the maximum allowable working pressure of the vessel. The hopper shall be insulated or guarded to prevent burns from accidental contact. The valve shall be vented to an area where the employee is not exposed to the hazard.

History: 1979 AC; 1982 AACS.

R 408.18159 Pulverizers.

Rule 8159. (1) A belt drive used in connection with a pulverizer shall be grounded to remove static electricity.

(2) Pulverizing equipment shall be dust tight. Electrical equipment and motors located in the room or area shall be dust ignition proof, class II, division I type.

(3) A magnetic separator shall be installed at the material inlet to a pulverizer.

(4) When there are multiple pulverizers and the final pulverized material is pneumatically conveyed, each conveyor system shall be independent of the other and electrically grounded to reduce the likelihood of fire or explosion.

History: 1979 AC.

R 408.18159a Sugar and spice pulverizers.

Rule 8159a. (1) All drive belts used in connection with sugar and spice pulverizers shall be grounded by means of metal combs or other effective means of removing static electricity.

(2) All pulverizing of sugar or spice grinding shall comply with the requirements of NFPA 62 "Code for Pulverizing Systems for Sugar and Cocoa," 1967 edition and NFPA 656 "Code for the Prevention of Dust Ignitions in Spice Grinding Plants," 1959 edition, as adopted in R 408.18101a.

History: 1979 AC; 2014 AACS.

R 408.18160 Feed hoppers.

Rule 8160. (1) A feed hopper for a grinder, pulverizer or food chopper shall have a guard over the hopper opening. The guard shall be 1 of the following:

(a) A grid with opening small enough to keep the fingers from touching the feeding knives or worm.

(b) A solid cover interlocked to the operating controls so that the machine will not operate when the cover is open.

(c) A hopper of such length or opening that the fingers cannot touch the knives.

(2) A feed hopper which is removable from a grinder, pulverizer or food chopper shall be interlocked to prevent operation of the machine when the hopper is removed.

History: 1979 AC.

R 408.18161 Chocolate and fig breaking machines.

Rule 8161. A chocolate and fig breaking machine shall be guarded as prescribed in R 408.18160.

History: 1979 AC.

R 408.18171 Wrapping machines.

Rule 8171. (1) An electric sealing heater on a wrapping machine shall have the exposed heated surfaces guarded to prevent burns from accidental contact.

(2) Where more than 1 operator is feeding a wrapping machine, each operator shall have an emergency stop button as prescribed in R 408.18115(4), but there shall be only 1 start button station.

(3) A pouch-wrapping machine shall be equipped with a trip gate or interlocked enclosure ahead of or over the sealing jaws and wrapper guide.

(4) Electric wiring for the wrapper heaters shall be arranged so that a minimum number of wires are used to connect the movable heaters assembly to the permanent wiring of the machine.

This wiring shall be the heat resisting type as prescribed in General Industry Safety Standard Part 39 “Design Safety Standards for Electrical Systems,” as referenced in R 408.18101a.

History: 1979 AC; 1982 AACS; 2014 AACS.

R 408.18172 Carton wrapping machines.

Rule 8172. (1) An electric sealing heater on a carton wrapping machine shall be as prescribed in R 408.18171(1).

(2) A hot metal glue pot for a carton wrapping machine shall have the heated surfaces insulated or guarded to prevent burns from accidental contact.

(3) The in-running nip points of power driven rolls shall be guarded.

(4) Pusher bars and pusher fingers of a carton wrapping machine which create a hazard for an employee shall be guarded by a barrier or enclosure.

(5) An end-seal drum on a carton wrapping machine shall be guarded at the pinch point and point of operation.

(6) An access cover or door on a carton wrapping machine shall be interlocked as prescribed in R 408.18151(3).

(7) Where more than 1 operator is feeding a carton wrapping machine, each operator shall be provided controls prescribed in R 408.18115(5).

(8) Where a safety switch is used to detect jams of product flow on a carton wrapping machine, the machine shall have a manual reset to prevent automatic restarting when the jam has been cleared.

History: 1979 AC.

R 408.18173 Bag loading machines.

Rule 8173. (1) A bag magazine feed and the funnel section of a bag loading machine shall be guarded by a movable panel or guard equipped with an interlock which stops the motion of all parts when the panel or guard is in an open position.

(2) A bag loading machine having a tying mechanism for the twist lock shall be guarded in a manner to prevent an employee from reaching the twisting hook.

(3) If more than 1 operator feeds a bag loading machine, an emergency stop within reach of each operator shall be provided as prescribed in R 408.18115(4).

(4) A bread bagger shall have an interlocked enclosure over the top and both sides of the reciprocating pickup arm.

History: 1979 AC.

R 408.18174 Form-fill-seal pouch or bag machine.

Rule 8174. (1) A form-fill-seal pouch or bag machine shall have:

(a) The exposed hot long seam sealer parts insulated or guarded as prescribed in R 408.18171(1).

(b) The in-running nip point of the power driven friction film feed rollers guarded.

(c) An emergency stop button within reach of each employee feeding the machine, as prescribed in R 408.18115(4).

(2) Draw bar parts of a form-fill-seal pouch or bag machine shall be guarded by extending the frame structure, or a hinged or movable guard which shall be interlocked to the drive motor.

(3) An overhead extended rotating feed hopper of revolving turrets of a form-fill-seal pouch or bag machine shall have a tray or pan guard installed to protect an employee from falling product or machine parts.

History: 1979 AC.

R 408.18175 Tray or carton forming and carton closing machines.

Rule 8175. (1) The former and corner lock section of a tray or carton forming and carton closing machine shall be guarded with interlocked hinged or removable covers or enclosures.

(2) The heated surfaces of a hot melt glue pot shall be insulated or guarded to prevent burns by accidental contact.

History: 1979 AC.

R 408.18176 Caddy, cover, and box stitchers.

Rule 8176. A caddy, cover, and box stitcher shall be provided a point of operation guard or device to protect the operator's fingers.

History: 1979 AC.

R 408.18177 Carton and lining feeding machines.

Rule 8177. A carton and lining feeding machine shall be equipped with a hinged hood type guard over the cutters which shall be interlocked with the drive motor.

History: 1979 AC.

R 408.18181 Ovens.

Rule 8181. (1) With the exception of a range or cabinet type oven without moving parts installed before November 16, 1974, a combustible fueled oven shall be provided devices to protect against all of the following hazards:

(a) Ignition failure.

(b) Abnormal fuel pressure.

(c) Combustion air failure.

(d) Electrical power failure.

(e) Exhaust system failure.

(f) Excessive temperature.

(2) Preventilation purge shall be arranged in the safety control circuit and set so as to require operation of the exhaust and recirculating fans to provide not less than 4 complete oven heating chamber air changes with fresh air before the burner ignition system may be operated and fuel turned on.

(3) If a combustible fuel is used that is heavier than air, a bottom exhaust system shall be provided and used during the purge cycle.

(4) A direct-fired oven installed after November 16, 1974, shall be equipped with relief vents for freely relieving internal explosion pressures. The vents shall be proportioned in the ratio of their area to the area of explosion containing volume of the oven which shall be not less than 1 square foot of relief area to 30 cubic feet of oven volume.

(5) All safety controls shall be inspected not less than monthly as prescribed in Table 1 “Safety Control Inspection Guide for Washers and Ovens” of R 408.18142(5).

History: 1979 AC; 1982 AACS; 2014 AACS.

R 408.18182 Range and cabinet type ovens.

Rule 8182. (1) A range or cabinet type oven without moving parts installed before November 16, 1974 shall be equipped with fuel failure safety device for the pilot and burner.

(2) A range or cabinet type oven without moving parts installed after November 16, 1974 shall be as prescribed in R 408.18181.

History: 1979 AC; 2014 AACS.