

CHAPTER 62
SAFETY RULES FOR AMUSEMENT RIDES, AMUSEMENT DEVICES,
AND CONCESSION BOOTHS

[Prior to 9/24/86, Labor, Bureau of [530]]

[Prior to 10/21/98, see 347—Ch 62]

875—62.1(88A) Scope. Rule 875—62.2(88A) applies to all covered equipment. The remaining rules of this chapter apply to all covered equipment, except a bungee jump covered by 875—Chapter 63. [ARC 2428C, IAB 3/2/16, effective 4/6/16; see Delay note at end of chapter]

875—62.2(88A) Other codes.

62.2(1) Carnivals, fairs, operators, and covered equipment may be regulated by city or county ordinances. Iowa Code chapter 92 and 875—Chapter 32 concerning child labor apply when an operator has employees who are under the age of 18. Iowa Code chapters 91A and 91D and 875—Chapters 35 and 215 to 218 govern payment of wages to an operator's employees. Nothing in 875—Chapters 61 through 63 shall be viewed as providing an exemption, waiver, or variance from any otherwise applicable regulation or statute.

62.2(2) State fire marshal rules set forth at 661—Chapter 201, General Fire Safety Requirements, are adopted by reference.

62.2(3) The following occupational safety and health standards are adopted by reference:

- a. 29 CFR 1910, Subpart D, Walking-working surfaces;
- b. 29 CFR 1910, Subpart H, Hazardous material;
- c. 29 CFR 1910, Subpart I, Personal protective equipment;
- d. 29 CFR 1910.147, Control of hazardous energy (lockout/tagout);
- e. 29 CFR 1910.151, Medical services and first aid;
- f. 29 CFR 1910, Subpart N, Materials handling and storage;
- g. 29 CFR 1910, Subpart O, Machinery and machine guarding;
- h. 29 CFR 1910, Subpart Q, Welding, cutting and brazing; and
- i. 29 CFR 1910, Subpart S, Electrical.

[ARC 2428C, IAB 3/2/16, effective 4/6/16; see Delay note at end of chapter]

875—62.3(88A) Site requirements.

62.3(1) Design. The grounds of a fair or carnival shall be designed according to the following criteria:

a. Clearance around covered equipment shall meet or exceed the manufacturer's recommendations.

b. Clearance around covered equipment shall be at least 6 feet unless a fence that is designed by the manufacturer as an integral part of the equipment is properly installed.

c. Clearance between covered equipment and a facility for cooking shall be at least 10 feet.

d. Walkways shall be wide, unobstructed, and open at each end.

e. Walkways through concession booth backyards and over water lines and electrical lines shall be avoided.

f. Intermingling of water lines and electrical lines shall be avoided.

g. Guy wires, braces and ropes used for support:

(1) Shall not be placed in walkways or in the entrances or exits for covered equipment; and

(2) Shall be clearly marked with streamers or other devices when located adjacent to walkways.

h. Stakes shall be covered.

62.3(2) Housekeeping. Adequate containers for refuse shall be provided. Accumulations of trash shall be removed promptly.

62.3(3) Lighting. Entrances and exits for covered equipment shall be provided with at least 5 foot-candles of light measured at grade level. No less than 10 foot-candles of lighting shall be provided at all work levels for assembly and disassembly of covered equipment.

62.3(4) *Internal combustion engines.* Internal combustion engines shall be a minimum of 5 feet from an air-supported structure and shall be guarded or fenced to prevent patron exposure or access. An internal combustion engine operated in an enclosed area shall be provided with fresh-air intake and an exhaust discharge flue.

62.3(5) *Tents.* A tent enclosed with walls or sides and erected over covered equipment during operation or assembly of the covered equipment shall resist flame propagation after weathering. The operator shall have a certificate or a test report indicating the material meets the flame propagation performance criteria for tents set forth in Standard Methods of Fire Tests for Flame Propagation of Textiles and Films, NFPA 701-2010.

62.3(6) *Flammable waste and materials.* An operator shall provide identified covered and labeled metal containers for flammable waste. The containers shall be available to staff and attendants but shall not be accessible to patrons.

62.3(7) *Storage of hazardous or flammable materials.* Storage of more than 50 gallons of fuel, other flammable material, or hazardous gas is not permitted in any area accessible to the public.

62.3(8) *Walking surfaces.* Entrances and exits for covered equipment shall be adequate, unobstructed, and in accordance with the manufacturer's instructions. Hazards such as protruding nails, splinters, holes, loose boards, debris, obstructions, and projections are prohibited. Stairways, ramps and railings that meet the requirements of 29 CFR 1910.23 shall be provided where patrons enter or exit covered equipment above or below grade.

62.3(9) *Fences.* Fences or other barriers shall be staked or sandbagged securely to prevent movement. Placement of fences shall be consistent with the recommendations of the manufacturer. If the manufacturer's recommendation regarding fences is not available, fences shall be located to keep patrons at least 6 feet away from moving parts.

62.3(10) *Crowd control.* Chains, bars, gates or similar devices shall be used to direct and control patrons in a queue line.

62.3(11) *Setup.* Operators shall follow the manufacturer's instructions to ensure that covered equipment is level and stable. If the manufacturer's instructions are not available, the following shall apply:

- a. Permanent rides shall be placed on poured, reinforced concrete.
- b. Blocking for temporary rides shall meet the following criteria:
 - (1) Blocking shall be wider than it is high.
 - (2) The top level of the blocking shall be wider than the mud sill or landing gear.
 - (3) Blocks shall not be soft, damaged, deteriorated, hollow, porous, or brick.
 - (4) Blocking shall be placed on ground that was leveled by digging rather than by filling.
 - (5) Voids larger than 1/4 inch between blocks are prohibited.
 - (6) Two or more layers of blocks shall be crossed.

[ARC 2428C, IAB 3/2/16, effective 4/6/16; see Delay note at end of chapter]

875—62.4(88A) Design and manufacture of covered equipment. This rule sets forth requirements for the design and manufacture of all covered equipment, except a bungee jump covered by 875—Chapter 63.

62.4(1) *Codes adopted by reference.* ASTM F2374-10 shall apply to all air-supported structures notwithstanding the definition and use of the phrase “inflatable amusement device” in ASTM F2374-10.

a. *All covered equipment.* Effective July 1, 2016, all covered equipment shall comply with National Electric Code, NFPA 70-2014.

b. *Tramways.* All tramways subject to the rules of this chapter and in use prior to July 1, 2016, shall be designed and tested in accordance with the ANSI B77.1 standard in effect at the time of installation.

c. *New covered equipment.* Effective July 1, 2016, new covered equipment and covered equipment undergoing a major modification shall be designed and tested in accordance with ANSI B77.1-2011 and ANSI B77.1A-2012 and ASTM F1159-15a, F1193-14, F1957-99(2011), F2007-12, F2137-15, F2291-15, F2374-10, F2375-09, F2376-13, F2460-11, F2959-14, and F2960-15, as applicable.

d. Existing covered equipment. Covered equipment manufactured before July 1, 2016, must comply with the applicable design criteria of subrule 62.4(2) through July 1, 2021. After July 1, 2021, covered equipment, except tramways, shall meet the criteria for service-proven equipment set forth in ASTM F2291-15.

62.4(2) Design criteria. Structural materials and construction of covered equipment shall conform to recognized engineering practices, procedures, standards and specifications. The design, materials and construction features shall incorporate a safety factor of 5 or alternative safety factors recommended by the original manufacturer or by a professional engineer with credentials and experience acceptable to the commissioner.

62.4(3) Data plate. A manufacturer's data plate in compliance with ASTM F1193-14, section 10, shall be affixed to covered equipment.

62.4(4) Speed-limiting device. Covered equipment capable of exceeding its maximum safe operating speed shall be provided with a speed-limiting device. Steam engines that require an overspeed throttle setting to initiate the operation are exempt from the requirement of this subrule.

62.4(5) Patron restraint and containment. Covered equipment shall be designed to safely contain and restrain patrons during the intended action. Any surface within reach of a patron shall be smooth, rounded, and free from projections such as bolts, screws, or splinters. Padding shall be installed to prevent or minimize the possibility of injury.

62.4(6) Safety stop devices. Electrical safety stop devices shall cause covered equipment to fail safe in the event of power failure or any malfunction.

62.4(7) Chains. If a chain is used as a safety device or in a stress-bearing application, the chain shall be certified with adequate load-carrying capacity. Twisted wire or stamped chain shall not be used for safety devices or in stress-bearing applications.

62.4(8) Front openings and awnings. Front openings and awnings shall be stabilized with safety latches, safety pins, or other devices.

62.4(9) Shooting galleries. A shooting gallery shall use only equipment, shells, pellets, and bullets designed for shooting galleries. Means shall be provided to prevent turning the weapon away from the intended target.

62.4(10) Flying objects. Where flying objects such as darts, balls, pellets, shot, and bullets are a potential hazard:

a. Ricocheting shall be prevented by absorbent wings or panels; and

b. Absorbing walls, sandbags, or other mechanisms shall be installed along the bottom, back, and sides of the booth to protect passersby.

[ARC 2428C, IAB 3/2/16, effective 4/6/16; see Delay note at end of chapter]

875—62.5(88A) Maintenance of covered equipment. An operator shall conduct periodic inspections, repairs, tests, and maintenance as set forth in this rule, the manufacturer's recommendations, ANSI B77.1-2011 and ANSI B77.1A-2012 and ASTM F770-15, F1159-15a, F1193-14, F2007-12, F2137-15, F2374-10, F2375-09, F2376-13, F2460-11, F2959-14, and F2960-15, as applicable. ASTM F2374-10 shall apply to all air-supported structures notwithstanding the definition and use of the phrase "inflatable amusement device" in ASTM F2374-10. An operator shall make a written record of all inspections, maintenance, tests, and repairs of covered equipment, and the records shall be available to the commissioner.

62.5(1) Pressure equipment. The operator shall inspect and maintain all air and gas compressors, tanks, piping and equipment pursuant to the manufacturer's recommendations.

62.5(2) Wire rope rollers, drums and sheaves. The operator shall periodically inspect and maintain for cleanliness and safety the mechanical devices, such as rollers, drums and sheaves, that brake, control, or come into contact with wire rope. The operator shall immediately replace mechanical devices that have broken or damaged parts, missing pieces, undue roughness or uneven wear.

62.5(3) Mechanical members. The operator shall periodically inspect pinions, frames, sweeps, eccentrics and other mechanical members for wear, cracks and other signs of deterioration. The operator shall make necessary repairs.

62.5(4) Bearings. The operator shall periodically inspect, lubricate, clean and repair bearing surfaces, ball joints and other single or multiple direction mechanical surfaces.

62.5(5) Gears. The operator shall keep gears properly aligned and in good repair.

62.5(6) Nondestructive testing. The operator shall ensure that appropriate nondestructive testing (NDT) is conducted and that documentation is available for review. NDT shall be performed at the following times:

- a. At intervals recommended by the manufacturer;
- b. When required by the commissioner due to a welded repair;
- c. When required by the commissioner due to a visual indication of a potentially hazardous condition; and
- d. When recommended by a bulletin prepared according to ASTM F1193-14.

62.5(7) Electrical wiring. Electrical wiring shall meet the requirements of National Electrical Code, NFPA 70-2014. The operator shall regularly inspect wiring for wear, cracks, or other signs of deterioration and shall replace worn wiring.

62.5(8) Patron restraint. The operator shall inspect retaining, restraining and containing devices daily before use and shall immediately repair or replace worn or damaged areas.

62.5(9) Hydraulic systems. The operator shall inspect each hydraulic system for leaks, damaged pipes, and worn or deteriorated hoses. Material that hinders visible inspection is prohibited. The operator shall make appropriate repairs.

62.5(10) Relief devices. The operator shall periodically exercise pressure relief valves or devices to ensure that they operate properly. The operator shall periodically inspect pressure relief devices to ensure that they are set at appropriate limits.

62.5(11) Wire rope inspection. The operator shall regularly inspect the entire length of each wire rope according to the manufacturer's recommendations. At a minimum, wire rope shall be inspected each time covered equipment is set up.

62.5(12) Wire rope replacement. The operator shall replace a wire rope if:

- a. There are six or more distributed broken wires in one rope lay or three broken wires in one strand in one rope lay;
- b. There is more than one broken wire in one rope lay and one of the following conditions exists:
 - (1) The wire rope is subject to constant pressure during operation, assembly, or disassembly of covered equipment;
 - (2) The wire rope is subject to surge shocks; or
 - (3) The wire rope could cause serious injuries by its failure; or
- c. At least one of the following conditions exists on at least one location on the wire rope:
 - (1) Abrasion, nicking, scrubbing or peening causing loss of more than one-third of the original diameter of the outside wires;
 - (2) Severe corrosion or rust;
 - (3) Severe kinking, crushing, bird-caging or other damage resulting in distortion of the rope structure;
 - (4) Heat damage;
 - (5) For a rope with an original diameter of 3/4 inch or less, a loss in diameter of more than 3/64 inch;
 - (6) For a rope with an original diameter of 7/8 inch to 1 1/8 inch, a loss in diameter of more than 1/16 inch; or
 - (7) For a rope with an original diameter of 1 1/4 inches to 1 1/2 inches, a loss in diameter of more than 3/32 inch.

62.5(13) Wire rope repair. Without lengthening or splicing, the operator shall replace the entire length of a wire rope that is damaged in one location with new rope of equivalent design and capacity. However, if feasible, wire rope that is worn near an attachment point may be repaired by shortening the length of the wire rope, rather than by replacing the entire rope; and wire ropes on tramways may be lengthened or repaired by splicing in accordance with the applicable ANSI code.

62.5(14) Rope-fastening devices. The operator shall inspect couplings, sockets and fittings to ensure that they are in accordance with the instructions and specifications of the designer, engineer or manufacturer.

62.5(15) Wood components. The operator shall inspect footings, splices, uprights, track timbers, ledgers, sills, laps, bracing, flooring and all other wood components of covered equipment for deterioration, cracks, or fractures. The operator shall replace defective wood members with material of equal or greater strength and capacity.

The operator shall remove a sufficient amount of soil around piling or wood members embedded in dirt to check for deterioration. When a wood piling requires replacement, the operator shall install a concrete pier. The top of the pier shall be installed so that the attached wood member is not exposed to dirt or water accumulation.

62.5(16) Welding, cutting, or brazing. Welding, cutting, or brazing shall not be performed where the point of operation is more than 4 feet above grade if patrons are on site. Where the point of operation is less than 4 feet above grade, welding, cutting or brazing may be performed if at least one of the following applies:

- a. Patrons are not on site.
- b. Patrons are separated from the point of operation by a solid barrier.
- c. A fence or similar barrier is erected to keep the public at least 150 feet from an arc welding operation that uses an electrode with a diameter of 3/16 inch or less.
- d. A fence or similar barrier is erected to keep the public at least 35 feet from gas welding, soldering, cutting or brazing of materials 1/2 inch thick or less.
- e. A fence or similar barrier is erected to keep the public at least 50 feet from gas welding, soldering, cutting or brazing of materials more than 1/2 inch thick.

62.5(17) Fasteners. The operator shall inspect nails, bolts, lag bolts and other fasteners for tightness, torque, and deterioration. The operator shall follow the manufacturer's recommendations for torque, replacement intervals, and fastener types.

62.5(18) Brakes and rollback devices. Brakes and rollback devices shall be inspected and maintained according to the manufacturer's recommendations.

[ARC 2428C, IAB 3/2/16, effective 4/6/16; see Delay note at end of chapter]

875—62.6(88A) Operations. Operations shall conform to ANSI B77.1 and ANSI B77.1A-2012 and ASTM F770-15, F1957-99(2011), F2007-12, F2137-15, F2374-10, F2375-09, F2376-13, F2460-11, and F2959-14, as applicable. ASTM F2374-10 shall apply to all air-supported structures notwithstanding the definition and use of the phrase "inflatable amusement device" in ASTM F2374-10. The commissioner will enforce the minimum age requirements set forth below rather than any minimum age requirement set forth in a code adopted by reference in this rule.

62.6(1) Attendants. The operator shall provide a sufficient number of competent, trained workers, who shall be recognizable by their uniforms. Covered equipment shall have continuous, direct supervision while in use by a patron.

a. Each attendant of a concession booth, except a shooting gallery or dart game, shall be at least 14 years of age. All other attendants shall be at least 16 years of age.

b. Each attendant shall be trained according to ANSI B77.1 and ANSI B77.1A-2012 and ASTM F770-15, F2007-12, F2460-11, and F2959-14, as applicable. In addition, training must cover procedures for normal operations and special operations specific to each ride the attendant will control, specific duties for each assigned position for each ride the attendant will control, and the operator's general procedures for normal operations and special operations. Training documentation shall be available to the commissioner.

c. An attendant shall have control of the covered equipment when it is in operation. When the covered equipment is shut down, provision shall be made to prevent unauthorized operation.

62.6(2) Signal systems. When an attendant does not have a clear view of the point where passengers are loaded or unloaded, signal systems shall be provided and utilized for controlling, starting and stopping covered equipment. Where coded signals are required, the code of signals shall be printed and kept posted

at both the attendant's station and the location from which the signals are given. Attendants who use the signals shall be trained in their use. Signal systems shall be tested each day prior to operation of the covered equipment. Covered equipment that requires a signal system shall not be operated if the system is not performing correctly.

62.6(3) *Overspeeding and overloading.* An attendant shall not load covered equipment beyond its rated capacity nor operate the covered equipment at a speed other than that prescribed by the design engineer or manufacturer.

62.6(4) *Refueling.* Fuel tanks for internal combustion engines should be large enough to run without interruption during normal operating hours. Where it is impossible to provide tanks of proper capacity for a complete day's operation, the covered equipment shall be shut down and evacuated during refueling.

62.6(5) *Safety stop device.* After actuation of a safety stop device, the cause of the actuation shall be determined and corrected before operation of covered equipment is resumed. No person shall operate covered equipment if a safety stop device has been bypassed.

[ARC 2428C, IAB 3/2/16, effective 4/6/16; see Delay note at end of chapter; ARC 5954C, IAB 10/6/21, effective 11/10/21]

875—62.7(88A) Patrons.

62.7(1) *Notice to patrons.* The operator shall post signs as set forth in Iowa Code section 88A.16.

62.7(2) *Patron injury report.* Where covered equipment is operated, the operator shall make available an injury report form for use by patrons. The form shall comply with Iowa Code section 88A.15.

62.7(3) *Emergency procedure.* When lightning, high wind, tornado warning, severe storm warning, fire, violence, riot or civil disturbance creates a direct threat to patrons, the operators and attendants shall cease operation of covered equipment and evacuate all patrons. Operation shall not resume until conditions have returned to a normal, safe operating environment.

62.7(4) *Medical and first aid.* The operator shall make available to patrons the same medical and first-aid provisions that are available to employees pursuant to 29 CFR 1910.151.

62.7(5) *Evacuation plan.* The operator shall plan for prompt retrieval of patrons from covered equipment that will not operate.

[ARC 2428C, IAB 3/2/16, effective 4/6/16; see Delay note at end of chapter; ARC 5954C, IAB 10/6/21, effective 11/10/21]

These rules are intended to implement Iowa Code chapter 88A.

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¹ April 6, 2016, effective date of the rescission of former Chapter 62 and the adoption of new Chapter 62 herein [ARC 2428C] delayed 70 days by the Administrative Rules Review Committee at its meeting held March 4, 2016; delay lifted at the meeting held April 8, 2016.