

CHAPTER 63
SAFETY RULES FOR BUNGEE JUMPS

875—63.1(88A) Definitions.

“*Air bag*” means a device that cradles the body by using an air release breather system to dissipate the energy due to a fall, thereby allowing the jumper to land without an abrupt stop or bounce.

“*Approved operating site*” means the area, including the preparation area, the jump space, the landing area and the recovery area, reflected on the site plan drawings submitted to the commissioner by the operator.

“*Bungee catapulting*” means the action by which a jumper is held on the ground while the bungee cord is stretched causing the jumper to fly up when the jumper is released.

“*Bungee cord*” means the elastic rope to which the jumper is attached.

“*Bungee jump*” means the covered amusement device. “Bungee jump” does not mean a device allowing a patron to jump on a trampoline while attached to one or more bungee cords.

“*Bungee jumping*” means the action by which a jumper free falls from a height and the jumper’s descent is limited by attachment to the bungee cord.

“*Bungee jump operation*” means a site at which bungee jumping is conducted.

“*Carabiner*” means a shaped metal or alloy device used to connect sections of the jump rigging, equipment or safety gear.

“*Cord*” means a bungee cord.

“*Dynamic load*” means the load placed on the rigging and attachments by the initial free fall of the jumper and the bouncing movements of the jumper.

“*Equipment*” means each component that is utilized in a bungee jump operation, including devices used to raise, lower, and hold loads.

“*Fence*” means a structure designed and constructed to restrict people, animals and objects from entering the jump area.

“*G-force*” means acceleration felt as weight.

“*Jump area*” means the ground level area of the jump space.

“*Jump direction*” means the direction a jumper jumps when leaving the platform from the jump point. Jump direction is not affected by whether the jumper faces forward, backward or sideways.

“*Jumper*” means the person who, while attached to a bungee cord, falls or jumps from a platform or structure.

“*Jump harness*” means an assembly worn by a jumper and attached to a bungee cord.

“*Jump height*” means the distance from the jump point to the position on the ground where an object dropped from the jump point would impact in the absence of an air bag or other impediment.

“*Jump master*” means the person who is responsible for the bungee jump operation and who takes a jumper through the final stages to the actual jump or release.

“*Jump point*” means the location on the platform from which the jumper leaves the platform.

“*Jump space*” means the cylinder-shaped space with a center line extending downward from the jump point along the line of the jump height. The top of the jump space cylinder is at least 10 feet above the jump point. For jumps over land, the bottom of the jump space cylinder is the air bag. For jumps over water, the bottom of the jump space cylinder is the water surface. The distance from the jump point to the bottom of the jump space must be the maximum system length plus at least 30 feet. The radius of the cylinder must be at least 70 percent of the jump height.

“*Landing area*” means the surface where the jumper lands. If a lifting device moves the jumper so that landing occurs away from the jump area, the area covered by the movement of the lifting device shall be considered part of the landing area.

“*Loaded length*” means the length of the bungee cord when the cord is extended to its fullest designed length.

“*Lowering system*” means manual or mechanical equipment capable of lowering a jumper to the designated landing area.

“*Maximum system length*” means the maximum extended length of a bungee cord system including all attachments.

“*Mechanically powered lowering system*” means a system that utilizes a machine, rather than a human or other power source, to lower the jumper to the landing area.

“*Platform*” means the apparatus that is attached to a structure and from which a jumper falls or jumps.

“*Preparation area*” means the area where the jumper is registered, weighed, notified of potential risks, and otherwise prepared for the jump.

“*Recovery area*” means the area next to the landing area where the jumper may recover from the jump before exiting the bungee jump operation site.

“*Rigging system*” means the bungee cord plus any combination of components that connect the jumper through the bungee cord to an attachment point on the structure, lifting device or platform.

“*Rigging system attachment point*” means a device on the structure, lifting device or platform to which the rigging system is connected.

“*Safety line*” means a line used to connect a safety harness or belt to an anchor point.

“*Sandbagging*” means the practice of loading excess weight to a jumper in order to gain extra momentum on the rebound.

“*Site operating manual*” means the document containing the procedures and forms for the operation of bungee jumping activities and equipment.

“*Structure*” means a tower or similar structure used for bungee jumping.

“*Tandem jumping*” means the practice of having two or more people harnessed together while they jump or fall simultaneously from the same jump platform.

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

875—63.2(88A) Prohibited activities. The following activities are prohibited:

1. Bungee catapulting where an overhead obstruction exists;
2. Sandbagging;
3. Tandem jumping; and
4. Jumping from a bridge, television tower, crane, grain bin, hot air balloon or any height not

designed for the purpose of bungee jumping.

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

875—63.3(88A) Site requirements.

63.3(1) Storage. Adequate storage shall be provided to protect equipment from physical, chemical and ultraviolet-ray damage. The storage area shall be secured against unauthorized entry.

63.3(2) Communications.

- a. There shall be a public address system in operation during the hours of business.
- b. A radio communication link shall be established between the platform and the staff responsible for jumper registration, landing, and recovery.
- c. There shall be a means on site to communicate with local emergency responders.
- d. A clearly visible sign shall be placed at the entrance to the operating site setting forth medical restrictions for jumpers, the minimum-age requirement of 18 years of age, and instructions for jumpers.

63.3(3) Wind meter. An anemometer shall be installed in accordance with the manufacturer’s recommendations and in a location easily visible to the staff.

63.3(4) Lighting. Adequate lighting shall be provided at a site that operates at any time during the period of one-half hour prior to sunset until one-half hour after sunrise. At a minimum, the lighting system shall be capable of lighting the jump platform, the jump space and the landing area.

63.3(5) Fences. The operator shall use fences in compliance with ASTM 2291-14, Part 14, to limit access to the site.

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

875—63.4(88A) Design.

63.4(1) Platform. A platform shall:

- a. Be capable of supporting at least five times the rated capacity or maximum intended load of the platform. If the jump equipment is attached to the platform as distinct from the structure, the dynamic load factor shall be added to the rated capacity or maximum intended load;
- b. Be attached with devices and to a part of the structure which is able to support at least five times the weight of the platform plus the rated capacity or maximum intended load;
- c. Have a slip-resistant floor surface;
- d. Have safety harness anchor points that are designed and located to facilitate ease of movement on the platform;
- e. Have a permanent enclosure, separate from the jump point, to contain the jumper during preparations such as fitting the jumper with a jump harness;
- f. Be equipped with a gate across the jump point. The gate shall open to the inside of the platform and shall have a safety lock or restraining device to prevent accidental opening;
- g. Be permanently marked with the maximum capacity of the platform and the rated capacity or maximum intended load; and
- h. Be configured to ensure that a jumper shall not come into contact with the supporting structure or tower during the jump.

63.4(2) Lowering system.

- a. The system for lowering the jumper to the landing area shall be capable of supporting at least five times the rated capacity or maximum intended load of the system. The lowering system shall be mechanically powered and shall not be capable of free fall.
- b. There shall be under the control of site personnel and described in the site emergency plan an alternative method for jumper recovery.

63.4(3) Bungee cord specifications.

- a. The bungee cords shall be designed and tested to perform within the prescribed limits of stretch and load as stated in this subrule. The cord shall be made from natural or synthetic rubber or rubber blend. The extended length of the cord shall be consistent each time the same load is applied.
- b. The G-force on a jumper using a waist and chest harness shall not exceed 4.5. The G-force on a jumper using an ankle harness shall not exceed 3.5.
- c. The operator shall ensure that the minimum factor of safety for any cord configuration attached to a jumper is at least 5. The cord configuration's minimum breaking strength divided by the maximum dynamic load possible for a jumper must be equal to or greater than 5.
- d. The design, manufacturing and testing of the bungee cords shall meet the following specifications:
 - (1) In a single-cord system, the binding shall hold the cord threads in the designed positions. The binding shall have the same characteristics as the cord itself. In a multiple-cord system, the cords shall be bound together in a manner that prevents potential entanglement of the jumper. The binding shall not damage or affect the performance of the cords.
 - (2) A bungee cord shall be designed and tested to perform in accordance with this rule.
 - (3) A load-versus-elongation curve shall be used to calculate the maximum G-force and factor of safety of the lot of bungee cords tested. These test results shall be readily available to the commissioner upon request.
 - (4) The end connections shall have a minimum safety factor of five times the maximum dynamic load for the bungee cord configuration. End connections shall be of a size and shape to allow easy attachment to the jumper harnesses and to the rigging. On multiple-cord systems, each cord shall meet its own independent end connection. On multiple-cord systems, end attachment points shall be bound together in a protective sheath that allows the individual ends to move with respect to each other.
 - (5) The operator shall ensure that the manufacturer of a bungee cord performs conclusive minimum break strength testing on a representative sample of all manufactured bungee cords. Construction of bungee cord samples shall be consistent with the manufacturer's standard methods, including bungee cord loop end connections that meet the specifications in this rule. The tests shall be performed or supervised by an independent certified testing authority or an independent licensed professional engineer. The testing authority shall determine the ultimate tensile strength of each test specimen and use the lowest

failure value recorded as the ultimate tensile strength value for the corresponding lot of bungee cords. The ultimate tensile strength is reached when the applied load reaches a maximum before failure. Test results shall be readily available to the commissioner upon request.

63.4(4) *Jump harness and hardware.*

a. The harnesses, webbing, bindings, ropes and hardware shall be capable of supporting at least five times the rated capacity or maximum intended load.

b. A jumper shall be secured to the bungee cord at two separate points on the jumper's body. The jump harness system shall be one of the following:

- (1) A full body harness with two different and separate attachment points.
- (2) A waist harness used with a shoulder harness.
- (3) An ankle harness system with a safety line to a waist harness or a full body harness.

c. Harnesses shall be available to fit the range of patron sizes accepted for jumping.

d. Harnesses shall be specifically designed and manufactured for mountaineering or bungee jumping.

e. The load-supporting slings or webbing shall be flat or tubular mountaineering webbing or its equivalent. Minimum breaking strength shall be 6,000 pounds. Slings or webbings shall be formed by sewing or shall be tied properly with a water knot with taped ends.

f. Carabiners shall be the steel screw, gate type with a minimum breaking strength of 6,000 pounds. The carabiners shall be designed and constructed using the standards for mountaineering gear.

g. The ropes, pulleys and shackles used to raise, lower or hold the jumper shall have a minimum breaking strength of 6,000 pounds. The pulleys shall be compatible with the rope.

h. The rigging system shall be attached to at least two rigging system attachment points. Each rigging system attachment point shall meet or exceed the following:

- (1) Each rigging system attachment point shall have a safety factor of 5 and shall be capable of bearing a weight of at least 8,000 pounds.
- (2) If a rigging system attachment point is made of wire rope, it shall have swaged ends with the thimble eyes.
- (3) If a rigging system attachment point is made of webbing, it shall be manufactured by a company that manufactures the devices for crane and rigging companies.

63.4(5) *Landing area, recovery area and jump area.*

a. A jump over land requires the use of an air bag certified by the manufacturer to be capable of protecting a body falling from the height of the jump point.

- (1) The minimum impact surface area of the air bag shall be as follows:

| Jump Height | Minimum Impact Surface Area |
|--------------------|------------------------------------|
| 0 - 99 feet | 20 feet by 25 feet |
| 100 - 149 feet | 23 feet by 35 feet |
| 150 - 200 feet | 25 feet by 40 feet |

- (2) The air bag shall be in position before jumper preparation begins on the platform.
- (3) Upon completion of a jump, the jumper shall be lowered into the landing area.
- (4) The landing area shall be free of spectators at all times.
- (5) The jump space shall be free of equipment and people when a jumper is being prepared on the jump platform and until the jumper lands in the landing area.
- (6) A place for the jumper to sit and recover shall be provided close to, but outside, the landing area.

b. The following requirements apply where a body of water is used instead of an air bag:

- (1) The size of the body of water shall meet the requirements for the minimum impact surface area set forth in this subrule for air bags.
- (2) The minimum water depth of the minimum impact surface area shall be 10 feet.

(3) A vessel with at least two staff members shall be positioned nearby to recover jumpers. The recovery vessel's crew shall wear U.S. Coast Guard-approved life jackets. The recovery vessel shall be equipped with U.S. Coast Guard-approved life jackets for jumpers and with rescue equipment.

(4) The jump area shall be free of other vessels, floating or submerged objects, the public, and spectators. When the landing area is in open waters, it shall be defined by the deployment of buoys. Signs of appropriate size stating "BUNGEE JUMPING—KEEP CLEAR" shall be displayed.

c. The following requirements apply where a pool of water is used instead of an air bag:

(1) The pool size shall meet the requirements for the minimum impact surface area set forth in this subrule for air bags.

(2) The minimum water depth shall be 10 feet.

(3) Rescue equipment shall be available.

(4) Only the operators and participants of the bungee jump shall be within the landing area.

(5) The landing area shall be enclosed by a fence of adequate height and design to prevent persons other than operators and jumpers from entering.

(6) The pool shall conform to any applicable requirements enforced by the Iowa department of public health.

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

875—63.5(88A) Maintenance. The operator shall follow the inspection and testing recommendations of the equipment manufacturers. When those recommendations conflict with the testing and inspection provisions of this rule, the provisions affording the higher degree of safety shall be followed. Inspections, findings and corrective action shall be recorded in the site log.

63.5(1) Tests and inspections by the operator.

a. The jump rigging, harness, lowering system and safety gear shall be regularly inspected and tested as set forth in the site operating manual.

b. In accordance with the site operating manual, the ropes, webbing and bindings shall be inspected visually and by feel for signs of wear, fraying or damage.

c. The cord ends shall be inspected as often as the manufacturer specifies or no less than daily for wear, slippage or other abnormalities.

63.5(2) Replacement of rigging and equipment.

a. Hardware that displays surface damage shall be replaced immediately.

b. Hardware that has been subjected to an abnormal loading or impact against hard surfaces shall be replaced immediately.

c. Substandard equipment, rigging or personal protective equipment shall be replaced immediately.

d. Bungee cords shall be replaced when they have been subjected to the maximum number of jumps recommended by the manufacturer, when they exhibit deterioration or damage, or when they do not react according to specifications. Retired bungee cords shall be cut into lengths of not more than 75 inches. The attachment points shall be retired when the cord is retired.

63.5(3) Replacement equipment. Replacement equipment shall be stored in a secure area to prevent tampering or vandalism. Replacement equipment for the following shall always be available on the approved operating site:

a. Bungee cords;

b. Rigging ropes;

c. Binding and ankle straps for jumpers;

d. Jump harnesses; and

e. Lifelines and clips.

63.5(4) Identification of equipment.

a. Each bungee cord shall have its own permanent identification number.

b. The form of identification may not damage or detract from the integrity of the material.

c. The identification shall be clearly visible to the operators during daily operations.

d. The identification of each piece of equipment shall be recorded in the site operating manual.
[ARC 2428C, IAB 3/2/16, effective 4/6/16; see Delay note at end of chapter]

875—63.6(88A) Operations.

63.6(1) Site operating manual. The operator shall ensure that the site has an operating manual that includes the following elements:

- a. A site plan showing the fencing, the site furniture, the preparation area, the jump space, the jump area, the jump direction, the landing area and the recovery area.
- b. A site plan showing a profile of the site and defining the jump platform and its supporting structure, the maximum system length of the bungee cord, the jump space and the jump area.
- c. A complete description of each of the following:
 - (1) The system of operation;
 - (2) The components in the rigging system, including the manufacturer's specification or a laboratory test certificate of each component;
 - (3) All safety and rescue equipment;
 - (4) A job description for the personnel employed on the site and the minimum qualifications for each person;
 - (5) Emergency procedures for all foreseeable scenarios;
 - (6) Standard operating procedures for every person employed in processing the jumper;
 - (7) The procedure for reporting accidents and reportable incidents to the commissioner;
 - (8) Equipment inspection procedures, including inspection record keeping;
 - (9) Maintenance procedures; and
 - (10) The method of verifying and recording each jump master's qualifications.

63.6(2) Emergency provisions and procedures.

- a. Each approved operating site shall have a written emergency plan. The plan shall be made available to any local emergency service responsible for providing emergency rescue service.
- b. At least one member of a bungee jump operation staff shall have current first-aid and cardiopulmonary resuscitation certification and shall complete an annual refresher course that includes evaluation of hands-on skills from the American Red Cross or equivalent.
- c. For a jump over water, the jump master and at least one landing assistant shall have current lifeguarding certification from the American Red Cross or equivalent.
- d. Emergency lighting shall be available in case of power failure at a site that operates at any time during the period of one-half hour prior to sunset until one-half hour after sunrise. The emergency lighting system shall be capable of lighting the jump platform, the jump space and the landing area. The emergency lighting system shall have its own power source.
- e. A backup means of communication shall be available in case of a power failure.
- f. The jump master or operator shall cease jumping operations if wind speed exceeds 25 miles per hour or thunder is audible.

63.6(3) Minimum staff requirements.

- a. Prior to the opening of a bungee jump operation, the operator shall train site personnel to be familiar with the boundaries of the jump space, the jump area, the site operating manual and the emergency plan.
- b. A bungee jump operation shall have at least one jump master, one jump assistant, one landing assistant, and one registration assistant present at all times during which jumping is being conducted.
- c. The staff shall be easily identifiable by their clothing.
- d. Staff shall be briefed for each day's operations. This briefing shall include assignment of the designated jump master.
- e. Each jump shall be directly controlled by a jump master.

63.6(4) Jump master.

- a. A jump master shall be at least 18 years of age, shall have assisted at least 25 jumpers, and shall have received a minimum of 30 hours of jump training.

b. A jump master shall have a thorough knowledge of the bungee jump site, its equipment, operating manual, procedures, emergency plan and staff duties.

c. A jump master shall:

- (1) With the jump assistant, escort the jumper from the preparation area to the jump point;
- (2) Select the appropriate bungee cord and adjust the rigging for each jump;
- (3) Brief each jumper on the procedures for jumping, landing, lowering and recovery;
- (4) Take the jumper through the final stages before the jump;
- (5) Securely attach to the platform rigging bar or to the rigging the top end of the bungee cords before preparing the jumper;
- (6) Be present at the jump point during each jump;
- (7) Close the platform gate while no jumper is present;
- (8) Direct the operation of the lowering system;
- (9) Train other bungee jump operation staff; and
- (10) Ensure that the procedures set out in the site operating manual are followed.

63.6(5) *Jump assistant.* The operator or jump master shall designate at least one individual to act as a jump assistant. The jump assistant shall:

- a. With the jump master, escort the jumper from the preparation area to the jump point;
- b. Assist the jump master in preparing the jumper;
- c. Assist in attaching the jumper to the harness and rigging;
- d. Perform check procedures;
- e. Operate the lowering system; and
- f. Assist in controlling the public.

63.6(6) *Landing assistant.* The operator or jump master shall designate at least one individual to act as a landing assistant. The landing assistant's duties include the following:

- a. Assisting the jumper to the landing pad;
- b. Assisting the jumper to the recovery area;
- c. Overseeing the recovery of the jumper; and
- d. Assisting in controlling the public.

63.6(7) *Registration assistant.* The operator or jump master shall designate at least one individual to act as a registration assistant at each bungee jump operation site. The registration assistant shall:

- a. Register the jumper;
- b. Inform each jumper that there are medical conditions that could be adversely affected by bungee jumping and that prior to jumping, the jumper should consult with a physician for more specific information regarding the medical risks;
- c. Weigh the jumper and mark the jumper's weight on the jumper;
- d. Control the movement of the jumper to the jump platform; and
- e. Assist in controlling the public.

63.6(8) *Jumper restrictions.*

- a. The minimum age for jumping is 18 years of age.
- b. A person who is visibly intoxicated or who is otherwise impaired shall not be allowed to jump.

63.6(9) *Jumper registration.* The operator shall ensure that a jumper provides the following information on the operator's registration form:

- a. The jumper's contact information, including name, address, and telephone number.
- b. The jumper's age and weight.

63.6(10) *Equipment replacement.*

- a. Jumping shall cease immediately when substandard equipment is identified.
- b. The operator shall obtain from the bungee cord manufacturer a written verification of the maximum number of jumps for which a particular cord may be used. The written verification shall be kept on site and shall be available to the commissioner.

c. The operator shall keep a current, written record of each bungee cord used at the site. The bungee cord records shall be organized by permanent, unique identification number and shall include the number of jumps for each cord by date. The bungee cord records shall be available to the commissioner.

63.6(11) *Jump space and jump area.*

a. Persons other than a jumper and objects other than the jumper's equipment shall not be in the jump space at any time during jump operations.

b. Persons other than site personnel and objects other than air bags and similar safety devices shall not be in the jump area at any time during jump operations.

c. The jump space and jump area shall be identical to the jump space and jump area that the commissioner approved.

d. The preparation area shall be separate from the jump area.

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

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

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