

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.