

CHAPTER 15  
SWIMMING POOLS AND SPAS

**641—15.1(135I) Applicability.**

**15.1(1)** These rules apply to swimming pools, spas, wading pools, water slides, wave pools, and bathhouses connected to swimming pools owned or operated by local or state government, or commercial interests or private entities including, but not limited to, public or private school corporations, hotels, motels, camps, apartments, condominiums, health clubs and country clubs. These rules do not apply to a residential swimming pool or spa that is permanently installed in a single-family dwelling, to a decorative fountain or to a therapeutic swimming pool or spa which is under the direct supervision of qualified medical personnel.

**15.1(2)** These rules do not apply to a swimming pool or spa operated by a homeowners association representing 72 or fewer dwelling units if the association bylaws, which also apply to a rental agreement relative to any of the dwelling units, include an exemption from the requirements of this chapter, provide for inspection of the swimming pool or spa by an entity other than the department or local board of health, and assume any liability associated with operation of the swimming pool and spa. The association shall notify the department in writing if the association bylaws are amended as above. The inspector designated by the association shall be a certified operator as defined in 15.3(1). A report of the inspection shall be filed with the association secretary and shall be available to any association member on request.

**641—15.2(135I) Scope.** These rules stipulate minimum safety and water quality requirements for the operation of swimming pools and spas; standards for construction; procedures for registration; qualifications for swimming pool and spa inspectors; qualifications for swimming pool and spa operators and lifeguards; and procedures for health departments to provide for the inspection of swimming pools and spas and enforcement of these rules. Swimming pools and spas which are in compliance with these rules must also comply with the requirements of any other applicable federal, state or local laws, rules or ordinances.

**641—15.3(135I) Definitions and abbreviations.**

**15.3(1) Definitions.**

*“Air break”* is a piping arrangement in which a drain from a fixture, appliance or device discharges indirectly into a fixture, receptacle, or interceptor at a point below the flood-level rim of the receptacle.

*“Air gap”* means the unobstructed vertical distance through the free atmosphere between the lowest opening from an inlet pipe and the flood-level rim of a receptacle or floor drain.

*“Board of health”* means a county, city, or district board of health.

*“Body feed”* means the continuous addition of controlled amounts of filtering aid during the operation of a diatomaceous earth filter to maintain a permeable filter cake. This is sometimes referred to as a “slurry feed.”

*“Certified operator”* means someone who has successfully completed the Certified Pool/Spa Operator course sanctioned by the National Swimming Pool Foundation, 10803 Gulfdale, Suite 300, San Antonio, Texas 78216, the Aquatic Facility Operator course sanctioned by the National Recreation and Park Association, Great Lakes Regional Office, 650 West Higgins Road, Hoffman Estates, Illinois 60195, or an equivalent course approved by the department; who has been recertified as required by the sanctioning organization; and who has obtained the continuing education required by 15.11(2).

“*Combined chlorine*” means nitrogen-chlorine compounds formed by the reaction of a chlorine disinfectant chemical with ammonia and organic nitrogen compounds. “Chloramines” is another term for combined chlorine.

“*Construction*” means the installation of a new swimming pool facility. Construction includes modifications to an existing facility which change the total recirculated water volume or the total water surface area by 20 percent or more.

“*Deck*” means a walkway immediately adjacent to a swimming pool.

“*Decorative fountain*” means a basin equipped with water sprays or jets that does not serve primarily as a wading or swimming pool and the drain of the basin is not directly connected to any type of suction device for removing or recirculating the water.

“*Deep water*” means those areas of a swimming pool where the water is more than five feet deep.

“*Department*” means the Iowa department of public health.

“*Engineering plans*” means plans and specifications certified in accordance with the rules of the Iowa engineering and land surveying examining board or the architectural examining board, by an engineer or architect licensed to practice in the state of Iowa.

“*Equalizer pipe*” means a pipe from below the water level in a swimming pool or spa to the body of a skimmer which is designed to automatically prevent air from being drawn into the pump when the water level drops below the skimmer inlet.

“*Fill and drain wading pool*” means a wading pool having no recirculation system.

“*Filter*” means a mechanical device for removing suspended particles from the swimming pool water and refers to the complete mechanism including all component parts.

“*Fountain*” means a water fountain which is not established primarily for swimming or wading, but where swimming or wading is allowed, and which has a drain which is connected to a mechanical suction device for removing or recirculating the water.

“*Free chlorine*” means the concentration of hypochlorous acid and hypochlorite ion in the swimming pool water.

“*Hose bib*” means a fresh-water threaded outlet for the purpose of attaching a garden hose.

“*Hydrostatic relief valve*” means a relief valve installed in the bottom of the swimming pool which is designed to operate automatically when the swimming pool is empty, relieving the groundwater pressure around the structure by allowing the groundwater into the swimming pool tank.

“*Inlet*” means a fitting or opening through which recirculation water enters the swimming pool.

“*Lifeguard.*”

1. “Certified lifeguard” means an individual who holds current certification in one of the following courses and, where applicable, current additional certification in American Red Cross standard first aid and American Red Cross or American Heart Association infant, child and adult CPR, or equivalent first-aid and CPR certification approved by the department:

- American Red Cross Lifeguard Training
- YMCA Lifeguarding
- Boy Scouts of America Lifeguard

2. "Licensed lifeguard" means an individual who holds a current license from the National Pool and Waterpark Lifeguard Training Program in one of the following programs:

- National Pool and Waterpark Pool Lifeguard
- National Pool and Waterpark Lifeguard Training
- National Pool and Waterpark Deep Water Lifeguard

NOTE: Lifeguard, CPR and first-aid training programs will sometimes be renamed or restructured by the sponsoring organization. American Red Cross lifeguard training now includes first aid and CPR; the lifeguard receives the lifeguard certificate and a CPR certificate. Separately, the American Red Cross offers "Community First Aid and Safety," which includes the first-aid and CPR training required by these rules, and the appropriate American Heart Association CPR course is "Basic Life Support for Healthcare Providers." If there is a question whether a specific training course will meet the requirements of these rules, information about the course should be submitted to the department for evaluation.

"*Main drain*" means the outlet(s) at the deepest part of a swimming pool or spa.

"*Manufacturer's specifications*" means written guidelines established by a manufacturer for the installation and operation of the manufacturer's equipment.

"*Multisection water recreation pool*" means a swimming pool with three or more distinct use areas such as a zero-depth play area, a water slide landing area, a lap swim area, and a diving area.

"*Outlet*" means a fitting or opening, including the main drain, through which water leaves the swimming pool or spa.

"*Perimeter overflow gutter*" means a weir and trough around the perimeter of a swimming pool which is used to skim the surface of the water.

"*Plunge pool*" means a shallow pool designed to serve as a landing area for a water slide.

"*Recirculation system*" means the pump, piping, filtration system, chemical feed systems and accessories provided for treating the swimming pool or spa water to meet the water quality standards in these rules.

"*Reconstruction*" means the replacement or modification of a swimming pool or spa shell or deck, a swimming pool or spa recirculation system, a perimeter overflow gutter or skimmer, or a bathhouse associated with a public swimming pool or spa. Reconstruction does not include the replacement of equipment or piping previously approved by the department, provided that the type and size of the equipment are not revised, nor does it include normal maintenance or repair.

"*Residential swimming pool*" means any swimming pool which is used, or intended to be used, as a swimming pool in connection with a single-family residence and is available only to the family of the householder and their private guests.

"*Shallow water*" means those areas of a swimming pool where the water is 5 ft deep or less.

"*Shallow water guard.*"

1. "Certified shallow water guard" means a person who has current certification in American Red Cross basic water rescue, current certification in American Red Cross standard first aid, and current certification in American Red Cross or American Heart Association infant, child and adult CPR, or equivalent training approved by the department.

2. "Licensed shallow water guard" means a person who holds a current license from the National Pool and Waterpark Lifeguard Training Program as a National Pool and Waterpark Shallow Water Waterpark Lifeguard.

NOTE: Water safety, CPR and first-aid training programs will sometimes be renamed or restructured by the sponsoring organization. As of publication, the American Red Cross offers "Community First Aid and Safety," which includes the first-aid and CPR training required by these rules, and the appropriate American Heart Association CPR course is "Basic Life Support for Healthcare Providers." If there is a question whether a specific training course will meet the requirements of these rules, information about the course should be submitted to the department for evaluation.

“*Skimmer*” means a device connected to the recirculation pump suction which is used to skim the swimming pool over a self-adjusting weir.

“*Spa*” means a bathing facility such as a hot tub or whirlpool designed for recreational or therapeutic use and which is designed not to be drained, cleaned, and refilled after each individual use. A spa is designed to provide a means of agitation. It may include, but is not limited to, hydrojet circulation, hot water, cold water, mineral baths, air induction systems, or any combination thereof. Rules 15.51(135I) and 15.52(135I) define minimum standards for the operation and design of spas.

“*Speed slide*” means a water slide which is designed to enter users into a plunge pool or other deceleration arrangement at a speed of 30 ft per second or more.

“*Superchlorination*” means the addition of a chlorine disinfectant compound to a swimming pool or spa to a concentration at least ten times the combined chlorine concentration before the addition. Treatment of swimming pool or spa water with nonchlorine chemicals to eliminate or suppress combined chlorine is not superchlorination.

“*Swimming pool*” means a structure, chamber, or tank constructed of man-made material which contains water and is operated for the purpose of swimming, wading, or diving, such as a swimming pool, wading pool, water slide, wave pool, and associated facilities. The facility may be either publicly or privately owned. This includes, but is not limited to, any such facilities operated by cities, counties, public and private schools, hotels, motels, camps, apartments, condominiums, and health clubs and country clubs.

1. “Class A swimming pool” means a swimming pool with a water surface area of 1500 ft<sup>2</sup> or more, except for wading pools.

2. “Class B swimming pool” means a swimming pool with a water surface area of less than 1500 ft<sup>2</sup>.

“*Swimming pool slide*” means any device used to enter a swimming pool by sliding down an inclined plane. Swimming pool slide as used in this chapter is equipment generally similar to a playground slide.

“*Temporary spa*” means a spa which is installed or situated in one location for a period of less than 30 days.

“*Total bromine*” means the concentration of hypobromous acid, hypobromite ion and nitrogen-bromine compounds in the swimming pool water.

“*Wading pool*” means a swimming pool that is no more than 24 inches deep at any point and which is primarily intended for use by young children for general recreation or training.

“*Water slide*” means a recreational ride which is a sloped trough-like or tubular structure using water as a lubricant and method of regulating rider velocity and which terminates in a plunge pool, swimming pool, or in a specially designed deceleration structure. “Water slide” includes appurtenant structures and devices, such as a plunge pool, pump reservoir, recirculation equipment, flume pumps, and access structures, when they are provided.

“*Wave pool*” means a swimming pool of special shape and design which is provided with wave generating equipment.

“*Zero-depth pool*” means a swimming pool in which the pool floor intersects the water surface along at least one side of the pool. This definition does not include wading pools.

**15.3(2) Abbreviations.**

“*AFO*” means aquatic facility operator.

“*BTU*” means British thermal unit.

“*CPO*” means certified swimming pool/spa operator.

“*CPR*” means cardiopulmonary resuscitation.

“*feet*” means feet of water ( $\text{feet} \times 0.43 = \text{psi}$ ) when used in discussing pump requirements.

“*ft*” means foot or feet (distance).

“*ft<sup>2</sup>*” means square foot or feet.

“*gal*” means gallon(s).

“*gpm*” means gal per minute.

“*in Hg*” means inches of mercury ( $\text{in Hg} \times 0.49 = \text{psi}$ ).

“*in<sup>2</sup>*” means square inch(es).

“*mg/L*” means milligram(s) per liter.

“*mV*” means millivolts.

“*ORP*” means oxidation-reduction potential.

“*ppm*” means parts per million; *mg/L* and *ppm* are equivalent terms.

“*psi*” means pounds per square inch.

“*sec*” means second (time).

“*TDH*” means total dynamic head.

## SWIMMING POOLS

**641—15.4(135I) Swimming pool operations.** Swimming pools shall be operated in a safe, sanitary manner and shall meet the following operational standards.

**15.4(1) Filtration and recirculation.**

*a. Filtration.* A swimming pool, except a fill and drain wading pool, shall have a filtration system in good working condition which provides water clarity in compliance with the water quality standards of 15.4(2).

*b. Recirculation.* The recirculation system of a swimming pool shall meet the following requirements:

(1) During the operating season, pumps, filters, disinfectant feeders, flow indicators, gauges, and all related components of the swimming pool water recirculation system shall be kept in continuous operation 24 hours per day except for backwashing or servicing.

(2) The recirculation system shall have an operating pressure gauge located before the filter if it is a pressure filter system. A vacuum filter system shall have a vacuum gauge located between the filter and the pump.

(3) Swimming pools shall have a means for skimming the pool water surface.

1. Skimmers shall have an easily removable basket or screen upstream from any valve. Self-adjusting weirs shall be in place to provide skimming action.

2. Gutter or skimmer drainage shall be sufficient to minimize flooding and prevent backflow of skimmed water into the swimming pool.

*c. Wastewater.* Backwash water from a swimming pool shall be discharged through an air break.

*d. Water supply.* The water supplied to a swimming pool shall be from a water supply meeting the requirements of the Iowa department of natural resources for potable water.

(1) Water supplied to a swimming pool shall be discharged to the pool system through an air gap or a reduced-pressure principle backflow device meeting the American Water Works Association standard, C-511-92, “Reduced-Pressure Principle Backflow-Prevention Assembly.”

(2) Vacuum breaker backflow preventers shall be provided on all hose bibs serving a swimming pool, shower room, chlorine room, or a filter room.

*e. Swimming pool water heaters.*

- (1) Electric water heaters shall bear the seal of UL, Underwriters Laboratory, Chicago, Illinois.
- (2) Gas-fired water heaters shall be equipped with a pressure relief valve.
- (3) Fuel-burning water heaters shall be vented to the outside in accordance with the Iowa state plumbing code.

*f. Fill and drain wading pools.* Each fill and drain wading pool shall be drained at least once every 12 hours and left empty when the pool is not open for use.

**15.4(2) Water quality and testing.**

*a. Disinfection.*

(1) Swimming pool water shall have a free chlorine residual of at least 1.0 ppm or a total bromine residual of at least 2.0 ppm when the swimming pool is open for use. Where a controller with an ORP readout is installed, or where ORP measuring equipment is available, the ORP measurement may be used instead of the residual measurement. The swimming pool water shall have an ORP of at least 700 mV.

(2) If the result of any test of the swimming pool water taken in accordance with 15.4(2)“e”(1) is less than 0.5 ppm free chlorine or less than 1.0 ppm total bromine, two additional tests shall be done at other parts of the swimming pool within 30 minutes.

A swimming pool shall be closed when the results of three or more water tests done within 30 minutes at a minimum of three different parts of the swimming pool are less than 0.5 ppm free chlorine or less than 1.0 ppm total bromine. The swimming pool shall remain closed until the free chlorine residual is 1.0 ppm or the total bromine residual is 2.0 ppm at each part of the swimming pool sampled above.

A swimming pool shall be closed regardless of the residual measurement if the ORP is less than 650 mV as measured by a controller or by ORP measuring equipment. The swimming pool shall remain closed until the ORP is at least 700 mV.

(3) A swimming pool shall be closed if the free chlorine residual exceeds 8.0 ppm or if the total bromine residual exceeds 18 ppm. Where ORP measurements are used, the swimming pool shall be closed if the ORP of the water exceeds 880 mV.

(4) A swimming pool shall be closed if the cyanuric acid concentration in the swimming pool water is greater than 80 ppm. The swimming pool may be reopened when the cyanuric acid concentration in the swimming pool water is 40 ppm or less.

*b. pH level.* The pH of swimming pool water shall be 7.2 to 7.8 if a chlorine chemical is used for disinfection. The pH of swimming pool water shall be 7.2 to 8.4 if a bromine chemical is used for disinfection.

*c. Water clarity.* A swimming pool shall be closed if the grate openings on the main drain are not clearly visible from the deck.

*d. Bacteria detection.*

(1) If coliform bacteria are detected in a sample taken in accordance with 15.4(2)“e”(6), the swimming pool shall be superchlorinated and a check sample shall be taken when the disinfectant residual is within the requirements of paragraph “a” above. If coliform bacteria are detected in the check sample, the swimming pool shall be closed. The swimming pool may reopen when no coliform bacteria are detected in a swimming pool water sample taken when the pool water meets the requirements of paragraphs “a,” “b” and “c” above.

(2) The facility management shall notify the inspection agency having jurisdiction of the positive bacteriological result within one business day after the facility management has become aware of the result.

*e. Test frequency.* The results of the tests required below shall be recorded in the swimming pool records.

(1) The disinfectant residual in the swimming pool water shall be tested each day within one-half hour of the swimming pool opening time and at intervals not to exceed four hours thereafter until the swimming pool closing time. For swimming pools at condominiums, apartments or homeowners associations with 25 or fewer living units, testing must be performed at least once each day that the swimming pool is available for use.

If the swimming pool is equipped with an automatic controller with a readout or local printout of disinfectant residual or ORP meeting the requirements of 15.4(2)“f”(4)“1” or “2,” the operator may make visual readings of disinfectant residual or ORP and record them. The swimming pool water shall be tested manually at least twice per day. The operator shall specify in the swimming pool records which results are from the manual tests.

(2) The pH of the swimming pool water shall be tested each day within one-half hour of the swimming pool opening time and at intervals not to exceed four hours thereafter until the swimming pool closing time. For swimming pools at condominiums, apartments or homeowners associations with 25 or fewer living units, testing must be performed at least once each day that the swimming pool is available for use.

If the swimming pool is equipped with an automatic controller with a readout or local printout of pH meeting the requirements of 15.4(2)“f”(5), the operator may make visual readings of pH and record them. The swimming pool water shall be tested manually at least twice per day. The operator shall specify in the swimming pool records which results are from the manual tests.

(3) The swimming pool water shall be tested for total alkalinity and calcium hardness at least once in each week the swimming pool is open for use.

(4) If a chlorine chemical is used for disinfection, the swimming pool water shall be tested for combined chlorine at least once in each week that the swimming pool is open for use.

(5) If cyanuric acid or a stabilized chlorine is used at a swimming pool, the swimming pool water shall be tested for cyanuric acid at least once in each week that the swimming pool is open for use.

(6) At least once in each month that a swimming pool is open for use, a sample of the swimming pool water shall be submitted to a laboratory certified by the department of natural resources for the determination of coliform bacteria in drinking water. The sample shall be analyzed for total coliform.

*f. Test equipment.*

(1) Each swimming pool facility shall have functional water testing equipment for free chlorine and combined chlorine, or total bromine; pH; total alkalinity; calcium hardness; and cyanuric acid (if cyanuric acid or a stabilized chlorine is used at the facility).

(2) The test equipment shall provide for the direct measurement of free chlorine and combined chlorine from 0 to 10 ppm in increments of 0.2 ppm or less over the full range, or total bromine from 0 to 20 ppm in increments of 0.5 ppm or less over the full range.

(3) If a chlorine chemical is used for swimming pool water disinfection, the test equipment shall provide for the measurement of swimming pool water pH from 7.0 to 8.0 with at least five increments in that range. If a bromine chemical is used for swimming pool water disinfection, the test equipment shall provide for the measurement of pH from 7.0 to 8.5 with at least seven increments in that range.

(4) A controller readout used in lieu of manual disinfectant residual testing shall be a numerical analog or digital display (indicator lights are not acceptable) with one of the following characteristics:

1. A chlorine or bromine residual scale with a range of at least 0 to 10 ppm with increments of 0.2 ppm or less. The residual readout shall be internally and automatically adjusted for pH.

2. An ORP scale with a range of at least 600 to 900 mV with increments of 20 mV or less.

(5) A controller readout used in lieu of manual pH testing shall be a numerical analog or digital display (indicator lights are not acceptable) with a pH range at least equal to the range required in 15.4(2)“f”(3) with increments of 0.2 or less over the full range.

*g. Operator availability.* A person knowledgeable in testing water and in operating the water treatment equipment shall be available whenever a swimming pool is open for use.

**15.4(3) Chemical feed equipment and cleaning.**

*a. Chemical feed equipment.*

(1) Equipment for continuous feed of a chlorine or bromine compound to the swimming pool water shall be provided and shall be operational. The equipment shall be adjustable in at least five increments over its feed capacity.

(2) Equipment for the continuous feed of a chemical for pH adjustment of the swimming pool water shall be provided and shall be operational for each Class A swimming pool.

(3) Equipment and piping used to apply chemicals to the water shall be of such size, design, and material that they may be cleaned. All material used for such equipment and piping shall be resistant to the action of chemicals to be used.

*b. Cleaning.*

(1) The inspection agency (the department or a contracting board of health) may require that a swimming pool be drained and scrubbed with a disinfecting agent prior to further usage.

(2) A vacuum system shall be provided to remove dirt from the bottom of the swimming pool.

**15.4(4) Safety.**

*a. Chemical safety.*

(1) No disinfectant chemical, pH control chemical, algaecide, shock treatment chemical, or any other treatment chemical that is toxic or irritating to humans may be added to the swimming pool water from the deck of the swimming pool while the swimming pool is in use. When chemical additions are made from the deck, the swimming pool shall be closed from use for at least one-half hour. The operator shall test the swimming pool water as appropriate before allowing use of the swimming pool. The chemical addition and the test results shall be recorded in the swimming pool records.

(2) Swimming pool treatment chemicals shall be stored and handled in accordance with the manufacturer's recommendations.

(3) Material safety data sheets (MSDS) for the chemicals used at the pool shall be at the facility in a location known and readily accessible to the facility staff.

(4) Chemical storage containers shall be clearly labeled.

(5) A warning sign shall be placed on the door of rooms where chemicals are used or stored, or where bulk containers are located.

*b. Stairs, ladders, recessed steps, and ramps.*

(1) Ladders or recessed steps shall be provided in the deep portion of a swimming pool. Stairs, ladders, recessed steps, or ramps shall be provided in the shallow portion if the vertical distance from the bottom of the swimming pool to the deck is more than 2 ft.

(2) Ladders, ladder rungs and ramps shall be securely anchored.

(3) Stairs, ladder rungs, ramps and recessed steps shall be slip-resistant.

(4) If a swimming pool is over 30 ft wide, recessed steps, ladders, ramps, or stairs shall be installed on each side. If a stairway extends across 50 percent or more of the shallow end of the swimming pool, that end of the swimming pool shall be considered in compliance with this subrule.



- (5) Where recessed steps are provided, securely anchored grab rails shall be provided.
- (6) Where stairs or ramps are provided, they shall be equipped with a securely anchored handrail.
- (7) When stairs are provided for entry into a swimming pool, a stripe at least 1 inch wide of color contrasting with the swimming pool floor shall be marked at the leading edge of each tread. The stripe shall be slip-resistant.

*c. Diving areas.*

- (1) No diving shall be permitted in areas where the water is 5 ft deep or less except for purposes of competition or training. The diving shall be supervised by a lifeguard, swim instructor or swim coach.
- (2) Starting blocks, when provided, shall only be used for competition or training purposes under the supervision of a lifeguard, swim instructor, or swim coach. Starting blocks and starting block installation shall meet the requirements of the competition governing body (National Collegiate Athletic Association, Amateur Athletic Union, or National Federation of State High School Associations). When the swimming pool is open for general use, the starting blocks shall be secured from use by removal, covering, or signage and active supervision.
- (3) Diving boards can be permitted only if the diving area dimensions conform to the appropriate minimum requirements indicated in Figure 1, Table 1 and Table 2. Alternative diving well configurations may be used, subject to the approval of the department.
- (4) There shall be a completely unobstructed clear distance of 13 ft above the diving board, measured from the center of the front end of the board. This area shall extend at least 8 ft behind, 8 ft to each side, and 16 ft ahead of the measuring point.
- (5) Diving boards and platforms over 3 meters in height are prohibited except where approved by the department.
- (6) Diving boards and platforms shall have a slip-resistant surface.
- (7) Where the top of a diving board or platform is more than 18 inches above the deck, stairs or a ladder shall be provided for access to the diving board or platform.
- (8) Handrails shall be provided at all steps and ladders leading to diving boards which are more than 32 inches above the deck.
- (9) Platforms and diving boards which are 32 inches or more above the swimming pool deck shall have guardrails at least 36 inches high extending to the edge of the deck. Guardrails shall have at least one horizontal mid-bar.
- (10) Supports, platforms, and steps for diving boards shall be of substantial construction and of sufficient structural strength to safely carry the maximum anticipated loads.

NOTE: THE INFORMATION CONTAINED IN FIGURE 1 AND TABLES 1 AND 2 IS FOR SWIMMING POOLS CONSTRUCTED PRIOR TO MARCH 14, 1990. SWIMMING POOLS CONSTRUCTED AFTER MARCH 14, 1990, SHALL MEET THE REQUIREMENTS CONTAINED IN 15.5(13)“a.”

When determining distances set out in Tables 1 and 2, measurements shall be taken from the top center of the front edge of the diving board.

FIGURE 1

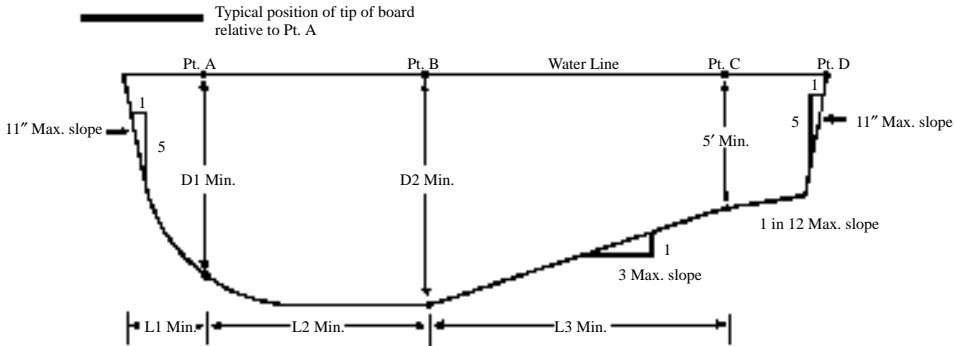


TABLE 1

DIVING BOARD HEIGHT ABOVE WATER	MAXIMUM DIVING BOARD LENGTH	MINIMUM DIMENSIONS				
		D1	D2	L1	L2	L3
Deck level to 2/3 meter	10 ft	7 ft	8.5 ft	2.5 ft	8.75 ft	10.5 ft
Greater than 2/3 meter to 3/4 meter	12 ft	7.5 ft	9 ft	3 ft	9 ft	12 ft
Greater than 3/4 meter to 1 meter	16 ft	8.5 ft	10 ft	4 ft	10 ft	15 ft
Greater than 1 meter to 3 meters	16 ft	11 ft	12 ft	6 ft	10.5 ft	21 ft

TABLE 2

DIVING BOARD HEIGHT ABOVE WATER	MINIMUM DISTANCE		
	TO POOL SIDE	TO 1-METER DIVING BOARD	TO 3-METER DIVING BOARD
Deck level to 1 meter	9 ft	8 ft	10 ft
Greater than 1 meter	11 ft	10 ft	10 ft

d. Lifeguards and shallow water guards.

- (1) Except for wading pools, lifeguards are required at municipal and school swimming pools of any size and other swimming pools having a water surface area of 1500 ft<sup>2</sup> or larger. Swimming pools operated by apartments, condominiums, country clubs, neighborhoods, or mobile home parks are exempt from lifeguard requirements.
- (2) Shallow water guards may be used at plunge pools which are 4 ft deep or less and at wading pools.

(3) For open recreation swimming, there shall be at least one lifeguard guarding the pool at all times for up to 30 swimmers in the water; for over 30 swimmers in the water, there shall be at least two lifeguards on duty, one of whom shall be guarding the pool at all times for up to 125 swimmers in the water. An additional lifeguard shall be provided for each additional 125 swimmers in the water or fraction thereof.

(4) For a structured swimming program, such as lap swim, competitive swimming, water exercise classes, swim lessons and physical education classes, a lifeguard is not required provided the program is supervised by an instructor, teacher, or coach who is a lifeguard or has current certification from the American Red Cross in basic water rescue, standard first aid, and infant, child and adult CPR; or equivalent training approved by the department.

(5) Water slide attendants. Each water slide shall have a minimum of two attendants, one stationed at the top of the slide and one at the bottom of the slide. The water slide attendants shall be either lifeguards or shallow water guards. Where the water slide attendant stationed at the bottom of a slide which empties into a swimming pool is a shallow water guard, the attendant shall only be responsible for guarding the water slide landing area.

If two or three water slides start at the same platform and the distance between the centerlines of any two start structures is 10 ft or less, one attendant may supervise the slides. If two water slides terminate within the same defined landing area, one attendant may supervise the landing area.

*e. Lifeguard chairs.* For outdoor swimming pools where lifeguards are required by rule, at least one elevated lifeguard chair or station shall be provided for a swimming pool with a water surface area of 2000 to 4000 ft<sup>2</sup> inclusive; at least two chairs shall be provided if the area is 4001 to 6000 ft<sup>2</sup>; and at least three chairs shall be provided if the area is 6001 ft<sup>2</sup> or more. Swimming pools are not required to have more than three lifeguard chairs or stations. This requirement does not apply to wave pools or wading pools.

*f. Emergency equipment and facilities.*

(1) Except for wading pools, a minimum of one unit of lifesaving equipment shall be provided for each 1500 ft<sup>2</sup> of water surface area or fraction thereof. The area of a swimming pool where the water is 2 ft deep or less may be subtracted from the total area for this requirement. A swimming pool is not required to have more than ten units of lifesaving equipment.

(2) A unit of lifesaving equipment consists of one of the following:

1. A U.S. Coast Guard-recognized ring buoy fitted with a 1/4-inch diameter line with a length of at least one-half the width of the pool, but no more than 60 ft; or
2. A life pole, or a "shepherd's crook" of at least 8 ft in length, and having blunted ends; or
3. A rescue buoy made of lightweight, hard, buoyant plastic with molded hand grips along each side and provided with a 4- to 6-ft tow rope and shoulder strap; or
4. A rescue tube made of a soft, strong, foam material 3 inches by 6 inches by 40 inches with a molded strap providing a ring at one end and a hook at the other. Attached to the end with the ring shall be a 6-ft-long towline with a shoulder strap; or
5. Any other piece of rescue equipment approved by the department.

NOTE: RESCUE EQUIPMENT IDENTIFIED IN 15.4(4)"f"(2)"3" AND 15.4(4)"f"(2)"4" ABOVE SHALL BE USED ONLY AT SWIMMING POOLS WHERE LIFEGUARDS ARE EMPLOYED.

(3) Lifesaving equipment shall be mounted in conspicuous places around the swimming pool deck during normal operations.

(4) A swimming pool facility shall have a first-aid kit which contains, at a minimum, a supply of the following:

1. Band-Aids.
2. Bandage compress.
3. Self-adhering gauze bandage.
4. Latex (or similar material) disposable gloves.

Where lifeguards are not provided, the first-aid kit shall be prominently mounted in the swimming pool enclosure, or a sign stating its location shall be posted near the swimming pool.

(5) A standard spine board with straps and a head immobilizer shall be provided at each swimming pool where lifeguards are required by rule.

(6) A gated exit of at least 36 inches in width shall be provided for emergency purposes.

(7) Except for wading pools, a designated emergency telephone capable of being operated without coins shall be available to users of swimming pools. When the telephone is not within the confines of the swimming pool enclosure, the location of the emergency telephone shall be posted in at least one conspicuous place within the swimming pool enclosure.

*g. Water level.* Water level in swimming pools shall be maintained at the skimming level.

*h. Main drains.* Each outlet, including the main drain(s), shall be designed to prevent human entrapment.

(1) Each drain shall have a cover with openings or slots no more than ½-inch wide.

(2) Drain covers shall not be removable without the use of tools.

(3) Each main drain shall be covered with a grate with a minimum area equal to a 12-inch by 12-inch square, an antivortex cover or another drain cover approved by the department.

*i. Surface finish and float lines.*

(1) The bottom and sides of a swimming pool shall be white or a light color. This does not prohibit painting or marking racing lines, stairs or turn targets with contrasting colors.

(2) The swimming pool walls and floor shall have a smooth surface in order to facilitate cleaning.

(3) The boundary between shallow and deep water (5 ft) shall be marked by a float line with floats spaced no more than 5 ft apart. The float line shall be installed within 12 inches of the shallow side of the boundary. When the slope of the floor of a swimming pool exceeds 1 ft vertical to 12 ft horizontal at a depth of less than 5 ft, the float line shall be placed within 12 inches of the shallow edge of the slope change.

(4) A wave pool shall be equipped with a float line with floats spaced no more than 5 ft apart. The float line shall be located at least 6 ft from the deep end wall. Users shall not be permitted between the float line and the deep end wall.

(5) The landing area for a swimming pool slide or a water slide that terminates in a swimming pool shall be delineated by a float line or as approved by the department.

*j. Depth marking.*

(1) Depth markers shall be located on the deck no more than 3 ft from the edge of the swimming pool. The depth of a wave pool shall also be marked on the side walls of the wave pool, above the maximum static water level, where the depth is 3 ft or more, and on the deep end wall of the wave pool. Depth markers are not required at the zero-depth end of a wading pool, wave pool, or a zero-depth swimming pool.

(2) Depth markers shall be located at 1-ft depth intervals, but not more than 20 ft apart measured between the centers of the depth markers around the area of a swimming pool which has a water depth of 5 ft or less and around the area of a wave pool where the water depth is 3 ft or more. Depth markers are not required at a plunge pool on the flume discharge end or on the exit end if stairs are used for exit.

(3) Depth markers shall be located not more than 20 ft apart measured between the centers of the depth markers around the deep end of the swimming pool. The words "Deep Water" may be used in place of numerals as depth markers.

(4) In lieu of subparagraph (2) above, the maximum depth of a wading pool may be posted at each entrance to a wading pool enclosure and at one conspicuous location inside the wading pool enclosure in letters or numbers at least 3 inches high.

(5) Swimming pool areas where diving is not permitted shall be marked with "No Diving" or equivalent wording or graphics on the pool deck within 3 ft of the edge of the swimming pool at intervals no greater than 25 ft between the centers of the markers around the perimeter of the area. This marking is not required for wading pools or at the zero-depth end of a wave pool or a zero-depth swimming pool.

(6) Letters, numbers, and graphics marked on the deck shall be slip-resistant, of a color contrasting with the deck and at least 4 inches in height.

*k. Deck safety.*

(1) Decks shall be maintained slip-resistant and free of litter, obstructions, and tripping hazards.

(2) Glass objects, other than eyeglasses and safety glass doors and partitions, shall not be permitted on the deck.

(3) There shall be no underwater or overhead projections or obstructions which would endanger swimmer safety or interfere with proper swimming pool operation.

*l. Fencing.*

(1) Except for a fill and drain wading pool, a swimming pool shall be enclosed by a fence, wall, building, enclosure, or combination thereof not less than 4 ft high and made of durable material.

(2) A fence, wall, or other means of enclosure shall have no openings, other than gateways and doorways, that would allow the passage of a 4-inch sphere, and shall not be easily climbable by toddlers. The distance between the ground and the top of the lowest horizontal support accessible from the outside of the facility, or between the two lowest horizontal supports accessible from outside the facility, shall be at least 45 inches. Except where controlled entrance is provided, gates and doors shall be lockable, self-closing, and self-latching.

(3) If a wading pool is within 50 ft of a swimming pool, the wading pool shall have a barrier at least 36 inches high separating it from the swimming pool.

(4) An indoor swimming pool shall be enclosed by a barrier at least 3 ft high if there are sleeping rooms, hallways, apartments, condominiums, or permanent recreation areas used by children which open directly into the swimming pool area. No opening in the barrier except for a gate or door shall permit the passage of a 4-inch sphere. Gates or doors shall be lockable, self-closing, and self-latching.

(5) A facility with an indoor swimming pool(s) and which has secured entry to the facility shall be considered to have met the provisions of 15.4(4)"1" (1) and (2).

(6) A wave pool shall have a continuous barrier along the full length of each side of the wave pool. The barrier shall be at least 42 inches high and be installed 2½ to 3 ft from the side of the wave pool. Wave pool users shall not be permitted in this area.

*m. Electrical.*

(1) Electrical outlets. Each electrical outlet in the deck, shower room, and the pool water treatment equipment areas shall be equipped with a properly installed ground fault circuit interrupter (GFCI) at the outlet or at the breaker serving the outlet. Electrical outlets energized through an ORP/pH controller are not required to have a separate GFCI if the controller is equipped with a GFCI or is energized through a GFCI breaker. GFCI receptacles and breakers shall be tested at least once in each month that the swimming pool is in operation. Testing dates and results shall be recorded in the pool records.

(2) Lighting.

1. Artificial lighting shall be provided at a swimming pool which is to be used at night or which does not have adequate natural lighting so that all portions of the swimming pool, including the bottom and main drain, may be clearly seen.

2. Underwater lights and fixtures shall be designed for their intended use. When the branch circuit supplying the fixtures is operating at more than 15 volts, the circuit shall be protected by a GFCI. When an underwater light needs to be repaired, the electricity shall be shut off until repairs are completed.

3. For outdoor swimming pools, no electrical wiring, except for overhead illumination, shall pass over a swimming pool.

*n. Chlorine gas and carbon dioxide.*

(1) Gas chlorine feed equipment and full and empty chlorine cylinders shall be housed in a room or building used exclusively for that purpose during the pool operation season. Gas chlorine installations constructed prior to March 14, 1990, that are housed within chain link fence or similar enclosures may be used provided that the chlorine cylinders are protected from direct sunlight and the applicable requirements below are met.

1. A gas chlorine room or building shall have an airtight exhaust system which takes its suction near the floor and discharges out of doors in a direction to minimize the exposure to swimming pool patrons. The system shall provide one air change every four minutes.

2. An air intake shall be provided near the ceiling.

3. The exhaust fan shall be operated from a switch in a nearby location outside the chlorine room or building. The switch shall be clearly labeled "Chlorine Exhaust Fan."

4. The discharge from the exhaust system shall be outside the pool enclosure.

5. Artificial lighting shall be provided in the chlorine room or building.

6. The door of a chlorine room or building shall be secured in an open position whenever the room is occupied.

7. A plastic bottle of commercial strength ammonia solution for leak detection shall be provided.

8. Rooms or buildings where chlorine is stored or used shall be placarded in accordance with 347—Chapter 140, Iowa Administrative Code.

(2) Chlorine and carbon dioxide (CO<sub>2</sub>) cylinders.

1. Gas chlorine and CO<sub>2</sub> cylinders shall be individually anchored with safety chains or straps to prevent their falling over.

2. Storage space shall be provided so that chlorine cylinders are not subject to direct sunlight.

3. The chlorinator shall be designed to prevent the backflow of water or moisture into the chlorine gas cylinder.

4. An automatic shutoff shall be provided to shut off the gas chlorinator and the pH control chemical pump when the recirculation pump stops.

*o. Water slides.*

(1) Water slide support structures shall be free of obvious structural defects.

(2) Plunge pool depth shall be at least 3 ft and no more than 4 ft at the end of the flume and for at least 15 ft beyond the end of the flume.

(3) The internal surface of a flume shall be smooth and continuous for its entire length.

(4) The flume shall have no sharp edges within reach of a user while in the proper sliding position.

**15.4(5) Showers, dressing rooms, and sanitary facilities.** Swimming pool users shall have access to showers, dressing rooms, and sanitary facilities that are clean and free of debris. If a bathhouse is provided, the following shall be met:

*a.* Floors shall have a slip-resistant surface.

*b.* Floors shall provide adequate drainage to prevent standing water.

c. *Carpeting.* Olefin or other approved carpeting may be used in locker room or dressing room areas provided there is an adequate drip area between the carpeting and the shower room, toilet facilities, swimming pool, or other area where water can accumulate.

d. All lavatories, showers, and sanitary facilities shall be functional.

**15.4(6) Management, notifications, and records.**

a. *Certified operator required.* Each swimming pool facility shall employ a certified operator. One certified operator may be responsible for a maximum of three swimming pool/spa facilities. Condominium associations, apartments and homeowners associations with 25 or fewer living units are exempt from this requirement.

b. *Pool rules sign.* A legible pool rules sign shall be posted conspicuously at a minimum of two locations within the swimming pool enclosure. The sign shall include:

(1) No diving in the shallow end of the swimming pool and in other areas where it is marked "NO DIVING."

(2) No horseplay in or around the swimming pool.

(3) No running on the deck.

c. *Other rules.* Management may adopt and post such other rules as it deems necessary to provide for user safety and the proper operation of the facility.

d. *"No Lifeguard" signs.* A sign shall be posted at each entry to a swimming pool or a wading pool where lifeguards are not required.

(1) The sign(s) at a swimming pool shall state that lifeguards are not on duty and children under the age of 12 must be accompanied by an adult.

(2) The sign(s) at a wading pool shall state that lifeguards are not on duty and children must be accompanied by an adult.

e. *Water slide rules.* Rules and restrictions for the use of a water slide shall be posted near the slide. The rules shall address the following as applicable:

(1) Use limits.

(2) Attire.

(3) Riding restrictions.

(4) Water depth at exit.

(5) Special rules to accommodate unique aspects of the attraction.

(6) Special warnings as to the relative degree of difficulty.

f. *Operational records.* The operator of a swimming pool shall have the swimming pool operational records for the previous 12 months at the swimming pool facility and shall make these records available upon request by a swimming pool inspector. These records shall contain a day-by-day account of swimming pool operation, including:

(1) Results of pH, free chlorine or total bromine residual, cyanuric acid (if used), total alkalinity, combined chlorine, and calcium hardness tests, and any other chemical test results.

(2) Results of microbiological analyses.

(3) Reports of complaints, accidents, injuries, and illness.

(4) Dates and quantities of chemical additions, including resupply of chemical feed systems.

(5) Dates when filters were backwashed, cleaned or a filter cartridge was changed.

(6) Monthly ground fault circuit interrupter test results.

(7) Dates of review of material safety data sheets.

*g. Submission of records.* The inspection agency (the department or a contracting board of health) may require a swimming pool facility operator to submit copies of chemical test results and microbiological analyses to the inspection agency on a monthly basis. The inspection agency shall notify the facility management of this requirement in writing at least 15 days before the reports are to be submitted for the first time. The facility operator shall submit the required reports to the inspection agency within 10 days after the end of each month of operation.

*h. Certificates.* Copies of certified operator certificates, and copies of lifeguard, first-aid, basic water rescue, and CPR certificates for the facility staff shall be kept at the facility.

*i. Operations manual.* A permanent manual for the operation of the swimming pool shall be kept at the facility. It shall include at a minimum:

(1) Operating and maintenance instructions for each type of filter, pump and safety device, including filter backwash or cleaning instructions.

(2) Operating and maintenance instructions for other equipment used at the swimming pool.

(3) Water testing procedures.

(4) A schematic drawing of the pool recirculation system. Clear labeling of the swimming pool piping with flow direction and water status (unfiltered, treated, backwash) may be substituted for the schematic drawing.

*j. Material safety data sheets.* Copies of material safety data sheets of the chemicals used at the swimming pool shall be kept at the facility in a location known to facility staff with chemical handling responsibilities. The material safety data sheets shall be reviewed with the facility staff at least annually.

*k. Emergency plan.* A written emergency plan shall be provided. The plan shall include, but may not be limited to, actions to be taken in cases of drowning, serious illness or injury, chemical handling accidents, weather emergencies, and other serious incidents. The emergency plan shall be reviewed with the facility staff at least once a year, and the dates of review or training shall be recorded in the pool records.

*l. Lifeguard staffing plan.* The lifeguard staffing plan for the facility shall be available to the swimming pool inspector at the facility. The plan shall include staffing assignments for all programs conducted at the pool.

**15.4(7) Reports.** Swimming pool and spa operators shall report to the department within one business day of occurrence all deaths; near drowning incidents; head, neck, and spinal cord injuries; and any injury which renders a person unconscious or requires immediate medical attention.

**641—15.5(135I) Construction and reconstruction.** A swimming pool constructed or reconstructed after the effective date of these rules (May 13, 1998) shall comply with the following standards. An existing swimming pool shall comply with the requirements of 641—15.4(135I). Nothing in these rules is intended to exempt swimming pools and associated structures from any applicable federal, state or local laws, rules, or ordinances. Applicable requirements may include, but are not limited to, the handicapped access and energy requirements of the state building code, the fire and life safety requirements of the state fire marshal, the rules of the Iowa department of workforce development, and the rules of the Iowa department of natural resources.



**15.5(1) Construction permit.**

*a. Permit required.* No swimming pool shall be constructed or reconstructed without first receiving a permit from the department. Construction shall be completed within 24 months from the date the construction permit is issued unless an extension is granted in writing by the department.

*b. Permit application.* The owner of a proposed or existing swimming pool facility or a designated representative of the owner shall apply for a construction permit on forms provided by the department. The application shall be submitted to the department at least 15 days prior to the start of construction of a new swimming pool or the reconstruction of an existing swimming pool.

*c. Plan submission and fee.* Three sets of plans and specifications shall be submitted with the application. A nonrefundable plan review fee for each swimming pool, water slide, wave pool, wading pool, zero-depth swimming pool, and multisection water recreation pool shall be remitted with the application as required in 15.12(3).

*d. Notification of completion.* The owner of a newly constructed or reconstructed swimming pool facility, or the owner's designated representative, shall notify the department in writing within 15 business days of the completion of construction and prior to opening the pool.

**15.5(2) Plans and specifications.**

*a. Plan certification.* Plans and specifications shall be sealed and certified in accordance with the rules of the Iowa engineering and land surveying examining board or the Iowa architectural examining board by an engineer or architect licensed to practice in Iowa. This requirement may be waived by the department if the project is the addition or replacement of a chemical feed system, including a disinfection system, provided there is no effect on the recirculation flow rate or any structural modifications or additions to any building.

If the requirement for engineering plans is waived, the owner of the swimming pool facility assumes full responsibility for ensuring that the reconstruction complies with these rules and with any other applicable federal, state and local laws, rules and ordinances.

*b. Content of plans.* Plans and specifications submitted shall contain sufficient information to demonstrate to the department that the proposed swimming pool will meet the requirements of this chapter. The plans and specifications shall include, but may not be limited to:

(1) The name and address of the owner and the name, address, and telephone number of the architect or engineer responsible for the plans and specifications.

(2) The location of the project by street address or other legal description.

(3) A site plan showing the pool in relation to buildings, streets, water and sewer service, gas service, and electrical service.

(4) Detailed scale drawings of the swimming pool and its appurtenances, including a plan view and cross sections at a scale of 1/8 inch per ft or larger. The location of inlets, overflow system components, main drains, the deck and deck drainage, the location and size of pool piping, the swimming pool ladders, stairs and deck equipment, including diving stands and boards, and fencing shall be shown.

(5) A drawing(s) showing the location, plan, and elevation of filters, pumps, chemical feeders, ventilation devices, heaters, and surge tanks; and additional drawings or schematics showing operating levels, backflow preventers, valves, piping, flow meters, pressure gauges, thermometers, the makeup water connection, and the drainage system for the disposal of filter backwash water.

(6) Plan and elevation drawings of bathhouse facilities including dressing rooms; lockers; showers, toilets and other plumbing fixtures; water supply; drain and vent systems; gas service; water heating equipment; electrical fixtures; and ventilation systems, if provided.

(7) Complete technical specifications for the construction of the swimming pool, for the swimming pool equipment and for the swimming pool appurtenances.

*c. Deviation from plans.* No deviation from the plans and specifications, or conditions of approval, shall be made without prior approval of the department.

**15.5(3) General design.**

- a. Construction of fill and drain wading pools is prohibited.
- b. **Materials.** Swimming pools shall be constructed of materials which are inert, stable, nontoxic, watertight, and durable.
- c. **Structural loading.**
  - (1) Swimming pools shall be designed and constructed to withstand the anticipated structural loading. If maintenance of the structural integrity of the swimming pool requires specific operations or limits of operation, these shall be specified in the permanent operations manual required in 15.5(3)“f.”
  - (2) Except for aboveground swimming pools, a hydrostatic relief valve or a suitable underdrain system shall be provided.
- d. **Water supply.** The water supplied to a swimming pool shall be from a water supply meeting the requirements of the Iowa department of natural resources for potable water.
  - (1) Water supplied to a swimming pool shall be discharged to the pool system through an air gap, or a reduced-pressure principle backflow device complying with American Water Works Association standard C-511-92, “Reduced-Pressure Principle Backflow-Prevention Assembly.”
  - (2) Vacuum breaker backflow preventers shall be provided on all hose bibs serving a swimming pool.
- e. No part of a swimming pool recirculation system may be directly connected to a sanitary sewer. An air break or an air gap shall be provided.
- f. **Operations manual.** The owner shall require that a permanent manual for the operation of the swimming pool facility be provided. The manual shall include:
  - (1) Operating and maintenance instructions for each type of filter, pump and safety device, including filter backwash or cleaning instructions. For each centrifugal pump, a pump performance curve plotted on an 8½” x 11” or larger sheet shall be included. For each chemical feeder, the maximum rated output shall be listed in weight per time or volume per time units.
  - (2) Operating and maintenance instructions for other equipment used at the swimming pool.
  - (3) A parts list and exploded drawing for each piece of equipment with field replaceable parts.
  - (4) A schematic drawing of the pool recirculation system. Clear labeling of the swimming pool piping with flow direction and water status (unfiltered, treated, backwash) may be substituted for the schematic drawing.

**15.5(4) Decks.**

- a. **Deck width.** A swimming pool shall be surrounded by a deck. The deck shall be at least 6 ft wide for a Class A swimming pool, and 4 ft wide for a Class B swimming pool, and shall extend at least 4 ft beyond the diving stands, lifeguard chairs, or any other deck equipment.
- b. **Materials.** Decks shall be constructed of impervious materials and shall be provided with a slip-resistant surface.
- c. **Deck coverings.** Porous, nonfibrous deck coverings may be used, subject to department approval, provided that:
  - (1) The covering allows drainage so that the covering and the deck underneath it do not remain wet or retain moisture.
  - (2) The covering is inert and will not support bacterial growth.
  - (3) The covering provides a slip-resistant surface.
  - (4) The covering is durable and cleanable.

*d. Deck drainage.* The deck of a swimming pool shall not drain to the pool or to the pool recirculation system except as provided in 15.5(15)“c” and 15.5(16)“b.” For deck-level swimming pools (“rimflow” or “rollout” gutter), a maximum of 5 ft of deck may slope to the gutter.

*e. Deck slope.* The deck slope shall be at least 1/8 inch/ft and no more than 1/2 inch/ft to drain.

*f. Surface runoff.* For outdoor swimming pools, a means shall be provided to prevent surface runoff from entering the swimming pool.

*g. Carpeting.* The installation of a floor covering of synthetic material may be used only in separate sunbathing, patio, or refreshment areas, except as permitted by 15.5(4)“c.”

*h. Hose bibs.* At least one hose bib shall be provided for flushing the deck.

*i. Rinse showers.* If users are permitted free access between the deck and an adjacent sand play area without having to pass through a bathhouse, a rinse shower area shall be installed between the deck and the sand play area. Fences, barriers and other structures shall be installed so that users must pass through the rinse shower area when going from the sand play area to the deck.

(1) Tempered water shall be provided for the rinse shower(s).

(2) The rinse area shall have sufficient drainage so that there is no standing water.

(3) Foot surfaces in the rinse shower area shall be impervious and slip-resistant.

**15.5(5) Recirculation.**

*a. Combined recirculation.* Two or more swimming pools may share the same recirculation system provided that:

(1) The recirculation flow rate for each swimming pool shall be calculated in accordance with 15.5(5)“b.” The recirculation flow rate for the system shall be at least the arithmetic sum of the recirculation flow rates of the swimming pools.

(2) The flow to each pool shall be adjustable. A flow meter shall be provided for each pool.

*b. Recirculation flow rate.* The recirculation flow rate shall provide for the treatment of one pool volume within:

(1) Four hours for a swimming pool with a volume of 30,000 gal or less.

(2) Six hours for a swimming pool with a volume of more than 30,000 gal.

(3) Four hours for a wave pool.

(4) Four hours for a zero-depth pool.

(5) Two hours for a wading pool.

(6) Two hours for a water slide plunge pool.

(7) For swimming pools with skimmers, the recirculation flow rate shall be at least 30 gpm per skimmer or the recirculation flow rate defined above, whichever is greater.

(8) The recirculation flow rate for pools not specified in 15.5(5)“b”(1) to (7) shall be determined by the department.

*c. Recirculation pump.* The recirculation pump(s) shall comply with the requirements of Standard 50, “Circulation System Components for Swimming Pools, Spas, or Hot Tubs,” published by NSF International, and the following requirements:

(1) The pump(s) shall supply the recirculation flow rate required by 15.5(5)“b” at a TDH of at least that given in “1,” “2,” and “3” below, unless a lower pressure is shown by the designer to be hydraulically appropriate. A valve for regulating the rate of flow shall be provided in the recirculation pump discharge piping.

1. 40 feet for vacuum filters; or

2. 60 feet for pressure sand filters; or

3. 70 feet for pressure diatomaceous earth filters or cartridge filters.

(2) For sand filter systems, the pump(s) shall have sufficient capacity to provide a backwash rate of at least 15 gpm/ft<sup>2</sup> of filter area.

(3) If a pump is located at an elevation higher than the pool water surface, it shall be self-priming or the piping shall be arranged to prevent the loss of pump prime when the pump is stopped.

(4) Where a vacuum filter is used, a vacuum limit control shall be provided on the pump suction line. The vacuum limit switch shall be set for a maximum vacuum of 18 in Hg.

(5) A compound vacuum-pressure gauge shall be installed on the pump suction line. A vacuum gauge may be used for pumps with suction lift. A pressure gauge shall be installed on the pump discharge line adjacent to the pump. Gauges shall be located and of such a size that they may be easily read by the operator.

(6) On pressure filter systems, a hair and lint strainer shall be installed on the suction side of the pump. The hair and lint strainer basket shall be easily removable for cleaning, changing, or inspection. A spare strainer basket shall be provided. This requirement may be waived for systems using vertical turbine pumps or pumps designed for solids handling.

*d. Swimming pool water heaters.*

(1) A heating coil, pipe or steam hose shall not be installed in a swimming pool.

(2) Gas-fired pool water heaters shall comply with the requirements of ANSI-Z21.56-1994 and ANSI-Z21.56a-1996 as published by American Gas Association, 1515 Wilson Boulevard, Arlington, Virginia. The data plate of the heater shall bear the American Gas Association mark.

(3) Electric pool water heaters shall comply with the requirements of UL 1261 as published by Underwriters Laboratory, Chicago, Illinois, and shall bear the UL mark.

(4) A swimming pool water heater with an input of greater than 400,000 BTU/hour (117 kilowatts) shall have a water heating vessel constructed in accordance with American Society of Mechanical Engineers (ASME) Boiler Code, Section 8, as published by ASME, 345 East 47th Street, New York, New York. The data plate of the heater shall bear the ASME mark.

(5) A thermometer shall be installed in the piping to measure the temperature of the water returning to the pool. The thermometer shall be located so that it may be easily read by an operator.

(6) Combustion air shall be provided for fuel-burning water heaters as required by the state plumbing code, 641—Chapter 25, Iowa Administrative Code, or as required by local ordinance.

(7) Fuel-burning water heaters shall be vented as required by the state plumbing code, 641—Chapter 25, Iowa Administrative Code, or as required by local ordinance.

*e. Flow meters.*

(1) Each swimming pool recirculation system shall be provided with a permanently installed flow meter to measure the recirculation flow rate.

(2) In a multiple pool system, a flow meter shall be provided for each pool.

(3) A flow meter shall be accurate within 5 percent of the actual flow rate between  $\pm 20$  percent of the recirculation flow rate specified in 15.5(5)“b” or the nominal recirculation flow rate specified by the designer.

(4) A flow meter shall be installed on a straight length of pipe with sufficient clearance from valves, elbows or other source of turbulence to attain the accuracy required by 15.5(5)“e”(3). The flow meter shall be installed so that it may be easily read by the facility operator or a remote readout of the flow rate shall be installed where it may be easily read by the operator. The designer may be required to provide documentation that the installation will meet the requirements of this subrule.

*f. Vacuum cleaning system.*

(1) A swimming pool vacuum cleaning system capable of reaching all parts of the pool bottom shall be provided.

(2) A vacuum system may be provided which utilizes the attachment of a vacuum hose to the suction piping through a skimmer.

(3) Automatic vacuum systems may be used provided they are capable of removing all debris from all parts of the swimming pool bottom.

**15.5(6) Filtration.** A filter shall comply with the requirements of Standard 50, "Circulation System Components for Swimming Pools, Spas, or Hot Tubs," published by NSF International, and the following requirements:

*a. Pressure gauges.* Each pressure filter shall have a pressure gauge on the inlet side. Gauges shall be located and of such a size that they may be read easily by the operator. A differential pressure gauge that gives the difference between the inlet and outlet pressure of the filter may be used in place of a pressure gauge.

*b. Air relief valve.* An air relief valve shall be provided for each pressure filter.

*c. Backwash water visible.* Backwash water from a pressure filter shall discharge through an observable free fall, or a sight glass shall be installed in the backwash discharge line.

*d. Indirect discharge required.* Backwash water shall be discharged indirectly to a sanitary sewer or another point of discharge approved by the Iowa department of natural resources.

*e. Rapid sand filter.*

(1) The filtration rate shall not exceed 3 gpm/ft<sup>2</sup> of filter area.

(2) The backwash rate shall be at least 15 gpm/ft<sup>2</sup> of filter area.

*f. High-rate sand filter.*

(1) The filtration rate shall not exceed 15 gpm/ft<sup>2</sup> of filter area.

(2) The backwash rate shall be at least 15 gpm/ft<sup>2</sup> of filter area.

(3) If more than one filter tank is served by a pump, the designer shall demonstrate that the backwash flow rate to each filter tank meets the requirements of subparagraph (2) above, or an isolation valve shall be installed at each filter tank.

*g. Vacuum sand filter.*

(1) The filtration rate shall not exceed 15 gpm/ft<sup>2</sup> of filter area.

(2) The backwash rate shall be at least 15 gpm/ft<sup>2</sup> of filter area.

(3) An equalization screen shall be provided to evenly distribute the filter influent over the surface of the filter sand.

(4) Each filter system shall have an automatic air purging cycle.

*h. Sand filter media shall comply with the manufacturer's specifications.*

*i. Diatomaceous earth filter.*

(1) The filtration rate shall not exceed 1.5 gpm/ft<sup>2</sup> of effective filter area except that a maximum filtration rate of 2.0 gpm/ft<sup>2</sup> may be allowed where continuous body feed is provided.

(2) Diatomaceous earth filter systems shall have piping to allow recycling of the filter effluent during precoat.

(3) Waste diatomaceous earth shall be discharged to a sanitary sewer or other point of discharge approved by the Iowa department of natural resources. The discharge may be subject to the requirements of the local wastewater utility.

*j. Cartridge filter.*

(1) The filtration rate shall not exceed 0.38 gpm/ft<sup>2</sup> of filter area.

(2) A duplicate set of cartridges shall be provided.

*k. Other filter systems may be used if approved by the department.*

**15.5(7) Piping.**

*a. Piping standards.* Swimming pool piping shall conform to applicable nationally recognized standards and shall be specified for use within the limitations of the manufacturer's specifications. Recirculation piping shall comply with the applicable requirements of ANSI/NSF Standard 61, "Drinking Water System Components—Health Effects," as published by NSF International, Ann Arbor, Michigan.

*b. Pipe sizing.* Swimming pool recirculation piping shall be sized so water velocities do not exceed 6 ft/sec for suction flow and 10 ft/sec for pressure flow. Gravity piping shall be sized so the head loss in piping, fittings, and valves does not exceed the difference in water levels between the swimming pool and the operating level in the surge or filter tank at the recirculation flow rate.

*c. Overflow system piping.* The piping for an overflow perimeter gutter system shall be designed to convey at least 125 percent of the recirculation flow rate. The piping for a skimmer system shall be designed to convey at least 100 percent of the recirculation flow rate.

*d. Main drain piping.* The main drains and main drain piping shall be designed to convey 100 percent of the recirculation flow rate.

*e. Play feature circulation.* Where there are attractions, such as water slides, fountains and play features, that circulate water to the swimming pool and through the main drain and overflow systems, the main drain and overflow systems and the associated piping shall be designed to accommodate the combined flow of the recirculation system and the attractions within the requirements of paragraph "b" above and the applicable requirements of 15.5(9) and 15.5(10).

**15.5(8) Inlets.**

*a. Inlets required.* Wall inlets or floor inlets, or both, shall be provided for a swimming pool.

*b. Wall inlet spacing.* Where wall inlets are used, they shall be no more than 20 ft apart around the perimeter of the area with an inlet within 5 ft of each corner of the swimming pool.

(1) There shall be at least one inlet at each stairway or ramp leading into a swimming pool.

(2) Except for wading pools, wall inlets shall be located at least 6 inches below the design water surface.

(3) Wall inlets in pools with skimmers shall be directional flow-type inlets.

(4) Each inlet shall have a directional flow inlet fitting with an opening of 1 inch diameter or less, or a fitting with openings ½-inch wide or less.

*c. Floor inlets.* Floor inlets shall be provided for those areas of a zero-depth swimming pool or wave pool where the water is less than 2 ft deep. Floor inlets shall be no more than 20 ft apart in the area where they are used. There shall be floor inlets within 15 ft of each wall of the swimming pool in the area where they are used. Floor inlets shall be flush with the pool floor.

*d. Adequate distribution required.* The inlet system shall be designed to provide adequate distribution of treated water throughout the pool. The designer may be required to provide documentation of adequate distribution. The department can require dye testing of a pool.

**15.5(9) Overflow system.**

*a. Skimmers.* Recessed automatic surface skimmers shall be listed by NSF International or by another listing agency approved by the department as complying with the requirements of Standard 50, "Circulation System Components for Swimming Pools, Spas, or Hot Tubs," as published by NSF International, Ann Arbor, Michigan.

(1) Skimmers may be used for swimming pools which are no more than 30 ft wide.

(2) A swimming pool shall have at least one skimmer for each 500 ft<sup>2</sup> of surface area or fraction thereof.

(3) Each skimmer shall be designed for a flow-through rate of at least 30 gpm or 3.8 gpm per lineal inch of weir, whichever is greater. The combined capacity of all skimmers in a swimming pool shall not be less than the total recirculation rate.

(4) Each skimmer shall have a weir that adjusts automatically to variations in water level of at least 4 inches.

(5) Each skimmer shall be equipped with a device to control flow through the skimmer.

(6) Each skimmer shall have an operational equalizer valve and pipe. The equalizer suction port in the swimming pool shall be covered with a fitting meeting the requirements of ANSI/ASME A112.19.8M-1987.

(7) A skimmer pool shall have an approved handhold around the perimeter of the pool. The handhold shall be 9 inches or less above the minimum skimmer operation level.

*b. Perimeter overflow gutters.*

(1) A perimeter overflow gutter system is required for a swimming pool greater than 30 ft in width, except for a wave pool or a wading pool.

(2) The overflow weir shall extend completely around the swimming pool, except at stairs, ramps, or water slide flumes.

(3) The gutter shall be designed to serve as a handhold and to prevent entrapment.

(4) Drop boxes, converters, return piping, or flumes used to convey water from the gutter shall be designed to convey 125 percent of the recirculation flow rate. Drainage shall be sufficient to prevent backflow of skimmed water into the swimming pool.

(5) Gutter overflow systems shall be designed with an effective surge capacity within the gutter system and surge tank of not less than 2 gal/ft<sup>2</sup> of swimming pool surface area. In-pool surge may be permitted for prefabricated gutter systems, subject to the approval of the department.

*c. Alternative overflow systems.* Overflow systems not meeting all of the requirements in 15.5(9)“a” or 15.5(9)“b” may be used if the designer can provide documentation that the alternative overflow system will skim the pool water surface at least as effectively as a skimmer system.

**15.5(10) Main drain system.**

*a. Main drains.* Each swimming pool shall have two or more main drains. The main drains shall be connected to the recirculation system.

(1) Main drains shall be at least 3 ft apart on center and shall be connected in parallel.

(2) Each main drain shall be designed for 100 percent of the recirculation flow rate.

*b. Main drain covers.* Each main drain shall be covered with a grate or other approved cover. The water velocity through the open area of the cover shall be no more than 1½ ft/sec. If an approved anti-vortex cover is used, the water velocity through the cover openings shall be no more than 6 ft/sec. The main drain cover shall be designed to be securely fastened to the pool so that it is not removable without tools.

*c. Control valve.* There shall be a control valve to adjust the flow between the main drain and the overflow system.

**15.5(11) Disinfection.**

*a. Disinfection system capacity.* A continuous feed disinfectant system shall be provided. The disinfectant feed system shall have the capacity to deliver at least 8 ppm chlorine or bromine based on the recirculation flow rate required in 15.5(5)“b” for an outdoor swimming pool and 3 ppm chlorine or bromine for an indoor swimming pool.

*b. Feeder listing.* A disinfectant feeder (except chlorine gas feed equipment) shall be listed by NSF International or by another listing agency approved by the department as complying with the requirements of Standard 50, “Circulation System Components for Swimming Pools, Spas, or Hot Tubs,” as published by NSF International, Ann Arbor, Michigan.

*c. Chemical feed stop.* The disinfectant system shall be installed so that chemical feed is automatically and positively stopped when the recirculation flow is interrupted.

*d. Gas chlorinators.* Gas chlorinator facilities shall comply with applicable federal, state and local laws, rules and ordinances and the requirements below.

(1) The chlorine supply and gas feeding equipment shall be housed in a separate room or building.

1. No entrance or openable window to the chlorine room shall be to the inside of a building used other than for the storage of chlorine.

2. The chlorine room shall be provided with an exhaust system which takes its suction not more than 8 inches from the floor and discharges out of doors in a direction to minimize the exposure of swimming pool patrons to chlorine gas. The exhaust system shall be capable of producing 15 air changes per hour in the chlorine room.

3. An automatic chlorine leak detector and alarm system shall be provided in the chlorine room. The alarm system shall provide visual and audible alarm signals outside the chlorine room.

4. An air intake shall be provided near the ceiling of the chlorine room. The air intake and the exhaust system outlet shall be at least 4 ft apart.

5. The room shall have a window at least 12 inches square. The window glass shall be shatter-proof.

6. The door of the chlorine enclosure shall open outward. The inside of the door shall be provided with panic hardware.

7. The chlorine room shall have adequate lighting.

8. Electrical switches for the exhaust system and for the lighting shall be outside the chlorine room and adjacent to the door, or in an adjoining room.

9. An anchoring system shall be provided so that full and empty chlorine cylinders can be individually secured to prevent their falling over.

10. Scales shall be provided for weighing the cylinders that are in use.

(2) The chlorinator shall be designed to prevent the backflow of water into the chlorine cylinder.

*e. Solution feed.* Where a metering pump is used to feed a solution of disinfectant, the disinfectant solution container shall have a capacity of at least one day's supply at the rate specified in 15.5(11)"a," except that when the system is designed to feed directly from a 55-gal shipping container, a larger solution container is not required.

*f. Erosion disinfectant feeders.* The storage capacity of an erosion feeder shall be at least one day's supply of disinfectant at the rate specified in 15.5(11)"a."

*g. Test equipment.* Test equipment complying with the following requirements shall be provided.

(1) The test equipment shall provide for the direct measurement of free chlorine and combined chlorine from 0 to 10 ppm in increments of 0.2 ppm or less over the full range, or total bromine from 0 to 20 ppm in increments of 0.5 ppm over the full range.

(2) If a chlorine chemical is used for swimming pool water disinfection, the test equipment shall provide for the measurement of swimming pool water pH from 7.0 to 8.0 with at least five increments in that range. If a bromine chemical is used for swimming pool water disinfection, the test equipment shall provide for the measurement of pH from 7.0 to 8.5 with at least seven increments in that range.

(3) The test equipment shall provide for the measurement of total alkalinity and calcium hardness with increments of 10 ppm or less.

(4) The test equipment shall provide for the measurement of cyanuric acid from 30 to 100 ppm. This requirement may be waived for a facility that does not use cyanuric acid or a stabilized chlorine disinfectant.



**15.5(12) pH control.**

a. *pH chemical feed required.* Each swimming pool shall have a metering pump for the addition of a pH control chemical to the pool recirculation system, or a carbon dioxide (CO<sub>2</sub>) gas feed system.

b. *Metering pump listing.* A metering pump shall be listed by NSF International or by another listing agency approved by the department as meeting the requirements of Standard 50, "Circulation System Components for Swimming Pools, Spas, or Hot Tubs," as published by NSF International, Ann Arbor, Michigan.

c. *CO<sub>2</sub> cylinder anchors.* Where carbon dioxide (CO<sub>2</sub>) is used as a method of pH control, an anchoring system shall be provided to individually secure full and empty CO<sub>2</sub> cylinders.

d. *Chemical feed stop.* The pH control system shall be installed so that chemical feed is automatically and positively stopped when the recirculation flow is interrupted.

**15.5(13) Safety.**

a. *Diving areas.*

(1) Diving boards are permitted only if the diving area dimensions conform to the minimum requirements shown in Figure 2, Tables 3 and 4. Alternative diving well configurations may be used, subject to the approval of the department, but the boundaries of the diving well shall be outside the boundaries prescribed in these rules.

(2) Where diving boards are specified that have been advertised or promoted to be "competition" diving boards, the diving area shall comply with the standards of the National Collegiate Athletic Association (NCAA) or the National Federation of State High School Associations (NFSHSA).

FIGURE 2

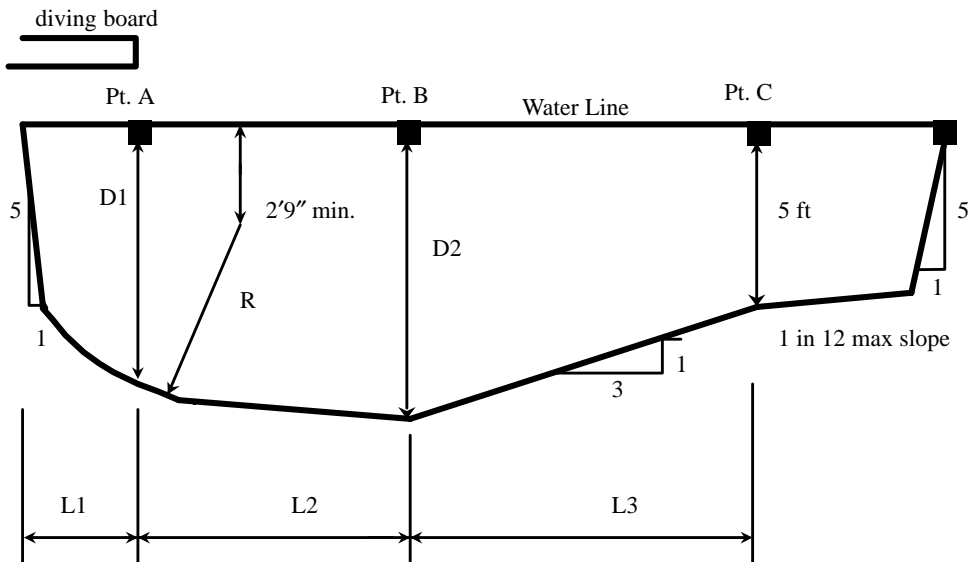


TABLE 3

		Minimum Dimensions					Minimum Width of Pool		
Diving Board Height Above Water	Maximum Board Length	D1	D2	L1	L2	L3	Pt A	Pt B	Pt C
Deck level to 2/3 meter	10 ft	7 ft	8.5 ft	2.5 ft	8 ft	10.5 ft	16 ft	18 ft	18 ft
Greater than 2/3 meter to 3/4 meter	12 ft	7.5 ft	9 ft	3 ft	9 ft	12 ft	18 ft	20 ft	20 ft
Greater than 3/4 meter to 1 meter	16 ft	8.5 ft	10 ft	4 ft	10 ft	15 ft	20 ft	22 ft	22 ft
Greater than 1 meter to 3 meters	16 ft	11 ft	12 ft	6 ft	10.5 ft	21 ft	22 ft	24 ft	24 ft

R minimum = Pool depth - Vertical wall depth from the water line - 3 inches.

TABLE 4

Diving Board Height Above Water	To Pool Side	To 1-Meter Board	To 3-Meter Board
Deck level to 1 meter	10 ft	8 ft	10 ft
Greater than 1 meter	11 ft	10 ft	10 ft

(3) There shall be a completely unobstructed clear distance of 13 ft above the diving board measured from the center of the front end of the board. This area shall extend at least 8 ft behind, 8 ft to each side, and 16 ft beyond the end of the diving board.

(4) Diving boards and platforms over 3 meters high are prohibited except where approved by the department.

(5) Diving boards and platforms shall have slip-resistant surfaces.

(6) Diving board supports, ladders, and guardrails.

1. Supports, platforms, and steps for diving boards shall be of substantial construction and of sufficient structural strength to safely carry the maximum anticipated loads.

2. Ladders, steps, supports, handrails and guardrails shall be of corrosion-resistant materials or shall be provided with a corrosion-resistant coating. They shall be designed to have no exposed sharp edges. Ladder steps shall have slip-resistant surfaces.

3. Handrails shall be provided at steps and ladders leading to diving boards and diving platforms. Guardrails shall be provided for diving boards and platforms which are more than 1 meter above the water. Guardrails for diving boards and platforms shall be at least 36 inches high and shall have at least one horizontal midbar and shall extend to the edge of the water.

b. *Stairs, ladders, and recessed steps.*

(1) Ladders or recessed steps shall be provided in the deep portion of a swimming pool and in the shallow portion if the vertical distance from the bottom of the swimming pool to the deck is more than 2 ft. Stairs or ramps may be used instead of ladders or recessed steps at the shallow end of the swimming pool.

(2) If the swimming pool is more than 30 ft wide, stairs, ramps, ladders, or recessed steps shall be provided on both sides of the pool. If a stairway extends across 50 percent or more of the shallow end of the swimming pool, that end of the swimming pool shall be considered in compliance with this subrule.

(3) The foot contact surfaces of stairs, ramps, ladder rungs, and recessed steps shall be slip-resistant.

(4) Ladders.

1. Ladders shall have a handrail on each side which extends from below the water surface to the top surface of the deck.

2. Ladders, treads, or supports shall be of a color contrasting with the swimming pool walls; however, stainless steel ladders may be used with stainless steel wall pools.

3. A ladder shall have a tread width of at least 16 inches and a uniform rise of 12 inches or less.

(5) Recessed steps.

1. Recessed steps shall have a tread depth of at least 5 inches, a tread width of at least 12 inches, and a uniform rise of no more than 12 inches.

2. Recessed steps shall be provided with a handrail or with deck-level grab rails on each side.

3. Recessed steps shall drain to the pool.

(6) Stairs.

1. Stairs shall have a uniform tread depth of at least 12 inches and a uniform rise of no more than 10 inches. The area of each tread shall be at least 240 in<sup>2</sup>.

2. Stairs shall be provided with at least one handrail for each 12 ft in width. Handrails shall be between 34 inches and 38 inches high, measured vertically from the line defined by the front edge of the steps.

(7) Handrails and grab rails.

1. Ladders, handrails, and grab rails shall be designed to be securely anchored so that tools are required for their removal.

2. Ladders, handrails, and grab rails shall be of corrosion-resistant materials or provided with corrosion-resistant coatings. They shall have no exposed sharp edges.

c. *Floor slope.* The bottom of the swimming pool shall slope toward the main drain(s). The slope of the swimming pool bottom where the water is less than 5 ft deep shall not exceed 1 ft vertical in 12 ft horizontal.

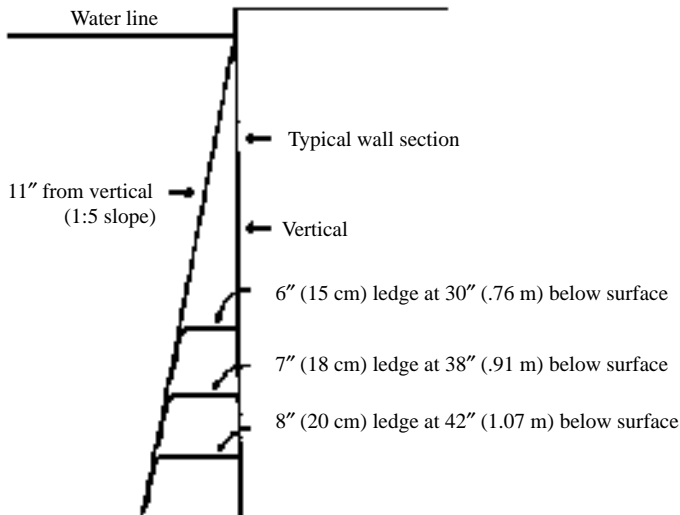
(1) Subject to the approval of the department, a swimming pool may be designed to have the change in slope (from 1:12 or less to a steeper slope) at a point where the water depth is less than 5 ft. The marking requirements of 15.5(13)"e"(3) and 15.5(13)"e"(4) shall apply and, if possible, depth markers which are clearly visible to persons in the pool shall be provided.

(2) For a wave pool, steeper slopes may be approved by the department if they are required for the proper function of the wave pool.

*d. Walls.*

(1) Walls in the deep section of a swimming pool shall be vertical to a water depth of at least 2.8 ft. If a transition radius is provided, it shall comply with Figure 2.

FIGURE 3



(2) The term “vertical” is interpreted to permit slopes not greater than 1 ft horizontal for each 5 ft of depth of side wall ( $11^\circ$  from vertical).

(3) Ledges, when provided, shall fall within an  $11^\circ$  line from vertical, starting at the water surface (Figure 3). A ledge shall be no less than 4 inches wide and no more than 8 inches wide. A ledge shall have a slip-resistant surface.

*e. Surface finish and markings.*

(1) The swimming pool floor shall have a slip-resistant finish.

(2) The bottom and sides of the swimming pool shall be white or a light color. This does not prohibit painting or marking racing lines or turn targets.

(3) Where the slope of a swimming pool bottom in a shallow area changes from 1:12 or less to a slope greater than 1:12, or at the 5-ft depth line, the pool bottom and sides shall be marked with a stripe at least 4 inches wide in a color contrasting with the pool bottom and sides. Depending on the pool configuration, more than one stripe may be required.

(4) A float line with floats no more than 5 ft apart shall be installed over or within 12 inches of the shallow side of the stripe required in 15.5(13)“e”(3).

(5) The landing area for a swimming pool slide or a water slide which does not terminate in a separate plunge pool shall be delineated by a float line or as approved by the department.

(6) When stairs are provided for entry to a swimming pool, a stripe at least 1 inch wide of a color contrasting with the swimming pool floor shall be marked at the leading edge of each tread. The stripe shall be slip-resistant.

(7) Depth markers.

1. Depth markers shall be painted or otherwise marked on the deck within 3 ft of the edge of a swimming pool. The depth of a wave pool shall also be marked on the side walls of the wave pool above the maximum static water level where the static water depth is 3 ft or more, and on the deep end wall of the wave pool.

2. Depth markers shall be located 20 ft apart or less center to center around the full perimeter of a swimming pool and around the perimeter of a wave pool where the water depth is 3 ft or more.

EXCEPTIONS: Depth markers are not required at the zero-depth end of a wading pool, wave pool, or a zero-depth swimming pool. Depth markers are not required on the deck of a plunge pool on the flume discharge end or on the exit end if stairs are used for exit.

3. The maximum depth of a swimming pool shall be marked on both sides of a swimming pool at the main drain.

4. The water depth of a swimming pool shall be marked at both ends of a float line required by 15.5(13)“e”(4).

5. In shallow water, the depth shall be marked at 1-ft depth intervals starting at one of the points specified in “3” and “4” above, if the 1-ft depth interval is less than 20 ft. The zero depth shall be used as the starting point for a zero-depth swimming pool.

6. In deep water, the words “Deep Water” may be used in place of numerals except as required in “3” above.

7. “No Diving” or equivalent wording or graphics shall be marked on the swimming pool deck within 3 ft of the edge of the swimming pool where the water is shallow and at other pool areas determined by management. The markers shall be 25 ft apart or less center to center around the perimeter of the area. This marking is not required at the zero-depth end of a wave pool or a zero-depth swimming pool.

8. Letter, number and graphic markers shall be slip-resistant, of a contrasting color from the deck and at least 4 inches in height.

9. In lieu of the requirements of “1” through “8” above, the maximum depth of a wading pool may be posted in lettering a minimum of 3 inches high at each entrance to the wading pool area and at least at one conspicuous location inside the wading pool enclosure. “No Diving” markers are not required at a wading pool.

*f. Lifeguard chairs.* One elevated lifeguard chair or station shall be provided for a swimming pool with a water surface area of 2000 to 4000 ft<sup>2</sup> inclusive; two chairs shall be provided if the area is 4001 to 6000 ft<sup>2</sup>; three chairs shall be provided if the area is 6001 ft<sup>2</sup> or more. A swimming pool is not required to have more than three lifeguard chairs or stations. This requirement does not apply to wave pools or wading pools.

*g. Emergency equipment and facilities.*

(1) A minimum of one unit of lifesaving equipment shall be provided for each 1500 ft<sup>2</sup> of water surface area or fraction thereof. The area of a swimming pool where the water is 2 ft deep or less may be subtracted from the total area for this requirement. A swimming pool is not required to have more than 10 units of lifesaving equipment.

(2) A unit of lifesaving equipment consists of at least one of the following:

1. A U.S. Coast Guard-recognized ring buoy fitted with a ¼-inch diameter line with a length at least one-half the width of the pool, but no more than 60 ft; or

2. A life pole with a “shepherd’s crook,” having blunted ends with a minimum length of 8 ft; or

3. A rescue buoy which is made of a hard, buoyant plastic and is provided with molded hand grips along each side, a shoulder strap, and a towing rope between 4 and 6 ft long; or

4. A rescue tube made of a soft, strong foam material 3 inches by 6 inches by 40 inches with a molded strap providing a ring at one end and a hook at the other. Attached to the ring end shall be a 6-ft-long towline with a shoulder strap; or

5. Any other piece of rescue equipment approved by the department.

NOTE: RESCUE EQUIPMENT IDENTIFIED IN 15.5(13)“g”(2)“3” AND 15.5(13)“g”(2)“4” ABOVE SHALL BE USED ONLY AT SWIMMING POOLS WHERE LIFEGUARDS ARE EMPLOYED.

(3) Whenever lifeguard chairs are provided, each chair shall be equipped with at least one unit of lifesaving equipment.

(4) A standard spine board with straps and head immobilizer shall be provided at each swimming pool where lifeguards are required by rule.

*h. Pool enclosures.*

(1) An outdoor swimming pool shall be enclosed by a fence, wall, building, or combination thereof, at least 4 ft high and made of durable material.

(2) Fences, walls, or other means of enclosure shall have no openings, other than gateways and doorways, that would allow the passage of a 4-inch sphere and shall not be easily climbable by toddlers. The distance between the ground and the top of the lowest horizontal support accessible from the outside of the facility, or between the two lowest horizontal supports accessible from outside the facility, shall be at least 45 inches. Except where controlled entrance is provided, gates and doors shall be lockable, self-closing, and self-latching.

(3) Except as modified by 15.5(13)“h”(4), all facilities with indoor swimming pools which have secured entry shall be considered to have met the provisions of 15.5(13)“h”(2).

(4) For indoor swimming pools, if there are sleeping rooms, hallways, apartments, condominiums, or permanent recreation areas used by children which open directly into the swimming pool area, the swimming pool shall be enclosed by a barrier at least 3 ft high. No opening in the barrier, except for a gate or door, shall permit the passage of a 4-inch sphere. Gates or doors shall be provided and be lockable, self-closing, and self-latching.

*i. Electrical.* Construction or reconstruction shall meet the requirements in Section 680 of the National Electrical Code, 70-96, as published by the National Fire Protection Association, Battery-march Park, Quincy, Massachusetts 02269.

*j. Lighting.* Artificial lighting shall be provided at indoor swimming pools and at outdoor swimming pools which are to be used after sunset in accordance with the following:

(1) Underwater lighting of at least 60 lamp lumens/ft<sup>2</sup> or 0.5 watts/ft<sup>2</sup> of water surface area, located to provide illumination of the entire swimming pool bottom, and area lighting of at least 10 lumens/ft<sup>2</sup> or 0.6 watts/ft<sup>2</sup> of deck area.

(2) If underwater lights are not provided, overhead lighting of at least 30 lumens/ft<sup>2</sup> or 2.0 watts/ft<sup>2</sup> of swimming pool water surface area shall be provided.

*k. Swimming pool slides.* Swimming pool slides shall meet the requirements of the January 1, 1986, product standard of the United States Consumer Product Safety Commission (CFR Title 16, Part 1207). Swimming pool slides shall be installed in accordance with the manufacturer’s recommendations.

**15.5(14) Wading pools.** Wading pools shall comply with the applicable provisions of 15.5(1) to 15.5(13), except as modified below.

*a. Wading pool near a swimming pool.* When a wading pool is constructed within 50 ft of a Class A or Class B swimming pool, wave pool, or plunge pool:

(1) The area of the swimming pool, wave pool, or plunge pool nearest the wading pool shall be a shallow water area.

(2) Decks. The wading pool shall be separated from the adjacent pool by a barrier or fence at least 36 inches high which meets the requirements of 15.5(13)“h.” At least one 36-inch-wide gate or opening shall be provided between the wading pool and the other pool.

b. A wading pool shall have at least 4 ft of deck.

c. Overflow system.

(1) Intermittent fixed weir overflow structures, including gutters, overflow fixtures, and drains at zero depth may be used. They shall have a hydraulic capacity of at least 125 percent of the recirculation flow rate. The designer shall be responsible for demonstrating that the overflow system will provide adequate skimming.

(2) If skimmers are used, there shall be at least one skimmer for every 500 ft<sup>2</sup> of water surface area or fraction thereof.

1. The recirculation flow rate shall be at least 3.8 gpm per lineal inch of skimmer weir or as required in 15.5(5)“b,” whichever is greater.

2. The skimmer(s) suction line may be connected to the main drain line in lieu of an equalizer pipe.

3. A skimmer(s) may be used in combination with overflow drains in a zero-depth wading pool.

d. Main drains. Each wading pool shall have at least two main drains. If the main drains are directly connected to the suction of a pump, the drains shall have antivortex covers or each drain shall be at least 324 in<sup>2</sup>.

e. Inlet system. Inlets shall be designed to distribute the treated water so as to eliminate dead spots and to move debris to the outlets. Wall and floor inlets or other means may be used, alone or in combination. The designer shall be responsible for demonstrating that the inlet system will provide adequate distribution of the treated water.

**15.5(15) Wave pools.** Wave pools shall comply with the applicable provisions of 15.5(1) to 15.5(13), except as modified below.

a. *Overflow not required.* Perimeter overflow gutters and skimmers are not required on the deep end wall where the wave generation equipment is located.

b. *Overflow drain at zero depth.* There shall be an overflow drain or weir across the full width of the zero-depth end of the wave pool. Full width is interpreted to allow construction joints at each end of the drain. The combined length of the joints shall be no more than 10 percent of the width of the end of the pool.

The drain shall be covered with a grate designed to prevent entrapment. The grate shall be designed so that it is securely fastened to the pool floor and cannot be removed without a tool or tools.

c. *Deck above zero depth.* The deck above the overflow drain at the zero-depth end of the pool may slope to the overflow drain for a distance no greater than 15 ft. The deck slope shall be no greater than 1 ft vertical in 12 ft horizontal.

d. *Overflow gutter or fittings.* There shall be a perimeter overflow gutter or overflow fittings along both sides of the wave pool where the water is 3 ft deep or more.

(1) If a perimeter overflow gutter is used, it shall be designed to prevent entrapment during wave action. Overflow grates shall be securely fastened so they will not be dislodged by wave action.

(2) Overflow fittings need not be continuous, but they shall be spaced no more than 10 ft apart.

e. *Overflow capacity.* The combined hydraulic capacity of the overflow drain at zero depth and the gutter or overflow outlets shall be at least 125 percent of the recirculation flow rate.

f. *Main drains.* A main drain system shall be provided which complies with the requirements of 15.5(10).

g. *Wave generator openings.* Openings or connections between the wave pool and the wave generation equipment shall be designed to prevent entrapment of swimmers.

h. *Side barrier.* There shall be a continuous barrier along the full length of each side of a wave pool. The barrier shall be at least 42 inches high and installed no more than 3 ft from the sides of the wave pool.

*i. Emergency switches.* Emergency switches which will stop the wave action shall be provided in at least four locations on the deck of the wave pool. Switch locations shall be marked by signs or contrasting bright colors.

*j. Float line.* A wave pool shall be equipped with a float line with floats spaced no more than 5 ft apart. The float line shall be located at least 6 ft from the deep end wall. Users shall not be permitted between the float line and the deep end wall.

**15.5(16) Zero-depth swimming pools.** Zero-depth swimming pools shall comply with the applicable provisions of 15.5(1) to 15.5(13), except as modified below.

*a. Overflow drain at zero depth.* There shall be an overflow drain or weir across the full width of the zero-depth end of the swimming pool. Full width is interpreted to allow construction joints at each end of the drain. The combined length of the joints shall be no more than 10 percent of the width of the end of the pool.

(1) The drain shall be covered with a grate designed to prevent entrapment. The grate shall be designed so that it is not removable without a tool.

(2) The drain and its associated piping shall be designed to convey at least 50 percent of the recirculation flow rate.

*b. Deck above zero depth.* The deck above the overflow drain at the zero-depth end of the pool may slope to the overflow drain for a distance no greater than 15 ft. The deck slope shall be no greater than 1 ft vertical in 12 ft horizontal.

*c. Perimeter overflow gutter.* A perimeter overflow gutter shall be provided. The gutter may be interrupted in the area where the water is less than 2 ft deep provided that:

(1) The length of the perimeter overflow gutter and overflow drain shall be at least 60 percent of the total pool perimeter.

(2) The hydraulic capacity of the perimeter overflow gutter system combined with the overflow drain shall be at least 125 percent of the recirculation flow rate.

**15.5(17) Water slides.** Water slides shall comply with the applicable provisions of 15.5(1) to 15.5(13) and the following:

*a. Flume construction.* A water slide flume shall comply with the following:

(1) The flume shall be perpendicular to the plunge or swimming pool wall for at least 10 ft from the flume end.

(2) The flume shall be sloped no more than 1 ft vertical in 10 ft horizontal for at least 10 ft before the end of the flume.

(3) The flume shall terminate between 6 inches below and 2 inches above the design water level in the plunge pool or swimming pool.

(4) There shall be at least 5 ft between the side of the plunge pool or swimming pool and the side of the flume. Adjacent flumes shall be at least 10 ft apart on center.

(5) The inside surface of a flume shall be smooth and continuous.

(6) The flume shall be designed so that users cannot be thrown out of the flume and to minimize user collisions with the sides of the flume.

(7) The flume shall have no sharp edges within reach of a user while the user is in the proper riding position.

(8) The flume path shall be designed to prevent users from becoming airborne while on the ride.



*b. Water slide landing areas.* The landing area for a water slide flume shall comply with the following:

(1) The water depth shall be at least 3 ft and no more than 4 ft at the end of the flume and for at least 15 ft beyond the end of the flume.

(2) The landing area floor may slope up to a minimum of 2 ft water depth subject to (1) above. The slope shall be no greater than 1 ft vertical in 12 ft horizontal.

(3) There shall be at least 20 ft between the end of the flume and any barrier or steps.

(4) If the water slide flume ends in a swimming pool, the landing area shall be divided from the rest of the swimming pool by a float line or as approved by the department.

*c. Speed slides.* A speed slide shall provide for the safe deceleration of the user. A run-out system or a special plunge pool entry system shall control the body position of the user relative to the slide to provide for a safe exit from the ride.

*d. Decks.* The deck around a water slide plunge pool shall be at least 4 ft wide, except on the side where the flume enters the pool. A walkway which is at least 4 ft wide and meets the requirements of a deck shall be provided between the plunge pool and the slide steps.

*e. Alternate overflow systems.* Intermittent fixed weir overflow structures may be used for a separate plunge pool if:

(1) The plunge pool is no more than 30 ft wide.

(2) Floor inlets are provided according to the requirements of 15.5(8) "c."

(3) The hydraulic capacity of the combined overflow structures and the appurtenant piping is at least 125 percent of the recirculation flow rate. The department may require more hydraulic capacity based on the specific design of the plunge pool system.

*f. Pump reservoir.* If a pump reservoir or surge tank is provided, it shall have a capacity of at least one minute of the combined recirculation and flume flow. Openings between the plunge pool and the pump reservoir or surge tank shall be designed and constructed to prevent entrapment of users.

*g. Swimming pool water level.* If the water slide flume ends in a swimming pool, the water level shall not be lowered more than 1 inch when the flume pump(s) is operating.

*h. Flume pump intakes.* If a flume pump intake is in a plunge pool or in a swimming pool, it shall be located away from normal water slide user traffic areas. To prevent suction entrapment at the flume pump intake, one of the following designs shall be used:

(1) Multiple intakes may be used. Intakes shall be at least 3 ft apart. The intakes shall be covered with grates or other protective covers approved by the department. Water velocity through the intake covers shall not exceed 1½ ft/sec.

(2) The intake shall have an area of at least 324 in<sup>2</sup>. The intake shall be covered by a grate or other protective cover approved by the department. Water velocity through the intake cover shall not exceed 1½ ft/sec.

*i. Intake covers.* An intake cover shall be designed to prevent user entrapment. It shall be securely fastened to the pool or to the intake pipe so it cannot be removed without tools.

*j. Water slide support structure.* The support structure for a water slide and for any access stairs or ramps shall be designed and constructed to withstand the anticipated structural loading, both static and dynamic, including wind forces.

*k. Stairs.* A stairway providing access to the top of a water slide shall be at least 2 ft wide. Stair surfaces shall be slip-resistant and easily cleanable. The stairway shall comply with the applicable requirements of state and local building codes and Occupational Safety and Health Administration requirements.

*l. Alternate water slide designs.* Water slides differing substantially from the standards in this subrule may be approved, if the designer provides sufficient information to demonstrate to the department that the slide and its landing area can be operated safely.

**15.5(18) Multisection water recreation pools.** A multisection water recreation pool shall comply with the applicable provisions of 15.5(1) to 15.5(13) and the following:

*a. Recirculation flow rate.* The minimum recirculation flow rate for a multisection water recreation pool shall be determined by computing the recirculation flow rate for each section of the pool in accordance with 15.5(5)“*b*” and adding the flow rates together.

*b. Water distribution.* The treated water distribution system shall be designed to return treated water to the sections of the pool in proportion to the flow rates determined in “*a*” above.

*c. Float lines.* Each section of a multisection water recreation pool shall be separated from the other sections by a float line meeting the requirements of 15.5(13)“*e*”(4).

**15.5(19) Showers, dressing rooms, and sanitary facilities.**

*a. Facilities required.* Bather preparation facilities shall be provided at each swimming pool facility except where the swimming pool facility is intended to serve living units such as a hotel, motel, apartment complex, condominium association, dormitory, subdivision, mobile home park, or resident institution.

*b. Swimming pool patron load.* If a bathhouse is provided, the patron load for determining the minimum sanitary fixtures (Table 5) is:

- (1) One individual per 15 ft<sup>2</sup> of water surface in shallow areas.
- (2) One individual per 20 ft<sup>2</sup> of water surface in deep areas with the exclusion of 300 ft<sup>2</sup> of water surface for each diving board.
- (3) For each swimming pool slide, 200 ft<sup>2</sup> shall be excluded, and for each water slide which terminates in the swimming pool, 300 ft<sup>2</sup> shall be excluded in determining the patron load.

*c. Bathhouses.*

(1) Bathhouses shall be designed and constructed to meet the requirements of the Iowa state building code, 661— Chapter 16, Iowa Administrative Code.

(2) Bathhouse floors shall have a slip-resistant finish and shall slope at least 1/8 inch/ft to drain. Except as provided in 15.5(19)“*c*”(3), floor coverings shall comply with the requirements of 15.5(4)“*c*.”

(3) Olefin, or other approved carpeting, may be permitted in locker room or dressing room areas provided:

1. There is an adequate drip area between the carpeting and the shower room, toilet facilities, swimming pool, or other areas where water can accumulate.
2. Drip areas shall be constructed of materials as described in 15.5(4)“*b*” and 15.5(4)“*c*.”
- (4) Bathhouse fixtures shall be provided in accordance with Table 5.

TABLE 5  
FIXTURES REQUIRED

Patron Load	Male				Female		
	Showers	Toilets	Urinals	Lavatories	Showers	Toilets	Lavatories
1 - 100	1	1	1	1	1	1	1
101 - 200	2	1	2	1	2	3	1
201 - 300	3	1	3	1	3	4	1
301 - 400	4	2	3	2	4	5	2
401 - 500	5	3	3	2	5	6	2
501 - 1000	6	3	4	2	6	7	2

(5) All indoor swimming pool areas, bathhouses, dressing rooms, shower rooms, and toilets shall be ventilated by natural or mechanical means to control condensation and odors.

*d. Showers and lavatories.*

(1) Showers shall be supplied with water at a temperature of at least 90°F and no more than 110°F and at a rate of no more than 3 gpm per shower head.

(2) Soap dispensers or bar soap trays shall be provided at each lavatory and in the showers.

(3) Glass soap dispensers are prohibited.

*e. Hose bibs.* Hose bibs equipped with vacuum breaker backflow preventers shall be provided within the bathhouse.

*f. Storage-type hot water heaters.*

(1) Gas-fired storage-type hot water heaters shall comply with the requirements of ANSI Z21.10.1-1993, 10.1a-1994, 10.1b-1994, and 10.1c-1996, or with the requirements of ANSI Z21.10.3-1993, 10.3a-1994, and 10.3b-1994. The heater shall bear the mark of the American Gas Association, 1515 Wilson Boulevard, Arlington, Virginia.

(2) Electric storage-type hot water heaters shall comply with the requirements of ANSI/UL 174-1996. The heater shall bear the mark of Underwriters Laboratory, Chicago, Illinois.

(3) Combustion air shall be provided for fuel-burning water heaters as required by the state plumbing code, 641—Chapter 25, Iowa Administrative Code, or by local ordinance.

(4) Fuel-burning water heaters shall be vented as required by the state plumbing code, 641—Chapter 25, Iowa Administrative Code, or by local ordinance.

**641—15.6(135I) Enforcement.**

**15.6(1)** A city, county or district board of health may inspect swimming pools and spas regulated by these rules and enforce these rules according to contracts which are reached pursuant to the authority of Iowa Code chapters 28E and 135I.

**15.6(2)** The department or contracting board of health shall take the following steps when enforcement of these rules is necessary.

*a. Owner notification.* As soon as possible after the violations are noted, provide written notification to the owner of the noncompliant facility which:

(1) Cites each section of the Iowa Code or Iowa Administrative Code rules violated.

(2) Specifies the manner in which the owner or operator failed to comply.

(3) Specifies the steps required for correcting the violation.

(4) Requests a corrective action plan, including a time schedule for completion of the plan.

(5) Sets a reasonable time limit, not to exceed 30 days from the receipt of the notice, within which the owner of the facility must respond.

*b. Corrective action plan review.* The department or contracting board of health shall review the corrective action plan and approve it or require that it be modified.

*c. Failure to comply.* In cases where the owner of a swimming pool or spa fails to comply with conditions of the written notice, the department or contracting board of health shall send a regulatory letter, via certified mail, advising the owner that, unless action is taken within five days of receipt, the case shall be turned over to the city/county attorney for court action.

*d. Court action.* In cases where voluntary action by the swimming pool or spa owner is not forthcoming and court action is the only available avenue, such action shall be taken in accordance with Iowa Code chapter 135I.

**641—15.7(135I) Variances.** A variance to these rules may be granted only by the department. A variance can be granted only if sufficient information is provided to substantiate the need for and propriety of the action.

**15.7(1)** Requests for variances shall be in writing and shall be sent to the contracting board of health for comment. The board of health shall send the request for variance to the department within 15 business days of its receipt.

**15.7(2)** The grant or denial of a variance will take into consideration, but not be limited to, the following criteria:

- a.* Substantially equal protection of health and safety shall be provided by a means other than that prescribed in the particular rule, or
- b.* The degree of violation of the rule is sufficiently small so as not to pose a significant risk of injury to any individual, and the remedies necessary to alleviate this minor violation would incur substantial and unreasonable expense on the part of the person seeking a variance.

**15.7(3)** Decisions shall be issued in writing by the department and shall include the reasons for denial or grant of the variance. Copies of decisions shall be kept at the department, and a copy shall be sent to the contracting board of health.

**641—15.8(135I) Penalties.** A person violating a provision of this chapter shall be guilty of a simple misdemeanor pursuant to the authority of Iowa Code section 135L.5. Each day upon which a violation occurs constitutes a separate violation.

**641—15.9(135I) Registration.**

**15.9(1)** *Swimming pool and spa registration.* No swimming pool or spa shall be operated in the state without being registered with the department. Each swimming pool and spa shall be registered annually by its owner on or before May 1 for the period May 1 through April 30 on a form provided by the department.

**15.9(2)** *Change in ownership.* Within 30 days of the change in ownership of a swimming pool or spa, the new owner shall furnish the department with the following information:

- a.* Name and registration number of the swimming pool or spa.
- b.* Name, address, and telephone number of new owner.
- c.* Date the change in ownership took place.

**641—15.10(135I) Training courses.**

**15.10(1)** A training course designed to fulfill the requirements of 15.11(135I) shall be reviewed by the department.

**15.10(2)** At least 15 days prior to the course date, the course director shall submit at a minimum the following to the department:

- a.* A course outline with a list of instructors and guest speakers and their qualifications.
- b.* Date or dates the course is to be held.
- c.* Place the course is to be held.
- d.* Number of hours of instruction.
- e.* Course agenda.

**15.10(3)** The department shall approve or disapprove the course of instruction in writing within 10 business days of receipt of the information required in 15.10(2).

**15.10(4)** At the conclusion of the course of instruction, the course director shall furnish the department with the name and address of each person who successfully completed the course.

**641—15.11(135I) Swimming pool/spa operator qualifications.**

**15.11(1)** A person designated as a certified operator of a facility for compliance with 15.4(6)“a” and 15.51(5)“a” shall have successfully completed a CPO certification course, an AFO certification course, or another course of instruction approved by the department. A copy of a current, valid CPO or AFO certificate for the certified operator shall be maintained in the pool records.

**15.11(2)** Certified operators who renew their certificates as AFOs or CPOs after December 31, 1998, shall have obtained an average of at least two hours of continuing education per year since the original certification or since the last renewal of the certificate. Proof of continuing education shall be kept with certification records at the swimming pool facility.

**641—15.12(135I) Fees.**

**15.12(1) Registration fees.** For each swimming pool or spa, the registration fee is \$30. Registration fees are delinquent if not received by the department by May 2 or the first business day thereafter. The owner shall pay a \$25 penalty for each month or fraction thereof that the fee is late for each swimming pool or spa that is required to be registered.

**15.12(2) Inspection fees.** The department or contracting board of health shall bill the owner of a swimming pool or spa facility upon completion of an inspection. Inspection fees are due upon receipt of a notice of payment due.

When the swimming pool is located within the jurisdiction of a board of health which has a 28E agreement with the department to do inspections and enforce this chapter, the board of health may establish fees needed to defray the costs of inspection and enforcement under this chapter. Inspection fees billed by a contracted board of health shall be paid to the contracted board of health or its designee.

*a. Inspection fee schedule.*

Table 6  
Swimming Pools and Spas

Pool Type	Inspection Fee
Swimming pool, surface area less than 1500 ft <sup>2</sup>	\$170
Swimming pool, surface area 1500 ft <sup>2</sup> or greater	\$270
Wave pool	\$270
Spa	\$170
Wading pool	\$45

Table 7  
Water Slides

	Inspection Fee
Water slide and plunge pool	\$270
Each additional water slide into a plunge pool	\$75
Water slide into a swimming pool	\$175
Each additional water slide into a swimming pool	\$75

*b. Multipool facilities.* If more than one pool (swimming pool, water slide, wave pool, wading pool, or spa) is located within a fenced compound or a building, the inspection fee for the pools in the fenced compound or building shall be reduced by 10 percent.

*c. Special inspection fee.* When the department or contracting board of health determines that a special inspection is required, i.e., nonroutine follow-up inspection or inspections generated by complaints, the department or contracting board of health may charge a special inspection fee which shall be based on the actual cost of providing the inspection.

*d. Penalty.* Unpaid inspection fees will be considered delinquent 45 days after the date of the bill. A penalty of \$25 per month or fraction thereof that the payment is delinquent will be assessed to the owner for each pool inspected.

**15.12(3) Plan review fees.**

*a. New construction.* A plan review fee as specified in Tables 8, 9 and 10 shall be submitted with a construction permit application for each body of water in a proposed facility. If two or more pools share a common recirculation system as specified in 15.5(5)“a,” the plan review fee shall be 25 percent less than the total plan review fee required by Tables 8, 9 and 10.

Table 8  
Swimming Pools, Wading Pools and Wave Pools

Swimming Pool Area (ft <sup>2</sup> )	Plan Review Fee
less than 500	\$150
500 to 999	\$250
1000 to 1999	\$350
2000 to 3999	\$500*
4000 and greater	\$750*

\*This may include one water slide.

Table 9  
Water Slides

	Plan Review Fee
Water slide and dedicated plunge pool	\$500
Each additional water slide into a plunge pool or swimming pool	\$150

Table 10  
Spas

Spa Volume (gal)	Plan Review Fee
less than 500	\$150
500 to 999	\$250
1000 +	\$350

*b. Reconstruction.* The plan review fee for reconstruction is \$200 for each swimming pool, spa or bathhouse altered in the reconstruction.

*c. Penalty for construction without a permit.* Whenever any work for which a permit is required has been started without first obtaining a permit, the plan review fee shall be 150 percent of the fee specified in 15.12(3)“a” or “b.” The department may require that construction not done in accordance with the rules be corrected before a facility is used.

EXCEPTION: After receiving a construction permit application, the department may authorize preliminary construction on a project to start before issuance of a permit. The authorization shall be in writing to the owner or the owner’s authorized representative.

**15.12(4) Training fees.** The course sponsor for a training course designed to fulfill the requirements of 641—15.11(135I) shall pay to the department a fee of \$20 for each person who successfully completes the course. The fee is due within 30 business days of the completion of the course.

**641—15.13(135I) 28E agreements.** A city, county or district board of health may apply to the department for authority to inspect swimming pools and spas and enforce these rules.

**15.13(1)** Application and review process. Applications are to be made to the Iowa Department of Public Health, Swimming Pool Program, Lucas State Office Building, Des Moines, Iowa 50319.

**15.13(2)** Each application shall include, at a minimum:

*a.* A commitment that inspectors will meet the educational requirements of 641—15.11(135I). A person who is a registered sanitarian (R.S.) or a registered environmental health specialist (R.E.H.S.) with the National Environmental Health Association shall be considered to have met the educational requirements of subrule 15.11(2).

*b.* A statement of the ability of the board of health to provide inspections of all swimming pools and spas within the contracted area.

*c.* A statement of the ability of the board of health to follow enforcement procedures contained in subrule 15.6(2).

**15.13(3)** If the department approves the application, the 28E agreement shall be perpetual, subject to the conditions set forth by both parties.

**641—15.14(135I) Application denial or partial denial—appeal.**

**15.14(1)** Denial or partial denial of an application shall be done in accordance with the requirements of Iowa Code section 17A.12. Notice to the applicant of denial or partial denial shall be served by restricted certified mail, return receipt requested, or by personal service.

**15.14(2)** Any request for appeal concerning denial or partial denial shall be submitted by the aggrieved party, in writing, to the department by certified mail, return receipt requested, within 30 days of the receipt of the department's notice. The address is Iowa Department of Public Health, Swimming Pool Program, Lucas State Office Building, 321 E. 12th Street, Des Moines, Iowa 50319. Prior to or at the hearing, the department may rescind the denial or partial denial. If no request for appeal is received within the 30-day time period, the department's notice of denial or partial denial shall become the department's final agency action.

**15.14(3)** Upon receipt of an appeal that meets contested case status, the appeal shall be forwarded within five working days to the department of inspections and appeals, pursuant to the rules adopted by that agency regarding the transmission of contested cases. The information upon which the adverse action is based and any additional information which may be provided by the aggrieved party shall also be provided to the department of inspections and appeals.

**641—15.15 to 15.50** Reserved.

SPAS

**641—15.51(135I) Spa operations.** A spa shall be operated in a safe, sanitary manner and shall meet the following operational standards.

**15.51(1) Filtration and recirculation.**

*a.* Filters. A spa shall have a filtration system in good working condition which provides water clarity in compliance with the water quality standards of subrule 15.51(2).

(1) Each filter cartridge shall be replaced with a new, unused, or cleaned and disinfected filter cartridge at least once a week.

(2) Each sand filter serving a spa shall be disinfected at least once in each month that the spa is open for use.

*b.* The recirculation system for a spa shall treat one spa volume of water in 30 minutes or less.

*c.* Continuous operation required. Pumps, filters, disinfectant feeders, flow indicators, gauges, and all related components of the spa water recirculation system shall be kept in continuous operation 24 hours per day whenever the spa contains water, except for cleaning or servicing.

*d. Inlets.* The recirculation system shall have inlets adequate in design, number, location, and spacing to ensure effective distribution of treated water and maintenance of uniform disinfectant residual throughout the spa.

*e. Skimmers.* A spa shall have at least one skimmer.

(1) Each skimmer shall have a self-adjusting weir in place and operational.

(2) Each skimmer shall be followed by an easily removable basket or screen upstream from any valve.

*f. Wastewater.* Wastewater and backwash water from a spa shall be discharged through an air break.

*g. Water supply.* The water supplied to a spa shall be from a water supply meeting the requirements of the department of natural resources for potable water.

(1) Water supplied to a spa shall be discharged to the spa system through an air gap or a reduced-pressure principle backflow device meeting the American Water Works Association standard, C-511-92, entitled "Reduced-Pressure Principle Backflow-Prevention Assembly."

(2) Vacuum breaker backflow preventers shall be provided on all hose bibs serving a spa.

*h. Spa water heaters.*

(1) Electric water heaters shall bear the seal of UL, Underwriters Laboratory, Chicago, Illinois.

(2) Gas-fired water heaters shall be equipped with a pressure relief valve.

(3) Fuel-burning water heaters shall be vented to the outside, in accordance with the Iowa state plumbing code.

**15.51(2) *Water quality and testing.***

*a. Disinfection.*

(1) Spa water shall have a free chlorine residual of at least 2.0 ppm or a total bromine residual of at least 4.0 ppm when the spa is open for use. Where a controller with an ORP readout is installed or where ORP measuring equipment is available, the ORP measurement may be used instead of the residual measurement. The spa water shall have an ORP of at least 700 mV.

(2) If the result of any test of the spa water taken in accordance with 15.51(2) "e" (1) is less than 1.5 ppm free chlorine or 3.0 ppm total bromine, the spa shall be closed until the free chlorine residual is at least 2.0 ppm or the total bromine residual is at least 4.0 ppm.

A spa shall be closed regardless of residual measurement if the ORP is less than 650 mV as measured by a controller or by ORP measuring equipment. The spa shall remain closed until the ORP is at least 700 mV.

(3) A spa shall be closed if the free chlorine residual exceeds 8.0 ppm or the total bromine residual exceeds 18.0 ppm. Where ORP measurements are used, the spa shall be closed if the ORP of the water exceeds 880 mV.

(4) A spa shall be closed if the cyanuric acid concentration in the spa water is greater than 80 ppm. The spa may be reopened when the cyanuric acid concentration in the spa water is 40 ppm or less.

*b. pH level.* The pH of spa water shall be 7.2 to 7.8 if a chlorine chemical is used for disinfection. The pH of spa water shall be 7.2 to 8.4 if a bromine chemical is used for disinfection.

*c. Water clarity.* A spa shall be closed if the grate openings on drain fittings at or near the bottom of the spa are not clearly visible when the agitation system is off.



*d. Bacteria detection.*

(1) If coliform or *Pseudomonas aeruginosa* bacteria are detected in a sample taken in accordance with 15.51(2) "e"(8), the spa shall be closed, drained, cleaned, and disinfected. The spa filter shall be disinfected. The spa may reopen when no coliform or *Pseudomonas aeruginosa* bacteria are detected in a spa water sample taken when the spa water meets the requirements of paragraphs "a," "b" and "c" above.

(2) The facility management shall notify the inspection agency having jurisdiction of the positive bacteriological result within one business day after the facility management has become aware of the result.

*e. Test frequency.* The results of the tests required below shall be recorded in the spa records.

(1) The disinfectant residual in the spa water shall be tested each day before the spa is opened for use and at intervals not to exceed two hours thereafter until the spa closing time. For a spa at a condominium complex, an apartment building or a homeowners association with 25 or fewer living units, the disinfectant level of the spa water shall be tested at least twice each day the spa is available for use.

If the spa is equipped with an automatic controller with a readout or local printout of disinfectant residual or ORP complying with the requirements of 15.51(2) "f"(4) "1" or "2," the operator may make visual readings. The spa water shall be tested manually at least twice per day. The operator shall specify in the spa records which results are from the manual tests.

(2) The pH of the swimming pool water shall be tested each day before the spa is opened for use and at intervals not to exceed two hours thereafter until the spa closing time. For a spa at a condominium complex, an apartment building or a homeowners association with 25 or fewer living units, the pH of the spa water shall be tested at least twice each day the spa is available for use.

If the spa is equipped with an automatic controller with a readout or local printout of pH complying with the requirements of 15.51(2) "f"(5), the operator may make visual readings. The spa water shall be tested manually at least twice per day. The operator shall specify in the spa records which results are from the manual tests.

(3) The spa water temperature shall be measured whenever a manual test of the spa water is performed.

(4) If a chlorine compound is used for disinfection, the spa water shall be tested for combined chlorine at least once a day.

(5) If a stabilized chlorine is used in a spa, the spa water shall be tested for cyanuric acid at least once a day.

(6) The spa water shall be tested for total alkalinity each time the spa is refilled and at least once in each week the spa is open for use.

(7) The spa water shall be tested for calcium hardness each time the spa is refilled.

(8) At least once in each month that a spa is open for use, a sample of the spa water shall be submitted to a laboratory certified by the department of natural resources for the determination of coliform bacteria in drinking water. The sample shall be analyzed for total coliform and *Pseudomonas aeruginosa*.

*f. Test equipment.*

(1) Each spa facility shall have functional water testing equipment for free chlorine and combined chlorine, or total bromine; pH; total alkalinity; calcium hardness; and cyanuric acid (if cyanuric acid or a stabilized chlorine is used at the facility).

(2) The test equipment shall provide for the direct measurement of free chlorine and combined chlorine from 0 to 10 ppm in increments of 0.2 ppm or less over the full range, or total bromine from 0 to 20 ppm in increments of 0.5 ppm or less over the full range.

(3) If a chlorine chemical is used for spa water disinfection, the test equipment shall provide for the measurement of spa water pH from 7.0 to 8.0 with at least five increments in that range. If a bromine chemical is used for spa water disinfection, the test equipment shall provide for the measurement of pH from 7.0 to 8.5 with at least seven increments in that range.

(4) A controller readout used in lieu of manual disinfectant residual testing shall be a numerical analog or digital display (indicator lights are not acceptable) with one of the following characteristics:

1. A chlorine or bromine residual scale with a range of at least 0 to 10 ppm with increments of 0.2 ppm or less. The residual readout shall be internally and automatically adjusted for pH.
2. An ORP scale with a range of at least 600 to 900 mV with increments of 20 mV or less.

(5) A controller readout used in lieu of manual pH testing shall be a numerical analog or digital display (indicator lights are not acceptable) with a range at least as required in 15.51(2)“f”(3) with increments of 0.2 or less over the full range.

*g. Operator availability.* A person knowledgeable in testing water and in operating the water treatment equipment shall be available whenever a spa is open for use.

**15.51(3) Disinfection systems and cleaning.**

*a. Disinfectant system.*

(1) Equipment for continuous feed of a chlorine or bromine compound to the spa water shall be provided and shall be operational. The equipment shall be adjustable in at least five increments over its feed capacity.

(2) The disinfectant equipment shall be capable of providing at least 10 ppm of chlorine or bromine to the spa water based on the recirculation flow rate.

(3) Equipment and piping used to apply any chemicals to the water shall be of such size, design, and material that they may be cleaned. All material used for such equipment and piping shall be resistant to action of chemicals to be used.

(4) The use of chlorine gas is prohibited.

*b. Cleaning and superchlorination.*

(1) A spa shall be clean.

(2) A spa containing 500 gal of water or less shall be drained and refilled a minimum of once a week. A spa containing over 500 gal of water shall be drained and refilled a minimum of one time every two weeks.

(3) The inspection agency (the department or a contracting board of health) may require that a spa be drained, scrubbed, and superchlorinated prior to further usage.

**15.51(4) Safety.**

*a. Chemical safety.*

(1) No disinfectant chemical, pH control chemical, algacide, shock treatment chemical, or any other treatment chemical that is toxic or irritating to humans shall be added to a spa over the top when the spa is occupied. If chemicals are added to the spa over the top, the spa shall not be occupied for a period of at least 30 minutes thereafter. The operator shall test the spa water as appropriate before allowing use of the spa. The chemical addition and the test results shall be recorded in the spa records.

(2) Spa chemicals shall be stored and handled in accordance with the manufacturer's recommendations.

(3) Material safety data sheets (MSDS) for the chemicals used in the spa shall be at the facility in a location known and readily accessible to the facility staff.

(4) Chemical containers shall be clearly labeled.

(5) A warning sign shall be placed on the door of a room where chemicals are used or stored or where bulk containers are located.

- b.* Stairs, ladders, recessed steps, and ramps.
- (1) When the top rim of a spa is more than 24 inches above the surrounding floor area, stairs or a ramp shall be provided to the top of the spa.
  - (2) Stairs, ladders, ladder rungs, and ramps shall be slip-resistant.
  - (3) Where stairs and ramps are provided, they shall be equipped with a handrail.
  - (4) Ladders and handrails shall be constructed of corrosion-resistant materials or provided with corrosion-resistant coatings. They shall have no exposed sharp edges.
- c.* Water temperature. Water temperature in the spa shall not exceed 104°F.
- (1) A thermometer shall be available to measure temperature in the range of 80°F to 120°F.
  - (2) Water temperature controls shall be accessible only to the spa operator.
- d.* Emergency telephone. A designated emergency telephone, capable of being operated without coins, shall be available to the users of a spa. If the emergency telephone is not located within the spa enclosure, management shall post a sign(s) indicating the location of the emergency telephone.
- e.* Water level. Water level shall be maintained at the skimming level.
- f.* Main drains. To provide protection to bathers against suction entrapment, one or more of the following arrangements shall be provided:
- (1) Multiple drains, or a single drain with an area of at least 144 in<sup>2</sup>; or
  - (2) An antivortex main drain cover or other approved protective cover.
- g.* Main drain covers. Each drain shall be covered with a grate or other approved cover which is designed to prevent bather entrapment. The drain cover shall be securely fastened to the spa so it is not removable without tools.
- h.* Spa walls and floor shall be smooth and easily cleanable.
- i.* Decks.
- (1) The deck shall have a slip-resistant surface.
  - (2) The deck shall be clean and free of debris.
  - (3) A hose bib shall be provided for flushing or cleaning of the deck.
- j.* There shall be no underwater or overhead projections or obstructions which would endanger user safety or interfere with proper spa operation.
- k.* Electrical.
- (1) Electrical outlets on the deck and in the recirculation equipment room and shower room areas shall be protected by properly installed ground fault circuit interrupter receptacles or breakers. Ground fault circuit interrupter receptacles and breakers shall be tested at least once in each month the spa is operating. Test dates and results shall be recorded in the spa records.
  - (2) There shall be no outlets located on, or within 5 ft of, the inside wall of a spa.
  - (3) An air switch within reach of persons in the spa and its connecting tube shall be constructed of materials that do not conduct electricity.
  - (4) Lighting.
    1. Artificial lighting shall be provided at all spas which are to be used at night or which do not have adequate natural lighting so all portions of the spa, including the bottom and main drain, may be readily seen.
    2. Underwater lights and fixtures shall be designed for their intended use. When the branch circuit supplying the fixture is operating at more than 15 volts, the circuit shall be protected by a ground fault circuit interrupter. When underwater lights need to be repaired, the electricity shall be shut off until repairs are completed.
    3. No electrical wiring shall pass over an outdoor spa.

*l. Fencing.*

(1) A spa shall be enclosed by a fence, wall, building, or combination thereof not less than 4 ft high. The spa enclosure shall be constructed of durable materials. Except for gates and door openings, the enclosure shall have no opening that would permit the passage of a 4-inch sphere. Except where controlled entrance to the spa is provided, gates or doors into the spa area shall be self-closing and self-latching. A spa may be in the same room or enclosure as another spa or a swimming pool.

(2) Facilities with indoor spas which have secured entry to the facility shall be considered to have met the provisions of 15.51(4)"1"(1).

(3) For indoor spas, if there are sleeping rooms, apartments, condominiums, or permanent recreation areas used by children which open directly into the spa area, the spa shall be enclosed by a barrier at least 3 ft high. No opening in the barrier, except for a gate or door, shall permit the passage of a 4-inch sphere. Gates or doors provided shall be lockable, self-closing and self-latching.

**15.51(5) Management, notification, and records.**

*a. Certified operator required.* Each spa facility shall employ a certified operator. One certified operator may be responsible for a maximum of three swimming pool/spa facilities.

*b. Spa rules sign.* A "Spa Rules" sign shall be posted near the spa. The sign shall include:

(1) Persons with a medical condition, including pregnancy, should not use the spa without first consulting with a physician.

(2) Anyone having a contagious disease shall not use the spa.

(3) Persons shall not use the spa immediately following exercise or while under the influence of alcohol, narcotics, or other drugs.

(4) Persons shall not use the spa alone or without supervision.

(5) Children shall be accompanied by an adult.

(6) Persons shall not use the spa longer than ten minutes.

(7) No one shall dive or jump into the spa.

(8) The maximum patron load of the spa. (The maximum patron load of a spa is one individual per two lineal feet of inner edge of seat or bench.)

*c. Spa depth.* The maximum depth of a spa shall be posted at a conspicuous location near the spa in numerals or letters at least three inches high.

*d. Glass prohibited.* Glass objects other than eyeglasses, safety glass doors, and partitions shall not be permitted in a spa enclosure.

*e. Operational records.* The operator of a spa shall have the spa operational records for the previous 12 months at the spa facility and shall make these records available upon the request of a swimming pool/spa inspector. These records shall contain a day-by-day account of spa operation, including:

(1) Results of pH, free chlorine or total bromine residual, cyanuric acid (if used), combined chlorine, total alkalinity, and calcium hardness tests, and any other chemical test results.

(2) Results of microbiological analyses.

(3) Water temperature measurements.

(4) Reports of complaints, accidents, injuries, or illnesses.

(5) Dates and quantities of chemical additions, including resupply of chemical feed systems.

(6) Dates when filters were backwashed or cleaned or a filter cartridge(s) was changed.

(7) Draining and cleaning of spa.

(8) Dates when ground fault circuit interrupter receptacles or circuit breakers were tested.

(9) Dates of review of material safety data sheets.

*f. Submission of records.* The inspection agency (the department or a contracting board of health) may require a spa facility operator to submit copies of chemical test results and microbiological analyses to the inspection agency on a monthly basis. The inspection agency shall notify the facility management of this requirement in writing at least 15 days before the reports are to be submitted for the first time. The facility operator shall submit the required reports to the inspection agency within 10 days after the end of each month of operation.

*g. Operations manual.* A permanent manual for operation of a spa shall be at the facility. It shall include:

- (1) Operating and maintenance instructions for each type of filter, pump and safety device, including filter backwash or cleaning instructions.
- (2) Operating and maintenance instructions for other equipment used at the spa.
- (3) Water testing procedures.
- (4) A schematic drawing of the spa recirculation system. Clear labeling of the spa piping with flow direction and water status (unfiltered, treated, backwash) may be substituted for the schematic drawing.

*h. Material safety data sheets.* Copies of material safety data sheets for the chemicals used at the spa shall be kept at the facility in a location known to facility staff with chemical handling responsibilities. The material safety data sheets shall be reviewed by the facility staff at least annually.

*i. Emergency plans.* A written emergency plan shall be provided. The plan shall include, but may not be limited to, actions to be taken in cases of drowning, hyperthermia, serious illness or injury, chemical handling accidents, weather emergencies, and other serious incidents. The emergency plan shall be reviewed with the facility staff at least once a year, and the dates of review or training shall be recorded.

*j. Temporary spas.*

- (1) A person offering temporary spas for rent shall be a certified operator.
- (2) Records of temporary spas shall be maintained for one year which identify the location of all installations.

(3) Written operational instructions shall be provided to individuals operating or leasing a spa. The instructions shall be consistent with this chapter and provide guidance in the following areas:

1. Acceptable sources of water supply and procedure for cross-connection control—15.51(1)“g.”
2. Methods for routine cleaning and superchlorination—15.51(3)“b.”
3. Procedures for maintaining prescribed levels of disinfectant residual, pH, total alkalinity, clarity, and microbiological quality, and using the test kit—15.51(2)“a” to 15.51(2)“f.”
4. Procedures for maintaining temperature and operation of temperature controls—15.51(4)“c.”
5. Warning to prevent electrical hazards—15.51(4)“k.”
6. Procedures for operation of filters, including backwashing—15.51(1)“a.”
7. A warning to the renter that the renter should prevent unauthorized or accidental access to a spa when it contains water.

**15.51(6) Reports.** Spa operators shall report to the department within one working day of occurrence all deaths; head, neck, spinal cord injuries; and any injury which renders a person unconscious or requires immediate medical attention.

**641—15.52(135I) Construction and reconstruction.** A spa constructed or reconstructed after the effective date of these rules (May 13, 1998) shall comply with the following standards. An existing spa shall comply with the requirements of 641—15.51(135I). Nothing in these rules is intended to exempt spas and associated structures from any applicable federal, state or local laws, rules or ordinances. Applicable requirements include, but are not limited to, the handicapped access and energy requirements of the state building code, the fire and life safety requirements of the state fire marshal, the rules

of the Iowa department of workforce development, and the rules of the Iowa department of natural resources.

**15.52(1) Construction permits.**

*a. Permit required.* No spa shall be constructed or reconstructed without first receiving a permit from the department. Construction shall be completed within six months from the date the construction permit is issued unless a written extension is granted by the department.

*b. Permit application.* The owner of a proposed or existing spa or the owner's designated representative shall apply for a construction permit on forms provided by the department. The application shall be submitted to the department at least 15 days prior to construction of a new spa or the reconstruction of a spa.

*c. Plan submission.* Three sets of plans and specifications shall be submitted with the application. A nonrefundable plan review fee shall be remitted with the application for each spa as required in 15.12(3).

*d. Notification of completion.* The owner of a newly constructed or reconstructed spa facility or the owner's designated representative shall notify the department, in writing, within 15 days after the completion of construction.

**15.52(2) Plans and specifications.**

*a. Plan certification.* Plans and specifications shall be sealed and certified in accordance with the rules of the Iowa engineering and land surveying examining board or the Iowa architectural examining board by an engineer or architect licensed to practice in Iowa.

(1) This requirement may be waived by the department if the project is the addition or replacement of a chemical feed system, including a disinfection system, provided there is no effect on the recirculation flow rate or a requirement for structural modifications or additions to any building.

(2) If the requirement for engineering plans is waived, the owner of the spa assumes full responsibility for ensuring that the construction or reconstruction complies with these rules and with any other applicable federal, state and local laws, rules, and ordinances.

*b. Content of plans.* Plans and specifications shall contain sufficient information to demonstrate to the department that the proposed spa will meet the requirements of this chapter. This shall include, but may not be limited to:

(1) The name and address of the owner and the name, address, and telephone number of the architect or engineer responsible for the plans and specifications.

(2) The location of the project by street address or other legal description.

(3) A site plan showing the spa in relation to buildings, streets, any swimming pool within the same general area, water and sewer service, gas service, and electrical service.

(4) Detailed scale drawings of the spa and its appurtenances, including a plan view and cross sections at a scale of  $\frac{1}{4}$  inch per foot or larger. The location of inlets, overflow system components, main drains, deck and deck drainage, the location and size of spa piping, and the spa steps and handrails shall be shown.

(5) A drawing(s) showing the location, plan, and elevation of filters, pumps, chemical feeders, ventilation devices, and heaters, and additional drawings or schematics showing operating levels, backflow preventers, valves, piping, flow meters, pressure gauges, thermometers, the make-up water connection, and the drainage system for the disposal of filter backwash water.

(6) Plan and elevation drawings of bathhouse facilities including dressing rooms; lockers; showers, toilets and other plumbing fixtures; water supply and drain and vent systems; gas service; water heating equipment; electrical fixtures; and ventilation systems, if provided.

(7) Complete technical specifications for the construction of the spa, for the spa equipment and for the spa appurtenances.

*c. Deviation from plans.* No deviation from the plans and specifications or conditions of approval shall be made without prior approval of the department.

**15.52(3) General design.**

*a. Materials.* A spa shall be constructed of materials which are inert, stable, nontoxic, watertight, and durable.

*b. Water depth.* The maximum water depth shall not exceed 4 ft measured from the overflow level of the spa. The maximum depth of any seat or sitting bench shall not exceed 2 ft measured from the overflow level.

*c. Structural loading.* A spa shall be designed and constructed to withstand anticipated structural loading for both full and empty conditions.

*d. Distance from a swimming pool.* When a spa is adjacent to a swimming pool, the spa shall be at least 5 ft from the pool. If the water depth in the adjacent area of the swimming pool is greater than 5 ft, the spa shall be at least 15 ft from the swimming pool.

*e. Water supply.* The water supplied to a spa shall be from a source meeting the requirements of the Iowa department of natural resources for potable water.

(1) Water supplied to a spa shall be discharged to the spa system through an air gap or a reduced-pressure principle backflow device complying with the requirements of American Water Works Association standard, C-511-92, "Reduced-Pressure Principle Backflow-Prevention Assembly."

(2) Vacuum breaker backflow preventers shall be provided on hose bibs serving a spa.

*f. Operations manual.* The owner shall require that a permanent manual for operation of a spa facility be provided. It shall include:

(1) Operating and maintenance instructions for each type of filter, pump and safety device, including filter backwash or cleaning instructions. For each centrifugal pump, a pump performance curve plotted on an 8½" × 11" or larger sheet shall be included. For each chemical feeder, the maximum rated output shall be listed in weight per time or volume per time units.

(2) Operating and maintenance instructions for other equipment used at the spa.

(3) A parts list and exploded drawing for each piece of equipment with field-replaceable parts.

(4) A schematic drawing of the spa recirculation system. Clear labeling of the spa piping with flow direction and water status (unfiltered, treated, backwash) may be substituted for the schematic drawing.

**15.52(4) Decks.** A spa shall have a deck around at least 50 percent of the spa perimeter. The deck shall be at least 4 ft wide.

*a. Deck materials.* The deck shall be constructed of stable, nontoxic, and durable materials.

*b. Deck drainage.* The deck shall drain away from the spa at a slope of at least 1/8 inch/ft to deck drains or to the surrounding ground surface. The deck shall be constructed to eliminate standing water.

*c. Deck surface.* The deck shall be provided with a slip-resistant, durable, and cleanable surface.

*d. Deck covering.* A deck covering may be used provided:

(1) The covering allows drainage so that the covering and the deck do not remain wet or retain moisture.

(2) The covering is inert and will not support bacterial growth.

(3) The covering provides a slip-resistant surface.

(4) It is durable and cleanable.

*e. Steps or ramp required.* When the top rim of a spa is more than 24 inches above the surrounding floor area, stairs or a ramp shall be provided to the top of the spa.

**15.52(5) Recirculation.**

*a. Separate recirculation required.* A spa shall have a recirculation system separate from another spa or any swimming pool.

*b. Recirculation flow rate.* The recirculation system shall be capable of processing one spa volume of water within 30 minutes. For spas with skimmers, the recirculation flow rate shall be at least 3.8 gpm per lineal inch of skimmer weir or the flow rate required above, whichever is greater.

*c. Recirculation pump.* The recirculation pump(s) shall comply with the requirements of Standard 50, "Circulation System Components for Swimming Pools, Spas, or Hot Tubs," published by NSF International, and the following requirements:

(1) The pump(s) shall supply the recirculation flow rate required by 15.52(5) "b" at a TDH of at least that given in "1," "2" and "3" below, unless a lower pressure is shown by the designer to be hydraulically appropriate. A valve for regulating the rate of flow shall be provided in the recirculation pump discharge piping.

1. 40 feet for vacuum filters; or

2. 60 feet for pressure sand filters; or

3. 70 feet for pressure diatomaceous earth filters or cartridge filters.

(2) A separate pump or pumps shall be provided for the spa agitation system.

(3) For sand filter systems, the pump(s) shall have sufficient capacity to provide a backwash rate of at least 15 gpm/ft<sup>2</sup> of filter area.

(4) If a pump is located at an elevation higher than the pool water surface, it shall be self-priming or the piping shall be arranged to prevent the loss of pump prime when the pump is stopped.

(5) Where a vacuum filter is used, a vacuum limit control shall be provided on the pump suction line. The vacuum limit switch shall be set for a maximum vacuum of 18 in Hg.

(6) A compound vacuum-pressure gauge shall be installed on the pump suction line. A vacuum gauge may be used for pumps with suction lift. A pressure gauge shall be installed on the pump discharge line adjacent to the pump. Gauges shall be located and of such a size that they may be easily read by the operator.

(7) On pressure filter systems, a hair and lint strainer shall be installed on the suction side of the pump. The hair and lint strainer basket shall be easily removable for cleaning, changing, or inspection. A spare strainer basket shall be provided. This requirement may be waived for systems using vertical turbine pumps or pumps designed for solids handling.

*d. Spa water heater.*

(1) A heating coil, pipe or steam hose shall not be installed in a spa.

(2) Gas-fired spa water heaters shall comply with the requirements of ANSI-Z21.56-1994 and ANSI-Z21.56a-1996 as published by American Gas Association, 1515 Wilson Boulevard, Arlington, Virginia. The data plate of the heater shall bear the American Gas Association seal.

(3) Electric spa water heaters shall comply with the requirements of UL 1261 as published by Underwriters Laboratory, Chicago, Illinois, and shall bear the UL mark.

(4) A spa water heater with an input of greater than 400,000 BTU/hour (117 kilowatts) shall have a water heating vessel constructed in accordance with American Society of Mechanical Engineers (ASME) Boiler Code, Section 8, as published by ASME, 345 East 47th Street, New York, New York. The data plate of the heater shall include the mark of the ASME.



(5) A thermometer shall be installed in the piping to measure the temperature of the water returning to the spa. The thermometer shall be located so that it may be read easily by an operator.

(6) Combustion air shall be provided for fuel-burning water heaters as required by the state plumbing code, 641—Chapter 25, Iowa Administrative Code, or as required by local ordinance.

(7) Fuel-burning water heaters shall be vented as required by the state plumbing code, 641—Chapter 25, Iowa Administrative Code, or as required by local ordinance.

**15.52(6) Filtration.** A filter shall comply with the requirements of Standard 50, "Circulation System Components for Swimming Pools, Spas, or Hot Tubs," as published by NSF International, and the following requirements:

*a.* Pressure gauges. Each pressure filter shall have a pressure gauge on the inlet side. Gauges shall be located and of such a size that they may be read easily by the operator. A differential pressure gauge which gives the difference in pressure between the inlet and outlet of the filter may be used in place of a pressure gauge.

*b.* Air relief valves. An air relief valve shall be provided for each pressure filter.

*c.* Backwash water visible. Backwash water from a pressure filter shall discharge through an observable free fall, or a sight glass shall be installed in the backwash discharge line.

*d.* Backwash water discharge. Backwash water shall be discharged indirectly to a sanitary sewer or another point of discharge approved by the Iowa department of natural resources.

*e.* Rapid sand filter.

(1) The filtration rate shall not exceed 3 gpm/ft<sup>2</sup> of filter area.

(2) The backwash rate shall be at least 15 gpm/ft<sup>2</sup> of filter area.

*f.* High-rate sand filter.

(1) The filtration rate shall not exceed 15 gpm/ft<sup>2</sup> of filter area.

(2) The backwash rate shall be at least 15 gpm/ft<sup>2</sup> of filter area.

(3) If more than one filter tank is served by a pump, the designer shall demonstrate that backwash flow rate to each filter tank meets the requirements of (2), or an isolation valve shall be installed at each filter tank.

*g.* Vacuum sand filter.

(1) The filtration rate shall not exceed 15 gpm/ft<sup>2</sup> of filter area.

(2) The backwash rate shall be at least 15 gpm/ft<sup>2</sup> of filter area.

(3) An equalization screen shall be provided to evenly distribute the filter influent over the surface of the filter sand.

(4) Each filter system shall have an automatic air purging cycle.

*h.* Sand filter media shall meet the manufacturer's specifications.

*i.* Diatomaceous earth filters.

(1) The filtration rate shall not be greater than 1.5 gpm/ft<sup>2</sup> of effective filter area except that a maximum filtration rate of 2.0 gpm/ft<sup>2</sup> may be allowed where continuous body feed is provided.

(2) Diatomaceous earth filter systems shall have piping to allow recycling of the filter effluent during precoat.

(3) Waste diatomaceous earth shall be discharged to a sanitary sewer or other point of discharge approved by the Iowa department of natural resources. The discharge may be subject to the requirements of the local waste water utility.

*j.* Cartridge filters.

(1) The filtration rate shall not exceed 0.38 gpm/ft<sup>2</sup>.

(2) A duplicate set of cartridges shall be provided.

*k.* Other filter systems may be used if approved by the department.

**15.52(7) Piping.**

*a. Piping standards.* Spa piping shall conform to applicable nationally recognized standards and shall be specified for use within the limitations of the manufacturer's specifications. Recirculation piping shall comply with the applicable requirements of ANSI/NSF Standard 61, "Drinking Water System Components—Health Effects," as published by NSF International, Ann Arbor, Michigan.

*b. Pipe sizing.* Spa recirculation piping shall be sized so that water velocities do not exceed 6 ft/sec for suction flow and 10 ft/sec for pressure flow.

*c. Skimmer pipe capacity.* The piping for the skimmer system shall be designed to convey 100 percent of the recirculation flow rate.

*d. Main drain pipe capacity.* The main drain piping shall be designed to convey 100 percent of the recirculation flow rate. If the spa agitation system uses the same suction piping as the recirculation system, the piping shall be designed for the combined flow within the requirements of paragraph "b" above.

*e. Separate piping required.* The piping from the spa agitation system pump to the spa shall be separate from the recirculation system piping.

**15.52(8) Inlets.**

*a.* Wall inlets shall be provided for a spa.

*b.* At least two recirculation inlets shall be provided.

(1) Inlets shall be located at least 6 inches below the design water surface.

(2) Inlets shall be directional flow-type inlets.

*c.* The flow through each inlet shall be adjustable.

**15.52(9) Skimmers.** A skimmer shall be listed by NSF International or by another listing agency approved by the department as complying with the requirements of Standard 50, "Circulation System Components for Swimming Pools, Spas, or Hot Tubs," as published by NSF International, Ann Arbor, Michigan.

*a.* Skimmers required. A spa shall have at least one skimmer for each 100 ft<sup>2</sup> of surface area or fraction thereof.

*b.* Flow-through skimmers. Each skimmer shall be designed for a flow-through rate of at least 3.8 gpm per lineal inch of weir. The combined capacity of all skimmers in a spa shall not be less than the total recirculation rate.

*c.* Skimmer weirs. Skimmers shall have weirs that adjust automatically to variations in water level of at least 4 inches.

*d.* Flow control. Skimmers shall be equipped with a device to control flow through the skimmer.

*e.* Equalizers. Skimmers shall have an equalizer pipe. In lieu of an equalizer pipe, the skimmer suction line may be connected to the main drain line.

*f.* The skimmer(s) shall not be connected to the agitation system.

**15.52(10) Main drain system.** Spa main drains may be on the side wall of a spa near the spa bottom.

*a. Main drains.* Each spa pump shall be connected to two or more main drains. The recirculation system and the agitation system may use the same drains.

(1) Main drains shall be at least 3 ft apart on center or on different spa surfaces, and shall be connected in parallel.

(2) Each main drain connected to the recirculation system shall be designed for 100 percent of the recirculation flow. If the agitation system draws from the same drains, the drains shall be designed for the total combined flow.

*b. Control valve.* There shall be a control valve to adjust the flow between the main drains and the overflow system.

*c. Main drain covers.* Each main drain shall be covered with a grate or other approved cover which is designed to prevent bather entrapment. The water velocity through the open area of the cover shall be no more than 1½ ft/sec or a cover listed with a recognized listing agency as complying with the requirements of ANSI/ASME 112.19.8M-1987 shall be used. A listed cover shall be used in accordance with its listing. The main drain cover shall be designed to be securely fastened to the spa so it is not removable without tools.

**15.52(11) Disinfection and pH control.**

*a. Controller required.* Each spa approved for construction after the effective date of these rules (May 13, 1998) shall be equipped with an automatic controller for the maintenance of proper disinfectant level and pH in the spa water. The control output of the controller to the chemical feed systems shall be based on the continuous, direct measurement of the ORP and the pH of the water in the spa recirculation system.

*b. Disinfection system.* A continuous feed disinfectant system shall be provided. The disinfectant feed system shall have the capacity to supply at least 10 ppm chlorine or bromine based on the recirculation flow rate required in 15.52(5)“b.”

*c. Disinfection feeder listing.* A disinfectant feeder shall be listed by NSF International or by another listing agency approved by the department as complying with the requirements of Standard 50, “Circulation System Components for Swimming Pools, Spas, or Hot Tubs,” as published by NSF International, Ann Arbor, Michigan.

*d. Gas chlorine shall not be used as a disinfectant for a spa.*

*e. Solution feed.* Where a metering pump is used to feed a solution of disinfectant, the disinfectant solution container shall have a capacity of at least one day’s supply at the rate specified in 15.52(11)“b.”

*f. Erosion chlorine feeders.* The storage capacity of an erosion feeder shall be at least one day’s supply of disinfectant at the rate specified in 15.52(11)“b.”

*g. pH chemical system.* Each spa shall have a metering pump for the addition of a pH control chemical to the spa recirculation system, or a carbon dioxide (CO<sub>2</sub>) gas feed system. A metering pump shall be listed by NSF International or another listing agency approved by the department as complying with the requirements of Standard 50, “Circulation System Components for Swimming Pools, Spas, or Hot Tubs,” as published by NSF International, Ann Arbor, Michigan.

*h. Chemical feed stop.* The chemical feed systems shall be designed so that chemical feed is automatically and positively stopped when the recirculation flow is interrupted.

*i. Test equipment.* Test equipment complying with the following requirements shall be provided.

(1) The test equipment shall provide for the direct measurement of free chlorine and combined chlorine from 0 to 10 ppm in increments of 0.2 ppm or less over the full range, or total bromine from 0 to 20 ppm in increments of 0.5 ppm over the full range.

(2) If a chlorine chemical is used for spa water disinfection, the test equipment shall provide for the measurement of spa water pH from 7.0 to 8.0 with at least five increments in that range. If a bromine chemical is used for spa water disinfection, the test equipment shall provide for the measurement of pH from 7.0 to 8.5 with at least seven increments in that range.

(3) The test equipment shall provide for the measurement of total alkalinity and calcium hardness with increments of 10 ppm or less.

(4) The test equipment shall provide for the measurement of cyanuric acid from 30 to 100 ppm. This requirement may be waived for a facility that does not use cyanuric acid or a stabilized chlorine disinfectant.

**15.52(12) Safety.**

*a. Spa entry.* A spa shall have at least one stairway, ramp, ladder, or set of recessed steps designating a point of entry and exit for every 50 ft of perimeter or fraction thereof.

(1) Stair steps leading into a spa shall be at least 12 inches wide, the tread depth shall be no less than 10 inches, and the riser height shall be no more than 12 inches. If a bench or seat is used as a part of the stair, the first riser height from the bottom of the spa to the seat or bench shall be no more than 14 inches. Except for the first riser, the riser height shall be uniform.

1. Stair steps shall be provided with a slip-resistant surface.

2. The stair steps shall be provided with two handrails or grab rails, one on each side of the steps.

(2) Ladders.

1. Ladders shall be provided with a handrail which extends from below the water surface to the top surface of the deck on each side of the ladder.

2. Ladders shall be of a color contrasting with the spa walls.

(3) Recessed steps.

1. Recessed steps shall have a tread depth of at least 5 inches, a tread width of at least 12 inches, and a uniform rise of no more than 12 inches.

2. Recessed steps shall be provided with a handrail or with deck-level grab rails on each side of the recessed steps.

3. Recessed steps shall drain to the spa.

(4) Handrails and grab rails.

1. Ladders, handrails, and grab rails shall be designed to be securely anchored and so that tools are required for their removal.

2. Ladders, handrails, and grab rails shall be of corrosion-resistant materials, or provided with corrosion-resistant coatings. They shall have no exposed sharp edges.

*b. Agitation system control.* The agitation system start control shall be installed out of the reach of persons in the spa. The "on" cycle for the agitation system shall be no more than ten minutes.

*c. Electrical.* New construction or reconstruction shall comply with the requirements of the National Electrical Code, 70-96, as published by the National Fire Protection Association, Batterymarch Park, Quincy, Massachusetts 02269.

*d. Lighting.* Artificial lighting shall be provided at indoor spas and at outdoor spas which are to be used after sunset, in accordance with the following:

(1) Underwater lighting of at least 60 lamp lumens/ft<sup>2</sup> or 0.5 watts/ft<sup>2</sup> of water surface area and area lighting of at least 10 lumens/ft<sup>2</sup> or 0.6 watts/ft<sup>2</sup> of deck area.

(2) If underwater lights are not provided, overhead lighting of at least 30 lumens/ft<sup>2</sup> or 2.0 watts/ft<sup>2</sup> of spa water surface area shall be provided.

*e. Spa enclosure.*

(1) A spa shall be enclosed by a fence, wall, building or combination thereof at least 4 ft high. The spa enclosure shall be constructed of durable materials. A spa may be in the same room or enclosure as another spa or a swimming pool.

(2) A fence, wall, or other means of enclosure shall have no opening, other than gates and doors, that would permit the passage of a 4-inch sphere and shall not be easily climbable by toddlers. The distance between the ground or floor and the top of the lowest horizontal support accessible from the outside of the facility, or between the two lowest horizontal supports accessible from outside the facility, shall be at least 45 inches. Except where controlled entrance to the spa is provided, gates or doors into the spa area shall be lockable, self-closing and self-latching.

(3) Except as modified by 15.52(12)“e”(4), all facilities with an indoor spa which have secured entry shall be considered to have met the provisions of 15.52(12)“e”(1).

(4) An indoor spa shall be enclosed by a barrier at least 3 ft high if there are sleeping rooms, apartments, condominiums, or permanent recreation areas used by children which open directly into the spa area. A spa may be in the same enclosure as another spa or a swimming pool. No opening in the barrier except for a gate or door shall permit the passage of a 4-inch sphere. Gates or doors shall be lockable, self-closing and self-latching.

These rules are intended to implement Iowa Code chapter 135I.

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