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, spray pads, 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 a local inspection agency, 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 a person who has:

1. Successfully completed the Certified Pool/Spa Operator® course sanctioned by NSPF, the Aquatic Facility Operator course sanctioned by NRPA, the Professional Pool & Spa Operator course sanctioned by the APSP, the Licensed Aquatic Facility Technician course sanctioned by the American Swimming Pool and Spa Association, or an equivalent course approved by the department; and
2. Been recertified as required by the sanctioning organization; and
3. 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 as measured with a DPD (diethyl-p-phenylene diamine) test kit or as measured by another method approved by the department. Another term for combined chlorine is "chloramines."

"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 whose drain 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.

"Di-chlor" means sodium dichloro-s-triazinetrione dihydrate. Di-chlor is a form of chlorine that includes cyanuric acid in its formulation.

"Engineering plans" means plans and specifications certified in accordance with the rules of the 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" means an arrangement including a pipe from an opening below the water level in a swimming pool or spa to the body of a skimmer and a normally closed valve at the skimmer body. The arrangement is designed to automatically prevent air from being drawn into the pump when the water level drops below the skimmer inlet. The equalizer opening in a swimming pool or spa is a fully submerged outlet.

"Facility" means a building, fenced enclosure, or lot where there is at least one swimming pool or spa subject to regulation under Iowa Code chapter 135I and these rules.

"Field fabricated," when applied to a sump or a cover/grate for a fully submerged outlet, means constructed on site with conventional building materials or of a size and shape different from readily available commercial sumps or cover/grates.

"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.

"Flow rating," when applied to the cover/grate for a fully submerged outlet, means the maximum flow rate in gpm through the cover/grate that will not cause body or hair entrapment as determined by the test methods in the ASME standard.

"Fountain" means a water fountain that is not established primarily for swimming or wading, but where swimming or wading is allowed, and that 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 as measured with a DPD (diethyl-p-phenylene diamine) test kit or as measured by another method approved by the department.

"Fully submerged outlet" means an outlet that is completely under water when the water is at the normal operating level.

"Gravity outlet" means an outlet that directly connects to a tank or other structure that is at atmospheric pressure. Water flows through a gravity outlet by the natural head of water over the outlet.

"Hose bib" means a fresh-water outlet that is threaded to permit the attachment of a garden hose.

"Hydrostatic relief valve" means a relief valve installed in the bottom of the swimming pool and 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.

"Inspection agency" means the department, or a city, county or district board of health that has executed with the department pursuant to the authority of Iowa Code chapters 28E and 135I an agreement to inspect swimming pool/spa facilities and enforce these rules. The authority of a city, county or district board of health is limited to the geographic area defined in the agreement executed with the department. Within the defined geographic area, the city, county or district board of health is the "local inspection agency."

"Leisure river" means a closed-path channel of near constant depth with a river-like flow of water. A leisure river may include water features and play devices. Leisure rivers are also called "lazy rivers" or "slow rivers."

"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 first aid and American Red Cross or American Heart Association infant, child and adult CPR; two-person 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. Separate CPR and first-aid training is available from the American Red Cross, the American Heart Association, and other 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, but not limited to, 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.

"Outlet system" means an arrangement of components associated with one or more connected fully submerged outlets including the cover/grate(s), the sump(s), the piping, and the pump(s) if one or more pumps are directly connected to the outlet(s).

"Perimeter overflow gutter" means a weir and trough around the perimeter of a swimming pool that is used to skim the surface of the water and return the water to the treatment system.

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

"Recirculation system" means the pump(s), piping, inlets, outlets, filtration system, chemical feed systems and accessories provided to convey and treat 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 that is used, or intended to be used, in connection with a single-family residence and that is available only to the family of the householder and the householder's private guests. A residential swimming pool used for any commercial purpose, including, but not limited to, swimming lessons or exercise classes, shall comply with the requirements of 15.4(6)*"n."* A residential swimming pool used for private swimming lessons for over 207 hours in a calendar month, or the number of hours prescribed by local ordinance applicable to such use of a residential swimming pool, whichever is greater, shall be considered a public swimming pool and shall be subject to all the requirements of this chapter. A residential swimming pool used for any other

commercial purposes for more than 60 hours in a calendar month shall be considered a public swimming pool and shall be subject to all the requirements of this chapter.

"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 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. 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 manufactured device designed to be directly connected to the recirculation pump suction and used to skim the swimming pool over a self-adjusting weir.

"Spa" means a structure, chamber, or tank, such as a hot tub or whirlpool, that is designed for recreational or therapeutic use and is designed not to be drained, cleaned, and refilled after each individual use. A spa is designed to provide a means of agitation. A swimming pool with a bench equipped with agitation is not considered a spa provided that the bench length is no more than 10 percent of the swimming pool perimeter and that the water temperature is maintained at 90°F or less. Rules 641—15.51(135I) and 641—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.

"Spray pad" means a constructed area equipped with water sprays or other water play features where the water is intended to contact the users. A spray pad includes no standing water. A spray pad uses water that is recirculated independently or from an associated swimming pool. Spray pads are also called "wet decks," "splash pads," "interactive play attractions," "water recreation attractions," and other names.

A play area with sprays or other features that includes no standing water and that uses only potable water that is not circulated (the water drains to waste) is not included in this definition.

"Suction outlet" means an outlet that is directly connected to the inlet side of a circulation pump.

"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, tank, or area constructed of man-made material through which water is circulated and that is designed and operated for recreation, training, or competition that includes full body contact with the water. This definition includes, but may not be limited to, swimming pools, wading pools, spray pads, leisure rivers, water slides, and wave pools. The swimming pool may be either publicly or privately owned. This definition includes, but is not limited to, swimming pools 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^2 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^2.

"Swimming pool slide" means any device used to enter a swimming pool by sliding down an inclined plane or through a tube. "Swimming pool slide" as used in this chapter is equipment generally similar to a playground slide. A swimming pool slide shall have a slide path of 20 ft or less in length and a water flow down the slide of 20 gpm or less. A slide exceeding either of these criteria shall be a water 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 as measured with a DPD (diethyl-p-phenylene diamine) test kit or as measured by another method approved by the department.

"Tri-chlor" means trichloro-s-triazinetrione. Tri-chlor is a form of chlorine that includes cyanuric acid in its formulation.

"Unblockable," when applied to a cover/grate for a fully submerged outlet, means a size and shape that cannot be fully covered by an 18-inch by 23-inch mat with 4-inch-diameter rounded corners and the differential pressure generated by the flow through the uncovered open area is not enough to cause body entrapment. "Unblockable" is evaluated by the methods specified in the ASME standard.

"Wading pool" means a swimming pool that is no more than 24 inches deep at any point and that 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 as a 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.

"AGA" means American Gas Association, 400 N. Capitol Street, NW, Washington, DC 20001.

"ANSI" means American National Standards Institute, 25 West 43rd Street, New York, NY 10036.

"APSP" means the Association of Pool & Spa Professionals (formerly National Spa and Pool Institute (NSPI)), 2111 Eisenhower Avenue, Alexandria, Virginia 22314.

"ASME" means American Society of Mechanical Engineers, Three Park Avenue, New York, NY 10016-5990.

"ASME standard" means ASME/ANSI A112.19.8a-2008, "Suction Fittings for Use in Swimming Pools, Wading Pools, Spas, and Hot Tubs." The standard sets performance requirements and test methods for pool and spa fittings, covers and grates for physical strength, ultraviolet light resistance, and hair and body entrapment prevention. The standard can be purchased from ANSI by calling (212)642-4980 or at http://webstore.ansi.org/.

"AWWA" means American Water Works Association, 6666 West Quincy Avenue, Denver, CO 80235.

"BTU" means British thermal unit.

"CPO®" means certified swimming pool/spa operator.

"CPR" means cardiopulmonary resuscitation.

"feet" means feet of water (feet × 0.43 = psi) when used in discussing pump requirements.

"ft" means foot or feet (distance).

"ft^2" means square foot or square feet.

"gal" means gallon(s).

"gpm" means gal per minute.

"in Hg" means inches of mercury (in Hg × 0.49 = psi).

"in^2" means square inch(es).

"LAFT" means licensed aquatic facility technician.

"mg/L" means milligram(s) per liter.

"mV" means millivolts.

"NRPA" means National Recreation and Park Association, 22377 Belmont Ridge Road, Ashburn, VA 20148.

"NSF" means NSF International (formerly National Sanitation Foundation), 789 N. Dixboro Road, P.O. Box 130140, Ann Arbor, MI 48113-0140.

"NSPF®" means National Swimming Pool Foundation, 4775 Granby Circle, Colorado Springs, CO 80919.

"ORP" means oxidation-reduction potential.

"ppm" means parts per million; mg/L and ppm are equivalent terms.

"PPSO" means professional pool and spa operator.

"psi" means pounds per square inch.

"sec" means second (time).

"Standard 50" means NSF/ANSI Standard 50, "Circulation System Components for Swimming Pools, Spas, or Hot Tubs."

"TDH" means total dynamic head.

"UL" means Underwriters Laboratories, 333 Pfingsten Road, Northbrook, IL 60062-2096.

[**ARC 7839B**, IAB 6/3/09, effective 7/8/09; **ARC 2279C**, IAB 12/9/15, effective 1/13/16]

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 operated continuously except for backwashing or servicing.

(2) The recirculation system shall have an operating pressure gauge located in front of 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) 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 swimming pool.

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

1. Each skimmer 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 or an air gap.

d. Water supply. The water supplied to a swimming pool shall be from a water supply meeting the requirements of the 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 AWWA C-511-97, "Reduced-Pressure Principle Backflow-Prevention Assembly."

(2) Each hose bib at a facility shall be equipped with an atmospheric vacuum breaker or a hose connection backflow preventer.

e. Swimming pool water heaters.

(1) Electric water heaters shall bear the seal of UL.

(2) Gas-fired water heaters shall bear the seal of the AGA and 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.

(4) Each indoor swimming pool equipment room with fuel-burning water heating equipment shall have one or more openings to the outside of the room for the provision of combustion air.

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 and no greater than 8.0 ppm, or a total bromine residual of at least 2.0 ppm and no greater than 18 ppm when the swimming pool is open for use, except as given in Table 1.

(2) The swimming pool shall be closed if the free chlorine is measured to be less than 0.6 ppm or the total bromine is measured to be less than 1.0 ppm.

(3) The swimming pool shall be closed if a free chlorine measurement exceeds 8.0 ppm or if the total bromine measurement exceeds 18 ppm, except as given in Table 1.

(4) If an ORP controller with a readout meeting the requirements of 15.4(2)*"f"*(4) is installed on the swimming pool system, the swimming pool water shall have an ORP of at least 700 mV, but no greater than 880 mV, except as given in Table 1. The swimming pool shall be closed if the ORP is less than 650 mV or greater than 880 mV.

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

(6) No cyanuric acid shall be added to an indoor swimming pool after May 4, 2005, except through an existing chemical feed system designed to deliver di-chlor or tri-chlor. No cyanuric acid in any form shall be added to an indoor swimming pool after May 31, 2008.

Table 1

Preferred Operating Range			Acceptable Operating Range		
ORP (mV)	Free Cl (ppm)	Total Br (ppm)	ORP (mV)	Free Cl (ppm)	Total Br (ppm)
700-880	1.0-8.0	2.0-18.0	700-880	0.50-0.90	1.0-2.0
			650-700[#]	1.0-8.0	2.0-18.0
			650-700[†]	8.2-10.0	18.5-22.0

[#] If these conditions occur on any 5 consecutive days or on any 10 days within a 14-day period, the facility management shall evaluate water parameters including, but not limited to, cyanuric acid, pH, combined chlorine, and phosphates (ortho- and total); and other conditions at the swimming pool. The facility management shall modify parameters and conditions as practical to bring the ORP to a minimum of 700 mV. The evaluation shall be completed within 30 days after the low ORP condition is known to the facility management. A written report of the evaluation shall be kept with the pool records.

[†] If these conditions occur on any 3 consecutive days or on any 7 days within a 14-day period, the facility management shall notify the local inspection agency and shall cause the conditions at the swimming pool specified in the previous footnote and the function of the ORP equipment to be investigated by a professional pool service company. A written report detailing source water parameters, pool water parameters, pool design (including information about the installed mechanical and chemical equipment), other conditions affecting the disinfectant concentration and the ORP, and the actions taken to increase ORP relative to the disinfectant residual shall be submitted to the local inspection agency within 30 days after the low ORP condition is known to the facility management.

b. pH level. The pH of swimming pool water shall be 7.2 to 7.8. An inspection agency may require that a swimming pool be closed if the pH is less than 6.8 or greater than 8.2.

c. Water clarity. A swimming pool that is less than 8 ft deep shall be closed if the grate openings on the main drain are not clearly visible from the deck. A swimming pool that is 8 ft deep or deeper shall be closed if the main drain is 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 local inspection agency 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 or the ORP of the swimming pool water shall be checked 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 ORP meeting the requirements of 15.4(2)*"f"*(4), the operator may make visual readings of ORP in lieu of manual testing, but the swimming pool water shall be tested manually for disinfectant residual at least twice per day. Both ORP and disinfectant residual shall be recorded when manual testing is done. 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 for pH 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 in lieu of manual testing, but the swimming pool water shall be tested manually for pH 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 at least once in each week that the swimming pool is open for use. The swimming pool shall be tested for calcium hardness at least once in each month that 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, the facility management shall submit a sample of the swimming pool water 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 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) 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.

(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 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 chlorine, a chlorine compound or a 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. Where applicable, the chemical feeder shall be listed by NSF or another listing agency approved by the department for compliance with Standard 50.

(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 and for each swimming pool constructed after July 1, 1998. Where applicable, the chemical feeder shall be listed by NSF or another listing agency approved by the department for compliance with Standard 50.

b. Cleaning.

(1) The inspection agency 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 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 chemical hazard warning sign shall be placed at the entrance of a room where chemicals are used or stored or where bulk containers are located.

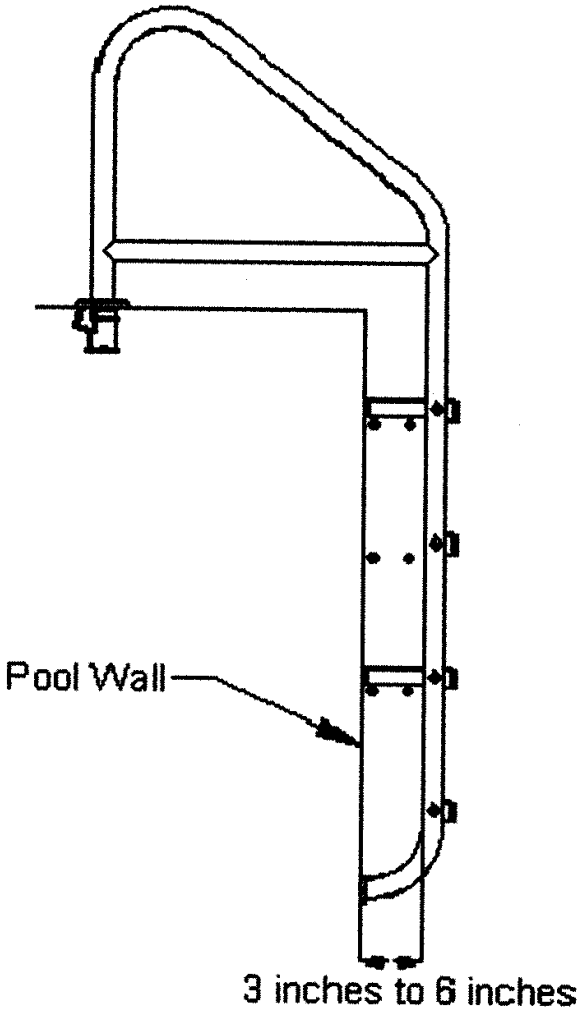
b. Stairs, ladders, recessed steps, and ramps.

(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) The distance between the swimming pool wall to the vertical rail of a ladder shall be no greater than 6 inches and no less than 3 inches. The lower end of each ladder rail shall be securely covered with a smooth nonmetallic cap. The lower end of each ladder rail shall be within 1 inch of the swimming pool wall.

Figure 1



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

(5) If a swimming pool is over 30 ft wide, recessed steps, ladders, ramps, or stairs shall be installed on each side. If a stairway centered on the shallow end wall of the swimming pool is within 30 ft of each side of the swimming pool, that end of the swimming pool shall be considered in compliance with this subparagraph.

(6) Each set of recessed steps shall be equipped with a securely anchored grab rail on each side of the recessed steps.

(7) Each set of stairs and each ramp shall be equipped with a securely anchored handrail(s).

(8) When stairs are provided for entry into a swimming pool, a stripe at least 1 inch wide of a color contrasting with the step surface and with the swimming pool floor shall be marked at the top front 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 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, USA Swimming, 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 shall be permitted only if the diving area dimensions conform to the minimum requirements indicated in Figure 2, Table 2 and Table 3. 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-resistent 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) A platform or diving board that is 32 inches or more above the swimming pool deck shall have a guardrail on both sides. The guardrails shall be at least 36 inches high and shall extent to the edge of the deck. The 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 load.

NOTE: The information contained in Figure 2 and Tables 2 and 3 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 2 and 3, measurements shall be taken from the top center of the front edge of the diving board. The reference water level shall be the midpoint of the skimmer opening for a skimmer pool or a stainless steel gutter system with surge weirs. The reference water level for a gutter pool shall be the top of the gutter weir.

Figure 2

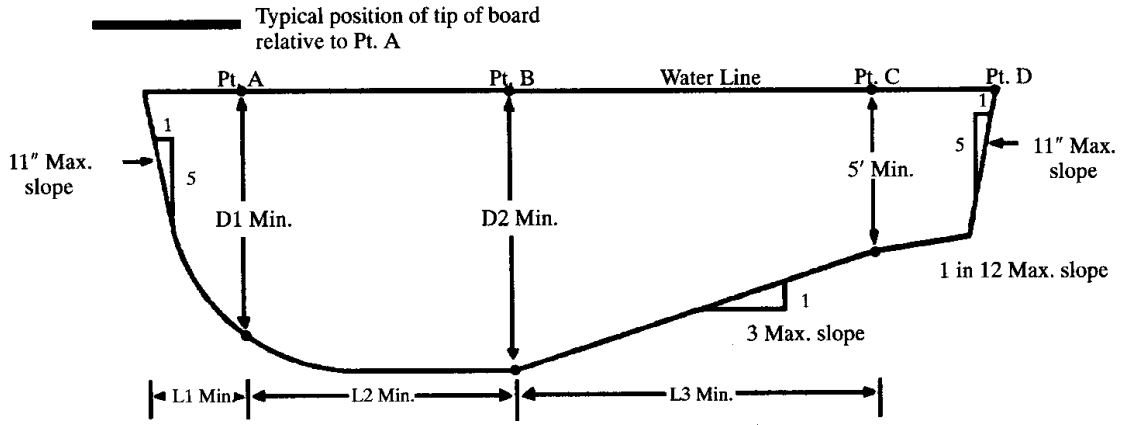


Table 2

		Minimum Dimensions				
Diving Board Height Above Water	Maximum Diving Board Length	D1	D2	L1	L2	L3
Deck level to 2/3 meter	10 ft	7 ft	8.5 ft	2.5 ft	8 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 3

	Minimum Distance		
Diving Board Height Above Water	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 and spray pads, lifeguards are required at municipal and school swimming pools of any size and other swimming pools having a water surface area of 1500 ft^2 or larger. Swimming pools operated by apartments, condominiums, country clubs, neighborhoods, manufactured home communities, or mobile home parks are exempt from lifeguard requirements.

(2) Shallow water guards may be used at plunge pools which are 5 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.

NOTE: This is the minimum lifeguard coverage acceptable under these rules. It is the responsibility of the management of each facility to evaluate the facility configuration, the features of the facility, including water slides, spray pads, play features, etc., the patrons, and the type of use, and to determine the facility-specific requirements for supervision by lifeguards.

(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 who has current certification from the American Red Cross in basic water rescue, first aid, and infant, child and adult CPR, or equivalent training approved by the department. An instructor, teacher or coach may be responsible for a maximum of 30 persons within a structured activity. If more than 30 persons are involved in a structured activity, a second qualified supervisor must be present.

(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. If the plunge pool is shallow, the water slide attendants shall be either lifeguards or shallow water guards. If the plunge pool includes deep water, the water slide attendants shall be lifeguards. 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.

The department may approve alternate water slide management based on a review of the slide and swimming pool configuration. Alternate water slide management plans shall be in writing and shall be at the facility during the operating season.

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 or three water slides terminate within the same 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^2 inclusive; at least two chairs shall be provided if the area is 4001 to 6000 ft^2; and at least three chairs shall be provided if the area is 6001 ft^2 or more. Swimming pools are not required to have more than three lifeguard chairs or stations. This requirement does not apply to wave pools, leisure rivers, spray pads, 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^2 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 ¼-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 handgrips 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. If a facility employs lifeguards (whether required by rule or not), the lifeguards shall be provided with the minimum equipment required by their training including, but not necessarily limited to, rescue tubes and personal CPR masks.

(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, the following:

1. Band-Aids.
2. Sterile 4″ × 4″ bandage compress.
3. Self-adhering gauze bandage.
4. Disposable gloves.
5. Chemical cold compress.

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. The first-aid kit shall be accessible when the swimming pool is open.

(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) Except for wading pools and spray pads, each swimming pool where lifeguards are not provided shall have a designated emergency telephone or equivalent emergency communication system that can be operated without coins. The communication system shall be available to users of swimming pools when the swimming pool is open. 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. Instructions for emergency use of the telephone shall be posted near the telephone.

At each swimming pool where lifeguards are employed, a telephone shall be available to the swimming pool staff for emergency purposes.

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

h. Fully submerged outlets. Each outlet, including the main drain(s), shall be designed to prevent user entrapment. A swimming pool shall be closed if the cover/grate of a fully submerged outlet is missing or broken.

(1) Each fully submerged outlet shall have a cover/grate that has been tested for compliance with the requirements of the ASME standard by a testing agency approved by the department or that is certified for compliance by an engineer licensed in Iowa.

1. The cover/grate for an outlet system with a single fully submerged outlet shall have a flow rating of at least 100 percent of the maximum system flow rate. The combined flow rating for the cover/grates for an outlet system with more than one fully submerged outlet shall be at least 200 percent of the maximum system flow rate.

The maximum system flow rate for a main drain system is at least the design filter flow rate, but may include play feature and water slide flow. The maximum system flow rate for other fully submerged outlets is the design flow rate of the pump(s) directly connected to the outlet system.

2. Fully submerged outlet cover/grates shall not be removable without the use of tools.

3. Purchase records and product information that demonstrate compliance shall be maintained by the facility for at least five years from the time the cover/grate is purchased. If a field fabricated cover/grate is certified for compliance to the ASME standard by an engineer licensed in Iowa, a copy of the certification letter shall be kept at the facility for at least five years from the certification date.

(2) A swimming pool with a single fully submerged outlet that is not unblockable and that is directly connected to a pump shall be closed if the outlet does not have a cover/grate that complies with the ASME standard.

If a swimming pool has two or more fully submerged outlets on a single surface that are all less than 3 ft apart on center, are not unblockable, and are directly connected to a pump, the swimming pool is considered to have a single fully submerged outlet.

(3) A swimming pool with a single fully submerged outlet that is not unblockable and that is directly connected to a pump shall be closed if the outlet system is not equipped with a safety vacuum release system that is listed for compliance with ASME/ANSI A112.19.17-2002, "Manufactured Safety Vacuum Release Systems (SVRS) for Residential and Commercial Swimming Pool, Spa, Hot Tub, and Wading Pool Suction Systems," by a listing agency approved by the department; or another vacuum release system approved by the department.

1. Purchase records and product information that demonstrate compliance shall be maintained by the facility for at least five years from the time the SVRS is purchased or another approved system is installed.

2. An SVRS shall be installed in accordance with the manufacturer's instructions.

3. An SVRS shall be tested for proper function at the frequency recommended by the manufacturer, but at least once in each month the swimming pool is operated. The date and result of each test shall be recorded.

(4) In lieu of compliance with subparagraphs (1), (2) and (3) above, a fully submerged outlet in a swimming pool may be disabled with the approval of the department, except that an equalizer in a skimmer may be plugged without department approval. The management of the swimming pool shall submit to the department information including, but not necessarily limited to:

1. The area and volume of the pool;

2. The functional areas of the pool and the depths in those areas;

3. Detailed information about the inlet system, including the location of the inlets, the depth of the inlets, and the type of inlet fitting;

4. Detailed information about the overflow system, gutter or skimmer, number of skimmers, and pipe sizes;

5. Pump information and flow rates for the outlet system;

6. Filter type, number of filters, the size of the filter(s), and whether multiple filters are backwashed together or separately.

If the department approves the application to disable the outlet, the outlet valve shall be closed and the valve secured by removing the handle, by locking the handle closed, or by another method approved

by the department. The outlet may be physically disconnected from the pump system at the option of the facility management.

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 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 on the shallow side of the boundary within 12 inches 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 on the shallow side of the slope change within 12 inches of the slope change in lieu of a float line at the 5 ft depth.

(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.

A float line is not required when the landing area is in deep water provided the distance between the slide and any diving board(s) meets the requirements for diving board spacing. The distance between the side of the slide at the slide's terminus and the swimming pool wall shall be in accordance with the manufacturer's recommendations, but shall be at least 8 ft.

A float line is not required for a slide that is designed for toddlers and young children and that terminates in water that is 2 ft deep or less. The landing area shall be designated by a brightly colored pad securely fastened to the floor of the swimming pool or by painting the floor at the end of the slide.

j. Depth marking.

(1) Depth markers shall be painted or otherwise marked on the deck within 3 ft of 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. 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.

(2) Depth markers shall be located at 1-ft depth intervals, but not more than 25 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.

(3) Depth markers shall be located not more than 25 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.

(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) The depth of a leisure river shall be posted at the entrance(s) to the leisure river in characters at least 3 inches high. The depth of the leisure river shall be marked on the side wall of the leisure river above the static water level at intervals not to exceed 50 ft on center. The depth of the leisure river shall be marked on the deck in the areas where users are permitted. The depth markers shall be within 3 ft of the edge of the leisure river at intervals not to exceed 25 ft on center. The depth markers at a leisure river constructed before May 4, 2005, are not required to be changed until the deck or channel structure is replaced or repaired.

(6) "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 for wading pools or at the zero-depth end of a wave pool or of a zero-depth swimming pool. "No Diving" or equivalent wording or graphics shall be marked on the deck of a leisure river in areas where users are permitted. The "No Diving" markers shall be within 3 ft of the

edge of the leisure river at intervals not to exceed 25 ft on center. The "No Diving" markers at a leisure river constructed before May 4, 2005, are not required to be changed until the deck or channel structure is replaced or repaired.

(7) 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 circulated wading pool that is drained when not in use, or a spray pad, a swimming pool shall be enclosed by a fence, wall, building, or combination thereof not less than 4 ft high. The enclosure shall be constructed of durable materials.

(2) A fence, wall, or other means of enclosure shall have no openings 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 outside the facility, or between the two lowest horizontal supports accessible from outside the facility, shall be at least 45 inches. A horizontal support is considered accessible if it is on the exterior of the fence relative to the swimming pool, or if the gap between the vertical members of the fence is greater than 1¾ inches.

(3) At least one gate or door with an opening of at least 36 inches in width shall be provided for emergency purposes. When closed, gates and doors shall comply with the requirements of (2) above. Except where lifeguard or structured program supervision is provided whenever the swimming pool is open, gates and doors shall be self-closing and self-latching.

(4) 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. A barrier installed after May 4, 2005, shall have no openings that would allow the passage of a 4-inch sphere and shall not be easily climbable by toddlers. The barrier shall have at least one 36-inch-wide gate or door. Gates and doors shall be lockable. Except where lifeguard supervision is provided, gates and doors shall be self-closing and self-latching.

The department may approve alternate management of the area between the wading pool and swimming pool at a facility where lifeguards are provided whenever the pools are open. The alternate management plan shall be in writing and shall be at the facility when the pools are open.

(5) 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 which are used by children and which open directly into the swimming pool area. No opening in the barrier shall permit the passage of a 4-inch sphere. The barrier shall not be easily climbable by toddlers. There shall be at least one 36-inch-wide gate or door through the barrier. Gates and doors shall be lockable. Except where lifeguard supervision is provided whenever the pool is open, gates and doors shall be self-closing and self-latching.

(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 no more than 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 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 underwater lights operate at more than 15 volts, the underwater light circuit shall be equipped with 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 extend over a swimming pool.

n. Chlorine gas and carbon dioxide.

(1) Chlorine gas 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. Chlorine gas installations constructed prior to March 14, 1990, that are housed within chain-link fence or similar enclosure may be used provided that the chlorine cylinders are protected from direct sunlight and the applicable requirements below are met.

1. A chlorine gas 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 875—Chapter 140, Iowa Administrative Code.

(2) Chlorine and carbon dioxide (CO_2) cylinders.

1. Chlorine gas and CO_2 cylinders shall be individually anchored with safety chains or straps.

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

(3) The flume shall have no sharp edges within reach of a user while the user is 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. 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.

e. Soap shall be available at each lavatory and at each indoor shower fixture.

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

a. Certified operator required. Each facility shall employ a certified operator. One certified operator may be responsible for a maximum of three 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 the following stipulations:

(1) No diving in the shallow end of the swimming pool and in other areas marked "No Diving."

(2) No rough play 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. Where lifeguards are not provided whenever the pool is open, a sign shall be posted at each entry to a swimming pool or a wading pool.

(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 about 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 facility and shall make these records available when requested by a swimming pool inspector. These records shall contain a day-by-day account of swimming pool operation, including:

(1) ORP and pH readings, results of pH, free chlorine or total bromine residual, cyanuric acid, 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 or cleaned or when a filter cartridge was changed.

(6) Monthly ground fault circuit interrupter test results.

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

(8) If applicable, dates and results of tests of each SVRS installed at a facility.

g. Submission of records. An inspection agency may require a facility operator to submit to the inspection agency on a monthly basis a copy of the records of the ORP and pH readings, chemical test results and microbiological analyses. 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 management 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. The manual shall include instructions for routine operations at the swimming pool including, but not necessarily limited to:

(1) Water testing procedures, including the required frequency of testing.

(2) Maintaining the chemical supply for the chemical feed systems.

(3) Filter backwash or cleaning.

(4) Vacuuming and cleaning the swimming pool.

(5) Superchlorination.

(6) Controller sensor maintenance, where applicable.

j. Schematic drawing. A schematic drawing of the pool recirculation system shall be posted in the swimming pool filter room or shall be in the operations manual. Clear labeling of the swimming pool piping with flow direction and water status (unfiltered, treated, backwash) may be substituted for the schematic drawing.

k. Material safety data sheets. Copies of material safety data sheets (MSDS) of the chemicals used at the swimming pool shall be kept at the facility in a location known and readily accessible to facility staff with chemical-handling responsibilities. Each member of the facility staff with chemical-handling responsibilities shall review the MSDS at least annually. The facility management shall retain records of the MSDS reviews at the facility and shall make the records available upon request by a swimming pool inspector.

l. Emergency plan. The facility management shall develop a written emergency plan. 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. The written emergency plan shall be kept at the facility and shall be available to a swimming pool inspector upon request.

m. Lifeguard staffing plan. The lifeguard/program 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.

n. Residential swimming pools used for commercial purposes. A residential swimming pool that is used for commercial purposes shall be subject to the following requirements:

(1) The owner of a residential swimming pool that is used for commercial purposes shall register the swimming pool with the department in accordance with 641—15.9(135I), except that no registration fee is required.

(2) The recirculation system of the swimming pool shall be operating whenever the swimming pool is used for commercial purposes.

(3) The owner or the owner's representative shall test the swimming pool water for the free chlorine or the total bromine residual prior to and after each commercial use of the swimming pool. The owner or the owner's representative shall test the swimming pool water for pH and cyanuric acid (if applicable) at least once in each day that the swimming pool is used for commercial purposes. The test results shall be recorded. The records shall be made available to a swimming pool inspector upon request.

(4) The owner or the owner's representative shall test the swimming pool water for total alkalinity and calcium hardness at least once in each month that the swimming pool is used for commercial purposes. The test results shall be recorded. The records shall be made available to a swimming pool inspector upon request.

(5) During commercial use of a residential swimming pool, the chlorine or bromine residual shall meet the requirements of 15.4(2)*"a."* The pH shall meet the requirements of 15.4(2)*"b."* If an alternative disinfectant is used, the residual shall be maintained as recommended by the manufacturer of the product. The operational range specified by the manufacturer for an alternative disinfectant shall be written in the pool records.

(6) The swimming pool shall be inspected at least annually by the local inspection agency. The inspection shall be limited to a review of the records and a survey of the swimming pool for sanitation and obvious safety hazards.

15.4(7) *Reports.* Swimming pool and spa operators shall report to the local inspection agency, 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.

[**ARC 7839B**, IAB 6/3/09, effective 7/8/09]

641—15.5(135I) Construction and reconstruction. A swimming pool constructed or reconstructed after May 4, 2005, shall comply with the following standards. 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 department of workforce development, and the rules of the department of natural resources.

15.5(1) *Construction permit.*

a. Permit required. No swimming pool shall be constructed or reconstructed without the owner or a designated representative of the owner 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 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, leisure river, water slide, wave pool, wading pool, spray pad, 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, or the owner's designated representative, shall notify the department in writing at least 15 business days prior to opening the swimming 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 engineering and land surveying examining board or the 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, or a simple replacement of a filter or pump or both.

If the requirement for engineering plans is waived, the owner of the 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. If a swimming pool contractor applies for a construction permit, the name, address and telephone number of the swimming pool contractor shall be included.

(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 3/32 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 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; 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 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 AWWA C-511-97, "Reduced-Pressure Principle Backflow-Prevention Assembly."

(2) Each hose bib at a facility shall be equipped with an atmospheric vacuum breaker or a hose connection backflow preventer.

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 facility be provided. The manual shall include, but may not be limited to:

(1) Instructions for routine operations at the swimming pool including, but not necessarily limited to:

1. Filter backwash or cleaning.
2. Maintaining the chemical supply for the chemical feed systems.
3. Vacuuming and cleaning the swimming pool.
4. Swimming pool water testing procedures, including the frequency of testing.
5. Superchlorination.
6. Controller sensor maintenance and calibration, including the recommended frequency of maintenance.

(2) For each centrifugal pump, a pump performance curve plotted on an 8½″ × 11″ or larger sheet.

(3) For each chemical feeder, the maximum rated output listed in weight per time or volume per time units.

(4) Basic operating and maintenance instructions for swimming pool equipment that requires cleaning, adjustment, lubrication, or parts replacement, with recommended maintenance frequencies or the parameters that would indicate a need for maintenance.

g. A schematic drawing of the pool recirculation system shall be posted in the swimming pool filter room or shall be in the operations manual. Clear labeling of the swimming pool piping with flow direction and water status (unfiltered, treated, backwash) may be substituted for the schematic drawing.

h. A permanent file containing the operations and maintenance manuals for the equipment installed at the swimming pool shall be established. The file shall include a source for parts or maintenance for the equipment at the swimming pool. The file may be located in a location other than the facility, but it shall be readily available to the facility management and maintenance staff.

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, swimming pool slides, or any other deck equipment.

b. Materials. Decks shall be constructed of stable, nontoxic, durable, and 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 ("rim flow" 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. The deck shall be designed and constructed so that there is no standing water on the deck during normal operation of the facility.

f. Surface runoff. For outdoor swimming pools, the drainage for areas outside the facility and for nondeck areas within the facility shall be designed and constructed to keep the drainage water off the deck and out of 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 shower 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. Except for wading pools, two or more swimming pools may share the same recirculation system. A wading pool shall have a recirculation system separate from any other wading pool or swimming pool.

(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) Two hours for a wave pool.

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

(5) One hour for a wading pool.

(6) One hour for a water slide plunge pool.

(7) Four hours for a leisure river.

(8) Thirty minutes for a spray pad with its own filter system.

(9) 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.

The recirculation flow rate for pools not specified in 15.5(5)*"b"*(1) to (9) shall be determined by the department.

c. Recirculation pump. The recirculation pump(s) shall be listed by NSF or by another listing agency approved by the department as complying with the requirements of Standard 50 and shall comply with 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," or "3" below, unless a lower TDH is shown by the designer to be 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 and filter system shall be designed so that each filter can be backwashed at a rate of at least 15 gpm/ft^2 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 as close to the pump as practical. A vacuum gauge may be used for pumps with suction lift. A pressure gauge shall be installed on the pump discharge line as close to the pump as practical. Gauges shall be of such a size and located so that they may be easily read by the facility staff.

(6) On pressure filter systems, a hair and lint strainer shall be installed on the suction side of each recirculation pump. The hair and lint strainer basket shall be readily accessible for cleaning, changing, or inspection. A spare strainer basket shall be provided, except where the strainer basket has a volume of 15 gallons or more. 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/AGA Z21.56-2001, ANSI/AGA Z21.56a-2004, and ANSI/AGA Z21.26b-2004. The data plate of the heater shall bear the AGA mark.

(3) Electric pool water heaters shall comply with the requirements of UL 1261 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 ASME Boiler Code, Section 8. 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 the facility staff.

(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.

(8) Each fuel-burning water heater shall be equipped with a pressure relief valve sized for the energy capacity of the water heater.

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 ± 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 sources 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 facility staff, or a remote readout of the flow rate shall be installed where it may be easily read by the facility staff. The designer may be required to provide documentation that the installation meets the requirements of subparagraph (3).

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 debris from all parts of the swimming pool bottom.

15.5(6) *Filtration.* A filter shall be listed by NSF or by another listing agency approved by the department as complying with the requirements of Standard 50 and shall comply with the following requirements:

a. Pressure gauges. Each pressure filter shall have a pressure gauge on the inlet side. Gauges shall be of such a size and located so that they may be read easily by the facility staff. 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 department of natural resources.

e. Rapid sand filter.

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

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

f. High-rate sand filter.

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

(2) The backwash rate shall be at least 15 gpm/ft^2 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 to permit each filter to be backwashed individually.

g. Vacuum sand filter.

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

(2) The backwash rate shall be at least 15 gpm/ft^2 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 filter manufacturer's specifications.

i. Diatomaceous earth filter.

(1) The filtration rate shall not exceed 1.5 gpm/ft^2 of effective filter area except that a maximum filtration rate of 2.0 gpm/ft^2 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 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^2 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. Swimming pool piping shall comply with the applicable requirements of NSF/ANSI Standard 61, "Drinking Water System Components—Health Effects." Plastic swimming pool pipe shall comply with the requirements of NSF/ANSI Standard 14, "Plastic Piping Components and Related Materials," for potable water pipe.

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 in accordance with recognized engineering principles.

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. If the main drains are connected to the recirculation system, the main drains and main drain piping shall be designed to convey at least 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. The inlets shall be adequate in design, number, location, and spacing to ensure effective distribution of treated water and the maintenance of a uniform disinfectant residual throughout the swimming pool. The designer may be required to provide documentation of adequate distribution. The department may require dye testing of a 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 fixed fitting with openings ½ inch wide or less.

c. Floor inlets. Floor inlets shall be provided for the areas of a zero-depth swimming pool or wave pool where the water is less than 2 ft deep and may be used throughout a swimming pool in lieu of or in combination with wall inlets. 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.

15.5(9) *Overflow system.*

a. Skimmers. Recessed automatic surface skimmers shall be listed by NSF or by another listing agency approved by the department as complying with the requirements of Standard 50 except that an equalizer is not required for a skimmer installed in a swimming pool equipped with an automatic water level maintenance device.

(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^2 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 flow capacity of the 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) If a swimming pool is not equipped with an automatic water level maintenance device, each skimmer that is a suction outlet shall have an operational equalizer. The equalizer opening in the swimming pool shall be covered with a fitting listed by a listing agency approved by the department as meeting the requirements of the ASME standard.

(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 provide 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. The flow capacity of the gutter and the associated plumbing 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 1 gal/ft^2 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 a convenient means of draining the water from the pool for winterization and service.

b. Main drains for recirculation. If the main drain system is connected to the recirculation system, there shall be two or more main drains or a single main drain that is unblockable.

(1) Two main drains shall be at least 3 ft apart on center. If three or more main drains are installed, the distance between the drains farthest apart shall be at least 3 ft on center.

(2) Each main drain and its associated piping in a swimming pool shall be designed for the same flow rate. Multiple drains shall be plumbed in parallel, and the piping system shall be designed to equalize flow among the main drains.

(3) If one or two main drains are installed, each main drain cover/grate, sump and the associated piping shall be designed for at least 100 percent of the recirculation flow rate specified by 15.5(5)*"b."* If three or more main drains are installed, the combined flow rating of the cover/grates, the sumps and the associated piping shall be at least 200 percent of the recirculation flow rate. If water for water slides, fountains and play features is circulated through the main drain and overflow systems, the main drains shall be designed for the combined feature and recirculation flow.

(4) Manufactured main drain sumps shall be listed by a listing agency acceptable to the department for compliance with the ASME standard. Field fabricated sumps shall be designed in accordance with the ASME standard and shall be certified by an engineer licensed in Iowa.

(5) There shall be a control valve to adjust the flow between the main drain and the overflow system.

(6) Main drain covers. Each main drain shall be covered with a cover/grate that complies with the ASME standard.

1. The flow rating for each cover/grate shall comply with 15.5(10)*"b"*(3).

2. The mark of a listing agency acceptable to the department shall be permanently marked on the top surface of each manufactured cover/grate.

3. Field fabricated cover/grates shall be certified for compliance to the ASME standard by a professional engineer licensed in Iowa. A certificate of compliance shall be provided to the swimming pool owner and to the department.

4. The main drain cover/grate shall be designed to be securely fastened to the pool so that the cover/grate is not removable without tools.

c. *Feature outlets.* Where fully submerged outlets for play or decorative features or water slides are in the swimming pool, the outlets shall be designed in accordance with 15.5(10)*"b."*

15.5(11) *Disinfection.*

a. Each swimming pool recirculation system approved for construction after May 4, 2005, shall be equipped with an automatic controller for maintenance of the disinfectant level in the swimming pool water. The control output of the controller to the disinfectant feed system shall be based on the continuous measurement of the ORP of the water in the swimming pool recirculation system.

b. No disinfection system designed to use di-chlor or tri-chlor shall be installed for an indoor swimming pool after May 4, 2005.

c. Disinfection system capacity. A continuous feed disinfectant system shall be provided. The disinfectant feed system shall have the capacity to deliver at least 10 mg/L chlorine or bromine equivalent based on the recirculation flow rate required in 15.5(5)*"b"* for an outdoor swimming pool and 4 mg/L chlorine or bromine equivalent based on the recirculation flow rate required in 15.5(5)*"b"* for an indoor swimming pool.

d. Feeder listing. A disinfectant feeder (except chlorine gas feed equipment) shall be listed by NSF or by another listing agency approved by the department as complying with the requirements of Standard 50.

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

f. 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 shatterproof.

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.

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

(2) A chlorine enclosure that is 30 inches deep or less and 72 inches wide or less and that is installed out of doors shall comply with the above requirements except:

1. An automatic chlorine leak detector is not required.

2. The enclosure shall have a window of at least 48 in^2.

3. The light and exhaust fan may be activated by opening the door rather than by a separate switch.

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

g. 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)*"c,"* except that when the system is designed to feed directly from a 55-gal shipping container, a larger solution container is not required.

NOTE: Secondary containment must be provided when a tank larger than 55 gallons is installed for the storage of sodium hypochlorite.

h. 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)*"c."*

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) 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.

(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 controller required. Each swimming pool recirculation system approved for construction after May 4, 2005, shall be equipped with a controller that senses the pH of the swimming pool water, and that automatically controls the operation of a metering pump for the addition of a pH control chemical or the operation of a carbon dioxide (CO_2) gas feed system.

b. 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_2) gas feed system.

c. Metering pump listing. A metering pump shall be listed by NSF or by another listing agency approved by the department as meeting the requirements of Standard 50.

d. CO2 cylinder anchors. Where carbon dioxide (CO_2) is used as a method of pH control, an anchoring system shall be provided to individually secure full and empty CO_2 cylinders.

e. 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.

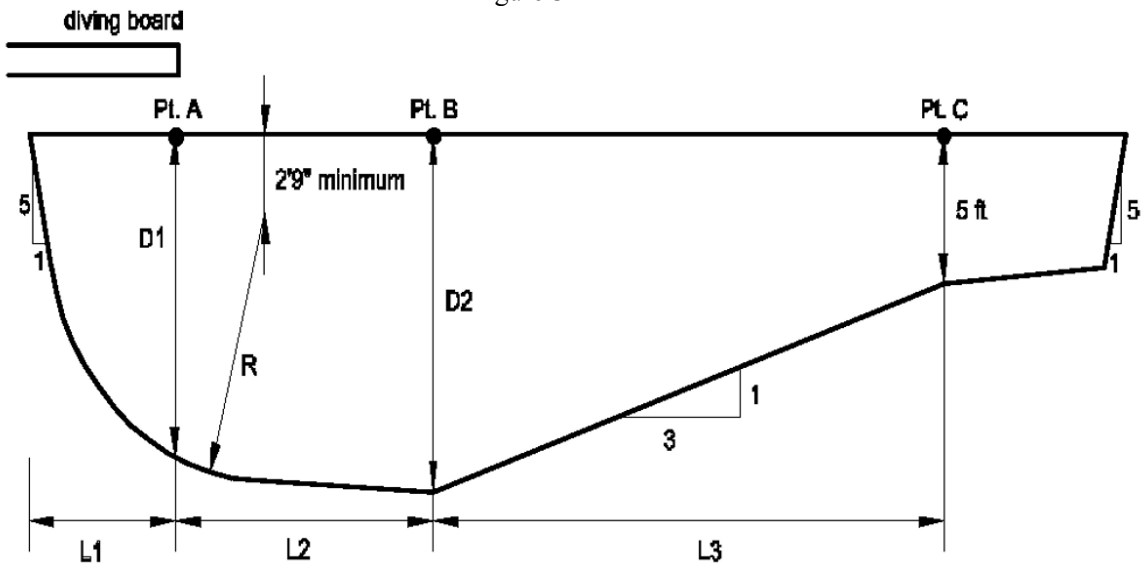
15.5(13) *Safety.*

a. Diving areas.

(1) Diving boards are permitted only if the diving area dimensions conform to the minimum requirements shown in Figure 3, Tables 4 and 5. 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. The distances specified in Tables 4 and 5 shall be measured from the top center of the leading edge of the diving board. The reference water level shall be the midpoint of the skimmer opening for a skimmer pool or a stainless steel gutter system with surge weirs. The reference water level for a gutter pool shall be the top of the gutter weir.

(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 3



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

Table 4

		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

Table 5

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 mid-bar and shall extend to the edge of the water.

b. Starting blocks and starting block installation shall meet the requirements of the competition governing body (National Collegiate Athletic Association, USA Swimming, or National Federation of State High School Associations).

c. 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 a swimming pool is over 30 ft wide, recessed steps, ladders, ramps, or stairs shall be installed on each side. If a stairway centered on the shallow end wall of the swimming pool is within 30 ft of each side 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.

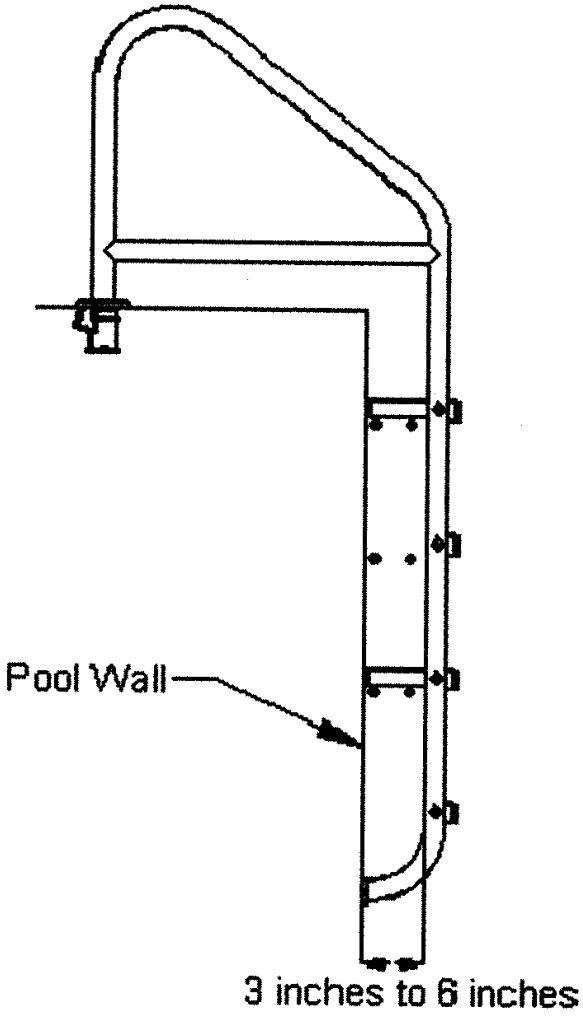
1. Ladders shall have a handrail on each side which extends from below the water surface to the top surface of the deck.

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.

4. The distance between the swimming pool wall and the vertical rail of a ladder shall be no greater than 6 inches and no less than 3 inches. The lower end of each ladder rail shall be securely covered with a smooth nonmetallic cap. The lower end of each ladder rail shall be within 1 inch of the swimming pool wall.

Figure 4



(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. Each set of recessed steps shall be equipped with a securely anchored deck-level grab rail 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^2.

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.

3. A stripe at least 1 inch wide of a color contrasting with the step surface and with the swimming pool floor shall be marked at the top front edge of each tread. The stripe shall be slip-resistant.

(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 constructed of corrosion-resistant materials or provided with corrosion-resistant coatings. They shall have no exposed sharp edges.

d. 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.

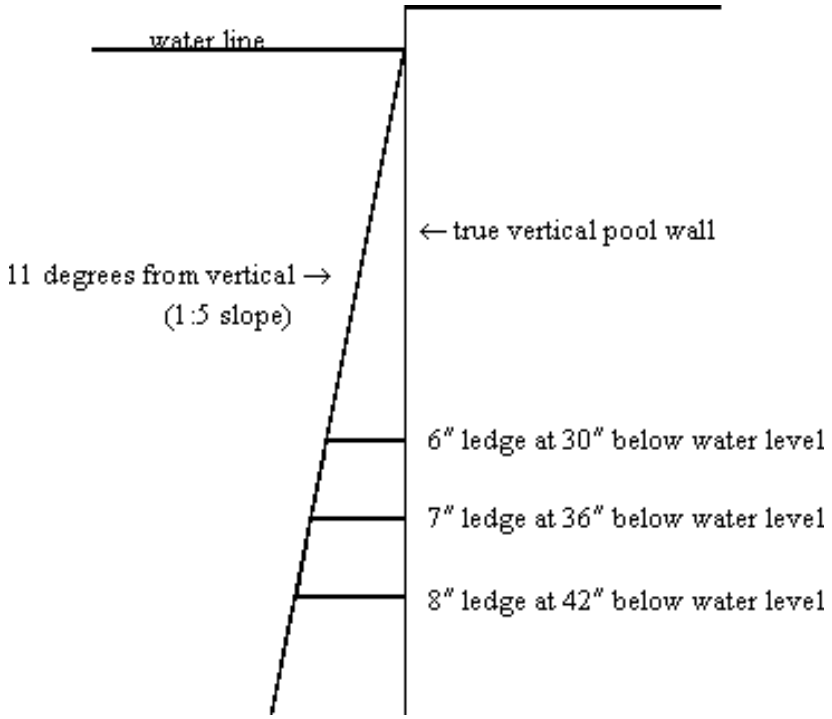
(1) Subject to the approval of the department, a swimming pool may be designed to have the change in slope (from 1:12 or less to a steeper slope) at a point where the water depth is less than 5 ft. The marking requirements of 15.5(13)*"f"*(3) and 15.5(13)*"f"*(4) shall apply and, if possible, depth markers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

e. 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 3.

Figure 5



(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° from vertical).

(3) Ledges, when provided, shall fall within an 11° line from vertical, starting at the water surface (Figure 5). 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.

f. 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 area, 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. The stripe shall be on the shallow side of the slope change or 5-ft depth area within 6 inches of the slope change or 5-ft depth area. 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 on the shallow side of the stripe required in 15.5(13)*"f"*(3) within 12 inches of the stripe.

(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) 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 25 ft apart or less, center to center, around the full perimeter of a swimming pool.

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)*"f"*(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 25 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 of a zero-depth swimming pool. "No Diving" or equivalent wording or graphics shall be marked on the deck of a leisure river in the areas where users will be permitted. The "No Diving" markers shall be within 3 ft of the edge of the leisure river at intervals not to exceed 25 ft on center.

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.

10. The depth of a leisure river shall be posted at the entrance(s) to the leisure river in characters at least 3 inches high. The depth of the leisure river shall be marked on the side wall of the leisure river above the static water level at intervals not to exceed 50 ft on center. The depth of the leisure river shall be marked on the deck in the areas where users will be permitted. The depth markers shall be within 3 ft of the edge of the leisure river at intervals not to exceed 25 ft on center.

g. 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^2 inclusive; two chairs shall be provided if the area is 4001 to 6000 ft^2; three chairs shall be provided if the area is 6001 ft^2 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, leisure rivers or wading pools.

h. Emergency equipment and facilities.

(1) If a swimming pool facility employs lifeguards, whether required by rule or not, the lifeguards shall be provided with the minimum equipment required by their training including, but not necessarily limited to, rescue tubes and personal CPR masks.

(2) A minimum of one unit of lifesaving equipment shall be provided for each 1500 ft^2 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.

(3) 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 handgrips 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.

Rescue equipment identified in 15.5(13)*"h"*(3)"3" and 15.5(13)*"h"*(3)"4" above shall be used only at swimming pools where lifeguards are employed.

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

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

i. Pool enclosures.

(1) Except for a fill and drain wading pool, a circulated wading pool that is drained when not in use, or a spray pad, a swimming pool shall be enclosed by a fence, wall, building, or combination thereof not less than 4 ft high. The enclosure shall be constructed of durable materials.

(2) A fence, wall, or other means of enclosure shall have no openings 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 outside the facility, or between the two lowest horizontal supports accessible from outside the facility, shall be at least 45 inches. A horizontal support is accessible if it is on the exterior of the fence relative to the swimming pool, or if the space between the vertical members of a fence is greater than 1¾ inches.

(3) Gates and doors shall be installed in the enclosure for general access, maintenance and emergency access. At least one 36-inch-wide gate or door shall be installed for emergency access. When closed, gates and doors shall comply with the requirements of 15.5(13)*"i"*(1) and (2). Gates and doors shall be lockable. Except where lifeguard or structured program supervision is provided whenever the swimming pool is open, gates and doors shall be self-closing and self-latching.

(4) 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. A barrier installed after May 4, 2005, shall have no openings that would allow the passage of a 4-inch sphere and shall not be easily climbable by toddlers. The barrier shall have at least one 36-inch-wide gate or door. Gates and doors shall be lockable. Except where lifeguard supervision is provided, gates and doors shall be self-closing and self-latching.

The department may approve alternate management of the area between the wading pool and swimming pool at facilities where lifeguards are provided whenever the pools are open. The alternate management plan shall be in writing and shall be at the facility when the pools are open.

(5) 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 which are used by children and which open directly into the swimming pool area. No opening in the barrier shall permit the passage of a 4-inch sphere. The barrier shall not be easily climbable by toddlers. There shall be at least one 36-inch-wide gate or door through the barrier. Gates and doors shall be lockable. Except where lifeguard supervision is provided whenever the pool is open, gates and doors shall be self-closing and self-latching.

j. Electrical. Construction or reconstruction shall meet the requirements in Section 680 of the National Electrical Code, 70-05, as published by the National Fire Protection Association, Batterymarch Park, Quincy, MA 02269, and the following requirements:

(1) Each electrical outlet in the deck, shower and dressing rooms 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.

(2) An underwater light circuit shall be equipped with a GFCI unless the underwater light(s) operates at 15 volts or less.

k. 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 8 lamp lumens/ft^2 or 0.5 watts/ft^2 of water surface area, located to provide illumination of the entire swimming pool bottom, and area lighting of at least 10 lumens/ft^2 or 0.6 watts/ft^2 of deck area.

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

l. Swimming pool slides. Swimming pool slides shall meet the requirements of the January 1, 2004, 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. A wading pool shall have at least 4 ft of deck.

b. 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^2 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.

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

c. Inlet system. Inlets shall be designed to uniformly distribute treated water throughout the wading pool. 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. The main drain system shall comply 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 users.

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 side 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. If a perimeter overflow gutter is 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.

d. Skimmers. Recessed automatic surface skimmers may be used with the overflow drain at zero depth in accordance with 15.5(9)*"a."* The hydraulic capacity of the skimmer/drain system 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 to ensure 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 in 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) Floor inlets are provided according to the requirements of 15.5(8)*"c."*

(2) 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 in accordance with 15.5(10)*"a"* and *"b."*

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. Suction outlets. If a fully submerged suction outlet is in a plunge pool or in a swimming pool, it shall be located away from normal water slide user traffic areas. The suction outlet system shall be designed in accordance with 15.5(10)*"b."*

i. Outlet covers. Rescinded IAB 6/3/09, effective 7/8/09.

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)*"f"*(4).

15.5(19) *Spray pads.* A spray pad shall comply with the applicable provisions of 15.5(1) through 15.5(13) and the following:

a. The surface of a spray pad shall be impervious and durable. Padding specifically designed for spray pads may be used with play features. The padding shall be water resistant or shall permit full drainage without retaining water in its structure. Walking surfaces shall be slip-resistant.

b. The spray pad surface shall slope to drain at least 1/8 inch per ft, but no more than 1/2 inch per ft. Deck or other areas outside the spray pad shall not drain into the spray pad.

c. A spray pad shall be exempt from fencing requirements (15.5(13)*"i"*); "No Lifeguard" sign requirements (15.4(6)*"d"*); safety equipment requirements (15.4(4)*"f"*); and depth marking requirements (15.4(4)*"j"*). Unless the spray pad is supervised by facility staff, a sign shall be posted near the spray pad that addresses:

(1) No running on or around the spray pad.

(2) No rough play.

(3) No facility supervision. Parents are responsible for supervising their children.

Facility management may adopt and post other rules deemed necessary for user safety and the proper operation of the spray pad.

d. Spray pad drains shall be gravity outlets. At least two drains shall be provided, or a single drain that is unblockable shall be provided.

(1) The drain system and associated piping shall be designed for 125 percent of the flow into the spray pad (play feature and recirculation, as applicable).

(2) Each drain cover/grate shall be flush with the spray pad surface and shall have no opening wider than ½ inch.

(3) Each drain cover/grate shall be designed to be securely fastened to the spray pad so that the drain cover/grate is not removable without tools.

(4) Drain cover/grates that are exposed to foot traffic shall:

1. Have a slip-resistant surface; and

2. Support a 300-pound concentrated load when tested in accordance with the ASME standard, Section 3.3. Structural strength shall be verified by documentation of test results from a testing agency approved by the department or by certification by an engineer licensed in Iowa; and

3. If the drain cover is exposed to sunlight, be resistant to ultraviolet light (UV) in accordance with the ASME standard, Section 3.2.2. UV resistance shall be verified by documentation of test results from a testing agency approved by the department or by certification by an engineer licensed in Iowa.

e. Spray pads with independent treatment systems.

(1) The minimum volume of water for a spray pad shall be two minutes of the flow of the play features and the recirculation system combined.

(2) The water storage tank shall have a volume of at least 125 percent of the volume specified in (1). The tank shall be accessible for cleaning and inspection.

(3) The recirculation (treatment) system and the play feature pump and piping system shall be separate.

(4) The recirculation system inlet(s) and outlet(s) within the water storage tank shall be designed to ensure a uniform disinfectant concentration and pH level throughout the water volume of the spray pad.

(5) The play feature pump system shall be designed so that it will not operate if the recirculation system is not operating.

(6) There shall be a readily accessible sample tap in the equipment area that allows sampling of the water in the play feature piping.

f. Spray pads using water from an adjacent swimming pool or wading pool.

(1) If there is a suction outlet in the swimming pool or wading pool for the play feature pump(s), the outlet shall be designed as a main drain as specified in 15.5(10). Water velocity through the outlet cover shall be 1½ ft per sec or less.

(2) If the adjacent pool has a volume of 10,000 gallons or less, or if the spray pad water is circulated directly from the swimming pool surge tank, the spray pad pump system shall be equipped for automatic supplemental disinfection in accordance with 15.5(11), except that the disinfection capacity shall be at least one-half of the capacity specified in 15.5(11)*"c"*; with filtration in accordance with 15.5(6); or both.

g. Play features and sprays shall be designed and installed so that they do not create a safety hazard.

(1) Surface sprays shall be flush with the spray pad surface. Spray openings shall have a diameter of ½ inch or less. Noncircular spray openings shall have a width of ½ inch or less.

(2) Aboveground features shall not present a tripping hazard. Features shall have no sharp edges or points and no rough surfaces. Aboveground features shall be constructed of corrosion-resistant materials or provided with a corrosion-resistant coating. Accessible spray openings shall have a diameter of ½ inch or less. Noncircular accessible spray openings shall have a width of ½ inch or less.

15.5(20) *Leisure rivers.* A leisure river shall comply with the applicable requirements of 15.5(1) through 15.5(13) and the following:

a. The leisure river propulsion system and recirculation system shall be separate.

b. Intermittent fixed weir structures may be used for the overflow system. At least two separate fixed weir structures shall be used. The hydraulic capacity of the overflow system using fixed weir structures shall be at least 125 percent of the recirculation flow rate. Fixed weir structures shall be designed to prevent entrapment of leisure river users.

c. A deck as specified in 15.5(4) is not required in areas where users are not permitted. A leisure river and the area on the inside and outside perimeter of the leisure river shall be designed to ensure that lifeguard staff and emergency personnel can access any part of the leisure river quickly and to provide a sufficient hard surface area for emergency functions.

d. The depth of a leisure river shall be posted conspicuously at the entrance(s) to the leisure river in characters at least 3 inches high. The depth of the leisure river shall be marked on the side wall of the leisure river above the static water level at intervals not to exceed 50 ft on center. The depth of the leisure river shall be marked on the deck in the areas where users are permitted. The depth markers shall be within 3 ft of the edge of the leisure river at intervals not to exceed 25 ft on center.

e. "No Diving" characters or graphics shall be marked every 25 ft on center on the deck in deck areas where users are permitted.

f. At least one user egress point shall be provided for each 500 ft of leisure river length (measured at the centerline) or fraction thereof.

g. Outlets for the leisure river propulsion system shall be designed in accordance with 15.5(10)*"b."*

15.5(21) *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 6) is:

(1) One individual per 15 ft^2 of water surface in shallow areas.

(2) One individual per 20 ft^2 of water surface in deep areas with the exclusion of 300 ft^2 of water surface for each diving board.

(3) For each swimming pool slide, 200 ft^2 shall be excluded, and for each water slide which terminates in the swimming pool, 300 ft^2 shall be excluded in determining the patron load.

c. Bathhouses.

(1) A bathhouse shall be designed and constructed to meet the requirements of the local building ordinance. If no local ordinance is in effect, the bathhouse shall be designed to meet the requirements of the state of Iowa 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 6.

Table 6

Fixtures Required

	Male				Female		
Patron Load	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. Glass soap dispensers are prohibited.

e. Hose bibs. At least one hose bib shall be installed within the bathhouse.

f. Storage-type hot water heaters.

(1) Gas-fired storage-type hot water heaters shall comply with the requirements of ANSI/AGA Z21.10.1-2001, or with the requirements of ANSI/AGA Z21.10.3-2001. The heater shall bear the mark of the AGA.

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

(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 as required 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 as required by local ordinance.

[**ARC 7839B**, IAB 6/3/09, effective 7/8/09; **ARC 2279C**, IAB 12/9/15, effective 1/13/16]

ADMINISTRATION

641—15.6(135I) Enforcement.

15.6(1) The department may inspect swimming pools and spas regulated by these rules and enforce these rules. A city, county or district board of health may inspect swimming pools and spas regulated by these rules and enforce these rules in accordance with agreements executed with the department pursuant to the authority of Iowa Code chapters 28E and 135I.

15.6(2) The inspection agency shall take the following steps when enforcement of these rules is necessary.

a. Owner notification. As soon as possible after the violations are noted, the inspection agency shall provide written notification to the owner of the facility that:

(1) Cites each section of the Iowa Code or Iowa Administrative Code 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 inspection agency shall review the corrective action plan and approve it or require that it be modified.

c. Failure to comply. When the owner of a swimming pool or spa fails to comply with conditions of the written notice, the inspection agency may take enforcement action in accordance with Iowa Code chapters 137 and 135I, or in accordance with local ordinances.

d. Adverse actions and the appeal process. If the department determines that the provisions of Iowa Code chapter 135I and these rules have been or are being violated, the department may withhold or revoke the registration of a swimming pool or spa, or the department or the local board of health may order that a swimming pool or spa be closed until corrective action has been taken. If the swimming pool or spa is operated without being registered, or in violation of the order of the department, the department or local inspection agency may request that the county attorney or the attorney general make an application in the name of the state to the district court of the county in which the violations have occurred for an order to enjoin the violations. This remedy is in addition to any other legal remedy available to the department.

(1) A local inspection agency may request that the department withhold or revoke the registration of a swimming pool or spa, or issue an order to close a swimming pool or spa. The request shall be in writing and shall list the violations of Iowa Code chapter 135I and these rules that have occurred or are occurring when the request is made. The local inspection agency shall provide a full accounting of the actions taken by the local inspection agency to enforce Iowa Code chapter 135I and these rules.

(2) Notice of the decision to withhold or revoke the registration for a swimming pool or spa, or an order to close a swimming pool or spa shall be delivered by restricted certified mail, return receipt requested, or by personal service. The notice shall inform the owner of the right to appeal the decision and the appeal procedures. The local inspection agency and the county attorney in the county where the swimming pool or spa is located shall be notified in writing of the decision or order.

(3) An appeal of a decision to withhold or revoke a registration or of an order to close shall be submitted by certified mail, return receipt requested, within 30 days of receipt of the department's notice. The appeal shall be sent to the Iowa Department of Public Health, Division of Environmental Health, Lucas State Office Building, 321 East 12th Street, Des Moines, Iowa 50319-0075. If such a request is made within the 30-day time period, the decision or order shall be deemed to be suspended. Prior to or at the hearing, the department may rescind the decision or order upon satisfaction that the reason for the decision or order has been or will be removed. After the hearing, or upon default of the applicant or alleged violator, the administrative law judge shall affirm, modify or set aside the decision or order. If no appeal is submitted within 30 days, the decision or order shall become the department's final agency action.

(4) Upon receipt of an appeal that meets contested case status, the appeal shall be transmitted to the department of inspections and appeals within 5 working days of receipt pursuant to the rules adopted by that department regarding the transmission of contested cases. The information upon which the revocation or withholding is based shall be provided to the department of inspections and appeals.

(5) The hearing shall be conducted in accordance with 481—Chapter 10.

(6) When the administrative law judge makes a proposed decision and order, it shall be served by restricted certified mail, return receipt requested, or delivered by personal service. The proposed decision and order then becomes the department's final agency action without further proceedings 10 days after it is received by the aggrieved party unless an appeal to the director is taken as provided in subparagraph 15.6(2)*"d"*(7).

(7) Any appeal to the director of the department for review of the proposed decision and order of the administrative law judge shall be filed in writing and mailed to the director by certified mail, return receipt requested, or delivered by personal service within 10 days after the receipt of the administrative law judge's proposed decision and order by the aggrieved party. A copy of the appeal shall also be mailed to the administrative law judge. Any request for appeal shall state the reason for appeal.

(8) Upon receipt of an appeal request, the administrative law judge shall prepare the record of the hearing for submission to the director. The record shall include the following:

1. All pleadings, motions and rules.
2. All evidence received or considered and all other submissions by recording or transcript.
3. A statement of all matters officially noticed.

4. All questions and offers of proof, objections, and rulings thereon.
5. All proposed findings and exceptions.
6. The proposed findings and order of the administrative law judge.

(9) The decision and order of the director becomes the department's final agency action upon receipt by the aggrieved party and shall be delivered by restricted certified mail, return receipt requested.

(10) It is not necessary for the owner to file an application for a rehearing to exhaust administrative remedies when appealing to the director or the district court as provided in Iowa Code section 17A.19. The aggrieved party to the final agency action of the department that has exhausted all administrative remedies may petition for judicial review of that action pursuant to Iowa Code chapter 17A.

(11) Any petition for judicial review of a decision and order shall be filed in the district court within 30 days after the decision and order becomes final. A copy of the notice of appeal shall be sent by certified mail, return receipt requested, or by personal service to the Iowa Department of Public Health, Division of Environmental Health, Lucas State Office Building, 321 East 12th Street, Des Moines, Iowa 50319-0075.

(12) The party who appeals a final agency action to the district court shall pay the cost of the preparation of a transcript of the contested case hearing for the district court.

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 local inspection agency for comment. The local inspection agency shall send the request for variance to the department within 15 business days of its receipt.

15.7(2) The granting 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 granting of the variance. Copies of decisions shall be kept at the department, and a copy shall be sent to the contracting board of health.

15.7(4) The applicant for a variance that is denied may request a review of the denial by the director of the department. The request shall be submitted in writing within 30 days of the applicant's receipt of the department's denial of a variance request. The request for a review shall be addressed to the Iowa Department of Public Health, Office of the Director, Lucas State Office Building, 321 East 12th Street, Des Moines, Iowa 50319-0075. The decision of the director shall be considered the department's final agency action.

15.7(5) The applicant may petition for judicial review of the final agency action pursuant to Iowa Code chapter 17A.

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 135I.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. The owner of a swimming pool or spa or the owner's designated representative shall register the swimming pool or spa before the swimming pool or spa is first used and shall renew the registration annually on or before April 30. The initial registration and

registration renewal shall be submitted on forms supplied by the department. The registration for a swimming pool or spa is valid from May 1 through the following April 30.

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.

d. A nonrefundable fee of $20 per swimming pool or spa.

15.9(3) *Withholding registration.* The department may withhold or revoke the registration of a swimming pool or spa pursuant to 15.6(2)*"d"* if an owner or the owner's designated representative has violated a provision of Iowa Code chapter 135I or a rule in this chapter.

641—15.10(135I) Training courses.

15.10(1) A training course designed to fulfill the requirements of 641—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) Within 30 business days after 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, a PPSO certification course, an LAFT certification course, or another course of instruction approved by the department. A copy of a current, valid CPO®, AFO, PPSO, or LAFT certificate for the certified operator shall be maintained in the pool or spa records.

15.11(2) A certified operator with a CPO® certificate, a PPSO certificate, or an LAFT certificate shall attend at least ten hours of continuing education between the original certification date and the first renewal of the certificate, and shall attend at least ten additional hours of continuing education before each subsequent renewal of the certificate. A certified operator with an AFO certificate shall attend at least six hours of continuing education between the original certification date and the first renewal of the certificate, and shall attend at least six additional hours of continuing education before each subsequent renewal of the certificate. The department shall determine the continuing education requirements for a certified operator training course that is approved after May 4, 2005. Proof of continuing education shall be kept with certification records at the facility.

641—15.12(135I) Fees.

15.12(1) *Registration fees.* For each swimming pool or spa, the registration fee is $35. Registration fees are delinquent if not received by the department by April 30 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) *Registration change fees.* For each swimming pool or spa, the fee for a change of ownership, change of facility name, or other change in registration is $20.

15.12(3) *Inspection fees.* The inspection agency shall bill the owner of a 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 local inspection agency, the local inspection agency may establish fees needed to defray the costs of inspection and enforcement under this chapter. Inspection fees billed by a local inspection agency shall be paid to the local inspection agency or its designee.

a. Inspection fee schedule.

Table 7

Swimming Pools and Spas

Pool Type	Inspection Fee
Swimming pool or leisure river, surface area less than 1500 ft^2	$170
Swimming pool or leisure river, surface area 1500 ft^2 or greater	$270
Wave pool	$270
Water slide and plunge pool	$270
Spa	$170
Wading pool less than or equal to 500 ft^2	$50
Wading pool greater than 500 ft^2	$90
Residential swimming pool used for commercial purposes	$50

Table 8

Water Slides

	Inspection Fee
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. This reduction does not apply to the fees specified in Table 8.

c. Special inspection fee. When an inspection agency determines that a special inspection is required, i.e., a follow-up inspection or an inspection generated by complaints, the inspection agency 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 $30 per month or fraction thereof that the payment is delinquent will be assessed to the owner for each pool inspected.

15.12(4) *Plan review fees.*

a. New construction. A plan review fee as specified in Tables 9, 10 and 11 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 9, 10 and 11.

Table 9

Swimming Pools, Wading Pools and Wave Pools

Swimming Pool Area (ft^2)	Plan Review Fee
less than 500	$165
500 to 999	$275
1000 to 1999	$385
2000 to 3999	$550*
4000 and greater	$825*

*This may include one water slide.

Table 10

Water Slides

Description	Plan Review Fee
Water slide and dedicated plunge pool	$550
Each additional water slide into a plunge pool or swimming pool	$165

Table 11

Spas

Spa Volume (gal)	Plan Review Fee
less than 500	$165
500 to 999	$275
1000 +	$385

b. Reconstruction. The plan review fee for reconstruction is $250 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 before a permit is issued, 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(5) *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 shall be made to the Iowa Department of Public Health, Swimming Pool Program, Lucas State Office Building, 321 East 12th Street, Des Moines, Iowa 50319-0075.

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. The agreement shall include the terms and conditions required by Iowa Code chapter 28E and any additional terms agreed to by the 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 East 12th Street, Des Moines, Iowa 50319-0075. 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 in accordance with the manufacturer's recommendations for pressure rise at the inlet of the filter, but at least once a month. If a functioning pressure gauge is not present at the filter inlet, the filter cartridge(s) shall be replaced whenever the spa is drained and at least every two weeks. Filter cartridge replacements shall be recorded in the spa records.

(2) Each sand filter serving a spa shall be opened at least annually and the sand media examined for grease buildup, channeling and other deficiencies. The sand shall be cleaned and disinfected before the filter is put back into service. The annual inspection shall be recorded in the spa records.

(3) Each diatomaceous earth filter serving a spa shall be dismantled, and the filter socks and the interior of the filter shall be cleaned and disinfected at least annually. The annual cleaning shall be recorded in the spa records.

(4) The recirculation system shall have an operating pressure gauge located in front of 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.

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 operated continuously 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 have 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 or an air gap.

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 AWWA C-511-97, "Reduced-Pressure Principle Backflow-Prevention Assembly."

(2) Each hose bib at a facility shall be equipped with an atmospheric vacuum breaker or a hose connection backflow preventer.

h. Spa water heaters.

(1) Electric water heaters shall bear the seal of UL.

(2) Gas-fired water heaters shall bear the seal of the AGA and 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.

(4) Each indoor swimming pool equipment room with fuel-burning water heating equipment shall have one or more openings to the outside of the room for the provision of combustion air.

15.51(2) *Water quality and testing.*

a. Disinfection.

(1) Spa water shall have a free chlorine residual of at least 2.0 ppm and no greater than 8.0 ppm, or a total bromine residual of at least 4.0 ppm and no greater than 18 ppm when the spa is open for use, except as given in Table 12.

(2) A spa shall be closed if the free chlorine is measured to be less than 1.0 ppm or the total bromine is measured to be less than 2.0 ppm.

(3) The spa shall be closed if a free chlorine measurement exceeds 8.0 ppm or if the total bromine measurement exceeds 18 ppm, except as given in Table 12.

(4) If an ORP controller with a readout meeting the requirements of 15.51(2)*"f"*(4) is installed on the spa system, the spa water shall have an ORP of at least 700 mV, but no greater than 880 mV, except as given in Table 12. The spa shall be closed if the ORP is less than 650 mV or greater than 880 mV.

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

(6) No cyanuric acid shall be added to an indoor spa after May 4, 2005, except through an existing chemical feed system designed to deliver di-chlor or tri-chlor. No cyanuric acid in any form shall be added to an indoor spa after June 30, 2008.

Table 12

Preferred Operating Range			Acceptable Operating Range		
ORP (mV)	Free Cl (ppm)	Total Br (ppm)	ORP (mV)	Free Cl (ppm)	Total Br (ppm)
700-880	2.0-8.0	4.0-18.0	700-880	1.0-1.8	2.0-3.5
			650-700[#]	2.0-8.0	4.0-18.0
			650-700[†]	8.2-10.0	18.5-22.0

[#] If these conditions occur on any 3 consecutive days or on any 5 days within a 7-day period, and the conditions reoccur after the spa is drained and cleaned, the facility management shall evaluate water parameters including, but not limited to, cyanuric acid, pH, combined chlorine, and phosphates (ortho- and total); and other conditions at the spa. The facility management shall modify parameters

and conditions as practical to bring the ORP to a minimum of 700 mV. The evaluation shall be completed within 30 days after the low ORP condition is known to the facility management. A written report of the evaluation shall be kept with the spa records.

† If these conditions occur on any 2 consecutive days or on any 4 days within a 7-day period, the facility management shall drain and clean the spa and notify the inspection agency. If the conditions reoccur after the spa is drained and cleaned, the facility management shall cause the conditions at the spa specified in the previous footnote and the function of the ORP equipment to be investigated by a professional pool service company. A written report detailing source water parameters, spa water parameters, spa design (including information about the installed mechanical and chemical equipment), other conditions affecting the disinfectant concentration and the ORP, and the actions taken to increase ORP relative to the disinfectant residual shall be submitted to the local inspection agency within 30 days after the low ORP condition is known to the facility management.

b. pH level. The pH of spa water shall be 7.2 to 7.8.

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 drained, cleaned, and disinfected. The spa may reopen, and a check sample shall be taken when the spa water meets the requirements of paragraphs *"a," "b"* and *"c"* above. If coliform or *Pseudomonas aeruginosa* bacteria are detected in the check sample, the spa shall be closed. The spa shall be drained, physically cleaned, and disinfected. The filter(s) shall be cleaned and disinfected.

1. For cartridge filters, the cartridge shall be replaced with a new, unused cartridge or a cleaned, disinfected cartridge; the filter housing shall be physically cleaned, then disinfected.

2. For sand and DE filters, the filter shall be opened and the media and components cleaned and 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 local inspection agency 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 or the ORP of the spa water shall be checked 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 in the spa water shall be tested or the ORP of the spa water shall be checked 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 ORP complying with the requirements of 15.51(2)*"f"*(4), the operator may make visual readings of ORP in lieu of manual testing, but the spa water shall be tested manually for disinfectant residual at least twice per day. Both ORP and disinfectant residual shall be recorded when manual testing is done. The operator shall specify in the spa records which results are from the manual tests.

(2) The pH of 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 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 of pH in lieu of manual testing, but the spa water shall be tested manually for pH 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 cyanuric acid or 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 that 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 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) 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.

(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 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. Where applicable, the chemical feeder shall be listed by NSF or another listing agency approved by the department for compliance with Standard 50.

(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 the 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, cleaned and refilled a minimum of once a week. A spa containing over 500 gal to 2000 gal of water shall be drained, cleaned and refilled a minimum of one time every two weeks. A spa with a water volume greater than 2000 gal shall be drained, cleaned and refilled a minimum of one time every three weeks.

The department may permit a longer period between refills for spas over 2000 gal upon evaluation of the use of the spa. Such permission shall be in writing, and a copy shall be available to an inspector upon request.

(3) The inspection agency may require that a spa be drained, cleaned, and superchlorinated prior to further usage.

15.51(4) *Safety.*

a. Chemical safety.

(1) No disinfectant chemical, pH control chemical, algaecide, shock treatment chemical, or any other 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. 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 chemical hazard warning sign shall be placed at the entrance 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.

(5) Ladders, handrails and grabrails shall be securely anchored.

c. Water temperature. Water temperature in the spa shall not exceed 104°F. The spa shall be closed if the water temperature exceeds 104°F.

(1) A thermometer shall be available to measure temperatures in the range of 80° to 120°F.

(2) Water temperature controls shall be accessible only to the spa operator.

d. Emergency telephone. Each facility where lifeguards are not provided shall have a designated emergency telephone or equivalent communication system that can be operated without coins. The communication system shall be available to users of the spa whenever the spa is open. If the emergency communication system is not located within the spa enclosure, management shall post a sign(s) indicating the location of the emergency telephone. Instructions for emergency use of the telephone shall be posted near the telephone.

e. Water level. Water level shall be maintained at the skimming level.

f. Fully submerged outlets. Each fully submerged outlet shall be designed to prevent user entrapment. A spa shall be closed if the cover/grate of a fully submerged outlet is missing or broken.

(1) For a spa constructed prior to May 13, 1998, each pump that draws water directly from a fully submerged outlet shall be connected to two or more outlets or a single outlet with an area of at least 144 in^2.

(2) Each fully submerged outlet shall have a cover/grate that has been tested for compliance with the requirements of the ASME standard by a testing agency approved by the department or that is certified for compliance by an engineer licensed in Iowa.

1. The cover/grate for an outlet system with a single fully submerged outlet shall have a flow rating of at least 100 percent of the maximum system flow rate. The combined flow rating for the cover/grates for an outlet system with more than one fully submerged outlet shall be at least 200 percent of the maximum system flow rate.

The maximum system flow rate is the design flow rate for the pump(s) directly connected to the outlet(s) in an outlet system. In the absence of better information, the maximum system flow rate is the capacity of the pump(s) at 50 feet TDH, based on the manufacturer's published pump curves.

2. Fully submerged outlet cover/grates shall not be removable without the use of tools.

3. Purchase records and product information that demonstrate compliance shall be maintained by the facility for at least five years from the time the cover/grate is purchased. If a field fabricated cover/grate is certified for compliance to the ASME standard by an engineer licensed in Iowa, a copy of the certification letter shall be kept at the facility for at least five years from the certification date.

(3) A spa with a single fully submerged outlet that is not unblockable and that is directly connected to a pump shall be closed if the outlet does not have a cover/grate that complies with the ASME standard.

If a spa has two or more fully submerged outlets on a single surface that are all less than 3 ft apart on center, are not unblockable, and are directly connected to a pump, the spa is considered to have a single fully submerged outlet.

(4) A spa with a single fully submerged outlet that is not unblockable and that is directly connected to a pump shall be closed if the outlet system is not equipped with a safety vacuum release system that is listed for compliance with ASME/ANSI A112.19.17-2002, "Manufactured Safety Vacuum Release Systems (SVRS) for Residential and Commercial Swimming Pool, Spa, Hot Tub, and Wading Pool Suction Systems," by a listing agency approved by the department; or another vacuum release system approved by the department.

1. Purchase records and product information that demonstrate compliance shall be maintained by the facility for at least five years from the time the SVRS is purchased or another approved system is installed.

2. An SVRS shall be installed in accordance with the manufacturer's instructions.

3. An SVRS shall be tested for proper function at the frequency recommended by the manufacturer, but at least once in each month the spa is operated. The date and result of each test shall be recorded.

(5) In lieu of compliance with subparagraphs (2), (3) and (4) above, a fully submerged outlet in a spa may be disabled with the approval of the department, except that an equalizer in a skimmer may be plugged without department approval. The management of the spa shall submit to the department information including, but not necessarily limited to:

1. The area and volume of the spa;

2. Detailed information about the inlet system, including the location of the inlets and the type of inlet fitting;

3. The number of skimmers and pipe sizes;

4. Pump information and flow rates for the outlet system; and

5. Filter type, number of filters, the size of the filter(s), and whether multiple filters are backwashed together or separately.

If the department approves the application to disable the outlet, the outlet valve shall be closed and the valve secured by removing the handle, by locking the handle closed, or by another method approved by the department. The outlet may be physically disconnected from the pump system at the option of the facility management.

g. Spa walls and floor shall be smooth and easily cleanable.

h. 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.

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

i. There shall be no underwater or overhead projections or obstructions which would endanger user safety or interfere with proper spa operation.

j. Electrical.

(1) Each electrical outlet in the deck, shower room, and 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. 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 underwater lights operate at more than 15 volts, the underwater light circuit shall be equipped with a GFCI. When underwater lights need to be repaired, the electricity shall be shut off until repairs are completed.

3. No electrical wiring shall extend over an outdoor spa.

k. 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. 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 openings 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 outside the facility, or between the two lowest horizontal supports accessible from outside the facility, shall be at least 45 inches. A horizontal support is considered accessible if it is on the exterior of the fence relative to the spa, or if the gap between the vertical members of the fence is greater than 1¾ inches.

(3) At least one gate or door with an opening of at least 36 inches in width shall be provided for emergency purposes. When closed, gates and doors shall comply with the requirements of (2) above. Gates and doors shall be lockable. Except where lifeguard supervision is provided whenever the spa is open, gates and doors shall be self-closing and self-latching.

(4) If there are sleeping rooms, apartments, condominiums, or permanent recreation areas which are used by children and 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 shall permit the passage of a 4-inch sphere. The barrier shall not be easily climbable by toddlers. There shall be at least one 36-inch-wide gate or door through the barrier. Gates and doors shall be lockable. Except where lifeguard supervision is provided whenever the spa is open, gates and doors provided shall be self-closing and self-latching.

l. Agitation system control. The agitation system 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.

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 facilities.

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

(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 2 lineal ft 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 3 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 facility and shall make these records available when requested by a swimming pool/spa inspector. These records shall contain a day-by-day account of spa operation, including:

(1) ORP and pH readings, 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.

(10) If applicable, dates and results of tests of each SVRS installed at a facility.

f. Submission of records. An inspection agency may require facility management to submit copies of readings of ORP and pH, 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 management 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. The manual shall include instructions for routine operations at the spa including, but not necessarily limited to:

(1) Maintaining the chemical supply for the chemical feed systems.

(2) Filter backwash or cleaning.

(3) Water testing procedures, including the required frequency of testing.

(4) Procedures for draining, cleaning and refilling the spa, including chemical adjustments and controller adjustments.

(5) Controller sensor maintenance, where applicable.

(6) Superchlorination.

h. Schematic drawing. A schematic drawing of the spa recirculation system shall be posted in the swimming pool filter room or shall be in the operations manual. Clear labeling of the spa piping with flow direction and water status (unfiltered, treated, backwash) may be substituted for the schematic drawing.

i. Material safety data sheets. Copies of material safety data sheets (MSDS) for the chemicals used at the spa shall be kept at the facility in a location known and readily accessible to facility staff with chemical-handling responsibilities. Each member of the facility staff with chemical-handling responsibilities shall review the MSDS at least annually. The facility management shall retain records of the MSDS reviews at the facility and shall make the records available upon request by a swimming pool inspector.

j. 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. The written emergency plan shall be kept at the facility and shall be available to a swimming pool inspector upon request.

k. 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)*"j."*

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 local inspection agency, within one working 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.

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641—15.52(135I) Construction and reconstruction. A spa constructed or reconstructed after May 4, 2005, shall comply with the following standards. 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 department of workforce development, and the rules of the department of natural resources.

15.52(1) *Construction permits.*

a. Permit required. No spa shall be constructed or reconstructed without the owner or a designated representative of the owner first receiving a permit from the department. Construction shall be completed within 24 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 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 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(4).

d. Notification of completion. The owner of a newly constructed or reconstructed facility or the owner's designated representative shall notify the department in writing at least 15 business days prior to opening the spa.

15.52(2) *Plans and specifications.*

a. Plan certification. Plans and specifications shall be sealed and certified in accordance with the rules of the engineering and land surveying examining board or the 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, or a simple replacement of a filter or pump or both.

(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. The information 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. If a contractor applies for a construction permit, the name, address and telephone number of the contractor shall be included.

(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 ¼ 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 for a general use spa 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. A special-use spa may be deeper than 4 ft with written approval from the department.

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. A spa may be immediately adjacent to a swimming pool, or a minimum of 4 ft from a Class B swimming pool or 6 ft from a Class A swimming pool. The distance shall be measured from the outside edge of a ladder support or handrail on the deck, a lifeguard stand, a swimming pool slide, or a similar obstruction.

e. Water supply. The water supplied to a spa shall be from a source 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 complying with the requirements of AWWA C-511-97, "Reduced-Pressure Principle Backflow-Prevention Assembly."

(2) Each hose bib at a facility shall be equipped with an atmospheric vacuum breaker or a hose connection backflow preventer.

f. Sewer separation required. No part of a spa recirculation system may be directly connected to a sanitary sewer. An air break or an air gap shall be provided.

g. Operations manual. The owner shall require that a permanent manual for operation of a spa be provided. The manual shall include, but may not be limited to:

(1) Instructions for routine operations at the spa including, but not necessarily limited to:

1. Filter backwash or cleaning.
2. Maintaining the chemical supply for the chemical feed systems.
3. Vacuuming and cleaning the spa.
4. Spa water testing procedures, including the frequency of testing.
5. Superchlorination.
6. Controller sensor maintenance and calibration, including the recommended frequency of maintenance.

(2) For each centrifugal pump, a pump performance curve plotted on an 8½″ × 11″ or larger sheet.

(3) For each chemical feeder, the maximum rated output listed in weight per time or volume per time units.

(4) Basic operating and maintenance instructions for spa equipment that requires cleaning, adjustment, lubrication, or parts replacement, with recommended maintenance frequencies or the parameters that would indicate a need for maintenance.

h. A schematic drawing of the spa recirculation system shall be posted in the spa filter room or shall be included in the operations manual. Clear labeling of the spa piping with flow direction and water status (unfiltered, treated, backwash) may be substituted for the schematic drawing.

i. A permanent file containing the operations and maintenance manuals for the equipment installed at the spa shall be established. The file shall include a source for parts or maintenance for the equipment at the spa. The file may be located in a location other than the facility, but the file shall be readily available to the facility management and maintenance staff.

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, but no more than 1/2 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 that:

(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) The covering 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. Stairs or a ramp shall be designed in accordance with the state building code or the building code adopted by the jurisdiction in which the spa is located.

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 be listed by NSF or by another listing agency approved by the department as complying with the requirements of Standard 50 and shall comply with 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" or "3" below, unless a lower TDH 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 and filter system shall be designed so that each filter can be backwashed at a rate of at least 15 gpm/ft^2 of filter area.

(4) If a pump is located at an elevation higher than the spa 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 as close to the pump as practical. A vacuum gauge may be used for pumps with suction lift. A pressure gauge shall be installed on the pump discharge line as close to the pump as practical. Gauges shall be of such a size and located so 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 recirculation pump. The hair and lint strainer basket shall be readily accessible 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/AGA Z21.56-2001, ANSI/AGA Z21.56a-2004, and ANSI/AGA Z21.26b-2004. The data plate of the heater shall bear the AGA mark.

(3) Electric spa water heaters shall comply with the requirements of UL 1261 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 ASME Boiler Code, Section 8. 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 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.

(8) Fuel-burning water heaters shall be equipped with a pressure relief valve sized for the energy capacity of the heater.

e. Flow meters.

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

(2) A flow meter shall be accurate within 5 percent of the actual flow rate between ±20 percent of the recirculation flow rate specified in 15.52(5)*"b"* or the nominal recirculation flow rate specified by the designer.

(3) A flow meter shall be installed on a straight length of pipe with sufficient clearance from valves, elbows or other sources of turbulence to attain the accuracy required by 15.52(5)*"e"*(2). The flow meter shall be installed so that it may be easily read by the facility staff, or a remote readout of the flow rate shall be installed where it may be easily read by the staff. The designer may be required to provide documentation that the installation meets the requirements of subparagraph (2).

15.52(6) *Filtration.* A filter shall be listed by NSF or by another listing agency approved by the department as complying with the requirements of Standard 50 and shall comply with the following requirements:

a. Pressure gauges. Each pressure filter shall have a pressure gauge on the inlet side. Gauges shall be of such a size and located so 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 department of natural resources.

e. Rapid sand filter.

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

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

f. High-rate sand filter.

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

(2) The backwash rate shall be at least 15 gpm/ft^2 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 subparagraph (2), or an isolation valve shall be installed at each filter tank to permit each filter to be backwashed individually.

g. Vacuum sand filter.

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

(2) The backwash rate shall be at least 15 gpm/ft^2 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 filter manufacturer's specifications.

i. Diatomaceous earth filters.

(1) The filtration rate shall not be greater than 1.5 gpm/ft^2 of effective filter area except that a maximum filtration rate of 2.0 gpm/ft^2 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 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^2.

(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. Spa piping shall comply with the applicable requirements of NSF/ANSI Standard 61, "Drinking Water System Components—Health Effects." Plastic pipe shall comply with the requirements of NSF/ANSI Standard 14, "Plastic Piping Components and Related Materials," for potable water pipe.

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. The inlets shall be adequate in design, number, location, and spacing to ensure effective distribution of treated water and the maintenance of a uniform disinfectant residual throughout the spa. 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. Each inlet shall have a fitting with an opening of 1 inch diameter or less.

c. Each agitation system opening shall have a fitting with an opening of 1 inch diameter or less.

15.52(9) *Skimmers.* A recessed automatic surface skimmer shall be listed by NSF or by another listing agency approved by the department as complying with the requirements of Standard 50, except that an equalizer is not required for a skimmer installed in a spa equipped with an automatic water level maintenance device.

a. Skimmers required. A spa shall have at least one skimmer for each 100 ft^2 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. If a spa is not equipped with an automatic water level maintenance device, each skimmer shall have an operational equalizer. The equalizer opening in the spa shall be covered with a fitting listed by a listing agency approved by the department as meeting the requirements of the ASME standard.

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

15.52(10) *Main drain system.* Each spa shall have a convenient means of draining the water from the spa for service. Spa main drains may be on the sidewall of a spa near the spa bottom.

a. Suction outlets. If a spa pump is directly connected to a main drain or another fully submerged outlet, the pump shall be connected to two or more fully submerged outlets or to a single fully submerged outlet that is unblockable. The recirculation system and the agitation system may use the same fully submerged outlet(s).

(1) Two fully submerged outlets that are directly connected to one or more pumps in the same outlet system shall be at least 3 ft apart on center or on different spa surfaces. If three or more fully submerged outlets that are all directly connected to one or more pumps in the same outlet system are installed, the distance between the outlets farthest apart shall be at least 3 ft on center or the outlets shall be installed on different spa surfaces.

(2) If there is only one fully submerged outlet in an outlet system, the flow rating of the outlet cover/grate, sump and the associated piping shall be at least 100 percent of the maximum system flow rate. If two or more fully submerged outlets are installed in an outlet system, the combined flow rating of the cover/grates, the sumps and the associated piping shall be at least 200 percent of the maximum system flow rate. Multiple outlets in an outlet system shall be plumbed in parallel.

The maximum system flow rate for the recirculation system is the flow rate specified in 15.52(5)*"b"* or the design flow rate, whichever is greater. The maximum system flow rate for the agitation system is the specified design flow rate. If a flow rate is not specified, the maximum system flow rate shall be the flow capacity of the pump(s) at 50 feet TDH, based on the manufacturer's published pump curves.

b. Control valve. If a main drain is connected to the recirculation system, there shall be a control valve to adjust the flow between the main drain and the overflow system.

c. Main drain covers. Each main drain or other fully submerged outlet shall be covered with a cover/grate that is listed as complying with the requirements of the ASME standard by a listing agency approved by the department. A listed cover/grate shall be used in accordance with its listing.

(1) The flow rating for the cover/grate(s) shall comply with 15.52(10)*"a"*(2).

(2) The mark of a listing agency acceptable to the department shall be permanently marked on the top surface of each manufactured cover/grate.

(3) Field fabricated cover/grates shall be certified for compliance to the ASME standard by a professional engineer licensed in Iowa. A certificate of compliance shall be provided to the spa owner and to the department.

(4) The fully submerged outlet cover/grate shall be designed to be securely fastened to the spa so that the cover/grate is not removable without tools.

d. For outlet systems with manufactured sumps, the sumps shall be listed by a listing agency acceptable to the department for compliance with the ASME standard. Field fabricated sumps shall be designed in accordance with the ASME standard and shall be certified by an engineer licensed in Iowa.

15.52(11) *Disinfection and pH control.*

a. Controller required. A spa recirculation system shall be equipped with an automatic controller for maintenance of the 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 measurement of the ORP and the pH of the water in the spa recirculation system.

b. No disinfection system designed to use di-chlor or tri-chlor shall be installed for an indoor spa after May 4, 2005.

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

d. Disinfection feeder listing. A disinfectant feeder shall be listed by NSF or by another listing agency approved by the department as complying with the requirements of Standard 50.

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

f. 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)*"c."*

g. 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)*"c."*

h. 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_2) gas feed system. A metering pump shall be listed by NSF or another listing agency approved by the department as complying with the requirements of Standard 50.

i. 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.

j. 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) 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.

(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, 70-2005, as published by the National Fire Protection Association, Batterymarch Park, Quincy, MA 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^2 or 0.5 watts/ft^2 of water surface area and area lighting of at least 10 lumens/ft^2 or 0.6 watts/ft^2 of deck area.

(2) If underwater lights are not provided, overhead lighting of at least 30 lumens/ft^2 or 2.0 watts/ft^2 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 not less than 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 openings 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. A horizontal support is considered accessible if it is on the exterior of the fence relative to the spa, or if the gap between the vertical members of the fence is greater than 1¾ inches.

(3) At least one gate or door with an opening of at least 36 inches in width shall be provided for emergency purposes. When closed, gates and doors shall comply with the requirements of (2) above. Gates and doors shall be lockable. Except where lifeguard or structured program supervision is provided whenever the spa is open, gates and doors shall be self-closing and self-latching.

(4) 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 shall permit the passage of a 4-inch sphere. There shall be at least one 36-inch-wide gate or door through the barrier. Gates and doors shall be lockable. Except where lifeguard supervision is provided whenever the spa is open, gates or doors shall be self-closing and self-latching.

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