Regulatory Analysis

Notice of Intended Action to be published: 641—Chapter 15
"Swimming Pools and Spas"

Iowa Code section(s) or chapter(s) authorizing rulemaking: 135I.4
State or federal law(s) implemented by the rulemaking: Iowa Code chapter 135I

Public Hearing

A public hearing at which persons may present their views orally or in writing will be held as follows:

November 7, 2024	6200 Park Avenue
2 p.m.	Des Moines, Iowa

Virtual participation information will be available on the Department of Inspections, Appeals, and Licensing's website prior to the hearing.

Public Comment

Any interested person may submit written or oral comments concerning this Regulatory Analysis, which must be received by the Department no later than 4:30 p.m. on the date of the public hearing. Comments should be directed to:

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Purpose and Summary

This proposed rulemaking repromulgates Chapter 15 and implements Iowa Code chapter 135I, in accordance with the goals and directives of Executive Order 10 (January 10, 2023). Iowa Code section 135I.4 provides that the Department may inspect, at the time of installation and periodically thereafter, all spray pads, swimming pools, and spas for the purpose of detecting and eliminating health or safety hazards; establish minimum safety and sanitation criteria for the operation and use of spray pads, swimming pools, and spas; and establish minimum qualifications for swimming pool, spa, and waterslide operators and lifeguards. Additionally, the Department may adopt rules in accordance with chapter 17A for the implementation and enforcement of chapter 135I and the establishment of fees.

This rulemaking provides minimum safety standards for the operation and construction of spray pads, swimming pools, and spas throughout the state, as well as registration of the same (as required by Iowa Code section 135I.3). Currently, 1,222 facilities—encompassing 1,806 spray pads, swimming pools, and spas—are registered with the Department through April 30, 2025. The Department has 57 Iowa Code chapter 28E agreements with local public health departments to implement and enforce these rules. Through these rules and its 28E agreements, the Department is able to enforce important safety requirements at over 1,800 unique spray pads, swimming pools, and spas, greatly improving the safety of numerous Iowans who attend and use these facilities.

Analysis of Impact

1. **Persons affected by the proposed rulemaking:**

- **Classes of persons that will bear the costs of the proposed rulemaking:**

Costs associated with this proposed rulemaking are borne by the owners/operators of spray pads, swimming pools, and spas in Iowa that are subject to the provisions of Iowa Code chapter 135I and rules promulgated thereunder. Notably, Iowa Code chapter 135I and these rules do not apply to facilities intended for single-family use or those operated by homeowners associations or housing cooperatives if they represent 72 or fewer dwelling units and meet other criteria.

- **Classes of persons that will benefit from the proposed rulemaking:**

Numerous Iowans (and non-Iowans) who attend and use the 1,800+ spray pads, swimming pools, and spas that are subject to Iowa Code chapter 135I and these rules benefit from these rules, which ensure minimum safety standards at those facilities and greatly improve the safety of the persons who attend and use those facilities. These rules provide necessary safety across a broad range of areas related to the operation of spray pads, swimming pools, and spas, including entrapment hazards, drowning risks, lifeguard training and supervision requirements, chemical safety, water safety, electrical safety, and more.

2. **Impact of the proposed rulemaking, economic or otherwise, including the nature and amount of all the different kinds of costs that would be incurred:**

- **Quantitative description of impact:**

Direct costs to spray pad, swimming pool, and spa owners who are subject to Iowa Code chapter 135I and these rules are registration, inspection, and plan review fees. Under these rules, fees include: (1) annual registration fee of $35; (2) registration change fee of $20; (3) inspection fees ranging from $50 to $270, based upon the facility type and size; (4) construction plan review fees ranging from $165 to $825, based upon facility type and size; and (5) reconstruction plan review fee of $250. These fees are comparable to or less than similar fees charged by neighboring states. In Minnesota, fees for plan review and inspection are 0.5 percent of estimated value for large project (greater than $250,000) public pools, up to $15,000; $1,500 for small project pools and spray decks; $800 for spa pools; $600 for slides, alterations, and main drain additions; $500 for variance requests; and $100 for disinfection system changes. In Wisconsin, swimming pool license fees range from $200 to $507, preinspection fees also range from $200 to $507, first reinspection fees are $100, and subsequent reinspection fees are $150. In Nebraska, fees for swimming pools include an annual $40 operating permit, $60 inspection fees, and $40 examination and certificate of competency fees.

In fiscal year 2023, the total fees collected under these rules were $54,411.88.

- **Qualitative description of impact:**

Owners of spray pads, swimming pools, and spas that are subject to Iowa Code chapter 135I and these rules incur indirect costs, which are nonquantifiable/not easily quantified, by the nature of needing to meet minimum operational and construction safety standards for their spray pads, swimming pools, and spas. However, these costs of compliance unavoidably arise from the central benefit of Iowa Code chapter 135I and these rules, which is to provide necessary safety for numerous Iowans and non-Iowans who attend and use the 1,800+ unique spray pads, swimming pools, and spas across Iowa.

3. **Costs to the State:**

- **Implementation and enforcement costs borne by the agency or any other agency:**

The Department's costs related to implementation of Iowa Code chapter 135I and these rules include the costs of personnel to administer the program, including traveling associated with on-site inspections. The Department maintains approximately two full-time equivalent positions to administer this program. The Department's total budget to implement and enforce these rules is $209,381.

- **Anticipated effect on state revenues:**

In fiscal year 2023, the total fees collected by the Department pursuant to Iowa Code section 135I.4(4) (which provides that the Department may establish and collect fees to defray the costs of administering Iowa Code chapter 135I) were $54,411.88.

4. **Comparison of the costs and benefits of the proposed rulemaking to the costs and benefits of inaction:**

Iowa Code section 135I.4 states that the Department is responsible for registering and regulating spray pads, swimming pools, and spas, and those facilities' water heaters, so inaction is not an option. Additionally, the minimum operational and construction standards in these rules protect numerous individuals who attend and use the 1,800+ spray pads, swimming pools, and spas in Iowa from various safety risks—including potentially fatal outcomes—related to diving areas, drowning, chemical levels, transmissible diseases, electrical exposure, and more. The modest costs to owners for compliance with and costs to the Department to implement chapter 135 and these rules are insignificant compared to the costs of inaction, which can include death when minimum operational and construction safety standards are absent.

5. **Determination whether less costly methods or less intrusive methods exist for achieving the purpose of the proposed rulemaking:**

It is the Department's opinion that these proposed rules are necessary to provide minimum operational and construction safety standards for more than 1,800 spray pads, swimming pools, and spas across the state, and that any less costly or less intrusive methods would have a negative safety impact. As for direct costs to owners, the fees set forth in these rules are: (1) explicitly allowed by statute to defray the costs of administration (and the fees charged/collected by the Department could actually be higher on this front, as they do not completely defray the costs of administration); (2) unchanged from the existing version of the rules; and (3) comparable to or less than similar fees charged by neighboring states.

Additionally, compared to the existing rules, these rules have been streamlined, clarified, and made less restrictive when possible in accordance with the goals and directives of Executive Order 10. For example, under the existing rules, all swimming pool construction or reconstruction projects require a construction permit from the Department, including submittal of plans to the Department and plan review by the Department, prior to commencing construction or reconstruction. In these proposed rules, swimming pools with a surface area of 500 square ft or less are not required to obtain a construction permit prior to construction/reconstruction; however, the swimming pools would still need to meet the operational and other construction requirements of the rules.

6. **Alternative methods considered by the agency:**

- **Description of any alternative methods that were seriously considered by the agency:**

Response in Section 5 above. Furthermore, the Department considered and is continuing to consider potential adoption of a model standard. Currently, the model standards are not thoroughly developed nor adopted broadly enough by other jurisdictions to adopt them in place of the current rules. However, it is the Department's understanding that the U.S. Centers for Disease Control and Prevention (CDC) will be issuing a new version of its Model Aquatic Health Code (MAHC) in early 2025; when that is issued, the Department plans to evaluate this model standard and monitor its adoption or lack thereof by other jurisdictions. It is unknown if the MAHC will be more or less restrictive than these rules, but if it is adopted widely enough by other jurisdictions, it may be beneficial to adopt it to provide uniformity, predictability, and ease-of-compliance to the industry.

- **Reasons why alternative methods were rejected in favor of the proposed rulemaking:**

See the responses in Sections 5 and 6.

Small Business Impact

If the rulemaking will have a substantial impact on small business, include a discussion of whether it would be feasible and practicable to do any of the following to reduce the impact of the rulemaking on small business:

- Establish less stringent compliance or reporting requirements in the rulemaking for small business.

- Establish less stringent schedules or deadlines in the rulemaking for compliance or reporting requirements for small business.
- Consolidate or simplify the rulemaking's compliance or reporting requirements for small business.
- Establish performance standards to replace design or operational standards in the rulemaking for small business.
- Exempt small business from any or all requirements of the rulemaking.

If legal and feasible, how does the rulemaking use a method discussed above to reduce the substantial impact on small business?

While some owners of spray pads, swimming pools, and spas subject to Iowa Code chapter 135I and these rules may be small businesses, many owners are cities, counties, public or private school corporations, hotels, motels, camps, apartments, condominiums, and health or country clubs. These rules ensure necessary safety for numerous Iowans and non-Iowans who attend and use the 1,800+ spray pads, swimming pools, and spas in the state. Without these rules, the safety risks to persons using such facilities can include illness, serious injury, and death. Even if these rules have a substantial impact on small business (and as discussed above, the direct costs to owners are not substantial), to exempt or even provide less stringent rules for small businesses would not be feasible or practicable because this would undermine public safety based on nothing more than the size of the business owning the spray pad, swimming pool, or spa. Finally, any owner (including a small business) can seek a waiver from provisions of these rules pursuant to the Department's uniform waiver rules under 481—Chapter 6.

Text of Proposed Rulemaking

ITEM 1. Rescind 641—Chapter 15 and adopt the following **new** chapter in lieu thereof:

CHAPTER 15
SWIMMING POOLS AND SPAS

641—15.1(135I) Applicability.

15.1(1) These rules apply to spray pads, swimming pools, and spas as provided by Iowa Code section 135I.2. Spray pads, swimming pools, and spas must also comply with other applicable federal, state or local laws, rules, or ordinances.

15.1(2) A homeowners' association or housing cooperative shall notify the department in writing if its bylaws are amended as provided in Iowa Code section 135I.2. The inspector designated by the association or cooperative shall be a certified operator as defined in 15.3(1). A report of the inspection shall be filed with the association or cooperative secretary and be available to the department or any association or cooperative member on request.

641—15.2 Reserved.

641—15.3(135I) Definitions.

15.3(1) *Definitions.* The definitions set forth in Iowa Code section 135I.1 are incorporated herein by reference. Additionally:

"Air break" is a piping arrangement in which a drain from a fixture, appliance or device discharges indirectly into a receptacle 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.

"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.

"Certified operator" means a person who has:

1. Successfully completed the Certified Pool/Spa Operator® course sanctioned by PHTA, the Aquatic Facility Operator course sanctioned by NRPA, the Professional Pool & Spa Operator course sanctioned by the PHTA, or the Licensed Aquatic Facility Technician course sanctioned by the American Swimming Pool and Spa Association; 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-phenylenediamine) test kit.

"Construction" means the installation of a new swimming pool facility or modifications to an existing facility that 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 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 water that is more than five feet deep.

"Engineering plans" means plans and specifications certified in accordance with the rules of the 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.

"Facility" means a building, fenced enclosure, or lot where there is at least one spray pad, 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/ANSI 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-phenylenediamine) 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.

"Hose bib" means a water outlet that is threaded to permit the attachment of a 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 or spa.

"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. Within its geographic area, the city, county or district board of health is the "local inspection agency."

"Leisure river" means a closed-path channel with a river-like flow of water. A leisure river may include water features and play devices.

"Lifeguard" means an individual who holds current lifeguard certification by one of the following organizations and current certification in first aid and infant, child and adult CPR, including compressions, rescue breathing, and two-person CPR:

1. American Red Cross.
2. YMCA.
3. Boy Scouts of America.
4. Ellis & Associates.
5. Starfish Aquatics Institute.
6. National Aquatic Safety Company (NASCO).

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

"Multisection water recreation pool" means a swimming pool with three or more distinct use areas.

"Outlet" means an opening 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 spray pad, swimming pool, or spa water to meet the water quality standards in these rules.

"Reconstruction" means the replacement or modification of a spray pad, swimming pool, or spa shell or deck, a spray pad, swimming pool, or spa recirculation system, a perimeter overflow gutter or skimmer, or a bathhouse associated with a public spray pad, 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 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, is considered a public swimming pool and is 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 is considered a public swimming pool and is subject to all the requirements of this chapter.

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

"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, with a bench and a means of agitation, that is designed for recreational or therapeutic use and is not drained, cleaned, and refilled after each individual use. A swimming pool with a bench equipped with agitation is not considered a spa provided that the water temperature is maintained at 90°F or less.

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

"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 spray pad, swimming pool, or spa to a concentration at least ten ppm chlorine concentration.

"Swimming pool slide" means any device used to enter a swimming pool by sliding down an inclined plane or through a tube similar to a playground slide that has 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 is a water slide.

"Total bromine" means the concentration of hypobromous acid, hypobromite ion and nitrogen-bromine compounds in the swimming pool water as measured with a DPD test kit.

"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.

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

"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.

"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.

15.3(2) *Abbreviations.*

"AFO" means aquatic facility operator.

"AGA" means American Gas Association.

"ANSI" means American National Standards Institute.

"ASME" means American Society of Mechanical Engineers.

"ASME/ANSI standard" means ASME/ANSI A112.19.8a-2008, "Suction Fittings for Use in Swimming Pools, Wading Pools, Spas, and Hot Tubs."

"ASTM" means ASTM International (formerly American Society of Testing and Materials).

"AWWA" means American Water Works Association.

"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.

"NSF" means NSF International (formerly National Sanitation Foundation).

"ORP" means oxidation-reduction potential.

"PHTA" means the Pool & Hot Tub Alliance.

"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.

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 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 has an operating pressure gauge located in front of the filter if it is a pressure filter system. A vacuum filter system has a vacuum gauge located between the filter and the pump.

(3) The recirculation system has 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 have a means for skimming the pool water surface.

1. Each skimmer has 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 is 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 drinking water and meet the following criteria:

(1) Water supplied to a swimming pool is 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 is equipped with an atmospheric vacuum breaker or a hose connection backflow preventer.

e. Water heaters. Swimming pool water heaters shall meet the following criteria:

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

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

(3) Fuel-burning water heaters are vented to the outside in accordance with the state plumbing code.

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

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.

(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 or if a free chlorine measurement exceeds 8.0 ppm or if the total bromine measurement exceeds 18 ppm.

(3) The swimming pool water shall have an ORP of at least 700 mV, but no greater than 880 mV, and be closed if the ORP is less than 650 mV or greater than 880 mV.

(4) 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.

(5) No cyanuric acid in any form shall be added to an indoor swimming pool.

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 shall be closed if the swimming pool is less than 8 ft deep and the grate openings on the main drain are not clearly visible from the deck or the swimming pool is 8 ft deep or deeper and 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 taken when the disinfectant residual is within the requirements of 15.4(2)*"a."* 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 15.4(2)*"a,""b"* and *"c."*

(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 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, housing cooperatives, 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.

The operator may make visual readings of ORP on site from an automatic controller 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, housing cooperatives, 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.

The operator may make visual readings of pH on site from an automatic controller 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) 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.

(4) 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.

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

f. Test equipment. 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) that meets the following criteria:

(1) The test equipment provides 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.

(2) The test equipment provides for the measurement of swimming pool water pH from 7.0 to 8.0 with at least five increments in that range.

(3) A controller used in lieu of manual disinfectant residual testing has a numerical analog or digital display with an ORP scale with a range of at least 600 to 900 mV with increments of 20 mV or less.

(4) A controller used in lieu of manual pH testing has a numerical analog or digital display with a pH range at least equal to the range required in 15.4(2)*"f"*(2) 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 be operational. The equipment shall be adjustable in at least five increments over its feed capacity and, where applicable, the chemical feeder listed by NSF or another listing agency 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 be operational for each swimming pool and, where applicable, the chemical feeder listed by NSF or another listing agency 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. Swimming pool chemical safety shall meet the following criteria:

(1) When chemical additions are made from the deck, the swimming pool is closed from use for at least one-half hour. The operator tests the swimming pool water as appropriate before allowing use of the swimming pool. The chemical addition and the test results are recorded in the swimming pool records.

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

(3) Safety data sheets (SDS) for the chemicals used at the pool are at the facility in a location known and readily accessible to the facility staff.

(4) Chemical storage containers are clearly labeled.

(5) A chemical hazard warning sign is 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. Swimming pool stairs, ladders, recessed steps, and ramps shall meet the following criteria:

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

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

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

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

(5) If a swimming pool is over 30 ft wide, recessed steps, ladders, ramps, or stairs are 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 is considered in compliance with this subparagraph.

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

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

(8) When stairs are provided for entry into a swimming pool, a slip-resistant stripe at least one inch wide of a color contrasting with the step surface and with the swimming pool floor is marked at the top front edge of each tread.

c. Diving areas. Swimming pool diving areas shall meet the following criteria:

(1) No diving is permitted in areas where the water is five ft deep or less except for purposes of competition or training. The diving is supervised by a lifeguard, swim instructor or swim coach.

(2) Starting blocks are only used for competition or training purposes under the supervision of a lifeguard, swim instructor, or swim coach. Starting blocks and starting block installation 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 are secured from use by removal, covering, or signage and active supervision.

(3) Diving boards are permitted only if the diving area dimensions conform to the minimum requirements indicated below in Figure 1 and Tables 1 and 2.

(4) There is a completely unobstructed clear distance of 13 ft above the diving board, measured from the center of the front end of the board, and extending at least 8 ft behind, 8 ft to each side, and 16 ft ahead of the measuring point.

(5) Diving boards and platforms over three meters in height are prohibited except where used only for competition or training purposes under the supervision of a diving coach and diving area dimensions conform to minimum requirements of World Aquatics (FINA).

(6) Diving boards and platforms have a slip-resistant surface.

(7) Where the top of a diving board or platform is more than 18 inches above the deck, stairs or a ladder are provided for access to the diving board or platform.

(8) Handrails are provided at all steps and ladders leading to diving boards that 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 has a guardrail on both sides. The guardrails are at least 36 inches high and extend to the edge of the deck.

(10) Supports, platforms, and steps for diving boards are of substantial construction and of sufficient structural strength to safely carry the maximum anticipated load.

NOTE: The information contained in Figure 1 and Tables 1 and 2 is for swimming pools constructed prior to March 14, 1990. Swimming pools constructed after March 14, 1990, shall comply with 15.5(13)*"a."*

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

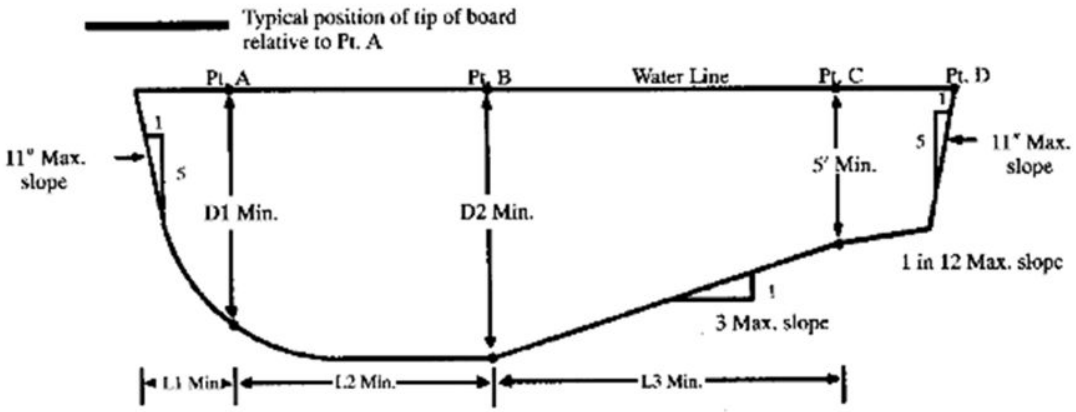


Table 1

		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 2

	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.

(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 1,500 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) 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; at least two lifeguards on duty for over 30 swimmers in the water and up to 125 swimmers in the water; and an additional lifeguard for each additional 125 swimmers in the water or fraction thereof.

NOTE: This is the minimum lifeguard coverage. It is the responsibility of the management of each facility to evaluate the facility configuration, the features of the facility, the patrons, and the type of use and to determine the facility-specific requirements for supervision by lifeguards.

(3) 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.

(4) Each water slide shall have a one slide attendant trained in the operation of the slide stationed at the top of the slide and one lifeguard at the bottom of the slide.

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

e. Lifeguard chairs. For outdoor swimming pools where lifeguards are required by rule, elevated lifeguard chairs shall be provided as follows: at least one chair for a swimming pool with a water surface area of 2,000 to 4,000 ft^2 inclusive; at least two chairs if the area is 4,001 to 6,000 ft^2; and at least three chairs if the area is 6,001 ft^2 or more. Swimming pools are not required to have more than three lifeguard chairs. This requirement does not apply to wave pools, leisure rivers, spray pads, or wading pools.

f. Emergency equipment and facilities. Emergency equipment and facilities at swimming pools shall meet the following criteria:

(1) Except for wading pools, a minimum of one unit of lifesaving equipment is provided for each 1,500 ft^2 of water surface area or fraction thereof. The area of a swimming pool where the water is two 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 eight 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 four- to six-ft tow rope and shoulder strap.
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 six-ft-long towline with a shoulder strap; or

NOTE: Rescue equipment identified in 15.4(4)*"f"*(2)"3" and "4" above shall be used only at swimming pools where lifeguards are employed. If a facility employs lifeguards, the lifeguards shall be provided with the minimum equipment required by their training including but not limited to rescue tubes and personal CPR masks.

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

(4) A swimming pool facility has 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 is prominently mounted in the swimming pool enclosure or a sign stating its location is posted near the swimming pool. The first-aid kit is accessible when the swimming pool is open.

(5) A standard spine board with straps and a head immobilizer is 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 has a designated emergency telephone or equivalent emergency communication system

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 is posted in at least one conspicuous place within the swimming pool enclosure. Instructions for emergency use of the telephone are posted near the telephone.

At each swimming pool where lifeguards are employed, a telephone is 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. Swimming pools and fully submerged outlets shall meet the following criteria:

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

(2) Each fully submerged outlet shall have a cover/grate that has been tested for compliance with the requirements of the ASME/ANSI standard by a testing agency 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 has 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 is 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 are not removable without the use of tools.

3. Purchase records and product information that demonstrate compliance are 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/ANSI standard by an engineer licensed in Iowa, a copy of the certification letter is kept at the facility for at least five years from the certification date.

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

If a swimming pool has two or more fully submerged outlets on a single surface that are all less than three 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.

(4) A swimming pool with a single fully submerged outlet that is not unblockable and that is directly connected to a pump is 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 or ASTM F2387.

1. Purchase records and product information that demonstrate compliance are 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 is installed in accordance with the manufacturer's instructions.

3. An SVRS is 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 is recorded.

(5) In lieu of compliance with 15.4(4)*"h"*(2), (3) and (4) 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 if the management of the swimming pool submits 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 is 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.

i. Surface finish and float lines. Surface finish and float lines shall meet the following criteria:

(1) The bottom and sides of a swimming pool are 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 have a smooth surface to facilitate cleaning.

(3) The boundary between shallow and deep water (five ft) is marked by a float line with floats spaced no more than five ft apart. The float line is 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 is 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 is equipped with a float line with floats spaced no more than five ft apart. The float line shall be located at least six ft from the deep-end wall. Users are not 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 is delineated by a float line.

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 is in accordance with the manufacturer's recommendations, but shall be at least eight 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 two ft deep or less. The landing area is 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. Depth marking shall meet the following criteria:

(1) Depth markers are painted or otherwise marked on the deck within three ft of the edge of the swimming pool. The depth of a wave pool is also marked on the side walls of the wave pool, above the maximum static water level, where the depth is three 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 are 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 are 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 15.4(4)*"j"*(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 three inches high.

(5) The depth of a leisure river is posted at the entrance(s) to the leisure river in characters at least three inches high. The depth of the leisure river is 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 is marked on the deck in the areas where users are permitted. The depth markers is 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 is marked on the swimming pool deck within three ft of the edge of the swimming pool where the water is shallow and at other pool areas determined by management. The markers are 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 are marked on the deck of a leisure river in areas where users are permitted. The "No Diving" markers are 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 are slip-resistant, of a color contrasting with the deck and at least 4 inches in height.

k. Deck safety. Deck safety shall meet the following criteria:

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

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

l. Enclosure. Swimming pool enclosure shall meet the following criteria:

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

(2) A fence, wall, or other means of enclosure has no openings that would allow the passage of a four-inch sphere and are not 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, is 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 is provided for emergency purposes. When closed, gates and doors comply with the requirements of 15.4(4)*"l"*(2) above. Except where lifeguard or structured program supervision is provided whenever the swimming pool is open, gates and doors are self-closing and self-latching.

(4) If a wading pool is within 50 ft of a swimming pool, the wading pool has a barrier at least 36 inches high separating it from the swimming pool. A barrier installed after May 4, 2005, has no openings that would allow the passage of a four-inch sphere and is not easily climbable by toddlers. The barrier has at least one 36-inch-wide gate or door. Gates and doors are lockable. Except where lifeguard supervision is provided, gates and doors are 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 will be in writing and shall be at the facility when the pools are open.

(5) An indoor swimming pool is enclosed by a barrier at least three 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 permits the passage of a four-inch sphere. The barrier is not easily climbable by toddlers. There is at least one 36-inch-wide gate or door through the barrier. Gates and doors are lockable. Except where lifeguard supervision is provided whenever the pool is open, gates and doors are self-closing and self-latching.

(6) A wave pool has a continuous barrier along the full length of each side of the wave pool. The barrier is at least 42 inches high and is installed no more than three ft from the side of the wave pool. Wave pool users are not permitted in this area.

m. Electrical. Electrical systems and components shall meet the following criteria:

(1) Each electrical outlet in the deck, shower room, and pool water treatment equipment areas are 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 are tested at least once in each month that the swimming pool is in operation. Testing dates and results are recorded in the pool records.

(2) Lighting.

1. Artificial lighting is provided at a swimming pool that is to be used at night or that 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 are designed for their intended use. When the underwater lights operate at more than 15 volts, the underwater light circuit is equipped with a GFCI. When an underwater light needs to be repaired, the electricity is shut off until repairs are completed.

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

n. Chlorine gas and carbon dioxide. Swimming pool facilities shall meet the following criteria:

(1) Chlorine gas feed equipment and full and empty chlorine cylinders are 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 has 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 provides one air change every four minutes.

2. An air intake is provided near the ceiling.

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

4. The discharge from the exhaust system is outside the pool enclosure.

5. Artificial lighting is provided in the chlorine room or building.

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

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

8. Rooms or buildings where chlorine is stored or used are placarded in accordance with 875—Chapter 140.

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

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

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

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

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

o. Water slides. Water slides shall meet the following criteria:

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

(2) The internal surface of a flume is smooth and continuous for its entire length.

(3) The flume has no sharp edges within reach of a user while the user is in the proper sliding position.

p. Projections or obstructions. There shall be no underwater or overhead projections or obstructions that would endanger swimmer safety or interfere with proper swimming pool operation.

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 have a slip-resistant surface.

b. Floors 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 are functional.

e. Soap is 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, housing cooperatives, 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, stating that lifeguards are not on duty and children under the age of 12 must be accompanied by an adult, or at each entry to a wading pool, stating 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 and 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 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, combined chlorine, 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 will 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 ten 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 and 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 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. Safety data sheets. Copies of SDS 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 SDS at least annually. The facility management shall retain records of the SDS reviews at the facility and 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 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 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 and include staffing assignments for all programs conducted at the pool.

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 that renders a person unconscious or requires immediate medical attention.

641—15.5(135I) Construction and reconstruction. A swimming pool that is constructed or reconstructed shall comply with the following standards. Nothing in these rules exempts swimming pools and associated structures from any applicable federal, state or local laws, rules, or ordinances.

15.5(1) *Construction permit.*

a. Permit required. No swimming pool with a water surface area greater than 500 ft^2 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.

c. Plan submission and fee. Three sets of plans and specifications shall be submitted with the application, as well as 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 as required in 15.12(3).

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

e. 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, or combination thereof.

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, including but not 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, showing 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.

(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 may be made without prior written 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.

(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 comply with 15.4(1)*"d."*

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.

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 swimming pool with a water surface area of 1,500 ft^2 or greater, and 4 ft wide for a smaller swimming pool, and 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 five 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, with fences, barriers and other structures installed so that users must pass through the rinse shower area when going from the sand play area to the deck, and meet the following criteria:

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

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

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

15.5(5) *Recirculation.*

a. Combined recirculation. Two or more swimming pools may share the same recirculation system, but a wading pool will not share a recirculation system with any other wading pool or swimming pool. Combine recirculation shall meet the following criteria:

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

(2) The flow to each pool is adjustable. A flow meter is 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) through 15.5(5)*"b"*(9) will be determined by the department.

c. Recirculation pump. The recirculation pump(s) shall be listed by NSF or by another listing agency as complying with the requirements of Standard 50 and shall comply with the following requirements:

(1) The pump(s) 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 is 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 are 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 is self-priming or the piping is arranged to prevent the loss of pump prime when the pump is stopped.

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

(5) A compound vacuum-pressure gauge is 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 is installed on the pump discharge line as close to the pump as practical. Gauges are 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 is installed on the suction side of each recirculation pump. The hair and lint strainer basket is 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. Water heaters. Swimming pool water heaters shall meet the following criteria:

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

(2) Gas-fired pool water heaters comply with the requirements of ANSI/AGA Z21.56-2001, ANSI/AGA Z21.56a-2004, and ANSI/AGA Z21.26b-2004.

(3) Electric pool water heaters comply with the requirements of UL 1261 and bear the UL mark.

(4) A swimming pool water heater with an input of greater than 400,000 BTU/hour (117 kilowatts) has a water heating vessel constructed in accordance with ASME Boiler Code, Section 8. The data plate of the heater bears the ASME mark.

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

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

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

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

e. Flow meters. Swimming pool flow meters shall meet the following criteria:

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

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

(3) A flow meter is 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 is 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 is installed so that it may be easily read by facility staff, or a remote readout of the flow rate is 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 15.5(5)*"e"*(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 that 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 as complying with the requirements of Standard 50 and comply with the following requirements:

a. Each pressure filter has a pressure gauge on the inlet side. Gauges are 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. An air relief valve is provided for each pressure filter.

c. Backwash water from a pressure filter discharges through an observable free fall, or a sight glass is installed in the backwash discharge line.

d. Backwash water is discharged indirectly to a sanitary sewer.

e. Rapid sand filter.

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

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

f. High-rate sand filter.

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

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

(3) If more than one filter tank is served by a pump, the designer demonstrates that the backwash flow rate to each filter tank meets the requirements of 15.5(6)*"f"*(2), or an isolation valve is installed at each filter tank to permit each filter to be backwashed individually.

g. Vacuum sand filter.

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

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

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

(4) Each filter system has an automatic air-purging cycle.

h. Sand filter media complies with the filter manufacturer's specifications.

i. Diatomaceous earth filter.

(1) The filtration rate does 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 have piping to allow recycling of the filter effluent during precoat.

(3) Waste diatomaceous earth is discharged to a sanitary sewer. The discharge may be subject to the requirements of the local wastewater utility.

j. Cartridge filter.

(1) The filtration rate does not exceed 0.38 gpm/ft^2 of filter area.

(2) A duplicate set of cartridges is provided.

15.5(7) *Piping.*

a. Piping standards. Swimming pool piping shall conform to applicable nationally recognized standards and 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 six ft/sec for suction flow and ten 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 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 features within the requirements of 15.5(7)*"b"* 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 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, such as 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 and meet the following criteria:

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

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

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

(4) Each inlet has a directional flow inlet fitting with an opening of one-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 two ft deep and may be used throughout a swimming pool in lieu of or in combination with wall inlets. Floor inlets shall be flush with the pool floor, as well as no more than 20 ft apart and within 15 ft of each wall of the swimming pool in the area where they are used.

15.5(9) *Overflow system.*

a. Skimmers. Swimming pool skimmers shall meet the following criteria:

(1) Recessed automatic surface skimmers are listed by NSF or by another listing agency 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.

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

(3) A swimming pool has at least one skimmer for each 500 ft^2 of surface area or fraction thereof.

(4) Each skimmer is 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 may not be less than the total recirculation rate.

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

(6) Each skimmer is equipped with a device to control flow through the skimmer.

(7) If a swimming pool is not equipped with an automatic water level maintenance device, each skimmer that is a suction outlet has an operational equalizer. The equalizer opening in the swimming pool is covered with a fitting listed by a listing agency as meeting the requirements of the ASME/ANSI standard.

(8) A skimmer pool has a handhold around the perimeter of the pool. The handhold is nine inches or less above the minimum skimmer operation level.

b. Perimeter overflow gutters. Swimming pool perimeter overflow gutters shall meet the following criteria:

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

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

(3) The gutter is designed to provide a handhold and to prevent entrapment.

(4) Drop boxes, converters, return piping, or flumes used to convey water from the gutter are designed to convey 125 percent of the recirculation flow rate. The flow capacity of the gutter and the associated plumbing are sufficient to prevent backflow of skimmed water into the swimming pool.

(5) Gutter overflow systems are designed with an effective surge capacity within the gutter system and surge tank of not less than one 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 *"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.* Swimming pool main drain systems shall meet the following criteria:

a. Main drains. Each swimming pool has 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 are two or more main drains or a single main drain that is unblockable.

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

(2) Each main drain and its associated piping in a swimming pool are designed for the same flow rate. Multiple drains are plumbed in parallel, and the piping system is 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 is 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 is 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 are designed for the combined feature and recirculation flow.

(4) Manufactured main drain sumps are listed by a listing agency for compliance with the ASME/ANSI standard. Field fabricated sumps are designed in accordance with the ASME/ANSI standard and certified by an engineer licensed in Iowa.

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

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

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

2. The mark of a listing agency is permanently marked on the top surface of each manufactured cover/grate.

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

4. The main drain cover/grate is 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.* Swimming pool disinfection shall meet the following criteria:

a. Each swimming pool recirculation system is 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 is 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 will be installed for an indoor swimming pool.

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

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

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

f. Gas chlorinator facilities comply with applicable federal, state and local laws, rules and ordinances and the requirements below.

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

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

2. The chlorine room is 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 is capable of producing 15 air changes per hour in the chlorine room.

3. An automatic chlorine leak detector and alarm system is provided in the chlorine room. The alarm system provides visual and audible alarm signals outside the chlorine room.

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

5. The room has a window at least 12 inches square. The window glass is shatterproof.

6. The door of the chlorine enclosure opens outward. The inside of the door is provided with panic hardware.

7. The chlorine room has adequate lighting.

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

9. An anchoring system is provided so that full and empty chlorine cylinders can be individually secured.

10. Scales are 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 complies with the above requirements except:

1. An automatic chlorine leak detector is not required.

2. The enclosure has 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 is designed to prevent the backflow of water into the chlorine cylinder.

g. Where a metering pump is used to feed a solution of disinfectant, the disinfectant solution container has 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.

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

h. The storage capacity of an erosion feeder is at least one day's supply of disinfectant at the rate specified in 15.5(11)*"c."*

15.5(12) *pH control.* Swimming pool pH control shall meet the following criteria:

a. pH controller required. Each swimming pool recirculation system approved for construction after May 4, 2005, is 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 has 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 is listed by NSF or by another listing agency as meeting the requirements of Standard 50.

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

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

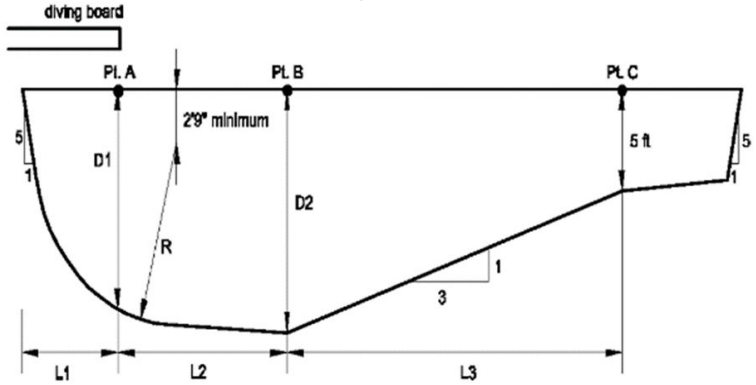
15.5(13) *Safety.*

a. Diving areas shall meet the following criteria:

(1) Diving boards are permitted only if the diving area dimensions conform to the minimum requirements shown in Figure 2 and Tables 3 and 4. The distances specified in Tables 3 and 4 are measured from the top center of the leading edge of the diving board. The reference water level is 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 is 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 complies with the standards of the National Collegiate Athletic Association (NCAA) or the National Federation of State High School Associations (NFSHSA).

Figure 2



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

Table 3

		Minimum Dimensions					Minimum Width of Pool		
Diving Board Height Above Water	Maximum Board Length	D1	D2	L1	L2	L3	Pt A	Pt B	Pt C
Deck level to 2/3 meter	10 ft	7 ft	8.5 ft	2.5 ft	8 ft	10.5 ft	16 ft	18 ft	18 ft

		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
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 4

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

(3) There is 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 extends 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 have slip-resistant surfaces.

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

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

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

3. Handrails are provided at steps leading to diving boards and diving platforms. Guardrails are provided for diving boards and platforms that are more than one meter above the water. Guardrails for diving boards and platforms are at least 36 inches high and 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 shall meet the following criteria:

(1) Ladders or recessed steps are 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 two 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 are 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 is considered in compliance with this subrule.

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

(4) Ladders.

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

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

3. A ladder has 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 is no greater than six inches and no less than three inches. The lower end of each ladder rail is securely covered with a smooth nonmetallic cap and be within one inch of the swimming pool wall.

(5) Recessed steps.

1. Recessed steps 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 is equipped with a securely anchored deck-level grab rail on each side.

3. Recessed steps drain to the pool.

(6) Stairs.

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

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

(7) Handrails and grab rails.

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

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

d. Swimming pool floor slope shall meet the following criteria:

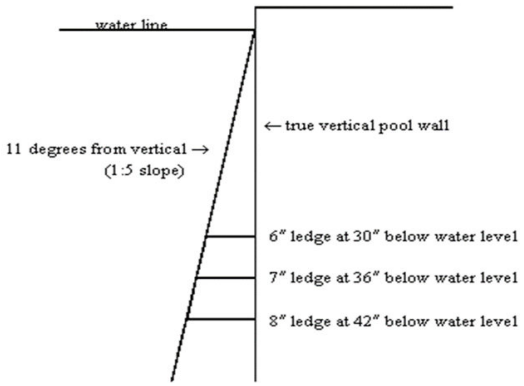
(1) The bottom of the swimming pool slopes toward the main drain(s). The slope of the swimming pool bottom where the water is less than 5 ft deep does not exceed 1 ft vertical in 12 ft horizontal.

(2) Subject to the written 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 five ft. The marking requirements of 15.5(13)*"f"*(3) and 15.5(13)*"f"*(4) shall apply and, if possible, depth markers that are clearly visible to persons in the pool shall be provided.

e. Swimming pool walls shall meet the following criteria:

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

Figure 3



(2) The term "vertical" is interpreted to permit slopes not greater than one ft horizontal for each five ft of depth of side wall (11° from vertical).

(3) Ledges, when provided, fall within an 11° line from vertical, starting at the water surface (Figure 3). A ledge is no less than four inches wide and no more than eight inches wide. A ledge has a slip-resistant surface.

f. Surface finish and markings shall meet the following criteria:

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

(2) The bottom and sides of the swimming pool are 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 five-ft depth area, the pool bottom and sides are marked with a stripe at least four inches wide in a color contrasting with the pool bottom and sides. The stripe is on the shallow side of the slope change or five-ft depth area within six inches of the slope change or five-ft depth area. Depending on the pool configuration, more than one stripe may be required.

(4) A float line with floats no more than five ft apart are 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 is delineated by a float line or as approved by the department.

(6) Depth markers.

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

2. Depth markers are 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 is marked on both sides of a swimming pool at the main drain.

4. The water depth of a swimming pool is marked at both ends of a float line required by 15.5(13)*"f"*(4).

5. In shallow water, the depth is 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 is 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 is 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 are 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 is marked on the deck of a leisure river in the areas where users will be permitted. The "No Diving" markers are 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 are 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 is posted at the entrance(s) to the leisure river in characters at least three inches high. The depth of the leisure river is 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 is marked on the deck in the areas where users will be permitted. The depth markers are within 3 ft of the edge of the leisure river at intervals not to exceed 25 ft on center.

g. Elevated lifeguard chairs or stations shall be provided as follows: one chair or station for a swimming pool with a water surface area of 2,000 to 4,000 ft^2 inclusive; two chairs or stations if the

area is 4,001 to 6,000 ft^2; three chairs or stations if the area is 6,001 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 shall meet the following criteria:

(1) If a swimming pool facility employs lifeguards, whether required by rule or not, the lifeguards are 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 is provided for each 1,500 ft^2 of water surface area or fraction thereof. The area of a swimming pool where the water is two 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 eight 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 four and six 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 is a six-ft-long towline with a shoulder strap; or

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

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

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

i. Pool enclosures shall meet the following criteria:

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

(2) A fence, wall, or other means of enclosure has no openings that would allow the passage of a four-inch sphere and is not 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, are 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 are installed in the enclosure for general access, maintenance, and emergency access. At least one 36-inch-wide gate or door is installed for emergency access. When closed, gates and doors comply with the requirements of 15.5(13)*"i"*(1) and (2). Gates and doors are lockable. Except where lifeguard or structured program supervision is provided whenever the swimming pool is open, gates and doors are self-closing and self-latching.

(4) If a wading pool is within 50 ft of a swimming pool, the wading pool has a barrier at least 36 inches high separating it from the swimming pool. The barrier has no openings that would allow the passage of a 4-inch sphere and is not easily climbable by toddlers. The barrier has at least one 36-inch-wide gate or door. Gates and doors are lockable. Except where lifeguard supervision is provided, gates and doors are 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 will be in writing and shall be at the facility when the pools are open.

(5) An indoor swimming pool is enclosed by a barrier at least three ft high if there are sleeping rooms, hallways, apartments, condominiums, or permanent recreation areas that are used by children and that open directly into the swimming pool area. No opening in the barrier permits the passage of a four-inch sphere. The barrier is not easily climbable by toddlers. There is at least one 36-inch-wide gate or door through the barrier. Gates and doors are lockable. Except where lifeguard supervision is provided whenever the pool is open, gates and doors are self-closing and self-latching.

j. Construction or reconstruction shall comply with the state electrical code, 661—Chapter 550, including Article 680 of the adopted National Electrical Code, and the following requirements:

(1) Each electrical outlet in the deck, shower and dressing rooms and the pool water treatment equipment areas is equipped with a properly installed 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 is equipped with a GFCI unless the underwater light(s) operates at 15 volts or less.

k. 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 eight 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 ten footcandles (fc) or 0.6 watts/ft^2 of deck area.

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

l. 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) through 15.5(13), except as modified below.

a. A wading pool shall have at least four 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.

(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. 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.

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

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

b. There shall be an overflow drain or weir across the full width of the zero-depth end of the wave 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. 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. There shall be a perimeter overflow gutter or overflow fittings along both sides of the wave pool where the water is three 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 ten ft apart.

e. 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. The main drain system shall comply with the requirements of 15.5(10).

g. Openings or connections between the wave pool and the wave generation equipment shall be designed to prevent entrapment of users.

h. 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 three ft from the side of the wave pool.

i. 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. A wave pool shall be equipped with a float line with floats spaced no more than five 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) through 15.5(13), except as modified below.

a. There shall be an overflow drain or weir across the full width of the zero-depth end of the swimming 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. 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. If a perimeter overflow gutter is provided, the gutter may be interrupted in the area where the water is less than two 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. 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) through 15.5(13) and the following:

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

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

(2) The flume is sloped no more than one ft vertical in ten ft horizontal for at least ten ft before the end of the flume.

(3) The flume terminates between six inches below and two inches above the design water level in the plunge pool or swimming pool.

(4) There is at least five ft between the side of the plunge pool or swimming pool and the side of the flume. Adjacent flumes are at least ten ft apart on center.

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

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

(8) The flume path is designed to prevent users from becoming airborne while in the ride.

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

(1) The water depth is 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 two ft water depth subject to 15.5(1)*"b"*(1). The slope is no greater than 1 ft vertical in 12 ft horizontal.

(3) There is 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 is divided from the rest of the swimming pool by a float line.

c. 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. The deck around a water slide plunge pool shall be at least four ft wide, except on the side where the flume enters the pool. A walkway which is at least four 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. 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. If the water slide flume ends in a swimming pool, the water level shall not be lowered more than one inch when the flume pump(s) is operating.

h. 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. 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 forces.

j. A stairway providing access to the top of a water slide shall be at least two 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.

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

a. The minimum recirculation flow rate for a multisection water recreation pool is 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. The treated water distribution system is designed to return treated water to the sections of the pool in proportion to the flow rates determined in 15.5(18)*"a."*

c. Each section of a multisection water recreation pool is 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 is impervious and durable. Padding specifically designed for spray pads may be used with play features. The padding is water resistant or permits full drainage without retaining water in its structure. Walking surfaces are slip-resistant.

b. The spray pad surface slopes 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 do not drain into the spray pad.

c. A spray pad is exempt from the following requirements: fencing (15.5(13)*"i"*); "No Lifeguard" sign (15.4(6)*"d"*); safety equipment (15.4(4)*"f"*); and depth marking (15.4(4)*"j"*). Unless the spray pad is supervised by facility staff, a sign is 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 are gravity outlets. At least two drains are provided, or a single drain that is unblockable is provided.

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

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

(3) Each drain cover/grate is 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:

1. Have a slip-resistant surface; and

2. Support a 300-pound concentrated load, structural strength verified by documentation of test results from a testing agency 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), with UV resistance verified by documentation of test results from a testing agency 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 is two minutes of the flow of the play features and the recirculation system combined.

(2) The water storage tank has a volume of at least 125 percent of the volume specified in 15.5(19)*"e"*(1). The tank is accessible for cleaning and inspection.

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

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

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

(6) There is 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 is designed as a main drain as specified in 15.5(10). Water velocity through the outlet cover is 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 is equipped for automatic supplemental disinfection in accordance with 15.5(11), except that the disinfection capacity is 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 are designed and installed so that they do not create a safety hazard.

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

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

b. Intermittent fixed weir structures may be used for the overflow system. At least two separate fixed weir structures are used. The hydraulic capacity of the overflow system using fixed weir structures are at least 125 percent of the recirculation flow rate. Fixed weir structures are 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 is 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 is posted conspicuously at the entrance(s) to the leisure river in characters at least three inches high. The depth of the leisure river is 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 is marked on the deck in the areas where users are permitted. The depth markers are 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 are marked every 25 ft on center on the deck in deck areas where users are permitted.

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

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

15.5(21) *Showers, dressing rooms, and sanitary facilities.* Swimming pool showers, dressing rooms, and sanitary facilities shall meet the following criteria:

a. Facilities required. Bather preparation facilities are provided at each swimming pool facility, except where the swimming pool facility is intended to serve living units.

b. Swimming pool patron load. If a bathhouse is provided, the patron load for determining the minimum number of cleansing showers 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 is excluded, and for each water slide that terminates in the swimming pool, 300 ft^2 is excluded in determining the patron load.

c. Bathhouses.

(1) A bathhouse is designed and constructed to meet the requirements of the local building ordinance. If no local ordinance is in effect, the bathhouse is designed to meet the requirements of the state building code, 661—Chapter 16.

(2) Bathhouse floors have a slip-resistant finish and slope at least 1/8 inch/ft to drain. Except as provided in 15.5(19)*"c"*(3), floor coverings 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 are constructed of materials as described in 15.5(4)*"b"* and 15.5(4)*"c."*

(4) Bathhouse fixtures are provided in accordance with the state plumbing code, 641—Chapter 25, based on the Iowa building code occupancy type and design occupant load. In addition, cleansing showers are provided at a ratio of at least 1:50 based on the pool patron load as calculated by 15.5(21)*"b."*

(5) All indoor swimming pool areas, bathhouses, dressing rooms, shower rooms, and toilets are ventilated to control condensation and odors.

d. Showers and lavatories.

(1) Showers are supplied with water at a temperature of at least 90°F and no more than 110°F.

(2) Soap dispensers or bar soap trays are provided at each lavatory and in the showers. Glass soap dispensers are prohibited.

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

ADMINISTRATION

641—15.6(135I) Enforcement.

15.6(1) The department may inspect spray pads, swimming pools, and spas regulated by these rules and enforce these rules. A city, county or district board of health may inspect spray pads, 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 will 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 will 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 will review the corrective action plan and approve it or require that it be modified.

c. Failure to comply. When the owner of a spray pad, 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. The department may enforce Iowa Code chapter 135I and these rules pursuant to Iowa Code section 135I.6.

(1) A local inspection agency may request that the department withhold or revoke the registration of a spray pad, swimming pool, or spa, or issue an order to close a spray pad, swimming pool, or spa. The request shall be in writing, list the violations of Iowa Code chapter 135I and these rules, and 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 spray pad, swimming pool, or spa, or an order to close a spray pad, swimming pool, or spa will be delivered by restricted certified mail, return receipt requested, or by personal service. The notice will 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 spray pad, swimming pool, or spa is located will be notified in writing of the decision or order.

15.6(3) An appeal of a decision to withhold or revoke a registration or of an order to close shall be requested, in writing, within 30 days of receipt or service of the department's notice. The request shall be sent to the department at the contact information provided in 481—Chapter 1 or as set forth in

the department's notice. If such a request is timely made within the 30-day time period, a contested case proceeding will be initiated and held in accordance with Iowa Code chapter 17A and 481—Chapters 9 and 10.

641—15.7(135I) Waivers. A waiver from these rules may be granted only by the department pursuant to rule 481—Chapter 6.

641—15.8(135I) Penalties. Penalties are provided pursuant to the authority of Iowa Code section 135I.5.

641—15.9(135I) Registration.

15.9(1) *Registration.* No spray pad, swimming pool, spa, or swimming pool or spa water heater shall be operated in the state without being registered with the department. The owner of a spray pad, swimming pool, or spa or the owner's designated representative shall register the spray pad, swimming pool, spa, or swimming pool or spa water heater before the spray pad, swimming pool, or spa is first used and 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 spray pad, 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 spray pad, swimming pool, or spa, the new owner shall furnish the department with the following information:

a. Name and registration number of the spray pad, 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 spray pad, 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 this chapter.

641—15.10(135I) Training courses.

15.10(1) A training course designed to fulfill the requirements of 641—15.11(135I) will 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 will approve or disapprove the course of instruction in writing within ten business days of receipt of the information required in 15.10(2).

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, or an LAFT certification course. A copy of a current, valid certificate for the certified operator shall be maintained in the pool or spa records.

15.11(2) A certified operator shall attend at least two hours of continuing education per year. 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 spray pad, 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 spray pad, 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 will 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 5

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 6

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 will be reduced by 10 percent. This reduction does not apply to the fees specified in Table 6.

c. Special inspection fee. When an inspection agency determines that a special inspection is required, the inspection agency may charge a special inspection fee that will 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 7, 8, and 9 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 7, 8, and 9.

Table 7

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 8

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 9

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 will 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 construction on a project to start before issuance of a permit. The authorization will be in writing to the owner or the owner's authorized representative.

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) Applications shall be made to the department.

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).

b. A statement of the ability of the board of health to provide inspections of all spray pads, 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 15.6(2).

15.13(3) If the department approves the application, the 28E agreement will be perpetual, subject to the conditions set forth by both parties. The agreement will 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 will be done in accordance with the requirements of Iowa Code chapter 17A. Notice to the applicant of denial or partial denial will 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 Inspections, Appeals and Licensing, Swimming Pool Program, 6200 Park Avenue, Suite 100, Des Moines, Iowa 50321. 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 becomes the department's final agency action.

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 meet the following operational standards.

15.51(1) *Filtration and recirculation.*

a. A spa shall have a filtration system in good working condition that provides water clarity in compliance with the water quality standards of 15.51(2) and meets the following criteria:

(1) Each filter cartridge is 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) is or are replaced whenever the spa is drained and at least every two weeks. Filter cartridge replacements are recorded in the spa records.

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

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

(4) The recirculation system has an operating pressure gauge located in front of the filter if it is a pressure filter system. A vacuum filter system has 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. 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. 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. A spa shall have at least one skimmer and meet the following criteria:

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

(2) Each skimmer has an easily removable basket or screen upstream from any valve.

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

g. The water supplied to a spa shall be from a water supply meeting the requirements of the department of natural resources for drinking water and meet the following criteria:

(1) Water supplied to a spa is 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 is equipped with an atmospheric vacuum breaker or a hose connection backflow preventer.

h. Spa water heaters shall meet the following criteria:

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

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

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

(4) Each indoor swimming pool equipment room with fuel-burning water heating equipment has 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.

(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.

(4) The spa water shall have an ORP of at least 700 mV, but no greater than 880 mV, and 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 in any form shall be added to an indoor spa.

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 15.51(2)*"a,""b"* and *"c."* If coliform or *Pseudomonas aeruginosa* bacteria are detected in the check sample, the spa shall be closed, drained, physically cleaned, and disinfected, and the filter(s) cleaned and disinfected.

1. For cartridge filters, the cartridge shall be replaced with a new, unused cartridge or a cleaned, disinfected cartridge and the filter housing 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 15.51(2)*"a,""b"* and *"c."*

(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 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, housing cooperative, 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 checked at least twice each day the spa is available for use.

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, housing cooperative, 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) 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 and the sample analyzed for total coliform and *Pseudomonas aeruginosa*.

f. Test equipment. 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) and that meets the following criteria:

(1) The test equipment provides 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.

(2) The test equipment provides for the measurement of spa water pH from 7.0 to 8.0 with at least five increments in that range.

(3) A controller readout used in lieu of manual disinfectant residual testing shall be a numerical analog or digital display with an ORP scale with a range of at least 600 to 900 mV with increments of 20 mV or less.

(4) A controller readout used in lieu of manual pH testing shall be a numerical analog or digital display with a range at least as required in 15.51(2)*"f"*(2) 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 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 for compliance with Standard 50.

(2) The disinfectant equipment shall be capable of providing at least ten 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 2,000 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 2,000 gal shall be drained, cleaned and refilled a minimum of one time every three weeks.

(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. Spa chemical safety shall meet the following criteria:

(1) If chemicals are added to the spa over the top, the spa is not occupied for a period of at least 30 minutes. The operator tests the spa water as appropriate before allowing use of the spa. The chemical addition and the test results are recorded in the spa records.

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

(3) SDS for the chemicals used in the spa are at the facility in a location known and readily accessible to the facility staff.

(4) Chemical containers are clearly labeled.

(5) A chemical hazard warning sign is 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. Spa stairs, ladders, recessed steps, and ramps shall meet the following criteria:

(1) When the top rim of a spa is more than 24 inches above the surrounding floor area, stairs or a ramp are provided to the top of the spa.

(2) Stairs, ladders, ladder rungs, and ramps are slip-resistant.

(3) Where stairs and ramps are provided, they are equipped with a handrail.

(4) Ladders and handrails are constructed of corrosion-resistant materials or provided with corrosion-resistant coatings. They have no exposed sharp edges.

(5) Ladders, handrails and grabrails are securely anchored.

c. Water temperature. 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. Spas and fully submerged outlets shall meet the following criteria:

(1) Each fully submerged outlet is designed to prevent user entrapment. A spa is closed if the cover/grate of a fully submerged outlet is missing or broken.

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

(3) Each fully submerged outlet has a cover/grate that has been tested for compliance with the requirements of the ASME/ANSI standard by a testing agency 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 has 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 is 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 are not removable without the use of tools.

3. Purchase records and product information that demonstrate compliance are maintained by the facility for the life of the cover/grate. If a field fabricated cover/grate is certified for compliance to the ASME/ANSI standard by an engineer licensed in Iowa, a copy of the certification letter is kept at the facility for the life of the cover/grate.

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

(5) A spa with a single fully submerged outlet that is not unblockable and that is directly connected to a pump is 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 or ASTM F2387 by a listing agency.

1. Purchase records and product information that demonstrate compliance are 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 is installed in accordance with the manufacturer's instructions.

3. An SVRS is 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 are recorded.

(6) In lieu of compliance with 15.51(4)*"f"*(3), (4) and (5) 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 if the management of the spa submits 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 is 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.

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

h. Decks. Spa decks shall meet the following criteria:

(1) The deck has a slip-resistant surface.

(2) The deck is clean and free of debris.

(3) A hose bib is provided for flushing or cleaning of the deck.

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

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

j. Electrical. Spa electrical systems and components shall meet the following criteria:

(1) Each electrical outlet in the deck, shower room, and pool water treatment equipment areas is equipped with a properly installed 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 are tested at least once in each month the spa is operating. Test dates and results are recorded in the spa records.

(2) There are no outlets located on, or within five ft of, the inside wall of a spa.

(3) An air switch within reach of persons in the spa and its connecting tube is constructed of materials that do not conduct electricity.

(4) Lighting.

1. Artificial lighting is provided at all spas that are to be used at night or that 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 are designed for their intended use. When the underwater lights operate at more than 15 volts, the underwater light circuit is equipped with a GFCI. When underwater lights need to be repaired, the electricity is shut off until repairs are completed.

3. No electrical wiring extends over an outdoor spa.

k. Enclosure. Spa enclosure shall meet the following criteria:

(1) A spa is enclosed by a fence, wall, building, or combination thereof not less than 4 ft high. The spa enclosure is 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 has no openings that would allow the passage of a four-inch sphere, and is not 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, is 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 is provided for emergency purposes. When closed, gates and doors comply with the requirements of 15.51(4)*"k"*(2) above. Gates and doors are lockable. Except where lifeguard supervision is provided whenever the spa is open, gates and doors are self-closing and self-latching.

(4) If there are sleeping rooms, apartments, condominiums, or permanent recreation areas that are used by children and that open directly into the spa area, the spa is enclosed by a barrier at least three ft high. No opening in the barrier permits the passage of a four-inch sphere. The barrier is not easily climbable by toddlers. There is at least one 36-inch-wide gate or door through the barrier. Gates and doors are lockable. Except where lifeguard supervision is provided whenever the spa is open, gates and doors provided are 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 two 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 three inches high.

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

e. Operational records. The operator of a spa shall have the spa operational records for the previous 12 months at the 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 ten 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 and 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 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. Safety data sheets. Copies of material SDS 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 SDS at least annually. The facility management shall retain records of the SDS 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.

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.

641—15.52(135I) Construction and reconstruction. A spa that is constructed or reconstructed 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 handicapped access and energy requirements, fire and life safety requirements, 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.

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. Exception. After receiving a construction permit application, the department may authorize construction on a project to start before issuance of a permit. The authorization will be in writing to the owner or the owner's authorized representative.

e. 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. 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. A spa shall be constructed of materials that are inert, stable, nontoxic, watertight, and durable.

b. The maximum water depth for a general use spa shall not exceed four ft measured from the overflow level of the spa. The maximum depth of any seat or sitting bench shall not exceed two ft measured from the overflow level. A special-use spa may be deeper than four ft with written approval from the department.

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

d. A spa may be immediately adjacent to a swimming pool or maintain the minimum required deck width for 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. The water supplied to a spa shall comply with 15.51(1)*"g."*

f. 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.

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 four ft wide and meet the following criteria:

a. Deck materials. The deck is constructed of stable, nontoxic, and durable materials.

b. Deck drainage. The deck drains away from the spa at a slope of at least 1/8 inch/ft, but no more than ½ inch/ft to deck drains or to the surrounding ground surface. The deck is constructed to eliminate standing water.

c. Deck surface. The deck is 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 as complying with the requirements of Standard 50 and shall comply with the following requirements:

(1) The pump(s) 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 is 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 is provided for the spa agitation system.

(3) For sand filter systems, the pump and filter system are 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 is self-priming or the piping is arranged to prevent the loss of pump prime when the pump is stopped.

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

(6) A compound vacuum-pressure gauge is 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 is installed on the pump discharge line as close to the pump as practical. Gauges are 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 is installed on the suction side of the recirculation pump. The hair and lint strainer basket is readily accessible for cleaning, changing, or inspection. A spare strainer basket is provided. This requirement may be waived for systems using vertical turbine pumps or pumps designed for solids handling.

d. Water heaters. Spa water heaters shall meet the following criteria:

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

(2) Gas-fired spa water heaters comply with the requirements of ANSI/AGA Z21.56-2001, ANSI/AGA Z21.56a-2004, and ANSI/AGA Z21.26b-2004.

(3) Electric spa water heaters comply with the requirements of UL 1261 and bear the UL mark.

(4) A spa water heater with an input of greater than 400,000 BTU/hour (117 kilowatts) has a water heating vessel constructed in accordance with ASME Boiler Code, Section 8. The data plate of the heater bears the ASME mark.

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

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

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

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

e. Flow meters. Spa flow meters shall meet the following criteria:

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

(2) A flow meter is 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 is 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 is installed so that it may be easily read by the facility staff, or a remote readout of the flow rate is installed where it may be easily read by the staff.

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

a. Each pressure filter has a pressure gauge on the inlet side. Gauges are of such a size and located so that they may be read easily by the operator. A differential pressure gauge that gives the

difference in pressure between the inlet and outlet of the filter may be used in place of a pressure gauge.

b. An air relief valve is provided for each pressure filter.

c. Backwash water from a pressure filter discharges through an observable free fall, or a sight glass is installed in the backwash discharge line.

d. Backwash water is discharged indirectly to a sanitary sewer.

e. Rapid sand filter.

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

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

f. High-rate sand filter.

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

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

(3) If more than one filter tank is served by a pump, the designer demonstrates that backwash flow rate to each filter tank meets the requirements of 15.52(6)*"f"*(2), or an isolation valve is installed at each filter tank to permit each filter to be backwashed individually.

g. Vacuum sand filter.

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

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

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

(4) Each filter system has an automatic air-purging cycle.

h. Sand filter media complies with the filter manufacturer's specifications.

i. Diatomaceous earth filters.

(1) The filtration rate is not 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 have piping to allow recycling of the filter effluent during precoat.

(3) Waste diatomaceous earth is discharged to a sanitary sewer. The discharge may be subject to the requirements of the local waste water utility.

j. Cartridge filters.

(1) The filtration rate does not exceed 0.38 gpm/ft^2.

(2) A duplicate set of cartridges is provided.

15.52(7) *Piping.*

a. Piping standards. Spa piping shall conform to applicable nationally recognized standards and 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 six ft/sec for suction flow and ten 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 15.52(7)*"b."*

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.* Spa inlets shall meet the following criteria:

a. Wall inlets are provided for a spa.

b. The inlets are adequate 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 are located at least 6 inches below the design water surface.

(2) Inlets are directional flow-type inlets. Each inlet has a fitting with an opening of one inch diameter or less.

c. Each agitation system opening has a fitting with an opening of one inch diameter or less.

15.52(9) *Skimmers.* A recessed automatic surface skimmer shall be listed by NSF or by another listing agency 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. Spa skimmers shall meet the following criteria:

a. A spa has at least one skimmer for each 100 ft^2 of surface area or fraction thereof.

b. Each skimmer is 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 is not less than the total recirculation rate.

c. Skimmers have weirs that adjust automatically to variations in water level of at least four inches.

d. Skimmers are equipped with a device to control flow through the skimmer.

e. If a spa is not equipped with an automatic water level maintenance device, each skimmer has an operational equalizer. The equalizer opening in the spa is covered with a fitting listed by a listing agency as meeting the requirements of the ASME/ANSI standard.

f. The skimmer(s) is or are not 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. 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 three 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 three 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. 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. 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/ANSI standard by a listing agency. 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 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/ANSI 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 for compliance with the ASME/ANSI standard. Field fabricated sumps shall be designed in accordance with the ASME/ANSI standard and be certified by an engineer licensed in Iowa.

15.52(11) *Disinfection and pH control.*

a. 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.

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

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

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

f. 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. 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. Each spa shall have a metering pump for the addition of a pH control chemical to the spa recirculation system, or a carbon dioxide (CO2) gas feed system. A metering pump shall be listed by NSF or another listing agency as complying with the requirements of Standard 50.

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

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 meet the requirements of the state electrical code, 661—Chapter 550, including Article 680 of the adopted National Electrical Code.

d. Lighting. Artificial lighting shall be provided at indoor spas and at outdoor spas that 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. Spa enclosure shall meet the following criteria:

(1) A spa is enclosed by a fence, wall, building, or combination thereof not less than 4 ft high. The spa enclosure is 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 has no openings that would allow the passage of a four-inch sphere, and is not 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, is 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 is provided for emergency purposes. When closed, gates and doors comply with the requirements of 15.52(12)*"e"*(2). Gates and doors are lockable. Except where lifeguard or structured program supervision is provided whenever the spa is open, gates and doors are 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 is enclosed by a barrier at least 3 ft high. No opening in the barrier permits the passage of a four-inch sphere. There is at least one 36-inch-wide gate or door through the barrier. Gates and doors are lockable. Except where lifeguard supervision is provided whenever the spa is open, gates or doors are self-closing and self-latching.

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