

# CHAPTER 838 - Swimming Pool and Water Recreation Facilities Ordinance

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**Loudoun County, Virginia**  
**Chapter 838**  
**Swimming Pool and Water Recreation Facilities Ordinance**

**Article 1. General**  
**Provisions**

**838.01 Title.**

This Ordinance shall be known and may be cited as the Loudoun County Swimming Pool and Water Recreation Facilities Ordinance.

**838.02 Purpose.**

The purpose of this Ordinance is to:

- A. Ensure that all public swimming pools and water recreation facilities are constructed, operated, and maintained in a manner which does not adversely affect the public health or safety;
- B. Set forth the requirements necessary to secure a permit for construction, ownership and operation of a water recreation facility.

**838.03 Administration and enforcement.**

The Director of the Loudoun County Health Department shall administer and enforce this Ordinance.

**838.04 Scope.**

This Ordinance shall apply to all water recreation facilities, as indicated and herein defined. This Ordinance applies only to public pools and does not apply to residential pools serving a single family residence. Swimming pool facilities, spa pool facilities, and waterpark facilities for which building permits are issued subsequent to the effective date of this Ordinance shall be constructed in accordance with the provisions of the VUSBC, the Loudoun County Fire Prevention Code, the Loudoun County Zoning Code and this Ordinance. Whenever any provision of any state code, other County Code, manufacturer's specification or recommendation, or industry standard imposes a greater requirement or a higher standard than is required under this ordinance, compliance with the provision of such state code, other County Code, manufacturer's specification or recommendation, or industry standards shall be required. Nothing in this Ordinance shall be held to preclude compliance with the applicable provisions of these codes, standards, specifications and recommendations.

**838.05 Definitions.**

For the purposes of this Ordinance, the following words and terms shall have the following meaning, unless the context clearly indicates otherwise.

*Above-ground pool* means any pool having the pool tank above ground level.

*Activity Pool* means a pool which features recreational water activities which may include, but is not limited to, one or more of the following: climbable bars, ropes, chutes,

bubblers, fountains, anchored floating play components or other similar devices.

*ANSI* means American National Standards Institute.

*ASME* means the American Society of Mechanical Engineers.

*ASTM* means American Society for Testing and Materials.

*Attendant* means a person at a waterpark facility trained to operate an attraction and control the patrons in a safe and orderly manner.

*Attraction or ride* means any of the specific types of features at waterpark facilities involving partial or total immersion of the patron.

*Backwashing* means the process of thoroughly cleaning the filter media or elements by reversing flow, dislodging the filter aid, and/or removing accumulated debris and discharging it to waste.

*Bathhouse facility* means the enclosed structure and related areas, used by patrons of a water recreation facility prior to entering the pool(s), which contain the dressing rooms, showers, toilets, lavatories, saunas, steamrooms, and mop sinks.

*Biomechanics* means the study of the human body as a system operating under the laws of Newtonian mechanics and the biological laws of life.

*Breakpoint chlorination* means the addition of a sufficient amount of chlorine to water to destroy the combined chlorine present. Breakpoint chlorination is approximated by the addition of chlorine sufficient to obtain a total chlorine residual ten times the original combined chlorine residual.

*CDC* means the Center for Disease Control.

*Center line* means the path defined by geometric midpoints of a component or structure, generally used for consideration of the slide path in flume rides and the separation of diving boards or platforms in a diving area.

*Children's activity pool* means an activity pool, designed primarily for the use of children, having a maximum depth of twenty-four inches.

*Chute* means a structure which contains and directs the path of travel and rate of descent of a patron. A chute may be tubular, trough-like, curved or flat-bottomed. A chute generally uses water only as a lubricant.

*Combined residual disinfectant* means the amount of halogen or other approved disinfectant which has chemically combined with organic nitrogen compounds (e.g. combined chlorine).

*Control fence* means a woven steel wire, chain link, picket, solid board type fence, wall or equivalent barrier capable of directing bathers through the appropriate entry onto the pool deck or to a specific location within the pool facility's perimeter fence.

*Cross-ventilation* means the movement of air from an outside source into and out of a filter/chemical storage room, sufficient to prevent the accumulation of chemical vapors or dust. The cross-ventilation shall be provided by a mechanical exhaust fan.

*Deck* means the smooth, impervious, non-slip walking surface located within the perimeter enclosure and around the pool(s).

*Director* means the Director of the Loudoun County Health Department or his/her designee.

*Disinfectant* means an agent that disinfects by destroying, neutralizing, or inhibiting the growth of harmful organisms.

*Diving area* means the minimum dimensions of an area within the pool necessary to provide

safe entry from a diving board or platform.

*Diving board* means the recreational or competitive mechanism used for entering a swimming pool, consisting of a semi rigid board, which derives its elasticity through the use of a fulcrum mounted below the board, and the stand that supports the semi rigid board.

*Diving platform* means the raised rigid stage used for diving.

*Drop slide* means a sloped chute or flume exiting the user above the pool operating water level into a receiving pool.

*Elevated pool* means any pool constructed above ground level within or upon an architectural structure.

*Ergonomics* means a multidisciplinary activity dealing with the traditional environmental elements of atmosphere, heat, light, and sound as well as objects with which the user comes in contact.

*Filter* means a device that separates solid particles from water by circulating water through a porous substance, the filter media or element.

*FINA* means the Federation Internationale de Natation Amateur.

*Flume* means a trough-like or tubular structure which uses a significant volume of water to transport the user.

*Free available residual disinfectant* means the amount of disinfectant which is available to inactivate microorganisms and oxidize organic matter (e.g. free chlorine), and which has not reacted with organic nitrogen compounds or any other material in pool water.

*Foothold* means areas that are greater than one and three quarter inches as measured horizontally that expose horizontal surfaces whose top planes are separated by a vertical distance that is less than forty-five inches.

*GFCI* means Ground Fault Circuit Interrupter.

*Handhold* means the same as Foothold.

*Hard-wired telephone* means a telephone that has a direct wire handset and connection to the main telephone system.

*Hydrojet* means a fitting which blends air and water creating a high velocity, turbulent stream of air enriched water.

*Hydrostatic pressure relief valve* means any valve which, when properly installed, will relieve underground water pressure caused by high water tables under the pool shell.

*Industry standards* mean the American National Standard Institute (ANSI), National Spa and Pool Institute (NSPI), etc., or similar standards.

*In-ground pool* means any pool constructed with the pool tank below ground level.

*Injury or illness report* means the written record of all facts regarding any death, near drowning, injury or illness associated with all regulated facilities.

*Inner-tube ride* means an attraction where users ride inner tube-like floatation devices through a series of chutes, channels, flumes, and/or pools.

*Interactive Water Feature Facility* means a structure designed to allow for recreational activities with re-circulated, filtered, and treated water, but having minimal standing water. Water from the interactive fountain type features is collected by gravity below grade in a collector tank or sump. The water is filtered, disinfected, and then pumped to the feature spray discharge heads.

*Internal communication system* means any combination of devices permitting the immediate passage or exchange of messages between the personnel within the water recreation facility.

*Lifeguard* means an individual, fifteen years of age or older, who is trained and certified in lifeguarding, first aid, and cardio-pulmonary resuscitation.

*Lifeguard stand* means an elevated lifeguard station, which complies with OSHA standards for elevated platforms, and includes a seat and platform. An umbrella emplacement sleeve or alternative shade producing structure is required for outdoor stands. The stand may be portable, and shall be located to allow full visual coverage of the lifeguard's assigned area of responsibility.

*Lifeguard station* means a lifeguard stand or other designated work station of a lifeguard.

*Light color* means any color which has a Munsell Value (V) notation of 6.5 or greater and a Munsell Chroma (C) notation of 7.0 or less.

*MSDS* means Material Safety Data Sheets.

*Make-up water* means potable water which is added to a pool to bring the water level up to the waterline.

*Maximum facility load* means the maximum number of patrons permitted in any water recreation facility at any one time. The maximum facility load is limited by the sum total of the maximum pool loads, bathhouse plumbing fixture restrictions, or other restrictions imposed by the Director.

*Maximum pool load* means the maximum number of patrons permitted within an individual pool at any one time.

*NSF* means National Sanitation Foundation.

*ORP* means Oxidation Reduction Potential.

*OSHA* means the Occupational Safety and Health Administration.

*Overflow trough or gutter* means the surface water collection system designed to remove surface water through pool overflow.

*Owner* means any person, or legally authorized representative of any person, who owns or leases a water recreation facility and in whose name the owner's annual or seasonal permit is issued. The person in charge of the water recreation facility shall be deemed to be the designee of the owner.

*Person* means any and all entities, including individuals, firms, partnerships, associations, public or private institutions, municipalities or political subdivisions, governmental agencies, or public or private corporations organized under the laws of this Commonwealth or any other state or country.

*Perimeter fence* means a closed type vertical barrier which completely encloses and secures the pool area and prevents unauthorized entry.

*Pinch hazard* means any configuration of components that could pinch or entrap the fingers, toes or any other part of the human body.

*Plummet* means a line that is perpendicular to the water surface and extends vertically through a point located at the front edge of a diving board and on the centerline.

*Pool* means any man-made structure, basin, chamber or tank located either indoors, outdoor, or both, containing a body of water with sufficient depth for complete or partial immersion of the body. Residential pools serving a single family dwelling are not

included in this definition.

*Pool area* means a pool and all decks, grounds, and other areas located within the perimeter enclosure.

*Pool facility* means any pool(s), together with the buildings, equipment and appurtenances pertaining to such a body of water including, but not limited to, all areas located within the perimeter enclosure.

*Pool management company* means any person, firm, corporation or association contracting to manage or operate a water recreation facility.

*Pool operator* means a person, sixteen years of age or older, certified to conduct the operation of a water recreation facility.

*Pool operator's certificate or documentation* means a credential issued to a person who has successfully passed a pool operator's exam recognized by the Director.

*PPM* means parts per million.

*PSI* means pounds per square inch.

*Public pool* means any pool, other than a residential pool serving a single family dwelling, which is intended to be used collectively by a number of persons for swimming, recreation, competition, fitness, relaxation or therapeutic purposes.

*Radius of curvature* means the radius arc which denotes the curved surface from the point of departure from the vertical sidewall (springline) of the pool to the pool bottom (e.g. coving).

*Receiving pool* means a pool located at the end of a water slide or drop slide that is designed to safely receive the rider of an attraction.

*Recessed stairs* means a step or series of steps that do not protrude beyond the pool wall.

Recessed stairs extend down from the deck with the bottom step terminating at the pool wall and bottom.

*Remodel* means to change, rearrange, or modify a swimming pool or spa pool structure, circulation system and/or appurtenances, such that the design, configuration and/or operating characteristics are different from the original design, configuration, and/or operating characteristics. The term "remodel" does not include normal maintenance and repair.

*Repair* means the replacement of existing construction with equivalent materials for the purpose of maintenance and the replacement of a previously approved piece of equipment with an equivalent unit having the same specifications, operating characteristics, and certifications.

*Skimmer* means a mechanical device connected to the pool water recirculation piping which is used to drain the pool water surface and is equipped with a weir, a flow adjustment device, and a removable and cleanable basket designed to trap small solids.

*Slide* means a drop slide or waterslide as defined herein.

*Slow river* means a circuitous stream of pool water, moved by booster pumps or other means, providing a continuous current in which patrons are transported by flotation devices or other means.

*Spa pool* means any pool intended to be used for recreational and therapeutic use which may include a water jet and/or aeration system, may be heated or cooled, and is not drained, cleaned or refilled after each individual use. The term includes, but is not limited to,

units designed for hydrojet recirculation, hot water, cold water, mineral bath, air induction bubbles, or any combination thereof. Common terminology for a spa pool includes, but is not limited to, therapeutic pool, hydrotherapy pool, whirlpool, hot spa, and hot tub. The term spa pool excludes spa pools used by or under the direct supervision and control of licensed medical personnel located in a medical facility; spa pools located in the athletic department of schools, colleges and universities; and spa pools owned and used by professional athletic teams.

*Springline* means the point from which the pool wall breaks from vertical and begins its arc in the radius of curvature to the pool bottom.

*Superchlorinate* means to achieve a rapid increase in the chlorine residual within the pool water to oxidize organic impurities, destroy algae and/or achieve breakpoint chlorination.

*Swimming pool* means any pool intended to be used for swimming and/or diving.

*Total residual disinfectant* means the arithmetic sum of free available residual disinfectant and combined residual disinfectant.

*Turnover time or period* means the time required to recirculate the equivalent of the total volume of pool water through the filter system.

*UL* means Underwriter's Laboratory.

*VUSBC* means the Virginia Uniform Statewide Building Code.

*Wading pool* means a swimming pool designed primarily for use by small children which is separate from any other swimming pool within a pool area. A wading pool shall not exceed eighteen inches in water depth.

*Waterline* means the midpoint of the operating range of the skimmers when there are no users in the pool. For overflow systems, the waterline is defined as the top of the overflow rim.

*Waterpark facility* means a water contact facility with design and operational features which provide recreational activities that are different from those associated with a conventional swimming pool and purposefully involve the immersion of the body either partially or totally in the water. Such recreational activities include, but are not limited to: water chutes, water flumes, slow rivers, activity pools, receiving pools, sprinklers, fountains, decorative showers, and wave pools.

*Water recreation facility* means a pool facility including but not limited to a swimming pool facility, spa pool facility, waterpark facility, or any related facility.

*Water slide* means a chute or flume that discharges the user at or above the pool operating water level.

*Wave pool* means a pool producing waves which usually begin at the deep end and proceed toward and dissipate at the shallow end.

### **838.06 Permits for construction and remodeling.**

- A. Building and other applicable permits shall be obtained before any water recreation facility regulated under this Ordinance may be constructed. A building permit or other applicable permits may be required from the building official(s) before the remodeling of a water recreation facility regulated under this Ordinance. Plans and specifications shall have been approved by the Director prior to the issuance of such permits.
- B. If a building permit is not required, plans and specifications for the remodeling of a water

recreation facility regulated under this Ordinance shall be submitted to the Director for review and approval.

- C. The approval of any plans or specifications shall not be viewed to be a determination that the said plans or specifications are free from error. The owner shall have final responsibility for the accuracy and completeness of the plans and specifications, as well as for subsequent construction and installation.
- D. The requirements of this Ordinance are in addition to the requirements of all other applicable ordinances and codes, including but not limited to, plumbing, building, electrical, mechanical, zoning, and fire.

**838.07 Owner's permit required.**

- A. No owner shall allow a water recreation facility to be operated unless the owner has secured an annual or seasonal permit from the Director. The permit shall be posted in a location conspicuous to the public on the premises of the facility. Prior to issuing the permit, the Director shall determine that the water recreation facility is in compliance with the requirements of this Ordinance, that all required fees have been paid. The permit shall be issued in the name of the owner for the calendar year, or if a seasonal pool, for the period during the calendar year the facility will be in operation. In the event the owner is operating a facility without the required annual or seasonal permit, the Director shall order the immediate closure of the facility. An order of closure shall be effective upon service of a written notice to the owner of the facility and shall remain in effect until such time as the owner secures the annual or seasonal permit.
- B. The owner and the pool management company, if applicable, of any water recreation facility is responsible for the facility being operated, maintained, and managed in accordance with the requirements of this Ordinance.

**838.08 Facility closure and suspension of the owner's permit.**

- A. The Director shall order the immediate closure and permit suspension of any water recreation facility upon finding that a substantial hazard exists to the health or safety of those who utilize the facility. No person shall operate any water recreation facility subject to an order of facility closure and permit suspension.
- B. An order of facility closure and permit suspension shall be effective upon service of a written notice to the permit holder or his/her designee. The order shall remain in effect until such time as the Director determines that the hazard no longer exists
- C. The holder of a permit for a facility subject to an order of facility closure and permit suspension may request a hearing as described in § 838.12.

**838.09 Revocation of an owner's permit.**

The Director may revoke an owner's permit upon the finding of serious, repeated, or flagrant violations of any of the requirements of this Ordinance or interference with the performance of the Director's duties. No person shall operate any water recreation facility subject to an order of permit revocation. An owner's permit may not be revoked unless the permit holder has been served with written notice of the Director's intent to revoke the permit, stating the reason the permit is subject to revocation and informing the permit holder of the opportunity

for a hearing before the Director. The holder of an owner's permit subject to an order of permit revocation may request a hearing as described in § 838.12.

**838.10 Pool operator requirements.**

- A. It shall be unlawful to operate a water recreation facility unless it is under the immediate control of a person trained in the basics of swimming pool operation and who possesses a valid pool operator's certificate accepted by the Director, with valid photo identification and that person is on the premises during operation of the water recreation facility.
- B. A spa pool shall not be in violation of this subsection if it is under the control of a person who possesses a valid pool operator's certificate with valid photo identification. That person need not be on the premises during the operation of the spa provided that he/she is available on-call and the on-call telephone number is posted in view of the patrons.
- C. The pool operator shall have the original pool operator's certificate or documentation with valid photo identification available for inspection during the operation of the water recreation facility. The original or a copy of the original documentation of certifications shall be on display at the pool facility in a place where it is readily observable by the public using the facility.
- D. A pool operator shall be at least sixteen years of age and shall have successfully passed an approved course of instruction and examination that is administered or sanctioned by a nationally recognized training organization, and whose course is accepted by the Director.
- E. A pool operator's certificate shall be issued only to the person who has passed the operator's certification examination and shall not be transferable, and shall be valid only for a period not to exceed three years from the date of issuance. Expired certificates must be reissued in accordance with Section 838.10D.
- F. Water recreation facilities operating, without a trained pool operator on the premises or with an operator unable to satisfactorily demonstrate basic knowledge of swimming pool operation or in a manner that adversely impacts the public health and safety are subject to immediate closure and permit suspension.

**838.11 Service of notices.**

A notice of owner's permit suspension or revocation required by this Ordinance is properly served when it is delivered to the owner or when it is sent by registered or certified mail, return receipt requested, to the last known address of the owner's permit. A copy of the notice shall be filed with the records of the Health Department.

**838.12 Hearings.**

Any owner who has been denied a-permit, or any holder of a-permit who has received an order of suspension or revocation, may request a hearing by filing a written request in the office of the Director, within ten business days of the service of the order of permit denial, suspension or revocation. The Director shall conduct a hearing within ten business days of receipt of a hearing request. If a written request for a hearing is not filed within the time permitted, the order is sustained.

### **838.13 Variances.**

The Director may grant a variance to the requirements of this Ordinance. A variance may not be granted for any VUSBC requirement.

- A. Request for a variance. Any owner who seeks a variance shall apply in writing to the Director. The application shall include:
  - 1. a citation of the Ordinance section to which the variance is requested;
  - 2. a statement as to why the owner is unable to comply with the Ordinance section to which the variance is requested;
  - 3. the nature and duration of the variance requested; and,
  - 4. a statement of reasons why the public health or safety would not be jeopardized if the variance was granted.
- B. Evaluation of a variance application. The Director shall act upon any variance request within sixty calendar days from the receipt of the written application. In evaluating the variance application, the Director shall consider the following factors:
  - 1. unusual circumstances unique to the applicant's facility;
  - 2. the hardship to the applicant that would result if the variance were denied;
  - 3. the effects that such a variance would have on the health and safety of the public at the water recreation facility; and,
  - 4. other health or safety factors as determined by the Director.
- C. Disposition of a variance request.
  - 1. If the Director or his/her agent approves a variance request, the applicant shall be notified in writing of the decision. Such notice shall identify the water recreation facility and its location, the nature of the variance, and shall specify the period of time for which the variance will be effective and any conditions attached to the variance. Failure to comply with the specified conditions will result in the immediate revocation of the variance. The effective date of the variance shall be upon receipt by the applicant or other designated date acceptable to the applicant and the Director.
  - 2. The Director or his/her designated agent may reject any application for a variance by sending a written rejection notice to the applicant. The applicant may petition the Director for a hearing within thirty calendar days, from receipt of the rejection notice, to challenge the rejection.
  - 3. No permit holder or applicant may challenge the terms or conditions set forth in the variance after thirty calendar days have elapsed from the date of issuance.
- D. Each variance shall be posted in a conspicuous place for the public to view. Each variance is revoked when the permit attached to it is revoked. A variance is not transferable unless otherwise provided in writing at the time the variance is granted.

### **838.14 Condition of equipment and premises.**

All equipment shall be maintained in satisfactory condition during the operation of any water recreation facility. In addition, the premises, including the pool(s) and deck(s), of any water recreation facility shall be maintained in a clean and sanitary condition and shall be kept in good repair.

### **838.15 Animals.**

No animal shall be permitted within any water recreation facility; provided, however, this section shall not apply to support animals that provide assistance to the physically challenged. Support animals that provide such assistance shall not enter the pool water.

**838.16 Water supply.**

A public water supply shall be used at all water recreation facilities unless other sources of water are approved by the Director.

**838.17 Sewage disposal.**

All sewage generated from the plumbing fixtures within a water recreation facility shall be discharged into an approved sewage treatment works, or in the absence thereof, into an approved individual sewage disposal system.

**838.18 Inspections.**

Upon presentation of the appropriate credentials, the Director shall have the power to enter, at reasonable times, any private or public property for the purpose of inspecting and investigating conditions relating to the enforcement of this Ordinance.

**838.19 Emergency order.**

If an emergency exists, the Director may issue an emergency order necessary for the preservation of public health and safety or for the protection of patrons and personnel using any water recreation facility. The emergency order shall state the reasons and precise factual basis upon which it is issued, the actions which an owner or pool operator is required to take, and the time period for which it is effective. A copy of the emergency order shall be served to the owner of the facility or his/her designee and may be publicized in any manner deemed appropriate by the Director.

**838.20 Grandfather clause.**

- A. Except as provided in this section, the design and construction requirements of this Ordinance shall not apply to any water recreation facility that was constructed prior to the effective date of this Ordinance in accordance with the design and construction requirements of the ordinance in effect at the time construction was completed (hereinafter referred to as an "existing facility") and that continues to meet those requirements.
- B. The design and construction requirements of this Ordinance shall apply to the remodeling of an existing facility unless the Director determines, in writing, that alternate requirements, including, but not limited to, the design and construction requirements in effect at the time of construction shall apply to the remodeling of the existing facility.
- C. The Director shall order reasonable modifications to the design or construction of an existing facility if he/she finds that any condition exists that endangers the health or safety of the facility's patrons or personnel.

**838.21 (reserved).**

**838.22 Penalties.**

Any person or owner who fails to comply with any applicable provision shall be in violation of this Ordinance. Each violation of this Ordinance is punishable as a Class 1 misdemeanor in accordance with Virginia law. Each day a violation of this Ordinance shall continue shall constitute a separate offense. The criminal penalty provided in this Section shall be in addition to the administrative remedies set forth elsewhere in this Ordinance.

**Article 2.**

**Swimming Pools; Design and Construction.**

**838.23 Location.**

The location of a swimming pool shall in no way hinder the operations for which it is designed nor adversely affect patron safety or water quality. Public pools shall not be located in areas subject to flooding or inundation by ground water drainage.

**838.24 Access.**

- A. Outdoor pools. Direct and unobstructed access to any swimming pool area shall be provided for the admission of emergency and service vehicles, equipment and personnel. An emergency access lane providing direct access for emergency vehicles shall terminate at each pool facility's emergency gate required in 838.46. Emergency access lanes shall be kept clear and unobstructed.
- B. Indoor pools. Emergency access to indoor or elevated swimming pools shall be provided at the entrance nearest the pool or the elevator or stairway leading to the pool. Permanent and conspicuous signs shall be posted indicating the most direct route to an indoor or elevated pool. An emergency access lane providing direct access for emergency vehicles shall terminate at the entrance nearest the indoor or elevated swimming pool, or the elevator or stairway leading to the indoor or elevated swimming pool. Emergency access lanes shall be kept clear and unobstructed.

**838.25 Construction materials and components.**

Swimming pools shall be constructed of materials which are rigid, inert, impervious, and non-toxic to humans. The materials for components and accessories to be used in and around swimming pools shall be such that the operational strength of the assembly shall not be adversely affected by the exposure to external conditions or normal temperature extremes; and shall be chemically compatible with the materials used in the operation and maintenance of the swimming pool. In addition, construction materials shall provide a tight tank to which a smooth, easily cleanable surface can be applied. The swimming pool surface shall be composed of an impervious material which will retain a smooth, slip resistant, easily cleanable finish without surface cracks or open joints, and shall be finished in a white or light color. Sand or earth bottoms shall not be permitted. Materials other than those described in this section may be approved by the Director.

**838.26 Design.**

Swimming pools may be of any dimension or shape provided that the satisfactory recirculation of pool water can be obtained and no undue hazards to patrons are created by the dimensions or shape of the pool.

**838.27 Hydrostatic pressure relief valve.**

In all in-ground swimming pools with water depths exceeding eighteen inches, one or more hydrostatic pressure relief valve(s), or other hydrostatic relief system as approved by the Director, shall be installed.

**838.28 Slope of bottom.**

In water depths of less than five feet, the maximum slope of any swimming pool, other than a wading pool, shall not exceed one to twelve. In depths greater than five feet, the slope shall not exceed one to three.

**838.29 Vertical walls and coving.**

- A. All corners formed by the intersection of pool walls, floors, or other pool walls shall be coved.
- B. Vertical walls shall not be greater than eleven degrees from plumb.

**838.30 Diving area, diving boards, and diving platforms; minimum requirements.**

- A. Diving boards and diving platforms may be installed in a diving area, alone or in combination, provided that the minimum requirements set forth in this section are met.
- B. Side rails, including safety netting or other safety restraints may be required by the Director for diving boards one meter in height or greater.
- C. At least sixteen feet and five inches of free and unobstructed head room shall be provided above every diving board and diving platform.
- D. When a diving board is installed in a diving area, the minimum dimensions and water depths within the diving area shall meet the requirements specified in Table I and Table II. Diving board height measurements falling in between two categories of Table I and Table II shall comply with the more stringent requirement.
- E. When a diving platform is installed in a diving area, the minimum dimensions and water depths in the diving area shall meet the most current FINA standards.
- F. When a diving board is installed in combination with a diving platform, the minimum distance between the center line of the diving board or edge of the diving platform and the center line of an adjacent diving board, the edge of an adjacent diving platform, and/or the pool sidewall edge shall meet the most current FINA Standards or the requirements specified in Table I, whichever is more stringent.

Table I. Diving Board Height and Separation Distance Requirements.

Height of Diving Board Above the Water Line	Minimum Distance of Board Center Line to Adjacent Board Center Line of Equal or Lesser Height	Minimum Distance of Board Center Line to Sidewall
0 to 0.61 meter	10'	10'
0.62 to 0.77 meter	11'	11'
0.78 to 1.00 meters	11'	11'
1.01 to 2.0 meters	12'	12'
2.01 to 3.0 meters	12'	12'
>3.0 meters	15' or *	15' or *

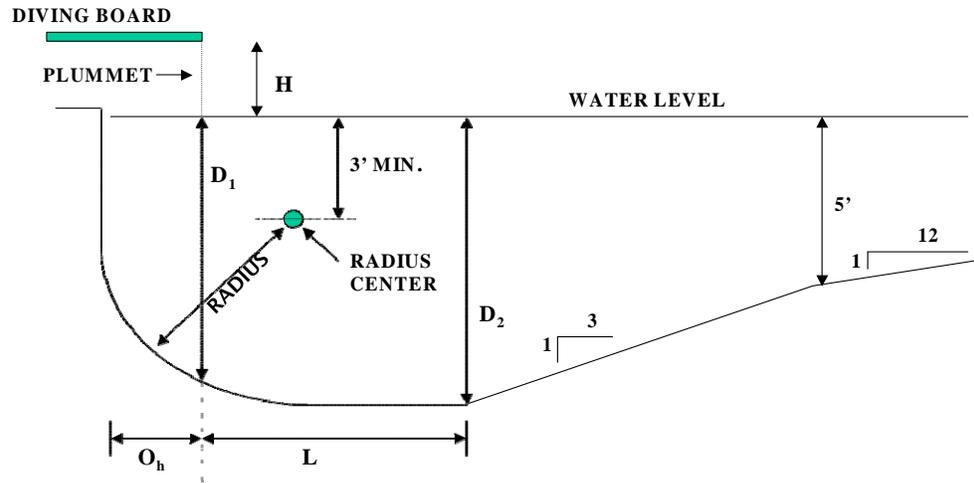
\* As required by the Director and/or the applicable FINA Standard.

Table II. Minimum Dimensions and Depths Relative to Board Height.

Height of Diving Board Above the Water Line	Minimum Depth of Water at Plummet	Minimum Distance Ahead of Plummet	Minimum Depth of Water at Distance L From Plummet	Minimum Overhang of Diving Board Beyond Pool Edge
H	D <sub>1</sub>	L	D <sub>2</sub>	O <sub>h</sub>
0 to 0.61 meter	8'6"	11'	8'6"	3'
0.62 to 0.77 meter	9'	11'6"	8'10"	4'
0.78 to 1.00 meters	11'	12'	10'9"	5'
1.01 to 2.0 meters	12'	16.5"	11'10"	6'1"
2.01 to 3.0 meters	12'6"	19'9"	12'2"	6'1"
>3.0 meters	*	*	*	*

\* As required by the most current FINA Standards or the Director.

**Figure I. Cross-Sectional Diagram of Swimming Pool Illustrating Distances Referenced in Table II.**



**838.31 Handholds.**

Swimming pools shall be provided with suitable handholds around their perimeter.

Handholds may consist of any one or a combination of the following:

1. coping, gutter ledges or flanges, or decks which have a top edge that provides a suitable slip resistant handhold located not more than twelve inches above the water level;
2. ladders, steps, or hand rails; and/or,
3. other methods approved by the Director.

**838.32 Stairs, steps, ladders, and bench seats.**

A. Egress. A minimum of two means of egress shall be provided for swimming pools with a perimeter of one hundred feet or less. One additional means of egress shall be provided for each additional two-hundred feet of pool perimeter, or fraction thereof. Additional means of egress may be required as determined by the Director. The location of the means of egress shall be consistent with the design of the swimming pool. A means of egress shall be provided at both sides of the diving area.

B. The design and construction of swimming pool stairs, ladders, and bench seats shall conform to the following:

1. The treads of all stairs, ladders, and step holes shall be of non-slip construction.
2. When stairs or bench seats are constructed, they shall be recessed into the pool deck, and shall conform to the VUSBC.
3. The top and leading edge of all stair treads, ladders and bench seats shall be marked

by a permanent, nonslip band of contrasting color that is a minimum of one inch in width and is located within two inches of the step or bench edge.

4. Recessed step holes shall not protrude into the pool. The recessed step shall have a minimum tread width of six inches, a minimum tread length of twelve inches, a minimum height of five inches, and shall drain into the pool to prevent the accumulation of dirt. Each set of recessed step holes shall be provided with handrails on both sides of recessed step holes to fully service all treads and risers.

5. Below the water level, there shall be a clearance of not more than six inches and not ~~nor~~ less than three inches between any ladder tread edge, measured from the pool wall side of the tread, and the pool wall.

6. Each set of stairs shall be provided with a minimum of one handrail to fully service all treads and risers.

### **838.33 Recirculation system.**

- A. All swimming pools shall be equipped with a recirculation system which, at a minimum, consists of a pump, a filter, connecting piping, fittings, valves, disinfecting equipment, necessary pipe connections to the inlets and outlets, a skimmer and/or overflow gutter and main drains. A separate recirculation system shall be provided for each swimming pool.
- B. The recirculation system shall be designed to accommodate the following required maximum turnover time:
  - 1. Wading pool, two hours;
  - 2. Any other swimming pool, six hours.
- C. Adequate provisions shall be made for backwashing and/or cleaning of all filters.

### **838.34 Filter room.**

- A. Swimming pool facilities shall have a room(s) or structure which encloses the filtration equipment, pumps, electrical equipment, chemical feed equipment, and other recirculation and filtration system appurtenances. The room(s) or structure shall provide working area and access above and around all equipment no less than that specified by the manufacturer and sufficient to permit routine maintenance. The room(s) or structure shall be provided with a lockable door(s) of sufficient width to permit the removal of equipment. The entrance to the filter room(s) shall be easily accessible from the deck so the pool operator can enter the room(s) without having to exit the enclosed pool area. The room(s) or structure shall be impervious to water and resistant to the chemicals necessary for the operation of the facility.
- B. The floor of the filter room(s) or structure shall be designed to provide adequate drainage with a minimum floor slope of one to forty-eight and a maximum floor slope of one to twenty-four to a floor drain and shall be kept dry at all times, particularly in the vicinity of electrical panels. Discharging filter backwash water onto the floor is prohibited.
- C. The filter room(s) shall be provided with mechanical cross-ventilation.
- D. Illumination of at least thirty foot-candles, measured twenty-four inches above the floor, shall be provided above equipment and working areas. A minimum of two light fixtures shall be installed, and all light fixtures shall be shielded and vapor-proof.

### **838.35 Filters and gauges.**

- A. The recirculation system shall be equipped with a filtration system that is NSF International listed, or the equivalent, and will filter the entire water volume of the swimming pool within the required turnover time specified in § 838.33B. Filtration equipment shall be operated continuously, twenty-four hours per day. Valves shall be provided at appropriate locations to allow the isolation and maintenance of equipment. Filter components which require servicing shall be accessible for inspection and repair and installed according to the manufacturer's specifications and recommendations. All pressure systems shall be provided with a manual or automatic means to permit the release of air which may accumulate within the filter tank. Design criteria for the indicated type of filters shall be as follows:
1. High-rate filter. A filter utilizing a media capable of filtration at a high rate of flow. The rate of flow shall not be less than five gallons per minute per square foot of filter surface area, and not greater than twenty gallons per minute per square foot of filter surface area. The backwash rate of flow shall be at the rate specified by the manufacturer.
  2. Diatomaceous earth filter. A filter utilizing diatomaceous earth as a filter media.
    - (a). Pressure or vacuum type. A diatomaceous earth filter through which the rate of flow does not exceed one and one half gallons per square foot of filter surface area.
    - (b). Pressure or vacuum with slurry feeder. A filter that is equipped with a feeder that continuously feeds a diatomaceous earth suspension and has a rate of flow not exceeding three gallons per minute per square foot of filter surface area.
    - (c). Separation tanks or a sump pit with a stand pipe shall be installed to collect spent diatomaceous earth so that it can be collected and disposed of in an approved manner. Alternative methods for diatomaceous earth collection may be approved by the Director. When using diatomaceous earth filters with separation tanks, the separation tank shall be provided with a means of release or a lid which provides a slow and safe release of pressure and shall have a readily visible precautionary statement affixed that warns the user that the air release must be opened before opening the separation tank.
    - (d). Piping and valves shall be provided for all diatomaceous earth filters to allow for a pre-coat cycle that re-circulates water directly from the outlet to the inlet of the filter without returning to the swimming pool.
  3. Rapid sand filters. A filter utilizing sand as the filter media, with a filtration flow rate not exceeding three gallons per minute per square foot of filter area. In sand filters, the layer of filter sand shall be at least 20 inches in depth, properly supported by uniform layers of clean graded gravel to a minimum depth of 12 inches or supported by porous plates. The filter sand shall have an effective size of between 0.45 and 0.55 millimeters with a uniformity co-efficient not greater than 1.7. In anthracite coal filters, the anthracite shall have a depth of at least 24 inches and shall have an effective size between 0.6 and 0.8 millimeters with a uniformity co-efficient of not greater than 1.8. The backwash rate of flow shall be four times the filtration rate.

4. Cartridge filters. A cartridge filter through which the rate of flow does not exceed the design rate or a maximum of three hundred seventy-five thousandths gallon per minute per square foot of filter surface area. Cleaning of cartridge filters must be in accordance with the manufacturer's recommendations. One complete extra set of cartridges shall be available at all times to facilitate cleaning.
  5. Other filtration systems whose performance equals or exceeds those described above may be used in a pool recirculation system with the approval of the Director.
- B. Gauges and flow meters. The filter system shall be provided with a minimum of one influent pressure gauge for each filter and one effluent pressure gauge following the filter system. Recirculation system pumps shall be fitted with a vacuum and pressure gauge installed as near as practical to the pump suction and discharge pipe connections. All pressure gauges shall measure pressure directly in pounds per square inch (psi). Vacuum gauges shall measure in inches of mercury. The system shall have a flow meter on the return line to measure the flow of filtered water being returned to the swimming pool and a flow meter to measure the rate of backwash in sand or anthracite coal filters. The flow meter shall be of fixed calibration, shall measure in gallons per minute, and shall be properly sized to indicate the design rate of flow at approximately mid-scale. Gauges and flow meters shall be readily accessible and clearly visible, shall be in good repair, and shall be located and installed according to the manufacturer's specifications and recommendations.

#### **838.36 Pumps and strainers.**

- A. Pump. A removable and reinstallable pump(s) shall be installed with adequate capacity for the required turnover time specified in § 838.33B. Whenever possible, pump(s) shall be so located as to eliminate the need for priming. If the pump(s) or suction piping is located above the overflow level of the swimming pool, the pump(s) shall be self-priming. Pumps shall be securely supported. Pumping equipment shall have sufficient capacity to discharge the volume of water for the required turnover of the pool against the maximum head in the recirculation system. The pump used for backwashing sand filters shall have sufficient capacity to backwash the unit at the rate of at least 12 gallons per minute per square foot of filter area against the maximum head developed during backwashing.
- B. Hair and lint strainer. All pressure filter systems shall have a hair and lint strainer installed ahead of the filter pump. The hair and lint strainer baskets shall be corrosion resistant with openings not exceeding one-eighth inch in size, which provide a free flow area of at least four times the area of the pump suction line at the strainer connection, and shall be accessible for frequent cleaning. An extra hair and lint strainer basket shall be provided for each hair and lint strainer.

#### **838.37 Piping system.**

- A. The piping system for swimming pools shall be composed of NSF International listed materials or their equivalent designed for the following operations:
  1. filling the swimming pool;

2. re-circulating the pool water through the treatment equipment;
3. backwashing or washing each filter to waste;
4. operating a suction cleaner (if provided);
5. emptying the pool; and
6. draining the system.

In addition, the piping system of any swimming pool containing a hydro-jet system or water conditioning system shall be composed of NSF International listed materials, or equivalent, which are capable of supporting such systems.

- B. There shall be no direct connections between the swimming pool recirculation system and the sewer or potable water supply. Fill spouts, when installed, shall be located under diving boards, under guard chairs, adjacent to pool ladder handrails, or otherwise protected to preclude a tripping hazard and shall be properly supported if not inherently self-supporting. Fill spouts shall not project into the space above the pool water surface by more than two inches beyond the edge of the pool. Other means of filling the pool shall comply with the VUSBC and be approved by the Director. Cross-connections shall be prevented by providing an air gap between the highest possible flood level of the pool and the pool fill spout. The air gap shall not be less than two fill spout pipe diameters or less than six inches. An approved backflow preventer may substitute for the air gap.
- C. The system shall have a means of discharging filter backwash or other pool water to waste as follows:
  1. Waste from backwashing or draining of a pool shall be discharged in a manner approved by the Director. When only a sanitary sewer is available to a swimming pool, the rate of discharge is subject to the approval of the appropriate authority for sanitary sewers and treatment facilities.
  2. A minimum air gap of two discharge pipe diameters or six inches to prevent a cross-connection between waste discharge piping and recirculation piping.
  3. Discharge receptor and piping shall be of sufficient size to accept backwash water and prevent backflooding.
  4. A sight glass shall be placed in the backwash discharge line in a readily observable location.
  5. In the event the backwash waste pipe will not accommodate the backwash flow, the design and installation of a holding tank shall be required. The holding tank shall be sized to contain one hundred and ten percent of the volume of water required to adequately clean the filter(s) at the backwash flow rate and length of time specified by the filter manufacturer.
- D. The visible piping system shall be securely anchored, supported or braced, unless inherently self-supporting, and marked with permanent tags, labels or markings to clearly identify the direction of flow and shall be color coded as follows:
  1. Freshwater.....blue (to check valve)
  2. Backwash.....black
  3. Influent.....yellow
  4. Effluent.....white
  5. Suction cleaner..... orange (to control valve)
  6. Recirculation.....green (Auxiliary recirculation not part of the filtration system;

such as, but not limited to, water features, jets, fountains, water falls, aeration systems or similar features)

7. Heater piping.....red (to nearest isolation valves)

- E. All piping shall be designed to minimize friction losses and to carry the required quantity of water at a velocity not to exceed eight feet per second for copper discharge piping, and ten feet per second for discharge piping other than copper. Suction velocity for all piping shall not exceed six feet per second. Pipe suction velocity may also be limited by the maximum flow rate specified by the manufacturer of the suction outlet covers installed in the swimming pool.
- F. All piping and appurtenances included in the recirculation and filtration system shall be inspected. All piping shall be tested to at least twenty-five psi of pressure. All subsurface pool piping shall be imbedded in and covered with sand or an approved equivalent.
- G. All valves shall be clearly identified with permanent markings or tags which are referenced by a pool water recirculation system operation manual and/or placard.

**838.38 Main drain outlets.**

- A. All swimming pools shall have a minimum of two interconnected main drain outlets, which cannot be isolated by valves or other means, for each recirculation pump system. Main drain outlets shall be located in the deepest part of the pool. All piping associated with the main drain outlets shall be of equal diameter and each main drain shall be of equal size. Main drain outlets and associated piping shall be hydraulically designed to provide equal flow through each main drain outlet. A main drain outlet shall be no less than three feet and no more than twenty feet from another main drain outlet, and no more than fifteen feet from a pool side wall.
- B. A main drain outlet opening shall be covered with a protective grate or anti-vortex cover which is not hazardous to patrons, is anchored in accordance with the manufacturer's specifications and recommendations, and is designed to prevent body entrapment or injury. Main drain grates or covers shall be secured so that their removal requires the use of tools. Main drain covers shall be manufactured and installed according to the specifications set forth by the ASME/ANSI and NSF International standards for suction fittings. The cover, frame, and all components shall be corrosion resistant and shall be designed to withstand the maximum anticipated forces generated by active use. The total water velocity through main drain outlets shall not exceed one and one half-feet per second for water depths eight feet and greater or one foot per second for depths less than eight feet, and shall not exceed the maximum flow rate specified by the manufacturer of the main drain cover.
- C. Other methods that prevent suction outlet body entrapment and injury may be approved by the Director.

**838.39 Inlets.**

All inlets located in pool walls shall be spaced not more than twenty feet on center around the pool perimeter. When inlets are located in the pool bottom, the number of inlets and their location shall be designed to insure the proper distribution of filtered water. The minimum

number of bottom inlets shall be determined by dividing the perimeter of the pool, in feet, by twenty. All wall inlets, except makeup water inlets and wading pool inlets shall be at least fifteen inches below the operating water level of the pool, except for prefabricated gutters with forty-five degree angle inlets in the bottom. Each inlet shall be provided with a means of adjusting flow, through a range of at least fifty percent of its design capacity. Inlet flow controls shall be readily accessible.

#### **838.40 Pool suction cleaner.**

A suction cleaner shall be provided. Where a suction cleaner is operated by the recirculating pump, a device or devices shall be provided for regulating the flow(s) from the pool outlets. The suction cleaner line shall be connected through a hair and lint strainer. Portable electric suction cleaners shall be UL rated and connected to a GFCI protected electrical outlet. Waste from a portable suction cleaner shall be disposed of as solid waste. Hydraulic jet-type suction cleaners shall be permitted in lieu of other suction cleaners if the fresh water pressure is thirty psi or greater and the water service line is provided with an approved backflow preventer.

#### **838.41 Overflow gutters and skimmers.**

Overflow gutters or skimmers shall be provided on the vertical wall(s) of all swimming pools, and designed to adequately skim the pool surface. The overflow gutter or skimming system shall be capable of continuously removing eighty percent or more of the re-circulated water and returning it to the filter.

- A. Where overflow gutters are used, they shall extend completely around the swimming pool except at steps, recessed ladders, ramps, and stairs. The overflow gutter shall be designed to serve as a handhold. Overflow gutters having a surge capacity less than one cubic foot per linear foot of pool perimeter shall be indirectly connected to the recirculating system through a properly sized and designed surge tank/balancing tank with a minimum surge capacity of one gallon per square foot of water surface area. Overflow gutters having a surge capacity of one cubic foot, or greater, per linear foot of pool perimeter shall be connected to a properly sized and designed balancing tank. The gutter, drains and piping draining to the surge tank/balancing tank shall be designed to rapidly remove overflow water caused by recirculation, displacement, wave action or other causes produced during the maximum swimming pool load. The opening into the gutter beneath the coping shall not be less than four inches and the interior width of the gutter shall not be less than three inches. Where gutters are used, they shall be designed to prevent patron entrapment or injury. The overflow edge or lip shall be rounded and not greater than two and one half inches thick for the top two inches. The overflow outlets shall be provided with outlet pipes at least two and one-half inches in diameter. The outlet fittings shall have a clear opening in the grating at least equal to twice the cross-sectional area of the outlet pipe.
- B. Where skimmers are used they shall be provided at the rate of one skimmer per forty feet of pool perimeter or fraction thereof, or one per four hundred square feet of pool water surface area or fraction thereof, whichever is greater. They shall be spaced so as to provide maximum skimming action of the pool surface.

1. Skimmer throats shall be no greater than the width required for ten inch weirs.
2. Skimmer weirs shall be automatically adjustable to variations in water level over a minimum range of four inches.
3. A removable basket or screen to entrap large matter shall be provided in each skimmer.
4. The flow rate through the skimmer shall not be less than twenty gallons per minute, nor greater than thirty-five gallons per minute. Each skimmer shall be provided with a means of adjusting the flow through the skimmer.
5. Skimmer systems shall be designed so that all skimmers are interconnected.
6. Skimmer lids shall be securely in place at all times.

#### **838.42 Decks.**

- A. All swimming pools shall have a continuous deck at least five feet wide, including the width of the coping, extending around the entire perimeter of the pool. Wading pools shall be entirely surrounded by a deck at least four feet in width. In addition, there shall be at least three feet of clear, unobstructed deck behind any diving stand, guard stand, or other deck mounted equipment. All decks shall be constructed of continuous pour concrete or other approved impervious material which shall have a smooth, non-slip finish. All decks shall have a slope of not less than one to forty-eight or more than one to twenty-four and shall be designed to conduct drainage away from the swimming pool in a manner that will not create a slip hazard or contribute to the pooling of water. Roof run-off or other drainage shall not be wasted onto the deck. All areas surrounding the deck shall have surface drainage directed away from the pool deck area or be served by a drainage system approved by the Director.
- B. Deck risers and steps shall comply with the VUSBC.

#### **838.43 Lighting**

- A. An indoor swimming pool or an outdoor swimming pool used after dark shall be equipped with lighting fixtures to light all parts of the pool, the pool water, and the swimming pool area. A sufficient number of light fixtures shall be installed to supply a minimum of ten foot candles for the pool surface area and thirty foot candles for the pool deck area measured six inches above the pool deck and water surface. The lighting fixtures shall be designed and installed so that the lifeguard(s) and patrons can clearly see every part of the swimming pool, including decks, diving boards, and other appurtenances, without interference from glare. Lighting fixtures shall be installed in a manner which creates no hazard to patrons or employees. All lighting fixtures shall be prohibited directly above the water surface area or within three feet horizontally of the pool rim except as permitted by the National Electrical Code. All light fixtures shall be shielded.
- B. Underwater pool lighting, when installed, shall provide at least one watt per square foot of water surface area, or the equivalent, and shall be equipped with GFCI(s) as required by the National Electrical Code.

#### **838.44 Safety requirements.**

- A. Swimming pools equipped with pool water heaters shall have a fixed thermometer installed in the main return line. The thermometer shall be located sufficiently downstream from where the water heater effluent pipe connects to the main return line to allow the mixing of the heated and unheated water. The thermometer shall be designed and located so that it may be easily read.
- B. A separate room shall be provided for the care and isolation of victims of injury, illness, or accident which is directly accessible from the pool deck. The room shall be well lighted and ventilated, and shall be large enough to permit unrestricted movement of both the victim and first-aid providers.
- C. A direct dial, hard-wired telephone that is fully operational shall be provided within the swimming pool area. The phone shall be immediately accessible from the pool deck. The phone shall be located so a clear and unobstructed view of the pool(s) is provided. Emergency telephone numbers and the facility's name and address shall be posted by the telephone.
- D. The depth of water in swimming pools shall be marked at every one foot increment of depth and at least every twenty feet of swimming pool perimeter on both the horizontal surface of the deck and the vertical surface of the pool wall. Horizontal depth markings shall be positioned to be read while standing on the deck facing the water. Depth markings on deck surfaces shall be non-slip. All numbers and letters shall be at least five inches in height and be of contrasting color with the pool walls and deck. Depth markings are not required for wading pools.
- E. Fixed, floating, or moveable platforms in swimming pools shall be constructed with an air space of at least eighteen inches between the water surface and the underside of the platform or be provided with a barrier system at the perimeter of the device to prevent access under the device.
- F. There shall be a minimum of one lifeguard stand provided for every two thousand square feet of water surface area within the pool enclosure. Additional lifeguard stands may be required where, due to the configuration of the pool, full visibility is not provided from the installed lifeguard stand.
- G. A transition line on the bottom of the pool and a floating life line shall be provided at the five foot water depth between the shallow and deep portions of the swimming pool. The transition line shall be constructed of tile that is of dark and high contrasting color. The life line and transition line shall be located within six inches on either side of the break in slope to water greater than five feet in depth. The life line shall have clearly visible floats set at not greater than five foot intervals. The transition line shall be a minimum of two inches wide. The life line shall be securely fastened to wall anchors of corrosion resistant materials which shall be recessed and shall have no projections into the pool. The line shall be of sufficient size and strength to offer a good handhold and support loads normally imposed by swimmers.
- H. There shall be no protrusions, extensions, means of entanglement or obstructions which can cause entrapment or injury.

**838.45 Disinfection equipment.**

- A. All swimming pools shall be provided with approved mechanically operated, positive

displacement disinfectant feeding equipment, or other disinfection equipment NSF approved or approved by the by the Director, which:

1. shall be capable of providing a continuous and effective residual of disinfectant within the swimming pool water twenty-four hours per day;
  2. shall have a design feed rate which will provide effective disinfection levels when the swimming pool is in peak demand conditions;
  3. shall be capable of applying a dose the equivalent to maintain a concentration of at least one ppm free chlorine or two ppm bromine throughout the swimming pool at all times of operation and be capable of applying a dose up to 10 ppm chlorine or 20 ppm bromine.
  4. shall be equipped with a flow indicator on the supply line.
- B. The use of chlorine gas as a disinfectant shall not adversely affect the safety and health of patrons, pool personnel, or the public; shall comply with OSHA and Loudoun County Fire Marshal requirements; and shall comply with the following:
1. Chlorine gas feeding equipment and chlorine gas cylinders shall be installed in a room separate from the filter room(s) and electrical panels and shall be equipped with a lockable door. Gas chlorinator rooms shall be equipped with a forced draft fan exhausting to the outside from the floor level. The exhaust fan shall provide a minimum of sixty air changes per hour. A fresh air inlet shall be provided near the ceiling. The gas chlorinator room shall be located above ground level and below the deck level of all pools. The chlorine gas tanks shall be protected from direct sunlight and securely fastened in place during storage and use, and shall be mounted on a scale when in use. A self-contained gas mask for chlorine or a gas mask with a supply of oxygen under positive pressure or compressed air shall be provided at facilities where chlorine gas is utilized. The chlorine gas mask shall be approved by the Bureau of Mines and the Loudoun County Fire Marshal. The gas mask shall be located accessible to, but outside of, the gas chlorinator room. The chlorinator shall be provided with an emergency cut-off device to prevent gas discharge or injection of gas during electrical outage. A gas chlorine detection device with an alarm shall be provided.
  2. The use of gas chlorine as a disinfectant shall require a chemical feeder for the feeding of sodium carbonate into the recirculation system.
  3. The use of gas chlorine as a disinfectant shall require that a supply of ammonia hydroxide be present for the checking of leaks in the chlorination system.
- C. When the pool water recirculation system is equipped with an automatic chemical control mechanism that continuously analyzes the pool water and automatically activates chemical feeding, a water flow sensing device shall be provided that automatically deactivates all associated chemical feeders when the water flow in the recirculation system ceases.
- D. When bromine is used as the disinfectant, the following shall be followed:
1. Bromine shall be fed on a continuous basis;
  2. A concentration of at least two ppm bromine residual shall be maintained throughout The pool water at all times. A maximum of six ppm bromine residual shall be permitted in any swimming pool during use.

3. Solid stick or tablet type bromine shall be used with NSF International certified commercial feed equipment.

**838.46 Fencing and barriers.**

All outdoor pool areas shall be completely enclosed with a perimeter fence, or equivalent barrier, at least six feet in height, measured from the highest ground elevation within three feet adjacent to the outside of the barrier. If horizontal surfaces are used, top planes must be separated by a vertical distance that is no less than forty-five inches and shall prohibit the passage of a sphere larger than one and three-quarter inches in diameter through any opening in or under the fence or barrier. The fence or barrier shall be non-climbable from the outside of the enclosure. Non-climbable shall mean no handholds, footholds, horizontal members, or other features that are available, which would aid in climbing the fence from outside of the barrier. There shall be no objects within a six foot arc from the top of the perimeter fence or barrier and no closer than three feet to any part of the fence or barrier. The material used to construct the fence or barrier shall be approved by the Director. If the fence or barrier does not have horizontal surfaces, it shall be constructed so as to prohibit the passage of a sphere larger than four inches in diameter through any opening in or under the fence or barrier. Access gates installed in the perimeter fence or barrier shall have latches, be self-closing and self-latching and locks at least forty-eight inches above the deck or ground surface. Emergency gate(s) having a minimum horizontal opening of eight feet shall be provided for outdoor pools. Where grassed areas are provided for patrons within the pool enclosure, they shall be separated from the pool deck by a three foot high control fence or equivalent barrier equipped with a waist high shower at each entrance to the pool deck.

**838.47 Spectator areas.**

Spectators at swimming or diving meets and other special events shall not have access to the pool and shall be separated from the portions of the pool area used by swimmers or divers. Spectator balconies shall not overhang within five feet of any portion of the pool water surface.

**838.48 Drinking fountains.**

Each swimming facility shall have at least one drinking fountain readily accessible to all patrons within the pool area.

**838.49 Wading pools.**

Wading pools shall meet all applicable requirements of this Ordinance, and the following additional requirements:

- A. The slope of the bottom of any wading pool shall not be greater than one to fifteen and not less than one to forty.
- B. Wading pools shall be separated from any other swimming pool or spa pool by a fence approved by the Director. The fence shall be at least three feet in height with a latching, self-closing, three foot gate.

- C. A separate recirculation system shall be provided exclusively for the wading pool.
- D. Wading pool skimmers and main drain outlets shall be interconnected with equal diameter piping.
- E. The distance from the deck to the water level shall be six inches or less.
- F. The total water velocity through the wading pool main drain outlets shall not exceed one foot per second.

**838.50 Slides, sprinklers, fountains, activity pools, interactive water features and other pool equipment.**

- A. Slides, sprinklers, fountains, activity pools, interactive water features, and other pool equipment for which design standards are not contained in this Article shall meet the design standards in Article 6 of this Ordinance or shall meet design standards approved by the Director.
- B. Interactive water features shall be completely enclosed by a perimeter fence or equivalent barrier at least three feet in height. Waist high foot showers shall be provided at all entrances to the deck.
- C. The construction of filter room shall meet the requirements of Section 838.34. The collector tank or reservoir shall be installed in accordance to manufacturer's specifications.
- D. The disinfectant residual, pH, total alkalinity, calcium hardness, and total dissolved solids shall be continuously maintained within the minimum and maximum ranges specified in the table below:

	Minimum	Ideal	Maximum
IWF free chlorine	3.0	4.0	9.0
Combined chlorine			0.2
Bromine residual	2.0	4.0 - 6.0	9.0
pH	7.2	7.4 – 7.6	7.8
Total Alkalinity (ppm)	80	100	160
Calcium hardness (ppm)	200	200 - 400	800

- E. The operations of IWF facility shall be under the immediate control of a person who possesses a valid pool operator's certificate accepted by the Director.

**Article 3.  
Swimming Pools; Operation and Maintenance.**

**838.51 Security.**

Swimming pool facilities shall be operated and maintained in a manner which will not create a nuisance or hazard to the public's safety or health. The pool shall be adequately secured to prevent unauthorized entry when not in use.

**838.52 Water operating levels.**

The water level shall be maintained within the operating range of the skimmers or at the top of the overflow rim of a gutter system at all times the swimming pool is open for use.

**838.53 Monitoring, reporting, and record keeping.**

The following information shall be recorded and maintained by the owner for a minimum of one year from the date of the recording, occurrence, or incident; and shall be available for inspection at all times while the swimming pool is in operation:

**A. Water Quality Parameters and Maintenance.**

1. The disinfectant residual and pH shall be tested and the results recorded at least once every two hours while the pool is in use. ORP readings, if applicable, shall also be recorded every two hours while the pool is in use. The water temperature, for heated pools, and the total chlorine residual, for pools utilizing chlorine, shall be tested and recorded a minimum of once a day.
2. Influent and effluent pressure gauge readings and the flow rate shall be observed every two hours and be recorded at least two times per day; at least once prior to opening to the public and during the last hour of operation. The date and time of each backwash or filter cleaning shall be recorded.
3. Total alkalinity and calcium hardness tests shall be performed and recorded weekly, or more often as necessary to provide proper chemical balance of the pool water. Cyanuric acid tests shall be performed and recorded weekly at all pools utilizing cyanuric acid or chlorinated cyanurates.
4. The date, time, type, and amount of any chemicals added to the pool water shall be recorded. However, for chemicals added continuously with a chemical feeder, only the type of chemical shall be documented.

**B. Other Records**

1. The owner shall immediately notify the Director of all drownings, near drownings, injuries requiring emergency care or 911 calls, water-related illness or deaths which have occurred. Notification of minor injuries, such as minor abrasions or superficial cuts, shall not be required. Owners shall submit a complete written drowning and injury report, containing all relevant facts and information related to the incident, to the Director within seven days of an incident. The following information must be included in the drowning and injury report:
  - (a). Pool Operator on duty at time of incident
  - (b). Date, time and exact location of incident
  - (c). Name, age and certifications of persons involved in incident
  - (d). Number of lifeguards on duty at time of incident
  - (e). Exact locations of all lifeguards on duty
  - (f). Pool and/or spa water clarity (g).  
Number of bathers in the pool (h).  
Number of patrons in the facility
  - (i). Police Case number (if available)
  - (j). Injury description
  - (k). Names of witnesses
  - (l). Detailed description of accident

2. Owners shall have available at the water recreation facility proof of the credentials, training, and/or certifications required for personnel as detailed in § 838.10 and § 838.58.
3. Material Safety Data Sheets (MSDS) for all chemicals used at a swimming pool facility shall be provided in a location readily accessible to all employees.

**838.54 Placards.**

- A. The water test results specified in § 838.53A1 shall be legibly and conspicuously posted on a permanent, water-proof, and durable placard in a location where it is readily observable by the patrons. The most recent required daily water quality test results, including the date and time of day tested, shall be posted. The minimum and maximum standards for these parameters, as specified in § 838.63 Table III, shall be included on the placard. Water temperature shall also be posted for heated pools.
- B. Areas restricted to operating personnel only shall be prominently identified with a permanent, legible placard stating "Authorized Personnel Only" including but not limited to the filter and chemical storage rooms. The placards shall be conspicuously located on the exterior of the doors to the restricted areas.
- C. A permanent, legible, placard(s) specifying facility rules and regulations regarding personal health and safety shall be posted in plain view of patrons in the pool area, dressing rooms and entrances.
- D. A permanent, legible, engraved plastic or laminated paper specification placard shall be conspicuously displayed within the filter room(s) and shall be adequately lighted. The following information shall be included on the placard:
  1. name, address and date of construction of the facility.
  2. volume in gallons.
  3. water surface area in square feet.
  4. minimum turnover time in hours.
  5. minimum rate of flow in gallons per minute to provide the required turnover time.
  6. head loss at which the filters should be backwashed.
  7. maximum facility load, and maximum pool load(s).
- E. Separate legible placards shall be posted in an appropriate location within the filter room(s) to describe the following pool operating procedures:
  1. instructions on the proper operation of pumps and filters including the valve line ups for filtration.
  2. instructions on proper backwashing or cleaning procedures and valve line ups for backwashing.
- F. A separate, permanent, legible placard clearly indicating the maximum facility load and individual swimming pool load(s) shall be conspicuously posted at the main entrance to the swimming pool facility. The letters and numbers indicating the load(s) shall be a minimum of two inches in height.

**838.55 Precautions relative to communicable disease.**

Any person having an obvious skin disease, nasal or ear discharge, inflamed eye, or any communicable disease shall be excluded from the facility.

**838.56 Food service.**

Any person in the process of eating shall remain in an area designated for the consumption of food. This area shall be at least five feet from the swimming pool edge and shall be enclosed by a fence or suitable barrier. Glass containers are not permitted in the pool area. Beverages contained in non-breakable/non-shatter containers are permitted up to the swimming pool edge.

**838.57 Boisterous and rough play.**

Boisterous and/or rough play and running is prohibited at any swimming pool facility.

**838.58 Lifeguards.**

- A. There shall be at least one lifeguard at all pool facilities. A minimum of one lifeguard shall be required for every fifty patrons or fraction thereof in the pool area. Additional lifeguards may be required by the Director when deemed necessary for complete visual coverage of the pool or when conditions exist that may compromise the health or safety of pool patrons.
- B. Lifeguards shall be at least fifteen years of age for a swimming pool or sixteen years of age for a waterpark facility, or as allowed by the U.S. Department of Labor and shall be properly trained and certified in accordance with nationally recognized standards equivalent to or exceeding those set by the American Red Cross. Lifeguards shall also be trained and certified in cardio-pulmonary resuscitation and first aid in accordance with national standards equivalent to or exceeding those set by the American Red Cross. It is the responsibility of each training organization that issues lifeguard, CPR and/or first aid certifications to insure that the course standards are equivalent to or exceed those set by the American Red Cross. Lifeguards shall have their original document of certification and valid photo identification at the pool facility during operation of the pool facility. The original or a copy of the original documentation of certifications shall be on display at the pool facility in a place where it is readily observable by the public using the facility.
- C. Lifeguards shall wear distinguishing emblems on their clothing clearly identifying them as lifeguards while on-duty. Lifeguards shall not be subject to duties while they are on-duty lifeguarding the pool that would distract their attention from proper observation of patrons in the pool area or that would prevent immediate assistance to patrons in distress.
- D. Notwithstanding any of the provisions of this chapter, all pools that fall within the general requirements of this chapter, but which have a capacity limit of not more than forty people at any one time, shall designate and have on the premises a reliable and competent person as a lifeguard, which person need not meet the certification or training requirements of this section. The management shall provide, for the use of such person, such life-saving equipment as may be required depending upon the size and depth of the pool.

**838.59 Safety and rescue equipment; other safety features.**

- A. Every swimming pool facility shall be equipped with the following readily accessible

safety and rescue aids:

1. A minimum of one rescue tube shall be provided immediately adjacent to each lifeguard stationed poolside. The rescue tube shall measure at least forty-five inches in length and shall provide adequate buoyancy to keep two persons afloat in the water.
2. One or more throwing ring buoys not less than fifteen inches in diameter and having a test line attached that is of sufficient length to reach twice the width of the pool, shall be available at all pools at all times.
2. An approved first aid kit, which meets OSHA First Aid 29 CFR 1910.151 standards, shall be readily available. The kit shall meet the minimum requirements of generic first aid kits according to the American National Standards Institute (ANSI) Z308.1-1978.
3. A full-length backboard with straps shall be provided. The backboard shall be buoyant, and capable of supporting a minimum of three hundred fifty pounds, center loaded, with minimal deflection. The backboard shall have an impervious surface and be provided with runners, numerous hand/strap holes, and a minimum of three backboard straps.
4. Provide one or more light, but strong, nontelescopic poles with blunted ends not less than twelve feet in length including a body hook.

B. Other Safety Features.

1. The room designated for emergency care of casualties shall, at a minimum, be equipped with an approved first aid kit, a cot, and two blankets. Filter or chemical storage rooms shall not be used as emergency care rooms.
2. All chemicals associated with the facility shall be stored and utilized in a safe and approved manner in accordance with manufacturer's recommendations. Incompatible chemicals shall not be stored in close proximity to each other. Cleaning chemicals and supplies shall be stored in a safe manner, separate from swimming pool chemicals. Chemicals shall be stored in properly labeled containers which shall be kept covered at all times.
3. Chemical vats shall be double vatted and covered with proper lids.
4. Protective equipment, including but not limited to goggles or full face shields; neoprene rubber gloves; and rubber aprons shall be provided and used by personnel handling hazardous chemical compounds.
5. Plugs or caps shall be installed at all pool suction cleaner outlet ports when the suction cleaner is not in use. The main valve controlling the water flow from the pool suction cleaner outlet ports shall be closed when the pool suction cleaner is not in use.
6. All safety equipment and features required in this Ordinance shall be maintained in good condition and repair.
7. Pool water temperature shall not exceed one hundred four degrees Fahrenheit.
8. Safety signs shall be painted on the deck to warn against diving into water depths less than five feet of water. The letterings of the safety signs on the deck must be a minimum of five inches in height and be of contrasting color with the pool deck. The signs shall be marked at least every twenty feet as necessary.

### **838.60 Laundering.**

Bathing suits, towels and other reusable materials furnished by a swimming pool facility shall be properly cleaned or laundered and disinfected before being issued to patrons.

### **838.61 Water contamination.**

- A. The following information shall be posted at the entrance of every pool:
  - 1. If you have or have had diarrhea in the past two weeks, please do not use the pool.
  - 2. Shower your child and yourself before entering the pool or after using the toilet.
  - 3. Bathers who are not toilet trained or incontinent persons must wear a swim diaper.
  - 4. Do not drink pool water.
- B. The introduction of body waste including sputum or vomitus, into a pool is prohibited. Patrons wearing cloth or disposable diapers are prohibited from entering the pool water. A pool contaminated by human feces or vomit shall be cleared of patrons immediately, the Loudoun County Health Department notified and decontamination procedures completed. The most current guidelines provided by the *Center for Disease Control (CDC)* for water contamination, or other current standard as approved by the Director, shall be followed prior to reopening the pool. An incident log shall be maintained at the pool.

### **838.62 Water clarity.**

At all times when the pool is open for use, the water shall be sufficiently clear to permit a disc six inches in diameter, divided into alternate black and white quadrants, when placed on the bottom of the pool at the deepest point, to be clearly visible from the swimming pool deck at all distances up to ten yards in a horizontal direction from the projection of the disc on the swimming pool surface.

### **838.63 Water treatment and test equipment.**

- A. The following chemicals may be used to treat swimming pool water: aluminum sulfate, calcium chloride, calcium hypochlorite, carbon dioxide, cyanuric acid, lime, muriatic acid, polyaluminum chloride, sodium bicarbonate, sodium bisulfate, sodium carbonate, sodium hypochlorite, sodium thiosulphate, approved algaecides, approved bromine compounds, and approved chelating, sequestering, and clarifying agents. No other chemicals shall be used to treat swimming pool water without prior written authorization from the Director.
- B. Aluminum sulfate and polyaluminum chloride shall not be fed continuously into a recirculation system using rapid sand filters. Formation of the floc shall be achieved separately and applied directly to the filter influent during the rewash and continuing into the early part of the filter cycle.
- C. Chemical water quality standards for swimming pools shall be as follows:
  - 1. Except as noted below, disinfectant residual, pH, total alkalinity, calcium hardness, and total dissolved solids shall be continuously maintained within the minimum and maximum ranges specified in Table III. If the swimming pool is equipped with automatic chemical controllers utilizing ORP measurements, ORP shall be maintained within the ranges specified in Table III. The use of ORP sensing

equipment does not eliminate the requirement for routine water testing specified in § 838.53. Disinfectant residual limits specified in Table III may be exceeded when superchlorinating a swimming pool provided that no patrons are present in the swimming pool water and that the disinfectant level is returned to the acceptable range prior to allowing patrons to enter the swimming pool water.

Table III. Chemical Water Quality Standards for Swimming Pools.

Parameter	Minimum	Ideal	Maximum
Free Chlorine Residual (ppm)	1	1 – 3	3
Combined Chlorine Residual (ppm)	0	0	0.2
Bromine Residual (ppm)	2	2 – 4	4
Oxidation Reduction Potential (ORP) (millivolts)	650	750 – 900	N/A
pH	7.2	7.4 – 7.6	7.8
Total Alkalinity (ppm)	60	80 – 120	180
Calcium Hardness (ppm)	150	200 – 400	1000

2. Except as noted in § 838.63C1&D, disinfectant residuals shall be maintained within the ranges specified in Table III, twenty-four hours per day, through the use of automatic disinfection equipment specified in § 838.45. For swimming pools that backwash/clean filters to storm drains, streams, lakes or other bodies of water, disinfectant levels may be temporarily reduced immediately prior to the backwashing/cleaning of filters, provided the swimming pool facility is not open for patron use.
- D. If Cyanuric acid or chlorinated cyanurates is used in an outdoor swimming pool, the Cyanuric acid levels and disinfectant residuals shall be maintained within the following ranges:
1. A free chlorine residual of at least two ppm shall be maintained for Cyanuric acid levels from zero to fifty ppm.
  2. The concentration of Cyanuric acid shall not exceed fifty ppm.
  3. The use of Cyanuric acid or other chlorine stabilizers is prohibited in indoor swimming pools.
- E. An approved water quality test kit for determining free and total chlorine or total bromine residuals, pH, total alkalinity, and calcium hardness shall be provided and maintained. Provisions shall be made for checking superchlorination levels. Diethyl-p-phenylene diamine (DPD), or other testing reagent approved by the Director, is required for determining free halogen residual. If another disinfectant has been approved by the Director for use at a swimming pool, an appropriate test kit approved by the Director shall be provided and maintained. A test kit for measuring the concentration of Cyanuric acid, accurate within five ppm, shall be provided at each swimming pool using Cyanuric

acid or chlorinated cyanurates. Testing equipment for total dissolved solids shall also be provided.

- F. Hand-feeding of chemicals shall not be permitted during hours of operation or within thirty minutes prior to opening.

**838.64 Design load.**

An individual swimming pool load shall be determined by dividing the total water surface area in square feet of each pool within the swimming pool facility by twenty seven square feet. The designated individual swimming pool loads and the maximum facility load shall not be exceeded. The pool operator shall be responsible for enforcing the individual swimming pool loads and the maximum facility load. The maximum facility load may be temporarily exceeded to allow for spectators of special events, such as swimming meets or other water sport activities, provided that the spectators shall not have access to and shall be separated from the pool(s) both during and after the event.

**838.65 Spectators.**

No person in street shoes shall be allowed on the deck of a swimming pool within five feet of the pool edge. Exceptions may be made for participants and spectators of swimming meets or other water sport activities, operating personnel, personnel engaged in repair work or as approved by the Director.

**Article 4.**

**Spa Pools; Design and Construction.**

**838.66 Location.**

The location of a spa pool shall in no way hinder the operations for which it is designed, nor adversely affect patron safety or water quality.

**838.67 Access.**

Direct and unobstructed access to any spa pool area shall be provided as specified in § 838.24A. Emergency access to indoor or elevated spa pools shall be provided as specified in § 838.24B.

**838.68 Construction materials.**

Spa pools shall be constructed of materials specified in § 838.25.

**838.69 Design.**

Subject to the provisions below, a spa pool may be of any dimension or shape, provided that satisfactory recirculation of water can be obtained and that no undue hazards to patrons are created. The dimension or shape shall comply with the following specifications:

- A. The maximum water depth shall be four feet measured from the water line.
- B. The maximum depth of any seat or sitting bench shall not be more than twenty-four inches below the water line.
- C. All corners shall be coved as specified in § 838.29.

D. The slope of the floor shall not exceed a ratio of one to twelve.

**838.70 Hydrostatic pressure relief valve.**

Hydrostatic pressure relief valves shall be installed as specified in § 838.27 unless it can be demonstrated that the spa pool will not be displaced by hydrostatic pressure.

**838.71 Handholds.**

Spa pools shall be provided with suitable handholds as specified in § 838.31.

**838.72 Stairs and bench seats.**

A. Spa pool stairs shall be provided where water depths are greater than twenty-four inches.

B. The design and construction of spa pool stairs and bench seats shall conform to the following specifications:

1. Step treads shall have a minimum unobstructed horizontal depth of ten inches and a minimum continuous width of twenty-four inches.
2. Riser heights shall not be less than seven inches nor greater than twelve inches. The bottom tread shall not serve as a bench or seat.
3. Each set of stairs shall be provided with a minimum of one handrail to fully service all treads and risers.
4. The top and leading edge of all stair treads shall be marked on the horizontal surface as specified in § 838.32B3.
5. The step treads of all stairs shall be of non-slip construction.
6. A minimum of one means of egress shall be provided for spa pools with a perimeter of fifty feet or less. One additional means of egress shall be provided for each additional fifty feet of pool perimeter, or fraction thereof. Additional means of egress may be required as determined by the Director. The location of the means of egress shall be determined by the design of the spa pool.

**838.73 Decks.**

All spa pools shall have a continuous deck, at least five feet in width, extending around at least fifty percent of the spa pool. Except as provided above, decks shall comply with the requirements specified in § 838.42.

**838.74 Lighting.**

Lighting shall be provided according to all applicable specifications of § 838.43.

**838.75 Safety requirements.**

A. Spa pool depth markings shall comply with the requirements specified in § 838.44D.

B. There shall be no protrusions, extensions, means of entanglement or obstructions which can cause entrapment or injury.

C. A timer switch that automatically shuts off the hydrotherapy jets and air blowers shall be provided. The timer switch shall be readily accessible to patrons and be located directly adjacent to the spa pool and shall have a maximum setting which does not exceed fifteen minutes. The timer switch shall not be accessible from within the spa pool.

- D. A prominently identified and conspicuously located spa pool emergency pump cut-off switch shall be provided at each spa pool and shall be immediately accessible from the spa pool deck to be used strictly in the event of an emergency. The emergency switch shall deactivate all spa pool pumps. An “EMERGENCY PUMP CUT-OFF SWITCH” sign shall be posted at the switch, and shall have letters at least two inches in height which are color contrasted with the background color of the sign. The emergency pump cut-off switch shall not be capable of activating the spa pool pumps.
- E. If the telephone specified in § 838.44C is not provided, a direct dial, hard-wired telephone that is fully operational shall be provided within one hundred feet of the spa pool and shall be readily accessible at all times. The facilities name, address, and the emergency numbers, including the phone number for the pool operator, shall be posted by the telephone.

**838.76 Fencing and barriers.**

Fencing and barriers shall be provided as specified in § 838.46. In addition, for indoor spa pool facilities, locked doors or an equivalent barrier acceptable to the Director shall be provided to prevent the entry of unauthorized individuals.

**838.77 Drinking fountains.**

Each spa pool facility shall have at least one drinking fountain readily accessible to all patrons.

**838.78 Inlets, outlets, piping, drains, and skimmers.**

- A. Spa pool inlets and outlets shall be provided and arranged to maintain a uniform circulation of water and disinfectant residual.
- B. All spa pool piping shall comply with the requirements specified in § 838.37, except only subsurface spa pool piping which is not integrally included in the manufacture of the spa pool shall be embedded in and covered with sand or an approved equivalent.
- C. All spa pools shall be provided with a minimum of one skimmer. Spa pool skimmers shall comply with the requirements specified in § 838.41B.
- D. Spa pool suction outlets shall be designed so that each pumping system in the spa pool provides one of the following alternatives:
  - 1. Two or more interconnected suction outlets. The system shall be designed so that none of the outlets can be isolated from the suction line by a valve or by any other means. All piping associated with the suction outlets shall be of equal diameter and each suction outlet shall be of equal size. Suction outlets and associated piping shall be hydraulically designed to provide equal flow through each suction outlet. The open area of the suction outlets shall be covered with suitable protective grates or covers that are anchored using manufacturer supplied parts in strict accordance with the manufacturer’s specifications and recommendations and shall be designed to prevent body entrapment or injury. The suction outlet covers shall be secured so that their removal requires the use of tools. Suction outlet covers shall be manufactured and installed according to the latest specifications set forth by the ASME/ANSI and NSF International standards for suction fittings. The cover, frame and all

components shall be corrosion resistant and shall be designed to withstand the maximum anticipated forces generated by active use. If the suction outlets are main drain outlets, they shall have antivortex covers or grates, shall be located in the deepest part of the spa pool, and shall be capable of draining the pool. The total water velocity through suction outlets, with the exception of skimmers, shall not exceed one foot per second and shall not exceed the maximum flow rate specified by the manufacturer of the suction outlet cover.

2. Other methods that prevent suction outlet body entrapment or injury may be approved by the Director.
- E. If fill spouts are used at spa pools, they shall be installed according to applicable requirements specified in § 838.37B.

**838.79 Recirculation system.**

- A. All spa pools shall be equipped with a recirculation system consisting of at least a pump, connecting piping, fittings, valves, a filter, disinfecting equipment, necessary pipe connections to the inlets and outlets, skimmer(s) and main drains.
- B. The recirculation system shall be designed for a maximum turnover time of fifteen minutes.
- C. Adequate provision shall be made for backwashing or cleaning the filters.
- D. A separate recirculation system shall be provided for each spa pool.

**838.80. Filters and gauges.**

- A. The recirculation system of a spa pool shall be equipped with a filtration system that will filter the entire volume of the spa pool at the rate specified in § 838.79B.
- B. Only high-rate sand, diatomaceous earth or replaceable cartridge filters shall be used for spa pools. Other filtration systems may be used with the approval of the Director. Except as provided above, filters and associated piping and valves shall comply with the requirements specified in § 838.35A.
- C. Pressure gauges and flow meters shall be installed as specified in § 838.35B.
- D. When cartridge filters are used, an extra set of cartridge filters shall be on-site.

**838.81 Pumps and strainers.**

A pump(s) shall be provided with adequate capacity to recirculate the spa pool water at the rate specified § 838.79B. Pump(s) and strainer(s) shall meet the requirements specified in § 838.36A&B, except the turnover time specified in § 838.79B shall be achieved.

**838.82 Filter room.**

A filter room(s) shall be provided which meets the requirements specified in § 838.34, except that this room(s) shall not be required to be directly accessible from the spa pool area.

**838.83 Air induction systems.**

- A. An air induction system, when provided, shall prevent water back-up that could cause electrical shock hazards.
- B. Air intake sources shall be positioned to minimize introduction of contaminants, such as

deck water and dirt, into the spa pool.

- C. Integral air passages shall be pressure tested at one and one-half times the intended working pressure during the time of installation to ensure airtight integrity.

**838.84 Disinfection equipment.**

- A. All spa pools shall be provided with disinfection equipment meeting the requirements specified in § 838.45A & C.
- B. Chlorine gas shall not be used as a disinfectant in spa pools.

**Article 5.**

**Spa Pools; Operation and Maintenance.**

**838.85 Security.**

Spa pool facilities shall be operated and maintained as specified in § 838.51.

**838.86 Water operating levels.**

The water level shall be maintained within the operating range of the skimmer or at the top of the overflow rim of a gutter system at all times the spa is open for use.

**838.87 Monitoring, reporting, and record keeping.**

Spa pool water testing shall be performed as specified in § 838.53. In addition, the dates and times the spa pool is drained and cleaned shall be recorded.

**838.88 Placards.**

Placards shall be provided as specified in § 838.54.

**838.89 Precautions relative to communicable disease.**

Precautions relative to communicable disease specified in § 838.55 shall be enforced.

**838.90 Food service.**

Food service shall be limited as specified in § 838.56.

**838.91 Boisterous and rough play.**

Boisterous and/or rough play and running at any spa pool facility is prohibited.

**838.92 Temperature requirements.**

Spa pool water temperature shall not exceed one hundred four degrees Fahrenheit. A thermostat, secured by lock and key from unauthorized adjustment shall be provided for the control of the spa pool water temperature. An accurate, impact resistant spa pool thermometer shall be kept in each spa pool for measuring water temperature.

**838.93 Safety and rescue equipment, other safety features.**

- A. Every spa pool facility shall be equipped with the following readily accessible safety and rescue aids:
  - 1. An approved first aid kit, which meets OSHA First Aid 29 CFR 1910.151 standards, shall be readily available. The kit shall meet the minimum requirements of generic first aid kits according to the American National Standards Institute (ANSI) Z308.1-1978.
  - 2. A full-length backboard shall be provided as specified in § 838.59A3.
  - 3. A working clock shall be provided which is clearly visible from within the spa pool.
- B. Other safety features:
  - 1. The following recommendations for safe use of the spa shall be posted at the entrance of every spa pool:
    - (a). Do not use alone.
    - (b). Pregnant women, elderly persons and persons suffering from heart disease, diabetes or abnormal blood pressure or other at-risk persons should not enter the spa pool without consulting a physician.
    - (c). Do not use the spa pool while under the influence of alcohol, tranquilizers, or other drugs which may cause drowsiness, alter blood pressure or put the patron at risk.
    - (d). Do not use at water temperatures above one hundred four degrees Fahrenheit.
    - (e). Unsupervised use by children is prohibited.
    - (f). Enter and exit slowly.
    - (g). Limit your use of the spa pool to a maximum of fifteen minutes at one time.
    - (h). Cool down before revisit.
    - (i). Long exposure may result in nausea, dehydration, dizziness, fainting or death.
    - (j). The use of oils, body lotions and mineral bath salts is prohibited.
    - (k). Patrons with symptoms of a communicable disease are prohibited from entering the spa pool.
    - (l). Failure to comply with these regulations constitutes grounds for exclusion from the premises or management action as necessary.
  - 2. All chemicals associated with spa pools shall be stored and utilized in a safe and approved manner as specified in § 838.59B2.
  - 3. Protective equipment shall be provided for handling hazardous chemicals as specified in § 838.59B4.
  - 4. Filter and chemical storage rooms shall be locked at all times when authorized personnel are not present.

**838.94 Laundering.**

Bathing suits, towels and other reusable materials furnished by a spa pool facility shall be properly cleaned or laundered and disinfected before being issued to patrons.

**838.95 Water clarity.**

At all times when the pool is open for use, the water shall be sufficiently clear to permit a disc six inches in diameter, divided into alternate black and white quadrants, when placed on the bottom of the pool at the deepest point, to be clearly visible from the swimming

pool deck at all distances up to ten yards in a horizontal direction from the projection of the disc on the swimming pool surface.

**838.96 Water treatment and test equipment.**

- A. No chemicals other than those specified in § 838.63A shall be used to treat spa pool water without written authorization from the Director.
- B. Except as noted below, disinfectant residual, pH, total alkalinity, calcium hardness, and total dissolved solids shall be continuously maintained within the minimum and maximum ranges specified in Table IV. If the spa pool is equipped with automatic chemical controllers utilizing ORP measurements, ORP shall be maintained within the ranges specified in Table IV. The use of ORP sensing equipment does not eliminate the requirement for routine water testing specified in § 838.87. Disinfectant residual limits specified in Table IV may be exceeded when superchlorinating a spa pool provided that no patrons are present in the spa pool water and that the disinfectant level is returned to the acceptable range prior to allowing patrons to enter the spa pool water.

Table IV. Chemical Water Quality Standards for Spa Pools.

Parameter	Minimum	Ideal	Maximum
Free Chlorine Residual (ppm)	2	3 – 5	10
Combined Chlorine Residual (ppm)	0	0	0.2
Bromine Residual (ppm)	2	3 – 5	10
Oxidation Reduction Potential (ORP) (millivolts)	650	750 - 900	N/A
pH	7.2	7.4 - 7.6	7.8
Total Alkalinity (ppm)	60	80 - 120	180
Calcium Hardness (ppm)	150	200 - 400	1000

- C. If cyanuric acid or chlorinated cyanurates is used in an outdoor spa pool, the cyanuric acid levels and disinfectant residuals shall be maintained within the following ranges:
  - 1. A free chlorine residual of at least four ppm shall be maintained for cyanuric acid levels from zero to fifty ppm. The concentration of cyanuric acid shall not exceed fifty ppm. The use of cyanuric acid or other chlorine stabilizers is prohibited in indoor spa pools.
- D. An approved water quality test kit shall be provided as specified in § 838.63E.
- E. Hand-feeding of chemicals shall not be permitted while the spa pool is open or accessible to patrons and within thirty minutes of opening.

**838.97 Water contamination.**

The introduction of body wastes, including sputum or vomitus, into a spa pool is prohibited. A spa pool contaminated by human feces or vomit shall be closed immediately and the following additional actions shall be taken by the spa pool operator:

- A. Remove contaminating material from the pool water.
- B. Backwash the filters.
- C. Drain the spa pool.
- D. Clean and disinfect the bottom and sidewalls of the spa pool and skimmers.
- E. Refill with potable water.

**838.98 Posting of water quality test results and water quality standards.**

The water tests indicated in § 838.87 shall be conducted and the results posted.

- A. The water test results specified in § 838.53A1 shall be legibly and conspicuously posted on a permanent, water-proof, and durable placard in a location where it is readily observable by the patrons. The most recent required daily water quality test results, including the date and time of day tested, shall be posted. The minimum and maximum standards for these parameters, as specified in § 838.96 Table IV, shall be included on the placard. Water temperature shall also be posted for heated spas.
- B. Areas restricted to operating personnel only shall be prominently identified with a permanent, legible placard stating "Authorized Personnel Only" including but not limited to the filter and chemical storage rooms. The placards shall be conspicuously located on the exterior of the doors to the restricted areas.
- C. A permanent, legible, placard(s) specifying facility rules and regulations regarding personal health and safety shall be posted in plain view of patrons in the pool area, dressing rooms and entrances.
- D. A permanent, legible, engraved plastic or laminated paper specification placard shall be conspicuously displayed within the filter room(s) and shall be adequately lighted. The following information shall be included on the placard:
  - 1. name, address and date of construction of the facility.
  - 2. volume in gallons.
  - 3. water surface area in square feet.
  - 4. minimum turnover time in hours.
  - 5. minimum rate of flow in gallons per minute to provide the required turnover time.
  - 6. head loss at which the filters should be backwashed.
  - 7. maximum facility load, and maximum pool load(s).
- E. Separate legible placards shall be posted in an appropriate location within the filter room(s) to describe the following pool operating procedures:
  - 1. instructions on the proper operation of pumps and filters including the valve line ups for filtration.
  - 2. instructions on proper backwashing or cleaning procedures and valve line ups for backwashing.
- F. A separate, permanent, legible placard clearly indicating the maximum facility load and individual swimming pool load(s) shall be conspicuously posted at the main entrance to the swimming pool facility. The letters and numbers indicating the load(s) shall be a minimum of two inches in height.

**838.99 Design load.**

An individual spa pool load shall be determined by dividing the total water surface area in square feet of each spa within the spa pool facility by twenty-seven square feet or as approved by the Director at the time of construction. The designated individual spa pool loads and the maximum facility load shall not be exceeded. The pool operator shall be responsible for enforcing the individual spa pool loads and the maximum facility load.

**Article 6. Waterpark  
Facilities;  
Design, Construction, Operation and Maintenance.**

**838.100 Scope.**

This Article addresses the special design, construction, operation and maintenance considerations unique to waterpark facilities.

**838.101 Design.**

- A. Waterpark facilities shall meet or exceed the following design and construction standards in effect at the time of construction, including but not limited to:
  - 1. Specifications contained in this Ordinance.
  - 2. ASTM F-24 "Standards on Amusement Rides and Devices."
  - 3. "Virginia Amusement Device Regulations."
  - 4. Industry standards and manufacturer's specifications and recommendations.
- B. The proposed design shall be reviewed and approved by a licensed engineer.
- C. Waterpark facilities shall be designed to provide for the safety of the patron and proper recirculation of the pool water. The design shall include, but not be limited to the following:
  - 1. Absence of protrusions, pinch hazards, extensions, means of entanglement, or other obstructions which can cause entrapment or injury.
  - 2. Construction tolerances conforming to ANSI public pool standards.
- D. A report, prepared by a licensed engineer, that certifies the design of the waterpark facility is consistent with accepted safety engineering practices, industry standards, manufacturer's specifications and recommendations, and this Ordinance, shall be included with the original plans and specifications submitted to the Director for review.
  - 1. The report shall address issues related to safety design, including the ergonomic aspects of biomechanics for waterpark facilities.
  - 2. The report shall substantiate that a comprehensive risk analysis was made of the waterpark, including a risk analysis of each separate component and of the components interaction with other elements of the water park.
  - 3. The report shall demonstrate that the waterpark design protects the patron, under foreseeable conditions and normal usage and behavior, from exposure to injury.

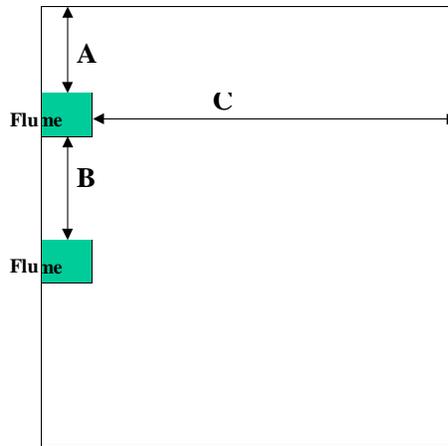
Elements to be considered include, but are not limited to, the following:

- (a). The activity shall contain the patron.
  - (b). The activity shall provide clear and smooth passage of the patron.
  - (c). The activity shall maintain designed patron speeds.
  - (d). The activity shall provide smooth transitions in speed and direction.
  - (e). The activity shall provide for safe landing and/or disembarkation of the patron.
  - (f). The activity shall accommodate continuous patron surveillance by lifeguards and attendants, except for an enclosed, tubular chute or flume where the patron shall be monitored at the points of entry and exit by qualified operation personnel.
4. The report shall specify the maximum pool loads and the maximum facility load.
  5. The report shall be accompanied by a facility operation and maintenance manual which includes manufacturer's specifications and recommendations for each attraction regarding operation and maintenance of the attraction to include but not be limited to the following:
    - (a). Appropriate construction drawings.
    - (b). Maintenance instructions.
    - (c). Operation instructions.
    - (d). Staffing requirements and procedures.
    - (e). Instructional and warning signage.
  6. Upon completion of the waterpark facility and prior to issuance of the owner's seasonal or annual permit, an addendum to the report, prepared by a licensed engineer, shall be submitted to the Director. The report addendum shall certify that each attraction has been tested under normal operating conditions and found to perform satisfactorily. The Director may require that the testing procedure be witnessed by one or more designees of the Director. The addendum shall also certify that the waterpark facility was constructed as detailed in the plans and specifications approved by the Director and consistent with accepted safety engineering practices, industry standards, manufacturer's specifications and recommendations, the report described in § 838.101D and this Ordinance.
- E. The following specific types of waterpark facility attractions shall comply with the requirements indicated:
1. Water chutes or flumes and inner-tube rides shall be provided with:
    - (a). Control of unauthorized patron access at entry and exit areas, and points along the attraction not designed for entry or exit.
    - (b). Handrails and non-slip walking surfaces at attraction entry and exit areas.
    - (c). Attendant stations for patron control that have direct line of sight between the entry and exit area of each attraction except as provided in § 838.101D3(f). Additional attendant stations may be required by the Director to provide complete visual coverage of the attraction.
    - (d). An effective internal communication system that allows direct communication between the attendants stationed at the entry areas, exit areas, and/or additional locations along the attraction as necessary.
    - (e). All structure supported attractions shall be designed to prevent water leaks, discharge, and splashout to minimize or eliminate structural deterioration, under

- structure erosion, loss of structural support or other safety hazards.
- (f). Instruments shall be provided to measure the flow of water through each attraction.
  - (g). Any tethered attractions shall not pose a pinch, puncture, or any other safety hazard.
2. Receiving pools shall have the minimum clearances detailed in Figure II for flume or chute entrances into pools. Sufficient distance shall be provided between the flumes or chutes to prevent collision. Receiving pools shall also meet the following requirements:
- (a). The flume or chute sliding surface of waterslides shall end at or below the pool operating water level.
  - (b). The flume or chute shall be perpendicular to the wall of entry for a minimum of ten feet.
  - (c). Receiving pools for drop slides shall comply with the manufacturer's specifications and recommendations.

Figure II: Minimum Clearances for Flume or Chute Entry to Receiving Pools.

<b>Value</b>	<b>Minimum Distance</b>	<b>Description</b>
A	5 Feet	Minimum distance from edge of flume to side of pool
B	6 Feet	Minimum distance between edges of parallel flumes
C	20 Feet	Minimum distance from where flume terminates to opposite side of pool



3. Children's activity pools shall comply with the specifications listed in § 838.49 except as specified in this Article, including compliance with the following specifications:
  - (a). A maximum depth of twenty-four inches.
  - (b). Children's activity pools which are part of a larger pool shall be protected from areas with water depths greater than twenty-four inches by providing:
    - (i). A dark, nonslip tile transition line on the bottom of the pool along the entire two foot water depth contour. The transition line shall be a minimum of two inches wide. The transition line shall be of high contrasting color.
    - (ii). A transition zone with a maximum floor slope not exceeding one to twelve.
  - (c). Where "climb-on" toys and attractions are provided, impact absorption materials shall be provided in areas where ejection or falls can reasonably be expected to occur.
4. Wave pools shall comply with the following specifications:
  - (a). Walls of wave pools shall be vertical with a minimum six inch radius of curvature between the wall and pool bottom.
  - (b). Decks shall have a minimum width of ten feet along the shallow end.
  - (c). A chain link fence, or similar restrictive barrier acceptable to the Director, shall be installed to direct patrons to access the wave pool from the shallow area. The fence shall be a minimum of thirty-six inches in height and at least four feet out from the edge of the coping or pool/deck juncture, and shall be provided adjacent to water depths twenty-four inches or greater. The fence shall be exclusive of the

perimeter fence or barrier. Emergency exit openings in the fence or barrier shall be provided at a minimum of one per fifty feet of pool sidewall and shall be a minimum of four feet in width.

- (d). Prominently identified and conspicuously located wave pool emergency cut-off switch(es) that terminate wave action shall be provided at each wave pool. One emergency cut-off switch shall be provided for every one hundred feet of pool perimeter or fraction thereof. Cut-off switches shall be immediately accessible to each lifeguard. Cut-off switches are to be used strictly in the event of an emergency. An "EMERGENCY WAVE CUT-OFF SWITCH" sign shall be posted at the switch, and shall have letters at least four inches in height which are color contrasted with the background color of the sign. The emergency cut-off switch shall not be capable of activating the wave action.
  - (e). A public address system shall be provided for use by authorized personnel, which is clearly audible to all portions of the wave pool.
  - (f). Pool depths shall be measured without wave action.
  - (g). A warning horn and flashing light shall be provided that automatically signals prior to the initiation of wave action. Sufficient time shall be allowed between the warning horn/flashing light and the initiation of wave action to allow patrons the option of leaving the wave pool.
5. Slow river attractions shall have a maximum current speed of three miles per hour.
  6. For activity pools in which climb-on toys and attractions are provided in water depths less than thirty-six inches, impact absorption materials shall be provided in areas where ejection or falls can reasonably be expected to occur. Impact absorption materials may also be required in other areas of the facility as determined by the Director.

#### **838.102 Location.**

The location of a waterpark facility shall in no way hinder the operations for which it is designed nor adversely affect patron safety or water quality. Pools within the waterpark facility shall be greater than fifteen feet from any structure, object, or land formation from which a patron could jump into a pool unless, at the discretion of the Director, other measures have been taken that are sufficient to prevent patrons from jumping from the structure, object, or land formation. The Director has the discretion to determine that the minimum fifteen foot distance requirement does not apply to certain segments of attractions or to barriers provided to prevent unauthorized access to pools. The Director may impose additional access restrictions.

#### **838.103 Access.**

Additional emergency access gates and lanes, in excess of those required by § 838.24, may be required as determined by the Director to allow immediate access to all areas within the waterpark facility.

#### **838.104 Slope of bottom.**

The slope of waterpark facility pools shall comply with the requirements specified in §

838.28 with the exception of the waterpark facility pools listed below:

- A. Receiving or exiting pools. The maximum slope shall not exceed one to seven where total water depth is less than forty-eight inches.
- B. Activity pools. The maximum slope shall not exceed one to twelve up to a water depth of five feet in activity pools where users enter and participate in extended activities.
- C. Wave Pools. The maximum slope shall not exceed one to twelve where water depths range from zero to three and one-half feet and shall not exceed one to nine where water depths exceed three and one-half feet.

**838.105 Handholds and handrails.**

All pools at waterpark facilities shall be provided with suitable handholds around their perimeter. One handrail for every seven feet, or fraction thereof, of exit area width or perimeter shall be provided at exit steps from receiving pools.

- A. Handholds may consist of any one or a combination of the following:
  - 1. Coping, gutter ledges or flanges, or decks which have a top edge that provides a suitable slip resistant handhold located not more than twelve inches above the water line.
  - 2. Ladders, steps or handrails.
  - 3. Other methods approved by the Director.

**838.106 Stairs, steps and ladders.**

Stairs, steps, and ladders shall be constructed as detailed in § 838.32 except for the circumstances outlined below.

- A. The stairs, ramps, and platforms associated with structure supported attractions shall be designed to provide for the safety of the intended users and shall take into account the following:
  - 1. Heavy patron loads.
  - 2. Slip hazards.
  - 3. Properly located and sized handrails.
- B. Wave pools shall be provided with recessed ladders or step holes with vertical grab bars at water depths greater than three and one-half feet, for emergency exit only, spaced at intervals of not greater than fifty feet.
- C. Stairs and steps shall be recessed into the pool wall or deck.
- D. Handrails shall extend over the coping or edge of the deck.
- E. Ladders or stepholes shall be provided to allow patron exit from pools greater than four feet in water depth, except in receiving pools which bring the user toward a shallow water depth area after entering the water.
- F. A minimum of one exit shall be provided for every fifty feet or fraction thereof of pool perimeter for pools whose water depth is greater than four feet. At least two means of egress/ingress shall be provided for each diving area or drop slide receiving pool. The exits shall be arranged to prevent exit paths from crossing slide discharge paths.
- G. Slow river attractions shall be provided with properly sized recessed stairwells or rampways with handrails. Entry and exit points shall be sufficiently wide to easily accommodate patrons boarding on or disembarking from flotation devices.

H. Additional handrails at entry and exit areas may be required as determined by the Director.

**838.107 Recirculation systems.**

The recirculation system shall meet all of the requirements specified in § 838.33 except as specified below:

- A. The recirculation system for all pools at a waterpark facility, other than those specified in § 838.33B, shall be designed to accommodate the following required maximum turnover time:
  - 1. Children's Activity Pool, one hour.
  - 2. Wave pool, two hours.
  - 3. Receiving pool that is completely separate from the main body of the pool, has no more than two attractions, and has a volume of twenty thousand gallons or less shall be provided with a turnover time of one hour. The turnover time may be increased by one hour for every additional twenty thousand gallons of pool volume up to a maximum of four hours per turnover.
  - 4. All other pools, maximum of four hours.

**838.108 Pumps.**

Pumps shall meet the specifications outlined in §838.36A. Pumps which drive the water current in slow river attractions shall be designed to produce minimal cross currents at their suction and discharge points. Propulsion pump water intake pipes shall be installed in a manner to prevent patron entrapment. The propulsion pump water discharge shall be uniform and located in a manner to cause minimal effect on the patron. Booster pumps shall be sized to provide a continuous river-like flow rate no greater than three mph. The number and size of suction outlets serving the booster pump shall be designed so that the water flow through each suction outlet does not exceed a velocity of one half foot per second.

**838.109 Overflow gutters and skimmers.**

Overflow gutters and skimmers shall be provided as specified in § 838.41 except as provided below:

- A. Skimmers shall not be used in slow river attractions or any other waterpark facility pools having currents, moving water, or turbulence created by mechanical means or gravity that would prevent efficient skimming action by the skimmers. Alternative means of removing floating debris, which are approved by the Director, shall be provided for such attractions.

**838.110 Fencing and barriers.**

At intermediate pools, which are pools between the entry and exit pools in attractions using a series of pools, barriers shall be designed and constructed to prevent unauthorized entry or access from one attraction to another attraction. Fencing or barriers shall also be provided to prevent unauthorized access to a pool(s) or attraction which has designated entry/exit points.

**838.111 Operation and maintenance.**

- A. Waterparks shall be operated and maintained in accordance with the most restrictive applicable operational standards specified in the following documents:
  - 1. Specifications contained in this Ordinance.
  - 2. ASTM F-24 "Standards on Amusement Rides and Devices."
  - 3. "Virginia Amusement Device Regulations."
  - 4. Industry standards and manufacturer's specifications and recommendations.
- B. Personnel.
  - 1. Pool operators shall comply with the requirements specified in § 838.10.
  - 2. Lifeguards shall be at least sixteen years of age or as allowed by the U.S. Department of Labor, meet the requirements specified in § 838.58 and receive training specific to the waterpark facility environment.
  - 3. Attendants shall be trained to operate an attraction and control the patrons in a safe and orderly manner. Attendants not certified as lifeguards shall not substitute for lifeguards at any pool.
- C. Safety.
  - 1. For all attractions with flumes or chutes, clearing of the receiving pool entry area prior to allowing another patron to enter is required.
  - 2. Use of certain waterpark facility pools may be limited by an individual's swimming ability. Other restrictions may be imposed as necessary.
  - 3. Attendant and lifeguard stations shall be manned at all times an attraction is in use.
  - 4. U.S. Coast Guard approved personal floatation devices shall be readily available and accessible for those patrons that choose to use them.
- D. Design Load. Individual pool loads and the maximum facility load shall be determined by the Director, with consideration of § 838.101D4. At no time shall the designated maximum pool load or the maximum facility load be exceeded. The maximum facility load and the maximum pool loads shall be posted at the main entrance to the waterpark facility. The waterpark facility pool operator shall be responsible for enforcing the maximum facility load and maximum pool loads.
  - 1. The maximum pool loads and the maximum facility loads may be additionally restricted due to the following conditions:
    - (a). A congested grouping of patrons, tubes or floatation devices or any other grouping that obstructs the lifeguard's view of the pool bottom.
    - (b). Other conditions which may compromise the health or safety of the patrons.
- E. Additional operational procedures.
  - 1. Pool operators shall monitor the water flow rates through flume and attractions to insure that a constant water flow is maintained at rates in accordance with manufacturer's specifications and recommendations.
  - 2. The facility operation and maintenance manual specified in § 838.101D5, shall be maintained at the waterpark facility and be available for inspection at all times.

**Article 7.**

**Bathroom Facilities; Design, Construction, and Maintenance.**

**838.112 Establishments required to provide bathhouse facilities.**

All water recreation facilities and interactive water feature facilities shall provide bathhouse facilities. Motels and other similar establishments which restrict the use of all pools to occupant guests are not required to provide bathhouse facilities.

**838.113 Design and location.**

The bathhouse shall be designed so that the plumbing fixtures are located in the line of travel used by patrons prior to entering the pool or waterpark area. The bathhouse shall be designed so that patrons pass through the rooms containing the dressing areas, showers and toilet fixtures prior to accessing the pool. It shall be provided with an entrance and a separate exit opening directly to the swimming pool, spa pool, or waterpark facility deck; provided, however, the exit shall not be near the deep portion of a swimming pool when the pool depth is greater than five feet. Computations for plumbing fixtures shall be based on the premise that at the time of maximum load, one-half of the patrons will be male and one-half female.

**838.114 Floors.**

Floors for all showers, toilets and lavatories in a bathhouse shall have a minimum slope of one to forty-eight to the drains with no low spots which will allow water to pond. Such floors shall have a smooth but non-slip, non-absorbent, finish and shall not be carpeted and shall be maintained in a clean and sanitary condition. The room shall be mechanically ventilated.

**838.115 Dressing rooms.**

Separate dressing rooms shall be provided for each sex. Lockers, baskets, hooks or other sanitary means for storage of clothing and personal accessories shall be provided. Dressing rooms shall be maintained in a clean and sanitary condition. Clothing hooks shall not present a puncture hazard to patrons.

**838.116 Showers.**

Showers shall be provided in the proportion of one per each forty persons or fraction thereof at each swimming pool, spa pool, or waterpark facility based upon the maximum facility load. Each shower shall supply an adequate quantity of heated water through a device that will prevent scalding. The device that prevents scalding shall be adjusted to provide a maximum hot water temperature at the nozzle head of one hundred ten degrees Fahrenheit, and a minimum hot water temperature at the nozzle head of at least ninety degrees Fahrenheit. Water from each shower shall drain separately or each shower shall be located and have the floor sloped so that waste from one shower shall not flow over the floor serving another. Each shower fixture shall be provided with a liquid soap dispenser and an adequate supply of liquid soap. Showers shall be maintained in a clean and sanitary condition.

**838.117 Toilets, urinals, and mop sink.**

Toilet facilities shall be provided in the proportion as required by the International Plumbing Code. An adequate supply of dispensed toilet paper shall be provided to each water closet. A separate custodial mop sink shall be provided exclusively for cleaning purposes and shall be located within one hundred feet of the shower and toilet rooms. Toilets and urinals shall be maintained in a clean and sanitary condition.

**838.118 Lavatories.**

Lavatories shall be provided in the proportion as required by the International Plumbing Code. Each lavatory shall be provided with a liquid soap dispenser and an adequate supply of liquid soap. Each lavatory shall be provided with an adequate supply of dispensed paper towels and/or a mechanical means of hand drying. Lavatories shall be maintained in a clean and sanitary condition.

**838.119 Hose Bibs.**

Hose bibs with vacuum breakers or approved backflow preventers shall be provided at convenient locations. A minimum of one hose bib shall be provided in both the female and male sections of the bathhouse.

**838.120. Lighting.**

All areas within the bathhouse facility shall be illuminated at a minimum of thirty foot-candles measured twenty-four inches above the floor. All light fixtures shall be shielded.

**838.121 Saunas and steam rooms.**

A sauna, steam room, or similar device in which the patron's body is exposed to water, steam, moist or dry heat, that is provided in conjunction with a regulated swimming pool or spa pool facility, shall be installed in accordance with the requirements of the VUSBC, and shall be maintained in a clean and sanitary condition; and shall comply with the following requirements:

- A. Shielded, vapor-proof lighting fixtures shall be provided.
- B. Adequate mechanical ventilation shall be provided.
- C. The doors to all steam rooms and sauna rooms shall have viewing ports fitted with shatterproof glass or plastic, and shall not be capable of being blocked or otherwise secured against opening by pushing from the inside. The door to the sauna or steam room shall open outward.
- D. A timer switch that automatically shuts off the heat or steam source. The timer switch shall be readily accessible to patrons and be located directly adjacent to the sauna or steam room and shall have a maximum setting which does not exceed fifteen minutes.
- E. A suitable barrier shall be provided to prevent patron injury from the heating element or unit.
- F. Bench surfaces shall be of a smooth finish and free of protrusions that could cause injury to patrons.
- G. A sign shall be posted stating that users must shower prior to entering the facility, and use a clean towel to sit upon.