

15A NCAC 18A .2500 Rules Governing Public Swimming Pools have been amended effective May 1, 2010 and are pending codification as follows:

**15A NCAC 18A .2508 DEFINITIONS**

The following definitions apply throughout this Section:

- (1) Equipment replacement means replacement of individual components of the hydraulic and disinfection systems such as pumps, filters, and automatic chemical feeders.
- (2) Public swimming pool means public swimming pool as defined in G.S. 130A-280. Public swimming pools are divided into four types:
  - (a) Swimming pools are public swimming pools used primarily for swimming.
  - (b) Spas are public swimming pools designed for recreational and therapeutic use that are not drained, cleaned, or refilled after each individual use. Spas may include units designed for hydrojet circulation, hot water, cold water mineral bath, air induction bubbles, or any combination thereof. Common terminology for spas includes "therapeutic pool", "hydrotherapy pool", "whirlpool", "hot spa", and "hot tub".
  - (c) Wading pools are public swimming pools designed for use by children, including wading pools for toddlers and children's activity pools designed for casual water play ranging from splashing activity to the use of interactive water features placed in the pool.
  - (d) Specialized water recreation attractions are pools designed for special purposes that differentiate them from swimming pools, wading pools and spas. They include:
    - (i) water slide plunge pools and run out lanes;
    - (ii) wave pools;
    - (iii) rapid rides;
    - (iv) lazy rivers;
    - (v) interactive play attractions that incorporate devices using sprayed, jetted, or other water sources contacting the users and that do not incorporate standing or captured water as part of the user activity area; and
    - (vi) training pools deeper than a 24 inch deep wading pool and shallower than a 36 inch deep swimming pool.
- (3) Registered Design Professional means an individual who is registered or licensed to practice engineering as defined by G.S. 89C or architecture as defined by G.S. 83A.
- (4) Remodeled means renovations requiring disruption of the majority of the pool shell or deck, changes in the pool profile, or redesign of the pool hydraulic system.
- (5) Repair means returning existing equipment to working order, replastering or repainting of the pool interior, replacement of tiles or coping and similar maintenance activities. This term includes replacement of pool decks where the Department has determined that no changes are needed to underlying pipes or other pool structures.
- (6) Safety vacuum release system means a system or device capable of providing vacuum release at a suction outlet caused by a high vacuum occurrence due to suction outlet flow blockage.
- (7) Splash zone means the area of an interactive play attraction that sheds water to a surge tank or container to be recirculated.
- (8) Unblockable drain means a drain of any size and shape that a human body cannot sufficiently block to create a suction entrapment hazard.

*History Note: Authority G.S. 130A-282;  
Eff. May 1, 1991;  
Temporary Amendment Eff. June 1, 1994 for a period of 180 days or until the permanent rule becomes effective, whichever is sooner;  
Amended Eff. May 1, 2010; March 1, 2004; April 1, 1999; January 1, 1996;  
October 1, 1994.*

**15A NCAC 18A .2509 PLAN REVIEW AND APPROVAL**

- (a) Public swimming pools plans and specifications shall be prepared by a registered design professional if required by G.S. 89C Architecture or G.S. 83A Engineering, and shall be approved by the Department prior to construction. If required by G.S. 87-1 General Contractors, public swimming pools shall be constructed by swimming pool contractors licensed by the North Carolina Licensing Board for General Contractors.
- (b) The owner shall submit a A minimum of two complete sets of plans to the local Health Department for review. Plans shall be drawn to scale and accompanied by specifications so as to permit a clear, comprehensive review by the local health department. All prints of drawings shall be a minimum of 18 x 24 inches and a maximum size of 36 x 42 inches. These plans shall include:
- (1) Plan and sectional view dimensions of both the pool and the area enclosed by the barrier fences to include the bathhouse and the equipment room and pool accessories;
  - (2) Specifications of all treatment equipment used and their layout in the equipment room;
  - (3) A piping schematic showing piping, pipe size, inlets, main drains, skimmers, gutter outlets, vacuum fittings and all other appurtenances connected to the pool-piping system;
  - (4) Layout of the chemical storage room; and
  - (5) Specifications for the water supply and wastewater disposal systems that include aspects such as well location and backwash water disposal where applicable.
- (c) The Department shall approve, disapprove, or provide written comments on plans and specifications for public swimming pools within 30 days of their receipt. If such action is not taken within 30 days, the plans and specifications shall be deemed approved.
- (d) If construction is not initiated within one year from the date of approval, the approval is void.
- (e) The swimming pool contractor shall contact the local health department when pool pipes are in place and visible so that the local health department may conduct an open-pipe inspection of the pool piping.
- (f) Prior to issuance of the operation permit, the owner shall submit to the local health department a statement signed by a registered design professional stating that construction is complete and in accordance with approved plans and specifications and approved modifications. Observation of construction and a final inspection for design compliance by the certifying registered design professional or his representative are required for this statement.
- (g) Upon completion of construction, the contractor shall notify the local health department and the owner. The contractor shall provide the owner with a complete set of drawings, which show as built, the location of all pipes and the connections of all equipment and written operating instructions for all equipment.

*History Note: Authority G.S. 130A-282;  
Eff. May 1, 1991;  
Amended Eff. May 1, 2010; July 1, 1992.*

**15A NCAC 18A .2510 PUBLIC SWIMMING POOL OPERATION PERMITS**

- (a) No public swimming pool shall commence or continue operation unless the owner or operator has an operation permit issued by the Department for each public swimming pool. Unless suspended or revoked, the operation permit shall be valid for the period of operation specified in the application but in no event shall it be valid for more than 12 months. For public swimming pools which are constructed or remodeled, plans and specifications shall have been approved by the Department in accordance with Rule .2509. Compliance with the design and construction requirements in Rules 2514 through .2534 and approval of plans and specifications shall not be required for public swimming pools constructed or remodeled prior to May 1, 1993. No public swimming pool shall commence or continue operation after May 1, 2010 unless documentation of compliance with pool drain safety requirements of Rule .2539 of this Section has been submitted to the local health department.
- (b) Equipment replacement shall comply with Rules 2514 through .2534 and shall be approved by the Department prior to installation. However, for existing swimming pools with recirculation systems unable to meet the pool volume turnover rates specified in the rules of this Section, pump replacement shall match the flow capabilities of the system. Repairs do not require prior approval by the Department.
- (c) A separate application for an operation permit must be submitted for each public swimming pool. The owner or operator shall apply annually to the Department for an operator's permit. The application form shall be obtained from the Department and shall include the following information:
- (1) the owner's name, address, and phone number;

- (2) the operator's name, address, and phone number;
- (3) street address of the public swimming pool;
- (4) the physical location of the public swimming pool;
- (5) type of public swimming pool;
- (6) construction date;
- (7) proposed operating dates;
- (8) type of disinfection; and
- (9) signature of owner or designated representative.

*History Note:* Authority G.S. 130A-282;  
 Eff. May 1, 1991;  
 Amended Eff. May 1, 2010; January 1, 1996.

### **15A NCAC 18A .2511 INSPECTIONS**

(a) Each public swimming pool shall be inspected by the Department to determine compliance with the rules of this Section. Where an operation permit is issued prior to inspection of a public swimming pool, an inspection shall be completed within 60 days following issuance of the permit. Pools that open on or after April 1 and close on or before October 31 shall be inspected at least once during the period of operation. All other pools shall be inspected at least twice a year.

(b) Inspections of public swimming pools shall be conducted by Environmental Health Specialists authorized by the Department to enforce the rules of this Section. Inspections shall be documented on Inspection of Swimming Pool Form DENR 3960. Items on the grade sheet shall be divided into two, four and six-demerit items. Six-demerit items are failures to maintain minimum water quality or safety standards and warrant immediate suspension of an operation permit under G.S. 130A-23(d). Four-demerit items are rule violations which warrant denial of an operation permit or notification of an intent to suspend an operation permit. Two-demerit items are rule violations that do not warrant permit action unless such violation causes an imminent hazard, a failure to meet water quality or safety standard, or a suction hazard. Demerits shall be assessed for each item found not to be in compliance with the rules of this Section. Demerits shall be assessed as follows:

- (1) Violation of Rule -.2535(2) of this Section regarding water clarity shall be assessed six demerits.
- (2) Violation of Rule .2531(a)10 .2531(b)(3), .2535(3), (4), (5), (7), (8), or (9), or .2543(d)(7) or (e)(2) of this Section regarding disinfectant residuals shall be assessed six demerits.
- (3) Violation of Rule .2535(1) of this Section regarding pool water pH shall be assessed six demerits.
- (4) Violation of Rule.2535(12) of this Section or regarding control of water temperature in heated pools shall be assessed six demerits.
- (5) Violation of Rule.2535(10), (11), or (13), .2537(c), or .2540 of this Section regarding pool operator training, water quality records and test kits shall be assessed four demerits.
- (6) Violation of Rule .2518(j), .2537(b)(7) or (16), or .2539 of this Section regarding pool drains and suction hazards shall be assessed six demerits.
- (7) Violation of Rule.2537(b)(3), (8), (9) or (14) of this Section regarding maintenance of pool walls and floor shall be assessed four demerits.
- (8) Violation of Rule .2518(k) or (l), .2531(4), .2532(4)(b) or .2537(b)(14) of this Section regarding water surface skimmers shall be assessed four demerits.
- (9) Violation of Rule.2523 or .2537(b)(6) of this Section regarding depth markers and no diving markers shall be assessed four demerits.
- (10) Violation of Rule .2515(d) or (f), .2523(e) or .2537(b)(12) of this Section regarding floating safety ropes and contrasting color bands at breakpoints shall be assessed two demerits.
- (11) Violation of Rule .2517, .2521, .2527, .2537(b)(10), .2527, or .2542 of this Section regarding diving equipment, slides, ladders, steps, handrails and in-pool exercise equipment shall be assessed two demerits.

- (12) Violation of Rule .2518(i) or .2537(b)(8) of this Section regarding inlets and other fittings shall be assessed four demerits.
- (13) Violation of Rule .2516(b), .2521(b)(4), .2532(13) or .2537(b)(12) of this Section regarding contrasting color bands on seats or benches shall be assessed four demerits.
- (14) Violation of Rule .2532(7) or .2537(b)(11) of this Section regarding spa timers shall be assessed four demerits.
- (15) Violation of Rule .2530(a), or (b), or .2537(b)(1) of this Section regarding lifesaving equipment shall be assessed six demerits.
- (16) Violation of Rule .2528, .2531(a)(7) or .2537(b)(5) of this Section regarding fences, barriers and gates shall be assessed four demerits.
- (17) Violation of Rule .2522 or .2537(b)(2) of this Section regarding decks shall be assessed four demerits.
- (18) Violation of Rule .2530(c) of this Section regarding No Lifeguard warning signs shall be assessed four demerits.
- (19) Violation of Rule .2530(d) or .2543(d)(13) of this Section regarding pet and glass container signs shall be assessed four demerits.
- (20) Violation of Rule .2532(15) through (17), or .2537(b)(13) of this Section regarding caution signs at hot water spas shall be assessed four demerits.
- (21) Violation of Rule .2524, or .2537(b)(4) of this Section regarding pool and deck lighting and ventilation shall be assessed four demerits.
- (22) Violation of Rule .2530(f) of this Section regarding emergency telephones shall be assessed six demerits.
- (23) Violation of Rule .2535(6) of this Section regarding automatic chlorine or bromine feeders shall be assessed four demerits.
- (24) Violation of Rule .2518 .2519, .2525, .2531(a)(1) through (3), .2532(1) through (6), or .2543(b), (d)(1) through (6) or (e)(1) of this Section regarding pool filter and circulation systems shall be assessed four demerits.
- (25) Violation of Rule .2533, .2534 or .2537(b)(15) of this Section regarding equipment rooms and chemical storage rooms shall be assessed two demerits.
- (26) Violation of Rule .2518(d) of this Section regarding identification of valves and pipes shall be assessed two demerits.
- (27) Violation of Rule .2513(b) of this Section regarding air gaps for filter backwash shall be assessed two demerits.
- (28) Violation of Rule .2526 or .2543(d)(11) of this Section regarding accessible dressing and sanitary facilities shall be assessed two demerits.
- (29) Violation of Rule .2526 of this Section regarding maintenance and cleaning of dressing and sanitary facilities and fixtures shall be assessed two demerits.
- (30) Violation of Rule .2512 of this Section regarding water supplies shall be assessed two demerits.
- (31) Violation of Rule .2513(a) of this Section regarding sewage disposal shall be assessed two demerits.
- (32) Violation of Rule .2526(c) of this Section regarding floors in dressing and sanitary facilities shall be assessed two demerits.
- (33) Violation of Rule .2526(c), or (d) of this Section regarding hose bibs and floor drains in dressing and sanitary facilities shall be assessed two demerits.

*History Note:* Authority G.S. 130A-282;  
 Eff. May 1, 1991;  
 Amended Eff. May 1, 2010; March 1, 2004; January 1, 1996.

**15A NCAC 18A .2512 WATER SUPPLY**

(a) The water supply serving the swimming pool and all plumbing fixtures including drinking fountains, lavatories, toilets, and showers, shall meet all requirements in 15A NCAC 18A .1700 or be an approved public water supply in accordance with 15A NCAC 18C. However, the Department may approve the use of water from natural sources, including the use of saline water, for the swimming pool.

(b) The water distribution system serving the swimming pool and auxiliary facilities shall be protected against backflow. Water introduced into the pool, either directly or by the circulation system, shall be supplied through an air gap (American National Standards Institute A112.1.2-1979), a pipe-applied atmospheric vacuum breaker (ANSI/American Society of Sanitary Engineering No. 1001-1971), a pressure type anti-siphon vacuum breaker (ANSI/ASSE No. 1020-1976), or a reduced-pressure principle backflow preventer (ASSE No. 1013-1979, American Water Works Association No. C506-1978), which are hereby adopted by reference in accordance with G.S. 150B-14(c) or equivalent.

(c) Whenever an over-the-rim spout is used to introduce water into the swimming pool, it shall be shielded so as not to create a hazard. The open end of the spout shall have no sharp edges, shall not protrude more than two inches (5.1 cm) beyond the edge of the pool and shall be at least two pipe diameters above the deck or pool overflow level. The over-the-rim spout shall be located under the diving board or within six inches of a ladder or handrail.

*History Note:* Authority G.S. 130A-282;  
Eff. May 1, 1991.

#### **15A NCAC 18A .2513 SEWAGE SYSTEMS AND OTHER WASTEWATER DISPOSAL**

(a) Sewage shall be disposed of in a public sewer system or, in the absence of a public sewer system, by an approved, properly operating sanitary sewage system.

(b) There shall be no direct physical connection between the sewer system and any drain from the swimming pool or circulation system. Overflow from the swimming pool, and discharges from the circulation system, when discharged to the sewer system, storm drain or other approved natural drainage course, shall be discharged through a suitable air gap so as to preclude the possibility of back flow of sewage or other waste water into the swimming pool or the swimming pool piping system. Deck drainage shall be discharged through an indirect drain.

*History Note:* Authority G.S. 130A-282;  
Eff. May 1, 1991;  
Amended Eff. April 1, 1999; July 1, 1992.

#### **15A NCAC 18A .2514 MATERIALS OF CONSTRUCTION**

(a) Pools and appurtenances shall be constructed of materials which are inert, non-toxic to man, impervious and permanent, which can withstand design stresses and which can provide a water-tight tank with a smooth and cleanable surface. Use of vinyl liners is prohibited; however, liners no less than 60 mil thick may be used provided the underlying pool shell is of approved construction. If this material is used for repairs, the existing pool shall be remodeled in accordance with this Rule.

(b) Sand or earth bottoms are prohibited in swimming pool construction.

(c) Pool finish, including bottom and sides, shall be of white or light colored material determined visually to contrast least with a value of gray whiter than fifty percent (50%) black on an artists gray scale, or shown by reflectance testing to reflect more than fifty percent (50%) of visible light.

(d) Pool surfaces in areas which are intended to provide footing for bathers including steps, ramps, and pool bottoms in areas with water less than three feet deep, shall be designed to provide a slip-resistant surface.

*History Note:* Authority G.S. 130A-82;  
Eff. May 1, 1991;  
Amended Eff. May 1, 2010.

#### **15A NCAC 18A .2515 DESIGN DETAILS**

(a) Pools shall be designed and constructed to withstand all loadings for both full and empty conditions.

(b) A hydrostatic relief valve shall be provided for in-ground swimming pools which extend more than two feet below the grade of surrounding land surface unless a gravity drainage system is provided.

(c) Provisions shall be made for complete, continuous circulation of water through all areas of the swimming pool. Swimming pools shall have a circulation system with approved treatment, disinfection, and filtration equipment as required in the rules of this Section.

(d) The minimum depth of water in the swimming pool shall be three feet (0.91 m) except where a minimum depth of less than 3 feet is needed to provide non-swimming areas such as children's activity areas and sun shelves.

(e) The maximum depth at the shallow end of a swimming pool shall be 3.5 feet (1.07 m) except for pools used for competitive swimming, diving or other uses which require water deeper than 3.5 feet.

(f) Connections for safety lines shall be recessed in the walls in a manner which presents no hazard to swimmers.

(g) Decorative features such as planters, umbrellas, fountains and waterfalls located on pool decks shall comply with the following:

- (1) Decorative features shall ~~shall~~ not occupy more than 20 percent of the pool perimeter;
- (2) If located adjacent to a water depth of greater than five feet, decorative features shall not be more than 20 feet wide;
- (3) Decorative features shall ~~shall~~ not provide handholds or footholds that could encourage climbing above deck level;
- (4) A walkway shall be provided to permit free access around decorative features and shall be as wide as the lesser of five feet or the deck width required in Rule .2528 of this Section;
- (5) Decorative features shall ~~shall~~ not obstruct the view of any part of the pool from any seating area; and
- (6) Features with moving water shall be separate from the pool recirculation system.

*History Note:* Authority G.S. 130A-282;  
Eff. May 1, 1991;  
Amended Eff. May 1, 2010; August 1, 2000; April 1, 1999.

#### **15A NCAC 18A .2516 POOL PROFILE**

(a) The vertical walls of a public swimming pool shall not exceed 11 degrees from plumb. Corners formed by intersection of walls and floors shall be coved or radiused. Hopper bottomed pools are prohibited.

(b) Underwater ledges or protrusions are prohibited; except that underwater stairs, sun shelves, seats and benches may be installed in areas of the pool no more than four feet deep. Underwater benches shall have a maximum seat depth of two feet from the water surface, protrude no more than 18 inches from the wall and be marked by a two inch contrasting color band on the leading edge. Underwater protrusions may provide seating at swim-up bars located in offset areas away from swim lanes. Underwater stairs may adjoin a sun shelf to deeper water provided the depth at the bottom of the stairs is no more than four feet and the stairs meet all provisions of Rule .2521 of this Section.

(c) The slope of the bottom of any portion of any public swimming pool having a water depth of less than five feet (1.52 m) shall not be more than one foot vertical change in 10 feet (10 cm in one meter) of horizontal distance and the slope shall be uniform.

(d) In portions of pools with water depths greater than five feet (1.52 m), the slope of the bottom shall not be more than one foot vertical in three feet (33.3 cm in one meter) of horizontal distance.

(e) Design of diving areas shall be in accordance with Tables 1A and 1B of Rule .2517 of this Section.

(f) Fountains installed in public swimming pools shall be approved prior to installation and shall comply with the following:

- (1) Fountains shall not be installed in an area with a water depth exceeding 18 inches;
- (2) Fountains shall be recommended by the manufacturer for use in a public swimming pool;
- (3) Fountains shall be installed in accordance with the manufacturer's instructions;
- (4) Fountains shall be separate from the pool water recirculation system; and
- (5) Fountains shall not release water at a velocity greater than 10 feet per second.

*History Note:* Authority G.S. 130A-82;  
Eff. May 1, 1991;  
Amended Eff. May 1, 2010; February 1, 2004; January 1, 1996.

**15A NCAC 18A .2517 DIVING EQUIPMENT**

(a) When diving equipment is installed in a public swimming pool, it shall be located in the diving area of the pool so as to provide the minimum dimensions as shown in Tables 1A and 1B of this Rule and shall conform to the following specifications:

- (1) Diving equipment shall be designed for swimming pool use and shall be installed in accordance with the manufacturer's recommendations.
- (2) Installation instructions and specifications shall be provided with each unit.
- (3) A label shall be permanently affixed to the diving equipment and shall include:
  - (A) manufacturer's name and address;
  - (B) board length;
  - (C) type of diving board;
  - (D) fulcrum setting specifications if applicable.
- (4) Diving equipment shall have slip-resistant tread surfaces.

(b) Supports, platforms, and steps for diving equipment shall be of sufficient strength to carry safely the maximum anticipated loads. Steps shall be of corrosion-resistant design. Handrails shall be provided at all steps and ladders leading to diving boards that are one meter or more above the water.

(c) There shall be a completely unobstructed clear vertical distance of 13 feet above any diving board measured from the center of the front end of the board. This area shall extend horizontally at least eight feet behind, eight feet to each side, and 16 feet ahead of Point A in Table 1A.

Table 1A

Maximum Board Length	Maximum Board Height Above Water	Board Overhang (Pt. A)		Minimum Water Depths		
		Max	Min	D1	D2	D3
12 feet	30 in	5 feet	4 feet	8'0"	9'0"	8'3"
16 feet	1 meter	6 feet	5 feet	8'6"	10'0"	8'6"
16 feet	3 meters	6 feet	5 feet	11'6"	12'0"	11'6"

**KEY TO ABBREVIATIONS:**

Pt A is the point on the water line of the pool directly beneath the end of the diving board.

D1 is the depth of the water measured from the water line to the floor at the beginning of the radius connecting the end wall with the floor at the deep end of the pool.

D2 is the depth of the water at the deepest point in the pool.

D3 is the depth of the water at the point where the deep area of the pool meets the transition to the shallow area of the pool.

Table 1B

Maximum Board Length	Horizontal Distances						Minimum Pool Width	Minimum Separation Distances	
	L1	L2	L3	L4	L5	L6		F	G
	12 feet	3'	7'	10'3"	9'9"	30'	4'	20'	10'
16 feet	5'	5'	11'6"	10'6"	32'	4'	24'	12'	10'
16 feet	5'	5'	7'6"	19'6"	37'	3'	28'	14'	12'

**KEY TO ABBREVIATIONS:**

L1 is the radius of the curve connecting the side wall to the floor at the deep end of the pool.

L2 is the distance between the center of the radius connecting the end wall to the floor at the deep end of the pool and the deepest point in the pool.

L3 is the distance between the deepest point in the pool and the beginning of the transition to the shallow area of the pool.

L4 is the length of the transition zone.

L5 is the total of L1 + L2 + L3 + L4.

L6 is the length of the shallow area of the pool.

F is the distance between the side wall of the pool and the centerline of the diving board.

G is the distance between the center lines of two adjacent diving boards.

(d) Public pools with diving facilities in excess of three meters in height, or pools designed for platform diving, shall meet the Federation Internationale De Nation Amateur (FINA) guidelines that are incorporated by reference in accordance with G.S. 130B-21.6 including any subsequent amendments or additions.

(e) Starting platforms used for racing starts during competition shall be secured from use when the pool is open for general use by removal; covering; or signage and active supervision. Minimum water depth for starting platforms shall be measured at a distance of 3 feet, 3 ½ inches (1.0 meter) to 16 feet, 5 inches (5.0 meters) from the end wall. Height of starting platforms shall not exceed the following:

- (1) In pools with water depth less than 3 feet, 6 inches (1.07 meters) at the starting end, raised starting platforms shall be prohibited.
- (2) In pools with water depth 3 feet, 6 inches (1.07 meters) to less than 4 feet (1.22 meters) at the starting end, starting platforms shall be no more than 18 inches (0.46 meter) above the water surface.
- (3) In pools with a water depth of 4 feet (1.22 meters) or greater at the starting end, starting platforms shall be no more than 30 inches (0.762 meter) above the surface of the water. Starting platforms shall be constructed to be easily removed from the deck when the swimming pool is used for other than competitive purposes.

*History Note: Authority G.S. 130A-282;  
Eff. May 1, 1991;  
Amended Eff. February 1, 2004; April 1, 1999; January 1, 1996.*

#### **15A NCAC 18A .2518 CIRCULATION SYSTEM**

(a) Pools shall be equipped with a circulation system.

(b) The capacity of the circulation system shall be sufficient to clarify and disinfect the entire volume of swimming pool water four times in 24 hours. The system shall be operated 24 hours per day during the operating season.

(c) The circulation piping shall be designed and installed with the necessary valves and pipes so that the flow from the swimming pool can be from main drains or the surface overflow system. The circulation piping shall be designed such the flow of water from the swimming pool can be simultaneous from the surface overflow system and the main drains. Skimmer piping constructed after May 1, 2010 shall be sized to handle the maximum flow rate for the required number of skimmers, but in no case less than 100 percent of the design flow rate. Perimeter overflow system piping constructed after May 1, 2010 shall be sized to handle 100 percent of the design flow rate. The main drain piping constructed after May 1, 2010 shall be sized to handle 100 percent of the design flow rate.

(d) Piping shall be designed to reduce friction losses to a minimum and to carry the required quantity of water at a maximum velocity not to exceed six feet per second for suction piping and not to exceed 10 feet per second for discharge piping except for copper pipe where the velocity shall not exceed eight feet per second. Piping shall be of non-toxic material, resistant to corrosion, and able to withstand operating pressures. If plastic pipe is used, a minimum of Schedule 40 PVC is required. Flexible pipe shall not be used except that flexible PVC hoses that meet NSF Standard 50 may be affixed to spa shells where rigid pipes do not provide the necessary angles to connect circulation components. Exposed pipes and valves shall be identified by a color code or labels.

(e)~~(f)~~ The circulation system shall include a strainer to prevent hair, lint, and other debris from reaching the pump. A spare basket shall be provided. Strainers shall be corrosion-resistant with openings not more than ¼ inch (6.4 mm) in size that ~~shall~~ provide a free flow area at least four times the cross-section area of pump suction line and are accessible for daily cleaning.

(f)~~(g)~~ A vacuum cleaning system shall be provided to remove debris and foreign material that settles to the bottom of the swimming pool. Where provided, integral vacuum ports shall be located on the pool wall at least 6 inches and no greater than 18 inches below the water level. Skimmer vacuums may be used in pools

with two or fewer skimmers provided the skimmer basket remains in place while the vacuum is in operation. Integral vacuum cleaning systems shall be provided with valves and protective caps. Integral vacuum ports constructed after May 1, 2010 shall have self-closing caps designed to be opened with a tool.

(g) A rate-of-flow indicator, reading in liters or gallons per minute, shall be installed on the filtered water line and located so that the rate of circulation is indicated. The indicator shall be capable of measuring flows that are at least 1 ½ times the design flow rate, shall be accurate within 10 per cent of true flow, and shall be easy to read. The indicator shall be installed in accordance with manufacturers' specifications.

(h)(i) A pump or pumps shall be provided with capacity to recirculate the swimming pool water four times in 24 hours, and shall be so located as to eliminate the need for priming. If the pump or pumps, or suction piping is located above the overflow level of the pool, the pump or pumps shall be self-priming. The pump or pumps shall be capable of providing a flow adequate for the backwashing of filters. Unless headloss calculations are provided by the designing engineer, pump design shall be based on an assumed total dynamic head of 65 feet of water. Pumps three horsepower or smaller shall be NSF International (NSF) listed or verified by an independent third-party testing laboratory to meet all applicable provisions of NSF/ANSI Standard 50 which is incorporated by reference including any subsequent amendments or editions. Copies may be obtained from NSF International, P.O. Box 130140, Ann Arbor, MI 48113-0140 at a cost of one hundred fifty five dollars (\$155.00). Verification shall include testing and in-plant quality control inspections. Larger pumps for which NSF listing is not available shall be approved by the Department on a case-by-case basis.

(i) Inlets.

- (1) Inlets shall be provided and arranged to produce a uniform circulation of water and maintain a uniform disinfectant residual throughout the pool.
- (2) The number of inlets for any swimming pool shall be determined based on return water flow. There shall be at least one inlet per 20 gallons per minute of return water flow. There shall be a minimum of four inlets for any swimming pool.
- (3) Inlets shall be located so that no part of the swimming pool is more than 25 feet of horizontal distance from the nearest return inlet.
- (4) Provision shall be made to permit adjustment of the flow through each inlet, either with an adjustable orifice or provided with replaceable orifices to permit adjustments of the flows.

(j) Drains.

- (1) Public Swimming pools with suction drains shall be provided with at least two main drain outlets which are located at the deepest section of the pool and connected by "T" piping. Connecting piping shall be sized and configured such that blocking any one drain will not result in flow through the remaining drain cover/grates exceeding the cover/grate manufacturer's safe flow rating while handling 100 percent of the pump system flow. The drains shall be capable of permitting the pool to be emptied completely. Drains shall be spaced not more than 30 feet apart, and not more than 15 feet) away from the side walls. Drains shall be separated by at least three feet measured from centers of the cover/grates. This shall not preclude construction of a public swimming pool without main drains where water is introduced at the bottom of the pool and removed through a surface overflow system designed to handle 100 percent of the design flow rate. Provision shall be made to completely drain pools constructed without drains. Public swimming pools constructed prior to May 1, 2010 with a single drain or multiple drains closer than three feet apart shall protect against bather entrapment with an unblockable drain or a secondary method of preventing bather entrapment in accordance with rule .2539 of this Section.
- (2) Drain outlets shall comply with the American National Standard ASME/ANSI A112.19.8-2007 Suction Fittings for Use in Swimming Pools, Wading Pools, Spas, and Hot Tubs which is hereby incorporated by reference including any subsequent amendments, editions, and successor standards under the Virginia Graeme Baker Pool and Spa Safety Act (15 U.S.C 8001 et seq.). Copies may be obtained from ASME, P.O. Box 2300, Fairfield, NJ 07007-2300 at a cost of fifty three dollars (\$53.00).
- (3) Public swimming pools constructed after May 1, 2010 shall comply with ANSI/APSP -7 2006 American National Standard for Suction Entrapment Avoidance in Swimming Pools, Wading Pools, Spas, Hot Tubs and Catch Basins which is hereby incorporated by

reference including any subsequent amendments and editions. Copies may be obtained from APSP, 2111 Eisenhower Avenue, Alexandria, VA 22314 at a cost of three hundred fifty dollars (\$350.00).

(k) Surface Overflow Systems.

- (1) Swimming pools shall be provided with a surface overflow system that is an integral part of the circulation system and that consists of a built-in-place perimeter overflow system, a pre-fabricated perimeter overflow system, or recessed automatic surface skimmers.
- (2) Whenever a built-in-place perimeter overflow system or a pre-fabricated perimeter overflow system is provided, it shall be designed and installed as follows:
  - (A) The system shall be capable of handling 100 percent of the circulation flow without the overflow troughs being flooded;
  - (B) A surge capacity shall be provided either in the system or by use of a surge tank; and the total surge capacity shall be at least equal to one gallon per square foot (41L per square meter) of swimming pool water surface area;
  - (C) The water level of the swimming pool shall be maintained above the level of the overflow rim of the perimeter overflows, except for the time needed to transfer all of the water that may be in the surge capacity back into the swimming pool after a period of use; provided that this transfer time shall not be greater than 20 minutes;
  - (D) When installed the tolerance of the overflow rim shall not exceed 1/4 inch (6.4 mm) as measured between the highest point and the lowest point of the overflow rim;
  - (E) During quiescence, the overflow system shall be capable of providing continuously and automatically a skimming action to the water at the surface of the swimming pool;
  - (F) The overflow troughs shall be installed completely around the perimeter of the swimming pool, except at steps, recessed ladders and stairs;
  - (G) The exposed surfaces of the overflow trough shall be capable of providing a firm and safe hand-hold; and
  - (H) The overflow trough shall be cleanable and shall be of such configuration as to minimize accidental injury.
- (3) Whenever a recessed automatic surface skimmer or skimmers are installed, they shall be designed and constructed in accordance with Section 8 of NSF Standard #50 for circulation system components for swimming pools, spas, or hot tubs. Recessed automatic surface skimmers shall be installed as follows:
  - (A) The flow-through rate through any one recessed automatic surface skimmer shall be between 20 gallons per minute and the maximum flow the skimmer is certified for under NSF Standard Number 50;
  - (B) There shall be at least one recessed automatic surface skimmer for each 400 square feet of water surface area of the swimming pool or fraction thereof;
  - (C) When two or more recessed automatic surface skimmers are required, they shall be so located as to minimize interference with each other and as to insure proper and complete skimming of the entire swimming pools water surface; and
  - (D) Skimmers shall not protrude into the swimming pool. Automatic surface skimmer or skimmers without a perimeter overflow system shall be installed so that the operating level of the pool is no more than nine inches below the finished deck level so that the deck can be used as a handhold.

(l) Where flooded suction on the pump is not possible to prevent cavitation and loss of prime, skimmers shall have a device or other protection to prevent air entrainment in the suction line. The inlet to the equalizer line shall be provided with a grate.

(m) Nothing in this Section shall preclude the use of a roll-out or deck-level type of swimming pool. Such designs shall conform to the general provisions relating to surface overflow systems.

(n) Nothing in this Section shall preclude the use of a surface overflow system that combines both a perimeter overflow system and a recessed automatic surface skimmer or skimmers.

*History Note: Authority G.S. 130A-282;*

*Eff. May 1, 1991;*  
*Amended Eff. May 1, 2010; February 1, 2004; April 1, 1999; January 1, 1996;*  
*July 1, 1992.*

#### **15A NCAC 18A .2519 FILTERS**

(a) All swimming pools shall be equipped with a filtration system for the purpose of clarifying the swimming pool water; said filtration system shall be an integral part of the circulation system and shall consist of one or more units of sand type filters, of diatomaceous earth type filters, or of cartridge type filters.

(b) All filter units shall be designed and constructed in accordance with Section 5 of the National Sanitation Foundation's Standard number 50 which is hereby adopted by reference in accordance with G.S. 150B-14(c), or equivalent.

(c) When a sand type filter is installed on a swimming pool, it may be either a gravity or a pressure sand type filter, and it may be either a standard-rate sand type filter which shall be designed for filtration rates not in excess of three gallons per minute per square foot (122 L per minute per square meter) of sand bed area, or a high-rate sand type filter which shall be designed for filtration rates not in excess of 15 gallons per minute per square foot (612 L per minute per square meter) of sand bed area or the flow rate indicated for commercial pools in the most recent NSF listing.

(d) When a sand type filter is installed on a swimming pool, it shall be designed and installed such that it may be backwashed at a rate recommended by the manufacturer or, in the absence of manufacturer's recommendations, at a rate not less than 15 gallons per minute per square foot (612 L per minute per square meter) of filter bed area. The backwash water shall be discharged to waste. A sight glass or other means for viewing the clarity of the backwash water shall be provided.

(e) If the sand type filter is designed to be operated in conjunction with a coagulant, a chemical feeder shall be provided for adding the coagulant ahead of the filters.

(f) When a diatomaceous earth type filter is installed on a swimming pool, it may be either a pressure or vacuum type and it may be designed to operate either with or without continuous body feed. Diatomaceous earth filters which operate with continuous body feed shall be designed for filtration rates not in excess of 2.5 gallons per minute per square foot (102 L per minute per square meter) of filter area; and diatomaceous earth filters which operate without continuous body feed shall be designed for filtration rates not in excess of two gallons per minute per square foot (82 L per minute per square meter) of filter area.

(g) When a diatomaceous earth type filter is installed on a swimming pool, it shall be designed and installed with provisions for cleaning by one or more of the following methods:

- (1) backwashing at two gallons per minute per square foot minimum;
- (2) air-bump-assist backwashing;
- (3) spray wash, (either mechanical or manual); or
- (4) agitation.

(h) The water used in cleaning a diatomaceous earth type filter shall be discharged to waste, or in a manner approved by the Department.

(i) When a cartridge type filter is installed on a swimming pool, it shall be designed for filtration rates not in excess of 0.375 gallons per minute per square foot (15 L per minute per square meter) of effective filtration area.

(j) When a cartridge type filter is installed on a swimming pool, it shall be designed and installed with provisions being provided for cleaning or replacement as recommended by the manufacturer. Two sets of filter cartridges shall be provided to facilitate the cleaning and drying of one set while the filter is operating.

(k) All filters on swimming pools shall be designed and installed so as to provide easy accessibility for cleaning, operating, maintaining, and servicing. All filter tanks shall be so positioned as to provide adequate circulation of air beneath and around all sides, when necessary, to reduce corrosion and to facilitate cleaning. Whenever filter tanks are installed in the ground (i.e. buried), provisions shall be made so that the tanks are protected against corrosion and are installed in accordance with the recommendations of the manufacturer.

(l) Filters on swimming pools shall be equipped with an approved type pressure gauge or gauges.

(m) Filters on swimming pools shall be designed and installed with all the necessary valves and piping which may be needed to drain the filters completely.

(n) All pressure filters on swimming pools shall be designed and installed with an air-relief valve or valves which shall be located at or near the high point of the filters.

*History Note: Authority G.S. 130A-282;  
Eff. May 1, 1991;  
Amended Eff. January 1, 1996.*

#### **15A NCAC 18A .2521 LADDERS, RECESSED STEPS, AND STAIRS**

(a) If the vertical distance from the bottom of the swimming pool to the deck is over two feet (0.61 m), recessed steps, stairs, or ladders shall be provided in the shallow area of all swimming pools. Recessed steps or ladders shall be provided at the deep portion of all pools; and, if the swimming pool is over 30 feet (9.14 m) wide, such recessed steps or ladders shall be installed on each side near the deep end. A stairway, ladder or set of recessed steps shall be provided every 75 feet along the shallow area perimeter. Where stairs are provided in the shallow area of the pool, one ladder may be deleted in the shallow area for each stairway provided.

(b) Pool Stairs - The design and construction of pool ladders and stairs shall conform to the following:

- (1) Stair treads shall have a minimum unobstructed horizontal depth of 10 inches, a maximum horizontal depth of 36 inches, and a minimum unobstructed surface area of 240 square inches.
- (2) Risers at the centerline of the treads shall have a maximum height of 12 inches and shall be within one inch of a uniform height with the bottom riser height allowed to vary plus or minus two inches from the uniform riser height.
- (3) Each set of stairs shall be provided with at least one handrail to serve all treads and risers. For stairs wider than 20 feet, additional handrails shall be provided and spaced no more than 10 feet from adjacent handrails or stair ends.
  - (A) Handrails, if removable, shall be installed in such a way that they cannot be removed without the use of tools.
  - (B) The leading edge of handrails facilitating stairs and pool entry/exit shall be no more than 18 inches horizontally from the vertical plane of the bottom riser.
  - (C) The outside diameter of handrails shall be between one inch and one and nine-tenths inches.
- (4) The leading edge of stair treads shall be marked with a contrasting color band or line at least two inches (5 cm) wide visible from above the stairs. Use of contrasting color tiles installed in the stair tread is acceptable provided the tiles are spaced no more than one inch (2.5 cm) from the edge of the tread or from adjacent tiles.
- (5) Swimming pool ladders shall be corrosion-resistant and shall be equipped with slip-resistant treads. All ladders shall be ~~so~~ designed ~~as~~ to provide a handhold and shall be installed rigidly. There shall be a clearance of not more than six inches (15.3 cm), nor less than three inches (7.6 cm), between any ladder and the swimming pool wall. If the steps are inserted in the walls or if step holes are provided, they shall be of such design that they may be cleaned easily and shall be arranged to drain into the swimming pool to prevent the accumulation of dirt thereon. Step holes shall have a minimum tread of five inches (12.7 cm) and a minimum width of 14 inches (35.6 cm).
- (6) When step holes or ladders are provided within the swimming pool, there shall be a handrail at each side.

*History Note: Authority G.S. 130A-282;  
Eff. May 1, 1991;  
Amended Eff. May 1, 2010; January 1, 1996.*

#### **15A NCAC 18A .2522 DECKS**

(a) Outdoor swimming pools shall have a continuous deck extending completely around the swimming pool. The width of the deck or walkway shall provide at least six feet of clear walking space at all points. If the swimming area of the pool is 1600 square feet or larger, at least eight feet of clear walking space is required.

- (b) Indoor swimming pools shall have a continuous deck or walkway extending completely around the swimming pool. The width of the deck shall provide at least five feet of clear walking space at all points. Structures covering swimming pools, including temporary domes, shall be constructed to maintain a vertical clearance of at least seven feet from all parts of the required clear walk space.
- (c) Wading pools shall have a continuous deck extending completely around the wading pool. The width of the deck or walkway shall provide at least four feet of clear walking space at all points.
- (d) Spas shall have a continuous deck extending at least one-half way around the spa. The width of the deck or walkway shall provide at least four feet of clear walking space at all points.
- (e) There shall be at least five feet of clear walking space around any diving board, handrail, slide or other permanent structure installed on a swimming pool deck.
- (f) All deck areas and walkways shall be sloped at a grade of one-fourth inch to one-half inch per foot to a deck drain or sheet drain to deck edge. Deck drains shall not be connected to the circulation system in any manner.
- (g) All decks and walkways shall have a slip-resistant, impervious surface.
- (h) Sufficient hose bibs shall be provided to allow all areas of the deck to be reached with a 100 foot hose.
- (i) Special purpose pools such as waterslides and wave pools may vary from the minimum deck area requirements to the extent necessary to accommodate the special features of the pool.
- (j) Structures necessary to provide access to a public swimming pool by persons with disabilities shall be allowed to vary from the provisions of this Section to the extent necessary to accommodate such access. Such structures shall be approved on a case-by-case basis and shall be designed so as to minimize obstruction of the deck.
- (k) For all swimming pools constructed after April 1, 2000 decks shall be continuous with the top of the pool wall or gutter and shall not be more than nine inches above the standard operating water level.

*History Note: Authority G.S. 130A-282;  
 Eff. May 1, 1991;  
 Amended Eff. February 1, 2004; April 1, 1999; January 1, 1996; July 1, 1992.*

**15A NCAC 18A .2523 DEPTH MARKINGS AND SAFETY ROPES**

- (a) On swimming pools the depth of the water shall be marked at or above the water surface on the vertical wall of the swimming pool where possible and on the edge of the deck next to the swimming pool. Where depth markers cannot be placed on the vertical walls at or above the water level, other means shall be used; provided the markings shall be visible to persons in the swimming pool. Depth markers shall be placed at the following locations:
  - (1) at the points of maximum and minimum depths;
  - (2) at the transition point where the slope of the bottom changes from the uniform slope of the shallow area;
  - (3) if the pool is designed for diving, at points to denote the water depths in the diving area; and
  - (4) at both ends of the pool.
- (b) Depth markers shall be so spaced that the distance between adjacent markers is not greater than 25 feet (7.5 m) when measured along the perimeter of the pool.
- (c) Depth markers shall be in Arabic numerals at least four inches (10 cm) high and of a color contrasting with the background. Depth markings shall indicate the depth of the pool in feet of water and shall include the word "feet" or symbol "ft" to indicate the unit of measurement. Depth markings installed in pool decks shall provide a slip resistant walking surface.
- (d) "No Diving" markers shall be provided on the pool deck adjacent to all areas of the pool less than five feet deep. "No Diving" markers shall consist of the words "No Diving" in letters at least four inches high and of a color contrasting with the background or at least a six-by-six inch international symbol for no diving in red and black on a white background. The distance between adjacent markers shall not be more than 25 feet. Posting of "No Diving" markers shall not preclude shallow diving for racing starts and competitive swimming practice.
- (e) A minimum of ¾ inch diameter safety rope shall be provided at the breakpoint where the slope of the bottom changes to exceed a 1 to 10 vertical rise to horizontal distance at a water depth of five feet (1.5 m) or less. The position of the rope shall be marked with colored floats at not greater than a five-foot spacing

and a minimum 2 inch wide contrasting color band across the pool bottom. Float ropes shall be positioned within two feet on the shallow side of the breakpoint marker.

*History Note:* Authority G.S. 130A-282;  
Eff. May 1, 1991;  
Amended Eff. May 1, 2010; February 1, 2004; January 1, 1996; July 1, 1992.

#### **15A NCAC 18A .2524 LIGHTING AND VENTILATION**

- (a) Artificial lighting shall be provided at all pools that are to be used at night, or when natural lighting is insufficient to provide visibility in the pool area.
- (b) Lighting fixtures shall be of such number and design as to illuminate all parts of the pool, the water, the depth markers, signs, entrances, restrooms, safety equipment and the required deck area and walkways.
- (c) Fixtures shall be installed so as not to create hazards such as burning, electrical shock, mechanical injury, or temporary blinding by glare to the bathers, and so that lifeguards, when provided, can see every part of the pool area without being blinded by glare. The illumination shall be sufficient so that the floor of the pool can be seen at all times the pool is in use.
- (d) If underwater lighting is used, it shall provide at least 0.5 watts or 8.35 lumens per square foot of water surface and deck lighting shall provide not less than 10 foot candles of light measured at 6 inches above the deck surface.
- (e) Where underwater lighting is not used, and night swimming is permitted, area and pool lighting combined shall provide not less than 10 foot candles of light to all parts of the pool and required deck area.
- (f) Mechanical ventilation is required for all indoor pools.

*History Note:* Authority G.S. 130A-282;  
Eff. May 1, 1991;  
Amended Eff. May 1, 2010; February 1, 2004; January 1, 1996; July 1, 1992.

#### **15A NCAC 18A .2525 HEATER AND TEMPERATURE REQUIREMENTS**

- (a) Pool heaters shall be designed for the purpose intended.
- (b) Heaters shall be equipped with thermostatic controls capable of assuring that the maximum operating temperature of spa water does not exceed 104 degrees Fahrenheit (40 degrees C), and that the maximum operating temperature of other heated public swimming pools does not exceed 90 degrees Fahrenheit (32 degrees C). Such controls shall be accessible only to the operator.

*History Note:* Authority G.S. 130A-282;  
Eff. May 1, 1991;  
Amended Eff. February 1, 2004; August 1, 1991.

#### **15A NCAC 18A .2526 DRESSING AND SANITARY FACILITIES**

- (a) Dressing and sanitary facilities shall be provided at all pools, except for pools at hotels, motels, condominiums, and apartments where pool use is restricted to residents or guests. At hotels, motels, condominiums and apartments where the farthest unit is more than 300 feet from the pool, as measured along walkways provided for access by residents or guests to the pool area, a toilet and lavatory shall be provided. All public swimming pools shall post a sign visible upon entering the pool enclosure directing pool users to shower before entering the pool.
- (b) Partitions shall be of material, not subject to damage by water and shall be designed so that a waterway is provided between partitions and floor to permit thorough cleaning of the walls and floor areas with hoses and brooms.
- (c) Dressing facility floors shall be continuous throughout the areas. Floors shall have a slip-resistant surface that shall be smooth, to insure complete cleaning. Floor drains shall be provided, and floors shall be sloped not less than ¼ inch per foot toward the drains to insure positive drainage.
- (d) Hose bibs shall be provided such that all parts of the dressing facility interior can be reached with a 50 foot hose.

- (e) The minimum number of fixtures required in dressing and sanitary facilities shall be based upon the maximum bather load.
- (f) One water closet, one lavatory, and one urinal shall be provided for the first 100 male users. One additional water closet, lavatory, and urinal shall be provided for each additional 200 male users up to a total of 500 users. Where user load exceeds 500 male users, two additional water closets or urinals and one lavatory shall be provided for each additional 250 male users. Where the maximum bather load includes less than 50 male users, one water closet and one lavatory will be sufficient.
- (g) Two water closets and two lavatories shall be provided for the first 100 female users. One additional water closet and lavatory shall be provided for each additional 100 female users up to a total of 500 users. Where user load exceeds 500 female users, two additional water closets and one lavatory shall be provided for each additional 250 female users. Where the maximum bather load includes less than 50 female users, one water closet and one lavatory will be sufficient.
- (h) Showers shall be provided in the proportion of one for each 200 persons at the time of maximum bather load.
- (i) The water heater shall be inaccessible to users. The system shall be designed such that water temperature at the shower heads and lavatories cannot exceed 110° Fahrenheit.
- (j) Soap dispensers with either liquid or powdered soap shall be provided at each lavatory or required shower. The dispenser shall be of all metal or plastic type, with no glass permitted in these units.
- (k) If mirrors are provided, they shall be of shatterproof materials.
- (l) Toilet paper holders with toilet paper shall be provided at each water closet.
- (m) Dressing and sanitary facilities shall be kept clean and in good repair.

*History Note:* Authority G.S. 130A-282;  
 Eff. May 1, 1991;  
 Amended Eff. February 1, 2004; April 1, 1999; January 1, 1996; July 1, 1992.

**15A NCAC 18A .2527 SWIMMING POOL SLIDES**

All swimming pool slides installed at a public swimming pool shall be labeled by the manufacturer for use in public pools, and shall be installed in accordance with manufacturer's instructions.

*History Note:* Authority G.S. 130A-282;  
 Eff. May 1, 1991.

**15A NCAC 18A .2528 FENCES**

(a) Public Swimming pools shall be completely enclosed by a fence, wall, building, or other enclosure, or any combination thereof, which encloses the swimming pool area such that all of the following conditions are met:

- (1) The top of the barrier shall be at least 48 inches above grade measured on the side of the barrier that faces away from the swimming pool. The maximum vertical clearance between grade and the bottom of the barrier shall be 2 inches measured on the side of the barrier that faces away from the swimming pool;
- (2) Openings in the barrier shall not allow passage of a 4-inch-diameter sphere and shall provide no external handholds or footholds. Solid barriers that do not have openings shall not contain indentations or protrusions except for normal construction tolerances and tooled masonry joints;
- (3) Where the barrier is composed of horizontal and vertical members and the distance between the tops of the horizontal members is 45 inches or more, spacing between the vertical members shall not exceed 4 inches. Where there are decorative cutouts within the vertical members, spacing within the cutouts shall not exceed 1.75 inches in width;
- (4) Where the barrier is composed of horizontal and vertical members and the distance between the tops of the horizontal members is less than 45 inches, the horizontal members shall be located on the swimming pool side of the fence. Spacing between the vertical members shall not exceed 1.75 inches in width. Where there are decorative

- cutouts within the vertical members, spacing within the cutouts shall not exceed 1.75 inches in width;
- (5) Maximum mesh size for chain link fences shall be a 2.25 inch square unless the fence is provided with slats fastened at the top or the bottom that reduce the openings to no more than 1.75 inches;
  - (6) Where the barrier is composed of diagonal members, the maximum opening formed by the diagonal members shall be no more than 1.75 inches;
  - (7) Access gates shall comply with the dimensional requirements for fences and shall be equipped to accommodate a locking device. Effective April 1, 2011, pedestrian access gates shall open outward away from the pool and shall be self-closing and have a self-latching device except where a gate attendant and lifeguard are on duty. Gates other than pedestrian access gates shall have a self-latching device. Where the release mechanism of the self-latching device is located less than 54 inches from the bottom of the gate, the release mechanism shall require the use of a key, combination or card reader to open or shall be located on the pool side of the gate at least 3 inches below the top of the gate, and the gate and barrier shall have no openings greater than 0.5 inch within 18 inches of the release mechanism; and
  - (8) Ground level doors and windows opening from occupied buildings to inside the pool enclosure shall be self-closing or child protected by means of a barrier or audible alarm.
- (b) Public swimming pool fences constructed prior to May 1, 2010 may vary from the provisions of Paragraph (a) of this rule as follows:
- (1) the maximum vertical clearance between grade and the bottom of the barrier may exceed 2 inches, but shall not exceed 4 inches;
  - (2) where the barrier is composed of vertical and horizontal members and the space between vertical members exceeds 1.75 inches, the distance between the tops of the bottom horizontal member and the next higher horizontal member may be less than 45 inches, but shall not be less than 30 inches;
  - (3) gates other than pedestrian access gates are not required to have self-latching devices if the gates are kept locked; and
  - (4) gates may swing towards a pool where natural topography, landscape position or emergency egress requirements prevent gates from swinging away from the pool.

*History Note:* Authority G.S. 130A-282;  
 Eff. May 1, 1991;  
 Amended Eff. May 1, 2010; February 1, 2004; April 1, 1999; January 1, 1996;  
 July 1, 1992.

#### **15A NCAC 18A .2529 USER LOADING**

In determining the maximum number of persons allowed in the pool at any one time, the following criteria shall govern:

- (1) Fifteen square feet (1.39 sq m) of water surface area per person shall be provided in areas of the pool five feet (1.52 m) deep or less.
- (2) Twenty-four square feet (2.23 sq m) of water surface area per person shall be provided in areas of the pool greater than five feet (1.52 m) deep. Three hundred square feet (27.87 sq m) of pool area around each diving board or platform, where provided, shall not be included in computing this area for the purpose of determining maximum bather load.
- (3) Ten square feet (0.9 sq m) of water surface area per person shall be provided in spas.
- (4) Twenty-five square feet of splash zone area per person shall be provided at interactive play attractions.

*History Note:* Authority G.S. 130A-282;  
 Eff. May 1, 1991;  
 Amended Eff. March 1, 2004; January 1, 1996.

### **15A NCAC 18A .2530 SAFETY PROVISIONS**

(a) Swimming pools shall have lifesaving equipment conspicuously and conveniently on hand at all times. A unit of lifesaving equipment shall include the following:

- (1) A pole not less than 12 feet long, with a body hook securely attached. The pole attached to the body hook shall be non-telescoping, non-adjustable and non-collapsible.
- (2) A minimum ¼ inch diameter throwing rope as long as one and one-half times the maximum width of the pool or 50 feet, whichever is less, attached to a U.S. Coast Guard approved ring buoy. A rescue tube or rescue can shall be accepted as a substitute for the ring buoy where it is accompanied by a lifeguard who has been trained to use it properly.

(b) Two units of lifesaving equipment must be provided for any pool that exceeds 3,000 square feet (186 sq m) of total surface area.

(c) When a swimming pool does not have at least one lifeguard on duty, a sign shall be posted with legible letters of at least four inches (10 cm) in height stating: "WARNING-NO LIFEGUARD ON DUTY." In addition there shall be signs legible from all bather entrances with a minimum letter size of one inch stating: "CHILDREN SHOULD NOT USE THE SWIMMING POOL WITHOUT ADULT SUPERVISION", and: "ADULTS SHOULD NOT SWIM ALONE". Wading pools that do not have a lifeguard inside the wading pool enclosure shall have a sign posted stating "WARNING NO LIFEGUARD ON DUTY". Such signs shall be mounted permanently.

(d) A sign prohibiting pets and glass containers in the pool area shall be provided.

(e) Pool closed signs shall be provided and shall be posted at bather entrances whenever an operation permit is suspended for water quality or safety violations.

(f) A telephone capable of directly dialing 911 or other emergency notification system shall be provided and accessible to all pool users. Effective April 1, 2005 the telephone shall be permanently affixed to a location inside the pool enclosure or outside the enclosure within 75 feet of a bather entrance. The telephone shall be visible from within the pool enclosure or a sign shall be posted indicating the location of the emergency telephone. A sign with legible letters shall be posted at the telephone providing dialing instructions, address of the pool location and the telephone number. Where the telephone does not directly access 911, the emergency notification system shall:

- (1) Provide 24 hour monitoring of all incoming calls by a telecommunicator who answers only emergency calls;
- (2) Be capable of routing calls to the local 911 telecommunicator via the 911 dedicated emergency trunk line; and
- (3) Electronically transfer Automatic Number Identification and Automatic Locator Identification for the emergency telephone at the pool to the Enhanced 911 system for all calls routed to 911.

*History Note: Authority G.S. 130A-282;  
Eff. May 1, 1991;  
Amended Eff. February 1, 2004; April 1, 1999; January 1, 1996; July 1, 1992.*

### **15A NCAC 18A .2531 WADING POOLS**

(a) Wading pools shall meet all design specifications for swimming pools and wading pools included in Rules .2512 through .2530 of this Section with the following exceptions:

- (1) Wading pools shall be physically separate from other public swimming pools except that a fill pipe and valve from a swimming pool recirculation system may be used to introduce water to a wading pool.
- (2) Every wading pool shall be equipped with a circulation system that is separate from, and independent of, the circulation system of the swimming pool. Such circulation system shall at least consist of a circulating pump, piping, a filter, a rate-of-flow meter, a disinfectant feeder, two inlets, and one automatic surface skimmer. Individual components of a wading pool system must meet the criteria of Rule .2518 of this Section.
- (3) The capacity of the circulation system shall be capable of filtering and disinfecting the entire volume of water in the wading pool 12 times in every 24 hours.
- (4) Wading pools shall be equipped with a surface overflow system capable of removing floating material.

- (5) Wading pools shall be no deeper than 24 inches (61 cm) at the deepest point.
- (6) Wading pools' floor slope shall not exceed one foot in 12 feet.
- (7) Wading pools shall be located in the vicinity of the shallow end of the swimming pool, and shall be separated from the swimming pool by a fence or structure similar to that described in Rule .2528 of this Section, that shall be equipped with self-closing and positive self-latching closure mechanisms, and shall be equipped with permanent locking devices. Wading pool entrance gates located inside another public swimming pool enclosure shall open away from the deeper pool. Wading pool fences constructed after April 1, 2000 shall be at least four feet high.
- (8) Wading pools shall be designed to provide at least 10 square feet per child.
- (9) Depth markers are not required at wading pools.
- (10) The free chlorine residual in wading pools shall be maintained at no less than two parts per million.
- (11) Wading pools are not required to provide the lifesaving equipment described in Rule .2530(a) of this Section.

(b) Children's activity pools shall be constructed and operated in accordance with the rules of this section including the requirements for wading pools with the following exceptions:

- (1) The filter circulation system shall be separate from any feature pump circulation system.
- (2) The filter circulation system for stand-alone children's activity pools shall filter and return the entire water capacity in no more than one hour and shall operate 24 hours a day.
- (3) The disinfectant residual in children's activity pools shall be maintained at a level of at least two parts per million of free chlorine measured in the pool water and at least one part per million in all water features.
- (4) Valves shall be provided to control water flow to the features in accordance with the manufacturers' specifications.
- (5) Children's activity pools built prior to February 1, 2004 that do not comply with this Paragraph may operate as built if no water quality or safety violations occur.

*History Note: Authority G.S. 130A-282;  
Eff. May 1, 1991;  
Amended Eff. May 1, 2010; February 1, 2004; April 1, 1999; January 1, 1996.*

**15A NCAC 18A .2532 SPAS AND HOT TUBS**

Spas and hot tubs shall meet all design specifications for swimming pools and wading pools included in Rules .2512 through .2530 of this Section with the following exceptions:

- (1) The circulation system equipment shall provide a turnover rate for the entire water capacity at least once every 30 minutes.
- (2) The arrangement of water inlets and outlets shall produce a uniform circulation of water so as to maintain a uniform disinfectant residual throughout the spa.
- (3) A minimum of two inlets shall be provided with inlets added as necessary to maintain required flowrate.
- (4) Water outlets shall be designed so that each pumping system in the spa (filter systems or booster systems if so equipped) provides the following:
  - (a) Where drains are provided, drains shall be unblockable or shall consist of two or more drains connected by a "T" pipe. Connecting piping shall be of the same diameter as the main drain outlet. Filter system drains shall be capable of emptying the spa completely. In spas constructed after April 1, 2000 drains shall be installed at least three feet apart or located on two different planes of the pool structure.
  - (b) Filtration systems shall provide at least one surface skimmer per 100 square feet, or fraction thereof of surface area.
- (5) The water velocity in spa or hot tub discharge piping shall not exceed 10 feet per second (3.05 meters per second); except for copper pipe where water velocity shall not exceed

- eight feet per second (2.44 meters per second). Suction water velocity in any piping shall not exceed six feet per second (1.83 meters per second).
- (6) Spa recirculation systems shall be separate from companion swimming pools.
    - (a) Where a two-pump system is used, one pump shall provide the required turnover rate, filtration and disinfection for the spa water. The other pump shall provide water or air for hydrotherapy turbulence without interfering with the operation of the recirculation system. The timer switch shall activate only the hydrotherapy pump.
    - (b) Where a single two-speed pump is used, the pump shall be designed and installed to provide the required turnover rate for filtration and disinfection of the spa water at all times without exceeding the maximum filtration rates specified in Rule .2519 of this Section. The timer switch shall activate only the hydrotherapy portion of the pump.
    - (c) Where a single one-speed pump is used, a timer switch shall not be provided.
  - (7) A timer switch shall be provided for the hydrotherapy turbulence system with a maximum of 15 minutes on the timer. The switch shall be placed such that a bather must leave the spa to reach the switch.
  - (8) The maximum operational water depth shall be four feet (1.22 m) measured from the water line.
  - (9) The maximum depth of any seat or sitting bench shall be two feet (61 centimeters) measured from the waterline.
  - (10) A minimum height between the top of the spa/hot tub rim and the ceiling shall be 7 ½ feet.
  - (11) Depth markers are not required at spas.
  - (12) Steps, step-seats, ladders or recessed treads shall be provided where spa and hot tub depths are greater than 24 inches (61 centimeters).
  - (13) Contrasting color bands or lines shall be used to indicate the leading edge of step treads, seats, and benches.
  - (14) A spa or hot tub shall be equipped with at least one handrail (or ladder equivalent) for each 50 feet (15.2 meters) of perimeter, or portion thereof, to designate points of entry and exit.
  - (15) Where water temperature exceeds 90° Fahrenheit (32° C), a caution sign shall be mounted adjacent to the entrance to the spa or hot tub. It shall contain the following warnings in letters at least ½ inch in height:
 

CAUTION:

    - Pregnant women; elderly persons, and persons suffering from heart disease, diabetes, or high or low blood pressure should not enter the spa/hot tub without prior medical consultation and permission from their doctor;
    - Do not use the spa/hot tub while under the influence of alcohol, tranquilizers, or other drugs that cause drowsiness or that raise or lower blood pressure;
    - Do not use alone;
    - Unsupervised use by children is prohibited;
    - Enter and exit slowly;
    - Observe reasonable time limits (that is, 10-15 minutes), then leave the water and cool down before returning for another brief stay;
    - Long exposure may result in nausea, dizziness, or fainting;
    - Keep all breakable objects out of the area.
  - (16) Spas shall meet the emergency telephone and signage requirements for swimming pools in Rule .2530(f).
  - (17) A sign shall be posted requiring a shower for each user prior to entering the spa or hot tub and prohibiting oils, body lotion, and minerals in the water.
  - (18) Spas are not required to provide the lifesaving equipment described in Rule .2530(a) of this Section.
  - (19) In spas less than four feet deep, the slope of the pool wall may exceed 11 degrees from plumb, but shall not exceed 15 degrees from plumb.

*History Note:* Authority G.S. 130A-282;  
Eff. May 1, 1991;  
Amended Eff. May 1, 2010; January 1, 2006; July 1, 2004; February 1, 2004; April 1, 1999; January 1, 1996; July 1, 1992.

#### **15A NCAC 18A .2533 EQUIPMENT ROOM**

- (a) All pumps, chemical feeding apparatus and other mechanical and electrical equipment shall be enclosed in a weatherproof structure with a minimum ceiling height of seven feet. The equipment room shall be provided with a door with a permanent lock that must be kept locked when not in use by the pool operator. Filters located outside the equipment room shall be completely enclosed by a fence.
- (b) Lighting to allow the operator to read all gauges and control devices shall be provided.
- (c) Valves and control devices shall be accessible and visible to the pool operator. At least three feet of clear walkway shall be provided to allow access to equipment.
- (d) Drainage in and around the equipment room shall preclude the possibility of water entering or accumulating on any interior surface of the enclosure. Equipment room floors shall be sloped not less than ¼ inch per foot toward the drains.
- (e) Natural cross draft or continuous forced ventilation is required.
- (f) A permanent means of access shall be provided to all equipment rooms.
- (g) A hose bib with an approved backflow prevention device shall be provided within 50 feet of the equipment room.

*History Note:* Authority G.S. 130A-282;  
Eff. May 1, 1991;  
Amended Eff. February 1, 2004; January 1, 1996.

#### **15A NCAC 18A .2534 CHEMICAL STORAGE ROOM**

A separate chemical storage room that meets the following criteria shall be provided:

- (1) The chemical storage room shall be in a dry, weatherproof structure with a minimum ceiling height of seven feet.
- (2) For public swimming pools built after May 1, 1996, chemical storage space shall be provided based on a minimum of five square feet for the first 10,000 gallons of pool water plus one additional square foot for each additional 3,000 gallons or portion thereof up to a total area of 100 square feet. Public swimming pools constructed after April 1, 2004 shall provide a separate room for storage of pool chemicals.
- (3) Natural cross draft or continuous forced ventilation is required.
- (4) Provision shall be made for dry storage of all pool chemicals in waterproof containers or above the floor on shelves, pallets or dollies.
- (5) The chemical storage room shall be arranged so that chemicals which can react with other pool chemicals are stored separately and shall be constructed and arranged to permit easy cleanup of chemical spills.
- (6) Lighting shall be provided in chemical storage rooms.

*History Note:* Authority G.S. 130A-282;  
Eff. May 1, 1991;  
Amended Eff. February 1, 2004; January 1, 1996.

#### **15A NCAC 18A .2535 WATER QUALITY STANDARDS**

Whenever a public swimming pool is open for use, water quality shall be maintained in accordance with the following:

- (1) The chemical quality of the water shall be maintained in an alkaline condition at all times with the pH between 7.2 and 7.8.
- (2) The clarity of the water shall be maintained such that the main drain grate is visible from the pool deck at all times.

- (3) Disinfection shall be provided in accordance with manufacturers' instructions for all pools by a chemical or other process that meets the criteria listed as follows:
  - (a) registered with the U.S. Environmental Protection Agency for pool water or potable water;
  - (b) provides a residual effect in the pool water that can be measured by portable field test equipment;
  - (c) will not impart any immediate or cumulative adverse physiological effects to pool bathers when used as directed;
  - (d) will not produce any safety hazard when stored or used as directed;
  - (e) will not damage pool components or equipment; and
  - (f) will demonstrate reduction of total coliform and fecal coliform to a level at least equivalent to free chlorine at a level of one part per million in the same body of water.
- (4) When chlorine is used as the disinfectant, a free chlorine residual of at least one part per million (ppm) shall be maintained throughout the pool whenever it is open or in use. Pools that use chlorine as the disinfectant must be stabilized with cyanuric acid except at indoor pools or where it can be shown that cyanuric acid is not necessary to maintain a stable free chlorine residual. The cyanuric acid level shall not exceed 100 parts per million.
- (5) When bromine or compounds of bromine are used as the disinfectant, a free bromine residual of at least two parts per million, shall be maintained throughout the pool whenever it is open or in use.
- (6) When chlorine or bromine are used as the disinfectant, automatic chemical feeders shall be used. Automatic chlorine or bromine feeders shall be manufactured and installed in accordance with NSF/ANSI Standard number 50. Automatic chlorine and bromine feeder pumps shall be automatically prevented from operating when the circulation pump is not in operation.
- (7) When biguanide is used as the disinfectant, a residual of 30 to 50 parts per million shall be maintained throughout the pool whenever it is open or in use.
- (8) When silver/copper ion systems are used, the copper concentration in the pool water shall not exceed one part per million and a chlorine residual must be maintained in accordance with Item (4) of this Rule.
- (9) The use of chlorine in its elemental (gaseous) form for disinfection of public swimming pools is prohibited.
- (10) Test kits or equipment capable of measuring disinfectant level, pH, and total alkalinity must be maintained at all public swimming pools. Pools using cyanuric acid or chlorinated isocyanurates must have a test kit capable of measuring cyanuric acid levels.
- (11) The pool operator shall inspect the pool at least daily and maintain written records of the operating conditions of each pool. Records shall be maintained at the pool site for a period of not less than six months. Records shall include the following:
  - (a) daily recording of the disinfectant residual in the pool;
  - (b) daily recording of pool water pH;
  - (c) daily recording of water temperature in heated pools; recording of activities pertaining to pool water maintenance including chemical additions and filter backwash cycles;
  - (d) weekly recording of total alkalinity and cyanuric acid levels; and
  - (e) daily recording of pool drain cover/grate inspection.
- (12) Water temperature in heated swimming pools shall not exceed 90° Fahrenheit (32°C) and in heated spas shall not exceed 104° Fahrenheit (40°C).
- (13) The pool operator shall take the following steps to manage fecal and vomitus accidents:
  - (a) Direct everyone to leave all pools into which water containing the feces or vomit is circulated and do not allow anyone to enter the pool(s) until decontamination is completed;
  - (b) Remove as much of the feces or vomit as possible using a net or scoop and dispose of it in a sewage treatment and disposal system;

- (c) Raise the free available chlorine concentration to 2 ppm at a pH of 7.2 to 7.5 and test to assure the chlorine concentration is mixed throughout the pool; and
- (d) For accidents involving formed stools or vomit, maintain the free available chlorine concentration at 2 ppm for at least 25 minutes or at 3 ppm for at least 19 minutes before reopening the pool. For accidents involving liquid stools increase the free chlorine residual and closure time to reach a CT inactivation value of 15,300 then backwash the pool filter before reopening the pool. CT refers to concentration (C) of free available chlorine in parts per million multiplied by time (T) in minutes.

*History Note:* Authority G.S. 130A-282;  
 Eff. May 1, 1991;  
 Amended Eff. May 1, 2010; February 1, 2004; April 1, 1999; January 1, 1996; July 1, 1992.

**15A NCAC 18A .2536 REVOCATION OF PERMITS**

The Department may suspend or revoke permits in accordance with G.S. 130A-23.

*History Note:* Authority G.S. 130A-282; Eff. May 1, 1991

**15A NCAC 18A .2537 MAINTENANCE AND OPERATION**

(a) All public swimming pools constructed or remodeled on or after May 1, 1991 shall be maintained and operated in accordance with the Rules of this Section.

(b) On or after May 1, 1993 all public swimming pools including those constructed prior to May 1, 1991 shall be maintained and operated in accordance with the following:

- (1) All safety provisions of Rule .2530 of this Section shall be met.
- (2) Decks shall be structurally sound and shall be maintained free of trip hazards or offsets greater than one-half inch resulting from deterioration or changes from the original deck profile.
- (3) There shall be no loose coping.
- (4) Artificial lighting shall be provided for all pools used when natural lighting is not sufficient to make all parts of the pool and pool area clearly visible.
- (5) Swimming pools shall be protected by a fence, wall, building, or other enclosure, or any combination thereof, that completely encloses the swimming pool area. All gates and doors shall be equipped with self-closing and positive self-latching closure mechanisms. Existing waterslide flumes and other appurtenances are not required to be located inside the fence.
- (6) Depth and safety markings shall be provided as required in Rule .2523 of this Section
- (7) Drain covers shall be in good condition and securely attached.
- (8) Damaged face plates or fittings shall be repaired or replaced.
- (9) Underwater light niches shall be maintained or covered so as not to present a potential hazard to bathers.
- (10) Diving equipment and pool slides including stairs and railing shall be maintained in good working order.
- (11) A timer switch that allows no more than 15 minutes of operation without manual resetting shall be used to control air blowers and hydrotherapy pumps on heated spas.
- (12) All breaks in grade of the pool bottom including the leading edges of stair treads and seats and the tops of breakpoints where the slope of the bottom changes at a depth of five feet (15m) or less shall be marked with a contrasting color band by May 1, 2000. Contrasting color bands are not required where a registered engineer, registered architect or licensed swimming pool contractor certifies in writing that structural weakness or materials of construction prevent the installation of permanent markings.
- (13) All heated spas shall post a caution sign as specified in Rule .2532 of this Section.
- (14) Pool maintenance shall include removal of debris from the water surface and bottom of the pool.

- (15) All pool chemicals shall be stored in a clean, dry, well ventilated area and shall be organized so as to prevent chemicals from reacting.
- (16) No submersible pumps or mechanical pool cleaning equipment shall be placed or used in the pool while bathers are in the pool.

(c) The owner of a public swimming pool shall provide for the operation of the pool by a person or persons who shall be responsible to the owner for operation, maintenance, pool safety and record keeping. The pool owner shall maintain documentation that the person responsible for operating the pool has been trained on pool equipment operation, disease and injury prevention, pool water chemistry and regulatory requirements for public swimming pools. A pool and spa operator certificate issued by the National Swimming Pool Foundation or other organization that provides training on those subjects shall be accepted as meeting this requirement.

*History Note:* Authority G.S. 130A-282;  
 Eff. July 1, 1992;  
 Temporary Amendment Eff. May 11, 1993 for a period of 180 days or until the permanent rule becomes effective, whichever is sooner.  
 The Codifier of Rules determined that the agency's findings of need did not meet the criteria listed in GS 150B-21.1(a);  
 Temporary Amendment Eff. May 1, 1993 for a period of 180 days or until the permanent rule becomes effective, whichever is sooner;  
 Amended Eff. February 1, 2004; April 1, 1999; January 1, 1996; October 1, 1993; May 1, 1993.

**15A NCAC 18A .2538 FILL AND DRAW POOLS**

Fill and draw pools are prohibited. Provisions shall be made for filtration and recirculation of water in all public swimming pools, wading pools, and spas.

*History Note:* Authority G.S. 130A-282;  
 Eff. May 1, 1993.

**15A NCAC 18A .2539 SUCTION HAZARD REDUCTION**

(a) At all public wading pools that use a single main drain for circulation of water, signs shall be posted stating, "WARNING: To prevent serious injury do not allow children in wading pool if drain cover is broken or missing." Signs shall be in letters at least one-half inch in height and shall be posted where they are visible to people entering the wading pool. All submerged suction outlets other than vacuum ports shall be protected by anti-entrapment cover/grates in compliance with ASME/ANSI A112.19.8-2007 Suction Fittings for Use in Swimming Pools, Wading Pools, Spas, and Hot Tubs. All submerged suction fittings shall be installed in accordance with the manufacturer's instructions. Pumping systems that have a single main drain or single submerged suction outlet other than an unblockable drain, or which have multiple outlets separated by less than three feet measured at the centers of the cover grates shall have one or more secondary methods of preventing bather entrapment. Secondary methods of preventing bather entrapment include:

- (1) Safety vacuum release system which ceases operation of the pump, reverses the circulation flow, or otherwise provides a vacuum release at the suction outlet when a blockage has been detected, that has been tested by a third party and found to conform to ASME/ANSI standard A112.19.17 which is incorporated by reference including any subsequent amendments or editions. Copies may be obtained from ASME, P.O. Box 2300, Fairfield, NJ 07007-2300 at a cost of forty-five dollars (\$45.00);
- (2) A suction-limiting vent system with a tamper-resistant atmospheric opening;
- (3) A gravity drainage system that utilizes a collector tank;
- (4) An automatic pump shut-off system;
- (5) Drain disablement; or

- (6) Any other system determined by the U.S. Consumer Product Safety Commission to be equally effective as, or better than the systems in Subparagraphs (1) through (5) of this Paragraph.
- (c) Prior to issuance of operation permits, owners of all public swimming pools shall provide documentation to the Department to verify suction outlet safety compliance. This documentation shall include:
- (1) Documentation of the maximum possible flow rate for each pump suction system. This shall be the maximum pump flow shown on the manufacturer's pump performance curve except where flow reductions are justified with total dynamic head measurements or calculations; and
  - (2) Documentation that cover/grates meeting ASME/ANSI A112.19.8-2007 are installed in compliance with the standard and manufacturer's instructions. This includes documentation that each cover/grate on a single or double-drain pump suction system is rated to meet or exceed the maximum pump system flow and that cover/grates on a pump suction system with three or more suction outlets are together rated to always meet or exceed the maximum pump system flow with one drain completely blocked; and
  - (3) Documentation that drain sumps meet the dimensional requirements specified in the cover/grate manufacturer's installation instructions.
- (d) Operators of all public swimming pools shall inspect pools daily to ensure the drain covers are in good condition and securely attached. Missing, broken, or cracked suction fittings shall be replaced and loose suction fittings shall be reattached before using the pool.

*History Note: Authority G.S. 130A-282;  
Temporary Adoption Eff. June 1, 1994 for a period of 180 days or until the permanent rule becomes effective, whichever is sooner;  
Eff. October 1, 1994;  
Amended Eff. May 1, 2010; January 1, 2006; February 1, 2004; April 1, 1999.*

#### **15A NCAC 18A .2540 REPORTING OF INJURY OR ILLNESS**

The pool operator shall report any death, serious injury or complaint of illness attributed by a bather to use of a public swimming pool to the local health department within two working days of the incident or complaint. The report to the health department shall include the following:

- (1) Name and telephone number or address of the person injured or making a complaint.
- (2) Date of the incident or onset of illness.
- (3) Description of the type of injury or complaint.
- (4) Name and phone number of the person rendering assistance or first aid.
- (5) The name of any known hospital, rescue squad or physician providing medical assistance.
- (6) Names and phone numbers of available witnesses to the incident.

*History Note: Authority G.S. 130A-282;  
Eff. January 1, 1996.*

#### **15A NCAC 18A .2541 FLOW THROUGH POOLS**

Tanks or structures built prior to May 1, 1995 which hold a flowing natural water source for public swimming, diving, wading or recreational use without physical or chemical treatment shall not be required to comply with the rules of this Section.

*History Note: Authority G.S. 130A-282;  
Eff. January 1, 1996.*

#### **15A NCAC 18A .2542 IN POOL EXERCISE EQUIPMENT**

(a) Exercise equipment such as steps, weights, or floats used in a public swimming pool shall be designed and constructed so as not to pose a threat to water quality or bather safety and shall be removed from the pool after each use.

(b) Where in-pool exercise equipment such as underwater treadmills remain in a swimming pool when not in use, the following conditions shall be met:

- (1) The swimming pool shall be restricted to use only by adults or a lifeguard shall be on duty at all times when children are allowed in the pool.
- (2) Exercise equipment shall meet Underwriters' Laboratories Standard Number 1647 for exercise equipment as verified in writing by an independent third party testing laboratory.
- (3) The position of underwater equipment shall be marked with colored floats attached by a 3/4 inch diameter rope or other movable barrier that surrounds the equipment with a visible perimeter designed so as not to entangle or otherwise threaten bather safety.
- (4) Equipment shall be verified by the manufacturer to be designed for use in a public swimming pool and to be free of grease or oil that might negatively impact pool water quality.
- (5) Any cords or hoses attached to underwater exercise equipment shall not pose a threat of bather entanglement. Cords or hoses which cross a pool deck shall be covered or shielded to prevent tripping. Covers that protrude more than one-half inch from the deck surface shall be sloped at an angle of no more than 30° from the horizontal deck surface.

*History Note: Authority G.S. 130A-282;  
Eff. January 1, 1996;  
Amended Eff. February 1, 2004.*

#### **15A NCAC 18A .2543 WATER RECREATION ATTRACTIONS**

(a) Water recreation attractions including water slides, wave pools, rapid rides, lazy rivers and other similar features can deviate from the requirements of this Section with respect to pool profile, depth, freeboard, flow dynamics and surface skimming systems. The designing engineer or equipment manufacturer shall provide the Department with information to justify such deviation as necessary for the proper function of the attraction. Water recreation attractions shall meet all other requirements of this Section.

(b) Water slide landing pools with a capacity of less than 60,000 gallons shall have a circulation and filtration system capable of turning over the entire pool capacity every two hours. Where automatic chemical controllers are used the turnover time shall be no more than three hours. Landing pool dimensions shall be consistent with the slide manufacturer's recommendation.

(c) When waterfalls are incorporated in water recreation attractions, they shall be constructed with no handholds or footholds to a height of four feet to discourage climbing.

(d) Interactive play attractions shall be constructed and operated in accordance with the rules of this section and shall comply with the following:

- (1) The recirculation system shall contain a water capacity equal to at least three minutes of maximum flow of all feature pumps and filter circulation pumps combined and shall not be less than 1,000 gallons. Where the water capacity exceeds 10,000 gallons, the minimum capacity shall be based on the lesser of three minutes of maximum feature flow or 7.5 gallons per square foot of splash zone watershed drained to the surge container.
- (2) Access shall be provided to the surge water container.
- (3) A filter circulation system shall be provided and shall be separate from the feature pump system except that both systems can draw water from a common drain pipe if the drain and pipe are sized to handle the flow of all pumps without exceeding the flow velocities specified in Rule .2518 of this Section.
- (4) The filter circulation system shall draw water from the surge container through a variable height surface skimmer and a bottom drain located no more than 6 inches from the bottom of the container. Custom skimming systems that do not comply with ANSI/NSF Standard 50 shall be approved where the operational requirements make it necessary to deviate from that standard.

- (5) The filter circulation system shall filter and return the entire water capacity in no more than 30 minutes and shall operate 24 hours a day.
  - (6) Automatic chemical controllers shall be provided to monitor and adjust the disinfectant residual and pH of the water contained in the system.
  - (7) The disinfectant residual in interactive play attractions shall be maintained at a level of at least two parts per million of free chlorine. Chlorine feeders shall be capable of producing 12 parts per million of free chlorine in the filter circulation piping.
  - (8) Valves shall be provided to control water flow to the features in accordance with the manufacturers' specifications.
  - (9) Splash zones shall be sloped to drains sized and located to remove all feature water to the surge tank without water accumulating on the surface.
  - (10) Deck or walkway space is not required outside the splash zone.
  - (11) Dressing and sanitary facilities shall be provided.
  - (12) Interactive play features shall not be required to have a fence except the wading pool fence requirements shall apply to interactive play features located inside a swimming pool enclosure.
  - (13) The safety provisions of Rule .2530 of this Section shall not apply except a sign shall be posted prohibiting pets and glass containers.
  - (14) Interactive play attractions built prior to April 1, 2004, that do not comply with these design and construction requirements shall be permitted to operate as built if no water quality or safety violations occur.
- (e) Training pools shall meet the requirements for swimming pools with the following exceptions:
- (1) Training pools shall be equipped with a filter circulation system that filters and returns the entire pool capacity in no more than two hours.
  - (2) The free chlorine residual in training pools shall be maintained at no less than two parts per million.

*History Note: Authority G.S. 130A-282;  
Eff. April 1, 1999;  
Amended Eff. March 1, 2004.*