TITLE 1

DEPARTMENT OF ENVIRONMENTAL PROTECTION

AND

RESOURCE MANAGEMENT

SUBTITLE 05 ENVIRONMENTAL HEALTH

CHAPTER 02

SWIMMING POOL AND BATHING BEACHES

Chapter 01 Public Swimming Pools and Bathing Beaches

TABLE OF CONTENTS

TITLE 1

DEPARTMENT OF ENVIRONMENTAL PROTECTION AND RESOURCE MANAGEMENT
SUBTITLE 05 Environmental Health

Chapter 02 Public Swimming Pools and Bathing Beaches

01. Scope

A. In accordance with the authority conferred on the Director of the Department of Environmental Protection & Resource Management by § 539 of the Baltimore County Charter and Article 13, Title 6 and Article 3, Title 7 of the Baltimore County Code 2003, and in compliance with Article 3, Title 3, Subtitle 16 of the Baltimore County Code, the following regulations governing swimming pools and bathing beaches in the County are hereby established as minimum requirements by the Director of the Department of Environmental Protection and Resource Management

B. The regulations, COMAR 260809 establish standards for the sanitary quality of natural bathing waters and the monitoring criteria for those waters

02. Definitions

A In this chapter, the following terms have the meanings indicated

B. Terms Defined

(1) "Approving Authority" means the Director of the Department of Environmental Protection and Resource Management or the Director's designee.

(2) "ANSI" means the American National Standards Institute

(3) "Barrier" means a fence or wall or a combination of both that completely surrounds and obstructs access to a pool or spa

(4) "Child day care" means a family day care home as defined in COMAR 07040102

(5) Cardiopulmonary Resuscitation (CPR)

(a) "CPR" means the combination of artificial respiration and manual artificial circulation recommended for use in cases of cardiac arrest

(b) Certification requires supplemental training by the American Red Cross or equivalent organization

(c) Retrain as required to maintain certification

(6) "DEPRM" means the Department of Environmental Protection and Resource Management

(7) "Diving Area" means an area, specifically, 300 square feet of water surface around each diving board or platform

(8) "Diving Pool" means a pool intended for use primarily by divers

(9) "Lifeguard" means an individual who has a valid lifeguard certificate, including any additional certification required to address specific conditions at the guarded site from:

(a) The American Red Cross;

(b) The Boy Scouts of America;

(c) The Young Men's Christian Association;

(d) Ellis and Associates' National Pool and Waterpark Lifeguard Training; or

(e) An organization with a lifesaving training program equivalent to that of The American Red Cross

(10) "NSPI" means the National Spa and Pool Institute ANSI/NSPI-1 (Public Swimming Pools) and ANSI/NSPI-2 (Public Spas) are incorporated in this document by reference as adopted by the Code of Maryland (COMAR) 10170104 Public Swimming Pools and Spas.

(11) "Person" means any individual, receiver, trustee, guardian, personal representative, firm, partnership, association, corporation, governmental agency, club or organization of any kind.

(12) "Pool" means an artificial enclosure of water that is used for the immersion of the human body for recreation, therapy, or exercise

(13) "Pool enclosure" means the area within the fences or walls surrounding the pool.

(14) "Pool operator" means an individual 16 years old or older who:

(a) Has met the Maryland Department of Health and Mental Hygiene's requirements for Pool/Spa Operators at COMAR Title 10, Subtitle 17, Chapter 01;

(b) Holds a current Baltimore County Pool/Spa Certificate card; and

(c) Is acceptable to DEPRM

(15) "Private Swimming Pool" means any swimming pool, located on private residential property under the control of a single resident the use of which is limited to members of the resident's family and invited guests

(16) "Public bathing beach" means a natural bathing place including private clubs, together with any buildings, appurtenances, or other improvements at a pond, lake,

quarry, stream, or bay intended to be used collectively by numbers of individuals for swimming or bathing regardless of whether a fee is charged for such use.

(17) Public swimming pool

(a) "Public swimming pool" means any swimming pool intended to be used collectively by numbers of individuals for swimming or bathing operated by any person as defined herein, whether the person is an owner, lessee, operator, licensee, or concessionaire, regardless of whether a fee is charged for use.

(b) “Public swimming pool” includes private clubs

(c) “Public swimming pool” does not include a private residential swimming pool

(18) Recreational water attraction

(a) "Recreational water attraction" means a pool designed with features to provide a recreational activity different from that associated with a conventional swimming pool.

(b) "Recreational water attraction" includes single lane lap pools, tube rides; water slides over ten feet (10') in height, spray pools and wave pools.

(19) Repair

(a) "Repair" means the replacement of existing work with the same kind of materials for the purpose of maintenance and the replacement of a previously approved piece of equipment with an equivalent unit having the same specifications, operating characteristics, and certifications

(b) "Repair" does not include alterations, installation of additional equipment or any work requiring a building, plumbing, or electrical permit

(20) "Shallow Area" means that area which is five (5) feet or less in water depth

(21) Spa

(a) "Spa" means a pool, hot tub, or whirlpool, not more than four (4) feet in depth, primarily designed for therapeutic use, which is not drained, cleaned or refilled for each individual

(b) “Spa” includes:

i. Hydro jet circulation;
ii. Hot water mineral baths;
iii. Cold water mineral baths
iv. Air induction bubbles, or
v. Any combination of subparagraphs (i) through
vi. of this paragraph

(c) Industry terminology for a “spa “includes, but is not limited to:

i. Therapeutic pools;
ii. Hydrotherapy pools;
iii. Whirlpools; or
iv. Hot spas

(22) "Swimming pool" means any artificial structure, basin, chamber, or tank containing a body of water for the primary purpose of swimming, diving or recreational bathing

(23) "Swimming pool slide" means an apparatus less than ten (10) feet in height used to enter a pool by sliding down an inclined plane

(24) "Swim spa" means a pool designated to create a current of water against which an individual may swim for exercise or therapy

(25) "Therapy pool" means a pool that is exclusively used in the physical treatment of a disease, injury or disorder

(26) "Transition point" means that place in the floor of the pool where an abrupt change in slope occurs

(27) "Tube ride" means a pool designed with a feature to move one or more individuals on a tube, raft, or other floating support along a channel filled with water

(28) "Turnover rate" means the time required to circulate the volume of water the pool contains through the filtration system and back to the pool

(29) "Wading pool" means a pool not normally in excess of two feet deep at its maximum depth and usually reserved for use by small children

(30) "Water slide" means a water-contact amusement ride when the height of the slide is ten (10) feet or more

03. Construction Permit

A. A person may not construct or substantially alter any public swimming pool, wading pool, whirlpool, spa, hot tub, or appurtenances pertaining to health and safety until:

(1) One copy of the plans and specifications for the new or altered structures has been submitted to and approved by DEPRM; and

(2) A written construction permit has been approved by DEPRM and issued by the Department of Permits and Development Management

B. The plans and specifications shall include sufficient information for DEPRM to make a detailed review and shall generally include:

(1) Location;

(2) Site plan;

(3) Pool layout plan;

(4) Piping layout plan;

(5) Hydraulic analyses;

(6) Filter room layout plan;

(7) Bathhouse plan with finish schedule;

(8) Equipment specifications;

(9) Proposed membership or population numbers; and

(10) Any additional information, including material samples, necessary to determine if the plans and specifications comply with the requirements of these regulations

C. DEPRM shall review the plans and specifications with regard to public health and safety and may require modification in the design of the facilities within the scope of these regulations as the protection of public health and safety may include

D. There may not be a material deviation from the approved plans and specifications without written supplemental approval from DEPRM

E. Construction permits issued under the provision of this section shall become void one (1) year after the date of approval if construction has not commenced prior to that date

F. Notification and inspection

(1) DEPRM shall be notified when the construction, alteration, or addition of any swimming pool or appurtenances have been completed in accordance with the approved plans and specifications

(2) The pool may not be used until it has been inspected and approved by a representative of DEPRM

04. Site Layout

A. The swimming pool shall be:

(1) Laid out to minimize the possibility of dust, dirt, leaves, and other debris from entering the pool;

(2) Provided with adequate water and wastewater facilities;

(3) Designed so that drainage from the pool deck and surrounding areas will not normally enter the pool enclosure

(4) Equipped with adequate power facilities that do not represent a hazard to the bathers; and

(5) Laid out so that emergency vehicles and equipment have convenient access to the pool enclosure and filter area

B. Fence requirements for outdoor pool areas

(1) All outdoor swimming pool areas shall be enclosed by a fence or barrier with the top of the fence or barrier not less than 72 inches above grade measured on the side of the fence or barrier that faces away from the pool or spa

(2) The entrance gate shall be self-latching with the latch device located a minimum of 54 inches above grade

(3) The fence construction shall meet the requirements of the Baltimore County Building Code

(4) Wading pools shall be separated from the main pool with a fence or barrier with minimum height of 36 inches and have self-closing and self-latching entrance gates

(5) Fence entrances shall be located so that points of access to the users of the pool through the fence or from the bathhouse are on a part of the pool deck adjacent to shallow water

C. Sand beaches and other unpaved or unsodded areas designed for use by the bathers shall be separated from the pool area by:

(1) A fence;

(2) Planting; or

(3) Other permanent barrier

D. Areas used for sunbathing and lounging purposes shall be protected from overflow or drainage of water from the pool

E. Spectator areas

(1) Areas designed primarily for spectator use shall be separated from areas used by bathers by:

(a) A fence;

(b) A partition; or

(c) Other physical means

(2) Entrances to spectator areas may not be through areas normally used by bathers

F. Walks and decks

(1) A walk or deck shall be provided around the entire perimeter of the pool

(2) Dimensions and slopes of walks and decks

(a) The area of the walk or deck may not be less than the area of water surface in the pool

(b) The walk width may not be less than 4 feet at its minimum dimension or behind any diving facility

(c) The average width of the walk may not be less than 6 feet

(d) All walks, decks, and terraces shall have a uniform slope not less than ¼ inch per foot and not greater than ½ inch per foot to drains or points at which the water will have a free unobstructed flow to points of disposal

(3) Pool decks shall be constructed of concrete or other impervious material having a non-slip finish

G. Piping from deck drains shall be sized and sloped to freely carry the maximum expected flows with no surcharge or backpressure in the pipelines to approved outfall

H. Hose bib requirements

(1) Hose bibs equipped with backflow prevention shall be provided:

(a) Around the perimeter of the deck so that all parts of the pool deck may be reached with a 100-foot hose;

(b) In an equipment room; and

(c) In both a men's and woman's bathhouse

(2) A tripping hazard may not be created by placement of hose bibs

I. Drinking water fountains

(1) A minimum of one drinking water fountain shall be provided within the pool or spa enclosure

(2) Pools with over 5,000 square feet of water surface shall include an additional water fountain for every additional 5,000 square feet of water surface.

05. Water Supply

A. The water supply serving the pool and all plumbing facilities, including drinking fountains, hose bibs, lavatories, and showers shall meet the requirements established for potable water services established by:

(1) The Maryland Department of the Environment;

(2) The Maryland Plumbing Code, and

(3) The Baltimore County Plumbing Code

B. If the proposed facility will be served by private water and/or sewage system, approval for the installation must first be obtained from the Baltimore County Division of Groundwater Management

C. Water supply backflow prevention

(1) Water to the pool shall be introduced only through an air gap of at least 1 1/2-pipe diameters

(2) If a fixed fill spout is installed, it shall be installed within 10 inches of a ladder, handrail, lifeguard stand or other permanently installed appurtenance so that it does not present a tripping hazard to bathers

(3) The water distribution system serving all other facilities shall be protected against backflow prevention by means of:

(a) Suitable air gap;

(b) Vacuum breaker; or

(c) Other approved backflow preventer

D. Water from a public or private supply shall be adequate to maintain pressure under all usage

E. If a public water system is available to the grounds on which the pool is located, water from the public water supply shall be used as stated in the Environment Article, Title 9, and Subtitle 4 of the Annotated Code of Maryland.

06. Sewage

A. The sewage system

(1) The sewage system shall be adequate to serve the facilities, including the bathhouse, locker room, and related accommodation in accordance with the requirements of:

(a) The Maryland Department of the Environment;

(b) The Maryland Plumbing Code; and

(c) The Baltimore County Plumbing Code

(2) Public sewage system shall be used if one is available

B. Disposal of pool water

(1) Discharge

(a) There may not be a direct physical connection between the pool drain or recirculation system and the sanitary sewage system

(b) The discharge of water from the pool drain and recirculation system shall be arranged to preclude the possibility of the back up of non-potable water into the pool or its piping system

(c) Water discharged to a sanitary sewage system shall be through a suitable air gap

(2) When filter backwash effluent is to be discharged into a watercourse, a settling tank equal or greater than two filter backwash volumes shall be provided to:

(a) Settle out the foreign material

(b) Minimize the chlorine or bromine concentration; and

(c) Control the discharge velocity

(3) The disposal of swimming pool, spa and wading pool water and filter backwash water shall meet the criteria set forth in the Maryland Department of the Environment's General Permit for Discharges from Swimming Pools and Spas

(4) Pools and spas proposing to discharge wastewater or backwash water to a public sewage system shall obtain approval from and meet the requirements of the Baltimore County Department of Public Works

(5) Requirements for pumping pool water from the previous season, for emergency repair or following cleaning of surfaces shall include:

(a) Waste water containing muriatic acid or other approved cleaning agents shall be neutralized to a pH between 6.0 and 8.5

(b) Discharge may not be conducted until at least 48 hours after sufficient time for dissipation of the disinfectants

(c) When discharged to land the rate of discharge shall be controlled to prevent flooding, erosion, or nuisance conditions and water damage to adjacent properties

(d) Pool water shall be pumped from the top so as not to disturb solids on the pool bottom; and

(e) Solids shall be cleaned out manually

(6) Storm-water management-related requirements

(a) Pool water discharged to a storm management pond or storm drain shall meet all the requirements of subsection (5)(b) through (e) of this section

(b) Where the discharge goes from the storm systems to a surface stream the requirements of subsection (5)(b) through (e) of this section shall be met

(c) Total residual chlorine (TRC) may not exceed 0.1 ppm in discharged pool water

07. General Design Criteria

A. The following criteria shall govern

(1) Diving area

(a) A minimum of 24 square feet of water surface area per person shall be provided in the swimming area.

(b) Three hundred (300) square feet of pool area around each diving board or platform shall be excluded in computing the swimming area for purposes of determining the allowable bather load

(2) A minimum of 12 square feet of water surface area per person shall be provided in the shallow area.

(3) For areas greater than five (5) feet in depth, not including diving areas, a minimum of fifteen (15) square feet of water surface per person shall be provided.

(4) For additional persons within the designated pool enclosure area, exclusive of the pool it self, a minimum of twenty (20) square feet per person shall be provided.

(5) For a spa, one individual is allowed for every nine (9) square feet of water surface area

(6) For a therapy pool, one individual is allowed for every therapy station, or twenty (20) square feet of water surface, whichever is less

B. In designing a swimming pool to serve a specific area or subdivision where a proposed membership figure is not available:

(1) Assume, unless proof to the contrary is shown, that there will be four persons occupying each house in the area to be served; and

(2) One third of the persons who have access to the pool will be present in the pool at times of maximum attendance

C. In designing a swimming pool to serve multiple dwelling unit projects where a proposed membership figure is not available, it shall be assumed, unless proof to the contrary is shown, that:

(1) There will be two individuals occupying each one-bedroom unit

(2) One additional individual will be occupying a unit for each additional bedroom provided; and

(3) One-fourth of the individuals who have access to the pool will be present at the pool at times of maximum attendance

D. Public facilities, such as marinas and tennis clubs that include a swimming pool used as a secondary or incidental attraction and for which no permanent occupancy can be assumed may be designed in accordance with, Part 07, B, (2) of these regulations to provide a maximum bather limit which the owner shall specify in the construction plans and agree not to exceed at any time.

08. Pool Shell

A. Swimming pools shall be constructed of materials that are:

(1) Inert;

(2) Non-toxic;

(3) Impervious;

(4) Permanent;

(5) Smooth;

(6) Resistant to permanent deformation; and

(7) Easily cleanable

B. There may not be hazardous protrusions including underwater ledges from the floor or walls of the pool into the water.

C. Slope of the floor

(1) The slope of the floor of the shallow area:

(a) Shall be uniform for the entire length of the shallow area; and

(b) May not be greater than 1foot vertical in 12 feet horizontal

(2) The slope of the floor between the transition point and the deepest part of the pool may not be greater than 1foot vertical in 3 feet horizontal.

D. All corners formed by the intersection of walls or by the intersection of walls and floors shall be rounded for easy cleaning.

E. Handholds

(1) Handholds shall be provided around the entire perimeter of the wall.

(2) The handholds may not be more than 9 inches above the normal water level of the swimming pool.

(3) Bull-nose coping not over 2 ½ inches thick for the outer 2 inches will be acceptable in meeting the provisions of this section.

F. DEPRM is not responsible for the review of the plans and specifications for structural adequacy

G. Depth and length of the diving area

(1) The depth and length of the diving area shall conform to the Chart entitled "Diving Well; Depths and Lengths"

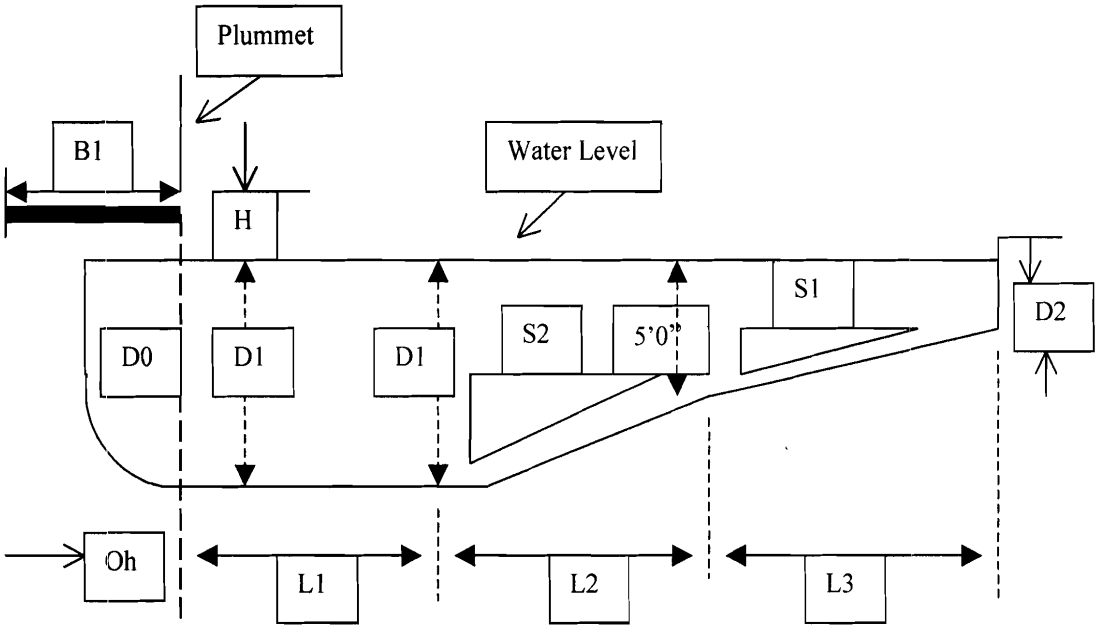
(2) In applying the provisions of this outline, measurements shall be taken from the centerline of the diving board and from the edge of the sidewalls

(3) When diving boards in excess of 3 meters are proposed, minimum distances between boards and between boards and sidewalls and minimum lengths and depths of the diving area shall be increased in accordance with the height of the board

DIVING WELL; DEPTHS AND LENGTHS
Minimum Dimensions

	Dimension							
	Deck level Board (20" or less)			**One Meter Board (More than 20" but not than 10'0")**			**Three Meter Board (More than 3'3" but not more that 39")**	
	Minimum	Preferred	Maximum	Minimum	Preferred	Maximum	Minimum	Preferred
D0	6'0"	-------	-------	6'0"	-------	-------	6'0"	-------
D1	9'0"	10'0"	-------	10'0"	12'0"	-------	12'6"	13'0"
D2	2'9"	3'0"	3'6"	3'0"	3'0"	-------	3'0"	3'0"
Oh	2'6"	3'0"	3'0"	4'10 ½"	6'0"	-------	4'10 ½"	6'0"
L1	15'0"	16'0"	-------	18'0"	20'0"	-------	20'0"	20'0"
L2	12'0"	15'0"	-------	15'0"	21'0"	-------	22'6"	24'0"
L3	15'0"	24'0"	-------	15'0"	24'0"	-------	24'0"	24'0"
S1	-------	1:12	1:10	-------	1:12	1:12	1:12	1:12
S2	-------	-------	1:03	-------	-------	1:03	1:03	1:03
B1	6'0"	6'0"	9'0"	9'0"	16'0"	-------	-------	16'0"

Explanatory Diagram



09. Appurtenant Equipment

A. Ladders

(1) A minimum of one ladder shall be provided for each 75 feet of pool perimeter and not less than 2 ladders shall be provided at any one pool

(2) Grab rails may be used instead of ladders

(3) A side handrail extending above and returning to the horizontal surface of the pool deck, curb, or coping shall be provided at each ladder

(4) Ladders shall be located:

(a) To prevent entanglement or trapping; and

(b) At points along the sidewalls which are naturally convenient for swimmers and divers

(5) Ladder treads shall be:

(a) Constructed to reduce the probability of slipping;

(b) Self draining; and

(c) At least 3 inches in width over the stepping surface

(6) A ladder is not required at pools where the depth of water at the edge of every well does not exceed 24 inches

B. Stairs

(1) Where stairs are provided at the shallow end of the pool, one ladder may be deleted for each stairway

(2) A handrail shall be provided on each stairway

(3) The stair tread shall be:

(a) Constructed of non-slip material; and

(b) Self-draining

C. Diving towers, platforms, and boards

(1) Unobstructed clearance is provided for a diving board in conformance with the following minimum dimensions:

(a) A minimum height of:

i. 13 feet measured upward from the plummet of a diving board; or

ii. Greater than 13 feet if specified by the manufacturer of the diving board;

(b) The clearance as required in §C(1)(a) of this regulation shall extend:

i. 16 feet forward of the plummet

ii. 8 feet behind the plummet; and

iii. 8 feet to both sides of the plummet

(c) A minimum distance of 10 feet between the plummets and adjacent diving boards; and

(d) A minimum distance between a diving board plummet and a sidewall of:

i. 10 feet for a diving board 20 inches or less above the water line; and

ii. 12 feet for a diving board greater than 20 inches above the water line

(2) Diving boards in excess of 10 feet and diving platforms shall be in compliance with section 454 of the American National Standards for Swimming Pools (ANSI/NSPI-1 2003)

(3) A starting block:

(a) Shall be located on the pool deck so that a swimmer dives into a minimum of 5 feet water depth; or

(b) At a previously approved pool, shall be located so that a swimmer dives into a minimum of:

i. 5 feet water depth when the starting block is used without supervision; or

ii. 4 feet water depth when the starting block is used in a controlled environment such as a swimming competition under the supervision of an instructor, and restricted from unsupervised use or removed when not under supervised use

(4) Diving boards or platforms shall be entirely covered with non-slip material

(5) Treads on ladders to diving boards and towers shall be:

(a) At least 3 inches wide over the stepping surface; and

(b) Of non-slip design

(6) Diving wells and distances between adjacent diving boards and diving boards and sidewalls shall conform to the Swimming Pool Diving Well Chart

(7) Fixed platforms, except solid islands, located in the water shall:

(a) Have an air space of at least 1-foot between the water surface and the underside of the platform; and

(b) Be designed to prevent entanglement or trapping of swimmers beneath the platform

(8) All decking adjacent to shallow areas of the pool shall have markings on the deck (minimum of 4" in height) that read "NO DIVING" or the international No Diving symbol

D. Lighting

(1) Artificial lighting shall be provided at all indoor and outdoor pools, which are to be used at night, or when daylight is insufficient

(2) Lighting fixtures shall:

(a) Be of such number and design as to illuminate:

i. All parts of the pool or spa;

ii. The water; and

iii. The entire pool or spa area;

(b) Be installed to create no hazard to bathers such as:

i. Burns;

ii. Electric shock;

iii. Mechanical injury; or

iv. Temporary blinding by glare; and

(c) Minimize reflection from the water surface so that the visibilities of all areas of the pool or spa bottom are not obscured.

(3) Water, deck and walkway lighting requirements

(a) The illumination shall be sufficient so that the floor and the walls of the pool can be seen at all times the pool is in use.

(b) If underwater lighting is used, the illumination will be deemed sufficient if the underwater lights:

i. Provide at least 3/4 watt (or equivalent low voltage installation) per square foot of water surface where the depth is less than 5 feet; and

ii. Provide 1½ watts (or equivalent low voltage installation) per square foot of water surface where the depth is greater than 5 feet.

(c) Overhead lighting shall yield at least 2 watts per square foot of required deck area or at least 20 foot-candles of light that is directed onto the deck and water surface so the entire pool or spa bottom is clearly visible.

(d) Walkway lighting shall yield a minimum of 15 foot-candles of light

(4) Skylights

(a) Skylights shall be protected from falling objects

(b) A false skylight shall be placed below the one exposed to the weather to minimize condensation in the poolroom.

E. Lifeguard stands

(1) Each public swimming pool shall have at least one elevated lifeguard chair for each 2,000 square feet of water surface area or fraction thereof

(2) The chair(s) shall be in compliance with the American National Standard for Public Swimming Pools (ANSI/NSPI-1 2003).

(3) Lifeguard chairs shall be located so that the lifeguard's necessary field of vision does not exceed 180 degrees.

(4) A deck-level lifeguard chair may be used in a designated area of the deck adjacent to shallow water instead of an elevated lifeguard chair.

F. Life Line

(1) A lifeline shall be provided at the transition point with its position marked by colored floats at not greater than 5 feet spacing.

(2) The diameter of the lifeline shall be 5/8 of an inch minimum.

(3) Terminals of the lifeline shall be securely anchored and of corrosion-resistant material.

(4) The lifeline shall be of a type, which has no projection that may constitute a hazard to the bather.

G. Depth markers

(1) Depth of water shall be plainly marked in feet:

(a) On the edge of the deck or walk next to the pool;

(b) On the vertical walls of the pool at maximum and minimum points of break between the deep and shallow portions; and

(c) At intermediate increments of depth, and spaced at intervals of not more than 25 feet

(2) Depth markers shall be:

(a) In numerals of 4 inches minimum height;

(b) Of a color contrasting with background; and

(c) On both sides and ends of the pool

H. Suction cleaners

(1) A suction type cleaner shall be provided for each pool

(2) If the suction cleaner is operated by the recirculation pump:

(a) The suction cleaner line shall be connected ahead of the hair and lint catcher;

(b) Sufficient pool connections shall be provided to allow easy access to all parts of the pool bottom with the cleaner; and

(c) The vacuum fitting(s) shall be capped and the vacuum line valve closed when not in use

(3) Skimmer outlet pipes may be utilized for this purpose, providing that there are no more than 4 skimmers connected to one skimmer line

I. Sliding boards

(1) Sliding boards shall have a water surface area used for no other activities

(2) Sliding boards may not enter water of less than 3 feet, 6 inches depth

10. Standards for Recreational Water Attractions

A. A recreational water attraction shall:

(1) Be designed to eliminate or minimize safety hazards such as entrapment, slipping, falls, tripping hazards, impact injuries, and drowning;

(2) Be in compliance with applicable State codes and these regulations; and

(3) Have a communication system for use by supervisors, watchers, and lifeguards

B. Plans for supervision, attendants and lifeguards shall be submitted as part of the construction plans and include safety personnel at all potentially hazardous activity areas

C. A swimming pool water slide shall be in conformance with the American National Standard for Swimming Pools (ANSI/NSPI-1 2003), and shall have:

(1) Attachments that firmly anchor the swimming pool slide;

(2) At the end of the slide, a minimum water depth of:

(a) 4 feet water depth for a distance of 10 feet along the slide centerline for a swimming pool slide that does not slow an individual's entry into the water or that drops the individual into the water; or

(b) 6 inches water depth for a swimming pool slide designed to slow an individual to a near stop at the end of the slide;

(3) A cushioned landing mat below the end of a swimming pool slide if there is a potential for impact or abrasion injury;

(4) A centerline distance from the end of a slide to a wall, lifeline, transition point, centerline from another slide, or obstruction that eliminates the potential for an individual using the slide to strike a wall, lifeline, transition point, an individual from another slide, or an obstruction;

(5) A minimum side distance of 4 feet from the centerline of the slide to a wall, lifeline, transition point, or obstruction;

(6) A design that eliminates the potential for an individual to strike the pool deck or coping while traveling down the swimming pool slide;

(7) A slide end that extends beyond the pool wall, deck, and coping; and

(8) A minimum side distance of 12 feet between the centerline of a slide and a diving board, diving platform, or starting block

D. A water slide shall:

(1) Be in compliance with COMAR 091263, as verified by documentation from the Department of Labor, Licensing and Regulation, which the owner shall provide to the approving authority; and

(2) Exit to a plunge pool or slide run-out

E. A wave pool shall be provided with an emergency shut-off switch at each guard station.

F. A tube ride shall have designated entry and exit points

G. A spray pool:

(1) Shall have a bottom that slopes from ¼ inch per foot to 5/8 inch per foot to a drain with grate that does not create an entrapment hazard;

(2) May not have standing water; and

(3) May not have an obstruction less than 4 feet in height

H. A single lane pool used for swimming laps shall have:

(1) A minimum width of 7 ½ feet; and

(2) A "No Diving" sign or the International “No Diving Symbol” on the deck

I. A decorative fountain or waterfall installed in or connected to a pool or spa may not create a health or safety hazard.

J. A spray fixture, fountain, piece of play equipment, bridge, ramp, stair, float, swing, or other recreational equipment located within a pool or spa shall:

(1) Be designed to eliminate or minimize safety hazards such as entrapment, concealment, slipping, falls, trip hazards, impact injury, and drowning;
(2) Be limited to a shallow water area;
(3) Have a color that contrasts with the pool or spa so that the structure is highly visible;
(4) Have pipes or support columns that are a minimum of 6 inches in diameter;
(5) Be provided with an overhead clearance of at least 7 ½ feet from the pool floor and 4 feet from the water surface where an individual may walk under the fixture;
(6) Be provided with recirculated, treated pool water for a spray, stream, or other flow of water; and
(7) Be installed according to the manufacturer’s directions

K. The water surface level shall be maintained to allow the surface overflow system to operate properly.

L. At least two interconnected main drains shall be installed in the deepest part of a pool or spa and be connected to the filtration system.

M. A pump reservoir or surge tank shall be provided for a slide or water feature circulation pump intake and shall be:

(1) Made of concrete or other impervious material with a smooth, slip-resistant finish

(2) Have inlets through a weir or gravity-fed drain with a secure grate

(3) Have a volume equal to 2 minutes of the combined flow of all pumps connected to the reservoir or tank

(4) Accessible only to authorized individuals;

(5) Have pump intakes located in the pump reservoir that are designed to allow cleaning without danger of entrapment; and

(6) Provide that the water velocity through grate openings does not exceed 2 feet per second

N. A slide or water feature circulation pump shall have a check valve on the discharge side.

O. Returns from a filtration system shall be placed to provide even and positive circulation and to eliminate dead zones

11. Public Bathing Beach Standards

A. Swimming areas

(1) The swimming areas of public bathing beaches shall be designed to include specific zones of responsibility, not to exceed a surface area of 3,500 square feet, or as approved by DEPRM, for which designated lifeguards are provided

(2) The swimming areas shall be designated by floating roping

B. Lifeguards

(1) The number of lifeguards per zone shall be determined as provided in this section

(2) Each zone shall be provided with a minimum of 1 guard, certified to the American Red Cross Waterfront Certification Standard or its equivalent as accepted by the approving authority

(3) Ratio

(a) Lifeguards shall be provided for each zone when swimmers are in that zone

(b) Lifeguards shall be provided at the ratio of 1 lifeguard for every 35 bathers in that zone when conditions of poor visibility, increased depth, unknown or obstructed bottom conditions, significant temperature change with depth or a combination of these conditions occurs as determined by the approving authority

(4) Lifeguards in excess of the ratio required in subsection (3) of this section may be required whenever:

(a) The shape, dimensions, layout, use, activities, or features of the zone create potential safety hazards

(b) The vision of the required lifeguards is obstructed;

(c) The capabilities of the individuals using the zone are substandard; or

(d) Another condition exists that compromises the ability of a lifeguard to monitor the zone

(5) Rescue equipment consisting of a paddle board, mask, and swimming fins shall be provided for each active zone

12. Ventilation

A. An indoor pool or spa shall have a ventilating system capable of:

(1) Exhausting l ½ cfm of air per square foot of enclosed area, or

(2) Dehumidifying the recirculated air from the enclosed area

B. Make-up air equal to the volume of exhausted air or as required in the ventilation system specifications shall be provided

13. Pool Fittings

A. Inlets

(1) Inlets, adjustable for flow regulation, shall be:

(a) Located at least 12 inches below the normal water level in the pool, where possible; and

(b) Placed to produce a uniform quality of water throughout the entire swimming pool

(2) Satisfactory compliance with inlet requirements may be obtained by providing inlets at the rate of one for every twenty inches of wall perimeter, although the inlets need not be located on the walls

B. Outlets

(1) At all pools, a minimum of 2 main drain outlets that are not isolated by a valve or other means shall be provided in the deepest part of the pool to:

(a) Drain the pool; and

(b) Return at least 20% of design rate of flow to the filtration system

(2) The outlets shall:

(a) Be located to produce a uniform distribution of water throughout the deep

section of the pool;

(b) Be spaced no more than 35 feet apart nor more than 17 feet, 6 inches from sidewalls; and

(c) Be spaced no closer together then 3 feet from edge to edge of the drain covers

(3) At pools utilizing bottom inlets, provision must be made in the deepest part of the pool for emptying the pool

(4) Outlet drains shall be:

(a) Covered with a securely attached drain cover in compliance with the American National Standard for Swimming Pools (ANSI/NSPI-1 2003); and

(b) Designed so that they cannot be readily removed by bathers or create any hazard to bathers

(5) The main drain piping shall be of sufficient size to permit cleaning by rodding

(6) A vacuum fitting shall be capped and the vacuum line valve closed when not in use

C. Overflow facilities

(1) Overflow facilities shall be provided to remove floating material from the surface of the water in the pool and designed to return water to the filtration system

(2) The return to filter piping shall be designed to accommodate at least 80% of the design rate-of-flow

(3) Overflow facility options

(a) Satisfactory compliance with overflow facilities requirements may be obtained but is not limited to any of the methods as provided in this subsection

(b) Overflow Gutters

i. Overflow gutters shall be located near the top of the pool
ii. Overflow gutters shall be designed so that the overflow channel is accessible for cleaning and presents no risk of entrapment or injury to the bather
iii. The lip of the overflow gutter shall be:

(aa) Level throughout the periphery of the pool; and
(bb) Designed to serve as a handhold for bathers

iv. The gutter bottom shall slope toward outlets spaced not more than 15 feet on centers at a slope not less than 1/8 inch per foot
v. Outlet drains may not be less than 2 inches in diameter

vi. The total orifice area of the grating shall be at least 1 ½ times the cross section area of outlet pipes
vii. Connection to the suction side of the recirculation pump shall be through a surge tank except in the case of an open tank filtration system having adequate capacity for any foreseeable overflow volume

(c) Floating weir type surface skimmers
i. Floating weir type surface skimmers shall be recessed into pool walls and designed for removal of surface scum and floating material
ii. The rate-of-flow over the skimmer weir shall be between 15 and 40 gallons per minute per inch of weir length
iii. At least 1 surface skimmer shall be provided for each 500 square feet or fraction thereof of the water surface area
iv. Skimmers shall be provided with a float valve equalizer line assembly with an approved ANSI/NSPI-1 2003 outlet cover
v. Skimming devices shall meet the following general specifications:

(aa) Skimmer throats may not be greater than the width required for weirs 10 inches long;
(bb) Skimmer weirs shall be automatically adjustable to variations in water level over a minimum range of inches;
(cc) A removable basket or screen to trap large solids shall be provided in each skimmer;
(dd) The outlet pipe from each skimmer shall contain a device for regulating the flow of water from the skimmer through the entire range from the design rate-of-flow to shut-off; and
(ee) Skimming devices shall be provided with a vented lid

(d) Collecting Channel
i. A collecting channel shall be constructed along the entire perimeter of the pool into which the water in the pool overflows and is returned to the filtration system
ii. Openings in the sidewall to allow the pool water to flow into the collecting conduit:

(aa) May not be less than 2 inches high nor more than 4 inches long;
(bb) Shall be level around the entire perimeter; and
(cc) Shall be spaced no more than 10 feet on centers around the entire perimeter of the pool

(e) Deck level systems may also be used

14. Piping Systems

A. The piping system shall be designed so that it is possible to:

(1) Circulate the pool water through the treatment equipment and return it to the pool;

(2) Wash the filters;

(3) Discharge filtered water waste, or (in the case of diatomaceous earth filters only) return the filtered water to the side of the filter elements holding the filter media;

(4) Drain the entire system;

(5) Disinfect the recirculated water;

(6) Add other necessary chemicals; and

(7) Support heating of the pool water where heating units are provided

B. Determination of size of pipe, fittings, and valves

(1) The size of pipe, fittings, and valves shall be based on the quantity of water to be carried and the total dynamic head

(2) The rate of friction loss in the piping on the suction side of the pump may not exceed 6 feet per 100 feet of pipe, nor on the discharge side of the pump exceed 12 feet per 100 feet of pipe based on the Hazen-Williams formula

(3) The velocity of water in the pipe may not exceed:

(a) Six (6) feet per second on the suction side pump; or

(b) Ten (10) feet per second on the discharge side of the pump

C. Piping supports

(1) All piping shall be supported by piers, hangers, or other means to prevent settlement, which could result in:

(a) Ruptures

(b) Dirt traps

(c) Air traps; or

(d) Prevention of drainage of the pipe

(2) Flexible pipe shall be supported or encased along its entire length

D. All pipes shall be capable of being drained or otherwise protected from damage by freezing

E. The piping system in the filter room shall be labeled by:

(1) Color coding;

(2) Permanently tagged valves; or

(3) Another method accepted by the approving authority

15. Hair and Lint Catchers

A. At all installations where it is possible for water from the pool to pass through the pumps before the water passes through filters a hair and lint catcher fabricated of or coated with corrosion resistant material shall be provided to prevent hair, lint, and other debris from reaching the pumps

B. Hair and lint catcher types shall be:

(1) Screens placed in the wet well through which all water entering the pump must pass; or

(2) A pot-type strainer basket placed in the pump suction line

C. Area/size of hair and lint catcher

(1) The total clear area of the openings in the hair and lint catcher may not be less than four times the area of the largest size pipe from the pool to the hair and lint catcher influent

(2) Holes in the hair and lint catcher may not pass particles larger than 1/8 inch in their minimum dimension

D. Cleaning

(1) Hair and lint catchers shall be designed so that they are easily removable for cleaning

(2) In the case of a pot-type strainer basket placed in the pump suction line, valves shall be provided to prevent water from the pipes from overflowing through the basket access opening when the hair and lint catcher is being cleaned

E. A spare basket or screen shall be provided for each unit

16. Recirculation Pumps

A. The pumping equipment shall have the ability to recirculate the pool water:

(1) At the required recirculation rate; and

(2) At or near maximum efficiency against the maximum total dynamic head developed immediately before washing of the filters

B. When the recirculation pump is used for supplying backwash water to the filters, it shall have the ability to supply water to backwash the filters at the design backwash rate

C. Pump performance curves shall:

(1) Be prepared and certified by the pump manufacturer; and

(2) Accompany each application for a construction permit

D. Self priming pumps shall be provided when the elevation of the pumps is higher than the normal water level in the pool

E. The turnover rate, with continuous 24-hour flow, may not exceed:

(1) 480 minutes at swimming pools; (8 hours)

(2) 360 minutes at water recreational attractions and therapy pools; (6 hours)

(3) 120 minutes at wading pools; and (2 hours)

(4) 30-minutes at spas (.5 hours)

17. Filtration and Circulation System Components

A. A filter or filters through which the water passes but suspended matter is retained shall be part of the recirculation system of all swimming pools

B. Except as provided in Regulation17, Section C, an owner shall ensure that circulation system components, including skimmers, pumps, filters, multiport valves, adjustable output rate chemical feeders, flow-through chemical feeders, chemical process equipment, chlorine generators, ion generators, and other related pool and spa equipment comply with the criteria set forth in Circulation System Components and Related Materials for Pools, Spas/Hot Tubs (ANSI-NSF-Standard-50 1992)

C. Swimming pool, spa, or hot tub circulation system components will be accepted if these items are listed in the current published National Sanitation Foundation (NSF) listing accredited by the American National Standards Institute (ANSI) for the certification of circulation system components

18. Chemical Feed

A. Suitable equipment capable of feeding disinfectants, coagulants, chemicals for pH adjustment, and other required chemicals to the recirculated water shall be provided unless it is demonstrated to the satisfaction of the approving authority that such equipment is not needed to provide satisfactory operation of the pool

B. Equipment for supplying chlorine or compounds of chlorine

(1) The equipment shall be of sufficient capacity to feed at the rate of 10 parts per million of available chlorine to the design flow rate

(2) The feed rate shall be adjustable through its entire range

(3) The lower increment on the scale may not be greater than 10% of the highest increment

C. Chlorine gas feeding equipment

(1) Where chlorine gas feeding equipment is provided, the conditions of this section shall apply

(2) The gas and gas feeding equipment shall be:

(a) Located at or above ground level;

(b) In an enclosure equipped with an outside door capable of being locked; and

(c) Separated from all other building uses by a gas-tight corrosion resistant partition

(3) Venting provisions

(a) At least one side of the enclosure shall be a wall adjacent to the atmosphere in which a vent capable of producing one air change per minute and terminating to create the least amount of hazard during an emergency has been installed at floor level

(b) Switches for exhaust fans shall be located outside the enclosure

(c) Means for introducing fresh air supply to the enclosure through appropriate openings located near the ceiling shall be provided

(4) The enclosure shall be equipped with platform scales or other means for measuring the quantity of chlorine remaining in the cylinders and with facilities for fastening the chlorine cylinders in place during storage or use

(5) A gas mask, approved by the Bureau of Mines, shall be provided outside of and readily accessible to the chlorine gas feeding enclosure

(6) The gas feeding equipment shall be a solution free type capable of delivering chlorine at its maximum rate without releasing chlorine gas into the atmosphere

(7) Water supply for gas feeding equipment

(a) Water supply, if any, for the gas feeding equipment shall produce the flow rate and pressure required by the manufacturer's specifications for proper operation of the equipment

(b) Where other than swimming pool recirculated water is used, the supply line shall be equipped with:
(i) An electric shut off valve wired to the recirculation pump; and
(ii) A suitable backflow preventer

(c) Failure of the water supply shall automatically shut off the release of chlorine from the cylinder

(8) An ammonium hydroxide test for gas leaks shall be provided

D. Where bromine, calcium hypochlorite, sodium hypochlorite, or other chlorine compounds are utilized as the disinfecting agent, a positive displacement type chemical feed pump meeting the requirements of Regulation 17: Section C shall be provided to inject the chemical solution into the recirculation line

E. Adequate facilities for chemical storage shall be provided at all installations

F. Body-feed equipment, when used for feeding diatomaceous earth to the filter influent shall have the capacity to operate:

(1) At a reasonably constant rate with a calibrated range of from 2 to 10 parts per minute; and

(2) At a maximum feed rate of 10 parts per minute based on the design filter rate for a period of 24 hours without refilling

G. Positive displacement type chemical feeders shall:

(1) Be of sufficient capacity to feed the required amount of chemical solution per day against the maximum back- pressure developed at point of injection;

(2) Contain positive features to prevent siphoning of the hypochlorite solution into the recirculation system from the solution container

(3) Be equipped with means for pre-setting and varying the rate of flow through the machine; and

(4) Include a solution container for each machine head of at least 20 gallons and constructed of plastic, earthenware, or other corrosion resistant material

H. Where single head chlorine or hypochlorite feeder has more than one point of injection, each solution feed line shall be equipped with a control valve of non-corrodible construction

I All chemicals added to the pool water shall be approved by DEPRM

19. Control Equipment

A Rate of flow meters and indicating automatic flow controllers

(1) Rate of flow meters or indicating automatic flow controllers shall be installed on all recirculation systems in such location so that:

(a) There are no impediments to flow upstream and downstream from the indicators for distances according to the manufacturer's directions;

(b) The quantity of water passing to each pool on the system can be determined; and

(c) The quantity of water passing through sand and anthracite filters during the backwashing cycle can be determined

(2) Rate of flow meters shall:

(a) Be accurate within 10% of true flow;

(b) Read directly in gallons per minute; and

(c) Be capable of measuring flows of at least 125 times the design flow rate

(3) Markings for controllers

(a) Indicating automatic flow controllers shall be permanently etched with the rating in gallons per minute

(b) Decals are not accepted by the approving authority

B. Pressure or vacuum gauges, as required, shall be installed on each filter plant to indicate the condition of the filters

C. Sight glasses shall be:

(1) Provided on all backwash, rewash, and pre-coat recirculation lines where these lines do not discharge to an easily visible open receptacle in the filter room;

(2) Designed on the flow through principle or have an air bleeder; and

(3) Easily cleaned

D. Pumps located on the discharge side of open filter shall be equipped with an automatic cut off to prevent damage to the equipment because of excessive vacuum

E. At all installations where water from the pool is returned to an open tank located below the normal water level of the pool, control valves to prevent the flooding of the tank shall be installed

20. Pool Disinfection

A. An owner or operator of a public pool or spa shall ensure that a disinfectant or combination of disinfectants is added to the water automatically through an approved chemical feeder to maintain a continuous residual level as specified below:

(1) Free chlorine shall be between

(a) l.5 ppm and 10.0 ppm for swimming pools and recreational water attractions; and

(b) 4.0 ppm and 10.0 ppm in spas and in pools for wading or therapy;

(2) The maximum amount of combined chlorine shall be 0.2 ppm for all pools and spas

(3) Total bromine shall be between:

(a) 3.0 ppm and 8.0 ppm in swimming pools and recreational water attractions; and

(b) 4.0 ppm and 8.0 ppm in spas and in pools for wading or therapy;

(4) For pools and spas using copper and silver ions as a secondary disinfectant in conjunction with chlorine or bromine as a primary disinfectant:

(a) Copper ions shall be between 0.2 ppm and 1.0 ppm;

(b) Silver ions may not exceed 0.05 ppm;

(c) Free chlorine in combination with copper and silver ions shall be between:
(i) 0.5 ppm and 10.0 ppm in swimming pools and recreational water attractions, and
(ii) 1.5 ppm and 10.0 ppm in spas and in a pool for wading or therapy;

(d) Total bromine in combination with copper and silver ions shall be between:
(i) 1.0 ppm and 8.0 ppm in swimming pools and recreational water attractions, and
(ii) 3.0 ppm and 8.0 ppm in spas and pools for wading and therapy;

(e) For pools and spas using an ozone generator, the maximum amount of ozone measured 2 inches above the water surface shall be 0.1 ppm;

(f) Ozone systems shall be installed and used according to Circulation System Components and Related Materials for Pools Spas/Hot Tubs (ANSI-NSF-50 1992)

(g) Additional ozone system requirements:
(i) An ultraviolet light ozone system shall be installed and used according to Circulation System Components and Related Materials for Pools, Spas/Hot Tubs (ANSI/NSF Standard-50 1992)
(ii) A corona discharge ozone system shall be installed and used

according to Circulation System Components and Related Materials for Pools, Spas/Hot Tubs (ANSI/NSF Standard-50 1992), and the following requirements

(aa) The system is designed to provide a minimum concentration of ozone generated to be 15% by weight

(bb) The ozone gas is diffused through a static mixer with a side stream flow of recirculated water equal to a minimum of 5% of the required turnover rate

(cc) The system is required to provide a contact time of:

- • 2 minutes when used in conjunction with a chlorine disinfectant, or
- • 1 minute when used in conjunction with a bromine disinfectant

(dd) The system provides a minimum contact time value of 05 mg/1 in the contact column when the contact time value equals the concentration of dissolved ozone in mg/1 times the contact time in minutes

(ee) The air feed, which is natural or oxygen enriched air, is filtered to remove particulates and dehumidified to a minimum dew point of minus 60 degrees centigrade before the ozone chamber

(ff) An ozone gas feed line is ozone resistant

(gg) Off-gas venting from the contact column is:

- • Equipped with an ozone destruct system that removes all ozone before release to the atmosphere, or
- • Returned to the main recirculation line when used in conjunction with a bromine disinfectant;

(hh) Valves are provided to control flow through the system

(ii) When necessary, a foam suppression system is provided before off-gas venting;

(jj) The oxygen reduction potential of the side stream after contact and before dissolved oxygen removal is a minimum of 650 millivolts

(kk) The dissolved ozone is removed from the side stream using granulated activated carbon before remixing with the recirculated water when used in conjunction with a chlorine disinfectant;

(*11*) The ozone generating system shuts off if the water recirculating system shuts off or if the vacuum is lost on the ozone gas output line;

(mm) The ozone gas output is under negative pressure or vacuum;

(nn) The ozone generation area is ventilated at 2 cfm per square foot of floor area to prevent build-up of excess ozone; and

(oo) The recirculated water is treated to maintain the pH between 7.2 and 7.8;

(pp) The ozone disinfectant level shall meet the manufacturer's recommendations The maximum amount of ozone measured 2 inches above the water surface shall be 0.1ppm

(h) For pools using

Polyimiinoimidocarbonyliminoimidocarbonyliminohexamethylenehydrochlride (PHMB), the minimum level of PHMB shall be 30ppm; and

i. For pools and spas using an ultraviolet light/hydrogen peroxide system, the minimum level of hydrogen peroxide shall be 20ppm;

1. Carbon Dioxide feeders shall be installed and used in accordance with the manufacturer's specifications in a ventilated area

(5) An owner or operator shall ensure that for public pools and spas using cyanuric acid or a similar chlorine stabilizer, the cyanuric acid is maintained between 30ppm and 100ppm;

(6) An owner or operator of a pool or spa may not use:

(a) PHMB in a pool or spa that uses jets or sprays;

(b) PHMB in conjunction with any halogen compound or ozone;

(c) Cyanuric acid in conjunction with a bromine compound or in an indoor pool or spa; or

(d) An ultraviolet light/hydrogen peroxide system in conjunction with a diatomaceous filter

(7) See the following Pool Chemical Reference Table for additional information

Swimming Pools and Water Recreational Attractions

Operational Requirements

Parameters	Minimum	Ideal Range	Maximum	Comments
Free Chlorine (ppm)	1.5	2.0 – 3.0	10.0	Test at least every 2 hours
Combined Chlorine	None	0.0	0.2	Eye irritation and odor Eliminate by super chlorinating Test at least every 2 hours
Bromine	3.0	3.0 – 5.0	8.0	Test at least every 2 hours
PHMB (ppm)	30	-------	-------	
Ozone (ppm)	0.1	-------	-------	Measured 2” above water Surface
Hydrogen Peroxide (ppm)	20	-------	-------	UV light/Hydrogen peroxide system
PH	7.2	7.4 – 7.6	7.8	Adjust to halogen level Test at least Every 2 hours
Total Alkalinity (Ppm as CaCO3)	60	80 – 120	180	Can vary with water source Record level in 1-week intervals
Calcium Hardness (Ppm as CaCO3)	150	400	400	Adjust to alkalinity Record level in 1-week intervals
Total Dissolved Solids	300	-------	1500 3000	Freshwater pool Saltwater pool
Cyanuric Acid	30	40 - 70	100	Record in 1-week intervals

21. Pool Water Chemistry

A. An owner or operator shall ensure that the water chemistry of a pool or spa is maintained according to the following requirements:

(1) The pH of the water shall be maintained between 7.2 and 7.8;

(2) The total alkalinity of the water shall be maintained between 60ppm and 180ppm; and

(3) The calcium hardness of the water shall be maintained between -05 and +05 as calculated by:

(a) The Langelier Saturation Index formula: Langelier Saturation Index = pH + TF+ CF + AF - 121 where TF = Temperature Factor, CF = Calcium Hardness Factor, and AF = Alkalinity Factor, and the following factor table:

LANGELIER SATURATION INDEX - FACTOR TABLE

Temperature (°F)	Temperature Factor	Calcium Hardness (ppm)	Calcium Factor	Total Alkalinity	Alkalinity Factor (ppm)
32	00	5	03	5	07
37	01	25	10	25	14
46	02	50	13	50	17
53	03	75	15	75	19
60	04	100	16	100	20
66	05	150	18	150	22
76	06	200	19	200	23
84	07	300	21	300	25
94	08	400	22	400	26
105	09	800	25	800	29
128	10	1000	26	1000	30

Langelier Saturation Index Formula

Langelier Saturation Index = pH + TF + CF + AF - 121 where

TF = Temperature Factor, CF = Calcium Factor, and AF = Alkalinity Factor

(b) The amount of total dissolved solids shall be maintained so that it does not exceed 1500ppm, except for a saltwater pool where the total dissolved

solids may not exceed 3000ppm

(c) The amount of dissolved metals shall be maintained so that it does not exceed the following levels:

i. Iron, 0.3 ppm;
ii. Manganese, 0.3 ppm; and
iii. Copper, 1.3 ppm; and

(4) An owner or operator shall ensure that:

(a) Water additives and treatment chemicals are used according to the manufacturer's instructions; and

(b) When chemicals are added directly to a pool or spa, no individual is allowed in the water until the chemicals are dissolved and diffused throughout the pool or spa

(5) An owner or operator shall ensure that the water temperature for a heated pool does not exceed:

(a) 88 °F for a pool; and

(b) 96 °F for a therapy pool

22. Wading Pools

A All wading pools shall have a separate automatic chlorination system or other approved automatic disinfection system

B. Disinfection levels shall be maintained 24 hours per day

C. Turnover rate

(1) Turnover rate for wading pools shall be two hours or less

(2) The hydraulic analysis and total dynamic head (TDH) shall be submitted

D. The filtration system shall operate on a 24-hour basis

E. The main drain covers shall be in compliance with Article 9 of the American National Standard for Public Swimming Pools (ANSI/NSPI-1, 2003) and installed not less than 36" apart measured edge to edge of the drain covers

F. Recirculation

(1) Wading pools shall have a separate recirculation system having a minimum of 1 skimmer per 500 sq feet of water surface area, two inlets, and 2 main drains

(2) Those wading pools operating separately, or in the main pool system with a single skimmer and main drain set-up may continue to do so only if they meet the requirements of Regulation 22: Sections A through E

(3) The system shall be in working order and currently operating efficiently

G. Wading pools that do not meet the requirements of Regulation 22: Section A through F. shall be separated from the main pool system or provisions shall be made to close and fill in the wading pool

H. Records of wading pools shall be maintained the same as the large pools See Part 31

23. Equipment Areas

A Means shall be provided to shelter all equipment, except the filters, from precipitation

B. Equipment areas or rooms

(1) Equipment areas or rooms shall:

(a) Be finished in a light color;

(b) Have sufficient artificial lights (minimum of 20 foot-candles) to make valves and control devices visible;

(c) Subject to subsection (2) of this section, be provided with ventilation sized 2 cubic feet per minute per square foot of floor area that is:
(i) Mechanical ventilation, if chemicals are used or stored in the room, or
(ii) Natural or mechanical ventilation, if chemicals are not used or stored in the room

(d) Contain adequate make-up air to replace the air exhausted by the ventilation system

(e) Contain enough area for cleaning, maintaining and operating the equipment; and

(f) Have floors finished in concrete or other impervious material, and sloped to a floor drain so that no accumulation of water will occur

(2) When mechanical ventilation is used, it shall be electrically interconnected to operate with the filtration system

C. Accessibility

(1) Equipment areas shall be easily accessible to the pool operator but may not be accessible to the users of the pool

(2) Satisfactory compliance may be obtained by providing:

(a) A fence with a minimum height of 6 feet containing a gate capable of being locked around the equipment area; or

(b) A room in which the equipment is housed which contains an access door equipped with a lock

D. Permanent means of access

(1) Permanent means of access shall be provided to all equipment areas

(2) Satisfactory compliance may be obtained by providing an access stairway or ramp

(3) When a stairway is used, the slope from the horizontal may not exceed 45 degrees

(4) When a ramp is used, the slope from the horizontal may not exceed 15 degrees

24. Pool Water Heaters

A. Any method of heating pool water in a manner that the water in the pool is not of a reasonable uniform temperature throughout the pool or which may endanger the bathers because of excessive heat or electrical shock is prohibited

B. Heat exchangers and heaters

(1) Heat exchangers shall be:

(a) Designed to heat all or part of the recirculated water; and

(b) Provided with thermometers mounted in such places that the temperature of the water returning from the pool and the temperature of water introduced to the pool can be easily read

(2) Heaters at indoor pools shall be capable of maintaining the pool water at not less than 74 degrees F

C. An automatic temperature limiting device that will prevent the introduction of water in excess of 104 degrees F to the pool/spa shall be provided at all installations where the pool/spa water is heated

25. Water Quality Testing Equipment

A Test kits

(1) ADPD (NN-Diethyl-Para-Phenylene Diamine) type test kits shall be provided with a minimum range testing capacity of 02 to 100ppm at standard public pools

(2) A test range to 10ppm shall be provided for public whirlpools and spas

B. A compatible test kit shall be provided for disinfectants other than chlorine or bromine when used at a pool/spa

C. A testing device with increments of 02 shall be provided to test pool water pH through the phenol red range of 68 to 82 pH at each pool; the phenol red reagent and the matching color comparator must come from the same manufacturing source

D. At large installations, disinfectant and pH testing equipment covering greater ranges may be required

E. The operator shall provide a cyanuric acid test and record results weekly at stabilized pools

26. Electrical Requirement

All electrical installations shall conform to Article 680 entitled "Swimming Pools" of the National Electrical Code 2005 of the National Fire Protection Association

27. Bathhouses

A. All swimming pool installations, except those on the premises of motels, hotels, or other transient residences used exclusively by owners, employees, or guests of such establishments shall include:

(1) Showers;

(2) Toilets;

(3) Lavatory faci1ities;

(4) Dressing rooms;

(5) First-aid room; and

(6) An office

B. Showers, toilets and lavatory facilities

(1) In general

(a) A minimum of 1 lavatory facility, 2 water closets or 1 urinal and 1 water closet and 2 showerheads shall be provided for each sex

(b) One (1) additional showerhead for each sex shall be provided for each additional 40 persons above the first 40 users

(c) Toilet facilities shall be provided for each sex in the proportion of:
(i) One (1) additional water closet for each 40 persons; or
(ii) For men, one (1) additional water closed and 1 urinal for each 60 persons at time of maximum load

(2) Lavatories shall be provided in the proportion of 1 for each 60 persons at the time of maximum load

(3) At pools serving a small area where the users normally walk to the pool and where the use of the pool is limited to residents of the area and occasional guests (such as apartment projects and some community associations), the approving authority may, at its discretion, reduce the required fixture count, above the minimum, by 50%

(4) Water temperature

(a) Temperate water shall be provided at showerheads and lavatory facilities

(b) The water heater and thermostatic mixing valve shall be:
(i) Inaccessible to bathers; and
(ii) Capable of providing water of a temperature not to exceed 100 degrees F at a rate of at least 2 gallons per minute at each showerhead

(c) Each shower shall have an approved anti-scald device

(5) Each shower unit shall be equipped with a soap-dispensing device constructed of a material other than glass

(6) Shatterproof mirrors shall be provided over each lavatory

(7) Toilet paper holders shall be provided at each water closet

C. Floors of the bathhouse shall be:

(1) Continuous throughout the area;

(2) Relatively smooth, but with slight texture to minimize slipping, to ensure complete draining; and

(3) Sloped not less than ¼ inch per foot toward the place of drainage

D. All partitions between the dressing room areas, screen partitions, toilets and dressing room baths shall:

(1) Be of durable material not subject to damage by water;

(2) Be so designed that a waterway is provided between the partitions and floor to:

(a) Permit thorough cleaning of the floor areas with hoses and brooms, and

(b) Increase circulation of air

E. Lockers, wire baskets, hangers, hooks, or other sanitary means of storing clothing and personal accessories shall be provided at each bathhouse

F. Bathhouses shall be artificially illuminated to an intensity of not less than 10 foot candles on all parts of the floor surface when:

(1) The pool is to be used at night; or

(2) The natural light in the bathhouse is not sufficient

G. Bathhouses shall be provided with natural or mechanical ventilation to reduce condensation

H. Where bathing suits, towels, or other linens are to be dispensed within the premises, separate facilities shall be provided so that clean materials are not stored on shelves, handled in baskets, or passed out over counters that are to be used for the storing, handling, or receiving of dirty or used materials

I. Hose bibs shall be provided in the bathhouse so that the dressing room, shower, and toilet areas can be cleaned

J. The bathhouse shall contain space reserved for the manager's use and for first aid treatments

28. Accommodations for Disabled Individuals

An owner shall ensure that a pool or spa is in compliance with all applicable federal, state and local codes governing

29. Food and Drink Facilities

A Where provision is made for serving food and/or beverages at the pool, no containers of glass or other material which, when broken, could be a hazard to bathers may be used

B. The area shall be arranged and posted to prohibit the consumption of food on the pool decks

C. The food service facilities shall meet the requirements of Code of Baltimore County Regulations 10101 ”Food Service Facilities” and be approved by the Food Plans Review section of DEPRM

30. Instructions to Pool Operators

A When the pool is ready for use, the owner and operators shall be given complete written and oral instructions and pool/spa data by the builder in the operation of the pool and its equipment and in the testing and quality control of the swimming pool water

B. The written operating instructions shall be available at all times to the operator

31. Swimming Pool Operation

A. The operator of each pool/spa shall keep a daily record of information for all pools/spas on the premises regarding operation including:

(1) Disinfectant residuals;

(2) PH;

(3) Chemical treatment;

(4) General maintenance procedures;

(5) Flow rate in GPM (gallons per minute);

(6) Filter gauge pressure;

(7) Bather load;

(8) Time of filter backwash or cleaning;

(9) An injury or accident at the pool or spa;

(10) Chemicals added to the water; and

(11) Malfunctioning or broken equipment

(12) Water clarity

(13) Water temperature

B. PH and disinfectant level tests shall be taken and recorded at least every two hours of operation at swimming pools and every hour of operation at spas/hot tubs - therapy pools

C. Section A, 5,6,7,12,13, of Regulation 31 shall be recorded a minimum of 3 times per day for pools/spas

D. The pool operator shall measure and record once per day for a spa and once per week for a pool the following:

(1) Total alkalinity;

(2) Calcium hardness; and

(3) Cyan uric acid levels if used (testing equipment must be available at each pool)

E. Continuous 24-hour operation of the filtration and disinfection system shall be maintained in all facilities during seasons of regular use

F. The quality of all swimming and bathing waters shall meet the requirements established by the Maryland Department of Health and Mental Hygiene and the Department of the Environment

G. Water chemistry and treatment shall be maintained to preclude bacteriological and viral infections

H. Pool water clarity

(1) Pool water clarity shall be maintained so that the main drain may be clearly seen from the nearest guard station

(2) All parts of the pool water, at surface and bottom, shall be visible from the appropriate guard station

(3) Turbidity may not exceed 1 Jackson Turbidity unit (JTB)

I. Mandatory Pool Closure

(1) The pool shall be closed when any of the following conditions exist:

(a) Filtration, disinfection, or major equipment does not function, or fails to operate, resulting in a potential health hazard;

(b) A certified lifeguard(s) is not on duty observing swimmers;

(c) A person with a valid infant/child/adult cardiopulmonary resuscitation (CPR) certificate and a valid first aid certificate is not within the enclosure;

(d) Credentials of designated persons noted in paragraph (b), (c), or (e) of this subsection are not on site;

(e) A certified pool operator is not on the premises;

(f) The chemical disinfectant levels, pH or cyanuric acid readings are not within the ranges specified in this chapter;

(g) The main drain is not clearly visible from the furthest edge of the pool/spa or from the nearest lifeguard chair;

(h) A drain cover is loose, damaged or missing;

(i) The bathhouse is unusable for any health or safety reasons; or

(j) Any other condition which may endanger the health and/or safety of persons using a pool, spa or water attraction

(2) When satisfactory repair or correction has been completed, DEPRM shall be notified and approval obtained prior to re-opening the pool

J. The pools, decks, bathhouses, and general premises shall be kept clean, sanitary and free of obstructions at all times

K. Tripping hazards shall be prevented where the removal of diving boards and diving board stands has exposed fill spouts

L. Lifeguards

(1) Each facility shall provide on the premises during all hours of operation the following:

(a) At least one certified pool operator must be on site; and

(b) A minimum of one lifeguard on duty observing the pool while any individual is in the pool

(2) An additional lifeguard is required for each additional 50 bathers, or fraction thereof, above the first 50 bathers

(3) The single responsibility of a solo guard is to watch swimmers;

(4) When the guard must leave his or her station the swimmers shall vacate the pool water

(5) The solo guard shall take hourly breaks of 5 to 10 minutes

(6) Conspicuously posted pool rules shall state that the pool is to be vacated by all swimmers when the guard leaves his or her station

(7) The approving authority may require additional lifeguards to be on duty at any swimming pool if the approving authority finds that the pool is inadequately guarded because:

(a) Of the number of persons using the pool or within the pool enclosure;

(b) The size, dimension, layout, use, activities, or features of the pool create potential safety hazards;

(c) The vision of the required lifeguard(s) is obstructed;

(d) The capabilities of the individuals using the pool are substandard; or

(e) Another condition exists that compromises the ability of a lifeguard to monitor the pool

(8) A lifeguard on the pool deck may monitor an adjacent wading pool if the wading pool is within the lifeguard's 180-degree field of vision and the total number of individuals being monitored does not exceed 50

(9) At least one individual must be on duty with CPR certification, a solo lifeguard, if alone, must have a current certification in cardiopulmonary resuscitation (infant, child, adult) and first aid

M. The following first aid safety equipment shall be provided and quickly accessible

(1) A standard first aid kit - 50 unit or equivalent supplied with items listed below, as a minimum:

(a) Splints;

(b) 25 1-inch Band-Aids;

(c) 5 4-inch X 4-inch gauze pads, 5 2-inch X 2-inch gauze pads;

(d) 2 1-inch roller bandages;

(e) 1 roll ½-inch adhesive;

(f) Tape tongue depressors

(g) 1Triangular bandage

(h) 2 bee sting swab kits

(i) 1 elastic bandage

(j) 1 bag instant ice packs or ice Bag with readily available ice;

(k) 2 eye pads

(l) 1 bottle of eyewash

(m) 1 bar of mild soap

(n) 1 facemask for CPR with one-way valve

(o) Scissors

(p) Safety pins

(q) Tweezers

(r) Matches; and

(s) Disposable latex gloves

(2) A blood borne pathogen control kit;

(3) A rescue tube designed for lifesaving for each required lifeguard;

(4) A telephone available to individuals using a pool or spa that:

(a) Can directly reach a 911 emergency service without the use of coin and without connection to an internal switchboard

(b) Is posted with the 911 emergency number and the name and location of the pool or spa; and

(c) Is located within the pool enclosure or in an immediately adjacent room, which cannot be locked;

(5) A cot or equivalent and blanket;

(6) A backboard with properly spaced handholds, head immobilizer, and proper straps to secure the victim; and

(7) A Shepherd's Crook - with a pole a minimum of 10' long

N. Chemical handling and storage safety

(1) A Material Safety Data (MSD) sheet for all potentially hazardous chemicals shall be provided to the operator by the owner/management company

(2) A chemical shall be handled, used, stored, and disposed of in accordance with the material safety data sheet and all applicable federal, state and local codes

(3) A chemical shall be stored in an area that has:

(a) Protection against weather, excess heat and moisture;

(b) A lockable door;

(c) Continuous ventilation sized at a minimum of 2 cfm per square foot of floor area and exhausts to the open air;

(d) A minimum of 20 foot-candles of illumination;

(e) Adequate room to separate potentially reactive chemicals;

(f) Storage and or filter room door permanently labeled

"DANGER - CHEMICAL STORAGE AREA - DO NOT ENTER"

(g) Material Safety Data sheets posted; and

(h) Availability of personal safety gear, including goggles for eye protection, splash-guard aprons, neoprene gloves, proper training for handling procedures, and those procedures posted in the filter room and chemical storage area

O. The required pool/spa records shall be kept for a minimum of 2 years and made available to the approving authority upon request

P. All children under two (2) years of age or not toilet trained shall be attired in swimming diapers, designed to prevent the discharge of fecal material into the surrounding water, before being allowed entry into the water at a public swimming pool, recreational water attraction, spa, therapy pool, or bathing beach

32. Whirlpools, Spas, Hot Tubs

A. Records of operation shall be maintained as required in Regulation 31 of this chapter

B. The hot water facility shall be disinfected with automatic chemical feed equipment as defined in Regulations 19 and 20 of this chapter

C. The water temperature may not exceed 104 degrees F

D. Signs

(1) A caution sign shall be conspicuously posted adjacent to each hot water facility

(2) The sign shall include at least the following precautions or equivalent:

(a) "Risk of Drowning"

(b) Observe a reasonable time limit of 10 – 15 minutes, then vacate the spa, cool down and rest if you wish, and return for another brief stay

(c) Long exposure may result in discomfort, nausea, dizziness or fainting

(d) Unsupervised use by children is prohibited

(e) Do not use alone

(f) Elderly persons and those with a history of heart disease, diabetes, high or low blood pressure or pregnancy should consult their physician prior to use

(f) Those on medication should consult with their physician prior to use

(g) Do not use while under the influence of drugs or alcohol

(h) Do not operate at water temperatures higher than 104 º

(i) Always exit and enter slowly and cautiously

(j) The maximum number of bathers allowed in the spa or hot tub at one time is _____ (fill in appropriate number).

E. Turnover rate

(1) The turnover rate may not exceed 30 minutes

(2) The whirlpool shall be designed and the hydraulic analysis calculated to provide a 30-minute turnover when the filter is at maximum pressure and ready to be cleaned or backwashed

F. The filter shall be cleaned or backwashed when the filter pressure and the flow meter indicate it is necessary

G. Drains

(1) The plumbing system shall be designed to preclude entrapment in main drains

(2) A minimum of 2 drains meeting the requirements of Article 9 of ANSI/NSPI-2 1999 and installed not less than 36" apart measured edge to edge of the drain covers shall be provided

H. Emergency plan

(1) A plan for emergencies shall be prepared and kept up to date and accessible to management and employees

(2) The staff shall be trained and drilled periodically in execution of the plan

I. An individual certified in CPR and standard first aid by the American Red Cross or equivalent shall be on premises during all hours of operation

J. Maximum load

(1) A maximum bather load shall be established for each hot water facility and posted on the precaution sign

(2) The maximum load shall be determined on the basis of 9 square feet of water surface per bather

K. Designated individuals on premises

(1) Designated individuals shall be assigned the responsibility of whirlpool operation, and at least one shall be on the premises during all hours of operation

(2) These individuals shall be certified pool/spa operators

33. Child Daycare Swimming Pools

A swimming pool at a child day care home, which is a private residence, shall be considered a public swimming pool if the pool is intended to be used for the day care children and shall meet all the criteria of this chapter

34. Previously Approved Pools

A A facility constructed and approved before November 15, 2002 shall be considered exempt from any structural regulatory requirement not adversely affecting the health or safety of the bathers as determined by the approving authority, and only so long as the existing facilities can be maintained in a satisfactory manner, or until alteration or reconstruction is proposed

B. All alterations or reconstruction shall be completed to be in compliance with current criteria and this chapter

35. Injuries and Illness Reporting

A pool or spa owner shall ensure that:

(1) An injury, drowning, near drowning or suction entrapment occurring at a pool or spa that results in death or that requires resuscitation or admission to a hospital is reported to DEPRM within 24 hours of the incident; and

(2) A waterborne illness contracted at a pool or spa is reported to DEPRM within 24 hours of the owner or operator's knowledge of the incident

36. Purposes and Intent

A The purpose and intent of this chapter is to protect and promote the public health and safety of the users of public swimming pools and bathing beaches in Baltimore County

B. Therefore, deviations from the requirements of the chapter may be approved when, in the opinion of the approving authority, proposed deviations will not adversely affect the users' health and safety

C. If proposed deviations are permitted, they shall be made in strict compliance with the restrictions, limitations, or conditions that the approving authority may demand

Administrative History:

This chapter enacted in accordance with Title 3-7-207 of the Baltimore County code, 2003 Edition on May 29, 2007.