Rev. 1-6-2000

CITY OF COLUMBIA

GUIDE FOR SWIMMING POOL DESIGN AND OPERATION

2000

PART 1. DESIGN STANDARDS FOR CLASS A, B, C, E AND F SWIMMING POOLS

1.0 DEFINITIONS

1.0.1 SWIMMING POOL - Any artificial basin of water which has been wholly designed, modified, improved, constructed or installed solely for the purpose of swimming, wading or immersion.

1.0.2 CLASS A SWIMMING POOL - A swimming pool operated by the city or any other governmental agency.

1.0.3 CLASS B SWIMMING POOL - A swimming pool operated by a hotel, motel, community association, apartment complex or similar entity which serves merely as an additional service for patrons or residents and which is not otherwise classified as a Class C swimming pool.

1.0.4 CLASS C SWIMMING POOL - A swimming pool that is maintained by a commercial establishment for which memberships or admissions are sold.

1.0.5 CLASS D SWIMMING POOL - A private residential swimming pool or spa.

1.0.6 CLASS E SWIMMING POOL - A non-residential spa.

1.0.7 CLASS F SWIMMING POOL - A special purpose pool that has a special use or design such as a wave pool, wading pool, zero-depth entry pool or a pool with a water slide.

NON CONFORMING SWIMMING POOLS

1.1.1 APPLICABILITY OF GUIDE - Except where otherwise provided, swimming pools constructed before June 1, 1998 shall not be required to comply with the design standards of this part if the swimming pool complies with the design standards of the city ordinances, rules and regulations in effect when the pool was constructed.

1.2 CONFLICTING PROVISIONS

1.2.1 CONFLICTING PROVISIONS - Where any provisions of this Guide is in conflict with other provisions of this Guide or provisions of any other ordinance, whichever provision is more restrictive or imposes a higher standard shall control.

2.0 SUBMISSION OF PLANS

2.1 GENERAL

2.1.1 Preliminary plans- Preliminary plans, specifications, and the architects' or engineer's basis of design report for Class A, B, C, E and F swimming pools should be submitted to the Health Department for review prior to preparation of construction documents. Pools larger than 2,500 square feet or wider than 35 feet are required to be designed by a registered engineer.

2.1.2 Final Plans - All basis of design reports and construction documents for formal approval of a Class A, B, C, E and F swimming pool shall be submitted at least 30 days prior to the date on which action by the Health Department is desired.

2.1.3 Approval Required - No approval of a swimming pool for construction shall be issued and no construction begun until final, complete, detailed plans and specifications have been submitted to the Health Department and found to be satisfactory.

2.1.4 Content - Plans, specifications and reports submitted for formal approval of a swimming pool must be an accurate record of the proposed construction and contain sufficient information to demonstrate to the reviewing authority that the proposed public swimming pool, or modifications thereof, will meet the standards contained herein and shall include, at a minimum, the documentation and information listed in sections 2.2 through 2.4. Engineering summaries provided by the health department must be completed and submitted for review.

2.2 BASIS OF DESIGN REPORT

2.2.1 Size - The size of the swimming pool shall be indicated on the pool engineering summary and on the blue print diagram. The size of the perimeter, area and volume of water shall be included in these measurements.

2.2.2 Recirculation - Flow rate, turnover, and filtration rate shall be included in the engineering summary sheets.

2.2.3 Use - The anticipated swimmer load, including the maximum and the average, shall be enclosed in the set of plans that are submitted to the

Health Department.

2.2.4 Water Supply - All project plans that are submitted to the health department shall include the source, quality, and the quantity of water that is available for use.

2.2.5 Equipment - A detailed description of filtration and recirculation equipment shall be included with the plan submission.

2.2.6 Calculations - Hydraulic computations, including head loss in all piping and recirculation equipment should be indicated in the submitted set of plans.

2.2.7 Pump Sizing - Plans that are submitted should include a "pump curve diagram" to show the proposed recirculation pump will adequately handle the proposed flows.

2.2.8 Waste Water Disposal - Each project shall indicate the type and capacity of the waste water disposal system.

2.3 PLANS AND SPECIFICATIONS

2.3.1 General Layout Plan

2.3.1.1 Location and Owner - Name and address of the proposed or modified swimming pool facility, and the name, address and phone number of the owner.

2.3.1.2 Scale and Wind Direction - Scale, and north point and direction of prevailing wind.

2.3.1.3 Designer Certification - Name, date, address, phone number, professional seal and signature of the designing engineer or architect, if applicable (see 2.11).

2.3.1.4 Plot Plan - A plot plan of the property to be used, indicating the topography, grade, elevations, arrangement and location of present and proposed structures, location of site utilities and location of the proposed swimming pool, pool enclosure and deck.

2.3.2 Detailed Plans - All detailed plans for all Class A, B, C, E and F swimming pools shall be submitted on blueline or white line prints and

shall be drawn to a suitable scale. The detailed plans for facilities shall show:

2.3.2.1 Construction Details - Complete construction details, including dimensions, elevations, and appropriate cross sections for the swimming pool, pool deck and pool enclosure.

2.3.2.2 Recirculation System - Schematic diagrams and plan and elevation views of the pool water treatment and recirculation systems, pool equipment room, and pool and equipment room ventilation.

2.3.2.3 Piping - Size and location of all piping , including elevations.

2.3.3 Specifications - Complete, detailed specifications for the construction of the swimming pool, bathhouse, recirculation system, filtration system, disinfection equipment and all other appurtenances shall accompany the plans.

3.0 PATRON LOADING FOR A, B, and C, POOLS

3.1 DESIGNATION OF AREAS - For purposes of computing patron load, those portions of the swimming pool 5 feet (1.5 m) or less in depth shall be designated the "shallow area." Those portions of the swimming pool over 5 feet (1.5 m) in depth shall be designated the "deep area."

3.2 AREA LOADING

3.2.1 Shallow Area -Ten square feet of pool water surface area shall be provided for each patron.

3.2.2 Deep Area - Twenty-five square feet of pool water surface area shall be provided for each patron.

3.2.3 Diving or Slide Area - Where a separate designated diving or slide area is provided, and other swimmers are not allowed in this area, it may be excluded from the surface area used for computing patron load; however, ten patrons shall be included for each board, platform or slide.

3.2.4 Additional Area Allowance - Additional allowance will be made on the basis of one additional patron per each 50 square feet of pool deck in excess of the minimum area of deck required, and one additional patron per each 100 square feet of picnic and play area with the enclosure.

4.0 CONSTRUCTION MATERIAL

4.1 MATERIALS - Swimming pools shall be constructed of materials which are inert, stable, non-toxic, watertight and enduring. Sand or earth bottoms are not permitted.

4.2 CORNERS - All corners formed by intersection of walls and floor shall be rounded with at least a 1-inch radius.

4.3 FINISH - Bottom and sides must be a white or a light color, with a smooth and easily cleanable surface. The finish surface of the bottom in shallow areas shall be slip-resistant.

5.0 DESIGN, DETAIL AND STRUCTURAL STABILITY - All Class A, B, and C swimming pools shall be designed and constructed to withstand all anticipated loading for both full and empty conditions. A hydrostatic relief valve and/or a suitable under drain system shall be provided for in-ground pools. The designing architect or engineer shall be responsible for ensuring the stability of the pool design for both full and empty conditions.

5.1 SHAPE - The shape of any swimming pool shall be such that the circulation of pool water and control of swimmers' safety are not impaired. There shall be no underwater or overhead projections or obstructions which would endanger patron safety or interfere with proper pool operation.

5.2 SHALLOW END - The depth of water at the shallow end shall be at least 3 feet, but not more than 3 feet 6 inches, except for special -purpose pools. Pools existing prior to September 1, 1999 shall be grand fathered.

5.3 BOTTOM SLOPE - The bottom of the pool shall slope toward the main drain. Where the water depth is less than 5 feet, the bottom slope shall not exceed 1 foot vertical in 12 feet horizontal (1:12). Where the water depth exceeds 5 feet, the bottom slope shall not exceed 1 foot vertical in 3 feet horizontal (1:3).

5.4 AREA MARKED - The boundary line between the shallow and deep areas shall be marked by a line of contrasting color at least 4 inches wide on the floor and walls of the pool, and by a safety rope and floats equipped with float keepers. Safety rope anchors should be recessed. Safety boundary ropes may be removed for lap swimming during time that is restricted to lap swimming only.

5.5 POOL WALLS - Walls of a swimming pool shall be either: a) vertical for water depths of at least 6 feet, or b) vertical for a distance of at least 3 feet below the water level, below which the wall may be curved to the bottom with a radius not greater than the difference between the depth at that point and 3 feet, provided that the vertical is interpreted to permit slopes not greater than 1 foot horizontally for each 5 feet of depth of sidewall (11 degrees from vertical).

5.5.1 Ledges - Ledges shall not extend into the pool unless they are essential for support of the upper wall construction.

5.5.2 Pools Without Gutters - Bullnose coping not more than 2 inches thick, or other handgrip adjacent to the pool wall shall be provided. The handgrip shall not be more than 9 inches above the minimum skimmer operating level. When the handgrip is formed by the pool deck, it shall slope away from the pool with a 1-inch drop in a 1-foot distance (1:12).

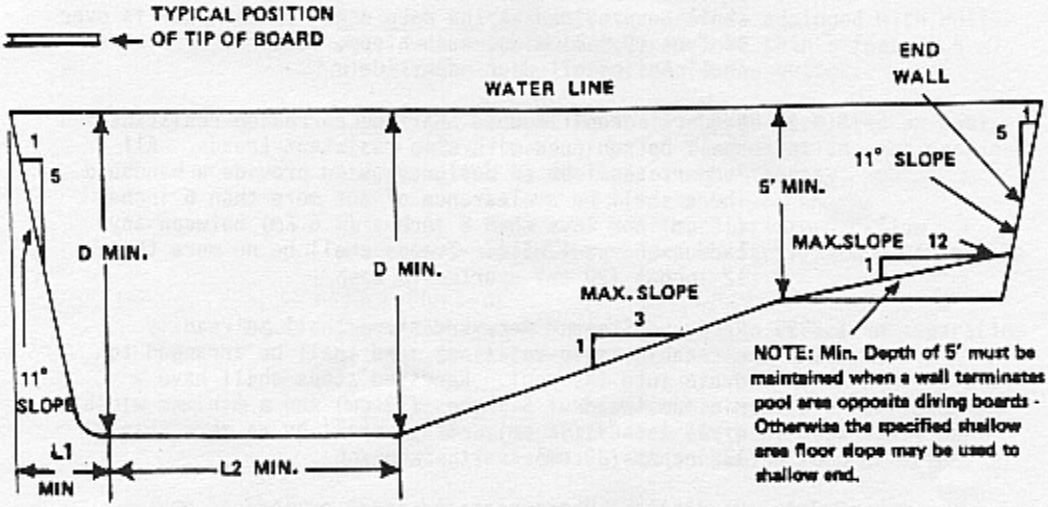
5.6 DIVING AREAS - The minimum dimensions of the swimming pool shall meet the requirements of the NCAA, U.S. Diving, FINA, NF of SHSA, or AAU. Where competitive diving or competitive - type diving boards are used, compliance with NCAA, U.S. Diving, FINA, NF of SHSA, or AAU requirements is recommended.

5.6.1 HEAD ROOM - There shall be a completely unobstructed clear distance of 16 feet above the diving board measured from the center to the front end of the board. This area shall extend at least 8 feet behind, 8 feet to each side, and 16 feet ahead of the measuring point.

5.6.2 Diving Boards and Platforms - Diving boards and platforms in excess of 3 meters (9.8 ft.) in height are prohibited except where special design considerations and control of use are provided.

5.6.3 Steps and Guard Rails for Diving Boards - Supports, platforms, and steps for diving boards shall be designed and constructed to safely carry the maximum anticipated loads. Steps shall be of corrosion-resistant material, easily cleanable and of non-slip design. Handrails shall be provided at all steps and ladders leading to diving boards more than 1 meter (3.3 ft.) above the water. Platforms and diving boards which are more than 1 meter (3.3 ft.) high shall be protected with guardrails at least 36 inches high, extending at least to the edge of the water. Boards or platforms 3 meters (9.87 ft.) or higher, when permitted, shall have an effective side barrier.

TABLE 1
MINIMUM DIMENSIONS FOR POOLS WITH DIVING EQUIPMENT



MAX. BOARD HEIGHT OVER WATER	MAX. DIVING BOARD LENGTH	MINIMUM DIMENSIONS			
		D	L_1	L_2	POOL WIDTH
26" (2/3 meter)	10'	8' – 6"	2' – 6"	10' – 0"	20' – 0"
30" (3/4 meter)	12'	9' – 0"	3' – 0"	10' – 0"	20' – 0"
1 Meter	16'	10' – 0"	4' – 0"	12' – 0"	20' – 0"
3 Meter	16'	12' – 0"	6' – 0"	12' – 0"	24' – 0"

Placement of boards shall observe the following minimum dimensions. With multiple board installations minimum pool widths must be increased accordingly.

1 Meter or less	Board to Pool Side	10' – 0"
3 Meter Board to Pool Side		12' – 0"
Distance between adjacent boards		10' – 0"

5.7 LADDERS, RECESSED STEPS AND STAIRS

5.7.1 Location - Recessed steps, ladders, or stairs shall be provided at the shallow end. Ladders or recessed steps shall be provided at the deep end. If the pool is over 30 feet wide, such steps, ladders, or stairs shall be installed on each side.

5.7.2 Ladders - 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. There shall be a clearance of not more than 6 inches nor less than 3 inches between any ladder and pool wall. Treads shall be no more than 12 inches apart.

5.7.3 Recessed Steps - Recessed steps shall be readily cleanable, slip-resistant, and shall be arranged to drain into the pool. Recessed steps shall have a minimum tread of 5 inches and a minimum width of 14 inches. Steps shall be no more than 12 inches apart.

5.7.4 Handrails - Where recessed steps or ladders are provided, there shall be a handrail at the top of each side thereof, extending over the coping or edge of the deck.

5.7.5 Stairs and Stair Handrails - Where stairs are provided, they shall be located diagonally in a corner of the pool or be recessed. Handrails shall be provided at stairs such that all stair areas are within reach of a handrail. Stairs shall have slip-resistant finish, a minimum tread of 12 inches, and a maximum rise of 10 inches.

5.8 DECKS - An unobstructed deck at least 5 feet wide shall entirely surround the pool. The deck shall be of a uniform, easily cleanable, impervious material with a slip-resistant finish. The deck shall be protected from surface runoff. Infringements or variations are allowed only when specifically permitted by the health department.

5.8.1 Slope - The deck shall be sloped away from the pool, and shall be sloped to provide positive drainage of all deck areas.

5.8.2 Drainage - Deck drains, when used, shall be no more than 25 feet apart, and no single drain shall serve more than 500 square feet of area. There shall be no direct connection between the pool deck drains and the sewer or plumbing drainage systems. They shall not drain to the pool gutter or recirculation systems.

5.8.3 Roll-Out Gutters - If the pool is equipped with roll out, deck-level gutters, not more than 5 feet of deck shall be sloped toward the gutters.

5.8.4 Carpeting - Carpeting shall not be permitted on pool decks unless special design considerations are provided and permitted by the approving authority.

5.8.5 Hose Bibs - Hose bibs with appropriate backflow preventers shall be provided to facilitate cleaning the deck areas.

5.8.6 Spectator Area - There shall be an effective separation between the spectator area and swimmer areas.

5.8.7 Pool Concessions - Where concessions are provided, an area or areas separated from the pool desk shall be designated for serving and consuming food or drink. Canned or plastic containers of non-alcoholic beverages may be served or consumed in any area except the pool.

5.9 FENCING - Pools constructed before June 1, 1998, shall follow previous standards. Newly constructed Class A, B, C, E & F pools or any remodeled pool must have a fence at least six feet in height. Fences must not have openings that allow a 4 inch diameter sphere to pass thru. All pool entrances shall be self-closing, and self-latching. The latch must be at least 48 inches from the bottom of the door or gate. This provision may be waived if adequate supervision and monitoring is provided at the entrances during operating hours.

6.0 SAFETY, MARKING AND SIGN REQUIREMENTS

6.1 DEPTH MARKINGS

6.1.1 Location - The depth of water shall be plainly marked at or above the water surface on the vertical pool wall and on the edge of the deck at points of change in bottom slope, and spaced at not more than 25-foot intervals measured peripherally. Markings shall be on both sides and ends of the pool. Where depth markings cannot be placed on the vertical walls above the water level, other means shall be used so that

markings will be plainly visible to persons in the pool.

6.1.2 Design - Markings shall be indicated in feet and inches and may also be indicated in meters. Depth Markings (depths in numerals and units in letters) shall be 4 inches minimum height and in color contrasting with the background.

6.2 LIFEGUARD CHAIRS

6.2.1 Number - A lifeguard chair shall be provided for each 2,000 square feet of water surface area of Class A and C swimming pools only. This requirement shall be waived in special-use pools with adequate supervision.

Water Surface Area In Square Feet	Minimum Number Of Chairs
Less than 2,000	0
2,000 to 3,999	1
4,000 to 5,999	2
6,000 to 7,999	3

6.2.2 Location and Design - Lifeguard chairs shall be placed at waterside, in locations which will minimize the effects of glare on the water. Locations shall give complete coverage of the pool. Stands should be 5 to 6 feet above the deck. Portable chairs should permit anchoring to the deck.

6.3 LIFESAVING EQUIPMENT - All Class A, B, C and F pools must be equipped with the following items.

6.3.1 Unit Composition - One unit of lifesaving equipment shall consist of the following :

6.3.1.1 Throwable Device - A U.S. Coast Guard-approved ring, 18 inches in diameter, or a throwing buoy, fitted with a 1/4-inch diameter line with a length of 1.5 times the maximum width of the pool, or 50 feet, whichever is less. Approved rescue tubes will be allowed as a substitute for the Coast Guard-approved ring at all Class A and C pools.

6.3.1.2 Reaching Device - A life pole or a shepherd's crook-type of pole, with blunt ends and a minimum length of 12 feet.

6.3.2 Units Required - One unit of lifesaving equipment shall be provided for each 2,000 square feet of water surface area or major fraction thereof. A minimum of one unit shall be provided.

6.3.3 Location - Lifesaving equipment shall be mounted in conspicuous places, distributed around the swimming pool deck. Whenever lifeguard chairs are provided, each chair shall be equipped with one unit of lifesaving equipment. All lifesaving equipment shall be displayed in a manner that is readily available for use at any moment.

6.4 FIRST AID EQUIPMENT - All Class A and C pools shall be equipped with a long spine board with ties and a collar, and with a first aid kit.

6.5 EMERGENCY TELEPHONE - All Class A and C swimming pools shall have a telephone in or immediately adjacent to the pool area.

6.6 EMERGENCY EXIT - An emergency exit from the pool area shall be provided.

6.7 SIGNS

6.7.1 LOCATION AND MAINTENANCE - All pool use rules shall be legibly stated on a sign, and posted in at least one conspicuous location within the pool area.

6.7.2 CONTENT - The posted rules should include:

> Persons with infections not permitted.

>Do not bring food or tobacco or tobacco products into the pool enclosure.

> Shower before entering and after use of the toilet facilities.

> No running or rough play.

> No diving, or no diving except in designated diving areas.

> No containers made of glass or shatterable plastic.

> Persons with a disease which can be transmitted through pool use shall not use the pool.

6.7.3 ADDITIONAL RULES - Whenever the health department determines that additional rules are needed to protect the health and safety of patrons, the management shall post and enforce such rules.

6.7.4 WARNING SIGNS - Whenever the Class B pool area is opened for use and no lifeguard service is provided, warning signs shall be placed in plain view of the entrances and inside the pool area which state, "WARNING - NO LIFEGUARD ON DUTY" with clearly legible letters at least 4 inches high. In addition, the signs shall also state in clearly legible letters at least 2 inches high, "NO SWIMMING ALONE. CHILDREN AND NON-SWIMMERS SHALL NOT USE THE POOL UNLESS ACCOMPANIED BY A RESPONSIBLE ADULT."

7.0 LIGHTING, ELECTRICAL, VENTILATION AND ACOUSTICAL REQUIREMENTS

7.1 LIGHTING - Artificial lighting shall be provided at all Class A, B, C and F swimming pools which are to be used at night, or which do not have adequate natural lighting, so that all portions of the pool, including the bottom, may be readily seen without glare. Lights shall be installed so as to provide uniform distribution of illumination.

7.1.1 Water Surface - overhead illumination on the water surface shall be a minimum of 30 foot-candles (540 lux) on the water surface shall be provided.

7.1.2 Underwater - When underwater lighting is provided, at least 60 lamp lumens per square foot of pool surface for outdoor swimming pools and 100 lamp lumens per square foot of pool surface for indoor swimming pools should be provided.

7.2 ELECTRICAL - All electrical installations shall conform to the National BOCA Code.

7.3 VENTILATION

7.3.1 Room Ventilation - Bathhouses, mechanical equipment rooms, storage areas and indoor swimming pool enclosures shall be heated and ventilated as required by the appropriate regulatory agency. Room ventilation shall prevent direct drafts on swimmers and shall minimize condensation damage. Dehumidifier, air conditioner and heat exchanger installations shall comply with sections 8.6 and 8.7. A fuel-burning heating unit shall be provided with air combustion and vented to the outdoors as required by the Health Department.

7.4 ACOUSTICAL CONTROL - Acoustical control should be provided for indoor pools. Surface material and furnishings used for acoustical control shall be cleanable and constructed of nonabsorbent, water-resistant material.

8.0 WATER SUPPLY AND WASTE WATER DISPOSAL

8.1 WATER SUPPLY -Water supplied to a Class A, B, C, E and F swimming pool and all related plumbing fixtures, including drinking fountains, lavatories and showers, shall at all times meet the quality standards of the appropriate regulatory agency.

8.2 CROSS-CONNECTION - All portions of the water distribution system serving a Class A, B, C, E and F swimming pool and related facilities shall be protected against backflow and back siphonage. Water introduced into the pool, either directly or to the recirculation system, shall be through an air gap or an appropriate approved backflow preventer as required by the appropriate regulatory agency.

8.3 SANITARY WASTES - An approved method for disposing of sanitary sewage shall be provided at a Class A, B, C, E and F swimming pool. Where available, a municipal sanitary sewerage system shall be used. If an individual treatment system is used, approval of this system must be obtained from the appropriate regulatory agency.

8.4 POOL WASTE WATER - Waste water from a Class A, B, C, E and F swimming pool shall be discharged in a manner approved by City of Columbia.

8.5 BACKFLOW PREVENTION - In a Class A, B, C, E and F swimming pool, the recirculation system and pool deck drains shall be protected against the backflow of waste water in a manner approved by the health department.

8.6 CONDENSATE - Condensate shall not be introduced to the pool water any part of the recirculation system.

8.7 HEAT EXCHANGER - Any heating or cooling system which is connected in any way with the pool recirculation system shall contain only nontoxic heat transfer media, or a double-wall-type heat exchanger with vented intermediate space shall be used.

9.0 RECIRCULATION SYSTEM - Each swimming pool shall be provided with a recirculation system which will convey, clarify, chemically balance and disinfect the swimming pool water. The recirculation system shall include pumps, piping, filters, chemical feed equipment, and associated controls and monitoring devices.

9.0.1 COMPONENTS - Recirculation system components shall comply with NSF/ANSI Standard 50.

9.0.2 RECIRCULATION RATE - A swimming pool recirculation system shall be capable of processing one pool volume of water in six hours or less. A wading pool recirculation system shall be capable of processing one pool volume of water in two hours or less. Spa pools, wave pools and other special needs pools shall have recirculation systems as required elsewhere in this ordinance.

9.1 MATERIALS - Recirculation system components in contact with the pool water shall be of non-toxic material, resistant to corrosion, and able to withstand operating pressures. Acceptable materials are copper, stainless steel, cast iron, ductile iron, plastics approved for potable water contact by the appropriate regulatory agency, or other materials suitable for potable water contact, subject to approval by the health department.

9.2 PIPE SIZING - Swimming pool recirculations system piping shall be designed so that the water velocity shall not exceed 10 feet per second on the discharge side of the recirculation pump, and 6 feet per second in suction piping. Gravity piping shall be sized in accordance with accepted engineering practice with consideration of available head.

9.3 DRAINAGE AND INSTALLATION - All equipment and piping shall be designed and fabricated to drain completely by use of drain plugs, drain valves or other means. All piping shall be supported continuously or at sufficiently close intervals to prevent sagging. All suction piping shall be sloped in one direction, preferably toward the pump. All supply and return pipe lines to the pool shall be provided with insertable plugs or valves to allow the piping to be drained to a point below the frost line. Provision shall be made for expansion and contraction of the pipes.

9.4 PIPE AND VALVE IDENTIFICATION - All exposed piping shall be clearly marked to indicate function. All valves shall be marked to indicate use.

9.5 OVERFLOW SYSTEMS - All pools shall be designed to provide continuous skimming (removal of surface water). Makeup water supply equipment shall be provided to maintain continuous skimming.

9.5.1 Gutters (Perimeter Overflow Systems) - The gutter shall extend around the full perimeter of the swimming pool except at stairways and ramps entering the swimming pool. It shall be level within a tolerance of plus or minus 1/8 inch. Piping connections shall be provided to permit water to flow from overflows to waste, as well as to the recirculation system.

9.5.1.1 Size and Shape - The gutter system shall be designed to allow continuous removal of water from the pools upper surface at a rate of at least 100 percent, and preferably 125 percent, of the recirculation rate. The gutter shall be designed to serve as a handgrip and to prevent entrapment of arms or legs. It shall permit ready inspection, cleaning and repair.

9.5.1.2 Outlets - Drop boxes, converters, return piping or flumes used to convey water from the gutter shall be designed to handle at least 100 percent, but preferably 125 percent, of the recirculation rate. Drainage shall be sufficient to minimize flooding and prevent backflow of skimmed water into pool.

9.5.1.3 Surge Capacity - All overflow systems shall be designed with an effective surge capacity of not less than 1 gallon for each square foot of pool surface area. Surge shall be provided within a surge tank, in the gutter for filter above the normal flow line, or elsewhere in the system. Surge tanks, gutters and filter tanks should have overflow pipes to convey excess water to waste. Surge tanks shall be provided with means for complete draining. In-pool surge is allowed only with an engineered perimeter gutter system which includes an integral surge weir for each 500 square feet of water surface, and a tank to allow balancing of main drain and gutter flows.

9.5.2 Skimmers - The use of skimmers shall be limited to pools with 2,500 or less square feet of surface area, and should be limited to widths of 35 feet or less.

9.5.2.1 Construction - Skimmers shall be installed in the pool walls, be sturdy, and be constructed of corrosion-resistant materials. Surface skimmers shall be of a type acceptable to the health department.

9.5.2.2 Number - At least one surface skimmer shall be provided for each 500 square feet of surface or fraction thereof. Additional skimmers may be required to achieve effective skimming. At least two skimmers should be provided.

9.5.2.3 Location - Skimmers shall be so located as to provide effective skimming of the entire water surface with minimum interference and short-circuiting.

9.5.2.4 Flow Rate - Skimmers shall provide for flow-through rate of 30 gallons per minute, or 3.75 gallons per lineal inch of weir, whichever is greater.

9.5.2.5 Control - Skimmers shall have weirs that adjust automatically and operate freely and continuously with variations of at least 4 inches in water level. All skimmed water shall pass through an easily removable and cleanable basket or screen before encountering control valves or entering the pump suction line. Each skimmer shall be equipped with a device to control flow. If a skimmer is connected directly to the recirculation pump suction pipe, it should include a device to prevent an airlock in the suction line. If equalizer pipes are used, they shall pass an adequate amount of water to meet pump suction requirements should the water in the pool drop below the weir level. The equalizer pipes shall be located at least 1 foot below the lowest overflow level of the skimmer. A valve or equivalent device that will remain closed under normal operating conditions, but automatically opens when the water level drops below the minimum operating level of the skimmer, shall be provided on each equalizer pipe.

9.5.3 Balancing - The recirculation system must be a balanced to provide for optimum and uniform skimming. Flotation testing should be used for this purpose.

9.6 MAIN DRAIN SYSTEM (Outlet) - Main drains of the pool shall be installed in the pool floor at the deepest point.

9.6.1 Design and Location - The main drains of all pools shall be installed in the pool floor at the deepest point. Pool drains shall be protected with a proper cover. The main drain shall be designed to protect against suction entrapment; one or more of the following arrangements shall be used:

9.6.1.1 Multiple Drains - Two or more main drains shall be installed. The drains shall be at least 3 feet apart, shall be connected in parallel, and shall not permit any drain to be individually valved off.

9.6.1.2 Single Drain - A single main drain shall have a total area of at least 324 square inches.

9.6.1.3 Antivortex Covers - A main drain cover manufactured to keep a vortex from forming during all drain operations.

9.6.2 Spacing - The drains shall not be greater than 20 feet on centers, and an

outlet shall be provided not more than 15 feet from each side wall.

9.6.3 Antivortex Covers on Gratings - Main drains shall be protected by antivortex covers or gratings. The open area shall be large enough so the velocity does not exceed 1 1/2 feet per second through the grating. Openings in grates shall not be over 1/2-inch wide. Gratings or drain covers shall not be removable without the use of tools.

9.6.4 Piping - The piping shall be designed to carry 100 percent of the recirculation rate, and shall be equipped with a valve.

9.7 PUMPS AND STRAINERS

9.7.1 Strainers - Strainers shall be provided through which all water shall pass before entering the pump. The strainers shall be of rigid construction, fabricated of corrosion resistant material, and sufficiently strong to prevent collapsing when clogged. The openings shall be no greater than 1/8 inch in any dimension. The total clear area of all openings shall be at least four times the area of the connecting pipe. The strainer shall have a quick-opening cover. Spare strainer baskets shall be provided. In systems where the filter is located on the suction side of the pump, strainers are not required.

9.7.2 Pumping Equipment - A pump and motor shall be provided for the recirculation of the swimming pool water. The pump shall provide the recirculation flow rate required in Section 9.0.1, and the filter backwash rater required in Section 10.1.1 against the total dynamic head generated in the recirculation system. The pump shall be self-priming or shall be installed so that there is a net positive suction head on the pump inlet whenever the pump is operating. Multiple pumps should not be provided except for standby purposes. A gauge which indicate both pressure and vacuum shall be installed on the pump suction header, and a pressure gauge shall be installed on the discharge side of the pump.

Pumps and motors shall be readily accessible for inspection and service.

9.8 FLOW MEASUREMENT AND CONTROL

9.8.1 Flow Measurement - A flow meter or other device which gives a continuous indication of the flow rate in gallons per minute in the recirculation system shall be provided. If sand filters are used, a device should be provided to measure the backwash flow rate in gallons per minute. Flow meters shall have a measurement capacity to at least 1.5 times the design recirculation flow rate, and shall be accurate within 10 percent of the actual flow rate. The indicator shall have a range of readings appropriate for the anticipated flow rates, and be installed where it is readily accessible for reading and maintenance, and with straight pipe upstream and downstream of any fitting or restriction in accordance with the manufacturer's recommendation.

9.8.2 Flow Regulation - A device for regulating the rate of flow shall be provided in the recirculation pump discharge piping.

9.9 INLETS - The recirculation system shall have inlets adequate in design, number and location to insure effective distribution of treated water and maintenance of uniform disinfectant residual throughout the swimming pool. All other types of inlet systems not covered below shall be subject to approval by the regulatory authority.

9.9.1 Number - Wall inlets shall be spaced not over 20 feet apart, with one inlet within 5 feet of each corner of the pool and one in each recessed step area.

9.9.2 Location - Wall inlets shall be located at least 12 inches below the design water surface, or not less than 6 inches if designed to provide downward flow. Bottom inlets shall be uniformly spaced, with a separating distance of no greater than 20 feet, with rows of inlets within 15 feet of each side wall. In any pool over 60 feet in width, bottom inlets should be provided.

9.9.3 Type - Inlet fittings shall be of the adjustable rate-of-flow type. Directional flow inlets shall be used with skimmer-type pools. Inlets shall not extend form the floor or wall to create a hazard.

9.9.4 Testing - Dye testing (crystal violet or equivalent) should be performed to determine and adjust the recirculation pattern.

10.0 FILTRATION (General) - A swimming pool water treatment system shall have one or more filters. Filters shall be of a type approved by the health department. They shall be installed with adequate clearance and facilities for ready and safe inspection, maintenance, disassembly and repair.

10.1 SAND TYPE FILTERS

10.1.1 Filter Rate - The design filtration rate of rapid sand filters shall not exceed 3 gallons per minute per square foot of filter area. High-rate sand filters shall not exceed a filtration rate of 15 gallons per minute per square foot. Higher rates may be used if the filter has been successfully tested against NSF/ANSI Standard 50 at the higher rate. The sand filter system shall be equipped to backwash each filter at a rate of 15 gallons per minute per square foot of filter bed area, or as recommended by the manufacturer. The backwash water shall be discharged to waste through a suitable air gap.

10.1.2 Filter Media - Sand or other media shall be carefully graded and meet the manufacturer's recommendation for pool use.

10.1.3 Accessories - Accessories shall include influent pressure gauge, effluent pressure gauge, backwash sight glass, and air relief valve. The filter system shall have valving and piping to allow isolation, drainage, and back washing of individual filters, if needed for proper operation.

10.2 DIATOMACEOUS EARTH-TYPE FILTERS

10.2.1 Filter Rate - The design filtration rate for pressure or vacuum filters shall be not greater than 1.5 gallons per minute per square foot of

effective filter area, except that a maximum filtration rate of 2 gallons per minute per square foot may be allowed where continuous "body feed" is provided. Higher rates may be used if the filter has been successfully tested against NSF/ANSI Standard 50 at the higher rate.

10.2.2 Precoating - The filter piping shall be designed to refilter or waste the effluent until a uniform body coat is applied. For pressure type filters, precoat feed equipment shall be provided to apply not less than 0.1 pound of diatomaceous earth per square foot of filter area.

10.2.3 Body Feed Equipment - Body feed equipment capable of applying not less than 0.1 pound of diatomaceous earth per square foot of filter area per 24 hours should be provided.

10.2.4 Regenerative Type Filters - Regenerative-type filters shall meet the same standards as other pressure filters. Bumping by air or manual means must be provided for, and provision for inspection of elements shall be provided.

10.2.5 Accessories - Accessories for vacuum filters shall include a vacuum gauge and a vacuum limit switch interconnected with the pump. Pressure filters require a backwash sight glass, effluent pressure gauge, influent pressure gauge and an air relief valve. Valving and piping shall be provided to allow isolation, drainage, and back washing of individual filters, if needed for proper operation.

10.3 CARTRIDGE TYPE FILTERS

10.3.1 Filter Rate - The design filtration rate for surface-type cartridge filters shall not exceed .375 gallons per minute per square foot.

10.3.2 Cleaning and Disinfection - Equipment and facilities shall be provided for cleaning and disinfection of filter elements in accordance with manufacturers' recommendations.

10.3.3 Accessories - Accessories shall include a pressure gauge or gauges and an air relief valve.

10.3.4 Spare Cartridges - An extra set of cartridges, with at least 100 percent filter area, shall be provided.

11.0 DISINFECTION AND CHEMICAL APPLICATION EQUIPMENT

11.1 CHEMICAL FEED EQUIPMENT - Feeders shall be of sturdy construction and materials which will withstand wear, corrosion or attack by the chemical to be used therein, and which are not adversely affected by repeated, regular adjustments or other normal use conditions. The design shall minimize potential for blockage.

11.1.1 Maintenance - Feeders shall be capable of being easily disassembled for cleaning and maintenance.

11.1.2 Intended Use - The chemical feeder shall be used only for chemicals recommended for use by the feeder manufacturer.

11.1.3 Safeguards - The feeders shall incorporate antisiphonage safeguards so that the chemical cannot continue to feed into the pool piping system, or the swimming pool enclosure if any type of failure of the pool equipment occurs. Chemical feed systems shall be designed to prevent chemical feed when the recirculation pump is off.

11.2 DISINFECTION - Swimming pools shall be designed to provide for continuous disinfection of the pool water with a chemical which is an effective disinfectant, and which imparts an easily measured, active residual.

11.2.1 Disinfectant Feeders - An automatic feeder which is easily adjustable shall be provided for the continuous application of disinfectant.

11.2.2 Capacity - Feeders shall be capable of supplying disinfectant at a rate of .1 pound chlorine per gallon per minute recirculation flow. The chemical feed system shall be designed to provide a 24-hour supply of disinfectant at the above rate.

11.2.3 Gas Chlorination - The proposed use of gas chlorination should be reviewed with the local authority regarding potential public health hazards, prior to final system design. When compressed chlorine gas is used, the following features shall be provided:

11.2.3.1 New Installations - All new installations shall be vacuum-type. All existing pressure-feed type systems should be converted to vacuum-type.

11.2.3.2 Location - The chlorine room shall be located on the opposite side of the pool from the direction of the prevailing winds. A separate room shall be provided for chlorine and chlorinating equipment. This room shall be at or above grade, and have no opening to other interior spaces.

11.2.3.3 Venting - The chlorine room shall have an airtight duct beginning a maximum of 8 inches above the floor and terminating at a safe point of discharge to the out-of-doors in a direction away from the pool deck. A ventilating fan, capable of one air change per minute and operated from a switch locate outside the chlorine room door, shall be provided in conjunction with the airtight duct. A louvered air intake shall be provided near the ceiling.

11.2.3.4 Lighting - Adequate lighting shall be provided inside the chlorine room with the light switch located outside the chlorine room, adjacent to the

chlorine room door.

11.2.3.5 Construction - The enclosure, including the door, shall be vandal-resistant. The door of the chlorine room shall not open to the swimming pool, and shall open outward to the out-of-doors. The door shall be provided with a minimum of a 12-inch by 12 inch shatterproof inspection window and should be provided with "panic hardware" on the inside of the door.

11.2.3.6 Chlorine Cylinders - All full and empty chlorine cylinders shall be anchored. The cylinders in use shall stand on a scale capable of indicating gross weight with 1/2 -pound accuracy. Storage space shall be provided so that all full and empty chlorine cylinders are not subjected direct sunlight.

11.2.3.7 Injection Location - The mixing of the chlorine gas and water shall occur in the chlorine room, except where "vacuum type" chlorinators are used.

11.2.3.8 Backflow - The chlorinators shall be designed to prevent the backflow of water or moisture into the chlorine gas cylinder.

11.2.3.9 Safety Features - The chlorine feeding device shall be designed to automatically terminate gas feed when the water supply flow is interrupted The release of chlorine gas shall be terminated when the recirculation pump is shut off.

11.2.3.10 Respiratory Protection Device - A respiratory protective device suitable to provide protection during exposure to chlorine gas, or a type approved by the health department, shall be provided. This respiratory equipment should meet the selection criteria set forth in the Code Federal Regulations on respiratory protection (29CFR 1910.134). A closed cabinet shall be provided to house the device in a convenient location outside the chlorine room which is quickly and readily accessible.

11.2.3.11 Leak Detection - A plastic bottle of ammonia for leak

detection shall be provided and automatic chlorine detectors should be provided.

11.2.3.12 Emergency Number - The phone number of the fire department or other agency trained in the handling of chlorine leaks must be posted on the outside of the chlorine room door.

11.2.3.13 pH Adjustment - Mechanical feed equipment for the purpose of adding a chemical for pH adjustment shall be provided. The capacity shall be consistent with the chlorine feed rate.

11.2.4 HYPOCHLORINATORS - Where hypochlorinators are used, the following requirements shall apply.

11.2.4.1 Feed - Feed shall be continuous under all conditions of pressure in the recirculation system.

11.2.4.2 Solution Tanks - If calcium hypochlorite is used, two solution tanks, each with minimum capacity of a one-day supply, should be provided.

11.3 TEST EQUIPMENT

11.3.1 Equipment Required - Test equipment shall be provided to permit testing of all water quality parameters affected by chemical addition.

11.3.1.1 Chlorine/Bromine Test Kit - A DPD (Diethyl-P- Phenylene Diamine) test kit shall be provided. Where chlorine is used, increments of 0.2, 0.4. 0.6, 0.8, 1.0, 1.5, 2.0, and 3.0 as a minimum, shall be provided to measure the free and combined chlorine residuals. If other halogens are used, an appropriate scale shall be provided. Electronic residual monitoring devices may be used in addition to the test kit.

11.3.1.2 pH Test Kit - A pH test kit with a range from 6.8 to 8.2, accurate to the nearest 0.2 pH unit shall be provided.

11.3.1.3 Cyanuric Acid Test Kit - Where cyanurates are used, a test kit to measure the cyanuric acid concentration shall be provided. It shall permit readings at least to 100 parts per million with increments of 25 parts per million.

11.3.1.4 Alkalinity and Hardness Test Kit - Equipment should be provided to measure alkalinity and calcium hardness. The alkalinity and calcium hardness test range shall be 60 to 400 parts per million.

12.0 BATHHOUSE

12.1 GENERAL - The term bathhouse shall refer to the dressing, shower and sanitary facilities which shall be provided adjacent to all swimming pools. Omission of part or all pool-side shower and toilet facilities may be approved by the health department when adequate facilities are conveniently available as determined by the health department.

12.2 DESIGN CRITERIA

12.2.1 Bathhouse Routing - Location of the bathhouse shall be such that the patrons must pass through the bathhouse to enter the pool. The layout of the bathhouse shall be such that the patrons, on leaving the dressing room, pass the toilets, then the showers on route to the swimming pool. Nonconforming pools existing before June 1, 1999, shall be grand fathered, provided that patrons are supervised for adherence to the shower requirement.

12.2.2 Bathhouse Design - Floors of the bathhouse shall be of smooth-finish material with slip-resistant surface, impervious to moisture, easily cleanable and sloped at least 1/4 inch per foot to drains. Carpeting shall not be permitted in shower and toilet areas. Junctions between walls and floors shall be coved. Walls and partitions shall be of smooth, impervious, materials, free from cracks or open joints. Partitions between dressing cubicles shall terminate at least 10 inches above the floor or shall be placed on continuous raised masonry or concrete bases at least 4 inches high. Lockers shall be set either on solid masonry or concrete bases at least 4 inches high or on legs with bottom of locker at least 10 inches above the floor. Lockers shall be constructed to allow ventilation.

12.2.3 Fixture Requirements - Unless exempted by Section 12.1, bathhouse facilities shall be provided based on maximum patron load according to the following fixture schedule:

	Fixtures Required MALE				Fixtures Required FEMALE		
Patron Load	Toilet	Urinals	Lavatories	Showers	Toilets	Lavatories	Showers
0 - 50	1	1	1	1	1	1	1
51 - 100	1	1	1	1	2	1	1
101 - 150	1	2	1	2	3	1	2
151 - 200	1	2	1	2	3	1	2
201 - 250	2	2	1	3	4	2	3
251 - 300	2	3	2	4	5	2	4
301 - 400	2	3	2	5	5	2	5
401 - 500	3	3	2	6	6	2	6
501 - 1000	3	4	2	7	7	2	7
1001 - 1500	4	5	2	10	9	2	10
1501 - 2000	5	6	2	15	11	2	15
2000 or more	6	7	3	20	13	3	20

12.2.3.1 Showers and Lavatories - Showers shall be supplied with water at a temperature of at least 90 degrees Fahrenheit and no more than 115 degrees Fahrenheit and at a rate of at least 1.5 gallons per minuter per shower head. Lavatories should be provided with water at a temperature of at least 90 degrees Fahrenheit and no more than 115 degrees Fahrenheit. All plumbing shall conform to city building codes. Liquid or powdered soap dispensers shall be provided. Glass soap dispensers are not acceptable. Bar soap should not be provided at either showers or lavatories.

12.2.4 Suits and Towels - Where towels and/or swimming suits are furnished, facilities shall be provided for storage of clean and collection of used items.

12.2.5 Foot Baths - The use of foot baths is prohibited.

12.2.6 Hose Bibs - Hose bibs shall be provided and located to enable the entire bathhouse area to be flushed with a 50-foot hose., All hose bibs shall be provided with approved back-siphonage devices to protect the water distribution system for the pool and appurtenant facilities at all times against cross-connection.

12.2.7 Ventilation - Bathhouse facilities shall be provided with mechanical ventilation in accordance with applicable state and local codes.

12.2.8 Electric Receptacles - All bathhouse electrical outlets shall be protected by ground fault circuit interrupters.

13.0 MISCELLANEOUS

13.1 POOL CLEANING SYSTEM - A system shall be provided to remove dirt and other foreign material from the bottom of the pool. When a vacuum system is used as an integral part of the recirculation system, connections shall be located in walls of the swimming pool at least 8 inches below the water line, and at such points that the floor of the pool can be cleaned with no more than 50 feet of suction hose. Nothing in this section shall prohibit the use of surface skimmers for vacuum cleaning purposes.

13.2 MANUAL - A manual for operation of the pool should be provided. Information contained in this manual should include but not be limited to: instructions for the proper installation, operation, cleaning, winterization and maintenance of all pool equipment; parts list, including drawings and applicable codes; illustrations; charts; and operating instructions.

13.3 STARTING BLOCKS - Starting blocks shall be located where the water depth is at least 5 feet.

13.4 SAND AREA RINSE SHOWERS - Sand areas shall not be allowed inside of the pool enclosure unless separated by an effective barrier to control access to the swimming pool deck and provided with continuous supervision to enforce the showering requirement. Persons entering the swimming pool area from the sand area shall pass through a water spray or shower which effectively removes sand from the bathers.

13.5 SPRAY FEATURES - Fountains, sprays, or similar features shall be permitted only in water depths not exceeding 2 feet. Provided however, that the safety to patrons satisfies the health department. Such features shall be of a nonclimbable design, unless specifically manufactured and marketed as a climbing structure. When pool water is used for spray features, it should be disinfected before use.

14.0 SPAS - A spa is swimming pool designed for recreational or therapeutic use of heated water and not to be drained, cleaned and refilled for each individual. A spa may include hydrojet circulation, mineral baths and an air induction system. A pool used under direct supervision of qualified medical personnel is not a spa.

14.1 GENERAL - Requirements for conventional swimming pools may be modified or waived for spas at the discretion of the health department. Except as modified by the following sections, compliance is required with all other applicable sections of these standards.

14.2 PHYSICAL SEPARATION - A spa pool shall be physically separate from any other pool, and there shall be no commingling of water between a spa and another pool.

14.3 PATRON LOAD - The patron load shall not exceed one person per 3 lineal feet of seat or bench measured at the front edge.

14.4 MAXIMUM DEPTHS - The maximum water depth shall be 4 feet measured from the water line. The maximum depth of any seat or sitting bench shall be 2 feet measured from the water line.

14.5 STAIRS, LADDERS AND RECESSED TREADS - Stairs, ladders, or recessed treads shall be provided when spa depths are greater than 2 feet. A spa shall be equipped with at least one means of egress with handrails for each 50 feet of perimeter or portion thereof.

14.6 DECK WIDTHS -All spas constructed before the passage of this ordinance shall be an exception to this standard, unless they undergo a remodeling project. All newly constructed spas shall have a deck with a minimum five foot width, continuous, unobstructed, which may include the coping. The minimum width must be provided on at least two sides or for 50 percent of the spa's perimeter.

14.7 WATER TEMPERATURE CONTROLS - Controls shall be provided to prevent water temperature in excess of 104 degrees Fahrenheit. The controls shall be accessible only to the pool operator.

14.8 SPA DRAINAGE - Means to completely drain the spa shall be provided to allow frequent draining and cleaning.

14.9 ENTRAPMENT PROTECTION - Outlets shall be designed so that each pumping system prevents patron entrapment. Acceptable means include the use of multiple unvalved outlets, an antivortex drain, and an 18-inch by 18-inch square grate or one of equivalent area.

14.10 SURFACE SKIMMERS - One surface skimmer shall be provided for each 100 square feet or major fraction thereof of surface area.

14.11 RECIRCULATION SYSTEM INLETS - A minimum of two inlets shall be provided.

14.12 AIR INDUCTION SYSTEMS - An air induction system, when provided, shall prevent water back-up that could cause electrical shock hazards. Air intake sources shall not permit the introduction of toxic fumes or other contaminants.

14.13 DISINFECTANT FEEDERS - Gas chlorinators shall not be used.

14.14 RECIRCULATION RATE - The recirculation rate shall provide 30 gallons per minute per skimmer, or provide a 30 minute turnover, whichever provides a greater flow rate.

14.15 AGITATION SYSTEMS - The agitation system shall be separate the water treatment recirculation system. The agitation system shall be connected to a 10-minute timer located out of reach of a person in the spa.

14.16 CAUTION SIGNS - A caution sign shall be mounted adjacent to the entrance to the spa or hot tub. It should include the following warnings:

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 at water temperatures greater than 104 degrees Fahrenheit.

Do not use alone.

Unsupervised use by children is prohibited.

Enter and exit slowly.

Observe reasonable time limits (that is 10 to 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.

A sign should also be posted requiring a shower for each user prior to entering the spa or hot tub and prohibiting boils, body lotion, and minerals in the water.

15.0 WADING POOLS - A wading pool is a pool that is no more than 24 inches deep that is intended for use by young children.

15.1 GENERAL - Wading pools require special consideration in design of the type of user, the relatively small volume of water, and the shallowness of the water. Except as modified by the following sections, compliance is required with all other applicable parts of these standards.

15.2 RECIRCULATION

15.2.1 Rate - The recirculation rate shall provide a turnover of two hours or less. The recirculation rate should provide a one-hour turnover.

15.2.2 Separate System - A wading pool should have a separate recirculation system. If the wading pool shares a recirculation system with another pool, the flow to each pool shall be metered, shall be adjustable and shall have separate disinfection feed.

15.2.3 Surface Skimming - Intermittent fixed weir overflow structures, including gutters, scuppers, and drains at zero depth may be used. The overflow system shall have a hydraulic capacity of at least 125 percent of the recirculation flow rate. The engineer may be required to demonstrate that the overflow system will provide adequate skimming.

15.2.4 Skimmer Equalizer Line - A skimmer equalizer line may be connected to the main drain.

15.2.5 Inlets - Inlets shall be designed and located to distribute treated water to all parts of the wading pool and to move debris to the overflow and drain systems. The engineer shall be responsible for demonstrating that the inlet system will provide adequate circulation.

15.3 SAFETY

15.3.1 Barrier and Location - When a wading pool is in the same enclosure as a supervised pool, there shall be a barrier at least 3 feet high between the wading pool and the swimming pool. When a wading pool is adjacent to a swimming pool, it shall be near the shallow end of the pool.

15.3.2 Fence - Stand-alone wading pools associated with unsupervised swimming pools shall be fenced, as required by local law.

15.3.3 Warning Sign - Whenever a wading pool is open for use, and continuous, direct supervision is not provided by the facility staff, warning signs shall be placed in plain view at the entrance(s) and inside the wading pool area which state, "WARNING: NO LIFEGUARD" in 4-inch letters, and "CHILDREN SHALL BE ACCOMPANIED BY AN ADULT" in letters at least 2 inches in high.

15.3.4 Depth Marking - Signs shall be provided at the pool indicating the maximum depth.

15.3.5 Steps or Ladders - Steps or ladders are not required at wading pools.

16.0 WAVE POOLS - A wave pool is a special-use pool with pneumatic wave generating equipment and a design which provides for control of the waves within the side walls and dissipation of the waves at a zero depth shallow end.

16.1 GENERAL - Wave pools require special consultation with the health department for consideration of design variations and areas where potential problems may exist. Requirements for conventional swimming pools may be modified or waived for wave pools at the discretion of the health department. Except as modified by the following sections, compliance is required with all other applicable sections of these standards.

16.2 POOLS

16.2.1 Depths - The water depth may be reduced to zero at the shallow end to allow for safe access and for the dissipation of the waves.

16.2.2 Gutters - Overflow gutters shall be provided, but may be omitted along the side of the pool with the wave generating equipment if effective skimming devices are provided instead. Continuous skimming shall be provided during the quiescent period over the entire length of the gutter. The zero-depth end shall have a continuous trench with a grate.

16.2.3 Recirculation Rate - The recirculation rate shall provide a turnover of 4 hours or less. The recirculation rate should provide a 2-hour turnover.

16.3 DECKS AND LADDERS

16.3.1 Barriers - A safety railing or another effective barrier at least 42 inches in height shall be provided to prevent swimmers from entering the pool at any location other than zero water depth end. It shall have at least one intermediate-height rail or rope.

16.3.2 Runout - Runout areas sloping down toward the zero-depth trench should not exceed 4 feet.

16.3.3 Access - Deck areas accessible to swimmers may be omitted along the side of the pool with the wave generating equipment.

16.3.4 Ladders - Ladders shall be of a recessed design.

16.4 WAVES

16.4.1 Magnitude - The wave generating equipment shall not be capable of producing waves of a magnitude which could cause swimmers to have contact with the pool bottom in the deep end.

16.4.2 Emergency Shutoff - An emergency shutoff for the wave generating equipment shall be provided at every lifeguard chair at a minimum. At least four emergency shutoffs shall be provided.

16.5 OPENINGS

16.5.1 Inlet - The zero-depth area shall have bottom inlets. They shall be located as required by the health department.

16.5.2 Openings to Wave Generating Equipment - Openings to wave generating

equipment shall be designed to prevent entrapment of swimmers.

17.0 ZERO-DEPTH ENTRY POOLS

17.1 GENERAL - This section applies to zero-depth pools other than wading pools. Except as modified by the following sections, zero-depth pool facilities must comply with all other applicable ordinances.

17.2 LIFE GUARDING REQUIREMENT - Zero-depth pools are permitted only where continuous lifeguard service is provided.

17.3 SURFACE SKIMMING - A gutter or trench with a grate cover is required along all zero-depths areas. It shall be at an elevation which allows effective skimming at the trench at all times.

17.4 RUNOUT - Runout areas sloping toward the zero-depth trench should not exceed 4 feet.

17.5 RECIRCULATION RATE - The recirculation rate shall provide a turnover of 2 hours or less for areas of less than 3 feet of water depth, and a turnover for other areas as specified elsewhere in these standards.

17.6 BOTTOM INLETS - A system of bottom inlets must be provided in the shallow end, and be designed to provide the equivalent of a two-hour turnover for that area.

17.7 BARRIERS - Barrier requirements may be waived by the Director of the Health Department, if adequate supervision of patrons is provided at all times.

18.0 POOL SLIDES

18.1 SLIDES - All slides used at pools shall be specifically designed and intended for use with a pool, and for the specific application. Slides shall be permitted only where supervision will be provided in accordance with section 4.4, on operation.

18.2 CHILDREN'S ACTIVITY SLIDES - Children's activity slides are small slides with a low exit velocity designed by the manufacturer for use by small children at pools. They must be designated by the manufacturer for use in 24 inches or less of water, and installed accordingly.

18.3 DROP SLIDES - A drop slide is a slide which discharges to a pool with a drop of

more than 2 inches to the water surface.

18.3.1 Standard Pool Slides - Standard pool slides for use at swimming pools shall conform to Part 1207 of the Consumer Product Safety Act [Sec. 7(f), Public Law 92-573, 86 Statute 1215, 15 U.S.C 1056 (f)].

18.3.2 Entry - Slide entry areas shall be designed so the rider is able to properly enter and position him or herself before sliding down the chute. This area shall be a small platform or a less-sloped portion of chute, with well-placed assist bars.

18.3.3 Handrails - Drop slides shall have handrails on both sides of the ladder or steps. Platforms and landings shall have 42-inch-high guardrails, with at least one intermediate-height rail.

18.3.4 Landing Area - There shall be a drop slide landing area extending 5 feet on either side of the center line of the slide and from the back wall extending 20 feet in front of the slide terminus. This area shall not infringe on the required landing areas for other drop slides, water slides, or diving equipment.

18.3.5 Landing Area Designation - The drop slide landing area shall be separated from the rest of the pool in a manner approved by the health department. A slide mounted in a separate diving area may be allowed to use the diving area separation as long as access to the diving well is restricted to patrons using the slide and the diving equipment.

18.3.6 Slide Terminus - The terminus of the chute shall extend beyond the pool wall, and be so oriented that the safety area in front of the slide does not interfere with the safety area of another slide or other pool equipment.

18.3.7 Exit Angle - The maximum angle of the slide runway at the exit shall be between zero degrees and eleven degrees, measured downward from horizontal.

18.3.8 Water Depth - The area from the slide terminus outward to 6 feet in front of the slide terminus shall have a depth established from the table below. The slide shall be constructed so the rider enters the water in this 6-foot area. If the depth in this area is less than 5 feet, the bottom in this area shall have a maximum slope of 1 inch in 12 inches (1:12), and the slide shall be located at least 5 feet from any change to steeper slope of the pool bottom.

Water Depth from the slide Terminus to 6 Feet in Front of the Terminus (see above)	Corresponding Maximum Exit Height Above the Water
4 to 5 feet	12 inches
8-feet minimum	42 inches

18.3.9 Maximum Drop - The maximum drop height at the terminus of the slide shall not exceed 42 inches.

18.3.10 Pump Intake - If water is pumped form a swimming pool to the slide, the pump intake shall be enclosed or constructed in a manner to prevent injury or entrapment of swimmers. Intake velocity shall not exceed 1 1/2 feet per second.

18.3.11 Safety and Supervision - Slides shall be located and constructed to allow easy supervision. When a slide is not supervised or not open for use, it shall be secured to prevent access.

18.3.12 Sign - The slide should have posted a set of rules that include the following:

One rider at a time. Wait until the landing area is clear before entering the slide.

Slide in a sitting position or on back only.

Do not attempt to stop in the slide.

Leave the plunge area immediately.

WARNING: Water depth is __ feet.

Non-swimmers not permitted. (If over 5 feet deep)

18.4 FLUME WATER SLIDES - A flume water slide consists of one or more flumes entering a plunge pool or dedicated plunge area of a multiple use pool at or near the water level.

18.4.1 General - Water slides require special consultation with the health department for consideration or design variations and areas where potential problems may exist. Requirements for conventional swimming pools may be modified or waived for water slides at the discretion of the regulatory agency. Except as modified by the following section, compliance is required with all other applicable standards.

18.4.2 Flumes

18.4.2.1 Position- A flume shall be perpendicular to the plunge pool wall for a distance of at least 10 feet from the exit end of the flume.

18.4.2.2 Clearances - The distance between the side of a flume terminus and a plunge pool side wall shall be at least 4 feet. The distance between sides of adjacent flume terminuses shall be at least 6 feet. The distance between a flume exit end and the opposite side of the plunge pool, excluding steps, shall be at least 20 feet.

18.4.2.3 Elevation - A flume shall terminate at a depth between 6 inches below plunge pool operating water surface level and 2 inches above the water surface level. The flume shall not exceed a one-in-ten slope for a distance of at least 10 feet from its exit end.

18.4.2.4 Design - The design of the flume shall minimize abrupt contact with the slide and prevent people from being airborne.

18.4.3 Plunge Pools

18.4.3.1 Depths - The plunge pools operating water depth at the end of the flume shall be 3 to 4 feet. A depth of at least 3 feet shall be maintained in front of the flume for a distance of at least 10 feet, from which the pool floor may have a constant slope upward.

18.4.3.2 Plunge Area - The plunge area in multiple use pools shall be designated by float ropes, and each area shall have ladders, steps, or stairs for egress.

18.4.4 Flume Pumps

18.4.4.1 Intakes - The flume pump intake(s) shall be designed to prevent patron entrapment. The water velocity through the intake(s) cover(s) shall be no greater than 1 1/2 feet per second. The intake cover(s) shall be designed to be easily cleaned.

18.4.4.2 Check Valves - Each flume pump discharge pipe shall have a check valve.

18.4.5 Walkways - A 4-foot minimum width, surfaced walkway or steps shall be provided between the plunge pool deck and the steps leading to the top of the flume(s).

18.4.6 Pump Reservoir - If a separate pump reservoir is provided, it shall have a main drain and surface skimmer, both connected to the recirculation system.

18.4.6.1 Recirculation Rate - The recirculation rate for a dedicated plunge pool shall provide a turnover of 1 hour or less. Multiple use pools with water slides should have an increased recirculation rate and chemical treatment capability.

18.4.7 Caution Signs - A legible sign should be posted at the top of the flume(s). The sign should state:

CAUTION

Do not use this slide while under the influence of alcohol or drugs.

Only one person allowed at a time.

Follow the instructions of the attendant and/or lifeguard.

No running, standing, kneeling, rotating, tumbling, or stopping in the flumes or tunnels.

Keep your hands inside the flume.

No diving from a flume.

Leave the plunge pool promptly after entering it.

PART 2. STANDARDS FOR SWIMMING POOL OPERATION

1.0 WATER QUALITY STANDARDS

1.1 DISINFECTION - Swimming pool water shall be automatically and continuously disinfected. All disinfecting materials and methods shall:

A. Be used only with the approval of the health department;

B. Not create an undue safety hazard when handled, stored and used according to label directions;

C. Be compatible for use with other chemicals normally used in pool water treatment, or be clearly identified as having a used limitation;

D. Not impart toxic properties to the water when used according to direction, and

E. Provide an effective residual which can be easily and accurately be measured by a field test procedure.

1.1.1 Chlorine - When chlorine is the disinfectant, a free chlorine residual of at least .4 mg/l (ppm) for a pH of 7.2 shall be maintained throughout the pool. For higher pH values, higher free chlorine residuals of at 0.2 mg/l for each 0.2 pH unit increased shall be maintained.

1.1.2 Bromine - When bromine is the disinfectant, a residual of at least 1.0 mg/l shall be maintained throughout the pool for pH below 7.8, and 2.0 mg/l for a pH of 7.8 or higher.

1.1.3 Other Disinfectants - Another disinfecting material or method may be used when it has been demonstrated to provide a satisfactory residual which is easily measured and is as effective as under conditions of use as the chlorine concentrations required herein.

1.1.4 Cyanuric Acid - When chlorinated isocyanuarate is used as the disinfectant, a free chlorine residual of at 1.0 mg/l for a pH of 7.2 shall be maintained throughout the pool. For higher pH values, higher free chlorine residuals of at least 0.4 mg/l for each 0.2 pH unit increase shall be maintained. The cyanuric acid concentration in the pool water shall not exceed 100 mg/l.

1.1.5 Special Purpose Pools - The health department reserves the right to require a higher disinfectant residual than stated in 1.1.1, 1.1.2, and 1.1.4 for slide pools, spas, or other special-purpose pools.

1.2 pH AND ALKALINITY

1.2.1 pH - The swimming pool water pH shall be maintained at a level between 7.2 and 7.8. A pH of 7.2 to 7.5 is recommended.

1.2.2 Alkalinity - The alkalinity of the water should be maintained at a level between 70 ands 150 mg/l as calcium carbonate.

1.3 CLARITY - The water shall have sufficient clarity that a black and white disc, 3 to 6 inches in diameter, is readily visible when placed at the deepest point of the swimming pool and viewed from the side of the pool.

1.4 BACTERIOLOGICAL QUALITY

1.4.1 Sample Collection and Analysis - If water samples are taken of a swimming pool for bacteriological examination; samples should be collected while the swimming pool is in use. The residual disinfectant in the sample shall be deactivated, and the samples shall be examined in accordance with procedures acceptable to the health department.

1.4.2 Standards - A water sample shall not contain more than 200 colonies per 1 milliliter to water, as determined by the Standard Plate Count , or show a positive test (confirmed test) for coliform organisms. When the bacteriological standard is exceeded, the pool shall be super chlorinated and immediately retested. The cause of the unsatisfactory sample(s) shall be investigated and corrective action initiated if appropriate.

1.4.3 Additional Standards - In addition to the standards in 1.4.2, the health department may use the following for a more complete analysis of pool water quality: a) The heterotrophic plate count (HPC) shall not exceed 100 colonies per 1 milliliter of water. The standard procedure for the isolation of staphylococcus aureus organisms shall indicate not more than 50 organisms per 100 milliliters of water.

1.5 ALGAE CONTROL - An algicide may be used provided it complies with Section 1.1, a. through d. And is used in accordance with the directions on the

label.

1.6 SUPERCHLORINATION OR SUPEROXIDATION - If the concentration of combined residual chlorine is greater than 0.2 mg/l, the swimming pool water should be superchlorinated to reduce the concentration of combined residual chlorine.

1.6.1 Chlorine Residual - During superchlorination, the free chlorine residual should be raised to a level of at least 10 times the combined chlorine level present.

1.6.2 Pool Use - Swimmers shall not be allowed in the swimming pool during superchlorination. They may be allowed in the pool when the free chlorine residual is less than 5 mg/l.

1.6.3 Isocyanurates - Isocyanurates shall not be used for superchlorination.

1.6.4 Other Oxidizers - Persulfate compounds may be used for superoxidation if used according to manufacturer's instructions.

2.0 ROUTINE OPERATIONS

2.1 POOL CLEANING - The swimming pool and deck areas shall be cleaned, the pool water surface skimmed, and the pool walls and bottom vacuumed or brushed, all on a daily basis during off-use hours.

2.2 TOILET, SHOWER AND LOCKER FACILITIES - The facilities, including the floors, showers, and toilet facilities, shall be cleaned and disinfected daily. Public lockers shall be inspected and be cleaned as necessary. All fixtures and equipment shall be maintained in operable condition. Liquid soap dispensers shall be filled daily.

2.3 WATER ANALYSIS - Water quality analyses shall be performed at a frequency and at such locations as established by the health department. Test kits shall be properly maintained. Reagents shall be renewed semi-annually for indoor pools and prior to annual opening for seasonal use pools.

2.4 MECHANICAL SYSTEM - All items of mechanical equipment and all parts of the mechanical system shall be inspected daily. Necessary repairs to assure proper operation shall be made.

2.5 RECIRCULATION SYSTEM - The recirculation system shall be inspected daily, and maintained in proper operation.

2.5.1 Overflow Systems - Surface skimmers and perimeter overflow systems shall be cleaned daily and shall be adjusted as necessary to assure effective skimming.

2.5.2 Main Drains - Broken main drain grates shall be repaired as soon as possible. If the main drain grate is missing, the pool shall be closed until an approved grate is properly installed.

2.5.3 Inlets - Inlet flow rates and directions shall be checked and shall be adjusted as necessary to assure circulation in all areas of the pool.

2.5.4 Surge Tanks - Surge tank controls shall be adjusted as necessary to maintain the water level in the proper operating range. Surge tanks shall be drained and cleaned at least annually.

2.6 WATER LEVEL - Water shall be added as needed to keep the pool water at a level needed to assure effective skimming.

2.7 OTHER EQUIPMENT - All safety equipment, deck equipment, and signs shall be checked daily to assure compliance with the appropriate sections of these standards.

2.8 RECORDS - Daily operating records shall be maintained by the owner or operator on forms acceptable to the health department. Such records shall be submitted to the health department upon request. The records should contain such information as disinfectant residual, pH, flow rate, filter back washing, equipment breakdowns, personal accidents and unusual problems or occurrences. Daily operating records shall be retained and be available for on-site inspection for at least one month, or longer if required by the health department. Unusual problems or occurrences should also be reported immediately to the health department.

2.9 CHEMICALS - All chemicals shall be handled in accordance with the manufacturers' recommendations. Chemical containers shall be labeled with chemical name and appropriate hazard designation. Material safety data sheets shall be available on site for all chemicals used.

2.10 ANNUAL FACILITY EVALUATION - A total facility evaluation should be scheduled and conducted at the expiration of the permit. The pool shall be closed as necessary for repairs and maintenance.

3.0 EQUIPMENT MAINTENANCE

3.1 EQUIPMENT OPERATION

3.1.1 Instructions - All equipment shall be operated and maintained in accordance with manufacturers' instructions. A manual of operation provided by the consultant, and manufacturer's instructions for operation and maintenance of the equipment, shall be maintained and kept available. When such instructions are not available, the health department should be contacted for advice and consultation.

3.1.2 Continuous Operation - Pumps, filters, disinfectant feeders, flow indicators, gauges, and all related components of the pool water recirculation system shall be kept in continuous operation, 24 hours a day.

3.2 RECIRCULATION PUMPS - The pump and motor shall be checked at regular intervals. The pump shall not be throttled on the suction side during normal operation.

3.3 FILTERS

3.3.1 Sand Filters

3.3.1.1 Air Release - The filter air release valve shall be opened daily, or more frequently if necessary, to remove air which collects in the filter.

3.3.1.2 Backwash - Filters shall be backwashed at a proper flow rate in accordance with the manufacturer's recommendations. Filters should be backwashed before the pressure differential exceeds 8 pounds per square inch, or whatever pressure differential is recommended by the manufacturer, or if the flow rate drops below the minimum required flow rate.

3.3.1.3 Internal Components - Inspection of internal components of pressure filters shall be conducted annually or any time the filters fail to produce clear effluent deficiencies shall be corrected.

3.3.2 Diatomaceous Earth Filters

3.3.2.1 Precoat Amount - The amount of diatomaceous earth precoat shall be at least 0.1 pound per square foot of element surface area, and should be at least .15 pounds per square foot.

3.3.2.2 Precoat Operation - During precoating, the filter effluent shall be recirculated through the filter until the effluent is clear, or the initial filter effluent shall be discharged to waste until clear water is produced.

3.3.2.3 Body Feed - When continuous body feed is used, it should be applied at a rate of 0.5 to 1.5 ounces per square foot of surface area per day, or as needed to extend filter cycles.

3.3.2.4 Backwash - Pressure Filters shall be backwashed when the pressure differential between the filter influent and effluent lines reaches the manufacturer's recommended maximum pressure differential, or when the rate of flow drops below the minimum required flow rate, whichever occurs earlier. When the recirculation pump stops or is shut off the filter shall be backwashed. The elements shall be precoated before placing the pump back into operation. Vacuum filters shall be washed when the pump suction gauge reaches the manufacturer's recommended maximum vacuum, or the flow rate drops below the minimum required flow rate, whichever occurs first.

3.3.2.5 Internal Components - A pressure filter shall be opened for inspection at least once a year and whenever it fails to produce a clear effluent. Deficiencies shall be corrected.

3.3.26 Extra Supplies - An extra supply of septa and at lest two weeks' supply of diatomaceous earth should be available.

3.3.3 Cartridge Filters

3.3.3.1 Cleaning and Replacement - Cartridge filter elements shall be cleaned, disinfected, and replaced as recommended by the manufacturers of the filter.

3.3.3.2 Extra Elements - At least one extra set of filter elements shall be available.

3.4 STRAINERS - Strainer baskets shall be removed and replaced by clean baskets frequently. The pump shall be stopped before the strainer is opened . In the case of diatomaceous earth filter, the dirty strainer basket should be replaced with a clean on when the filter is backwashed.

3.5 VALVES - Valves shall be operated through their entire operation range occasionally to prevent corrosion and dirt form sealing them. Valve stem packing glands shall be tightened or repacked as necessary to prevent leakage.

3.6 FLOW METERS - Flow meters shall be maintained in an accurate operating condition. The glass and the connecting tubes shall be kept clean.

3.7 GAUGES - The lines leading to gauges shall be bled occasionally to prevent blockage. Gauges shall be inspected periodically to assure proper operation, and shall be maintained in operating condition.

3.8 POSITIVE DISPLACEMENT FEEDERS

3.8.1 Inspection - Positive displacement feeders shall be periodically inspected and serviced.

3.8.2 Intake - The suction intake should be suspended at least 6 inches above any sludge layer in the solution tank.

3.8.3 Cleaning - Feeder, tubing and valves shall be periodically cleaned or replaced in accordance with manufacturers' recommendations.

3.9 EROSION FEEDERS

3.9.1 Inspection - Erosion feeders shall be periodically inspected and serviced.

3.9.2 Chemicals - Only chemicals recommended by the feeder manufacturer shall be used by the feeder.

3.9.3 Cleaning - Connecting tubes shall be periodically cleaned or replaced to

permit continuous free circulation.

3.10 GAS CHLORINATORS

3.10.1 Servicing - Gas chlorinators shall be serviced or repaired only by trained qualified personnel.

3.10.2 Gas Leak - In the event of a chlorine gas leak, evacuation procedures established in the emergency plan must be followed, and the fire department must be immediately contacted.

3.11 POOL STRUCTURE AND DECKS

3.11.1 Cracks - Cracks in the pool walls, floors, perimeter overflow systems and decks shall be repaired as soon as possible. Seasonal use pools shall have all repairs completed prior to annual reopening.

3.11.2 Painting - The pool walls, floor, and deck equipment shall be painted as often as necessary to keep them in good condition and free of corrosion. Paint for the pool structure shall be white or a light color. Steps, or least the front edge of the step treads which lead into a pool should be painted to contrast with the rest of the pool.

3.12 ELECTRICAL SYSTEMS

3.12.1 Electrician - Periodic inspections should be made by a licensed or certified electrician. Repairs to any electrical system shall be made only by a licensed or certified electrician.

3.12.2 Lights - Defective underwater and overhead lights, including their lenses, shall be immediately repaired or replaced.

4.0 PATRONS, SPECTATORS, AND STAFF

4.1 PATRONS

4.1.1 Disease - Persons with a disease which can be transmitted through pool use shall not use the pool.

4.1.2 Showers - A person using a swimming pool shall shower before entering the pool enclosure. A person leaving the pool to use a toilet shall shower before returning to the pool.

4.1.3 Apparel - Only clean swimwear shall be worn in a swimming pool.

4.2 PATRON LOAD LIMIT - The number of patrons within the swimming pool enclosure shall not exceed the approved design capacity.

4.3 SPECTATORS

4.3.1 Street Clothes - A person in street clothes or shoes shall not be permitted in the pool.

4.3.2 Food and Drink - No food, tobacco or glass shall be permitted at the pool deck area.

4.4 STAFF

4.4.1 Supervisor - All Class A, C and F pools shall be under the supervision of a responsible supervisor or lifeguard during normal operation. Class C pools may have the lifeguard requirement waived for events such as lap swimming, athletic competitions, organized classes and other activities approved by the Director of Health Services. The waiver will apply only to events with adults or children over the age of thirteen and when safety concerns can be adequately addressed. Adequate supervision by staff members shall be substituted in these situations.

4.4.2 Lifeguards

4.4.2.1 Number - The number of lifeguards shall be determined based upon anticipated usage and design characteristics. The health department should be consulted.

4.4.2.2 Certification - Each lifeguard shall have a valid and current lifesaving or life guarding certificate from a nationally accredited lifesaving course.

4.4.2.3 Dress - Each lifeguard on duty shall be appropriately dressed and identifiable.

4.4.2.4 Attention - A lifeguard on duty shall not engage in activities which would distract his or her attention from the lifeguard duties.

4.4.3 Attendants

4.4.3.1 Drop Slides - Attendants shall be stationed at a point where they can control patrons entering the slide. An attendant may supervise no more than two drop slides. Slides shall be located and constructed to allow easy supervision.

4.4.3.2 Exemption - Slides meeting the construction criteria specified in sections 18.2 or 18.3 may be exempt from the lifeguard and attendant requirement if they meet all of the criteria below.

1) They are 6 feet or less in height from the slide entrance to the slide exit.

2) The discharge is 6 inches or less above the water surface.

3) The user has a clear view of the landing area from all locations on the slide.

4) The slide cannot be a tube or be covered to restrict the view of the landing area.

4.4.3.3 Flume Water Slides - All Flume water slides must be directly supervised, with attendants at top and bottom areas.

4.4.4 First Aid - A person trained in first aid shall be available on the premise whenever a Class A swimming pool or spa is open for use. A person trained in cardiopulmonary resuscitation (CPR) shall also be available.

4.4.5 Operator - A person knowledgeable in pool side testing of the water and in operating the water treatment equipment shall be available whenever the pool is open for use.

5.0 SWIMMING POOL CLOSURE

5.1 HEALTH OR SAFETY HAZARDS - Any of the following conditions shall constitute sufficient grounds to order a swimming pool closed:

5.1.1 Disinfectant Residual - Failure to comply with the disinfectant residual levels established in Section 1.1.

5.1.2 Water Clarity - Failure to comply with the water clarity requirement established in section 1.3.

5.1.3 Treatment Equipment - Inoperable pump, filter, or disinfectant feeder.

5.1.47 Electrical Safety - Presence of bare electrical wires or other obvious electrical deficiency.

5.1.5 Supervision - Absence of supervisor or required lifeguard.

5.1.6 Other Conditions - Existence of any condition creating an immediate danger to the health or safety of the pool patrons or its personnel. The Director of the Health Department may also revoke an operating permit of a facility that has repeated deficiencies that could affect the health and safety of the pool patrons.

5.2 ALL TIMES WHEN THE POOL IS CLOSED FOR ANY REASON, ALL ENTRY/EXIT POINTS SHALL BE PROPERLY MAINTAINED AND SECURED AGAINST UNAUTHORIZED ENTRY, AND A SIGN SAYING "POOL CLOSED" SHALL BE PROVIDED.

5.3 COVERS

5.3.1 Cleaning - Pool covers must be maintained in a clean and sanitary condition to preclude contamination of the pool water.

5.3.2 Safety Cover - If the deck area is accessible when the pool is covered, a fully secured safety cover should be used.

5.3.3 Seasonal Closure - It is recommended that an outdoor pool which is closed for the season , but allowed to retain water, be provided with a safety-type cover able to support the weight of a person.

6.0 SAFETY

6.1 ACCIDENT PREVENTION

6.1.1 Decks - Decks shall be kept slip-resistant and in good repair, without litter, obstructions, tripping hazards, or sharp edges.

6.1.2 Deck Equipment - Ladders, handrails, diving apparatus, lifeguard chairs, slides, and other deck equipment shall be kept secured and in good repair, without sharp edges.

6.1.3 Depth Markings - Depth markings shall be maintained to be plainly visible.

6.1.4 Entrances - Doors and gates at pool entrances shall be kept closed when not in use, and locked when the pool is not open for use. All gates shall be self closing and self latching.

6.1.5 Glass Objects - Glass objects shall not be permitted in a swimming pool enclosure.

6.1.6 Horseplay - Horseplay and running shall not be allowed.

6.2 SAFETY EQUIPMENT

6.2.1 Lifesaving Equipment - The lifesaving equipment shall be kept in good repair and ready condition. It shall be kept in its established location and shall be used only for the intended purpose.

6.2.2 First Aid Equipment - All Class A Swimming Pools shall have a first aid kit that shall be kept stocked and be readily available at a location identified at the pool. The spine board shall be kept in good repair and ready condition at the swimming pool.

6.2.3 Life Lines - Life lines separating shallow and deep areas shall be kept in good repair. They should be kept in place.

6.2.4 Breathing Apparatus - Self-contained breathing apparatus, where required, shall be kept in good repair and in ready condition.

6.3 EMERGENCY PLAN - All Class A pools shall have a plan of action for emergencies that shall be prepared, put in writing, made know to the staff, and practiced. It should include coordination with the local emergency response provider and instructions regarding proper user of equipment. Where chlorine gas issued, the emergency plan should also include provisions to comply with the Code of Federal Regulations for respiratory protection (29CFR 1910.134), and procedures for evacuation and contacting emergency responders in the event of a

leak.

References

Recommended Standards for Swimming Pool Design and Operation, Great Lakes-Upper Mississippi River Board of State and Provincial Public Health and Environmental Managers, 1996 Edition.

Lincoln, Nebraska Swimming Pool Ordinance: Design and Safety Standards, City of Lincoln Health Department, 1990 Edition.

Nebraska Swimming Pool Handbook, Nebraska Department of Health and Human Services, 1996 Edition.