

**LOUISVILLE AND JEFFERSON COUNTY BOARD OF HEALTH
CHAPTER 900
SWIMMING POOLS AND BATHING BEACHES**

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900.01 Definitions

The following definitions of terms shall apply unless the context clearly indicates another meaning or unless expressly stated for specific application.

- 900.0101 "Accessible" means, when applied to a fixture, connection, appliance or equipment, having access thereto, but may require the removal of an access panel, door or similar obstruction. "Readily Accessible" means direct access without the necessity of removing any panel, door or similar obstruction.
- 900.0102 "Air gap" means the unobstructed vertical distance through the free atmosphere between the lowest opening from any pipe or faucet covering water or waste to a tank, plumbing fixture, receptor or other device, and the flood level rim of the receptacle.
- 900.0103 "Alkalinity or Total Alkalinity" means the amount of carbonates or bicarbonate present in water solution as expressed in parts per million (ppm).
- 900.0104 "Approved" means accepted or acceptable under the applicable specifications stated or cited in the regulation or accepted as suitable for the proposed use by the State Building Code.
- 900.0105 "Backwash Rate" means the rate of application of water through a filter during the backwash cycle expressed in U.S. gallons per minute per square foot of effective filter area.
- 900.0106 "Bather" means any person using a public swimming and bathing facility, and adjoining deck or beach area for the purpose of therapy, relaxation, recreation, competitive water sports or events or related activities.
- 900.0107 "Board" means the Louisville and Jefferson County Board of Health.
- 900.0108 "Cabinet" means the Kentucky Cabinet for Health Services.
- 900.0109 "Code" means the Louisville and Jefferson County Board of Health Sanitary Code.
- 900.0110 "Department" means the Division of Environmental Health and Protection or its authorized agents.
- 900.0111 "Design Rate of Flow (design filter rate)" means the flow in a system which is used for design calculation. (The volume of the facility in gallons divided by the number of minutes in the turnover time.)
- 900.0112 "Director" means the Director of Health of the Jefferson County Department of Health or designated representatives.
- 900.0113 "Diving Pool" means a pool designed and intended for use exclusively by divers.

- 900.0114 "Effective Filter Area" means:
- (a) "Permanent Media type" - The effective filter area is the cross-section area of the filter surface that is perpendicular to the flow direction;
 - (b) "Diatomaceous Earth type" - The effective filter area of the septum is that part of the septum which will accept the full thickness of precoat and through which the design filter flow will be maintained during filtration; and
 - (c) "Cartridge Filter type" - The total effective filter area is that cartridge area which is exposed to the direct flow of water. This excludes cartridge ends, seals, supports, and other areas where flow is impaired.
- 900.0115 "Facility" see Public Swimming and Bathing Facility.
- 900.0116 "Filter" means a device that removes solid particles from water as a pump circulates the water through a porous substance (a filter media or element):
- (a) "Permanent Media Filter" means a filter that utilizes a media that can be backwashed and reused;
 - (b) "Diatomaceous Earth Filter" means a filter that utilizes a thin layer of diatomaceous earth as its filter media that must be periodically replaced; and
 - (c) "Cartridge Filter" means a filter that utilizes a porous cartridge as its filter media.
- 900.0117 "Filter Aid" refers to any means used to enhance the efficiency of the filter media. Alum, as used on the bed of a sand filter, is also referred to as a filter aid.
- 900.0118 "Filter Element" means a device within a filter tank designed to entrap solids and conduct water to a manifold, collection header, pipe, or similar conduit. Filter elements usually consist of a septum and septum support:
- (a) "Permanent Filter Media" means finely graded material (such as sand, anthracite, etc.) which removes suspended filterable particles from the water.
 - (b) "Non permanent filter media" means any type of finely graded media used to coat a septum type filter usually diatomaceous earth, processed perlite or similar material for the purpose of removing fine particulates from the water.
- 900.0119 "Filtration Rate" means the rate of water flow through a filter while in operation, expressed in U.S. gallons per minute per square foot of effective filter area.

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- 900.0120 "Flow Balance Valve" means a device to regulate the effluent from the skimmer housing of two or more surface skimmers and/or the main outlet.
- 900.0121 "Friction Loss" means the pressure drop expressed in feet of water caused by liquid flowing through the piping, fittings, and equipment.
- 900.0122 "Head Loss" means the total pressure drop in psi or feet of head between the inlet and the outlet of a component.
- 900.0123 "Hydrojets" means a fitting which blends air and water creating a high velocity, turbulent stream of air enriched water.
- 900.0124 "In the Pool" means when any part of the bather is in contact with the water contained within the pool structure and does not include when the bather is on the deck.
- 900.0125 "Indirect Waste Piping" means piping that does not connect directly with the drainage system, but conveys liquid wastes by discharging into a plumbing fixture, interceptor, or receptacle which is directly connected to the drainage system.
- 900.0126 "Inlet Fitting" means a fitting or fixture through which filtered water enters a pool or spa.
- 900.0127 "Lifeguard I" refers to a person who has met all of the requirements as set out in Chapter 901 of the code, and possesses a valid certificate issued by the Board.
- 900.0128 "Lifeguard II" refers to a person who has met all of the requirements as set out in Chapter 901 of the code and possesses a valid certificate issued by the Board.
- 900.0129 "Main Outlet" means the outlet fitting(s) at the bottom of a facility through which water passes to a recirculating pump. It is often referred to as a "main drain".
- 900.0130 "National Sanitation Foundation (NSF)" is a nationally recognized testing laboratory which publishes a list of manufacturers' swimming pool equipment that is approved for commercial installation. NSF is based at 3475 Plymouth Road, P.O. Box 1468, Ann Arbor, MI 48106.
- 900.0131 "On Duty" means performing the duties of water safety personnel within the boundaries of the swimming pool deck.
- 900.0132 "Open" means when any of the following condition exists:
1. There are more than five bathers "in the pool"; or
 2. Unlocked access to the facility is provided.
- 900.0133 "Operator" means any person who is delegated or exercises responsibility for the proper operation and maintenance of the facility.
- 900.0134 "Patron Load" means the maximum number of bathers (as defined in this Code) which may use the swimming and bathing facility.

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- 900.0135 "Perimeter Overflow System" means a channel at normal water level which normally extends completely around the pool perimeter. Also, known as an overflow or scum gutter.
- 900.0136 "Person" means any individual, firm association, club, organization, partnership, business trust, corporation, company, or any state or local governmental agency.
- 900.0137 "Placard" refers to the printed sign of swimming pool rules as set out in this code under section 900.1702. Lettering for this sign shall be at least 1/2 inch in height.
- 900.0138 "Pool water" means water that is within the confines of the swimming pool structure and does not mean water in the air over the pool or water on the deck.
- 900.0139 "Precoat" means the layer of diatomaceous earth deposited on the filter septa at the start of a filter run with diatomite filters.
- 900.0140 "Public Swimming and Bathing Facility" or "facility" means any natural or artificial body or basin of water which is modified, improved, constructed, or installed for the purpose of public swimming or bathing under the control of any person and includes, but is not limited to the following:
- (a) Beaches;
 - (b) Swimming pools, wading pools, wave pools;
 - (c) Competition swimming pools and diving pools;
 - (d) Water slides and spray pools; and
 - (e) Spas, therapeutic pools, hydrotherapy pools, and whirlpools
- It includes those used by communities, subdivisions, apartment complexes, condominiums, clubs, camps, schools, institutions, parks, mobile home parks, hotels, recreational areas, etc.
- It does not include facilities at single family residences intended only for the use of the owner or guests.
- 900.0141 "Pump Discharge Pressure" means the actual gauge reading measured in psi taken at the discharge outlet of a pump.
- 900.0142 "Qualified Attendant" refers to a person who has met all of the requirements as set out in Chapter 901 of the code and possesses a valid qualified attendant certificate issued by the Board.
- 900.0143 "Recirculation System" means the interconnected system traversed by the recirculated water from the pool until it is returned to the pool.
- 900.0144 "Residual Chlorine" shall mean the amount of measurable chlorine remaining in water following chlorination and is composed of the following components:

- (a) Free available residual chlorine shall mean the amount of chlorine which is available to inactivate microorganisms and which has not reacted with ammonia, nitrogenous material and other material in swimming pool water;
 - (b) Combined residual chlorine (also called "chloramine") shall mean the amount of chlorine which has reacted and combined with ammonia and other nitrogenous material to form chloro-ammonia compounds;
 - (c) Total residual chlorine shall mean the arithmetic sum of free available residual chlorine and combined residual chlorine;
 - (d) The word "disinfectant" may be substituted for "chlorine" in the above.
- 900.0145 "Septum" means that part of the filter element consisting of cloth, or closely woven fabric or other porous material on which the filter cake is deposited.
- 900.0146 "Spa" shall mean a special facility designed for recreational and therapeutic use and which is not drained, cleaned, or refilled after each individual use. It may include, but not be limited to, units designed for hydrojet circulation, hot water, cold water, mineral bath, air induction bubbles, or any combination thereof. Common terminology for a spa includes, but is not limited to, "therapeutic pool", "hydrotherapy pool", "whirlpool", "hot spa".
- 900.0147 "Standard Methods" means the latest edition of "Standard Methods for the Examination of Water and Wastewater" prepared and published by the American Public Health Association, the American Water Works Association, and the Water Pollution Control Federation.
- 900.0148 "Spray Pool" means an artificially constructed area over which water is sprayed but is not allowed to pool. Sprayed water flows to waste and is not recirculated.
- 900.0149 "Static Suction Lift" means the vertical distance in feet from the center line of the pump impeller to the level of water in the pool.
- 900.0150 "Strainer" means a device used to remove hair, lint, leaves, or other coarse material on the suction side of a pump.
- 900.0151 "Suction Piping" means that portion of the circulation piping located between the facility structure and the inlet side of the pump and usually includes the following: main outlet piping, skimmer/gutter piping, vacuum piping, and surge tank.
- 900.0152 "Superchlorinate" means the addition of a sufficient amount of chlorine to raise the chlorine level to 5 to 10 parts per million (ppm) to destroy algae or to reach the breakpoint for the reduction of chloramines.

- 900.0153 "Surface Skimmer" means a device designed to continuously remove surface film and water (and return it through the filter) as part of the recirculation system, usually incorporating a self-adjusting floating weir, strainer basket, a collection tank, and an equalizer line to prevent airlock of the pump. It is sometimes referred to as a "recirculating overflow", a "mechanical" or an "automatic skimmer".
- 900.0154 "Therapy Pool" means a swimming pool which is designed specifically for the use of persons who are physically disabled and/or impaired, and is equipped with devices, appliances, ramps and other means of assisted access to the pool.
- 900.0155 "Total Dynamic Head" means the arithmetical difference between the total discharge head and total suction head (a vacuum reading is considered a negative pressure). This value is used to develop the published performance curve.
- 900.0156 "Total Discharge Head" means the value in feet of a column of water that a pump will raise above the center of its discharge point.
- 900.0157 "Trimmer Valve" means a flow adjusting device which is used to proportion flow among multiple skimmers on a single line.
- 900.0158 "Turnover Time" means the time in hours or minutes, required for the circulation system to filter and recirculate a volume of water equal to the facility volume.
- 900.0159 "Vacuum Piping" means the piping from the suction side of a pump connected to a vacuum fitting located at the facility and below the water level to which underwater cleaning equipment may be attached.
- 900.0160 "Velocity" means a measurement of the motion of liquids expressed in feet per second.
- 900.0161 "Wading Pool" means a pool in which the maximum depth is less than 24 inches.
- 900.0162 "Water Safety Personnel" shall collectively refer to Lifeguard I, Lifeguard II, and Qualified Attendants.
- 900.0163 "Water Slide" means a slide which consists of one or more flumes, a plunge pool, and a reservoir, where water is pumped to the top of the slide and allowed to flow down the flume to the plunge pool.
- 900.0164 "Wave Pool " means a swimming pool designed for the purpose of producing wave action in the water.
- 900.0165 "Whirlpool" shall mean a special facility designed for recreational and therapeutic use, and which is not drained, cleaned, or refilled after each individual use. It may include, but not be limited to, units designed for hydrojet circulation, hot water, cold water, mineral bath, air induction bubbles, or any combination thereof. Common terminology for a whirlpool includes, but is not limited to, "therapeutic pool", hydrotherapy pool, "spa", "hot spa".
- 900.02 General Requirements

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- 900.0201 A copy of this Swimming Pool Code must be kept on the premises of all facilities.
- 900.0202 No facility shall be operated after the effective date of this regulation unless it complies with the minimum requirements provided herein. Facilities constructed prior to the effective date of this regulation need not comply with the current requirements relating to design and construction but must meet the requirements in effect at the time of approval. Such facilities may continue in use provided the operation complies with the sanitary and safety requirements herein. Whenever existing equipment, components, piping, or fittings involved in the facility water treatment system are replaced to effect repairs, such replacement of equipment, components, piping, or fittings shall meet the requirement of this regulation. Whenever such replacement occurs, it shall be the owner's or operator's responsibility to notify the department for approval as to what is to be replaced and what will be used for replacement.
- 900.0203 Every facility shall be under the close supervision of a trained and competent operator. Such operator shall be familiar with the equipment of the pool and tests necessary for the operation of the pool and shall be responsible for all sanitary measures prescribed in this regulation.
- 900.0204 The facility area including sand and grassy areas shall be kept clean and free of refuse and debris.
- 900.0205 Visible dirt, scum, or floating matter in the pool shall be removed every 24 hours or more frequently as needed.
- 900.0206 All facilities shall provide testing equipment maintained with fresh reagents and consist of at least the following:
- (a) A DPD (Diethyl-P-Phenylene Diamine) colorimetric test kit for chlorine or bromine shall be provided, which will determine free disinfectant residual, combined disinfectant residual, total alkalinity and pH of the facility water. Test kits using orthotolidine reagents are not acceptable;
 - (b) There shall be at least 5 chlorine or bromine standards and at least 5 pH color standards. At a minimum, chlorine standards shall range from 0.1 ppm to 3.0 ppm, bromine standards shall range from 0.2 ppm to 6.5 ppm, and pH standards shall range from 6.8 to 8.4. All tests shall be accurate to within 0.2 units; and
 - (c) Facilities using cyanurates for stabilization shall have a test kit to measure the cyanuric acid concentration. The cyanic acid EST kit shall permit readings of up to 100 ppm.
- 900.0207 Notification of changes in facility ownership shall be submitted to the Department within 30 days of such change in ownership.
- 900.0208 All suits and towels furnished by the management to the swimmers shall be thoroughly washed and sanitized after each use. Clean towels and suits shall be stored away from soiled towels and suits.

- 900.0209 No person may be in the pool alone. No more than five persons may be in the pool at the same time without water safety personnel on duty. When without water safety personnel; the facility must have locked access and a method to assure that persons 16 years of age or under are not allowed to enter the facility area without a responsible person 17 years of age or older. This provision shall be enforceable against both the individual and the facility.
- 900.03 Submission of Plans and Specifications for Approval
- 900.0301 All public swimming pools must be constructed in accordance with the Kentucky State Building Code and this regulation. In the event of conflict, the more stringent requirement shall apply.
- 900.0302 No person shall begin construction or construct, or substantially change, alter or reconstruct any public swimming pool until plans and specifications, with such supporting design data as may be required for the proper review of the plans, have first been submitted in quintuplicate to this Department and have been approved in writing. All construction shall be in accordance with the approved plans. The front page of the plans shall contain the name of the swimming pool, location by city and county, name of its owner, and name of the engineer, architect or person preparing the plans. Plans submitted by an engineer or architect shall bear their seal. Plans and specifications on public swimming pools constructed by the state or political subdivision thereof shall be prepared by an engineer or architect registered in the State of Kentucky and comply with provisions of KRS 322.360. Plans and specifications, reports, and other information shall be submitted in such form and contents as may be specified by the Department and shall be submitted at least 30 days prior to the date on which action is requested by the Department.
- 900.0303 The plans shall be drawn to scale and accompanied by the proper specifications so as to permit a comprehensive engineering review of the plans, including the piping and hydraulic details, and shall include:
- (a) A site plan of the general area with a plan and sectional view of the swimming pool complex with all necessary dimensions.
 - (b) A piping diagram showing all appurtenances including treatment facilities in sufficient detail, as well as pertinent elevation data, to permit a hydraulic analysis of the system.
 - (c) The specifications shall contain details on all treatment equipment, including catalog identifications of pumps, chlorinators, chemical feeders, filters, strainers, lights, skimmers, inlet and outlet fittings, diving boards, safety equipment and related equipment.
 - (d) A statement of the maximum number of patrons allowed to use the pool at any given time. This statement should be placed on the plans and posted at the entrance of the pool site.
 - (e) A drawing of the equipment room showing placement of the equipment.

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- 900.0304 An approved set of plans shall be kept at the job site during construction for inspection.
- 900.0305 Upon completion of piping and prior to such piping being covered with dirt and/or concrete, the owner or builder shall contact a plumbing inspector and designated representative from the Department for inspection and approval.
- 900.0306 No change in location, construction, design, materials or equipment shall be made to approved plans or the facility without the written approval of the Department and all other agencies having jurisdiction.
- 900.0307 Owners of pools constructed without bathhouse facilities shall submit a signed statement to the Department declaring the pool shall be used only by the occupants of the establishment and shall not be opened to the general public.
- 900.0308 Upon completion of the swimming pool, a notarized statement certifying completion of the pool in accordance with the approved plans and specifications shall be submitted to the Department by the engineer, architect, or person who prepared the plans.
- 900.0309 Unless construction is begun within 1 year from the date of approval, the approval shall expire. Extension of approval may be granted upon written request to the Department.
- 900.04 Sanitation, Sewer and Waste Connections
- 900.0401 Wastewater Disposal. All wastewater at a public swimming and bathing facility shall be disposed of at a facility in a manner approved by the Department.
- (a) Sewage and/or wastewater generated from the operation of a public swimming and bathing facility shall discharge to a sanitary sewer. Where a sanitary sewer is not available, such sewage and/or wastewater shall be discharged to a system which complies with the Department's Onsite Sewage Disposal Systems Regulations. When sanitary sewers become available, the onsite system must be abandoned, and all wastewater must be discharged into said sewer.
 - (b) Outdoor deck or surface area drainage water may be discharged directly to storm sewers, natural drainage areas, or to the ground surface without additional treatment and shall not be connected to a sanitary sewer. Such drainage shall not result in nuisance conditions, which create an offensive odor, or which produce a stagnant wet area, or which create an environment for the breeding of insects.
 - (c) Wash or backwash water from sand filters shall be discharged to sanitary sewers. If sewers are unavailable, backwash water shall be discharged to a system approved by the Department.
 - (d) Diatomaceous earth filter wash or backwash water shall be discharged as described in (a) or (c) above.

- (e) Any pool or gutter drain, or filter backwash line, or overflows from the recirculation system when discharged to the sewer system, storm drain or other approved natural drainage course shall discharge through a minimum 6 inch air gap so as to preclude possibility of backup of sewage or waste into the pool piping system.

900.0402 Refuse Disposal. All refuse at a public swimming and bathing facility shall be disposed of in a manner approved by the Kentucky Natural Resources and Environmental Protection Cabinet.

- (a) Refuse containers of approved design and construction, with tight fitting lids, shall be provided in adequate numbers at readily accessible locations at all facilities. Such containers shall be mounted upon an approved rack or holder in all outdoor locations, and shall be maintained so as to prevent the creation of a safety hazard or environmental nuisance.
- (b) Refuse containers in rest rooms or bather preparation and dressing areas may be of open-top or swing-lid design, except in women's rest rooms where swing-lid or other covered top containers shall be required.
- (c) Bulk refuse and storage areas shall be designed, constructed, drained, and maintained so as to prevent rodent and vermin harborage, breeding sites for insects, or unsanitary conditions. Bulk refuse containers shall be placed upon an impervious surface within a suitable enclosure to prevent access by animals.
- (d) When the facility is not in use after seasonal operation or for any other reason, the facility shall not be allowed to accumulate debris, give off objectional odors, become a breeding site for insects, or create any other nuisance situation.

900.05 Design Detail and Structural Stability

900.0501 All pools shall be designed and constructed to withstand all anticipated loadings for both full and empty conditions. Hydrostatic relief valves shall not be permitted inside the pool after construction is complete.

900.0502 No limits are specified for length and width of swimming pools. Consideration shall be given to shape from the standpoint of safety and the need to facilitate supervision of bathers using the pool.

900.0503 For the purpose of computing patron loading, each facility shall provide 15 square feet of surface area for each bather expected at the time of maximum load (example: 1,500 sq.ft./ 15 sq.ft. = 100 bathers).

900.0504 300 square feet of pool area shall be reserved around each diving board or diving platform and this area shall not be included in computing patron loading.

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- 900.0505 Provisions shall be made for complete, continuous circulation of water through all parts of the pool. All swimming pools shall have a closed loop recirculation system with necessary treatment and filtration equipment as required by this regulation. The shape of any pool shall be such that the circulation of pool water and control of swimmers' safety are not impaired. The minimum depth of water in the pool shall be 3 feet for all pools excluding wading facilities and therapeutic pools. Wading facilities for children and therapeutic pools shall be physically separated from the pool.. Separate filtration systems for such facilities are required.
- 900.0506 The hydrojets for a spa shall be controlled by an on-off switch with a 15 minute timer located at least 5 feet away from the spa.
- 900.0507 The maximum depth at the shallow end of the pool shall not exceed 3 feet and 6 inches except competitive or special purpose pools.
- 900.0508 Where diving facilities are provided, the design and layout of the facilities and associated unobstructed water depths shall be in accordance with State Building Code requirements for swimming and diving pools. In addition, at least 15 feet of free and unobstructed headroom shall be provided above diving boards. Horizontal separation of 10 feet shall be provided between diving boards measured from inside edge to inside edge of boards. The horizontal distance from side walls to edge of diving board shall be 10 feet except this may be reduced to 8 feet for surface boards. The horizontal distance from the end of each diving board to the opposite pool wall shall be a minimum of 29 feet for a 1.0 meter board and 34 feet for a 3.0 meter board.
- 900.0509 The water surrounding any floats where diving is permitted shall be at least 9 1/2 feet deep.
- 900.06 Materials of Construction
- 900.0601 Swimming pools and all appurtenances thereto shall be constructed of materials which are inert, nontoxic, impervious, permanent, and enduring; which can withstand the design stresses; which will provide a tight tank with a smooth and easily cleaned surface, or to which a smooth, easily cleaned surface finish can be applied. Sand or earth bottoms are not permitted in pool construction. Pool finish, including bottom and sides, must be of white or light colored material, non-toxic, with a smooth finished surface without cracks or joints bonded to the supporting members, excluding structural expansion joints.
- 900.07 Walls, Slopes, and Markings
- 900.0701 Wall slopes shall not be more than 1 unit horizontal for 5 units vertical to a depth of 2 ft. 9 in. from the top.
- 900.0702 The slope of the floor of any portion of the pool having water depth of less than 5 feet shall not be more than 1 foot in 12 feet and such slope shall be uniform. In portions with a depth greater than 5 feet, the slope shall not exceed 1 foot in 3 feet.

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- 900.0703 Depth markings shall be placed on the face of the deck and on the face of the vertical pool wall at the following locations:
- (a) At points of maximum and minimum depths;
 - (b) At the points of break between the deep and shallow portions; and
 - (c) At intermediate 2 foot increments of depth, spaced at not more than 25 foot intervals
- 900.0704 Depth markers shall be clearly visible in arabic numerals of 4 inches minimum height and a color contrasting with the background.
- 900.0705 Lane lines or other markings on the bottom of the pool shall be a minimum of 10 inches in width and be of a contrasting color.
- 900.0706 A safety line supplemented by buoys, shall be provided across the section of pools over 60 inches in depth where the break between the shallow and deep water occurs. This line shall be placed at least 1 foot toward the shallow end from where the break occurs. Pools set up temporarily for lap swimming can remove the safety line during the lap swimming and then replace the safety line after activity is completed.
- 900.08 Ladders, Steps, Decks, Walkways, Diving Equipment and Enclosures
- 900.0801 Doors and gates to the facility enclosure shall be kept closed and locked when the facility is closed.
- 900.0802 Ladders or steps shall be provided at the shallow and deep ends of the pool if the water depth is over 2 feet. If the pool is over 30 feet wide, such steps or ladders shall be installed on each side.
- 900.0803 Where steps, stepholes, or ladders are provided within the pool, there shall be a handrail at the top of both sides thereof, extending over the coping or edge of the deck.
- 900.0804 Steps leading into pools shall be of non-slip design, have a minimum tread of 12 inches and a maximum rise or height of 10 inches. There shall be no abrupt drop or submerged projections into the pool, unless guarded by handrails. The leading edge of all steps shall be marked in a color contrasting with the remainder of the step. The color contrasting marking shall be at least 6 inches in width.
- 900.0805 Pool ladders shall:
- (a) Be corrosion-resistant;
 - (b) Be equipped with non-slip treads;
 - (c) Provide a handhold;
 - (d) Be rigidly installed; and
 - (e) Have a clearance of 3 to 5 inches between any ladder and the pool wall.
- 900.0806 Inserted steps or stepholes shall:
- (a) Be designed so that they may be cleaned readily;

- (b) Drain into the pool to prevent the accumulation of dirt thereon; and
 - (c) Have a minimum tread of 5 inches and a minimum width of 14 inches.
- 900.0807 Supports, platforms, and steps for diving boards shall:
- (a) Be of sufficient structural strength to safely carry the maximum anticipated loads;
 - (b) Be of corrosion-resistant material;
 - (c) Be easily cleanable; and
 - (d) Be of non-slip design.
- 900.0808 Handrails shall be provided at all steps and ladders leading to diving boards more than 4 feet above the water. Platforms and diving boards which are over 4 feet high shall be protected with guard railings.
- 900.0809 A deck at least 5 feet wide for indoor pools and 8 feet wide for outdoor pools shall extend completely around the pool. The deck shall:
- (a) Be sloped 1/4 inch per foot away from the pool;
 - (b) Have a non-slip surface;
 - (c) Have 1 drain for each 400 square feet of deck area; and
 - (d) Have drains not over 25 feet apart which discharge to the wastewater systems;
 - (e) Be rinsed as necessary to be kept clean; and
 - (f) Be disinfected weekly (indoor decks only).
- 900.0810 The swimming pool area must be enclosed by a fence or other suitable barrier with a minimum height of 4 feet. Openings in the fence shall be no larger than 4 inches. All gates shall be self closing and self latching. The wading pool must not be located in close proximity to the diving area and must be separated from the main pool by a fence. Entrances shall be so located as to be locked when no water safety personnel are on duty.
- 900.09 Lighting, Ventilation and Electrical Requirements; Safety Aspects
- 900.0901 While patrons are in the pool or on the deck, lighting shall be provided at a minimum of 2 watts per square foot of pool area with 2 foot candles of illumination. Such lights shall be spaced to provide illumination so that all portions of the pool and pool bottom may be readily seen without glare.
- 900.0902 All electrical wiring shall conform with the local electrical codes and ordinances.

- 900.0903 When underwater lights are utilized, each underwater light shall be individually grounded by means of a screwed or bolted connection to the metal junction box from which the branch circuit to the individual light proceeds. Such junction boxes shall not be located in the pool deck or shall not be located closer than 8 feet from the inside of the pool.
- 900.0904 No overhead electrical wiring shall pass within 20 feet of the pool enclosure.
- 900.0905 Only that electrical equipment necessary for the operation and maintenance of the pool shall be permitted on the pool deck. All equipment, portable or otherwise, at the pool requiring an electrical outlet for power, shall be in compliance with the local electrical codes and ordinances.
- 900.0906 Repairs to any electrical system shall be made by a licensed electrician. Such repairs shall be made in accordance with the local electrical codes and ordinances and shall be approved by a certified electrical inspector.
- 900.10 Bathhouse and Appurtenances, Including Plumbing Fixtures
- 900.1001 All bathhouses, including equipment rooms, locker rooms, dressing rooms, shower rooms and toilet spaces shall be adequately drained, lighted and properly ventilated either by natural or mechanical means, and kept in clean, uncluttered condition.
- 900.1002 Bathhouses shall open to the shallow end of the pool and be divided into designated areas for men and women. The entrance and exits shall be screened to break the line of sight.
- 900.1003 Floors of bathhouse and equipment rooms shall be of smooth finished material with non-slip surface and sloped to drain with a minimum of 1/4 inch per foot with no low spots. Junctions between walls and floors shall be covered. Floors of dressing room, shower stalls and other interior rooms shall be cleaned and disinfected daily.
- 900.1004 Walls and partitions shall be of smooth, easily cleanable material, free from cracks or open joints.
- 900.1005 The requirement relating to bathhouse, dressing rooms, toilet facilities and showers may be waived when such facilities are conveniently available to pool patrons within 150 feet from the pool.
- 900.1006 Toilet fixtures and shower facilities shall be provided in accordance with the State Plumbing Code. Toilet rooms and fixtures shall be kept clean, free of dirt and debris, and in good repair. Soap dispensers shall be filled and operable. Adequate supplies of toilet tissue, disposable hand drying towels, roll type cloth towels, or suitable hand drying devices shall be maintained.
- 900.1007 Fixture schedules shall be increased for pools at schools or similar locations where patron loads may reach peaks due to schedules of use. Pools used by groups or classes on a regular time schedule of 1 hour or less shall have 1 shower for each six swimmers, or 1 shower for each 10 swimmers if the period is 2 hours.

- 900.1008 All plumbing shall comply with the State Plumbing Code. A plumbing riser diagram shall be submitted for review and approval with the plans.
- 900.1009 Satisfactorily designed and located shower facilities, including warm water and soap, shall be provided for each sex. Showers shall be supplied with water at a minimum temperature of at least 90°F and a maximum temperature of 120°F at a rate of at least 3 gallons per minute. Temperature limiting devices such as antiscald devices, thermostatic regulators, or mixing valves shall be installed to prevent scalding of patrons.
- 900.11 Recirculation System
- 900.1101 Recirculation. A recirculation system, consisting of pumps, piping, filters, water conditioning, and disinfection equipment and other accessory equipment shall be of sufficient size to clarify and disinfect the pool water and maintain the required turnover rate.
- (a) The recirculation system shall operate continuously 24 hours per day except when the facility is closed for repairs or at the end of swimming season.
 - (b) All recirculation equipment shall meet the applicable requirements of Standard Fifty of the National Sanitation Foundation (NSF) and bear their seal.
 - (c) All piping, valving, fittings, etc., shall be labeled, marked or color coded to denote its purpose within the facility water treatment system.
 - (d) After any shutdown, the clarity, pH and chlorine residual values shall be established before swimmers are allowed to use the pool.
 - (e) The recirculation system shall be so designed as to facilitate drainage and cleaning. Clean outs shall be properly located to enable obstruction, accumulation, etc., to be readily removed.
- 900.1102 Facility Turnover Rate.
- (a) Type of facility and turnover rate required:

Diving Pools	8 hours or less
Wading Pools, Spas	30 minutes or less
Water Slides & Therapy Pools	2 hours or less
Other Pools	6 hours or less

- (b) Higher turnover rates may be necessary in pools with skimmers so that each skimmer will have a minimum flow rate of 30 gallons per minute.

900.1103

Perimeter Overflow System. Swimming and bathing facilities other than pools designed and used exclusively for diving, having a water surface area greater than 1,600 square feet shall have a continuous perimeter overflow system. Swimming and bathing facilities less than 1,600 square feet in area and 30 feet or less in width may use surface skimmers. Prefabricated perimeter overflow system shall be approved on a case by case basis. A perimeter overflow system shall:

- (a) Extend completely around the facility;
- (b) Permit inspection, cleaning, and repair;
- (c) Be designed so that no ponding or retention of water occurs within any portion of the system;
- (d) Be designed to prevent the entrapment of bather's arms, legs, and feet;
- (e) Have an overflow lip which is rounded, provides a good handhold, and is level within 0.2 inch;
- (f) Provide for the rapid removal of all water and debris skimmed from the pool's surface;
- (g) Be capable of removing 100% of the recirculated water and returning it to the filter in accordance with the design turnover flow rate. When the surge volume is to be stored in the perimeter overflow system, the system shall have the capacity to carry 100% of the design flow while maintaining the surge storage capacity;
- (h) Discharge to the recirculation system through a properly designed surge tank;
- (I) Be provided with sufficient drains and piping which will not allow the overflow channel to become "flooded" when the facility is in normal use; and
- (j) Have drain gratings with surface area at least equal to 2 times the area of the outlet pipe.
- (k) All facilities which have perimeter overflow systems shall be provided with a net surge capacity of at least 1 gallon per square foot of water surface area. Surge capacity shall be provided either in a vacuum filter tank, in the perimeter overflow system, in a surge tank, or a combination of these. Valving shall be provided where necessary, to automatically retain water during periods of facility use and to discharge water during periods of non-use such that the proper operating level in the facility is maintained at all times.

900.1104

Skimmers. Skimmers are permitted on facilities whose width does not exceed 30 feet and whose water surface is 1,600 square feet or less. Where skimmers are provided, the following criteria shall be met:

- (a) At least 1 skimmer shall be provided for each 500 square feet of water surface area of fraction thereof; with a minimum of 2 skimmers provided, except for small spas, or wading pools with a water surface area of 144 square feet or less, where a minimum of 1 skimmer shall be required;
- (b) Skimmers shall be so located as to minimize interference with other skimmers and return inlets;
- (c) The rate of flow per skimmer shall not be less than 30 gallons per minute, and all skimmers shall be capable of handling at least 80% of required flowrate;
- (d) The surface skimmer piping shall have both a trimmer valve and a separate valve in the equipment room to permit adjustment of flow;
- (e) Each skimmer shall be provided with an equalizer line at least 1 1/2 inches in diameter, located at least 1 foot below the lowest overflow level of the skimmer, and be provided with a self-closing valve;
- (f) A basket shall be provided which can be removed without the use of tools and through which all overflow water must pass. Strainer baskets shall be cleaned daily;
- (g) Skimmer equipped swimming and diving pools, wave pools, water slide plunge pools, and large spas shall have a smoothly contoured handhold consisting of bull-nosed coping not over 2 1/2 inches thick for the outer 2 inches or an equivalent approved handhold. The handhold shall be no more than 9 inches above the normal water line; and
- (h) Each skimmer shall be equipped with a skimmer weir which is automatically adjustable and shall operate freely with continuous action to variations in water level.

900.1105 Inlets. Inlets shall be located and permanently directed to produce uniform circulation of water and facilitate a uniform disinfectant residual throughout the entire facility without the existence of dead spots. Inlets in facilities with skimmers shall be 12 inches below the mid-point on the skimmer throat. Inlets in facilities with a prefabricated perimeter overflow system shall be 8 inches or more below the lip of the gutter.

- (a) Each inlet shall be flow adjustable. The velocity of flow through any inlet orifice shall be in the range of 5 to 20 feet per second. In facilities equipped with skimmers, it shall be in the range of 10 to 20 feet per second. The rate of flow through the inlets shall be checked routinely to insure uniform distribution of water return. Inlets shall be placed completely around the pool, each serving a linear distance of not more than 15 feet on center. The pipe serving the inlets shall form a loop completely around the pool; and if inlets are placed on the bottom of the pool, the number of inlets shall be determined by dividing the perimeter of the pool by 15 feet, any fraction thereof would represent one additional inlet.
- (b) Small spas and wading pools designed for 6 bathers or less shall have at least 2 inlets placed to achieve the best possible circulation.
- (c) At least 1 inlet shall be located in each recessed stairwell or other space where water circulation might be impaired.
- (d) A continuous flume, tubing or other arrangement near the pool water surface which serves as inlet supplying piping and employs multiple "jet" inlets is approved provided the individual components of the system meet the requirements of this section.

900.1106

Outlets. All facilities shall be provided with a main outlet at the deepest point to permit the facility to be completely and easily drained. Openings must be covered by a proper grating which is not removable by bathers without the use of tools, and which cannot entrap their fingers. Openings of the grating shall be at least 4 times the area of the main outlet pipe and have sufficient area so that the maximum velocity of the water passing through the grate does not exceed 1 1/2 ft. per second at maximum flow. The maximum width of grate openings shall be 1/4 inch.

- (a) Multiple outlets shall be provided in all facilities where the width of the facility is more than 30 ft. In such cases, outlets shall be spaced not more than 30 ft. apart, nor more than 15 ft. from side walls and shall be connected in parallel, not series. All spas and wading pools shall have at least 2 outlets.
- (b) Main outlet piping shall be sized for removal of the water through it at a rate of at least 100% of design recirculation flow rate. The main outlet shall function as a part of the recirculation system and shall be valved to permit adjustment of flow through it.

900.1107

Piping. All piping shall be designed to reduce friction losses to a minimum and to carry the required quantity of water at a maximum velocity not to exceed 5 feet per second in suction piping, and 10 feet per second in pressure piping.

- (a) All piping shall be properly valved to allow for adjustment in flow.

- (b) All facilities shall be equipped for the addition of makeup water from a potable water source in accordance with the following. Water shall discharge through an air gap of at least 6 inches to the facility, to a surge tank or a vacuum filter tank. When makeup water is added directly to the facility, the fillspout shall be located under or immediately adjacent to a ladder rail, grab rail, or lifeguard platform. When added to a surge tank or vacuum filter tank, the 6 inch air gap shall be measured above the top lip of the tank; and through piping with vacuum breaker, antisiphon or other protection as specified by the Kentucky State Plumbing Code.
- (c) The fillspout in the above section (b) shall be covered with a material to eliminate the sharp and/or hard edges to prevent possible injury.

900.1108 Pumps. The pump shall be of sufficient capacity to provide a minimum backwash rate of 15 gallons per square foot of filter area per minute in sand filter system. Pump or pumps shall be of sufficient capacity to supply the recirculation rate of flow at a total dynamic head of at least:

- (a) 50 feet for vacuum filters;
- (b) 70 feet for pressure sand or cartridge filters; and
- (c) 80 feet for pressure diatomaceous earth filters.

If the pump is located at an elevation higher than the facility water line, it shall be self-priming.

900.1109 Hair and Lint Strainer. The recirculation system shall include a strainer to prevent hair, lint, etc., from reaching the pump and filters. Strainers shall be corrosion-resistant with openings not more than 1/8 inch in size.

900.1110 Flow Meter. A flow meter shall be located so that the rate of recirculation may be easily read. Flow meters shall be installed on a straight length of pipe at a distance of at least 10 pipe diameters downstream, and 5 pipe diameters upstream from any valve, elbow, or other source of turbulence.

900.1111 Vacuum Cleaning System. A vacuum cleaning system capable of reaching all parts of the facility bottom shall be provided for all facilities except beaches, and small indoor spas designed for 6 or less bathers;

- (a) A vacuum system may be provided which utilizes the attachment of a vacuum hose to the suction piping through the skimmer. Vacuumed water must pass through the skimmer's strainer basket;
- (b) When the vacuum cleaning system is an integral part of the facility recirculation system, a wall fitting(s) shall be provided 8 to 12 inches below the normal water level and be provided with a cap or plug. Piping from this connection shall be to the suction side of the pump ahead of the hair and lint strainer, shall be at least 1 1/2 inches in diameter and be equipped with a control valve near the junction with the pump suction line. The size of the vacuum hose shall be at least 1 1/2 inches in diameter and be of sufficient strength to prevent collapsing and allow adequate flow for proper cleaning;

- (c) Automatic vacuum systems may be used to supplement the built in vacuum system provided they are capable of removing all debris from the facility bottom;
- (d) Vacuum systems are to be used only when the facility is closed to bathers.

900.1112

Water Heaters. Water heaters shall be installed at all indoor swimming and bathing facilities. Where a water heater is installed, the following shall apply:

- (a) A water heater piping system shall be equipped with a bypass. A valve shall be provided at the bypass on the influent and effluent heater piping. The influent and effluent heater piping shall be metallic in accordance with heater manufacturer's recommendations.
- (b) A heating coil, pipe, or steam hose shall not be installed in any swimming and bathing facility;
- (c) Thermometers shall be provided in the piping to check the temperature of the water returning from the facility and the temperature of the blended water returning to the facility;
- (d) An automatic temperature limiting device with thermostatic control, which will prevent the introduction of water in excess of 100°F to swimming and diving pools and/or in excess of 104°F for spas shall be provided. The device shall be accessible only to the facility operator;
- (e) A pressure relief valve in the water heater shall be provided and shall be piped within 6 inches of the floor;
- (f) Venting of gas or other fuel burning water heaters shall be provided in accordance with the applicable State Building Codes;
- (g) Heaters for indoor swimming and diving pools shall be capable of maintaining an overall pool water temperature between 76°F and 84°F;
- (h) Combustion and ventilation air shall be provided for fuel burning water heaters in accordance with manufacturer's recommendations of the State Building Code;
- (i) Heaters for indoor swimming and diving pools shall be sized on a basis of 150 B.T.U.'s/hr. input per square foot of the pool water surface area;
- (j) All heaters shall meet the latest standards of applicable recognized testing agencies.

900.113

Filtration.

- (a) Filters shall be designed so that they may be easily disassembled, with adequate working space above the ground and the filters to allow for the removal and replacement of any part.

- (b) Filters shall comply with the following:
- (1) Pressure filters shall have pressure gauges;
 - (2) Pressure filters shall have an observable free-fall, or a sight glass shall be installed on the backwash discharge line;
 - (3) Pressure filters shall have a manual air-relief valve at the high point;
 - (4) The filter backwash disposal facility shall have sufficient capacity to prevent flooding during the backwash cycle;
 - (5) All filters shall be designed so that they can be completely drained. Filters shall be drained through a 6 inch air gap to a sump or sanitary sewer;
 - (6) Filter media shall meet the manufacturers' filter specifications;
 - (7) Each facility shall have separate filtration and treatment systems;
 - (8) Filter equipment and treatment systems shall operate continuously 24 hours per day except when the facility is closed for repairs or at the end of the swimming season;
 - (9) Individual filters shall be designed with necessary valves and piping to permit isolation of individual filters for repairs while other units are in service;
 - (10) Where vacuum filters are used, a vacuum limit control shall be provided on the pump suction line. The vacuum limit switch shall be set for a maximum vacuum of 18 inches of Mercury;
 - (11) A compound vacuum-pressure gauge shall be installed on the pump suction line. A vacuum gauge may be used for pumps with suction lift. A pressure gauge shall be installed on the pump discharge line adjacent to the pump.
 - (12) Filters shall be backwashed when the design flow rate can no longer be achieved or when specified by the manufacturer, whichever occurs first.
- (c) Rapid sand or gravity filters shall:
- (1) Be designed for a filter rate not to exceed 3 gallons per minute per square foot of bed area at time of maximum head loss with loss with sufficient area to meet the design rate of flow required by the prescribed turnover. Open gravity type filters shall be designed for a filter rate not exceeding 2 gallons per square foot per minute.

- (2) Filtering media shall consist of at least 20 inches of graded, sharp filter sand with an effective size between 0.4 and 0.55 mm and a uniformity coefficient not exceeding 1.75, supported by at least 10 inches of graded filter gravel. Anthracite with effective size of 0.6 to 0.8 mm with a uniformity coefficient of not greater than 1.8 may be used in lieu of the sand. A reduction in gravel depth or an elimination of gravel may be permitted where equivalent performance and service are demonstrated.
 - (3) At least 12 inches of freeboard shall be provided between the upper surface of the filter media and the lowest portion of the pipes or drains which serve as overflows during the backwashing.
 - (4) The filter system shall be designed with necessary valves and piping to permit:
 - (I) Filtering to pool; and
 - (ii) Individual backwashing of filters to waste at a rate of not less than 15 gallons per minute per square foot of filter area. A backwash rate of 8 gallons per square foot per minute shall be provided for anthracite filters.
 - (5) Each filter shall be provided with an access opening of not less than a standard 11 x 15 inch manhole cover.
- (d) High Rate Sand Filters. The design filtration rate shall be a minimum of 5 gallons per square foot of filter area. The maximum design filtration rate shall be the lesser of 15 gallons per minute per square foot filter area or 75% of the NSF listed filtration rate. The backwash rate shall be 15 gallons per minute per square foot of filter area.
- (e) Diatomaceous Earth Filters.
- (1) The design filtration rate shall not exceed 1 1/2 gallons per minute per square foot of filter area on diatomaceous earth filters, except that the rate of filtration may be increased to 2 gallons per minute per square foot of filter area when continuous feeding of diatomaceous earth is employed;
 - (2) A precoat pot shall be provided on the pump suction line for pressure diatomaceous earth systems.

- (3) The dosage of diatomaceous earth precoat shall be at least 1^{1/2} ounces per square foot of element surface area. Pressure diatomaceous earth filters shall be backwashed when the design flow rate can no longer be achieved or when specified by the filter manufacturer, whichever occurs first. Whenever the recirculation pump stops or is shut off, the filter shall be thoroughly backwashed and the elements shall be precoat before placing the pump back into operation. Vacuum diatomaceous earth filters shall be washed when the design flow rate can no longer be achieved or when specified by the filter manufacturer, whichever occur first;
 - (4) Following the precoating operation, the initial filter effluent shall be either recirculated through the filter until the filter effluent is clear, or the initial filter effluent shall be discharged to waste until properly clarified water is produced;
 - (5) Where equipment is provided for the continuous feeding of diatomaceous earth to the filter influent, such equipment shall have a capacity to feed at least 1 1/2 ounces of this material per square foot of filter area per day;
 - (6) Overflow piping on vacuum diatomaceous earth filters shall be provided on the filter tank to discharge overflow water;
 - (7) All filters shall be equipped for cleaning by one or more of the following methods: backwashing; air-pump assist backwashing; spray wash; water pressure to wash vacuum filter; or agitation.
- (f) Vacuum Sand Filters.
- (1) The design filtration rate shall be 75% of that listed by NSF or 10 gallons per minute per square foot whichever is lesser. The backwash rate shall be at 15 gallons per minute per square foot of filter area; and
 - (2) Overflow piping shall be provided in order to drain overflow water.
- (g) Cartridge Filters.
- (1) Cartridge filters shall not be used on facilities with a capacity larger than 80,000 gallons;
 - (2) Cartridge filters shall only be used on indoor pools;
 - (3) The design filtration rate shall not exceed 0.15 gallons per minute per square foot of filter surface area.
 - (4) Duplicate Cartridges. A clean duplicate set of cartridges shall be maintained at the facility.

- (a) The minimum chemical feed equipment required at any facility shall include a unit for feed of a disinfectant and a unit for feed of a pH control chemical. At facilities with a volume greater than 100,000 gallons, or at facilities utilizing gas chlorine as a disinfectant, a chemical feeder of positive displacement type shall be installed for the purpose of applying chemicals to maintain pH of facility water within the range of 7.2 to 7.8. A solution tank of at least 40 gallons capacity shall be provided. All disinfectant equipment must operate on a continual 24 hour basis.
- (b) Each chemical feed unit shall have a graduated and clearly marked dosage adjustment to provide flows from full capacity to 25% of such capacity. The device shall be capable of continuous delivery within 10% of the dosage at any setting.
- (c) All feeding equipment and piping used to apply chemicals shall be of a type approved by the Department.
- (d) Chlorine.
 - (1) Equipment for supplying chlorine or compounds of chlorine shall be of sufficient capacity so that it is possible to feed the chlorine at the rate of 8 ppm (2.7 lbs./day chlorine gas or its equivalent for each 10,000 gallons of pool volume) for outdoor facilities and a 3 ppm (1 lb./day for chlorine gas or its equivalent for each 10,000 gallons of pool volume) for indoor facilities based on the flow rates specified in Section 900.1102 of this regulation;
 - (2) The use of chlorinated cyanurates shall be prohibited;
 - (3) The equipment for supplying chlorine shall not be controlled by a day-date clock;
 - (4) The injection point for chlorine shall be placed on the discharge side of the pump and downstream of the flow meter;
 - (5) Where positive displacement pumps (hypochlorinators) are used to inject the disinfectant solution into the recirculation line, they shall be of a variable flow type and shall be of sufficient capacity to feed the amount of disinfectant required by Section 900.12 of this regulation. If calcium hypochlorite is used, the concentration of calcium hypochlorite in the solution shall not exceed 5%. The solution container shall have a minimum capacity equal to the volume of solution required per day at the feed rate required in subsection 900.1114(d)(1) of this section. Positive displacement feeders shall be periodically inspected and serviced. Sludge accumulation shall be cleaned periodically from the unit.
 - (6) Erosion type chlorine feeders shall be prohibited.

(e) Gas Chlorinators.

- (1) The chlorine supply and gas feeding equipment shall be housed in a separate, relatively air-tight room away from direct source of heat. The room shall be provided with an exhaust system which takes its suction not more than 8 inches from the floor and discharges out-of-doors in a direction to minimize exposure to toxic fumes. The fan shall run continuously and be capable of producing one air change per minute. Means for introducing a fresh air supply to the enclosure through appropriate openings such as filters, grill openings, etc., at a high point opposite the exhaust fan intake shall be provided. The room shall have a window at least 18 inches square, and shall have artificial lighting. Electrical switches for lighting and ventilation shall be outside and adjacent to the door. Scales for weighing chlorine cylinders in service shall be provided. Automatic changeover chlorinators may be substituted for scales.
- (2) Chlorine cylinders either full or empty shall be anchored, or chained in a vertical position. The valve protection hoods shall be kept in place, except when the cylinders are connected. Chlorine feed devices should be located directly on the tank wherever practical;
- (3) The chlorine feeding device shall be designed so that during interruptions of the flow of the water supply, gas feed is automatically terminated. In addition, the release of chlorine shall be terminated when the recirculation pump is shut off. Where other than facility recirculated water is used, the supply line shall be equipped with an electric shut off valve wired to the recirculation pump and shall be equipped with an approved backflow preventer. Where 2 or more cylinders are in use, an automatic change over valve shall be used;
- (4) Chlorinator vent lines shall be conducted to the out-of-doors similar to the chlorinator room exhaust system;
- (5) The gas chlorinator shall be the solution feed type capable of the delivering chlorine at its maximum rate without releasing chlorine gas to the atmosphere;
- (6) The water supply for the gas feeding equipment shall produce the flow rate and pressure required according to the manufacturer's specifications for proper operation of the equipment;

- (7) A Self-Contained Breathing Apparatus (SCBA) designed for use in a chlorine atmosphere and of a type approved by the Mine Safety and Health Administration (MSHA) and/or the National Institute for Occupational Safety and Health (NIOSH), shall be provided. This SCBA shall have sufficient capacity for the purpose intended. In addition, a written respirator program shall be provided and employees shall be trained in the use and maintenance of such equipment to insure operability and safety. The SCBA shall be kept in a closed cabinet, accessible without a key, and located outside the chlorine room. Installation of chlorinator equipment, and operation thereof, shall be carried on by and under the supervision of personnel experienced with installation and operation of such equipment. A chlorine valve shut off wrench shall be kept on the cylinder valve stem that is in use; and
 - (8) Chlorinator, gas line, injector, and cylinders shall be checked daily for leaks. Chlorine will produce a white smoke in the presence of ammonia. In case of a chlorine leak, corrective measures shall be undertaken only by trained persons wearing protective clothing. All other persons shall immediately leave the dangerous area. All chlorine leaks shall be immediately reported to the Jefferson County Public Safety Answering Point by calling 911. Notice of this requirement along with the telephone number shall be posted outside the chlorine room door.
 - (9) Facilities using gas chlorine shall install a wind direction indicator (windsock, streamers, flags) in a location sufficiently elevated so as to be clearly visible throughout the facility.
 - (10) Gas chlorinators shall be repaired only by a person trained in servicing these units.
- (f) Bromine
- (1) Pot feeders for supplying bromo-chloro-dimethylhydantoin sticks shall contain at least 0.50 pounds of bromo-chloro-dimethylhydantoin per 1000 gallons of facility capacity, or fraction thereof. The feeder shall have a method of feed rate adjustment.
 - (2) All brominators must comply with NSF standards and must be feed rate adjustable.
- (g) Ozone
- (1) Ozone may be used as a supplement to chlorination or bromination. Ozonation equipment will be considered by the Department on a case by case basis for experimental use; and
 - (2) No more than 1 gram per day of ozone per 10 gallons per minute of flow rate will be allowed. The ambient air ozone concentration shall be less than .05 ppm at all times either in the vicinity of the ozonator or at the pool water surface.

- (h) Other disinfection methods shall be approved by the Department on a case by case basis prior to installation.

900.12 Operational Water Quality Standards

900.1201 Potable water from an approved municipal water system or water district shall be supplied to all facilities. In the event such supplies are not available, a potable water supply meeting the approval of the Kentucky Natural Resources and Environmental Protection Cabinet shall be provided.

900.1202 The water supply shall be capable of providing sufficient quantities of water under pressure to all water using fixtures and equipment at the facility, and be capable of providing enough water to raise the water level in swimming, diving, wave pools, and water slide plunge pools at least 1 inch in 3 hours.

900.1203 When the facility is being used by the patrons on a daily or weekly schedule, it shall be continuously disinfected by a chemical capable of maintaining the disinfectant residual required for each facility.

900.1204 Disinfectant residuals for swimming and diving pools, wading pools, water slides, and wave pools:

- (a) Chlorine residuals shall be maintained between 1.0 ppm and 2.5 ppm as free available chlorine.
- (b) Bromine residuals shall be maintained between 2.0 ppm and 2.5 ppm, as free available disinfectant.

900.1205 Disinfectant residuals for spas:

- (a) Chlorine residuals shall be maintained between 2.0 ppm and 3.0 ppm as free available chlorine.
- (b) Bromine residuals shall be maintained between 2.0 ppm and 3.0 ppm, as free available disinfectant.

900.1206 Pools stabilized with cyanuric acid shall meet the following criteria;

- (a) It shall be an outdoor facility;
- (b) It shall maintain 1.5 ppm to 2.5 ppm free available chlorine residual; and
- (c) Cyanuric acid concentration shall be maintained between 25 ppm and 50 ppm.

900.1207 When the presence of chloramines is determined to be greater than 0.2 ppm, superchlorination is required. During the superchlorination process, and until such time as free chlorine residual levels return to the required operational level, the facility shall be closed.

- 900.1208 pH. The pH of the facility water shall be maintained in a range of 7.2 to 7.8. For corrosive water supplies, the alkalinity level shall be suitably adjusted to allow maintenance of the pH level.
- 900.1209 Turbidity. Facility water shall have sufficient clarity at all times to meet one of the following:
- (a) A black disk, 6 inches in diameter, is readily visible when placed on a white field at the deepest point of the pool;
 - (b) The openings of the main outlet grate are clearly visible by an observer on the deck; and
 - (c) For wading pools, the bottom of the pool should be clearly visible.
- 900.1210 Total Alkalinity. The alkalinity of the facility water shall not be less than 50 ppm nor more than 180 ppm, as determined by suitable test kits.
- 900.1211 Temperature. The water temperature for indoor swimming and bathing facilities other than spas shall not be less than 76°F, no more than 84°F. The Department may allow variances for the above temperature limits for special use purposes such as competition, physical therapy, or instruction of children. Variances may be approved provided proof is presented showing that a variance from the temperature requirements is necessary for the special uses stated, and that the variance will not jeopardize public health. Air temperature at an indoor facility shall be higher than the water temperature, except for spas. In no instance will water temperatures for any facility including spas be permitted to exceed 104°F. All facilities with heated water shall be provided with at least 1 break proof thermometer located within the facility water in a conspicuous location. Such thermometer shall be securely mounted to prevent tampering by bathers.
- 900.1212 For the purpose of monitoring bacteriological water quality, the Department shall be authorized to collect samples which shall be analyzed according to the process outlined in "Standard Methods" for any of the following contaminants or other contaminants deemed appropriate by the Department:
- (a) Total coliform;
 - (b) Fecal coliform; or
 - (c) Pseudomonas organisms.
- 900.1213 Additional samples may be collected as the Department deems necessary.
- 900.1214 Bacteriological Quality of Facility Water
1. For facilities other than bathing beaches, any 2 consecutive positive samples shall be considered sufficient grounds to require closure of the facility until such time that satisfactory bacteriological results are obtained. Samples shall be considered positive if any of the following conditions are true:

- (a) More than 200 bacteria per milliliter, as determined by the standard (35 degrees centigrade) agar plate count;
 - (b) Show positive test (confirmed test) for coliform organisms in any of the 5, 10-milliliter portions of sample or more than 2.0 coliform organisms per 100 ml when the membrane filter test is used;
 - (c) Show a positive test (confirmed) for pseudomonas organisms.
2. The bacteriological quality of water at bathing beaches shall comply with the following:

Coliform bacteria counts of 1,000 per 100 ml or fecal coliform bacteria counts of 100 per 100 ml in any 2 consecutive samples shall be considered sufficient grounds to require closure of the facility until such time that satisfactory bacteriological results are obtained.

900.13 Storage of Chemicals

- 900.1301 All chemicals shall be kept covered and stored in the original containers, away from flammables and heat, and in a clean, dry, well ventilated area which prevents unauthorized access to the chemicals.
 - 900.1302 Chemicals should be stored off the floor.
 - 900.1303 Chemicals, other than disinfectants, shall be used only with the advise of this department.
 - 900.1304 All chemicals shall be used in accordance with the manufacturer's instructions.
 - 900.1305 Potentially incompatible materials (i.e.: muriatic acid and chlorine) shall not be stored in close proximity to one another.
 - 900.1306 When using caustic soda or muriatic acid to adjust the pH of the facility water, protective equipment and clothing, including rubber gloves and goggles, shall be available for the handling and use of such chemicals.
 - 900.1307 If polyphosphates are used for sequestering iron, the concentration of polyphosphates shall not exceed 10 ppm.
 - 900.1308 For algae control, the treatment of choice is superchlorination. Treated algae which cling to the bottom of the facility shall be brushed loose and removed by the suction cleaner and filtration system. Superchlorination shall be done only when the facility is closed to all bathers.
- 900.14 Safety and Lifesaving Equipment

Chapter 900
Swimming Pools and Bathing Beaches

- 900.1401 Facilities limited to small spas, of less than 144 sq. ft. of water surface area shall not be subject to the equipment requirement for public swimming pools and bathing beaches, but shall be required to provide a standard first aid kit or the equivalent approved by the Director of Health or designated representative which shall be kept filled and ready for use.
- 900.1402 Facilities other than beaches having an area of more than 2,000 square feet of water surface area shall be provided with an elevated lifeguard chair. An additional lifeguard chair shall be provided for each additional 2,000 square feet of water surface area or major fraction more than half thereof. Chairs shall be located to provide a clear view of the facility bottom in the area under surveillance.
- 900.1403 The following life saving and first aid equipment shall be provided:
- (a) A U.S. Coast Guard approved ring buoy not more than 15 inches in diameter to which shall be attached a 3/16 inch rope of length 1 1/2 times the maximum pool width;
 - (b) A life pole or shepherd's crook type of pole having blunted ends with a minimum length of 12 ft.; and
 - (c) One full length backboard or spineboard with restraining straps for back and neck injuries or the equivalent approved by the Director of Health or designated representative. Backboards or spineboards shall be:
 - (i) Readily accessible on the premises of every public swimming pool complex; and
 - (ii) Be constructed of coated marine plywood, aluminum or lightweight plastic with a foam core; and
 - (iii) Be at least 6 feet long and 18 inches wide; and
 - (iv) Have holes in the board, spaced every few inches along the length of both sides of the board to provide handholds for the rescuers and to secure restraining straps; and
 - (v) Runners attached to and run along the length of the bottom of the board.
 - (d) Rescue tube at swimming pool facilities greater than 60" in depth
 - (e) Standard first aid kit or the equivalent approved by the Director of Health or designated representative which shall be kept filled and ready for use.
- 900.1404 The equipment listed in section 900.1403 above, with the exception of section (c), shall be considered as one unit and shall be adequate for 2,000 sq. ft. of facility water surface area. An additional unit shall be provided for each additional 2,000 sq. ft. or major fraction thereof.
- 900.1405 Bathing beach facilities shall provide the following lifesaving and first aid equipment in addition to that listed in section 900.1403 (a), (b), (c), and (e),

- (a) Paddle board or surfboard;
- (b) At least 1 life boat containing 1 unit of life saving equipment and outfitted to meet Kentucky State Water Safety Regulations; and
- (c) A torpedo shaped buoy.

900.1406 Life saving equipment shall be mounted in conspicuous places at lifeguard chairs or other readily accessible locations. Its function shall be plainly marked and such equipment shall be kept in repair and ready condition.

Bathers or other persons shall not be permitted to tamper with, use for any purpose other than its intended use, or remove such equipment from its established location. Such equipment at beaches shall be located at each lifeguard chair, with a life boat mentioned in section 900.1405 (b) above, being located at the most centrally stationed lifeguard chair.

900.1407 All facilities shall have a non-pay telephone on the premises which is readily accessible to water safety personnel and conspicuously located. Pay telephones which are equipped with 911 Emergency Access (no coin required) may be substituted for the non-pay telephone requirement. The telephone number of police, fire department, emergency medical service, or a hospital, shall be posted in a conspicuous place near the telephone.

900.15 Water Safety Personnel

900.1501 Water safety personnel are not required at pools less than 18 inches in depth.

900.1502 Facilities limited to small spas, of less than 144 sq. ft. of water surface area shall not be subject to the water safety personnel requirements unless the facility has unlocked access and/or allows bathers 16 years of age or under to enter the facility area without a responsible person 17 years of age or older. No person may use the facility alone.

900.1503 A Lifeguard I or II shall be on duty at all times when a public swimming pool is "open" for use by patrons. A Qualified Attendant may be substituted for a Lifeguard I or II at any pool greater than 18 inches, but 60 inches or less in depth. Such water safety personnel shall be in charge of pool and deck activities and have the authority to enforce all rules of safety and sanitation.

900.1504 Facilities shall not assign water safety personnel tasks that will distract their attention from proper observation of persons in the facility area or that will prevent them from providing immediate assistance to persons in the pool.

900.1505 When the public swimming pool is without water safety personnel on duty, a locked barrier with a minimum height of 4 feet shall be present at the pool entrance. Alternate security measures may be approved by the Board. In addition, one of the warning signs described in paragraphs (a) and (b) of this section, shall be placed in plain view. Lettering on the sign shall be at least 2 inches in height.

- (a) "POOL CLOSED, NO SWIMMING, NO LIFEGUARD ON DUTY"; PERSONS FOUND IN VIOLATION SHALL BE SUBJECT TO A FINE OF UP TO \$100.00" OR
- (b) "WARNING, NO LIFEGUARD ON DUTY, NO ONE MAY BE IN THE POOL WHILE ALONE AND NO MORE THAN 5 PERSONS MAY BE IN THE POOL AT ANY TIME. PERSONS UNDER 16 YEARS MUST BE ACCOMPANIED BY AN ADULT. PERSONS FOUND IN VIOLATION SHALL BE SUBJECT TO A FINE UP TO \$100.00".

900.16 Facility Records

900.1601 The operator of each pool or water safety personnel shall keep a daily record of information regarding operation. These records shall be kept on file at the facility and shall be available for inspection and submission on request by the Department. The records shall include the following items, on a daily basis:

- (a) Total patron load;
- (b) Peak patron load;
- (c) Volume fresh water added;
- (d) Amounts of chemicals used;
- (e) Maintenance (and malfunction) of equipment.
- (f) Results of water quality tests (disinfectant residuals, pH readings, etc.)

900.1602 The facility operator or water safety personnel shall perform water quality tests before opening and during all hours of operation based on the frequency schedule listed below, and record all tests results on a daily operational log sheet:

- (a) Disinfectant residual and pH shall be checked at least 3 times daily with a greater frequency when bather load or climatic conditions warrant;
- (b) Turbidity - daily, or more often as needed;
- (c) Alkalinity, Cyanuric Acid (if used) - weekly, or more often as needed;
- (d) Temperature:
 - (I) Spas - daily, or more often as needed; and

(ii) All other indoor facilities - daily.

- 900.1603 All spas and whirlpools shall be completely drained, thoroughly cleaned, and refilled with potable water at least once per week. Cleaners used shall be compatible with facility wall and bottom finishes.
- 900.1604 The operator, owner or designated employee shall promptly report to the Department, injuries, near - drownings and drownings at the facility.
- 900.17 Spectator and Bather Regulations
- 900.1701 Facilities are required to post signs stating the open hours of operation and use restrictions during closed hours. When the facility is operating under restrictions during closed hours, the facility shall have locked access, not allow bathers 16 years and under to enter the facility area without a responsible person 17 years of age or older, and the warning sign described in section 900.1505 (b) must be posted at the entrance.
- 900.1702 Facilities shall enforce the following rules. These rules shall be posted on placards at the entrance to the pool area. Lettering on this placard shall be at least 1/2 inch in height.
- (a) Admission to the facility shall be refused to all persons having any contagious disease, or to those with conditions that appear contagious. Persons with excessive sunburn, abrasions which have not healed, corn plasters, bunion pads, adhesive tape, rubber bandages, or other bandages of any kind are not permitted. A person under the influence of alcohol or exhibiting erratic behavior shall not be permitted in the facility area;
 - (b) No glass within pool area.
 - (c) No food, drink, or tobacco allowed outside designated areas.
 - (d) No running or rough play allowed.
 - (e) No street shoes allowed on deck.
 - (f) All apparel worn into the facility shall be clean.
 - (g) All persons must shower before entering pool.
 - (h) No diving in shallow water.
 - (i) No animals allowed in area.
- 900.1703 In addition to the requirements above, a caution sign shall be mounted adjacent to all spas which contains the following warnings:

CAUTION

Pregnant women, elderly persons, and persons with heart conditions, high blood pressure, or diabetes should consult their physician prior to using the spa.

Do not use the spa 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°F.

Do not use alone.

Unsupervised use by children is prohibited.

Enter and exit slowly.

Observe reasonable time limits (10 to 15 minutes).

Long exposure may result in nausea, dizziness, fainting, or death.

No glass allowed in spa.

Shower before entering the spa.

900.18 Facility Inspection

900.1801 The Department may conduct such inspections as it deems necessary to insure compliance with all the provisions of this regulation. The Department shall have the right of entry for these inspections at any reasonable time.

900.1802 New facilities shall receive final construction approval inspections by the Department and other affected state and local regulatory agencies prior to placing a facility in operation. It shall be the responsibility of the owner and/or operator to notify the Department and other involved agencies of construction completion and call for inspection.

900.1803 Whenever a representative of the Department makes an inspection of the public swimming and bathing facility, the representative shall record the findings and provide the facility owner or the operator with a copy. The inspection report shall:

- (a) Set forth any violation(s) found;
- (b) Establish a specific and reasonable period of time for the correction of the violation(s) found; and
- (c) State that failure to comply with any notice issued in accordance with the provisions of this regulation may result in closure of the facility.

900.19 Facility Closure

900.1901 Whenever the Department finds any of the conditions set forth in (a) through (h) below, it may immediately order the owner, operator, or water safety personnel on duty to close the facility and to prohibit any person from using the facility. Such order shall be provided in writing.

- (a) If conditions at a facility and appurtenances, including bathhouse facilities, upon inspection and investigation by a representative of the Department, create an immediate danger to health or safety;
 - (b) When the Department upon review of results of bacteriological analyses of water samples collected from a facility, finds that such water does not conform to the bacteriological standards promulgated by the Department for proper swimming and bathing water quality;
 - (c) When an environmental survey of an area shows evidence of sewage or other pollution or toxic materials being discharged to waters tributary to a beach creating an immediate danger to health or safety;
 - (d) When turbidity levels of facility water do not meet the requirements of this Code.
 - (e) When recirculation system(s), filtration system(s), or disinfectant system(s) are not in operation; or
 - (f) When facilities do not meet water safety personnel requirements,
 - (g) In an instance where the owner, operator, or any other employee or representative of the owner interferes with duly authorized representative of the Department, bearing proper identification, in the performance of their duties;
 - (h) When serious or repeated violations of any of the requirements of the regulations are found.
- 900.1902 When conditions facilitating a closure are abated to the satisfaction of the Department, the Department may authorize reopening of the facility.
- 900.1903 In all other instances of violation of the provisions of this regulation, the Department shall serve upon the owner or operator a written notice specifying the violation(s) in question and affording a reasonable opportunity to correct same. Whenever an owner or operator has failed to comply with any written notice issued under the provisions of this regulation, the owner or operator shall be afforded the opportunity of an office hearing by the Department.
- 900.1904 The office hearing shall be conducted by the Department at a time and place designated by it. At the conclusion of the hearing, the hearing officer shall make a finding based on the facts presented. Non-compliance with hearing officer's findings and decisions could result in further action.
- 900.1905 Any person whose facility has been closed may, at any time make application for a reinspection for the purpose of reopening the facility. Within 10 days following receipt of the request, the Department shall make a reinspection. If the facility is found to be in compliance with the requirements of this regulation, it shall be reopened.

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- 900.1906 For serious or repeated violations of any of the requirements of this regulation or for interference with the representatives of the Department in performance of their duties, the facility may be permanently closed after an opportunity for a hearing has been provided by the Department. Prior to such action, the Department shall notify the owner or operator, in writing, stating the reasons for which the facility is subject to closure and advising that the facility shall be permanently closed at the end of the 10 days following service of such notice unless a request for a hearing is filed with the Department by the owner or operator, within such 10 day period.
- 900.1907 Effect on Local Regulations. Compliance with this regulation does not relieve any person of compliance with any other state or local laws, dealing with pool construction, operation and maintenance matters, or zoning requirements which may also be applicable.
- 900.20 Variances
- 900.2001 All facilities shall be constructed or remodeled in compliance with the provisions of these regulations, except that an applicant may request in writing a variance from the said regulations. The Board may then grant a variance in those cases where it is determined that literal compliance would cause undue hardship and the variance would not seriously affect the safe and healthful operation of the facility.
- 900.2002 Before granting a variance, the Board shall require adequate proof from the applicant that the requested variance will comply with the basic intent of these regulations and that no safety or health hazard would be created if the variance is granted.
- 900.2003 When a variance is granted, a letter stating the nature of the variance and the conditions attached thereto, shall be kept on file for future reference. The facility shall be operated in accordance with such terms and conditions.
- 900.2004 The Board reserves the right to review and nullify any variance which, upon implementation, adversely affects the safe and healthful operation of the facility, or upon failure of the facility to comply with the terms and conditions of the variance.
- 900.2005 The granting of a variance does not relieve the facility of the obligation of compliance with all other applicable provisions of this code.