

CHAPTER 166

NON-PRIVATE SWIMMING POOLS

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166.01 DEFINITIONS. For use in this chapter the following terms are defined:

1. “Swimming pool” means any artificial basin of water which has been modified, improved, constructed or installed for the purpose of public swimming, and including pools for community use, pools at apartments, clubs, camps, schools, institutions, park, and recreation areas, motels, hotels and other commercial establishments. This regulation does not apply to pools at private residences intended only for the use of the owner and guest.
2. “Health Department,” “Department of Public Health” and “Health Officer” all refer to the Polk County Board of Health.

166.02 SCOPE. In addition to Chapter 165, the regulations contained in this chapter apply to:

1. Private Pools. All pools, as defined herein, except private pools maintained by an individual for the use of said individual’s family and friends.

- 2. Commercial Pools. All commercial pools, real estate and community pools, pools at hotels, motels, resorts, auto and trailer parks, auto courts, apartment houses, clubs, public or private schools, and gymnasias and health establishments.
- 3. Auxiliary Structures and Equipment. All auxiliary structures and equipment thereof such as locker rooms; shower and dressing rooms; toilet facilities; filtration, pumping, piping, disinfecting and safety equipment provided and maintained in connection with such facility.
- 4. Installation Safety. Installations which were in compliance with this chapter in existence at the time such installations were made shall be presumed to be safe and proper, which presumption can be rebutted by evidence that the installation may be dangerous to health or safety.

166.03 SUBMISSION OF PLANS. Plans for the construction of a swimming pool shall be submitted to the Building Department and shall include: drawing to scale, pool plans, longitudinal pool section and cross pool section, at least at the deepest point in the pool. They shall also include complete working drawings for the mechanical facilities, including pumps, filters, chlorinator, chemical feeders, and other appurtenances where required. There shall also be included a complete layout showing sizes and types of piping, including main drains, skimmers or scum gutter piping and returns to the pool. The plans are to include the statement of the surface area of the pool as well as the volume in gallons, also electrical layout. Seven (7) copies of the plans are required for distribution as follows:

Health Department.....	2 copies
Owner.....	1 copy
Building Department.....	2 copies
Contractor	1 copy
Job	1 copy

One of the approved plans will be forwarded to the owner by the health department.

166.04 SHOWER AND TOILET FACILITIES. Bather preparation facilities consisting of dressing room space, toilets and showers shall be available for the use by patrons of swimming pools. Adequate provisions shall be made for disposal of liquid wastes, in accordance with the existing Plumbing Code. This requirement does not exist where toilets, showers and hand-washing facilities are available within two hundred (200) feet of the pool and where access does not require crossing public streets. This applies to pools at trailer parks, apartments, motels, etc., wherever other required facilities such as showers are available at the living quarters.

166.05 TOILET, SHOWER, AND DRESSING ROOM CONSTRUCTION. Walls, partitions, doors, lockers, and similar surfaces which require periodic cleaning shall be smooth and finished so as to facilitate thorough scrubbing. All floors and other surfaces which may be walked on by bathers shall be rough (but not abrasive to the feet) so as to be nonskid – similar to the rough rotary raised rubber, or wood float

finish of a concrete surface. Floors shall be sloped one-fourth (1/4) inch to three-eighths (3/8) inch per foot to drains. Interior walls and partitions shall terminate not less than six (6) inches above the floor or shall rest on masonry or concrete not less than four (4) inches above the floor. Junctures inside the building between all walls or partitions and floors of structures used by bathers shall be covered.

166.06 NUMBER OF TOILETS AND SHOWERS. Where public toilets and showers are provided as required, separate facilities shall be provided for each sex, with at least one toilet for each sixty (60) women, one toilet and one urinal for each seventy-five (75) men, one shower for each fifty (50) bathers expected at time of maximum load, and lavatories located adjacent to toilets in the proportions of one to each eighty (80) bathers.

166.07 MATERIALS OF POOL SHELL. Pools shall be constructed of concrete, steel, or other approved material, with an impervious finish adapted to the bathing demands of the various parts of the pools and shall be light in color. This section shall be deemed to have been satisfied when:

1. The pool surface is constructed of a permanently impervious material which will retain a smooth finish with no cracks or open joints. Plastic or vinyl lining may be installed to cover walls and bottom which are structurally sound and of permanently impervious material.
2. The bottom surface below a depth of five (5) feet is smooth to facilitate cleaning and the movement of bottom deposits to the main drain.
3. The bottom surface above a depth of five (5) feet is as smooth as practicable while having a nonslip finish.
4. The walls and bottom are of white or other light color.
5. The walls are smooth.
6. All junctions between floor and walls are rounded (covered).

166.08 SHAPE, DESIGN, SLOPES. The pools shall be designed and constructed of such shape, contour, etc., that efficient and safe control of the pool and bathers can be accomplished. The pool bottom shall have definite slopes to the outlet. The acceptable variations in this requirement are numerous, so each design must necessarily be judged upon its own merits at the time of submission to the Department of Public Health.

166.09 MARKINGS, LINES, AND DECORATIVE DESIGNS. Lane lines or other markings on the bottom of a pool shall not exceed ten (10) inches in width. Decorative designs on the bottom or walls of a pool shall not simulate the human form, in whole or part, nor shall any such design be shaped in a form that might reasonably be mistaken for or give the illusion of being, the human form.

166.10 WATER DEPTH, BOTTOM SLOPE AT SHALLOW END, AND SAFETY LINE. Except for special use pools, water depth at the shallow end shall

not exceed three and one-half (3½) feet. If steps extend for more than one-half (½) of the width of the shallow end the depth of water at the base of the lowest step shall not be greater than three and one-half (3½) feet. From the shallow end, the pool bottom shall be sloped at a rate not to exceed one (1) foot vertically in twelve (12) feet horizontally. The above slope shall be uniform and extend to a depth of not less than five (5) feet except that the slope may extend to a depth of not less than four feet six inches (4'6") when rope and buoys are to be continuously maintained. Wherever there is a break in slope from shallow to deep water, devices for fastening safety ropes shall be installed at least two (2) feet toward the shallow end from the break, and safety rope and buoys shall be provided.

166.11 POOL GEOMETRY. The bottom slopes of the pool, configuration of walls and bottom, water depth under the diving board, and location of the diving board shall be such as to reduce the hazard of accidents including striking the bottom or the sides of the pool with sufficient force to injure the diver. To achieve this the pool shall have dimensions at least equal to those indicated. In addition, there shall be at least fifteen (15) feet of unobstructed head room above every diving board extending ten (10) feet in front of the board; and the required depth of the pit shall be at least fifteen (15) feet beyond the front end of the diving board.

166.12 DEPTH MARKERS. Depth of water shall be plainly marked at maximum points, points of break in slope between the deep and shallow portions and at intermediate increments of depth of one (1) foot. Depth markers shall be in numerals of four (4) inches height and of a color contrasting with background. Markers shall be on both sides and ends of the pool above the water surfaces on the vertical pool wall.

166.13 HANDHOLDS. Every pool shall be provided with handholds. For special use pools used for instruction and competitive swimming, a handhold at water level similar to the rim of an overflow gutter is required. Where overflow gutters are not provided, a bull-nosed coping not over two and one-half (2½) inches thick for the outer two (2) inches shall be provided. The handhold shall be not more than nine (9) inches above the normal water level.

166.14 INLETS. Inlets shall be submerged, and be located to produce uniform circulation of water throughout the pool without the existence of dead spots, and to carry pool bottom deposits to the outlets. This item shall be deemed to have been satisfied when:

1. Rectangular pools not exceeding forty (40) feet by seventy-five (75) feet have inlets across the shallow end which serve a maximum lineal distance of eight (8) feet.
2. Rectangular-shaped pools with outlets more than five (5) feet from the deep end wall are provided with additional inlets at the deep end on a maximum of twelve (12) foot centers.

3. At pools larger than forty (40) feet by seventy-five (75) feet inlets are provided on not more than twenty (20) foot centers in the side walls, in addition to the spacing indicated above for end wall inlet fittings.
4. All inlets discharge at a depth of ten (10) to eighteen (18) inches below the pool overflow level.
5. Proof can be furnished to the satisfaction of the Health Department that adequate circulation can be obtained by other inlet arrangements such as in the case of upward or "reverse flow" circulation system where inlet fittings are proposed for installation in or near the pool bottom.

166.15 OUTLETS. Outlets shall be ample in size and located at the low points of the pool. The grating areas shall be sufficient to decrease the possibility of clogging, or of suction dangerous to the safety of the bathers.

166.16 POOL SKIMMING. Every swimming pool shall be provided with overflow gutters or skimmers or a combination thereof, and the design and appurtenances shall be capable of continuously withdrawing at least seventy-five percent (75%) of the required recirculation capacity to provide continuous skimming of the surface. For pools with overflow gutters, a surge tank or other hydraulic arrangement shall be provided which will produce continuous surface skimming action. Other type overflow arrangements and pool edges, including deck level pools, may be installed when approved by the health officer. No such pool shall be installed or built when a safety hazard may result.

166.17 OVERFLOW GUTTERS. Where overflow gutters are used, they shall be built into the walls, extending completely around the pool, except where steps require interruption. The gutter shall be at least three (3) inches deep, the overflow edge shall be rounded and shall not be thicker than two and one-half (2½) inches for the top two (2) inches. The least dimension of the opening into the gutter beneath the coping shall be not less than four (4) inches in any direction measured radially from the inner edge of the gutter lip. The section shall not diverge with depth. The width of the gutter bottom shall be not less than three (3) inches. Covered gutters or drains shall be of such size and arrangement that it is not possible for bathers to enter, or to get arms or legs caught therein. The gutter and deck design shall be such that decks do not drain into gutter. The gutter-drain-piping system shall be designed to provide drainage of the gutter, to facilitate their sanitary maintenance, and to carry the overflow water to the surge tank. In addition, the gutter-drain-piping system shall be designed to establish a hydraulic equilibrium at which equilibrium the gutters are not flooded out within ten (10) minutes after the gutters are flooded by sudden large use of the pool by the bathers. The gutter drains shall be placed not more than fifteen (15) feet apart, with the gutter slope of at least one-fourth inch per foot, except where hydraulic analysis by the applicant shows that other drain spacing or slopes provide the drainage required herein. In no case shall the drainage pipes be less than two and one-half (2½) inches in diameter. The drains shall be provided with corrosion-resistant gratings with

a clear opening area in the grating of at least one and one-half (1½) times the cross-sectional area of the outlet pipe.

166.18 SKIMMERS (AUTOMATIC SKIMMING DEVICES). One skimmer shall be permitted for pools of up to six hundred (600) square feet of surface area. Increments for pools of greater area shall be one (1) skimmer for each five hundred (500) feet or fraction of pool area.

166.19 RECESSED AREAS. Swimming pools shall be free of recessed areas which will interfere with circulation of the water and with skimming action and safety supervision of bathers.

166.20 LADDERS, RECESSED TREADS, AND STAIRS. The Department of Building shall require that stair risers shall not be over twelve (12) inches and that stair treads shall not be less than twelve (12) inches. The required step hole dimensions shall mean the dimensions of the opening, not the measurement of the fixture. Rails provided at steps as required in this section shall be as follows:

Width of Steps	Number of Rails Required
Up to 16 feet	1
16 feet to 24 feet	2
24 feet to 32 feet	3
32 feet to 40 feet	4

Rails shall be evenly spaced across the width of the steps.

166.21 DECKS. Decks shall be installed of cement or other impervious materials, which are rough and nonskid, and sloping away from the pool to proper drains at no more than one-fourth (¼) to three-eighths (3/8) inch per foot. All areas within the pool enclosure shall be of this type material.

166.22 SAND BEACHES, GRASS AREA, ETC., IN POOL ENCLOSURE. Sand beaches, grass areas, etc., shall not be allowed inside of the pool enclosure unless properly fenced off to prevent access on the part of bathers. If access is allowed to such areas, satisfactory facilities shall be provided for the proper cleansing of bathers before they again enter the pool area.

166.23 WATER SUPPLY. Water supplied to any swimming pool shall be from the Clive Water System or from some other source approved for the purpose by the Director of Public Works. There shall be no direct connection between any domestic water supply system and the swimming pool, or the swimming pool piping system, unless protected against backflow in a manner prescribed by the health officer.

166.24 DRINKING FOUNTAIN. Except where drinking water is available at adjacent living quarters, guarded angle jet drinking fountains shall be provided at all pools.

166.25 HOSE BIBS. This section shall require hose bibs with vacuum breakers within the enclosure of the pool such that a fifty (50) foot section of hose will be sufficient to reach all portions of deck.

166.26 RECIRCULATION AND PURIFICATION REQUIREMENTS. The recirculation system shall consist of pumping equipment, hair and lint catcher, and filters, together with all necessary pipe connections to the inlets and outlets of the pool and for backwashing the filters. As an integral part of the system, equipment shall be provided for disinfecting the water and adding any necessary chemicals and make-up water. The entire system and all its component parts shall be capable of producing a six (6) hour turnover of the entire contents of the pool. This item shall be deemed to have been satisfied when, in addition to providing the six (6) hour turnover, the individual types of equipment meet the requirements given for that type of equipment.

166.27 PUMPING EQUIPMENT. Adequate pumping equipment shall be provided. This item shall be deemed to have been satisfied when:

1. The pump has sufficient capacity to discharge the volume of water required for a six (6) hour turnover of the pool against the maximum head in the recirculation system.
2. The pump used for backwashing sand filters has sufficient capacity to backwash a filter unit at the rate of at least fifteen (15) gallons per minute per square foot of filter area.
3. The pump develops a good suction when the pipes for a suction cleaner are connected to the recirculation system.
4. A compound vacuum-pressure gauge is installed on the recirculation pump suction line, and a pressure gauge on the pump discharge line.

166.28 HAIR AND LINT CATCHER. A hair and lint catcher of acceptable design shall be provided on the section side of the recirculation pump, except where pump suction is connected to the underdrains of a filter system. This item shall be deemed to have been satisfied when:

1. The hair and lint catcher is installed ahead of the recirculation pump.
2. The strainer is located so as to be easily accessible for cleaning.
3. Two strainer baskets are provided for alternate use of each unit.
4. The hair and lint catcher has the following design features:
 - A. Water passes through the strainer from the outside.
 - B. The strainer is made of noncorrosive material.
 - C. The width or diameter of the strainer openings is not more than one-eighth (1/8) inch.
 - D. The area of the strainer openings is five to ten times the area of the inlet pipe to the strainer.

E. The hair and lint catcher is so constructed that it can easily and quickly be taken down for cleaning.

F. A removable cylindrical strainer, with slotted openings is provided unless sufficient cause can be shown for using some other type.

166.29 DISINFECTION EQUIPMENT. Equipment shall be provided for the adequate disinfection of all pool water. This item shall be deemed to have been satisfied when:

1. Chlorine, chlorine compounds, or bromine are used as disinfectants.
2. The disinfection equipment has sufficient capacity to feed up to three parts per million of available disinfectant at indoor pool installation based upon the recirculation rate. The capacity at outdoor pools should be feed rate up to eight parts per million based on the recirculation rate.
3. The disinfectant is introduced into the recirculation system ahead of the filters where sand media is employed.

166.30 CHEMICAL FEED EQUIPMENT. The system shall include equipment for the introduction of chemicals necessary for maintaining the pool water in proper balance chemically; and/or for the application of a compound, such as alum coagulant, to form a filter-aid floc on the surface of sand filter beds. This item shall be deemed to have been satisfied when:

1. The chemical feed equipment is convenient to use and has proper capacity to produce intended results when adjusted for the specific chemical solution being applied.
2. When a coagulant solution is to be applied, the point of application is far enough ahead of the sand filters to obtain a thorough mix with the water flowing in the recirculation piping.

166.31 FILTRATION EQUIPMENT. Filtration equipment shall be provided on all swimming pools. This item, in the case of some filtering units, shall be deemed to have been satisfied when:

1. Sufficient filter area is provided to filter the entire contents of the pool in six (6) hours at the rate of not more than three (3) gallons per square foot per minute.
2. When standard type underdrain system is used, the gravel bed is at least twelve (12) inches in depth and varies in gravel size from approximately one and one-half (1½) inches at the bottom to approximately one-eighth (1/8) inch at the top.
3. The filter sand depth is not less than twenty (20) inches; the effective grain size is between forty-five hundredths and fifty-five hundredths millimeters; the uniformity coefficient does not exceed one and six-tenths and

there is sufficient distance between the top of the filter to the point of discharge of the wash water to allow for filter expansion during backwashing at the specified rate without loss of filter media.

4. Loss-of-head gauges are installed on each gravity filter.
5. The underdrain system is properly designed to collect efficiently the filtered water and to distribute properly the backwash at a rate of not less than fifteen (15) gallons per minute per square foot of filter area.
6. The pressure sand filter system is provided with:
 - A. Gauges for each battery on the inlet and outlet pipes for determining loss-of-head in the filter media.
 - B. Air releases with a manual control on the highest point of each filter.
 - C. A readily removable head or a large manhole to facilitate inspection and repairs.
 - D. A rate-of-flow indicator having satisfactory range shall be provided. It should be located in the recirculation line so that the rate of flow either during normal circulation or during the filter backwashing operation can be determined.
7. Filter media other than sand is employed; special requirements must be satisfied. The process involving filtration through a coating of filter-aid material such as diatomaceous earth on porous tubes of elements is satisfactory when:
 - A. Sufficient element-surface area is provided to filter the entire contents of the pool in six (6) hours at the rate of two (2) gallons or less per square foot per minute.
 - B. Slurry feeding equipment is provided for the continuous application at an accurate and uniform rate, of filter-aid-material into the filter influent line; except that such feeders may be omitted at pools where filter-aid units have sufficient element surface area to filter the pool volume in six (6) hours at a rate not to exceed one and five-tenths (1.5) gallons per square foot per minute.
 - C. Pressure gauges are installed on both the influent and effluent side of each filter unit.
 - D. A rate-of-flow indicator properly located and having satisfactory range is provided on the effluent line from the filters.
 - E. Sufficient head room and facilities are available in the filter room for periodic removal of the filter head and element assembly for manual cleaning purposes.

8. An easily removed sight glass on the waste discharge line (unless the wash water discharge is plainly visible) for indicating the progress in filter-washing of the clarity when filtering to waste.
9. The filter piping arrangement is as simple as possible to accomplish filtration, backwashing, and filtering-to-waste.

Sand filter units designed for performance at high rates of filtration are acceptable for installation at pools of small to moderate size and which are planned to accommodate only light swimmer loading; provided further that such filter units have been tested and approved by a nationally recognized testing laboratory to function satisfactorily at the rate or rates specified. If a high-rate sand filter unit installed at a swimming pool fails to produce results satisfactory to the Department of Public Health, it must be replaced with an adequate and approved filter unit of conventional design.

166.32 MAKE-UP WATER FACILITIES. All pools shall be equipped with provisions for adding make-up water. This item shall be deemed to have been satisfied when suitable facilities are provided for adding make-up water as needed.

166.33 CROSS-CONNECTIONS. No piping arrangements shall exist which under any conditions will permit sewage or waste water to enter the recirculation system, or water from the recirculation system or pool to enter the make-up water supply. This item shall be deemed to have been satisfied when:

1. No pipe furnishing water for the make-up water supply is physically connected to the recirculation system regardless of valve arrangements, unless an approved vacuum breaker is properly installed on the make-up water line.
2. The make-up water line discharging directly to the pool has its point of discharge at least six (6) inches above the pool overflow level.
3. The make-up water line discharging to a surge or balancing tank has its point of discharge at least six (6) inches above the rim of the tank.
4. The main drain line, and the filters' backwash and filter-to-waste lines have a free-fall discharge to the sewer or drain at such elevation that a surcharge sewer or drain could not force contamination back into the pool or recirculation system.
5. All other accessories to the recirculation system such as chemical solution feeders, water-fed chlorinator, etc., are protected against back siphonage into the water supply. Water supplied from the recirculation pump discharge line shall be utilized if such arrangement is practicable.

166.34 CLEANOUTS. Cleanouts shall be provided at such points in the recirculation system as will enable obstructions, accumulations, etc., to be readily removed.

166.35 PIPING SYSTEM. The piping system shall be designed to reduce friction losses to a minimum. This item shall be deemed to have been satisfied when:

1. Pipe capacities in general are substantially greater than the theoretical value.
2. Flanged joints or unions are inserted at intervals to permit any part of the system to be taken down quickly for cleaning or repairs.

166.36 RAPID SAND PRESSURE FILTERS. Rapid sand pressure filters shall conform to the following requirements:

1. **Rate.** The filtration rate shall not exceed three (3) gallons per square foot per minute, and provisions shall be made to backwash at a rate of not less than twelve (12) gallons per minute per square foot.
2. **Depth.** Filters shall contain at least twenty (20) inches of depth of filter sand and not less than ten (10) inches filter gravel above the under drain system.
3. **Size.** The sand shall have an effective size of three-tenths to five-tenths millimeters and a uniformity coefficient not greater than one and seventy-five hundredths.
4. **Grade and Place.** Filter gravel shall be graded and placed so as to provide uniform flow distribution from the underdrain system and to support the bed of sand without loss of sand to the pool, or without development of jet streams in the filtration operation. The underdrain system shall be of material that is corrosion-resistant and is nonclogging. It shall be designed to provide uniform distribution and collection of the flow during filtering and backwashing.
5. **Freeboard.** At least twelve (12) inches of freeboard shall be provided between the upper surface of the filter sand and the lowest portion of the pipes or drains which serve as overflow during backwashing.
6. **Sight Glass.** Sight glass shall be installed on the waste discharge line to observe the progress of filter-washing.
7. **Filters.** Filters shall be provided with air release valves connected at, or near, the high point of the filter.
8. **Dosage Control Features.** Facilities with dosage control features shall be provided for adding coagulating chemicals ahead of the filter.
9. **Filter Piping.** Filter piping shall be valved so that filters can be washed individually and so that each filter can be isolated for repairs while the other units are in service. Flanged fittings or unions at the top of the filters are considered acceptable for isolating individual filter tanks for repair and service.

166.37 DIATOMACEOUS EARTH FILTERS. Diatomaceous earth filters shall conform to the following provisions:

1. Filters. Filter, either pressure or vacuum type, shall be designed on the basis of not more than two (2) gallons per square foot per minute, with maximum rates of two and one-half (2½) gallons per minute for filters designed for continuous feeding of filter aid.
2. Precoating Material. Provision shall be made for precoating with diatomaceous earth filter aid. In heavily used pools and pools with a surface area of two thousand (2,000) square feet or more, equipment shall be provided for the continuous feeding of filter aid to the filter influent, and such equipment shall have a capacity to feed not less than one-tenth pound of this material per square foot of filter area over a twenty-four (24) hour period.
3. Normal Use. All parts shall be of such materials, design, and construction to withstand normal continuous use without deterioration which could affect filter operation.
4. Backwashing. Provision shall be made for backwashing or cleaning of filters in a sanitary manner and without undue labor.
5. Pressure Capacity. For pressure type units, the pump shall be capable of delivering full required capacity at a head loss of sixty (60) feet head and sixty (60) percent or more of such capacity at seventy (70) feet head loss.
6. Vacuum Units. For vacuum type units, the pump shall be capable of design filter flow at vacuum gauge reading of sixteen (16) inches of mercury to provide for suction head plus the head loss through the discharge piping and fittings.
7. Other Filters. Other filters may be permitted when performance has been proven as a result of full scale operation of similar units under normal conditions of use and for observation and testing to satisfy subsection 1 of this section.

166.38 SUCTION CLEANER AND PIPING. A separate suction outlet in the pool wall or a portable suction-type cleaner on the premises will be required unless the surface skimmers are equipped with an integral vacuum fitting.

166.39 CHLORINATOR OR DISINFECTANT FEEDERS. Only positive displacement electrically driven chlorinators will be accepted. All such chlorinators must receive approval by the public health engineer prior to inclusion of plans. The Department of Public Health will recommend gas-type chlorination when the pool contains more than 100,000 gallons.

166.40 CHEMICAL FEED LINES AND EQUIPMENT. Equipment and piping used to apply chemicals to the water shall be of such size, design, and material that they may be cleaned and will be free from clogging. All material used for such equipment and piping shall be resistant to action of chemicals to be used therein.

166.41 WASTE WATER DISPOSAL. Provisions shall be made for disposing of material cleaned from filters and of backwash in a manner which will not create a

nuisance. Where sand filters are used, the backwash water shall be disposed of in accordance with requirements of this regulation to sewer system, dry well, or, where space and conditions permit and when approved by the health officer, and county engineer, after determination that no pollution or nuisance will result, such water may be disposed of by surface or subsurface irrigation. There shall be no direct connection of the pool or recirculation system with the sanitary sewer. When drainage to the sanitary sewer is permitted by this regulation, drainage shall be through an air-gap type separation. A receiving chamber shall be installed to collect waste diatomaceous earth and to provide for disposal of water mixed therewith unless discharge to the sanitary sewer is permitted by this regulation or otherwise authorized by the health officer.

166.42 LIGHTING AND ELECTRICAL SAFETY. Artificial lighting shall be provided for all public bathing places, bathhouses, toilet rooms, dressing rooms, and filtration and chemical rooms that are to be used at night or that do not have adequate natural lighting. Pools designed and maintained for use at night shall be equipped with underwater lighting that will light all areas of the bottom of the pool as well as the entire volume of the pool, with no blind spots unless it can be demonstrated that a particular system of overhead lighting will provide equivalent underwater illumination without creating reflections from the water surfaces, or other effects, that interfere with the lifeguards' observations, particularly of underwater area. All other parts of swimming pools which are indoors or are used at night shall also be well lighted. When underwater pool lighting fixtures are provided, they shall be installed so as to create no safety hazard to bathers. Lighting shall be such that lifeguards may see every part of the swimming pool, all diving boards, or other appurtenances, without being blinded by the light. Lights, appliances, and wiring shall be installed and grounded to conform with requirements of this regulation.

166.43 VENTILATION. All enclosed places, indoor dressing rooms, shower rooms, and toilets shall be ventilated. All shower and toilet rooms shall be equipped with openable windows equivalent to one-tenth (1/10) of the floor area or a mechanical ventilation system capable of five (5) air changes per hour. Windows and doors of toilet, shower, and dressing rooms shall be protected by view screens or be so located as to protect occupants of such rooms from view from any portion of the building used by the opposite sex and from the outdoors.

166.44 HANDLING AND STORAGE OF DISINFECTANTS AND OTHER CHEMICALS. All disinfectants, chemicals and special cleaning supplies shall be stored in a manner recommended by the manufacturer and in accordance with existing safety regulations of the health and fire departments. No disinfectants, chemicals, or special cleaning supplies shall be stored where they are readily available to the users of the pool. Where chlorine gas is used as the disinfectant, it shall be placed in a separate locked room which is used only for the feeding of chlorine into the pool system and for storage of spare containers of chlorine gas. Said room shall be equipped with a scale and securing chains for cylinders and be provided with positive

ventilation at an exhaust rate sufficient to provide twelve (12) air changes per hour. Intake for said exhaust system shall be placed not over six (6) inches above the floor.

166.45 SUPERVISION. Every pool shall be under supervision of a person who is fully capable of, and shall assume responsibility for, compliance with all requirements hereof, relating to pool operation, maintenance and safety of bathers. No pool shall be used or available for use unless all of the requirements hereof are complied with. Routine operating procedures shall be permanently posted in a location accessible to and frequented by the operator. Manufacturers' instructions for operation and maintenance of mechanical and electrical equipment shall be kept available for the operator.

166.46 OPERATION RECORDS. The operator of each pool open for use, shall keep a daily record of information regarding operation, including readings of disinfectant residual, pH, and maintenance procedures such as cleaning of filters and quantity of chemicals used. Such data as required by the health officer shall be maintained at least one (1) year for inspection by the health officer or shall be submitted to the health officer, as he or she specifies.

166.47 RECIRCULATION AND PURIFICATION SYSTEM OPERATION. The pumps, filter, disinfectant and chemical feeders, flow indicators, gauges, and all related parts of the pool water purification system shall be kept in operation whenever the pool is available for use, and at such additional times and periods as may be necessary to maintain the water in the pool in a clear and disinfected condition. The variation in flow during a filtration cycle shall not be such as to reduce the flow below sixty-five (65) percent of the rate required.

166.48 CLARITY OF WATER. The recirculation and purification system shall be operated and maintained so as to keep the pool water clean and clear. Under no circumstances shall the pool be used when a black disc, six (6) inches in diameter on a white field, when placed at the bottom of the pool at the deepest point, is not clearly visible from the sidewalks of the pool at all distances up to ten (10) yards from such discs. Such a pool shall be closed and shall not be reopened until the water is clean and clear, and upon specific approval of the health officer.

166.49 DISINFECTION AND pH CONTROL. Swimming pools when in use shall be continuously disinfected by a chemical which imparts a residual effect. When chlorine is used, a free chlorine residual of at least four-tenths parts per million shall be maintained throughout the pool whenever it is open or in use. If other halogens are used, residuals of equivalent disinfecting strength shall be maintained. A testing kit for measuring the concentration of the disinfectant, accurate within one-tenth parts per million, shall be provided at each pool. When testing kits for chlorine utilize comparative color standards, the standards shall be accurate to within plus or minus one-tenth parts per million. There shall be at least four color standards with the lowest being one-tenth or two-tenths parts per million without providing additional standards. The health officer may accept other disinfecting materials or methods when they are

demonstrated to provide a readily measurable residual and to otherwise be equally as effective as the chlorine concentration required herein, and not be dangerous to public health or create objectionable physiological effects. The swimming pool water shall be maintained in an alkaline condition as indicated by a pH of seven and two-tenths to eight and four-tenths. A pH testing kit accurate to the nearest two-tenths pH unit shall be provided at each swimming pool.

166.50 BACTERIOLOGICAL AND CHEMICAL QUALITY OF POOL WATER. Bacteriological quality of water in the pool shall be such that not more than fifteen (15) percent of the samples covering any considerable period of time shall:

1. Bacteria. Contain more than two hundred bacteria per milliliter, as determined by the standard (35°C) plate count.
2. Positive Test. Show positive test (confirmed test) for coliform organisms in any of the five ten-milliliter portions of a sample, at times when the pool is in use. Chemical quality of water in the pool shall not cause irritation of eyes or skin of the bathers, or have other objectionable physiological effects on bathers.

166.51 CLEANLINESS OF POOL. Floating scum, sputum and debris shall not be allowed to accumulate in the pool; skimmers, where provided, and water levels shall be maintained and operated to continuously remove such material. The bottom and sides of the pool shall be cleaned as often as necessary to keep in a clean condition. The sides and bottom of pools, decks, and other surfaces shall be kept free of slime, and algae to prevent unnecessary slipperiness and danger of accidents or drownings.

166.52 CLEANING AND MAINTENANCE. All parts of the pool shall be maintained in good repair. Floors shall be kept free from cracks and other defects. Walls, ceilings, and equipment shall be painted as often as necessary to be kept in a good condition. Hoses shall be maintained for regular flushing and cleaning. The whole pool area shall be kept clean, sanitary, free of litter and vermin. Toilets, urinals, showers, wash basins, and other plumbing fixtures shall be maintained in a clean condition, and in good repair. Toilet paper shall be provided in the toilet rooms.

166.53 BATHING SUITS, CAPS AND TOWELS. Bathing suits and towels furnished by the management shall be laundered and cleaned and caps sanitized after each use.

166.54 LIFESAVING, FIRST AID, AND CONTROL OF BATHERS. The following rules shall apply:

1. Lifeguard. Where lifeguard service is provided, the number of lifeguards provided shall be adequate to continuously maintain surveillance over the bathers.
2. Warning Signs. Where no lifeguard service is provided, the warning sign shall be placed in plain view and shall state "WARNING – NO LIFEGUARD ON DUTY," with clearly legible letters, at least four (4) inches

high. In addition, the sign shall also state "CHILDREN SHOULD NOT USE POOL WITHOUT AN ADULT IN ATTENDANCE."

3. Notices and First Aid. The health officer may require posting of notices directing the bathers to make use of the toilets and showers before entering the pool. At all pools diagrammatic illustrations of artificial respiration procedures shall be posted where clearly visible from the nearby deck and shall be protected against the elements. Also, the location and telephone number of the nearest ambulance, hospital, fire or police rescue service, physician and pool operator shall be kept similarly posted together with instructions that in case of need manual or mouth-to-mouth artificial respiration should be started immediately and continued until a physician arrives or mechanical resuscitators are applied.

4. Safety Equipment. Every swimming pool shall be equipped for safety and rescue purposes with one or more light, strong poles (bamboo or other) with blunt ends or hooks, not less than twelve (12) feet in length, and one or more life rings, approximately seventeen (17) inches in outside diameter, accessible for use. Such life rings shall have attached to them a three-sixteenth inch line long enough to span the maximum width of the pool. The line shall be stored when not in use in such a way as to prevent kinking or fouling. When, in the opinion of the health officer, any pool is of such size that unaided swimming rescues by lifeguards may not offer sufficient protection to swimmers, one or more square-sterned boats, equipped with oars and oarlocks and life rings or paddle boards, as the health officer shall order, shall be provided. A standard ten (10) or twenty-four (24) unit first-aid kit shall be provided at all swimming pools where required by the health officer.

5. Fence. A fence shall be required to enclose the pool area which shall not be less than six (6) feet in height and continuous to circumscribe the entire pool. Gates shall be self closing.

166.55 HEALTH OF EMPLOYEES AND PATRONS. No person having a communicable disease shall be employed at a public swimming pool. All patrons known to be, or suspected by the health officer or the management of being afflicted with an infectious disease, suffering from a cough, cold or sores, or wearing bands or bandages shall be excluded from all public bathing places, except on presentation of a written statement of current date as approved by the health officer.

166.56 WADING POOL. The water of all wading pools shall be kept sufficiently clear so that the bottom of the wading pool will be visible at all times. The water shall be recirculated at a rate which produces a turnover in two hours or less at each wading pool. When chlorine is used, a free chlorine residual of at least four-tenths parts per million shall be maintained at all times the wading pool is in use. The wading pool shall be maintained in an alkaline condition as indicated by a pH of seven and two-tenths (7.2) to eight and four-tenths (8.4). Testing kits shall be maintained at the wading pool for this purpose.

166.57 REVIEW BY HEALTH OFFICER. For any items not specifically covered in these requirements, the health officer is hereby authorized to require that all equipment, materials, methods of construction and design features shall be proven to function in such a manner as to produce a safe and healthful swimming pool. No materials, devices or design features shall be used until they are approved by the Department of Public Health except:

1. Performance. When performance has been proven as a result of full scale operation of similar units under normal conditions to use.
2. Test. For testing, when such tests are approved by the health officer and are conducted in accordance with procedures established by the Department of Public Health and are necessary to satisfy subsection 1 hereof.
3. Review by Health Officer. When the applicant has presented sufficient factual data to show his device will properly function so as to qualify for approval. It is the responsibility of the applicant to provide such data, tests, or other adequate proof that the device, material or product will perform the function for which it is intended, before such item shall be approved or accepted for tests. The Department of Public Health may publish reports of the results of these examinations or investigations.

166.58 LICENSE. The owner of any swimming pool as defined in this chapter shall pay a license fee of twenty-five dollars (\$25.00) annually to obtain a license, before being opened for use. This license shall be conspicuously displayed on the premises in an area where it can be seen by those using the pool. This requirement shall not apply to pools owned by tax supported institutions.

166.59 SPECIAL PENALTY. A violation of any of the provisions of this chapter shall be grounds for suspension of the license and termination of the pool operation. If a license is suspended, it shall only be reinstated upon a showing of compliance with the provisions of this chapter.

166.60 PENALTY. Unless another penalty is expressly provided by this chapter for any particular provision or section, any person violating any provision of this chapter or any rule or regulation adopted herein by reference shall be subject to a civil penalty as set forth in the Schedule of Civil Penalties in Chapter 4 of this Code of Ordinances. Each day that a municipal infraction occurs and/or is permitted to exist constitutes a separate offense.

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