

POOL TEK OF THE PALM BEACHES

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CHAPTER 64E-9 PUBLIC SWIMMING POOLS AND BATHING PLACES

64E-9.007 Recirculation and Treatment System Requirements

(1) Recirculation and treatment equipment such as filters, recessed automatic surface skimmers, ionizers, ozone generators, disinfection feeders and chlorine generators must be tested and approved using the NSF/ANSI Standard 50-2007, Circulation System Components and Related Materials for Swimming Pool, Spas/Hot Tubs, dated April, 2007, which is incorporated by reference in these rules. The standard and a list of approved devices is available from www.NSF.org. If standards do not exist for a specific product, the manufacturer must work with NSF or other American National Standards Institute (ANSI) approved agency to develop such standards.

(2) The recirculation system shall be designed to provide a minimum of four turnovers of the pool volume per day. Pools that are less than 1000 square feet at health clubs shall be required to provide eight turnovers per day.

(3) The design pattern of recirculation flow shall be 100 percent through the main drain piping and 100 percent through the perimeter overflow system or 60 percent through the skimmer system.

(a) Perimeter overflow gutters – The lip of the gutter shall be uniformly level with a maximum tolerance of one-fourth inch between the high and low areas. The bottom of the gutter shall be level or slope to the drains. The spacing between drains shall not exceed 10 feet for two inch drains or 15 feet for two and one-half inch drains, unless hydraulically justified by the design engineer. Gutters may be eliminated along pool edges for no more than fifteen feet and this shall not exceed 10% of the perimeter (at least 90% of the perimeter shall be guttered). In areas where gutters are eliminated, handholds shall be provided within nine inches of the water surface. Handhold design shall be approved by the department prior to construction. The gutter lip shall be tiled with a minimum of 2 inch tile on the pool wall, each a minimum size of one inch on all sides, except that stainless steel gutters are exempt from this requirement.

1. Either recessed type or open type gutters shall be used. Special designs can be approved provided they are within limits of sound engineering practice. Recessed type gutters shall be at least four inches deep and four inches wide, and no part of the recessed gutter shall be visible from a position directly above the gutter sighting vertically down the edge of the deck or curb. Open type gutters shall be at least six inches deep and 12 inches wide. The back vertical wall of the gutter shall be tiled with glazed tile, each a minimum size of one inch on all sides. This tile shall be smooth and easily cleanable. The gutter shall slope downward 2 inches, plus or minus 1/4 inch, from the lip to the drains. When open type gutters are located at pool steps and the gutter is used as a step tread, the gutter slope may be reduced to 1 inch in the area of the steps, and this tread shall be tiled with slip resistant tile. The back of the gutter drains shall be located within 3/4 inch of the back vertical wall of the gutter, where the gutter is deepest and shall be flush with the surrounding area or be recessed no more than 3/8 inch.

2. All gutter systems shall discharge into a collector tank.

3. The department shall waive the requirements of tile on stainless steel gutter systems when it can be shown that the surfaces at the waterline and back of the gutter are smooth and easily cleanable.

(b) Recessed Automatic Surface Skimmers – Recessed automatic surface skimmers may be utilized when the pool water surface area is 1,000 square feet or less excluding offset stairs and swimouts and the width of the pool is not over 20 feet.

1. The recessed automatic surface skimmer piping system shall be designed to carry 60 percent of the pool total design flow rate with each skimmer carrying a minimum 30 gallons per minute. One skimmer for every 400 square feet or fraction thereof of pool water surface area shall be provided.

2. Prevailing wind direction and the pool outline shall be considered by the designer in the selection of skimmer locations and the location of skimmers shall be such that the interference of adjacent inlets and skimmers is minimized. Recessed automatic surface skimmers shall be installed so that there is no protrusion into the pool water area. The deck or curb shall provide for a handhold around the entire pool perimeter and shall not be located more than nine inches above the mid point of the opening of the skimmer.

3. Recessed automatic surface skimmers may be installed with an equalizer valve and an equalizer line when the skimmer piping system is connected directly to pump suction. If installed, the equalizer valve shall be a spring loaded vertical check valve which will not allow direct suction on the equalizer line. Float valves are prohibited. The equalizer line inlet shall be installed at least one foot below the normal pool water level and the equalizer line inlet shall be protected by an ASME/ANSI A112.19.8-2007 compliant cover/grate. The equalizer line shall be sized to handle the expected flow with a two inch minimum line size. For existing pools, within 180 days of effective date of this rule, skimmer equalizer lines shall be permanently plugged or ASME/ANSI A112.19.8-2007 compliant covers/grates shall be installed at the inlet.

4. A wall inlet fitting shall be provided directly across from each skimmer.

5. A minimum 6-inch water line tile shall be provided on all pools with automatic skimmer systems, each a minimum size of one inch on all sides. Glazed tile that is smooth and easily cleanable shall be utilized.

(4) Pumps – If the pump or suction piping is located above the water level of the pool, the pump shall be self-priming. Pumps that take suction prior to filtration shall be equipped with a hair and lint strainer. The recirculation pump shall be selected to provide the required recirculation flow against a minimum total dynamic head of 60 feet unless hydraulically justified by the design engineer. Vacuum filter systems pumps shall provide at least 50 feet of total dynamic head. Should the total dynamic head required not be appropriate for a given project, the design engineer shall provide an alternative.

(5) Filters – Filters sized to handle the required recirculation flow shall be provided.

(a) Filter capacities – The maximum filtration rate in gallons per minute per square foot of filter area shall be: fifteen (twenty if so approved utilizing the procedure stated in subsection 64E-9.007(1), F.A.C.) for high rate sand filters, three for rapid sand filters, three-hundred-seventy-five thousandths for pleated cartridge filters and two for Diatomaceous Earth (D.E.) type filters.

(b) Filter Appurtenances.

1. Pressure filter systems shall be equipped with an air relief valve, influent and effluent pressure gauges with minimum face size of two inches reading 0-60 pounds per square inch (psi), and a sight glass when a backwash line is required.

2. Vacuum filter systems shall be equipped with a vacuum gauge which has a two inch face and reads from 0-30 inches of mercury.

3. Precoat – A precoat pot or collector tank shall be provided for D.E. type systems.

(c) Filter tanks and elements – The filter area shall be determined on the basis of effective filtering surfaces with no allowance given for areas of impaired filtration, such as broad supports, folds, or portions which may bridge.

D.E. filter elements shall have a minimum one inch clear spacing between elements up to a four square foot effective area. The spacing between filter elements shall increase one-eighth inch for each additional square foot of filter area or fraction thereof above an effective filter area of four square feet. All cartridges used in public pool filters shall be permanently marked with the manufacturer's name, pore size and area in square feet of filter material.

All cartridges with end caps shall have the permanent markings on one end cap. Vacuum filter tanks shall have coved intersections between the wall and the floor and the tank floor shall slope to the filter tank drain. The D.E. filter tank and elements shall be installed such that the recirculation flow draw down does not expose the elements to the atmosphere whenever only the main drain valve is open or only the surface overflow gutter system valve is open.

(6) Piping – All plastic pipe used in the recirculation system shall be imprinted with the manufacturer's name and the NSF-pw logo for potable water applications. Size, schedule, and type of pipe shall be included on the drawings.

(7) Valves – Return lines, main drain lines, and surface overflow system lines, shall each have proportioning valves.

(8) Flow Velocity – Pressure piping shall not exceed 10 feet per second, except that precoat lines with higher velocities may be used when necessary for agitation purposes. The flow velocity in suction piping shall not exceed six feet per second except that flow velocities up to 10 feet per second in filter assembly headers will be acceptable. Main drain systems and surface overflow systems which discharge to collector tanks shall be sized with a maximum flow velocity of three feet per second. The filter and vacuuming system shall have the necessary valves and piping to allow filtering to pool, vacuuming to waste, vacuuming to filter, complete drainage of the filter tank, backwashing for sand and pressure D.E. type filters and precoat recirculation for D.E. type filters.

(9) Inlets – All inlets shall be adjustable with wall type inlets being directionally adjustable and floor type inlets having a means of flow adjustment. Floor inlets shall be designed and installed such that they do not protrude above the pool floor and all inlets shall be designed and installed so as not to constitute sharp edges or protrusions hazardous to pool bathers. Floor inlets for vinyl liner and fiberglass pools, shall be smooth with no sharp edges, and shall not extend more than 3/8 inches above the pool floor. Wall inlets shall be installed a minimum of 12 inches below the normal operating water level unless precluded by the pool depth or intended for a specific acceptable purpose.

(a) Pools 30 feet in width or less, with wall inlets only shall have enough inlets such that the inlet spacing does not exceed 20 feet based on the pool water perimeter.

(b) Pools 30 feet in width or less with floor inlets only shall have a number of inlets provided such that the spacing between adjacent inlets does not exceed 20 feet and the spacing between inlets and adjacent walls does not exceed 10 feet.

(c) A combination of wall and floor inlets may be used in pools 30 feet in width or less only if requirements of paragraph (a) or (b) are fully met.

- (d) Pools greater than 30 feet in width shall have either floor inlets only, or a combination of floor inlets and wall inlets. Pools with floor inlets only shall have a number of floor inlets provided such that the spacing between adjacent inlets does not exceed 20 feet and the spacing between inlets and an adjacent wall does not exceed 10 feet.
- (e) Pools greater than 30 feet in width with a combination of wall and floor inlets shall have the number of wall inlets such that the maximum spacing between the wall inlets is 20 feet and floor inlets are provided for the pool water area beyond a 15 feet perpendicular distance from all walls. The number of floor inlets shall be such that the spacing between adjacent inlets does not exceed 20 feet and the distance from a floor inlet and an adjacent wall does not exceed 25 feet.
- (f) The flow rate through each inlet shall not exceed 20 gpm.
- (10) Main Drain Outlets – All pools shall be provided with an outlet at the deepest point.
- (a) The depth at the outlet must not deviate more than three inches from the side wall depth marking unless designed and approved as such and dual depth markings are used.
- (b) Outlets must be covered by a secured grating which requires the use of a tool to remove and whose open area is such that the maximum velocity of water passing through the openings does not exceed one and one-half feet per second at 100 percent of the design recirculation flow.
- (c) Multiple outlets, equally spaced from the pool side walls and from each other, shall be installed in pools where the deep portion of the pool is greater than 30 feet in width.
- (d) If the area is subject to high ground water, the pool shall be designed to withstand hydraulic uplift or shall be provided with hydrostatic relief devices.
- (e) The main drain outlet shall be connected to a collector tank. The capacity of the collector tank shall be at least one minute of the recirculated flow unless justified by the design engineer. Vacuum filter tanks are considered collector tanks.
- (f) All pools built without a main drain collector tank must be retrofitted with a properly sized and piped collector tank as described in the collector tank definition, the first paragraph of 64E-9.005, 64E-9.007(8), and 64E-9.007(10) on or before the following dates to eliminate direct suction through the main drain.
1. For all pools, including wading pools, except spa type pools, with a main drain grate water depth of 4 feet or less, construction shall be completed on or before one year from the effective date of this rule:
 - for all spa type pools built before 1977, retrofit by July 1, 2010;
 - for all spa type pools built between 1977 and 1986, retrofit by July 1, 2011;
 - for all spa type pools built between 1986 and 1995, retrofit by July 1, 2012;
 - and for all other pools, retrofit by July 1, 2013.
 2. All existing public pools with direct suction main drains shall install as soon as possible, but in no case later than 180 days after the effective date of this rule, a main drain cover/grate that meets both the ASME/ANSI A112.19.8-2007 standard for drain covers/grates and the main drain cover/grate 1.5 feet per second water velocity requirement of this rule.
 3. A modification permit shall be obtained prior to installation of the collector tank.
 4. Pools that cannot be retrofitted by these dates shall be closed on or before these dates.
- (g) Main drain covers/grates installed after the effective date of this rule shall comply with the requirements of ASME/ANSI A112.19.8-2007 and the water velocity requirement of this rule.
- (11) An automatic and manual water makeup control must be provided to maintain the water level at the lip of the overflow gutter or at the mouth of the recessed automatic surface skimmers and must discharge through an air gap into a fill pipe or collector tank. Over the rim fill spouts are prohibited.