

**NEW YORK CITY DEPARTMENT OF HEALTH AND MENTAL HYGIENE
BOARD OF HEALTH**

**NOTICE OF ADOPTION TO AMEND
ARTICLE 165 OF THE NEW YORK CITY HEALTH CODE**

In compliance with §1043(b) of the New York City Charter and pursuant to the authority granted to the Board of Health by §558 of said Charter, the Notice of Intention to Amend Article 165 of the New York City Health Code was published in the City Record on December 23, 2008. A public hearing was held on January 29, 2009. No one testified at this public hearing and the Department received 2 written comments. In response to the comment from the New York State Department of Health, the language of §165.15 has been modified to ensure consistency with the State Sanitary Code. The comment from the Lifeguards Union was not incorporated as it sought to establish a requirement exceeding New York State Department of Health requirements; since the Department's rule reflects minimum qualifications, each facility would be free to deploy staff with a higher level of supervision, including lifeguards, based on the facility's individual needs. The Board of Health at its March 24, 2009 meeting adopted the following resolution.

STATUTORY AUTHORITY

These amendments to the New York City Health Code ("Health Code") are proposed pursuant to Sections 556, 558 and 1043 of the New York City Charter ("Charter"). Section 556 of the Charter grants the New York City Department of Health and Mental Hygiene ("Department") jurisdiction to regulate all matters affecting health in the City of New York. Specifically, Section 556 (a)(3) requires the Department to, "exercise its functions, powers and duties in the area extending over the city, and over the waters adjacent thereto...." Sections 558 (b) and (c) of the Charter empower the Board of Health to amend the Health Code and to include in the Health Code all matters to which the Department's authority extends. Section 1043 of the Charter grants rule-making powers to the Department.

STATEMENT OF BASIS AND PURPOSE

The Department is responsible for the protection of the health and safety of the public using permitted bathing establishments by assuring the proper construction, operation and maintenance of regulated facilities within New York City. Article 165 of the Health Code sets forth standards for the operation and maintenance of bathing establishments operating under permit issued by the Department.

Effective March 28, 2007, the New York State Department of Health adopted regulations regarding Recreational Aquatic Spray Grounds located at 10 New York Code, Rules and Regulations, Subpart 6-3. The purpose of these State Sanitary Code regulations is to establish standards for the safe and sanitary operation of recreational spray grounds that re-circulate water. These regulations were promulgated in response to multiple outbreaks associated with gastrointestinal illness caused by contaminated recycled spray ground water at spray parks. See New York State Register, December 27, 2006. Therefore, the Board of Health adopted the State Sanitary Code spray ground requirements in order to maintain consistency between Subpart 6-3 regulations of the State Sanitary Code and relevant provisions of Article 165 of the Health Code.

Also, effective November 7, 2007, the New York State Department of Health amended §6-1.23 of the State Sanitary Code, which contains bather supervision and training requirements relating to lifeguard surveillance during instructional swimming activities. Accordingly, the Board of Health adopted the State Sanitary Code amendment requirements found in Section 6-1.23(a)(6) in order to maintain consistency between the State Sanitary Code and §165.15 of Article 165 of the Health Code, which concerns bathing establishment supervision and surveillance requirements.

CHANGES TO THE HEALTH CODE

The following are the changes to Article 165:

- §165.01 (applicability of Article extended to include certain spray grounds)
- §165.03 (spray ground-related definitions added)
- §165.05 (spray ground requirements added to permit applications)
- §165.09 (spray ground requirements added related to permit approvals)
- §165.11 (spray ground requirements added related to enforcement)
- §165.15 (spray ground and lifeguard surveillance requirements added related to supervision)
- §165.17 (spray ground requirements added related to lifesaving and safety equipment)
- §165.19 (all bathing establishments, including spray grounds, required to have a safety plan)
- §165.23 (spray ground requirements added related to water chemistry and testing)
- §165.25 (spray ground requirements added related to water quality standards)
- §165.27 (spray ground requirements added related to sanitation and safety)
- §165.29 (spray ground requirements added related to maintenance of mechanical equipment)
- §165.31 (spray ground requirements added related to chemical handling and storage)
- §165.39 (spray ground requirements added related to recordkeeping)
- §165.42 (new section created adding general requirements for spray grounds)
- §165.43 (spray ground requirements added related to water supply and cross-connections)
- §165.45 (spray ground and pool requirements added related to water treatment systems)
- §165.47 (spray ground requirements added related to lighting, electrical and ventilation)
- §165.49 (spray ground and pool requirements added related to location and facilities)

The rule is as follows:

Note - Matter in brackets [] is to be deleted.
Matter underlined is new.

RESOLVED, that the Table of Contents of Article 165 of the New York City Health Code, as set forth in Title 24 of the Rules of the City of New York, as last amended by resolution, on March 21, 2001, be and the same hereby is amended to delete the reference to “pool” for safety plans in §165.19 and to add a new §165.42 concerning general requirements for aquatic spray grounds, to read as follows:

**ARTICLE 165
BATHING ESTABLISHMENTS**

GENERAL PROVISIONS

SAFETY, OPERATION AND MAINTENANCE REQUIREMENTS

- §165.17** **Lifesaving and Safety Equipment.**
- §165.19** **[Pool] Safety Plan.**
- §165.21** **Facility Operating Policy.**

DESIGN AND CONSTRUCTION

§165.41 General Requirements for Pools.

§165.42 General Requirements for Spray Grounds.

§165.43 Water Supply, Waste Water, and Sewer Connections.

RESOLVED, that §§ 165.01-165.05, 165.09-65.11, 165.15-165.19, 165.23-165.31, 165.39, 165.43-165.49 of Article 165 of the New York City Health Code, as set forth in Title 24 of the Rules of the City of New York, as last amended by resolution, on March 21, 2001, be and the same hereby is amended to primarily add requirements for supervision and aquatic spray grounds, and to create a new § 165.42 concerning aquatic spray grounds, to be printed together with explanatory notes, to read as follows:

GENERAL PROVISIONS

§165.01 Applicability.

(b) This Article shall not apply to: (1) a pool, spray features/grounds or sauna and steam rooms, within a one or two family dwelling, or a dwelling unit of a multiple dwelling, and solely for the use of the occupants for non-commercial purposes, (2) a float tank or relaxation tank used by one person at a time, (3) pools used only for religious purposes (ritual immersion), [or] (4) spa pools used for prescribed medical therapy or rehabilitation and under medical supervision, or (5) a spray ground that uses water from the municipal water supply or a source of potable water pursuant to §141.01 of this Code without impoundment, reuse or recirculation of the water.

§165.03 Definitions.

Bathing establishment. "Bathing establishment" means every indoor or outdoor place where: (1) there is a swimming, wading, spa, or special purpose pool, [or] (2) there is a sauna or steam room with or without a pool, or (3) there is a spray ground with or without a pool, sauna or steam room.

Cross connection. "Cross connection" means a physical connection between the potable water system and a non-potable source such as a pool, or physical connection between a bathing establishment water [pool] and the sanitary sewer or waste water [disposal] disposal system such that non-potable water may flow into the potable water system.

Foot Shower. "Foot shower" means a shower head and similar water feature for use in rinsing debris from patrons' feet.

Major alteration, renovation or addition. "Major alteration, renovation or addition" means substantial physical change to the bathing establishment [pool size], shape, structure, enclosure, electrical system or other appurtenances, or to the water disinfection or recirculation system, or to the waste water system. It does not include replacement of equipment or piping previously approved by the Department provided that the type of and size of the equipment are not changed, nor does it include normal maintenance or repair.

Recirculation. "Recirculation" means the pump, piping, filtration system, chemical feed systems and accessories provided for treating the pool and/or spray pad water to meet the water quality standards in these rules.

Spa pool. "Spa pool" means a pool, primarily designed for therapeutic use or relaxation, which is normally not drained, cleaned or refilled for each individual. It may include, but is not limited to, hydrojet circulation, hot water, cold water, mineral bath, air induction, bubbles or any combination thereof. Spa pools shall have a maximum water depth of 4 feet at any point and may be equipped with aquatic seats within the perimeter of the pool. A "Spa pool" shall not be used for swimming or diving. "Spa Pool" means and includes "hydrotherapy pool," "whirlpool," "hot spa," or "hot tub."

Spray Pad. "Spray pad" means a specific area consisting of a play surface, spray features, and drains, upon which the bathers stand and are sprayed with water.

Spray Ground(s). "Spray Ground(s)" means an artificially created water jet, features or stream where water is sprayed from a structure or the ground in conjunction with a spray pad in which sprayed water is drained, collected, treated and re-circulated back for reuse purposes.

Spray Features. "Spray features" means the devices and plumbing used to convey the treated water to the spray pad to spray the patrons.

Spray Pad Treatment System. "Spray Pad Treatment System" means the equipment and processes used to filter, disinfect and circulate the water used for the spray pad and spray features.

Spray Pad Treatment Tank. "Spray Pad Treatment Tank" means the vessel to collect the water that has been sprayed on the spray pad and returned through the spray pad drains.

Superchlorination. "Superchlorination" means the addition of a sufficient amount of chlorinating compound to pool water and/or spray pad treatment tank water to remove combined chlorine (chlorine that has reacted with nitrogenous compounds) or destroy unwanted organisms in the pool water and/or spray pad treatment tank water. Generally the level of chlorine added is ten times the level of combined chlorine in the pool water and/or spray pad treatment tank water (in units of ml/l or ppm). Treatment of pool water and spray pad treatment tank water with non-chlorine chemicals to eliminate or suppress combined chlorine is not superchlorination.

Supervisory Staff. "Supervisory Staff" means an individual or individuals responsible for supervising bathers and monitoring the spray ground to ensure compliance with regulations for use, and who is familiar with its equipment and is trained in the operation and maintenance of the spray pad treatment system.

Swimming pool. "Swimming pool" means a pool of three foot depth or greater, designed to be used primarily for swimming or other recreation. This includes white-water slide, wave and movable bottom pools.

§165.05 General Requirements for Permit Applications.

No person shall construct or operate a bathing establishment without prior construction authorization and a permit issued by the Department. No bathing establishment shall be constructed nor shall any major

alterations or additions be made to any bathing establishment unless a completed application for the construction, alteration or addition is submitted to the Department for review and approval prior to commencement of work. The application shall include appropriate fees, application forms and other supplemental information as required by the specific circumstances. For bathing establishments with pools and/or spray grounds, the application package shall also include detailed engineering plans, specifications and an engineering design report. The permit shall be displayed in a conspicuous place at the facility. The Department may order any bathing establishment operating without a permit to close and remain closed until the facility has obtained and displays a valid permit issued by the Department.

(A) *Plot plan and general site plan:*

(i) A plot plan or vicinity plan showing the precise location of the proposed bathing establishment [pool] and building and existing structures by references to known landmarks such as streets and public buildings.

(ii) Name of the project location, the scale in feet, the north point, and direction of prevailing wind (for outdoor pools).

(B) *Detailed plans:* All detailed plans shall be drawn to a suitable scale and include the following information:

(i) A bathing establishment [pool] layout plan showing all the proposed facilities: The locations of the bathing area, spray ground layout, spray pad area, diving boards, ladders, stairs, deck, walkway, walls or fences enclosing the pool, inlets, spray features, spray pad drains, main drains, pool and deck drains, vacuum fittings, drinking fountains, piping, hose bibbs, surface skimmer system, recirculation system and appurtenances, filtration system, disinfection equipment, sewage connections, water main, lighting fixtures and other proposed features related to the operation and safety of the proposed bathing establishment including bathhouse, toilet and shower.

(ii) Surface drainage management for the proposed bathing establishment. (For outdoor pools and spray grounds only.)

(iii) A flow diagram or schematic in elevation views of the [pool] water treatment and recirculation system.

(iv) Complete construction details, including dimensions, elevations and appropriate cross-sections.

(v) Piping plan containing the size, type and location of all piping, including elevations.

(vi) Construction notes, schedules, charts and other related data.

(3) *Specifications.* One set of complete specifications for the construction of the proposed bathing establishment [pool], bather preparation facilities, recirculation system, filtration facilities, disinfection equipment and all other appurtenances shown on the detailed plans shall be submitted.

(4) *Engineering design report or calculations.* A summary of the design basis, including information relative to the [pool] capacity or patron loading (maximum and average), spray pad area, pool area and volume, hydraulic computation (including head loss in all piping and water treatment), chlorinator and pump sizing calculations, recirculation equipment, filtration facilities, disinfection equipment, spray pad treatment system design calculations, spray feature flow rates, turnover and filtration rate, filter flow rates, pump curves, capacity of bathhouse and bather preparation facilities and toilet facilities, and all other appurtenances, shall be submitted.

(d) *Supplemental or additional information.* A completed application shall be accompanied by any supplemental information which the Department deems necessary for review. For bathing establishments using water other than the municipal public water supply, the application should also include source, quality, quantity available and characteristics of water supplied to the bathing establishment including alkalinity, pH, iron and manganese.

§165.09 Requirements for Permit Approval.

All establishments shall be designed, constructed and completed in accordance with the requirements of this Article. For all bathing establishments:

- (a) A completed and approved [pool] safety plan, as required by §165.19.

(c) Waste water or sewer discharge permit from an approved agency (for pools and/or spray grounds) as required by §165.33.

§165.11 Enforcement.

(b) *Public health hazards and closing criteria.* Where one or more of the following public health hazard conditions exist, the bathing establishment may be immediately closed by the Department and shall remain closed until the hazardous condition(s) are corrected. No person shall use the facility until the violations are corrected in compliance with the provisions of this Article. The facility shall remain closed until the Department has authorized the reopening of the facility. Public health hazard shall mean but shall not be limited to:

- (3) For spray grounds:
 - (A) Failure to provide adequate level of supervision of the spray ground as required by §165.15.
 - (B) Failure to provide the minimum disinfectant residual levels and the minimum ultraviolet light dosage as required by §165.23.
 - (C) Failure to continuously operate the spray ground filtration and disinfection equipment.
 - (D) Use of an unapproved or contaminated water supply source for potable water use.
 - (E) Overhead electrical wires within 20 feet of the spray ground, except where covered and secured in a ceiling.
 - (F) Unprotected electrical circuits or wiring within 10 feet of the spray pad.
 - (G) Broken or missing drain grates on the spray pad.
 - (H) Failure to maintain emergency lighting source.
 - (I) Plumbing cross-connections between the drinking water supply and spray ground treatment system or between sewage system and the spray pad's filter backwash facilities, or other cross-connections in the plumbing.
 - (J) Use of unapproved chemicals or the application of chemicals by unapproved methods to the spray ground water.
 - (K) Glass or sharp objects on spray pad or deck area.
 - (L) Visible contamination of the spray pad and/or spray pad treatment tank by a potentially toxic chemical or a bacteriological substance that could present a hazard to the public.
 - (M) Any other condition determined by the Department to be dangerous to life or health.

SAFETY, OPERATION AND MAINTENANCE REQUIREMENTS

§165.15 Certifications, Supervision Coverage and Surveillance Requirements.

(a) All bathing establishments shall be maintained and operated in a safe, clean and sanitary condition at all times.

(b) *Certifications.* All bathing establishments [with pools] shall be operated and supervised by the required certified personnel. The pool operator shall not hire or retain any person who does not have verifiable aquatic supervisory staff qualifications. Copies of the certificates or other documents showing possession of such qualifications shall be kept on file at the facility and shall be readily available for inspection by the Department.

(1) *Pool operator.* A certified pool operator shall be designated and shall be responsible for the operation of the bathing establishment in compliance with this Article. No person who is charged with the operation of a bathing establishment shall engage in or be employed in such capacity unless the person obtains a certificate indicating successful completion of a course in swimming pool technology administered by the department. A refresher course in swimming pool technology may be required for a licensed pool operator whenever deemed necessary by the department. The department may require that a refresher course be taken when continuing violations of the Article are found, when a water borne disease outbreak implicates the pool and/or spray ground water or sanitary conditions at the pool and/or spray ground, or when the department requires such a course to acquaint the operator with current developments in pool operation technology.

(2) *Aquatic supervisory staff.* Except in a physical-therapy pool, appropriately certified aquatic supervisory staff shall be present whenever the pool is open. A minimum of one supervising lifeguard is required for pools that require three or more aquatic supervisory staff.

(B) *Supervision Level III and IIIA.*

(1) *Level III*

(i)[(1)] Shall be at least 18 years old (or 16 years old if certified as Level II Lifeguard); and
(ii)[(2)] Shall possess a current American Red Cross Community-Cardiopulmonary Resuscitation (CPR) certificate, or equivalent certificate approved by the New York State Department of Health. Certification period shall not exceed one year, except if assisting a lifeguard as specified in §165.15 (b)(2)(B)(2) below; and

(iii)[(3)] Shall be competent to [:

- (i) understand and apply the provisions of this Article and the Pool Safety Plan; and
- (ii) evaluate environmental hazards; and
- (iii) use lifesaving equipment; and
- (iv) control bathers and crowds.]

understand and apply the provisions of this Article and the Safety Plan, evaluate environmental hazards, use lifesaving equipment, and control bathers and crowds.

(2) *Level IIIA.* A supervision Level IIIA staff assists a lifeguard with direct supervision of bathers as specified in §165.15 (c)(1)(C)(6) below. No person shall be qualified under this paragraph unless such person possesses certification in Lifeguard Management issued by the American Red Cross or a certificate issued by a certifying agency determined by the State Commissioner of Health to provide an adequate level of training in aquatic injury prevention and emergency response. Certification shall be valid for the time period specified by the certifying agency but shall not exceed a consecutive three year period from course completion.

(C) *Supervising Lifeguard.*

- (1) Supervising lifeguard shall have the qualifications for Supervision Level II.
- (2) Supervising lifeguard shall have at least two years adequate life guarding experience.

(c) *Supervision.*

(6) *Pools in usage during instructional activities:* [When instructional swimming classes are taught by lifeguards, supplementary supervisory staff meeting at least Supervision Level III requirements, shall be present when the instructional activities may distract instructing lifeguards from direct supervision of all bathers.] When instructional activities occur, including but not limited to learn to swim programs, physical education classes and swim team activities, and the required Supervision Level II staff (lifeguards, as per §165.15(b)(2)) provide the instruction, at least one additional staff meeting at least Supervision Level III must be provided for each aquatic supervisory staff engaging in instructional activities. When a Supervision Level IIIA staff is utilized to assist a Supervision Level II (lifeguard) staff with direct supervision of bathers during instruction, the Supervision Level IIIA staff must possess certification in aquatic injury prevention and emergency response as specified in §165.15(b)(2)(B)(2) above. The written Safety Plan must describe the duties, positioning at pool side and interaction between the lifeguard and Level III staff which ensures adequate bather supervision and emergency response. Note: where instructors, in the water or on the deck, supplement the required on-deck lifeguard(s) who do not provide instruction, no extra Level III supervision is required.

(7) *White-water slide:* Supervision by Supervision Level II lifeguards shall be provided in a number determined by the Department depending on the design of the facility. A proposed supervision staff plan shall be submitted in writing to the department for review and approval.

(d) *Surveillance requirements for sauna and steam rooms:* If a one-hour timer is not provided, as provided for in §165.63, an attendant who meets the definition of responsible person, shall inspect the facility at a minimal interval of 15 minutes during all periods of operation of a sauna and steam room and shall maintain a daily log of inspections.

(e) *Supervision requirements for spray grounds:* At least one Supervisory Staff as defined in §165.03, shall provide periodic supervision of the spray ground.

§165.17 Lifesaving and Safety Equipment.

Either one commercially prepared 24-unit first aid kit or a minimum supply of band aids, bandage compresses and self-adhering gauze bandages must be provided at the spray ground unless otherwise specified in the safety plan. For facilities with pools, [T]the following minimum equipment shall be kept in good repair and readily accessible near the pool deck at all times when the pool facility is open for use:

§165.19 [Pool] Safety Plan.

The operators of pools and/or spray grounds shall develop, maintain and implement a written safety plan which consists of policies and procedures to be followed by the [pool] personnel during normal operation and emergencies for protecting the public from accidents and injuries. Safety plans must include procedures for daily bather supervision, injury prevention, reacting to emergencies, injuries and other incidents, providing first aid and summoning help. The safety plan shall be approved by the department and shall be accessible for use and inspection by the department at all times. The owner or pool operator shall review the plan periodically and update the plan whenever a change occurs in the facility. Changes made to the plan shall be submitted to the department for approval before implementation.

§165.23 Water Chemistry and Testing Requirements.

The chemical quality of water in the pool and/or spray ground shall not cause irritation to the eyes or skin of the bathers or have other objectionable physiological effects on patrons. The [pool] water shall be

chemically balanced to maintain [pool] clarity, proper disinfection, total alkalinity, and pH levels as specified below:

(a) *Disinfectant residual.* All pools and/or spray grounds in use shall be automatically and continuously disinfected by means of equipment that is in compliance with the provisions of this Article and that uses a disinfectant which is approved by the department. Silver/copper ion generators, ozone and other disinfectants may be used only as a supplement to chlorine or bromine.

(1) *Chlorine residual.*

(A) Pools. Where chlorine is used as a disinfectant, and the pool water pH is less than or equal to 7.8, the dosage of chlorine or chlorine compound shall be sufficient to maintain a concentration of at least 0.6 mg/l free chlorine throughout the pool. When pH is between 7.8 and 8.2, a concentration of at least 1.5 mg/l free chlorine residual shall be maintained. During use, pool water shall not exceed a free chlorine residual of 5.0 mg/l or a pH of 8.2. The pH of water in the spa pool shall be maintained between 7.2 and 7.8, and a minimum free residual chlorine of 1.5 mg/l shall be provided. Spa pools shall be chlorinated to 10 mg/l (shock treatment) at least once a week at end of daily usage period.

(B) Spray Grounds. When calcium hypochlorite or sodium hypochlorite are used to disinfect a spray pad and the spray pad treatment tank, the dose of chlorine or chlorine compound shall be sufficient to maintain a concentration of at least 2.0 mg/l free chlorine throughout the system including the treatment tank and water emanating from the spray features. A free chlorine residual of 10.0 mg/l shall not be exceeded in any spray pad treatment tank during use. Spray pad treatment tank water pH shall be maintained between 7.2 and 7.8.

(2) *Superchlorination and superoxidation.* When combined chlorine (chloramines) in excess of 0.5 mg/l is detected in pool and/or spray ground treatment tank water, the water shall be superchlorinated to attain a free chlorine concentration of at least 10 times the combined chlorine concentration, or oxidized by other means to eliminate the combined chlorine. Hand feeding of chemicals directly into the pool and/or spray ground treatment tank is permitted for purposes of superchlorination or superoxidation when the pool and/or spray ground is closed to the public.

(3) *Bromine.*

(A) When bromine is used as a disinfectant, the pH of water shall be maintained between 7.2 and 7.8, and a minimum bromine residual of 1.5 mg/l shall be provided. Spa pools shall be maintained at a bromine residual between 3 mg/l and 6 mg/l. A maximum of 6 mg/l bromine residual shall be permitted in any pool during use.

(B) The pH of the spray pad treatment tank water and water emanating from the spray features shall be maintained throughout the system between 7.2 and 7.8 and a minimum bromine residual of 4.4 mg/l shall be provided.

(4) *Silver/copper.* When silver/copper or copper ion generators are authorized, the concentration of copper shall not exceed 1.3 mg/l and the concentration of silver shall not exceed 0.05 mg/l.

(5) *Ozone.* When ozone is authorized, ozone concentration in pool water shall not exceed 0.1 mg/l and the ambient air zone concentration shall be less than 0.1 mg/l at all times either in the vicinity of the ozonator or at the pool water surface.

(6) Ultraviolet Light. The light intensity meter reading of the ultraviolet unit shall be monitored and recorded at least two times daily. The light intensity shall be maintained at the manufacture's specified level for the flow rate. When the output intensity falls below the setpoint intensity, conditions causing decreased ultraviolet light intensity at the sensor shall be evaluated and corrected. The ultraviolet lamp(s) shall be replaced when the decreased ultraviolet light intensity is due to lamp failure.

(7) [(6)] Other disinfectants. Use of cyanuric acid-based chlorine (or any other chlorine stabilizer) is prohibited. Pools found using or containing any cyanuric compound shall be closed, drained and refilled prior to continued use. Disinfectants other than those listed in §165.45(l) may be used only if approved by the department and the New York State Department of Health.

(b) *Total alkalinity.* The total alkalinity of the pool water shall be maintained within the range of 80 to 120 mg/l.

(c) *Testing kits.* Each pool or spray ground facility shall have functional colorimetric water testing equipment for free chlorine and combined chlorine, or total bromine; pH; total alkalinity; calcium hardness; copper concentration when silver/copper or copper ion generator is used; and ozone concentration when ozone generating equipment is used. FAS-DPD test kits are acceptable. A supply of appropriate reagents for making each type of test shall be maintained on site, shall be stored in their original labeled containers and shall be replaced every six months or as recommended by the manufacturer. When colorimetric tests are used, color standards shall be furnished for each of the tests, that allow an accurate comparison of the sample to be tested from standpoint of color and density, and shall be reasonably permanent and no fading. Electronic residual and pH monitoring devices may be used in addition to the test kit.

(1) Water testing equipment for the disinfectant used in the [pool] water shall be maintained on site. The equipment for determining pH shall include at least five increments with a range of pH 6.8 to 8.2, accurate to the nearest 0.2 pH unit.

(2) Where chlorine is used as a disinfectant, a DPD (Diethyl-P-Phenylene Diamine) test kit with at least ten [eight] chlorine color standards with the following increments: 0.2, 0.4, 0.6, 0.8, 1.0, 1.5, 2.0, [and] 3.0, 5.0 and 10 mg/l as minimum. If other halogens are used, an appropriate scale shall be provided.

(d) *Records and testing.* A bathing establishment [pool] operation record including all test results shall be maintained on a daily basis by the establishment. Whenever tests indicate that an inadequate disinfectant level, inadequate ultraviolet light intensity or inappropriate pH value are present, immediate action shall be taken to reestablish an appropriate disinfectant level and pH value. Pool water shall be manually tested and results recorded as indicated below, including pool water systems equipped with an automatic monitoring device to control pH and disinfectant residual in water:

(1) For pH, free chlorine or bromine residual the [pool] water shall be tested at least three times. Tests shall be at the beginning of the day, during the day's peak bather load, and at the end of the day; or more frequently, as needed, throughout each day to maintain the standards required by this Article.

(2) For combined chlorine the [pool] water shall be tested at least twice a week.

(6) The ultraviolet light intensity meter reading of the ultraviolet light unit shall be monitored and recorded at least two times a day.

(e) *Saturation index.* For the purposes of this Article the saturation index shall be used to determine chemical balance of the water, and whether the water is corrosive (undersaturated) or scale forming (oversaturated). The Department may require that the bathing establishment determine the saturation index monthly or at any other frequency required to maintain water clarity, proper disinfection, alkalinity and pH levels.

§165.25 Water Quality Standards.

The water in the pool and/or spray pad treatment tank shall meet the following water quality standards[.]:

(a) *Water temperature.* The maximum water temperature for all spa pools shall not exceed 104 degrees Fahrenheit. A thermostatic control for water shall be provided. An audible alarm system shall be installed and maintained to warn of any temperature over 104 degrees Fahrenheit.

(b) *Water clarity and turbidity.*

(1) For pools, t[T]he water in a pool shall be sufficiently clear for a black and white object, four inches in diameter (known as *Secchi* disk), placed at any location on the bottom of the pool, to be

readily visible when viewed from the pool deck. The water clarity test shall be performed as frequently as necessary throughout each day to maintain the standards required by this Article.

(2) Spray Grounds. The turbidity in the spray pad treatment tank shall not exceed 3 nephelometric turbidity units (NTU) at any time during use. If this turbidity level is exceeded, the spray pad shall be closed for use until the spray pad treatment system reduces the turbidity to less than 3 NTU.

(c) *Water physical quality.* The bottom and sidewalls of pool shall be kept free of sediment and visible soil, and the pool water surface and/or spray pad treatment tank water surface shall be kept free of visible floating matter.

(d) *Water bacteriological quality.* Samples of [pool] water may be collected by the department for microbiological analysis by a laboratory approved by the New York State Department of Health, for evaluating pool and spray pad water quality. The coliform bacteria level shall not exceed 4 colonies per 100 milliliters in more than one sample examined each month. When the membrane filter technique is used, or when the fermentation tube method is used, coliform bacteria shall not be present in more than 10 percent of portions analyzed in any month; and total bacteria shall not exceed 200 colonies per milliliter.

§165.27 Sanitation and Safety.

(a) *Pool and Spray Ground [pool area].* (1) *General.* The pool shall be maintained free from sediment, lint, dirt and hair. The pool walls and bottom shall be vacuumed or brushed daily or as needed to remove visible material when pool is closed. [Cracks and other defects in the pool shall be repaired.] The walls, floors, ceilings and equipment shall be maintained so that they are protected from deterioration.

(2) Pool and/or spray ground enclosures or fencing and gates shall be maintained in a manner consistent with §§165.41(i)(1) and/or165.42(g)

(3) Depth markings and safety lines for pools shall be provided and maintained in accordance with the provisions of §165.41(o) and be clearly visible and readable.

(4) Safety signs for pools shall be maintained in a manner consistent with §165.41(u).

(5) Decks, Spray Pad and Features.

(A) *General.* Pool and/or spray decks shall be rinsed daily to remove any materials or contaminants on the surface of the pool deck and/or surface of the spray pad. The deck shall be kept clean and free of puddled water. Cracks in the spray pad and/or pool decks shall be repaired when they may be a potential for leakage, present a tripping hazard, a potential cause of lacerations, or impact the ability to properly clean and maintain the pool and/or spray pad area.

(B) *Pools.* Indoor pool decks shall be disinfected at least weekly. The walks, overflow gutters, counters, lockers, equipment, furniture, interior partitions and walls shall be kept in good repair, clean and sanitary. The deck shall be kept free of obstructions and tripping hazards for at least a five-foot (5') width walkway around the entire pool. [The deck shall be kept clean and free of puddled water.]

(C) Spray Pad and Features. The water must be flushed to waste and not discharged into the spray pad treatment tank. Flushing may be accomplished by use of a hose supplied with potable water or by operation of the spray features providing it adequately flushes the entire pad surface and is discharged to waste. The spray pad and features shall be kept free of sediment and visible soil.

(6) *Spa pools.* Spa pools shall be drained and cleaned when needed, and not less than once every two weeks. Placement of chairs or other furniture shall be prohibited within three feet of the edge of any spa pool.

(7) *Food and drinks.* Glass and sharp objects are prohibited in the pool and on spray pad and all deck areas.

(8) For pools, [L]adders, handrails, diving equipment, lifeguard chairs, slides and other deck equipment shall be kept firmly secured to the deck and maintained in good repair.

(9) Floats or tubes not in use shall be removed from pool.

(10) *Safety ropes (for pools).* Safety ropes shall be kept in place except when pool is being used exclusively for lap swimming or competition.

(11) *Starting blocks (for pools)*. Starting blocks shall only be used during supervised practices or swim meets, otherwise the starting blocks shall be removed or secured to prevent use by an untrained person.

(12) *Deck slides (for pools)*. Deck slides shall be installed and maintained in accordance with the provisions of §165.41(q).

(13) *Rolling bulkheads (for pools)*. Rolling bulkheads, when used, shall be provided with traction wheels running on the pool floor or alternatively in the overflow gutter. When not in use these should be stored in a safe manner.

(14) *Hosing*. A minimum length of 50 feet of hosing shall be provided and available to flush the entire deck area. Hose bibbs shall have antisiphonage devices. The hosing unit shall not be used to fill make-up water into the pool.

(15) *Water level for diving (for pools)*. The water level in the pool shall be maintained to provide the required depths in areas for diving as provided below:

Table 2: Minimum Water Depth Requirement for Pools

(b) *Bather loads*. The number of patrons within a pool enclosure shall not exceed the maximum permissible loading established by §165.41(m). The bather load shall be posted at [pool] entrance or at a location where it can be seen by all patrons. The certified pool operator shall be responsible for controlling the number of bathers so that the maximum capacity is not exceeded.

(c) *Bathroom and bather preparation facilities*. All facilities shall be ventilated and maintained. The floors, walls, fixtures, showers, and toilets shall be kept clean, free of dirt and debris and in good condition. Floors shall be maintained in a slip-resistant condition. Soap dispensers shall be filled and operable. A supply of toilet paper shall be provided at each toilet at all times. All lavatories shall be provided with soap, paper towels or electrical-drying units, and covered waste and sanitary napkin receptacles where appropriate. Showers, when provided, shall be supplied with water at a temperature no more than 110°F. Thermostatic, and tempering or mixing valves shall be kept in good operation to prevent scalding of the users. Shower curtains shall be kept clean. Foot showers, if used, shall be kept clean and free of puddled water. The use of foot baths is prohibited[, but foot rinsers with continuous flowing water may be used].

§165.29 Operation and Maintenance of Mechanical Equipment.

(a) *Manual*. A manual for operation of the pools and/or spray grounds shall be provided, maintained and available to the certified pool operator. It shall include instructions for each filter, pump or other piece of equipment, drawings, illustrations, charts, operating instructions and parts list, to permit installation, operation, winterization and maintenance. All valve operating procedures and schedules shall be provided in the equipment room for each mode of operation (recirculation, filtration, backwashing) with piping labeling and flow directions. The mechanical equipment shall be inspected and maintained in accordance with the manufacturers' recommendations and to ensure proper operation.

(b) Pumps, filters, ultraviolet disinfection system, disinfectant or chemical feeders, flow meters, gauges, and all related components of the pool water and/or spray pad treatment tank recirculation system shall be kept in continuous operation 24 hours a day to provide water quality consistent with §165.23 and §165.25. The water level in the spray pad treatment tank shall be maintained continuously by an automatic level control system. The spray pad treatment tank shall be completely drained and cleaned at a frequency necessary to maintain water quality. Pool and/or spray ground equipment and appurtenances shall be operated and maintained in accordance with approved plans and specifications. They shall not be altered or modified in any way unless approved by the Department.

(c) *Inlet fittings.* (1) For pools, [I] inlets shall be checked frequently to ensure that the rate of flow through each inlet establishes a uniform circulation of water and facilitates the maintenance of a uniform disinfectant residual throughout the pool.

(2) For spray grounds, inlets shall be adjusted to produce uniform circulation of water and to facilitate the maintenance of a uniform disinfectant residual throughout the spray pad treatment tank.

(d) *Main drains and deck drains.* Main drain and deck drain grates shall be secured in place at all times. Broken or missing main drain grates shall be repaired or replaced before the pool and/or spray pad is used.

(e) *Vacuum cleaners (for pools).* Vacuum cleaning shall not be conducted when pool is in use.

(g) *Surface skimmer system (for pools).*

(k) *Lighting and electrical equipment.*

(4) No overhead electrical wiring shall pass within 20 feet of the pool and/or spray pad except where covered and secured in a ceiling.

(5) When underwater lighting is not provided and night swimming is permitted, surface lighting shall be adequate to allow an observer on the [pool] deck to clearly see the pool bottom. [(6)] Emergency lighting shall be maintained as required by §165.47(a)(7).

(6) At all indoor spray pads and spray pads used at night, surface lighting shall be adequate to allow an observer to clearly see the spray pad and deck.

(7) Defects in the electrical system, including overhead lights and the respective lenses, shall be immediately repaired.

(l) *Ventilation and heating.* Ventilation, heating and exhaust equipment shall be maintained and operated to provide air movement and temperature pursuant to §165.47(b) and (c).

(m) Ultraviolet light or equivalent treatment process. Ultraviolet light disinfection or equivalent treatment process shall be provided and maintained to disinfect water provided to the spray pad in accordance with §165.45(l)(9). The ultraviolet light units shall be cleaned in accordance with the manufacturer's specifications. When the output intensity falls below the setpoint intensity, conditions causing decreased ultraviolet light intensity at the sensor shall be evaluated and corrected. When the decreased ultraviolet light intensity is due to lamp failure, the ultraviolet lamp(s) shall be replaced in accordance with manufacturer's recommendations.

(n) [(m)] Sauna. Installation of the heating unit, maintenance of and other electrical installation shall be performed by a qualified licensed electrician.

§165.31 **Chemical Handling and Storage.**

(a) *General requirements.* All chemicals used in pools and/or spray grounds shall be handled and stored in accordance with manufacturers' recommendations and applicable law. Only chemicals used by the United States Environmental Protection Agency, specified as food additives by the United State Food and Drug Administration as potable use approved by NSF, or by the State Commissioner of Health, shall be used. Each chemical shall be kept covered and stored in the original, labeled container with the identity of the chemical and appropriate hazard warnings clearly labeled, away from flame and heat sources, and in a clean, dry, well-ventilated place which prevents unauthorized access to the chemicals. The facility shall maintain the manufacturer's instructions for all chemicals in the facility.

§165.39 Record Keeping.

(c) Spray Grounds. The owner or person in charge of a spray ground shall maintain a daily operational record and log book which shall include the following information: quantity of water added; length of time pumps and filters are in operation; time when each filter is backwashed or cleaned; quantity of each chemical added; time when the spray pad and treatment tank are cleaned; the results of all tests for hydrogen ion and residual chlorine; dates and type of light cleaning maintenance and lamp replacement work for ultraviolet light system and other information the Department may require to demonstrate compliance with this Code. A copy of the daily operational records shall be forwarded to the Department at monthly intervals. Copies of the records shall also be kept at the bathing establishment for inspection by the Department for a period of twelve months from the date of the creation of the record.

§165.42 General Requirements for Spray Grounds.

(a) General. All bathing establishments with a spray ground shall be designed and constructed in accordance with the requirements contained in this Code. All spray grounds shall be located at a site free from contamination and conducive to good operation, maintenance, and public safety.. The designing architect or engineer shall certify the structural stability and safety of the spray grounds. The strength of the assembled and installed components and accessories to be used in and around the pools spray grounds should be such that no structural failure of any component part shall cause the failure of any other component part.

All spray grounds shall further comply with all of the following provisions:

(b) Construction materials and finishes.

(1) Construction materials. Spray pads shall be constructed of materials which are inert, stable, nontoxic, watertight and enduring. Sand or earth bottoms are prohibited.

(2) Finish. Spray pad surface must be slip resistant and easily cleanable surface.

(c) Spray Pad.

(1) Slope. The spray pad shall be sloped to drain. The slope shall be sufficient to prevent water collecting on the pad.

(2) Drainage. The size, number and locations of the spray pad drains shall be determined and specified so as to assure water does not accumulate on the spray pads. Flow through the drains to the spray pad treatment tank shall be under gravity; direct suction outlets from the spray pad are prohibited.

(3) Valves and Piping. Valves and piping shall be provided in the spray pad drainage system to allow for discharging spray pad water to waste prior to returning to the spray pad treatment tank.

(4) Grating. Openings in the grates covering the drains shall not be over one-half inch wide. Gratings shall not be removable without the use of tools.

(d) Decks.

(1) A continuous deck at least five feet (5') wide shall extend completely around the entire spray pad perimeter. The deck shall be of a uniform, easily cleaned, impervious material with a slip-resistant surface.

(2) Slope. The deck shall be sloped at least one-fourth inch per foot ($\frac{1}{4}$ in/ft) to deck drains or grades.

(3) Drainage. Deck drains, when used, shall be spaced and arranged so that not more than four hundred square feet (400 ft²) of area is tributary to each drain, and drains shall not be spaced more than twenty-five feet (25 ft) apart. There shall be no direct connection between the spray pad deck

drains and the sanitary sewer system or treatment tank, or between the treatment tank and recirculation system. The deck for outdoor spray ground shall be sloped away from the spray pad or to the deck drains to prevent surface runoff from entering the spray pad.

(4) Carpeting. Carpeting shall not be permitted on the spray pad or desk.

(5) Hose bibbs. At least one hose bibb shall be provided to facilitate flushing of the spray pad and deck areas and each bibb shall be provided with an anti-siphon device.

(e) Spray Features. Spray features should be designed and installed so as not to pose a tripping hazard, a hazard to due water velocity from the spray features, or other possible safety hazards.

(f) Foot Showers. Showers shall be provided at the entry to the spray pad to allow for rinsing debris from patrons' feet prior to entering the spray pad, except such showers are not required at indoor spray grounds or those within the enclosure of an aquatic amusement park. The use of foot baths is prohibited. Wastewater from the foot showers shall be discharged to an approved waste disposal system to prevent standing water on the ground surface, and/or contamination of spray ground and adjacent areas. The foot shower area shall be free of puddle water.

(g) Spray Ground Enclosures. All spray grounds shall be protected by a fence, wall, building, other solid barrier, or any combination thereof. A wall of a building may serve as part of the enclosure, provided that there is no direct access from the wall to the spray ground. A spray ground located on a roof, where there is no access to the roof except through doors where access can be prevented when the spray ground is unsupervised, does not require additional enclosure. All spray grounds shall be provided with an enclosure which shall have the following characteristics:

(1) No external handholds or footholds.

(2) Made of materials which are durable.

(3) At least four feet (4') in height,

(4) Maximum vertical clearance above grade of two inches (2").

(5) The entrance into the spray ground enclosure shall be equipped with a door or gate that is self-closing and has a positive self-latching closure mechanism at least forty inches (40") above grade. Doors and gates at all entrances shall be equipped with hardware that permits secure locking of the entrance and prevents access when the spray ground is not supervised.

(6) Where a chain-link fence is provided, the openings between links shall not exceed $2\frac{3}{8}$ inches and chain link twists shall extend above the upper horizontal bar. The enclosure shall have railings and posts within the enclosure, which shall be capable of resisting a minimum lateral load of one hundred fifty pounds (150 lb) applied midway between posts and at top of posts, respectively. Enclosures, fence material or fabric shall be capable of withstanding a concentrated lateral load of fifty pounds (50 lb) applied anywhere between supports on an area twelve square inches (12 in²), without failure or permanent deformation.

(7) Where a picket-type fence is provided, space between pickets shall not exceed 4 inches and pickets shall extend above the upper horizontal bar.

(h) Warning Signs. A durable plate bearing the following wording in 24-point type (letters 0.25 inches in height) or more permanently marked thereon in colors contrasting with the background, shall be prominently affixed at spray pad or enclosure/entrance and in the bathhouse or bather preparation facilities at eye level containing the following:

(1) The hours that spray pad is open.

(2) The hours that spray pad use is prohibited.

(3) Individuals with diarrhea shall not use the spray pad.

(4) Spray features use recirculated water - do not drink.

(5) Children who are not toilet trained must wear a swim diaper covered by rubber pants.

(6) No animals allowed on or near spray pad.

(7) Pollution of the spray pad area is prohibited. Urinating, discharge of fecal matter, expectorating or nose blowing in any spray pad area is prohibited.

§165.43 Water Supply, Waste Water, and Sewer Connections.

(a) *Water supply.* (1) The source and quality of the water supplied to the pool and/or spray ground and all plumbing fixtures, including drinking fountains, lavatories and showers, shall be obtained from the municipal water supply or a source of potable water pursuant to §141.01 of this Code.

(2) *Cross-connection control.* The potable water supply shall be protected against inter-connection or cross-connection to any potential source of contamination, including but not limited to backflow and back-siphonage. Water introduced into the pool and/or spray pad, either directly or to the recirculation system, shall be supplied through an air gap of at least 6 inches or two times the pipe diameter, whichever is greater. In pools and/or spray pad where it is not possible to provide an air gap, the pool and/or spray water shall be protected by an approved backflow prevention device.

(b) *Waste water disposal.* (1) The sanitary sewer system shall have sufficient capacity to serve the facility, including the bathhouse, locker rooms and related accommodations. The building drains and sewer system shall have adequate capacity to carry filter backwash flows without surcharging or flooding. Sanitary sewage and pool and/or spray pad waste water shall be dis[po]s[er]ged to the municipal sanitary sewer system whenever possible. The establishment shall obtain the waste water discharge permit or approval from the appropriate regulatory agency (for example, the New York City Department of Environmental Protection) prior to discharge. When no such sewer is available, the connection shall be made to a suitable private subsurface disposal system or other system approved by the department and such agencies having jurisdiction.

(2) The pool and/or spray pad waste water shall be discharged to the sanitary sewer system through an air gap of at least six inches (6") or two times the pipe diameter, whichever is greater, so as to preclude the possibility of backup of sewage or waste water into the pool and/or spray pad piping system.

§165.45 Water Treatment System.

(a) *General.* [Each pool shall have a separate water treatment system.] A water treatment system consisting of pumps, piping, filters, water conditioning and disinfection equipment, and other accessory equipment, shall be provided which will clarify, chemically balance and disinfect the pool water and/or spray pad water. The system shall be designed for a recirculation flow rate that will result in a turnover period in each pool and/or spray ground not exceeding those specified below. Construction shall comply with all other provisions of this Code regarding water and waste water.

(1) *Pools.* Each pool shall have a separate water treatment system. Pools with an approved design rate of less than those specified below shall be operated at the design rate. Construction of fill and draw pools is prohibited. [Construction shall comply with all other provisions of this code regarding water and waste water.]

(2) *Spray Grounds.* All water provided to the spray pad shall be treated with ultraviolet light as specified in 165.45(1)(9) during spray pad operation. The spray pad treatment system shall comply with the following requirements:

(A) The water from the spray pad treatment system can only be combined/circulated with water from other pool(s) if:

(1) All the water from the spray pad is treated by ultraviolet (uv) light disinfection prior to combining/circulating with water from the other pool(s) or;

(2) UV light disinfection are provided to treat all of the water in the other pool(s). The larger flow rate resulting from the two calculations below shall be the minimum flow rate used for the

treatment system design. All recirculated water must pass through both the ultraviolet light unit(s) and filters. The minimum flow rate through the treatment system shall be calculated using the two methods described below:

(i) Minimum flow rate (For ultraviolet disinfection):

$$Q = \left(\frac{14.8 - \ln(V)}{12 \times 60} \right) V$$

Q: Minimum flow rate through the ultraviolet disinfection/filtration system (in gallons per minute)

V: Pool volume (in gallons).

ln(V): Natural log of the volume.

14.8-ln(V): Number of turnovers

(ii) Minimum filtration flow rate (for combined pool/spray pad system):

The minimum filtration rate for a pool that shares water with a spray pad is specified in section 165.45(a)(2)(C)(iii). The minimum filtration flow rate shall be at least the sum of the flow rate for the pool type specified in §165.45(a)(1) and one third of the spray feature flow rate.

(B) When water supplying the spray features is removed from the spray pad treatment tank by a pump separate from the filtration/recirculation pump system, the ratio of the flow rate of water supplied to the spray features directly from the treatment tank must not exceed 3 times the design filtered water flow rate.

(C) Turnover Rate. (i) When water is supplied to the spray features by a pump which removes water directly from the spray pad treatment tank independent from the spray pad treatment tank filter pump, the turnover rate for filtration shall be determined by the feature flow rate. The filtration flow rate for the spray pad treatment tank must be at least one-third of the design spray feature flow rate.

(ii) When all of the water supplied to the spray features is filtered upon removal from the spray pad treatment tank before being supplied to the spray features, a reduced pumping rate for filtration/treatment of the spray pad treatment tank water can be used when the spray features are not in operation. However, a minimum 4-hour turnover rate shall be provided.

(iii) The minimum flow rate through the filtration system for combined pool/spray pad systems shall be equal to or greater than the sum of the flow rate for the specific type pool as required by §165.45(a)(1), plus one third of the spray feature flow rate.

(b) *Equipment and storage area.* All the pumps, filters, chemical feeders and other mechanical equipment and [pool] chemicals shall be secured and protected by an appropriate enclosure or room, separate and apart from the pool. The size of the equipment room shall provide working space to perform routine operations. Clearance shall be provided for all equipment as prescribed by the manufacturers to allow normal maintenance operation and removal without disturbing other piping or equipment. Operating instructions and a schematic drawing for all [pool] equipment shall be provided in the [pool] equipment enclosure room. Adequate storage area shall be provided for [pool water] chemicals and supplementary [pool] equipment. A dry above ground storage area shall be provided for facilities using calcium hypochlorite as a disinfectant. Equipment rooms shall not be used for storage of chemicals emitting corrosive fumes or for storage of other items to the extent that entrance to the room for inspection or operation of the equipment is impaired.

(c) *Hydraulics and piping system.* (1) *Materials.* The recirculating piping and fittings shall be of nontoxic material, resistant to corrosion, and able to withstand operating pressures. Acceptable materials

for [pool] recirculation systems are polyvinylchloride (PVC), copper, stainless steel, aluminum, cast iron or other material suitable for water supply applications.

(2) *Size.* All pipes, fittings and valves of the [pool] recirculation system 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 six feet per second (6 ft/s) under suction, ten feet per second (10 ft/s) under pressure and three feet per second (3 ft/s) in gravity flow.

(4) *Installation and draining of pipes.* All equipment and piping shall be designed and fabricated to drain completely by use of drain plugs, drain valves or other means. All piping shall be supported continuously or at sufficiently close intervals to prevent sagging. All suction piping shall be sloped in one direction, preferably toward the pump. All supply and return pipelines to the pool and/or spray pad shall be provided with valves or other means to allow the piping to be drained to a point below the frost line. Provision shall be made for expansion and contraction of pipes.

(d) *Selection of recirculation pumps.* The recirculation pump shall have adequate capacity (flow rate and pressure) to meet the design requirements of the pool and/or spray pad treatment tank, including filter backwashing and turnover rate. It shall be of a self-priming type if installed above the hydraulic gradient. A gauge which indicates both pressure and vacuum shall be installed on the pump suction header and a pressure gauge shall be installed on the pump discharge line. Gauges shall be installed as near to the pump inlet as possible.

(f) *Inlets (for pools).* Wall or floor inlets shall be provided for all pools and shall be located and directed to provide distribution of treated water to facilitate the maintenance of a uniform disinfectant residual throughout the entire pool.

(g) *Main drains (for pools).* Every pool constructed after July 15, 1998, shall have at least two hydraulically balanced main drains to the pool filter system installed in the pool floor at the deepest point. The minimum distance between the main drains shall be three feet (3') measured from center to center of the drains. If the floor of a spa pool is insufficient for a separation distance of three feet (3'), then the separation distance shall be as great as possible. The main drains shall be connected to a single main suction pipe by branch lines and the branch lines shall not be valved so as to be capable of operating independently. Pools constructed before July 15, 1998, shall have at least one main drain installed in the pool floor at the deepest point.

(h) *Surface skimmer systems (for pools).* A surface skimmer system, perimeter overflow system or recessed automatic surface skimmers, shall be provided on all pools and shall be designed and installed to continuously remove all floating material, surface dirt and waste water. A perimeter overflow system shall be required on all pools which have a pool width exceeding thirty feet (30'), or a surface area of over one thousand six hundred square feet (1,600 ft²). Pools having a width of thirty feet (30') or less, or a surface area of one thousand six hundred square feet (1,600 ft²) or less shall be provided either with perimeter overflows or skimmers. A combination of perimeter overflow systems and skimmers may also be used when approved by the department. All overflow systems and skimmers shall be capable of continuously removing all floating material, surface dirt and waste water.

(i) *Filtration.* The filtration system shall be designed to maintain the required pool and/or spray pad water quality. A water treatment system shall have one or more filters. Filters shall be installed with adequate clearance and facilities for ready and safe inspection, maintenance, disassembly and repair.

(j) *Flow measurement and control.*

(2) *Flow regulation.* Where multiple pumps or filters are provided, each unit shall have a flow-regulating device installed. For spray grounds, automatic devices shall be provided for regulating the rate of flow through the filtration system and flow to the spray features.

(k) *Water heater and thermometer (pools).* A water heater shall be installed at all indoor pools. Heaters shall be installed in accordance with the standards contained in the Building Code and the manufacturer's recommendations. Heating coil, pipe or steam hose shall not be installed in a pool. Pools equipped with heaters shall have a fixed thermometer in the recirculation line downstream of the heater and another near the outlet of the pool.

(l) *Disinfection and chemical feeders.* Pools and/or spray pad treatment shall be designed to provide for continuous disinfection of the pool and/or spray pad water with a chemical which is an effective disinfectant and which imparts an easily measured, active residual. The pools and/or spray pad shall be equipped with a chlorinator, hypochlorinator, or other disinfectant feeder or feeders. An automatic controller shall be provided for continuous monitoring and adjusting the level of free residual disinfectant in the spray pad treatment tank. An automatic device shall be provided to deactivate chemical feeders when there is not flow in the spray pad treatment recirculation system. The feeder shall be automatic, easily disassembled for cleaning and maintenance, and capable of providing the required chemical residuals which meet the following requirements:

(1) *Design specifications.* The feeder shall be of sturdy construction and materials which will withstand wear, corrosion or attack by disinfectant solutions or vapors, and which are not adversely affected by repeated, regular adjustments or other normal use conditions. The feeder shall not allow flow of unintended chemicals or those containing foreign materials into the pool and/or spray pad treatment. The feeders shall incorporate anti-siphon safeguards so that the disinfectant cannot continue to feed into the pool [,] and/or spray pad treatment tank, the pool piping system, [or] the pool enclosure, spray pad treatment tank, the spray piping system or the spray pad enclosure if [the pump stops for any reason.] any type of failure of the equipment occurs.

(3) *Equipment capacity.* Feeders shall be capable of supplying disinfectant to the pool and/or spray pad treatment in a range of chlorine demand of up to 10 mg/l or equivalent.

(9) Ultraviolet light disinfection units. All spray pad treatment systems shall provide ultraviolet light disinfection systems unless the provision of an alternative treatment process has been approved by the New York State Department of Health to be capable of providing the equivalent level of reduction of cryptosporidium as the ultraviolet light disinfection system specified in this article. The ultraviolet light unit shall be located between the spray pad treatment tank pump discharge and the spray features or as approved in accordance with §165.45(a)(2)(A). The following requirement for ultraviolet light shall

apply:

(A) All ultraviolet light units must be validated with dosage by an independent agency with dosage. The validation process must determine the ultraviolet light unit's disinfection performance by indicating that a dose of 40mJ/cm² (at end of lamp life) is achieved at a flow rate equal to or greater than the design flow rate at the setpoint intensity. The validation procedure used must have been determined by the State Department of Health to be capable of demonstrating the disinfection performance described above.

(B) For systems utilizing quartz sleeves to separate the water passing through the chamber from the ultraviolet source, the system shall be designed to permit cleaning of the lamp jackets and the sensor window or lens without mechanical disassembly. For systems utilizing polytetrafluoroethylene (PTFE) surface materials to separate the water that flows through the ultraviolet chamber from the lamps, the ultraviolet unit shall be designed to be readily accessible to the interior and exterior of the PTFE. The ultraviolet unit shall be designed to permit use of either physical or chemical cleaning methods.

(C) An accurately calibrated ultraviolet light intensity meter, properly filtered to restrict its sensitivity to the disinfection spectrum shall be installed in the wall of the disinfection chamber at the point of greatest water depth from the tube or tubes.

(D) An automatic system shall be installed to prevent flow to the features in the event the ultraviolet light intensity decreases below the validated set point.

(E) An automatic, audible alarm shall be installed to warn of ultraviolet light disinfection system malfunction or impending shutdown.

(F) The unit shall be designed to protect the operator against electrical shock or excessive radiation.

(G) Installation of the unit shall be in a protected enclosure not subject to extremes of temperature.

(H) A spare ultraviolet lamp and other necessary equipment to effect prompt repair by qualified personnel properly instructed in the operation and maintenance of the equipment shall be provided on-site.

(m) *pH control.* Mechanical feed equipment for the purpose of adding a chemical for pH adjustment shall be provided for all pools and spray grounds built. An automatic controller shall be provided for continuously monitoring and adjusting the level of pH in the spray pad treatment tank. The method of chemical addition shall protect the bather from contact with concentrated chemicals. Soda ash, caustic soda, sodium bisulfate, carbon dioxide gas, muriatic acid, or other chemicals approved for water supply use by the United States Environmental Protection Agency, as food additives by the United States Food and Drug Administration, or by the Department, shall be used to raise or lower pool water pH. The method shall provide adequate distribution of the chemical throughout the pool and distribution shall be verified by pool water testing prior to bather exposure. Where carbon dioxide (CO₂) is used as a method of pH control, the following features shall be provided:

(o) *Pool vacuum system and cleaning system (for pools).* A cleaning system should be provided to remove sludge, sediment and other accumulations from the bottom of the pool. When a vacuum system is used as an integral part of the recirculation system, hose connections shall be located in the walls of the pool at least eight inches (8") below the waterline, and at such points that the floor of the pool can be cleaned with not more than fifty feet of suction hose.

(p) Spray Pad Treatment Tank (for spray grounds only). The spray pad treatment tank that receives the effluent water from the spray pad shall conform to the following specifications:

(1) Material. The spray pad treatment tank shall be constructed of materials which are inert, corrosion resistant, nontoxic, and watertight such as concrete, fiberglass, stainless steel, etc., which can withstand all anticipated loadings under full and empty conditions.

(2) Volume. The volume of the water in the spray pad treatment tank shall be sufficient to assure

continuous operation of the filtration system. The capacity shall be measured from six inches above the uppermost pump inlet to the bottom of the overflow waste outlet.

(3) Controller. An automatic water level controller shall be provided for the spray pad treatment tank.

(4) Ready Access. The spray pad treatment tank must be designed to provide ready access for cleaning and inspections, and be capable of complete draining. An overflow pipe to convey excess water to waste through a suitable air gap must be provided.

(5) Backflow Prevention. The makeup water shall be introduced into the spray pad treatment tank through an air gap or by another method which will prevent back flow and back-siphonage.

(6) Screen. A screen or similar device shall be provided through which all water from the spray pad shall pass before entering the spray pad treatment tank or another method/process described to provide for removal of debris on the surface layer of the spray pad treatment tank water.

(7) Filtered/Treated Water Inlets. An adequate number of filtered or treated water inlets shall be provided and located for complete mixing and circulation of treated water within the spray pad treatment tank.

(8) Drain. At least one main drain suction outlet supplying water to the spray pad treatment tank filtration system shall be provided at the deepest point in the spray pad treatment tank.

§165.47 Lighting and Electrical Installation, Ventilation and Heating Requirements.

(a) *Lighting and electrical installation.* Artificial lighting shall be provided for all bathing establishments which are to be used at night, or which do not have adequate natural lighting. The light and electrical installation shall be provided in accordance with the following:

(4) *Decks.* A minimum of 50 foot-candles should be provided at deck area and/or spray pad.

(5) The illumination level in indoor pools and/or spray grounds shall be so designed to limit glare and excessive reflection.

(6) No overhead electrical wiring, except when secured within a ceiling, shall pass within twenty feet (20') of the pool enclosure and/or spray pad.

(8) *Electrical outlets.* Lighting or other electrical outlets in the deck, spray pad, shower room, and the water treatment areas shall have properly installed ground fault circuit interrupters (GFCI) at the outlet.

(b) *Ventilation.* (1) *General.* All indoor pools and/or spray grounds shall be adequately ventilated, either by natural or mechanical means. Indoor portions of a bathing establishment, including indoor pools and/or spray grounds, dressing rooms, mechanical equipment rooms, storage areas, bathhouses, shower rooms and lavatories shall be ventilated pursuant to Article 12 of the Building Code or any successor law or regulation. The ventilation system for indoor pools and dressing rooms shall be designed so the bathers are not subjected to drafts and shall minimize condensation. A minimum of two air changes per hour shall be provided for indoor pool and/or spray ground areas. Any heating units shall be kept from contact with swimmers. Fuel burning heating equipment shall be installed and vented to the outdoors in accordance with the Building Code.

§165.49 Bathhouse and Bather Preparation Facilities.

(b) *Location.* For all pools, [T]the bather preparation facility shall be located so that the patrons shall pass through the bather preparation facilities to enter the pool. The layout of the preparation facilities shall be such that the patrons on leaving the dressing room pass the toilets and then the showers en route to the pool. For spray grounds, the bather preparation facility shall be conveniently located.

(e) *Shower room.* The number of shower heads to be provided shall be based upon the maximum number of persons, both adults and children, who can be accommodated in a bathing establishment at any one time. In no case shall there be fewer than two showers. A bathing establishment with indoor bathing facilities shall have at least one shower for every 40 persons of each sex. A bathing establishment with outdoor bathing facilities shall have at least one shower for every 80 persons of each sex. Showers in all bathing establishments shall have hot and cold running water. Showers shall be supplied with water at a temperature of at least ninety degrees Fahrenheit (90 °F) and no more than one hundred and ten degrees Fahrenheit (11[0]0 °F) and at a minimum rate of 1.5 gallons per minute and a maximum rate of 2.5 gallons per minute per shower. If shower curtains are used, they shall be of plastic or other impervious material and shall be kept clean. Heavy duty wall mounted soap dispensers (glass prohibited) shall be provided at each individual shower stall or at a rate of one dispenser per two shower heads in a common shower room containing more than one shower head.

(f) *Lavatories.* All lavatories shall be provided with liquid soap in an acceptable dispenser, paper towels or other individual towels or electrical hand-drying units and covered waste receptacles. Common use of bar soap or cloth towels shall not be permitted. Suitable sanitary napkin receptacles shall be provided in female toilet rooms. For spray grounds, a diaper changing area shall also be provided.

Notes: On March 24, 2009, the Board of Health amended various provisions (§§ 165.01-165.05, 165.09-165.11, 165.15-165.19, 165.23-165.31, 165.39, 165.43-165.49) of Article 165, and to create a new § 165.42, to primarily maintain consistency with requirements found in Subparts 6-1 (concerning supervision) and 6-3 (concerning spray grounds) of the New York State Sanitary Code.