

CONNECTICUT PUBLIC SWIMMING POOL MANUAL



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ENVIRONMENTAL HEALTH SECTION

RECREATION PROGRAM

The legal responsibility for approval of the proper construction and safe operation of Public Swimming Pools, Public Whirlpools and Public Wading Pools is vested in the Commissioner of the Department of Public Health of the State of Connecticut.

This manual consist of a compilation of materials that sets forth the regulations, swimming pool fees and the swimming pool design guide which includes the approval process , standards and guidelines for the proper construction and maintenance of public swimming pools, whirlpools, and wading pools.

Compliance with the regulations and guide will protect, promote, and preserve public health and safety by maintaining a minimum standard for the design, safety, cleanliness and general level of sanitation for all public swimming pools, whirlpools and wading pools.

Cost: \$15.00 per copy

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Department of Public Health
Public Health Code 19-13-B33b. Public Pools

19-13-B33b. Public pools

The following requirements shall apply to any public pool.

(a) Definitions.

(1) "Public Pool" means an artificial basin constructed of concrete, steel, fiberglass or other relatively impervious material intended for recreational bathing, swimming, diving, or therapeutic purposes which is located either indoors or outdoors and is provided with a controlled water supply and which is not used or intended to be used as a pool at a single family residence. The term also includes a pool located at a single family residence which is used or intended to be used for commercial or business purposes. The term "public pool" includes any related equipment, structures, areas, and enclosures that are intended for the use of the pool patrons or pool staff such as toilet, dressing, locker, shower, and pool equipment rooms. Public pools shall be classified as follows:

(A) "Public Swimming Pools" are conventional pools used or intended to be used for recreational bathing, swimming and water recreation activities.

(B) "Public Wading Pools" are pools principally used or intended to be used for wading and recreational bathing by small children.

(C) "Public Spas," "Whirlpools," or "Hot Tubs" are pools used for recreational bathing which are used in conjunction with high velocity air systems, high velocity water recirculation systems, hot water, cold water, mineral baths or any combination of these items.

(D) "Public Diving Pools" are pools used only for diving or the training and practice of diving techniques.

(E) "Special Purpose Public Pools" are pools used exclusively for a particular purpose, including but not limited to water flumes, pools for scuba diving instruction, therapeutic pools, hydrotherapy pools, floatation vessels and pools used in aquatic programs for handicapped persons.

(2) "Commissioner" means the commissioner of health services or his designee.

(3) "Depth Markers" means numerals of four inches minimum height which are of a contrasting color with the background of the pool and denote water depth in the immediately adjacent portion of the pool.

(4) "One Unit of Lifesaving Equipment" shall consist of a ring buoy not more than fifteen inches inside diameter to which shall be attached a fifty foot length of one-quarter inch line, and a life pole or shepard's crook with blunted ends which is a minimum of twelve feet in length.

(b) General requirements for public pools.

(1) Construction. No person shall construct a public pool or shall substantially alter or reconstruct any public pool except after the plans for such have been approved in accordance with the specifications contained in the most recent edition of the Connecticut Public Swimming Pool Design Guide as adopted and amended by the commissioner. Such plans shall be prepared by and bear the seal of an engineer or architect licensed to practice in the State of Connecticut and shall be approved by the commissioner. The applicant shall forward copies of the approved plans to the director of health or his authorized agent. All public pools

shall be constructed or substantially altered or reconstructed in accordance with the plans and specifications approved by the commissioner unless prior approval of changes has been granted in writing. The danger of disease, drowning or injury to bathers shall be reduced to a practical minimum. The commissioner may evaluate public pools constructed without the required plan approval to assess conformance with specifications of the Connecticut Public Swimming Pool Design Guide. The commissioner may issue a "certificate of approval for use" to public pools on which construction was completed prior to January 1, 1980 and which are found to comply substantially with the aforementioned criteria. No such certificate shall be issued where deviations from design criteria may substantially increase the risk to public health and safety.

(2) Supervisory Personnel. A person knowledgeable in the operation of the pool and in pool water chemistry and testing shall be on duty on the premises where the pool is located whenever the pool is open for use. Names of supervisory personnel shall be submitted to the local health department annually and whenever a change in such personnel occurs.

(3) Pool Water Quality. Not more than Fifteen per cent of the samples of pool water covering a consecutive period of one month or more shall either (1) yield more than two hundred bacterial colonies per milliliter, as determined by the standard (35 degrees C) agar plate count, or (2) show positive test (confirmed test) for coliform organisms in any of five 10-mL portions inoculated into fermentation tubes or contain more than 1.0 coliform colonies per 50 mL. when the membrane filter test is used. All samples shall be collected, the residual disinfectant removed, and the examination conducted in accordance with the procedures outlined in the latest edition of "Standard Methods for the Examination of Water and Wastewater" (American Public Health Association, American Water Works Association, and Water Pollution Control Federation).

(4) Pool Water Clarity. At all times when the pool is in use the water shall be sufficiently clear to permit a secchi disc or a black disc six inches in diameter on a white field, placed on the bottom of the pool at the deepest point, to be clearly visible from the pool deck.

(5) Pool Water Disinfection and Test Kits. Pool water shall be disinfected by an automatic disinfectant feeder which imparts a measurable residual at all times when the pool is in use. These chemical feeders shall comply with the standards of the National Sanitation Foundation or other standards approved commissioner of health services. When chlorine is used, a free chlorine residual of at least 0.8 mg/l as measured by an approved method listed in "Standard Methods for the Examination of Water and Wastewater" as described in subsection 3 above shall be maintained throughout the pool whenever it is open or in use. If cyanuric acid is used to stabilize the free available residual chlorine, or if chlorinated isocyanurate compounds are used, the concentration of cyanuric acid in the water shall not exceed 100 mg/l and a free available chlorine residual of at least 1.5 mg/l 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. Other disinfecting materials or methods may be used when they have been demonstrated to the commissioner to provide satisfactory disinfection. A test kit for measuring the concentration of the disinfectant, accurate within 0.1 mg/l shall be provided, at each pool. If the cyanuric acid or chlorinated isocyanurates are used, proper testing equipment for measuring cyanuric acid concentration shall be provided. Chemicals in test kits shall be replaced yearly unless shown to produce accurate test results.

(6) Pool Water pH and Alkalinity. The pool water shall be maintained at a pH value of not less than 7.2 and not over 7.8. Testing equipment for measuring pH value shall be available at each pool. Caustic alkalinity shall not be present.

(7) Records and Testing. A pool operation record including all test results shall be maintained on a daily basis by the pool operator. Immediately prior to the daily opening of the pool for use, tests shall be made to determine the amount of residual disinfectant and the pH. These tests shall be repeated at sufficient frequency during periods of bather use to assure that an adequate disinfectant level and pH value are maintained. Whenever tests indicate that an inadequate disinfectant level or inappropriate pH value are present, immediate action shall be taken to reestablish an appropriate disinfectant level and pH value.

(8) Decks, Dressing Rooms, Toilet Rooms, Shower Requirements. The dressing rooms, hallways, toilet rooms, shower rooms or other rooms to which patrons of pools have access shall be kept clean, in good repair, and well ventilated at all times. The floors of the pool deck and all shower rooms and locker rooms shall be treated with a 0.5% chlorine solution, or an equivalent fungicide, daily. Combs or brushes for common use shall not be provided. All persons shall bathe with warm water and soap before entering the pool. Warm water at a temperature of 90 degrees F to 105 degrees F, shall be furnished at showers convenient to the pool for this purpose. Adequate and convenient toilet facilities shall be available for the use of swimmers. Toilet, lavatory sink, and shower fixtures shall be maintained in proper repair so as to be available in ratios required by Design Criteria in effect at the time of plan approval.

(9) Equipment Rooms, Equipment Areas, and Equipment. Equipment rooms, areas, and equipment shall be kept in good repair and in a clean and sanitary condition. Drain grates shall be vandal proof, designed to prevent hand entrapment, and shall be secured in place in a manner that will prevent removal by bathers.

(10) Deck Equipment. Handrails shall be provided at all steps, stepholes, and ladders. When provided diving stands, lifeguard stands, handrails, and ladders shall be properly secured to the pool deck or pool, as appropriate. Deck accessories and equipment shall be properly maintained and stored.

(11) Pool Chemical Storage. Pool chemicals shall be stored in cool, dry, clean, and well ventilated areas and so as to preclude accidental mixing of different chemicals. Containers shall be tightly closed when not in use.

(12) Vacuuming. Pool bottoms shall be vacuumed or mechanically cleaned as frequently as required to maintain pool cleanliness.

(13) Accessibility to Pool Area. All outdoor pools shall be surrounded by a barrier which shall be a minimum of four feet high and designed to discourage access by unauthorized persons. Entry gates shall be self closing and self latching. When the pool is not open for use, access to the pool shall be prevented.

(14) Lifeguards. When no lifeguard service is in effect a warning sign shall be placed in plain view and shall state "Warning - No Lifeguard on Duty" with legible letters, at least four inches high. This warning shall be easily visible from all entry points into the pool area.

(15) First Aid Kit. Every public pool shall be equipped with an American National Red Cross standard 24-unit first aid kit or equivalent. This first aid kit shall be kept filled and ready for use.

(16) Emergency Telephone. There shall be a telephone or other suitable device for emergency communication readily available in the immediate vicinity of each pool. This telephone or device shall be on the premises where the pool is located.

(17) Signs. Signs shall be conspicuously posted at the pool and in public dressing rooms stating the following:

(A) All persons shall bathe with warm water and soap before entering the pool.

(B) Any persons known or suspected of having a communicable disease shall not use the pool.

(C) Spitting or blowing the nose in the pool is prohibited.

(D) Running, boisterous or rough play (except supervised water sports) is prohibited.

(18) Emergency Communications. Instructions regarding emergency calls shall be prominently posted. All pools shall have posted at their entrance (a) directions to the nearest telephone and the nearest first aid unit and resuscitation equipment; (B) the telephone numbers, in print at least one-quarter inches high, of the nearest police and fire departments, emergency medical service provider, hospital and physicians on call in the immediate area. Additionally these telephone numbers shall be posted at the nearest telephone.

(19) Registration. No person, firm, or corporation shall operate or maintain, within any town, city or borough, any public pool without local permits or licenses if such permits or licenses are required by local ordinance. If such local permits or licenses are not required, the person, firm or corporation shall register the name of the owner or owner's agent, business address, and pool location with the local director of health of the town, city, borough, or district where the public pool is located.

(c) Additional requirements for public swimming pools and public diving pools

(1) Depth Markers. Depth markers shall be provided on the pool rim at points of minimum and maximum depths, at all points where the pool floor changes slope, and at appropriate points in between. Depth markers at these points shall be visible from within the pool and while standing on the pool deck.

(2) Lifeguard Stands. When a lifeguard is on duty, there shall be a raised stand 4 feet minimum height for the lifeguard, located at pool side adjacent to the deep end of the pool, so that all areas of the pool are visible to the lifeguard.

(3) Lifesaving Equipment. Each public Swimming pool and public diving pool shall be provided with one unit of lifesaving equipment for each one hundred feet of perimeter of the pool. Life poles or shepherd's crooks shall be mounted in permanent sockets toward the deep area of the pool. Lifesaving equipment shall be mounted in conspicuous places around the pool such as on lifeguard stands, fences or barriers of outdoor pools, and room walls of indoor pools.

(4) Sign. A sign stating the following shall be conspicuously posted at the pool: "No diving is permitted off the deck into shallow areas of the pool."

(d) Additional requirements for public wading pools. Depth Markers. A minimum of one depth marker shall be provided on the pool rim on each side of public wading pools.

(e) Additional requirements for public spas.

(1) Pool Water Disinfection. When chlorine is used, a free available chlorine residual of at least 1.0 mg/l shall be maintained throughout the public spa whenever it is open or in use. If other halogens are used, residuals of equivalent disinfecting strength shall be maintained.

(2) Pool Water Temperature. Pool water temperature shall not exceed 104 degree F in public spas.

(3) Depth Markers. All public spas shall have a minimum of two depth markers indicating maximum water depth. These depth markers shall be located on the spa rim or deck immediately adjacent to the pool.

(4) Precaution Sign. A precaution sign is to be mounted in a clearly visible location, adjacent to the spa. This precaution sign shall contain the following warnings:

CAUTION

(A) Elderly persons and those suffering from heart disease, diabetes, high or low blood pressure should not enter the spa.

(B) Unsupervised use by children is prohibited.

(C) Do not use while under the influence of alcohol, anticoagulants, antihistamines, vasoconstrictors, vasodilators, stimulants, hypnotics, narcotics or tranquilizers.

(D) Do not use alone.

(E) Observe a reasonable time limit, (preferably not longer than 15 minutes) then shower, cool down and, if you wish, return for another brief stay. Long exposures may result in nausea, dizziness or fainting.

(5) Oils, Body Lotions and Soaps. Oils, body lotions and soaps shall be completely removed by the bather prior to use of public spas.

(f) Special purpose public pools. Special purpose public pools shall meet all applicable requirements for public pools.

(g) Responsibility of director of health. When any public pool is found not to meet the requirements of these regulations, or when a condition is found which constitutes a public health or safety hazard or a health nuisance to bathers or pool patrons, the director of health may order such public pool closed until corrections are made. The director of health shall order such closure when there is significant evidence of communicable disease being transmitted through use of the pool, when the public pool is being operated in such manner as to constitute a significant health nuisance, or when imminent safety hazards exist. Inspections shall be conducted by the director of health or his authorized agent to evaluate conformance with these regulations and to protect the public health and safety. Any person aggrieved by an order issued by a director of health, may within forty-eight hours after the making of such order, appeal to the commissioner of health services in accordance with Section 19a-229 of the General Statutes and Sections 19-2-1 to 19-2-43 inclusive of the Regulations of Connecticut State Agencies.

(Effective October 26, 1984.)

SWIMMING POOL FEES

TO: Pool Contractors
Engineers and Architects

FROM: Pamela E. Scully, Sanitary Engineer 3
Recreation Program
Environmental Health Section
Department of Public Health

DATE: October 1, 2009

SUBJECT: SWIMMING POOL FEES –New Rates

APPLICATION OF PUBLIC POOLS:

Connecticut General Statute 19a-36, as amended by Public Act 09-3, stipulates new fee rates for the application process of public swimming pool plan reviews effective October 1, 2009. The fee schedule is as follows:

1. Initial review of pool plans	\$750.00
2. Review of resubmitted (revised) pool plans	\$250.00
3. Conformance inspection of pool	\$200.00
4. Reinspection of pool	\$150.00

A separate fee will be required for each pool reviewed. For example, if the submitted application for pool approval consists of a swimming pool and a wading pool, the fees for the review of this application would be \$1,500 (\$750.00 fee for each pool being reviewed). Likewise to perform the conformance inspection for the same project, the fee would be \$400.00 (\$200.00 fee for each pool being inspected).

The above fee schedule holds true for renovations to existing previously approved pools but shall not apply to the normal maintenance and repair or the replacement of equipment which had been previously approved, provided that the type, size, and/or operating characteristics of the replacement equipment are not substantially different from the original approved equipment.

CONNECTICUT PUBLIC SWIMMING POOL DESIGN GUIDE:

Connecticut General Statute 19a-89b, as amended by Public Act 09-3, stipulates a new fee rate for a copy of the Connecticut Public Swimming Pool Design Guide effective October 1, 2009. The fee for the Guide is \$15.00.

Method of Payment

No cash fees will be accepted. All checks are to be made payable to the “Treasurer, State of Connecticut”.

CT PUBLIC
SWIMMING POOL
DESIGN GUIDE

INFORMATION THAT MUST BE SUBMITTED **FOR THE APPROVAL OF ANY PUBLIC POOL**

- (1) Application for approval for construction of a new public swimming pool, the remodeling of an existing public swimming pool, or, the conversion of an existing private pool to public use.
- (2) Site plan of property showing pool locations in relationship to property lines, sewers and sewage disposal systems, storm water drains and wells. The location of shower and toilet facilities and pool fencing shall be indicated. The method of disposal of filter wash water should be shown giving location and size of any necessary holding tanks, leaching pit, subsurface disposal systems and air gap if filter wastes are discharged to sanitary sewer. Pool water supply and drainage lines should be indicated. Gravity drainage should be provided where possible.
- (3) Detailed drawings of the pool including both plan and profile view. Water depths should be given. Locations of inlets, drains, and overflows should be shown. Pipe sizes and valves should be indicated. Plans of treatment room shall be included. Method of adding fresh water to pool system should be shown. Equipment plans shall be scaled to no less than one-half inch per linear foot.
- (4) Complete specifications of all equipment that is mentioned in the "Connecticut Department of Public Health Public Swimming Pool Design Guide".
- (5) A detailed drawing of the layout of shower and toilet facilities must be provided. The number of showers, toilets, urinals and lavatories shall be given. Local approval of sewage disposal shall be obtained.
- (6) Source of water supply for the pool.
- (7) If pool drainage is pumped or drained to a storm sewer, plans should show how this is accomplished without forming a cross connection between the pool system and the storm sewer.
- (8) All plans for new public swimming pools are to be provided with the seal of a registered professional engineer or architect licensed to practice in the State of Connecticut. See Section 19-13-B33b(b)(1) of the Public Health Code of the State of Connecticut. The need for an engineered plan will be reviewed on an individual basis when a pool is remodeled and/or equipment is replaced.
- (9) The plans must include all items that are mentioned in the "Connecticut Department of Public Health Public Swimming Pool Design Guide".

Specification summary should be completely filled out, covering all items that are applicable in the "Connecticut Department of Public Health Public Swimming Pool Design Guide." and, should also be stamped by a registered professional engineer or architect.

DEPARTMENT OF PUBLIC HEALTH
RECREATION PROGRAM

CHECK LIST
PUBLIC POOL -SWIMMING POOL/WHIRLPOOL SPA
APPLICATION INFORMATION REQUIRED

Forms:

1. *Application for Approval, Plans and Specifications for Public Swimming Pools*
2. *Application for Permit for the Discharge of Public Swimming Pool Water Drainage*
(signed by the appropriate authorities)
3. Equipment List (2 page form that lists all equipment, makes and models, that is proposed to be used)

(All forms available on the DPH web site: Go to www.ct.gov/dph/publicpools)

Plans:

Pool Plans: 1 Set of Plans, Stamped/Signed by a CT Licensed Engineer or Architect
Plans should include: Pool plan/layout with all dimensions and markings
Pool cross sections to show depth/slope of bottom
Piping layout around pool (size and location)
Pool details (including: stairs, end wall, coping, etc)
Equipment room layout and equipment
Make-up water plumbing detail
Pool drainage plumbing detail

Site Plan: 1 Set of Plans
Plans should include: Location of pool
Deck information (material, dimensions, drainage)
Bathroom/Shower facilities
Drinking fountain
Enclosure information
Bather access information

Fees:

\$750 per pool/spa – check payable to: Treasurer, State of Connecticut

Please note that the review process will not begin until the application fee has been accepted.

DEFINITIONS

Deck Level Pool

“Deck level pool” means a pool where the water level at the overflow rim is maintained at or near the same elevation as that of the sanitary deck upslope.

Public Pool

“Public Pool” shall have the same meaning as provided in §19-13-B33b(a)(1).of the Regulations of CT State Agencies.

Sanitary Deck

“Sanitary deck” means the deck that extends completely around a deck level pool from the back edge of the primary gutter drain and slopes up gradient at between 3½ to 5%. This sanitary deck receives displaced pool water and returns it to the primary gutter drain by gravity.

Spray Pool

“Spray pool” means a public swimming pool where no water stands at any time but is drained freely as it is sprayed over the area. The spray pool shall be constructed of an impervious material, which shall have a relatively smooth non-slip surface. The spray pool bottoms shall slope at not less than three inches in ten feet toward the drains and not greater than one foot in twelve feet. The slope of the spray pool bottom shall be uniform.

Water Flume

“Water flume” means a recreational system designed to provide a descending ride down a flume into a splash pool or level run out trough located at the terminus of the flume. The water flume consists of one or more flumes, an entry pool, a splash pool, a pump reservoir, and any related equipment, structure, areas, and enclosures that are intended for persons using or operating the water flume. A flume is that component of a water flume which is used to provide a descending ride into a splash pool. The splash pool is intended to receive bathers exiting flumes and is not intended to be used for general purpose swimming or bathing activities.

Location

- 1.1: All pool shall be located at least 25 feet from any well; Public Health Code, Section 19-13-B51d.
- 1.2: Above ground pools shall be located at least 10 feet from a subsurface sewage disposal system.
- 1.3: Below ground pools shall be located at least 25 feet from any subsurface sewage disposal system: Public Health Code, Section 19-13-B103/Technical Standards for Subsurface Sewage Disposal Systems.
- 1.4: Surface drainage shall be directed away from any well or sewage disposal system. All swimming pool drains shall comply with Public Health Code, Section 19-13-B51d and Section 19-13-B103/Technical Standards for Subsurface Sewage Disposal Systems.

Water Supply

- 2.1: The water supply serving all auxiliary facilities; including, but not limited to, drinking fountains, lavatories and showers, shall meet the requirements of the Public Health Code for potable water, Section 19-13-B39, Section 19-13-B51and Section 19-13-B102.
- 2.2: Water introduced into the pool, either directly; or, to the recirculation system, shall be supplied through an air gap. The air gap shall be twice the size of the pipe diameter with a minimum of 3". The air gap is to be measured between the pipe outlet and the rim of the pool structure. This is required to comply with the requirements of Public Health Code, Section 19-13-B37, Section 19-13-B38(b), and Section 19-13-B45.
- 2.3: The water supply serving the pool shall meet the requirements of the Public Health Code for potable water, Section 19-13-B39, Section 19-13-B51 and Section 19-13-B102. Other sources may be used for the pool if approved by the commissioner of health services.

Sewer System

- 3.1: All water carriage wastes resulting from all auxiliary facilities; including but not limited to, drinking fountains, lavatories and showers, shall be discharged to a public sanitary sewer. When no public sanitary sewer is available, the above wastes shall be discharged to a subsurface sewage disposal system designed in accordance with the Public Health Code, Section 19-13-B103/Technical Standards for Subsurface Sewage Disposal Systems.
- 3.2: Pool drainage shall be discharged through an air gap to a storm drain or surface water drain when the discharge is not located on a public water supply watershed. If the discharge is located on a public watershed, then the drainage shall be discharged to a leaching system that is approved by the commissioner of the Department of Public Health; (Section 19-13-B32). Pool drainage shall be discharged without creating a nuisance. Pool drainage may be discharged to a public sanitary sewer if so approved by the appropriate sewer authority.

- 3.3: All water carriage wastes from the filtration system shall be discharged to a public sanitary sewer through an air gap. A separation or holding tank may be required to equalize flow or remove diatomaceous earth. If no public sanitary sewer is available, the wastes shall be discharge to a leaching pit or gallery in accordance with the Public Health Code; Section 19-13-B103/Technical Standards for Subsurface Sewage Disposal Systems.

Construction Material and Design Detail

- 4.1: Swimming pools, and appurtenances thereto, shall be constructed of materials which are inert, non-toxic to man, impervious, permanent, and enduring; which can withstand the design stresses; and which shall provide a tight tank with a smooth, easily cleaned surface. Sand or earth bottoms are not permitted in swimming pool construction.
- 4.2: The entire swimming pool finish shall be easily cleanable, white or light colored, impervious, inert, non-toxic to man; and, without cracks. Excluding structural expansion joints, which are permanent and enduring there shall be no joints bonded to the supporting members of the pool.
- 4.3: All swimming pools shall be designed and constructed to withstand all anticipated loading for both full and empty conditions. A hydrostatic relief valve shall be provided in areas having a high water table and be not less than 50 feet from sewage disposal system.
- 4.4: No limits are specified for length, width, or shape of swimming pools. However, pools must be designed and such that pool water will be properly circulated and chlorine residuals maintained. From the standpoint of safety at the pool design shall facilitate the supervision of bathers and divers.

Depth and Depth Markings

- 5.1: The minimum depth of water in the swimming pool shall be three feet except for recessed areas where the minimum water depth shall be 2 ½ feet. The recessed area shall be separated from the swimming pool by means of a safety line and buoys and a contrasting color band a minimum three (3) inches in width.
- 5.2: The maximum depth at the shallow end of the swimming pool shall not exceed five feet except of special purpose pool such as diving pools.
- 5.3: Depth markers shall be in numerals of four inches minimum height and a color contrasting with the background. Where depth markers cannot be placed on the vertical walls above the water level, other means shall be used; said markings to be plainly visible to persons in and out of the swimming pool. Depth of water shall be plainly marked near the water surface on the vertical wall and on the edge of the deck next to the pool. Depth markers shall be placed at the following locations:
- a. At the points of maximum and minimum depths.
 - b. At any change of pool floor slope, including the point of change of slope between the deep and shallow portions of the pool, that is the breakpoint;

- c. At intermediate one-foot increments of water depth in the shallow end; and,
 - d. If the pool is designed for diving, at appropriate points to denote the water depths in the diving area.
 - e. If the pool is of constant depth, at appropriate points that will satisfactorily denote the water depth.
- 5.4: At the breakpoint between the shallow and deep ends of the pool there shall be a contrasting color band minimum three (3) inches in width so as to delineate the non-swimmers' area from the swimmers' area.

Inlets and Outlets (Main Drains)

- 6.1: All swimming pools shall be provided with outlet(s) at the deepest point both to permit the pool to be completely and easily emptied, and, for efficient circulation of water. The main drain outlet discharge piping shall be separate and sufficient for removal of the water through it at a rate of 100% of the swimming pool design recirculation flow rate. The piping system shall be valved to permit adjustment of flow through it. The outlet openings of the grating in the floor of the pool shall be at least four times the area of discharge pipe, or provide sufficient area so that the maximum velocity of the water passing the grate will not exceed 1½ feet per second. The grate shall be of vandal-proof type.
- 6.2: In all newly constructed public pools a minimum of two (2) main drains (outlets) shall be provided. One outlet must be located at the deepest point of the pool (Section 6.1); while the second outlet may also be located on the pool floor or near the bottom of the pool on a nearby side wall. A minimum separation distance of three (3) feet, measured edge of cover to edge of cover, shall be maintained between each outlet.
- 6.2 a: Each outlet shall have its own suction pipe that shall be manifold with the suction pipe(s) from the other outlets prior to the circulating pump. The manifold shall be located in close proximity to the location of the drains. The piping system shall be valved to permit adjustment of flow through it (Section 6.1); however, no valves shall be located on the outlet suction pipes prior to the manifold.
- 6.2 b: All main drain covers in public pools must conform to the entrapment protection standard of the current ASME/ANSI A112.19.8 performance standard and ANSI/APSP-16 2011 .
- 6.3: Inlets for re-purified water shall be located to product uniform circulation of water and to facilitate the maintenance of a uniform disinfectant residual throughout the entire swimming pool without existence of dead spots. Inlets from the circulation system shall not protrude greater than one inch from the pool wall or floor. When inlets are installed in the wall, they shall be submerged at least eight (8) inches below the water level. When an integral return channel is supplied in a gutter system the orifices returning the water shall be directed, at a 45° angle, from the pool wall, toward the pool floor.
- 6.4: Where the distance across the shallow portion of a swimming pool is more than 20 feet, multiple inlets shall be provided.

6.5: Each inlet shall be:

- (a) Designed as an orifice subject to adjustment, or;
- (b) Provided with an individual gate or similar valve to permit adjustment of water volume to obtain the best circulation, or;
- (c) Hydraulically balanced so as to deliver proper flow at each inlet.

All return inlets shall be sized so as to provide a minimum inlet velocity of 10 ft./second.

6.6: One inlet shall be provided for each 600 square feet of water surface area; or fraction thereof, or, one inlet for each 15,000 gallons of pool capacity whichever is greater.

6.7: If the width of the pool is greater than 50 feet, additional inlets, such as floor inlets, shall be required. The inlets shall be located so as to insure good circulation.

6.8: Shallow end recessed areas and/or shallow end level areas shall be provided with additional return inlets and surface skimmers to provide for additional recirculation of the water in these areas.

Slope of Bottom

7.1: The slope of the bottom of any portion of the swimming pool having a water depth of less than five feet shall not be more than one foot in 12 feet. This slope shall be uniform. In portions with a depth greater than five feet, the slope shall not exceed 1 foot in 3 feet.

7.2: The pool floor may be level from the shallow end wall to a change in slope of the bottom if the water depth in the level area is not less than three (3) feet or greater than four (4) feet.

The slope of the bottom of the pool after the level area having a water depth of less than five (5) feet shall not exceed one (1) foot in twelve (12) feet.

7.3: At the point where the shallow level end terminated and the bottom slope begins there shall be a contrasting color band a minimum three (3) inches in width and a removable safety line and buoys to delineate the level floor from the sloped portion of the pool floor.

Side Walls

8.1: Walls of a swimming pool shall be either (a) vertical for water depths of at least six feet; below six feet the wall slope shall be greater than one foot horizontal for each one foot depth or (b) vertical for a distance of three feet below the water level below which the wall may be curved to the bottom with a radius tangent to the vertical wall, and equal to or greater than, the difference between the maximum depth and three feet. The vertical is interpreted to mean slopes not greater than one foot horizontally for each five feet of depth of sidewall (11 degrees from vertical).

Overflow Gutters

- 9.1: Overflow gutters or shimmers shall be required on all pools.
- 9.2: Where an overflow gutter is used, it shall extend completely around the swimming pool, except at steps or recessed ladders. The overflow gutter shall also serve as a handhold. This gutter shall be capable of continuously removing 100% or more of the recirculated water and returning it to the filter. All overflow gutters shall be connected to the recirculation system through a properly designed surge tank or other method approved by the commissioner of the Department of Public Health. The gutter, drains and return piping to the surge tank shall be designed to rapidly remove overflow water caused by recirculation displacement, wave action, or other causes produced from the maximum pool bathing load. The opening into the gutter beneath the coping shall be not less than four inches and the interior of the gutter shall be not less than three inches wide with a depth of at least three inches. Where large gutters are used, they shall be designed to prevent entrance or entrapment of bathers' arms or legs. The overflow edge or lip shall be rounded and not thicker than 2½ inches for the top two inches. The overflow outlets shall be provided with outlet pipes which shall in any case be at least two inches in diameter. The outlet fittings shall have a clear opening in the grating at least equal to 1½ times the cross-sectional area of the outlet pipe.

Gutters provided with integral skimming weirs shall have placement of such weirs at no greater than thirty-five (35) feet intervals about the perimeter. One integral skimming weir is to be located at each corner of the pool. The weirs shall be provided with automatic open-close adjustment for variable pool water levels during quiescence and in-use periods.

- 9.3: The velocity through gravity piping draining overflow gutter systems shall not exceed four feet per second at 100% of the design flow rate. When converter boxes are installed refer to the following table:

CONVERTER BOX DISCHARGE PIP SIZING TABLE

FLOW RATE (GPM)		CONVERTER BOX DISCHARGE PIPE (MINIMUM PVC PIPE DIAMETER)
Less than	240	5"
Less than	340	6"
Less than	600	8"
Less than	950	10"
Less than	1400	12"

9.4: The surge tank for a swimming pool shall have a total usable surge capacity in gallons proportional to the pool water surface area in square feet. That is, for each square foot of pool surface area one gallon of surge capacity shall be provided in the surge tank. Swimming pools which utilize gutters that are designed for in-pool surge capacity, or gutters which incorporate overflow ducts or channels for surge capacity, shall be provided with a balance tank not less than 1,000 gallons net surge capacity; or, 0.5 gallons per square foot of pool water surface area, whichever is greater. The total surge capacity shall be sufficient such that the overflow system will not flood in a manner to adversely affect the hydraulic characteristics and operation of the system.

A mechanical float operated modulating valve shall be installed in the balance-surge tank to automatically regulate flow from the main drain line and compensate for heavy surges from the pool overflow system. The valve shall adjust flow in the main drain in direct proportion to the water level in the balance tank and shall completely shut down the main drain flow when the water level in the tank reaches a pre-set height.

9.5: Automatic water fill controls with manual override shall be provided to maintain the pool at the proper operating level.

9.6: The perimeter overflow system shall be capable of continuously, simultaneously and automatically complying with the surge capacity requirements and skimming requirements during quiescence and pool use periods.

9.7: Nothing in this Section shall preclude the use of roll-out or deck level type swimming pools for medical rehabilitation or competitive sports. Such designs shall conform to the general provisions relating to overflow rates. The design of the curb and handhold shall conform to accepted standards, and the approval of the commissioner of health services shall be based on detailed review of this feature of construction and evaluated in the light of proposed use of the pool.

Skimmers

10.1: All skimmers shall comply in all respects with the standards of the National Sanitation Foundation covering skimmers, or other standards that are approved by the commissioner of the Department of Public Health.

10.2: All pools equipped with skimmers shall have handholds. Handholds shall consist of bull-nosed coping not over 2½ inches thick for the outer two inches; or, other methods approved by the commissioner of the Department of Public Health.

10.3: Where skimmers are used, they shall be applied to public swimming pools on the basis of 500 square feet of water surface area per unit or fraction thereof. The required skimmers shall be distributed to insure effective skimming of the entire surface. Their location shall also take into consideration the pool shape, prevailing winds and the circulation patterns within the pool.

Rectangular pools which are twenty (20) feet or less in width and fifty (50) feet, or less, in length, shall be provided with at least two skimmers. Each skimmer is to be located not greater than ten (10) feet from the end wall.

The two skimmers may be located on one side of the pool when the prevailing wind is considered a factor. Otherwise the two skimmers should be located diagonally, one at each side of the pool. The inlets should be placed so as to increase the water circulation toward the skimmers for effective skimming, and in order to eliminate dead spots.

Rectangular pools which are greater than twenty (20) feet wide shall be provided with at least three skimmers. At least two skimmers shall be located in the shallow end of the pool no greater than 10 feet from the end wall. At least one skimmer shall be located in the deep end of the pool no greater than 10 feet from the end wall.

Rectangular pools, which are greater than fifty (50) feet in length, shall be provided with a minimum of four skimmers. At least two skimmers shall be located in the shallow end, not greater than 10 feet from the end wall, and at least two skimmers shall be located in the deep end of the pool, not greater than 10 feet from the end wall.

Where unusual shapes of pools are encountered, special considerations shall be given the number of skimmers used. The required skimmers shall be distributed to insure effective skimming of the entire surface; not less than one skimmer shall be located on each side of the pool. The return inlets shall be sized to provide an inlet velocity of at least 10 ft./sec. for good mixing to provide proper dispersal of return water. Inlets should be arranged to provide circulation patterns moving past the skimmers that will in turn aid the surface drift to the skimmers. Skimming devices shall be built into the pool wall with no protrusions beyond the face of the wall or above the deck, and for flat-type weirs; the resulting throat shall not be narrower than the skimmer weir. Skimmers shall be accurately positioned as to grade to assure that the average operating water level occurs at the midpoint of the weir operating range. The piping and other pertinent components of skimmers shall be designed for total capacity of at least 100% of the required filter flow of the recirculation system. No skimmer shall be designed for flow-through rate less than 30 gallons per minute. For multiple skimmer installations, each skimmer shall be individually adjustable for flow. Single skimmers not equipped with an integral trimmer valve shall be so installed as to facilitate the balancing of flow between the skimmer and the main outlet.

Recirculation Systems

- 11.1: A recirculation system consisting of pumps, piping, filters, water conditioning, and disinfection equipment and other accessory equipment shall be provided which will clarify and disinfect the swimming pool volume of water in eight hours except that the recirculation rate shall be increased to provide a quicker turnover for swimming pools subjected to heavy bather loads. Wading pools shall have a turnover rate of two hours or less. Whirlpool spas shall have a turnover rate of one hour or less. Spray pools shall have a turnover rate of 30 minutes or less.
- 11.2: All piping shall be designed to reduce friction losses to a minimum and to carry the required quantity of water at a maximum velocity not to exceed: six feet per second for copper tubing, six feet per second for suction PVC piping and ten feet per second for discharge PVC piping. Piping shall be of non-toxic material, resistant to corrosion, and able to withstand operating pressures. Pipes shall be identified by a color code or tags.
- 11.3: A vacuum-cleaning system shall be provided. When the vacuum-cleaning system is an integral part of the recirculation system, sufficient connections shall be located in the walls of the swimming pool at least eight inches below the water line.

- 11.4: A rate-of-flow indicator, reading in gallons per minute, shall be installed and located, preferably on the swimming pool return line, so that the recirculation rate is indicated. A minimum straight run of pipe of ten (10) pipe diameters shall precede the location chosen to mound the indicator and a minimum of five (5) pipe diameters of straight run shall follow the indicator on the downstream side. Flowmeters shall be installed so as to be easily read.

The flow indicator shall have an accuracy rating of 5% or better of the maximum bypass flow.

Where more than one pool served by a common filtration system, separate rate-of-flow gauges and chlorinators shall be installed on the pool return line of each pool.

- 11.5: Pumps shall be of adequate capacity to provide the required number of turnovers of swimming pool water as specified in Section 11.1, and whenever possible shall be so located as to eliminate need for priming. If the pump or suction piping is located above the overflow level of the pool, the pump shall be self-priming. Under normal conditions, the pump shall supply the recirculation rate of flow at a dynamic head of at least 50 feet for pressure sand type filters or at least 60 feet for cartridge or pressure diatomaceous earth type filters; or as approved by the commissioner of the Department of Public Health.
- 11.6: Pumps shall comply with all standards of the National Sanitation Foundation, or other standards that are approved by the commissioner of the Department of Public Health.
- 11.7: All pumps shall have a vacuum and effluent pressure gauges.
- 11.8: The recirculation system shall include a strainer to prevent hair, lint, etc., from reaching the pump and filters. Strainers shall be corrosion resistant with openings not more than one-eighth inch in size, providing a free flow area at least four times the area of pump suction line and shall be readily accessible for frequent cleaning.
- 11.9: Swimming pools equipped with heaters shall have a fixed thermometer in the recirculation line at the heater outlet and another near the outlet to the pool.

User Loading

- 12.1: In order to compute swimmer and bather capacity the maximum number of persons who may be permitted to be within the swimming pool enclosure at any one time shall not exceed one person per twenty-five square feet of water surface area.
- 12.2: In order to compute swimmer and bather capacity the maximum number of persons who may be permitted to be within the wading pool enclosure at any one time shall not exceed one person per ten square feet of water surface area.

Sand Type Filters

- 13.1: All sand type filters, whether of the gravity or pressure type, shall comply in all respects with the standards of the National Sanitation Foundation covering such filters, or other standards that are approved by the commissioner of the Department of Public Health. When the filtration rate exceeds 3 gpm per square foot of filter area, the filter shall be approved by the National Sanitation Foundation, or other testing that is approved by the commissioner of the Department of Public Health.
- 13.2: High rate sand filters shall have filtration rates that comply with the standards of the National Sanitation Foundation. No high rate sand filter shall have a designed filtration rate that exceeds 20 gpm per square foot of filter area.
- 13.3: Influent and effluent pressure gauges shall be provided on all sand filters.

Cartridge Filters

- 13A.1: Cartridge type filters shall be approved by the National Sanitation Foundation, or other testing that is approved by the commissioner of the Department of Public Health.
- 13A.2: No cartridge type filters shall have a designed filtration rate that exceeds 0.375 gpm per square foot of filter area.
- 13A.3: At least one full set of replacement cartridge filter elements shall be available to allow uninterrupted filtration of whirlpool water during cleaning of dirty filter elements.
- 13A.4: Adequate facilities for cleaning and rinsing of cartridge filter elements shall be provided.
- 13A.5: Influent and effluent pressure gauges shall be provided on all cartridge type filters.
- 13A.6: All cartridge filter elements shall be permanently marked with the manufacturer's name and the filter area in square feet.

Diatomaceous Earth Type Filters

- 14.1: All diatomaceous earth type filters whether of the vacuum or pressure type, shall comply in all respects with the standards of the National Sanitation Foundation covering such filters, or other standards that are approved by the commissioner of the Department of Public Health.
- 14.2: The rate of filtration: The design rate of filtration for pressure diatomaceous earth filters shall not be greater than 2.0 gpm per square foot of effective filtering surface. The filtration rate for vacuum diatomaceous earth filters shall not be greater than 1.5 gpm per square foot of filter area without continuous body feed, and not greater than 2.0 gpm/sq. Ft. with continuous body feed.

Equipment Enclosure and Storage Areas

- 15.1: All filters, pumps, chemical feeding apparatus and other mechanical equipment shall be secured and protected by an appropriate enclosure or room, separate and apart from the swimming pool.
- 15.2: The equipment enclosure or room shall be designed so that the pool equipment can be easily and safely maintained and repaired.
- 15.3: Sufficient area, reasonably separate from the recirculation equipment, shall be provided for the satisfactory storage of pool water chemicals and supplementary pool equipment.
- 15.4: Operating instructions and a schematic drawing for all pool equipment are to be provided in the pool equipment enclosure or room.

Ladders, Recessed Treads and Stairs

- 16.1: Steps or ladders shall be provided at the shallow end of the swimming pool if the vertical distance from the bottom of the pool to the deck or walk is over two feet. Recessed steps or ladders shall be provided at the deep portion of the swimming pool. If the pool is over 30 feet wide, such steps or ladders shall be installed in each side of the deep portion.
- 16.2: Steps leading into the swimming pool shall be of non-slip design, have a minimum tread of 12 inches and a maximum rise or height of ten inches. The top step shall be at least 4 feet wide. There shall be no abrupt drop off or submerged projections into the pool, unless guarded by handrails.
- 16.3: Swimming pool ladders shall be corrosion-resistant and shall be equipped with non-slip treads. All ladders shall be so designed as to provide a handhold and shall be rigidly installed. There shall be a clearance of not more than five inches nor less than three inches between any ladder and the pool wall. If steps are inserted in the walls; or if stepholes are provided, they shall be of such design that they may be cleaned readily. They shall be arranged to drain into the pool to prevent the accumulation of dirt thereon. Stepholes shall have a minimum tread of five inches and a minimum width of 14 inches.
- 16.4: Where steps, stepholes, or ladders are provided within the swimming pool, there shall be a handrail at the top of both sides thereof, extending over the coping or edge of the deck.
- 16.5: The edge of all steps at the riser/tread junction shall be delineated with bands or lines of a dark contrasting color so as to be easily visible from above and below water level.
- 16.6: Starting blocks or platforms, where provided, shall be located adjacent to pool areas with a minimum water depth of four and one-half (4.5) feet. Starting blocks shall be removable and should be in place only during competitive swimming meets or training.

The front edge of starting platforms or blocks shall be thirty (30) inches or less above the water level. The top surface of starting platforms or blocks shall be of a non-slip design.

Decks and Walkways

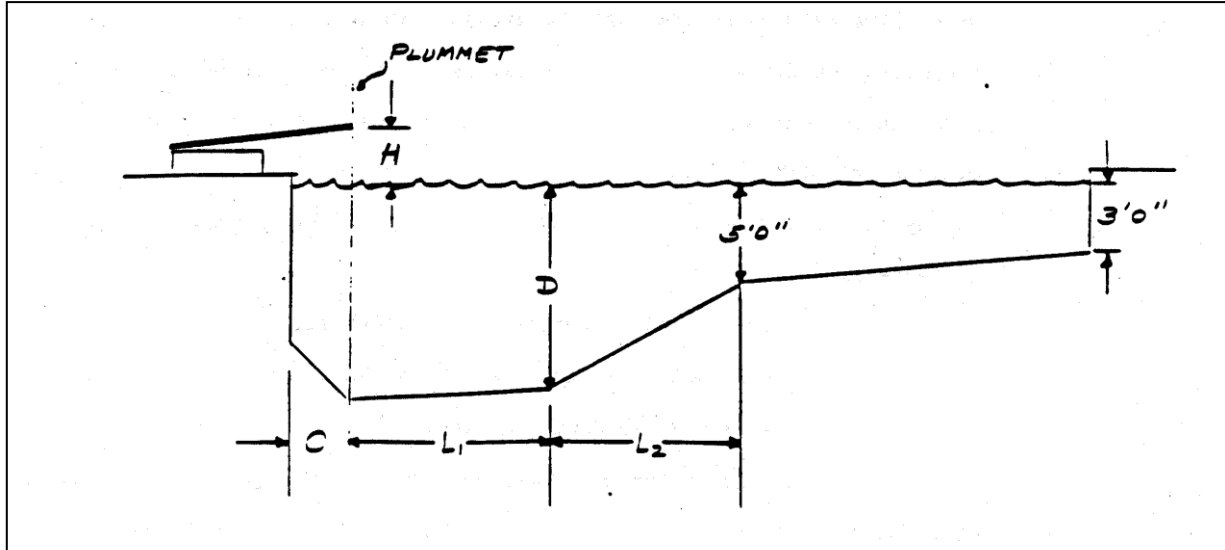
- 17.1: A continuous deck at least five feet wide (and preferably eight or more feet) measured so as not to include the coping or any gutter system components, shall extend completely around **each** swimming pool. The deck shall have a uniform slope away from the pool to drain at a grade of 1/4 inch to 3/8 inch per lineal foot except for special purpose deck level pools for medical rehabilitation or competitive sports. The deck shall have an impervious non-slip surface. Deck drains shall not be connected to the recirculation system or gutters. Deck drains shall be provided on all indoor swimming pools.
- 17.2: All decks and walkways shall have a slip-resistant, impervious surface except that non-porous resilient artificial recreational surfaces may be used. These surfaces shall comply with all requirements of standard No. 50 of the National Sanitation Foundation. If such artificial recreational surfaces are installed then a water vacuum shall be provided for proper maintenance. The artificial recreational surface shall be capable of withstanding daily disinfection with a 0.5% chlorine solution.
- 17.3: All outdoor pools, with the exception of splash pads and spray parks, shall be protected by a fence, wall, or other barrier, or any combination thereof, which completely encloses the swimming pool area. All of the following conditions for pool enclosures must be complied with:
- (a) Constructed so as to afford no external handholds or footholds.
 - (b) Constructed of materials which are durable.
 - (c) A four-foot minimum height is provided entirely around the swimming pool at the outside of the deck.
 - (d) The horizontal space between vertical members of the enclosure shall not exceed two inches.
 - (e) The height of any opening under the bottom of the enclosure shall not exceed two inches.
 - (f) Fences shall have a self-closing gate, with a latch at least 3.5 feet above the ground, which can be locked.

Indoor pools shall be provided with locked doors.

- 17.4: Whenever one or more diving boards are installed at a public swimming pool there shall be at least five feet of unobstructed deck behind the diving boards(s).

Diving Areas

18.1: The dimensions of the diving area in all public swimming pools shall conform to the following minimum dimensions:



Height of Diving Board	Minimum Water Depth Throughout Diving Well	Overhang	Length of Diving Well	Runout
H	D	O	L1	L2
1/2 M	10 feet	3 feet	12 feet	15 feet
3/4 M	10 feet	3 feet	12 feet	15 feet
1 M	10 feet	4 feet	12 feet	15 feet
1.1-3.0 M	12 feet	5 feet	20 feet	21 feet

Diving boards less than 1/2 meter in height are not allowed.

18.2: There shall be no obstruction extending from the wall or floor into the clear area of the diving portion of the pool. There shall be a completely unobstructed clear distance of 15 feet above the diving board measured from the center of the front end of the board, and this area shall extend at least eight feet (8 ft.) behind, eight feet (8 ft.) to each side and sixteen feet (16 ft.) ahead of the measuring point.

18.3: Horizontal separation of ten feet shall be provided between one-meter diving boards and side walls. The separation to the side walls for boards greater than 1.0 meter shall be at least 15 feet. The horizontal separation between boards shall be at least 10 feet.

- 18.4: Supports, platforms, and steps for diving boards shall be of substantial construction and of sufficient structural strength to safely carry the maximum anticipated loads.

Diving boards 1.0 meter or greater in height shall be equipped with steps or ladders.

Steps shall be constructed of corrosion-resistant material. Easily cleanable, and non-slip design. Handrail(s) shall be provided at all steps and ladders leading to diving boards.

Platforms and diving boards, which are over one meter high, shall be protected with guard railings.

- 18.5: Where diving boards 14 feet or greater in length are to be installed, diving area dimensions shall comply with the most recent National Collegiate Athletic Association (NCAA) standards.

Disinfectant and Chemical Feeders

- 19.1: All chemical feeders shall comply in all respects with the standards of the National Sanitation Foundation covering chemical feeders, or other standards that are approved by the commissioner of the Department of Public Health.
- 19.2: The swimming pool shall be equipped with a chlorinator, hypochlorinator, or other disinfectant feeder and all feeders shall meet the following requirements:
- 19.2.1: Shall be sturdily constructed of materials which will withstand wear, corrosion, or attack by chemical solutions or vapors. Shall not be adversely affected by repeated regular adjustments or other conditions anticipated in the use of the device. The feeder shall be capable of being easily disassembled for cleaning and maintenance. The design and construction shall be such as to preclude stoppage from chemicals intended to be used, or foreign materials that may be contained therein. The feeder shall incorporate failure-proof features so that the chemical cannot feed directly into the swimming pool, the pool piping system, water supply system, or the swimming pool enclosure under any type of failure of the equipment or its maintenance.
- 19.2.2: Shall be capable of supplying at least the equivalent of one pound of chlorine per eight hours for each 10,000 gallons of swimming pool capacity under conditions of operation to be anticipated at the proposed installation.
- 19.2.3: When a disinfectant is introduced at the suction side of the pump, a device or method shall be provided to prevent air lock of the pump or recirculation system.
- 19.2.4: When a hypochlorite solution is used to be fed through hypochlorinator equipment, such equipment shall also provide the following additional features:
- (a) Feed shall be positive under all conditions of pressure in the circulating system, and without artificial constriction of pump suction line whether this line is vacuum or pressure head.
 - (b) Regulation shall be provided to insure constant feed with varying supply or back pressure.

- (c) Positive feature to prevent back-flow from recirculation system to the solution container, and provision for reducing to a minimum the entry into swimming pool of insoluble calcium compound released from calcium hypochlorite.
- (d) Provision to prevent siphoning of hypochlorite solution when the recirculation pump and hypochlorinator are both turned off.

Lighting, Ventilation and Electrical Requirements

- 20.1: Where underwater lighting is used, not less than 0.5 watts shall be employed per square foot of swimming pool water surface area. Such lights shall be spaced to provide illumination so that all portions of the pool, including the bottom, may be readily seen without glare.
- 20.2: Area lighting shall provide at least 0.6 watts per square foot of deck area. If such lighting is used for night swimming, area and swimming pool lighting combined shall provide at least two watts per square foot of pool area with two-foot candles of illumination.
- 20.3: All electrical wiring shall conform with the National Electrical Code of the National Underwriters Laboratory and the State Basic Building Code.
- 20.4: Each underwater light shall be individually grounded by means of a screwed or bolted connection to the metal junction box from which the branch circuit to the individual light proceeds. Such junction boxes shall not be located in the swimming pool deck.
- 20.5: No overhead electrical wiring shall pass within 20 feet of the swimming pool enclosure.
- 20.6: All indoor swimming pools, bathhouses, dressing rooms, shower rooms and toilet spaces shall be adequately ventilated either by natural or mechanical means.

Dressing Rooms, Toilets, and Showers

- 21.1: Dressing rooms, toilets, and showers shall be conveniently located adjacent to the shallow end of the swimming pool. The separating distance between the bathhouse and the shallow end of the pool should not be greater than (25) twenty-five feet.
- 21.2: Bathhouses to be used simultaneously by both sexes shall be divided into two parts separated by a tight partition, each designated for men or women. The entrances and exits shall be screened to break line of sight. The layout of the bathhouse should be such that the bathers on leaving the dressing room pass the toilets and showers en route to the swimming pool.
- 21.3: Floors of bathhouse shall be of smooth finished material with non-slip surface, impervious to moisture, and sloped to a drain. Junctions between walls and floors shall be coved.
- 21.4: Walls and partitions shall be of smooth, impervious material, free from cracks or open joints. Partitions between dressing rooms cubicles shall terminate at least ten inches above the floor or

shall be placed on continuous raised masonry or concrete bases at least four inches high. Lockers, if provided, shall be set either on solid masonry bases four inches high or on legs with the bottom of the locker at least ten inches above the floor. Lockers shall be properly vented.

21.5: Bathhouse facilities shall be provided on the basis of the following fixture schedule:

	<u>Males</u>	<u>Females</u>
Water Closets	1/75	1/50
Urinals	(see below *)	-----
Lavatories	1/100	1/100
Showers	1/50	1/50

* A minimum of one urinal must be provided. Urinals may be substituted for up to 50% of the water closets for the men's facilities.

Drinking Fountain - minimum of one to be located in swimming pool area for every 1000 persons.

For determining the required number of facilities, it will be assumed that the maximum bathing load calculations shall be distributed equally between both of the sexes. 50% of the population will be counted as males and 50% will be counted as females.

Fixture schedules should be increased for swimming pools at schools or similar locations where bather loads may reach peaks due to schedules of use.

21.6: Showers shall be supplied with water at a temperature of at least 90°F., at a rate of at least three gallons per minute per shower head. Thermostatic, tempering, or mixing valves shall be installed if necessary to prevent scalding of the bathers. Showers shall be installed indoors both for privacy and so that showering shall be encouraged.

Visitor and Spectator Areas

22.1: There shall be absolute separation between the spaces used by visitors and spectators from spaces used by the bathers.

22.2: No food or drink shall be permitted in the immediate area of the swimming pool or on the decks surrounding the pool.

Safety Requirements - Lifesaving Equipment

23.1: When a lifeguard is on duty, there shall also be a raised stand minimum height of four (4) feet for the lifeguard, so placed at the poolside in the deep end so that all areas of the pool are visible to the lifeguard.

23.2: One unit of lifesaving equipment shall be provided for each one hundred running feet of perimeter of the pool and shall consist of the following: A ring buoy not more than approximately 15 inches in inside diameter to which shall be attached a 50 foot length of one-quarter inch line,

and a life pole or shepherd's crook type of pole having blunted ends with minimum length of 12 feet.

- 23.3: Every swimming pool shall be equipped with a standard 24-unit first aid kit, which shall be kept filled and ready for use (American Red Cross approved).
- 23.4: Lifesaving equipment shall be mounted in conspicuous places, distributed around the swimming pool deck, at lifeguard chairs, or elsewhere, readily accessible, its function plainly marked, and kept in repair and ready condition.
- 23.5: Where no lifeguard service is in effect, a warning sign shall be placed in plain view and shall state, "Warning - No lifeguard on Duty" with legible letters, at least four inches high. Instructions regarding emergency calls shall be prominently posted. Suitable signs embodying Public Health Code regulations and instructions (Section 19-13-B33b) shall be conspicuously posted at the pool and in public dressing rooms.
- 23.6: Every swimming pool shall have a readily accessible room or area designated and equipped for emergency care, which shall include a telephone.
- 23.7: Panic bars shall be provided on all maintenance room and chemical room doors.

Disinfection and Quality of Water

- 24.1: Shall comply with the Public Health Code, Section 19-13-B33b.
- 24.2: Any substance that is added to the pool directly or indirectly must be approved by the commissioner of the Department of Public Health.
- 24.3: A testing kit must be provided that can measure both the concentration of the disinfectant within 0.1 mg/l, and the pH. Test kit must use DPD (diethyl-p-phenylene-diamine) method for measuring chlorine residual.

Wading Pools

- 25. Wading Pools shall meet all requirements of the Connecticut State Department of Public Health Public Swimming Pool Design Guide, or, as other wise specifically stated under Section 25.
- 25.1: Every wading pool located in the same premises as a public swimming pool shall be equipped with a completely separate and independent circulation system. However, if the circulation system of the wading pool shares a circulating pump and filter with the main pool, then, a separate flowmeter and automatic chlorinator shall be provided for the wading pool.
- 25.2: Wading pools shall have a maximum turnover of two hours.
- 25.3: Main Drains for wading pools must comply with Sections 6.1, 6.2, 6.2a and 6.2b of the Connecticut Public Swimming Pool Design Guide, with the requirement for two main drains applying to both newly constructed and existing wading pools.

- 25.4: The maximum depth of a wading pool shall be 24 inches. The maximum depth at the shallow end and sidewalls of a wading pool shall not exceed 12 inches.
- 25.5: A wading pool shall be completely separated from an adjacent swimming pool by a fence at least four feet in height with a self-closing gate having a lockable latch at least 3.5 feet above the ground.
- 25.6: The maximum number of children who may use a wading pool at any one time shall not be more than one child per ten square feet of water surface area.

Whirlpools

26: Therapeutic pools, hydrotherapy pools and whirlpools intended for therapeutic or recreational use shall meet all requirements of the Connecticut State Department of Public Health Public Swimming Pool Design Guide, or otherwise as specifically stated under Section 26: Whirlpools.

26.1: Location

The location of the therapeutic pool shall be visible from any point in the room in which it is located. This unobstructed view is required for the purpose of safety.

26.2: Decking

Decking, a minimum of five feet wide as measured from the water edge, shall be provided for at least fifty percent of the whirlpool perimeter. A minimum ten feet wide deck shall be provided between any two adjacent whirlpools; or a whirlpool that is located adjacent to a swimming pool.

26.3: Deck Drains

Deck drains shall be provided and discharged to waste in accordance with Section 17.1.

26.4: Steps, Stairs, Seating Benches

Dark contrasting color or lines shall be used to indicate any break in floor level, such as steps, stairs, or seating benches.

Steps shall be of non-slip design.

Safety handrail devices shall be provided at steps or stairs. The top step should be a minimum of two feet in width.

26.5: Depth

The maximum depth of water shall not be greater than 38 inches to the floor bottom and not greater than 24 inches above the seating area. When the whirlpool is to be used only by adults the

maximum water depth may be increased to 42 inches to the floor bottom and 26 inches above the seating area.

26.6: Inlets

One return inlet shall be provided for each 65 square feet of surface area and so located to produce uniform circulation of water and to facilitate the maintenance of a uniform disinfectant residual. The filter and the recirculation piping system may be separate from the therapy nozzle (hydro jets) circulation system. Hydro jets may be included as inlets if the hydro jets are connected to the filtration and chlorination system. An air-jet system shall have its own air pump and air circulating piping. No air injection may be connected to the water flow piping. Air blowers should be piped to inlet fittings and not into the return line.

26.7: Skimmers

Adequate surface skimming shall be provided. One automatic weir type skimmer is required for each 200 square feet of water surface area.

26.8: Main Drain

Main Drains for whirlpool spas, both for the recirculation system and the therapy nozzle (hydro jets) circulation system, must comply with Sections 6.1, 6.2, 6.2a and 6.2b of the Connecticut Public Swimming Pool Design Guide.

26.9: Filter and Recirculation Systems

Separate filter, recirculation, and chlorination systems shall be provided and shall be independent of any adjacent swimming pool or wading pool. The same recirculation system may be used for two (2) whirlpools provided each is equipped with its own separate disinfection system and flowmeter.

26.10: Turn-Over Rate

The pool volume of water shall be completely recirculated in one hour or less.

26.11: Underwater Lighting

A low voltage underwater lamp featuring a turquoise blue lens is recommended in all installations with separate circuit system. White lens may amplify the cloudiness of the water caused by the air bubbles.

26.12: Pool Water Temperature

During whirlpool operation the temperature range should be between 100-103F. The maximum temperature for whirlpool water shall not exceed 104F.

26.13: Ceiling Height

The height from the top of pool rim to ceiling shall be at least 7 feet and 6 inches and shall be unobstructed.

26.14: Safety

Whirlpools shall have permanent depth markings that are clearly located as follows:

- a. The maximum water depth shall be clearly marked.
- b. There shall be a minimum of two depth markings per whirlpool. Depth markings shall be uniformly located around the whirlpool perimeter at no greater than 25 feet intervals.
- c. All depth markers shall be positioned on the deck within 12" of the water edge.

A precaution sign is to be mounted in a clearly visible location adjacent to the whirlpool, stating;

CAUTION

1. Elderly persons and those suffering from heart disease, diabetes, high or low blood pressure should not enter the whirlpool.
2. Unsupervised use by children is prohibited.
3. Do not use while under the influence of alcohol, anti-coagulants, antihistamines, vasoconstrictors, vasodilators, stimulants, hypnotics, narcotics or tranquilizers.
4. Do not use alone.
5. Observe a reasonable time limit. A maximum of ten minutes is recommended. Shower and cool down, and, if you wish, return for another brief stay.

Long exposures may result in nausea, dizziness, or fainting.

26.15: Filters

Sand type filters shall not be used for whirlpools.

Cartridge type filters for whirlpools shall meet all the requirements of Section 13A of the Connecticut Public Swimming Pool Design Guide.

Diatomaceous earth type filters for whirlpools shall meet all the requirements of Section 14 of the Connecticut Public Swimming Pool Design Guide.

Cleaning Swimming Pools

- 27.1: A vacuum cleaner or vacuum system shall be provided for the removal of visible dirt on the bottom of the pool.

Supervision of Swimming Pools

- 28.1: Every swimming pool, wading pool or whirlpool shall be operated and maintained in accordance with the Public Health Code Section 19-13-B33b.
- 28.2: Proper operating records shall be kept daily showing disinfectant residuals and pH values.

Water Flumes

- 29: Water flumes shall meet all requirements of the Connecticut State Department of Public Health Public Swimming Pool Design Guide, or other requirements as specifically stated under Section 29: Water Flumes.
- 29.1: Materials selected for components and accessories in and around water flumes shall be such that all parts of external surfaces and edges that may come in contact with the bather shall not constitute cutting, pinching or abrasion hazards.
- 29.2: Structural design and materials used in the water flume shall be in accordance with generally acceptable good structural engineering practices and shall provide a durable structure that will safely sustain all weights and pressures (dead load, live load, liquid, hydrostatic and earth pressures) for the expected operating life of the structure. Flumes and splash pools shall be watertight, and their surfaces shall be inert, non-toxic, smooth, and easy to clean.
- 29.3: All curves, turns, and tunnels within flumes shall be designed such that the impact with the walls of flumes or ceilings of tunnels does not constitute a hazard. Flumes shall be banked to keep bather's body safely inside the flume during all foreseeable circumstances.
- 29.4: All slopes within flumes shall be designed such that riders will travel at a safe speed and a safe equilibrium of dynamic forces will be maintained.
- 29.5: In sections of elevated flumes where, contrary in intended use, a rider may stop, there shall be safety walls or other provisions to keep the rider from falling out of the flume.
- 29.6: The construction, dimensions, and mechanical attachment of flume components shall be such that the entire surface of the flume is continuous and smooth.
- 29.7: Wall thickness of flume shall be designed so that the continuous and combined action of hydrostatic, dynamic, and static loads and normal environmental deterioration do not cause structural failure which could result in injury, continually require repair, or weaken the strength of the original structure.

- 29.8: Flume exit section shall be designed to assure safe entry speed, angles of entry, and stopping distances within the splash pool.
- 29.9: The distance between the side of a flume exit and a splash pool sidewall shall be at least five (5) feet. The distance between sides of adjacent flume terminuses shall be at least six (6) feet. The distance between sides of adjacent flume terminuses may be reduced when sufficient evidence is presented to indicate that rider collision will not occur. Such evidence shall include documented safety records at existing similar installations. The distance between a flume exit and the opposite side of the splash pool shall be at least twenty (20) feet exclusive of steps.
1. High Speed Flumes – Special provisions shall be made in flume exit design, splash pool depth and splash pool length to safely accommodate flumes specifically designed with greater slopes and other special features which allow an unusually rapid descent.
 2. Multiple Exit Flumes – Water flumes with multiple flumes shall have parallel flume exits or be constructed so that center lines of flumes do not intersect for a distance of at least twenty (20) feet from the exits of each flume. If flumes with non-parallel exits discharge bathers at a high speed, the center lines shall not intersect for at least thirty (30) feet.
- 29.10: Flumes shall terminate either at a depth of at least six (6) inches below the design operating water level of the splash pool or no more than two (2) inches above the design operating water level, provided that the flume is level for a distance of at least ten (10) feet from the terminus. Flumes may terminate to an engineered designed level run out trough instead of a splash pool.
- 29.11: Splash pool depth beneath the end of a flume shall be at least 3.5 feet. The depth shall be maintained beyond the flume terminus for a distance of at least twenty (20) feet.
- 29.12: The deck along the exit side of the splash pool shall be at least ten (10) feet wide. The deck along the side of the splash pool opposite the pump reservoir shall be at least five (5) feet wide. The pump reservoir shall be accessible for cleaning and maintenance. A four (4) foot minimum wide walkway, walkway steps, and/or stairway shall be provided between the splash pool and the top of the water flume.
- 29.13: Pump reservoirs shall have sufficient volume to hold at least two (2) minutes of the combined design flow of all recirculating pumps and flume pumps and enough water to ensure that the splash pool will maintain a designed water depth satisfactory for safe rider entry and proper operational level for recirculation system performance.
- 29.14: Splash pool design shall be such as to avoid excessive water loss from the system due to water velocity and turbulence created by water flow from the flume(s) and by rider activity.
- 29.15: A recirculation system consisting of pumps, piping, filters, water conditioning and disinfection equipment and other accessory equipment shall be provided which will clarify and disinfect the entire volume of water within the water flume in two hours or less. Recirculation pumps shall be of adequate capacity to provide the required turnover time of two hours or less.

Deck Level Pools

- 30: Deck Level Pools shall meet all requirements of the Connecticut State Department of Public Health Public Swimming Pool Design Guide, or other requirements as specifically stated under Section 30: Deck Level Pools.
- 30.1: The water shall overflow at the rim of the pool and collect through the primary trough or gutter with no possibility of bouncing back from the vertical surface. The overflow rim shall also serve as a handhold.
- 30.2: The primary trough or gutter shall extend completely around the pool and be covered by a grating. The primary gutter drain shall be a minimum of 12 inches wide and shall be capable of continuously removing 100% or more of the recirculated water and returning it to the filter.
- 30.3: The sanitary deck around the deck level pool shall not be more than 5 feet in width. The deck level pool shall consist of the continuous primary gutter drain located at the pool's edge and a continuous waste gutter located beyond the sanitary deck and down gradient of the pedestrian deck and auxiliary areas. A secondary continuous gutter drain may be installed at the break between the sanitary deck and the pedestrian deck and drain to the surge tank for the purposes of water conservation. At the point where the sanitary and pedestrian decks abut a continuous, contrasting color marking shall be provided.
- 30.4: Deck level pool designs are prohibited in Connecticut except for special purpose use that restricts the use of the pool to medical rehabilitation or competitive sports. An approved deck level pool cannot be used for recreational use by the general public. They can only be used by persons involved in medical rehabilitation and their clients or by persons involved in organized competitive sports as recognized through an affiliation with an athletic organization such as the NCAA or interscholastic sports.

Reconstruction or Substantial Alterations to Pools

- 31.1: Normal maintenance and repair or the replacement of equipment that does not require prior review and approval by the commissioner includes but is not limited to the normal maintenance, repair or replacement of: equipment such as skimmers, inlets, piping of the same size, main drains of the same size and approved flow rate, filters of the same type and size of filter media, circulation pump of the same flow rate, and replacement of similar fencing and decking.
- 31.2: Substantial alteration to an existing pool that require prior review and approval by the Commissioner includes but is not limited to, changing type of filter, changing size of main drain, changing type of automatic disinfection equipment, changing size of recirculation pump, changing size of piping and changing style of fencing or enclosure. All such alterations must comply with the most recent edition of the Connecticut Public Swimming Pool Design Guide.
- 31.3: Plans for the reconstruction of an existing pool that consist of changing the shape, slope and/or any part of the diving well, including the diving board where the plan does not propose the installation of the exact make and model of the originally approved diving board, must be submitted and approved by the Commissioner in accordance with the specifications contained in the most recent edition of the Connecticut Public Swimming Pool Design Guide.