

State of Iowa

1963

POLICIES GOVERNING DESIGN,
CONSTRUCTION, MAINTENANCE & OPERATION
OF
SWIMMING POOLS



DIVISION OF
PUBLIC HEALTH ENGINEERING
STATE DEPARTMENT OF HEALTH
DES MOINES, IOWA

Published by
THE STATE OF IOWA
Des Moines

TABLE OF CONTENTS

	Page
Introduction	1
Pool Structure	2
Deck and Pool Area	6
Mechanical Equipment	7
Bathhouse Facilities	11
Water Supply	12
Operation.	13
Appendix	15

IOWA STATE DEPARTMENT OF HEALTH
Environmental Engineering Service
Des Moines, Iowa

POLICIES GOVERNING THE DESIGN, CONSTRUCTION, OPERATION, AND
MAINTENANCE OF PUBLIC SWIMMING POOLS
Revised 5-1-63

INTRODUCTION

PLANS

Complete detailed plans and specifications for any new construction or for reconstruction or improvement of any existing public* swimming and wading pools, and bath-houses, shall be submitted to the Environmental Engineering Service, State Department of Health, for approval before construction is started. This includes the installation of new equipment.

GENERAL
REQUIREMENTS

All plumbing should comply with the requirements of the State Plumbing Code. Likewise, the structural, electrical, mechanical, etc., design and equipment should comply with state and local laws, ordinances, codes, or regulations.

STRUCTURAL
DETAILS

The review of plans by the State Department of Health does not cover the design for structural stability.

NEW PROCESSES,
METHODS, AND
EQUIPMENT

The policy of the Department of Health is to place no obstruction in the path of progress in swimming pool design, equipment, and materials. However, any new development must have been tested to the satisfaction of the Department before approval can be issued. An experimental installation may be permitted, but should the development fail to produce results satisfactory to the Department, it must be replaced with accepted design, equipment, or materials.

.....
*A public pool is defined as a pool open to the public either publicly or privately owned. This includes municipal pools, privately owned pools open to the general public, and school pools. It is recommended that these policies also be followed in the design of camp pools, country club pools, Y.M.C.A. pools, and other similar quasi-public pools. These policies are further recommended for the design of all other pools insofar as practical.

POOL STRUCTURE

LOCATION
AND
LAYOUT

1. The location of an outdoor pool will be governed largely by local conditions. A location where the pool will be exposed to excessive dust, smoke, soot, and leaves from overhanging trees, or other similar undesirable substances, should be avoided. Adequate surface drainage away from the pool should be provided.

The arrangement of dressing rooms, etc., should be made to conform to the sanitary requirements, The layout or arrangement of entrances and exits of the pool area in relation to dressing rooms, showers, and toilets must be such as to enforce proper routing of bathers. Separate exits to the pool should be provided for the men's and women's toilet and dressing rooms.

MATERIAL

2. The material should be impervious and the pool construction watertight throughout.

POOL
LINING

3. The pool lining should be of light colored material, preferably white, and present a smooth finished surface that may be readily cleaned. All corners should be rounded.

SHAPE

4. It is recommended that pools be of rectangular shape with deep water at or near one end. However, the best shape for large pools may depend largely on local conditions. The use of L and fan shaped pools has gained favor in recent years.

The side and end walls of the pool should be vertical. Sloping side walls are dangerous and cannot be easily cleaned.

5. If a pool is to be used for competition, it should be remembered that a straightaway course of at least 60 feet is required. The length of a pool should not be less than 60 feet. It may be advisable to construct the pool a fraction of an inch oversize in length to avoid invalidating swimming meet records.

Suggested lengths for competition:

DIMENSIONS

60 ft. (20 yards)	- 5 lengths, 100 yards; 11 lengths, 220 yards; etc.
75 ft. (25 yards)	- 4 lengths, 100 yards; etc.
82.02 ft. (25 meters)	- 4 lengths, 100 meters; etc.
120 ft. (40 yards)	- 2½ lengths, 100 yards (not especially desirable)
150 ft. (50 yards)	- 50 yard straightaway; etc.
164.04 ft. (50 meters)	- 50 meter straightaway; etc.

The competitive lane widths should be 6 feet, with 7 feet preferred. At least 4 lanes should be provided.

SWIMMING
AREAS

- 6. The proportion of the area of the pool that is less than 5 feet deep should usually be approximately 80 per cent of the total area. The proportioning may be adjusted according to the pool size and to meet local needs.

LIFE LINE

- 7. A life line should be provided between diving and swimming zone. Exceptions to this may be permitted in special type pools used for training or instruction.

BOTTOM
SLOPE

- 8. The slope of the bottom of the pool in water less than 5 feet should not be more than one foot in each 15 feet. Sudden changes in slope in water less than 5 feet should be eliminated.

MINIMUM
DEPTH

- 9. The minimum depth of water in the deep portion of the pool should not be less than 6 feet at the deep end wall nor less than 5 feet where the bottom slope changes between the swimming area and diving area.
- 10. The following minimum water depths for various diving board elevations should be strictly adhered to:

Diving Board and Platform Elevation	Minimum Water Depth
1 Foot	8 Feet
1 Meter	9 Feet
3 Meters	11 Feet
10 Meters*	14 Feet

DIVING AREA

*The elevation of diving boards or platforms should not exceed the safe limit for the average swimmer. Diving elevations greater than 10 feet above water level are not recommended at public pools.

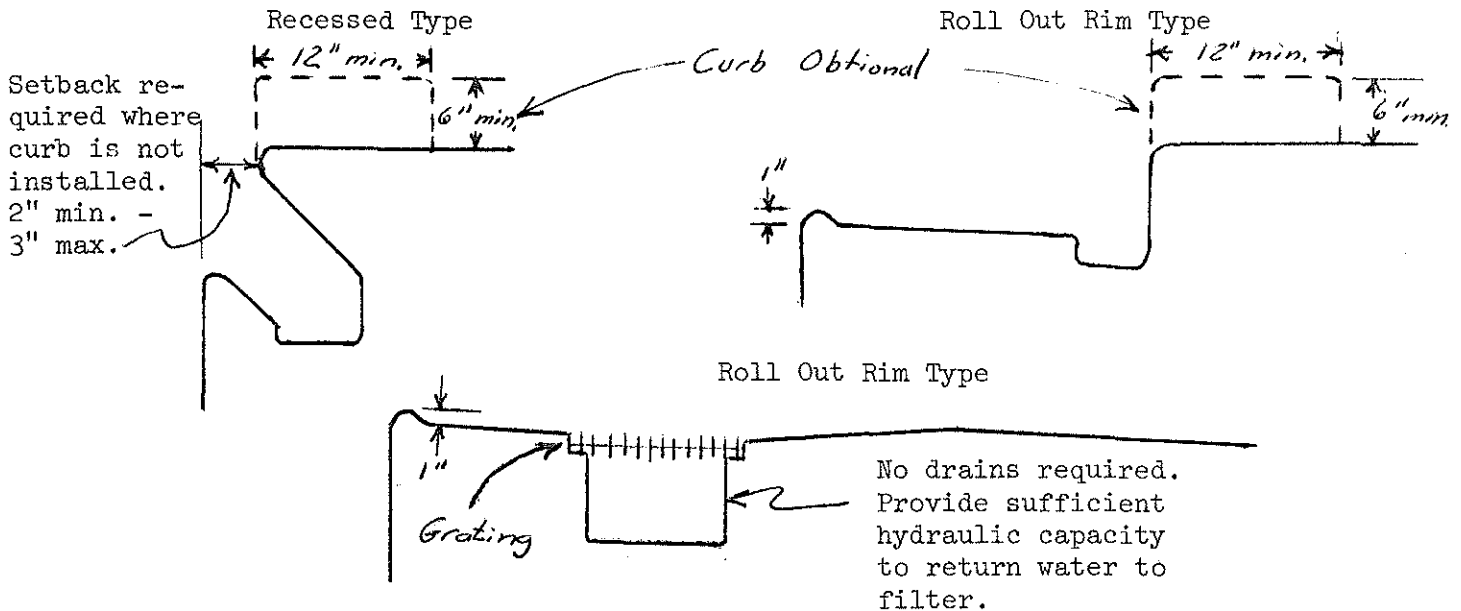
One and three meter springboards should be at least 10 feet center to center and from center to side wall of pool. One foot boards may be 8 feet from center of another board or side wall of pool. There should be at least 13 feet of unobstructed head room above all diving boards.

For a one meter board the diving zone should extend at least 18 feet and preferably 25 feet from the deep end wall of the pool to minimize physical hazards. For three meter boards the diving zone should extend at least 25 and preferably 36 feet from the end wall.

- The swimming pool should be provided with an overflow gutter entirely around the pool except as noted in paragraph 13. The overflow gutter should be designed to provide rapid drainage and also to minimize the physical hazard of catching arms or feet. The overflow gutter should be sufficiently deep to serve as a handhold and wide enough to permit cleaning.

OVERFLOW
GUTTER
AROUND POOL

IMPORTANT FEATURES OF TYPICAL OVERFLOWS



OVERFLOW
GUTTER
DRAINS

- Drain outlets of sufficient size should be provided at least every 15 feet in the overflow gutter. Slight slopes between overflow gutter drains are desirable.

SKIMMERS

- For pools having a surface area of 1200 square feet or less and a width not exceeding 25 feet, skimmers may be used in lieu of a scum gutter. The skimmers shall be built into the pool wall and one skimmer shall be provided for each 400 square feet of surface area or fraction thereof. When skimmers are used, an acceptable handhold must be installed around the pool perimeter. The recirculation system shall be capable of operating at the designed rate with the skimmers out of operation.

OVERFLOW GUTTER
DRAINAGE

- Arrangements for both utilizing overflow water and wasting it are desirable.

SPACING OF
INLETS

- Inlets for treated water should be located so as to produce, as far as possible, a uniform circulation of water throughout the entire pool. Inlets should not be placed at greater intervals than 15 feet around the

entire perimeter of the pool. Uniform circulation is absolutely necessary in maintaining adequate chlorine residual for bacterial control as well as control of algae.

ADJUSTABLE
INLET CONTROL

16. Each inlet should be provided with valves or other control devices for regulating the quantity of flow.

LOCATION
OF INLETS

17. Low velocity wall inlets should be located at least 2.0 feet below the water level at the shallow end and 2.5 feet at the deep end of the pool to minimize chlorine loss to the atmosphere. The inlets should not be located lower than one-half the pool depth in the deep portion to prevent short circuiting of the treated water to the pool drain.

SPACING OF
OUTLETS
(Main Drains)

18. Where the pool width is greater than 20 feet, multiple outlets should be provided. The outlets should not be more than 20 feet apart nor more than 10 feet from the side walls. One outlet must be located in the deepest portion of the pool.

GRATING OVER
POOL DRAIN

19. The outlet grate clear area should be such that when the maximum flow of water is being pumped through the drain, the velocity through the clear area of the grate shall not be greater than $1\frac{1}{2}$ feet per second. Outlets consisting of parallel plates, or the so-called anti-vortex type where the water enters the fitting from the side, may use entrance velocities of 4 feet per second.

POOL
PIPING
SYSTEM

20. The entire system and all its component parts should be designed to provide the required volume of recirculation water, as recommended in paragraph 37, with a minimum of frictional resistance. Special attention should be given to the hydraulic design of all gravity flow lines.

STRUCTURES
IN POOLS

21. Structures in the pool such as water slides and spray fountains are discouraged because of increased physical hazard.

LADDERS
STAIRWAYS
STEPHOLES

22. Ladders or stairways should be located at the deep end of the pool, preferably one on each side of the deep end, and beyond the diving boards so swimmer traffic will be away from the diving zone. In pools to be used extensively for competitive sports, it may be desirable to also locate ladders at the deep end wall. If the distance from the walkway to the bottom of the pool in the shallow end is more than 2 feet, ladders or stairways should also be located at the shallow end. The ladders should be constructed so as to minimize danger of accident and also be accessible for cleaning. They should be of non-slip material.

If stairways are used, they should be recessed into the wall and runway of the pool and provided with handrails spaced not greater than 4 feet center to center. Ladders or stepholes should have a handrail on either side at the top leading out over the runway.

DECK AND POOL AREA

POOL
ENTRANCE

23. Entrance to the pool area should be at a shallow portion of the pool.

WALKWAYS

24. A concrete or other impervious walkway not less than 4 feet wide should extend entirely around the pool. Greater walkway widths are recommended--10 to 12 feet wide on the ends, and wider if springboards are installed. The walkway should be smooth, easily cleaned, and be as much as possible of non-slip construction. If recessed type overflow gutter is used, the top of the pool wall should be set back 2 inches from the inside face of the pool wall.

WALKWAY
DRAINAGE

25. If the walkway is flush with the top of the pool wall, it should have a slope of approximately one-fourth inch per foot away from the pool. Walkway drains should be provided one for each 100 square feet of area drained or spaced about every 10 to 12 feet. Walkways may drain to the pool overflow gutter drain, or the walkway drains may connect to the overflow gutter drain line, providing such drainage is wasted and not returned to the recirculation system.

POOL WALL
ABOVE
WALKWAY

26. If the pool wall is to be higher than the walkway, it should be at least 12 inches wide and should be at least 6 inches above the top of the pool walkway for the purpose of reducing tripping as much as possible. (See illustrations under section no. 11.)

DEPTH
MARKERS

27. Water depth markers should be provided to show side wall depths of one foot intervals and spaced not greater than 20 feet all around the perimeter of the pool. These markers should be conspicuously placed on the side walls and walkway of the pool. The markers should be at least 8 inches in height.

LIFEGUARD
CHAIRS

28. Elevated lifeguard chairs should be provided. The entire deep portion of the pool should be visible from such elevated chairs. Chairs should be located so guards will not be looking towards sun.

FENCE TO
ENCLOSE
POOL

29. A fence should be constructed entirely around the pool area. A fence curb should be located on the outer edge of the walkway so that dirt, grass, etc., will

not accumulate on the walkway and be carried back into the pool by swimmers and to prevent walkway drainage to the ground surrounding the pool.

SAND BEACHES

30. Sand beaches or sand lots should not be installed unless fenced away from the pool and compulsory showers provided for the sand beach users. A clear pool water is imperative for complete lifeguard supervision.

TREES
SHRUBBERY

31. Trees or shrubbery should not overhand the pool area because of increased maintenance difficulties.

LIGHTING

32. Adequate overhead pool lighting facilities should be provided for the pool area if night use is anticipated. A minimum of 0.65 watts per square foot of pool area should be provided. One watt per square foot is recommended. Underwater lights are encouraged for additional safety.

SEPARATE
SPECTATORS
AND BATHERS

33. There should be an absolute separation of the space used by the spectators and that used by the bathers. The spectators' gallery should not overhand any portion of the pool. The gallery should be so constructed that dirt cannot gain access to the pool or pool walkway.

DRINKING
FOUNTAINS

34. Drinking fountains should be of the A.P.H.A. standard sanitary, slanting jet type and should be located at readily accessible points.

HOSE
CONNECTIONS
FOR CLEANING

35. Hose connections of sufficient size and located at convenient points should be provided for cleaning the dressing rooms, pool area, and spectators' gallery.

SALE OF
FOOD

36. Food, candy, tobacco, etc., should be excluded from the pool area.

MECHANICAL EQUIPMENT

SIX HOUR
TURNOVER

37. Swimming pools should be provided with an adequate recirculation system with a turnover of 6 hours or less

DIATOMACEOUS
EARTH FILTERS

FILTERING
RATE

38. The maximum filtration rate for diatomaceous earth filters should be 3 gallons per square foot per minute.

- CONTINUOUS FEED 39. Facilities shall be provided for applying the pre-coat and adding a continuous, uniform body feed of filter aid to the filter elements.
- DISTRIBUTION 40. The water entering the filter compartment must be uniformly distributed to the elements and the flow must not interfere with the development of the filter cake on the elements.
- GAUGES 41. Gauges must be provided to determine loss of head across the filter elements.
- ELEVATION 42. If a vacuum type filter is planned using gravity flow from the pool to the filter, the return line must be of adequate size and the filter must be installed at a low enough elevation to assure the required flow of water back to the filter.
- HEAD ROOM 43. Adequate head room should be available to perform repair or maintenance work on the filter elements.
- RAPID SAND FILTERS
- FILTERING RATE 44. The maximum filtration rate for sand filters should be 4 gallons per square foot per minute.
- BACKWASH RATE FREEBOARD 45. Sand filters should be provided with a minimum backwash rate of 15 gallons per square foot per minute and a freeboard which will allow for a sand expansion of at least 50 per cent. If the effective size of the sand is larger than 0.45 mm., the backwash rate and sand depth should be correspondingly increased. When filter medium other than sand is used, deviations will be permitted.
- CHEMICAL FEEDER 46. A device should be provided for applying a coagulant at a uniform and measurable rate. Pot type feeders are not approved.
- MIXING BASIN 47. Provision should be made to assure the formation of floc between the point of application of the coagulant and the filter. To accomplish this it is highly desirable, and in most instances necessary, to provide a mixing basin. The basin should provide about 10 minutes detention capacity with continuous mixing velocities of from 0.5 to 1.0 feet per second using baffles or mechanical mixing devices.
- SAND SIZE AND DEPTHS 48. The sand bed should be at least 24 inches deep with a uniformity coefficient of not more than 1.60 and an effective size of 0.35 to 0.50 mm. If larger sand is used, the depth and backwash rate should be correspondingly increased.

- 49. When a manifold-lateral underdrain system with drilled orifices is used, the filters should include at least 18 inches of gravel immediately above the underdrains. Suggested gravel layers are as follows:

GRAVEL DEPTH--
LAYERS

6" pass 2"	and retained on 1"
3" pass 1"	" " " 1/2"
3" pass 1/2"	" " " 1/4"
3" pass 1/4"	" " " 1/8"
3" pass 1/8"	" " " #20 seive

If underdrain blocks or special nozzles are used, 14 inches of gravel may be permitted.

- 50. The underdrain system of the filters should be designed to provide adequate distribution for backwashing. A manifold-lateral system underdrain design should comply with the following:

UNDERDRAINS
MANIFOLDS
LATERALS
ORIFICES

The total orifice areas should be between 0.2 and 0.3 per cent of the filter area.

The total cross-sectional area of laterals should be approximately twice the total orifice area.

The cross-sectional area of the manifold should be 1.5 to 2.0 times the total area of the laterals.

VALVES

- 51. The backwash valves on the filters should be of the slow opening type to decrease the possibility of "turning over" the sand filter.

LOSS OF HEAD
GAUGES AND
OBSERVATION
GLASS

- 52. Each filter system should be provided with a loss of head gauge. Pressure filters should also be provided with an observation glass on the waste discharge line and air release valves.

RATE OF FLOW
INDICATOR

- 53. The recirculation system should include a rate of flow indicator. Care should be exercised in locating the meter so it will accurately record the flow.

PUMPS

- 54. The pump or pumps used for recirculating the pool water should be of adequate capacity and design to furnish the desired turnover and proper backwash rates for the filters.

PIPES

- 55. The piping layout should be adequate and should be designed to keep the friction head loss at an economical minimum. Pipe used in the recirculation and drainage system located under concrete should be constructed of cast iron or other durable material.

HAIR AND
LINT
CATCHER

56. The recirculation system should include a hair and lint catcher that is readily accessible for cleaning. If an open mixing basin is provided, a large area fine screen on a removable frame at the inlet end is satisfactory.

SUCTION
CLEANER

57. A satisfactory suction cleaner should be provided. If the recirculating pump is to be used for cleaning the pool, hose connections should be located at convenient intervals around the inside of the pool wall below the water level of the pool for priming convenience.

CROSS-
CONNECTIONS

58. Proper pipe connections should be provided so that the pool water may be completely drained. If drained to a sewer, the connection should be arranged so that there is no possibility of backing up into the pool.

GRAVITY
RETURN

59. In designs where treated water is returned to the pool by gravity, there should be a minimum head differential of approximately 12 feet between the elevation of the water on the filters and the elevation of the water in the pool for satisfactory operation.

60. Equipment should be provided to apply chlorine continuously so as to maintain a chlorine residual of 0.4 to 1.0 ppm in the pool water at all times. To accomplish this, apparatus for the dosage of chlorine at the rate of 20 pounds per 24 hours per 100,000 gallons of pool capacity is recommended. Intermittent application of chlorine is unsatisfactory.

CHLORINE
EQUIPMENT

Chlorine gas cylinders should be stored at grade elevation whenever possible to avoid the danger of raising or lowering the cylinders.

Chlorine gas tanks and dosing apparatus should be housed and positively vented to the outside as a precaution against gas leakage. An exhaust fan located near the floor, discharging to the atmosphere, should be provided for rooms housing gas chlorinators. The fan switch should be located near the room entrance.

Scales should be provided for weighing chlorine gas cylinders.

All individuals handling chlorine gas cylinders and feeding equipment should be provided with gas masks suitable for exposure to chlorine gas.

BROMINE
EQUIPMENT

61. Because bromine is so active on organic wastes and an excessive amount is required to maintain a satisfactory residual, its use is not recommended unless a 6-hour

turnover or less is provided and the pool design and location lends itself to the highest degree of sanitation.

Where these conditions in design and location are met, bromine equipment capable of maintaining a 0.3 ppm residual may be installed.

TESTING
EQUIPMENT

62. Pools should be equipped with satisfactory pH and chlorine or bromine residual testing apparatus.

BATHHOUSE FACILITIES

BATHHOUSE

63. A bathhouse should be provided for all pools unless other adequate and conveniently located sanitary facilities are available to all pool patrons in the immediate area. The bathhouse should be provided with adequate dressing space and constructed so as to insure strictly sanitary conditions at all times. Proper bathhouse construction should include smooth non-slip impervious floor, floor drains, washable partitions, adequate ventilation and lighting. Open type bathhouses are recommended.

SEPARATE
SEXES

64. Bathhouses to be used simultaneously by both sexes should have two parts entirely separated by tight partitions.

ALTERNATE
SHOWER AND
DRESSING BOOTHS

65. The women's dressing room should be arranged so that the dressing booths and shower booths alternate to encourage showers in the nude.

66. The following shower, toilet, and lavatory units should be provided within the bathhouse:

Men

1 shower for each 40 bathers
1 toilet for each 60 bathers
1 urinal for each 60 bathers
1 lavatory for each 60 bathers

SHOWERS
TOILETS
LAVATORIES

Women

1 shower for each 40 bathers
1 toilet for each 40 bathers
1 lavatory for each 60 bathers

The minimum number of bathhouse units should be based on 12 persons (6 men and 6 women) per 1,000 gallons of recirculated water over a period of 30 minutes. This is based on a 6-hour turnover.

HOT WATER
FOR SHOWERS

67. Provisions should be made for supplying hot water for baths.

SOAP

68. Liquid, bar, or powdered soap dispensers should be available at each shower head.

WASTE
DISPOSAL

69. Sanitary wastes shall be discharged to the municipal sewer system whenever available. If not available, other satisfactory disposal facilities shall be provided.

WATER SUPPLY

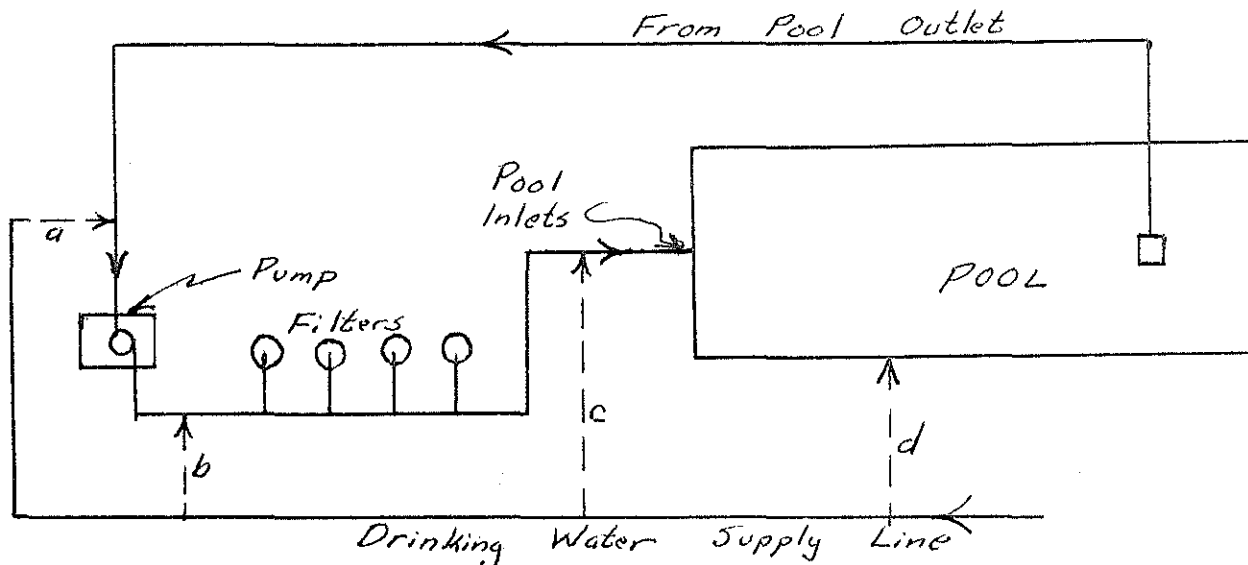
POOL
WATER
SUPPLY

70. The water supply for all pools should be adequate for make-up, showers, toilets, and cleaning purposes, and shall be of satisfactory physical, chemical and bacteriological quality. The water for drinking purposes shall be bacterially safe at all times and shall have no direct cross-connection with any non-potable supply. New water lines providing potable water should be disinfected prior to being placed in service.

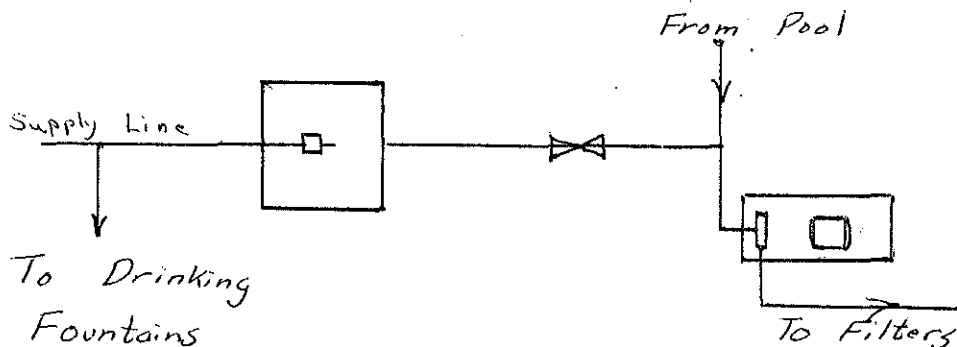
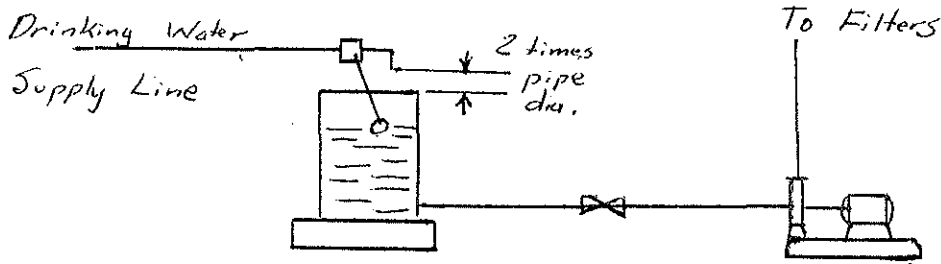
71. Following is shown the four most common cross-connections between a drinking water supply and a swimming pool recirculation system:

CROSS-
CONNECTIONS

- (a) To pump suction.
- (b) To pump discharge-- this connection is used for washing filters in installations having only one or two units.
- (c) To pool inlet line.
- (d) To side of pool below water level.



METHOD OF ELIMINATING CROSS-CONNECTIONS



OPERATION

BACTERIOLOGICAL AND CHEMICAL TESTS

- 72. Regular bacteriological examinations should be made by an approved laboratory at least once each week, and more often if possible. Regular tests for chlorine or bromine residual in the pool water should be made at least four times a day. A chlorine residual of 0.4 to 1.0 ppm or a bromine residual of 0.2 to 0.5 ppm should be maintained at all times. The pH of the pool water should be determined at least daily and maintained between 7.2 and 7.6.

SUPERVISION

- 73. All public or semi-public pools should be under competent supervision. The responsibility for maintenance and operation should be under one qualified person. At least one lifeguard should be on duty at all times the pool is open. Enough members of the pool staff should be trained and certified in First Aid to insure that at least one person competent to care for injuries is on duty at all times, when the pool is in use. One attendant for each dressing room should be available.

OPERATION OF EQUIPMENT

- 74. The recirculation and treatment facilities should be operated in a manner so as to maintain physical clarity and bacterial safety of the pool water at all times. Twenty-four hour recirculation and treatment are recommended.

- CLEANING
DISINFECTING
75. The dressing rooms, toilets, pool walkway, etc., should be maintained in a sanitary manner at all times. Daily disinfection of the dressing room floors with a chlorine solution is recommended.
- CLEANING
POOL
76. The pool walls, floor, and walkway should be kept free of algae, dirt, and other accumulations.
77. The pool should have adequate emergency equipment, such as pole hooks, buoys, and first aid kit. Emergency telephone numbers should be posted adjacent to the telephone of nearest available doctors, ambulance service, hospital and police or fire department rescue squads. There should be a readily accessible room or area designated and equipped for emergency care of casualties. If chlorine gas is used as the pool water disinfectant, the pool management should have available a gas mask suitable for exposure to chlorine gas.
- EMERGENCY
EQUIPMENT
78. Persons having skin disease, sore or inflamed eyes, cold, nasal or ear discharge, or any communicable disease, should be excluded from the pool. All such cases should be referred to the local city health physician.
- DISEASE
79. Proper suits, caps, and towels should be available. The suits and towels should be satisfactorily cleaned, sterilized, and dried before they are again made available for use. Privately owned suits and towels should also be cleaned and dried after each time of use.
- CLEANING AND
STERILIZING
SUITS, ETC.
80. All swimmers are encouraged to wear ear plugs to prevent infection of the ear drum and ear passages by water forced in by concussion. Swimmers are also encouraged to wear nose plugs or clamps to prevent infection of upper nasal, sinus cavities, and middle ear.
- EAR PLUGS
AND
NOSE CLAMPS
81. All swimmers should be required to take a bath in the nude with warm water and soap before entering the pool.
- BATHS IN
NUDE
82. Daily operation records should be maintained showing the attendance, chlorine residuals, pH, chemicals, used, hours recirculating, backwash, etc. Report blanks may be obtained from the State Department of Health.
- OPERATION
REPORTS
83. Personal regulations should be posted in both dressing rooms. Suggested regulations are available upon request from the State Department of Health.
- PERSONAL
REGULATIONS

Appendix

Suggested Electrical Safety Requirements

for

Public Bathing Places

A. Electrical Safety Requirements for All Public Bathing Places

1. The entire electrical installation provided for public bathing places, their dressing and locker rooms, and other indoor and outdoor locations should comply with and be maintained in accordance with requirements of local ordinances or the National Electrical Code.
2. All electrical wiring accessible to bathers (if run exposed) should be in rigid conduit or electrical metallic tubing, and all boxes, fittings and accessories used in damp or wet locations should be so installed and equipped as to prevent the entrance of water. (See Article 346, Section 3464, and Article 348, Section 3484--National Electrical Code.)
3. Distribution centers, where fused switches or circuit breakers are grouped should be enclosed, and located so as to be inaccessible to other than authorized persons.
4. In addition to the grounding requirements for electrical equipment and circuits as required by the National Electrical Code, all water and other piping to and from the public bathing place, including inlet and outlet pipes, should be metallically bonded together and adequately connected to the same grounding electrode used to ground the neutral conductor of the electrical system. (See Article 250, Section 2554--National Electrical Code.)
5. Pumps, filters, and other mechanical and electrical equipment should be enclosed in such manner as to be accessible only to authorized persons and not to bathers. Construction and drainage should be such as to avoid the entrance and accumulation of water in the vicinity of the electrical equipment.

B. Additional Electrical Safety Requirements for Outdoor Public Bathing Places

1. The crossing of outdoor public bathing places by open overhead electrical conductors is prohibited.
2. Overhead electrical conductors crossing playgrounds contiguous to outdoor public bathing places should comply with the requirements of local ordinances or the National Electrical Safety Code--Part 2.

3. All metal fences or railings on which a broken electrical conductor might fall should be effectively grounded. For this purpose driven ground rods should be placed at two locations close to and on either side of each crossing. For parallel exposure exceeding 300 feet, additional grounds should be provided at the mid-point, or at intervals not to exceed 300 feet.

C. Annual Electrical Safety Inspection

1. The electrical installation of every public bathing place should be inspected and approved annually by a reputable inspection agency, for compliance with the foregoing requirements and any violations reported shall be corrected promptly.
2. Any new or modified electrical installation of a public bathing place should be inspected and, if necessary, corrected before it is placed in service as provided in the preceding paragraph.
3. A record of each inspection and recommendations made by the inspection agency should be kept on file by the management for a period of at least two years.

