



**COUNTY OF LAKE HEALTH SERVICES
DIVISION OF ENVIRONMENTAL HEALTH**

APPLICATION

FOR

PUBLIC POOL CONSTRUCTION

IN LAKE COUNTY

COUNTY OF LAKE HEALTH SERVICES
DIVISION OF ENVIRONMENTAL HEALTH

Lakeport Office:
922 Bevins Court
Lakeport, CA 95453
(707) 263-1164
FAX: (707) 263-1681



Date: _____

SUBJECT: Swimming Pool located at: _____

I, _____, the owner or agent of the above proposed pool(s) do hereby agree to:
Please Print

1. Provide deck drains or surface drainage in accordance with approved plans. California Code of Regulations, Title 24, Section 9018.
2. Construct dressing, shower and toilet facilities in accordance with approved plans. California Code of Regulations, Title 24, Section 9021.
3. Construct fencing and gates in accordance with approved plans. California Code of Regulations, Title 24, Section 9024.
4. Install all piping in accordance with approved plans and do not cover or backfill until inspected and approved by the County of Lake, Division of Environmental Health. California Code of Regulations, Title 24, Sections 9013, 9042, 9043.
5. Notify County of Lake, Division of Environmental Health of any alterations or deviations from the approved plans and obtain approval prior to making changes. California Code of Regulations, Title 22, Section 65509.
6. Notify County of Lake, Division of Environmental Health for inspection and approval 48 hours in advance of guniting or constructing the pool shell. California Code of Regulations, Title 22, Section 65511.
7. Notify County of Lake, Division of Environmental Health for inspection and approval at least two days in advance of placing the pool in operation. California Code of Regulations, Title 22, Section 65511. All equipment shall be fully functional and in operation. Water chemistry shall also be in compliance. The operator must submit an application for a permit to operate a public pool along with the required permit fee prior to opening.

FOR INSPECTION CALL:
Lakeport: 263-1164

Signature of Owner or Agent

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Plans accepted by the County of Lake, Division of Environmental Health are required to include certain pertinent information. If this information is not provided, the plan check review cannot be completed and Division approval of construction cannot be granted.

To assist you in assembling the necessary information, we have provided the attached checklist. Please check each section to ensure that the information has been provided and your submittal is complete. This checklist, while helpful, may not be inclusive. Please refer to State codes which are compiled in "The Design, Construction, Operation and Maintenance of Public Swimming Pools" for additional requirements and details which may be applicable to your specific project. Be advised that detailed decking, fencing, gate and ancillary facility plans are required before plans will be approved. ("By others" and "per code" are not acceptable.)

There are to be NO changes made which deviate from the plans and information submitted without Division approval shown on both the contractor's plan and check sheet and those copies held by the Division. To be valid, these approvals must be signed and dated by the County of Lake, Division of Environmental Health.

Completion and Approval – Contractor must notify County of Lake, Division of Environmental Health at least two full working days in advance for the pre-gunite inspection and two working days in advance of the final inspection before allowing use by the public.

Location of pool: _____

Owner's name & mailing address: _____

Owner's phone number: _____ Owner's FAX: _____

Pool designer's name & address: _____

Contractor's name & address: _____

Contractor's phone number: _____ Contractor's FAX: _____

FOR OFFICE USE ONLY

Date plans submitted: _____ Approved? (Y/N) _____ Date Notified _____

Approved by: _____ Final Inspection date: _____

Pre-gunite Inspection date: _____ Final Approval by: _____

Subsequent Inspection dates: _____ Date Permit to Operate Issued: _____

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POOL CHECK SHEET

Pool Name _____ Location/Address _____ City _____

Type of Pool: Standard Wading Other _____

Dimensions of Pool: Length _____ Width _____ Depth _____

Volume of Pool in gallons: _____ Show calculation: _____

Surface Area: _____ Show calculation: _____

Required Turnover: ____ standard (6 hours) ____ wading (1 hour) ____ temporary (2 hours)

Gallons per minute: _____ Show calculation: _____

Filter: Make and Model: _____

Area in sq. ft.: _____ Quantity of filters: _____ Total area in sq. ft.: _____

Pump: Make and Model: _____

Horsepower: _____ Quantity of pumps: _____ Total output in GPM: _____

Cut sheet checklist: *One copy of each of the following cut sheets with make and model designated is included in this submittal:*

Recirculation pump with pump curve _____ Safety Vacuum Release System (single main drain)

Skimmers _____ Filters _____ Disinfectant feeder _____ Flowmeter _____

Drain type _____ Drain Cover _____ Hydrostatic relief valve _____

Suction grates _____ Gauges _____ Ladders _____ Stepholes _____ Handrails _____

Hair and lint strainer _____

POOL CONSTRUCTION CHECKLIST

ALPHABETICAL LISTINGS OF THE FOLLOWING CHECKLIST ARE BASED UPON SECTIONS CONTAINED CALIFORNIA HEALTH AND SAFETY CODE, CALIFORNIA CODE OF REGULATIONS, CALIFORNIA BUILDING CODE, AND CALIFORNIA ELECTRICAL CODE.

A. Plans (65505)

- _____ 1. 3 sets of plans are submitted to scale (1/4 inch = 1 foot) with overhead view showing dimensions and sectional view showing slope.

Top View:

1. Dimensions (length, width)
2. Suction and return line plumbing sizes and type of material. Include location of skimmer(s), split suction drain(s), equalizers, valves, and return lines.
3. Four to six inch wide, slip resistant tiles, of contrasting color, along the bottom of the pool where the water depth is 4½ feet. (Pools with a maximum water depth of 5 feet or less do not require a marking line)
4. Stairs, ladders, grab rails, handrails.
5. Location of depth markers.
6. Contrasting tile on stairs and benches of spas. (recommended but not required)
7. Fill line location.
8. Pool light location(s) and wattage.
9. Emergency shut-off switch location for spa pools.
10. Diving board (if any) location and distance from board center to side walls or other diving boards.

Profile View (longitudinal section)

1. Dimensions (length)
2. Depths at the shallow end wall, depths at any beginning or ending in breaks in slope and depth at the main drain (all depths should be from the floor to the normal water level.
Wading pools
3. Location of safety line anchors, if required.
4. Stairs, with tread and riser dimensions.
5. Dimensions of handrails with distance above the deck and each step of the stair.
6. Sectional view of coping.
7. Water line tile.
8. Diving board (if any) with distance diving board extends over the pool and depths below the diving board.

_____ 2. Deck Details, Equipment Room, and Plumbing

1. Equipment room dimensions, placement of equipment and location in relation to the pool.
Show plumbing details for the indirect connection from the drain and filter backwash to sewer.
2. Deck details with pool location.
3. Fresh water fill line from a potable water source with approved backflow prevention device.
4. Emergency shut off switch for all spa pumps and blowers.
5. Solar heater system detail, if being installed.

- _____ 3. **Show pool location in relationship to all buildings on property.** (Smaller scale acceptable on plot plan only.) Show location of restrooms, drinking fountains, and hose bibs with a North arrow.

4. Pool enclosure details

1. Show the pool with the proposed fence or building wall surrounding it. There should be no windows, patio walls or doors of living units as part of the enclosure. Areas outside of the enclosure must be a public area. The fence enclosure cannot adjoin a private property.
2. Show a scaled profile view of all fences, gates and doors.

B. Special Pool Classifications (3103B)

1. Temporary Training Pool: Maximum depth 3 ft.
2. Wading Pool: Maximum depth 18 inches; maximum sidewall depth 12 inches.

C. Pool Construction (3106B) All swimming pools must be lined with white plaster or a smooth, waterproof, white interior finish, impervious to moisture and constructed of reinforced concrete or a material equivalent in strength and durability, that will withstand repeated brushing, scrubbing, and cleaning procedures.

1. Specify structure of pool: _____ Cathodic protection recommended.
2. Pool free from projections or recessed area.

Temporary Training Pool-Additional Requirements (3107B)

1. Complies with section 3106B
2. Installed on a paved level surface with extends at least 10 ft. beyond pool walls.
3. Provided with a solid cover that will support 40 lbs./sq. ft.
4. Pool and cover designed by a California registered engineer.

C. Geometry (3108B)

1. Geometry of pool conforms to one of the appropriate diagrams at figures 2-9013 (a) (1) through 2-9013 (a) (3). EXCEPTION: Special use pools permitted a depth greater than 3 ½ ft. at shallow end.
2. The maximum allowed water depth at the shallow end of the pool is 3½ ft. Depths greater than this will be allowed if the pool is at least 15 ft. wide at the base of the stairs and required slopes are observed from the steps outward. In all cases, the water depth at the base of any portion of a stair must not exceed 3½ ft.
3. All swimming pools must have a minimum width of at least 15 ft. at the main drain. This width must extend for at least 3½ ft. from the main drain towards the deep end wall and 3½ ft. towards the shallow end wall. This measurement shall be made on a line perpendicular to the deep end wall and parallel to the side walls. For remaining portions of the pool, pool walls shall have a clearance perpendicular to a tangent to the wall for a distance of at least 12 ft. Pools with curved shapes must have a minimum radius of at least 6 ft. at the shallow end and a minimum radius of at least 7½ ft. at the deep end (see No. 5 for additional width requirements).
4. No swimouts, loveseats, recessed areas, benches or projections are permitted in swimming pools. (An area is not considered a projection or recess and will be permitted if it is 12 ft. or more in length.)
5. The following applies to "L" or irregularly shaped pools. For pools greater than 6 ft. in depth, pool walls from the deep end wall to the opposite wall in the "L", shall have a clearance perpendicular to a tangent to the wall for a distance of at least 15 ft. except this distance shall be at least 12 ft. in pools with a maximum depth of 6 feet or less.
6. For pools without diving boards, from the shallow end, to a depth of at least 4½ ft., the slope must be no greater than 1 ft. vertically in 10 ft. horizontally. From the break in slope to the main drain, the slope must be no greater than 1 ft. vertically in 3 ft. horizontally. All slopes must be continuous. Pools with diving boards and special purpose pools may have additional slope requirements. See pool code.

- _____7. In pools having a change in slope, flush mounted devices for fastening a safety rope must be installed where the water depth is 4½ ft.

D. Permanent Markings (3109B)

- _____1. 4 inch wide slip resistant line of contrasting color across bottom of pool required at 4 ½ foot depth. EXCEPTION: Pools with depth not exceeding 5 feet are exempt from requirement.
- _____2. Depth markers required at (a) maximum depth, (b) minimum depth, (c) each end, (d) break in slope, (e) on perimeter at increments not exceeding 25 ft. EXCEPTION: Wading pools shall have at least 2 maximum depth markers. Depth markers on the deck must be slip resistant and of a durable permanent type. Painted letters will not be allowed. Anytime the water depth is different on corresponding opposite sides of a pool, a depth marker will be required on the deck at those points. Depth markers must be at least 3 inches in height and must be positioned to indicate the water depth accurate to the nearest 6 inches as measured from the pool floor to the middle of the skimmer opening. The pool must be lined with waterline tiles around the entire perimeter of the pool.
- _____3. Corresponding slip resistant depth markers strongly recommended on edge of deck. If pool width is greater than 20 ft., slip resistant depth markers required on edge of deck.
- _____4. Width of lane line markings not to exceed 12 inches.
- _____5. Design on bottom or sides which resembles human form are prohibited.
- _____6. If contrasting tile is used along the edge of pool steps, it must be no greater than 4 inches wide and slip-resistant.

G. Stairs, Steps and Ladders (3110B)

- _____1. If depth in shallow portion exceeds 2 ft., steps or ladders required.
- _____2. If depth in deep portion exceeds 4 ½ ft., ladders are required. Clearances between ladder and pool wall greater or equal to 3 inches and less than or equal to 5 inches.
- _____3. If pool width exceeds 30 ft., ladders required at both sides not more than 100 ft. apart.
- _____4. Stairs are required at the shallowest end of all pools. All pools with two shallow ends or any instance where the pool user will encounter a shallow, deep and shallow configuration as he proceeds through the pool, will be required to have stairs at both shallow ends. Minimum tread of stairs 12 inches, maximum riser height is 12 inches. If top steps curved convexly, top step tread to be at least 18 inches.
- _____5. Safety rail extends from deck to a point above top of lowest step. Upper surface of safety rail located at least 28 inches above deck.
- _____6. Minimum tread of steps and step holes 5 inches; width 14 inches.

H. Handholds (3111B)

- _____1. Located not more than 9 inches above water level. EXCEPTION: Handholds not required at wading pools.
- _____2. Bull-nosed coping or cantilevered decking that is not over 2 ½ inches thick for outer 2 inches.
- _____3. For special use pools used for instruction or competitive swimming, perimeter overflow lip required.

I. Decks (3113B)

- _____1. 4 foot minimum deck to surround pool and rear of diving board.
- _____2. Decking and coping shall be concrete or concrete-like and slip-resistant.
- _____3. 6 foot clearance between spa and adjacent pool.

- _____4. Deck sloping at least ¼ inch per foot away from pool to deck drain.
- _____5. If there are deck drains, not more than 400 sq. ft./ drain and drains space not more than 25 ft. apart
- _____6. Temporary training pool: Deck may be omitted. If raised deck provided, handrail required at perimeter.
- _____7. Provide details of deck lighting showing compliance with Title 24, section 3115, i.e. location of lights, wattage, etc.

J. Showers, Dressing Facilities, and Toilets (65551 and 3115B)

- _____1. One bather/15 sq. ft. of pool surface. Divide factor by 2 to determine sex distribution.
- _____2. One shower/ 50 bathers. EXCEPTION: Showers and dressing facilities not required if available in adjacent living quarters.
- _____3. One toilet / 60 women; one toilet and urinal / 75 men; one lavatory / 80 bathers. EXCEPTION: Restrooms not required if they are available within 300 ft. of pool at living quarter or adjacent building.
- _____4. Floor must be non-skid, slip resistant, and extend upward onto wall at least 5 inches with an integrally coved base and shall slope not less than ¼ inch/ft. to floor drains. (Carpet is not allowed in toilet or shower rooms.)
- _____5. Smooth moisture resistant wall finishes throughout.
- _____6. Design and construction to include provisions for privacy.
- _____7. Shower temperature control which limits temperature to 110 F.
- _____8. Single service soap dispensers provided at lavatories and showers. Paper towel dispensers or hot air blowers provided at lavatories. Toilet paper dispensers provided at toilets.

K. Drinking Fountains (3116B)

- _____1. Guarded angle jet drinking fountains required unless water is available at living quarters or adjacent building. Number of fountains based upon one bather/15 sq. ft. and computed at 1 fountain/250 bathers plus an additional fountain for each additional 200 bathers.

L. Hose bibs (3117B)

- _____1. Provided at each pool and protected against backflow.
- _____2. Located such that hose no longer than 75 ft. can reach all areas of deck without crossing pool.

M. Fencing and Gates (3118B)

- _____1. Provided at each pool and pool enclosed by 5 ft. minimum height fence, building, or enclosure.
- _____2. Openings in fence or enclosure not to exceed 4 inches.
- _____3. Bottom of enclosure to be within 2 inches of finished grade.
- _____4. Horizontal member designs to be spaced at least 48 inches apart. Chain link horizontal openings not to exceed 1 ¾ inches.
- _____5. Gate shall be equipped with a self-closing and self-latching device, which opens outward, and is located not less than 3 ½ ft above deck. Handles greater than or equal to 42 inches above ground.
- _____6. Gates are capable of being locked when pool is closed.
- _____7. Means of egress without a key provided. Label as "Emergency Exit" if not all exits are so equipped.

N. Safety Signs and Equipment (3119B)

- _____1. Occupant Load – 1 bather/20 sq. ft. of water surface area. EXCEPTION: Wading pools are exempt.
- _____2. "No Diving Allowed" sign for pools less than 6 ft. deep.

- _____3. Gas Chlorine warning sign.
- _____4. Warning sign for pools without pool lighting.
- _____5. Diagrammatic illustration of artificial respiration procedures and emergency telephone numbers. (911)
- _____6. "Warning No Lifeguard on Duty" sign-unless lifeguards are provided.
- _____7. Body hook with permanently attached pole.
- _____8. Life ring with 3/16 inch diameter rope to span maximum width of pool.

O. Indoor Ventilation (3120B)

- _____1. Indoor pools shall be adequately ventilated.

P. Pool Equipment Room (3121B)

- _____1. Equipment to be mounted on concrete pad and sloped at least ¼ inch/ft. to drain, floor sink or sump.
- _____2. Equipment room to have a light and to be properly ventilated.

Q. Gas Chlorine Room (3122B)

- _____1. Room not located below ground level.
- _____2. Entry door shall open to the exterior of the building and shall not open directly towards the pool or pool deck.
- _____3. Fresh air intake within 6 inches of ceiling.
- _____4. Mechanical exhaust which produces at least 60 air changes per hour and is vented to outside air. Discharge located at least 10 ft. from windows or adjacent building.

R. Recirculation (3123B-3125B)

- _____1. All equipment and valves requiring inspection, adjustment, and repair are readily accessible.
- _____2. Pool flow velocity not to exceed 10 ft. per second on inlet piping and 8 ft. per second on suction piping. EXCEPTION: Wading pools shall not exceed 6 ft. per second.
- _____3. Pressure gauge on influent and effluent lines.
- _____4. A flowmeter must be installed on a horizontal straight run of pipe with a minimum of 10 pipe diameters before and 4 pipe diameters after the flowmeter. It should be positioned after the filter and before the heater. It may be installed after the heater, if a great enough distance can be maintained so that heated water will not damage the flowmeter.
- _____5. Hair and lint strainer on suction side of the recirculation pump.
- _____6. Vacuum gauge on suction type filters.
- _____7. Valves installed on recirculation, backwashing, and drain system lines requiring flow control.
- _____8. Wading pools must have two circulation drains per pump that are hydraulically balanced and symmetrically plumbed through one or more "T" fittings, and are separated by a distance of at least three feet in any dimension between the drains.

S. Pump Capacities – Design Flow (3126B)

- _____1. Pressure D.E. – 60 ft. head.
- _____2. Vacuum D.E. – 40 ft. head.
- _____3. Rapid sand – 45 ft. head.
- _____4. High rate sand – 60 ft. head.
- _____5. Cartridge – 60 ft. of head.

T. Water Supply (3127B)

- _____1. Permanently installed line. EXCEPTION: Temporary pools and pools less than 1500 gallons are exempt.
- _____2. Air gap, vacuum breaker, or double check valve attached to permanently installed line.

U. Filter Requirements (3128B-3131B)

- _____1. Rapid sand – maximum 3 GPM per sq. ft.; Backwash minimum 12 GPM per sq. ft.
- _____2. D.E. – maximum 2 GPM per sq. ft. maximum 2 ½ GPM for continuous feeding of filter aid for pools 2000 sq. ft. or more.
- _____3. High rate sand – suggest maximum 15 GPM per sq. ft.; Backwash minimum 15 GPM per sq. ft.
- _____4. Cartridge – suggested maximum 0.375 GPM per sq. ft.

V. Disinfectant Feeder (3133B)

- _____1. Approved type. Provide cut sheet.
- _____2. Provide the equivalent of 3 pounds chlorine per day per 10,000 gallons of pool water capacity. (Volume of pool in gallons X 0.0003 = required gallons per day.)

W. Skimmers (3134B) (pool area not over 5000 sq. ft.)

- _____1. One skimmer for each 500 sq. ft. or fractional part hereof.
- _____2. Capable of withdrawing minimum 75% required recirculation capacity.
- _____3. If GPM through skimmer could be greater than or equal to 50, additional skimmer recommended.
- _____4. Equalizer line required.
- _____5. Skimmers shall be individually adjustable with an air-lock protective device which will prevent leakage of air into recirculation system.
- _____6. Each skimmer shall have a cleanable screen or basket, removable from opening on the deck.

X. Perimeter Overflow (3134B.2) (Required for pools over 5000 sq. ft.)

- _____1. Capable of withdrawing minimum of 75% required recirculation capacity.
- _____2. Channel minimum 3 inches deep; bottom width of channel minimum 3 inches; opening beneath deck into channel minimum 4 inches.
- _____3. Channel lip maximum 12 inches below top of deck; round lip edge maximum thickness 2 ½ inches for top 2 inches, minimum thickness 1 inch for top 2 inches.
- _____4. Channel outlet minimum 2 ½ inches spaced not more than 15 ft. apart and channel slope to outlets not less than ¼ inches per ft.
- _____5. Channel drain gates 1 ½ times area outlet pipe.
- _____6. Surge tank storage minimum 1 gallon per sq. ft. of pool surface.
- _____7. Automatic surge flow control to make-up water with manual override for maintaining pool water level.

Y. Bottom Drain and Outlets (3134B.3-3108B.2)

- _____1. Cut sheet provided for flat bottom drain grate showing open area in square inches. Open area must be such that velocity is less than or equal to 6.2 GPM.
- _____2. Designed so that the pool can be emptied and circulation can take place.
- _____3. Main drain covers are removable only with tools.
- _____4. Specify hydrostatic relief valve under main drain sump. EXCEPTION: Wading pools
- _____5. Cut sheet provided for equalizer grate showing it is anti-hair entrapment.

Z. Inlets (3134B.5)

- _____1. Minimum of 2 inlets for the first 10,000 gallons and one inlet for each additional 10,000 gallons or fractional part.
- _____2. Located not less than 18 inches below waterline. EXCEPTION: Wading pools are exempt.
- _____3. Pools greater than 40 ft. in width: one floor inlet per 10,000 gallons or fractional part.
- _____4. Inlet fittings separated by 10 ft.
- _____5. Adjustable fittings required.

AA. Waste Disposal (3137B)

- _____1. Sight Glass. (not required if readily visible air gap connection to sewer provided.)
- _____2. Show location sump in equipment room for backwash and pool draining.
- _____3. Specify that sump drains to sanitary sewer.
- _____4. Indirect connection required.
- _____5. Diatomaceous earth filters must be permanently plumbed to a p-trap with a fixed air gap and have a separation tank that drains indirectly to sewer.
- _____6. Sand filters must be permanently plumbed to a p-trap with a fixed air gap.
- _____7. Cartridge filters must have area set aside with a hose bib and floor drain to clean the filter.

BB. Electrical (116049-116049.1)

- _____1. Underwater light and area lighting if pool used at night. An underwater white incandescent light is required in a swimming pool. The light must be at least 0.5 watts per square foot of pool surface area. If other types of lighting are used, such as fiber optic or fluorescent, their equivalency to incandescent lighting must be demonstrated
- _____2. Encapsulated terminals and ground-fault circuit interrupter required.
- _____3. See sections 680-12 and 680-13.

CC. Handicapped Accessibility (3204B)

- _____1. Swimming pools and their appurtenances shall be in compliance with the requirements of the State Architect for access to public accommodations by physically-handicapped persons.

DD. Heating

- _____1. Any solar heating system connected to a pool or spa shall be a separate system from the recirculation system with its own pump, split suction and return lines.
- _____2. Supplemental heat transfer systems for pools or spas must not interfere with the proper functioning of the recirculation system or reduce the filtration rate below the required minimum

EE. Pool Covers

- _____1. Floating type pool covers are limited to pools where there is constant supervision with a responsible person opening the pool and removing the cover and closing the pool each day. Permanent or safety type pool covers must be submitted for approval and must not obstruct the deck in any way nor interfere with the coping requirements and be ANSI approved.

FF. Cleaning Systems

- _____1. Built-in, portable, or approved BFPD jet type with 15 gal/min. per jet

POOL SIZING & FORMULAS

Volume equals the Surface Area (S.A) multiplied by the Average (Avg) Depth of the pool or spa multiplied by 7.5 which is the conversion from cubic feet to gallons.

Rectangular pool surface area is length (ft) x width (ft)

Circular pool surface area is radius (ft) x radius (ft) x 3.14

Volume = S.A. (sq. feet) x Avg. Depth (ft) x 7.5 gallons/ cu ft.

1 EXAMPLE OF A RECTANGULAR POOL:

A pool that is 15 feet by 30 feet with a depth of 5 feet in the deep end and 3 feet in the shallow end would have a surface area of 450 square feet and an average depth of 4 feet and a volume of 13,500 gallons.

Surface Area = 15 ft. x 30 ft = 450 sq. ft.

Average depth = $\frac{5 \text{ ft.} + 3 \text{ ft.}}{2} = 4 \text{ ft.}$

Volume = 450 x 4 x 7.5 = 13, 500 gallons

2 EXAMPLE OF A CIRCULAR SPA POOL:

A circular pool or spa has a radius of 12 ft with a depth of 3 feet would have a surface area of $12 \times 12 \times 3.14 = 452$ square feet and a volume of 10, 174 gallons.

Surface Area = 6 ft. x 6 ft x 3.14 = 113 sq. ft.

Depth = 3 feet

Volume = 36 x 3.14 x 7.5 = 2, 543 gallons

#3 EXAMPLE OF A WADING POOL:

A wading pool with a length of 6ft and a width of 6 ft and a depth of 12 inches (1ft) would have a surface area of $6 \times 6 = 36$ sq. ft and a volume of 270 gallons.

Surface Area = 10 ft x 10 ft = 64 sq. ft.

Depth = 1 ft

Volume = 100 sq. ft. x 1 ft x 7.5 = 750 gallons

2

TURNOVER RATE :

Turnover rate is the time required to recirculate the entire volume of water in the pool or spa through the filter.

Pools constructed before 1984 have an 8 hour turnover rate

= 480 minutes

Pools constructed after 1984 have a 6 hour turnover rate

= 360 minutes

Wading Pools must have a 1 hour turnover rate

= 60 minutes

Spa Pools must have a ½ hour minute turnover rate

= 30 minutes

FLOW RATE:

Flow rate is the amount of water going through the recirculation system usually measured in gallons per minute.

Flow rate = $\frac{\text{Volume of the pool}}{\text{Turnover rate}}$

Flow Rate for swimming pool #1 = $\frac{13,500 \text{ gallons}}{360 \text{ minutes}} = 37.5 \text{ gallons/minute}$

Flow Rate for spa pool # 2 = $\frac{2,543 \text{ gallons}}{30 \text{ minutes}} = 85 \text{ gallons/minute}$

Flow rate for Wading pool # 3 = $\frac{750 \text{ gallons}}{60 \text{ minutes}} = 13 \text{ gallons/minute}$

Pool Capacity:

Swimming Pool = 20 square feet per bather

Example # 1 = $\frac{450 \text{ sq. ft.}}{20} = 23$

Spa Pool = 10 square feet per bather

Example # 2 = $\frac{64 \text{ sq. ft.}}{10} = 6$