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ENGINEERING DRAWINGS

DRAWINGS PREPARED BY LATHAM POOL PRODUCTS

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APPLICABLE CODES AND REGULATIONS

CALIFORNIA BUILDING CODE, 2019 CALIFORNIA PLUMBING CODE, 2019 EDITION (CPC) CALIFORNIA ELECTRICAL CODE, 2019 EDITION (CEĆ) CALIFORNIA MECHANICAL CODE. 2019 EDITION (CMC) CALIFORNIA FIRE CODE, 2019 EDITION (FC) CALIFORNIA ENERGY CODE, 2019 EDITION (EC) CALIFORNIA GREEN BUILDING STANDARDS CODE, 2019 EDITION (GBC)

INCLUDING ALL AMENDMENTS AS ADOPTED BY THE GOVERNING JURISDICTION







LOCATION PLAN

POOL NOTES:

GATES AND BARRIERS:

ANY PEDESTRIAN ACCESS GATES THROUGH THE ENCLOSURE SHALL OPEN AWAY FROM THE SWIMMING POOL AND BE SELF-CLOSING WITH A SELF-LATCHING DEVICE AND RELEASE MECHANISM PLACED NO LOWER THAN 60" ABOVE THE GROUND. ALL ACCESS GATES SHALL COMPLY WITH THE REQUIREMENTS OF SECTIONS 3109.5.1.2 THROUGH 3109.5.1.5 AND SHALL BE FOUIPPED TO ACCOMMODATE A LOCKING DEVICE.

A MINIMUM HEIGHT OF 60" MEASURED FROM THE GROUND TO THE SIDE OF THE BARRIER OR ENCLOSURE THAT FACES AWAY FROM THE SWIMMING POOL.

A MAXIMUM VERTICAL CLEARANCE FROM THE GROUND TO THE BOTTOM OF THE ENCLOSURE OF 2" GAPS OR VOIDS. IF ANY, DO NOT ALLOW PASSAGE OF A SPHERE FOUAL TO OR GREATER THAN 4" IN DIAMETER.

AN OUTSIDE SURFACE FREE OF PROTRUSIONS, CAVITIES OR OTHER PHYSICAL CHARACTERISTICS THAT WOULD SERVE AS HAND-HOLDS OR FOOT-HOLDS THAT COULD ENABLE A CHILD BELOW THE AGE OF 5 YEARS TO CLIMB OVER SUCH AS SOLID BARRIER SURFACES, REMOVABLE MESH POOL FENCING, CLOSELY SPACED HORIZONTAL MEMBERS (SPACING NO MORE THAN 1.75"), WIDELY SPACED HORIZONTAL MEMBERS (SPACING NO MORE THAN 1.75"), CHAIN LINK OR OTHER WIRE FENCE (SPACING NO MORE THAN 1.75"), DIAGONAL MEMBERS (SPACING NO MORE THAN 1.75"), ETC.

THE POOL WILL NOT BE EQUIPPED WITH AN AUTO COVER. BUT WILL HAVE AN APPROVED MOTION ALARM IN POOL WATER.

WHERE A WALL OF A HABITABLE OR OCCUPIABLE BUILDING SERVES AS PART OF THE ENCLOSURE OR BARRIER FOR A POOL. DOORS WITH DIRECT ACCESS TO THE POOL THROUGH THAT WALL SHALL BE EQUIPPED WITH AN EXIT ALARM THAT PRODUCES AN AUDIBLE WARNING WHEN THE DOOR AND/OR ITS SCREEN, IF PRESENT, ARE OPENED THE EXIT ALARM SHALL BE LISTED IN ACCORDANCE WITH UL 2018. A DEACTIVATION SWITCH SHALL BE LOCATED 54" OR MORE ABOVE THE THRESHOLD OF THE DOOR.

ALL DOORS PROVIDING DIRECT ACCESS FROM THE HOME TO THE POOL OR SPA SHALL BE EQUIPPED WITHA SELF-CLOSING. SELF-LATCHING DEVICE WITH A RELEASE MECHANISM PLACED NO LOWER THAN 54" ABOVE THE FLOOR.

ENTRAPMENT AVOIDANCE:

SUCTION OUTLETS SHALL BE DESIGNED AND INSTALLED IN ACCORDANCE WITH ANSI/APSP-7 AND THE FOLLOWING:

THE SUCTION OUTLET OF A NEW POOL OR SPA FOR WHICH A PERMIT IS ISSUED SHALL **BE EQUIPPED TO PROVIDE CIRCULATION** THROUGHOUT THE POOL OR SPA BY INSTALLING AT LEAST 2 CIRCULATION DRAINS PER PUMP THAT SHALL BE HYDRAULICALLY BALANCED AND SYMMETRICALLY PLUMBED THROUGH ONE OR MORE 'T' FITTINGS AND THAT ARE SEPARATED BY A DISTANCE OF A LEAST 3' IN ANY DIMENSION BETWEEN THE DRAINS. SUCTION OUTLETS THAT ARE LESS THAN 12" ACROSS SHALL BE COVERED WITH ANTI-ENTRAPMENT GRATES. AS SPECIFIED IN THE ASME/ANSI STANDARD A 112.19.8, THAT CANNOT BE REMOVED EXCEPT WITH THE USE OF TOOLS. SLOTS OF OPENINGS IN THE GRATES OR SIMILAR PROTECTIVE DEVICES SHALL BE A SHAPE, AREA AND ARRANGEMENT THAT WOULD PREVENT PHYSICAL ENTRAPMENT AND WOULD NOT POSE ANY SUCTION HAZARD BATHERS.



SAFETY NOTES; PROPERTY WILL HAVE FENCE WITH OUT SWING GATE, ALARMS ON ALL POOL ACCESS DOORS AND A MOTION ALARM IN POOL WATER



WEST COAST FIBERGLASS POOLS P.O. BOX 880 SANTA ROSA, CA. 85402 980 HOPPER AVENUE, SANTA ROSA CA. 95403 707) 527–7727 (PHONE), (707) 528–7663 (FAX) SoCal NORTH BAY APN 173-580-019 SHARON EVANS 1998 LONG LEAF COURT SANTA ROSA, CA 95403 DATE 02.25.20 SCOPE OF WORK: SCALE 1" = 20' INSTALL (1) LAGUNA 14' x 30' IN GROUND FIBERGLASS POOL DRAWN BY TJA PUMP: JANDY 2HP VARIABLE SPEED JOB EVANS FILTER: JANDY CL 340 CARTRIDGE HEATER: JANDY JXL 400 PROPANE 400,000 BTU SHEET S-2

5.7 Swimming Pool and Spa Heating

5.7.1 Swimming Pool and Spa Types

The Standards now include many additional requirements for residential swimming pool filtration equipment which affect pump selection and flow rate, piping and fittings, and filter selection. These new Standards are designed to reduce the energy used to filter and maintain the clarity and sanitation of pool water.

5.7.2 Mandatory Requirements

Before any pool or spa heating system or equipment may be installed, the manufacturer must certify to the Energy Commission that the system or equipment complies with §110.4 and §110.5. The requirements include minimum heating efficiency according to Appliance Efficiency Regulations, an on-off switch outside the heater, permanent and weatherproof operating instructions, no continuous pilot light, and no electric resistance heating (see exceptions below). §110.5

Pool and spa heaters may not have continuously burning pilot lights.

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Outdoor pools and spas with gas or electric heaters shall have a cover installed. The cover should be fitted and installed during the final inspection.

There are two exceptions for electric heaters, which may be installed for:

a. Listed package units with fully insulated enclosures (e.g., hot tubs), and with tight-fitting covers, insulated to at least R-6.

b. Pools or spas getting 60 percent or more of their annual heating from site solar energy or recovered energy.

1. Pool Pump Requirements

For maximum energy efficiency, pool filtration should be operated at the lowest possible flow rate for a time period that provides sufficient water turnover for clarity and sanitation. Auxiliary pool loads that require high flow rates such as spas. pool cleaners, and water features, should be operated separately from the filtration to allow the filtration flow rate to be kept to a minimum.

§150.0(p)1

All pumps and pump motors shall comply with the specifications of the Appliance Efficiency Regulations. The pool filtration flow rate may not be greater than the rate needed to turn over the pool water volume in 6 hours or 36 gpm, whichever is greater. This means that for pools of less than 13,000 gallons the pump must be sized to have a flow rate of less than 36 gpm and for pools of greater than 13,000 gallons, the pump must be sized using the following equation.

Max Flow Rate (gpm) = Pool Volume (gallons) 360min

These are maximum flow rates. Lower flow rates and longer filtration times are encouraged and will result in added energy savinos.

Pools with auxiliary pool loads must use either a multi-speed pump or a separate pump for each auxiliary pool load. For example, if a spa shares the pool filtration system, either a multi-speed pump must be used or a separate pump must be provided to operate the spa. If the pool system can be served by one pump of less than 1 total-hp in capacity, the pump may be single speed.

Filtration pump motors with a capacity of 1 total-hp or more must be multi-speed.

All pool pumps sold in California must be tested and listed with the Energy Commission according to the Appliance Efficiency Regulations. Pump manufacturers must list flow rate, power, and energy factor at each of three system curves (see Figure 5-14). For pools equal to or less than 17,000 gallons, a pump must be chosen such that the flow rate listed for Curve A is less than the 6-hour turnover rate. For pools greater than 17,000 gallons, a pump must be chosen such that the listed flow rate at Curve C is less than the 6-hour turnover rate.



2. Pool Pump Controls

Pool controls are a critical element of energy efficient pool design. Modern pool controls allow for auxiliary loads such as cleaning systems, solar heating, and temporary water features without compromising energy savings.

§110.4(b)

A time switch or similar control mechanism must be installed as part of the pool water circulation control system that will If a pool does not currently use solar water heating, piping must be installed to allow all pumps to be set or programmed to run only during the off-peak electric demand period and for the minimum time necessary to maintain the water in the condition required by applicable public health standards. Solar system that requires pumps to during peak hours must also have control mechanism installed

§150.0 (p)1

Multi-speed pumps must have controls that default to the filtration flow rate when no auxiliary pool loads are operating. The controls must also default to the filtration flow rate setting within 24 hours and must have a temporary override capability for servicing.

3. Pool Pipe, Filter, and Valve Requirements

System design for residential pools was introduced in 2008. Correct sizing of piping, filters, and valves reduces overall system head, reduces noise and wear, and increases energy efficiency. Other mandatory requirements include leading straight pipe into the pump, directional inlets for mixing, and piping to allow for future solar installations.

§110.4(b) and §150(p)2

Pool piping must be sized according to the maximum flow rate needed for all auxiliary loads. The maximum velocity allowed is 8 fps in the return line and 6 fps in the suction line. Table 5-9 shows the minimum pipe sizes required by pool volume based on a 6-hour turnover filtration flow rate. These pipe sizes would need to be increased if there are auxiliary loads that operate at greater than the filtration flow rate. Conversely, they could be reduced if the pump is sized for greater than a 6-hour turnover filtration flow rate.

Table 5-	9 – Hour	Turnover F	Pipe Sizing
Pool Volume (gallons)		Minimum Pipe Diameter (in)	
Min	Max	Return	Suction
-	13,000	1.5	1.5
13,000	17,000	1.5	2.0
17,000	21,000	2.0	2.0
21,000	30,000	2.0	2.5
30,000	42,000	2.5	3.0
42,000	48,000	3.0	3.0
48,000	65,000	3.0	3.5

There must be a length of straight pipe that is greater than or equal to at least 4 inches pipe diameters installed before the pump. That is, for a 2 inch suction pump, there must be at least 8 inches of straight pipe before the pump's strainer basket.

Traditional hard 900 elbows are not allowed. All elbows must be sweep elbows or a type of elbow that has a pressure drop less than the pressure drop of straight pipe with a length of 30 pipe diameters. For example, a 2 inch elbow must have a pressure drop less than a 5-foot length of 2 inch straight pipe.

Field verification of sweep elbows may be performed by checking that the distance "w" of the installed sweep elbow is greater than that for a hard 90 elbow (refer to Figure 5-15). The difference in measurement between the radial edge of one sleeve to the perpendicular side of the elbow is found to be distinct between sweep elbows and hard 90's. There is sufficient difference in distance "w" such that all sweep elbows exceed the minimum values listed in Table 5-10.

Figure 5-15 below illustrates "w" the dimension between the elbow sleeves and Table 5-10 shows the minimum distances "w" for an acceptable sweep elbow

Figure 5-15 – Measuring "w" at the Pool Site.



Table 5-10 - Pool Site Measurement for Sweep Elbo

Pipe Diameter	Minimum W (inch)
1.5	3/8
2	1/2
2.5	5/8
3	3/4
4	1

Filters shall be sized using NSF/ANSI 50 based on the maximum flow rate three be used are (in ft2/gpm):

Cartridge	0.375
Sand	15

Diatomaceous Earth

Backwash valves must be sized to the diameter of the return pipe or two inche backwash valves have a high pressure drop and are discouraged. Low-loss sli provide significant savings.

2

The pool must have directional inlets to adequately mix the pool water.

Contractors can choose three options to allow for the future addition of solar

1. Provide at least 36 inches of pipe between the filter and the heater to allow equipment.

2. Plumb separate suction and return lines to the pool dedicated to future sola

3. Install built-up or built-in connections for future piping to solar water heatir capped off tee fitting.

PROHIBITED

(b) Household cooking appliances. each pilot consumes less than 150 Btu/hr.







