



CERTIFICATE OF INSTALLATION

Note: This table completed by HERS Registry.

Table with 4 columns: Field Name, Entry, Field Name, Entry. Rows include Project Name, Dwelling Address, City and Zip Code, Enforcement Agency, Permit Number, and Permit Application Date.

A. Pool and Spa System Type

Table with 3 columns: Field, Field Name, Data Entry. Row 01: Pool and Spa System Type.

B. Pool and Spa Systems and Equipment Requirements

(Section 110.4(a) and 110.5)

Table with 2 columns: Field, Field Name. Rows 01-05 describing requirements for pool/spa heating systems, switches, weatherproofing, electric resistance heating, and pilot lights.

The responsible person's signature on this compliance document affirms that all applicable requirements in this table have been met.

C. Pool and Spa System Installation Requirements

(Section 110.4(b))

Table with 2 columns: Field, Field Name. Rows 01-04 describing requirements for solar heating pipe, covers, directional inlets, and time switches.

The responsible person's signature on this compliance document affirms that all applicable requirements in this table have been met.



D. Pool Pump Sizing and Flow Rate Specification(Section 150.0(p))

Field	Field Name
01	The pool pump that subject to State or federal appliance efficiency standards is listed in the CEC's directory of certified equipment.
02	The pool pump flow rate shall not exceed the maximum pump flow rate calculated based on pool sizing in the table below. The return pipe diameter, suction pipe diameter, and filter area shall be at least as large as the required minimums shown in the table. Alternatively, a flow calculation or flow test result shall be provided to demonstrate that the pump flow rate is less than 6 hour filtration turnover, and the return pipe flow rate does not exceed 8 fps and that the suction pipe flow rate does not exceed 6 fps.

03	An alternative compliance calculation or a flow test result is provided for this pool or spa use (must attach flow calculation or flow test result to this form)	Yes	No
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04	The pump is capable of operating at 2 or more speeds (not applicable if pump is less than 1 horsepower).
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05	Each auxiliary pool load is served by either a separate pump, or the system is served by a multi-speed pump.
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06	Volume of Pool (gallons)	
07	Filter Type (Cartridge, Sand, DE)	

08a Required Min Return Pipe Diameter (inches)	08b Required Min Suction Pipe Diameter (inches)	08c Required Min Filter Area (ft ²)	08d Required Max Pump Flow (gpm)

09	Return Pipe Diameter (inches)	
10	Suction Pipe Diameter (inches)	
11	Filter Surface Area (ft ²)	
12	Max Pump Flow Rate (gpm)	
13	Measured Flow Rate Return Line (fps)	
14	Measured Flow Rate Suction Line (fps)	
15	Compliance Statement:	

The responsible person's signature on this compliance document affirms that all applicable requirements in this table have been met.



E. Pool System Piping (Section 150.0(p)2)

Field	Field Name
01	The suction side pipe is straight for at least 4 pipe diameters before entering the pump (See table below for the required straight run lengths for various pipe sizes).
02	All elbows are sweep elbows, or an elbow type that has a pressure drop that is less than the pressure drop of a straight pipe with a length of 30 pipe diameters.

The responsible person’s signature on this compliance document affirms that all applicable requirements in this table have been met.

F. Pool Filters and Valves (Section 150.0(p)3 and 4)

Field	Field Name
01	If a filter is used in a pool intended for public use: The size of the filter is at least the size specified in NSF/ANSI 50.
02	If a backwash valve is used: The diameter of the backwash valve is at least 2 inches, or the diameter of the return pipe, whichever is greater.

The responsible person’s signature on this compliance document affirms that all applicable requirements in this table have been met.

CF2R-PLB-03-E User Instructions

A. Pool and Spa System Type

Pick from Pool only, Spa only, or Pool and Spa

B. Pool and Spa Systems and Equipment Requirements (Section 110.4(a) and 110.5)

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.

C. Pool and Spa System Installation Requirements (Section 110.4(b))

A time switch or similar control mechanism must be installed as part of the pool water circulation control system that will 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.

D. Pool Pump Sizing and Flow Rate Specification (Section 150.0(p))

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. Calculate Max Flow Rate using the following equation:

$$\text{Max Flow Rate (gpm)} = \frac{\text{Pool Volume (gallons)}}{360\text{min.}}$$

Pool piping must be sized according to the maximum flow rate needed for all auxiliary loads. Show work to calculate return and suction line flow rate, minimum filter area, and the maximum pump flow rate correspond to the pool volume in accordance to section 150.0(p), or refer to Table C below for the prescriptive values. The maximum velocity allowed is 8 fps in the return line and 6 fps in the suction line, and the maximum pump flow rate is less than 6 hour filtration turnover.

3. Select whether the alternative calculation is used.

6. Enter the Pool Volume (gal).

7. Enter Filter Type (Cartridge, Sand, DE).

8a Enter the Required Minimum Return Pipe Diameter (inches).

8b Enter the Required Minimum Suction Pipe Diameter (inches).

8c Enter the Required Minimum Filter Area (ft²).

8d Enter the Required Maximum Pump Flow (gpm).

9. Enter Return Pipe Diameter (inches).

10. Enter Suction Pipe Diameter (inches).

11. Enter Filter Surface Area (ft²).

12. Enter the Maximum Pump Flow Rate (gpm).

13. Enter the Measured Flow Rate of the Return Line in fps. This is only used if the alternative calculation is used.

14. Enter the Measured Flow Rate of the Return Line in fps. This is only used if the alternative calculation is used.

15. Automatically completed Compliance Statement.

E. Pool System Piping (Section 150.0(p)2)

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. Refer to Table D below for the required pipe length. Traditional hard 90° 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.

F. Pool Filters and Valves (Section 150.0(p)3 and 4)

Backwash valves must be sized to the diameter of the return pipe or 2 inches, whichever is greater. Multiport backwash valves have a high pressure drop and are discouraged.