HIGH RISE RESIDENTIAL, HOTEL/MOTEL SINGLE DWELLING UNIT HOT WATER SYSTEM DISTRIBUTION

CERTIFICATE OF INSTALLATION		NRCI-PLB-03-E
High Rise Residential, Hotel/Motel Single Dwelling Unit Hot Water System Distribution		(Page 1 of 6)
Project Name:	Enforcement Agency:	Permit Number:
Project Address:	City:	Zip Code:

A. DHW Distribution System		
01	Water Heating System Name:	
02	Distribution Type:	

B. Standard Distribution System Requirements (trunk and branch systems only)	
Systems that utilize this distribution type shall comply with these requirements:	
01	Verification of mandatory measures identified on Table D, PLB-01-E shows compliance for standard distribution system
The responsible person's signature on this compliance document affirms that all applicable requirements in this table have been met.	

C. Parallel Piping Requirements	
Systems that utilize this distribution type shall comply with these requirements:	
01	Each central manifold has 15 feet or less of pipe between manifold and water heater. (RA 4.4.15)
02	For manifolds that include valves, the manifold must be readily accessible in accordance with the plumbing code. (RA 4.4.4)
03	Hot water distribution system piping from the manifold to the fixtures and appliances must take the most direct path. For instance, piping from a second story manifold cannot supply the first floor. (RA 4.4.4)
04	The hot water distribution piping must be separated by at least two inches from any other hot water supply piping, and at least six inches from any cold water supply piping. Alternatively, the hot water supply piping must be insulated to the thicknesses shown in TABLE 120.3-A. (RA 4.4.4)
The responsible person's signature on this compliance document affirms that all applicable requirements in this table have been met.	

D. Point of Use Requirements

Systems that utilize this distribution type shall comply with these requirements:

01	All hot water supply pipe run lengths are equal to or less than the maximum values shown below, based on the pipe diameter. If a combination of piping is used in a single run then one half the allowed length of each size is the maximum installed length. The maximum allowed length of piping for the longest run terminating in: 3/8 inch - For only one pipe size - max length allowed is 15 feet. For combination pipe sizes the max allowed length of 3/8 inch piping is 7.5 feet, of ½ inch piping is 5 feet, and ¾ inch piping is 2.5 feet. ½ inch - For only one pipe size – max length allowed is 10 feet. For combination pipe sizes the allowed length of ½ inch piping is 5 feet, and ¾ inch piping is 2.5 feet. ¾ inch - For only one pipe size = 5 feet

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

I. Compact Hot Water Distribution (CHWD)

This table reports the inputs and or results for CHWD.

01	MasterBath distance of furthest fixture to Water Heater	
02	Kitchen distance from furthest fixture to Water Heater	
03	Furthest Third furthest fixture to Water Heater	
04	**Weighted Distance (Sum Distances times Coefficients from table 4.4.6-1)**	
05	**Qualification Distance (Sum of coefficients from table 4.4.6-2 times the conditioned floor area divided by the number of water heaters)**	

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J. Recirculation System Requirements	
Systems that utilize this distribution type shall comply with these requirements.	
01	A check valve located between the recirculation pump and the water heater to prevent unintentional recirculation (RA4.4.7).
02	Piping must take most direct path between water heater and fixtures (RA4.4.7).
The responsible person's signature on this compliance document affirms that all applicable requirements in this table have been met	

K. Recirculation Non-Demand Controls Requirements	
Systems that utilize this distribution type shall comply with these requirements	
01	If more than one loop installed each loop shall have its own pump and controls
02	The active control shall be either: timer, temperature, or time and temperature. Timers shall be set to less than 24 hours. The temperature sensor shall be connected to the piping and to the controls for the pump.
The responsible person's signature on this compliance document affirms that all applicable requirements in this table have been met.	

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L. Demand Recirculation Manual Control Requirements **Systems that utilize this distribution type shall comply with these requirements.**	
01	The system operates “on-demand”, meaning that the pump begins to operate shortly before or immediately after hot water draw begins, and stops when the return water temperature reaches a certain threshold value. System shall be turned on using a manual switch (RA4.4.9)
02	Each supply loop shall be served by separate pump and controls.
03	Manual controls shall be located in the kitchen, bathroom, and any hot water fixture location that is at least 20 feet from the water heater. (RA4.4.9)
04	Manual controlled system may be active by wired or wireless mechanisms (RA4.4.9).
05	.Pump and control placement shall meet one of the following criteria: (RA4.4.9) • When a dedicated return line has been installed the pump, controls and thermo-sensor are installed at the end of the supply portion of the recirculation loop; or • The pump and controls are installed on the dedicated return line near the water heater and the thermo-sensor is installed in an accessible location as close to the end of the supply portion of the recirculation loop as possible; or • When the cold water line is used as the return, the pump, demand controls and thermo-sensor shall be installed in an accessible location at the end of supply portion of the hot water distribution line (typically under a sink).
05	Insulation is not required on the cold water line when it is used as the return. (RA4.4.9)
06	Demand Control shall be able to shut off the pump using one of the following methods. (RA4.4.9) • Not more than 10°F (5.6°C) above the initial temperature of the water in the pipe • Not more than 102°F (38.9°C).
The responsible person’s signature on this compliance document affirms that all applicable requirements in this table have been met.	

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M. Demand Recirculation Sensor Control Requirements Systems that utilize this distribution type shall comply with these requirements	
01	The system operates “on-demand”, meaning that the pump begins to operate shortly before or immediately after hot water draw begins, and stops when the return water temperature reaches a certain threshold value. (RA4.4.10)
02	Each supply loop shall be served by separate pump and controls. (RA4.4.10)
03	Sensor controls shall be located in the kitchen, bathroom, and any hot water fixture location that is at least 20 feet from the water heater. (RA4.4.10)
04	Controls may be activated by wired or wireless mechanisms, including buttons, motion sensors, door switches and flow switches. Each control shall have standby power of 1 Watt or less. (RA4.4.10)
05	Pump and control placement shall meet one of the following criteria: (RA4.4.10) • When a dedicated return line has been installed the pump, controls and thermo-sensor are installed at the end of the supply portion of the recirculation loop; or • The pump and controls are installed on the dedicated return line near the water heater and the thermo-sensor is installed in an accessible location as close to the end of the supply portion of the recirculation loop as possible; or • When the cold water line is used as the return, the pump, demand controls and thermo-sensor shall be installed in an accessible location at the end of supply portion of the hot water distribution line (typically under a sink).
06	Insulation is not required on the cold water line when it is used as the return. (RA4.4.9)
07	Demand Control shall be able to shut off the pump using one of the following methods: (RA4.4.10) • Not more than 10°F (5.6°C) above the initial temperature of the water in the pipe • Not more than 102°F (38.9°C).
08	The controls shall limit pump operation to a maximum of 5 minutes following any activation. This is provided in the event that the normal means of shutting off the pump have failed. (RA4.4.10)
The responsible person’s signature on this compliance document affirms that all applicable requirements in this table have been met.	

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DOCUMENTATION AUTHOR'S DECLARATION STATEMENT	
1. I certify that this Certificate of Installation documentation is accurate and complete.	
Documentation Author Name:	Documentation Author Signature:
Documentation Author Company Name:	Date Signed:
Address:	CEA/ HERS Certification Identification (If applicable):
City/State/Zip:	Phone:

RESPONSIBLE PERSON'S DECLARATION STATEMENT

I certify the following under penalty of perjury, under the laws of the State of California:

1. The information provided on this Certificate of Installation is true and correct.
2. I am eligible under Division 3 of the Business and Professions Code in the applicable classification to accept responsibility for the system design, construction, or installation of features, materials, components, or manufactured devices for the scope of work identified on this Certificate of Installation and attest to the declarations in this statement (responsible builder/installer), otherwise I am an authorized representative of the responsible builder/installer.
3. The constructed or installed features, materials, components or manufactured devices (the installation) identified on this Certificate of Installation conforms to all applicable codes and regulations, and the installation conforms to the requirements given on the plans and specifications approved by the enforcement agency.
4. I reviewed a copy of the Certificate of Compliance approved by the enforcement agency that identifies the specific requirements for the scope of construction or installation identified on this Certificate of Installation, and I have ensured that the requirements that apply to the construction or installation have been met.
5. I will ensure that a completed signed copy of this Certificate of Installation shall be posted, or made available with the building permit(s) issued for the building, and made available to the enforcement agency for all applicable inspections. I understand that a completed signed copy of this Certificate of Installation is required to be included with the documentation the builder provides to the building owner at occupancy.

Responsible Builder/Installer Name:	Responsible Builder/Installer Signature:	
Company Name: (Installing Subcontractor or General Contractor or Builder/Owner)	Position With Company (Title):	
Address:	CSLB License:	
City/State/Zip:	Phone:	Date Signed: