CERTIFICATE OF INSTALLATION

This Certificate of Installation documents the installation of service water heating features, materials, components, and manufactured devices required to demonstrate compliance with Title 24, Part 6 per §10-103(a)3 for nonresidential, hotel/motel and high-rise residential occupancies.

Project Name:	Enforcement Agency:
Dwelling Address:	Permit Number:
City and Zip Code:	Permit Application Date:

A. GENERAL INFORMATION

01	Project Location (city):		05	Authority Having Jurisdiction:	
02	Zip Code:		06	Building Permit #:	
03	Date of Permit Set used for construction:		07	Date of As-built Set:	
04	Name of Permit Set used for construction:		08	Name of As-built Set:	

B. INSTALLER SCOPE

This table indicates construction systems and materials documented on this Certificate of Installation.

01		02		03	
□	Water Heating Equipment	□	Distribution (piping, valves, insulation, etc.)	□	Controls

C. COMPLIANCE RESULTS

This table indicates whether the as-built conditions documented in this form are equal or better than what was documented on the permitted Certificate of Compliance. If the installation is not equal or better, Section 10-103(a)2B requires the Certificate of Compliance to be revised accordingly to demonstrate compliance.

01	**INSTALLED FEATURES EXACTLY MATCH DESIGN ON PERMITTED CERTIFICATE OF COMPLIANCE**

Documented as-built conditions should be verified by inspector from Authority Having Jurisdiction to comply.

The Certificate of Compliance should be revised to confirm as-built conditions comply and this Certificate of Installation updated accordingly.

D. EXCEPTIONAL CONDITIONS

This table is auto-filled with uneditable comments because of field conditions noted by the installer that may impact requirements documented on the Certificate of Compliance.

E. INSTALLER NOTES

This table includes remarks made by the installer to the Authority Having Jurisdiction.

F. INSTALLATION DETAILS

The following tables indicate performance requirements as documented on the permitted Certificate of Compliance for all systems and components included in Table B. Installer Scope. Also indicated are the as-built conditions documented by the installer/ documentation author.

DOMESTIC HOT WATER EQUIPMENT EFFICIENCY

01	02	03	04	05	06	07	08	09	10	11
Name or Item Tag	Model #	Individual or Central System	Equipment Type	Volume (gal)	Rated Input Capacity (Btu/h)	Capacity Unit	Rated Efficiency	Efficiency Unit	Standby Loss	DHW Equipment Compliance
Per C of C										
As-built Conditions										

DOMESTIC HOT WATER EQUIPMENT ADDITIONAL REQUIREMENTS

The following requirements have been included on the permitted Certificate of Compliance (NRCC) to comply with Title 24, Part 6. Installed equipment shall meet these requirements or the Certificate of Compliance shall be modified to demonstrate compliance.

(Applies to New Construction only) For gas or propane water heaters serving individual dwelling units, the follow components are included in the installation per Title 24, Part 6 §150.0(n)1: - Dedicated 125V, 20 amp electrical receptacle that is connected to the panel with a 120/240V 3 conductor, 10 AWG copper branch circuit within 3 ft from the water heater that's accessible and with both ends of the unused conductor labeled with the word "spare" and be electrically isolated. A single pole circuit breaker space in the panel adjacent to the circuit breaker for the branch circuit is provided labeled with the word "future 240V use"; and - Category III or IV vent, or Type B vent with straight pipe between the outside termination and where the water heater is installed; and - Condensate drain that is no more than 2in higher than the base of the water heater and drains without pump assistance; and - Gas supply line with a capacity of at least 200,000 BTUH
Unfired storage tank insulation shall have Internal + External ≥ R-16 OR External ≥ R-12. Label required per Title 24, Part 6 §110.3(c)3
(Applies to new state buildings only) 60% of energy for service water heating is from site solar energy or recovered energy per Title 24, Part 6 §110.3(c)5
Isolation valves installed for instantaneous water heater with input rating > 6.8 kBTUH or 2 kW per Title 24, Part 6 §110.3(c)6.

DOMESTIC HOT WATER DISTRIBUTION REQUIREMENTS

The following requirements have been included on the permitted Certificate of Compliance to comply with Title 24, Part 6. Installed equipment shall meet these requirements or the Certificate of Compliance shall be modified to demonstrate compliance.

Recirculation Loops in Central Systems Serving Dwelling Units or Nonresidential Spaces

Automatic air release valve no more than 4 feet from pump or vertical pump installation
Check valve or similar located between recirculation pump and water heating equipment to prevent backflow
Hose bibb installed between pump and equipment and isolation valve between hose bibb and equipment
Isolation valves on both sides of the pump
Cold water and recirculation loop piping is not connected to the hot water storage tank drain port
Check valve is installed on cold water supply between hot water system and next closest tee on cold water supply
DWELLING UNITS ONLY: For central systems serving multiple dwelling units, design includes a recirculation system serving separate dwelling units per §170.2(d) unless building has < 8 dwelling units.
DWELLING UNITS ONLY: For heat pump water heating systems, the hot water return from the recirculation loop shall connect to a recirculation loop tank and shall not directly connect to the primary heat pump water heater inlet or the primary thermal storage tanks per §170.2(d)2A.
DWELLING UNITS ONLY: For heat pump water heating systems, the fuel source for the recirculation loop tank shall be electricity if auxiliary heating is needed. The recirculation loop heater shall be capable of multi-pass water heating operation per §170.2(d)2B.

Distribution of Individual System(s) serving Dwelling Units

Single 240 volt heat pump water heaters serving dwelling units must also include systems with:	
	- Compact hot water distribution system as specified in Reference Appendix RA4.4.16 in climate zone 1 & 16; AND
	- A drain water heat recovery system that is field verified by a HERS Rater per Reference Appendix RA3.6.9 in climate zone 16.
A drain water heat recovery system that is field verified by a HERS Rater per Reference Appendix RA3.6.9 in climate zone 16.	
For recirculation distribution systems serving individual dwelling units, only Demand Recirculation Systems with manual on/off control as specified in the Reference Appendix RA4.4.9 shall be used.	

Mandatory Pipe Insulation Requirements

For systems serving dwelling units and common areas, pipe insulation must meet the minimum insulation requirements in Table 160.4-A (see below) except: - Piping that penetrates framing members shall not be required to have pipe insulation for the distance of the framing penetration. Piping that penetrates metal framing shall use grommets, plugs, wrapping or other insulating material to assure that no contact is made with the metal framing. Insulation shall abut securely against all framing members. - Piping installed in interior or exterior walls shall not be required to have pipe insulation if all of the requirements are met for compliance with Quality Insulation Installation (QII) as specified in the Reference Residential Appendix RA3.5. - Piping surrounded with a minimum of 1 inch of wall insulation, 2 inches of crawlspace insulation, or 4 inches of attic insulation, shall not be required to have pipe insulation.
For systems serving nonresidential spaces, pipe insulation for the following applications must comply with the following: - Recirculating system piping, including supply and return piping of the water heater - The first 8 ft of hot and cold outlet piping, including between storage tank and heat trap, for a nonrecirculating storage system - Pipes that are externally heated
Insulation shall be protected from damage, including that due to sunlight, moisture, equipment maintenance, and wind. Insulation exposed to weather shall be installed with a cover suitable for outdoor service per §120.3(b)/ §160.4(f). Pipe insulation buried below grade must be installed in a water proof and non-crushable casing or sleeve.

DOMESTIC HOT WATER SYSTEM CONTROLS

The following requirements have been included on the permitted Certificate of Compliance to comply with Title 24, Part 6. Installed equipment shall meet these requirements or the Certificate of Compliance shall be modified to demonstrate compliance.

Manufacturers must certify that service water-heating systems shall be equipped with automatic temperature controls capable of adjustment from the lowest to the highest acceptable temperature settings for the intended use as listed in Table 3, Chapter 50 of the ASHRAE Handbook, HVAC Applications Volume or Table 613.1 of the California Plumbing Code for healthcare facilities.
On systems that have a total capacity greater than 167,000 Btu/hr, outlets that require higher than service water temperatures as listed- in the ASHRAE Handbook, Applications Volume, shall have separate remote heaters, heat exchangers, or boosters to supply the outlet with the higher temperature unless covered by California Plumbing Code Section 613.0.
Controls for circulating pumps or electrical heat trace systems are capable of automatically turning off the system unless system serves healthcare facility.
For recirculation systems serving multiple dwelling units, design includes automatic pump controls per §170.2(d), or §180.1(b)3 for additions or alterations.
For recirculation systems serving individual dwelling units, design includes manual on/off controls as specified in Reference Appendix RA 4.4.9 per §150.1(c)8 §170.2(d).
Combustion air positive shut-off shall be provided per §160.4(e) on all newly installed commercial boilers as follows: - Boiler with input capacity >= 2.5 MMBtu/h, in which the boiler is designed to operate with a nonpositive vent static pressure - Boilers where one stack serves two or more boilers with a total combined input capacity per stack of 2.5 MMBtu/h.
Boiler combustion air fans with motors >= 10 hp shall meet one of the following for newly installed boilers: - The fan motor shall be driven by a variable speed drive OR - The fan motor shall include controls that limit the fan motor demand to <= 30% of the total design wattage at 50% of the design air volume.
Newly installed boilers with an input capacity >= 5 MMbtu/h and a steady state full-load combustion efficiency < 90% shall maintain excess (stack-gas) oxygen concentrations <= 5% by volume on a dry basis over firing rates of 20-100%. Combustion air volume shall be controlled with respect to firing rate or flue gas oxygen concentration. Use of a common gas and combustion air control linkage or jack shaft is prohibited.

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

2. 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 understand 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, and I will take the necessary steps to accomplish this requirement.
   6. 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, and I will take the necessary steps to accomplish this requirement.

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:

For assistance or questions regarding the Energy Standards, contact the Energy Hotline at: 1-800-772-3300

A. General Information

1. This field is filled out automatically with data from the NRCC.
2. This field is filled out automatically with data from the NRCC.
3. Enter the Date of Permit Set used for construction.
4. Enter the Name of Permit Set used for construction.
5. Enter the Authority Having Jurisdiction.
6. Enter the Building Permit #.
7. Enter the Date of As-Built Set.
8. Enter the Name of As-Built Set.

B. Project Scope

1. Select water heating equipment if applicable.
2. Select distribution (piping, valves, insulation, etc.) if applicable.
3. Select controls if applicable.

C. Compliance Results

1. This table is automatically filled with uneditable comments based on data entered in Section F.

D. Exceptional Conditions

1. This table is automatically filled with uneditable comments because of selections made or data entered in tables throughout the form.

E. Additional Remarks

1. Enter any notes or comments for the AHJ.

F. Installation Details

Domestic Hot Water Equipment Efficiency

1. This field is filled out automatically.
2. Enter the Model # of the equipment installed.
3. Individual or Central System: Select from dropdown.
4. Equipment Type: Select from dropdown.

5. Enter the Volume (gal) of the equipment installed.
6. Enter the Rated Input Capacity (Btu/h) of the equipment installed.
7. Enter the Capacity Unit of the equipment installed.
8. Enter the Rated Efficiency of the equipment installed.
9. This field is filled out automatically.
10. This field is automatically calculated.
11. This field is filled out automatically.

Domestic Hot Water Equipment Additional Requirements

1. This table covers the additional requirements for domestic hot water equipment.

Domestic Hot Water Distribution Requirements

1. This table covers the additional requirements for domestic hot water distribution.

Domestic Hot Water System Controls

1. This table covers the additional requirements for domestic hot water system controls.

Documentation Declaration Statements

1. The person who prepared the NRCI will sign and complete the fields for their name, company (if applicable), address, phone number, certification information (if applicable), date and signature.
2. The person who is assuming responsibility for the project being built to comply with Title 24, Part 6, will complete the fields for their name, company (if applicable), address, phone number, license number (if applicable), date and signature.