

What is Domestic Hot Water (DHW)?

Domestic hot water is potable hot water that is consumed for domestic purposes including food preparation, cleaning, and personal hygiene. The 2019 California Building Energy Efficiency Standards (Energy Code), Title 24, Part 6 regulate hot water appliances, insulation and systems for residential applications. Water heating energy use is based on the number of dwelling units, fuel type, distribution system, water heater type, and conditioned floor area. The water heating system is defined by the tank type, heater element type, distribution type, multifamily central water heating distribution, efficiency (either [uniform energy factor](#) or recovery efficiency with the standby loss), tank volume, exterior insulation [R-value](#) (only for indirect) and rated input.

Why? Water heating energy use is an important end use in low-rise residential buildings. Roughly 90% of California households use natural gas-fueled water heaters, these are typically storage tank systems with volumes of 40 to 50 gallons. Roughly 6% of households use electricity to heat water and a few percent use propane (liquefied petroleum gas, or LPG). Standby loss associated with the center flue design represents about 25-35% of a typical gas storage water heater system's annual energy use.

Relevant Code Sections

2019 California Building Energy Efficiency Standards, Title 24, Part 6:

- [Section 110.1](#) – Mandatory Requirements for Appliances
- [Section 110.3](#) – Mandatory Requirements for Service Water-heating Systems and Equipment
- [Section 150.0\(j\)](#) – Insulation for Piping and Tanks
- [Section 150.0\(n\)](#) – Water Heating System
- [Section 150.1\(b\)](#) – Performance Standards
- [Section 150.1\(c\)8](#) – Prescriptive Standards/Component Package for Domestic Water-Heating Systems
- [Section 150.2\(a\)1D](#) – Additions Prescriptive Approach for Water Heaters
- [Section 150.2\(b\)1H](#) – Alterations Prescriptive Approach for Water Heating System
- [Residential Alternative Calculation Method \(ACM\) Reference Manual, Chapter 2.10](#) – Domestic Hot Water
- [Residential Compliance Manual, Chapter 5](#) – Water Heating Requirements
- [Residential Reference Appendix RA 3.6.6](#) – Field Verification of Water Heating Systems
- [Residential Reference Appendix RA 4.4](#) – Water Heating Measures

Relevant Compliance Forms

- [NRCC-PLB-E: Domestic Water Heating Systems](#)
- [CF1R-ADD-01-E: Prescriptive Additions 1,000 ft² or Less Compliance Form](#)
- [CF1R-ADD-02-E: Prescriptive Additions Non-HERS Compliance Form](#)
- [CF1R-ALT-01-E: Prescriptive Alterations Compliance Form](#)
- [CF1R-ALT-05-E: Prescriptive Alterations Non-HERS Compliance Form](#)
- [CF1R-NCB-01-E: Prescriptive Newly Constructed Building Compliance Form](#)
- [CF1R-PLB-01-E: Hydronic Heating System Worksheet Compliance Form](#)
- [CF1R-STH-02-E-OG100: Solar Water Heating Systems Worksheet](#)
- [CF2R-ADD-02-E: Prescriptive Additions Non-HERS Installation Compliance Form](#)
- [CF2R-ALT-05-E: Prescriptive Alterations Non-HERS Installation Compliance Form](#)
- [CF2R-PLB-01a-E: Non-HERS Multifamily Central Hot Water System Distribution Compliance Form](#)
- [CF2R-PLB-01b-E: Non-HERS Multifamily Central Hot Water System Distribution NEEA Compliance Form](#)
- [CF2R-PLB-02a-E: Non-HERS Single Dwelling Unit Hot Water System Distribution Compliance Form](#)
- [CF2R-PLB-02b-E: Non-HERS Single Dwelling Unit Hot Water System Distribution NEEA Compliance Form](#)
- [CF2R-PLB-21a-E: HERS Verification Multifamily Central Hot Water System Distribution Compliance Form](#)
- [CF2R-PLB-21b-E: HERS Verification Multifamily Central Hot Water System Distribution NEEA Compliance Form](#)



- CF2R-PLB-22a-E: HERS Verification Single Dwelling Unit Central Hot Water System Distribution
- CF2R-PLB-22b-E: HERS Verification Single Dwelling Unit Central Hot Water System Distribution NEEA
- CF2R-STH-01-E: Solar Water Heating Systems Installation Compliance Form
- CF3R-EXC-20-E: HERS Verification Existing Conditions for Residential Alterations
- CF3R-PLB-21a-E: HERS Multifamily Central Hot Water System Distribution
- CF3R-PLB-21b-E: HERS Multifamily Central Hot Water System Distribution NEEA
- CF3R-PLB-22a: HERS Verification Single Dwelling Unit Hot Water System Distribution
- CF3R-PLB-22b: HERS Verification Single Dwelling Unit Hot Water System Distribution NEEA

Compliance Requirements

The requirements for residential domestic hot water appliances, systems and insulation include both Mandatory and Prescriptive requirements.

Mandatory Requirements

Mandatory requirements set forth in Sections 110.1 and 110.3 of the Energy Code apply to all DHW appliances, whether the project is newly constructed, an addition or an alteration. These sections establish the requirements for the manufacture, construction, and installation of certain DHW systems, equipment, appliances and building components. Section 150.0 includes Mandatory requirements for residential DHW systems and insulation.

Minimum Water Heater Efficiency

Minimum efficiency requirements are based on the type and size of the water heater. Both small and large units are regulated by federal efficiency standards and California's Appliance Efficiency Regulations (Title 20). The California Energy Commission maintains an Appliance Efficiency Database that includes regulated equipment certified to comply with Title 20.

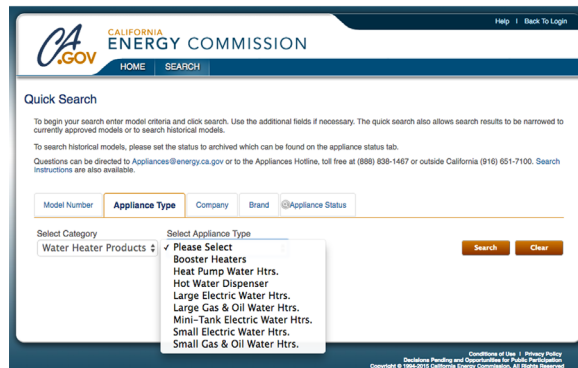
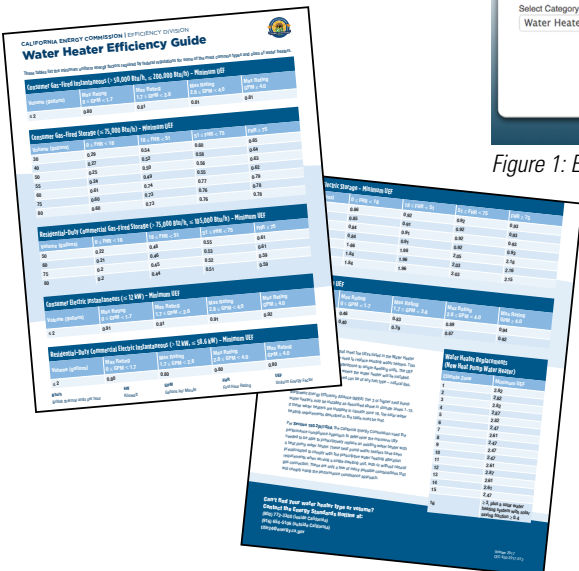


Figure 1: Example search for a water heater in the Energy Commission's Appliance Efficiency Database



The delineation between small and large units is determined by the energy input for the type of unit. Small gas-fired units have a maximum input of 75,000 Btu/hr for storage type units and 200,000 Btu/hr for instantaneous units. The California Energy Commission's Water Heater Efficiency Guide outlines the minimum uniform energy factors for common gas water heater types and sizes.

Installation Requirements

Section 110.3 includes Mandatory installation requirements for outlet temperature controls, distribution system controls and storage tank insulation, and requirements related to multifamily and state buildings.

Tank and Pipe Insulation Requirements

Insulation for storage tanks must comply with Section 150.0(j)1:

- Unfired tanks (such as storage tanks for solar hot water systems or boilers) shall have either a minimum R-12 external wrap or a minimum internal insulation of R-16. Internal insulated tanks must include a label on the exterior of the tank showing the R-value

Pipe insulation must comply with Section 150.0(j)2. Pipe insulation is a Mandatory requirement for all domestic hot water piping. The following piping conditions require a minimum insulation thickness of 1 inch, or a minimum insulation R-value of 7.7:

- The first 5 feet of cold water pipes from storage tank
- All hot water piping with a nominal diameter equal to or greater than 3/4 inch and less than 1 inch
- All hot water piping with a nominal diameter less than 3/4 inch that is:
 - a. Associated with domestic hot water recirculation system;
 - b. From the heating source to the kitchen fixtures;
 - c. From the heating source to a storage tank or between storage tanks; or
 - d. Buried below grade

See Section 150.0(j)2 for exceptions to pipe insulation requirements.

Section 150.0(j)3 requires insulation protection per Section 120.3, including requirements around pipes exposed to weather, vapor retarders for chilled water or refrigerant suction piping, and water proof, non-crushable casing for pipe insulation buried below grade.

Water Heater System Requirements

Systems using gas or propane water heaters to serve individual dwelling units shall include the following components:

- A dedicated 125 volt, 20 amp receptacle that is connected to the electric panel with a 120/240 volt 3 conductor, 10 AWG copper branch circuit, within 3 feet. In addition, all of the following:
 - Both ends of the unused conductor shall be labeled with the word “spare” and be electrically isolated; **and**
 - A reserved single pole circuit breaker space in the electrical panel adjacent to the circuit breaker for the branch circuit in A above and labeled with the words “Future 240V Use”; **and**
- A Category III or IV vent, or a Type B vent with straight pipe between the outside termination and the space where the water heater is installed **and**
- A condensate drain that is no more than 2 inches higher than the base of the installed water heater, and allows natural draining without pump assistance **and**
- A gas supply line with a capacity of at least 200,000 Btu/hr

See Section 150.0(n) for more information.

Prescriptive Requirements

Domestic Water Heating Systems (Individual Dwelling Units)

If using the Prescriptive compliance path, DHW equipment serving individual dwelling units (detached single-family homes, low-rise multifamily buildings) must comply with one of the following options, per Section 150.1(c)8:

- **Storage Type Water Heaters:** A gas or propane fired unit with an input of 75,000 Btu/hr or less, and a volume of 55 gallons or less and the weighted average U-factor for fenestration is no greater than 0.24, and has either a field verified compact hot water distribution system or a field verified drain water heat recovery system





- **Storage Type Water Heaters:** A single gas or propane fired unit with an input of 75,000 Btu/hr or less and a rated volume of more than 55 gallons
- **Storage Type Water Heaters:** A single heat pump water heater with storage tank located in the garage or conditioned space and one of the following:
 - compact hot water distribution system and drain water heat recovery system field verified per Reference Appendix RA4.4.6 and RA3.6.9; or
 - CZ 2-15: a PV system capacity of 0.3 kWdc larger than the requirement specified in Section 150.1(c)14; or
 - CZ 1 and 16: a PV system capacity of 1.1 kWdc larger than the requirement specified in Section 150.1(c)14;
- **Storage Type Water Heaters:** A single heat pump water heater that meets requirements of NEEA Advanced Water Heater Specification of Tier 3 or higher with the storage tank located in the garage or conditioned space. In CZ 1 and 16, a PV system capacity of 0.3 kWdc larger than the requirement specified in Section 150.1(c)14, or a compact hot water distribution system as specified in Reference Appendix RA4.4.6 must also be provided.
- **Instantaneous Type Water Heaters:** A gas or propane fired unit with an input of 200,000 Btu/hr or less. For instantaneous water heaters with an input rating greater than 6.8 kBTU/hr (2 kW) the following Mandatory requirements can be found in Section 110.3(c)6 of the Energy Code:
 - Isolation valves must be installed on both the cold water supply and the hot water pipe leaving the water heater
 - Hose bibbs or other fittings must be installed on each valve for flushing the water heater when the valves are closed

For recirculation distribution systems, only Demand Recirculation Systems with manual control pumps shall be used. Additional detail can be found in Section 150.1(c)8 and Appendix RA4.4.

Domestic Water Heating Systems (Multifamily Buildings/Multiple Dwelling Units)

DHW systems that serve multiple dwelling units (those in low-rise or high-rise multifamily buildings) may be installed and must comply with the requirements of Sections 110.1 and Section 110.3 and contain the following components:

- Gas or propane water heating equipment
- At least two recirculation loops, each serving roughly the same number of units
 - Exception: For systems serving less than eight dwelling units a single recirculation loop is required
- A solar water-heating system meeting the installation criteria specified in Reference Residential Appendix RA4 and a minimum solar savings fraction per the table below:

Climate Zone	Minimum Solar Savings Fraction	HERS verified Drain Water Heat Recovery System Required
1 through 9	0.20	NO
10 through 16	0.35	NO
1 through 9	0.15	YES
10 through 16	0.30	YES

For more information regarding DHW systems in multifamily buildings see the Energy Code Ace [Multifamily Fact Sheet](#).



Compliance Credit for Performance Path

Compliance credit for DHW distribution is available for several different strategies, including one non-HERS credit for pipe insulation (PIA) and four HERS distribution credits:

- Pipe Insulation (PIA)
- Pipe Insulation (PIC-H)
- Parallel Piping with 5' maximum length (PP-H)
- Compact Design (CHWDS-H)
- Point of Use (POU-H)

Replacing Electric Resistance Water Heaters

- This is only applicable to alterations. It is not allowed on new construction
- CANNOT be installed if there is any natural gas at the existing water heater location

HERS-Verified Recirculation Strategies

Several recirculation strategies require verification by a HERS rater and center around demand recirculation. Demand recirculation systems require that the pump operation is initiated just before the hot water draw and is operated by either a manual or sensor control which shuts off the pump due to a rise in pipe temperature. The following are requirements for these systems:

- **Demand Recirculation: Manual Control (RA4.4.9)** – must be located in the kitchen and any point of use at least 20 feet away from the water heater. The manual control may be operated by wired or wireless mechanisms but must have a standby power of 1 watt or less
- **Demand Recirculation: Sensor Control (RA4.4.10)** – must be located in the kitchen, bathrooms and any point of use at least 20 feet away from the water heater. The sensor mechanism may include motion sensors, door switches, and flow switches, and must have a standby power of 1 watt or less

With either strategy, the control must shut off the pump in accordance with the following methods:

- After the pump has been activated, the controls must allow the pump to operate until the water temperature at the thermo-sensor rises no more than 10°F above the initial temperature of the water in the pipes or
- The controls must not allow the pump to operate when the temperature exceeds 102°F
- The controls must limit pump operation to a maximum of five minutes following ANY activation

See [Residential Reference Appendix RA 3.6.6](#) for test protocols and [Residential Reference Appendix RA 4.4.7](#) for more information about eligibility criteria.

Addition and Alteration Projects



Mandatory Requirements

All of the Mandatory requirements discussed above apply to addition and alteration projects except that:

- Existing inaccessible piping does not require pipe insulation, and
- System requirements from [Section 150.0\(n\)](#) do not apply unless an addition project is adding a water heater



Prescriptive Requirements

Many addition and alteration projects will use the Prescriptive compliance path. For more details on requirements, see:

- For Additions - [Section 150.2\(a\)1D](#)
- For Alterations - [Section 150.2\(b\)1H](#)

These sections offer compliance through meeting the requirements of [Section 150.1\(c\)8](#) or alternative compliance paths if these requirements can't be met under existing conditions.

Solar Water Heating

The Water Heating Calculation Method allows water heating credits for solar water heaters. Solar systems save energy by using renewable resources to offset the use of conventional energy sources.

Solar water heating is Prescriptively required for water heating systems serving multiple dwelling units whether they are multifamily, hotel/motels or high-rise residential buildings. For a list of certified products, see the [CRCC](#) web site.

Collector Requirements

Collectors for solar water heating systems used to meet the requirements of the Energy Code (such as those for DHW systems serving multiple dwelling units) must be certified by the Solar Rating and Certification Corporation (SRCC). Additionally the installed collector or system must be either OG-100 or OG-300 certified:

- **OG-100** certification applies only to the collector, the part of the solar energy system exposed to the sun collecting heat
- **OG-300** certification integrates the performance of the collector with a performance model of the entire system and must be installed with the following guidelines:
 - Face within 35 degrees of due south
 - Have a tilt slope of at least 3:12
 - Be unshaded by buildings or trees

For more specific installation guidelines, see [Residential Reference Appendix RA 4.4.20](#).

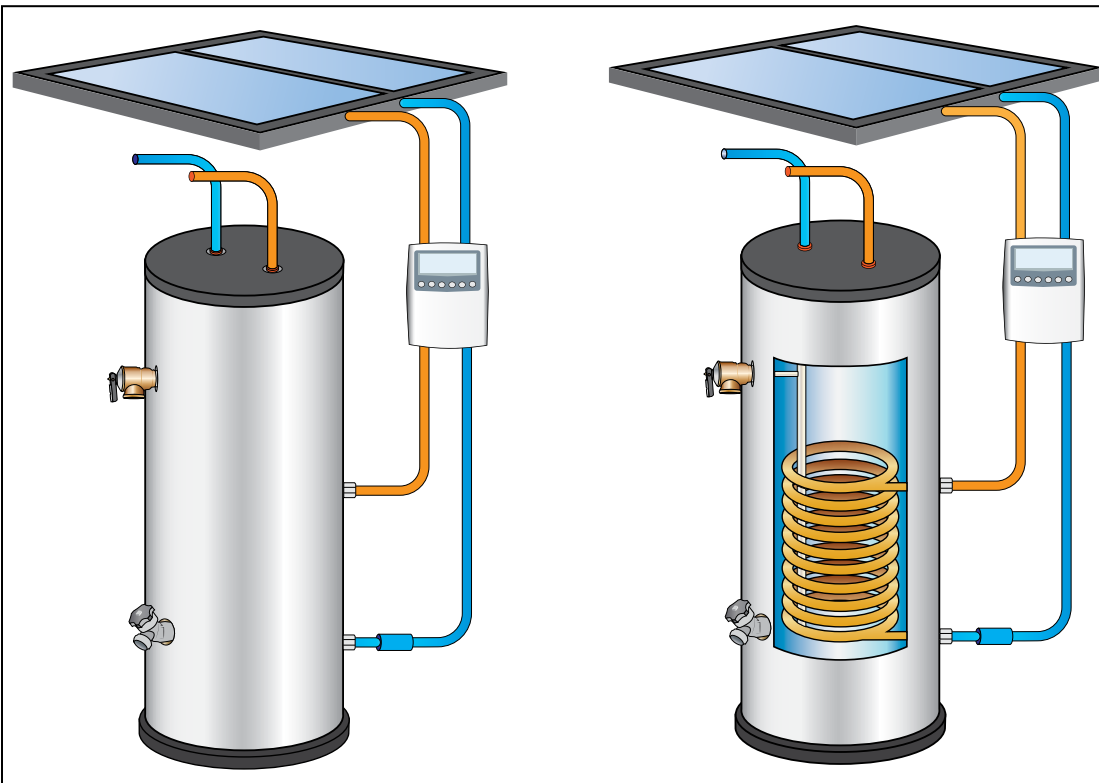


Figure 1: Solar Water Heating - Illustration of Concept

Forms – Which & When

- **NRCC-PLB-E:** Domestic Water Heating Systems
- **CF1R-ADD-01-E:** Prescriptive Additions 1,000 ft² or Less Compliance Form
- **CF1R-ADD-02-E:** Prescriptive Additions Non-HERS Field Verification Compliance Form
- **CF1R-ALT-01-E:** Prescriptive Alterations Compliance Form
- **CF1R-ALT-05-E:** Prescriptive Alterations Non-HERS Field Verification Compliance Form
- **CF1R-NCB-01-E:** Prescriptive Newly Constructed Buildings Compliance Form
- **CF1R-PLB-01-E:** Hydronic Heating System Worksheet Compliance Form
- **CF1R-STH-01-E-OG100:** Solar Water Heating Systems Worksheet
- **CF2R-ADD-02-E:** Prescriptive Additions Non-HERS Installation Compliance Form
- **CF2R-ALT-05-E:** Prescriptive Alterations Non-HERS Installation Compliance Form
- **CF2R-PLB-01a-E:** Non-HERS Multifamily Central Hot Water System Distribution Compliance Form
- **CF2R-PLB-01b-E:** Non-HERS Multifamily Central Hot Water System Distribution NEEA Compliance Form
- **CF2R-PLB-02a-E:** Non-HERS Single Dwelling Unit Hot Water System Distribution Compliance Form
- **CF2R-PLB-02b-E:** Non-HERS Single Dwelling Unit Hot Water System Distribution NEEA Compliance Form
- **CF2R-PLB-21a-E:** HERS Verification Multifamily Central Hot Water System Distribution Compliance Form
- **CF2R-PLB-21b-E:** HERS Verification Multifamily Central Hot Water System Distribution NEEA Compliance Form
- **CF2R-PLB-22a-E:** HERS Verification Single Dwelling Unit Central Hot Water System Distribution
- **CF2R-PLB-22b-E:** HERS Verification Single Dwelling Unit Central Hot Water System Distribution NEEA
- **CF2R-STH-01-E:** Solar Water Heating Systems Installation Compliance Form
- **CF3R-EXC-20-E:** HERS Verification Existing Conditions for Residential Alterations
- **CF3R-PLB-21a-E:** HERS Multifamily Central Hot Water System Distribution
- **CF3R-PLB-21b-E:** HERS Multifamily Central Hot Water System Distribution NEEA
- **CF3R-PLB-22a:** HERS Verification Single Dwelling Unit Hot Water System Distribution
- **CF3R-PLB-22b:** HERS Verification Single Dwelling Unit Hot Water System Distribution NEEA

ADDITIONS 1000 FT² OR LESS
CERTIFICATE OF COMPLIANCE
 Prescriptive Residential Additions 1,000 FT² or Less
 CALIFORNIA ENERGY COMMISSION
 CF1R-ADD-01-E
 (Page 1 of 7)

Project Name: _____ Project Address: _____

A. General Information

01 Project Name	02 Date Prepared
03 Project Location	04 Building Front Orientation (deg)
05 CA City	06 Number of Dwelling Units with Additions
07 Zip Code	08 Fuel Type
09 Climate Zone	10 Total Conditioned Floor Area (ft ²) (Addition)
11 Building Type	12 Sub Area (ft ²)
13 Project Scope	14 Exceptions to Penetration U-Factor and SHGC 150.50/1.0

B. opaque Surface Details – Framed (Section 150.2(a))

TagID	Assembly Type	Frame Type	Frame Depth (inches)	Frame Spacing (inches)	cavity R-value	Contribution to U-Factor	U-Factor	Table	Cell	Required or B	Comments
01											

Note: Where insulation is installed above the roofing membrane, it shall be above the layer used to seal the roof from water penetration, the insulation shall have a maximum water absorption of 0.3 percent by volume when tested according to ASTM Standard C272.

C. opaque Surface Details – Non-framed (Section 150.2(b))

TagID	Assembly Type	Assembly Material	Thickness (inches)	cavity Insulation R-value	Contribution to U-Factor	U-Factor	Table	Cell	Required or B	Comments
01										

Note: Where insulation is installed above the roofing membrane, or above the layer used to seal the roof from water penetration, the insulation shall have a maximum water absorption of 0.3 percent by volume when tested according to ASTM Standard C272.

Registration Number: _____ Registration Date/Time: _____ HERS Provider: _____ January 2019

Prescriptive Residential Additions That Do Not Require HERS Field Verification
CERTIFICATE OF COMPLIANCE
 Prescriptive Residential Additions That Do Not Require HERS Field Verification
 CALIFORNIA ENERGY COMMISSION
 CF1R-ADD-02-E
 (Page 1 of 3)

Project Name: _____ Project Address: _____

A. General Information

01 Project Name	02 Date Prepared
03 Project Location	04 Building Front Orientation (deg)
05 CA City	06 Number of Dwelling Units with Additions
07 Zip Code	08 Fuel Type
09 Climate Zone	10 Total Conditioned Floor Area (ft ²) (Addition)
11 Building Type	12 Sub Area (ft ²)
13 Project Scope	14 Exceptions to Penetration U-Factor and SHGC 150.50/1.0

B. Design HERS Verified Central Water Heating Systems Information
 This table reports the water heating system features that were specified on the registered CF1R compliance document for this project.

01	02	03	04	05	06	07	08	09	10	11	12
Water Heating System ID or Name	Water Heat or Syst Type	Water Heat or Syst Volume (gal)	Water Heater Storage (gal)	Fuel Type	Rated Input (kBtu/h)	Rated Input (kBtu/h)	Heating Efficiency Type	Heating Efficiency Value	Standby Loss (%)	Insul. R-Value	Exterior Insul. R-Value

C. Installed HERS Verified Central Water Heating Systems Information
 This table reports the water heating system features that were specified on the registered CF1R compliance document for this project.

01	02	03	04	05	06	07	08	09	10	11	12
Water Heating System ID or Name	Water Heat or Syst Type	Water Heat or Syst Volume (gal)	Water Heater Storage (gal)	Fuel Type	Rated Input (kBtu/h)	Rated Input (kBtu/h)	Heating Efficiency Type	Heating Efficiency Value	Standby Loss (%)	Insul. R-Value	Exterior Insul. R-Value

D. Design HERS Verified Central Water Heating Distribution Systems Information
 This table reports the water heating distribution types specified on the registered CF1R compliance document for this project.

01	02
Water Heating System ID or Name	Central DHW System Distribution Type
	Dwelling Unit DHW System Distribution Type

Registration Number: _____ Registration Date/Time: _____ HERS Provider: _____ January 2019

HERS VERIFIED MULTIFAMILY CENTRAL HOT WATER SYSTEM DISTRIBUTION
CERTIFICATE OF COMPLIANCE
 HERS Verified Multifamily Central Hot Water System Distribution
 CALIFORNIA ENERGY COMMISSION
 CF2R-PLB-21-E
 (Page 1 of 4)

Project Name: _____ Project Address: _____

A. General Information

Building Name: _____

B. Design HERS Verified Central Water Heating Systems Information
 This table reports the water heating system features that were specified on the registered CF1R compliance document for this project.

01	02	03	04	05	06	07	08	09	10	11	12
Water Heating System ID or Name	Water Heat or Syst Type	Water Heat or Syst Volume (gal)	Water Heater Storage (gal)	Fuel Type	Rated Input (kBtu/h)	Rated Input (kBtu/h)	Heating Efficiency Type	Heating Efficiency Value	Standby Loss (%)	Insul. R-Value	Exterior Insul. R-Value

C. Installed HERS Verified Central Water Heating Systems Information
 This table reports the water heating system features that were specified on the registered CF1R compliance document for this project.

01	02	03	04	05	06	07	08	09	10	11	12
Water Heating System ID or Name	Water Heat or Syst Type	Water Heat or Syst Volume (gal)	Water Heater Storage (gal)	Fuel Type	Rated Input (kBtu/h)	Rated Input (kBtu/h)	Heating Efficiency Type	Heating Efficiency Value	Standby Loss (%)	Insul. R-Value	Exterior Insul. R-Value

D. Design HERS Verified Central Water Heating Distribution Systems Information
 This table reports the water heating distribution types specified on the registered CF1R compliance document for this project.

01	02
Water Heating System ID or Name	Central DHW System Distribution Type
	Dwelling Unit DHW System Distribution Type

Registration Number: _____ Registration Date/Time: _____ HERS Provider: _____ January 2019

For More Information

Primary Documents

- Energy Code Section 110.1 – Minimum Water Heater Efficiency energycodeace.com/site/custom/public/reference-ace-2019/Documents/section1101mandatoryrequirementsforappliances.htm
- Energy Code Section 110.3 – Installation Requirements energycodeace.com/site/custom/public/reference-ace-2019/Documents/section1103mandatoryrequirementsforservicewaterheatingsystemsand.htm
- Energy Code Section 150.0(n) – Water Heating System energycodeace.com/site/custom/public/reference-ace-2019/Documents/section1500mandatoryfeaturesanddevices.htm
- Energy Code Section 150.0(j) – Insulation for Piping and Tanks energycodeace.com/site/custom/public/reference-ace-2019/Documents/section1500mandatoryfeaturesanddevices.htm
- Energy Code Section 150.1(c)8 – Prescriptive Standards/Component Package, Domestic Water-Heating Systems energycodeace.com/site/custom/public/reference-ace-2019/Documents/section1501performanceandprescriptivecomplianceapproachesforlowr.htm
- Energy Code Section 150.2(a)1D – Additions, Prescriptive Approach, Water Heater energycodeace.com/site/custom/public/reference-ace-2019/Documents/section1502energyefficiencystandardsforadditionsandalterationsto.htm
- Energy Code Section 150.2(b)1H – Alterations, Prescriptive Approach, Water-Heating System energycodeace.com/site/custom/public/reference-ace-2019/Documents/section1502energyefficiencystandardsforadditionsandalterationsto.htm
- Energy Code Residential Alternative Calculation Method (ACM) Reference Manual, Chapter 2.10 – Domestic Hot Water: Link coming soon on energycodeace.com/content/reference-ace-2019-tool
- Energy Code Residential Compliance Manual, Chapter 5 – Water Heating Requirements: energycodeace.com/site/custom/public/reference-ace-2019/Documents/5waterheatingrequirements.htm
- Energy Code Residential Reference Appendix RA 3.6.6 – Field Verification of Water Heating Systems: energycodeace.com/site/custom/public/reference-ace-2019/Documents/ra36fieldverificationofwaterheatingsystems.htm
- Energy Code Residential Reference Appendix RA 4.4 – Water Heating Measures: energycodeace.com/site/custom/public/reference-ace-2019/Documents/ra44waterheatingmeasures.htm
- Title 20 Appliance Efficiency Regulations energycodeace.com/content/reference-ace-t20-tool

Compliance Forms

- Nonresidential Compliance Forms energycodeace.com/NonresidentialForms/2019
- Residential Compliance Forms energycodeace.com/ResidentialForms/2019

California Energy Commission Information & Services

Title 24, Part 6

- Energy Code Hotline: 1-800-772-3300 (Free) or Title24@energy.ca.gov
- Online Resource Center: energy.ca.gov/programs-and-topics/programs/building-energy-efficiency-standards/online-resource-center
 - The Energy Commission’s main web portal for the Energy Code, including information, documents and historical information

Title 20

- Appliances Hotline: (888) 838-1467 or outside California (916) 651-7100
- Questions may also be emailed to Appliances@energy.ca.gov
- California Appliance Efficiency Standards Site: energy.ca.gov/rules-and-regulations/appliance-efficiency-regulations-title-20/appliance-regulations-certification
- Modernized Appliance Efficiency Database (MAEDbS): <https://cacertappliances.energy.ca.gov/Login.aspx>

Additional Resources

- Solar Rating & Certification Corporation (SRCC): solar-rating.org
 - Energy Code Ace: EnergyCodeAce.com
 - An online “one-stop-shop” providing free resources and training to help appliance and building industry professionals decode and comply with Title 24, Part 6 and Title 20. The site is administered by California’s investor-owned utilities.
Of special interest: Fact Sheets energycodeace.com/content/resources-fact-sheets/
 - High-rise and Low-rise Multifamily
 - Quick Reference Sheet: Residential Equipment Minimum Heating and Cooling Efficiencies
- Please register with the site and select an industry role for your profile in order to receive messages about all our free offerings!



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