SAMPLE FORM – NOT VALID FOR SUBMISSION TO BUILDING DEPARTMENTS

CERTIFICATE OF VERIFICATION

Note: This table completed by HERS Registry.

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

A. General Information

01	Building Name	

B. Design HERS Verified Central Water Heating Systems Information (other than HPWH)

This table reports features of the water heating system other than **HPWH** system that were specified on the registered LMCC compliance document for this project.

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

B2. Design HERS Verified CHPWH System Information

This table reports the water heating systems specified on the registered LMCC compliance document for this project.

01	02	03	04	05	06	07	08	09	10	11	12
Water Heating System ID or Name	Modeled Equipment Make and Model	Number of Water Heaters/ Compressors	Primary Tank Location	Primary Tank Volume	Primary Tank Total Insulation	Loop Tank Location	Loop Tank Volume	Loop Tank Total Insulation	Loop Pipe Insulation Thickness	Loop Tank Type	Simulated Equipment Make and Model

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C. Installed HERS Verified Central Water Heating Systems Information

This table reports the water heating system features that were specified on the registered LMCC compliance document for this project.

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

C2. Installed HERS Verified CHPWH System Information

This table reports the water heating systems specified on the registered LMCC compliance document for this project.

01	02	03	04	05	06	07	08	09	10	11
Water Heating System ID or Name	Modeled Equipment Make and Model	Number of Water Heaters/ Compressors	Primary Tank Location	Primary Tank Volume	Primary Tank Insulation	Loop Tank Location	Loop Tank Volume	Loop Tank Insulation	Loop Pipe Insulation Thickness	Loop Tank Type

D. Design HERS Verified Central Water Heating Distribution Systems Information

This table reports the water heating distribution types specified on the registered LMCC compliance document for this project.

01	02	03
Water Heating System ID or Name	Central DHW System Distribution Type	Dwelling Unit DHW System Distribution Type

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E. Installed HERS Verified Central Water Heating Distribution Systems Information

This table reports the water heating distribution types specified on the registered LMCC compliance document for this project.

01	02	03
Water Heating System ID or Name	Central DHW System Distribution Type	Dwelling Unit DHW System Distribution Type

F. Installed HERS Verified Water Heater Manufacturer Information

01	02	03
Water Heating System ID or Name	Manufacturer	Model Number

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G. Mandatory Requirements for All Central Domestic Hot Water Systems

01	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 have separate remote heaters, heat exchangers, or boosters to supply the outlet with the higher temperature. (Section 110.3 (c)1)	
02	Systems with circulating pumps or with electrical heat trace systems shall be capable of automatically turning off the system. (Section 110.3(c) 2).	
03	Unfired storage tanks are insulated with: • External insulation of R-3.5, or • Internal insulation of R-16, or • The heat loss of the tank surface based on an 80°F water-air temperature difference shall be less than 6.5 Btuh/ft^2. (Section 110.3(c)3).	
04	Recirculation loop shall meet the following requirements: • The recirculation pump is mounted on a vertical section of the return line, OR an automatic air release valve is installed on a riser at least 12 inches in length, on the inlet side of the recirculation pump, no more than 4 feet from the pump. (Section 110.3(c) 4A). • A check valve is located between the recirculation pump and the water heater. (Section 110.3(c) 4B). • A hose bib is installed between the pump and the water heating equipment with an isolation valve between the hose bib and the water heating equipment. 110.3(c) 4C). • Isolation valves shall be installed on both sides of the pump, of which the item C valve can be one. 110.3(c)4D • The cold water piping and the recirculation loop piping shall not be connected to the hot water storage tank drain port. 110.3(c)4E • A check valve shall be installed on the cold water supply line between the hot water system and the next closest tee on the cold water supply line. 110.3(c)4F.	
05	Instantaneous water heaters with an input greater than 6.8 kBTU/hr. (2kW) shall have isolation valves on both the cold water supply and the hot water line. (110.3 (c) 6).	
06	All sections of the recirculation loop, and the first 5 feet of all branches off the loop are insulated, to the thicknesses required by Table 120.3A. Other hot water piping shall meet the requirements of 150(j) and the installation requirements in, except for the following: (RA4.4.1). Piping in walls interior or exterior walls that is surrounded on all sides by at least 1 inch (2.5 cm) of insulation need not be insulated. • Piping installed in attics with a minimum of 4 inches (10 cm) of attic insulation on top • Piping that penetrates framing members shall not be required to have pipe insulation for the distance of the framing penetration. Metal 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 butt securely against all framing members. • Insulation is not required on the cold water line when it is used as the return	
07	Verification Status:	☐ Pass - all applicable requirements are met; or ☐ Fail - one or more applicable requirements are not met. Enter reason for failure in corrections notes field below; or ☐ All N/A - This entire table is not applicable
08	Correction Notes:	

The responsible person's signature on this compliance document affirms that all applicable requirements in this table have been met unless otherwise noted in the Verification Status and the Correction Notes.

For information and data collection only. Not valid until registered with a HERS provider

H. HERS-Verified Multiple Recirculation Loops for DHW Systems Serving Multiple Dwelling Units Requirements

All distribution systems listed on this form shall comply with these requirements.

01	All buildings with 8 or more dwelling units have a **minimum** of 2 recirculation loops.	
02	Each loop roughly serves the same number of dwellings.	
03	Verification Status:	☐ Pass - all applicable requirements are met; or ☐ Fail - one or more applicable requirements are not met. Enter reason for failure in corrections notes field below; or ☐ All N/A - This entire table is not applicable
04	Correction Notes:	

The responsible person's signature on this compliance document affirms that all applicable requirements in this table have been met unless otherwise noted in the Verification Status and the Correction Notes.

I. Determination of HERS Verification Compliance

All applicable sections of this document shall indicate compliance with the specified verification protocol requirements in order for this Certificate of Verification as a whole to be determined to be in compliance.

01	

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HERS VERIFIED MULTIFAMILY CENTRAL HOT WATER SYSTEM DISTRIBUTION

CALIFORNIA ENERGY COMMISSION

CEC-LMCV-PLB-21-H

SAMPLE FORM – NOT VALID FOR SUBMISSION TO BUILDING DEPARTMENTS

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT

1. I certify that this Certificate of Verification documentation is accurate and complete.

1. I certify that this Certificate of Verification documentation is accurate and complete.	
Documentation Author Name:	Documentation Author Signature:
Company:	Date Signed:
Address:	CEA/HERS Certification Information (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 Verification is true and correct.
    2. I am the certified HERS Rater who performed the verification identified and reported on this Certificate of Verification (responsible rater).
    3. The installed features, materials, components, manufactured devices, or system performance diagnostic results that require HERS verification identified on this Certificate of Verification comply with the applicable requirements in Reference Appendices RA2, RA3, and the requirements specified on the Certificate of Compliance for the building approved by the enforcement agency.
    4. The information reported on applicable sections of the Certificate(s) of Installation (LMCI) signed and submitted by the person(s) responsible for the construction or installation conforms to the requirements specified on the Certificate(s) of Compliance (LMCC) approved by the enforcement agency.
    5. I understand that a registered copy of this Certificate of Verification 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 ensure this requirement is accomplished.
    6. I understand that a registered copy of this Certificate of Verification is required to be included with the documentation the builder provides to the building.

BUILDER OR INSTALLER INFORMATION AS SHOWN ON THE CERTIFICATE OF INSTALLATION

Company Name (Installing Subcontractor, General Contractor, or Builder/Owner):	
Responsible Builder or Installer Name:	CSLB License:

HERS PROVIDER DATA REGISTRY INFORMATION

Sample Group Number (if applicable):	Dwelling Test Status in Sample Group (if applicable):

HERS RATER INFORMATION

HERS Rater Company Name:	
Responsible Rater Name:	Responsible Rater Signature:
Responsible Rater Certification Number w/ this HERS Provider:	Date Signed:

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

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LMCV-PLB-21-H User Instructions

A. General Information

This table reports the building location as specified on the Registered LMCC.

B. Design HERS Verified Central Water Heating Systems Information

This table reports features of the water heating system other than HPWH system that were specified on the registered LMCC compliance document for this project. For information only and requires no user input.

B2. Design HERS Verified CHPWH System Information

This table reports the water heating systems specified on the registered LMCC compliance document for this project.

C. Installed HERS Verified Central Water Heating Systems Information

This table reports the water heating system information that is being installed. Require one line for each central system.

1. Water Heating System ID or Name – Reference information from LMCC.
2. Water Heating System Type – Reference information from LMCC. The different kinds of water heating system type are DHW or Combined Hydronic.
3. Water Heater Type – Information from LMCC. The different kinds of water heaters are Large/Commercial Storage, Small/Consumer Storage, Residential-Duty Commercial Storage, Heat Pump, Boiler, Large/Commercial Instantaneous, Small/Consumer Instantaneous, Residential-Duty Commercial Instantaneous or Indirect.
4. # of Water Heaters in system – Reference information from LMCC.
5. Water Heater Storage Volume (gal) – User input. Value may be N/A if water heater type is instantaneous with zero storage.
6. Fuel Type – Reference information from LMCC. The different kinds of fuel types are natural gas, propane, oil, or electricity.
7. Rated Input Type – Reference information from LMCC. For natural gas, propane and oil fuel type the input type is Btu/Hr. For electric the input type is kW.
8. Rated Input Value – User input. Numerical value of the rated input. Must be equal to or less than value indicated on the LMCC.
9. Heating Efficiency Type – Reference information from LMCC. Different efficiency types are Energy Factor, AFUE, UEF and Thermal Efficiency.
10. Heating Efficiency Value – User input. Numerical value of the Heating Efficiency. Must be equal to or higher efficiency than value indicated on the LMCC
11. Standby Loss – User input. Must be equal to or less than value indicated on the LMCC. Value may be N/A if LMCC value is N/A. 12 Exterior Insul. R-Value – User input. Must be equal to or higher than value indicated on the LMCC. Value may be N/A if LMCC value is N/A.

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C2. Installed HERS Verified CHPWH System Information

This table reports the water heating system information that is being installed. Require one line for each installed water heater. Require one line for each installed water heater.

1. Water Heating System ID or Name – Reference information from Table B2.
2. Modeled Equipment Make and Model – User input must be equal to the value indicated on Table B2 as default and allow user to override with an equivalent system based on the simulated equipment in Table B2.
3. Number of Water Heaters/ Compressors – User input, must be equal to the value indicated on table B2.
4. Primary Tank Location – Reference information from Table B2.
5. Primary Tank Volume – User input, must be equal to or higher than the value indicated on table B2.
6. Primary Tank Insulation – User input, must be equal to or higher than value indicated on table B2.
7. Loop Tank Location – Reference information from Table B2.
8. Loop Tank Volume – User input, must be equal to or higher than the value indicated on table B2.
9. Loop Tank Insulation – User input, must be equal to or higher than value indicated on table B2.
10. Loop Pipe Insulation Thickness – User input, must be equal to or higher than the value indicated on table B2.
11. Loop Tank – Reference information from Table B2.

D. Design HERS Verified Central Water Heating Distribution Systems Information

This table reports the water heating distribution types specified on the registered LMCC compliance document for this project.

E. Installed HERS Verified Central Water Heating Distribution Systems Information

1. Central DHW System Distribution Type = Reference information from LMCC.
2. Dwelling Unit DHW System Distribution Type =- Reference information from LMCC.

F. Installed HERS Verified Water Heater Manufacturer Information

This table reports the manufacturer information of the installed water heater(s). Require one line for each installed water heater.

1. Water Heating System ID or Name – Reference information from LMCC.
2. Manufacturer – User input. Enter the name of the water heater manufacturer.
3. Model Number – User input. Enter the model number of the water heater.

G. Mandatory Requirements for All Central Domestic Hot Water Recirculation Systems

This table lists the requirements for all central recirculation systems. Installer must ensure all the requirements in this table are met.

H. HERS-Verified Multiple Recirculation Loops for DHW Systems Serving Multiple Dwelling Units Requirements

This table applies to all systems identified on this compliance document. This measure requires on site HERS verification that at least two central recirculation loops are included in the system design. This credit is available to buildings with 8 or more units. The recirculation loops must be relatively equal in length and supply approximately the same number of dwelling units.

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I. Determination of HERS Verification Compliance

1. This field is filled out automatically. Compliance requires that all individual criteria pass.

Documentation Declaration Statements

1. The person who prepared the LMCV 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 (if applicable) for their company, responsible builder or installer name, CSLB license number, sample group number, dwelling test status in sample group, HERS Rater company name, HERS Rater name, HERS Rater signature, HERS Rater certification number and date signed.

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