

- (h) The HERS inspector shall also verify that the supply portion of each circulation loop, the first five feet of branches off the loop and the dedicated return line are insulated based on the conductivity range in TABLE 120.3-A, the insulation level shall be selected from the fluid temperature range based on the thickness requirements in TABLE 120.3-A and the insulation shall be installed in accordance with RA3.6.2. Other hot water piping shall meet the requirements of §150.0(j) and be installed in accordance with RA3.6.2. Insulation is not required on the cold water line when it is used as the return.
- (i) Verify that sensor controls initiate pump operation by activating one of the sensor controls and observing that the pump turns on and then shuts off in accordance with one of the two methods listed.
 - 1. After the pump has been activated, the controls shall allow the pump to operate until the water temperature at the thermo-sensor rises not more than 10°F (5.6 °C) above the initial temperature of the water in the pipe, or
 - 2. The controls shall not allow the pump to operate when the temperature in the pipe exceeds 102°F (38.9 °C).
- (j) Verify that the controls have a feature that limits 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.
- (k) The manufacturer(s) of the recirculation pump and the controls shall provide installation and operation instructions that provide details of the operation of the pump and controls and such instructions shall be available at the jobsite for inspection.

RA3.6.8 HERS-Multiple Recirculation Loop Design for DHW Systems Serving Multiple Dwelling Units

The visual inspection shall verify that a central DHW system serving a building with more than eight dwelling units has at least two recirculation loops, each serving roughly the same number of dwelling. Unique building sections may have additional recirculation loops. These recirculation loops may be connected to the same water heating equipment or be connected to independent water heating equipment. The HERS inspector shall verify that there are at least two recirculation loops each serving roughly the same number of dwelling units. Unique sections of the building may have separate loops. Ideally each loop will have its own pump and controls.

RA3.6.9 HERS-Verified Drain Water Heat Recovery System (DWHR-H)

A HERS inspection is required to obtain this credit. All DWHR unit(s) shall be certified to the Energy Commission according to the following requirements:

- (a) Vertical DWHR unit(s) shall be compliant with CSA B55.2, and tested and labeled in accordance with CSA B55.1 or IAPMO IGC 346-2017. Sloped DWHR unit(s) shall be compliant with IAPMO PS 92, and tested and labeled with IAPMO IGC 346-2017.
- (b) The DWHR unit(s) shall have a minimum rated effectiveness of 42 percent.

The HERS inspector shall verify that:

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- (a) The make, model, and CSA B55.1 or IAPMO IGC 346-2017 rated effectiveness of the DWHR unit(s) shall match the compliance documents. The DWHR unit(s) shall also be verified as a model certified to the Energy Commission as qualified for credit as a DWHR unit(s).
 - (b) The installation configuration (e.g. equal flow, unequal flow to the water heater, or unequal flow to the showers) and the percent of served shower fixtures shall match the compliance documents.
 - (c) For water heating system serving a single dwelling, the DWHR system shall, at the minimum, recover heat from the master bathroom shower and must at least transfer that heat either back to all the respective showers or the water heater.
 - (d) For central water heating system serving multiple dwellings, the DWHR system shall, at the minimum, recover heat from half the showers located above the first floor and must at least transfer that heat either back to all the respective showers or the water heater.
 - (e) The DWHR unit(s) shall be installed within 1 degrees of the rated slope. Sloped DWHR shall have a minimum lengthwise slope of 1 degree. The lateral level tolerance shall be within plus or minus 1 degree.
 - (f) The installation shall comply with any applicable California Plumbing Code requirements.

RA3.7 Field Verification and Diagnostic Testing of Mechanical Ventilation Systems

RA3.7.1 Purpose and Scope

RA3.7 contains procedures for verification of heat recovery efficiency and fan efficacy, and for measuring the airflow rate for mechanical ventilation systems.

RA3.7 is applicable to mechanical ventilation systems in residential dwelling units.

RA3.7 provides required procedures for installers, HERS raters and others who are required to perform field verification of mechanical ventilation systems for compliance with Part 6.