Compliance Forms— Service Water Heating

The following compliance form is provided to assist in understanding and documenting compliance with the service water heating requirements of ASHRAE/IES Standard 90.1-2013. An electronic version is also available for download from ASHRAE's website. Following are instructions for completing the form.

Mandatory Provisions Checklist

This section of the compliance form summarizes the mandatory provisions for the design of the service water heating system. Check the box to indicate that the mandatory requirement applies to the building and that the building complies with the requirement. If the requirement is not applicable, then leave the box unchecked.

Equipment Efficiency Worksheet

Complete a row in this table for each water heater that is to be installed in the building. This list should have the same number of items as the water heater schedule on the plans.

- **Column 1:** For each water heater, enter the system tag. This is the code that is used to identify the equipment on the plans and specifications.
- **Column 2:** Enter the equipment type; this should be a choice from Table 7.8 of the Standard.
- **Column 3**: Enter the subcategory or rating condition from Table 7.8.
- **Column 4:** Enter the input rating for the equipment.
- **Column 5:** Enter the tank volume.
- **Column 6:** This column compares the rated efficiency of the equipment with the requirement from the Standard. For small water heaters (those covered by NAECA), enter the energy factor (EF). Otherwise, enter the thermal efficiency (E_t). The efficiency of the equipment must be greater than or equal to the required efficiency in order to comply. The required energy factor or thermal efficiency is taken from Table 7.8 of the Standard.
- **Column 7:** This column compares the standby loss of the equipment to its requirement. Use this only for large water heaters that are not covered by NAECA. Obtain the required standby loss from Table 7.8 of the Standard. Take the proposed standby loss from test data for the water heater.

Combination Space and Water Heating Worksheet

This section only needs to be completed if the project is complying through the Prescriptive Path.

Complete a row in this table for each combination space and water heating system that is to be installed in the building. This list should be a subset of the boilers that are scheduled on the plans.

- **Column 1:** For each combination system, enter the boiler tag. This is the code that is used to identify the equipment on the plans and specifications. For each system, demonstrate compliance by filling in the data for either column two, three, or four.
- **Column 2:** This compares the rated standby loss of the equipment with the requirement from the Standard. The required standby loss must be computed from the probable mean demand (pmd) and the fraction of the year when the outdoor daily mean temperature is greater than 64.9°F (20.8°C) using the formula in Section 7.5.1 of the Standard.
- **Column 3:** This compares the annual energy usage of the combined equipment to the annual energy usage of separate space and water heaters. For each entry in this column, provide supporting calculations demonstrating how the annual energy usage numbers were derived.
- **Column 4:** This demonstrates the input rating of the space heating boiler is less than 150,000 Btu/h (44 kW). The input rating entered here should match the input rating specified for that boiler in the mechanical schedules.

Service Water Heating Compliance Report

Project Name:		
Project Address:		Date:
Designer of Record:	Email:	Telephone:
Contact Person:	Email:	Telephone:
City:		

Mandatory Provisions Checklist

- ☐ Load calculations have been provided for sizing of systems and equipment. (Section 7.4.1)
- ☐ Equipment efficiencies meet or exceed the requirements of Table 7.8. (Section 7.4.2)
- ☐ Circulating systems are fully insulated (per Table 6.8.3-1) and have automatic pump controls. (Sections 7.4.3 and 7.4.4.2)
- ☐ Noncirculating systems have heat traps (Section 7.4.6) and outlet piping insulation (per Table 6.8.3-1) for 8 ft (2.44 m) from the storage tank. (Section 7.4.3)
- ☐ Tanks with remote heaters have circulation pump controls. (Section 7.4.4.4)
- ☐ All water heating systems have temperature controls that are adjustable down to 120°F (48.9°C) or lower. (Section 7.4.4.1)
- ☐ Systems designed with pipe heating systems such as heat trace have temperature or time controls. (Section 7.4.4.2)
- ☐ Public lavatories have outlet temperature controls that limit the discharge temperature to 110°F (43.3°C). (Section 7.4.4.3)
- ☐ Pool heaters have readily accessible controls and gas-fired heaters do not have standing pilot lights. (Section 7.4.5.1)
- ☐ Heated swimming pools have vapor-retardant covers. (Section 7.4.5.2)
- ☐ Pool heaters and circulation pumps have time switches. (Section 7.4.5.3)

Equipment Efficiency Worksheet (Section 7.4.1)

System Tag	Equipment Type (From Table 7.8)	Subcategory or Rating Condition (From Table 7.8)	Input Rating (Btu/h or kW)	Volume (gal or L)	Energy Factor (EF) or thermal efficiency (E_t) Rated ≥ Required	Standby Loss Specified ≤ Nameplate
					≥	≤
					≥	≤
					≥	≤
					≥	≤

Combination Space and Water Heating Worksheet (Section 7.5.1)

System Tag	Standby Loss Method Equipment ≤ Requirement	or Energy Use Exception (attach calculations) Equipment < Requirement	or Size Exception Equipment < Requirement
	≤	<	< 150,000 Btu/h (44 kW)
	≤	<	< 150,000 Btu/h (44 kW)
	≤	<	< 150,000 Btu/h (44 kW)
	≤	<	< 150,000 Btu/h (44 kW)