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ANSI/ASHRAE Standard 118.1-2022
Method of Testing for Rating Commercial Gas, Electric, and Oil Service Water Heating Equipment

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Preview

NOTE

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FOREWORD

ASHRAE Standard 118.1 provides test procedures for rating directly heated commercial service water heating equipment. The revised 2022 edition of the standard includes the following changes:

- *Updated the scope to be consistent with the Department of Energy's July 11, 2015, final rule that establishes new definitions for "commercial" and "residential duty commercial" water heaters.*
- *Revised the definition of "heat-pump water heater."*
- *Updated the classification for Types III water heaters.*
- *Section 7.2, "Water Piping," was updated and defined visually in Figures 1 through 14.*
- *Updated venting requirements.*
- *Reviewed and revised all equations as appropriate for I-P and SI units.*
- *Revised apparatus for testing AS-HPWH with ducted discharge air.*
- *Revised test tolerances (Table 1).*
- *Updated supply water temperatures for testing heat pumps (Table 3).*
- *Revised test methods and calculations for all heat-pump water heaters (including air source) to be steady state, consistent with Types I, II, and III water heaters.*
- *Updated setting outlet water temperature for heating capacity for Types 1 through V water heaters.*
- *Added water heaters with multiple outlet water connections.*
- *Added new standby loss test method and calculations for Types II and III water heaters.*
- *Updated references and appendices.*

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1. PURPOSE

The purpose of this standard is to provide test procedures for rating directly heated commercial service water heating equipment.

2. SCOPE

2.1 This standard provides test procedures for determining the efficiency and hot-water delivery capability of the water heating equipment to which it applies.

2.2 This standard applies to electric resistance, heat-pump, natural- and propane-gas-fired, and oil-fired water heating equipment, including hot-water supply boilers, with input ratings less than 12,500,000 Btu/h (3660 kW) that are described by one or more of the following:

a. Gas-fired water heaters with a self-contained, temperature-activated primary operating control and not requiring circulation of water for heating, with rated input greater than 105,000 Btu/h (30.8 kW).
b. Oil-fired water heaters with a self-contained, temperature-activated primary operating control and not requiring circulation of water for heating, with rated input greater than 140,000 Btu/h (41 kW).
c. Electric resistance water heaters with a primary self-contained, temperature-activated operating control and not requiring circulation of water for heating, with rated input greater than 12 kW.
d. Gas-fired water heaters with a self-contained, flow-activated primary operating control and requiring water flow for heating, with rated input greater than 200,000 Btu/h (58.6 kW). Flow sensing may be based on physical flow measurement or interpretation of a temperature measurement as flow.
e. Oil-fired water heaters with a self-contained, flow-activated primary operating control and requiring water flow for heating, with rated input greater than 210,000 Btu/h (61.5 kW). Flow sensing may be based on physical flow measurement or interpretation of a temperature measurement as flow.
f. Electric resistance water heaters with a self-contained, flow-activated primary control and requiring water flow for heating, with rated input greater than 58.6 kW.

Preview