

Standard Test Method for Performance of Hot Food Holding Cabinets¹

This standard is issued under the fixed designation F2140; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This test method evaluates the preheat energy consumption and idle energy consumption of hot food holding cabinets. The food service operator can use this evaluation to select a hot food holding cabinet and understand its energy performance, temperature uniformity, and relative humidity (if applicable). A hot food holding cabinet is described as a commercial kitchen appliance that is used to hold hot food (usually no greater than 200°F) that has been cooked in a separate appliance at a specified temperature.

1.2 This test method is applicable to electric hot food holding cabinets.

1.3 The hot food holding cabinet can be evaluated with respect to the following (where applicable):

- 1.3.1 Energy input rate (10.2),
- 1.3.2 Temperature calibration (10.3),
- 1.3.3 Preheat energy consumption and time (10.4),
- 1.3.4 Energy consumption (idle energy rate) (10.5),
- 1.3.5 Energy consumption with water (humidity pan) device and relative humidity (if applicable) (10.5) and
- 1.3.6 Temperature uniformity (10.5).

1.4 The values stated in inch-pound units are to be regarded as standard.

1.5 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 ASHRAE Document:²

ASHRAE Guideline 2—1986 (RA90) “Engineering Analysis of Experimental Data”

¹ This test method is under the jurisdiction of ASTM Committee F26 on Food Service Equipment and is the direct responsibility of Subcommittee F26.06 on Productivity and Energy Protocol.

Current edition approved June 1, 2011. Published July 2011. Originally approved in 2001. Last previous edition approved in 2007 as F2140–01 (2007). DOI: 10.1520/F2140-11.

² Available from American Society of Heating, Refrigerating, and Air-Conditioning Engineers, Inc. (ASHRAE), 1791 Tullie Circle, NE, Atlanta, GA 30329, <http://www.ashrae.org>.

2.2 NSF Standard:³

NSF/ANSI 4 – 2009 Commercial Cooking, Rethermalization, and Powered Hot Food Holding and Transport Equipment

3. Terminology

3.1 Definitions:

3.1.1 *cook-and-hold appliance, n*—a multiple-mode appliance intended for cooking food that may be used to hold the temperature of the food that has been cooked in the same appliance.

3.1.2 *drawer warmer, n*—an appliance that consists of one or more heated drawers and that is designed to hold hot food that has been cooked in a separate appliance at a specified temperature.

3.1.3 *energy input rate, n*—peak rate at which a hot food holding cabinet consumes energy (kW), typically reflected during preheat.

3.1.4 *heated glass merchandising cabinets, n*—an appliance with a heated compartment that is designed to display and maintain the temperature of hot food that has been cooked in a separate appliance.

3.1.5 *heater cycle, n*—a complete sequence of the heat source energizing, de-energizing, and energizing during the idle test. Heater cycle applies to snap-action style controls. Proportional style controls may not exhibit clear energized/de-energized sequences.

3.1.6 *holding cavity, n*—that portion of the appliance in which food products are held.

3.1.7 *hot food holding cabinet, n*—a heated, fully-enclosed compartment, with one or more solid or transparent doors, that is designed to maintain the temperature of hot food that has been cooked in a separate appliance. Does not refer to heated glass merchandising cabinets, drawer warmers or cook-and-hold appliances.

3.1.8 *idle energy rate—dry, n*—the rate of energy consumed (kW) by the hot food holding cabinet while “idling” the holding cavity at the control set point without using the humidity generating device, if applicable.

³ Available from NSF International, P.O. Box 130140, 789 N. Dixboro Rd., Ann Arbor, MI 48113-0140, <http://www.nsf.org>.