



ADDENDA

**ANSI/ASHRAE Addendum b to
ANSI/ASHRAE Standard 72-2022**

Method of Testing Open and Closed Commercial Refrigerators and Freezers

Approved by ASHRAE and by the American National Standards Institute on August 30, 2024.

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Cognizant TC: 10.7, Commercial Food and Beverage Refrigeration Equipment

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FOREWORD

Addendum b to ANSI/ASHRAE Standard 72-2022 adds language for chef bases/griddle stands and drawer units and adds tolerance to brass slugs for ambient measurement.

Informative Note: In this addendum, changes to the current standard are indicated in the text by underlining (for additions) and ~~striking through~~ (for deletions) unless the instructions specifically mention some other means of indicating the changes.

Addendum b to Standard 72-2022

Modify Section 3 as shown. Note that the definition for “chef base or griddle stand” was harmonized with DOE from CFR 431.62.

3. DEFINITIONS

chef base or griddle stand: commercial refrigeration equipment that has a maximum height of 813 mm (32 in.), including any legs or casters, and that is designed and marketed for the express purpose of having a griddle or other cooking appliance placed on top of it that is capable of reaching temperatures hot enough to cook food.

[...]

fully open (for drawers): opened not less than ~~66%~~ 80% of their full travel.

[...]

Modify Section 5 as shown. Renumber all figures accordingly after the insertion of new Figure 2.

5. PREPARATION OF UNIT UNDER TEST (UUT)

5.1 Installation and Settings. The refrigerator to be tested shall be installed within the controlled test room in accordance with the following.

- a. Except as indicated in Section 5.2, install the refrigerator in accordance with the manufacturer’s installation instructions.
 1. Shelving shall be installed per manufacturer’s instructions or, if not provided, evenly spaced and arranged as intended in service.
 - i. For refrigerators with drawers, stainless steel food service pans shall be installed in a configuration utilizing the maximum pan sizes specified by manufacturer’s instructions (if not specified by manufacturer, use the maximum depth and volume allowed).
 - ii. For refrigerators with roll-in or roll-through capability, roll-in racks shall be used as specified by manufacturer’s instructions.

[...]

5.4.1 Net Usable Volume.

[...]

For cases intended to be used with roll-in racks, the net usable volume includes only the interior volume of the roll-in rack intended for refrigerated storage or display, and any space below the lowest position on the rack shall not be included in the net usable volume.

For cases with drawers:

- a. For drawers intended for use with pans, the net usable volume includes only the interior volume of the pan(s) in the drawer. The net usable volume shall be measured by the amount of water needed to fill all the pan(s) to within 13 mm (0.5 in.) of the top rim or calculated by totaling the volume of all pans using the nominal values shown in Figure 2.
- b. For drawers not intended for pans, the net usable volume shall be equal to the total volume of the drawer to the top edge of the drawer.

[...]

U.S. Size	Gastronorm Size*	Nominal O/A Length	Nominal O/A Width	Nominal Depth	Nominal Capacity	Nominal Volume
Full	GN 1/1	530 mm (20 3/4 in)	325 mm (12 3/4 in)	100 mm (4 in)	13.3 ltr (14.1 qts)	0.0133 m3 (0.47 ft3)
				150 mm (6 in)	20 ltr (21.1 qts)	0.02 m3 (0.706 ft3)
Two Thirds	GN 2/3	355 mm (13 3/4 in)	325 mm (12 3/4 in)	100 mm (4 in)	8.5 ltr (9 qts)	0.0085 m3 (0.3 ft3)
				150 mm (6 in)	12.7 ltr (13.4 qts)	0.0127 m3 (0.448 ft3)
Half	GN 1/2	325 mm (12 3/4 in)	265 mm (10 3/8 in)	100 mm (4 in)	6 ltr (6.3 qts)	0.006 m3 (0.212 ft3)
				150 mm (6 in)	8.9 ltr (9.4 qts)	0.0089 m3 (0.314 ft3)
Half Long	GN 2/4	530 mm (20 3/4 in)	162 mm (6 3/8 in)	100 mm (4 in)	6 ltr (6.3 qts)	0.006 m3 (0.212 ft3)
				150 mm (6 in)	9 ltr (9.5 qts)	0.009 m3 (0.318 ft3)
Third	GN 1/3	325 mm (12 3/4 in)	175 mm (6 7/8 in)	100 mm (4 in)	3.8 ltr (4 qts)	0.0038 m3 (0.134 ft3)
				150 mm (6 in)	5.5 ltr (5.8 qts)	0.0055 m3 (0.194 ft3)
Quarter	GN 1/4	265 mm (10 3/8 in)	162 mm (6 3/8 in)	100 mm (4 in)	2.7 ltr (2.9 qts)	0.0027 m3 (0.095 ft3)
				150 mm (6 in)	4 ltr (4.2 qts)	0.004 m3 (0.141 ft3)
Sixth	GN 1/6	175 mm (6 7/8 in)	160 mm (6 1/4 in)	100 mm (4 in)	1.6 ltr (1.7 qts)	0.0016 m3 (0.057 ft3)
				150 mm (6 in)	2.2 ltr (2.3 qts)	0.0022 m3 (0.078 ft3)
Ninth	GN 1/9	175 mm (6 7/8 in)	108 mm (4 1/4 in)	100 mm (4 in)	0.9 ltr (1 qts)	0.0009 m3 (0.032 ft3)

* Reference European Standard EN 631-1:1993
Specification for dimensions of catering containers

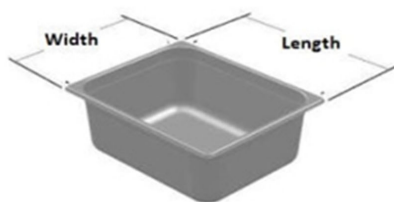


Figure 2 Nominal sizes and volume capacities of common stainless steel food pans.

5.4.4 Refrigerators with Drawers. Test simulators shall be placed in refrigerators that have drawers as follows.

5.4.4.1 Simulator Locations in Drawers. For each drawer, there shall be two test simulators placed at each of the following locations: at the left end, at the right end, and at consistent 610–1220 mm (24–48 in.) intervals across the width of the drawer (for drawers wider than 1220 mm [48 in.]). If simulators are to be placed at a pan edge or divider, the simulator shall be placed at the nearest adjacent location. For drawers with overall internal width of 1220 mm (48 in.) or less, only the left and right ends shall have test simulators. For each drawer with pans, one test simulator shall be placed on the bottom of the pan at both the front and rear of the drawer. For each drawer without pans, test simulators shall be placed in contact with the drawer end or ends unless load-limiting stops are provided as part of the case.

5.4.4–Refrigerators without Shelves.

5.4.5 Refrigerators without Shelves.

[...]

5.4.5–Refrigerators Intended for Use with Roll-in Racks.

5.4.6 Refrigerators Intended for Use with Roll-in Racks.

[...]

5.4.6–Nonrectangular Shelves or Bottom Compartments.

5.4.7 Nonrectangular Shelves or Bottom Compartments.

[...]

5.4.7–Filler Material.

5.4.8 Filler Material.

[...]

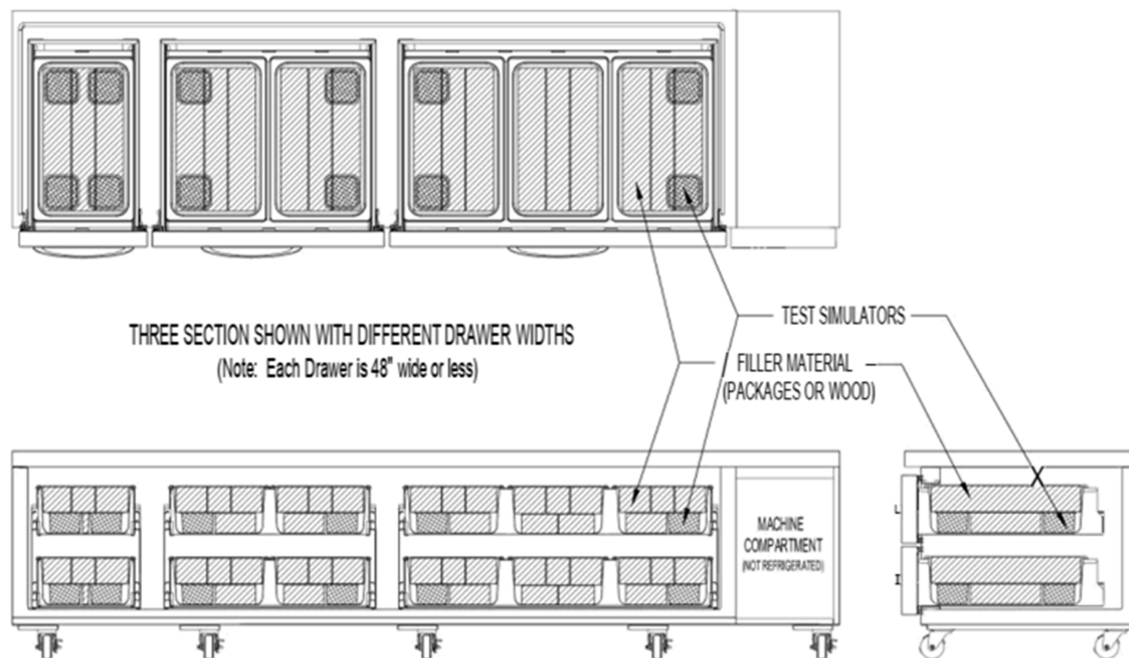


Figure 7 Example test simulator locations and filler material in refrigerator with drawers (and pans).

5.4.8–Loading of Filler Material.

5.4.9 Loading of Filler Material. The net usable volume where test simulators are not required shall be filled with filler material so that between 60% and 80% of the refrigerator net usable volume is occupied by test simulators and filler material that uniformly occupy the space from the front to the rear.

For drawers, the net usable volume where test simulators are not required shall be filled with filler material so that between 60% and 80% of the refrigerated net usable volume is occupied by test simulators and filler material that uniformly occupy the space from the front to the rear and also keep simulators from moving during the test.

[...]

5.4.9–Impact on Energy Performance.

5.4.10 Impact on Energy Performance.

[...]

5.4.10–Example Locations.

5.4.11 Example Locations. Refer to Figure 4, Figures 5, 6, and 7 for examples of multideck, and single-deck, and undercounter with drawers refrigerators showing test simulator and filler material locations.

Modify Section 6 as shown.

6. TEST CONDITIONS

6.1 Ambient Temperature and Humidity.

[...]

The thermocouples used to measure dry-bulb temperatures shall be in thermal contact with the center of a 45 g \pm 5 g (1.6 oz \pm 0.2 oz) cylindrical brass slug with a diameter and height of 19 mm \pm 5 mm (0.75 in. \pm 0.2 in.). The brass slugs shall be placed at least 13 mm (0.50 in.) from any heat-conducting surface.

[...]

Modify Section 9 as shown.

9. DATA REPORTING

9.1 Product Description

[. . .]

k. Number of doors or drawers if applicable

[. . .]

Selective options, such as shelf locations, shelf sizes, number of shelves, number of pans, size of pans, and extra lights, shall be reported or diagrammed exactly for the refrigerator undergoing the test and shall be so explained in any rating made from the test data.

Modify Normative Appendix A as shown.

**NORMATIVE APPENDIX A
MEASUREMENT LOCATIONS, TOLERANCES, ACCURACIES, AND
OTHER CHARACTERISTICS**

Table A-1 Measurement Locations, Tolerances, Accuracies, and Other Characteristics

Measured Quantity and Measurement Standard	Location	Period of Time Measurement Is Taken	Required Accuracy	Required Value(s)
Chamber Conditions				
Dry-bulb temperature: Std. 41.1	Point A (See Figure 6.)	At least once per minute throughout Test A and Test B	±0.8°C (±1.4°F)	Individual measurements: <ul style="list-style-type: none"> • <u>All except chef base/griddle stand:</u> 24.0°C ± 2.0°C (75.2°F ± 3.6°F) • <u>Chef base/griddle stand:</u> 30.0°C ± 2.0°C (86.0°F ± 3.6°F) Average over test period: <ul style="list-style-type: none"> • <u>All except chef base/griddle stand:</u> 24.0°C ± 1.0°C (75.2°F ± 1.8°F); • <u>Chef base/griddle stand:</u> 30.0°C ± 1.0°C (86.0°F ± 1.8°F)
Wet-bulb temperature (humidity): Std. 41.6	Point A (See Figure 6.)	At least once per minute throughout Test A and Test B	±0.8°C (±1.4°F)	Individual measurements: <ul style="list-style-type: none"> • <u>All except chef base/griddle stand:</u> 8.0°C ± 2.0°C (64.4°F ± 3.6°F); • <u>Chef base/griddle stand:</u> 23.2°C ± 2.0°C (73.7°F ± 3.6°F) Average over test period: <ul style="list-style-type: none"> • <u>All except chef base/griddle stand:</u> 18.0°C ± 1.0°C (64.4°F ± 1.8°F); • <u>Chef base/griddle stand:</u> 23.2°C ± 1.0°C (73.7°F ± 1.8°F)
[...]				
Radiant heat temperature	Surface of wall or partition facing opening of UUT, perpendicular to center of opening (See Section 6.3.)	Once before Test A and once after Test B, with UUT de-energized	±0.8°C (±1.4°F)	<u>All except chef base/griddle stand:</u> ≥21.2°C (≥70.0°F); <u>Chef base/griddle stand:</u> ≥27.2°C (≥81.0°F)
[...]				

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Through its *Handbook*, appropriate chapters will contain up-to-date Standards and design considerations as the material is systematically revised.

ASHRAE will take the lead with respect to dissemination of environmental information of its primary interest and will seek out and disseminate information from other responsible organizations that is pertinent, as guides to updating Standards and Guidelines.

The effects of the design and selection of equipment and systems will be considered within the scope of the system's intended use and expected misuse. The disposal of hazardous materials, if any, will also be considered.

ASHRAE's primary concern for environmental impact will be at the site where equipment within ASHRAE's scope operates. However, energy source selection and the possible environmental impact due to the energy source and energy transportation will be considered where possible. Recommendations concerning energy source selection should be made by its members.

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