



**Summary of Substantive Changes
between the 2014 and the 2016 editions of
NSF/ANSI 4 “Commercial Cooking, Rethermalization, and Powered Hot Food
Holding and Transport Equipment”**

Presented to the IAPMO Standards Review Committee on January 9, 2017

General: The changes to this standard may impact on currently listed products. The substantive changes are:

- Section 4.6 ‘Beverage equipment’ was removed since a new requirement is located in 4.2.3.3 of NSF/ANSI 51 – 2014, which covers beverage equipment and any other equipment having brass or bronze materials in contact with tea, coffee, or water intended for human consumption.
- Added a ‘NOTE’ above Section 5.1 to clarify that food zone material requirements do not apply in floorless ovens and proofing cabinets.
- Added a new Section 5.4.7 specifying the requirements regarding the seams between the walls and floors in walk-in or roll-in equipment without prefabricated floors.
- Test method Sections 6.2.2 and 6.7.2 were modified to provide a specific position from the equipment to measure the air velocity to meet the original intent of this requirement. The intent is to measure the air currents in the test room to ensure that they are not interfering with the performance of the equipment being tested. The position of measurement should ensure any air currents that may be produced by the equipment being tested are not included in the air velocity measurement for the test room.
- Added a new Section 8 ‘Product Literature’ specifying that product manuals and installation manuals for floorless walk-in or roll-in equipment state that equipment is to be installed on corrosion resistant and cleanable flooring materials.
- Added a new Annex D ‘Flooring Recommendations for Proofers and Ovens Constructed Without Floors’ that provides additional information for manufacturers, installers, and the regulatory community regarding proper flooring for proofers and ovens that are constructed without floors.
- Added a new Annex E ‘Food Equipment Joint Committee’ as information only that identifies committee members.

4.5.3 Filter paper and filter aids for fat/oil filters shall not be required to be easily cleanable. Absorbent materials may be used.

4.6 Beverage equipment

Beverage equipment having brass or bronze components in contact with tea, coffee, or water (as permitted under NSF/ANSI 51) shall not impart a lead (Pb) concentration greater than 15 µg/L when tested in accordance with NSF/ANSI 51.



4.76 Brick

Construction brick and similar uncleanable materials shall not be used except as permitted in 4.1.2. The use of fire brick is acceptable only on surfaces located behind or below cooking surfaces. Fire brick shall not be used on surfaces intended for direct food contact.

5 Design and construction

Unless otherwise specified, the interiors of heated compartments, such as those in ovens, steam cookers, pressure cookers, proofing cabinets, rethermalization equipment, hot food transport cabinets, and hot food holding cabinets, shall conform to the splash zone design and construction requirements of this Standard. Food zone material requirements shall apply.

NOTE — For floorless walk-in or roll-in equipment, food zone material requirements shall not apply to the floor.

5.1 General sanitation

5.1.1 Equipment shall be designed and manufactured to prevent the harborage of vermin and the accumulation of dirt and debris, and to permit the inspection, maintenance, servicing and cleaning of the equipment and its components.

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5.4 Joints and seams

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5.4.7 Walk-in or roll-in equipment without prefabricated floors shall be designed and manufactured so that the seams formed between the walls and floor or base may be closed and sealed upon assembly of the equipment.

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6 Performance

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6.2 Open top hot food holding equipment

6.2.1 Performance requirement

Hot food holding equipment whose hot food storage area is not completely enclosed shall be capable of maintaining a minimum product temperature of 150 °F (65 °C) when tested in accordance with 6.2.2. This requirement is intended to ensure that the equipment is capable of holding food at a minimum temperature of 140 °F (60 °C) under intended use conditions. This requirement applies to bains-marie, steam tables, display cases with hot food holding wells, soup stations, and similar open equipment in which hot food may be held during service or display. This requirement shall not apply to heat lamps and similar overhead heating equipment designed to temporarily slow the cooling of food placed beneath them.

6.2.2 Test method



6.2.2.1 The performance of open hot food holding equipment shall be evaluated within a test chamber maintained under the following conditions for the duration of the test:

– ambient temperature of 73 ± 3 °F (23 ± 2 °C), as measured approximately 10 in (250 mm) from test unit and 36 in (~~90 cm~~ 914 mm) from the floor;

– no vertical temperature gradient exceeding 1.5 °F per foot (2.5 °C per meter); and

~~– maximum air current velocity of 50 ft/min (15.2 m/min) across the surfaces of the test pans.~~

– no air currents with velocities greater than 50 ft/min (15.2 m/min) measured at a position that is:

(1) centered side-to-side in relation to the equipment under test, and

(2) 10 ± 1 in (254 ± 25 mm) above the top rim of the test pans, and

(3) 10 ± 1 in (254 ± 25 mm) in front of the unit.

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6.7 Open heated merchandisers

6.7.1 Performance requirement

Open heated merchandisers shall be capable of maintaining a minimum product temperature of 150 °F (65.5 °C) when tested in accordance with 6.7.2. This requirement is intended to ensure that non-enclosed equipment, which does not utilize food pans or food wells is capable of holding packaged potentially hazardous food at a minimum temperature of 140 °F (60 °C) under intended use conditions.

NOTE – The test is designed for open hot food holding equipment that does not utilize wells and does not include test criteria for open hot food holding equipment, which is covered under 6.2. This requirement shall not apply to heating equipment designed to temporarily slow the cooling of food.

6.7.2 Test method

6.7.2.1 The performance of open heated merchandisers shall be evaluated within a test chamber maintained under the following conditions for the duration of the test:

– ambient temperature of 73 ± 3 °F (23 ± 2 °C), as measured approximately 10 in (250 mm) from test unit and 36 in (914 mm) from the floor;

– no vertical temperature gradient exceeding 1.5 °F per foot (2.5 °C per meter); and

~~– no air currents with velocities greater than 50 ft/min (15.2 m/min) across the surfaces of the test containers~~

– no air currents with velocities greater than 50 ft/min (15.2 m/min) measured at a position that is:

(1) centered side-to-side in relation to the equipment under test, and

(2) 10 ± 1 in (254 ± 25 mm) above the lowest heating surface, and



(3) 10 ± 1 in (254 ± 25 mm) in front of the unit.

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7.11 Labeling

Food equipment provided with a security package shall have a permanent, conspicuous label stating: "Intended for use only in environments where security is a concern such as correctional facilities, mental health facilities, or some schools."

8 Product literature

The product manual and installation manual for floorless walk-in or roll-in equipment shall state the equipment is to be installed on flooring materials that are corrosion resistant and cleanable. Flooring materials meeting these requirements may include masonry materials

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Annex D (informative)

Flooring recommendations for proofers and ovens constructed without floors

D.1 General

This annex contains basic flooring recommendations for the installation of proofers and ovens that are constructed without integral floors. Before the equipment is installed, the manufacturer's installation instructions should be studied carefully.

D.2 Smoothness

Surfaces upon which floorless equipment is mounted must be smooth. NSF/ANSI 170, Glossary of Food Equipment Terminology, defines smooth as "free of pits, pinholes, cracks, crevices, inclusions, rough edges, and other surface imperfections detectably by visual and tactile inspection." As a further point of reference, for the purpose of smoothness as it pertains to floors, walls, and ceilings, the FDA Food Code¹⁵ states that surfaces "having an even or level surface with no roughness or projections that render it difficult to clean" are determined to be smooth.

D.3 Cleanability

Surfaces upon which floorless equipment is mounted shall be easily cleanable. NSF/ANSI 170, Glossary of Food Equipment Terminology, defines easily cleanable as being "manufactured so that food and other soiling material may be removed by manual cleaning methods." Coved moldings at the floor-wall juncture can further improve overall cleanability. Flooring materials must also be nonabsorbent.



D.4 Corrosion resistance

Surfaces upon which floorless equipment is mounted shall be corrosion resistant. NSF/ANSI 170, Glossary of Food Equipment Terminology, defines corrosion resistant as being capable of maintaining original surface characteristics under prolonged contact with the intended end use environment and exposure to appropriate cleaning compounds and sanitizing solutions.

D.5 Flooring

Floors must be able to withstand rolling and sliding of shelving units and carts, as well as the operating temperatures of the equipment. Ovens, with broader temperature swings, may have different needs than a proofer, which is intended to create a humid, low-heat environment. Floors should be inspected regularly for signs of wear, such as cracks in grout lines, with attention given to remedy these areas as needed. Examples of acceptable materials are likely to include, but are not limited to, non-shrinking concrete and quarry tile or similarly hard tile. Reinforcing concrete with materials such as rebar or steel mesh can help to prolong the integrity of the finished material. Overall, available flooring choices will vary. All state and local codes in effect in the area in which the installation is made should be followed. Some organic-based flooring materials, including sealants, may be prone to off-gassing. Consider the temperatures of use and limitations of the product when determining acceptable flooring materials.

¹⁵ Food and Drug Administration, Food Code, College Park, MD 20740 <www.fda.gov>



[Annex E¹⁶](#)
[\(informative\)](#)

[Food Equipment Joint Committee¹⁷](#)

Name	Company / organization	Interest category
Northcutt, Kirk	Auto-Chlor System	Industry
Perez, Michael ¹	Baring Industries	User
Tackitt, Steve	Barry-Eaton District Health Department	Public health / regulatory
Petersen Jr., James	C.i.i. Food Service Design	User
Bortolotti, Stefano	Carpigiani	Industry
Gagliardi, Tony ¹	Consultant - Public Health/Regulatory	Public health / regulatory
Burton-Zick, Sara ¹	DuPage County Health Department	Public health / regulatory
Liggans, Girvin	Food and Drug Administration	Public health / regulatory
Hall, Jon	Glastender Inc	Industry
Scanlon, John ¹	Hatco Corp.	Industry
Hipp, Joel ¹	Hobart Corp.	Industry
Schaefer, Stephen	Hoshizaki America, Inc.	Industry
Sickles, P.E., Willard ¹	InterMetro Industries Corp.	Industry
Coffman, Roger	Lake County Health Dept.	Public health / regulatory
Hurst, REHS, CP-FS, Bryan	Lincoln-Lancaster Co. Health Department	Public health / regulatory
Brasseur, Eric	Little Caesars Enterprises	User
Bhatt, Swati	Los Angeles County	Public health / regulatory
Negandhi, P.E., Dipak ¹	Manitowoc Foodservice	Industry
Steinbach, Pamela	Minnesota Dept. of Health	Public health / regulatory
Carotenuto, Anthony	Navy and Marine Corps Public Health Center	User
Dyer, Randy	Nestle	User
Kohler, Mike ¹	NSF International	User
Leonard, MPH, LEHP, James	Princess Cruises	User
Johnson, Tom	Qlean Tech Enterprises	User
Samarya-Timm, Michèle	Somerset County Department of Health	Public health / regulatory
Klouse, REHS, CP-FS, Paul	Southern Nevada Health District	Public health / regulatory
Brandt, Rex ¹	Taylor Co.	Industry
Maxon, Gary	The Delfield Co.	Industry
McNeil, Thomas, RS	U.S. Army	User
Brania, Jonathan ¹	UL LLC	User
Brady, Jim ¹	Wawa, Inc.	User
Standards Development Liaison: Al Rose		
Membership Balance:		
Industry: 10		
Regulatory: 10		
User: 10		
¹ Committee or task group chair		

¹⁶ [The information contained in this annex is not part of the American National Standard \(ANS\) and has not been processed in accordance with ANSI's requirements for ANS. As such, this annex may contain material that has not been subjected to public review or a consensus process. In addition, it does not contain requirements necessary for conformance to the Standard.](#)

¹⁷ [Food Equipment Joint Committee members on the date of publication - subject to change 11/14/201](#)