NSF/ANSI Standard
for Food Equipment —

Mobile food carts and food kiosks

1 General

1.1 Purpose

This Standard establishes minimum food protection and sanitation requirements for the materials, design, fabrication, construction, and performance of mobile food carts, indoor food kiosks and their related components.

1.2 Scope

This Standard applies to mobile food carts and indoor food kiosks intended for the preparation and service of food, as well those intended for service of prepackaged food only. This Standard does not apply to food catering trucks or other motor vehicle mounted food service equipment. The requirements in this Standard do not apply to umbrellas, awnings, and similar overhead accessories installed on mobile food carts or indoor food kiosks.

Food cart and indoor food kiosk components covered under other NSF or NSF/ANSI Standards or Criteria shall also comply with the requirements therein. This Standard is not intended to restrict new unit design, provided such design meets the minimum specifications described herein.

Reason: The Purpose and Scope were revised to be consistent with NSF/ANSI 2 and to expand the scope of this Standard to include indoor food kiosks.

2 Normative references

The following documents contain provisions that, through reference, constitute provisions of this NSF/ANSI Standard. At the time this Standard was balloted, the editions listed below were valid. All documents are subject to revision, and parties are encouraged to investigate the possibility of applying the recent editions of the documents indicated below.

APHA Standard Methods for the Examination of Water and Wastewater, 20th Ed.¹

Code of Federal Regulations,² Title 40, (40 CFR) Section 180.940, Food Contact Surface Sanitizing

¹ American Public Health Association, 800 I St. NW, Washington, DC 20001
3 Definitions

Terms used in this Standard that have special technical meaning are defined in NSF/ANSI 170.

Reason: Text added to be consistent with the wording in NSF/ANSI 2.

food kiosk: (As used in NSF/ANSI 59) An indoor fixed, prefabricated food service structure having one or more open sides that may be used to prepare, store, and/or sell food. This term applies to units intended to be connected to electricity, plumbing and water, intended for the preparation of food, as well as those that are intended for the display and service of prepackaged food in its original container without further preparation.

Reason: “Food kiosk” definition added because of expanded scope. It will be incorporated in the NSF/ANSI 170 – Food Equipment Terminology.

Reason: More accurately defines food kiosk.

4 Materials

4.5 High pressure decorative laminates

Laminates shall meet the requirements in NSF/ANSI 35.

Reason: Added to address materials used on counter tops and other equipment in food kiosk.

3 American Society for Testing and Materials, 100 Barr Harbor Dr., West Conshohocken, PA 19428
5 Design and construction

This section contains design and construction requirements for equipment covered under the scope of this Standard.

5.9 Doors

5.9.1 Doors shall be sized to fit their openings and shall close properly.

5.9.2 Sliding doors shall slide freely and shall be readily removable.

5.9.3 Exposed channel sections on single panel doors shall be inverted or easily cleanable. Clean-outs shall be provided if channels are not inverted (see figure 2).

5.9.4 Exposed edges of glass doors shall be protected by tight fitting channels, stripping materials, or other means such as rounding the edges of tempered glass to protect against chipping. The glass shall conform to the requirements of 5.38.3.

5.9.5 Door gaskets

5.9.5.1 Exposed surfaces of door gaskets shall be easily cleanable. Hollow sections of door gaskets shall be sealed.

5.9.5.2 Gaskets shall be capable of being removed and reinstalled by hand or with the use of simple tools. Staples, pop rivets, nails, adhesives, and other similar items that cannot be reattached easily shall not be used to secure door gaskets.

5.9.5.3 Retaining grooves and other devices for holding readily removable gaskets shall be easily cleanable.

Reason: 5.9 has been updated to be consistent with NSF/ANSI 2.

5.13 Edges and nosings

If a shelf or unit top is reinforced by forming its edge into a structural shape (nosing) and there is an adjoining vertical surface (i.e., cabinet body), then the following requirements shall apply:

– the nosing shall be integral with the shelf or unit top; and
– the edge shall be deburred; and
– the nosing and adjoining vertical surface shall be closed or shall have a clearance of at least ¾ in (0.75 in, 19 mm) or ⅓ of the nosing's vertical dimension, whichever is greater.

If the profile edge is turned in to form a channel-like configuration, the return (horizontal) shall not exceed ⅛ in (0.50 in, 13 mm) and shall be angled downward at least 5° from the horizontal plane. This requirement does not apply to readily removable or knockdown shelves.
Reason: 5.13 has been updated to be consistent with NSF/ANSI 2.

5.17 Door closers, handles knobs, and pulls

5.17.1 Exposed surfaces shall meet the design and construction requirements of the zone of the intended use.

5.17.2 Door closers, handles, knobs and pulls shall meet at least one of the following:
- be easily cleanable as installed on the equipment; or
- be removable for cleaning.

5.17.3 If locking features are provided, the keyway and lock are exempt from 5.11.2.

5.21 Equipment mounting

5.21.3 Kick plates on floor-mounted equipment shall be removable.

Reason: Text has been added to be consistent with NSF/ANSI 2.

5.23 Casters, rollers, gliders, wheels, and wheel housings

5.23.2 Wheel housings shall be provided where necessary to prevent contamination of food and splash zones. Wheel housings shall be designed to minimize the retention of moisture and debris and to permit cleaning and maintenance.

Reason: Section updated to reference NSF/ANSI 2. Consistent with trends to changes of boilerplate language.
5.33 Ice pans and bins

5.33.5 Ice bins shall not drain into the wastewater holding system as described in 5.48 on mobile food carts. Ice bins on mobile food carts shall drain into an alternative reservoir.

Reason: An ice bin should not be permitted to drain into the wastewater holding systems described in 5.48.

5.40 Cutting boards

If provided, cutting boards shall be readily removable and shall conform to the requirements of NSF/ANSI 2.

5.43 Data plate

A permanent-type data plate shall be affixed to each mobile food cart and food kiosk. At a minimum, the data plate shall include the following information:

- manufacturer’s name and address;
- model number or designation;
- type of food cart or food kiosk (the data plate shall indicate whether the cart or food kiosk is intended for service of prepackaged food only or if the cart or food kiosk is also intended for the preparation of food. It shall also indicate whether or not the cart or food kiosk is intended for potentially hazardous foods.);
- type of heating, if applicable;
- type of refrigeration, if applicable;
- end use limitation, if intended for indoor use only;
- capacity of potable water tank(s), if applicable; and
- capacity of waste holding system, if applicable.

Reason: Text added to address food kiosk.
5.47  Potable water supply systems

A food preparation cart or food kiosk shall have a potable water supply system that supplies hot and cold potable water and conforms to the requirements in 5.47.

5.47.1  Source

5.47.1.1  Food preparation carts shall be designed to be connected to a continuous supply of potable water and/or supplied with potable water by means of a storage tank.

5.47.1.2  A food preparation food kiosk shall be designed to be permanently connected to a continuous supply of potable water.

5.47.1.3  Potable water shall be supplied under pressure or by gravity to a mixing faucet.

5.47.1.4  Water inlets shall be protected from contamination and designed to preclude attachment to a nonpotable service connection.

Reason: This section was updated to include all water supply requirements in one section. Potable water supply is only required on food prep/handling carts and food kiosk and thus water requirements are only necessary for these types of units. Because a food kiosk is not mobile, they shall be designed to be permanently connect to a continuous supply.

5.47.1.5  Food kiosks that are connected to a fixed potable water system shall have a drain that is designed to be connected to a municipal sewer system or approved on-site septic system.

Reason: The first sentence of 5.48.4 is a potable water system requirement and should be located under the potable water system section. Although dealing with waste water systems, is directly linked to the first sentence and therefore should not be separated, therefore the second sentence was moved.

5.47.2  Plumbing connections

5.47.2.1  Water and waste piping and fittings attached to the equipment shall comply with the material requirements for the applicable zones.

5.47.2.2  Water and waste piping and connections shall comply with the International Plumbing Code 2003, International Code Council (ICC) or the Uniform Plumbing Code 2003, International Association of Plumbing and Mechanical Officials (IAPMO).

5.47.2.3  Waste lines shall not drain into or through a food zone.

5.47.2.4  Backflow prevention

5.47.2.4.1  Units intended to be connected to a water supply system under pressure shall have one of the following:

– a vacuum breaker that conforms to ANSI/ASSE 1001. *Atmospheric Type Vacuum Breakers* (for intermittent pressure conditions); or

– a vacuum breaker that conforms to ANSI/ASSE 1020. *Vacuum Breakers, Antisiphon, Pressure Type* (for continuous pressure conditions);

– a backflow prevention device that conforms to ANSI/ASSE 1022. *Backflow Preventer for*
Carbonated Beverage Machines;

- a backflow prevention device that conforms to ANSI/ASSE 1024. Dual Check Valve Type Backflow Preventers;

- a backflow prevention device that conforms to ASSE 1032. Dual Check Valve Type Backflow Preventer for Carbonated Beverage Dispensers/Post Mix Type;

- a statement in the installation instruction and on a label permanently affixed to the equipment that clearly indicates that the equipment is to be installed with adequate backflow protection to comply with applicable federal, state, and local codes.

5.47.2.4.2 A screen of at least 100 mesh (minimum 100 strands per inch) shall be installed immediately upstream of all check valve type backflow preventers used for water supply protection. The screen shall be accessible and removable for cleaning or replacement.

Reason: Language consistent with NSF/ANSI 2.

5.47.3 Mobile food cart water storage tanks

5.47.3.1 Water storage tanks, if provided, on food preparation carts shall have a minimum capacity of 5 gal (18.9 L) each. The storage tank capacity shall be indicated directly on the tank or on the data plate of the cart.

Note: The actual size of the water storage tank on a mobile food cart should be based on the conditions of its intended use. The public health authority having jurisdiction may establish additional requirements as necessary for a particular operation with consideration of factors such as menu, food volume, and proximity to other services.

5.47.3.2 The interior of each water storage tank shall be smooth and free of recesses and crevices.

5.47.3.3 At least one fill connection shall be located at the highest point of each water storage tank.

5.47.3.4 Water storage tanks shall be readily removable or shall be sloped at least ½ in per ft (42 mm per m) to a drain located at the lowest point in the tank to allow for draining and flushing. The drain shall have a minimum diameter of ½ in (13 mm).

5.47.3.5 Tanks that supply water by gravity shall be adequately vented to allow for flow. Vent openings shall be protected against the entry of dust and insects.

5.47.4 Hot water

Water heaters shall conform to the requirements of NSF/ANSI 5.

Note: The actual size of the water heater on a mobile food cart should be based on the conditions of its intended use. The public health authority having jurisdiction may establish additional requirements as necessary for a particular operation with consideration of factors such as menu, food volume, number of fixtures, and proximity to other services.

Reason: Added requirement because previously the standard only stated that food preparation carts had to be provided with hot and cold potable water. However, it did not address how the water was to be heated. The Task Group for Mobile Food Carts and Food kiosk agreed at their Feb 02 meeting that a size should not be specified but that instead a note should be added to address sizing requirements.
5.48 Mobile food carts wastewater holding systems

5.48.1 Mobile food carts having a potable water system shall also have a waste holding tank(s) with a minimum capacity of 7.5 gal (28.4 L) or at least 15% greater than the total capacity of the water storage tank(s), whichever is greater. The capacity of the waste tank shall be displayed on the tank or the data plate.

NOTE – The minimum waste holding tank capacity shall not apply if the cart is equipped with an automated system that disables the water supply when the waste holding tank is full.

5.48.2 Interior surfaces of a waste holding tank shall be smooth.

5.48.3 The minimum depth of a waste holding tank shall be 3 in (75 mm).

5.48.4 The bottoms of permanently mounted tanks shall be sloped at least ½ in per ft (42 mm per m) to a drain. The drain shall have a minimum diameter of 1 in (25 mm) and shall be equipped with a shut-off valve.

Reason: Language in 5.48.4 moved to 5.47.1.5.

5.48.5 Ice bins shall not drain into the wastewater holding system as described in this section on mobile food carts. Ice bins on mobile food carts shall drain into an alternative reservoir.

Reason: An ice bin should not be permitted to drain into the wastewater holding systems.

Reason: The Task Group suggested that 5.38 in NSF/ANSI 59 2002e be better organized. Sections below will state whether or not the item is required on food prep carts and food kiosk or if it is just a general requirement for all carts and food kiosk, so the above section heading is not needed.

5.49 Food protection

5.49.1 Food display and food preparation areas exposed to the public on mobile food carts and food kiosk shall be protected by food shields that conform to NSF/ANSI 2.

Reason: Expanded requirements to address food kiosk. Added “exposed to public” because a shield would not be necessary unless food is exposed to the public. More clearly communicates the intent that both types of equipment need this statement.

Reason: Data plate requirement deleted due to being covered in 5.43 end use requirement.

5.50 Sinks

5.50.1 Carts

Food preparation carts shall have at least two sink compartments. Each sink compartment shall be at least 5½ in (139 mm) wide and have a minimum horizontal cross sectional area of 50 in² (.032 m²) at the water line. Each sink shall have a minimum depth of 4 in (100 mm). Sinks shall conform to the requirements of NSF/ANSI 2; except for 5.39.4. Sinks on mobile food carts shall be exempt from backsplash requirements.
NOTE – The minimum sink requirements in this section are suitable for most mobile food cart applications. The actual number, size, location, design, and separation of sinks and hand washing facilities on a mobile food cart should be based on the conditions of its intended use. The public health authority having jurisdiction may establish additional requirements as necessary for a particular operation with consideration of factors such as menu, food volume, and proximity to other services.

5.50.2 Food kiosks

Food kiosks used for food preparation shall have a minimum of a three compartment sink in addition to a sink designated solely for the purposes of handwashing. Sinks shall conform to the requirements of NSF/ANSI 2; except for 5.39.4.

NOTE – The minimum sink requirements in this section are suitable for most food kiosk applications. The actual number, size, location, design, and separation of sinks and hand washing facilities on a food kiosk should be based on the conditions of its intended use. The public health authority having jurisdiction may establish additional requirements as necessary for a particular operation with consideration of factors such as menu, food volume, and proximity to other services.

6 Performance

6.2 Cold food storage compartments

6.2.2 Test method

NOTE – Testing in accordance with this method is not required for refrigerators in conformance with the performance requirements in NSF/ANSI 7.

A “no-load” test shall be conducted to evaluate the ability of a mobile food cart to maintain an air temperature of 40 °F (4 °C) or less in all cold food storage compartment interiors. Prior to the start of the test, compartments shall be allowed to establish thermal equilibrium according to the manufacturer’s instructions. The test shall be evaluated within a test chamber maintained under the following conditions for the duration of the test:

– ambient temperature of 100 ± 3 °F (38 ± 2 °C); and

– no vertical temperature gradient exceeding 1.5 °F per ft (2.5 °C per m).

Air temperatures within each empty compartment shall be monitored using remote temperature sensing devices (thermocouples) accurate to ± 1 °F (± 0.5 °C). The thermocouples shall be positioned as close as possible to the following locations:

– Thermocouple #1: (when facing the front of the unit) 5 ± 0.25 in (127 ± 6 mm) from the left interior wall, 2 ± 0.25 in (51 ± 6 mm) above the bottom horizontal plane of the overhead cooling unit, (for units in which the evaporator is not suspended from the ceiling, the thermocouple shall be placed 5 ± 0.25 in [127 ± 6 mm] down from the ceiling) and centered front-to-back.
– **Thermocouple #2**: centered front-to-back, centered top-to-bottom, centered left-to-right.

– **Thermocouple #3**: (when facing the unit) 5 ± 0.25 in (127 ± 6 mm) from the right interior wall, 5 ± 0.25 in (127 ± 6 mm) above the internal floor of the unit, and centered front-to-back.

If interior spatial constraints prohibit the placement of thermocouples as specified above, alternate locations shall be selected to comply with the intent of the Standard.

**NOTE** – The intent is for the thermocouples to form a diagonal in the unit while being centered front to back.

The thermocouples shall be in thermal contact with the center of a 1.6 oz (45 g) cylindrical brass slug with a diameter and height of ¾ in (0.75 in, 19 mm). The brass slugs shall be placed at least ½ in (0.50 in, 13 mm) from any heat conducting surface.

The temperature at each thermocouple location shall be recorded at 5-min intervals over a period of 8 h.

### 6.2.3 Acceptance criteria

The temperature at each thermocouple location within each cold food storage compartment shall not exceed 40 °F (4 °C) for the duration of the test.

### 6.3 Open-top cold food holding equipment

#### 6.3.1 Performance requirement

Mobile food carts shall be capable of maintaining product in open-top cold food holding areas at a temperature not greater than of 41 °F (5 °C).

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### 6.4 Hot food holding compartments

#### 6.4.1 Performance requirement

Mobile food carts shall be capable of maintaining an internal air temperature of 150 °F (65 °C) or greater in all enclosed hot food holding compartments. There shall be no thermal stratification in cabinet air temperature greater than 25 °F (14 °C).

#### 6.4.2 Test method

A “no-load” test shall be conducted to evaluate the ability of enclosed hot food storage compartments to maintain an adequate internal temperature without excessive thermal stratification. Prior to the start of the test, compartments shall be allowed to establish thermal equilibrium according to the manufacturer’s instructions. The test shall be evaluated within a test chamber maintained under the following conditions for the duration of the test:

– ambient temperature of 40 ± 3 °F (4 ± 2 °C); and

– no vertical temperature gradient exceeding 1.5 °F per ft (2.5 °C per m).

The equipment shall be preheated in accordance with the manufacturer’s operating instructions or shall be allowed to cycle on and off at least 2 full cycles.
Air temperatures within each empty compartment shall be monitored using remote temperature sensing devices (thermocouples) accurate to ± 1 °F (± 0.5 °C). The thermocouples shall be positioned as close as possible to the follow locations:

- **Thermocouple #1:** (when facing the front of the unit) 5 ± 0.25 in (127 ± 6 mm) from the left interior wall, 5 ± 0.25 in (127 ± 6 mm) down from the ceiling and centered front-to-back.

- **Thermocouple #2:** centered front-to-back, centered top-to-bottom, centered left-to-right.

- **Thermocouple #3:** (when facing the unit) 5 ± 0.25 in (127 ± 6 mm) from the right interior wall, 5 ± 0.25 in (127 ± 6 mm) above the internal floor of the unit, and centered front-to-back. Each thermocouple shall be at least 0.50 in (13 mm) from any heat conducting surface.

If interior spatial constraints prohibit the placement of thermocouples as specified above, alternate locations shall be selected to comply with the intent of the Standard.

NOTE – The intent is for the thermocouples to form a diagonal in the unit while being centered front to back.

The thermocouples shall be in thermal contact with the center of a 1.6 oz (45 g) cylindrical brass slug with a diameter and height of ¾ in (0.75 in, 19 mm). The brass slugs shall be placed at least ½ in (0.50 in, 13 mm) from any heat conducting surface.

The temperature at each thermocouple location shall be recorded at 5-min intervals over a period of 8 h.

### 6.4.3 Acceptance criteria

The temperature at each thermocouple location shall be 150 °F (65 °C) or greater for the duration of the test. At each 5-min interval, the difference between the temperatures recorded at any two thermocouple locations shall not exceed 25 °F (14 °C).

### 6.5 Open-top hot food holding equipment

#### 6.5.1 Performance requirement

Mobile food carts shall be capable of maintaining food in open-top hot food holding areas at a temperature of 140 °F (60 °C) or greater. This requirement applies to all non-enclosed hot food holding equipment such as bains-marie, steam tables, heat lamps, and similar equipment.

#### 6.5.2 Test method

A test shall be conducted to evaluate the ability of open-top hot food holding equipment to maintain the temperature of a test medium (water) at 140 °F (60 °C) or greater. The test shall be conducted in a test chamber in which the following conditions are maintained for the duration of the test:

- ambient temperature of 40 ± 3 °F (4 ± 1 °C); and

- no vertical temperature gradient exceeding 1.5 °F per ft (2.5 °C per m).

The test unit shall be preheated in accordance with the manufacturer’s operating instructions before loading the unit.

The test unit shall be loaded to the maximum capacity recommended by the manufacturer. If a unit is comprised of multiple, identical hot food holding wells that are individually heated and have separate controls, only a single well shall be loaded and tested. The remaining identical wells shall be kept empty.
and shall not be operational during the test.

The food display area shall be loaded with uncovered containers filled with 145 ± 2 °F (63 ± 1 °C) water to a level ¾ in (19 mm) below the upper rim and topped with a 3 mm (⅛ in) layer of vegetable oil to prevent evaporation. The containers shall be stainless steel pans, unless alternate type containers are provided as a component of the food cart.

The water temperature in each pan shall be monitored at the center of the pan, 1 in (25 mm) below the water surface using a remote sensing device (thermocouple) accurate to ± 1 °F (± 0.5 °C). The test shall be started upon verification that the water temperature at all thermocouple locations is between 140 - 145 °F (60 - 63 °C). The temperatures at each thermocouple location shall be recorded every 30 min over an 8-h test period.

6.5.3 Acceptance criteria

The temperature of the medium contained in open-top hot food holding equipment shall be 140 °F (60 °C) or greater throughout the 8-h test period.

6.6 Rethermalization equipment

6.6.1 Performance requirement

Rethermalization equipment shall be capable of elevating product temperature from 40 °F (4 °C) to 165 °F (74 °C) within a period of 120 min.

Reason: Temperature changed to be consistent with NSF/ANSI 4 - Rethermalization test.

6.6.2 Test method

A test shall be conducted to evaluate the ability of cooking and rethermalization equipment on a mobile food cart to adequately elevate the temperature of a test medium. The test shall determine the time required to elevate the internal temperature of a reproducible test medium from 40 °F (4 °C) to 165 °F (74 °C). The test shall be conducted within a test chamber maintained under the following conditions for the duration of the test:

– ambient temperature of 40 ± 3 °F (4 ± 1 °C), and
– no temperature gradient exceeding 1.5 °F per ft (2.5 °C per m).

The temperature of the unit shall be allowed to stabilize in the test chamber prior to loading the unit. Covered pans of media prepared in accordance with Annex A shall be loaded into the unit. The size and number of pans used shall be in accordance with the manufacturer's loading instructions. The test media shall be 38 ± 2 °F (4 ± 1 °C) when loaded in the test unit. The media temperature in each pan shall be recorded at 5-min intervals starting at the point at which the media in the respective pan reaches 41°F (5 °C). The test may be stopped if the media temperature at any thermocouple location has not reached 165 °F (74 °C) within 120 min.

6.6.3 Acceptance criteria

The time required for the media temperature at each thermocouple location to rise from 41°F (5 °C) to 165 °F (74 °C) shall not exceed 120 min.
Channel sections shall be shallow and wide enough to be easily cleanable, with cleanout holes.

Figure 1 – External corners or angles

Figure 2 – Single panel door
Figure 3 – Openings and rims – food zone

Figure 4 – Perforated false bottom
Figure 5 – Diverting shelves

Figure 6 – Interior fixed shelves

Figure 7 – Rack slides
clearance for cleaning

pipe slot in bottom shelf for service lines

open space

bottom shelf turned up full width to create pipe chase

Figure 8 – Pipe chases

drawers bins and drawer carriages shall be readily removable for cleaning

readily removable drawer pan assembly

Figure 9 – Drawers
Figure 10 – Drop handle assembly