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## NSF International Standard

# NSF/ANSI 2 - Food Equipment

## 5 Design and construction

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### 5.35 Food shields

#### 5.35.1 General requirements

*Rationale: General requirements section created so specific use food shield section numbers 5.35.2 through 5.35.9 do not need to be changed each time a new general requirement is added.*

~~Food shields covered under section 5.35 shall conform to the requirements in 5.35.1 through 5.35.6.~~

Portable and non-portable food shields shall conform to the general requirements in 5.35.1 and to the applicable specific use requirements of 5.35.2 through 5.35.7 5.35.9.

*Rationale: Clarifies intent that the requirements in 5.35 are applicable to both portable and hard mounted, non-portable food shields.*

~~5.35.1~~ **5.35.1.1** Food shield materials shall conform to the splash zone material requirements of 4.

~~5.35.2~~ **5.35.1.2** Food shields shall be designed and manufactured to conform to the splash zone requirements of 5.

~~5.35.3~~ **5.35.1.3** A food shield shall provide a barrier between the mouth of a customer and unpackaged food to minimize the potential of contamination of the food by a customer. A food shield in compliance with the applicable requirements herein shall be considered to be in compliance with the barrier requirement.

~~5.35.4~~ **5.35.1.4** If provided, lights, heating elements and other accessory fixtures shall be designed, manufactured and installed to conform to the splash zone requirements of 4 and 5

~~5.35.5~~ **5.35.1.5** Food shield glass shall conform to the requirements of ~~5.44.3~~ **5.43.3**. To protect against chipping, exposed edges of glass shall be protected by tight fitting channels, stripping materials, or other means such as rounding the edges of tempered glass.

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#### **5.35.6 5.35.1.6 End shield**

**5.35.1.6.1** A vertical barrier (~~end shield~~) shall be provided at each end of a foodshield. The vertical barrier shall be a minimum of 18 in (450 mm) deep (front-to-back) beginning at the bottom leading edge of the foodshield. The minimum height of the vertical barrier shall be equal to the overall height of the foodshield. The maximum distance from the bottom edge of the vertical barrier and counter top shall be 1.5 in (38 mm).

**5.35.6.1 5.35.1.6.2** A foodshield intended to be installed a maximum of 3 in (76 mm) from a building wall perpendicular to the foodshield is exempt from the requirements of ~~5.35.6 5.35.1.6.1~~ provided that the height of the building wall is not lower than the overall height of the foodshield. The manufacturer's specification sheet, brochure, installation instructions and/or shop drawings shall include these building wall and proximity requirements.

**5.35.7.4 5.35.1.7** The maximum horizontal open space in any plane between vertical, horizontal and angled adjacent food shield panels at post and framing member locations shall be 2 in (51 mm), excluding post and framing members that are:

- located in the open space between food shield panels; and

- parallel with the open space between food shield panels.

*Rationale: Open spaces between food shield panels may be present on all types of food shields. Moving the maximum open space stipulation to the general requirements section makes the requirement applicable to all food shields.*

*The term "horizontal" has been removed making the restriction on open space applicable to horizontal, vertical and angled food shield panels.*

*If specific criteria are met, post and framing members are considered to be a part of the barrier.*

**5.35.1.8** Food shields shall be designed and manufactured to minimize obstruction of a customer's view of the food.

*Rationale: This requirement has been moved from the section on self-service food shields because it is applicable to all food shields.*

#### **5.35.7 5.35.2 Self-service food shields (see figure 16A)**

**5.35.7.1 5.35.2.1** The maximum vertical distance between a counter top and the bottom leading edge of a food shield shall be 13 in (330 mm).

**5.35.7.2 5.35.2.2** The minimum horizontal distance between the front inside edge of displayed food and the bottom leading edge of a food shield shall be three-quarters of the maximum vertical distance (0.75 x maximum vertical distance) of ~~5.35.7.1 5.35.2.1~~ **5.35.2.1**.

*Rationale: Clarifies intent. The minimum horizontal distance is calculated from the actual vertical distance between a counter top and bottom leading edge of a food shield, not the maximum vertical distance of 13".*

**5.35.7.3 5.35.2.3** The sum of a food shield's protected horizontal plane (X) and its protected vertical plane (Y) shall be greater than or equal to 20 in (508 mm). Either X or Y may equal 0 in (0 mm).

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~~5.35.7.4 Food shields shall be designed and manufactured to minimize obstruction of a customer's view of the food.~~

*Rationale: This provision is applicable to all food shields and has been moved to the general requirements section as 5.35.1.8.*

~~5.35.7.5 The maximum horizontal distance between vertical, horizontal and angled panels at post and framing member locations shall be 2 in (51 mm).~~

*Rationale: This provision is applicable to all food shields and has been moved to the general requirements section as 5.35.1.7.*

**5.35.2.4** End shields may be angled from the bottom leading edge of the food shield towards the edge of displayed food a maximum of three-quarters of the vertical distance (0.75 x vertical distance) of 5.35.2.1.

*Rationale: Provides a partial exemption to prevent the end shield from obstructing the trayslide/tray rest on a buffet counter.*

#### ~~5.35.8 Food shields for use in elementary schools~~

~~5.35.8.1 Food shields designed and manufactured for use in elementary schools and other similar applications shall have full front panel(s) complying with 5.35.12 or be designated for use with wrapped or packaged serving portions.~~

*Rationale: Prohibition of a specific use falls under the authority of the local health official having jurisdiction. Since specific use is not a certification criteria, it does not belong as a design and construction stipulation. At present, no food shields are certified for use in elementary schools.*

#### ~~5.35.9~~ **5.35.3 Multiple tier food shields**

~~5.35.9.1~~ **5.35.3.1** A **bottom tier** self-service foodshield over the bottom tier shall conform to 5.35.7 **5.35.2**.

~~5.35.9.2~~ **5.35.3.2** All tiers above the bottom tier shall have a permanent attached label restricting use to wrapped or packaged serving portions.

**5.35.3.3** All tiers above the bottom tier are exempt from 5.35.1.6.

*Rationale: Provides an end shield exemption for tiers above the bottom tier. Displayed food on upper tiers must be pre-packaged. Therefore end shields are unnecessary.*

#### ~~5.35.10 Food shields for use on mobile buffet counters~~

~~Food shields for use on mobile buffet counters shall conform to 5.35.7.~~

*Rationale: Unnecessary requirement. Whether a counter on which a food shield is mounted is mobile or fixed has no impact on food shield requirements.*

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~~5.35.11~~ **5.35.4** ~~Food shields for use on cooking and/or carving station operations~~ **Vertical food shields** (see figure ~~16B~~)

*Rationale: A cooking or carving station may be located behind a self-service or cafeteria style food shield. The term vertical food shield more accurately describes the food shield shown in figure 16A.*

~~5.35.11.1~~ **5.35.4.1** ~~Food shields for use on cooking and/or carving stations~~ **Vertical food shields** shall include a vertical ~~provide a~~ barrier to a minimum height of 24 in (610 mm) above the counter top but not less than 60 in (1524 mm) above the finished floor. ~~The manufacturer's product information, installation instructions and/or shop drawings shall include guidelines for meeting the minimum height requirements.~~

*Rationale: For certification purposes, it is assumed that a vertical food shield will be mounted to a counter top that is 36" above the finished floor. In the event a VFS is mounted to a surface less than 34" above the finished floor, the 60" minimum height requirement shall prevail. Requiring a manufacturer to include provisions for meeting the minimum height requirements in the product documentation communicates the intent to the installer and end user.*

~~5.35.11.2~~ **5.35.4.2** The maximum vertical distance from the bottom edge of the food shield and counter top shall be 6 in (152 mm).

~~5.35.11.3~~ **5.35.4.3** The minimum horizontal distance between the front inside edge of displayed food and the front (customer side) face of the food shield shall be three-quarters of the vertical distance (0.75 x vertical distance) of ~~5.35.11.2~~ **5.35.4.2**.

**5.35.4.4** End shields shall comply with 5.35.1.6 except the minimum depth (front-to-back) may be reduced to 12 in (305 mm).

*Rationale: Minimum 12" end shields on a vertical food shield provide reasonable protection to unpackaged food.*

~~5.35.12~~ **5.35.5** **Food shields for use on cafeteria counters** (see figure 16C)

~~5.35.12.1~~ **5.35.5.1** The sum of a food shield's protected horizontal plane (X) and its protected vertical plane (Y) shall be greater than or equal to 24 in (610 mm). ~~When (X) equals 0 in (0 mm), (Y) shall be a minimum of 60 in (1524 mm). When Y meets the height requirement of 5.35.4.1, no top glass is required.~~

*Rationale: Vector intercept diagrams indicate adequate protection of food is maintained when the compliance criteria is reduced from 32" to 24". Clarifies intent and establishes a top glass exemption when minimum height requirements are met.*

~~5.35.12.2~~ **5.35.5.2** The maximum distance from the bottom edge of the front (vertical) glass and counter top shall be 1.5 in (38 mm).

~~5.35.12.3~~ **5.35.5.3** The ~~maximum distance~~ **open space** between the vertical glass and horizontal glass **food shield panels** is 0.75 in (19 mm).

*Rationale: Terminology revised to match 5.35.1.6.1.*

~~5.35.12.4~~ **5.35.5.4** The minimum horizontal distance between the front inside edge of displayed food and the bottom leading edge of a food shield is 1.5 in (38 mm).

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#### **5.35.6 Counter top, movable, self-service food shields (see figure 16D)**

**5.35.6.1** The maximum vertical distance between the counter top and bottom leading edge of a food shield shall be 18 in (450 mm).

**5.35.6.2** The sum of a food shield's protected horizontal plane (X) and its protected vertical plane (Y) shall be greater than or equal to 20 in (508 mm). Either X or Y may equal 0 in (0 mm).

**5.35.6.3** End shields may be angled from the bottom leading edge of the food shield towards the food a maximum of 8 in (203 mm).

*Rationale: New requirements for counter top, portable, self-service food shields.*

**5.35.6.4** The manufacturer's product information, installation instructions and/or shop drawings shall include a statement, illustration or diagram indicating the minimum horizontal distance from displayed food and the bottom leading edge of a food shield is 8 in (203 mm).

*Rationale: This informative provision is intended to communicate minimum set-back requirements to installers, operators and regulators.*

#### **5.35.7 Self-service food shields for use on movable, counter top equipment (see figure 16E)**

**5.35.7.1** The maximum vertical distance between the food display area and bottom leading edge of a food shield shall be 18 in (450 mm).

**5.35.7.2** The minimum horizontal distance between the front edge of the food display area and the bottom leading edge of a food shield shall be 60 percent of the vertical distance ( $0.6 \times \text{vertical distance}$ ) of 5.35.7.1.

**5.35.7.3** The sum of a food shield's protected horizontal plane (X) and its protected vertical plane (Y) shall be greater than or equal to 18 in (450 mm). Either X or Y may equal 0 in (0 mm).

**5.35.7.4** A vertical barrier shall be provided at each end of the foodshield. The vertical barrier shall extend from the bottom leading edge of the food shield a minimum of 18" (450 mm) deep (front-to-back) or to the back of the food display area, whichever is less. The minimum height of the vertical barrier shall be equal to the overall height of the foodshield. The maximum distance from the bottom edge of the vertical barrier and food display area shall be 1.5 in (38 mm).

**5.35.7.4.1** End shields may be angled from the bottom leading edge of the food shield to the top leading corner of the food display area.

*Rationale: New requirements for self-service food shields when provided on portable and/or counter top equipment.*

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**5.35.8 Vertical food shields for use on portable and counter top equipment** (see figure 16F)

**5.35.8.1** Vertical food shields shall provide a barrier to a minimum height of 30 in (762 mm) above the counter top.

**5.35.8.2** The maximum vertical distance from the bottom edge of the food shield and food display area shall be 6 in (152 mm).

**5.35.8.3** The minimum horizontal distance between the front inside edge of displayed food and the front (customer side) face of the food shield shall be three-quarters of the vertical distance ( $0.75 \times$  vertical distance) of 5.35.10.2.

**5.35.8.4** End shields shall comply with 5.35.1.6 except the minimum depth (front-to-back) may be reduced to 6 in (152 mm).

*Rationale: New requirements for vertical food shields when provided on portable and/or counter top equipment.*

**5.35.9 Food shields for use on roller grills** (see figure 16G)

**5.35.9.1** Food shields for use on roller grills are exempt from 5.35.1.3, 5.35.1.6 and 5.35.2.

**5.35.9.2** The food shield shall completely cover the cooking surface and shall extend a minimum of 1.5 in (38 mm) beyond the cooking surface on all sides.

**5.35.9.3** The food shield shall be no higher than 18 in (450 mm) above the cooking surface.

*Rationale: New section added to address special requirements for roller grill type equipment commonly found in C-store, self-serve applications. When placed on a countertop, the heated rollers are typically between 42" and 54" above the floor making current self-serve food shield requirements ineffective. Because the surface of the food is maintained at a temperature above which microbial organisms can survive, the intent of these requirements is to protect food from dirt and debris falling on the food.*

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## NSF/ANSI 170 - 2010

~~**3.79.2 carving station food shield:** A barrier separating a customer from unpackaged meats that are carved on demand, plated and delivered to a customer.~~

~~**3.79.3 cooking station food shield:** A barrier separating a customer from a cooking station. Food may be plated and delivered to a customer at this location.~~

**3.79.x vertical food shield:** A non-self-serve vertical, or near vertical barrier separating a customer from unpackaged food.

*Rationale: Proposed changes to NSF/ANSI 2, Section 5.35, Food shields changes the terms carving station food shield and cooking station food shield to the more generic term, vertical food shield.*

**3.79.xx counter top, portable, self-service food shields:** A counter top, free-standing barrier intended protect unpackaged food where a customer has access to the food.

*Rationale: Proposed changes to NSF/ANSI 2, Section 5.35, Food shields adds requirements for self-service food shields mounted to portable and counter top equipment.*

**3.79.xxx self-service food shield for use on portable and counter top equipment:** A barrier attached to counter top equipment that is holding or displaying unpackaged food where a customer has access to the food.

*Rationale: Proposed changes to NSF/ANSI 2, Section 5.35, Food shields adds requirements for self-service food shields mounted to portable and counter top equipment.*