

**5.36 Food shields****5.36.1 General requirements**

Portable and non-portable food shields shall conform to the general requirements in Section 5.36.1 and to the applicable specific use requirements of Sections 5.36.2 through 5.36.8.

**5.36.1.1** Food shield materials shall conform to the splash zone material requirements of Section 4.

**5.36.1.2** Food shields shall be designed and manufactured to conform to the splash zone requirements of Section 5.

**5.36.1.3** 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.

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

**5.36.1.5** Food shield glass shall conform to the requirements of NSF/ANSI 51. 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.

**5.36.1.6 End shield**

**5.36.1.6.1** A vertical barrier shall be provided at each end of a food shield. The vertical barrier shall be a minimum of 18 in (457 mm) deep (front-to-back) beginning at the bottom leading edge of the food shield. The minimum height of the vertical barrier shall be equal to the overall height of the food shield. The maximum distance from the bottom edge of the vertical barrier and counter top shall be 1.5 in (38 mm).

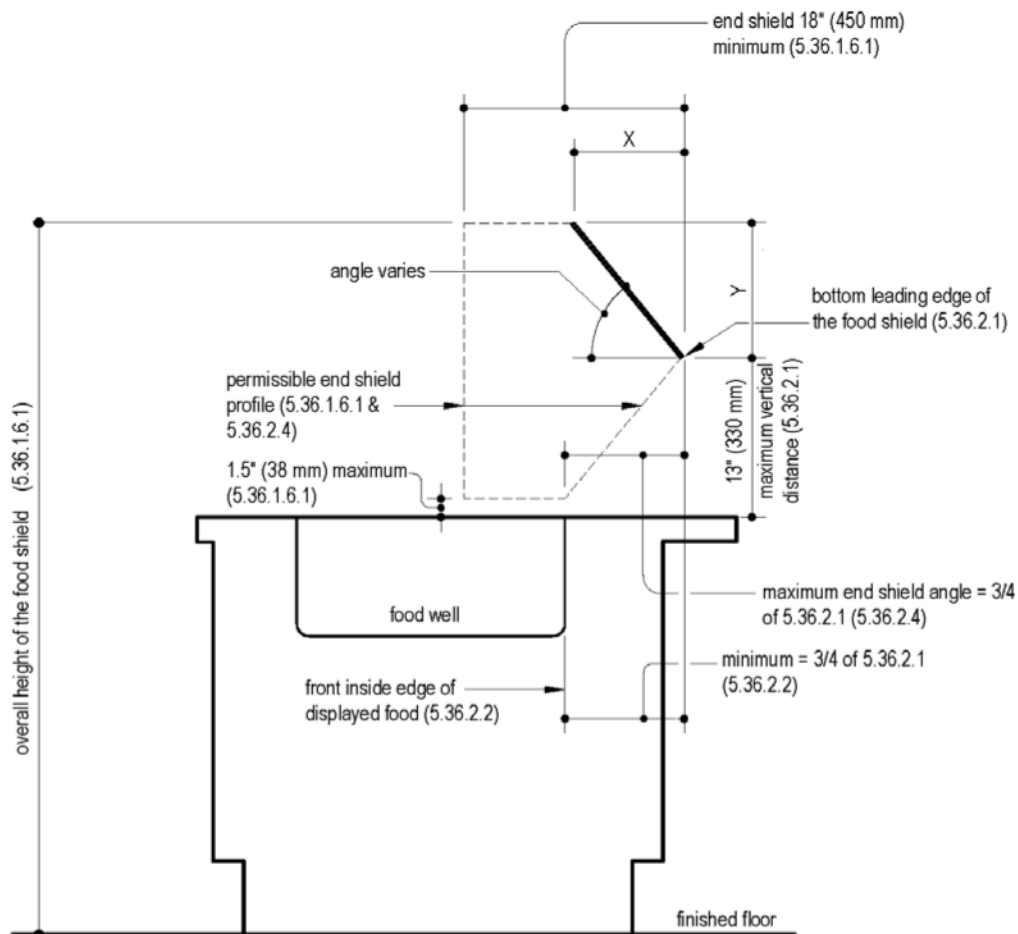
**5.36.1.6.2** A food shield intended to be installed a maximum of 3 in (76 mm) from a building wall perpendicular to the food shield is exempt from the requirements of Section 5.36.1.6.1 provided that the height of the building wall is not lower than the overall height of the food shield. The manufacturer's specification sheet, brochure, installation instructions, and/or shop drawings shall include these building wall and proximity requirements.

- 5.36.1.7** The maximum open space in any plane between adjacent food shield panels 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.
- 5.36.1.8** Food shields shall be designed and manufactured to minimize obstruction of a customer's view of the food.
- 5.36.2 Self-service food shields (see Figure 16a)**
- 5.36.2.1** The maximum vertical distance between a counter top and the bottom leading edge of a food shield shall be 13 in (330 mm).
- 5.36.2.2** 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 vertical distance ( $0.75 \times$  vertical distance) of Section 5.36.2.1.
- 5.36.2.3** 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).
- 5.36.2.4** End shields may be angled from the bottom leading edge of the food shield towards the edge of displayed food a maximum of  $3/4$  of the vertical distance ( $0.75 \times$  vertical distance) of Section 5.36.2.1.
- 5.36.3 Multiple tier food shields**
- 5.36.3.1** A bottom tier self-service food shield shall conform to Section 5.36.2.
- 5.36.3.2** All tiers above the bottom tier shall have a permanent attached label restricting use to wrapped or packaged serving portions.
- 5.36.3.3** All tiers above the bottom tier are exempt from Section 5.36.1.6.
- 5.36.4 Vertical food shields (see Figure 16b)**
- 5.36.4.1** Vertical food shields shall provide a barrier to a minimum height of 60 in (1,524 mm) above the finished floor. The manufacturer's product information, installation instructions and/or shop drawings shall include guidelines for meeting the 60 in (1,524 mm) minimum height requirement.
- 5.36.4.2** The maximum vertical distance from the bottom edge of the food shield and counter top shall be 6 in (152 mm).

- 5.36.4.3** The minimum horizontal distance between the front inside edge of displayed food and the front (customer side) face of the food shield shall be  $\frac{3}{4}$  of the vertical distance ( $0.75 \times$  vertical distance) of Section 5.36.4.2.
- 5.36.4.4** End shields shall comply with Section 5.36.1.6 except the minimum depth (front-to-back) may be reduced to 12 in (305 mm).
- 5.36.5 Food shields for use on cafeteria counters (see Figure 16c)**
- 5.36.5.1** 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 Y meets the height requirement of Section 5.36.4.1,
- 5.36.5.2** The maximum distance from the bottom edge of the front (vertical) glass and counter top shall be 1.5 in (38 mm).
- 5.36.5.3** The maximum open space between vertical and horizontal food shield panels is 0.75 in (19 mm).
- 5.36.5.4** 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).
- 5.36.6 Free standing food shields for use with counter top equipment (see Figures 16d and 16e)**
- 5.36.6.1** The maximum vertical distance between the finished floor and the bottom leading edge of a food shield shall be 52 in (1,321 mm).
- 5.36.6.2** The minimum horizontal distance between the front of counter top equipment and the bottom leading edge of a food shield shall be 7 in (178 mm).
- 5.36.6.3** 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).
- 5.36.6.4** End shields may be angled from the bottom leading edge of the food shield towards the top front corner of counter top equipment a maximum of 7 in (178 mm).
- 5.36.6.5** The manufacturer's product information, installation instructions and/or shop drawings shall include a statement, illustration or diagram indicating the compliance criteria in Sections 5.36.6.1 and 5.36.6.2.

- 5.36.7 Self-service food shields attached to counter top equipment** (see Figure 16f)
- 5.36.7.1** The maximum vertical distance between the finished floor and the bottom leading edge of a food shield shall be 52 in (1,321 mm).
- 5.36.7.2** The maximum vertical distance between the food display area and bottom leading edge of a food shield shall be 15 in (381 mm).
- 5.36.7.3** The minimum horizontal distance between the front of the food display area and the bottom leading edge of a food shield shall be 7 in (178 mm).
- 5.36.7.4** 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).
- 5.36.7.5** End shields may be angled from the bottom leading edge of the food shield towards the top front corner of the food display area a maximum of 7 in (178 mm).
- 5.36.7.6** The manufacturer's product information, installation instructions and/or shop drawings shall include a statement, illustration or diagram indicating the compliance criteria in Sections 5.36.7.1, 5.36.7.2 and 5.36.7.3.
- 5.36.8 Vertical food shields attached to counter top equipment** (see Figure 16g)
- 5.36.8.1** Vertical food shields shall provide a barrier to a minimum height of 30 in (762 mm) above the counter top.
- 5.36.8.2** The maximum vertical distance from the bottom edge of the food shield and food display area shall be 6 in (152 mm).
- 5.36.8.3** The minimum horizontal distance between the front inside edge of displayed food and the front (customer side) face of the food shield shall be 3/4 of the vertical distance ( $0.75 \times$  vertical distance) of Section 5.36.8.2.
- 5.36.8.4** End shields shall comply with Section 5.36.1.6 except the minimum depth (front-to-back) may be reduced to 6 in (152 mm).

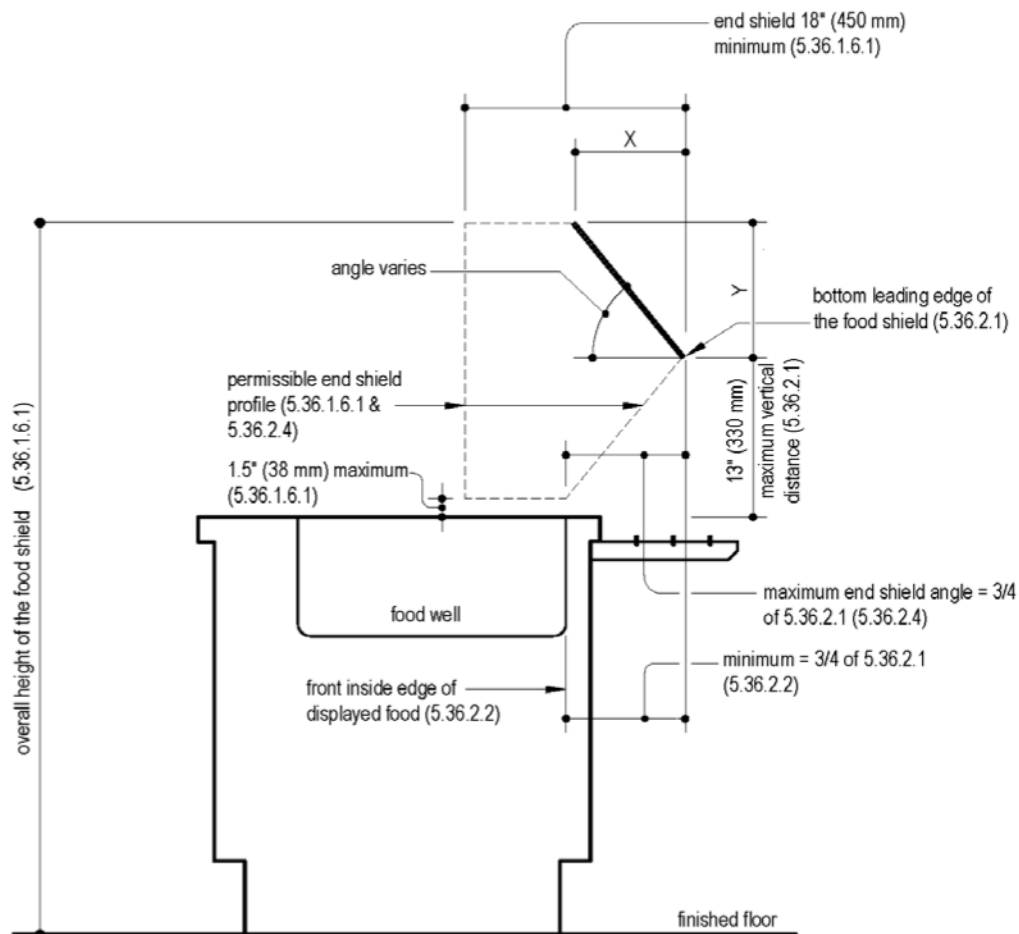
**Compliance criteria:** (5.36.2.3):  $X + Y \geq 20"$  (508 mm)  
 Either X or Y may = 0" (0 mm)



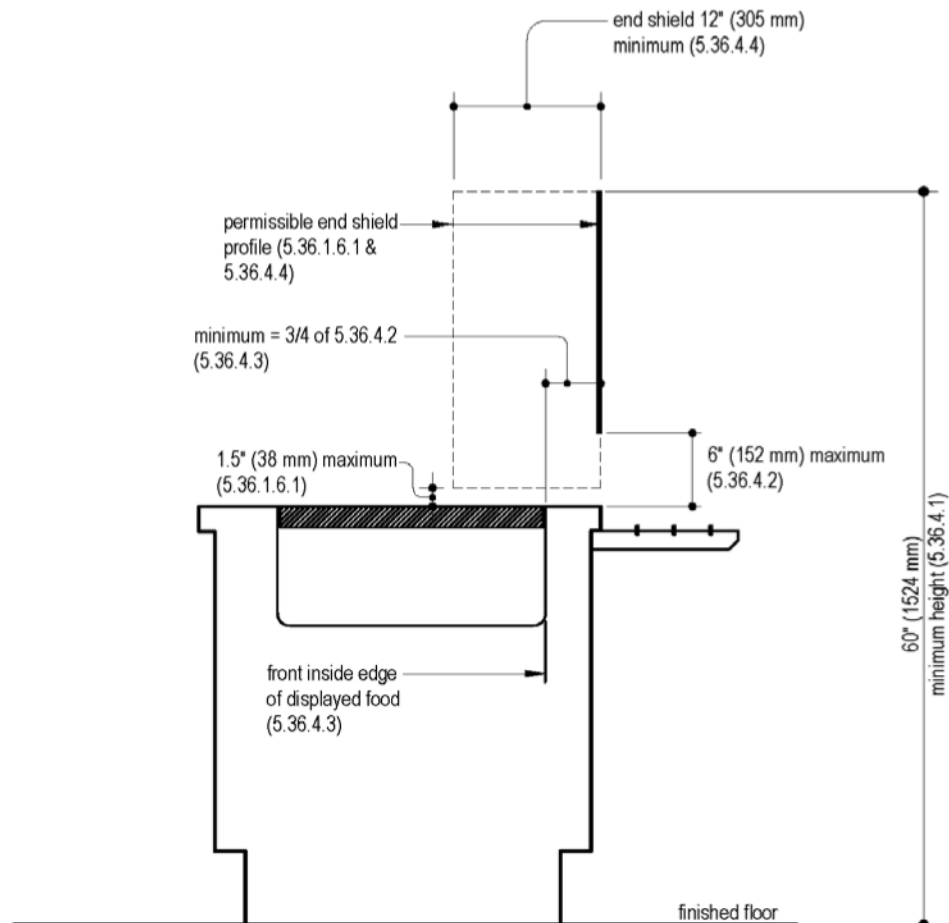
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**Figure 16a**  
**Self-service food shield with tray rest**

**Compliance criteria: (5.36.2.3):**  $X + Y \geq 20"$  (508 mm)  
 Either X or Y may = 0" (0 mm)



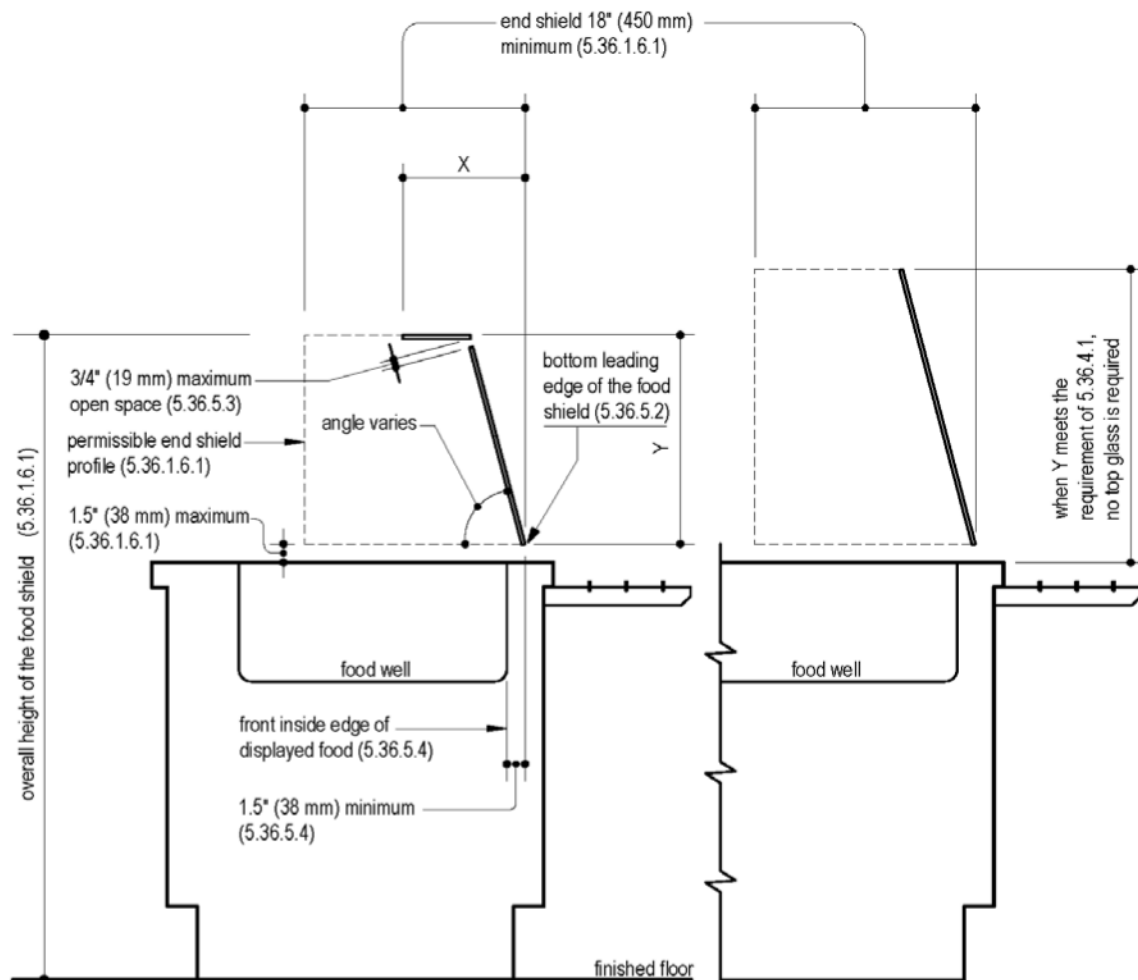
**Figure 16a**  
**Self-service food shield with tray slide**



**Figure 16b**  
**Vertical food shield**

**Compliance criteria:** (5.36.5.1):  $X + Y \geq 24"$  (610 mm)

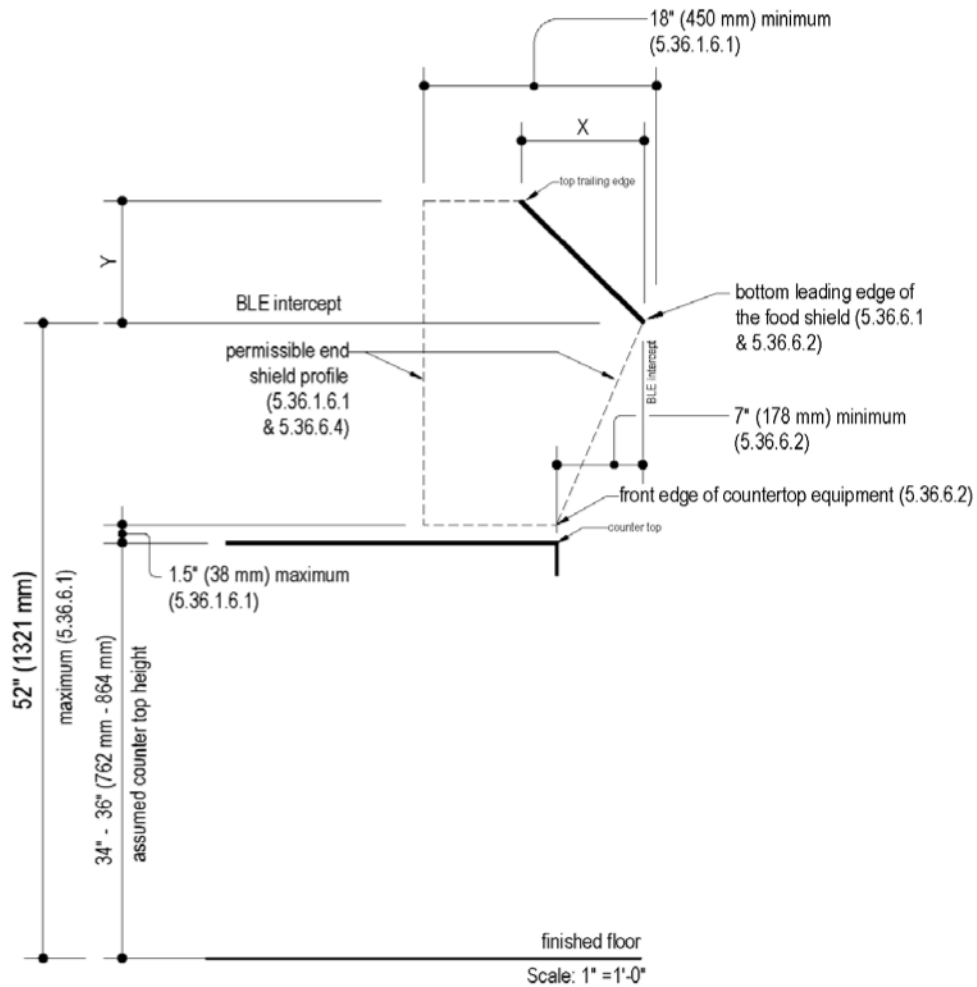
When Y meets the height requirement of 5.36.4.1, no top glass is required.



**Figure 16c**  
**Cafeteria food shield**

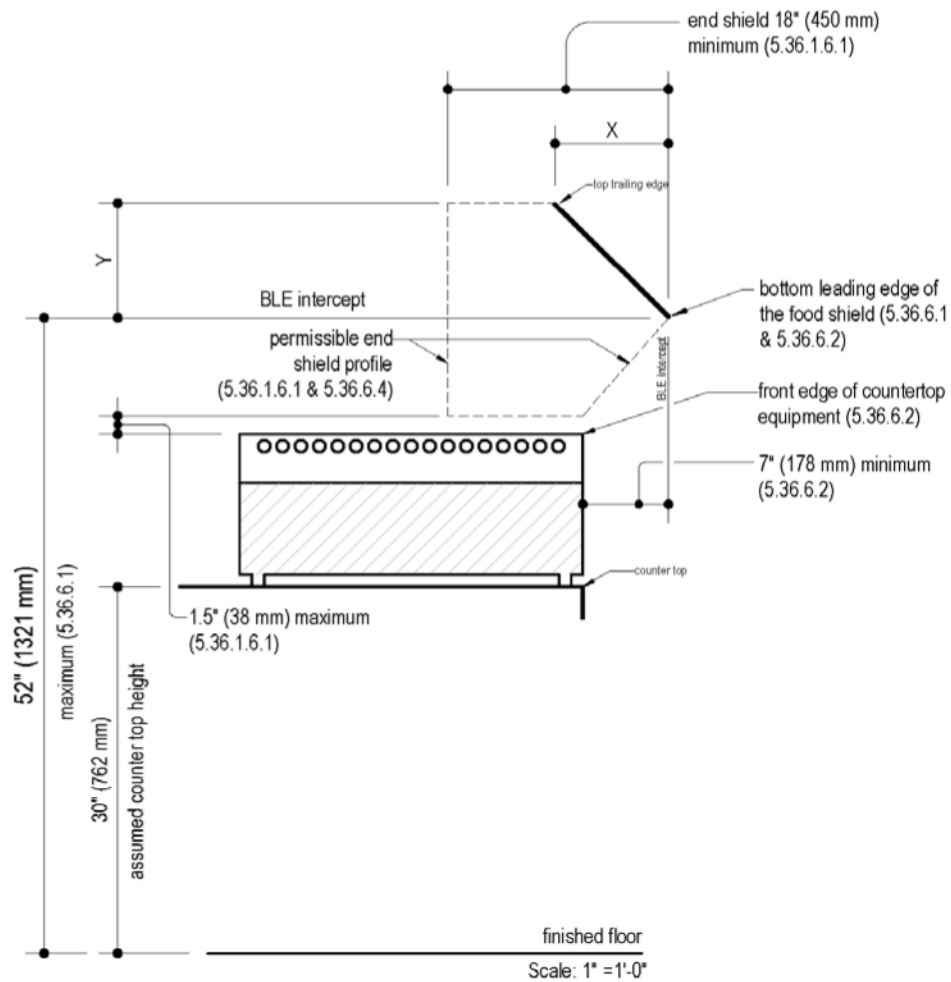


**Compliance criteria: (5.36.6.3):  $X + Y \geq 20"$  (508 mm)**  
 Either X or Y may = 0" (0 mm)



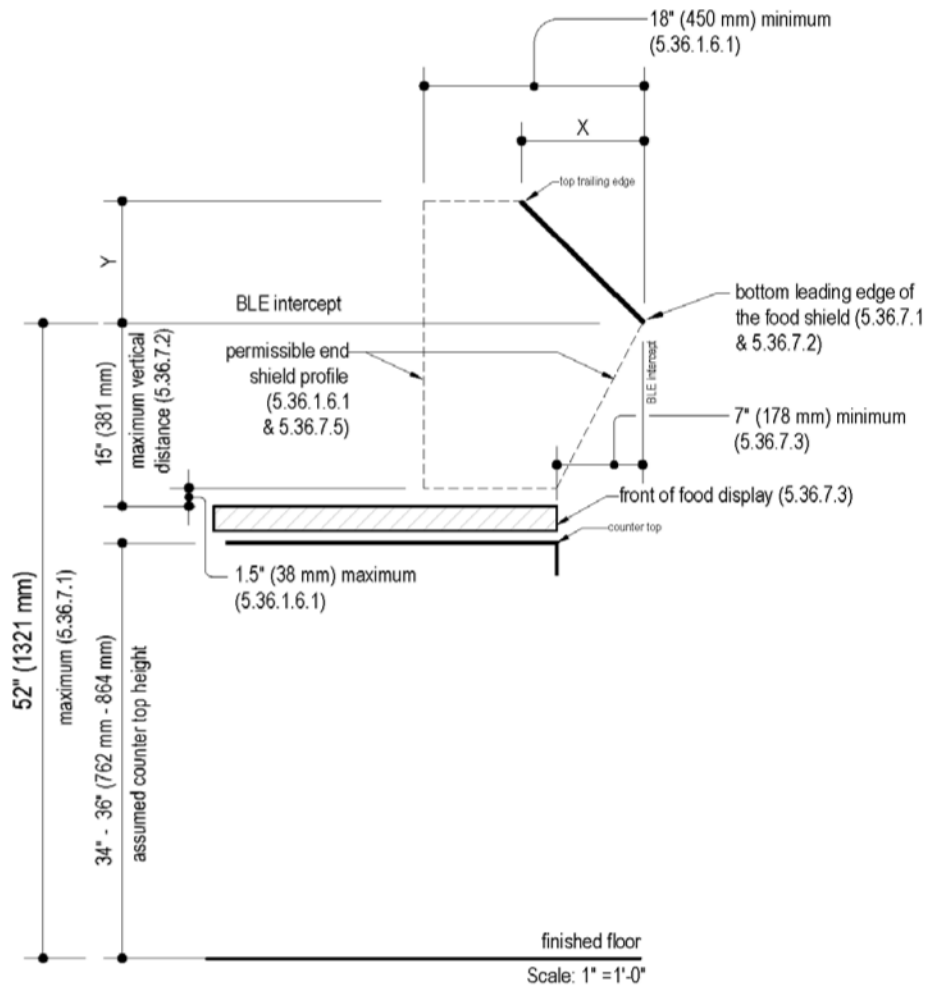
**Figure 16d**  
**Free-standing food shield for use with countertop equipment**

**Compliance criteria:** (5.36.6.3):  $X + Y \geq 20"$  (508 mm)  
 Either X or Y may = 0" (0 mm)

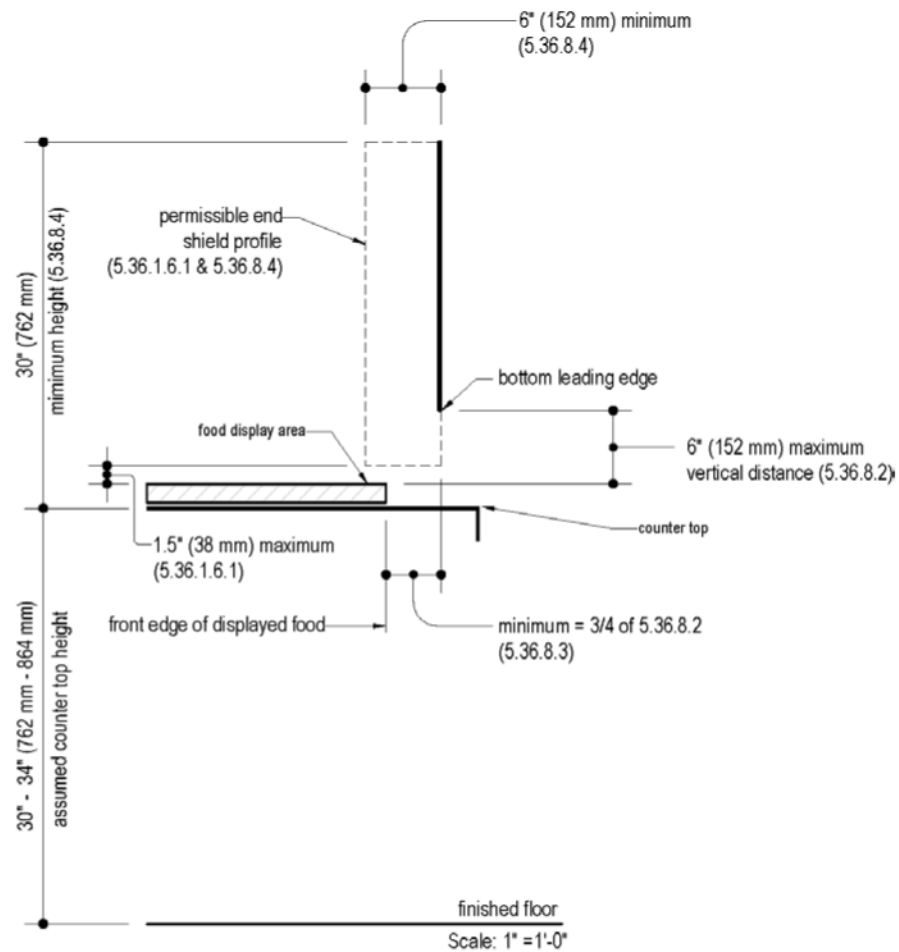


**Figure 16e**  
**Free-standing food shield for use with roller-grill-type countertop equipment**

**Compliance criteria: (5.36.7.4):  $X + Y \geq 20"$  (508 mm)**  
 Either X or Y may = 0" (0 mm)



**Figure 16f**  
**Self-service food shield attached to countertop equipment**



**Figure 16g**  
**Vertical food shield for use on portable and countertop equipment**

## Informative Annex 2

### Food shield requirements criteria

*The information contained in this Annex is not part of this American National Standard (ANS) and has not been processed in accordance with ANSI's requirements for an ANS. Therefore, 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.*

In the execution of its assignment to update the food shield section, the task group (TG) was unable to locate the science on which previous versions and compliance criteria were based. Therefore the TG opted to establish certain criteria based on scientific information presently available. The TG established three fundamental points from which it would proceed:

- no food shield is 100% effective in protecting unpackaged food. Therefore, the best level of protection is less than 100%;
- food shield requirements must permit a customer reasonable access to the food; and
- food shield requirements must be attainable using technology, materials, methods and components currently available without favoring one over another.

Having agreed on these points, the TG began establishing science based criteria.

#### Issue A: Vector based compliance criteria verses formula based compliance criteria

The TG agreed that:

- the use of formula based compliance criteria (FBCC) was simpler and more user friendly than vector based compliance criteria (VBCC); and
- the use of VBCC provides positive confirmation that a food shield adequately interrupts the direct line between unpackaged food and the mouth of a customer.

The TG agreed that it would use vectors from which formulas would be developed to determine compliance.

#### Issue B: Establishing vertical (height above the floor) vector origination points

Prior to the 2002 version of NSF/ANSI 2, mouth heights of 54 in and 60 in above finished floor (AFF) were used as vertical vector origination points. The TG was unable to locate any science on which these mouth height elevations AFF were based.

Research revealed Anthropometrical data published by the Federal Aviation Administration (FAA). This data indicates that 90% of adults are between 60 in and 74 in tall. By subtracting 6 in (top of head to mouth) from each height, vertical vector origination points of 54 in and 68 in were agreed on.

**Issue C: Establishing a horizontal (distance away from the food shield) vector origination point**

The 2002 and 2005 versions of Standard 2 do not consider the effect of a trayslide in determining compliance criteria for food shields. By creating dozens of drawings, the TG demonstrated that the presence of a trayslide does affect vector intercepts between unpackaged food and the mouth of a customer. From these findings, the TG opted to include a trayslide in determining horizontal vector origination point. The TG agreed that:

- the most common trayslide presently in use is 12 in wide.
- a customer standing at counter with a trayslide, leans in to access the food.

The TG agreed that it would use a setback of 10 in from the customer edge of the counter to the vector origination point.

Using the science based criteria established above, the TG developed formulas using vector intercepts to confirm that a food shield is properly sized and positioned to provide reasonable protection to unpackaged food from unintentional contamination by a customer.

## Informative Annex 3

### Prepared by the Standard 2 Task Group on Food Shields

*The information contained in this Annex is not part of this American National Standard (ANS) and has not been processed in accordance with ANSI's requirements for an ANS. Therefore, 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.*

The purpose of this Annex is to provide a flexible guideline for determining when end shields covered in Section 5.36.1.5 may be omitted. This Annex is applicable to Section 5.36 Food shields:

- intended to be hard mounted (nonportable) to a serving or buffet counter; and
- configured and positioned as they will be installed on the serving or buffet counter.

In the execution of its assignment to update Section 5.36 of NSF/ANSI 2 – 2009, the task group on food shields (TG) found that many food shield installations are a series of food shields (FS) placed side-by-side on a serving or buffet counter. These FS may all be of similar type or may be a series of different types of FS (i.e., self-service, cafeteria, multiple tier, etc.). A series of FS installed on a serving or buffet counter may be categorized in two ways:

- common post (see Example A);
- or individual post (see Examples B & C).

In a common post FS, a post or set of posts are shared by the FS on both sides of the post. Food shields that include common posts may be considered to be a single food shield assembly even if each section is a different type. In a common post FS there is no separation between FS sections other than open spaces at post and framing members.

An individual post FS is equipped with a post or set of posts at each end. Individual post FS may be installed close together with little separation (see Example C), or may be widely spaced (see Example B).

Section 5.36.1.6 requires that an end shield be provided at each end of a food shield. On a common post FS, one end shield at each end of the FS assembly is required (see Example A). For example, a buffet or serving counter with a 6-section common post FS assembly would need only two end shields.

On individual post FS, a pair of end shields are required for each FS. On a buffet or serving counter with six individual post FS a total of twelve end shields would be required.

Requiring an end shield at both ends of every FS unnecessarily clutters a buffet or serving counter and may interfere with the operation of the counter. Also, when individual post food shields are installed in close proximity, the space between the two adjacent end shields may be too small to permit thorough cleaning of the end shield panels.

In such instances, the TG established recommended guidelines under which some end shields may be omitted. On buffet or serving counters, some end shields may be omitted provided that at least one of the following criteria is met:

- the open space between adjacent food shield panels does not exceed 2 in (51 mm); or
- the open space between adjacent food shield posts does not exceed 2 in (51 mm); or
- the open space between a post and an adjacent food shield panel does not exceed 2 in (51 mm).

Section 5.36.1.6.2 provides an exemption to the end shield requirement when a food shield is installed a maximum of 3 in from a building wall (see Example D) provided that the height of the building wall is not lower than the overall height of the food shield. This means that the height of the building wall cannot be shorter than the food shield at any point along the full depth of the food shield. A building wall that matches the profile of the food shield meets this guideline. In addition, the building wall must extend at least to the bottom leading edge of the food shield.

In some installations, a food shield is installed adjacent to a permanent, fixed piece of equipment. Under certain conditions, an end shield may be omitted (see Example E) provided that:

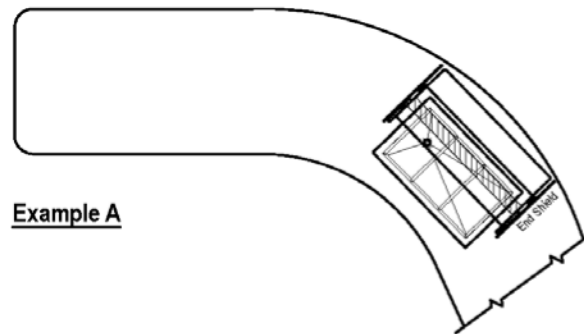
- the food shield is installed a maximum of 3 in from a fixed, nonmobile, nonportable piece of equipment;
- the height of the equipment is not shorter than the food shield at any point along the full depth of the food shield; and
- the adjacent equipment extends at least to the bottom leading edge of the food shield.

When evaluating whether or not an end shield may be omitted, some common sense is necessary. On curved counters or counters with turns, offsets or angled sections, additional end shield may be needed even if one of the above conditions has been met. On such counters, odd-shaped or pie-shaped openings between FS or angled FS panels may require intermediate end shield panels in order to provide adequate protection for unpackaged food.

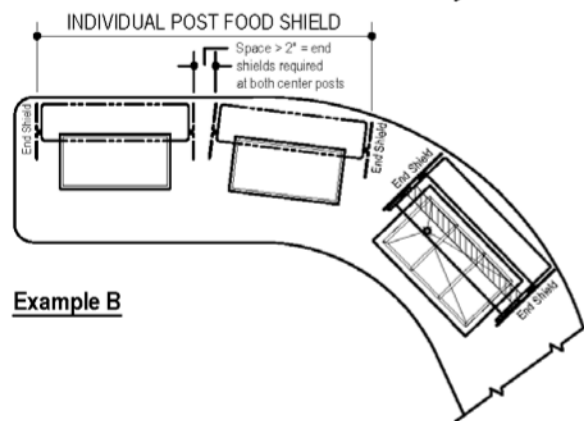
**If the level of protection without an end shield is questionable, do not omit the end shield.**

*The NSF/ANSI 2 Task Group on Food Shields recommends that manufacturers include this End Shield Requirements Criteria Annex with installation instructions and/or shop drawings.*

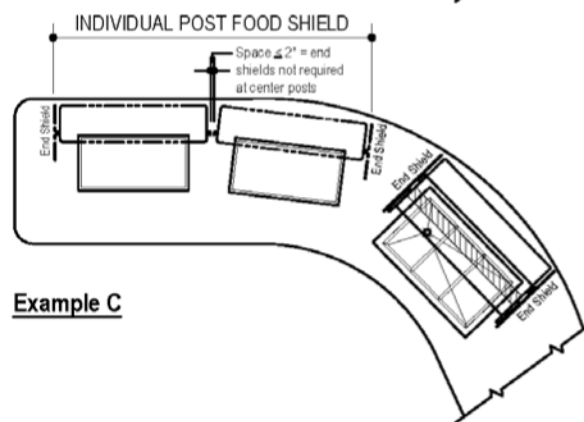




**Example A**

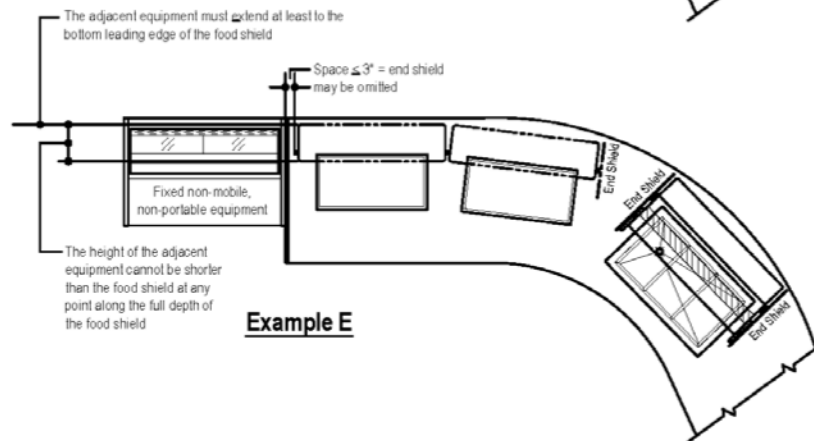
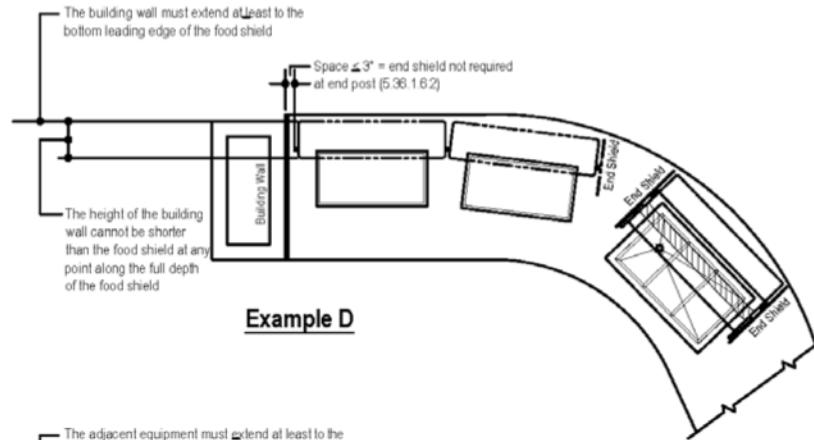


**Example B**



**Example C**

### End shield requirements criteria



### End shield requirements criteria