

## Chapter 7. Communication Elements and Features

### 701 General

**701.1 Scope.** Communications features and elements required to be accessible by the scoping provisions adopted by the administrative authority shall comply with the applicable provisions of this chapter.

### 702 Alarms

**702.1 General.** Accessible fire alarm systems shall have audible alarms complying with Section 702.2, and visual alarms complying with Section 702.3.

**EXCEPTION:** Fire alarm systems in medical care facilities shall be permitted to be modified to suit standard health care alarm practice.

**702.2 Audible Alarms.** Audible alarms shall produce a sound that exceeds the average ambient sound level in the room or space by at least 15 dBA or exceeds any maximum sound level with a duration of 60 seconds by 5 dBA, whichever is louder. The signal shall consist of a “three pulse” temporal pattern complying with ANSI S3.41, where evacuation of the building is required. Sound levels for alarm signals shall not exceed 120 dBA.

**702.3 Visual Alarms.** Visual alarms shall comply with Sections 702.3.1 through 702.3.6.

#### 702.3.1 Light Pulse Characteristics.

**702.3.1.1 Type.** The lamp shall be a xenon strobe type or equivalent.

**702.3.1.2 Color.** The color shall be clear or nominal white.

**702.3.1.3 Flash Rate.** The flash rate for an individual appliance shall be 1 Hz minimum and 2 Hz maximum over its rated voltage range.

**702.3.1.4 Pulse Duration.** The maximum pulse duration shall be two-tenths of one second with a maximum duty cycle of 40 percent. The pulse duration is defined as the time interval between initial and final points of 10 percent of maximum signal.

**702.3.2 Dispersion.** Light dispersion of wall-mounted appliances shall comply with Table

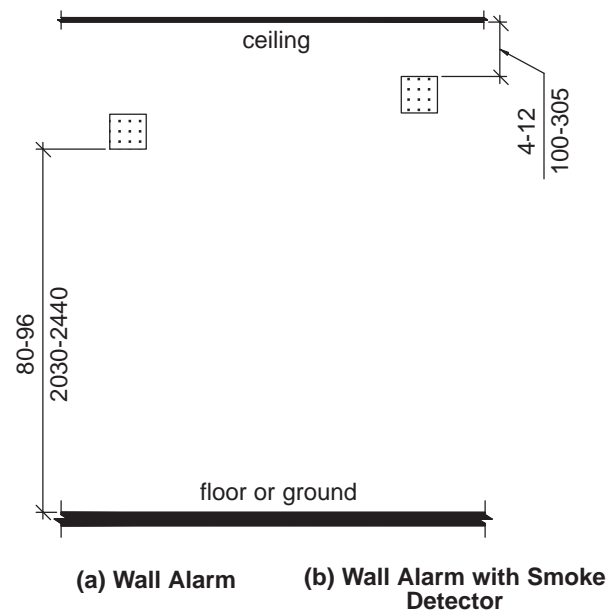
702.3.2(a). Light dispersion of ceiling-mounted appliances shall comply with Table 702.3.2(b).

**702.3.3 Location.** Appliances shall comply with Section 702.3.3.1 or 702.3.3.2.

**EXCEPTION:** Appliances in sleeping rooms shall comply with Section 702.3.6.

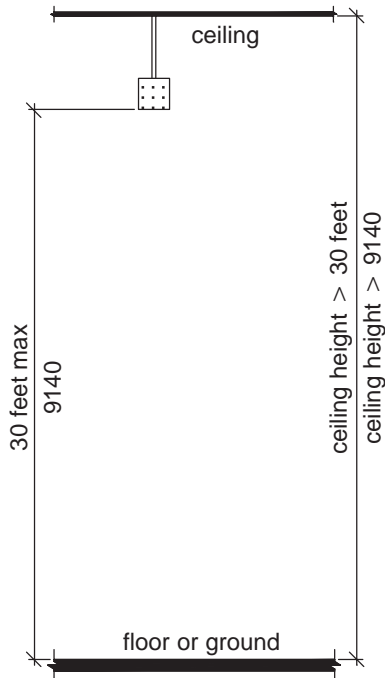
**702.3.3.1 Wall-Mounted Appliances.** Appliances shall be 80 inches (2030 mm) minimum and 96 inches (2440 mm) maximum above the floor or ground, measured to the bottom of the appliance.

**EXCEPTION:** Wall-mounted appliances which are part of a smoke detector shall be 4 inches (100 mm) minimum and 12 inches (305 mm) maximum below the ceiling, measured to the top of the smoke detector.



**Fig. 702.3.3.1**  
Location of Wall-Mounted Appliances

**702.3.3.2 Ceiling-Mounted Appliances.** Appliances shall be on the ceiling. Where ceiling height exceeds 30 feet (9145 mm), appliances shall be suspended from the ceiling to a height of 30 feet (9145 mm) maximum above the floor or ground.



**Fig. 702.3.3.2**  
**Location of Ceiling-Mounted Appliances**

**702.3.4 Spacing and Intensity.** Spacing and minimum effective intensity for appliances shall comply with Sections 702.3.4.1 through 702.3.4.3.

**EXCEPTIONS:**

1. Appliances in corridors shall comply with Section 702.3.5.
2. Appliances in sleeping rooms shall comply with Section 702.3.6.

**702.3.4.1 General.** The signal provided by the appliance or appliances shall be visible either by direct view or by reflection from all parts of the covered area. Multiple appliances within an area are permitted only where size, shape, building construction, or furnishings prohibit total coverage by a single appliance. Where multiple appliances are provided in a single area to provide total coverage, the appliances shall comply with one of the following:

- (1) A maximum of 2 appliances on opposite walls;
- (2) The appliances shall have synchronized flashes; or
- (3) In rooms 80 feet by 80 feet (24 m by 24 m) or greater in size, more than two appliances such that all appliances in any 135-degree field

of view are spaced a minimum of 55 feet (17 m) from each other.

**702.3.4.2 Wall-Mounted Appliances.** Spacing and minimum effective intensity for wall-mounted appliances shall comply with Table 702.3.4.2, provided the appliance is at the midpoint of the longest side of the area served. Where the appliance is not at the midpoint, the minimum effective intensity shall be based on a maximum area of coverage equal to the distance to the opposite side of the area served, or double the distance to the farthest adjacent side of the area served, whichever is greater.

**702.3.4.3 Ceiling-Mounted Appliances.** Spacing and minimum effective intensity for ceiling-mounted appliances shall comply with Table 702.3.4.3, provided the appliance is the centerpoint of the area served. Where the appliance is not at the centerpoint, the minimum effective intensity shall be based on a maximum area of coverage equal to two times the distance from the appliance to the farthest side of the area served.

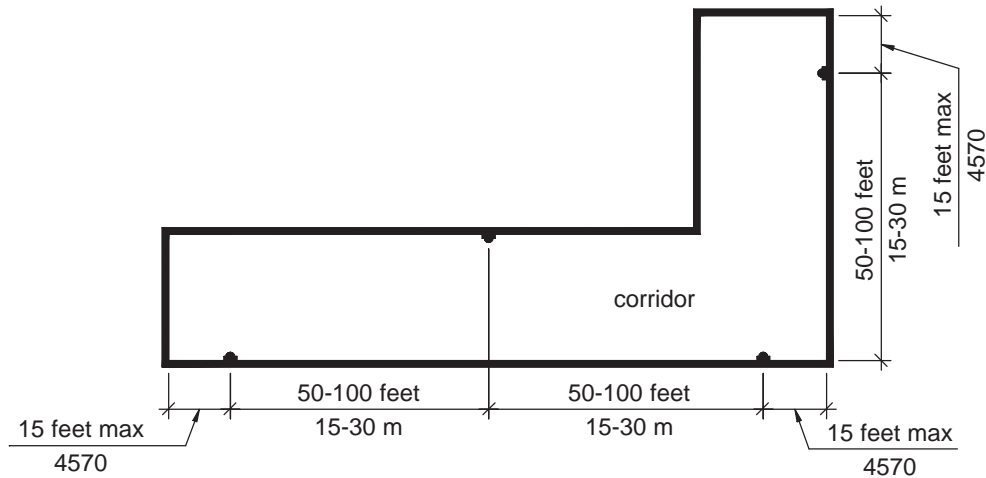
**702.3.5 Corridors.** Appliances in corridors that are 20 feet (6095 mm) wide maximum shall comply with Section 702.3.5. Appliances in corridors exceeding 20 feet (6095 mm) in width shall comply with Section 702.3.4.

**702.3.5.1 Appliance Spacing.** Appliances shall be 15 feet (4570 mm) maximum from each end of the corridor, and shall be 50 feet (15 m) minimum and 100 feet (30 m) maximum apart along the corridor. Interruptions to the concentrated viewing path by doors, elevation changes, or other obstructions shall constitute the end of the corridor for the purpose of this section.

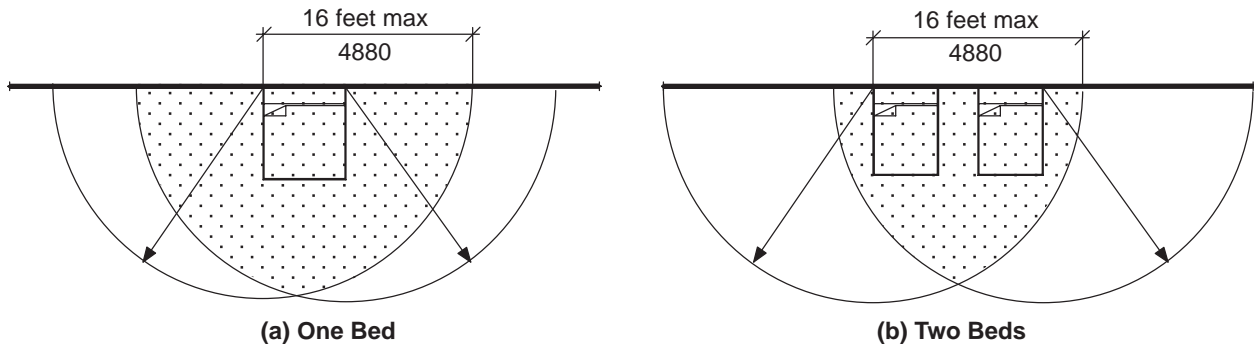
**702.3.5.2 Minimum Effective Intensity.** Appliances shall have a minimum effective intensity of 15 candela.

**702.3.6 Sleeping Rooms and Suites.** Visual alarm appliances required in sleeping rooms and suites shall comply with Sections 702.3.6.1 through 702.3.6.3.

**702.3.6.1 Activation.** Where single- or multiple-station smoke detectors are provided in the sleeping room or suite, a visual alarm that is activated upon activation of the smoke detectors shall be provided within the room or suite. Where a building fire alarm system is provided, a visual alarm that is activated upon activation of the



**Fig. 702.3.5.1**  
**Appliance Spacing in Corridors**



**Fig. 702.3.6.2**  
**Appliance Location in Sleeping Rooms**

building fire alarm system shall be provided within the room or suite. The signaling line or channel between the activating device of the appliance and the building fire alarm system shall be monitored for integrity by the building fire alarm system. Where the same appliance is used for visual notification of smoke detector and fire alarm system activation, activation of the room or suite smoke detectors shall not activate the building fire alarm system.

**702.3.6.2 Location.** In sleeping rooms or suites having a linear dimension exceeding 16 feet (4875 mm), the appliance shall be 16 feet (4875 mm) maximum from the head

of the bed location, measured horizontally. Appliances shall be permanently installed. Where a suite contains more than one sleeping room, an appliance shall be provided in each sleeping room.

**702.3.6.3 Minimum Effective Intensity and Mounting Height.** Wall-mounted appliances 24 inches (610 mm) minimum below the ceiling shall have a minimum effective intensity of 110 candela. Ceiling-mounted appliances and wall-mounted appliances less than 24 inches (610 mm) below the ceiling shall have a minimum effective intensity of 177 candela.

**Table 702.3.2(a)—Light Dispersion for Wall-Mounted Visual Alarms**

Vertical Dispersion		Horizontal Dispersion	
Degrees from Horizontal	Percent of Rated	Degrees from Vertical	Percent of Rated
0	100	0	100
5-30	90	5-25	90
35	65	30-45	75
40	46	50	55
45	34	55	45
50	27	60	40
55	22	65	35
60	18	70	35
65	16	75	30
70	15	80	30
75	13	85	25
80	12	90	25
85	12	—	—
90	12	—	—

**Table 702.3.2(b)—Light Dispersion for Ceiling-Mounted Visual Alarms**

Degrees from Vertical	Percent of Rated
0	100
5-25	90
30-45	75
50	55
55	45
60	40
65	35
70	35
75	30
80	30
85	25
90	25

**Table 702.3.4.2—Spacing Allocation for Wall-Mounted Visual Alarms**

Maximum Area of Coverage	Minimum Required Light Output, Candela (Effective Intensity)		
	One Light per Area	Two Lights per Area	Four Lights per Area
20' x 20'	15	Not Permitted	Not Permitted
30' x 30'	30	15	Not Permitted
40' x 40'	60	30	Not Permitted
50' x 50'	95	60	Not Permitted
60' x 60'	135	95	Not Permitted
70' x 70'	185	95	Not Permitted
80' x 80'	240	135	60
90' x 90'	305	185	95
100' x 100'	375	240	95
110' x 110'	455	240	135
120' x 120'	540	305	135
130' x 130'	635	375	185

**Table 702.3.4.3—Spacing Allocation for Ceiling-Mounted Visual Alarms**

Maximum Area of Coverage	Minimum Required Light Output, Candela (Effective Intensity)	
	Maximum Ceiling Height	One Light
20' x 20'	10 feet (3050 mm)	15
30' x 30'		30
40' x 40'		60
50' x 50'		95
20' x 20'	20 feet (6095 mm)	30
30' x 30'		45
40' x 40'		80
50' x 50'		115
20' x 20'	30 feet (9145 mm)	55
30' x 30'		75
40' x 40'		115
50' x 50'		150

**703 Signs**

**703.1 General.** Accessible signs shall comply with Section 703.

**703.2 Characters that are both Tactile and Visual.** Characters required to be tactile shall comply with Sections 703.2.1 through 703.2.8.

**EXCEPTION:** Tactile characters complying with Section 703.3, where separate visual characters complying with Section 703.4 provide the same information.

**703.2.1 Braille.** Tactile characters shall be duplicated in Braille complying with Section 703.5.

**703.2.2 Finish and Contrast.** Characters and their background shall have a non-glare finish. Characters shall contrast with their background, with either light characters on a dark background, or dark characters on a light background.

**703.2.3 Tactile Character Depth.** Tactile characters shall be raised  $\frac{1}{32}$  inch (0.8 mm) minimum above their background. Raised borders and elements that are not required shall be  $\frac{3}{8}$  inch (9.5 mm) minimum from tactile characters.

**703.2.4 Character Forms.** Fonts shall have characters complying with Sections 703.2.4.1 through 703.2.4.5.

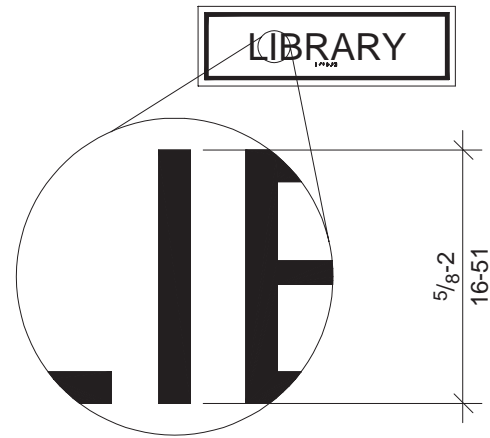
**703.2.4.1 Case.** Characters shall be uppercase.

**703.2.4.2 Style.** Characters shall be sans serif. Characters shall not be italic, oblique, script, highly decorative, or of other unusual forms.

**703.2.4.3 Width.** Character width shall be 55 percent minimum and 110 percent maximum of the height of the character, with the width based on the uppercase letter "O" and the height based on the uppercase letter "I."

**703.2.4.4 Height.** Character height, measured vertically from the baseline of the character, shall be  $\frac{5}{8}$  inch (16 mm) minimum, and 2 inches (51 mm) maximum, based on the uppercase letter "I."

**703.2.4.5 Stroke Thickness.** Characters with rectangular cross sections shall have a stroke thickness which is 10 percent minimum, and 15 percent maximum, of the height of the character, based on the uppercase letter "I". Characters with other cross



**Fig. 703.2.4.4**  
**Character Height**

sections shall have a stroke thickness at the base of the cross sections which is 10 percent minimum, and 30 percent maximum, of the height of the character, and a stroke thickness at the top of the cross sections which is 15 percent maximum of the height of the character, based on the uppercase letter "I".

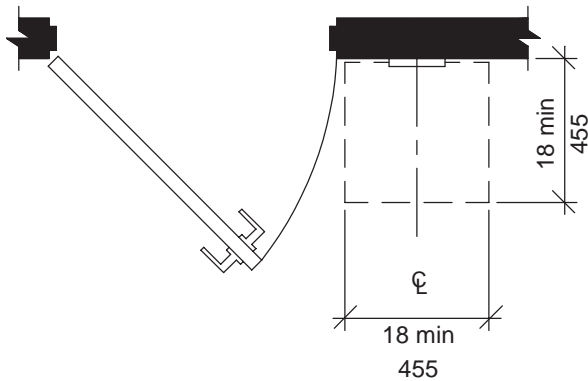
**703.2.5 Character Spacing.** Spacing shall be measured between the two closest points of adjacent characters within a message, excluding word spaces. Where characters have rectangular cross sections, spacing between individual characters shall be  $\frac{1}{8}$  inch (3 mm) minimum and  $\frac{3}{8}$  inch (10 mm) maximum. Where characters have other cross sections, spacing between individual characters shall be  $\frac{1}{16}$  inch (2 mm) minimum and  $\frac{3}{8}$  inch (10 mm) maximum at the base of the cross sections, and  $\frac{1}{8}$  inch (3 mm) minimum and  $\frac{3}{8}$  inch (10 mm) maximum at the top of the cross sections.

**703.2.6 Line Spacing.** Spacing between the baselines of separate lines of characters shall be 135 percent minimum to 170 percent maximum of the character height.

**703.2.7 Mounting Height.** Characters shall be 48 inches (1220 mm) minimum and 60 inches (1525 mm) maximum above the adjacent floor or ground surface, measured from the baseline of the characters.

**EXCEPTION:** Elevator car controls.

**703.2.8 Mounting Location.** Where a sign containing tactile characters is provided at a door, the sign shall be alongside the door on the latch side. Where a tactile sign is provided at double doors, the sign shall be to the right of the



**Fig. 703.2.8**  
**Mounting Location at Doors**

right-hand door. Where there is no wall space on the latch side of a single door, or to the right side of double doors, signs shall be on the nearest adjacent wall. Signs containing tactile characters shall have an 18 inch (455 mm) minimum by 18 inch (455 mm) minimum space on the floor or ground, centered on the sign, beyond the arc of any door swing between the closed position and 45 degree open position.

**EXCEPTION:** Door-mounted signs shall be permitted on the push side of doors with closers and without hold-open devices.

**703.3 Tactile Characters.** Where tactile characters are required, and separate tactile and visual characters with the same information are provided, tactile characters shall comply with Sections 703.3.1 through 703.3.7 and visual characters shall comply with Section 703.4.

**703.3.1 Braille.** Tactile characters shall be duplicated in Braille complying with Section 703.5.

**703.3.2 Tactile Character Depth.** Tactile characters shall be raised  $\frac{1}{32}$  inch (0.8 mm) minimum above their background. Raised borders and elements that are not required shall be  $\frac{3}{8}$  inch (9.5 mm) minimum from tactile characters.

**703.3.3 Character Forms.** Fonts shall have characters complying with Sections 703.3.3.1 through 703.3.3.5.

**703.3.3.1 Case.** Characters shall be uppercase.

**703.3.3.2 Style.** Characters shall be sans serif. Characters shall not be italic, oblique, script, highly decorative, or of other unusual forms.

**703.3.3.3 Width.** Character width shall be 55 percent minimum and 110 percent maximum the height of the character, with the width based on the uppercase letter "O," and the height based on the uppercase letter "I."

**703.3.3.4 Height.** Character height, measured vertically from the baseline of the character, shall be  $\frac{1}{2}$  inch (13 mm) minimum, and  $\frac{3}{4}$  inch (19 mm) maximum, based on the height of the uppercase letter "I."

**703.3.3.5 Stroke Thickness.** Characters shall have a stroke thickness which is 15 percent maximum of the height of the character, based on the uppercase letter "I."

**703.3.4 Character Spacing.** Spacing shall be measured between the two closest points of adjacent characters within a message, excluding word spaces. Spacing between individual characters shall be  $\frac{1}{8}$  inch (3 mm) minimum to  $\frac{1}{4}$  inch (6 mm) maximum.

**703.3.5 Line Spacing.** Spacing between the baseline of separate lines of characters within a message shall be 135 percent minimum and 170 percent maximum of the character height.

**703.3.6 Mounting Height.** Characters shall be 48 inches (1220 mm) minimum and 60 inches (1515 mm) maximum above the adjacent floor or ground surface, measured from the baseline of the characters.

**EXCEPTION:** Elevator car controls.

**703.3.7 Mounting Location.** Where a tactile sign is provided at a door, the sign shall be alongside the door on the latch side. Where a tactile sign is provided at double doors, the sign shall be to the right of the right-hand door. Where there is no wall space on the latch side of a single door, or to the right side of double doors, signs shall be on the nearest adjacent wall. Signs containing tactile characters shall have an 18 inch (455 mm) minimum by 18 inch (455 mm) minimum space on the floor or ground, centered on the sign, beyond the arc of any door swing between the closed position and 45 degree open position.

**EXCEPTION:** Door-mounted signs shall be permitted on the push side of doors with closers and without hold-open devices.

**703.4 Visual Characters.** Accessible visual characters shall comply with Sections 703.4.1 through 703.4.5.



**703.4.1 Finish and Contrast.** Characters and their background shall have a non-glare finish. Characters shall contrast with their background, with either light characters on a dark background, or dark characters on a light background.

**703.4.2 Character Forms.** Fonts shall have characters complying with Sections 703.4.2.1 through 703.4.2.5.

**703.4.2.1 Case.** Characters shall be uppercase, lowercase, or a combination of both.

**703.4.2.2 Style.** Characters shall be conventional in form. Characters shall not be italic, oblique, script, highly decorative, or of other unusual forms.

**703.4.2.3 Width.** Character width shall be 55 percent minimum and 110 percent maximum the height of the character, with the width based on the uppercase letter "O," and the height based on the uppercase "I."

**703.4.2.4 Height.** Minimum character height, measured from the baseline of the character, shall comply with Table 703.4.2.4, based on the height of the characters above the floor or ground of the viewing location and the minimum viewing distance. Character height shall be based on the uppercase letter "I." Minimum viewing

distance shall be measured as the horizontal distance where an obstruction prevents further approach toward the sign.

**703.4.2.5 Stroke Thickness.** Characters shall have a stroke thickness which is 10 percent minimum, and 30 percent maximum, the height of the character, based on the uppercase letter "I."

**703.4.3 Character Spacing.** Spacing shall be the two closest points of adjacent characters within a message, excluding word spaces. Spacing between individual characters shall be 10 percent minimum and 35 percent maximum of character height.

**703.4.4 Line Spacing.** Spacing between the baselines of separate lines of characters within a message shall be 135 percent minimum to 170 percent maximum of character height.

**703.4.5 Mounting Height.** Visual characters shall be 40 inches (1015 mm) minimum above the floor or ground of the viewing position. Mounting heights shall comply with Table 703.4.2.4, based on the size of the characters on the sign.

**703.5 Braille.** Tactile characters shall be accompanied by Grade II Braille complying with Sections 703.5.1 through 703.5.4 and Table 703.5. Braille dots shall have a domed or rounded shape.

**Table 703.4.2.4—Minimum Character Heights for Visual Signs**

Height above Floor or Ground to Top of Character	Minimum Viewing Distance	Minimum Character Height	Notes
40 inches - ≤70 inches (1015 mm - 1780 mm)	≤ 6 feet (1830 mm)	5/8 inch (16 mm)	Except elevators
40 inches - ≤70 inches (1015 mm - 1780 mm)	> 6 feet (1830 mm)	5/8 inch (16 mm), plus 1/8 inch per foot (3.2 mm per 305 mm) of viewing distance beyond 6 feet (1830 mm)	Except elevators
>70 inches - ≤120 inches (1780 mm - 3050 mm)	≤ 15 feet (4570 mm)	2 inches (51 mm)	
>70 inches - ≤120 inches (1780 mm - 3050 mm)	> 15 feet (4570 mm)	2 inches (51 mm), plus 1/8 inch per foot (3.2 mm per 305 mm) of viewing distance beyond 15 feet (4570 mm)	
> 120 inches (3050 mm)	≤ 21 feet (6400 mm)	3 inches (75 mm)	
> 120 inches (3050 mm)	> 21 feet (6400 mm)	3 inches (75 mm), plus 1/8 inch per foot (3.2 mm per 305 mm) of viewing distance beyond 21 feet (6400 mm)	



**Table 703.5—Measurement Range for Standard Sign Braille**

Measurement Range for:	Minimum	Maximum
Dot base diameter	0.059 inch (1.5 mm)	0.063 inch (1.6 mm)
Distance between two dots in same cell, center to center	0.090 inch (2.3 mm)	0.100 inch (2.5 mm)
Distance between corresponding dots in adjacent cells, center to center	0.241 inch (6.1 mm)	0.300 inch (7.6 mm)
Dot Height	0.025 inch (0.6 mm)	0.037 inch (0.9 mm)
Distance between corresponding dots from one cell to the cell directly below, center to center	0.395 inch (10.0 mm)	0.400 inch (10.1 mm)

**703.5.1 Location.** Braille shall be below the corresponding text. If text is multilined, Braille shall be placed below entire text. Braille shall be separated  $\frac{3}{8}$  inch (9.5 mm) minimum from any other tactile characters.

**EXCEPTION:** Braille provided on elevator car controls shall be separated  $\frac{3}{16}$  inch (4.8 mm) minimum either directly below or adjacent to the corresponding raised characters or symbols.

**703.5.2 Raised Elements and Borders.** Raised borders and elements that are not required shall be  $\frac{3}{8}$  inch (10 mm) minimum from tactile characters.

**703.5.3 Height.** Braille shall be 40 inches (1015 mm) minimum, and 60 inches (1525 mm) maximum, above the floor or ground, measured from the baseline of the Braille cells.

**EXCEPTION:** Elevator car controls.

**703.5.4 Braille Standard.** Braille shall comply with literary Braille.

**EXCEPTION:** The indication of an uppercase letter or letters shall only be used before the first word of sentences, proper nouns and names, individual letters of the alphabet, initials, or acronyms.

**703.6 Pictograms.** Pictograms shall comply with Sections 703.6.1 through 703.6.3.

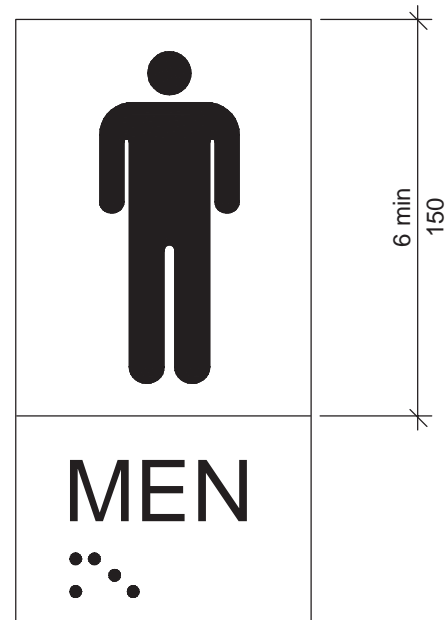
**703.6.1 Pictogram Field.** Pictograms shall have a field with a height of 6 inches (150 mm) minimum. Characters or Braille shall not be in the pictogram field.

**703.6.2 Finish and Contrast.** Pictograms and their fields shall have a non-glare finish. Pictograms shall contrast with their fields, with either a light pictogram on a dark field or a dark pictogram on a light field.

**703.6.3 Text Descriptors.** Where text descriptors for pictograms are required, they shall be directly below or adjacent to the pictogram and shall comply with Section 703.2.

**703.7 Symbols of Accessibility.** Symbols of accessibility shall comply with Sections 703.7.1 through 703.7.2.

**703.7.1 Finish and Contrast.** Symbols of accessibility and their backgrounds shall have a non-glare finish. Symbols of accessibility shall contrast with their backgrounds, with either a light symbol on a dark background or a dark symbol on a light background.



**Fig. 703.6.1 Pictogram Field**

**703.7.2 Symbols**

**703.7.2.1 International Symbol of Accessibility.** Where the International Symbol of Accessibility is required, it shall be proportioned complying with Figure 703.7.2.1.

**703.7.2.2 International Symbol of TTY.** Where the International Symbol of TTY is required, it shall comply with Figure 703.7.2.2.

**703.7.2.3 Volume-Controlled Telephones.** Where telephones with volume controls are required to be identified, the identification symbol shall be a telephone handset with radiating sound waves, such as shown in Figure 703.7.2.3.

**703.7.2.4 Assistive Listening Systems.** Where assistive listening systems are re-

quired to be identified by the International Symbol of Access for Hearing Loss, it shall comply with Figure 703.7.2.4.

**704 Telephones**

**704.1 General.** Accessible public telephones shall comply with Section 704.

**704.2 Wheelchair Accessible Telephones.** Wheelchair accessible public telephones shall comply with Sections 704.2.1 through 704.2.5.

**704.2.1 Clear Floor or Ground Space.** A clear floor or ground space complying with Section 305 shall be provided. The clear floor or ground space shall not be restricted by bases, enclosures, or fixed seats.

**704.2.1.1 Parallel Approach.** Where a parallel approach is provided, the distance



**Fig. 703.7.2.1**  
International Symbol of Accessibility



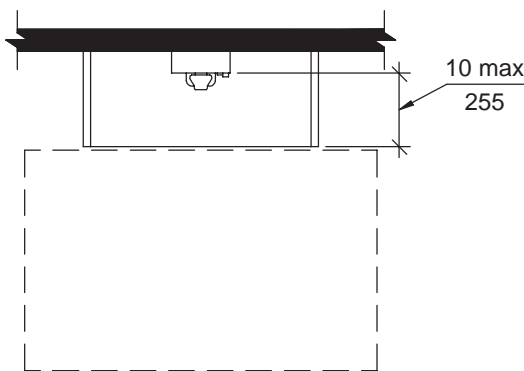
**Fig. 703.7.2.2**  
International TTY Symbol



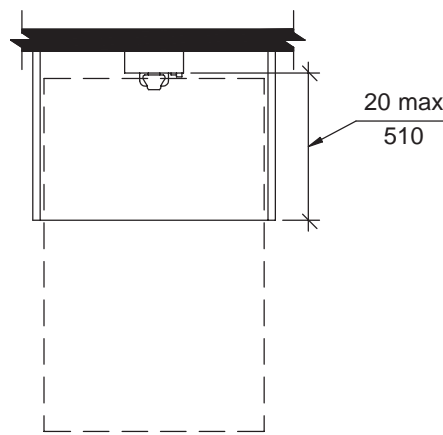
**Fig. 703.7.2.3**  
Volume-Controlled Telephone



**Fig. 703.7.2.4**  
International Symbol of Access for Hearing Loss



**(a) Parallel Approach**



**(b) Forward Approach**

**Fig. 704.2.1**  
Clear Floor or Ground Space for Telephones

from the edge of the telephone enclosure to the face of the telephone unit shall be 10 inches (255 mm) maximum.

**704.2.1.2 Forward Approach.** Where a forward approach is provided, the distance from the front edge of a counter within the enclosure to the face of the telephone unit shall be 20 inches (510 mm) maximum.

**704.2.2 Operable Parts.** The highest operable part of the telephone shall be within the reach ranges specified in Section 308. Telephones shall have push button controls where service for such equipment is available.

**704.2.3 Telephone Directories.** Where provided, telephone directories shall comply with Section 309.

**704.2.4 Cord Length.** Wheelchair accessible telephones shall be equipped with a handset cord length of 29 inches (735 mm) minimum.

**704.2.5 Hearing-Aid Compatibility.** Telephones shall be hearing-aid compatible.

**704.3 Volume-Control Telephones.** Telephones with volume control shall be equipped with a receive volume control with a range that provides 12 dB of gain minimum and 20 dB of gain maximum. An automatic reset shall be provided.

**704.4 TTY.** Where used with a pay telephone, text telephones shall be permanently affixed within, or adjacent to, the telephone enclosure. If an acoustic coupler is used, the telephone cord shall be sufficiently long to allow connection of the TTY and the telephone receiver.

**704.5 TTY Shelf.** Where pay telephones designed to accommodate a portable TTY are provided, they shall be equipped with a shelf and an electrical outlet within or adjacent to the telephone enclosure. The telephone handset shall be capable of being placed flush on the surface of the shelf. The shelf shall be capable of accommodating a TTY and shall have a 6 inches (150 mm) high minimum vertical clearance above the area where the TTY is placed.

**704.6 Protruding Objects.** Telephones, enclosures, and related equipment shall comply with Section 307.

**705 Detectable Warnings**

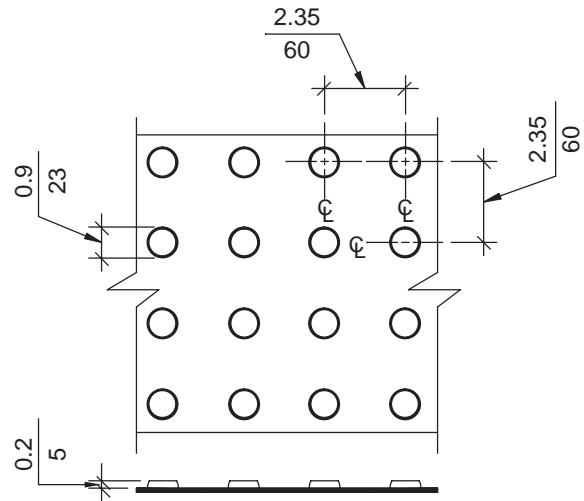
**705.1 General.** Detectable warnings shall comply with Sections 705.2 and 705.3.

**705.2 Standardization.** Detectable warnings shall be standard within a building, facility, site, or complex of buildings.

**705.3 Platform Edge Detectable Warnings.** A platform edge detectable warning shall comply with Section 705.3.1, 705.3.2, or 705.3.3.

**705.3.1 Truncated Domes.** A 24 inch (610 mm) wide tactile pattern of raised truncated domes complying with Sections 705.3.1.1 through 705.3.1.3 shall be provided on the walking surface at the platform edge.

**705.3.1.1 Dome Size.** Domes shall have a diameter of 0.9 inch (23 mm), a height of 0.2 inch (5 mm), and a center-to-center spacing of 2.35 inches (60 mm).



**Fig. 705.3.1.1**  
**Truncated Dome Size**

**705.3.1.2 Contrast.** The truncated dome surface shall contrast visually with adjoining surfaces, either light-on-dark or dark-on-light. The material used to provide contrast shall be an integral part of the truncated dome surface.

**705.3.1.3 Interior Locations.** Detectable warnings in interior locations shall differ from adjoining walking surfaces in resiliency or sound-on-cane contact.

**705.3.2 Equivalent Tactile Surface.** A 24 inch (610 mm) wide tactile surface of equivalent detectability underfoot shall be provided and shall comply with Section 705.3.1.2.

**705.3.3 Equivalent Detectability.** Detectability by other construction, technology, or means shall be provided that will ensure equivalent or

superior, reliable communication of the impending change to pedestrians who are blind or visually impaired. The information to be communicated must include 24 inches (610 mm) of advance warning of the platform edge and the precise orientation of the platform edge in relation to the pedestrian.

## 706 Assistive Listening Systems

**706.1 General.** Accessible assistive listening systems in assembly areas shall comply with Section 706.

**706.2 Placement.** Individual fixed seats, served by an assistive listening system, shall have complete view of the stage, playing area, or cinema screen.

**706.3 Types of Systems.** Induction loops, infrared systems, FM and AM radio frequency systems, hard-wired earphones, and other equivalent devices shall be permitted as acceptable listening systems.

## 707 Automatic Teller Machines (ATMs) and Fare Machines

**707.1 General.** Automatic teller machines and fare machines that are required to be accessible shall comply with Section 707.

**707.2 Clear Floor or Ground Space.** A clear floor or ground space complying with Section 305 shall be provided.

**EXCEPTION:** Clear floor or ground space is not required at drive-up only machines.

**707.3 Operable Parts.** Operable parts shall comply with Section 309. Each operable part shall be able to be differentiated by sound or touch, without activation.

**EXCEPTION:** Drive-up only machines shall not be required to comply with Section 309.2 or 309.3.

**707.4 Input.** Input devices shall comply with Sections 707.4.1 through 707.4.5.

**707.4.1 Privacy.** The opportunity for the same degree of privacy of input shall be available to all individuals utilizing the equipment.

**707.4.2 Key Surfaces.** All keys used to operate a machine shall be tactually discernible. Key surfaces shall be offset from the surrounding surface by  $\frac{1}{25}$  inch (1 mm) minimum. The outer

edge of key surfaces shall have a radius of  $\frac{1}{50}$  inch (0.5 mm) maximum.

**EXCEPTION:** The touch areas of video display screens.

**707.4.3 Separation Between Keys.** Any key surface shall be separated from other key surfaces by  $\frac{1}{8}$  inch (3.2 mm) minimum. Function keys shall be separated from the keypad equal to a distance that is not less than three times greater than the actual distance between the numeric keys.

**707.4.4 Numeric Keys.** Where provided, numeric keys shall comply with Sections 707.4.4.1 and 707.4.4.2.

**707.4.4.1 Arrangement.** Numeric keys shall be arranged in a 12-key telephone keypad layout with the number one key in the upper left hand corner.

**707.4.4.2 Marking.** The number five key shall have a single raised dot.

**707.4.5 Function Keys.** Where provided, function keys shall comply with Sections 707.4.5.1 through 707.4.5.3.

**707.4.5.1 Arrangement.** Function keys shall be in the order of enter, clear, cancel, add value, and decrease value horizontally from left to right or vertically from top to bottom. Where provided, add value and decrease value shall be grouped with other function keys.

**707.4.5.2 Marking.** Function keys shall be marked with tactile characters as follows:

- Enter or proceed key: raised circle;
- Clear or correct key: raised vertical line or bar;
- Cancel key: raised letter "x";
- Add value key: raised plus sign;
- Decrease value key: raised minus sign.

**707.4.5.3 Color Coding.** Where function keys are color coded, they shall be colored as follows:

- Enter or proceed key: green;
- Clear or correct key: black;
- Cancel key: red;
- Add value key: blue;
- Decrease value key: yellow.

**707.5 Output.** Output devices shall comply with Sections 707.5.1 through 707.5.6.

**707.5.1 Privacy.** The opportunity for the same degree of privacy of output shall be available to all individuals utilizing the equipment.

**707.5.2 Operating Instructions.** Machines shall provide visual and audible instruction for operation. Visual and audible instruction shall include all information required by Sections 707.5.2.1 through 707.5.2.5.

**707.5.2.1 Initiation.** Instruction shall be initiated by the user of the machine.

**707.5.2.2 Expedited Process.** After initiation, instructions shall be available to the experienced user to expedite the transaction.

**707.5.2.3 Orientation.** Orientation and assistance for unfamiliar users to the physical features of the machine, operational options, and details for each function shall be provided.

**707.5.2.4 Transaction Prompts.** All transaction prompts within each operation shall be provided.

**707.5.2.5 Input Verification.** Verification of all user inputs shall be provided.

**707.5.3 Audible Instruction.** Audible instruction shall be provided through a standard audio mini jack, a telephone handset, a wireless

transmission system, or another mechanism that is readily available to all customers.

**707.5.4 Video Display Screen.** The video display screen shall comply with Sections 707.5.4.1 and 707.5.4.2.

**707.5.4.1 Visibility.** The video display screen shall be visible from a point 40 inches (1015 mm) above the center of the clear floor or ground space in front of the machine.

**EXCEPTION:** This requirement shall not apply to drive-up only machines.

**707.5.4.2 Characters.** Characters displayed on the screen shall be in a sans serif font. Characters shall be  $\frac{3}{16}$  inch (4.8 mm) high minimum, based on the uppercase letter "I." Characters shall contrast with the background with either light characters on a dark background, or dark characters on a light background.

**707.5.5 Dispensing of Bills.** Machines that dispense paper currency shall dispense the currency so that bills are dispensed in descending order with the lowest denomination on top.

**707.5.6 Receipts and Verification.** Where a receipt is available and is requested, the following options shall be provided: a printed receipt, audible presentation of the transaction information provided on the receipt, or both.