

## CHAPTER 7: COMMUNICATION ELEMENTS AND FEATURES

### 701 General

**701.1 Scope.** The provisions of Chapter 7 shall apply where required by Chapter 2 or where referenced by a requirement in this document.

### 702 Fire Alarm Systems

**702.1 General.** Fire alarm systems shall have permanently installed audible and visible alarms complying with NFPA 72 (1999 or 2002 edition) (incorporated by reference, see "Referenced Standards" in Chapter 1), except that the maximum allowable sound level of audible notification appliances complying with section 4-3.2.1 of NFPA 72 (1999 edition) shall have a sound level no more than 110 dB at the minimum hearing distance from the audible appliance. In addition, alarms in guest rooms required to provide communication features shall comply with sections 4-3 and 4-4 of NFPA 72 (1999 edition) or sections 7.4 and 7.5 of NFPA 72 (2002 edition).

**EXCEPTION:** Fire alarm systems in medical care *facilities* shall be permitted to be provided in accordance with industry practice.

### 703 Signs

**703.1 General.** Signs shall comply with 703. Where both visual and *tactile characters* are required, either one sign with both visual and *tactile characters*, or two separate signs, one with visual, and one with *tactile characters*, shall be provided.

**703.2 Raised Characters.** Raised *characters* shall comply with 703.2 and shall be duplicated in braille complying with 703.3. Raised *characters* shall be installed in accordance with 703.4.

**Advisory 703.2 Raised Characters.** Signs that are designed to be read by touch should not have sharp or abrasive edges.

**703.2.1 Depth.** Raised *characters* shall be 1/32 inch (0.8 mm) minimum above their background.

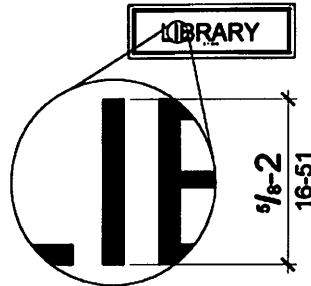
**703.2.2 Case.** *Characters* shall be uppercase.

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

**703.2.4 Character Proportions.** *Characters* shall be selected from fonts where the width of the uppercase letter "O" is 55 percent minimum and 110 percent maximum of the height of the uppercase letter "I".

**703.2.5 Character Height.** *Character* height measured vertically from the baseline of the *character* shall be 5/8 inch (16 mm) minimum and 2 inches (51 mm) maximum based on the height of the uppercase letter "I".

**EXCEPTION:** Where separate raised and visual *characters* with the same information are provided, raised *character* height shall be permitted to be ½ inch (13 mm) minimum.



**Figure 703.2.5**  
**Height of Raised Characters**

**703.2.6 Stroke Thickness.** Stroke thickness of the uppercase letter "I" shall be 15 percent maximum of the height of the *character*.

**703.2.7 Character Spacing.** *Character* spacing shall be measured between the two closest points of adjacent raised *characters* within a message, excluding word *spaces*. Where *characters* have rectangular cross sections, spacing between individual raised *characters* shall be 1/8 inch (3.2 mm) minimum and 4 times the raised *character* stroke width maximum. Where *characters* have other cross sections, spacing between individual raised *characters* shall be 1/16 inch (1.6 mm) minimum and 4 times the raised *character* stroke width maximum at the base of the cross sections, and 1/8 inch (3.2 mm) minimum and 4 times the raised *character* stroke width maximum at the top of the cross sections. *Characters* shall be separated from raised borders and decorative *elements* 3/8 inch (9.5 mm) minimum.

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

**703.3 Braille.** Braille shall be contracted (Grade 2) and shall comply with 703.3 and 703.4.

**703.3.1 Dimensions and Capitalization.** Braille dots shall have a domed or rounded shape and shall comply with Table 703.3.1. 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, and acronyms.

Table 703.3.1 Braille Dimensions

Measurement Range	Minimum in Inches Maximum in Inches
Dot base diameter	0.059 (1.5 mm) to 0.063 (1.6 mm)
Distance between two dots in the same cell <sup>1</sup>	0.090 (2.3 mm) to 0.100 (2.5 mm)
Distance between corresponding dots in adjacent cells <sup>1</sup>	0.241 (6.1 mm) to 0.300 (7.6 mm)
Dot height	0.025 (0.6 mm) to 0.037 (0.9 mm)
Distance between corresponding dots from one cell directly below <sup>1</sup>	0.395 (10 mm) to 0.400 (10.2 mm)

1. Measured center to center.

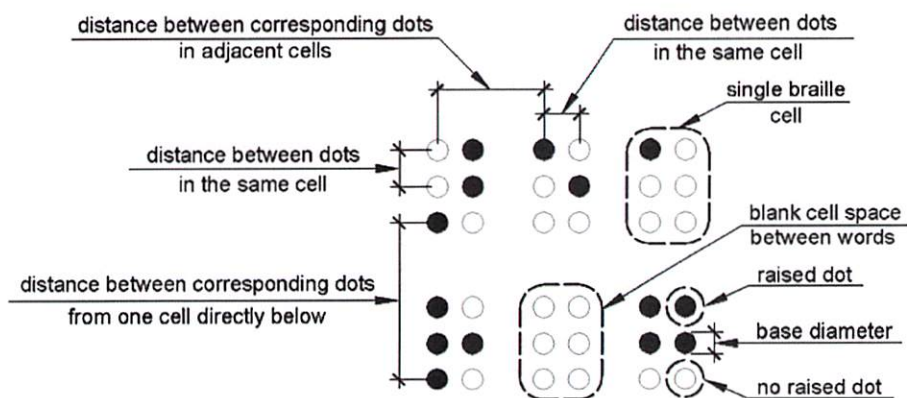


Figure 703.3.1  
Braille Measurement

**703.3.2 Position.** Braille shall be positioned below the corresponding text. If text is multi-lined, braille shall be placed below the entire text. Braille shall be separated 3/8 inch (9.5 mm) minimum from any other *tactile characters* and 3/8 inch (9.5 mm) minimum from raised borders and decorative elements.

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

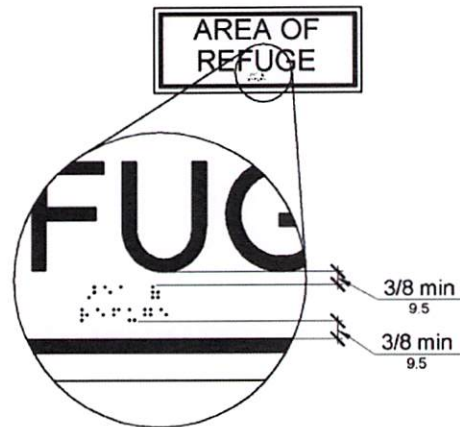


Figure 703.3.2  
Position of Braille

**703.4 Installation Height and Location.** Signs with *tactile characters* shall comply with 703.4.

**703.4.1 Height Above Finish Floor or Ground.** *Tactile characters* on signs shall be located 48 inches (1220 mm) minimum above the finish floor or ground surface, measured from the baseline of the lowest *tactile character* and 60 inches (1525 mm) maximum above the finish floor or ground surface, measured from the baseline of the highest *tactile character*.

**EXCEPTION:** *Tactile characters* for elevator car controls shall not be required to comply with 703.4.1.

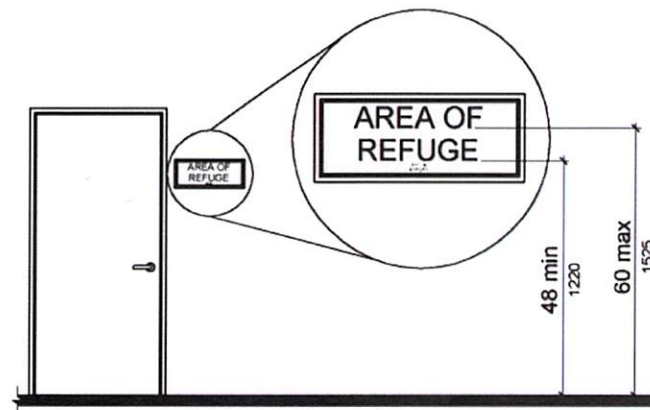
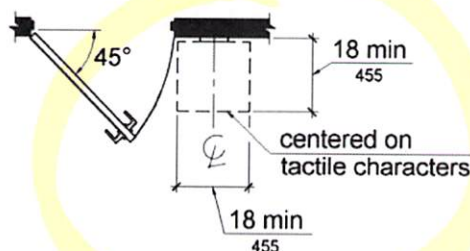


Figure 703.4.1  
Height of Tactile Characters Above Finish Floor or Ground



**703.4.2 Location.** Where a *tactile* sign is provided at a door, the sign shall be located alongside the door at the latch side. Where a *tactile* sign is provided at double doors with one active leaf, the sign shall be located on the inactive leaf. Where a *tactile* sign is provided at double doors with two active leafs, the sign shall be located to the right of the right hand door. Where there is no wall space at the latch side of a single door or at the right side of double doors, signs shall be located on the nearest adjacent wall. Signs containing *tactile characters* shall be located so that a clear floor space of 18 inches (455 mm) minimum by 18 inches (455 mm) minimum, centered on the *tactile characters*, is provided beyond the arc of any door swing between the closed position and 45 degree open position.

**EXCEPTION:** Signs with *tactile characters* shall be permitted on the push side of doors with closers and without hold-open devices.



**Figure 703.4.2**  
Location of Tactile Signs at Doors

**703.5 Visual Characters.** Visual *characters* shall comply with 703.5.

**EXCEPTION:** Where visual *characters* comply with 703.2 and are accompanied by braille complying with 703.3, they shall not be required to comply with 703.5.2 through 703.5.9.

**703.5.1 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.

**Advisory 703.5.1 Finish and Contrast.** Signs are more legible for persons with low vision when characters contrast as much as possible with their background. Additional factors affecting the ease with which the text can be distinguished from its background include shadows cast by lighting sources, surface glare, and the uniformity of the text and its background colors and textures.

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

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

**703.5.4 Character Proportions.** *Characters* shall be selected from fonts where the width of the uppercase letter "O" is 55 percent minimum and 110 percent maximum of the height of the uppercase letter "I".

**703.5.5 Character Height.** Minimum *character* height shall comply with Table 703.5.5. Viewing distance shall be measured as the horizontal distance between the *character* and an obstruction preventing further approach towards the sign. *Character* height shall be based on the uppercase letter "I".

**Table 703.5.5 Visual Character Height**

Height to Finish Floor or Ground From Baseline of Character	Horizontal Viewing Distance	Minimum Character Height
40 inches (1015 mm) to less than or equal to 70 inches (1780 mm)	less than 72 inches (1830 mm)	5/8 inch (16 mm)
	72 inches (1830 mm) and greater	5/8 inch (16 mm), plus 1/8 inch (3.2 mm) per foot (305 mm) of viewing distance above 72 inches (1830 mm)
Greater than 70 inches (1780 mm) to less than or equal to 120 inches (3050 mm)	less than 180 inches (4570 mm)	2 inches (51 mm)
	180 inches (4570 mm) and greater	2 inches (51 mm), plus 1/8 inch (3.2 mm) per foot (305 mm) of viewing distance above 180 inches (4570 mm)
greater than 120 inches (3050 mm)	less than 21 feet (6400 mm)	3 inches (75 mm)
	21 feet (6400 mm) and greater	3 inches (75 mm), plus 1/8 inch (3.2 mm) per foot (305 mm) of viewing distance above 21 feet (6400 mm)

**703.5.6 Height From Finish Floor or Ground.** Visual *characters* shall be 40 inches (1015 mm) minimum above the finish floor or ground.

**EXCEPTION:** Visual *characters* indicating elevator car controls shall not be required to comply with 703.5.6.

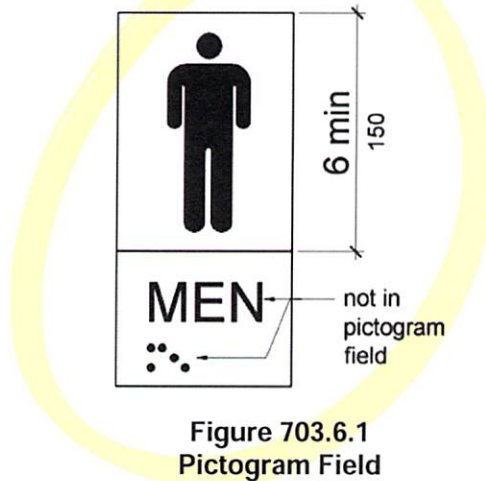
**703.5.7 Stroke Thickness.** Stroke thickness of the uppercase letter "I" shall be 10 percent minimum and 30 percent maximum of the height of the *character*.

**703.5.8 Character Spacing.** *Character* spacing shall be measured between the two closest points of adjacent *characters*, excluding word *spaces*. Spacing between individual *characters* shall be 10 percent minimum and 35 percent maximum of *character* height.

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

**703.6 Pictograms.** *Pictograms* shall comply with 703.6.

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



**Figure 703.6.1**  
**Pictogram Field**

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

**Advisory 703.6.2 Finish and Contrast.** Signs are more legible for persons with low vision when characters contrast as much as possible with their background. Additional factors affecting the ease with which the text can be distinguished from its background include shadows cast by lighting sources, surface glare, and the uniformity of the text and background colors and textures.

**703.6.3 Text Descriptors.** *Pictograms* shall have text descriptors located directly below the *pictogram* field. Text descriptors shall comply with 703.2, 703.3 and 703.4.

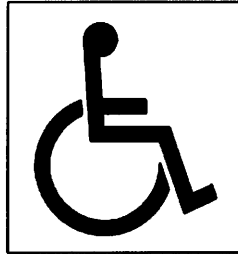
**703.7 Symbols of Accessibility.** Symbols of *accessibility* shall comply with 703.7.

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

**Advisory 703.7.1 Finish and Contrast.** Signs are more legible for persons with low vision when characters contrast as much as possible with their background. Additional factors affecting the ease with which the text can be distinguished from its background include shadows cast by lighting sources, surface glare, and the uniformity of the text and background colors and textures.

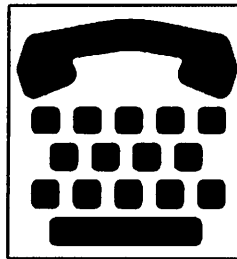
**703.7.2 Symbols.**

**703.7.2.1 International Symbol of Accessibility.** The International Symbol of *Accessibility* shall comply with Figure 703.7.2.1.



**Figure 703.7.2.1**  
**International Symbol of Accessibility**

**703.7.2.2 International Symbol of TTY.** The International Symbol of *TTY* shall comply with Figure 703.7.2.2.



**Figure 703.7.2.2**  
**International Symbol of TTY**

**703.7.2.3 Volume Control Telephones.** Telephones with a volume control shall be identified by a *pictogram* of a telephone handset with radiating sound waves on a square field such as shown in Figure 703.7.2.3.



**Figure 703.7.2.3**  
**Volume Control Telephone**