

*Safety Emergency Lighting and Power Equipment.* The UL 924 test procedures include assessing the readability of a sign's letters.

#### 7.10.6.2\* Size and Location of Directional Indicator.

**A.7.10.6.2** Figure A.7.10.6.2 shows examples of acceptable locations of directional indicators with regard to left and right orientation. Directional indicators are permitted to be placed under the horizontal stroke of the letter T, provided that spacing of not less than  $\frac{3}{8}$  in. (9.5 mm) is maintained from the horizontal and vertical strokes of the letter T.

EXIT>  
<EXIT  
<EXIT>

Figure A.7.10.6.2 Directional Indicators.

**7.10.6.2.1** Directional indicators, unless otherwise provided in 7.10.6.2.2, shall comply with the following:

- (1) The directional indicator shall be located outside of the EXIT legend, not less than  $\frac{3}{8}$  in. (9.5 mm) from any letter.
- (2) The directional indicator shall be of a chevron type, as shown in Figure 7.10.6.2.1.
- (3) The directional indicator shall be identifiable as a directional indicator at a distance of 40 ft (12 m).
- (4) A directional indicator larger than the minimum established for compliance with 7.10.6.2.1(3) shall be proportionately increased in height, width, and stroke.
- (5) The directional indicator shall be located at the end of the sign for the direction indicated.



Figure 7.10.6.2.1 Chevron-Type Indicator.

**7.10.6.2.2** The requirements of 7.10.6.2.1 shall not apply to approved existing signs.

To improve the effectiveness of directional indicators on directional exit signs, the requirements have been changed over the past several years. The directional indicator cannot be positioned between the letters in the word EXIT. The directional indicator, which formerly was an arrow, must be a chevron. Research showed that a chevron indicator was more effective than an arrow. Performance criteria are specified to ensure that the chevron is of adequate size, contrast, and illumination. A specific size is not required, because size depends on factors such as color, contrast, and illumination. However, the directional indicator must be identifiable as a directional indicator at a minimum distance of 40 ft (12 m), which is another performance-based requirement.

**7.10.6.3\* Level of Illumination.** Externally illuminated signs shall be illuminated by not less than 5 ft-candles (54 lux) at the illuminated surface and shall have a contrast ratio of not less than 0.5.

**A.7.10.6.3** Colors providing a good contrast are red or green letters on matte white background. Glossy background and glossy letter colors should be avoided.

The average luminance of the letters and background is measured in footlamberts or candela per square meter. The contrast ratio is computed from these measurements by the following formula:

$$\text{Contrast} = \frac{L_g - L_e}{L_g}$$

Where  $L_g$  is the greater luminance and  $L_e$  is the lesser luminance, either the variable  $L_g$  or  $L_e$  is permitted to represent the letters, and the remaining variable will represent the background. The average luminance of the letters and background can be computed by measuring the luminance at the positions indicated in Figure A.7.10.6.3 by numbered circles.

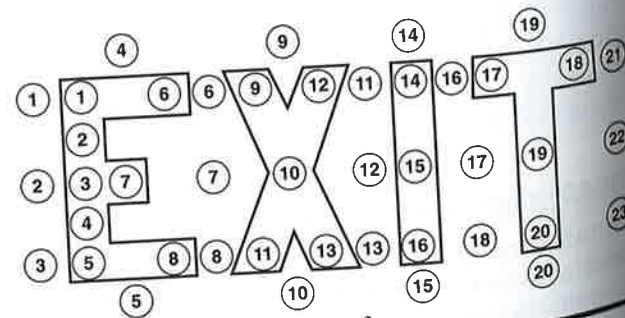


Figure A.7.10.6.3 Measurement of Exit Sign Luminance.

#### 7.10.7 Internally Illuminated Signs.

**7.10.7.1 Listing.** Internally illuminated signs shall be listed in accordance with UL 924, *Standard for Emergency Lighting and Power Equipment*, unless they meet one of the following criteria:

- (1) They are approved existing signs.
- (2) They are existing signs having the required wording in legible letters not less than 4 in. (100 mm) high.
- (3) They are signs that are in accordance with 7.10.1.3 and 7.10.1.6.

Internally illuminated signs must be laboratory tested and listed in accordance with UL 924, *Standard for Safety Emergency Lighting and Power Equipment*. Reliance is placed on the laboratory having conducted a comprehensive examination. By relying on the laboratory listing, the Code does not need to address the detailed criteria that it requires of externally illuminated signs, which are not required to be listed.

**7.10.7.2\* Photoluminescent Signs.** The face of a photoluminescent sign shall be continually illuminated while the building is occupied. The illumination levels on the face of the photoluminescent sign shall be in accordance with its listing. The charging illumination shall be a reliable light source as determined by the authority having jurisdiction. The charging light source shall be of a type specified in the product markings.

**A.7.10.7.2** Photoluminescent signs need a specific minimum level of light on the face of the sign to ensure that the sign is charged for emergency operation and legibility in both the normal and emergency modes. Additionally, the type of light source (for example, incandescent, fluorescent, halogen, metal halide) is important. Each light source produces different types of visible and invisible light (for example, UV) that might affect the ability of some photoluminescent signs to charge and might also affect the amount of light output available during emergency mode. This type of sign would not be suitable where the illumination levels are permitted to decline. The charging light source should not be connected to automatic timers, because continuous illumination of the sign is needed; otherwise, the sign illumination would not be available, because it would be discharged.

A photoluminescent sign absorbs light from an activation light source in order to emit light (that is, luminesce). The sign continues to emit light for a time after the activation light source has been removed.

The requirements of 7.10.7.2 for photoluminescent signs were new to the 2000 edition of the Code. Note that these requirements are contained as a subset of the internally illuminated sign requirements of 7.10.7. A photoluminescent sign is an internally illuminated sign. Photoluminescent exit signs are permitted, provided that they are listed in accordance with UL 924, *Standard for Safety Emergency Lighting and Power Equipment*, and meet the criteria of 7.10.7.2. The criteria of 7.10.7.2 are meant to highlight some of the special considerations needed to use photoluminescent exit signs effectively for life safety.

#### 7.10.8 Special Signs.

##### 7.10.8.1 Sign Illumination.

**7.10.8.1.1** Where required by other provisions of this Code, special signs shall be illuminated in accordance with 7.10.5, 7.10.6.3, and 7.10.7.

**7.10.8.1.2** Where emergency lighting facilities are required by the applicable provisions of Chapter 12 through Chapter 42, the required illumination of special signs shall additionally be provided under emergency lighting conditions.

**7.10.8.2 Characters.** Special signs, where required by other provisions of this Code, shall comply with the visual character requirements of ICC/ANSI A117.1, *American National Standard for Accessible and Usable Buildings and Facilities*.

##### 7.10.8.3\* No Exit.

**A.7.10.8.3** The likelihood of occupants mistaking passageways or stairways that lead to dead-end spaces for exit doors and becoming trapped governs the need for exit signs. Thus, such areas should be marked with a sign that reads as follows:

NO EXIT

Supplementary identification indicating the character of the area, such as TO BASEMENT, STOREROOM, LINEN CLOSET, or the like, is permitted to be provided.

**7.10.8.3.1** Any door, passage, or stairway that is neither an exit nor a way of exit access and that is located or arranged so that it is likely to be mistaken for an exit shall be identified by a sign that reads as follows:

NO  
EXIT

**7.10.8.3.2** The NO EXIT sign shall have the word NO in letters 2 in. (51 mm) high, with a stroke width of  $\frac{3}{8}$  in.