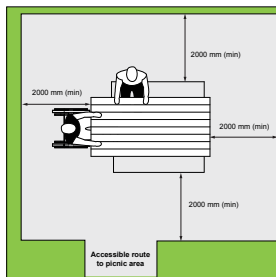




Accessibility Design Standards





2.3

Application

This section applies to stair systems, where provided for exterior or interior environments.

Additionally, refer to Ontario Building Code (OBC) and Integrated Accessibility Standards Regulation (IASR) requirements for stairs.

Reference

- Sec. 2.1 Ground and Floor Surfaces
- Sec. 2.4 Guards and Handrails
- Sec. 2.7 Tactile Walking Surface Indicators
- Sec. 5.7 Lighting

Exception

Riser height and tread depth standards do not apply to interior exit stairwells.

Note

Marking strips can also be fully integrated within the design of the nosing or finish used on the tread. For exterior stairs, exposed to the elements, and/or stair systems that have a high level of pedestrian traffic, durable marking strips are recommended (e.g., carborundum).

2.3.1 Design Features

- a. ensure surface is stable, firm, slip-resistant and non-glare; and
- b. provide lighting in accordance with Section 5.7 Lighting requirements, as applicable.

2.3.1.1 Treads and Risers

- a. riser height of 125 mm (minimum) to 180 mm (maximum) (**Figure 10**);
- b. tread depth of 280 mm (minimum) to 355 mm (maximum) (**Figure 10**);
- c. stairs must have closed risers; and
- d. ensure uniform riser height and tread depth throughout any stair system.

2.3.1.2 Nosings

- a. ensure no abrupt undersides;
- b. ensure they do not project more than 38 mm over the tread below and are sloped to the riser at an angle greater than 60 degrees to the horizontal;
- c. ensure leading edge is rounded or has a bevelled profile, with a radius of curvature of 13 mm or less (**Figure 10**); and
- d. provide horizontal marking strips:
 - i. 50 mm (+/- 10 mm) deep;
 - ii. at the leading edge of the tread;
 - iii. with a high tonal contrast compared to tread and riser finishes with slip-resistant surface; and
 - iv. extend the full width of the tread.

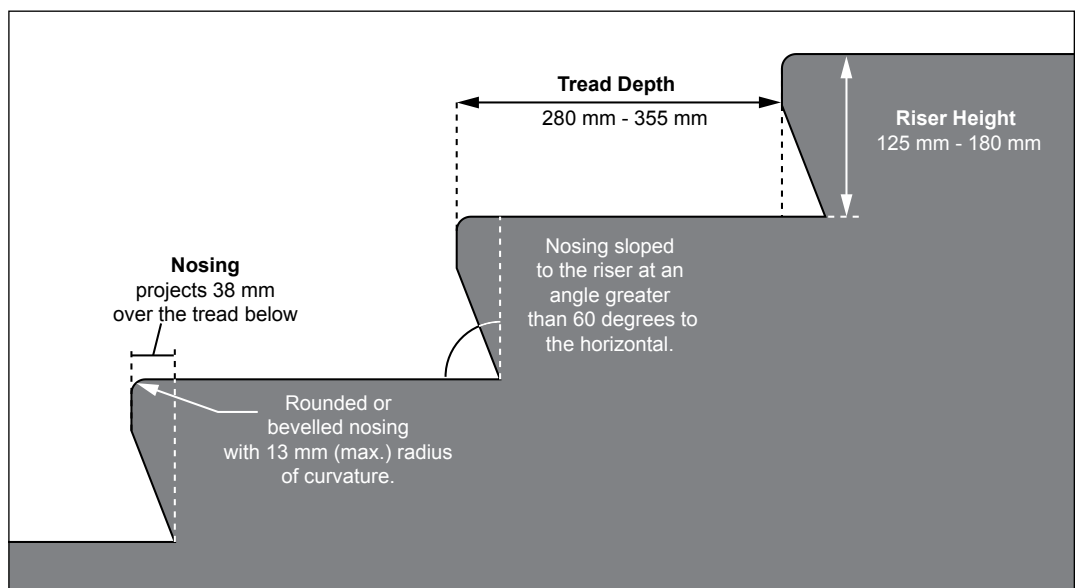


Figure 10: Stair Design Features - Section View

2.3.1.3 Tactile Walking Surface Indicators (TWSIs)

Provide tactile walking surface indicators (TWSIs):

- a. at the top of all flights of stairs starting one tread depth back from the leading edge of the top step; and
- b. at the top step, starting one tread depth back from the leading edge, at the following locations:
 - i. at each landing incorporating an entrance into a stair system;
 - ii. where the regular pattern of a stairway is broken; and
 - iii. where the run of a landing which does not have a continuous handrail is greater than 2100 mm;
- c. with surface depth of 610 mm (minimum), extending the full width of the stair (**Figure 11**).

Note

Tactile walking surface indicators (TWSI) provided at the head of stair systems act as a warning, and tonal contrasted nosings increase the visibility of each step when descending, especially for users with vision loss.

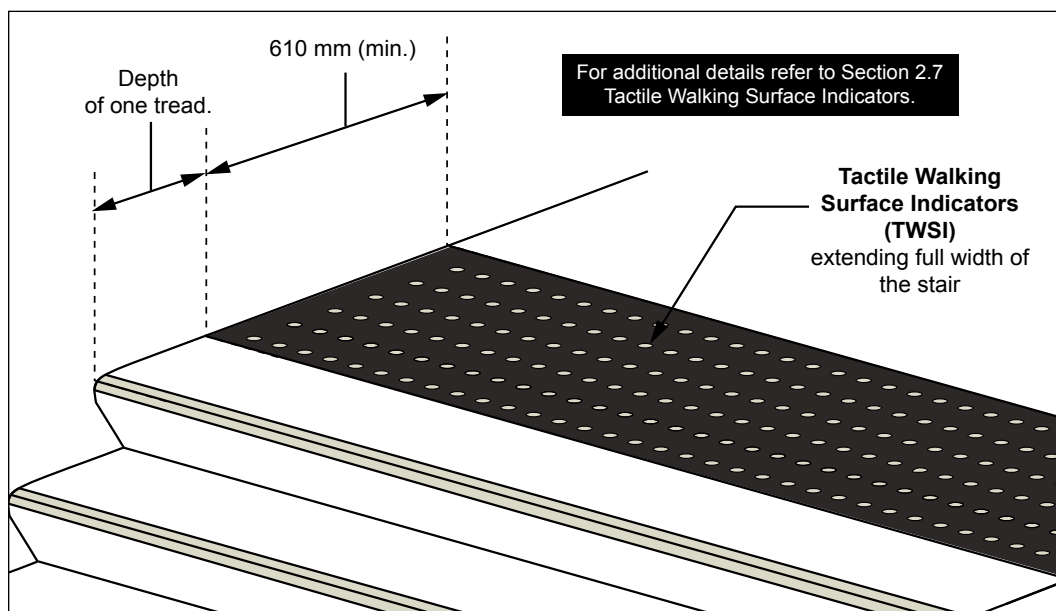


Figure 11: Tactile Walking Surface Indicators (TWSI) at Top of Stairs

2.3.2 Guards and Handrails

2.3.2.1 Guards

Where there is a change in level 600 mm or more in floor level adjacent to stairs, provide guards as follows:

- a. mount 1070 mm (minimum) high, measured vertically to the top of the guard from the stair surface;
- b. provide edge protection; and
- c. ensure that no member, attachment or opening located between 140 mm and 900 mm high above the stair surface will facilitate climbing.

Tactile Walking Surface Indicators

2.7

Application

Tactile walking surface indicators (TWSI) means a standardized surface, detectable underfoot or by a long white cane, to assist people with low vision or blindness by alerting or guiding them (*Illustrated Technical Guide to the Accessibility Standard for the Design of Public Spaces, GAATES, p201*). Typical locations where TWSIs are required include:

- at curb ramps and depressed curbs;
- where walking surfaces between pedestrian and vehicular areas are not separated by curbs; and
- at stairs.

Both cast in place (e.g., embedded within concrete) and surface applied TWSI systems are available for new construction and retrofits depending on the mounting surface and application. Surface applied systems require beveled edges to prevent potential tripping hazards.

Reference

- Sec. 2.3 Stairs
- Sec. 3.3 Exterior Paths of Travel
- Sec. 3.4 Curb Ramps and Depressed Curbs
- Sec. 4.3 Interior Accessible Routes
- Sec. 6.7 Recreational and Community Facilities
- Sec. 6.12 Elevated Platforms or Stages
- Sec. 6.20 Public Transit

Note

TWSIs can also be referred to as detectable warning surfaces.

2.7.1 Design Features

Provide tactile walking surface indicators (TWSIs) with:

- a. raised tactile profile;
- b. truncated domes (e.g., circular and flat-topped domes);
- c. slip-resistant and non-glare surfaces;
- d. a high tonal contrast between the TWSI and the adjacent surfaces; and
- e. edges beveled or level with surrounding surface (e.g., height of 3 mm or less).

2.7.2 Truncated Dome Specifications

- a. ensure flat-topped domes are 5 mm (+/- 1 mm) high (**Figure 18**);
- b. ensure the top of flat-topped domes are between 12 to 25 mm diameter;
- c. ensure diameter of the lower base of the flat-topped domes are 10 mm (+/- 1 mm) more than the diameter of the top (e.g., a base diameter of 21 to 36 mm is typical);
- d. ensure domes are arranged in a square grid; and
- e. ensure spacing between adjacent flat-topped domes is adjusted depending on the size of the domes, as identified in **Table 1**.

Table 1: Truncated Dome Spacing Requirements

Top Diameter of Flat Topped Domes (mm)	Spacing Between the Centres of Adjacent Domes (mm)
12	42 to 61
15	45 to 63
18	48 to 65
20	50 to 68
25	55 to 70

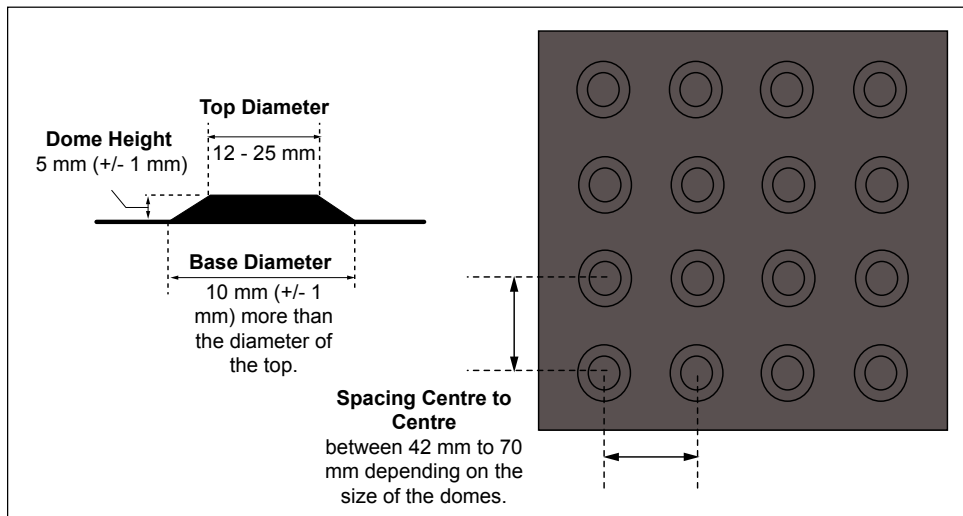


Figure 18: Truncated Dome Specification

Note

Simply applying tonal contrasted finish to a concrete surface does not provide appropriate tactile profile for detection by foot or cane.

For more information on requirements for truncated domes, refer to: ISO 23599:2012 "Assistive products for blind and vision-impaired persons -- Tactile walking surface indicators."