



## Residential Exterior Interior Stairway, Handrail, Guard Guidelines

Community Development – Building Division  
(650) 259-2330

### DEFINITIONS

**GUARD OR GUARDRAIL:** A building component or a system of building components located near the open sides of elevated walking surface that minimizes the possibility of a fall from the walking surface to the lower level.

**HANDRAIL:** A horizontal or sloping rail intended for grasping by the hand for guidance or support.

**STAIRWAY:** One or more flights of stairs, either interior or exterior, with the necessary landings and connecting platforms to form a continuous and uninterrupted passage from one level to another.

### MINIMUM REQUIREMENTS FOR STAIRWAY

#### **Width.**

- Stairways shall be not less than 36 inches in clear width at all points above the permitted handrail height.
- When handrails are present, the clear width of stairways at and below the handrail height shall be:
  - a). Handrail installed on one side; stairway width shall not be less than 31.5 inches clear.

- b). When handrails are installed on both sides, stairway width shall not be less than 27 inches clear.  
(Figure 1)

#### **Risers Height.**

The riser height shall be not more than 7-3/4 inches (figure 2a).

At open risers, openings located more than 30 inches, as measured vertically, to the floor or grade below shall not permit the passage of a 4-inch diameter sphere (Figure 2b).

#### **Tread Depth.**

The tread depth shall be not less than 10 inches. The greatest tread depth within any flight of stairs shall not exceed the smallest by more than 3/8 inch (Figure 2a).

#### **Nosing's.**

Nosings at treads, landings and floors of stairways shall have a radius of curvature at the nosing not greater than 9/16 inch or a bevel not greater than 1/2 inch. A nosing projection not less than 3/4 inch and not more than 1-1/4 inches.

The greatest nosing projection shall not exceed the smallest nosing projection by more than 3/8 inch within a stairway (Figure 3).

*Exception: A nosing projection is not required where the tread depth is not less than 11 inches.*

#### **Landings for stairways.**

There shall be a floor or landing at the top and bottom of each stairway, The width perpendicular to the direction of travel shall be not less than the width of the flight served (Figure 4), For landings of shapes other than square or rectangular, the depth at the walk

line and the total area shall be not less than that of a quarter circle with a radius equal to the required landing width (Figure 7). Where the stairway has a straight run, the depth in the direction of travel shall be not less than 36 inches

*Exception: A floor or landing is not required at the top of an interior flight of stairs, including stairs in an enclosed garage, provided that a door does not swing over the stairs.*

#### **Handrails.**

Handrails shall be provided on not less than one side of each flight of stairs with four or more risers.

#### **Height.**

Handrail height, measured vertically from the sloped plane adjoining the tread nosing, or finish surface of ramp slope, shall be not less than 34 inches and not more than 38 inches (Figure 1 and 2b)

Handrails shall not project more than 4-1/2 inches on either side of the stairway.

#### **Handrail clearance.**

Handrails adjacent to a wall shall have a space of not less than 1-1/2 inches between the wall and the handrails (Figure 6).

#### **Continuity.**

Handrails shall be continuous for the full length of the flight, from a point directly above the top riser of the flight to a point directly above the lowest riser of the flight. Handrail ends shall be returned toward a wall, guard walking surface continuous to itself, or terminate to a post (Figure 5).

#### **Grip size.**

Required handrails shall be of one of the following types or provide equivalent graspability (Figure 6).

Handrails with a circular cross section shall have an outside diameter of not less than 1 - 1/4 inches and not greater than 2 inches. If the handrail is not circular, it shall have a perimeter of not less than 4 inches and not greater than 6-1/4 inches and a cross section of not more than 2 - 1/4 inches. Edges shall have a radius of not less than 0.01 inch.

#### **Guards.**

##### **Where required.**

Guards shall be provided for those portions of open-sided walking surfaces, including floors, stairs, ramps, and landings that are located more than 30 inches measured vertically to the floor or grade below at any point within 36 inches horizontally to the edge of the open side (Figure 2b).

##### **Height.**

Required guards at open-sided walking surfaces, including stairs, porches, balconies, or landings, shall be not less than 42 inches in height as measured vertically above the adjacent walking surface or the line connecting the nosings.

Where the top of the guard serves as a handrail on the open sides of stairs, the top of the guard shall be not less than 34 inches and not more than 38 inches as measured vertically from a line connecting the nosings (Figure 2b).

**Opening limitations.**

Required guards shall not have openings from the walking surface to the required guard height that allow passage of a sphere 4 inches in diameter (Figure 2b).

*Exceptions:*

*The triangular openings at the open side of stair, formed by the riser, tread and bottom rail of a guard, shall not allow passage of a sphere 6 inches in diameter.*

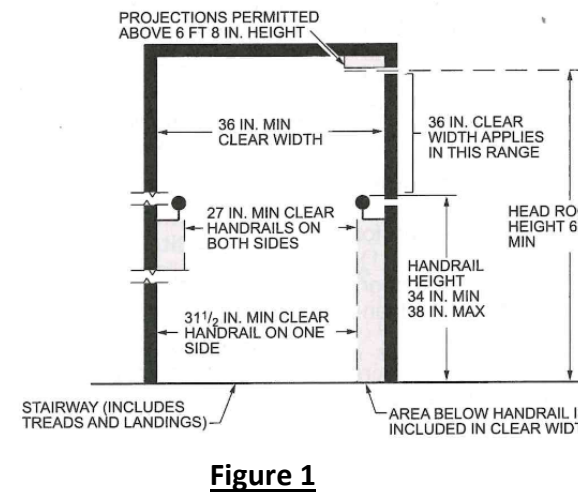
*Guards on the open side of stairs shall not have openings that allow passage of a sphere 4 inches in diameter (Figure 2b).*

**Winder Treads.**

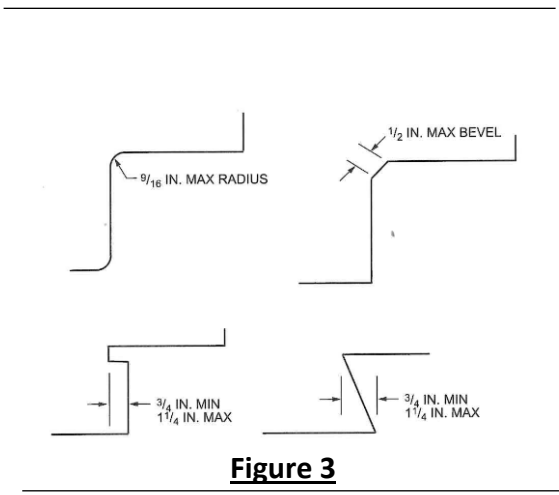
Winder treads shall have a tread depth of not less than 10 inches measured between the vertical planes of the foremost projection of adjacent treads at the intersections with the walkline.

Winder treads shall have a tread depth of not less than 6 inches at any point within the clear width of the stair. Within any flight of stairs, the largest winder tread depth at the walkline shall not exceed the smallest winder tread by more than 3/8 inch.

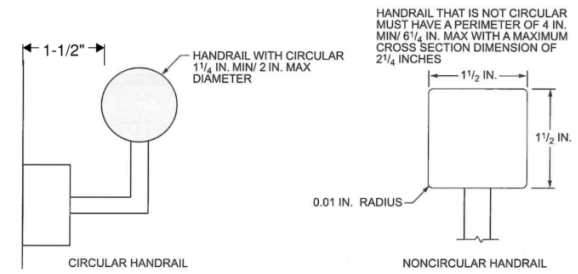
Consistently shaped winders at the walkline shall be allowed within the same flight of stairs as rectangular treads and shall not be required to be within 3/8 inch of the rectangular tread depth (Figure 7).



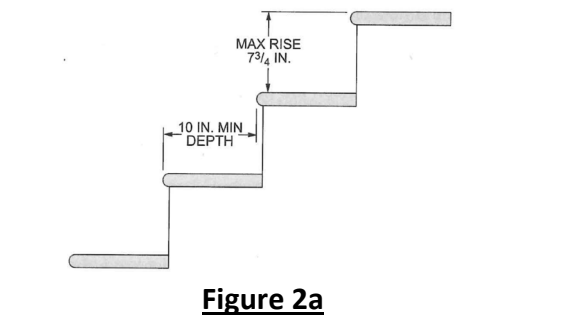
**Figure 1**



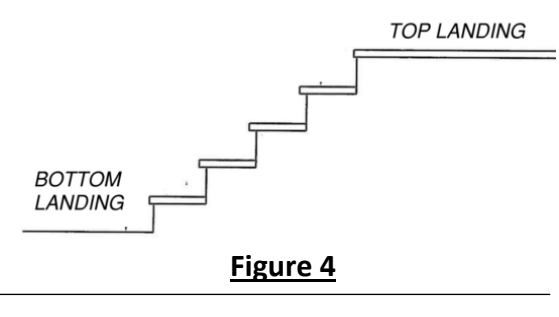
**Figure 3**



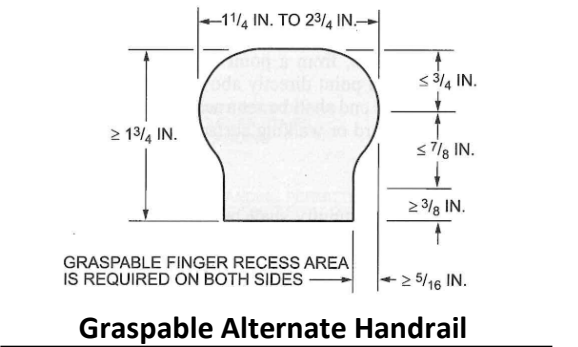
**Figure 6**



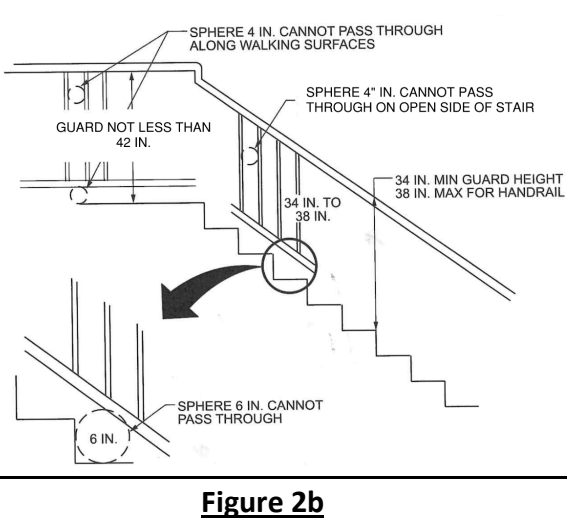
**Figure 2a**



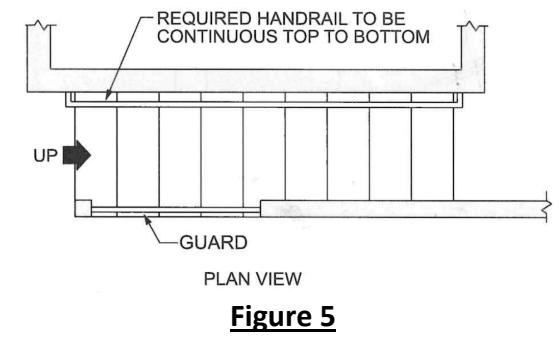
**Figure 4**



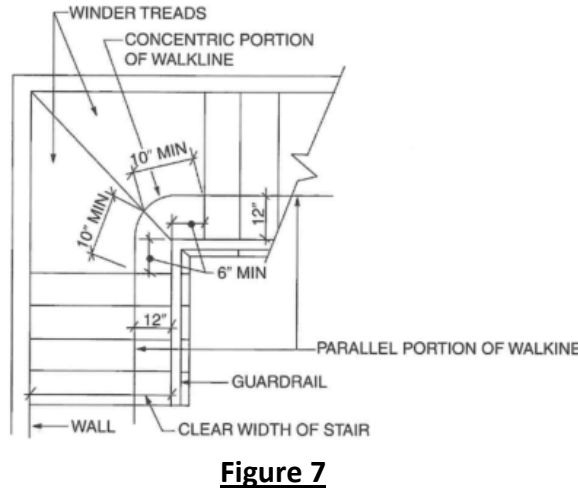
**Graspable Alternate Handrail**



**Figure 2b**



**Figure 5**



**Figure 7**