

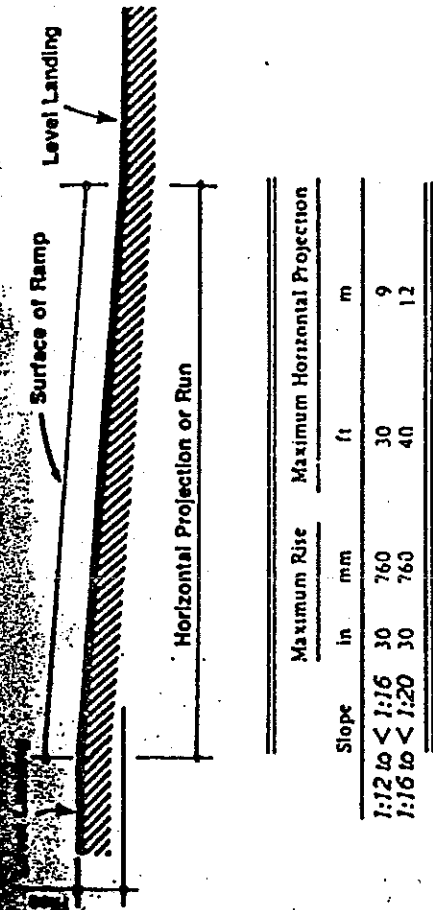
**VILLAGE OF HILLSIDE**

**ADA RAMP SPECIFICATIONS**

e) Ramps

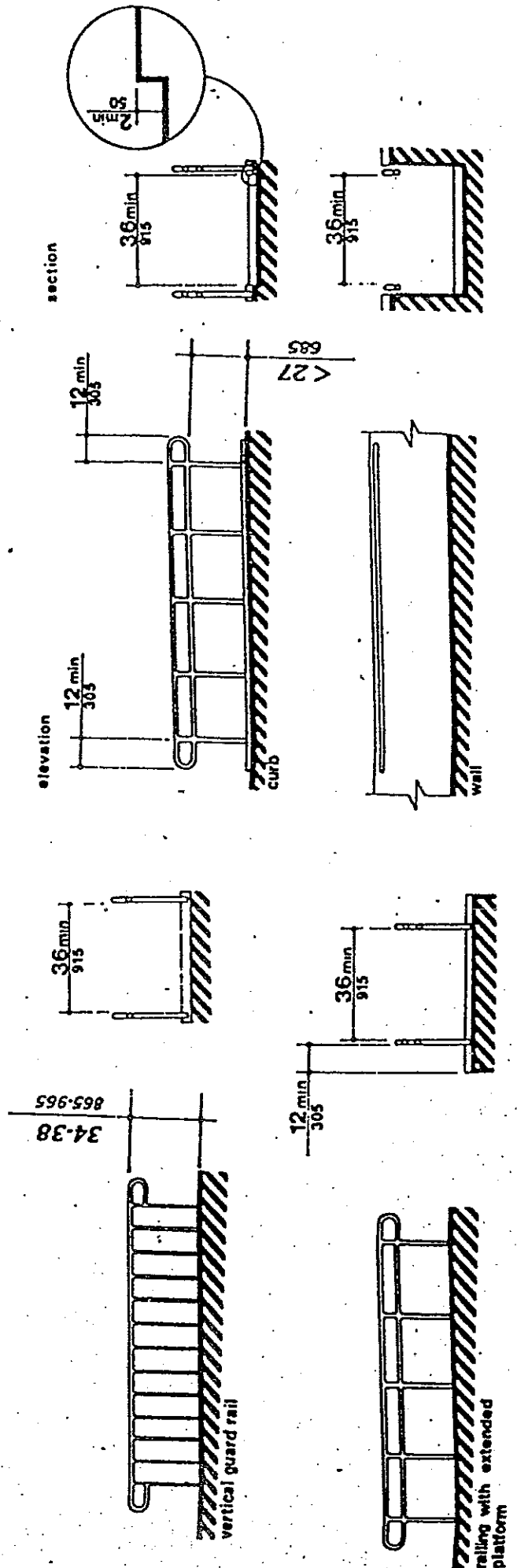
- 1) **General.** Any part of an accessible route with a slope greater than 1:20 shall be considered a ramp and shall comply *with the following requirements unless another means of accessible vertical access (e.g., accessible elevator or accessible platform lift) is provided.* (ADAAG 4.8.1)
- 2) **Slope and Rise.** The least possible slope shall be used for any ramp. The maximum slope of a ramp in new construction shall be 1:12. The maximum rise for any run shall be 30 in. (760 mm) (see Illustration B, Fig. 16). Curb ramps and *interior or exterior* ramps to be constructed on existing sites or in existing buildings or facilities *where space limitations prohibit the use of a 1:12 slope or less* may have slopes and rises as follows: (ADAAG 4.8.2)
  - A) A slope between 1:10 and 1:12 is allowed for a maximum rise of 6 in.
  - B) A slope between 1:8 and 1:10 is allowed for a maximum rise of 3 in. A slope steeper than 1:8 is not allowed. (ADAAG 4.1.6(3)(a))
- 3) **Clear Width.** The minimum clear width of a ramp shall be 36 in. (915 mm). (ADAAG 4.8.3)
- 4) **Landings.** Ramps shall have level landings at bottom and top of each ramp and each ramp run. Landings shall have the following features:
  - A) The landing shall be at least as wide as the ramp run leading to it.
  - B) The landing length shall be a minimum of 60 in. (1525 mm) clear.
  - C) If ramps change direction at landings, the minimum landing size shall be 60 in. by 60 in. (1525 mm by 1525 mm).
  - D) If a doorway is located at a landing, then the area in front of the doorway shall comply with subsection (j)(5) of this Section. (ADAAG 4.8.4)

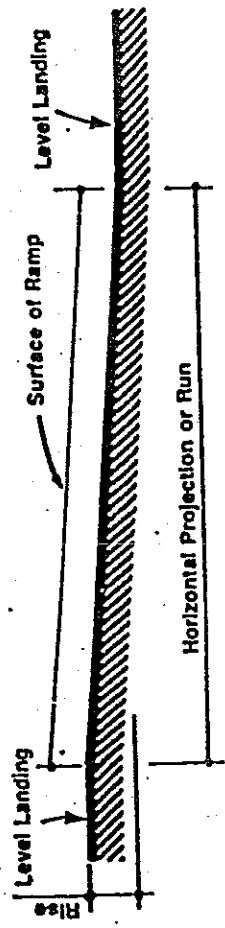
- 5) **Handrails.** If a ramp run has a rise greater than 6 in. (150 mm) or a horizontal projection greater than 72 in. (1830 mm), then it shall have handrails on both sides. Handrails are not required on curb ramps or adjacent to seating in assembly areas. Handrails shall comply with subsection (p) of this Section and shall have the following features:
- A) Handrails shall be provided along both sides of ramp segments. The inside handrail on switchback or dogleg ramps shall always be continuous.
  - B) If handrails are not continuous, they shall extend at least 12 in. (305 mm) beyond the top and bottom of the ramp segment and shall be parallel with the floor or ground surface (see Illustration B, Fig. 17).
  - C) The clear space between the handrail and the wall shall be 1-1/2 in. (38 mm).
  - D) Gripping surfaces shall be continuous.
  - E) Top of handrail gripping surfaces shall be mounted between 34 in. and 38 in. (865 mm and 965 mm) above ramp surfaces.
  - F) Ends of handrails shall be either rounded or returned smoothly to floor, wall, or post.
  - G) Handrails shall not rotate within their fittings. (ADAAG 4.8.5)
- 6) **Cross Slope and Surfaces.** The cross slope of ramp surfaces shall be no greater than 1:50. Ramp surfaces shall comply with subsections (a)(5), (7), (11) and (12) of this Section. (ADAAG 4.8.6)
- 7) **Edge Protection.** Ramps and landings with drop-offs shall have curbs, walls, railings, or projecting surfaces that prevent people from slipping off the ramp. Curbs shall be a minimum of 2 in. (50 mm) high (see Illustration B, Fig. 17). (ADAAG 4.8.7)
- 8) **Outdoor Conditions.** Outdoor ramps and their approaches shall be designed so that water will not accumulate on walking surfaces. (ADAAG 4.8.8)
- 9) **Exceptions.** *The following areas do not have to be served by accessible ramps provided that such areas comply with Section 400.320 (a)(1), and further provided that the same functions and services are available on an accessible level of the space: temporary raised platforms; seating tiers; theater rows; stadium rows; and auditorium rows utilizing fixed seating. Ramps do not have to be provided to all levels of a multi-level platform. For requirements for restaurants and cafeterias, see Section 400.320(f).*



Slope	Maximum Rise		Maximum Horizontal Projection	
	in	mm	ft	m
1:12 to < 1:16	30	760	30	9
1:16 to < 1:20	30	760	40	12

Fig. 16  
Components of a Single Ramp Run and Sample Ramp Dimensions





Maximum Rise		Maximum Horizontal Projection	
Slope	in.	mm	m
1:12 to < 1:16	30	760	9
1:16 to < 1:20	30	760	12

Fig. 16  
Components of a Single Ramp Run and Sample Ramp Dimensions

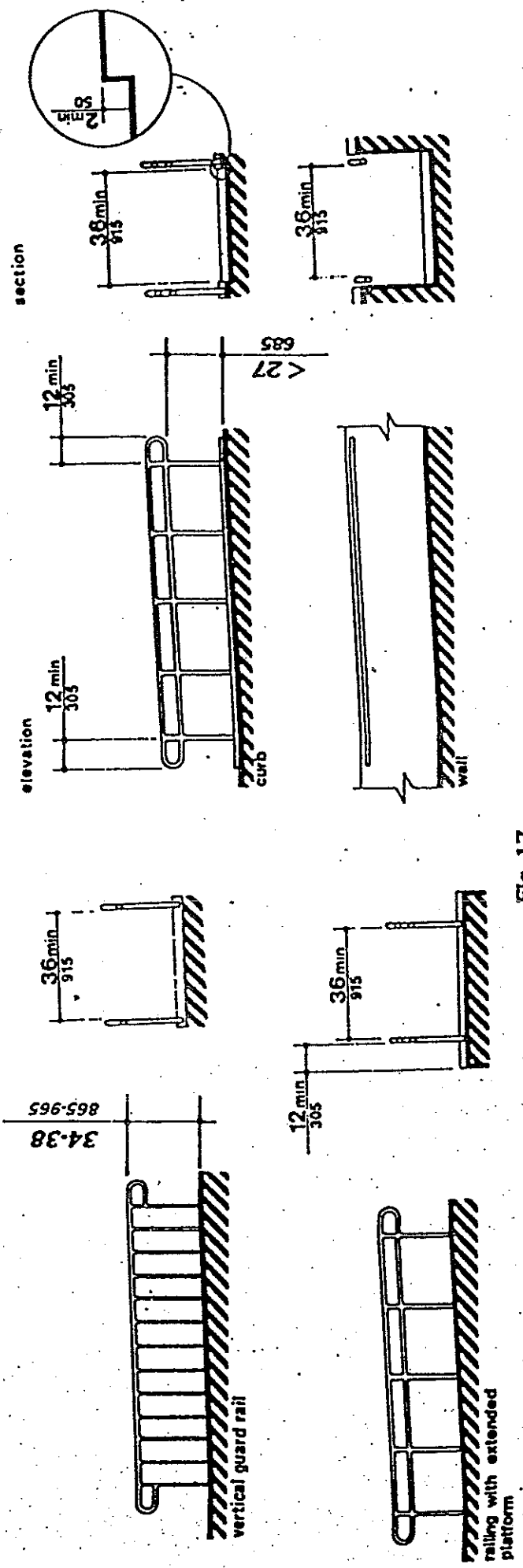


Fig. 17

## SECTION 1019.0 HORIZONTAL EXITS

**1019.1 General:** *Horizontal exits* shall be accepted as an approved *exit* element of a required *means of egress*. The connection between an area of a building which the *horizontal exit* serves and the area of refuge as herein required shall be accomplished by protected openings in a fire-resistance rated wall, or by an open-air balcony or bridge.

**1019.2 Separation:** The separation between buildings or areas of refuge connected by a *horizontal exit* shall be provided by at least a 2-hour fire-resistance rated *fire wall* or *fire separation assembly* with approved opening protectives complying with Chapter 7 and Table 602.

**1019.2.1 Doors:** All doors shall swing in the direction of egress travel. Where the *horizontal exit* serves as an *exit* from both sides of the wall, there shall be adjacent openings with swinging *fire doors* opening in opposite directions.

**Exception:** Horizontal sliding doors complying with Section 1017.4.4 where serving an occupant load of less than 50.

**1019.3 Area of refuge:** The discharge area of a *horizontal exit* shall be either public areas or spaces occupied by the same tenant, and each such area of refuge shall be adequate to hold the total occupant load of both connected areas. The capacity of areas of refuge shall be computed on a minimum *net floor area* allowance for each occupant to be accommodated therein, not including areas of *stairways*, elevators and other *shafts* or *courts*, as follows:

1. 30 square feet (2.8 m<sup>2</sup>) per patient for hospitals and nursing homes.
2. 6 square feet (0.56 m<sup>2</sup>) per occupant on stories not housing patients confined to a bed or litter in an occupancy in Use Group I-2.
3. 6 square feet (0.56 m<sup>2</sup>) per occupant in an occupancy in Use Group I-3.
4. 3 square feet (0.28 m<sup>2</sup>) in all other cases.

**1019.4 Egress from area of refuge:** The path of egress travel from the *horizontal exit* through the area of refuge to another *exit* shall be continuously available. In other than occupancies in Use Group I-3, there shall be at least one *exit* on each side of the *horizontal exit* which is not a *horizontal exit*. Any area of refuge not having access to an *exit*, other than a *horizontal exit*, shall be considered as part of an adjoining area of refuge with such *exit*. In the area(s) served by the *horizontal exit*, the length of *exit access* travel distance to the *horizontal exit* or another *exit* shall not exceed the requirements of Section 1006.5. Occupancies in Use Group I-3 shall conform to Section 410.3.3.

### SECTION 1020.0 LEVEL OF EXIT DISCHARGE PASSAGEWAYS USED AS AN EXIT ELEMENT

**1020.1 Passageways:** Every required interior and exterior *exit* element which does not adjoin a *public way* shall be directly connected to the *public way* or to an open *court* leading to the *public way* by an enclosed passageway at the *level of exit discharge*, constructed in accordance with the requirements for the enclosure of the *exit* it serves, or through lobbies or vestibules as provided for in this section. *Building areas* below the *level of exit discharge* shall be separated from the passageway in accordance with the requirements for the enclosure of *exits*.

**1020.2 Vestibule:** Where an *exit* discharges into an interior vestibule, the vestibule shall be used for ingress and *means of egress* only, and the vestibule shall comply with Sections 1020.2.1 and 1020.2.2.

**1020.2.1 Depth and width:** The vestibule depth from the exterior of the building shall not be greater than 10 feet (3048 mm) and the width shall not be greater than 20 feet (6096 mm).

**1020.2.2 Separation:** The vestibule shall be separated from the remainder of the *level of exit discharge* by self-closing doors and the equivalent of 1/4-inch-thick wired glass in steel frames.

**1020.3 Lobby:** Where an *exit* discharges into an interior *lobby* located at the *level of exit discharge*, the story containing the *lobby* shall be equipped throughout with an *automatic sprinkler system* installed in accordance with Section 906.2.1 or 906.2.2. Opening protectives shall be required in accordance with Table 716.1 at the point in which an enclosed *exit stairway* discharges into a lobby.

**Exception:** An *automatic sprinkler system* is not required in areas that are separated from the *lobby* by *fire separation assemblies* (see Section 709.0) having a fire-resistance rating of not less than that required for *exit* enclosures.

**1020.4 Width and height:** The clear width of the passageway shall not be less than the width required for the capacity of the *exit stairways* leading thereto and all required *exit* doorways opening into the passageway. Such passageway shall have a minimum width of 44 inches (1118 mm) and a minimum clear ceiling height of 8 feet (23438 mm).

**1020.5 Maximum stairway limitations:** Not more than 50 percent of the required *stairways* shall discharge through the same passageway. Multiple *lobbies* constructed in accordance with Section 1020.3 located adjacent to one another shall be separated from each other in accordance with the requirements for enclosure of *exits*.

## SECTION 1021.0 GUARDS

**1021.1 General:** Where required by the provisions of Sections 406.5, 408.3.2, 1005.5, 1014.7, 1016.5 and 1825.5, guards shall be designed and constructed in accordance with the requirements of this section and Section 1615.8. A guardrail system is a system of building components located near the open sides of elevated walking surfaces for the purpose of minimizing the possibility of an accidental fall from the walking surface to the lower level.

**1021.2 Height:** The guards shall be at least 42 inches (1067 mm) in height measured vertically above the leading edge of the tread or adjacent walking surface.

### Exceptions

1. In other than occupancies in Use Group E, guards shall not be less than 34 inches (864 mm) in height above the leading edge of the tread along stairs which are not more than 20 feet (6096 mm) in height or which reverse direction at an intermediate landing with 12 inches (305 mm) or less measured horizontally between successive flights.
2. Guards along open-sided floor areas, *mezzanines* and landings in occupancies in Use Group R-3 shall not be less than 36 inches (914 mm) in height.

**1021.3 Opening limitations:** In occupancies in Use Groups A, B, E, H-4, I-1, I-2, M and R, and in *public garages* and open parking structures, open guards shall have balusters or be of solid material such that a sphere with a diameter of 4 inches (102 mm) cannot pass through any opening. Guards shall not have an ornamental pattern that would provide a ladder effect.

**Exception:** The triangular openings formed by the riser, tread and bottom rail at the open side of a *stairway* shall be of a maximum size such that a sphere 6 inches (152 mm) in diameter cannot pass through the opening.

In occupancies in Use Groups I-3, F, H-1, H-2, H-3 and S, other than *public garages* and open parking structures, balusters, horizontal intermediate rails or other construction shall not permit a sphere with a diameter of 21 inches (533 mm) to pass through any opening.

**1021.4 Railings:** Metal or other approved noncombustible railings shall be provided on balconies and galleries as prescribed in Sections 1021.4.1 through 1021.4.3.

**1021.4.1 At fascia:** Railings shall be provided: at the fascia of boxes, balconies and galleries and shall not be less than 26 inches (660 mm) in height; at the end of aisles extending to the fascia for the full width of the aisle and shall not be less than 36 inches (914 mm) in height; and at the foot of steps for the full width of the steps and shall not be less than 42 inches (1067 mm) in height.

**1021.4.2 At cross aisles:** Railings shall be provided along cross aisles, and shall not be less than 26 inches (660 mm) in height except that railings are not required where the backs of the seats along the front of the aisles project 24 inches (610 mm) or more above the floor of the aisle.

**1021.4.3 Successive tiers:** Where seatings are arranged in successive tiers, and where the height of rise between platforms exceeds 18 inches (457 mm), railings not less than 26 inches (660 mm) in height shall be provided along the entire row of seats at the edge of the platform.

## SECTION 1022.0 HANDRAILS

**1022.1 General:** Where required by the provisions of Sections 1012.5, 1013.0, 1014.6.6.1, 1014.7 and 1016.5, handrails shall be designed and constructed in accordance with this section and Section 1615.8. A handrail is a horizontal or sloping rail grasped by hand for guidance or support, and for arresting falls on the adjacent walking surface.

**1022.2 Handrail details:** Handrail-gripping surfaces shall be continuous, without interruption by newel posts, other structure elements or obstructions. A handrail and any wall or other surface adjacent to the handrail shall be free of any sharp or abrasive elements. The clear space between the handrail and the adjacent wall or surface shall not be less than 1½ inches (38 mm). Edges shall have a minimum radius of ⅛ inch (3 mm).

**1022.2.1 Projection:** Handrails shall not project more than 3½ inches (89 mm) into the required passageway, aisle, corridor, stair or ramp width.

**1022.2.2 Height:** Handrails shall not be less than 34 inches (864 mm) nor more than 38 inches (965 mm), measured vertically, above the leading edge of the treads or above the finished floor of the landing or walking surfaces.

### Exceptions

1. Handrails that form part of a guard shall have a height not less than 34 inches (864 mm) and not more than 42 inches (1067 mm).
2. Handrails within individual *dwelling units* shall not be less than 30 inches (762 mm) nor more than 38 inches (965 mm), measured vertically, above the leading edge of the treads or above the finished floor.

**1022.2.3 Handrails in guards:** Handrails that form part of a guard shall comply with Section 1021.3.

**1022.2.4 Handrail ends:** At locations where handrails are not continuous between *stairway* flights, including the top and bottom of a *stairway*, the handrails shall extend horizontally at least 12 inches (305 mm) beyond the top riser and continue to slope for the depth of one tread beyond the bottom riser. The handrail ends shall be returned to a wall or post.

Where handrails are not continuous between ramp segments, including the top and bottom of a ramp, the handrails shall extend at least 12 inches (305 mm) beyond the top and bottom of the ramp segment and shall be parallel with the floor or ground surface. The handrail ends shall be returned to a wall or post.

**Exception:** Within a *dwelling unit*, the horizontal extension beyond the top riser of the *stairway* flight or top of the ramp segment, and the extension beyond the bottom riser of the *stairway* flight or bottom of the ramp segment, is not required.

**1022.2.5 Handrail grip size:** All *stairway* handrails shall have a circular cross section with an outside diameter of at least 1¼ inches (32 mm) and not greater than 2 inches (51 mm).

### Exceptions

1. Any other shape with a perimeter dimension of at least 4 inches (100 mm), but not greater than 6¼ inches (158 mm) with the largest cross-sectional dimension not exceeding 2¼ inches (57 mm).
2. Approved rails of equivalent graspability.

**1022.2.6 Handrails of alternating tread stairways:** Stair handrails of *alternating tread stairways* shall be of such a configuration as to provide an adequate hand-hold for a person grasping the handrail to avoid falling. A minimum distance of 6 inches (152 mm) shall be provided between the stair handrail and any other object. A minimum distance of 12 inches (305 mm) shall be provided between the stair handrails of adjacent *alternating tread stairways*. Handrails on *alternating tread stairways* shall be spaced a minimum width of 17 inches (432 mm), not to exceed 24 inches (610 mm), between the handrails.