# DISABLED ACCESS NOTES

## XVI. TELEPHONES

1. On floors where public telephones are provided, at least one telephone shall be accessible. On any floor where two or more banks of multiple telephones are provided, at least one telephone in each bank shall be accessible. Sec 1111A.

2. A clear floor or ground space at least 30 inches by 48 inches that allows either a forward or parallel approach by a person using a wheelchair shall be provided at telephones. Knee space may be included as part of this clear space. Sec 1111A.2&3.

3. If the telephone is located in an alcove or otherwise confined on all or part of three sides, additional maneuvering clearances shall not impede approaches to telephones by people who use use wheelchairs. Sec 1111A.4&5.

4. The highest operable part of the telephone shall be within the allowable reach ranges. Telephones mounted diagonally in a corner that require wheelchair users to reach diagonally shall have the highest operable part no higher than 54 inches above the floor. Sec 1111A.6.

5. If telephone enclosures are provided, they may overhang the required clear space with the following limits: Sec 1111A.7.

   a. Side Reach Possible. The overhang shall be no greater than 19 inches. The height of the lowest overhanging part shall be equal to or greater than 27 inches. Sec 1111A.7.1.

   b. Full Height Enclosures. Entrances to full-height enclosures shall be 30 inches minimum. Sec 1111A.7.2.

   c. Forward Reach Required. If the overhang is greater than 12 inches, then the clear width of the enclosure shall be 30 inches minimum. If the clear width of the enclosure is less than 30 inches, then the height of the lowest overhanging part shall be equal to or greater than 27 inches. Sec 1111A.7.3.

6. Telephones shall be equipped with a receiver that generates a magnetic field in the area in the area of the receiver cups. A reasonable number, but at least one on each floor or in each bank, shall be equipped with a volume control. So telephones shall be capable of a minimum 12 dba and a maximum of 18 dba above normal. If an automatic reset is provided, 18 dba may be exceeded. Public telephones with volume control shall be hearing aid compatible and shall be identified by a sign containing a depiction of a telephone handset with radiating sound waves. Sec 1111A.8.

7. Instead of four or more public pay telephones are provided at the interior and exterior of a site, and if at least one of the total is in an interior location, then at least one interior public text telephone shall be provided. Sec 1111A.9.

8. telephones shall have a push-button controls where service for such equipment is available. Sec 1111A.10.

9. The cord from the telephone to the handset shall be at least 29 inches long. Sec 1111A.11.

10. If telephone books are provided, they shall be located in a position that complies with the reach ranges. Sec 1111A.12.

## XVII. SPACE ALLOWANCE & REACH RANGES

1. The minimum clear floor or ground space required to accommodate a single, stationary wheelchair and stationary wheelchair and occupant is 30" by 48". The minimum clear floor or ground space for wheelchairs may be positioned for forward or parallel approach to an object. Clear floor or ground space for wheelchairs may be a part of the knee space provided under some objects.

2. One full unobstructed side of the clear floor or ground space for a wheelchair shall adjoin or overlap an accessible route or adjoin another wheelchair clear floor space. If a clear floor or ground space is located in an alcove or otherwise confined on all or part of three sides, additional maneuvering clearances shall be provided.

3. The space required for a wheelchair to make a 180 degree turn is a clear space of 60" diameter or a 60" diameter or a T-shaped space.

4. The minimum clear width required for a wheelchair to turn around an obstruction shall be 36" where the obstruction is 48" or more in length and 42" and 48" where the obstruction is less than 48" in length.

5. The minimum clear width for single wheelchair passage shall be 32" at a point (24" maximum length) and 36" continuously.

6. The minimum width for two wheelchairs to pass is 60 inches.

7. If the clear floor space only allows forward approach to an object, the maximum high forward reach allowed shall be 48". allowed shall be 48". The minimum low forward reach is 15".

8. If the clear floor space allows parallel approach by a person in a wheelchair, maximum high side reach allowed shall be and the low side reach shall be no less than 9" above the floor.

## XIX. SIGNS & IDENTIFICATION

NOTE: The international symbol of Accessibility shall be the standard used to identify facilities that are accessible to and usable by the physically disabled persons as set forth in Title 24.

1. The international symbol of Accessibility shall consist of a white figure on a blue background. The blue shall be equal to Color No. 15090 in Federal Standard 595b.

2. All building entrances that are accessible to and usable by persons with disabilities and every major junction along or leading to an accessible route of travel shall be identified with a sign the International Symbol of Accessibility and with additional directional signs, as required, to be visible to persons along approaching pedestrian ways.

3. When permanent identification is provided for rooms and spaces raised letters shall be provided and shall be accompanied by Braille. Signs shall be installed on the wall adjacent to the latch side, including at double leaf doors, signs shall be placed on the nearest adjacent wall, preferably on the right. Mounting height shall be 60 inches above the finished floor to the centerline of the sign. Mounting location shall be determined so that a person may approach within 3" of signage without encountering protruding objects or standing within the swing of a door.

4. When raised characters or symbols are used, they shall conform to following:

   a. Letters and numbers on signs shall be raised or recessed 1/32" minimum and shall be sans-serif uppercase characters accompanied by grade 2 Braille.

   b. Raised characters or symbols shall be a minimum of 5/8" high (maximum of 2").

   c. Pictorial symbols signs (pictograms) shall be accompanied by the equivalent verbal description placed directly below the pictogram pictogram. The border dimension of the pictogram shall be a minimum of 6 inches in height.

5. Letters and numbers on signs shall have a width-to height ratio of between 3:5 and 1:1 and a stroke width-to-height ratio between 1:5 and 1:10.

6. Characters and symbols shall contrast with their background, either light characters on a dark background or dark characters on a light background.

7. Characters and numbers on signs shall be sized according to the viewing distance from which they are to be read. The minimum height is measured using an upper case X. Lower case characters are permitted for signs suspended or projected above the finish floor the minimum character height shall be 3 inches in height.

8. Contracted Grade 2 Braille shall be used wherever Braille symbols are specifically required in other portions of these regulations. Dots shall be 1/10" on center in each cell with 2/10" separation between cells. Dots shall be raised a minimum of 1/40" above the background.

9. Audio supported pedestrian traffic control buttons shall be identified with color coding consisting of a textured horizontal yellow band 2 "in width encircling the pole, and a 1" wide dark border band above and below this yellow band. Color coding should be placed immediately above the control button. Control buttons shall be located no higher than 48 inches above the surface adjacent to the pole.

10. On doorways leading to men's sanitary facilities, an equilateral triangle 1/4-inch thick with edges 12 inches long and a vertex pointing upward shall be provided and on doorways leading to women's sanitary facilities a circle 1/4-inch thick and 12 inches in diameter shall be provided. These geometric symbols shall be centered on the door at a height of 60 inches and their color and contrast shall be distinctly different for the color and contrast of the door.

11. The International Symbol of Accessibility shall be the standard used to identify facilities that are accessible to and usable by physically disabled persons as set forth in these building standards. The symbol specified above shall consist of a white figure on a blue background. The blue shall be equal to Color No. 15090 in Federal Standard 595a.

## XX. OTHER

1. If emergency warning systems are required they shall activate a means of warning the hearing impaired. Flashing visual warning shall have a frequency of not more than 60 flashes per minute.

11. Controls to flush valves for water closet shall be mounted on the wide side of toilet areas no more than 44 inches above the floor. Sec 1502.

12. Walls must be reinforced to support grab bars as required. Sec 1109A.5.

13. Where mirrors and towel fixtures are provided, at least one of each shall be accessible. Sec 1109A.4.

14. Only one bathroom need to be accessible provided that it complies with the following additional provisions and all other bathrooms and powder rooms within the unit are on an accessible route with usable entry doors. Sec 1109A.2.2.

   a. When both tub and shower fixtures are provided, at least one shall be made accessible. When two or more lavatories in a bathroom are provided, at least one shall be made accessible. Sec 1109A.2-2.

   b. Toilets shall be located in a manner that permit a grab bar to be installed on one side of the fixture. In locations where toilets are adjacent to walls or bathtubs, the center line of the fixture must be a minimum of 1 foot 6 inches from the obstacle. The other (non-grab bar) side of the toilet fixture must be a minimum of 1 foot 6 inches from the finished surface of adjoining walls, vanities or from the edge of a lavatory. Table 1109A.2-2.

   c. Vanities and lavatories shall be installed with the centerline of the fixture a minimum of 1 foot 6 inches horizontally from an adjoining wall or fixture. The top of the fixture rim shall be a maximum of 2 feet 10 inches above the finished floor. If knee-space is provided below the vanity, the bottom of the apron must be at least 2 feet 5 inches above the floor. If provided, full knee space shall be insulated or otherwise covered. There shall be no sharp or abrasive surfaces under lavatories. Table 1109A.2-2.

15. Where separate facilities are provided for non-disabled persons of each sex, separate facilities shall be provided for disabled persons of each sex also. Where unisex facilities are provided for non-disabled persons, such unisex facilities may be provided for the disabled.

16. A projection of a lavatory bowl into the 8-inch clear space thereby reducing the clear height below the lavatory to no less than 27-inches at 8-inches back from the apron, meets the requirements for providing knee clearance

17. Locate towel, sanitary napkin, and waste receptacles with all operable parts not more than 40 inches from the floor.

18. Locate toilet tissue dispensers on the wall within 12" of the front edge of the toilet and no less than 19" from the floor. Dispensers that control delivery or that do not permit continuous paper feed shall not be used.

19. Where urinals are provided, at least one shall have a clear floor space 30" by 48" in front of the urinal to allow forward approach.

20. Where one or more urinals are provided, at least one with a rim projecting a maximum of 14" from the wall and at a maximum of 17" above the floor shall be provided.

21. Mirrors shall be mounted with the bottom edge no higher than 40" from the floor.

22. Where towel, sanitary napkins, waste receptacles, and other similar dispensing and disposable fixture are provided, at east one of each type shall be located with all operable parts, including coin slots, within 40" from the finish floor.

23. Toilet room floors shall have a smooth, hard, non-absorbent surface such as Portland cement, concrete, ceramic tile or other approved material which extends upward onto the walls at least 5 inches. Walls within water closet compartments and walls with in 24" of the front and sides of urinals shall be similarly finished to a height of 48" and, except for structural elements, the materials used in such walls shall be a type which is not adversely affected by moisture.

## XVI. GRAB BARS

1. Grab bars need not be installed in either a bathing or toilet facility within an adaptable dwelling unit provided that structural reinforcements for future installation of grab bars are provided in the appropriate locations in the adjoining walls. The reinforcement shall be of sufficient length to permit the installation of grab bars. The reinforced wall shall be capable of supporting a load of a least 250 pounds. Sec 1109A.5.

2. Reinforcement installed at the side of the toilet shall be installed on both sides or one side and the back. If reinforcement is installed at the back it shall be installed between 32 and 38 inches above the floor. The grab bar reinforcement shall be a minimum of 6 inches nominal in height. The backing shall be a minimum of 40 inches in length. Sec 1109A.6

3. Reinforcement installed at the side of the toilet shall be installed 32 inches to 38 inches above the floor. The reinforcement shall be installed a maximum of 12 inches from the rear wall and shall extend a minimum of 26 inches in front of the water closet stool. The grab bar reinforcement shall be a minimum of 6 inches nominal in height. Sec 1109A.6.

4. Where the toilet is not placed adjacent to a side wall, the bathroom shall have provisions for installation of floor mounted, foldaway or similar alternative grab bars. Sec 1109A.6.

5. Where a tub is installed with surrounding walls, grab bar reinforcement shall be installed on each of the bathtub 32 inches to 38 inches above the floor extending a minimum of 24 inches aligned with the front edge of the bathtub towards the back wall of the bathtub. The grab bar reinforcement shall be a minimum of 6 inches nominal in height. Sec 1109A.7.

6. Grab bar reinforcement shall be installed on the back wall of the bathtub commencing a maximum of 6 inches above the bathtub rim and extending upward to a point a minimum of 38 inches above the floor. The grab bar backing shall be installed horizontally in length to permit the installation of a 48 inch grab bar with each end a maximum of 6 inches from the end walls of the bathtub. The grab bar reinforcement shall be a minimum of 6 inches nominal in height. Sec 1109A.7.

7. A bathtub may be installed without surrounding walls provided reinforcement are provided for installation of floor-mounted grab bars. Sec 1109A.7.

8. Grab bar reinforcement shall be installed continuous in the walls of adaptable showers 32 inches to 38 inches above the floor. The grab bar reinforcement shall be a minimum of 6 inches in height. Sec 1109A.8.

9. Glass-walled shower stalls shall provide reinforcement for installation of floor-mounted grab bars. reinforcement for installation of ceiling mounted grab bars is permitted. Sec 1109A.8.

10. The diameter or width of the gripping surfaces of a grab bar shall be 1-1/4 inches to 1-1/2 inches or the shape shall provide an equivalent gripping surface.

11. If the grab bars are mounted adjacent to a wall, the space between the wall and the grab bars shall be 1-1/2 inches.

12. Grab bars shall be mounted on each side, or on one side and the back of the accessible toilet stall or compartment.

13. Grab bars at the side shall be at least 42" long with the front end positioned 24" in front of the water closet stool and the back end positioned no more than 12" less from the rear wall. Grab bars at the back shall be not than 36" long.

14. Grab bars shall be securely attached 33" above and parallel to the floor, except that where a tank-type toilet is used which obstructs placement at 33", the grab bar may be as high as 36".

15. The diameter or width of the gripping surfaces of a grab bar shall be 1-1/4" to 1-1/2" or the shape shall provide an equivalent gripping surface. If grab bars are mounted adjacent to a wall, the space between the wall and the grab bar shall be 1-1/2".

16. The structural strength of grab bars, tub and shower seats fasteners, and mounting devices shall meet the following specifications:

   a. Bending stress in a grab bar or seat induced by the the maximum bending moment from the application of a 250 lb point load shall be less than the allowable stress for the material of the grab bar or seat.

   b. Shear stress induced in a grab bar or seat by the application of a 250 lb point load shall be less than the allowable shear stress for the material of the grab bar or seat, and the mounting bracket or other support is considered to be fully restrained, then direct and torsional shear stress shall not exceed the allowable shear stress.

   c. Shear force induced in fastener or mounting devices from the application of a 250 lb point load shall be less than the allowable lateral load of either the fastener or mounting device or the supporting structure, whichever has the smaller allowable load.

   d. Tensile force induced in fastener by a direct tension force of a 250 lb point load, plus the maximum moment from the application of a 250 lb point load, shall be less than the allowable withdrawal load between the fastener and supporting structure

   e. Grab bars shall not rotate within their fittings.

20. There shall be a level and clear floor or landing on each side of a door. The level area shall have a length in the direction of door swing of at least 60" and the length opposite the direction of door swing of 48" as measured at right angles to the plane of the door in the closed position. Sec 3304(i.1)2A.

21. All gates, including ticket gates, shall meet all applicable accessibility specifications of doors.

22. The space between two consecutive door openings in a vestibule, serving other than a required exit stairway shall provide a minimum of 48-inches of clear space from any door opening into such vestibule when the door is positioned at an angle of 90 degrees from its closed position. Doors in a series shall swing either in the same direction or away from the space between the doors.

## XII. CORRIDORS

1. Every corridor serving an occupant load of 10 or more shall not be less than 44 inches wide. Sec 1005.2.1.

2. Corridors serving an occupant load of less than 10 shall not be less than 36 inches wide. Sec 1005.2.1.

3. Corridors that exceed 200 feet in length shall: Sec 1005.2.2.

   a. Have minimum clear width of 60 inches; or

   b. have, at a central location, a 60 inch by 60 inch minimum wheelchair turning space or passing alcove; or

   c. have, at a central location, and intervening cross or tee corridor, a minimum of 44 inches in width; or

   d. Have, at a central location, and openable door.

4. When a corridor or exterior exit balcony is accessible to the handicapped, changes in elevation of the floor shall be made by means of a ramp, except as provided for doors by Sec 1004.9. Sec 1005.6.

5. Every portion of every building in which are installed seats, tables, merchandise, equipment or similar materials shall be provided with aisles leading to an exit.

6. Every aisle shall be not less than 3 feet width if serving only one side, and not less than 3 feet 6 inches if serving serving both sides. Such minimum width shall be measured at the point farthest from an exit, cross aisle or foyer and shall be increased by 1-1/2 inches for each 5 feet in length toward the exit, cross aisle or foyer. With continental seating side aisles shall be not less than 44 inches in width.

## XIII. SWITCHES AND ELECTRICAL OUTLETS

1. The center of electrical and communication system receptacle outlets shall be installed not less than 15 inches above the floor or working platform. Sec 210-7(g).

2. The center of the grip of the operating handle of controls or switches intended to be used by the occupant of the occupant of the room and other frequently used lighting and receptacle outlets, appliances, or cooling, heating, and ventilating equipment shall not be more than 48 inches above the floor or working platform. Sec 380-8(a).

3. The center of the grip of the operating handle of switches used to control light switches, thermostats, and other environmental controls shall be located no higher than 48 inches and no lower than 15 inches above the floor. Sec 210-7(g).

4. If the reach is over an obstruction (for example, a kitchen base cabinet) between 20 and 25 inches in depth, the maximum height is reduced to 44 inches for forward approach, or 46 inches for side approach provided the obstruction is no more than 24 inches in depth. obstruction may not extend more than 25 inches from the wall beneath the control. Sec 310-8(c).

5. The center of 15, 20, and 30-ampere electrical outlets must be installed no higher than 48 inches and no lower than 15 above the floor. if the reach is over an obstruction, comply with the same requirements specified in item no. 2. Sec 210-50(a).

6. The center of fire alarm initiating devices shall be located 48 inches above the level of the floor, working platform, ground surface, or sidewalk. Sec 760-9.

7. Clear floor space that allows forward or parallel approach by a person using a wheelchair shall be provided at controls, dispensers, receptacles, and other operable equipment.

8. Controls and operating mechanisms shall be operable with one hand and shall not require tight grasping, punching, or twisting of the wrist. The force required to activate controls shall be no greater than 5 pounds of force force.

## XIV. KITCHENS

1. U-Shaped kitchens with cabinets, appliances or fixtures on three walls shall be designed and constructed to provide a minimum clear space of 60 inches between cabinet fronts, appliances or fixtures to allow a parallel approach, or base cabinets shall be removable at the location to a height of 27 inches above the floor to permit a forward approach. A minimum clear space of 48 inches must be provided for all other kitchen design. Sec 1112A Exception.

2. Base cabinets directly under kitchen sink counter area, including toeboard and shelving, shall be removable without the use of specialized tools or specialized knowledge to provide clearance for a wheelchair. Finished flooring shall be provided on the floor under the sink counterbase. Sec 1112A.

3. A clear floor space at least 30 inches by 48 inches must be provided that allows a parallel approach by a person in a wheelchair at the range or cooktop and sink and either a parallel or forward approach at the oven, dishwasher, refrigerator/freezer and trash compactor. Sec 1112A.

4. Lower shelving and/or drawer space must be provided at a height of no more than 48 inches. Sec 1112A.3.

5. At least 30 inches of countertop must be provided for the kitchen sink. At least 30 inches shall be provided for a work space. Both the sink and the work space counter area shall be designed to enable repositioning to a minimum height of 28 inches. 5 percent of the dwelling units required to be accessible must comply with the requirement for repositionable countertops. Sec 1112A.2.

6. The sides and back of adjacent cabinets which may become exposed to moisture or food handling when the countertop is lowered are to be constructed of durable, nonabsorbent materials appropriate for such use. Install finished flooring on the floor beneath such countertops. Sec 1112A.2.

7. Kitchen sink faucet controls and operating mechanisms shall be operable with one hand and shall not require grasping tight or twisting of the wrist. The force required to activate faucet controls and operating mechanism shall be no greater than 5 lbs. lever-operated, push-type, and electronically activated mechanism are examples of acceptable designs self-closing valves are allowed if the faucet remains open for at least 10 seconds. Sec 1112A.1.

## XV. BATHROOMS

1. In privately funded multifamily dwelling units, bathroom entrance doorways shall be installed with an 18 inch clear space to the side of the latch side of the door on the swing side of the door. Table 1109A.2-1&2.

2. Sufficient maneuvering space must be provided for a person using a wheelchair to enter and close the door, use the fixtures, reopen the door and exit. Table 1109A.2 1&2.

   Where the door swings into the bathroom, there must be a clear space 30 inches by 48 inches within the room to position a wheelchair or other mobility aid close to the side of the door as it is closed and to permit use of fixtures. Table 1109A.2-1&2.

4. There shall be a minimum clear space 48 inches parallel by 30 inches perpendicular to the side of a bathtub or shower-shower combination measured from the foot of the bathtub. Table 1109A.2-1&2.

5. If a shower is the only bathing facility provided, the stall must measure at least 42 inches wide by 48 inches wide with an entrance opening of at least 36 inches. When a threshold is used, it shall be a maximum of 1/2 inch in height and shall be beveled or sloped angle not exceeding 45 percent from the horizontal. Maximum slope of the shower floor shall be 1/2 inch per foot in any direction and shall slope toward the rear to a drain located 6 inches of the rear wall. The drain must be a Carborundum or grit-faced tile or of material providing equivalent slip resistance. Table 1109A.2-1&2.

6. The water closet may be located in a space a minimum of 36 inches in clear width with 48 inches minimum clear space in front or a minimum of 48 inches in clear width with 36 inches minimum clear space in front. This space may include maneuverable space under a lavatory, arranged so as not to impede access. Sec 1109A.3.

7. Water closet seats must be at least 15 inches above the floor. Sec 1109A.3.

8. Water closet controls shall be operable with one hand, and shall not require tight grasping, pinching, or twisting of the wrist. The force required to activate controls shall be no greater than 5 pounds. Sec 1502.

9. Cabinets under lavatories are acceptable provided the bathroom has space to allow a parallel approach by a person in a wheelchair. If parallel approach is not possible, only cabinets would have to be removable to afford the necessary knee clearance for forward approach. Table 1109A2.2.

10. Lavatory controls and operating mechanisms shall be operable with one hand and shall not require tight grasping, pinching or twisting of the wrist. The force required to activate controls shall be no greater than 5 lbs. Lever operated, push-type, and electronically activated mechanisms are examples of acceptable designs. Self-closing valves are allowed if the faucet remains open for at least 10 seconds. Sec 1502.

   g. Controls and emergency equipment identified by raised symbols shall include, but not be limited to, door open, door close, alarm bell, emergency stop, and telephone.

   h. The call button for the main entry floor shall be designated by a raised star at the left of the floor designation.

16. A visual and audible signal shall be provided at each hoistway entrance indicating to the prospective passenger the car answering the call and its direction of travel as follows: Sec 3003.4.15.

   a. The visual signal for each direction shall be a minimum of 2-1/2 inches high by 2-1/2 inches wide, and visible from the proximity of the hall call button. Sec 3003.4.15.

   b. The audible signal shall sound once for the up direction and twice for the down direction or of a configuration which distinguishes between up and down elevator travel. Sec 3003.4.15.

   c. The center line of the fixture shall be located a minimum of 6 feet in height from the lobby floor. Sec 3003.4.15.

17. The use of in-car lanterns, located in or on the car door jambs, visible from the proximity for the hall call buttons and conforming to all other requirements of Sec 3003.4.15 will be acceptable. Sec 3003.4.15.

18. The use of arrow shapes is preferred for visible signals Sec 3003.4.15.

19. Passenger elevator landing jambs on all elevator floors shall have the number of the floor on which the car service is located designated by raised Arabic numerals which are a minimum of 2 inches in height and raised Braille symbols which conform to Sec 1117B.5.2 located approximately 5 feet above the floor on the jamb panels on both sides of the door so that they are visible from within the elevator. Raised Braille symbols shall be placed directly to the left of the corresponding raised Arabic numerals. The raised characters shall be on a contrasting background. Sec 3003.4.16.1.

20. Power-operated horizontally sliding car and hoistway doors opened and closed by automatic means shall be provided. Sec 3003.4.3.

21. Doors closed by automatic means shall be provided with a door reopening device which will function to stop and reopen a car door and adjacent hoistway door in case the car door is obstructed while closing. This reopening device shall also be capable of sensing an object or person in the path of the closing door without requiring contact for activation at a normal 5 inches above the floor level of the interior of the dwelling unit. These devices shall remain effective for a period of not less than 20 seconds. After such an interval the doors may close in accordance with the requirements of ANSI 17.1-86 of the American Society of Mechanical Engineers (ASME) document ASME 17.1-1990. Sec 3003.4.5.

22. The minimum acceptable time from notification that a car is answering a call (lantern and audible signal) until the doors of the car start to close shall be calculated in accordance with Sec 3003.4.6.1.

23. For cars with in-car lanterns, the total time, T, begins when the lantern is visible from the vicinity of the hall call buttons and an audible signal is sounded. Sec 3003.4.6.1.

24. The minimum acceptable time for doors to remain fully open shall not be less than 5 seconds. Sec 3003.4.6.2.

25. The elevator shall be automatic and provided with a self-leveling feature that will automatically bring the car to the floor landings with a tolerance of + or - 1/2 inch under normal loading and unloading conditions. This self-leveling shall, within its zone, be entirely automatic and independent of the operating device and shall correct the overtravel or undertravel. The car shall also be maintained approximately level with the landing, irrespective of load. The clearance between the car platform sill and the edge of the hoistway landing shall be no greater than 1-1/4 inches. Sec 3003.4.2.

26. The width of the level area on the side to which the door swings shall extend a minimum of 24" past the strike edge of the door for exterior doors and a minimum of 18" past the strike edge for interior doors. Sec 1004.9.2.3.

27. The floor or landing shall be not be more than 1/2" lower than the threshold of the doorway. Sec 1004.8.

28. The bottom 10 inches of all doors except automatic and sliding shall have a smooth uninterrupted surface to allow the door to be opened by a wheelchair footrest without creating a trap or hazardous condition. Where narrow frame doors are used, a 10-inch high smooth panel shall be installed on the push side of the door, which will allow the door to be opened by a wheelchair footrest without creating a trap or hazardous condition. Sec 1004.8.1.

29. Maximum effort to operate doors shall not exceed 8-1/2 lbs. for exterior doors and 5 lbs for interior doors, such pull or push effort being applied at right angles to hinged doors and at the center plane of sliding or folding doors. Compensating devices or automatic door operators may be utilized to meet the above standards. When fire doors are required, the maximum effort to operate the door may be increased not to exceed 15 lbs. Sec 1004.5.1.

   base tapering to 0.45" at the top, a height of nominal 0.2", and center-to center spacing of nominal 2.35", in compliance with Figure 31-23. "Nominal" as used here, shall be in accordance with Section 12-31-102, State Referenced Standards Code. The detectable warning shall contrast visually with adjoining surfaces, either light-on-dark or dark-on-light. The material used to provide contrast shall be an integral part of the walking surface. The domes may be constructed in a variety of methods, including cast-in-place or stamped, or may be part of a prefabricated surface. Sec 1117A.4.7.

9. Curb ramps shall be located or protected to prevent their obstruction by parked cars. Sec 1117A.4.8.

10. All curb ramps shall have a grooved border 12" wide at the level surface of the sidewalk along the top and each side approximately 3/4" on center. All curb ramps constructed between the face of the curb and the street shall have a grooved border at the level surface of the sidewalk.

11. Maximum slopes of adjoining gutters, road surface immediately adjacent to the curb ramp or accessible route, shall not exceed 1:20 within 4' of the top and the bottom of the curb ramp. The slope of the tanned or flared sides of curb ramps shall not exceed 1 vertical to 8 horizontal.

## VII. PRIMARY ENTRY ACCESS

1. All entrances and all exterior ground floor exit doors to buildings shall be made accessible to persons with disabilities. Sec 1001.9.1.

2. During periods of partial or restricted use of a building or facility, the entrances used for primary access shall be accessible to and usable by persons with disabilities. Sec 1001.9.2.

3. Accessible entrances to a building shall be identified by the international symbol of accessibility. Sec 1117A.3.

4. Every primary entrance to an adaptable dwelling unit shall be provided with a door buzzer, bell, chime, or equivalent installation, mounted a maximum of 48 inches above the floor, connected to permanent wiring. Sec 1106A.

## VIII. STAIRWAYS

1. Stairways shall have handrails on each side, and every stairway required to be more than 44 inches in width shall be provided with not less than one intermediate handrail for each 88 inches of required width. Intermediate handrails shall be spaced approximately equally across the entire width of the stairway. Sec 1006.9.1.

2. Handrails shall be 34" to 38" above the nosing of the treads. Sec 1006.8.2.

3. Handrails shall extend a minimum of 12" beyond the top nosing and 12" plus the tread width beyond the bottom nosing. Sec 1006.9.2.2.

4. When the extension of the handrail in the direction of the stair run would create a hazard, the termination of the extension shall be made either rounded or returned smoothly to the floor, wall or post. When the stairs are continuous from landing to landing, the inner rail shall be continuous and need not extend out into the landing. Sec 1006.9.2.4.

5. Ends may be returned or terminate in newel post or safety terminals. Sec 1006.9.2.3.

6. The handgrip portion of handrails shall be not less than 1 1/4" nor more than 1-1/2" in cross sectional dimension or the shape shall provide an equivalent gripping surface. The handgrip portion of handrails shall have a smooth surface with no sharp corners. Any wall or other adjacent wall to the the handrail shall be free of sharp or abrasive elements Edges shall have minimum radius of 1/8 inch. Sec 1006.9.2.6.

7. Handrails projecting from a wall shall have a space of 1-1/2" between the wall and the handrail. handrails may be installed in a recess if the recess is a maximum of 3" deep and extends at least 18" above the top of the rail. Sec 1006.9.2.5. 1006.9.2.5.

8. The upper approach and the lower tread of each stair shall be marked by a strip of clearly contrasting color at least 2" and no more than 4" wide, parallel to and not more than 1" from the nose of the step or landing to alert the visually impaired. The strip shall be of material that is is at least as slip resistant as the other treads of the stair. Sec 1006.16.1.

9. Where stairways occur outside a building, the upper approach and all treads shall be marked by a strip of clearly contrasting color at least 2 inches and no more than 4 inches wide and placed parallel to and not more than 1 inch from the nose of the step or landing to alert the visually impaired. The strip shall be of material that is at least as slip-resistant as the other treads of the stair. A painted strip is acceptable. Sec 1006.16.1.

10. All tread surfaces shall be slip resistant. Treads shall have smooth, rounded, or chamfered nosings. Exit doors shall be a abrupt edge at the nosing (lower front edge). Sec 1006.16.2.1.1.

11. The nosing shall not project more than 1 1/2" past the face of the riser below. Sec 1006.16.2.2.

12. Open risers are not permitted. Sec 1006.16.3.

## IX. ELEVATORS

NOTE: In buildings two or more stories in height, served by an elevator, or a building served by an elevator required for accessibility to floors above the first story, California Building Code, all elevators provided shall accommodate a wheelchair.

1. Passenger elevators shall be located near a major path of travel and provisions shall be made to assure that they remain accessible and usable at all times the building is occupied. Sec. 3003.4.17.

2. The car inside shall allow for the turning of a wheelchair. The minimum inside clearance between walls and door, excluding return panels, shall be not less than 80 inches by 54 inches for center opening doors, and 68 inches by 54 inches for side slide opening doors. Minimum clearance for a return panel shall not be less than 51 inches. Sec 3003.4.7.

3. Minimum clear width for elevator doors shall be 36 inches. Sec. 3003.4.4.

4. A handrail shall be provided on one wall of the car, preferable the rear. The rails shall be smooth and the inside surface of the rail shall be clear of the wall at a nominal height of 32 inches above the floor. Sec 3003.4.12.

5. Elevator floor buttons shall be within 4 feet 6 inches above the finished floor for side approach and 4 feet for front approach. Sec 3003.4.7.1.

6. Floor buttons shall be provided with visual indicators to show when each call is registered. The visual indicators shall be extinguished when each call is cleared. Sec 3003.4.7.1.

7. Except for photo electric tube by-passswitches, emergency controls, including the emergency stop and alarm, shall be grouped at the door adjacent to the control panel and shall be no lower than 2 feet 11 inches from the floor. For multiple controls only, one set must comply with these height requirements. Sec 3003.4.7.1.

8. Call operation buttons shall be within 3 feet 6 inches of the floor. The buttons shall be a minimum of 3/4 inch in size and shall be raised 1/8 inch + or - 1/32 inch above the surrounding surface. Visual indication shall be provided to show each call registered and extinguished when answered. objects adjacent to and below hall call buttons shall not project more than 4 inches from the wall. Sec 3003.4.9.1.

9. The emergency telephone handset shall be positioned no higher than 4 feet above the floor, and the handset cord shall be a minimum of 2 feet 5 inches in length. Sec 3003.4.7.1.

10. If the telephone system is located in a closed compartment, the compartment door hardware shall be lever type conforming to the provisions of Sec 1004.3.1, Door Hardware, and shall have intercommunication shall not require voice communication. Sec 3003.4.7.1.

11. A car position indicator shall be provided above the car operating panel or over the opening of each car to show the position of the car in the hoistway by illumination of the indication corresponding to the landing at which the car is stopped or passing. Sec 3003.4.9.

12. The car position indicator shall be on a contrasting color background and a minimum of 1/2 inch in height. Sec 3003.4.9.

13. An audible verbal announcement or signal shall sound to tell passengers that the car is stopping or passing a floor served by the elevator. The audible signal shall be no less than 20 decibels with a frequency no higher than 1500 Hz. Sec 3003.4.9.

14. The minimum illumination at the car control, threshold, and the landing when the car and landing doors are open shall not be less than 5 foot-candles. Sec 3003.4.13.

15. Identification for the visually impaired shall be as follows: Sec 3003.4.8.1.

   a. Passenger elevator car controls shall have a minimum dimension of 3/4 inch and shall be raised 1/8 inch + or - 1/32 inch above the surrounding surface.

   b. Control buttons shall be illuminated, shall have square shoulders, and shall be activated by a mechanical motion that is detectable.

   c. All control buttons shall be designated by a 5/8 inch minimum, Arabic numeral, standard alphabet character, or standard symbol immediately to the left of the control button.

   d. A Braille symbol shall be located immediately below the numeral, character, or symbol.

   e. A minimum clear space of 3/8 inch or other suitable means of separation shall be provided between rows of control buttons.

   f. The raised characters shall be white on a black background.

## IV. WALKS AND SIDEWALKS

1. Walks and sidewalks shall have a continuous common surface, not interrupted by steps or by abrupt changes in level exceeding 1/2-inch, and shall be a minimum of 48 inches in width. Sec 1023.1.

2. Abrupt changes in level along any accessible route shall not exceed 1/2-inch. When changes in level do occur, they shall be beveled with a slope no greater than 1:2 except that level changes not exceeding 1/4 inch may be vertical. Sec 1023.4.

3. When changes in levels greater than 1/2-inch are necessary they shall comply with the requirements for curb ramps. Sec 1023.4.

4. When the slope in the direction of travel of any walk exceeds 1 vertical to 20 horizontal (5% gradient) it shall comply with the provisions for pedestrian ramps. Sec 1023.3.

5. Surface cross slopes shall not exceed 1/4-inch per foot. Sec 1023.1.3.

6. Walks shall be provided with a level area not less than 60" x 60" at a door or gate that swings toward the walk, and not less than 48" wide by 44" deep at a door or gate that swings away from the walk. Such walks shall extend 24" to the side of the strike edge of a door or gate that swings toward the walk. Sec 1023.5.

7. Walks shall extend a minimum of 24" to the side of the strike edge of a door or gate that swings toward the walk. Sec 1023.5.

8. All walks with continuous gradients shall have level areas at least 5 feet in length at intervals of at least every 400 feet. Sec 1023.6.

9. Walk and sidewalk surfaces shall be slip-resistant as follows: Sec 1023.

   a. Surfaces with a slope of less than 6 percent gradient shall be at least as slip-resistant as that described as a medium salted finish. Sec 1023.1.1.

   b. Surfaces with a slope of 6 percent gradient or greater shall be slip-resistant. Sec 1023.1.2.

10. Walks, sidewalks and pedestrian ways shall be free of gratings whenever possible. For gratings located in the surface of any of these areas, grid openings in gratings shall be limited to 1/2 inch in the direction of traffic flow.

## V. RAMPS (EXTERIOR & INTERIOR)

NOTE: Any path of travel shall be considered a Ramp if its slope is greater than 1 rach rise in 20 feet of horizontal run. Sec 1007.3.

1. The maximum slope of a ramp that serves any exit way, provides access for persons with disabilities, or is in the path of travel shall be 1 foot in 12 feet og horizontal run. Sec 1007.3.

2. The cross-slope of ramp surfaces shall be no greater than 1:50. Sec 1007.3.1.

3. The width of ramps shall be as required for stairways and exits. Sec 1007.2.2.

4. Pedestrian ramps serving primary entrances to buildings having an occupant load of 300 or more shall have a minimum clear width of 60 inches. Sec 1007.2.2.

5. Ramps serving Group R occupancies may be 36 inches clear width when the occupant load is 50 or less. Sec 1007.2.2.

6. All other pedestrian ramps serving primary entrances shall have a minimum width of 48 inches. Sec 1007.2.2.

7. Landings shall be provided at the top and bottom of each ramp. Sec 1007.4.1.

8. Intermediate landings shall be provided at intervals not exceeding 30-inches of vertical rise and at every change of direction in excess of 30 degrees. Sec 1007.4.1a.

9. Top landings shall be not less than 60-inches wide and shall have a length of not less than 60-inches in the direction of ramp run. Sec 3307(d.1)2.

10. Doors in any position shall not reduce the minimum dimension of the ramp landing to less than 42 inches and shall not reduce the required width by more than 3 inches when fully open. Sec 1007.4.3.

11. The width of the landing shall extend 24 inches past the strike edge of any door or gate for exterior ramps and 18 inches past the strike edge for interior ramps. Sec 1007.4.4.

12. At bottom and intermediate landings, the width shall be at least the same as required for the ramps. Sec 1007.4.5.

13. Intermediate landings at a change of direction in excess of 30 degrees and bottom landings shall have dimension in the direction of ramp run of not less than 72 inches. To accommodate the handrail extension. Sec 1007.4.6.

14. Other intermediate landings shall have a dimension in the direction of ramp run of not less than 60 inches. Sec 1007.4.7.

15. Ramp landings are not considered in determining the maximum horizontal distance of each ramp. Sec 1007.4.1a.

16. Handrails are required on ramps that provide access if the ramp slope exceeds 1'(foot) rise in 20 feet of horizontal run. Sec 1007.5a.

17. Handrails shall be placed on each side of each ramp, shall be continuous the full length of the ramp, shall be 34 inches to 38 inches above the ramp surface, shall extend a minimum of 1 foot beyond the top and bottom of the ramp of the ram