

CHAPTER 3: BUILDING BLOCKS  
302 Floor or Ground Surfaces

**302.2 Carpet.** Carpet or carpet tile shall be securely attached and shall have a firm cushion, pad, or backing or no cushion or pad. Carpet or carpet tile shall have a level loop, textured loop, level cut pile, or level cut/uncut pile texture.

Pile height shall be 1/2 inch (13 mm) maximum. Exposed edges of carpet shall be fastened to floor surfaces and shall have trim on the entire length of the exposed edge. Carpet edge trim shall comply with 303.

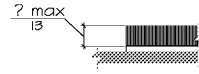


Figure 302.2 Carpet Pile Height

**302.3 Openings.** Openings in floor or ground surfaces shall not allow passage of a sphere more than 1/2 inch (13 mm) diameter except as allowed in 401.4.3, 404.4.3, 410.4, B105.3 and B1010. Elongated openings shall be placed so that the long dimension is perpendicular to the dominant direction of travel.

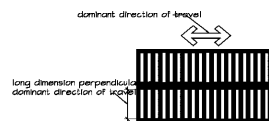


Figure 302.3 Elongated Openings in Floor or Ground Surfaces

**303.2 Vertical.** Changes in level of 1/4 inch (6.4 mm) high maximum shall be permitted to be vertical.

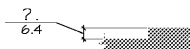


Figure 303.2 Vertical Change in Level

**303.3 Beveled.** Changes in level between 1/4 inch (6.4 mm) high minimum and 1/2 inch (13 mm) high maximum shall be beveled with a slope not steeper than 1:2.

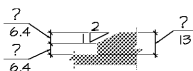


Figure 303.3 Beveled Change in Level

**304 Turning Space**  
**304.3.1 Circular Space.** The turning space shall be a space of 60 inches (1525 mm) diameter minimum. The space shall be permitted to include knee and toe clearance complying with 306.

**304.3.2 T-Shaped Space.** The turning space shall be a T-shaped space within a 60 inch (1525 mm) square minimum with arms and base 36 inches (915 mm) wide minimum. Each arm of the T shall be clear of obstructions 12 inches (305 mm) minimum in each direction and the base shall be clear of obstructions 24 inches (610 mm) minimum. The space shall be permitted to include knee and toe clearance complying with 306 only at the end of either the base or one arm.

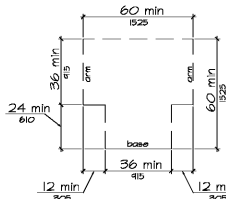


Figure 304.3.2 T-shaped Turning Space

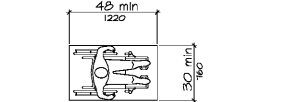


Figure 304.3 Clear Floor or Ground Space

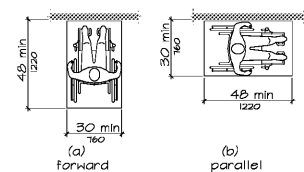


Figure 304.5 Position of Clear Floor or Ground Space

**305.1 Forward Approach.** Alcoves shall be 36 inches (915 mm) wide minimum where the depth exceeds 24 inches (610 mm).

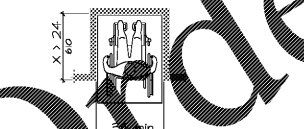


Figure 305.1 Maneuvering Clearance in an Alcove, Forward Approach

**305.1.2 Parallel Approach.** Alcoves shall be 60 inches (1525 mm) wide minimum where the depth exceeds 15 inches (380 mm).

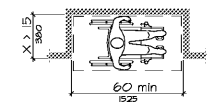


Figure 305.1.2 Maneuvering Clearance in an Alcove, Parallel Approach

**306 Knee and Toe Clearance**

**306.2 Toe Clearance.**

**306.2.1 General.** Space under an element between the finish floor or ground and 4 inches (230 mm) above the finish floor or ground shall be considered toe clearance and shall comply with 306.2.

**306.2.2 Maximum Depth.** Toe clearance shall extend 25 inches (635 mm) maximum under an element.

**306.2.3 Minimum Required Depth.** Where toe clearance is required at an element as part of a clear floor space, the toe clearance shall extend 17 inches (430 mm) minimum under the element.

**306.2.4 Additional Clearance.** Space extending greater than 6 inches (150 mm) beyond the available knee clearance at 4 inches (230 mm) above the finish floor or ground shall not be considered toe clearance.

**306.2.5 Width.** Toe clearance shall be 30 inches (760 mm) wide minimum.

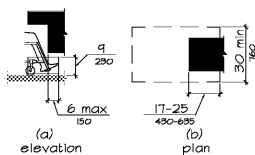


Figure 306.2 Toe Clearance

**306.3 Knee Clearance.**

**306.3.1 General.** Space under an element between 4 inches (230 mm) and 27 inches (685 mm) above the finish floor or ground shall be considered knee clearance and shall comply with 306.3.

**306.3.2 Maximum Depth.** Knee clearance shall extend 25 inches (635 mm) maximum under an element at 4 inches (230 mm) above the finish floor or ground.

**306.3.3 Minimum Required Depth.** Where knee clearance is required under an element as part of a clear floor space, the knee clearance shall be 11 inches (280 mm) deep minimum at 4 inches (230 mm) above the finish floor or ground, and 8 inches (205 mm) deep minimum at 27 inches (685 mm) above the finish floor or ground.

**306.3.4 Clearance Reduction.** Between 4 inches (230 mm) and 27 inches (685 mm) above the finish floor or ground, the knee clearance shall be permitted to reduce at a rate of 1 inch (25 mm) in depth for each 6 inches (150 mm) in height.

**306.3.5 Width.** Knee clearance shall be 30 inches (760 mm) wide minimum.

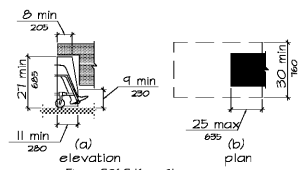


Figure 306.3 Knee Clearance

**307 Protruding Objects**

**307.2 Protrusion Limits.** Objects with leading edges more than 27 inches (685 mm) and not more than 80 inches (2030 mm) above the finish floor or ground shall protrude 4 inches (100 mm) maximum horizontally into the circulation path.

EXCEPTION: Handrails shall be permitted to protrude 4 1/2 inches (115 mm) maximum.

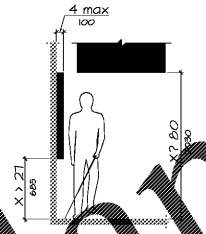


Figure 307.2 Limits on Protruding Objects

**308.3 Post-Mounted Objects.** Signs, notices, or other items mounted on posts or pylons shall overhang circulation 12 inches (305 mm) maximum when located 27 inches (685 mm) minimum and 80 inches (2030 mm) maximum above the finish floor or ground. Where a sign or other obstruction is mounted between posts or pylons and the clear distance between the posts or pylons is greater than 12 inches (305 mm), the leading edge of such sign or obstruction shall be 27 inches (685 mm) maximum or 80 inches (2030 mm) minimum above the finish floor or ground.

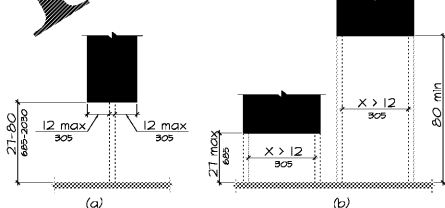


Figure 308.3 Post-Mounted Protruding Objects

**307.4 Vertical Clearance.** Vertical clearance shall be 80 inches (2030 mm) high minimum. Guardrails or other barriers shall be provided where the vertical clearance is less than 80 inches (2030 mm) high. The leading edge of such guardrail or barrier shall be located 27 inches (685 mm) maximum above the finish floor or ground.

EXCEPTION: Door closers and door stops shall be permitted to be 78 inches (1980 mm) minimum above the finish floor or ground.

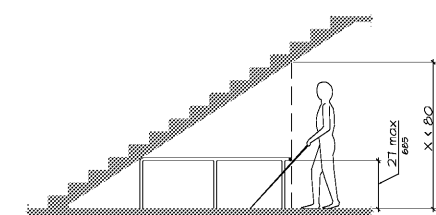


Figure 307.4 Vertical Clearance

**308 Reach Ranges**

**Children's Reach Ranges**

Forward or Side Reach	High (maximum)	Low (minimum)
Ages 5 and 4	36 in (915 mm)	20 in (510 mm)
Ages 5 through 8	40 in (1015 mm)	18 in (455 mm)
Ages 9 through 12	44 in (1120 mm)	16 in (405 mm)

**308.2 Forward Reach.**

**308.2.1 Unobstructed.** Where a forward reach is unobstructed, the high forward reach shall be 48 inches (1220 mm) maximum and the low forward reach shall be 15 inches (380 mm) minimum above the finish floor or ground.

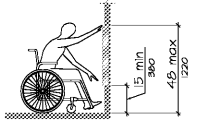


Figure 308.2.2 Unobstructed High Forward Reach

**308.2.2 Obstructed High Reach.** Where a high forward reach is over an obstruction, the clear floor space shall extend beneath the element for a distance not less than the required reach depth over the obstruction. The high forward reach shall be 48 inches (1220 mm) maximum where the reach depth is 20 inches (510 mm) maximum. Where the reach depth exceeds 20 inches (510 mm), the high forward reach shall be 44 inches (1120 mm) maximum and the reach depth shall be 25 inches (635 mm) maximum.

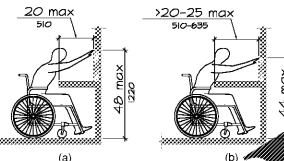


Figure 308.2.2 Obstructed High Forward Reach

**308.3 Side Reach.**

**308.3.1 Unobstructed.** Where a clear floor or ground space allows a parallel approach to an element and the side reach is unobstructed, the high side reach shall be 48 inches (1220 mm) maximum and the low side reach shall be 15 inches (380 mm) minimum above the finish floor or ground.

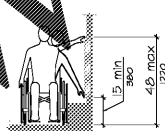


Figure 308.3.1 Unobstructed Side Reach

**308.3.2 Obstructed High Reach.** Where a clear floor or ground space allows a parallel approach to an element and the high side reach is over an obstruction, the height of the obstruction shall be 34 inches (865 mm) maximum and the depth of the obstruction shall be 24 inches (610 mm) maximum. The high side reach shall be 48 inches (1220 mm) maximum for a reach depth of 10 inches (255 mm) maximum. Where the reach depth exceeds 10 inches (255 mm), the high side reach shall be 46 inches (1160 mm) maximum for a reach depth of 24 inches (610 mm) maximum.

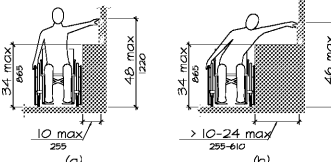


Figure 308.3.2 Obstructed High Side Reach

**309 Operable Parts**

**309.2 Clear Floor Space.** A clear floor or ground space complying with 305 shall be provided.

**309.3 Height.** Operable parts shall be placed within one or more of the reach ranges specified in 308.

**309.4 Operation.** Operable parts shall be operable with one hand and shall not require tight grasping, pinching, or twisting of the wrist. The force required to activate operable parts shall be 5 pounds (22.2 N) maximum.

CHAPTER 4: ACCESSIBLE ROUTES

**402.2 Components.** Accessible routes shall consist of one or more of the following components: walking surfaces with a running slope not steeper than 1:20, doorways, ramps, curb ramps excluding the flared sides, elevators, and platform lifts. All components of an accessible route shall comply with the applicable requirements of Chapter 4.

Advisory 402.2 Components. Walking surfaces must have running slopes not steeper than 1:20, see 403.3. Other components of accessible routes, such as ramps (405) and curb ramps (406), are permitted to be more steeply sloped.

**403 Walking Surfaces**

**403.1 General.** Walking surfaces that are a part of an accessible route shall comply with 403.

**403.2 Floor or Ground Surface.** Floor or ground surfaces shall comply with 302.

**403.3 Slope.** The running slope of walking surfaces shall not be steeper than 1:20. The cross slope of walking surfaces shall not be steeper than 1:48.

**403.4 Changes in Level.** Changes in level shall comply with 303.

**403.5 Clearances.** Walking surfaces shall provide clearances complying with 403.5.

EXCEPTION: Within employee work areas, clearances on common use circulation paths shall be permitted to be decreased by work area equipment provided that the decrease is essential to the function of the work being performed.

**403.5.1 Clear Width.** Except as provided in 403.5.2 and 403.5.3, the clear width of walking surfaces shall be 36 inches (915 mm) minimum.

EXCEPTION: The clear width shall be permitted to be reduced to 32 inches (815 mm) minimum for a length of 24 inches (610 mm) maximum provided that reduced width segments are separated by segments that are 48 inches (1220 mm) long minimum and 36 inches (915 mm) wide minimum.

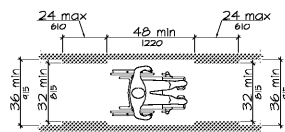


Figure 403.5.1 Clear Width of an Accessible Route

**403.5.2 Clear Width at Turn.** Where the accessible route makes a 180 degree turn around an element which is less than 48 inches (1220 mm) wide, clear width shall be 42 inches (1065 mm) minimum approaching the turn, 48 inches (1220 mm) minimum at the turn and 42 inches (1065 mm) minimum leaving the turn.

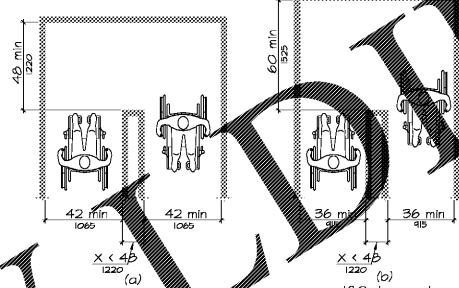


Figure 403.5.2 Clear Width at Turn

**403.5.3 Clearing Spaces.** An accessible route with a clear width less than 60 inches (1525 mm) shall provide clearing spaces at intervals of 200 feet (61 m) maximum.

**404 Doors, Doorways, and Gates**

**404.2.3 Clear Width.** Door openings shall provide a clear width of 32 inches (815 mm) minimum. Clear openings of doorways with swinging doors shall be measured between the face of the door and the stop, with the door open 90 degrees. Openings more than 24 inches (610 mm) deep shall provide a clear opening of 36 inches (915 mm) minimum. There shall be no projections into the required clear opening width lower than 34 inches (865 mm) above the finish floor or ground. Projections into the clear opening width between 34 inches (865 mm) and 80 inches (2030 mm) above the finish floor or ground shall not exceed 4 inches (100 mm).

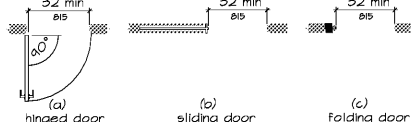


Figure 404.2.3 Clear Width of Doorways

**404.2.4 Maneuvering Clearances.** Minimum maneuvering clearances at doors and gates shall comply with 404.2.4. Maneuvering clearances shall extend the full width of the doorway and the required latch side or hinge side clearance.

**404.2.4.3 Clear Width.** Where a clear floor or ground space allows a parallel approach to an element and the side reach is unobstructed, the high side reach shall be 48 inches (1220 mm) maximum and the low side reach shall be 15 inches (380 mm) minimum above the finish floor or ground.

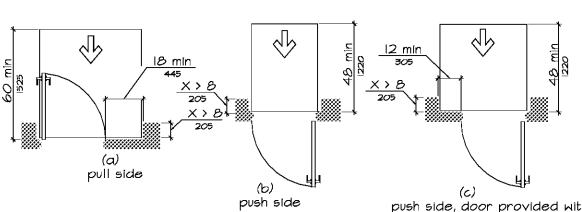


Figure 404.2.4.3 Maneuvering Clearances at Recessed Doors and Gates

**404.2.6 Doors in Series and Gates in Series.** The distance between two hinged or pivoted doors in series and gates in series shall be 48 inches (1220 mm) minimum plus the width of doors or gates swinging into the space.

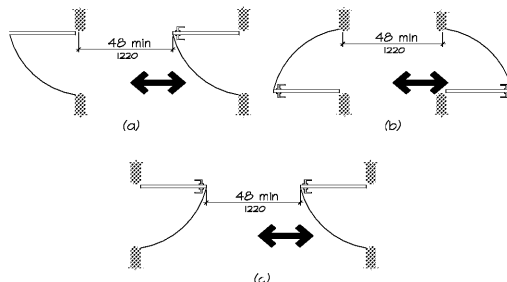


Figure 404.2.6 Doors in Series and Gates in Series

**404.2.7 Door and Gate Hardware.** Handles, pulls, latches, locks, and other operable parts on doors and gates shall comply with 301.4. Operable parts of such hardware shall be 34 inches (865 mm) minimum and 48 inches (1220 mm) maximum above the finish floor or ground. Where sliding doors are in the fully open position, operating hardware shall be exposed and usable from both sides.

**404.2.8 Door Closers and Gate Closers.** Door closers and gate closers shall be adjusted so that from an open position of 90 degrees, the time required to move the door to a position of 12 degrees from the latch is 5 seconds minimum.

**404.2.8.2 Spring Hinges.** Door and gate spring hinges shall be adjusted so that from the open position of 90 degrees, the door or gate shall move to the closed position in 15 seconds minimum.

**404.2.9 Door and Gate Opening Force.** Fire doors shall have a minimum opening force allowable by the appropriate administrative authority. The force for pushing or pulling open a door or gate other than fire doors shall be as follows:

1. Interior hinged doors and gates: 5 pounds (22.2 N) maximum.

2. Sliding or folding doors: 5 pounds (22.2 N) maximum.

These forces do not apply to the force required to retract latches or to engage other devices that hold the door or gate in position.

**404.2.10 Door and Gate Surfaces.** Hinged door and gate surfaces within 10 inches (255 mm) of the finish floor or ground shall have a smooth surface on the side side extending the full width of the door or gate. Parts creating horizontal or vertical gaps in these surfaces shall be within 1/8 inch (3 mm) of the same plane as the other. Cavities created by added hinges shall be filled.

**404.2.11 Vision Lites.** Doors, gates, and side lights adjacent to doors or gates, containing one or more glazed panels that permit viewing through the panels shall have the bottom of at least one glazed panel located 43 inches (1090 mm) maximum above the finish floor.

**404.3 Automatic and Power-Assisted Doors and Gates.** Automatic doors and automatic gates shall comply with 404.3. Full-powered automatic doors shall comply with ANSI/BHMA A156.10 (incorporated by reference, see "Referenced Standards" in Chapter 1). Low-energy and power-assisted doors shall comply with ANSI/BHMA A156.14 (1991 or 2002 edition) (incorporated by reference, see "Referenced Standards" in Chapter 1).

**404.3.2 Maneuvering Clearance.** Clearances at power-assisted doors and gates shall comply with 404.2.4. Clearances at automatic doors and gates without standby power and serving as accessible means of egress shall comply with 404.2.4.

**404.3.1 Revolving Doors, Revolving Gates, and Turnstiles.** Revolving doors, revolving gates, and turnstiles shall not be part of an accessible route.

**405 Ramps**

**405.2 Slope.** Ramp runs shall have a running slope not steeper than 1:12.

**405.3 Cross Slope.** Cross slope of ramp runs shall not be steeper than 1:48.

**405.5 Clear Width.** The clear width of a ramp run and, where handrails are provided, the clear width between handrails shall be 36 inches (915 mm) minimum.

**405.6 Rise.** The rise for any ramp run shall be 30 inches (760 mm) maximum.

**405.7 Landings.** Ramps shall have landings at the top and the bottom of each ramp run. Landings shall comply with 405.7.

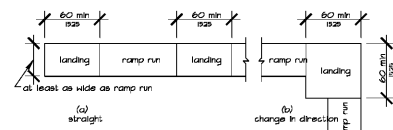


Figure 405.7 Ramp Landings

**405.7.1 Slope.** Landings shall have slope not steeper than 1:48. Changes in level are not permitted.

**405.7.2 Width.** The landing clear width shall be at least as wide as the widest ramp run leading to the landing.

**405.7.3 Length.** The landing clear length shall be 60 inches (1525 mm) long minimum.

**405.7.4 Change in Direction.** Ramps that change direction between runs at landings shall have a clear landing 60 inches (1525 mm) minimum by 60 inches (1525 mm) minimum.

**405.7.5 Doorways.** Where doorways are located adjacent to a ramp landing, maneuvering clearances required by 404.2.4 and 404.3.2 shall be permitted to overlap the required landing clearances.

**405.8 Handrails.** Ramp runs with a rise greater than 6 inches (150 mm) shall have handrails complying with 505.

**405.9 Edge Protection.** Edge protection complying with 405.9.1 or 405.9.2 shall be provided on each side of ramp runs and at each side of ramp landings.

**405.9.1 Extended Floor or Ground Surface.** The floor or ground surface of the ramp run or landing shall extend 12 inches (305 mm) minimum beyond the inside face of a handrail complying with 505.



Figure 405.9.1 Extended Floor or Ground Surface Edge Protection

**405.9.2 Curb or Barrier.** A curb or barrier shall be provided that prevents the passage of a 4 inch (100 mm) diameter sphere, where any portion of the sphere is within 4 inches (100 mm) of the finish floor or ground surface.

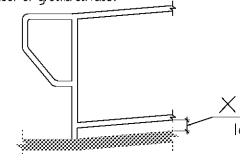


Figure 405.9.2 Curb or Barrier Edge Protection

**406 Curb Ramps**

**406.1 General.** Curb ramps on accessible routes shall comply with 406, 405.2 through 405.5, and 405.10.

**406.2 Counter Slope.** Counter slopes of adjoining gutters and road surfaces immediately adjacent to the curb ramp shall not be steeper than 1:20. The adjacent surfaces at transitions at curb ramps to walks, gutters, and streets shall be at the same level.

