

CHAPTER 3: BUILDING BLOCKS

301 General

301.1 Scope. The provisions of this chapter apply where required by Chapter 2 or by Chapters 4 through 11.

302 Floor or Ground Surfaces

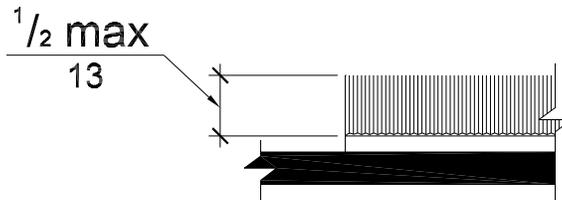
302.1 General. Floor and ground surfaces shall be stable, firm, and slip resistant and shall comply with 302.

Advisory 302.1

A stable surface is one that remains unchanged by contaminants or applied force, so that when the contaminant or force is removed, the surface returns to its original condition. A firm surface resists deformation by either indentations or particles moving on its surface. A slip-resistant surface provides sufficient frictional counterforce to the forces exerted in walking to permit safe ambulation.

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 along the entire length of the exposed edge. Carpet edge trim shall comply with 303.

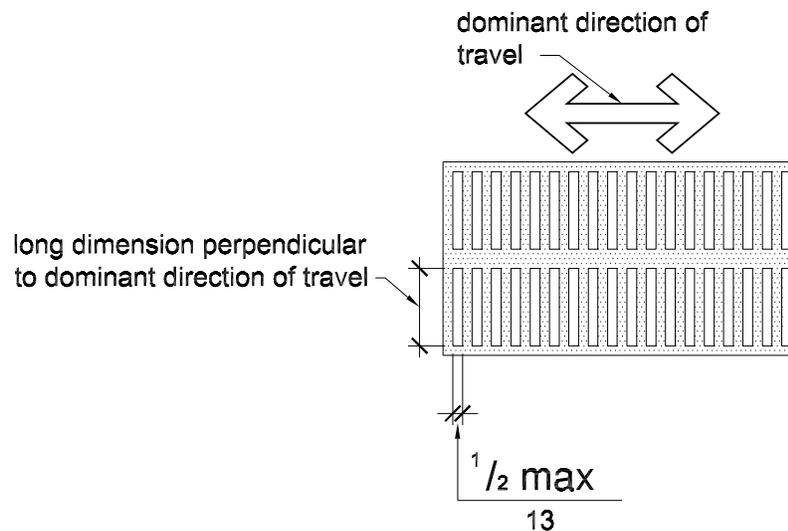
Figure 302.2



Advisory 302.2

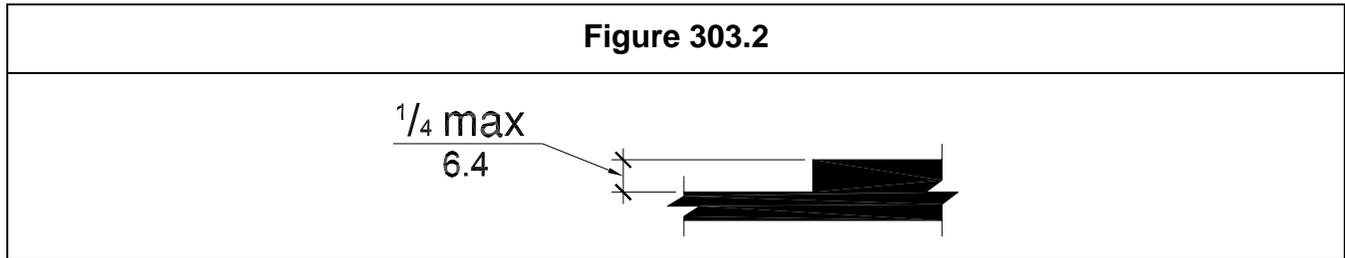
Carpets and permanently affixed mats can significantly increase the amount of force (roll resistance) needed to propel a *wheelchair* over a surface. The firmer the carpeting and backing, the lower the roll resistance. A pile thickness up to 1/2 inch (13 mm) (measured to the backing, cushion, or pad) is allowed, although a lower pile provides easier *wheelchair* maneuvering. If a backing, cushion or pad is used, it must be firm. Preferably, carpet pad should not be used because the soft padding increases roll resistance.

302.3 Openings. Openings in floor or ground surfaces shall allow passage of a sphere not more than 1/2 inch (13 mm) diameter except as allowed in 407.4.7, 408, and 1003. Elongated openings shall be placed so that the long dimension is perpendicular to the dominant direction of travel.

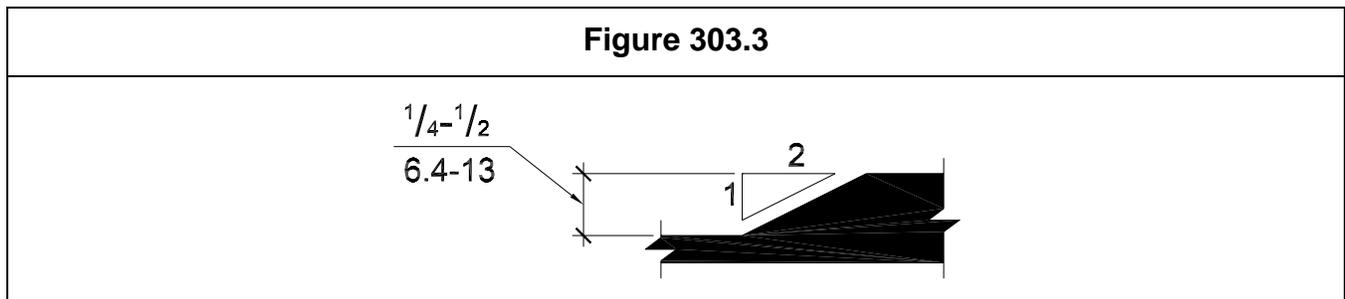
Figure 302.3**303 Changes in Level**

303.1 General. Where changes in level are permitted in floor or ground surfaces, they shall comply with 303.

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



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.



Advisory 303.3

The bevel should be applied to the entire level change.

303.4 Ramps. Changes in level greater than 1/2 inch (13 mm) high shall be ramped, and shall comply with 405 or 406.

304 Wheelchair Turning Space

304.1 General. *Wheelchair* turning space shall comply with 304.

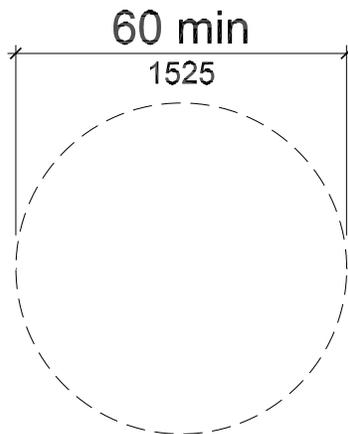
304.2 Floor or Ground Surface. Floor or ground surfaces of a turning space shall comply with 302. Changes in level are not permitted.

EXCEPTION: Slopes not steeper than 1:48 shall be permitted.

304.3 Size. *Wheelchair* turning space shall comply with 304.3.1 or 304.3.2.

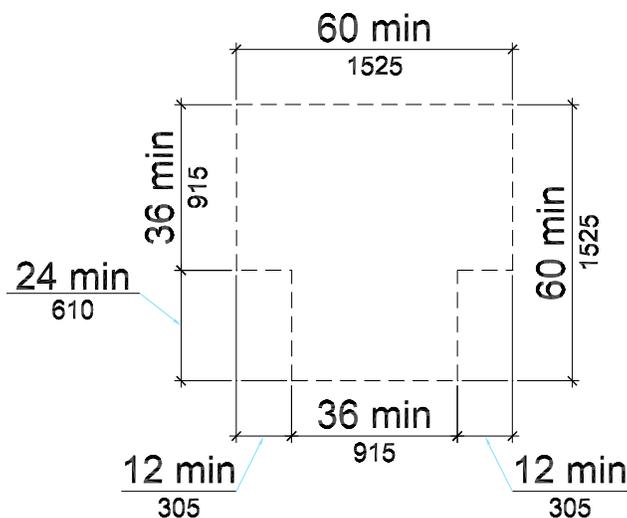
304.3.1 Circular Space. The *wheelchair turning space* shall be a *space* of 60 inches (1525 mm) diameter minimum. The *space* shall be permitted to include knee and toe clearance complying with 306.

Figure 304.3.1



304.3.2 T-Shaped Space. The *wheelchair turning space* shall be a T-shaped *space* within a 60 inch (1525 mm) minimum square 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. Such *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



304.4 Doors. Doors shall be permitted to swing into a *wheelchair turning space* unless otherwise specified.

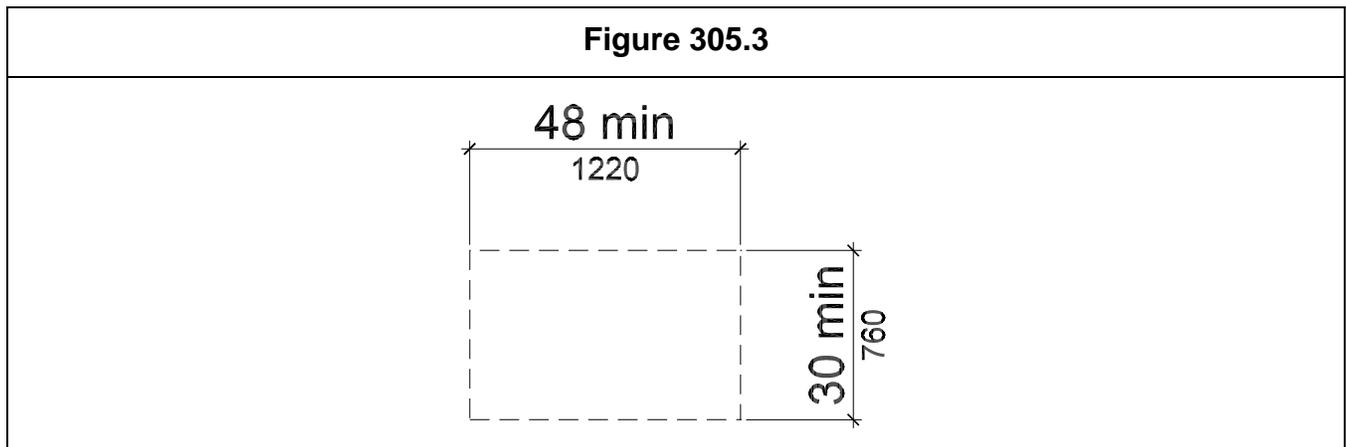
305 Clear Floor or Ground Space

305.1 General. Clear floor or ground *space* shall comply with 305.

305.2 Floor or Ground Surfaces. Floor or ground surfaces of a clear floor or ground *space* shall comply with 302. Changes in level are not permitted.

EXCEPTION: Slopes not steeper than 1:48 shall be permitted.

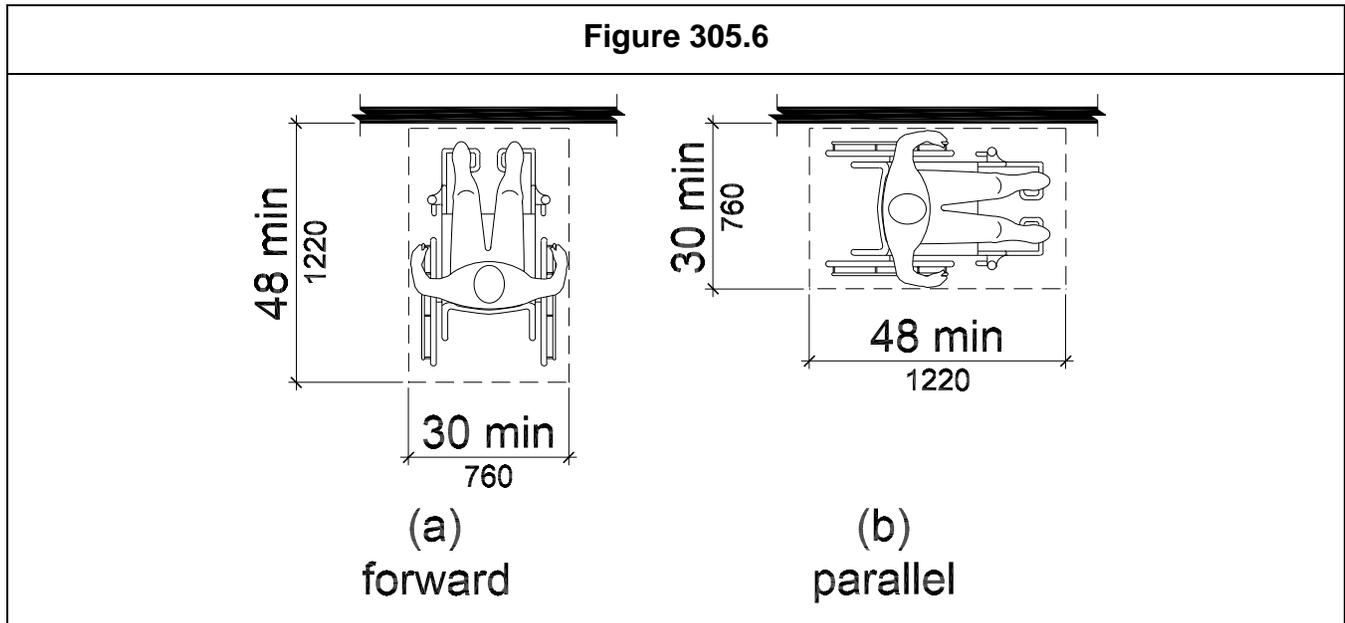
305.3 Size. The clear floor or ground *space* shall be 30 inches (760 mm) minimum by 48 inches (1220 mm) minimum.



305.4 Knee and Toe Clearance. Unless otherwise specified, clear floor or ground *space* shall be permitted to include knee and toe clearance complying with 306.

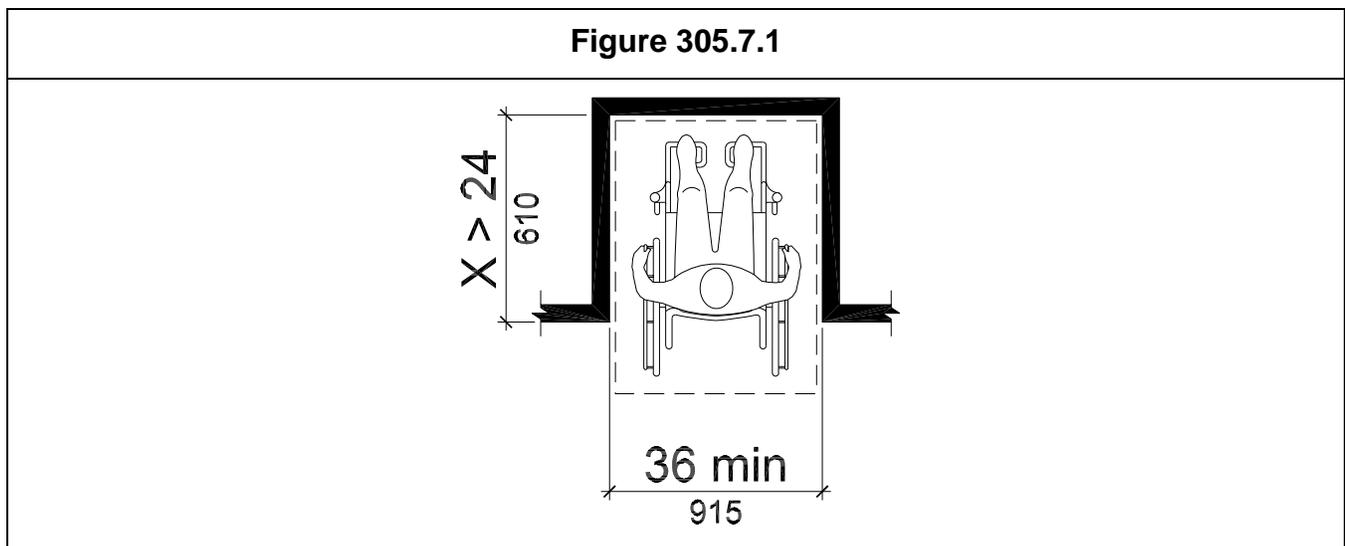
305.5 Position. Unless otherwise specified, clear floor or ground *space* shall be positioned for either forward or parallel approach to an *element*.

305.6 Approach. One full unobstructed side of the clear floor or ground *space* shall adjoin or overlap an *accessible route* or adjoin another clear floor or ground *space*.

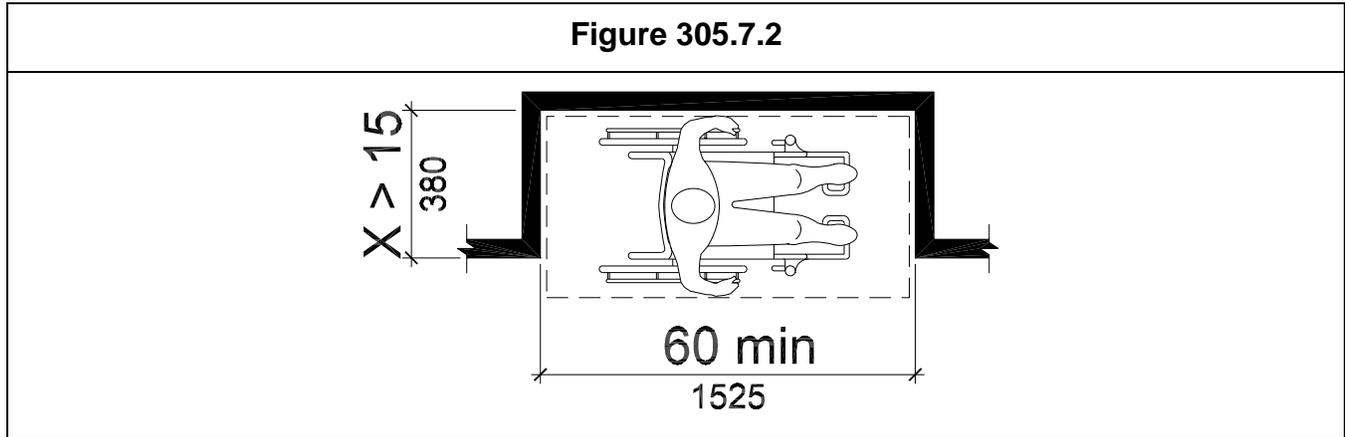


305.7 Maneuvering Clearance. Where a clear floor or ground *space* is located in an alcove or otherwise confined on all or part of three sides, additional maneuvering clearance complying with 305 shall be provided in accordance with 305.7.1 and 305.7.2.

305.7.1 Forward Approach. Where the depth of the alcove or other confined area exceeds 24 inches (610 mm), the width of the clear floor *space* shall be 36 inches (915 mm) minimum.



305.7.2 Parallel Approach. Where the depth of the alcove or other confined area exceeds 15 inches (380 mm), the length of the clear floor space shall be 60 inches (1525 mm) minimum.

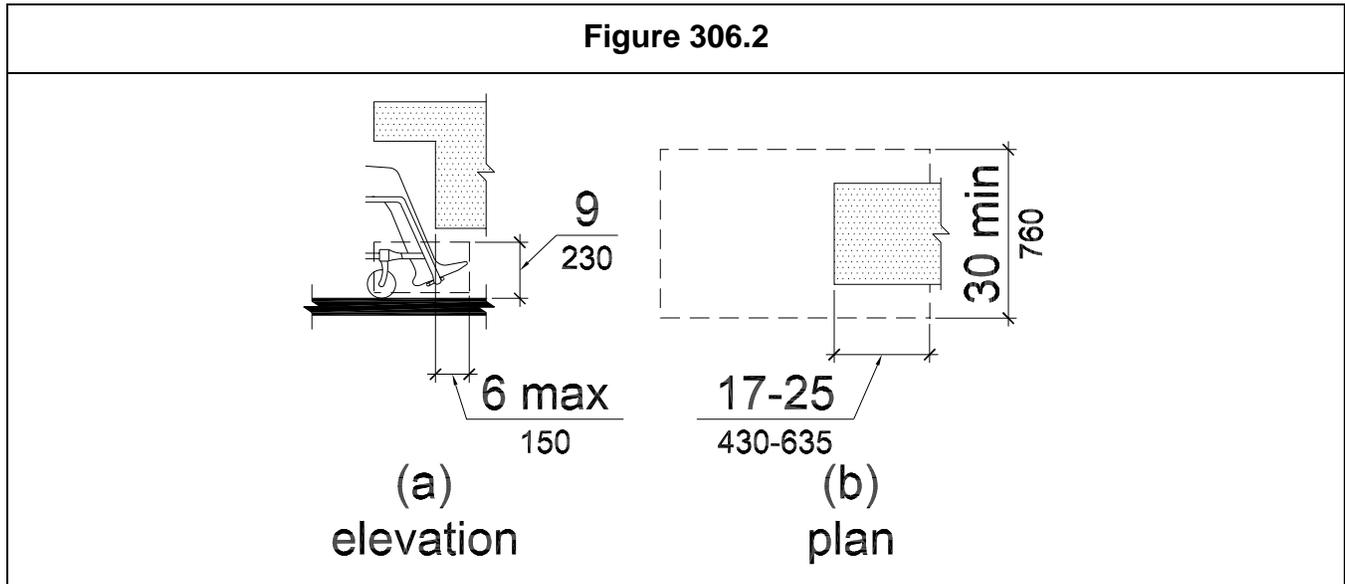


306 Knee and Toe Clearance

306.1 General. Where *space* beneath an object is included as part of clear floor or ground *space* or *wheelchair* turning *space*, the *space* shall comply with 306. Additional *space* shall not be prohibited beneath an object; however, such additional *space* shall not be considered as part of the clear floor or ground *space* or *wheelchair* turning *space*.

Advisory 306.1

Clearances are measured in relation to the usable clear floor space, not necessarily to the vertical support for an element. When determining clearance under an object for required turning or maneuvering space, care should be taken to ensure the space is clear of any obstructions.

306.2 Toe Clearance.

306.2.1 General. *Space* under an object between the floor or ground and 9 inches (230 mm) above the floor or ground shall be considered toe clearance and shall comply with 306.2.

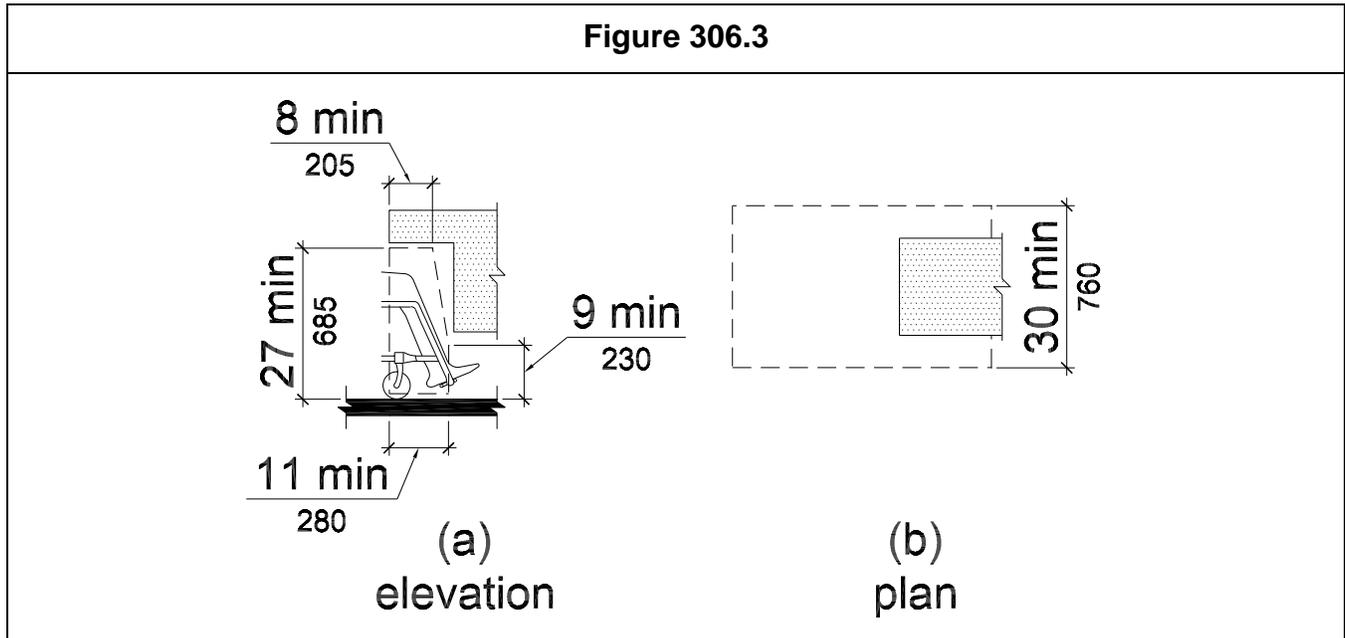
306.2.2 Maximum Depth. Toe clearance shall extend 25 inches (635 mm) maximum under an object.

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 9 inches (230 mm) above the floor or ground shall not be considered toe clearance.

306.2.5 Width. Toe clearance shall be 30 inches (760 mm) minimum in width.

306.3 Knee Clearance.



306.3.1 General. Space under an object between 9 inches (230 mm) and 27 inches (685 mm) above the 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 object at 9 inches (230 mm) above the 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) minimum in depth at 9 inches (230 mm) above the floor or ground, and 8 inches (205 mm) minimum in depth at 27 inches (685 mm) above the floor or ground.

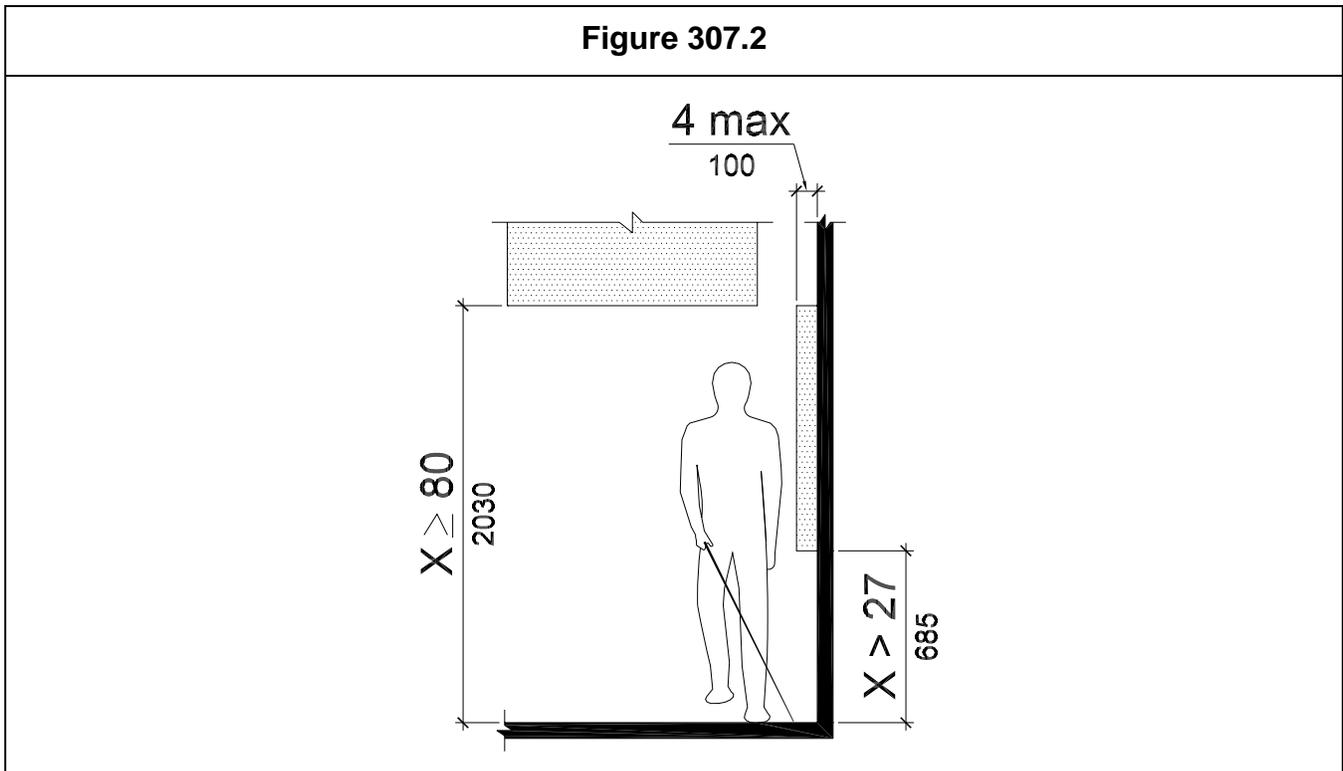
306.3.4 Clearance Reduction. Between 9 inches (230 mm) and 27 inches (685 mm) above the floor or ground, the knee clearance shall be permitted to reduce at a rate of 1 inch (25 mm) for each 6 inches (150 mm) in height.

306.3.5 Width. Knee clearance shall be 30 inches (760 mm) minimum in width.

307 Protruding Objects

307.1 General. Protruding objects shall comply with 307.

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



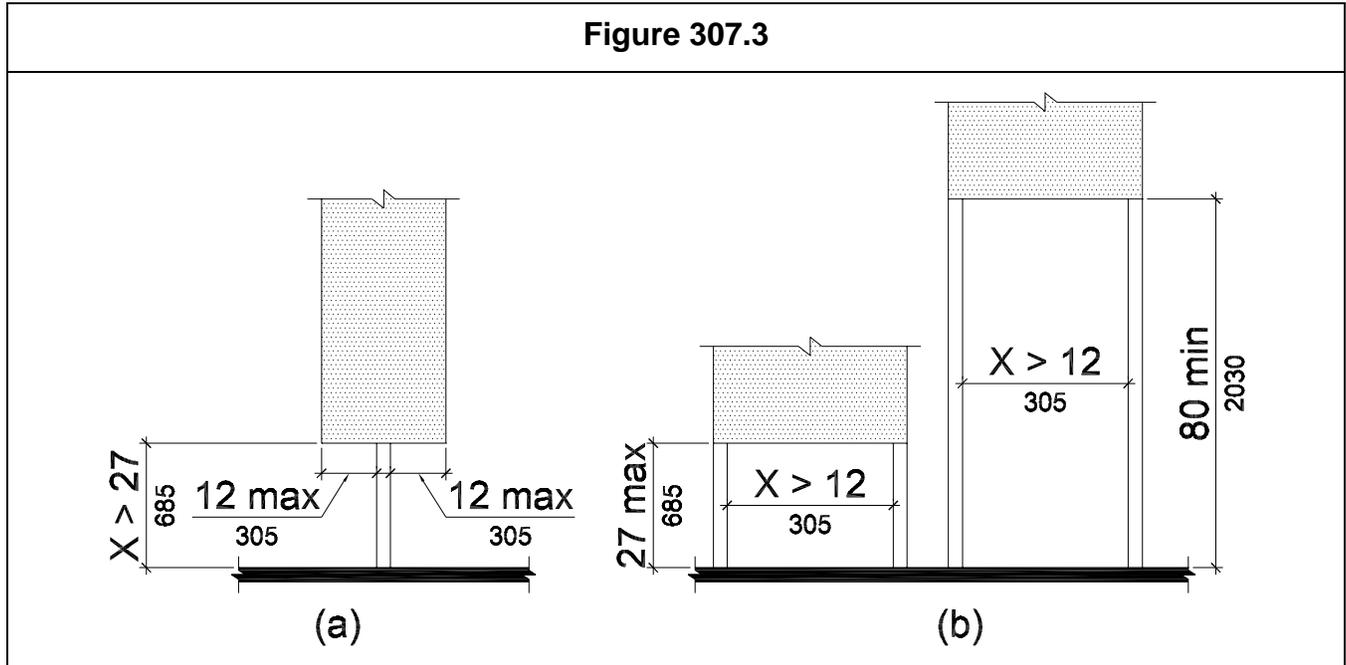
Advisory 307.2

The two principle cane techniques are the touch technique, where the cane is arced from side-to-side and touches points outside both shoulders, and the diagonal technique, where the cane is held in a stationary position diagonally across the body with the tip just above the ground at a point outside one shoulder and the handle extended to a point outside the other shoulder. When one of these techniques is used and the element is in the detectable range, it gives a person sufficient time to detect the element with the cane before there is body contact.

EXCEPTION: Handrails serving stairs and *ramps* shall protrude 4-1/2 inches (115 mm) maximum from the wall.

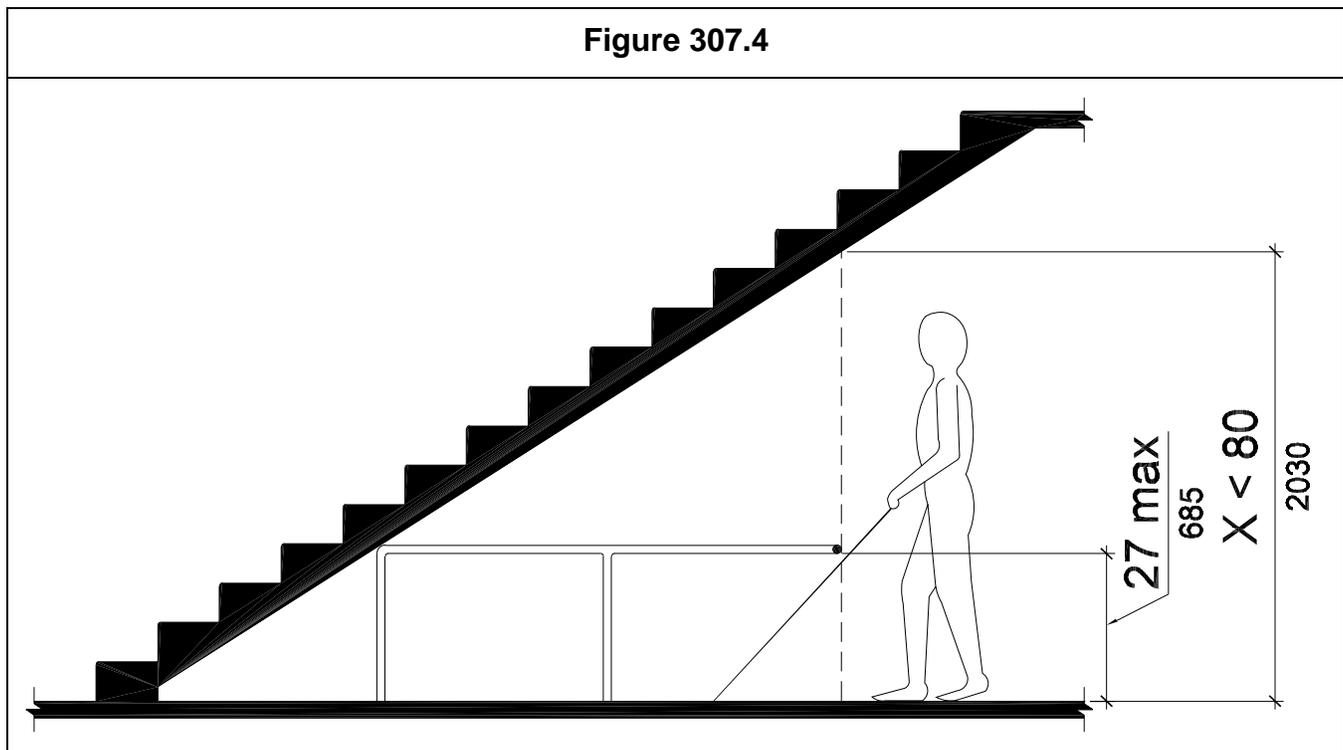
307.3 Post-mounted Objects. Free-standing objects mounted on posts or pylons shall overhang 12 inches (305 mm) maximum when located 27 inches (685 mm) minimum and 80 inches (2030 mm) maximum above the floor or ground. Where a *sign* or other obstruction is mounted between posts or pylons and the clear distance between the posts or pylons is greater than 12 inches (305 mm), the

lowest edge of such *sign* or obstruction shall be 27 inches (685 mm) maximum or 80 inches (2030 mm) minimum above the floor or ground.



EXCEPTION: This requirement shall not apply to sloping portions of handrails serving stairs and ramps.

307.4 Reduced Vertical Clearance. 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 floor or ground.



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

307.5 Required Clear Width. Protruding objects shall not reduce the clear width required for *accessible routes*.

308 Reach Ranges

308.1 General. Reach ranges shall comply with 308.

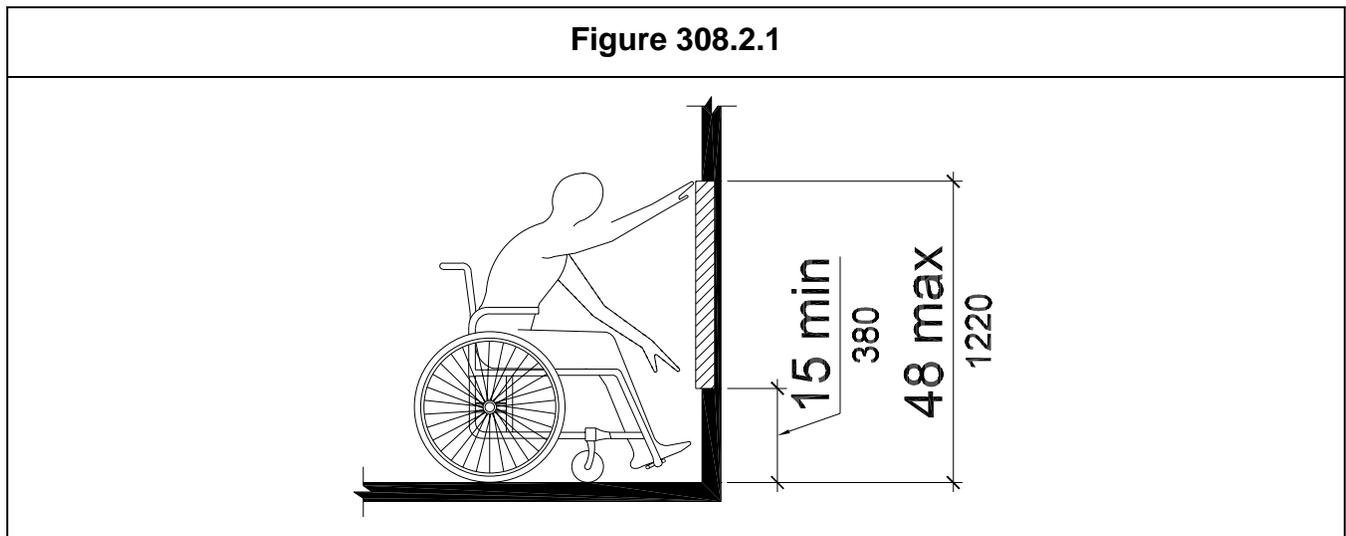
Advisory 308.1

The following table provides guidance on reach ranges for children according to age where *building elements* such as coat hooks, lockers, or controls and operating mechanisms are designed for use primarily by children. These dimensions apply to either forward or side reaches. *Accessible elements*, controls, and operating mechanisms designed for adult use or children over age 12 can be located outside these ranges but must be within the adult reach ranges required by 308.

Children’s Reach Ranges			
Forward or Side Reach	Ages 3 and 4	Ages 5 through 8	Ages 9 through 12
High (maximum)	36 in (915 mm)	40 in (1015 mm)	44 in (1120 mm)
Low (minimum)	20 in (510 mm)	18 in (455 mm)	16 in (405 mm)

308.2 Forward Reach.

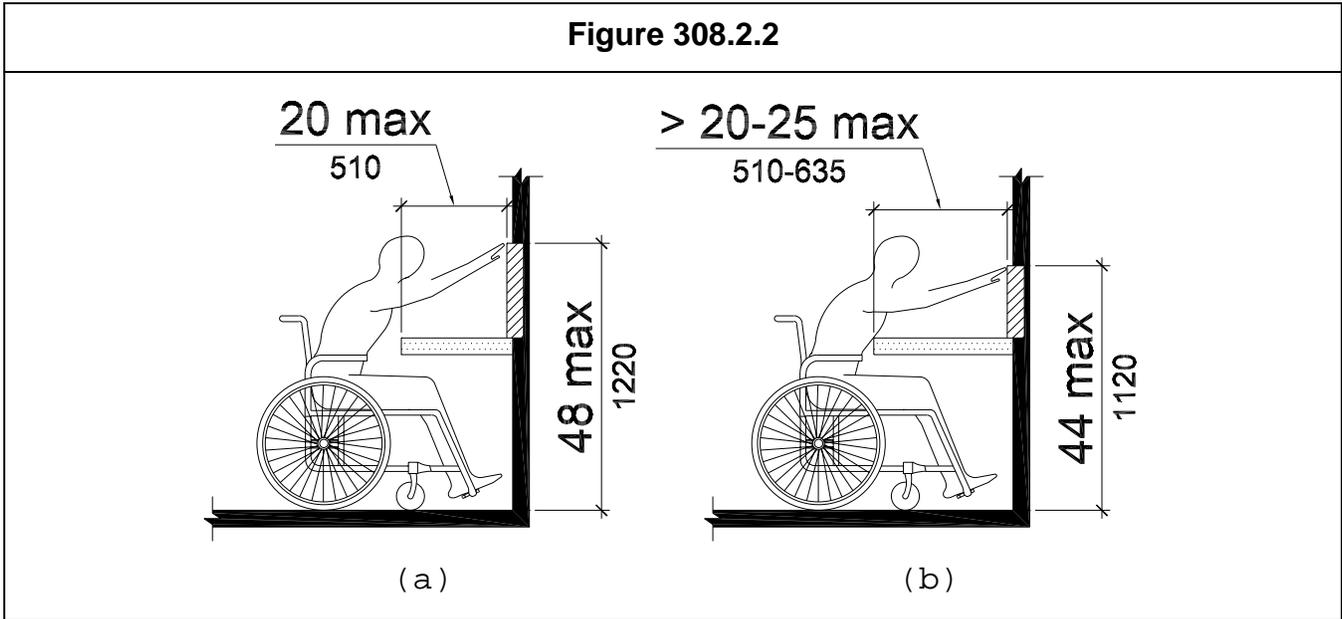
308.2.1 Unobstructed. Where a clear floor or ground *space* allows only a forward approach to an object and is unobstructed, the high forward reach shall be 48 inches (1220 mm) maximum and the low forward reach shall be 15 inches (380 mm) minimum above the floor or ground.



308.2.2 Obstructed High Reach. Where a clear floor or ground *space* allows only a forward approach to an object and the high forward reach is over an obstruction, the clear floor *space* shall extend beneath the object 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.

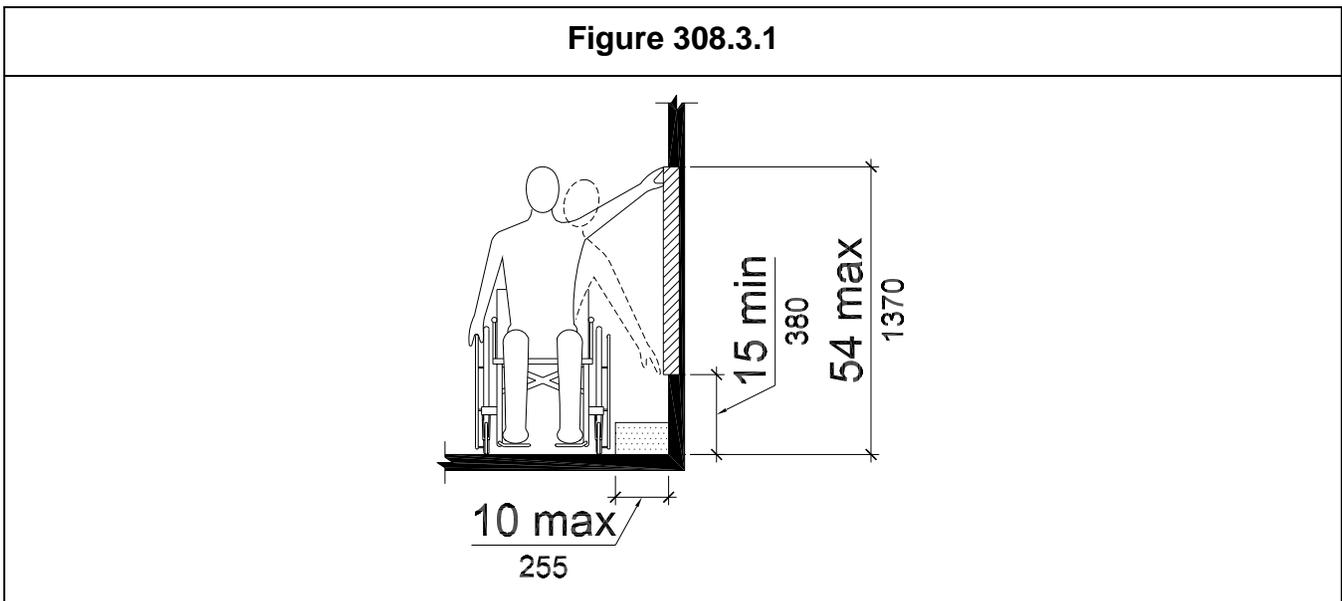
Figure 308.2.2



308.3 Side Reach.

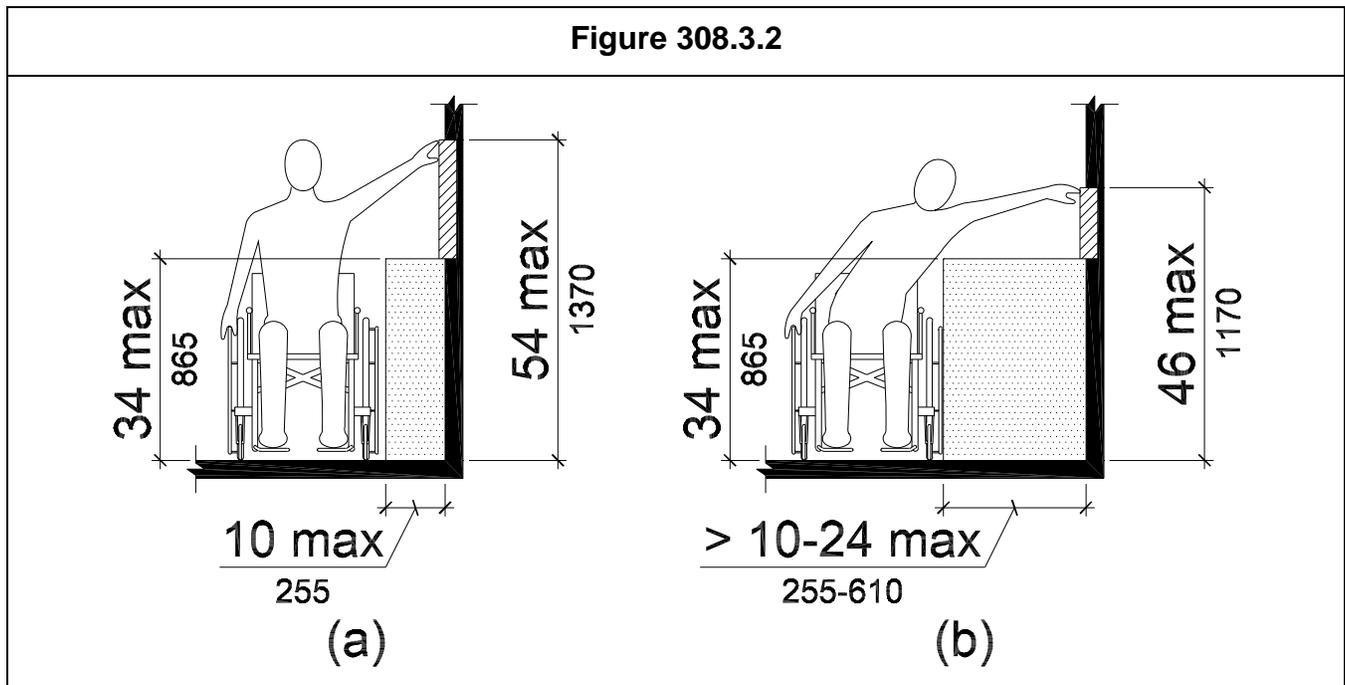
308.3.1 Unobstructed. Where a clear floor or ground space allows a parallel approach to an element and the side reach is unobstructed, the high side reach shall be 54 inches (1370 mm) maximum and the low side reach shall be 15 inches (380 mm) minimum above the floor or ground.

Figure 308.3.1



EXCEPTION: An obstruction shall be permitted between the clear floor or ground *space* and the element where the depth of the obstruction is 10 inches (255 mm) maximum.

308.3.2 Obstructed High Reach. Where a clear floor or ground *space* allows a parallel approach to an object 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 54 inches (1370 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 (1170 mm) maximum for a reach depth of 24 inches (610 mm) maximum.



309 Operable Parts

309.1 General. *Operable parts* shall comply with 309.

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.

EXCEPTION: This requirement does not apply where the use of special equipment dictates otherwise or where electrical and communications systems receptacles are not normally intended for use by building or *facility* occupants.

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 lb (22.2 N) maximum.

