



# **Texas Accessibility Standards for Restrooms**

**2 PDH / 2 CE Hours/ 2 AIA LU/HSW Hours**

**AIAPDH156**

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# **PDH Academy**

## **Final Exam**

1. Mirrors located above lavatories or countertops shall be installed with the bottom edge of the reflecting surface \_\_\_\_\_ inches maximum above the floor.
  - A. 10
  - B. 20
  - C. 30
  - D. 40
  
2. For a wheelchair accessible water closet, the centerline of the water closet shall be \_\_\_\_\_ inches minimum.
  - A. 16
  - B. 17
  - C. 18
  - D. 19
  
3. The side wall grab bar shall be located \_\_\_\_\_ inches maximum from the rear wall.
  - A. 12
  - B. 36
  - C. 42
  - D. 54
  
4. Toilet paper dispensers shall be \_\_\_\_\_ inches minimum in front of the water closet measured to the centerline of the dispenser.
  - A. 6
  - B. 7
  - C. 8
  - D. 10
  
5. Where located in the side wall or partition, the water closet door opening shall be \_\_\_\_\_ inches maximum from the front partition.
  - A. 2
  - B. 3
  - C. 4
  - D. 5

6. Lavatories and sinks shall be installed with the front of the higher of the rim or counter surface \_\_\_\_ inches maximum above the floor.
  - A. 30
  - B. 34
  - C. 38
  - D. 42
7. Hand-operated metering faucets shall remain open for \_\_\_\_ seconds minimum.
  - A. 10
  - B. 15
  - C. 20
  - D. 30
8. A grab bar \_\_\_\_ inches long minimum shall be installed on the control end wall at the front edge of the bathtub.
  - A. 12
  - B. 15
  - C. 18
  - D. 24
9. A shower spray unit with a hose \_\_\_\_ inches long minimum that can be used both as a fixed-position shower head and as a hand-held shower shall be provided.
  - A. 49
  - B. 59
  - C. 69
  - D. 79
10. In transfer type shower compartments, the controls, faucets, and shower spray unit shall be located on the control wall \_\_\_\_ inches maximum from the centerline of the seat toward the shower opening.
  - A. 15 inches
  - B. 24 inches
  - C. 27 inches
  - D. 38 inches

## **Course Description:**

This 2 CE hour Texas Accessibility Standards course examines all the design and building requirements needed to comply with the 2012 Architectural Barriers Texas Accessibility Standards (TAS) for toilet and bathing rooms. This course also highlights some of the more important changes that need to be addressed in meeting these accessibility requirements.

## **Learning Objectives:**

1. Explore the reasons why accessible design is important in your professional practice.
2. Discover and review the TAS standards for toilet and bathing rooms to be better prepared for design and building.
3. Identify some of the key changes within the TAS standards that may cause compliance issues if left unnoticed.
4. Review all restroom equipment and make sure they are compliant with the latest TAS accessibility standards.

Many Americans today have disabilities, whether congenital, temporary, or developed later in life. Here are some findings found by the *Morbidity and Mortality Weekly Report (MMWR)* in 2013.

- 1 in 5 adults or over 53 million people in the United States have a disability of one form or another, with state-level estimates ranging from 1 in 6 (16.4%; Minnesota) to nearly 1 in 3 (31.5%; Alabama).
- The most common functional disability type was mobility disability, reported by about 1 in 8 adults
- Over a third of adults 65 years or older reported any disability.
- Adults 45-64 years of age were more likely than other age group adults to report a cognitive disability
- Individuals reporting a higher household income or education level were less likely to report having a disability, compared to individuals in lower income or education levels.
- Women were more likely to report any disability when compared with men (24.4% versus 19.8%). This was also seen for most of the disability types.
- Disability was more frequently reported by non-Hispanic blacks (29.0%) and Hispanic (25.9%) adults than by white non-Hispanic (20.6% adults).

Despite federal and state requirements that are to ensure equal access to services and facilities to people with disabilities, physical accessibility remains a considerable challenge. One of the main challenges being inaccessible restrooms. It is essential to comply with the Texas Accessibility Standards(TAS) toilet and bathing room requirements. Non-compliance with the TAS's requirements may prevent bathroom use by people with disabilities or cause injuries. Additionally, owners of properties who do not comply with the TAS's bathroom requirements may invite compliance actions and lawsuits.

The TAS prohibits places of public accommodation and commercial facilities from discriminating against people with disabilities. To prevent such discrimination, it is necessary to comply with the 2012 Texas Accessibility Standards.

Most of the technical requirements for toilets and bathing rooms may be found in TAS Chapter 6: Plumbing Elements and Facilities. Other parts of the Standards are also important for designing and building bathrooms, such as Sections 308 - Reach Ranges; 309 - Operable Parts; 404 - Doors, Doorways, and Gates; and 216.8 & 703 - Signs.

Before getting into the detail of the code sections of Chapter 6, here are the highlights of some of the more important items.

## Toilets and Toilet Compartments

The 2012 TAS Standards have very specific requirements for toilet location, clearances, and size. The toilet should be installed with the top of the seat between 17" and 19" above the floor and located between 16" and 18" from the side wall to the center line, unless it is regarded as an ambulatory accessible toilet compartment that must be between 17" to 19" from the side wall.

A toilet room must provide a turning space of a minimum of a 60" in diameter to allow someone in a wheelchair to properly maneuver. It is necessary to check the Chapter 3 requirements for t-shaped turning spaces, door swings, and clear floor space.

There must be a clearance around a toilet of a minimum of 60" from a side wall. Also, the water closet, measured perpendicular from the rear wall, must be a minimum of 56" deep for wall mounted units and a minimum of 59" deep for floor mounted units to allow wheelchair access. The flush control shall be located on the open side.

The clear floor space under the sink is no longer permitted to be used as part of the toilet clear floor space. A defined clear floor space to allow for a side or forward approach to the toilet must be available at all times, meaning it is not permitted to be obstructed by a sink, garbage can, or another object.

In toilet compartments, there must be grab bars on the side wall next to the toilet and the rear wall. The side wall grab bars must be at least 42" long, placed no more than 12" from the rear wall, and be a minimum of 54" in length from the rear wall. The grab bars on the rear wall must be a minimum of 36", extend at least 12" on one side from the toilet centerline, and must be at least 24" on the other side.

Most grab bars in toilet rooms are circular and need to have an outside diameter of 1¼" minimum and 2" maximum and be 1½" from the wall. Please see Section 609.2.2 for non-circular grab bar requirements. Grab bars should be stationary in their fittings, with no looseness or tendency to revolve.

The Standards require grab bars be installed in a horizontal position, 33" minimum and 36" maximum above the floor measured to the top of the gripping surface. They must be spaced 1½" from the wall, a minimum of 1½" from a projecting object below, and at least 12" from an object projecting above a grab bar. Grab bars should be able to support 250 lbs. of force, and it is important to make sure any decorative flanges are attached properly to the wall with no sharp edges.

Sections 604.8.1 & 2 contain additional requirements, including those for size, doors, and toe clearance, depending upon whether the toilet compartment is wheelchair or ambulatory accessible. It is also necessary for toilet and bathing rooms to comply with the requirements set forth in Chapter 4 - Accessible Routes, such as those found in Section 404 for doors and doorways.

## Mirrors

A toilet and bathing room mirror should be mounted so that the bottom edge of the reflecting surface is not more than 40" above the floor if above a sink or countertop or 35" if there is no object below.

## Toilet Paper Dispensers

Toilet paper dispensers should be mounted so that the center line is between 7" and 9" in front of the toilet. The dispenser's outlet shall be between 15" and 48" above the floor and not be located behind the side grab bar or in a position that would obstruct their operation.

## Urinals

A urinal's rim must be a maximum of 17" above the floor and a minimum of 13 ½" from the rim's outer face to the back of the urinal. A minimum 30" clear width should all be provided.

## Sinks

A sink should be mounted at a maximum 34" above the floor to the top rim with clear floor space underneath to allow for a forward approach. It is important to provide a knee clearance of 27" in height to the sink underside for at least an 8" depth. Pipes must be insulated or otherwise covered, and faucets should be in reach range and easily operated with one hand (force required no greater than 5 lbs).

## **Bathtubs**

The Standards require a clearance area the length of the bathtub and a minimum of 30" wide when bathtubs are provided in transient lodging or required in a residential unit. Either a permanent (at the bathtub's head end) or removable seat may be used and each has its challenges.

For bathtubs with permanent seats, it is difficult to accurately meet the Standards' detailed grab bar requirements for bathtubs with permanent seats found in Section 607.4.1. We often see mistakes in this area.

Finding portable seats that are stable and also meet the Standards' requirements for height is very difficult. The Standards have separate grab bar requirements for tubs with removable seats that are found in Section 607.4.2.

## **Showers**

Either a roll in or transfer shower is permitted by the 2012 TAS Standards, but each has specific allowances for size, location of grab bars and controls, permanently installed shower seat, threshold, and clear floor space. For example, a transfer shower compartment must be 36" by 36" (measure at center opposing sides' center points) and a minimum entry of 36" wide. A standard roll-in shower compartment must be a minimum 30" wide by 60" deep (measured at the opposing sides' center points) and a minimum entry of 60" wide.

It is critical to remember to use measurements within the finished materials or account for the dimensions of the completed space. Also, the specific code requirements found in Section 608 should be referenced based on the intended design.

## **Soap Dispensers, Hand Dryers, and Waste Receptacles**

Soap dispenser buttons and pistons must be operable with one hand and not require more than 5 lbs. of force to activate. The reach range and height of soap dispensers, hand dryers, and towel dispenser depends on whether something, e.g., a countertop, is mounted below and the depth of the lower object.

Dispenser and hand dryers can be mounted no higher than 48" if the sink below is less than 20" deep (See Section 308 for details). If there is a sink or counter below that is between 20" and 25" (maximum), the soap dispenser or hand dryer may be no higher than 44" from the floor. Also, if there is no object below, the dispenser or dryer may not be more than 48" and should not protrude more than 4".

Loose trash cans and waste receptacles must not be in the clear path or blocking access to fixtures such as a sink or hand dryer. Units that project more than 4" from the wall and 27" above the floor.

## **Signage**

Accessible toilet and bathing rooms must be identified by signs containing the International Symbol of Accessibility. The Standards require such signs to be mounted outside of accessible bathroom on the door's latch side and 48" above the finished floor or ground surface, measured from the baseline of the lowest tactile character and 60" measured from the baseline of the highest tactile character. Section 703 contains detailed requirements for the visual and tactile characters to be used on ADA compliant signs. For existing bathrooms not in compliance with the TAS's requirements, directional signs must indicate the nearest accessible toilet or bathing room.

**Following are the sections from the 2012 Architectural Barriers Texas Accessibility Standards (TAS) that are important and specific to designing and building a restroom.**

**603 Toilet and Bathing Rooms**

**603.1 General.** Toilet and bathing rooms shall comply with 603.

**603.2 Clearances.** Clearances shall comply with 603.2.

**603.2.1 Turning Space.** Turning space complying with 304 shall be provided within the room.

**603.2.2 Overlap.** Required clear floor spaces, clearance at fixtures, and turning space shall be permitted to overlap.

**603.2.3 Door Swing.** Doors shall not swing into the clear floor space or clearance required for any fixture. Doors shall be permitted to swing into the required turning space.

**EXCEPTIONS:**

1. Doors to a toilet room or bathing room for a single occupant accessed only through a private office and not for common use or public use shall be permitted to swing into the clear floor space or clearance provided the swing of the door can be reversed to comply with 603.2.3.
2. Where the toilet room or bathing room is for individual use and a clear floor space complying with 305.3 is provided within the room beyond the arc of the door swing, doors shall be permitted to swing into the clear floor space or clearance required for any fixture.

**Advisory 603.2.3 Door Swing Exception 1.** At the time the door is installed, and if the door swing is reversed in the future, the door must meet all the requirements specified in 404. Additionally, the door swing cannot reduce the required width of an accessible route. Also, avoid violating other building or life safety codes when the door swing is reversed.

**603.3 Mirrors.** Mirrors located above lavatories or countertops shall be installed with the bottom edge of the reflecting surface 40 inches (1015 mm) maximum above the finish floor or ground. Mirrors not located above lavatories or countertops shall be installed with the bottom edge of the reflecting surface 35 inches (890 mm) maximum above the finish floor or ground.

**Advisory 603.3 Mirrors.** A single full-length mirror can accommodate a greater number of people, including children. In order for mirrors to be usable by people who are ambulatory and people who use wheelchairs, the top edge of mirrors should be 74 inches (1880 mm) minimum from the floor or ground.

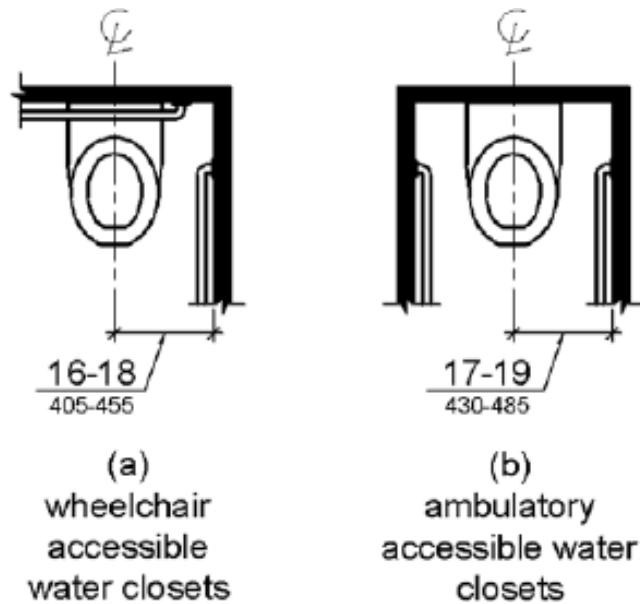
**603.4 Coat Hooks and Shelves.** Coat hooks shall be located within one of the reach ranges specified in 308. Shelves shall be located 40 inches (1015 mm) minimum and 48 inches (1220 mm) maximum above the finish floor.

## 604 Water Closets and Toilet Compartments

**604.1 General.** Water closets and toilet compartments shall comply with 604.2 through 604.8.

**EXCEPTION:** Water closets and toilet compartments for children's use shall be permitted to comply with 604.9.

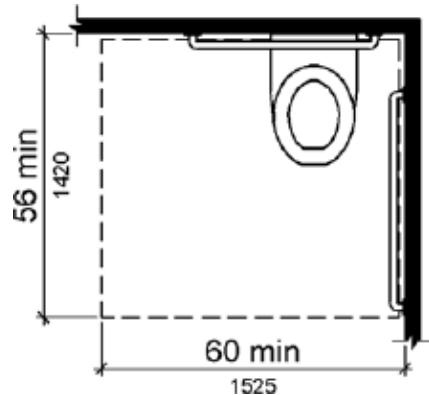
**604.2 Location.** The water closet shall be positioned with a wall or partition to the rear and to one side. The centerline of the water closet shall be 16 inches (405 mm) minimum to 18 inches (455 mm) maximum from the side wall or partition, except that the water closet shall be 17 inches (430 mm) minimum and 19 inches (485 mm) maximum from the side wall or partition in the ambulatory accessible toilet compartment specified in 604.8.2. Water closets shall be arranged for a left-hand or right-hand approach.



**Figure 604.2 Water Closet Location**

**604.3 Clearance.** Clearances around water closets and in toilet compartments shall comply with 604.3.

**604.3.1 Size.** Clearance around a water closet shall be 60 inches (1525 mm) minimum measured perpendicular from the side wall and 56 inches (1420 mm) minimum measured perpendicular from the rear wall.

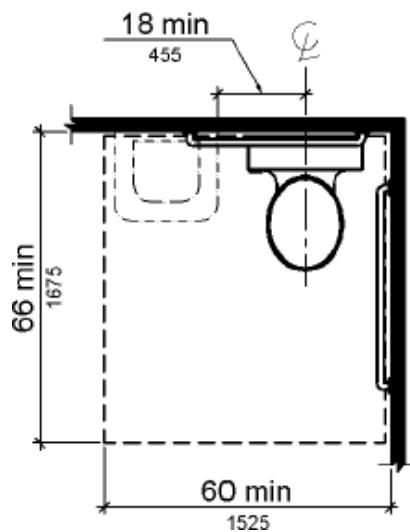


**Figure 604.3.1 Size of Clearance at Water Closets**

**604.3.2 Overlap.** The required clearance around the water closet shall be permitted to overlap the water closet, associated grab bars, dispensers, sanitary napkin disposal units, coat hooks, shelves, accessible routes, clear floor space and clearances required at other fixtures, and the turning space. No other fixtures or obstructions shall be located within the required water closet clearance.

**EXCEPTION:** In residential dwelling units, a lavatory complying with 606 shall be permitted on the rear wall 18 inches (455 mm) minimum from the water closet centerline where the clearance at the water closet is 66 inches (1675 mm) minimum measured perpendicular from the rear wall.

**Advisory 604.3.2 Overlap.** When the door to the toilet room is placed directly in front of the water closet, the water closet cannot overlap the required maneuvering clearance for the door inside the room.



**Figure 604.3.2 (Exception) Overlap of Water Closet Clearance in Residential Dwelling Units**

**604.4 Seats.** The seat height of a water closet above the finish floor shall be 17 inches (430 mm) minimum and 19 inches (485 mm) maximum measured to the top of the seat. Seats shall not be sprung to return to a lifted position.

**EXCEPTIONS:**

1. A water closet in a toilet room for a single occupant accessed only through a private office and not for common use or public use shall not be required to comply with 604.4.
2. In residential dwelling units, the height of water closets shall be permitted to be 15 inches (380 mm) minimum and 19 inches (485 mm) maximum above the finish floor measured to the top of the seat.

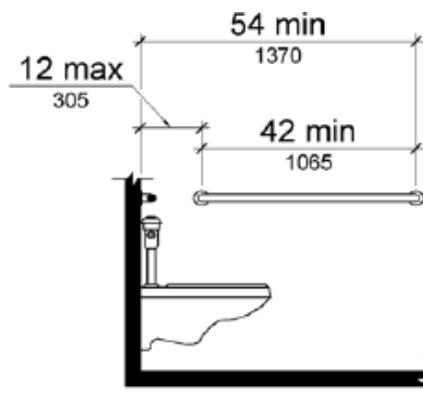
**604.5 Grab Bars.** Grab bars for water closets shall comply with 609. Grab bars shall be provided on the side wall closest to the water closet and on the rear wall.

**EXCEPTIONS:**

1. Grab bars shall not be required to be installed in a toilet room for a single occupant accessed only through a private office and not for common use or public use provided that reinforcement has been installed in walls and located so as to permit the installation of grab bars complying with 604.5.
2. In residential dwelling units, grab bars shall not be required to be installed in toilet or bathrooms provided that reinforcement has been installed in walls and located so as to permit the installation of grab bars complying with 604.5.
3. In detention or correction facilities, grab bars shall not be required to be installed in housing or holding cells that are specially designed without protrusions for purposes of suicide prevention.

**Advisory 604.5 Grab Bars Exception 2.** Reinforcement must be sufficient to permit the installation of rear and side wall grab bars that fully meet all accessibility requirements including, but not limited to, required length, installation height, and structural strength.

**604.5.1 Side Wall.** The side wall grab bar shall be 42 inches (1065 mm) long minimum, located 12 inches (305 mm) maximum from the rear wall and extending 54 inches (1370 mm) minimum from the rear wall.

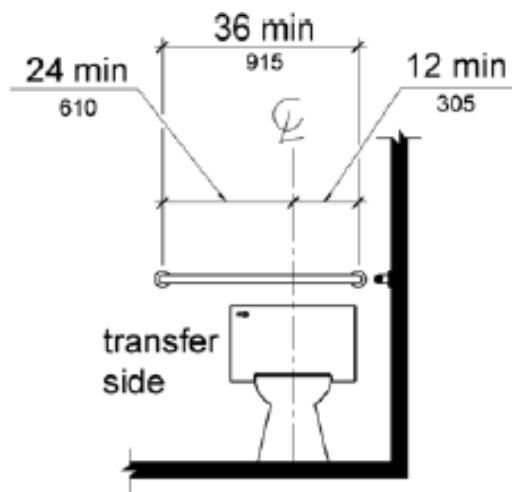


**Figure 604.5.1 Side Wall Grab Bar at Water Closets**

**604.5.2 Rear Wall.** The rear wall grab bar shall be 36 inches (915 mm) long minimum and extend from the centerline of the water closet 12 inches (305 mm) minimum on one side and 24 inches (610 mm) minimum on the other side.

**EXCEPTIONS:**

1. The rear grab bar shall be permitted to be 24 inches (610 mm) long minimum, centered on the water closet, where wall space does not permit a length of 36 inches (915 mm) minimum due to the location of a recessed fixture adjacent to the water closet.
2. Where an administrative authority requires flush controls for flush valves to be located in a position that conflicts with the location of the rear grab bar, then the rear grab bar shall be permitted to be split or shifted to the open side of the toilet area.



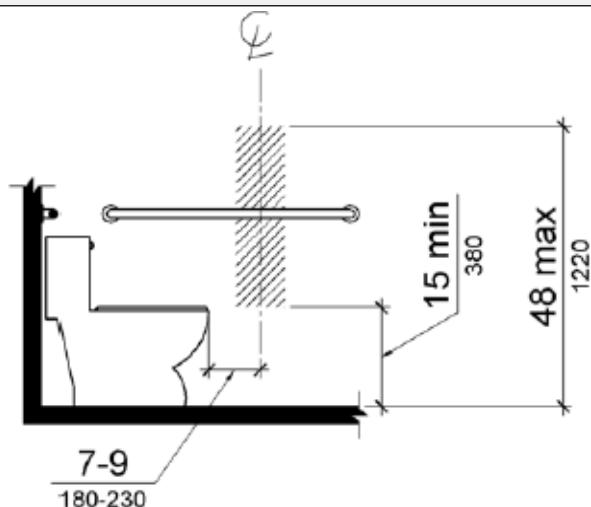
**Figure 604.5.2 Rear Wall Grab Bar at Water Closets**

**604.6 Flush Controls.** Flush controls shall be hand operated or automatic. Hand operated flush controls shall comply with 309. Flush controls shall be located on the open side of the water closet except in ambulatory accessible compartments complying with 604.8.2.

**Advisory 604.6 Flush Controls.** If plumbing valves are located directly behind the toilet seat, flush valves and related plumbing can cause injury or imbalance when a person leans back against them. To prevent causing injury or imbalance, the plumbing can be located behind walls or to the side of the toilet; or if approved by the local authority having jurisdiction, provide a toilet seat lid.

**604.7 Dispensers.** Toilet paper dispensers shall comply with 309.4 and shall be 7 inches (180 mm) minimum and 9 inches (230 mm) maximum in front of the water closet measured to the centerline of the dispenser. The outlet of the dispenser shall be 15 inches (380 mm) minimum and 48 inches (1220 mm) maximum above the finish floor and shall not be located behind grab bars. Dispensers shall not be of a type that controls delivery or that does not allow continuous paper flow.

**Advisory 604.7 Dispensers.** If toilet paper dispensers are installed above the side wall grab bar, the outlet of the toilet paper dispenser must be 48 inches (1220 mm) maximum above the finish floor and the top of the gripping surface of the grab bar must be 33 inches (840 mm) minimum and 36 inches (915 mm) maximum above the finish floor.



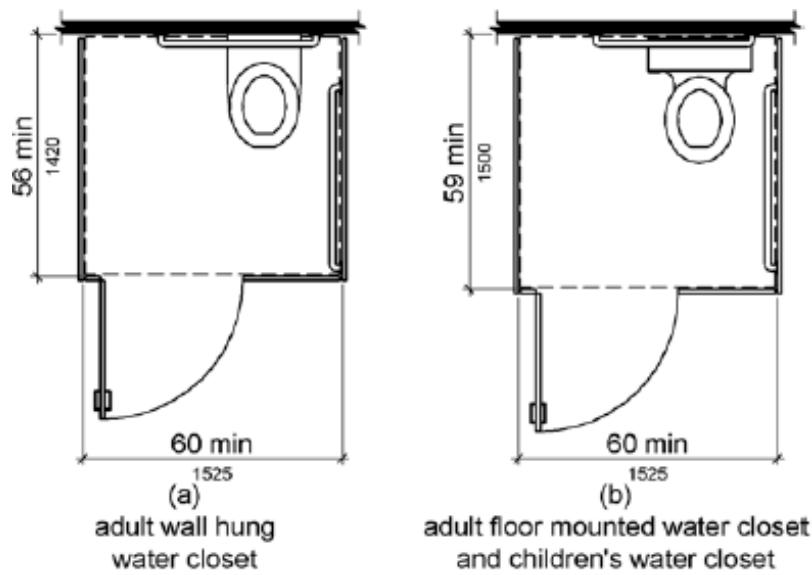
**Figure 604.7 Dispenser Outlet Location**

**604.8 Toilet Compartments.** Wheelchair accessible toilet compartments shall meet the requirements of 604.8.1 and 604.8.3. Compartments containing more than one plumbing fixture shall comply with 603. Ambulatory accessible compartments shall comply with 604.8.2 and 604.8.3.

**604.8.1 Wheelchair Accessible Compartments.** Wheelchair accessible compartments shall comply with 604.8.1.

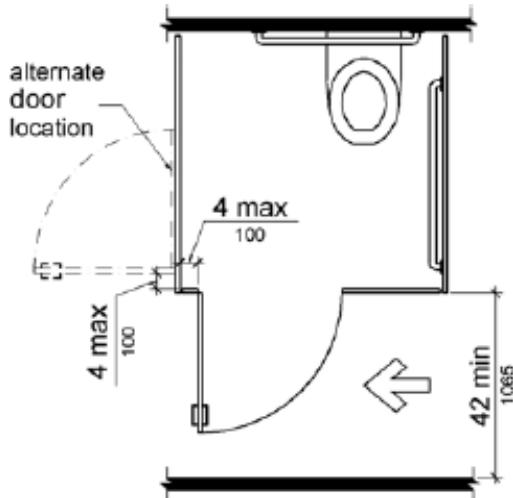
**604.8.1.1 Size.** Wheelchair accessible compartments shall be 60 inches (1525 mm) wide minimum measured perpendicular to the side wall, and 56 inches (1420 mm) deep minimum for wall hung water closets and 59 inches (1500 mm) deep minimum for floor mounted water closets measured perpendicular to the rear wall. Wheelchair accessible compartments for children's use shall be 60 inches (1525 mm) wide minimum measured perpendicular to the side wall, and 59 inches (1500 mm) deep minimum for wall hung and floor mounted water closets measured perpendicular to the rear wall.

**Advisory 604.8.1.1 Size.** The minimum space required in toilet compartments is provided so that a person using a wheelchair can maneuver into position at the water closet. This space cannot be obstructed by baby changing tables or other fixtures or conveniences, except as specified at 604.3.2 (Overlap). If toilet compartments are to be used to house fixtures other than those associated with the water closet, they must be designed to exceed the minimum space requirements. Convenience fixtures such as baby changing tables must also be accessible to people with disabilities as well as to other users. Toilet compartments that are designed to meet, and not exceed, the minimum space requirements may not provide adequate space for maneuvering into position at a baby changing table.



**Figure 604.8.1.1 Size of Wheelchair Accessible Toilet Compartment**

**604.8.1.2 Doors.** Toilet compartment doors, including door hardware, shall comply with 404 except that if the approach is to the latch side of the compartment door, clearance between the door side of the compartment and any obstruction shall be 42 inches (1065 mm) minimum. Doors shall be located in the front partition or in the side wall or partition farthest from the water closet. Where located in the front partition, the door opening shall be 4 inches (100 mm) maximum from the side wall or partition farthest from the water closet. Where located in the side wall or partition, the door opening shall be 4 inches (100 mm) maximum from the front partition. The door shall be self-closing. A door pull complying with 404.2.7 shall be placed on both sides of the door near the latch. Toilet compartment doors shall not swing into the minimum required compartment area.

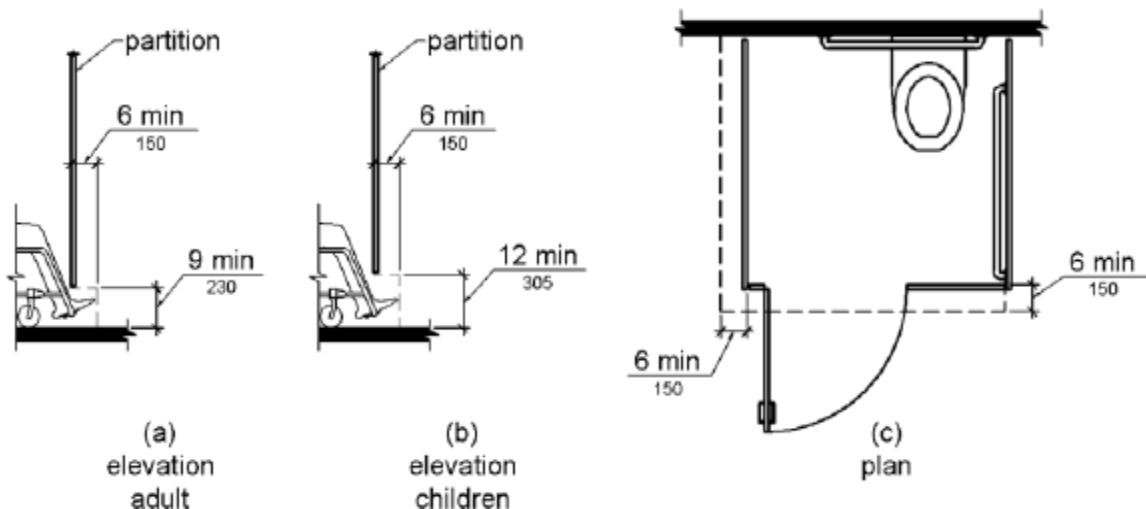


**Figure 604.8.1.2 Wheelchair Accessible Toilet Compartment Doors**

**604.8.1.3 Approach.** Compartments shall be arranged for left-hand or right-hand approach to the water closet.

**604.8.1.4 Toe Clearance.** The front partition and at least one side partition shall provide a toe clearance of 9 inches (230 mm) minimum above the finish floor and 6 inches (150 mm) deep minimum beyond the compartment-side face of the partition, exclusive of partition support members. Compartments for children's use shall provide a toe clearance of 12 inches (305 mm) minimum above the finish floor.

**EXCEPTION:** Toe clearance at the front partition is not required in a compartment greater than 62 inches (1575 mm) deep with a wall-hung water closet or 65 inches (1650 mm) deep with a floor-mounted water closet. Toe clearance at the side partition is not required in a compartment greater than 66 inches (1675 mm) wide. Toe clearance at the front partition is not required in a compartment for children's use that is greater than 65 inches (1650 mm) deep.



**Figure 604.8.1.4 Wheelchair Accessible Toilet Compartment Toe Clearance**

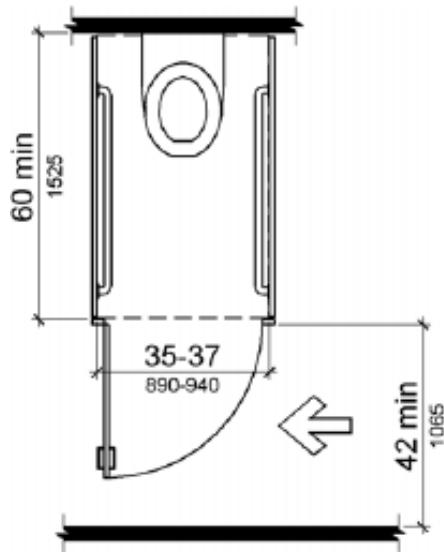
**604.8.1.5 Grab Bars.** Grab bars shall comply with 609. A side-wall grab bar complying with 604.5.1 shall be provided and shall be located on the wall closest to the water closet. In addition, a rear-wall grab bar complying with 604.5.2 shall be provided.

**604.8.2 Ambulatory Accessible Compartments.** Ambulatory accessible compartments shall comply with 604.8.2.

**604.8.2.1 Size.** Ambulatory accessible compartments shall have a depth of 60 inches (1525 mm) minimum and a width of 35 inches (890 mm) minimum and 37 inches (940 mm) maximum.

**604.8.2.2 Doors.** Toilet compartment doors, including door hardware, shall comply with 404, except that if the approach is to the latch side of the compartment door, clearance between the door side of the compartment and any obstruction shall be 42 inches (1065 mm) minimum. The door shall be self-closing. A door pull complying with 404.2.7 shall be placed on both sides of the door near the latch. Toilet compartment doors shall not swing into the minimum required compartment area.

**604.8.2.3 Grab Bars.** Grab bars shall comply with 609. A side-wall grab bar complying with 604.5.1 shall be provided on both sides of the compartment.



**Figure 604.8.2 Ambulatory Accessible Toilet Compartment**

**604.8.3 Coat Hooks and Shelves.** Coat hooks shall be located within one of the reach ranges specified in 308. Shelves shall be located 40 inches (1015 mm) minimum and 48 inches (1220 mm) maximum above the finish floor.

**604.9 Water Closets and Toilet Compartments for Children's Use.** Water closets and toilet compartments for children's use shall comply with 604.9.

**Advisory 604.9 Water Closets and Toilet Compartments for Children's Use.** The requirements in 604.9 are to be followed where the exception for children's water closets in 604.1 is used. The following table provides additional guidance in applying the specifications for water closets for children according to the age group served and reflects the differences in the size, stature, and reach ranges of children ages 3 through 12. The specifications chosen should correspond to the age of the primary user group. The specifications of one age group should be applied consistently in the installation of a water closet and related elements.

Advisory Specifications for Water Closets Serving Children Ages 3 through 12			
	Ages 3 and 4	Ages 5 through 8	Ages 9 through 12
Water Closet Centerline	12 inches (305 mm)	12 to 15 inches (305 to 380 mm)	15 to 18 inches (380 to 455 mm)
Toilet Seat Height	11 to 12 inches (280 to 305 mm)	12 to 15 inches (305 to 380 mm)	15 to 17 inches (380 to 430 mm)
Grab Bar Height	18 to 20 inches (455 to 510 mm)	20 to 25 inches (510 to 635 mm)	25 to 27 inches (635 to 685 mm)
Dispenser Height	14 inches (355 mm)	14 to 17 inches (355 to 430 mm)	17 to 19 inches (430 to 485 mm)

**604.9.1 Location.** The water closet shall be located with a wall or partition to the rear and to one side. The centerline of the water closet shall be 12 inches (305 mm) minimum and 18 inches (455 mm) maximum from the side wall or partition, except that the water closet shall be 17 inches (430 mm) minimum and 19 inches (485 mm) maximum from the side wall or partition in the ambulatory accessible toilet compartment specified in 604.8.2. Compartments shall be arranged for left-hand or right-hand approach to the water closet.

**604.9.2 Clearance.** Clearance around a water closet shall comply with 604.3.

**604.9.3 Height.** The height of water closets shall be 11 inches (280 mm) minimum and 17 inches (430 mm) maximum measured to the top of the seat. Seats shall not be sprung to return to a lifted position.

**604.9.4 Grab Bars.** Grab bars for water closets shall comply with 604.5.

**604.9.5 Flush Controls.** Flush controls shall be hand operated or automatic. Hand operated flush controls shall comply with 309.2 and 309.4 and shall be installed 36 inches (915 mm) maximum above the finish floor. Flush controls shall be located on the open side of the water closet except in ambulatory accessible compartments complying with 604.8.2.

**604.9.6 Dispensers.** Toilet paper dispensers shall comply with 309.4 and shall be 7 inches (180 mm) minimum and 9 inches (230 mm) maximum in front of the water closet measured to the centerline of the dispenser. The outlet of the dispenser shall be 14 inches (355 mm) minimum and 19 inches (485 mm) maximum above the finish floor. There shall be a clearance of 1 1/2 inches (38 mm) minimum below the grab bar. Dispensers shall not be of a type that controls delivery or that does not allow continuous paper flow.

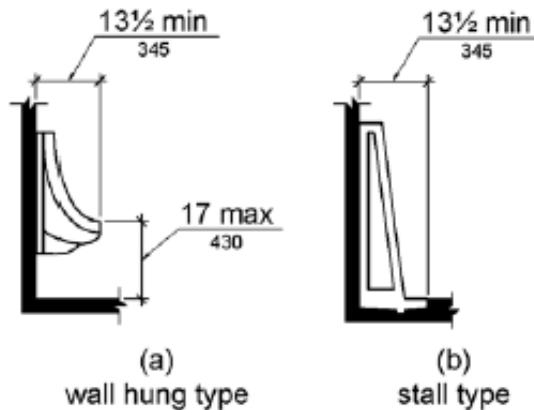
**604.9.7 Toilet Compartments.** Toilet compartments shall comply with 604.8.

## 605 Urinals

**605.1 General.** Urinals shall comply with 605.

**Advisory 605.1 General.** Stall-type urinals provide greater accessibility for a broader range of persons, including people of short stature.

**605.2 Height and Depth.** Urinals shall be the stall-type or the wall-hung type with the rim 17 inches (430 mm) maximum above the finish floor or ground. Urinals shall be 13 1/2 inches (345 mm) deep minimum measured from the outer face of the urinal rim to the back of the fixture.



**Figure 605.2 Height and Depth of Urinals**

**605.3 Clear Floor Space.** A clear floor or ground space complying with 305 positioned for forward approach shall be provided.

**605.4 Flush Controls.** Flush controls shall be hand operated or automatic. Hand operated flush controls shall comply with 309.

## 606 Lavatories and Sinks

**606.1 General.** Lavatories and sinks shall comply with 606.

**Advisory 606.1 General.** If soap and towel dispensers are provided, they must be located within the reach ranges specified in 308. Locate soap and towel dispensers so that they are conveniently usable by a person at the accessible lavatory.

**606.2 Clear Floor Space.** A clear floor space complying with 305, positioned for a forward approach, and knee and toe clearance complying with 306 shall be provided.

### EXCEPTIONS:

1. A parallel approach complying with 305 shall be permitted to a kitchen sink in a space where a cook top or conventional range is not provided and to wet bars.
2. A lavatory in a toilet room or bathing facility for a single occupant accessed only through a private office and not for common use or public use shall not be required to provide knee and toe clearance complying with 306.
3. In residential dwelling units, cabinetry shall be permitted under lavatories and kitchen sinks provided that all of the following conditions are met:
  - (a) the cabinetry can be removed without removal or replacement of the fixture;
  - (b) the finish floor extends under the cabinetry; and
  - (c) the walls behind and surrounding the cabinetry are finished.
4. A knee clearance of 24 inches (610 mm) minimum above the finish floor or ground shall be permitted at lavatories and sinks used primarily by children 6 through 12 years where the rim or counter surface is 31 inches (785 mm) maximum above the finish floor or ground.

5. A parallel approach complying with 305 shall be permitted to lavatories and sinks used primarily by children 5 years and younger.
6. The dip of the overflow shall not be considered in determining knee and toe clearances.
7. No more than one bowl of a multi-bowl sink shall be required to provide knee and toe clearance complying with 306.

**606.3 Height.** Lavatories and sinks shall be installed with the front of the higher of the rim or counter surface 34 inches (865 mm) maximum above the finish floor or ground.

#### **EXCEPTIONS:**

1. A lavatory in a toilet or bathing facility for a single occupant accessed only through a private office and not for common use or public use shall not be required to comply with 606.3.
2. In residential dwelling unit kitchens, sinks that are adjustable to variable heights, 29 inches (735 mm) minimum and 36 inches (915 mm) maximum, shall be permitted where rough-in plumbing permits connections of supply and drain pipes for sinks mounted at the height of 29 inches (735 mm).

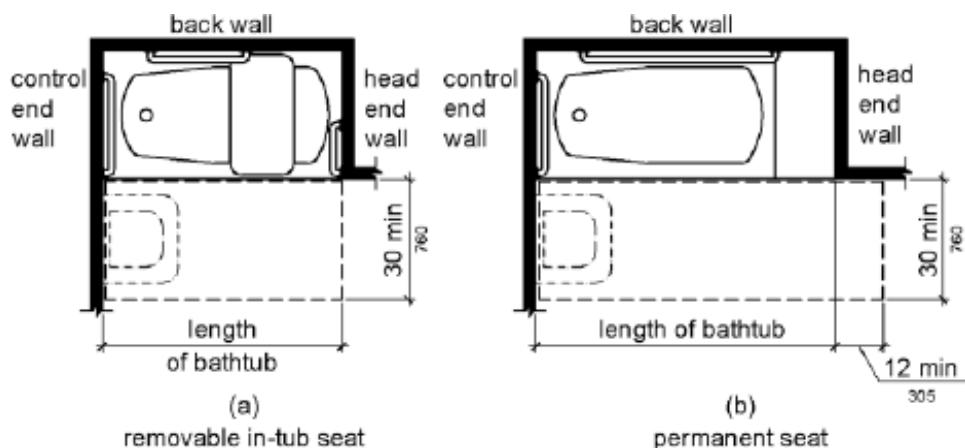
**606.4 Faucets.** Controls for faucets shall comply with 309. Hand-operated metering faucets shall remain open for 10 seconds minimum.

**606.5 Exposed Pipes and Surfaces.** Water supply and drain pipes under lavatories and sinks shall be insulated or otherwise configured to protect against contact. There shall be no sharp or abrasive surfaces under lavatories and sinks.

## **607 Bathtubs**

**607.1 General.** Bathtubs shall comply with 607.

**607.2 Clearance.** Clearance in front of bathtubs shall extend the length of the bathtub and shall be 30 inches (760 mm) wide minimum. A lavatory complying with 606 shall be permitted at the control end of the clearance. Where a permanent seat is provided at the head end of the bathtub, the clearance shall extend 12 inches (305 mm) minimum beyond the wall at the head end of the bathtub.



**Figure 607.2 Clearance for Bathtubs**

**607.3 Seat.** A permanent seat at the head end of the bathtub or a removable in-tub seat shall be provided. Seats shall comply with 610.

**607.4 Grab Bars.** Grab bars for bathtubs shall comply with 609 and shall be provided in accordance with 607.4.1 or 607.4.2.

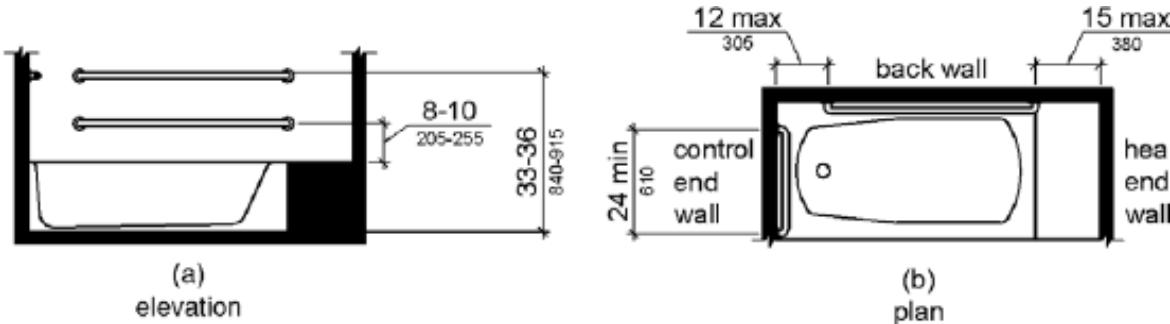
### **EXCEPTIONS:**

1. Grab bars shall not be required to be installed in a bathtub located in a bathing facility for a single occupant accessed only through a private office and not for common use or public use provided that reinforcement has been installed in walls and located so as to permit the installation of grab bars complying with 607.4.
2. In residential dwelling units, grab bars shall not be required to be installed in bathtubs located in bathing facilities provided that reinforcement has been installed in walls and located so as to permit the installation of grab bars complying with 607.4.

**607.4.1 Bathtubs With Permanent Seats.** For bathtubs with permanent seats, grab bars shall be provided in accordance with 607.4.1.

**607.4.1.1 Back Wall.** Two grab bars shall be installed on the back wall, one located in accordance with 609.4 and the other located 8 inches (205 mm) minimum and 10 inches (255 mm) maximum above the rim of the bathtub. Each grab bar shall be installed 15 inches (380 mm) maximum from the head end wall and 12 inches (305 mm) maximum from the control end wall.

**607.4.1.2 Control End Wall.** A grab bar 24 inches (610 mm) long minimum shall be installed on the control end wall at the front edge of the bathtub.



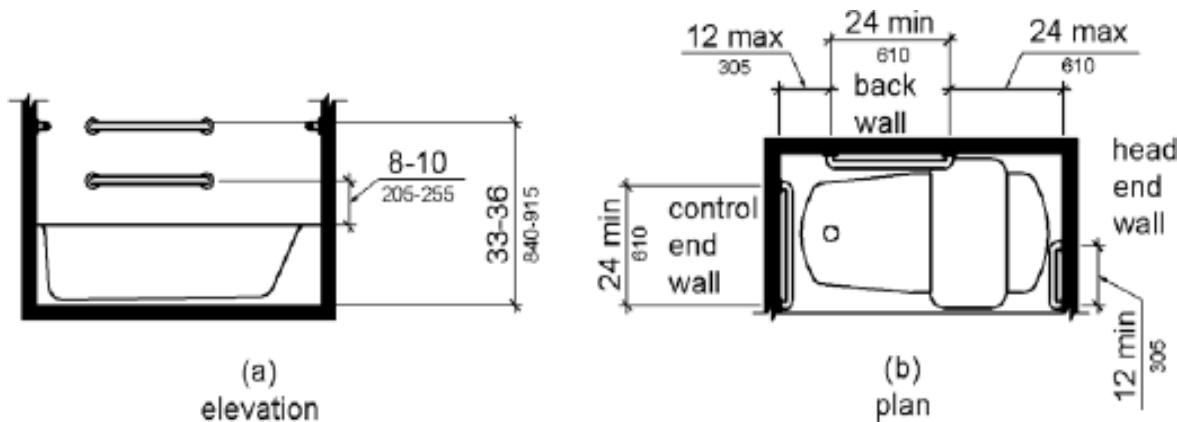
**Figure 607.4.1 Grab Bars for Bathtubs with Permanent Seats**

**607.4.2 Bathtubs Without Permanent Seats.** For bathtubs without permanent seats, grab bars shall comply with 607.4.2.

**607.4.2.1 Back Wall.** Two grab bars shall be installed on the back wall, one located in accordance with 609.4 and other located 8 inches (205 mm) minimum and 10 inches (255 mm) maximum above the rim of the bathtub. Each grab bar shall be 24 inches (610 mm) long minimum and shall be installed 24 inches (610 mm) maximum from the head end wall and 12 inches (305 mm) maximum from the control end wall.

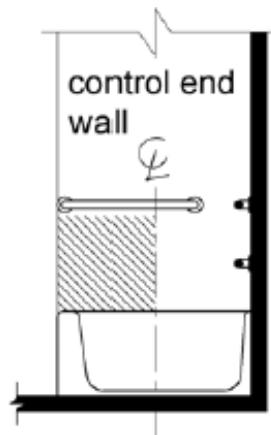
**607.4.2.2 Control End Wall.** A grab bar 24 inches (610 mm) long minimum shall be installed on the control end wall at the front edge of the bathtub.

**607.4.2.3 Head End Wall.** A grab bar 12 inches (305 mm) long minimum shall be installed on the head end wall at the front edge of the bathtub.



**Figure 607.4.2 Grab Bars for Bathtubs with Removable In-Tub Seats**

**607.5 Controls.** Controls, other than drain stoppers, shall be located on an end wall. Controls shall be between the bathtub rim and grab bar, and between the open side of the bathtub and the centerline of the width of the bathtub. Controls shall comply with 309.4.



**Figure 607.5 Bathtub Control Location**

**607.6 Shower Spray Unit and Water.** A shower spray unit with a hose 59 inches (1500 mm) long minimum that can be used both as a fixed-position shower head and as a hand-held shower shall be provided. The shower spray unit shall have an on/off control with a non-positive shut-off. If an adjustable-height shower head on a vertical bar is used, the bar shall be installed so as not to obstruct the use of grab bars. Bathtub shower spray units shall deliver water that is 120°F (49°C) maximum.

**Advisory 607.6 Shower Spray Unit and Water.** Ensure that hand-held shower spray units are capable of delivering water pressure substantially equivalent to fixed shower heads.

**607.7 Bathtub Enclosures.** Enclosures for bathtubs shall not obstruct controls, faucets, shower and spray units or obstruct transfer from wheelchairs onto bathtub seats or into bathtubs. Enclosures on bathtubs shall not have tracks installed on the rim of the open face of the bathtub.

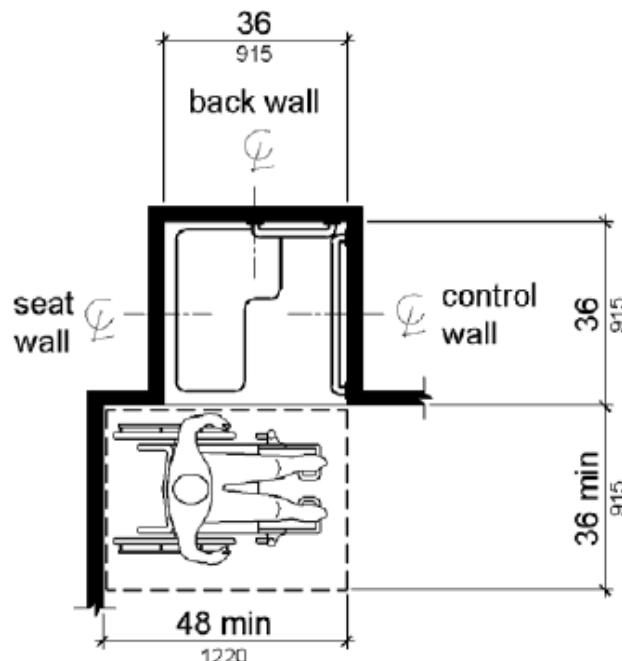
## 608 Shower Compartments

**608.1 General.** Shower compartments shall comply with 608.

**Advisory 608.1 General.** Shower stalls that are 60 inches (1525 mm) wide and have no curb may increase the usability of a bathroom because the shower area provides additional maneuvering space.

**608.2 Size and Clearances for Shower Compartments.** Shower compartments shall have sizes and clearances complying with 608.2.

**608.2.1 Transfer Type Shower Compartments.** Transfer type shower compartments shall be 36 inches (915 mm) by 36 inches (915 mm) clear inside dimensions measured at the center points of opposing sides and shall have a 36 inch (915 mm) wide minimum entry on the face of the shower compartment. Clearance of 36 inches (915 mm) wide minimum by 48 inches (1220 mm) long minimum measured from the control wall shall be provided.



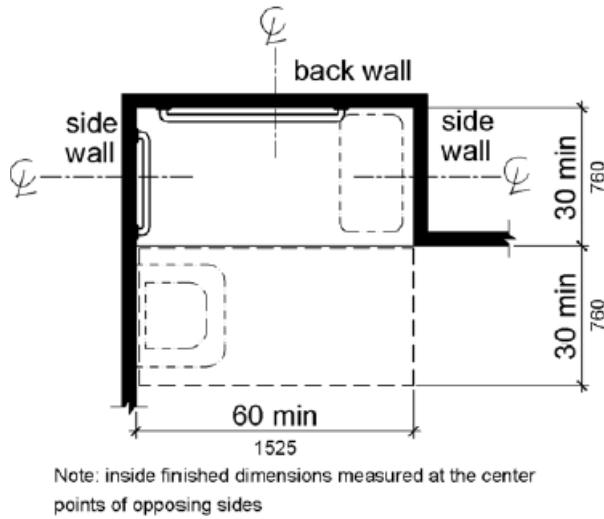
Note: inside finished dimensions measured at the center points  
of opposing sides

**Figure 608.2.1 Transfer Type Shower Compartment Size and Clearance**

**608.2.2 Standard Roll-In Type Shower Compartments.** Standard roll-in type shower compartments shall be 30 inches (760 mm) wide minimum by 60 inches (1525 mm) deep minimum clear inside dimensions measured at center points of opposing sides and shall have a 60 inches (1525 mm) wide minimum entry on the face of the shower compartment.

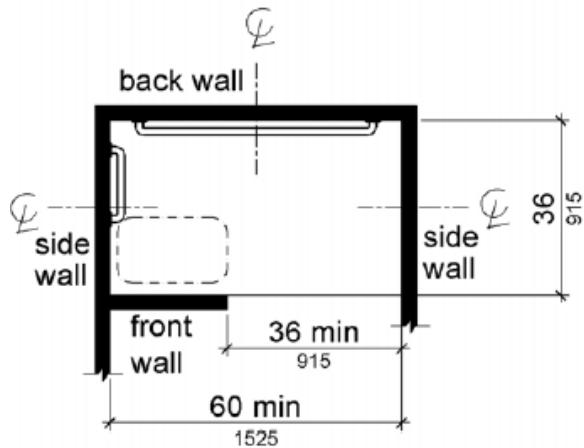
**608.2.2.1 Clearance.** A 30 inch (760 mm) wide minimum by 60 inch (1525 mm) long minimum clearance shall be provided adjacent to the open face of the shower compartment.

**EXCEPTION:** A lavatory complying with 606 shall be permitted on one 30 inch (760 mm) wide minimum side of the clearance provided that it is not on the side of the clearance adjacent to the controls or, where provided, not on the side of the clearance adjacent to the shower seat.



**Figure 608.2.2 Standard Roll-In Type Shower Compartment Size and Clearance**

**608.2.3 Alternate Roll-In Type Shower Compartments.** Alternate roll-in type shower compartments shall be 36 inches (915 mm) wide and 60 inches (1525 mm) deep minimum clear inside dimensions measured at center points of opposing sides. A 36 inch (915 mm) wide minimum entry shall be provided at one end of the long side of the compartment.



Note: inside finished dimensions measured at the center points of opposing sides

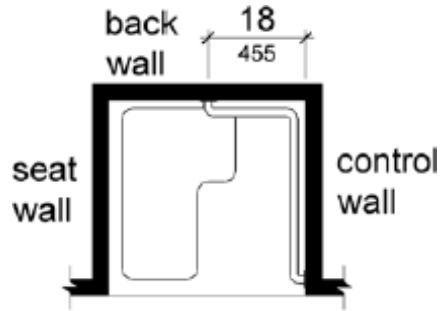
**Figure 608.2.3 Alternate Roll-In Type Shower Compartment Size and Clearance**

**608.3 Grab Bars.** Grab bars shall comply with 609 and shall be provided in accordance with 608.3. Where multiple grab bars are used, required horizontal grab bars shall be installed at the same height above the finish floor.

**EXCEPTIONS:**

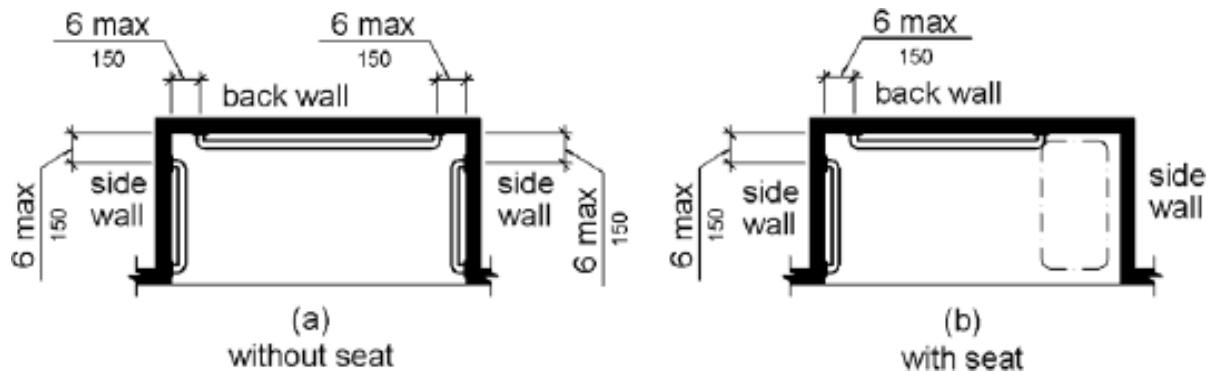
1. Grab bars shall not be required to be installed in a shower located in a bathing facility for a single occupant accessed only through a private office, and not for common use or public use provided that reinforcement has been installed in walls and located so as to permit the installation of grab bars complying with 608.3.
2. In residential dwelling units, grab bars shall not be required to be installed in showers located in bathing facilities provided that reinforcement has been installed in walls and located so as to permit the installation of grab bars complying with 608.3.

**608.3.1 Transfer Type Shower Compartments.** In transfer type compartments, grab bars shall be provided across the control wall and back wall to a point 18 inches (455 mm) from the controlwall.



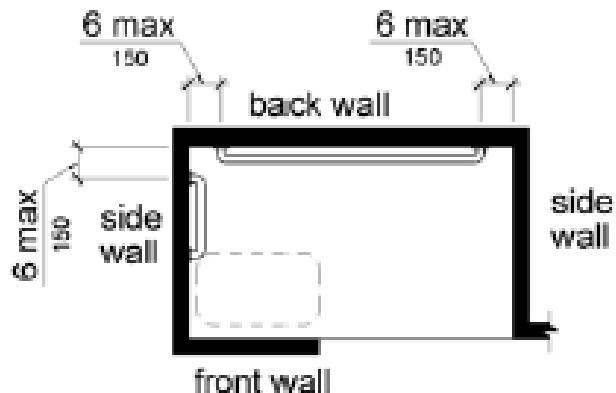
**Figure 608.3.1 Grab Bars for Transfer Type Showers**

**608.3.2 Standard Roll-In Type Shower Compartments.** Where a seat is provided in standard roll-in type shower compartments, grab bars shall be provided on the back wall and the side wall opposite the seat. Grab bars shall not be provided above the seat. Where a seat is not provided in standard roll-in type shower compartments, grab bars shall be provided on three walls. Grab bars shall be installed 6 inches (150 mm) maximum from adjacent walls.



**Figure 608.3.2 Grab Bars for Standard Roll-In Type Showers**

**608.3.3 Alternate Roll-In Type Shower Compartments.** In alternate roll-in type shower compartments, grab bars shall be provided on the back wall and the side wall farthest from the compartment entry. Grab bars shall not be provided above the seat. Grab bars shall be installed 6 inches (150 mm) maximum from adjacent walls.



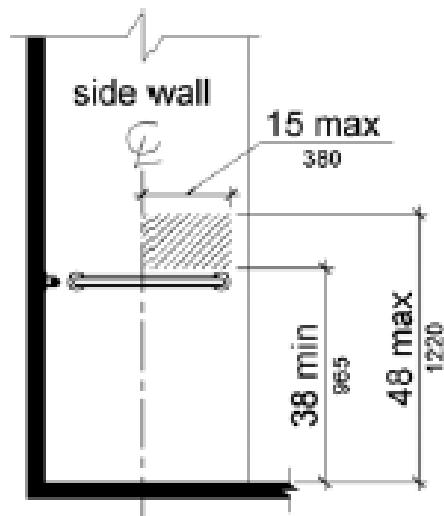
**Figure 608.3.3 Grab Bars for Alternate Roll-In Type Showers**

**608.4 Seats.** A folding or non-folding seat shall be provided in transfer type shower compartments. A folding seat shall be provided in roll-in type showers required in transient lodging guest rooms with mobility features complying with 806.2. Seats shall comply with 610.

**EXCEPTION:** In residential dwelling units, seats shall not be required in transfer type shower compartments provided that reinforcement has been installed in walls so as to permit the installation of seats complying with 608.4.

**608.5 Controls.** Controls, faucets, and shower spray units shall comply with 309.4.

**608.5.1 Transfer Type Shower Compartments.** In transfer type shower compartments, the controls, faucets, and shower spray unit shall be installed on the side wall opposite the seat 38 inches (965 mm) minimum and 48 inches (1220 mm) maximum above the shower floor and shall be located on the control wall 15 inches (380 mm) maximum from the centerline of the seat toward the shower opening.

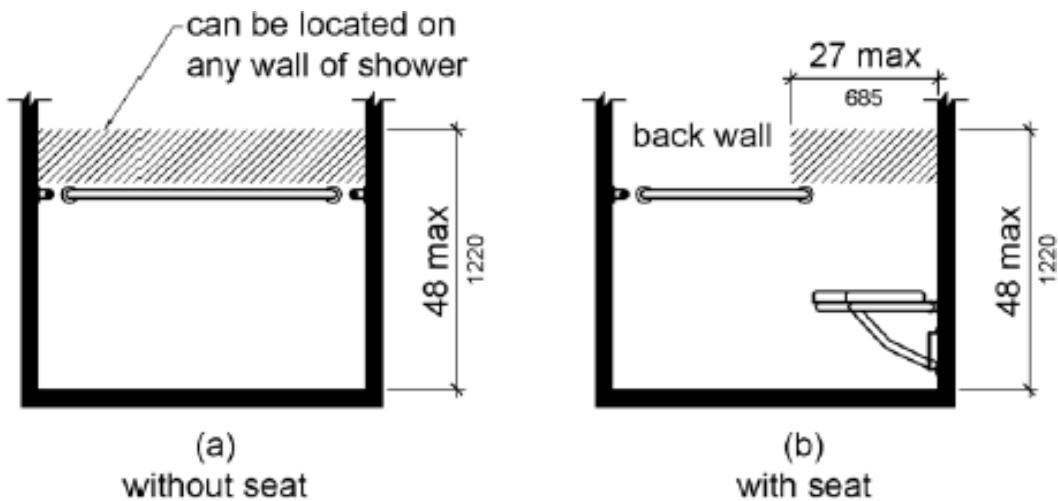


**Figure 608.5.1 Transfer Type Shower Compartment**

## Control Location

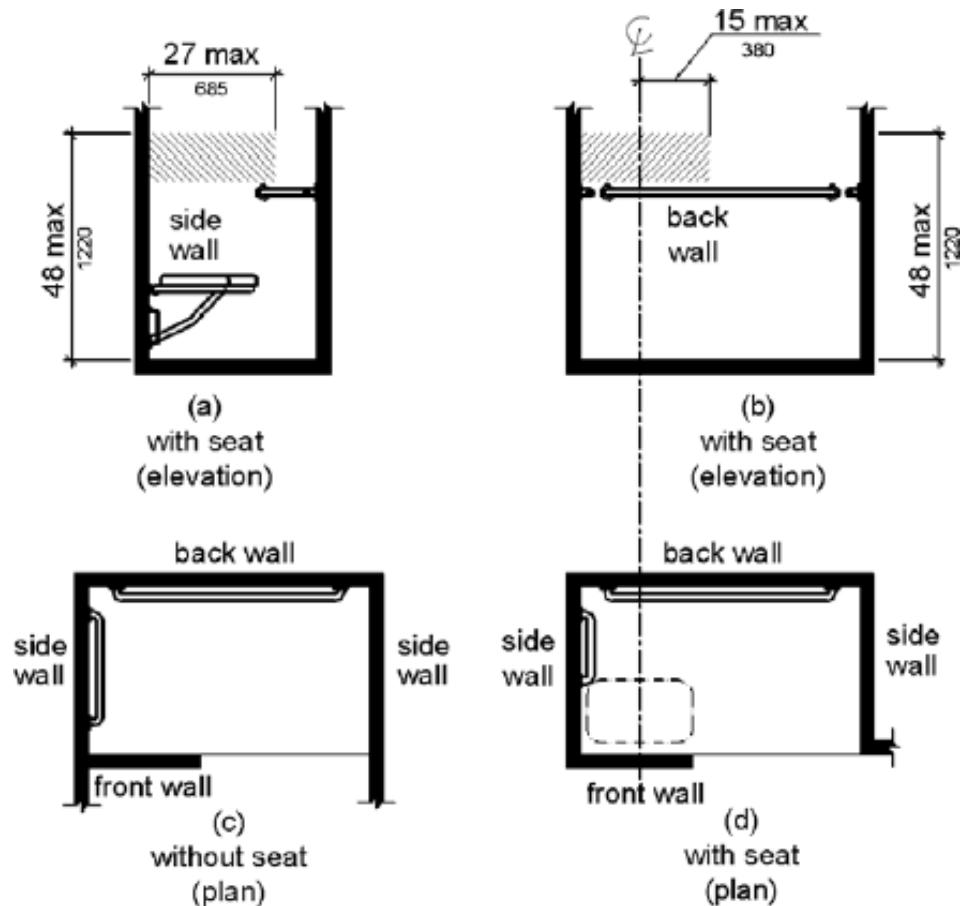
**608.5.2 Standard Roll-In Type Shower Compartments.** In standard roll-in type shower compartments, the controls, faucets, and shower spray unit shall be located above the grab bar, but no higher than 48 inches (1220 mm) above the shower floor. Where a seat is provided, the controls, faucets, and shower spray unit shall be installed on the back wall adjacent to the seat wall and shall be located 27 inches (685 mm) maximum from the seat wall.

**Advisory 608.5.2 Standard Roll-in Type Shower Compartments.** In standard roll-in type showers without seats, the shower head and operable parts can be located on any of the three walls of the shower without adversely affecting accessibility.



**Figure 608.5.2 Standard Roll-In Type Shower Compartment Control Location**

**608.5.3 Alternate Roll-In Type Shower Compartments.** In alternate roll-in type shower compartments, the controls, faucets, and shower spray unit shall be located above the grab bar, but no higher than 48 inches (1220 mm) above the shower floor. Where a seat is provided, the controls, faucets, and shower spray unit shall be located on the side wall adjacent to the seat 27 inches (685 mm) maximum from the side wall behind the seat or shall be located on the back wall opposite the seat 15 inches (380 mm) maximum, left or right, of the centerline of the seat. Where a seat is not provided, the controls, faucets, and shower spray unit shall be installed on the side wall farthest from the compartment entry.



**Figure 608.5.3 Alternate Roll-In Type Shower Compartment Control Location**

**608.6 Shower Spray Unit and Water.** A shower spray unit with a hose 59 inches (1500 mm) long minimum that can be used both as a fixed-position shower head and as a hand-held shower shall be provided. The shower spray unit shall have an on/off control with a non-positive shut-off. If an adjustable-height shower head on a vertical bar is used, the bar shall be installed so as not to obstruct the use of grab bars. Shower spray units shall deliver water that is 120°F (49°C) maximum.

**EXCEPTION:** A fixed shower head located at 48 inches (1220 mm) maximum above the shower finish floor shall be permitted instead of a hand-held spray unit in facilities that are not medical care facilities, long-term care facilities, transient lodging guest rooms, or residential dwelling units.

**Advisory 608.6 Shower Spray Unit and Water.** Ensure that hand-held shower spray units are capable of delivering water pressure substantially equivalent to fixed shower heads.

**608.7 Thresholds.** Thresholds in roll-in type shower compartments shall be 1/2 inch (13 mm) high maximum in accordance with 303. In transfer type shower compartments, thresholds 1/2 inch (13 mm) high maximum shall be beveled, rounded, or vertical.

**EXCEPTION:** A threshold 2 inches (51 mm) high maximum shall be permitted in transfer type shower compartments in existing facilities where provision of a 1/2 inch (13 mm) high threshold would disturb the structural reinforcement of the floor slab.

**608.8 Shower Enclosures.** Enclosures for shower compartments shall not obstruct controls, faucets, and shower spray units or obstruct transfer from wheelchairs onto shower seats.

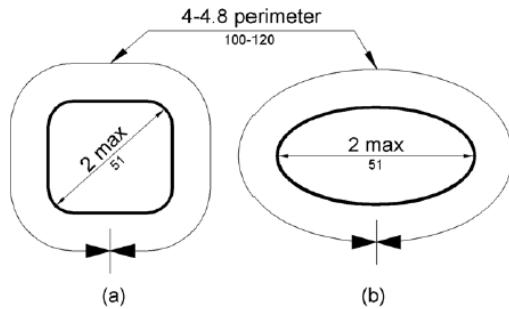
## 609 Grab Bars

**609.1 General.** Grab bars in toilet facilities and bathing facilities shall comply with 609.

**609.2 Cross Section.** Grab bars shall have a cross section complying with 609.2.1 or 609.2.2.

**609.2.1 Circular Cross Section.** Grab bars with circular cross sections shall have an outside diameter of 1 1/4 inches (32 mm) minimum and 2 inches (51 mm) maximum.

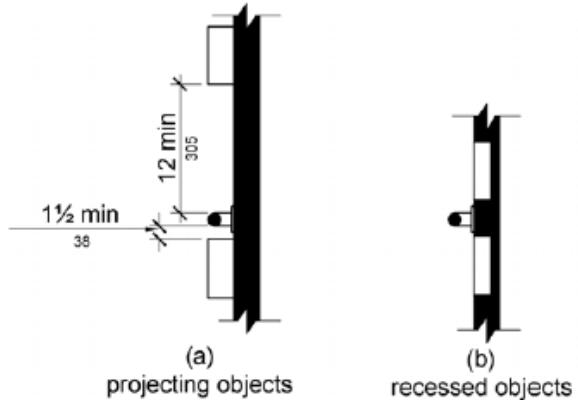
**609.2.2 Non-Circular Cross Section.** Grab bars with non-circular cross sections shall have a cross- section dimension of 2 inches (51 mm) maximum and a perimeter dimension of 4 inches (100 mm) minimum and 4.8 inches (120 mm) maximum.



**Figure 609.2.2 Grab Bar Non-Circular Cross Section**

**609.3 Spacing.** The space between the wall and the grab bar shall be 1 1/2 inches (38 mm). The space between the grab bar and projecting objects below and at the ends shall be 1 1/2 inches (38 mm) minimum. The space between the grab bar and projecting objects above shall be 12 inches (305 mm) minimum.

**EXCEPTION:** The space between the grab bars and shower controls, shower fittings, and other grab bars above shall be permitted to be 1 1/2 inches (38 mm) minimum.



**Figure 609.3 Spacing of Grab Bars**

**609.4 Position of Grab Bars.** Grab bars shall be installed in a horizontal position, 33 inches (840 mm) minimum and 36 inches (915 mm) maximum above the finish floor measured to the top of the gripping surface, except that at water closets for children's use complying with 604.9, grab bars shall be installed in a horizontal position 18 inches (455 mm) minimum and 27 inches (685 mm) maximum above the finish floor measured to the top of the gripping surface. The height of the lower grab bar on the back wall of a bathtub shall comply with 607.4.1.1 or 607.4.2.1.

**609.5 Surface Hazards.** Grab bars and any wall or other surfaces adjacent to grab bars shall be free of sharp or abrasive elements and shall have rounded edges.

**609.6 Fittings.** Grab bars shall not rotate within their fittings.

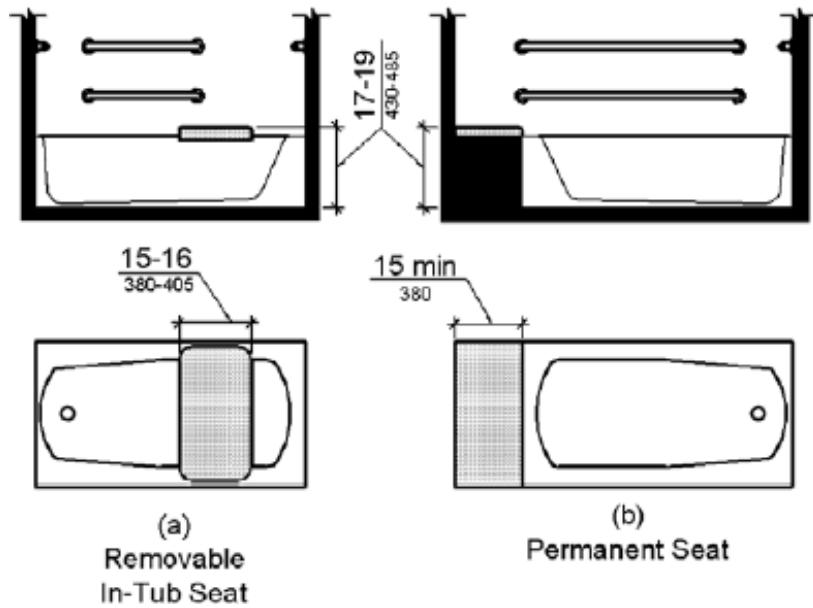
**609.7 Installation.** Grab bars shall be installed in any manner that provides a gripping surface at the specified locations and that does not obstruct the required clear floor space.

**609.8 Structural Strength.** Allowable stresses shall not be exceeded for materials used when a vertical or horizontal force of 250 pounds (1112 N) is applied at any point on the grab bar, fastener, mounting device, or supporting structure.

## 610 Seats

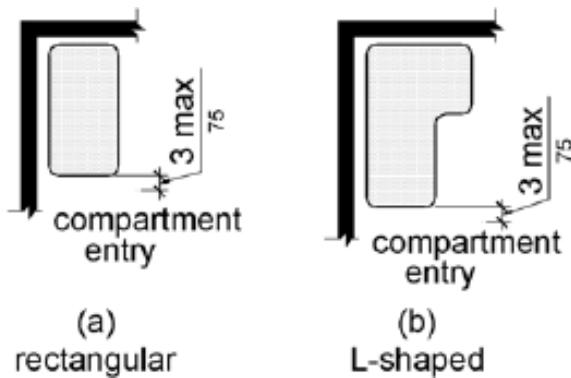
**610.1 General.** Seats in bathtubs and shower compartments shall comply with 610.

**610.2 Bathtub Seats.** The top of bathtub seats shall be 17 inches (430 mm) minimum and 19 inches (485 mm) maximum above the bathroom finish floor. The depth of a removable in-tub seat shall be 15 inches (380 mm) minimum and 16 inches (405 mm) maximum. The seat shall be capable of secure placement. Permanent seats at the head end of the bathtub shall be 15 inches (380 mm) deep minimum and shall extend from the back wall to or beyond the outer edge of the bathtub.



**Figure 610.2 Bathtub Seats**

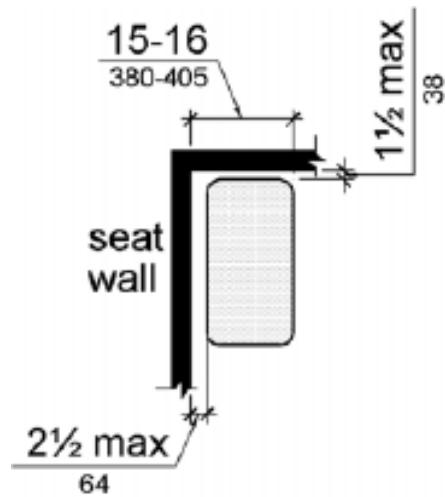
**610.3 Shower Compartment Seats.** Where a seat is provided in a standard roll-in shower compartment, it shall be a folding type, shall be installed on the side wall adjacent to the controls, and shall extend from the back wall to a point within 3 inches (75 mm) of the compartment entry. Where a seat is provided in an alternate roll-in type shower compartment, it shall be a folding type, shall be installed on the front wall opposite the back wall, and shall extend from the adjacent side wall to a point within 3 inches (75 mm) of the compartment entry. In transfer-type showers, the seat shall extend from the back wall to a point within 3 inches (75 mm) of the compartment entry. The top of the seat shall be 17 inches (430 mm) minimum and 19 inches (485 mm) maximum above the bathroom finish floor. Seats shall comply with 610.3.1 or 610.3.2.



**Figure 610.3 Extent of Seat**

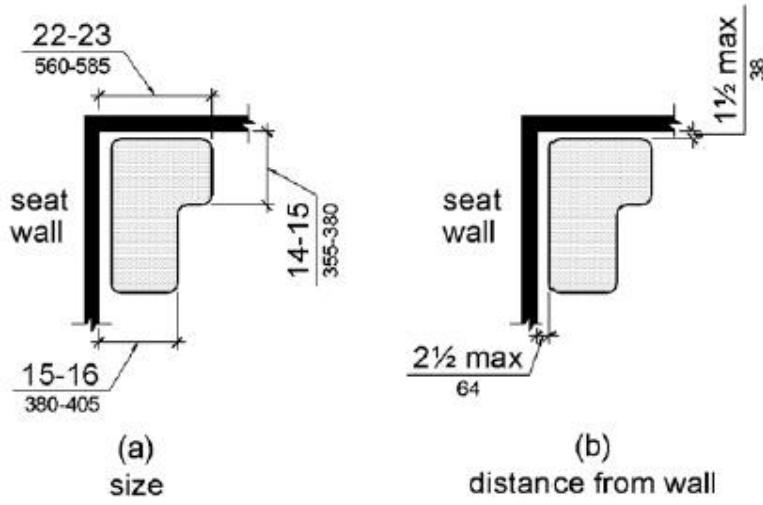
**610.3.1 Rectangular Seats.** The rear edge of a rectangular seat shall be 2 1/2 inches (64 mm) maximum and the front edge 15 inches (380 mm) minimum and 16 inches (405 mm) maximum from the seat wall. The

side edge of the seat shall be 1 1/2 inches (38 mm) maximum from the adjacent wall.



**Figure 610.3.1 Rectangular Shower Seat**

**610.3.2 L-Shaped Seats.** The rear edge of an L-shaped seat shall be 2 1/2 inches (64 mm) maximum and the front edge 15 inches (380 mm) minimum and 16 inches (405 mm) maximum from the seat wall. The rear edge of the "L" portion of the seat shall be 1 1/2 inches (38 mm) maximum from the wall and the front edge shall be 14 inches (355 mm) minimum and 15 inches (380 mm) maximum from the wall. The end of the "L" shall be 22 inches (560 mm) minimum and 23 inches maximum (585 mm) from the main seat wall.



**Figure 610.3.2 L-Shaped Shower Seat**

**610.4 Structural Strength.** Allowable stresses shall not be exceeded for materials used when a vertical or horizontal force of 250 pounds (1112 N) is applied at any point on the seat, fastener, mounting device, or supporting structure.

## 308 Reach Ranges

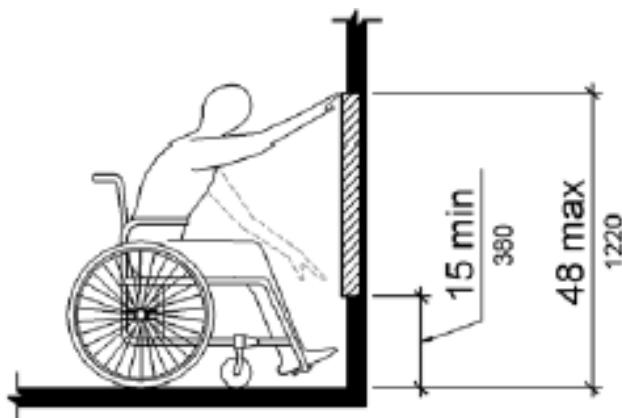
**308.1 General.** Reach ranges shall comply with 308.

**Advisory 308.1 General.** The following table provides guidance on reach ranges for children according to age where building elements such as coat hooks, lockers, or operable parts are designed for use primarily by children. These dimensions apply to either forward or side reaches. Accessible elements and operable parts 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)

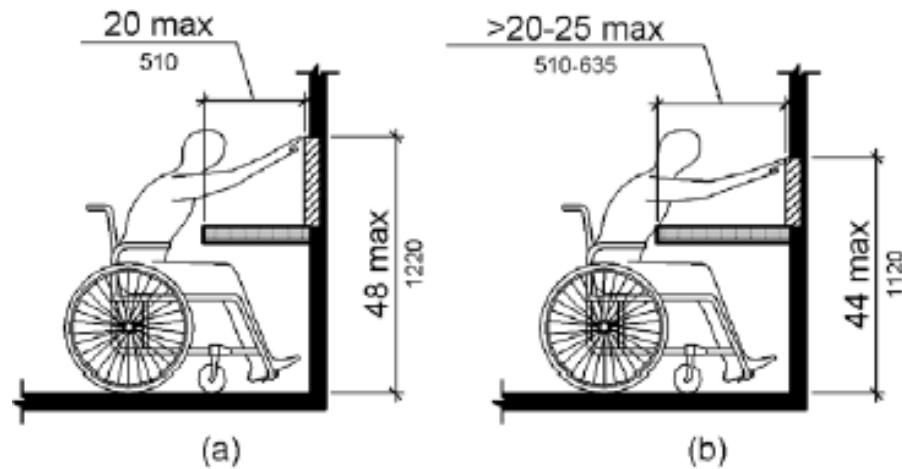
### 308.2 Forward Reach.

**308.2.1 Unobstructed.** Where a 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 308.2.1 Unobstructed 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.



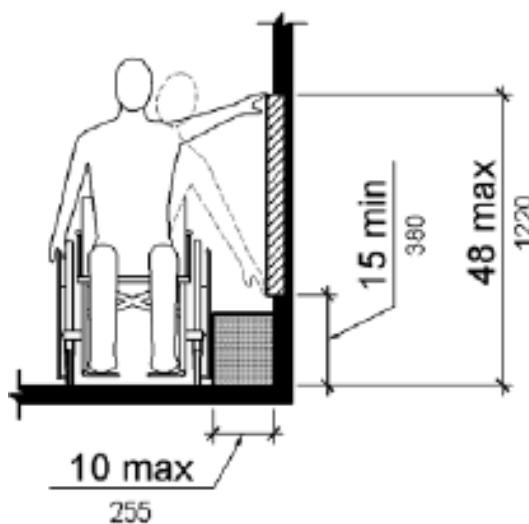
**Figure 308.2.2 Obstructed High Forward Reach**

**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.

**EXCEPTIONS:**

1. 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.
2. Operable parts of fuel dispensers shall be permitted to be 54 inches (1370 mm) maximum measured from the surface of the vehicular way where fuel dispensers are installed on existing curbs.

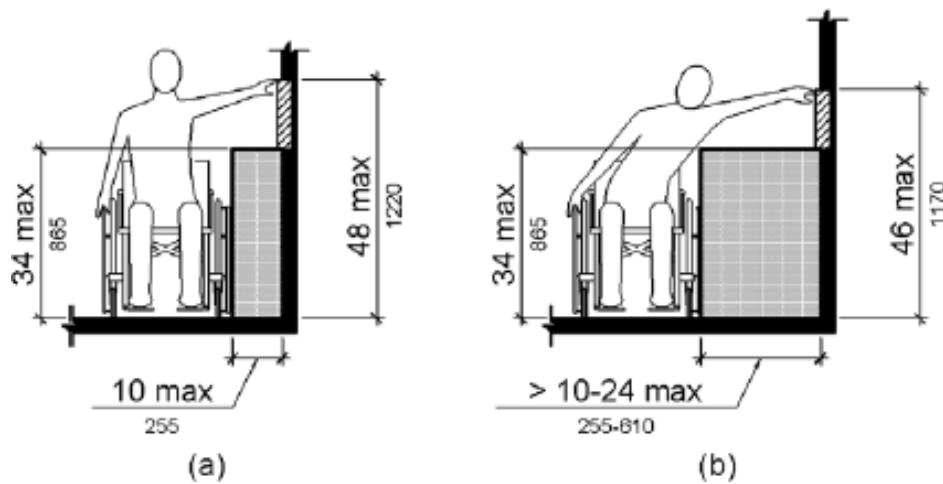


**Figure 308.3.1 Unobstructed Side Reach**

**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 (1170 mm) maximum for a reach depth of 24 inches (610 mm) maximum.

**EXCEPTIONS:**

1. The top of washing machines and clothes dryers shall be permitted to be 36 inches (915 mm) maximum above the finish floor.
2. Operable parts of fuel dispensers shall be permitted to be 54 inches (1370 mm) maximum measured from the surface of the vehicular way where fuel dispensers are installed on existing curbs.



**Figure 308.3.2 Obstructed High Side Reach**

## **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.

**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.

**EXCEPTION:** Gas pump nozzles shall not be required to provide operable parts that have an activating force of 5 pounds (22.2 N) maximum.

## 404 Doors, Doorways, and Gates

**404.1 General.** Doors, doorways, and gates that are part of an accessible route shall comply with 404.

**EXCEPTION:** Doors, doorways, and gates designed to be operated only by security personnel shall not be required to comply with 404.2.7, 404.2.8, 404.2.9, 404.3.2 and 404.3.4 through 404.3.7.

**Advisory 404.1 General Exception.** Security personnel must have sole control of doors that are eligible for the Exception at 404.1. It would not be acceptable for security personnel to operate the doors for people with disabilities while allowing others to have independent access.

**404.2 Manual Doors, Doorways, and Manual Gates.** Manual doors and doorways and manual gates intended for user passage shall comply with 404.2.

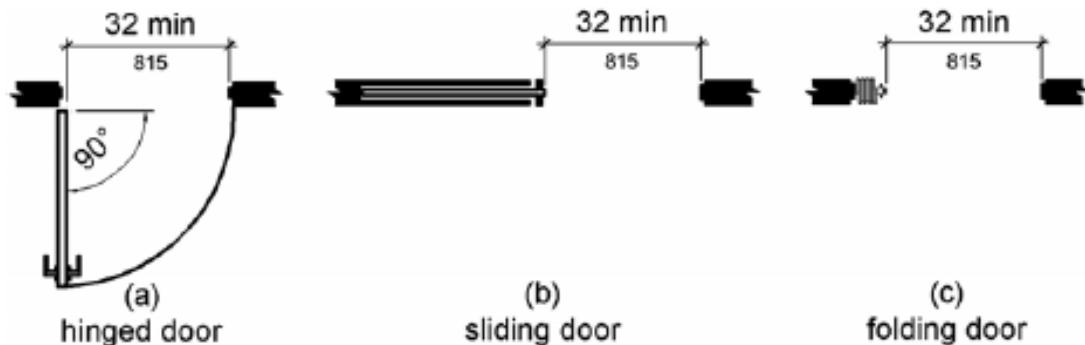
**404.2.1 Revolving Doors, Gates, and Turnstiles.** Revolving doors, revolving gates, and turnstiles shall not be part of an accessible route.

**404.2.2 Double-Leaf Doors and Gates.** At least one of the active leaves of doorways with two leaves shall comply with 404.2.3 and 404.2.4.

**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).

### EXCEPTIONS:

1. In alterations, a projection of 5/8 inch (16 mm) maximum into the required clear width shall be permitted for the latch side stop.
2. Door closers and door stops shall be permitted to be 78 inches (1980 mm) minimum above the finish floor or ground.



**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.

**EXCEPTION:** Entry doors to hospital patient rooms shall not be required to provide the clearance beyond the latch side of the door.

**404.2.4.1 Swinging Doors and Gates.** Swinging doors and gates shall have maneuvering clearances complying with Table 404.2.4.1.

**Table 404.2.4.1 Maneuvering Clearances at Manual Swinging Doors and Gates**

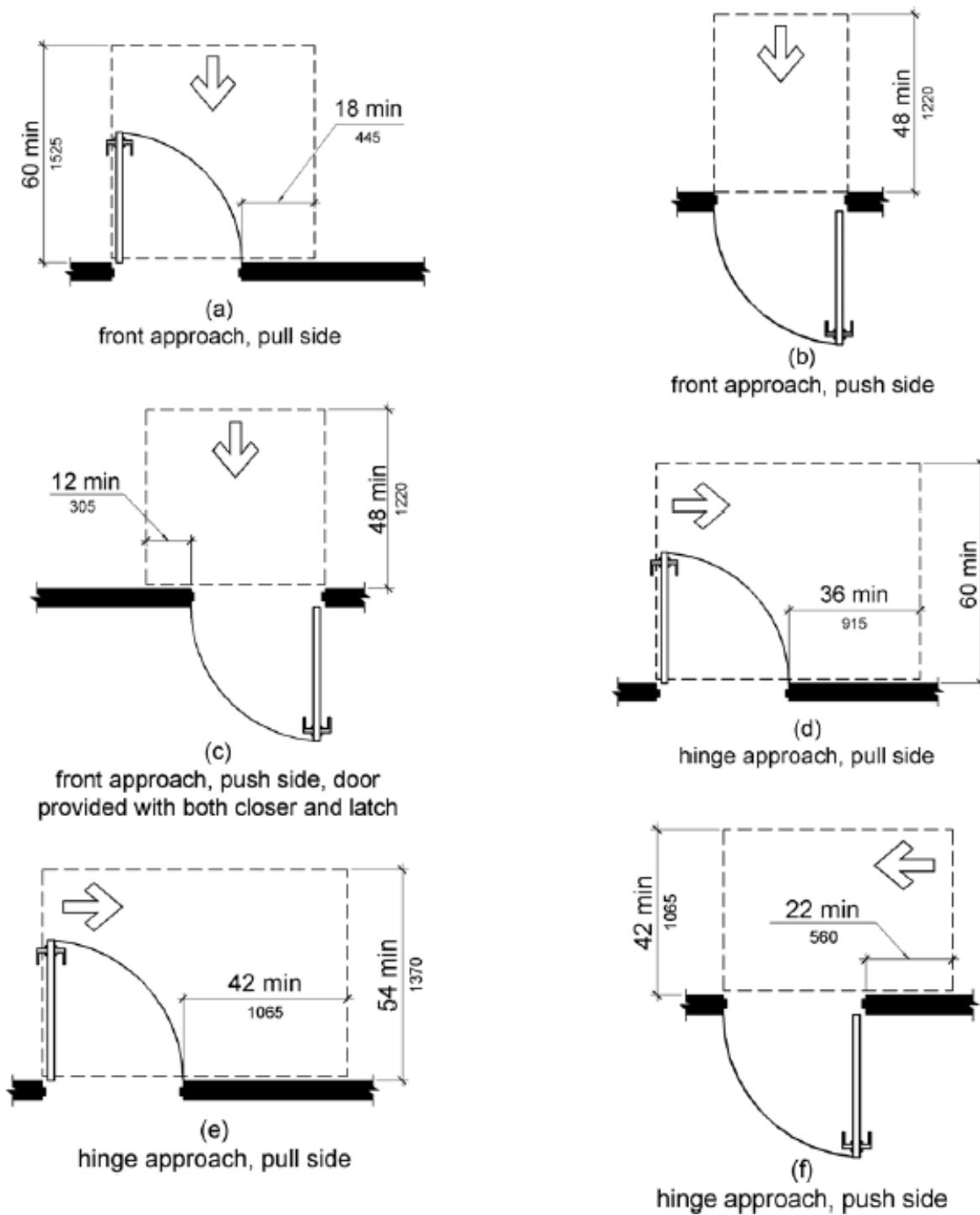
Type of Use		Minimum Maneuvering Clearance	
Approach Direction	Door or Gate Side	Perpendicular to Doorway	Parallel to Doorway (beyond latch side unless noted)
From front	Pull	60 inches (1525 mm)	18 inches (455 mm)
From front	Push	48 inches (1220 mm)	0 inches (0 mm) <sup>1</sup>
From hinge side	Pull	60 inches (1525 mm)	36 inches (915 mm)
From hinge side	Pull	54 inches (1370 mm)	42 inches (1065 mm)
From hinge side	Push	42 inches (1065 mm) <sup>2</sup>	22 inches (560 mm) <sup>3</sup>
From latch side	Pull	48 inches (1220 mm) <sup>4</sup>	24 inches (610 mm)
From latch side	Push	42 inches (1065 mm) <sup>4</sup>	24 inches (610 mm)

1. Add 12 inches (305 mm) if closer and latch are provided.

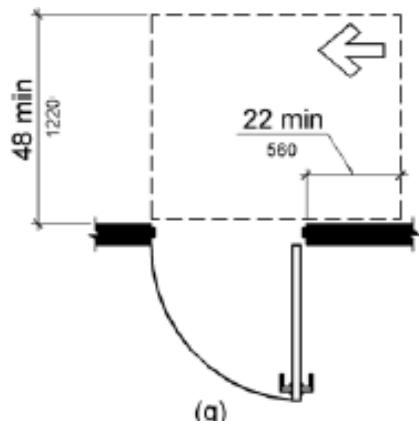
2. Add 6 inches (150 mm) if closer and latch are provided.

3. Beyond hinge side.

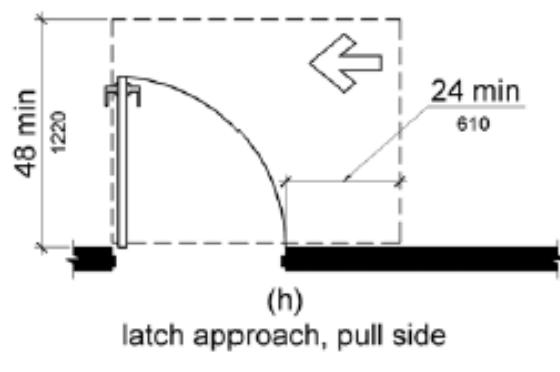
4. Add 6 inches (150 mm) if closer is provided.



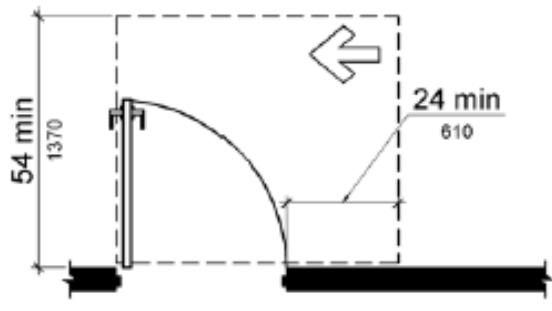
**Figure 404.2.4.1 Maneuvering Clearances at Manual Swinging Doors and Gates**



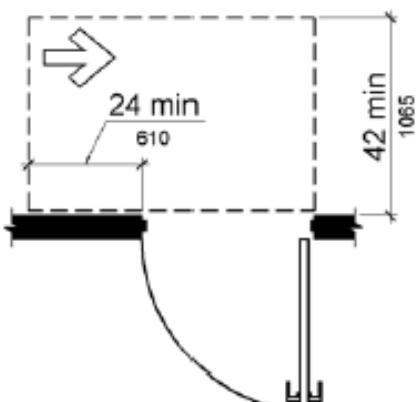
(g)  
hinge approach, push side, door provided with both closer and latch



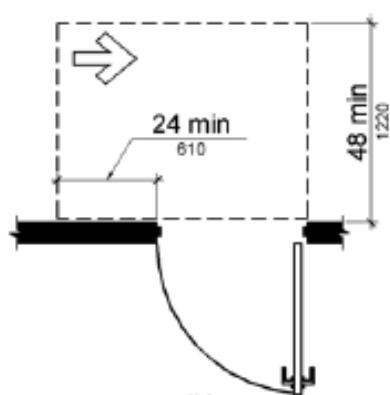
(h)  
latch approach, pull side



(i)  
latch approach, pull side,  
door provided with closer



(j)  
latch approach, push side



(k)  
latch approach, push side,  
door provided with closer

Figure 404.2.4.1 Maneuvering Clearances at Manual Swinging Doors and Gates (Continued)

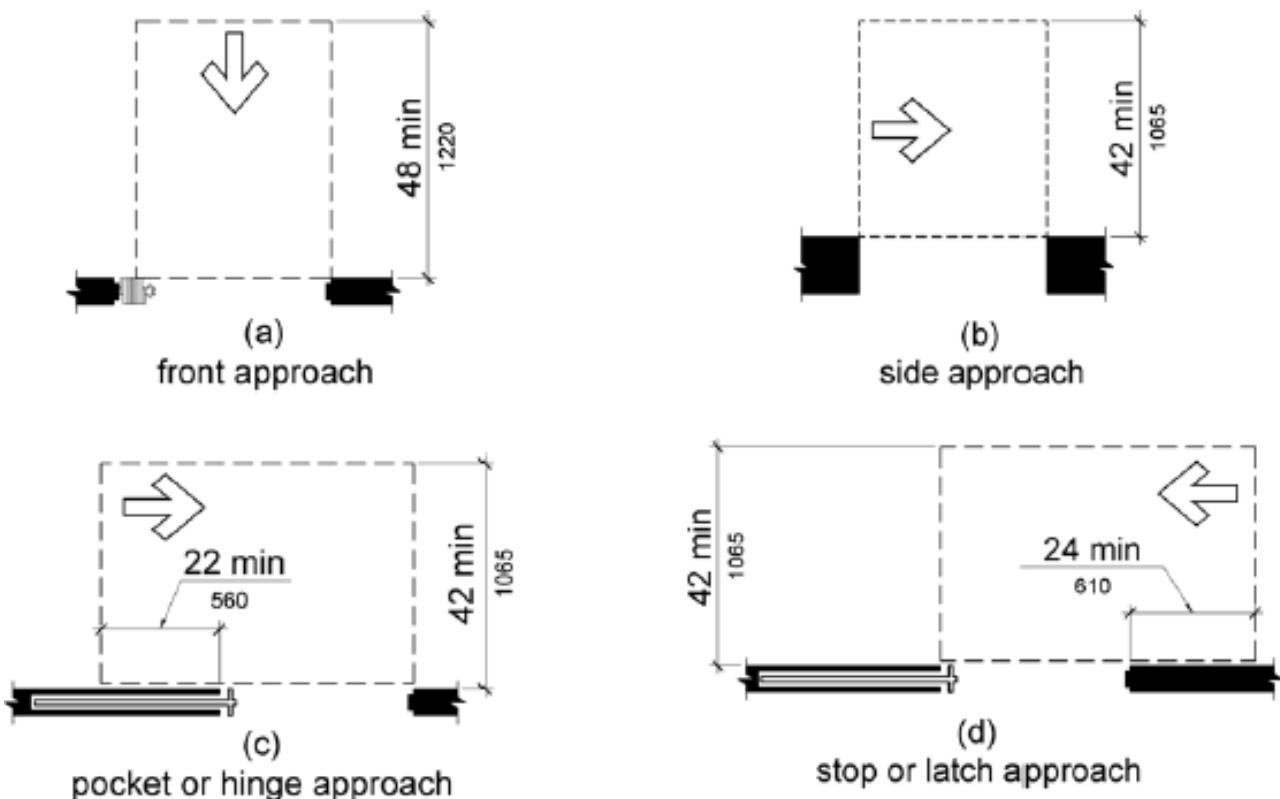
**404.2.4.2 Doorways without Doors or Gates, Sliding Doors, and Folding Doors.** Doorways less than 36 inches (915 mm) wide without doors or gates, sliding doors, or folding doors shall have maneuvering clearances complying with Table 404.2.4.2.

**Table 404.2.4.2 Maneuvering Clearances at Doorways without Doors or Gates, Manual Sliding Doors, and Manual Folding Doors**

Approach Direction	Minimum Maneuvering Clearance	
	Perpendicular to Doorway	Parallel to Doorway (beyond stop/latch side unless noted)
From Front	48 inches (1220 mm)	0 inches (0 mm)
From side <sup>1</sup>	42 inches (1065 mm)	0 inches (0 mm)
From pocket/hinge side	42 inches (1065 mm)	22 inches (560 mm) <sup>2</sup>
From stop/latch side	42 inches (1065 mm)	24 inches (610 mm)

1. Doorway with no door only.

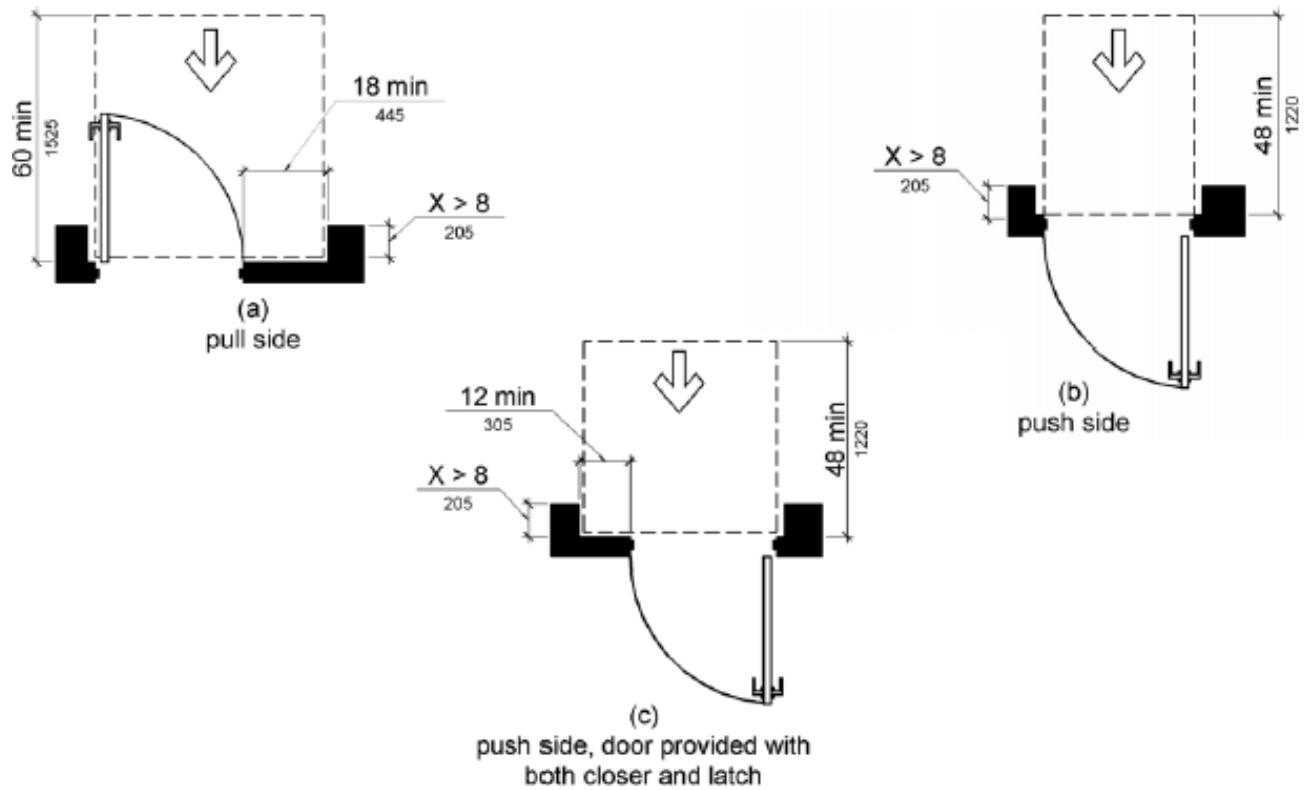
2. Beyond pocket/hinge side.



**Figure 404.2.4.2 Maneuvering Clearances at Doorways Without Doors, Sliding Doors, Gates, and Folding Doors**

**404.2.4.3 Recessed Doors and Gates.** Maneuvering clearances for forward approach shall be provided when any obstruction within 18 inches (455 mm) of the latch side of a doorway projects more than 8 inches (205 mm) beyond the face of the door, measured perpendicular to the face of the door or gate.

**Advisory 404.2.4.3 Recessed Doors and Gates.** A door can be recessed due to wall thickness or because of the placement of casework and other fixed elements adjacent to the doorway. This provision must be applied wherever doors are recessed.



**Figure 404.2.4.3 Maneuvering Clearances at Recessed Doors and Gates**

**404.2.4.4 Floor or Ground Surface.** Floor or ground surface within required maneuvering clearances shall comply with 302. Changes in level are not permitted.

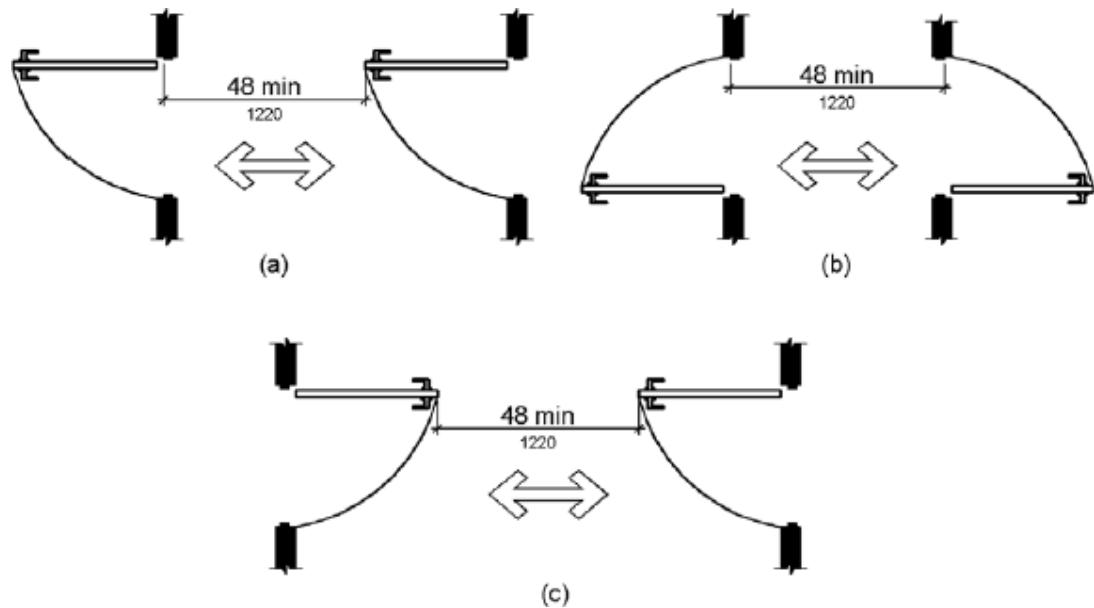
#### **EXCEPTIONS:**

1. Slopes not steeper than 1:48 shall be permitted.
2. Changes in level at thresholds complying with 404.2.5 shall be permitted.

**404.2.5 Thresholds.** Thresholds, if provided at doorways, shall be 1/2 inch (13 mm) high maximum. Raised thresholds and changes in level at doorways shall comply with 302 and 303.

**EXCEPTION:** Existing or altered thresholds 3/4 inch (19 mm) high maximum that have a beveled edge on each side with a slope not steeper than 1:2 shall not be required to comply with 404.2.5.

**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 309.4. 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.

**EXCEPTIONS:**

1. Existing locks shall be permitted in any location at existing glazed doors without stiles, existing overhead rolling doors or grilles, and similar existing doors or grilles that are designed with locks that are activated only at the top or bottom rail.
2. Access gates in barrier walls and fences protecting pools, spas, and hot tubs shall be permitted to have operable parts of the release of latch on self-latching devices at 54 inches (1370 mm) maximum above the finish floor or ground provided the self-latching devices are not also self-locking devices and operated by means of a key, electronic opener, or integral combination lock.

**Advisory 404.2.7 Door and Gate Hardware.** Door hardware that can be operated with a closed fist or a loose grip accommodates the greatest range of users. Hardware that requires simultaneous hand and finger movements require greater dexterity and coordination, and is not recommended.

404.2.8 **Closing Speed.** Door and gate closing speed shall comply with 404.2.8.

404.2.9 **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.

404.2.10 **Spring Hinges.** Door and gate spring hinges shall be adjusted so that from the open position of 70 degrees, the door or gate shall move to the closed position in 1.5 seconds minimum.

404.2.11 **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 latch bolts or disengage other devices that hold the door or gate in a closed position.

**Advisory 404.2.9 Door and Gate Opening Force.** The maximum force pertains to the continuous application of force necessary to fully open a door, not the initial force needed to overcome the inertia of the door. It does not apply to the force required to retract bolts or to disengage other devices used to keep the door in a closed position.

404.2.12 **Door and Gate Surfaces.** Swinging door and gate surfaces within 10 inches (255 mm) of the finish floor or ground measured vertically shall have a smooth surface on the push side extending the full width of the door or gate. Parts creating horizontal or vertical joints in these surfaces shall be within 1/16 inch (1.6 mm) of the same plane as the other. Cavities created by added kick plates shall be capped.

## **EXCEPTIONS:**

1. Sliding doors shall not be required to comply with 404.2.10.
2. Tempered glass doors without stiles and having a bottom rail or shoe with the top leading edge tapered at 60 degrees minimum from the horizontal shall not be required to meet the 10 inch (255 mm) bottom smooth surface height requirement.
3. Doors and gates that do not extend to within 10 inches (255 mm) of the finish floor or ground shall not be required to comply with 404.2.10.
4. Existing doors and gates without smooth surfaces within 10 inches (255 mm) of the finish floor or ground shall not be required to provide smooth surfaces complying with 404.2.10 provided that if added kick plates are installed, cavities created by such kick plates are capped.

404.2.13 **Vision Lights.** Doors, gates, and side lights adjacent to doors or gates, containing one or

more glazing 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.

**EXCEPTION:** Vision lights with the lowest part more than 66 inches (1675 mm) from the finish floor or ground shall not be required to comply with 404.2.11.

**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 A156.19 (1997 or 2002 edition) (incorporated by reference, see "Referenced Standards" in Chapter 1).

**404.3.1 Clear Width.** Doorways shall provide a clear opening of 32 inches (815 mm) minimum in power-on and power-off mode. The minimum clear width for automatic door systems in a doorway shall be based on the clear opening provided by all leaves in the open position.

**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 an accessible means of egress shall comply with 404.2.4.

**EXCEPTION:** Where automatic doors and gates remain open in the power-off condition, compliance with 404.2.4 shall not be required.

**404.3.3 Thresholds.** Thresholds and changes in level at doorways shall comply with 404.2.5.

**404.3.4 Doors in Series and Gates in Series.** Doors in series and gates in series shall comply with 404.2.6.

**404.3.5 Controls.** Manually operated controls shall comply with 309. The clear floor space adjacent to the control shall be located beyond the arc of the door swing.

**404.3.6 Break Out Opening.** Where doors and gates without standby power are a part of a means of egress, the clear break out opening at swinging or sliding doors and gates shall be 32 inches (815 mm) minimum when operated in emergency mode.

**EXCEPTION:** Where manual swinging doors and gates comply with 404.2 and serve the same means of egress compliance with 404.3.6 shall not be required.

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

## 216 Signs

**216.8 Toilet Rooms and Bathing Rooms.** Where existing toilet rooms or bathing rooms do not comply with 603, directional signs indicating the location of the nearest toilet room or bathing room complying with 603 within the facility shall be provided. Signs shall comply with 703.5 and shall include the International Symbol of Accessibility complying with 703.7.2.1. Where existing toilet rooms or bathing rooms do not comply with 603, the toilet rooms or bathing rooms complying with 603 shall be identified by the International Symbol of Accessibility complying with 703.7.2.1. Where clustered single user toilet rooms or

bathing facilities are permitted to use exceptions to 213.2, toilet rooms or bathing facilities complying with 603 shall be identified by the International Symbol of Accessibility complying with 703.7.2.1 unless all toilet rooms and bathing facilities comply with 603.

## **References**

**Centers for Disease Control and Prevention:** "Prevalence of Disability and Disability Type among Adults – United States, 2013." Morbidity and Mortality Weekly Report. (2013)

**Texas Department of Licensing and Regulation:** 2012 Architectural Barriers Texas Accessibility Standards (TAS) <https://www.license.state.tx.us/ab/2012TAS/2012tascomplete.pdf>