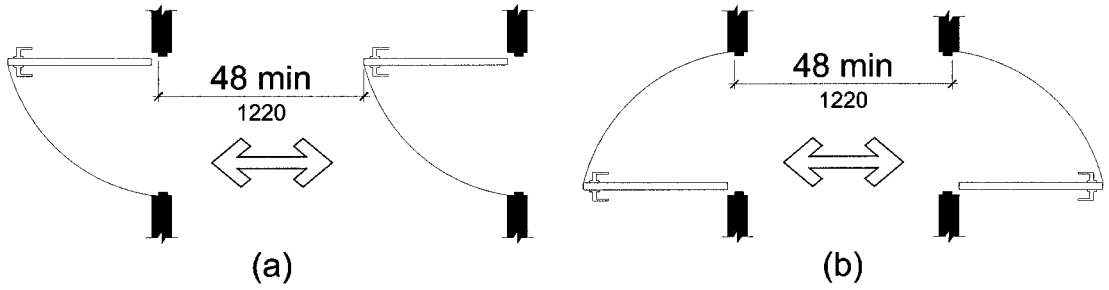
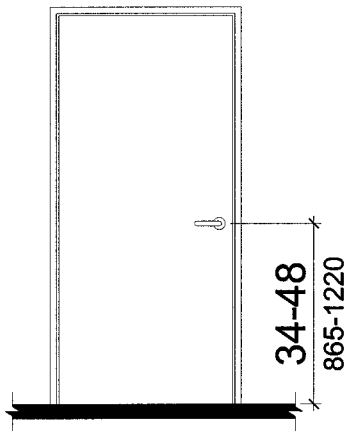
404.2.6 Two Doors in Series. The distance between two hinged or pivoted doors in series shall be 48 inches (1220 mm) minimum plus the width of any door swinging into the *space*. Doors in series shall swing either in the same direction or away from the *space* between the doors.

Figure 404.2.6



404.2.7 Door Hardware. Handles, pulls, latches, locks, and other *operable parts* on *accessible* doors shall comply with 309.4. Such hardware shall be 34 inches (865 mm) minimum and 48 inches (1220 mm) maximum above the floor or ground. When sliding doors are in the fully open position, operating hardware shall be exposed and usable from both sides.

Figure 404.2.7



Advisory 404.2.7

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.

EXCEPTION: 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.

404.2.8 Closing Speed.

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

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

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

1. Interior hinged doors: 5 lb (22.2 N) maximum.
2. Sliding or folding doors: 5 lb (22.2 N) maximum.

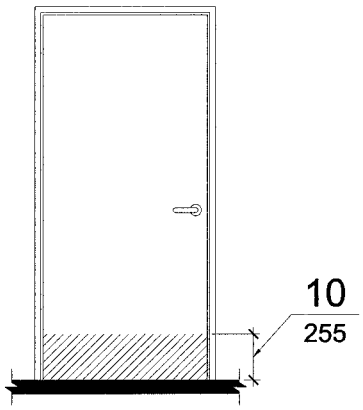
These forces do not apply to the force required to retract latch bolts or disengage other devices that hold the door in a closed position.

Advisory 404.2.9
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.

404.2.10 Door Surface. The bottom 10 inches (255 mm) of all swinging doors shall have a smooth surface on the push side and extending the full width of the door. Parts creating horizontal or vertical

joints in such surface 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.

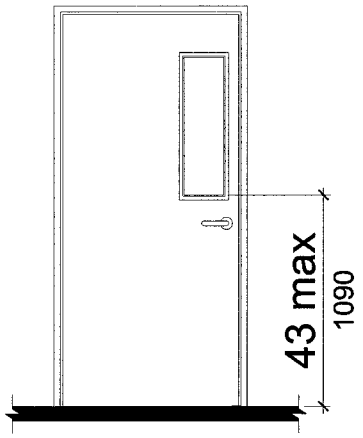
Figure 404.2.10



EXCEPTIONS: 1. This requirement shall not apply to sliding doors.
2. This requirement shall not apply to 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.
3. This requirement shall not apply to doors that do not extend to within 10 inches (255 mm) of the floor or ground.

404.2.11 Vision Lites. Doors, and sidelites adjacent to doors, 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 floor.

Figure 404.2.11



EXCEPTION: Vision lites with the lowest part more than 66 inches (1675 mm) from the floor or ground are not required to comply with this section.

404.3 Automatic Doors. *Automatic doors* and automatic gates shall comply with 404.3. Full-powered *automatic doors* shall comply with ANSI/BHMA A156.10. Low-energy and *power-assisted doors* shall comply with ANSI/BHMA A156.19. *Automatic doors* shall be permitted on an *accessible route*.

EXCEPTION: The requirements of 404.3.2 and 404.3.4 through 404.3.7 shall not apply to doors, doorways, and gates designed to be operated only by security personnel.

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

404.3.2 Maneuvering Clearance. Clearances at *power-assisted doors* shall comply with 404.2.4.

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

404.3.4 Two Doors in Series. Doors in series shall comply with 404.2.6.

404.3.5 Operable Parts. Manually operated control switches shall comply with 309 and shall be located outside the door swing.

404.3.6 Signs. Labels and warnings for *automatic doors* shall comply with 703.4.

404.3.7 Break Out Opening. When an *automatic door* is operated in emergency mode, the clear break out opening for a swinging or sliding *automatic door* shall be 32 inches (815 mm) minimum.

405 Ramps

405.1 General. *Ramps* along *accessible route*s shall comply with 405.

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

Table 405.2 Maximum Ramp Slope and Rise for Existing Sites, Buildings and Facilities

Slope[1]	Maximum Rise
Steeper than 1:10 but not steeper than 1:8	3 inches (75 mm)
Steeper than 1:12 but not steeper than 1:10	6 inches (150 mm)

1. A slope steeper than 1:8 is prohibited.

EXCEPTIONS: 1. *Ramps* in or on existing *buildings* or *facilities* shall be permitted to have slopes steeper than 1:12 complying with Table 405.2 where such slopes are necessitated by *space* limitations.

2. In *alterations* to *qualified historic buildings and facilities* where exceptions for *alterations* are permitted by Chapter 2, the slope of a *ramp* run of 24 inches (610 mm) maximum shall not be steeper than 1:6.

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

Advisory 405.3

Cross slope is the slope of the surface perpendicular to the direction of travel. It is measured the same way as slope is measured: the rise over the run.

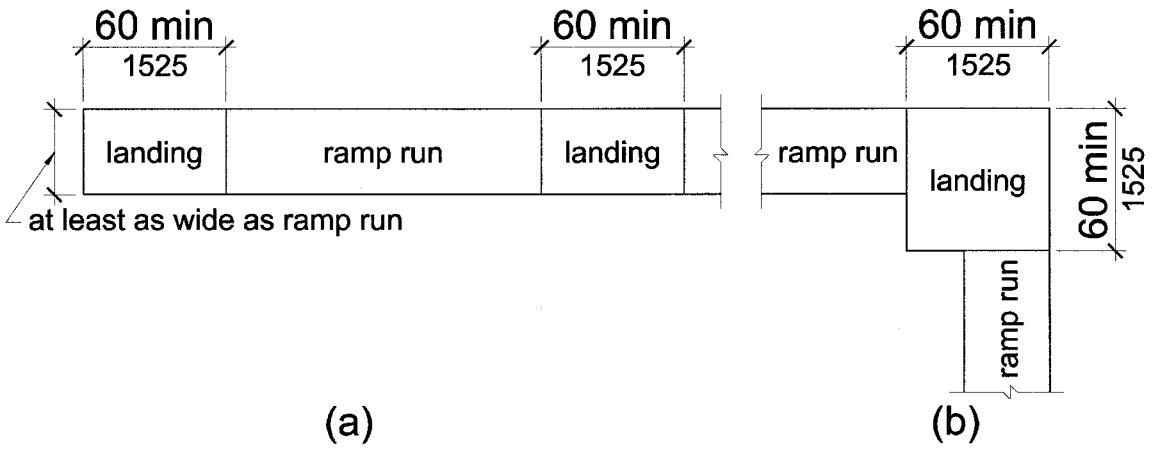
405.4 Floor or Ground Surfaces. Floor or ground surfaces of *ramp* runs shall comply with 302. Changes in level other than the *running slope* and *cross slope* are not permitted on *ramp* runs.

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

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

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

Figure 405.7



Advisory 405.7

Ramps that do not have level landings at changes in direction can create a compound slope that will not meet the requirements of this document. A level landing at doors and doorways is needed for maneuvering at the door while simultaneously operating hardware.

405.7.1 Slope. Landings shall comply with 302. Changes in level are not permitted.

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

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

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

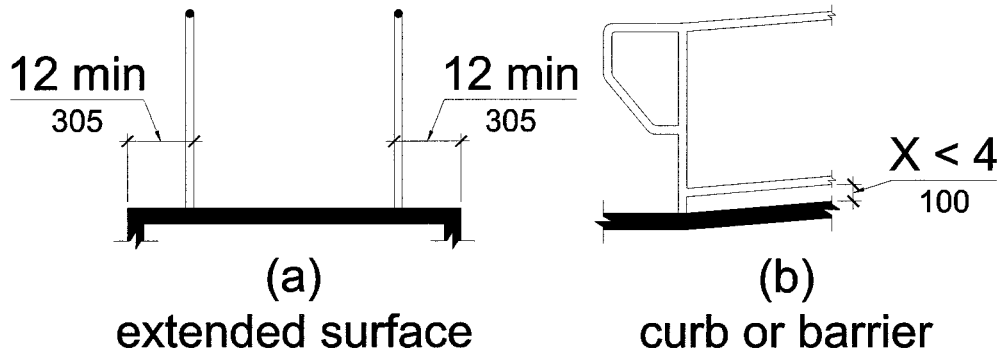
405.7.4 Change in Direction. *Ramps* that change direction between runs at landings shall have a 60 inch (1525 mm) minimum by 60 inch (1525 mm) minimum landing.

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

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

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

Figure 405.9



EXCEPTIONS: 1. Edge protection is not required on *ramps* that are not required to have handrails and have sides complying with 406.3.
2. Edge protection is not required on the sides of *ramp* landings serving an adjoining *ramp* run or stairway.
3. Edge protection is not required on the sides of *ramp* landings having a vertical drop-off of 1/2 inch (13 mm) maximum within 10 inches (255 mm) horizontally of the minimum landing area.

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

Advisory 405.9.1
The extended surface is provided to prevent *wheelchair* casters and crutch tips from slipping off the *ramp* surface.

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

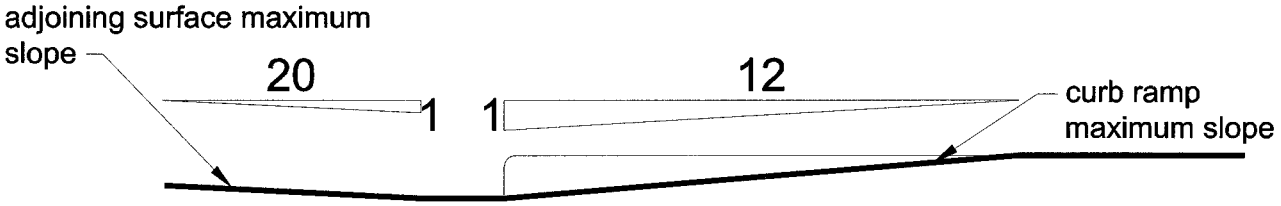
405.10 Wet Conditions. Landings subject to wet conditions shall be designed to prevent the accumulation of water.

406 Curb Ramps

406.1 General. *Curb ramps* on *accessible routes* shall comply with 406 and with 405.2, 405.4, 405.5, and 405.10.

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

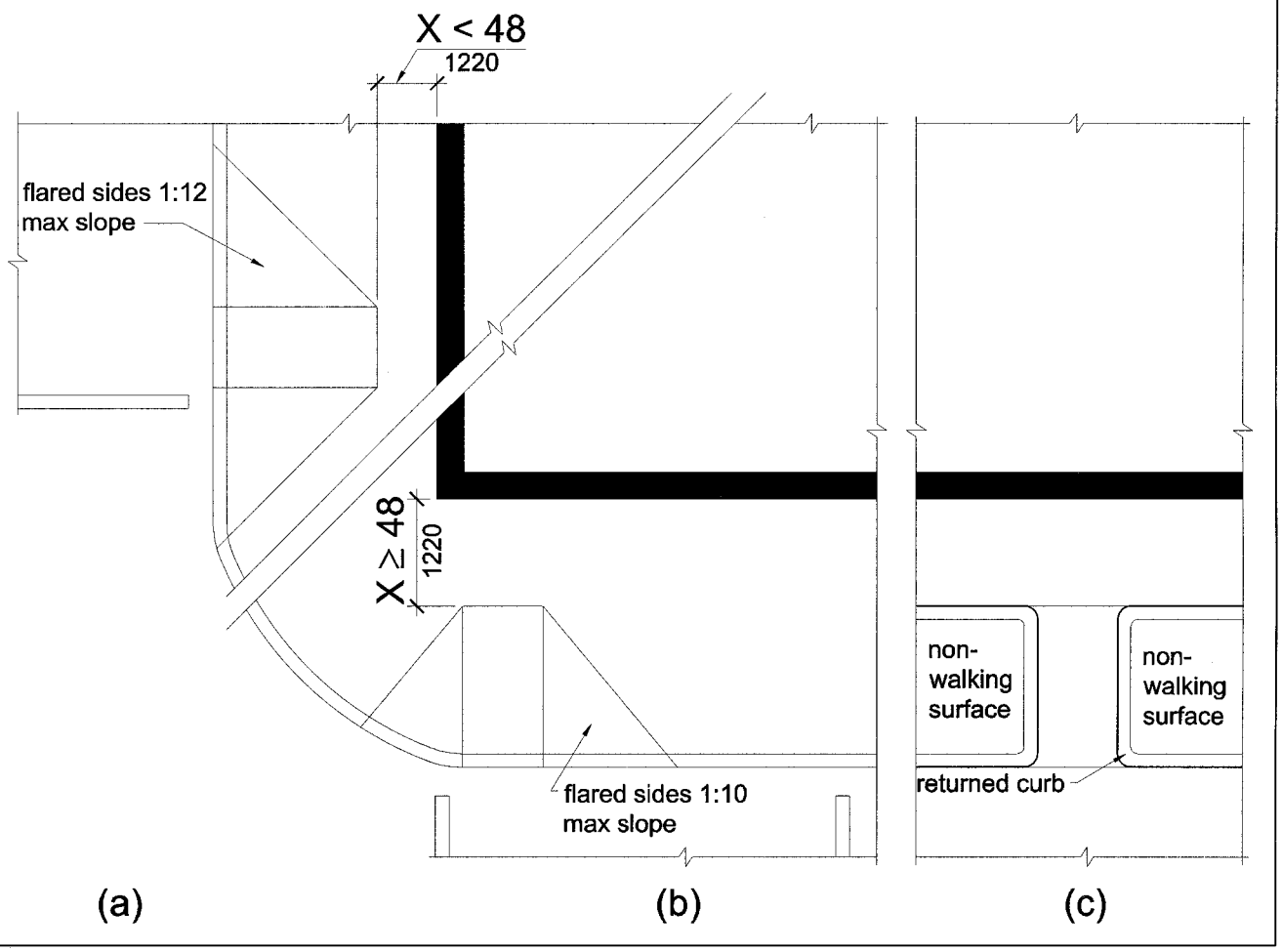
Figure 406.2



406.3 Sides of Curb Ramps. *Curb ramps* located where pedestrians must walk across the *ramp* shall have flared sides. Slope of the flares shall not be steeper than 1:10. Where the width of the walking surface at the top of the *ramp* and parallel to the run of the *ramp* is less than 48 inches (1220 mm) wide,

the flared sides shall have a slope not steeper than 1:12. *Curb ramps* with returned curbs shall be permitted where pedestrians would not normally walk across the *ramp*.

Figure 406.3



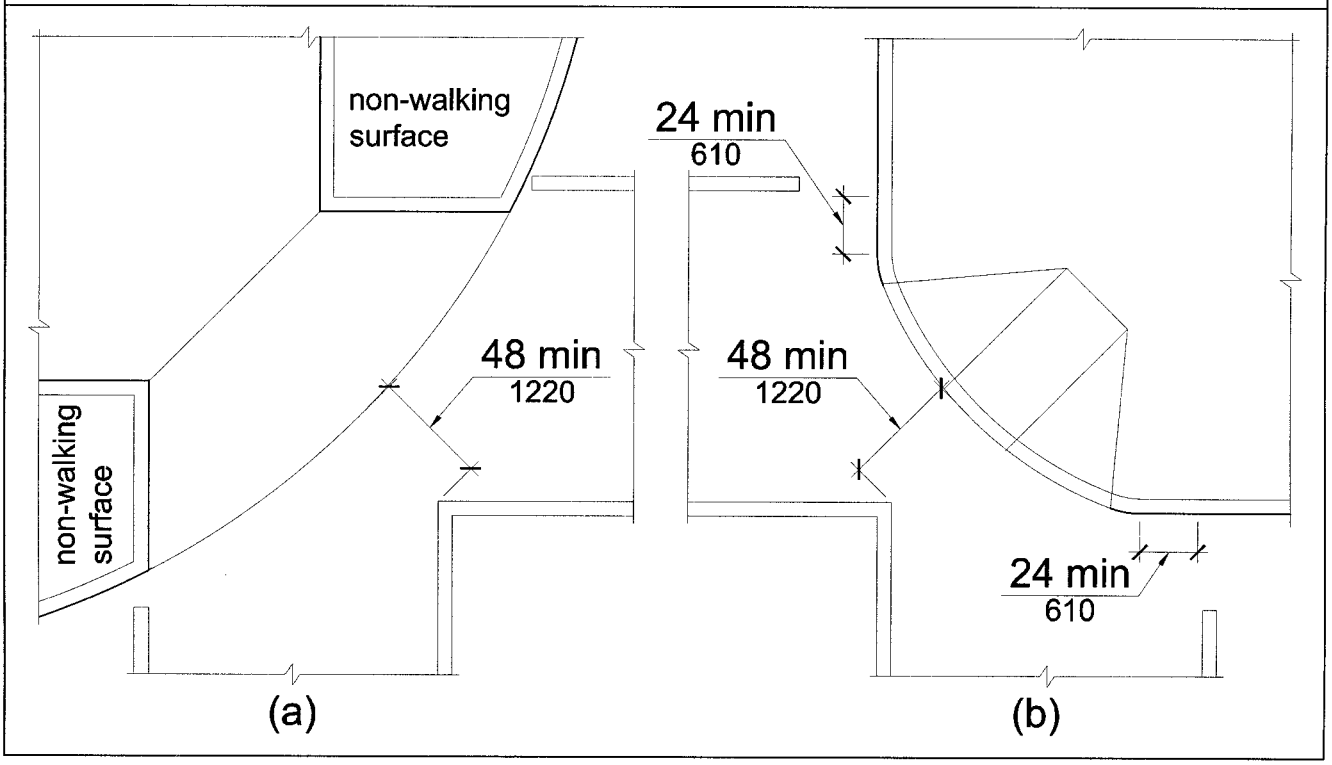
406.4 Handrails. Handrails are not required on *curb ramps*.

406.5 Location at Marked Crossings. *Curb ramps* at *marked crossings* shall be wholly contained within the markings, excluding any flared sides.

406.6 Diagonal Curb Ramps. Diagonal or corner type *curb ramps* with returned curbs or other well-defined edges shall have the edges parallel to the direction of pedestrian flow. The bottom of diagonal *curb ramps* shall have 48 inches (1220 mm) minimum of clear *space*. Diagonal *curb ramps* provided at *marked crossings* shall provide the 48 inches (1220 mm) minimum clear *space* within the

markings. Diagonal *curb ramps* with flared sides shall have a segment of straight curb 24 inches (610 mm) long minimum located on each side of the *curb ramp* and within the *marked crossing*.

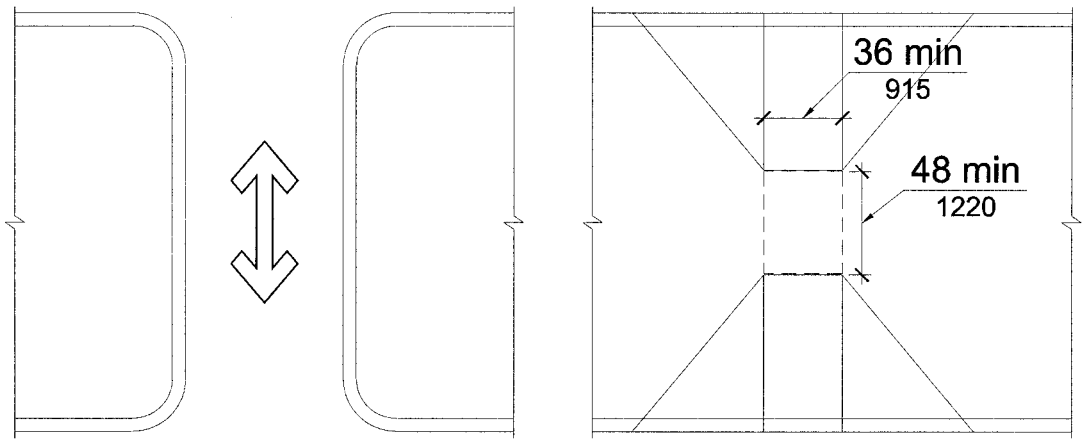
Figure 406.6



406.7 Islands. Raised islands in crossings shall be cut through level with the street or have *curb ramps* at both sides. Each *curb ramp* shall have a level area 48 inches (1220 mm) long minimum by 36 inches (915 mm) wide minimum at the top of the *curb ramp* in the part of the island intersected by the crossings. Each 48 inch (1220 mm) by 36 inch (915 mm) area shall be oriented so that the 48 inch (1220 mm)

length is in the direction of the *running slope* of the *curb ramp* it serves. The 48 inch (1220 mm) by 36 inch (915 mm) areas and the *accessible route* shall be permitted to overlap.

Figure 406.7



(a) cut through at island

(b) curb ramp at island

406.8 Location. *Curb ramps* shall be located so that they do not project into vehicular traffic lanes, parking *spaces*, or parking access aisles.

407 Elevators

407.1 General. New elevators required to be *accessible* shall comply with 407.2. New *destination-oriented elevators* required to be *accessible* shall comply with 407.3. New limited use/limited application elevators required to be *accessible* shall comply with 407.4. *Altered elements* of existing elevators shall comply with 407.5.

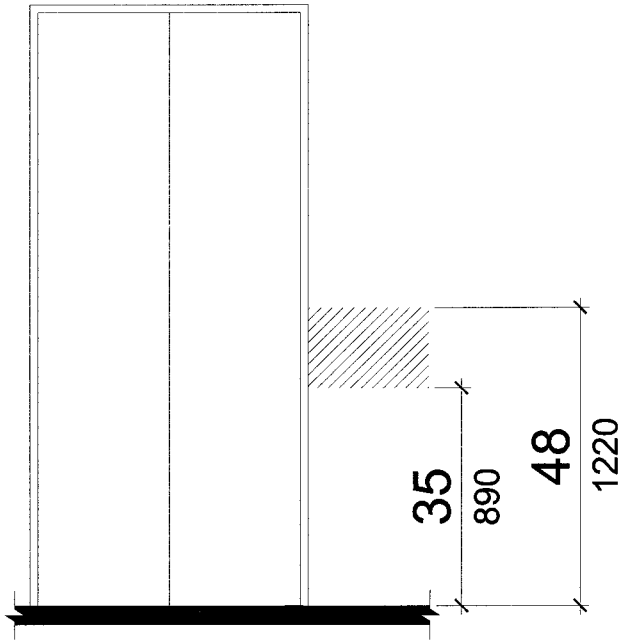
407.2 New Elevators. New *accessible* elevators shall comply with 407.2 and with ASME/ANSI A17.1. They shall be passenger elevators as classified by ASME/ANSI A17.1.

407.2.1 Automatic Operation. Elevator operation shall be automatic. Each car shall be equipped with a self-leveling feature that will automatically bring and maintain the car at floor landings within a tolerance of 1/2 inch (13 mm) under rated loading to zero loading conditions.

407.2.2 Call Buttons. Call buttons in elevator lobbies and halls shall be located vertically between 35 inches (890 mm) and 48 inches (1220 mm) above the floor, measured to the centerline of the button. A clear floor *space* complying with 305 shall be provided. Such call buttons shall have visible signals to indicate when each call is registered and when each call is answered. Call buttons shall be 3/4 inch (19 mm) minimum in the smallest dimension. The button that designates the up

direction shall be located above the button that designates the down direction. Buttons shall be raised or flush. Objects located beneath hall call buttons shall protrude 4 inches (100 mm) maximum into the clear floor *space*.

Figure 407.2.2



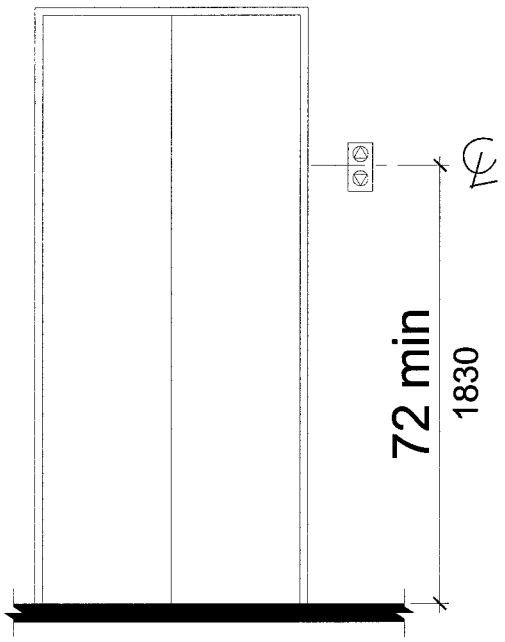
407.2.3 Hall Signals. A visible and audible signal shall be provided at each hoistway *entrance* to indicate which car is answering a call and the direction of travel. Alternatively, in-car signals shall be located in cars, visible from the floor area adjacent to the hall call buttons, and shall comply with the requirements of this section.

407.2.3.1 Audible Signals. Audible signals shall sound once for the up direction and twice for the down direction, or shall have verbal annunciators that state the word "up" or "down." Audible signals or verbal annunciators shall have a frequency of 1500 Hz maximum. The audible signal or verbal annunciator shall be 20 dBA minimum and 80 dBA maximum, measured at the hall call button.

407.2.3.2 Visible Signals. Visible signals shall comply with 407.2.3.2.

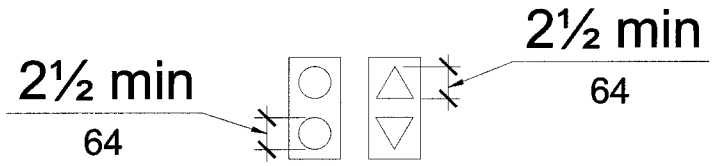
407.2.3.2.1 Height. Hall signal fixtures shall be centered at 72 inches (1830 mm) minimum above the floor or ground.

Figure 407.2.3.2.1



407.2.3.2.2 Size. The visible signal *elements* shall be 2-1/2 inches (64 mm) minimum measured along the vertical centerline of the *element*.

Figure 407.2.3.2.2

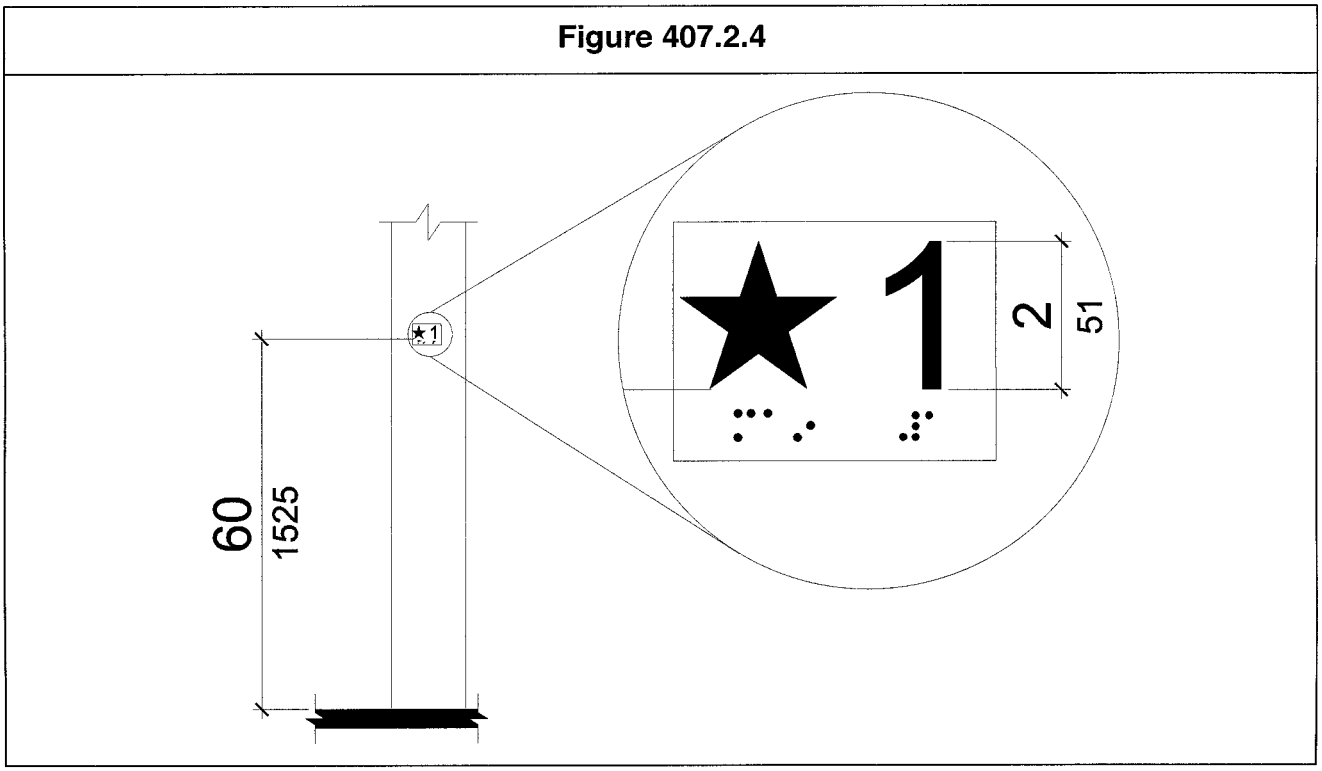


407.2.3.2.3 Visibility. Signals shall be visible from the floor area adjacent to the hall call button.

407.2.4 Tactile Signs on Hoistway Entrances. *Tactile character* and Braille floor designations shall be provided on both jambs of elevator hoistway *entrances* and shall be 60 inches (1525 mm) above the floor, measured from the baseline of the *characters*. A *tactile* star shall also be provided

on both jambs at the main entry level. Such *characters* shall be 2 inches (51 mm) high and shall comply with 703.2.

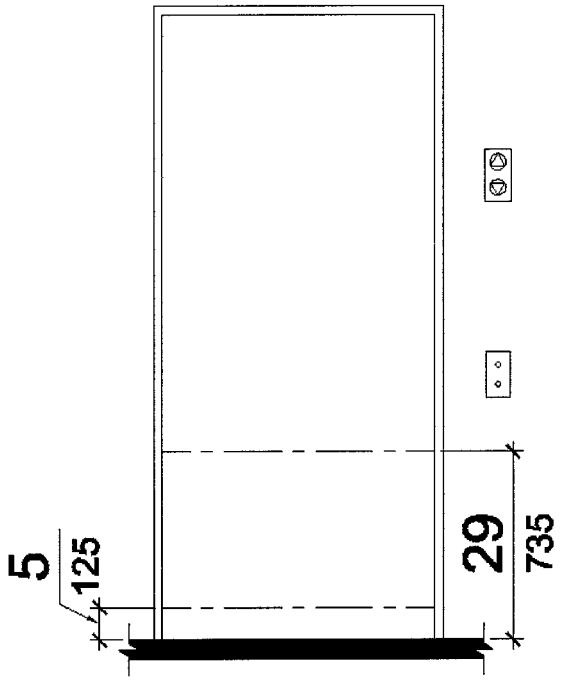
Figure 407.2.4



407.2.5 Door Operation. Elevator doors shall be the horizontal type. Elevator hoistway and car doors shall open and close automatically. Elevator doors shall be provided with a reopening device that shall stop and reopen a car door and hoistway door automatically if the door becomes obstructed by an object or person. The device shall be activated by sensing an obstruction passing through the opening at 5 inches (125 mm) and 29 inches (735 mm) above the floor. The device shall

not require physical contact to be activated, although contact may occur before the door reverses. Door reopening devices shall remain effective for 20 seconds minimum.

Figure 407.2.5



407.2.6 Door and Signal Timing for Hall Calls. The minimum acceptable time from notification that a car is answering a call or designation of which car is assigned to a lobby destination floor entry until the doors of that car start to close shall be calculated from the following equation:

T = D/(1.5 ft/s) or
T = D/(455 mm/s) = 5 seconds minimum

where T equals the total time in seconds and D equals the distance (in feet or millimeters) from the point in the lobby or corridor 60 inches (1525 mm) directly in front of the farthest call button controlling that car to the centerline of its hoistway door. For cars with in-car lanterns, T begins when the signal is visible from the point 60 inches (1525 mm) directly in front of the farthest hall call button and the audible signal is sounded.

407.2.7 Door Delay for Car Calls. Elevator doors shall remain fully open in response to a car call for 3 seconds minimum.

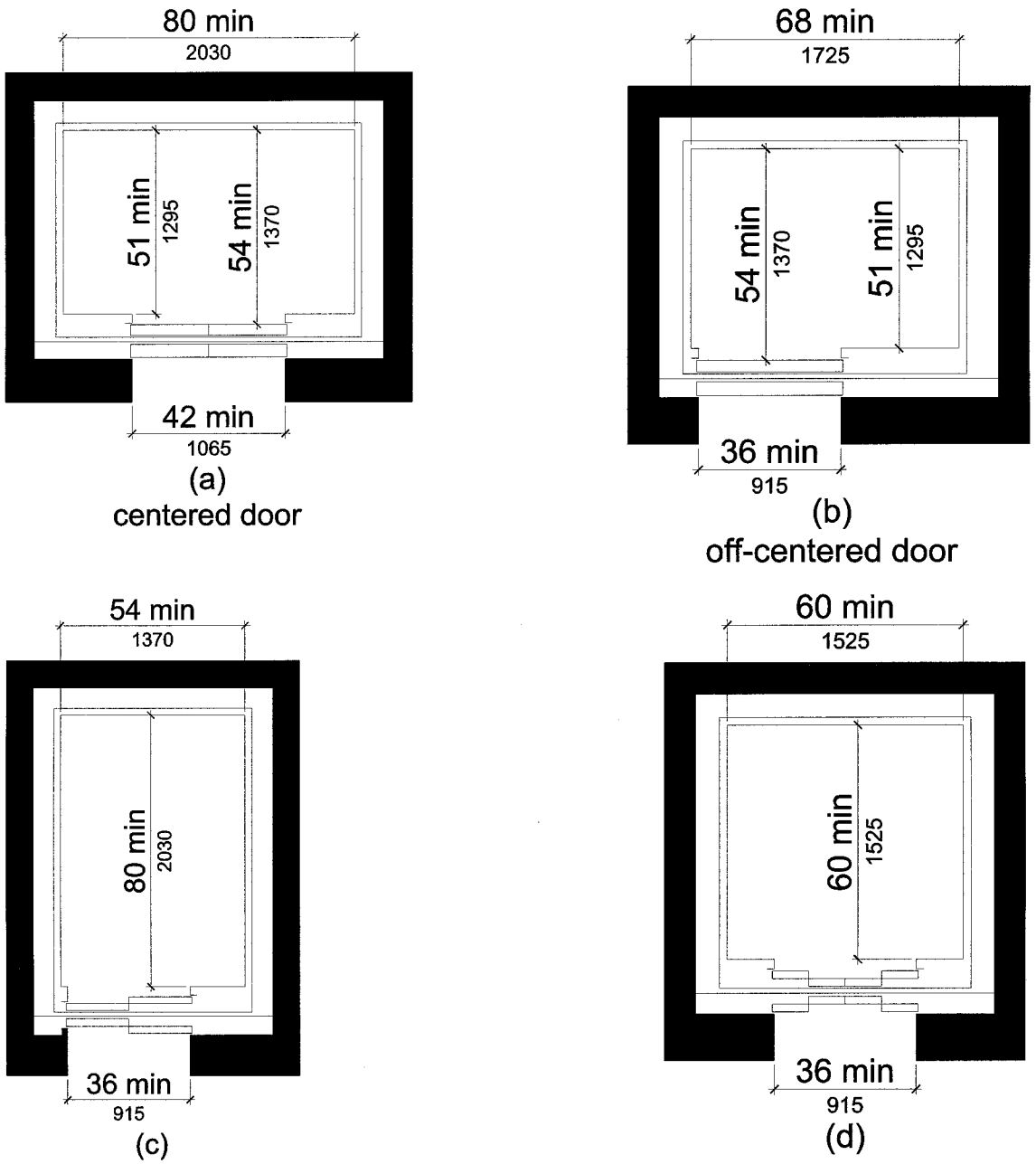
407.2.8 Inside Dimensions of Elevator Cars. Clear width of elevator doors and inside dimensions of elevator cars shall comply with Table 407.2.8.

Table 407.2.8 Elevator Door and Car Sizes

	Minimum Dimensions			
Door Location	**Door Clear Width**	**Inside Car, Side to Side**	**Inside Car, Back Wall to Front Return**	**Inside Car, Back Wall to Inside Face of Door**
Centered	42 inches (1065 mm)	80 inches (2030 mm)	51 inches (1295 mm)	54 inches (1370 mm)
Side (off-centered)	36 inches (915 mm)[1]	68 inches (1725 mm)	51 inches (1295 mm)	54 inches (1370 mm)
Any	36 inches (915 mm)[1]	54 inches (1370 mm)	80 inches (2030 mm)	80 inches (2030 mm)
Any	36 inches (915 mm)[1]	60 inches (1525 mm)[2]	60 inches (1525 mm)[2]	60 inches (1525 mm)[2]

1. A tolerance of minus 5/8 inch (16 mm) is permitted.
2. Other car configurations that provide a *wheelchair* turning *space* complying with 304 with the door closed are permited.

Figure 407.2.8



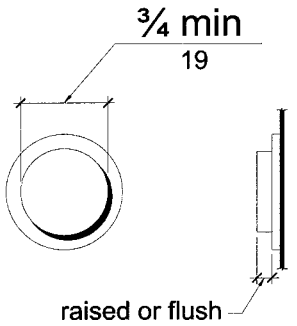
407.2.9 Floor Surfaces. Floor surfaces in elevator cars shall comply with 302. The clearance between the car platform sill and the edge of any hoistway landing shall be 1-1/4 inch (32 mm) maximum.

407.2.10 Illumination Levels. The level of illumination at the car controls, platform, car threshold and car landing sill shall be 5 footcandles (54 lux) minimum.

407.2.11 Car Controls. Elevator controls shall comply with 407.2.11.

407.2.11.1 Buttons. Buttons shall be 3/4 inch (19 mm) minimum in their smallest dimension. Buttons shall be raised or flush. Buttons shall be arranged with numbers in ascending order. When two or more columns of buttons are provided they shall read from left to right. Keypads, where provided, shall be in a standard telephone keypad arrangement.

Figure 407.2.11.1



407.2.11.2 Designations and Indicators for Control Buttons. Control buttons shall be identified by *tactile characters* complying with 703.2. *Characters* and Braille shall be placed immediately to the left of the button to which the designations apply. The control button for the main entry floor and control buttons, other than remaining buttons with floor designations, shall be identified with *tactile* symbols as shown in Table 407.2.11.2. Buttons with floor designations shall be provided with visible indicators to show that a call has been registered. The visible indication shall extinguish when the car arrives at the designated floor. Where provided, telephone-style keypad buttons shall be identified by *tactile characters* complying with 703.2 except that Braille is not required. *Characters* shall be centered on the corresponding keypad button.

Table 407.2.11.2 Elevator Control Button Identification

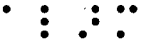
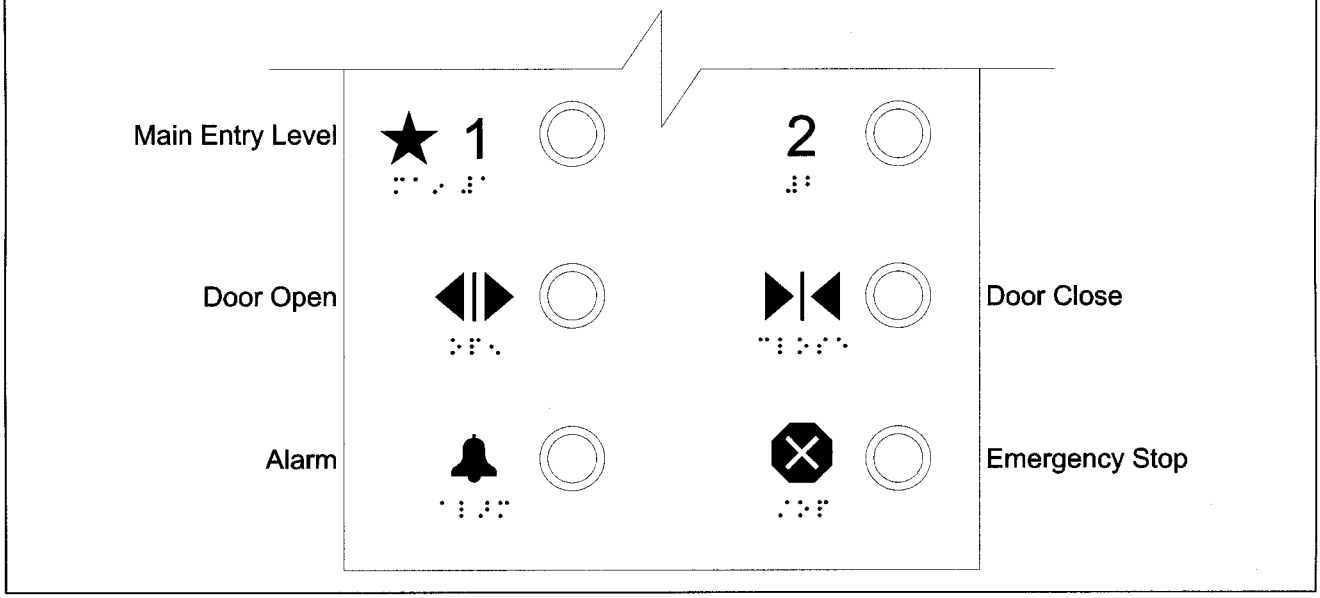
Control Button	Tactile Symbol	Braille Message
Emergency Stop		 "ST"OP" Three cells
Alarm		 AL"AR"M Four cells

Table 407.2.11.2 Elevator Control Button Identification

Control Button	Tactile Symbol	Braille Message
Door Open	◀|▶	OP"EN" Three cells
Door Close	▶|◀	CLOSE Five cells
Main Entry Floor	★	MA"IN" Three cells
Phone	☎	PH"ONE" Four cells

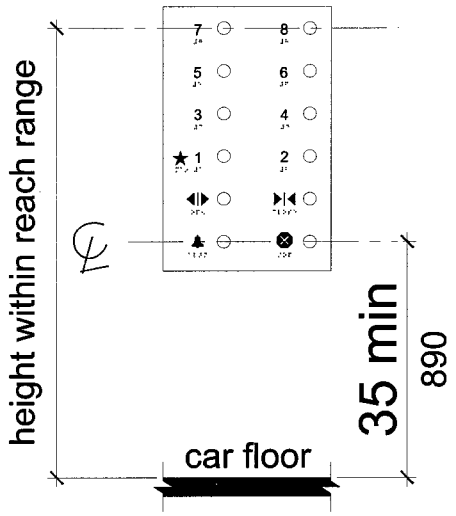
Figure 407.2.11.2



407.2.11.3 Height. Buttons with floor designations shall be located within one of the reach ranges specified in 308. Emergency controls, including the emergency alarm, shall be grouped

at the bottom of the panel. Emergency control buttons shall have their centerlines 35 inches (890 mm) minimum above the floor.

Figure 407.2.11.3

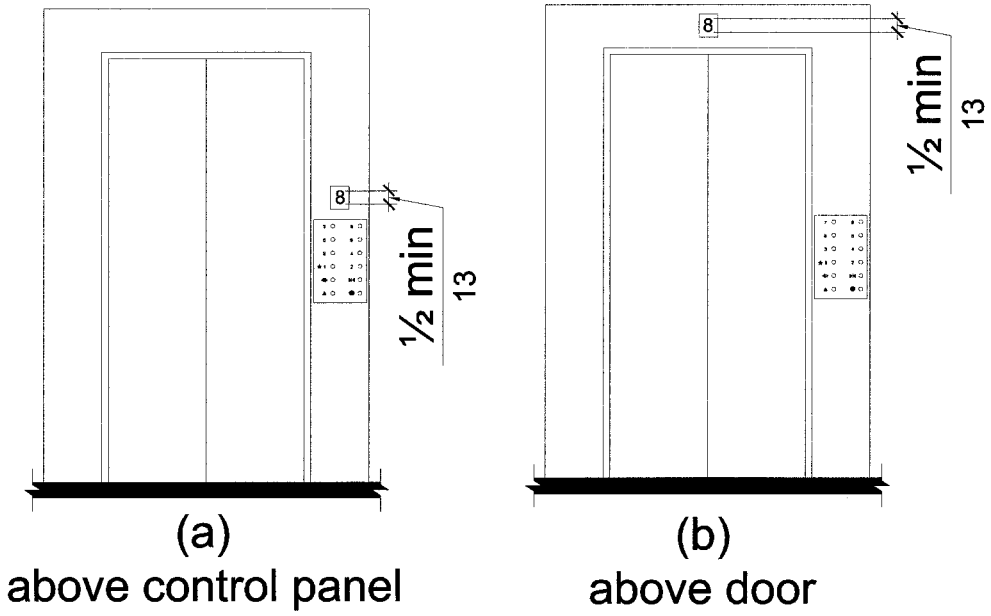


407.2.11.4 Location. Controls shall be located to accommodate a forward reach or side reach as specified in 308.

407.2.12 Car Position Indicators. In elevator cars, audible and visible car location indicators shall be provided.

407.2.12.1 Visible Indicators. Indicators shall be located above the car control panel or above the door. Numerals shall be 1/2 inch (13 mm) high minimum. As the car passes a floor and when a car stops at a floor served by the elevator, the corresponding *character* shall illuminate.

Figure 407.2.12.1



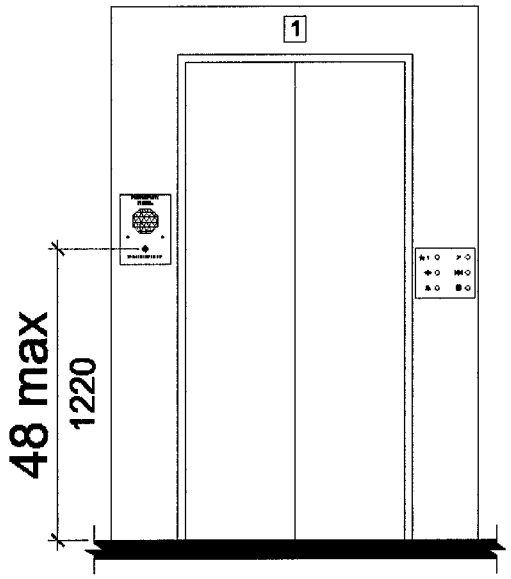
407.2.12.2 Audible Indicators. The audible signal shall be 20 dBA minimum and 80 dBA maximum, measured at the annunciator, and shall have a frequency of 1500 Hz maximum. The signal shall be an automatic verbal announcement which announces the floor at which the car has stopped.

EXCEPTION: For elevators that have a rated speed of 200 feet per minute (1 m/s) or less, an audible signal with a frequency of 1500 Hz maximum which sounds as the car passes or stops at a floor served by the elevator shall be permitted.

407.2.13 Emergency Communications. Emergency two-way communication systems between the elevator car and a point outside the hoistway shall comply with ASME/ANSI A17.1. The highest *operable part* of a two-way communication system shall be 48 inches (1220 mm) maximum above the floor. The device shall be identified by *tactile characters* complying with 703.2 located adjacent to the device. If the system uses a handset, the cord from the panel to the handset shall be 29 inches (735 mm) long minimum. The car emergency signaling device shall not be limited to voice

communication. If instructions for use are provided, essential information shall be presented in both *tactile* and visual form.

Figure 407.2.13



407.3 New Destination-Oriented Elevators. New *accessible destination-oriented elevators* shall comply with 407.2.1, 407.2.4 through 407.2.10, and 407.2.13. Such elevators shall also comply with 407.3 and ASME/ANSI A17.1. They shall be passenger elevators as classified by ASME/ANSI A17.1.

407.3.1 Call Buttons. Call buttons shall be located vertically between 35 inches (890 mm) and 48 inches (1220 mm) above the floor, measured to the centerline of the button. A clear floor *space* complying with 305 shall be provided. Call buttons shall be 3/4 inch (19 mm) minimum in the smallest dimension. Buttons shall be raised or flush. Objects located beneath hall call buttons shall protrude 4 inches (100 mm) maximum into the clear floor *space*. A keypad or other means for the entry of destination information shall be provided. Keypads, where provided, shall be in a standard telephone keypad arrangement. Visible and audible signals which indicate which elevator car to enter shall be provided.

407.3.2 Hall Signals. A visible and audible signal shall be provided to indicate a car destination corresponding with 407.3.1. The audible tone and verbal announcement shall be the same as those given at the call button or call button keypad. Each elevator in a bank shall have audible and visible means for differentiation.

407.3.2.1 Visible Signals. Visible signals shall comply with 407.3.2.1.

407.3.2.1.1 Height. Hall signal fixtures shall be centered at 72 inches (1830 mm) minimum above the floor or ground.

407.3.2.1.2 Size. The visible signal *elements* shall be 2-1/2 inches (64 mm) minimum measured along the vertical centerline of the *element*.

407.3.2.1.3 Visibility. Signals shall be visible from the floor area adjacent to the hoistway *entrance*.

407.3.3 Car Controls. Emergency controls, including the emergency alarm, shall have their centerlines 35 inches (890 mm) minimum and 48 inches (1220 mm) maximum above the floor. Buttons shall be 3/4 inch (19 mm) minimum in their smallest dimension. Buttons shall be raised or flush. Controls shall be located to accommodate a forward reach or side reach as specified in 308.

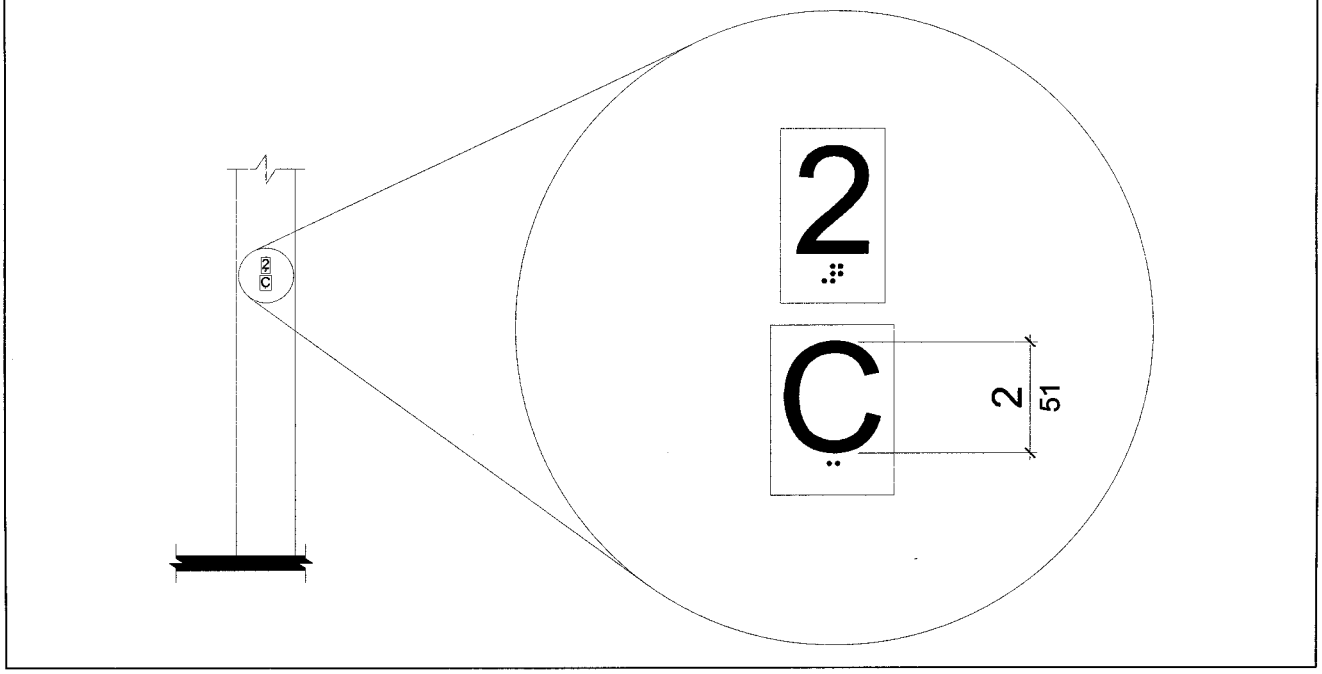
407.3.4 Car Position Indicators. In elevator cars, audible and visible car location indicators shall be provided.

407.3.4.1 Visible Indicators. Indicators shall be located above the car control panel or above the door. Numerals shall be 1/2 inch (13 mm) high minimum. A display shall be provided in the car with visible indicators to show car destinations. The visible indicators shall extinguish when the call has been answered.

407.3.4.2 Audible Indicators. An automatic verbal announcement which announces the floor at which the car has stopped shall be provided. The announcement shall be 20 dBA minimum and 80 dBA maximum, measured at the annunciator.

407.3.5 Elevator Car Identification. In addition to the *tactile signs* required by 407.2.4, a *tactile* elevator car identification shall be placed immediately below the hoistway *entrance* floor designation. The *characters* shall be 2 inches (51 mm) high and shall comply with 703.2.

Figure 407.3.5



407.4 New Limited-Use/Limited-Application Elevators. New *accessible* limited-use/limited application elevators shall comply with 407.4 and shall comply with ASME/ANSI A17.1, Part XXV.

407.4.1 Automatic Operations. Elevator operation shall be automatic. Each car shall automatically stop at a floor landing within a tolerance of 1/2 inch (13 mm) under rated loading to zero loading conditions.

407.4.2 Call Buttons. Call buttons in elevator lobbies and halls shall be located vertically between 35 inches (890 mm) and 48 inches (1220 mm) above the floor, measured to the centerline of the button. Such call buttons shall have visible signals to indicate when each call is registered and when each call is answered. Call buttons shall be 3/4 inch (19 mm) minimum in the smallest dimension, and shall be raised or flush. The button that designates the up direction shall be located above the button that designates the down direction. Objects located beneath hall call buttons shall protrude into the floor area adjacent to the hoistway *entrance* 4 inches (100 mm) maximum.

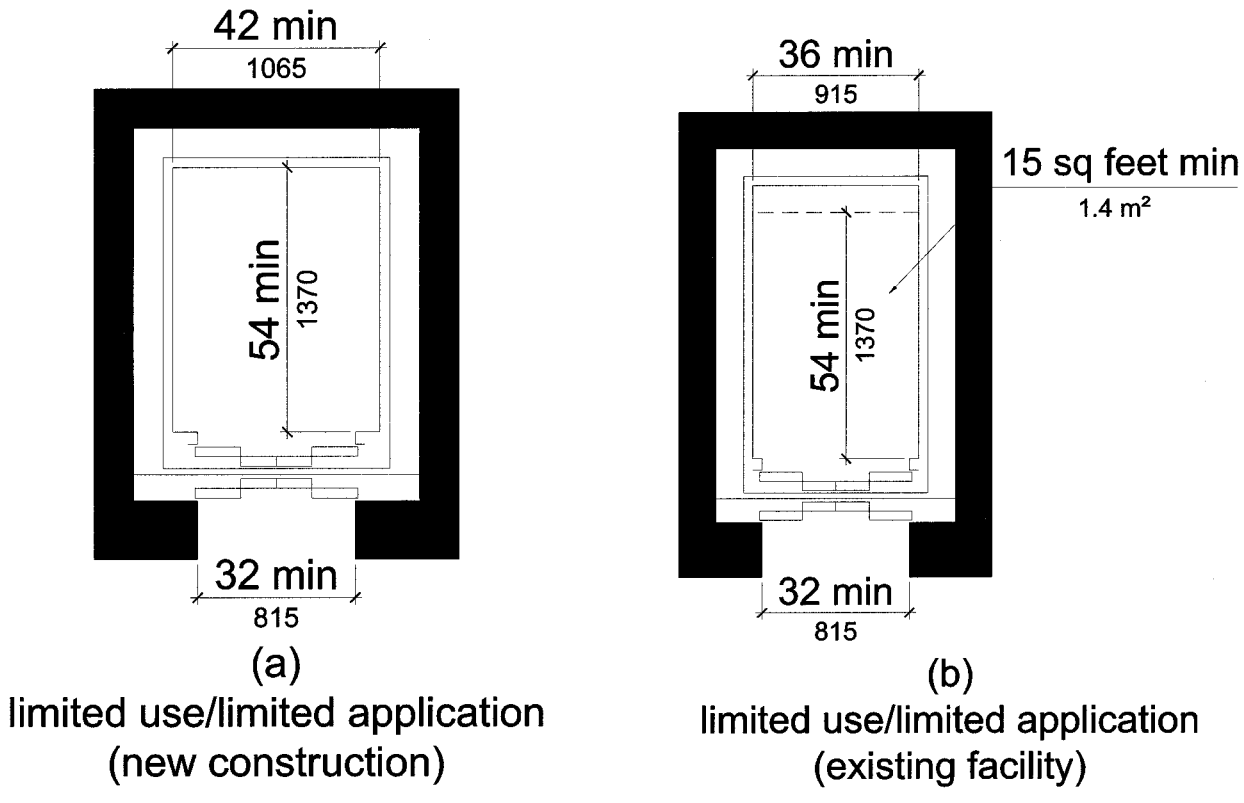
407.4.3 Hall Signals. A visible and audible signal complying with 407.2.3 shall be provided in the car or at each hoistway *entrance* to indicate the direction of travel.

407.4.4 Tactile Signs on Hoistway Entrances. *Tactile character* and Braille floor designations shall be provided on both jambs of elevator hoistway *entrances* and shall be 60 inches (1525 mm) above the floor measured from the baseline of the *characters*. Such *characters* shall be 2 inches (51 mm) high minimum and shall comply with 703.2.

407.4.5 Door Operation. Elevator hoistway doors shall be either swinging or horizontally sliding type. Elevator hoistway and car doors shall open and close automatically. Horizontally sliding type hoistway and car doors shall comply with 407.2.5. Swinging hoistway doors shall conform to 404. Swinging doors shall be low-energy power-operated and shall comply with ANSI/BHMA A156.1.9. Power-operated swing doors shall remain open for 20 seconds minimum when activated.

407.4.6 Inside Dimensions of Elevator Cars. Elevator cars shall provide a clear width of 42 inches (1065 mm) minimum and a clear depth of 54 inches (1370 mm) minimum. For installations in existing *buildings* or *facilities*, elevator cars shall provide a clear width of 36 inches (915 mm) minimum, a clear depth of 54 inches (1370 mm) minimum, and a net clear platform area of 15 square feet (1.4 m^2) minimum. Car doors shall be positioned at the narrow end of the car and shall provide a clear width of 32 inches (815 mm) minimum.

Figure 407.4.6



407.4.7 Floor Surfaces. Floor surfaces in elevator cars shall comply with 302. The horizontal distance between the car platform sill and the edge of any hoistway landing shall be 1-1/4 inches (32 mm) maximum.

407.4.8 Illumination Levels. The level of illumination at the car controls, platform, and car threshold and landing sill shall be 5 footcandles (53.8 lux) minimum.

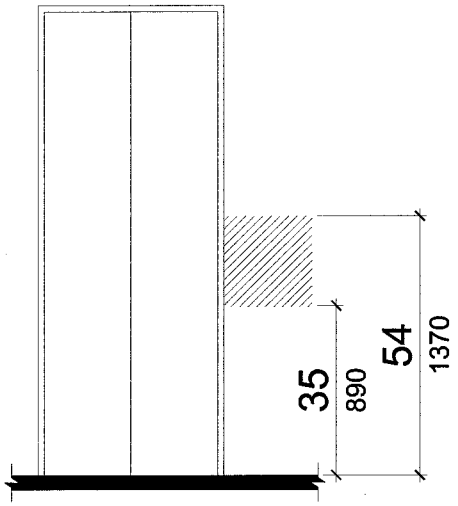
407.4.9 Car Controls. Elevator controls shall comply with 407.2.11. Controls shall be centered on a side wall and shall comply with 309.

407.4.10 Emergency Communications. Car emergency signaling devices complying with 407.2.13 shall be provided.

407.5 Existing Elevators. *Altered elements* of existing *destination-oriented elevators* shall comply with 407.3. *Altered elements* of existing limited-use/limited-application elevators shall comply with 407.4. *Altered elements* of all other existing elevators shall comply with 407.2.1, 407.2.4, 407.2.6, 407.2.7, 407.2.9, 407.2.10 and 407.2.13 and with 407.5 or shall comply with 407.2. They shall be passenger elevators as classified by ASME/ANSI A17.1.

407.5.1 Call Buttons. Call buttons in elevator lobbies and halls shall be located vertically between 35 inches (890 mm) and 54 inches (1370 mm) above the floor, measured to the centerline of the button. A clear floor or ground *space* complying with 305 shall be provided. The button that designates the up direction shall be located above the button that designates the down direction. Keypad controls, if provided, shall comply with 407.2.11.

Figure 407.5.1



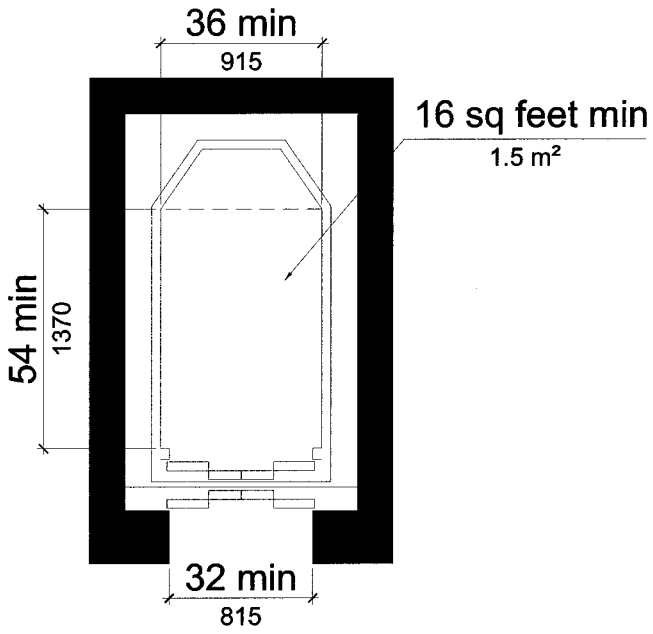
407.5.2 Hall Signals. A visible and audible signal at each hoistway *entrance* to indicate which car is answering a call or in-car signals complying with 407.2.3 shall be provided. Audible signals shall sound once for the up direction and twice for the down direction, or shall have verbal annunciators that state the word "up" or "down". If new hall signals are installed, they shall comply with 407.2.3.

407.5.3 Door Operation. Power-operated horizontally sliding car and hoistway doors opened and closed by automatic means shall comply with 407.2.5. Existing manually operated hoistway swing doors shall comply with 404.2.3 and 404.2.9. A power-operated car door that opens and maintains a 32 inches (815 mm) minimum clear width shall be provided. Closing of the car door shall not be initiated until the hoistway door is closed. Car gates are prohibited.

407.5.4 Inside Dimensions of Elevator Cars. The inside dimensions of elevator cars shall comply with 407.2.8.

EXCEPTION: This requirement shall not apply to existing elevator car configurations that provide a clear floor area of 16 square feet (1.5 m^2) minimum, and provide 54 inches (1370 mm) minimum inside clear depth and 36 inches (915 mm) minimum clear width.

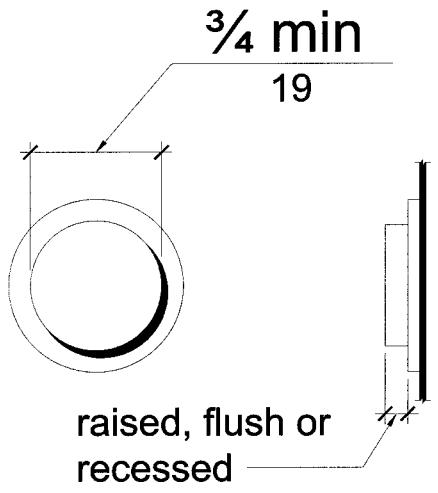
Figure 407.5.4 Exception



407.5.5 Car Controls. Elevator controls shall comply with 407.5.5.

407.5.5.1 Buttons. Control buttons shall be 3/4 inch (19 mm) minimum in their smallest dimension. Control buttons shall be raised, flush or recessed. Where the car operating panel is changed, control buttons shall comply with 407.2.11.1.

Figure 407.5.5.1



407.5.5.2 Designations and Indicators for Control Buttons. Control buttons shall comply with 407.2.11.2.

EXCEPTION: Where *space* on an existing car operating panel precludes *tactile* markings to the left of the controls, markings shall be placed as near to the control as possible.

407.5.5.3 Height. Floor buttons shall be located 54 inches (1370 mm) maximum above the floor for parallel approach and 48 inches (1220 mm) maximum for front approach. Where the panel is changed, it shall comply with 407.2.11.3.

407.5.5.4 Operating Panels. Where a new car operating panel complying with 407.2.11 is provided, existing car operating panels shall not be required to comply with 407.2.11.

407.5.6 Car Position Indicators. Where a new car position indicator is provided, the indicator shall comply with 407.2.12.

407.5.7 Identification. *Accessible* elevators shall be clearly identified with the International Symbol of Accessibility complying with 703.7, unless all elevators in the *building* or *facility* are *accessible.*

408 Wheelchair (Platform) Lifts

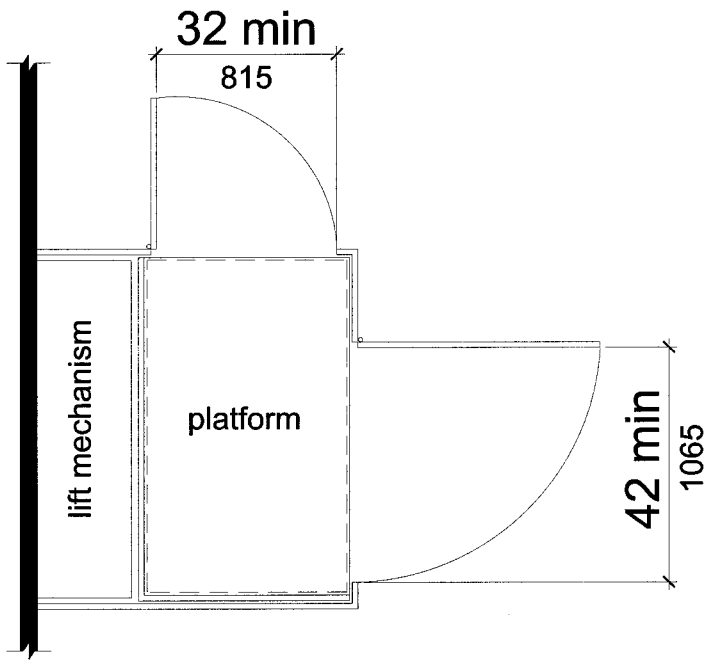
408.1 General. *Wheelchair* (platform) lifts shall comply with ASME/ANSI A17.1 and with 302, 305 and 309. *Wheelchair* (platform) lifts shall not be attendant-operated and shall provide unassisted entry and exit from the lift.

Advisory 408.1

Inclined stairway chairlifts and inclined and vertical platform lifts are available for short-distance vertical transportation. Because an *accessible route* requires an 80 inch (2030 mm) vertical clearance, care should be taken in selecting lifts as they may not be equally suitable for use by *wheelchair* users and standees. If a lift does not provide 80 inch (2030 mm) vertical clearance, it cannot be considered part of an *accessible route* in new construction.

408.2 Doors and Gates. Lifts shall have low-energy power-operated doors or gates complying with 404.3. Doors and gates shall remain open for 20 seconds minimum. End doors shall be 32 inches (815 mm) minimum clear width. Side doors shall be 42 inches (1065 mm) minimum clear width.

Figure 408.2



EXCEPTION: Lifts having doors or gates on opposite sides shall be permitted to have self-closing manual doors or gates.

409 Accessible Means of Egress

409.1 General. Each required *accessible means of egress* shall be continuous to a *public way* and shall consist of one or more of the following components: *accessible routes* complying with 402, exit stairways complying with 409.2, elevators complying with 409.3, horizontal exits or smoke barriers. *Wheelchair* (platform) lifts shall not serve as part of an *accessible means of egress.*

409.2 Exit Stairways. An exit stairway to be considered part of an *accessible means of egress* shall conform to 504 and shall have a clear width of 48 inches (1220 mm) minimum between handrails and shall either incorporate an *area of refuge* within an enlarged floor-level landing or shall be accessed from either an *area of refuge* complying with 410 or a horizontal exit.

EXCEPTIONS: 1. This requirement shall not apply to exit stairways serving a single guest room.
2. This requirement shall not apply to exit stairways in *buildings* or *facilities* protected throughout by a supervised automatic sprinkler system.

Advisory 409.2 Exception 2
Supervised automatic sprinkler systems have built-in signals for monitoring features of the system which indicate conditions that will impair the satisfactory operation of the sprinkler system.

3. The clear width of 48 inches (1220 mm) between handrails is not required for exit stairways accessed from a horizontal exit.
4. This requirement shall not apply to exit stairways serving open parking garages.

409.3 Elevators. An elevator to be considered part of an *accessible means of egress* shall comply with the requirements of Rule 211 of ASME/ANSI A17.1 and standby power shall be provided. The elevator shall be accessed from either an *area of refuge* complying with 410 or a horizontal exit.

EXCEPTIONS: 1. Elevators are not required to be accessed from an *area of refuge* or horizontal exit in open parking garages.
2. Elevators are not required to be accessed from an *area of refuge* or horizontal exit in *buildings* and *facilities* protected throughout by a supervised automatic sprinkler system.

410 Areas of Refuge

410.1 General. Where *areas of refuge* are required, they shall comply with 410.

EXCEPTION: *Areas of refuge* are not required in detention and correctional *facilities.*

410.2 Location. Each *area of refuge* shall be accessed from the *space* it serves by an *accessible route* which serves as an *accessible means of egress.* The maximum travel distance to an *area of refuge* shall not exceed the travel distance permitted for the occupancy by the *administrative authority.* Every *area of refuge* shall have direct access to an exit stairway complying with 409.2 or an elevator complying with 409.3.

410.3 Size. Each *area of refuge* shall be sized to accommodate one *wheelchair space* complying with 305.3 for each 200 occupants or fraction thereof, based on the occupant load of the *area of refuge* and all areas served by the *area of refuge*. Such *wheelchair spaces* shall not overlap the required means of egress width. Access to any required *wheelchair space* shall not be through more than one adjoining *wheelchair space*.

410.4 Construction. Each *area of refuge* shall be separated from the remainder of the *story* by a smoke barrier having a one-hour minimum fire-resistance rating. Smoke barriers shall extend to the floor or roof deck above. Doors in the smoke barrier shall have a 20 minute minimum fire-resistance rating. Doors shall be self-closing or automatic closing by smoke detection. HVAC openings in smoke barriers, where permitted, shall be ducted and provided with a smoke-actuated damper designed to resist the passage of smoke.

410.5 Smoke Resistance. Every *area of refuge* shall be designed to prevent the intrusion of smoke.

EXCEPTIONS: 1. This requirement shall not apply where the *areas of refuge* and all areas served by the *area of refuge* are protected by a supervised automatic sprinkler system.
2. This requirement shall not apply to *areas of refuge* located within an exit stair enclosure.

410.5.1 Elevator Lobby. Where an elevator lobby is used as an *area of refuge*, the elevator hoistway and lobby shall be pressurized to comply with the requirements for smokeproof enclosures, except where elevators are in an *area of refuge* formed by a horizontal exit or smoke barrier.

410.6 Communication System. Every *area of refuge* shall be provided with an *accessible* two-way communication system between the *area of refuge* and a central control point. The communication system shall have both audible and visible signals.

Advisory 410.6
The two-way communication system must be equipped with both audible signals and visual signals and cannot operate solely through voice communication. Audible signals can include voice output or recorded messages. A button that lights to indicate that help is on the way when the call is answered is an acceptable visual signal.

410.7 Instructions. In each *area of refuge* provided with a two-way communication system, instructions on the use of the area under emergency conditions shall be posted adjacent to the communications system. The instructions shall include:

1. Directions to other means of egress.
2. Advice that persons able to use the exit stairs do so as soon as possible unless they are assisting others.
3. Information on planned availability of assistance in the use of stairs or supervised operation of elevators and how to summon such assistance.
4. Directions for use of emergency communications system.

410.8 Identification. Each *area of refuge* shall be identified by a *tactile sign* stating "Area of Refuge" complying with 703.2 and including the International Symbol of Accessibility complying with 703.7. A *sign* shall be located at each door providing access to the *area of refuge*. The *sign* shall be illuminated as required for exit *signs* where exit *sign* illumination is required.

CHAPTER 5: GENERAL SITE AND BUILDING ELEMENTS

501 General

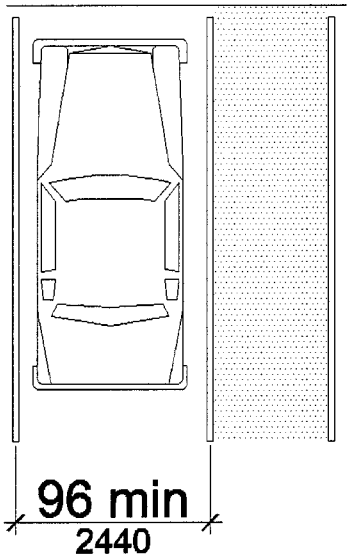
501.1 Scope. General *site* and *building elements* required to be *accessible* by Chapter 2 shall comply with the applicable provisions of this chapter.

502 Parking Spaces

502.1 General. Car and van parking *spaces* required to be *accessible* shall comply with 502.

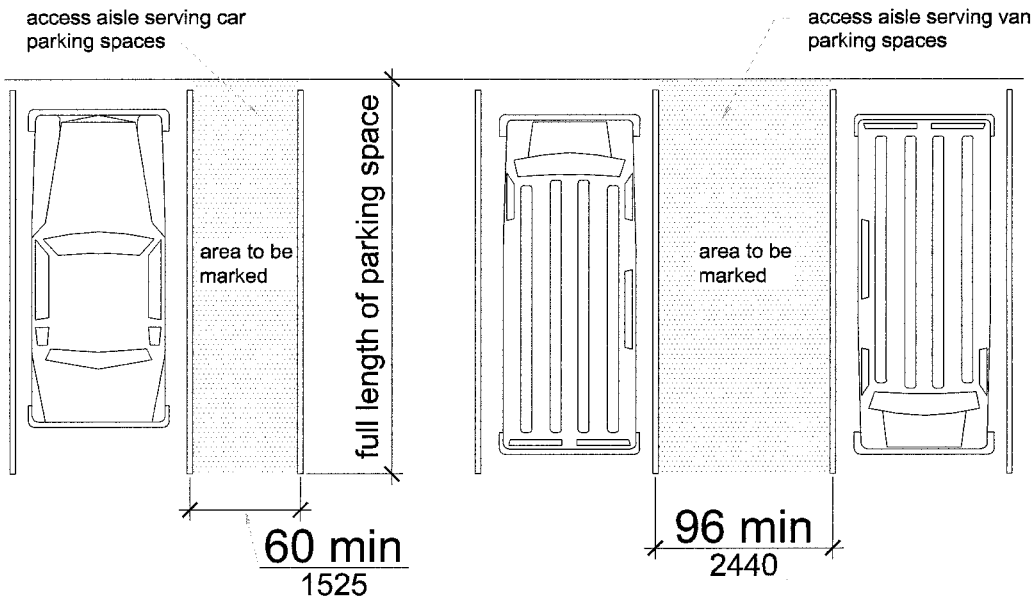
502.2 Vehicle Spaces. Car and van parking *spaces* shall be 96 inches (2440 mm) wide minimum, shall be marked to define the width, and shall have an adjacent access aisle complying with 502.3.

Figure 502.2



502.3 Access Aisle. Access aisles serving parking *spaces* shall comply with 502.3. Access aisles shall adjoin an *accessible route*. Two parking *spaces* shall be permitted to share a common access aisle.

Figure 502.3



502.3.1 Width. Access aisles serving car parking *spaces* shall be 60 inches (1525 mm) wide minimum. Access aisles serving van parking *spaces* shall be 96 inches (2440 mm) wide minimum.

502.3.2 Length. Access aisles shall extend the full length of the parking *spaces* they serve.

502.3.3 Marking. Access aisles shall be marked so as to discourage parking in them.

Advisory 502.3.3

The method and color of marking are not specified in this document but may be addressed by State or local laws or regulations. Since van access aisles are required to be as wide as the *accessible* parking *space*, it is important that they be clearly marked. Bollards or other barriers can help prevent misuse of the aisle provided that they do not obstruct the access aisle or required connecting *accessible route*. If used, bollards must be placed at the boundary of the access aisle so they do not prevent the deployment of *wheelchair* lifts or the use of mobility aids.

502.4 Floor or Ground Surfaces. Parking *spaces* and access aisles serving them shall comply with 302. Changes in level are not permitted. Access aisles shall be at the same level as the parking *spaces* they serve.

Advisory 502.4
Access aisles are required to be level in all directions to provide a level surface for *wheelchair* transfer to and from vehicles.

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

502.5 Vertical Clearance. Van parking *spaces*, access aisles serving them, and a vehicular route from an *entrance* to van parking *spaces* and from van parking *spaces* to an exit shall provide a vertical clearance of 98 inches (2490 mm) minimum.

502.6 Identification. Where *accessible* parking *spaces* are required to be identified by *signs*, the *signs* shall include the International Symbol of Accessibility complying with 703.7. Such *signs* shall be 60 inches (1525 mm) minimum above the floor or ground surface measured to the bottom of the *sign*.

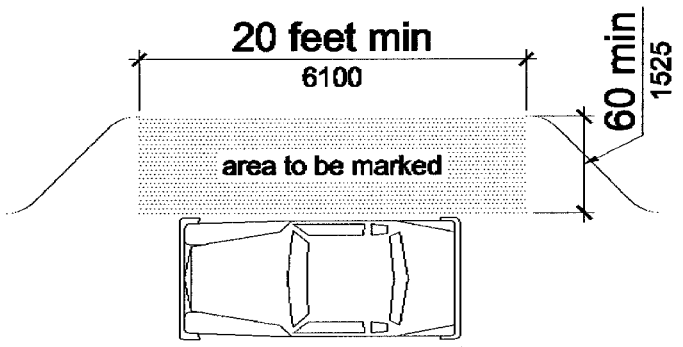
503 Passenger Loading Zones

503.1 General. Passenger loading zones required to be *accessible* shall comply with 503.

503.2 Vehicle Pull-up Space. Passenger loading zones shall provide a vehicular pull-up *space* 96 inches (2440 mm) minimum in width, 20 feet (6100 mm) minimum in length and an adjacent access aisle complying with 503.3.

503.3 Access Aisle. Access aisles serving passenger loading zones shall comply with 503.3. Access aisles shall adjoin an *accessible route*.

Figure 503.3



503.3.1 Width. Access aisles serving vehicle pull-up *spaces* shall be 60 inches (1525 mm) wide minimum.

503.3.2 Length. Access aisles shall be 20 feet (6100 mm) minimum in length and shall extend the full length of the vehicle pull-up *spaces* they serve.

503.3.3 Marking. Access aisles shall be marked so as to discourage parking in them.

503.4 Floor and Ground Surfaces. Vehicle pull-up *spaces* and access aisles serving them shall comply with 302. Changes in level are not permitted. Access aisles shall be at the same level as the vehicle pull-up *space* they serve.

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

503.5 Vertical Clearance. Vehicle pull-up *spaces*, access aisles serving them, and a vehicular route from an *entrance* to the passenger loading zone, and from the passenger loading zone to an exit, shall provide a vertical clearance of 114 inches (2895 mm) minimum.

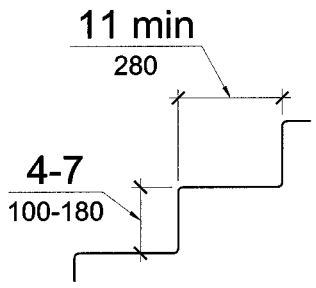
504 Stairways

504.1 General. Stairs required to be *accessible* shall comply with 504.

Advisory 504.1
Although these requirements do not mandate handrails on stairs that are not part of a means of egress, State or local *building* codes may require handrails.

504.2 Treads and Risers. All steps on a flight of stairs shall have uniform riser heights and uniform tread depths. Risers shall be 4 inches (100 mm) minimum in height and 7 inches (180 mm) maximum in height. Treads shall be 11 inches (280 mm) minimum in depth, measured from riser to riser.

Figure 504.2



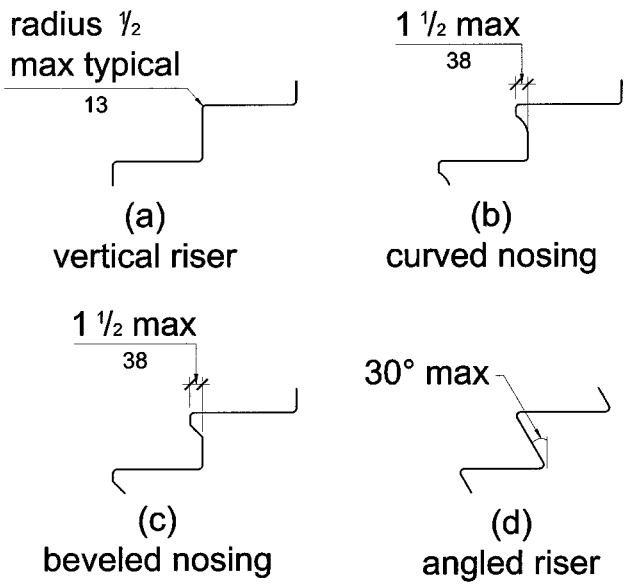
504.3 Open Risers. Open risers are not permitted.

504.4 Tread Surface. Stair treads shall comply with 302. Changes in level are not permitted.

EXCEPTION: Treads shall be permitted to have a slope not steeper than 1:48.

504.5 Nosings. The radius of curvature at the leading edge of the tread shall be 1/2 inch (13 mm) maximum. Nosings that project beyond vertical risers shall have the underside of the leading edge curved or beveled. If not vertical, risers shall slope under the tread at an angle of 30 degrees maximum from vertical; however, the permitted projection of the nosing shall be 1-1/2 inches (38 mm) maximum beyond the rear of the tread below.

Figure 504.5



504.6 Handrails. Stairs shall have handrails complying with 505.

504.7 Wet Conditions. Landings subject to wet conditions shall be designed to prevent the accumulation of water.

505 Handrails

505.1 General. Handrails required by 405 at *ramps* or 504 at stairs shall comply with 505.

505.2 Where Required. Handrails shall be provided on both sides of stairs and *ramps.*

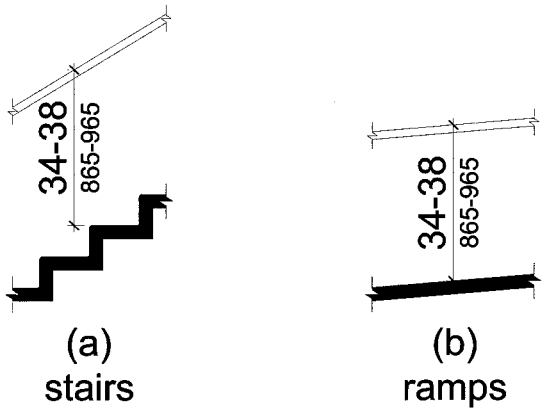
EXCEPTIONS: 1. Handrails are not required on both sides of aisle stairs and aisle *ramps* provided with a handrail at either side or within the aisle width.
2. Handrails are not required on *ramps* with a rise of 6 inches (150 mm) maximum.

505.3 Continuity. Handrails shall be continuous within the full length of each stair flight or *ramp* run.

EXCEPTION: Handrails are not required to be continuous in aisles serving seating.

505.4 Height. Top of gripping surfaces of handrails shall be 34 inches (865 mm) minimum and 38 inches (965 mm) maximum vertically above stair nosings and *ramp* surfaces. Handrails shall be at a consistent height above stair nosings and *ramp* surfaces.

Figure 505.4

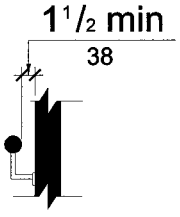


Advisory 505.4

The requirements for stair and *ramp* handrails in this document are for adults. When children are the principle users in a *building* or *facility* (e.g., elementary schools), a second set of handrails at an appropriate height can assist them and aid in preventing accidents. A maximum height of 28 inches (710 mm) measured to the top of the gripping surface from the ramp surface or stair nosing is recommended for handrails designed for children. Sufficient vertical clearance between upper and lower handrails, 9 inches (230 mm) minimum, should be provided to help prevent entrapment.

505.5 Clearance. Clearance between handrail and wall shall be 1-1/2 inches (38 mm) minimum.

Figure 505.5



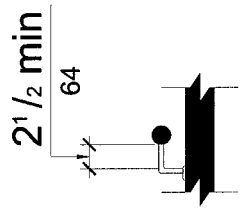
505.6 Gripping Surface. Gripping surfaces shall be continuous, without interruption by newel posts, other construction *elements*, or obstructions.

EXCEPTION: Handrail brackets or balusters attached to the bottom surface of the handrail shall not be considered obstructions provided they comply with the following:

a. not more than 20 percent of the handrail length is obstructed;

b. horizontal projections beyond the sides of the handrail occur 2-1/2 inches (64 mm) minimum below the bottom of the handrail; and

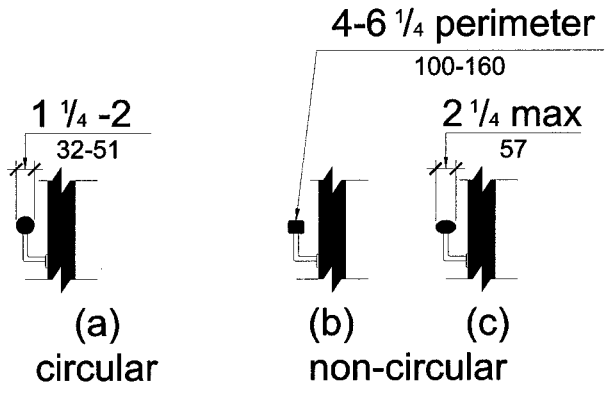
Figure 505.6 Exception



c. edges have a 1/8 inch (3.2 mm) minimum radius.

505.7 Cross Section. Handrails shall have a circular cross section with an outside diameter of 1-1/4 inches (32 mm) minimum and 2 inches (51 mm) maximum, or shall provide equivalent graspability in accordance with 505.7.1.

Figure 505.7



505.7.1 Non-Circular Cross Sections. Non-circular cross sections shall have a perimeter dimension of 4 inches (100 mm) minimum and 6-1/4 inches (160 mm) maximum, and a cross-section dimension of 2-1/4 inches (57 mm) maximum.

505.8 Surfaces. Handrails and any wall or other surfaces adjacent to them shall be free of any sharp or abrasive *elements*. Edges shall have a 1/8 inch (3.2 mm) minimum radius.

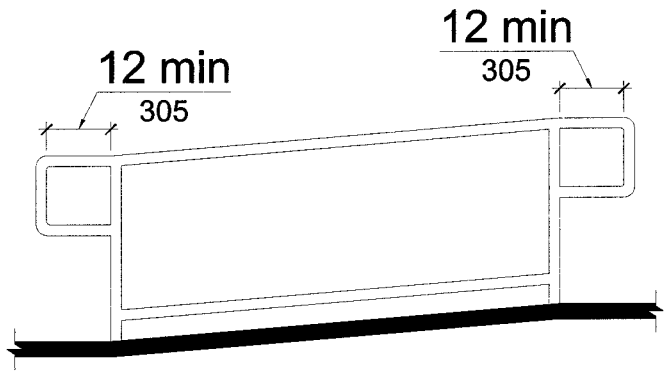
505.9 Fittings. Handrails shall not rotate within their fittings.

505.10 Handrail Extensions. Handrails shall extend beyond stair runs and *ramp* runs in accordance with 505.10.

EXCEPTIONS: 1. Extensions are not required for continuous handrails at the inside turn of switchback or dogleg stairs and *ramps*.
2. Extensions are not required for handrails in aisles serving seating where the handrails are necessarily discontinuous to provide access to seating and to permit crossovers within the aisle.
3. In *alterations*, full extensions of handrails shall not be required where such extensions would be hazardous or impossible due to plan configuration.

505.10.1 Top and Bottom Extension at Ramps. *Ramp* handrails shall extend horizontally above the landing for 12 inches (305 mm) minimum beyond the top and bottom of *ramp* runs. Such extension shall return to a wall, guard, or the walking surface, or shall be continuous to the handrail of an adjacent *ramp* run.

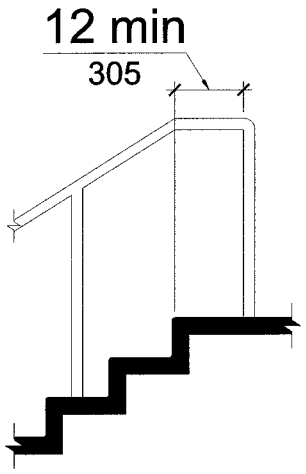
Figure 505.10.1



505.10.2 Top Extension at Stairs. At the top of a stair flight, handrails shall extend horizontally above the landing for 12 inches (305 mm) minimum beginning directly above the first riser nosing.

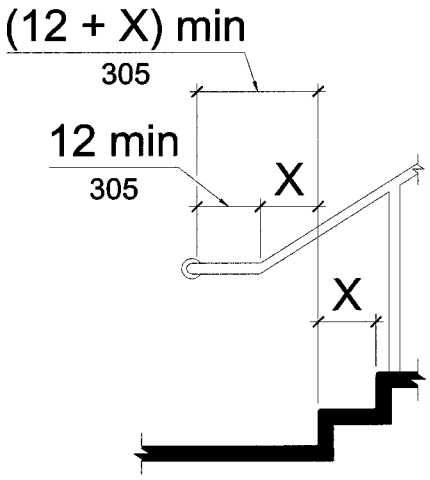
Such extension shall return to a wall, guard, or the walking surface, or shall be continuous to the handrail of an adjacent stair flight.

Figure 505.10.2



505.10.3 Bottom Extension at Stairs. At the bottom of a stair flight, handrails shall extend at the slope of the stair flight for a horizontal distance equal to one tread depth beyond the last riser nosing and an additional 12 inches (305 mm) minimum horizontally at a height equal to that of the sloping portion of the handrail as measured above the stair nosings. Such extension shall return to a wall, guard, or the walking surface, or shall be continuous to the handrail of an adjacent stair flight.

Figure 505.10.3



CHAPTER 6: PLUMBING ELEMENTS AND FACILITIES

601 General

601.1 Scope. Plumbing *elements* and *facilities* required to be *accessible* by Chapter 2 shall comply with the applicable provisions of this chapter.

602 Drinking Fountains and Water Coolers

602.1 General. Drinking fountains and water coolers required to be *accessible* shall comply with 307 and 602.

602.2 Clear Floor Space. Units shall have a clear floor or ground *space* complying with 305. A forward approach complying with 602.2.1 shall be provided at wall and post-mounted cantilevered units.

Advisory 602.2
A drinking fountain that provides a parallel approach, although considered *accessible*, requires a person to twist in the *wheelchair* to use the fountain. A drinking fountain that has knee clearance for a forward approach provides greater accessibility.

EXCEPTION: A parallel approach complying with 602.2.2 shall be permitted at wall and post-mounted cantilevered units for *children's use* where the spout is 30 inches (760 mm) maximum above the floor or ground.

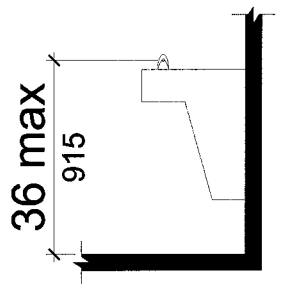
602.2.1 Forward Approach. Where a forward approach is provided, the clear floor *space* shall be centered on the unit and shall include knee and toe clearance complying with 306.

602.2.2 Parallel Approach. Where a parallel approach is provided, the clear floor *space* shall be centered on the unit.

602.3 Operable Parts. *Operable parts* shall comply with 309.

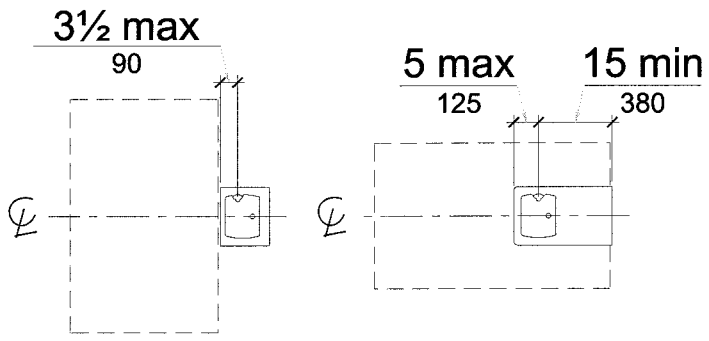
602.4 Spout Height. Spout outlets shall be 36 inches (915 mm) maximum above the floor or ground.

Figure 602.4



602.5 Spout Location. Units with a parallel approach shall have the spout located 3-1/2 inches (90 mm) maximum from the front edge of the unit, including bumpers. Units with a forward approach shall have the spout located 15 inches (380 mm) minimum from the vertical support and 5 inches (125 mm) maximum from the front edge of the unit, including bumpers.

Figure 602.5



602.6 Water Flow. The spout shall provide a flow of water 4 inches (100 mm) high minimum so as to allow the insertion of a cup or glass under the flow of water. Measured horizontally relative to the front face of the unit, the angle of the water stream from spouts located within 3 inches (75 mm) of the front of the unit shall be 30 degrees maximum and from spouts located between 3 inches (75 mm) and 5 inches (125 mm) from the front shall be 15 degrees maximum.

602.7 Drinking Fountains for Standing Persons. Spout outlets shall be 39 inches (990 mm) minimum and 43 inches (1090 mm) maximum above the floor or ground.

603 Toilet and Bathing Rooms

603.1 General. Toilet and bathing rooms required to be *accessible* shall comply with 603.

603.2 Clear Floor Space.

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

Advisory 603.2.1
Wheelchair turning *space* should be in a location that provides the greatest access. A room should be designed so as to minimize the amount of backing up a person with a disability must do when *accessible elements*, such as toilet stalls, are located along narrow corridors.

603.2.2 Overlap. Required clear floor *spaces*, clearance around water closets, and *wheelchair* turning *space* shall be permitted to overlap.

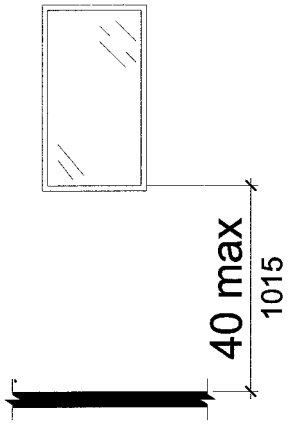
603.2.3 Doors. Doors shall not swing into the clear floor *space* or clearance required for any fixture.

Advisory 603.2.3
While toilet and bathing room doors cannot swing into clearances for fixtures, they may swing into the *wheelchair* turning *space* as permitted by 304.4.

EXCEPTIONS: 1. Doors to a toilet and 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* provided the swing of the door can be reversed to meet 603.2.3.
2. This requirement shall not apply where the toilet and 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.

603.3 Mirrors. Mirrors shall be installed with the bottom edge of the reflecting surface 40 inches (1015 mm) maximum above the finish floor.

Figure 603.3



Advisory 603.3

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

603.4 Coat Hooks and Shelves. *Accessible* coat hooks provided within toilet rooms shall be located within one of the reach ranges specified in 308. Where provided, a fold-down shelf shall be located 40 inches (1015 mm) minimum and 48 inches (1220 mm) maximum above the floor.

604 Water Closets and Toilet Compartments

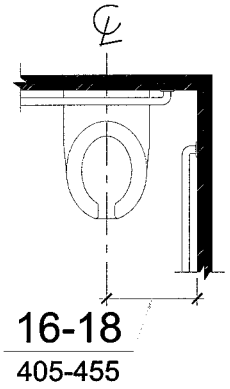
604.1 General. Water closets and toilet compartments required to be *accessible* shall comply with 604.2 through 604.8.

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 located 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 centered in the non-*wheelchair accessible* toilet compartment specified in 604.8.2.

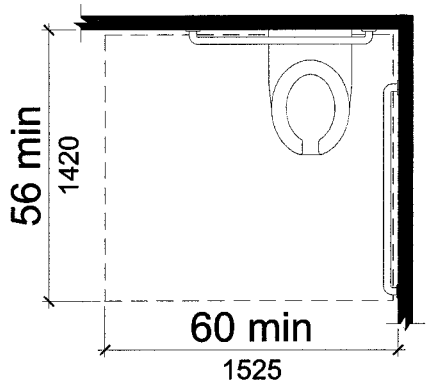
Figure 604.2



604.3 Clear Floor Space.

604.3.1 Clearance. 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. No other fixtures or obstructions shall be located within the required water closet clearance.

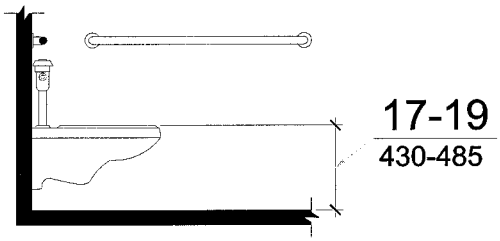
Figure 604.3.1



604.3.2 Overlap. The required clearance around the water closet shall be permitted to overlap the fixture, associated grab bars, tissue dispensers, *accessible routes*, clear floor *space* required at other fixtures and the *wheelchair* turning *space*.

604.4 Height. The height of water closets shall be 17 inches (430 mm) minimum to 19 inches (485 mm) maximum measured to the top of the toilet seat. Seats shall not be sprung to return to a lifted position.

Figure 604.4



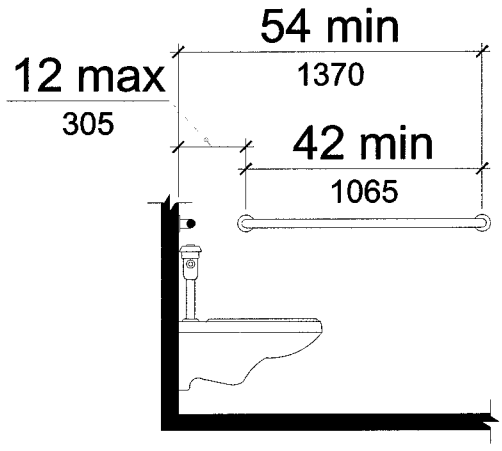
EXCEPTION: This requirement shall not apply to a water closet in a toilet room for a single occupant, accessed only through a private office and not for *common use* or *public use*.

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

EXCEPTION: Grab bars are not 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 such grab bars.

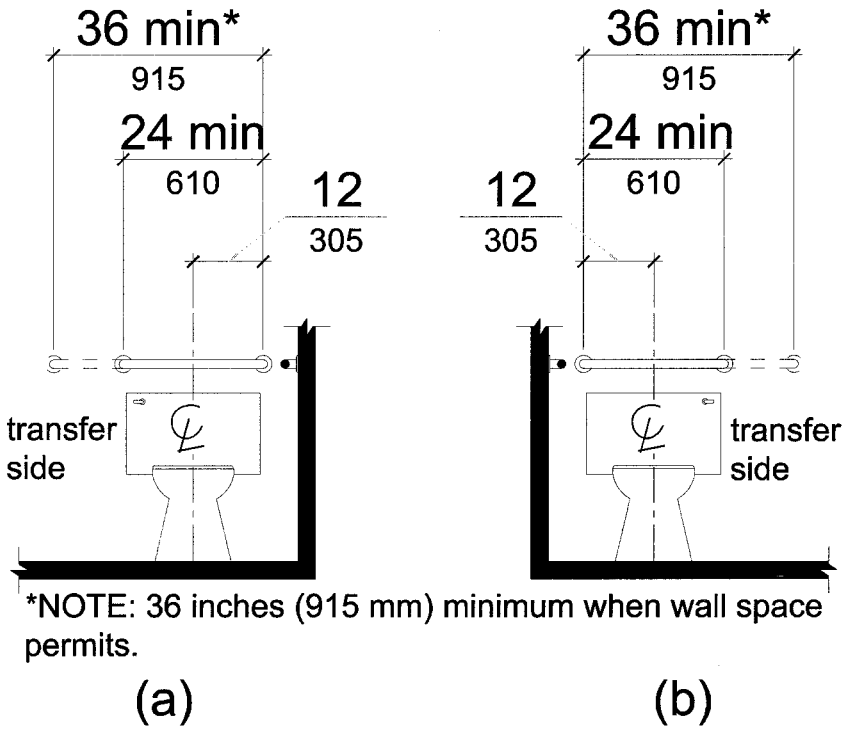
604.5.1 Side Wall. Side wall grab bar shall be 42 inches (1065 mm) long minimum, located 12 inches (305 mm) maximum from the rear wall and extending 54 inches (1370 mm) minimum from the rear wall.

Figure 604.5.1



604.5.2 Rear Wall. The rear wall grab bar shall be 24 inches (610 mm) long minimum, centered on the water closet. Where wall *space* permits, the bar shall be 36 inches (915 mm) long minimum with the additional length provided on the transfer side of the water closet.

Figure 604.5.2



EXCEPTION: If *administrative authorities* require flush controls for flush valves to be located in a position that conflicts with the location of the rear grab bar, then that grab bar may be split or shifted to the open side of the toilet area.

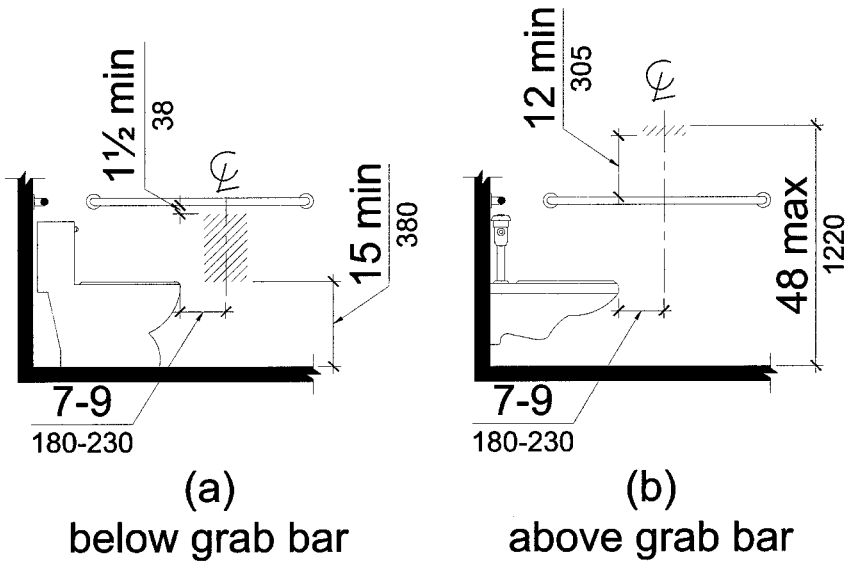
604.6 Flush Controls. Flush controls shall be hand operated or automatic. Hand operated flush controls shall comply with 309.

Advisory 604.6
Flush valves and related plumbing can cause injury or imbalance when a person leans back against them. To prevent this, the plumbing can be located behind walls or to the side of the toilet, or a toilet seat lid can be provided if plumbing valves are directly behind the toilet seat.

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 floor. There shall be a clearance of 1 1/2 inches (38 mm) minimum below and 12 inches (305 mm) minimum above the grab bar. Dispensers shall not be of a type that control delivery or that do not allow continuous paper flow.

Figure 604.7



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. Non-*wheelchair accessible* compartments shall comply with 604.8.2 and 604.8.3.

604.8.1 Wheelchair Accessible Compartments.

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