Methodology for Barrier Removal

This appendix outlines the methods to be used for barrier removal in the City of El Paso's Facilities. The barrier removal and renovation methods are based on the Texas Accessibility Standards and the Americans with Disabilities Act Accessibility Guidelines. All methods of removal of barriers and renovation of facilities will follow accepted engineering practices and construction methods.

E4.3. Accessible Routes.

Non Existent Routes – for non existing accessible routes, forms will be erected using appropriate running (5% max.) and cross slopes (2% max.). The material used to make the accessible route will be firm, stable, and slip resistant. Concrete and asphalt are two examples of materials that can be used.

Existing Non Compliant Accessible Routes - For routes that are not compliant with size, slope, or surface texture, the route will be removed, new forms will be erected using appropriate size, slope and a firm, stable, slip resistant material will be placed providing an appropriate surface texture.

For routes that have non compliant changes in levels, the non compliant portion of the route will be removed and replaced in a compliant manner.

E 4.3.11. Areas of Rescue assistance.

Where areas of rescue assistance are required, areas will be constructed to meet the TAS 4.3.11 and the local Fire Code. For areas that need to be altered to be in compliance, the area will be modified to comply with TAS 4.3.11and the local Fire Code.

E4.4. Protruding Objects.

Where it is found that objects are protruding over four inches above 27 inches and below 80 inches, the object will be removed from the wall, a barrier will be constructed below the object, or the object will be relocated so that the leading edge is below 27 inches or above 80 inches. Objects that do not have a clear 80 inches of headroom will be raised so as to provide 80 inches clear headroom, removed, or a barrier will be constructed that will allow a cane to detect the object before there is head contact.

E 4.5 Ground and Floor Surfaces.

For ground and floor surfaces on accessible routes that are not stable, firm, and slip resistant will be removed and replaced, resurfaced if compliant for slopes, or made acceptable with proper construction techniques. Changes in level between ¼ and ½ inch will be beveled by grinding or using appropriate transition methods. For changes in level greater than ½ inch, a ramp will be constructed. Carpeting with nap exceeding ½ inch will be removed and edges of carpeting will be securely fastened to the floor. Gratings in walking surfaces or along accessible routes with openings greater than ½ inch wide will be removed and or

replaced with grates that the openings are not greater than ½ inch and the long dimension of the opening will be perpendicular to the direction of travel.

E 4.6 Parking and Passenger Loading Zones

For parking lots that do not have accessible spaces, lines will be painted and signs installed to provide a van accessible space and the appropriate number of accessible spaces for the number of parking spaces provided in the lot. For parking lots that have accessible spaces, but are not compliant with the accessibility guidelines, the spaces will be restriped to provide the appropriate size and number. For spaces that do not meet the appropriate slopes (no greater than 2% in any direction) the space will be leveled and restriped to meet the guidelines. For passenger loading zones that are not compliant, modification to the space will be made to be in compliance with the standards.

E 4.7 Curb Ramps

For corners that do not have curb ramps, the curb will be removed, the area will be graded, forms will be placed to proper grades and slopes, concrete will be placed and finished, and a contrasting color truncated dome tile two feet deep by the width of the ramp will be inserted before entering the hazardous area. For corners with non compliant ramp, the ramp will be removed and replaced following the methods previously stated. For ramps that are compliant with slopes, detectable warning tiles will be added to the ramp. For ramps that are not entirely located within the marked crossings, the ramp will be replaced so that it is located within the markings or the markings will be moved so that the ramp will be in the markings. For diagonal curb ramps that are not properly installed, they will be removed and installed in the appropriate manner. Medians and Island cuts will be cut and installed in line with cross walk markings with a level area at least 48 inches long and have detectable warnings with contrasting color a minimum of two feet by the width of the cut. Existing median and island cuts that are not compliant will be reconstructed to meet the standards.

E 4.8 Ramps

For existing ramps that are not installed in compliance with the standards and for newly constructed ramps, the ramp will be removed and constructed with running slopes not to exceed 8.33% and cross slopes not to exceed 2% and a clear with of at least 36 inches for ramps less than 30 feet in length. Ramps that are more than 30 feet in length will be constructed with a clear width of at least 44 inches. Landings at the top and bottom of each ramp will be constructed to have a width at least as wide as the ramp and a length of at least 60 inches and if the ramp changes directions the size of the landing will be 60 inches by 60 inches minimum. If a doorway is located at a landing, the area in front of the door appropriate maneuvering clearances at doors will be provided as per TAS 4.13.6. For ramps that have rises greater than six inches or horizontal projections greater than 72 inches (six feet), handrails will be

installed on both sides. Handrails will comply with TAS 4.26 and will be provided along both sides of ramp segments and the inside handrail on switchback or dogleg ramps will be continuous. If ramps exceed 176 inches in width intermediate handrails will be installed at distances not to exceed 176 inches. Hand rails will be installed so that if they are not continuous, they will extend at least 12 inches beyond the top and bottom of the ramp segment and will be parallel with the floor or ground surface. Handrails will be installed with a clear space between the wall and the handrail of 1-1/2 inches. The gripping surfaces of handrails will be continuous. The top of the handrail gripping surface will be installed between 34 inches and 36 inches above the ramp surface. The ends of handrails will either be rounded or return smoothly to floor, wall, or post. Handrails will be installed so that they do not rotate within their fittings. The cross slope on ramp surfaces will not exceed 1:50 or two percent. Surfaces of ramps will comply with TAS 4.5 - Ground and Floor Surfaces. Ramps and landings that have drop-offs will have curbs, walls, railings, or projecting surfaces constructed that prevent people from slipping off the edge of the ramp. Curbs will be a minimum of two inches high. Outdoor ramps and their approaches will be designed so that water will not accumulate on the walking surfaces.

E 4.9 Stairs

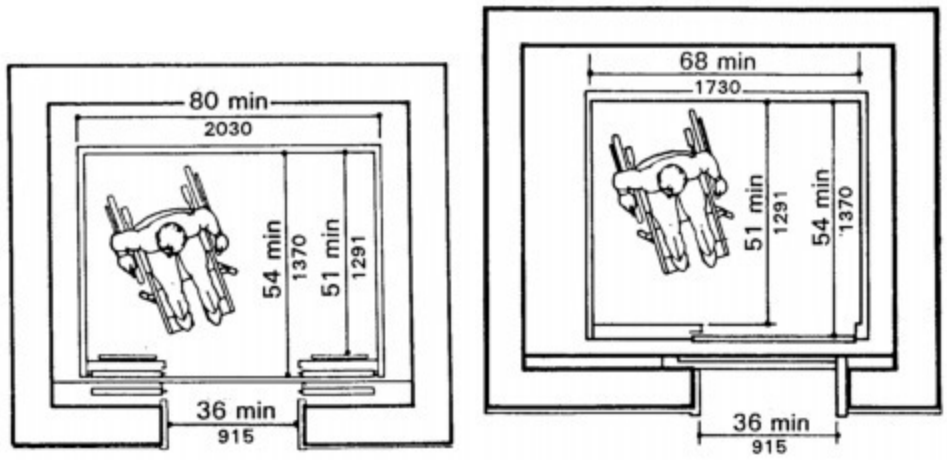
For existing stairs that are not in compliance with the standards and newly constructed stairs, the stair will removed and constructed so that all steps will have uniform riser heights and uniform tread widths. Stair treads will be no less than 11 inches wide measured from riser to riser. Open risers will not be permitted. The under side on a stair nosing will not be abrupt. The radius of the curvature at the leading edge of the tread will be not greater than ½ inch. Risers will be sloped or the underside of the nosing will have an angle not less than 60 degrees from the horizontal. A nosing will not project over 1-1/2 inches. Handrails will be installed on both sides of stairs. Handrails will comply with TAS 4.26 and will be continuous on both sides of stairs, with the inside handrail on switchback or dogleg stairs being continuous. Stairs that are wider than 88 inches will have intermediate handrails spaced at 88 inches on center maximum. For handrails that are not continuous, they will extend a minimum of 12 inches beyond the top riser and a minimum of 12 inches plus the width of one tread beyond the bottom riser. The extension at the top of the stairs will be parallel with the floor or ground surface. The handrail extension at the bottom of the stairs will continue to slope for a distance of the width of one tread from the bottom riser with the remainder of the extension being installed horizontal. Hand rail extensions will comply with TAS 4.4. The clear space between handrails and wall will be 1-1/2 inch. Gripping surfaces will be uninterrupted by newel posts or other construction elements or obstructions. The top of the handrail gripping surface will be installed between 34 inches and 38 inches above the stair nosing. The ends of the handrail will either be rounded or returned smoothly to the

floor, wall, or post. Handrails will be installed so as not to rotate in their fittings. Stairs located in the outdoors will be designed so that water will not accumulate on the walking surfaces.

E 4.10 Elevators

For existing elevators that do not meet the standards and newly constructed elevators, will be constructed and installed so that they are located on an accessible route and will comply with TAS 4.10 and ASME A17.1-1990, Safety Code for Elevators and Escalators. Freight elevators are not considered to meet the requirements for passenger elevators unless the only elevator provided is for both passengers and freight for the public and employees. The elevator operation will be automatic. The elevator cars will be equipped with a self leveling feature that will bring the car to floor landings within a ½ inch tolerance under rated loading to zero loading conditions. The self-leveling feature will be automatic and independent of the operating device and shall correct the over-travel or under-travel. Call buttons in elevator lobbies and halls will be centered at 42 inches above the floor. The buttons will have visual signals to indicate when each call is registered and when each call is answered. The call buttons will be a minimum of ¾ of and inch in the smallest dimension. The button designating up will be located on top. Buttons will be raised or flush on the wall. Objects that are mounted below the call buttons will not project into the elevator lobby more than four inches. Visible and audible signal hall lanterns will be provided at each hoist way entrance to indicate which car is answering the call. Audible signals will sound once for the up direction and twice for the down direction. Visible signals will have hall lantern fixtures mounted so that the centerline is a minimum of 72 inches above the lobby floor, visual elements will be a minimum of 2-1/2 inches in the smallest direction, and the signals will be visible from the vicinity of the hall call button. All elevator hoist way entrances will have raised and Braille floor designations provided on both jambs with the centerline of the characters located 60 inches above the finish floor and the characters will be 2 inches high and comply with TAS 4.30.4. The elevator doors will open and close automatically and be provided with a reopening device that will stop and reopen a car door and hoist way door automatically if the door becomes obstructed by an object or person. The device will be capable of completing the operations without requiring contact for an obstruction passing through the opening at heights of five inches and 29 inches above finish floor. The door reopening devices will remain effective for a minimum of 20 seconds. The minimum acceptable time from notification that a car is answering a call until the doors of that car start to close will be calculated using the equation $T = D/(1.5ft/s)$ where T = total time in seconds and D = distance from a point in the lobby or corridor 60 inches directly in front of the farthest call button controlling that car to the centerline of its hoist way door. For cars with in call lanterns, T begins when the lantern is visible from the vicinity of hall call buttons and an audible signal is sounded. The minimum notification time will be 5

seconds. The minimum time for elevator doors to remain fully open in response to a car call will be three seconds. The floor area of elevator cars will provide space for wheelchair users, to enter the car, maneuver within the reach controls, and exit from the car. The door opening and inside dimensions will be as show in the figure below. The clearance between the car platform and the edge of any hoist way landing will not be greater than 1-1/4 inches. The floor surfaces will comply with TAS 4.5.



The level of illumination at the car controls, platforms, and car threshold and landing sill will be at least five foot-candles. Elevator control panels will have control buttons that are a minimum of ¾ inch in their smallest dimension and they shall be raised or flush. The control buttons will be designated by Braille and by raised standard alphabet characters for letters, Arabic characters for numerals or standard symbols as required in ASME A17.1-1990. Raised and Braille characters and symbols will comply with TAS 4.30. The call button for the main entry floor will be designated by a raised star at the left of the floor designation. All raised designations for control buttons will be placed immediately to the left of the button to which they apply. Floor buttons will be provided with visual indicators to show when each call is registered. The visual indicators will be extinguished when each call is answered. All floor buttons will be no higher than 48 inches above the finish floor for frontal approach and 54 inches above the finish floor for side approach. Emergency controls, including the emergency alarm and emergency stop, will be grouped at the bottom of the panel and will have their centerlines no less than 35 inches above the finish floor. Controls will be located on the front wall if cars have center opening doors, and at the side wall or at the front wall next to the door if chars have side opening doors. In elevator cars, a visual car position indicator will be provided above the car control panel or over the door to show the position of the elevator in the hoist way. As the car passes or stops at a floor served by the elevator, the corresponding numerals will illuminate, and an audible signal will sound. Numerals will be a minimum of ½ inch high. The audible signal will be no less than 20

decibels with a frequency no higher than 1500 Hz. An automatic verbal announcement of the floor number at which a car stops or which a car passes may be substituted for the audible signal. If and when provided, emergency two-way communication systems between the elevator and a point outside the hoist way will comply with ASME A17.1-1990. The highest operable part of the two-way communication system will be a maximum of 48 inches from the floor of the car. It will be identified by a raised symbol and lettering complying with 4.30 and located adjacent to the device. If the system uses a handset then the length of the cord from the panel to the handset will be a minimum of 29 inches. If the system is located in a closed compartment, the compartment door hardware will conform to TAS 4.27. The emergency intercommunication system will not require voice communication.

E 4.11 Platform Lifts

When platform lifts are used, they will comply with this section and will comply with TAS 4.2.4, 4.5, 4.27, ASME A17.1 Safety Code for Elevators and Escalators, Section XX, 1990, and will have the controls and operating mechanisms located so that either a forward or side approach reach is possible from any direction of travel and will be mounted between 28 and 48 inches above the platform floor. All control devices will be operable with one hand. There will be at least one handrail or other gripping surface that complies with TAS 4.26. Wheel stops and guardrails will be provided wherever necessary to prevent wheelchairs from rolling or slipping off the platform edge. When platform lifts are used they will facilitate unassisted entry, operation, and exit from the lift.

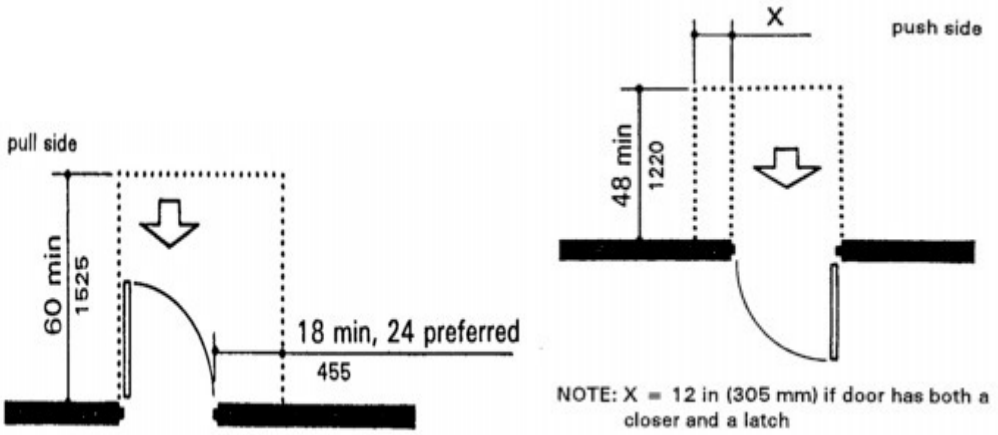
E 4.12 Windows

Reserved.

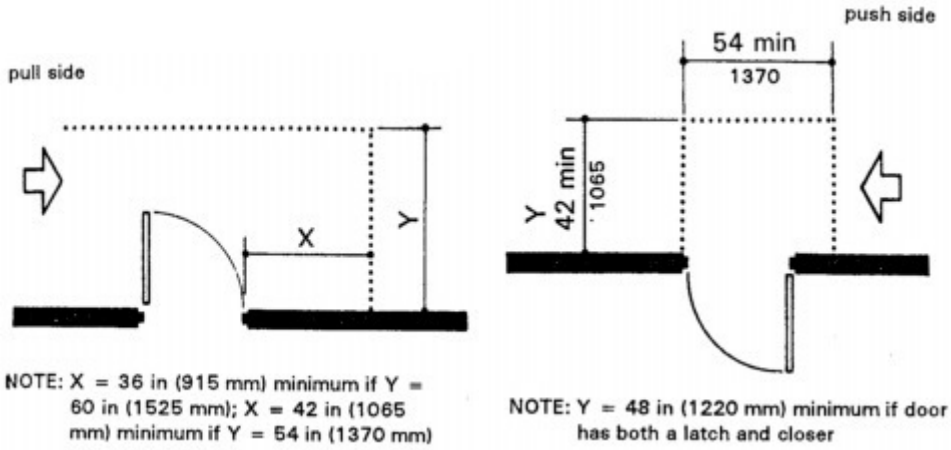
E 4.13 Doors

When accessible doors are replaced or installed they will comply with this section. Revolving doors or turnstiles will not be the only means of passage at an accessible entrance or along an accessible route. An accessible gate or door will be provided adjacent to the turnstile or revolving door and will be designed so as to facilitate the same use pattern. Gates, including ticket gates will meet the requirements of this section. When doorways have two independently operated door leaves, than at least one leaf will meet the specifications in TAS 4.13.5 and 4.13.16. Doorways will have a minimum clear opening of 32 inches with the door open at 90 degrees, measured between the face of the door and the opposite stop. Openings more than 24 inches in depth will comply with TAS 4.2.1 and 4.3.3. Minimum maneuvering clearances at doors that are not automatic or power assisted will be as shown on the next page. The floor or ground area within the required clearances will be level and clear. The minimum space between two hinged doors in series will be 48 inches plus the width of any door swinging into the space. Doors in series will swing either in the same direction or away from the space between the doors. Thresholds at doorways will not exceed ¾ inch in height for

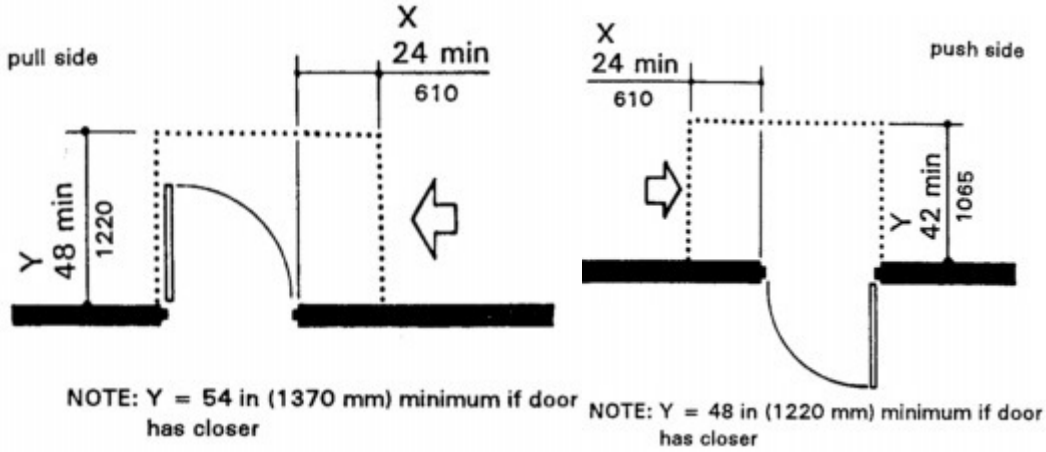
exterior sliding doors or ½ inch for other types of doors. Raised thresholds and floor level changes at accessible doorways



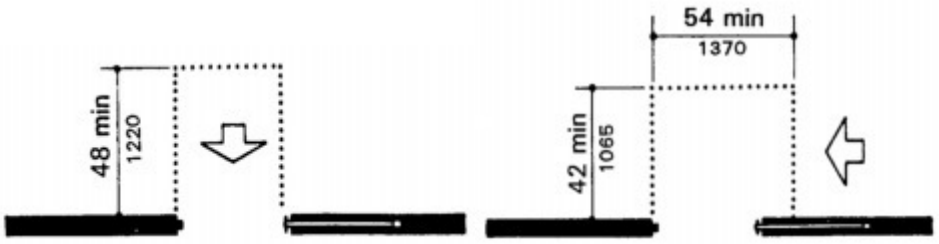
(a)
Front Approaches Swinging Doors



(b)
Hinge Side Approaches Swinging Doors

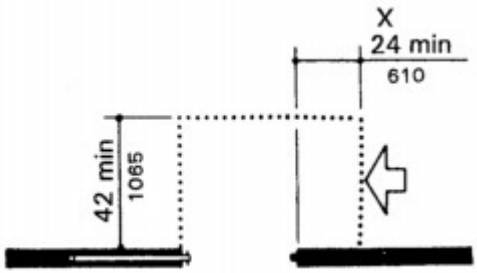


(c)
Latch Side Approaches - Swinging Doors



(d)
Front Approach
Sliding Doors and Folding Doors

(e)
Slide Side Approach
Sliding Doors and Folding Doors



(f)
Latch Side Approach - Sliding Doors and Folding Doors
NOTE: All doors in alcoves shall comply with the clearances for front approaches

will be beveled with a slope no greater than 1:2. Handles, pulls, latches, locks, and other operating devices on accessible doors will have a shape that is easy to grasp with one hand and will not require tight grasping, tight pinching, or twisting of the wrist to operate. Lever operated mechanisms, push type mechanisms, and U-shaped handles are acceptable designs. When sliding doors are fully open, operating hardware will be exposed and usable from both sides. Hardware required for accessible door passage will be mounted no higher than 48 inches. If a door has a closer, then the sweep period of the closer will be adjusted so that from an open position of 70 degrees, the door will take at least 3 seconds to move to a point three inches from the latch, measured to the leading edge of the door. The maximum opening force for interior hinged doors and sliding or folding doors will be five lbf. Fire doors will have the minimum opening force allowable by the appropriate administrative authority. Exterior hinged doors will not have a maximum force to open the door, but will be installed so that the force to open the door will be manageable. When an automatic door is used, it will comply with ANSI/BHMA A156.10-1985. Slowly opening, low powered, automatic doors will comply with ANSI A156.19-1984. These doors will not open to back check faster than 3 seconds and will require no more that 15 lbf to stop door movement. When a power assisted door is used, its door opening force will not exceed 5lbf (not fire or exterior doors) and its closing will conform to the requirements of ANSI A156.19-1984. When user operated controls are provided they will comply with TAS 4.27.

E 4.14 Entrances

For existing entrances and newly constructed entrances will be part of an accessible route and will be connected by an accessible route to public transportation stops, to accessible parking and passenger loading zones, and to public streets or sidewalks if available. They will also be connected by all accessible spaces or elements within the building. A service entrance will not be the only accessible entrance to a building or facility and an accessible entrance will be added if the service entrance is the only entrance to the facility.

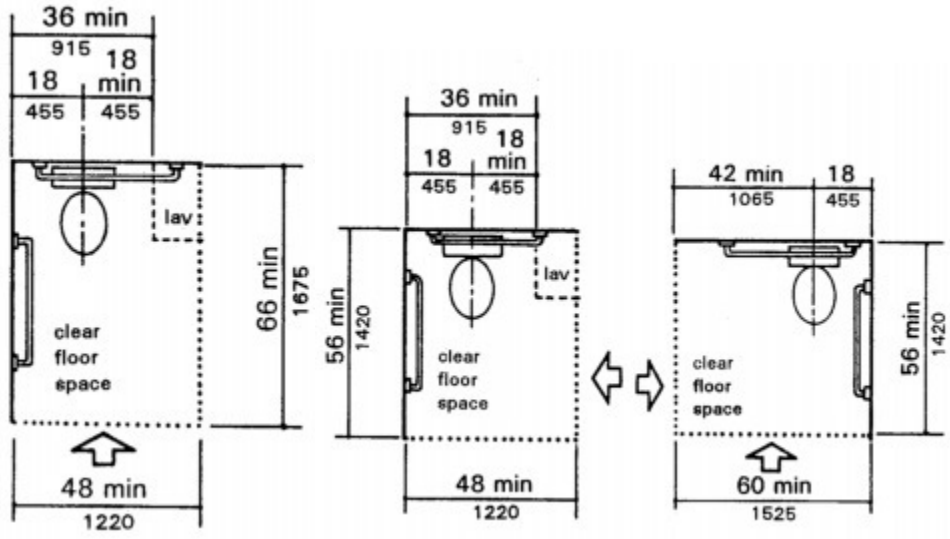
E 4.15 Drinking fountains and Water Coolers

For facilities that have drinking fountains that do not comply with the standards and newly installed drinking fountains, the minimum number that are required to be accessible will be installed as per TAS 4.1. The spout height for the accessible fountain or cooler will be no higher than 36 inches, measured from the floor or ground surface to the spout outlet. There will be another drinking fountain installed, serving the same area as the accessible fountain, with a spout height of 42 inches from the ground or floor surface to the spout outlet. The spouts of drinking fountains or water coolers will be located at the front of the unit and will direct water flow in a trajectory that is parallel or nearly parallel to the front of the unit. The spout will provide a flow of water at least four inches high so as to allow the insertion of a cup or glass under the flow of water. On accessible drinking fountains with a round or oval bowl, and drinking fountains providing a parallel approach, the spout will be positioned so the flow of water is within three inches of the front edge of the fountain. Controls will comply with TAS 4.27.4 and will be mounted on the front or side mounted near the front edge. Wall and post mounted cantilevered units will have a clear knee space between the bottom of the apron and the floor or ground at least 27 inches high, 30 inches wide, and 17 to 19 inches deep. These units will also have a minimum clear floor space 30 inches by 48 inches to allow a person in a wheelchair to approach the unit facing forward. Free standing or built in units not have a clear space under them will have a clear floor space at least 30 inches by 48 inches that allows a person in a wheel chair to make a parallel approach to the unit.

E 4.16 Water closets

Existing water closets that are required to be accessible and newly installed water closets that are required to be accessible, will be installed in the appropriate number as required by TAS 4.1.2 and TAS 4.1.3 and will have a clear floor space for water closets not installed in stalls as shown in the following diagrams. Clear floor space will be arranged to allow either a left handed or right handed approach. The height of the accessible water closet will be 17 inches to 19 inches, measured to the top of the toilet seat. Seats on accessible water closets will not be sprung to return to a lifted position. Grab bars for accessible water closets will

comply with TAS 4.26 and will be a minimum of 36 inches in length for the grab bar at the back of the water closet and a minimum of 42 inches in

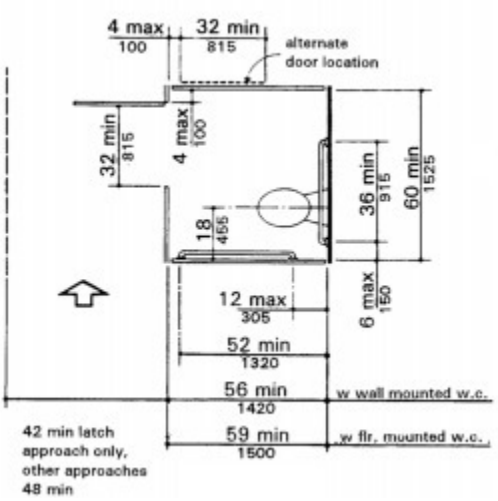


Clear Floor Space at Water Closets

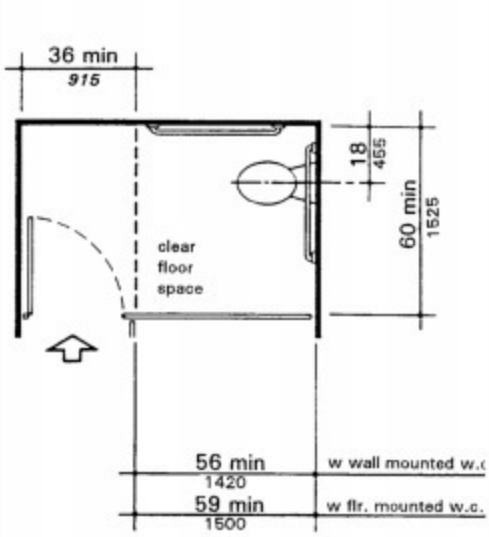
or the side grab bar. Flush controls will be hand operated or automatic and will comply with TAS 4.27.4 and the controls for flush valves will be mounted on the wide side of toilet areas no more than 44 inches above the floor. Toilet paper dispensers will be installed within reach with the front edge of the paper dispenser being located a maximum of 36 inches from the rear wall. Dispensers that control delivery or that do not permit continuous flow of paper, will not be used and will be removed if previously used.

E 4.17 Toilet Stalls

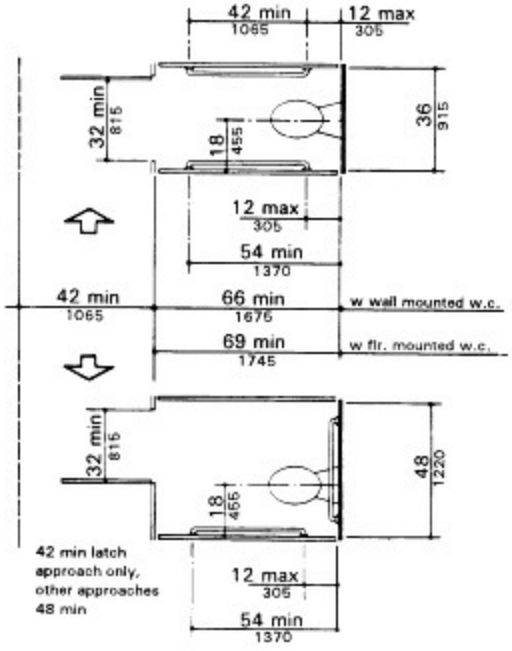
Non accessible toilet stalls, required to be accessible, and newly constructed toilet stalls will renovated and constructed on an accessible route and will meet the requirements of this section. The size and arrangement of the standard stall will be as shown in the diagrams on the next page. Standard stalls will have a minimum depth of 56 inches and will have wall mounted water closets. When the standard stall has a minimum depth of 59 inches a floor mounted water closet can be used. In standard stalls, the front partition and at least one side partition will provide a toe clearance of at least nine inches above the floor. Where the depth of the stall is greater than 60 inches to clearance is not required. Toilet stall doors, including hardware, will comply with TAS 4.13. If toilet stall approach is from the latch side of the stall door, clearance between the door side of the stall and any obstruction may be reduced to a minimum of 42 inches. Grab bars complying with the length and positioning shown in the following figures will be provided. Grab bars will be mounted in an appropriate manner and will not obstruct the clear floor area. Grab bars will comply with TAS 4.26.



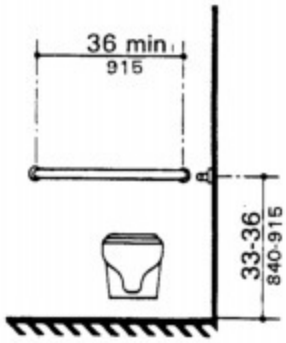
Standard Stall



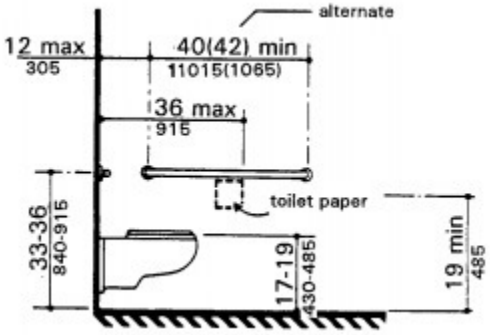
Standard Stall (end of row)



Alternate Stall



Rear Wall of Standard Stall



Side Walls

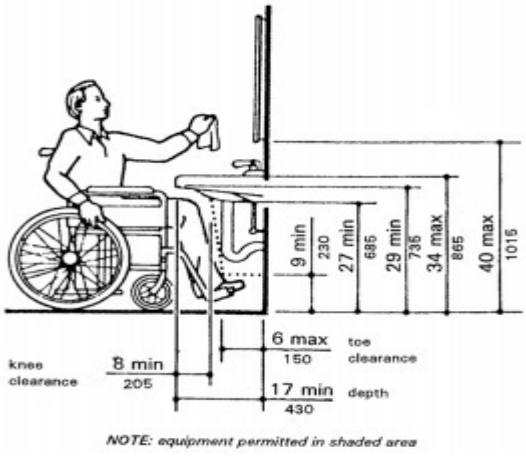
E 4.18 Urinals

Existing urinals and newly installed that are required to be accessible will comply with this section. Urinals will be stall type or wall hung with a tapered elongated rim mounted at a maximum height of 17 inches above the finish floor. A tapered elongated rim is one that narrows toward the front to allow a wheelchair user to straddle the basin and which extends at least 14 inches from the vertical surface on which the fixture is mounted.

A clear floor space of 30 inches by 48 inches will be provided in front of urinals to allow for a forward approach. The clear space will adjoin or overlap an accessible route and will comply with TAS 4.2.4. Urinals installed in alcoves deeper than 24 inches will be provided with additional maneuvering area. Urinal shields that do not extend beyond the front edge of the urinal can be provided with 29 inch clearance between them. Flush controls will be hand operated or automatic and will comply with TAS 4.27.4, and will be mounted a maximum of 44 inches above the finish floor.

E 4.19 Lavatories and Mirrors

Lavatory fixtures, vanities, built in lavatories, and mirrors that are required to be accessible will be installed or reinstalled to meet the requirements of this section. Lavatories will be mounted with the rim or counter surface no higher than 34 inches above the finish floor. A knee clearance of at least 29 inches above the finish floor to the bottom of the lavatory apron will be provided. Knee and toe clearance will be provided as shown in the figure below. A clear floor space of 30 inches by 48 inches will be provided in front of a lavatory to allow forward approach. Additional maneuvering area will be provided for lavatories and mirrors that are installed in alcoves. The clear floor space will adjoin or overlap an accessible route and will extend a maximum of 19 inches underneath the lavatory. Hot water pipes and drain pipes under lavatories will be insulated or otherwise configured to protect against contact. There will be no sharp or abrasive surfaces under lavatories. Faucets will comply with TAS 4.27.4. Lever operated, push type, and electronically controlled mechanisms are examples of acceptable designs. If self closing valves are used the faucet will remain open for a minimum of 10 seconds. Mirrors will be on accessible routes at locations consistent with that of other mirrors in the same room and will be mounted with the bottom edge of the reflective surface no higher than 40 inches above the finish floor. Mirrors that will be used by both ambulatory people and wheel chair users will be at least 74 inches high at the topmost edge.



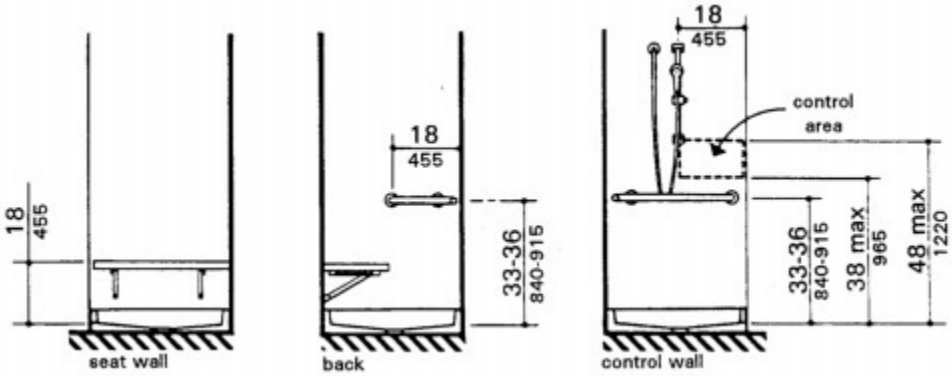
Lavatory Clearances

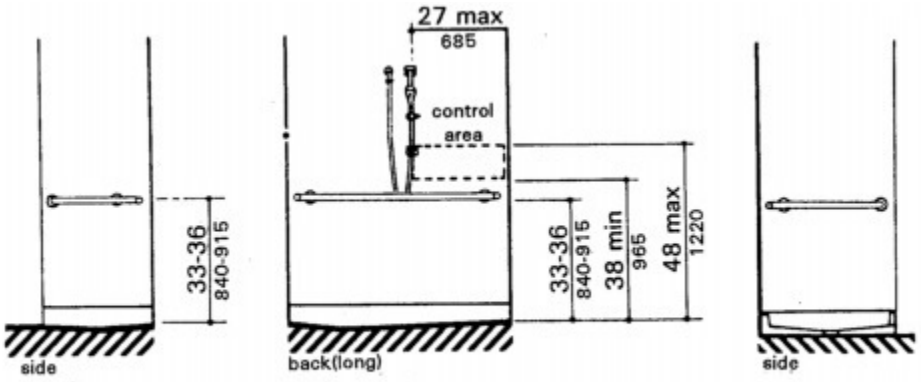
E 4.20 Bathtubs

Currently no Facilities have bathtubs. If accessible bathtubs are installed they will have the appropriate clear floor space, an in tub seat or a seat at the head end of the tub will be provided. The structural strength of seats and their attachments will comply with TAS 4.26.3. The seat will be securely mounted and will not slip during use. Grab bars that are installed will comply with TAS 4.26. Faucets and other controls will comply with TAS 4.27 and will be properly located. A shower spray unit with a hose a minimum of 60 inches long that can be used both as a fixed show head and as a hand held shower will be provided. The mounting device for the hand held shower will comply with forward reach requirements. If provided, bathtub enclosures will not obstruct controls or transfer from wheelchairs onto bathtub seats or into tubs. Enclosures on bathtubs will not have tracks mounted on their rims.

E 4.21 Shower Stalls

For existing shower stalls that are not installed in accordance with the standards and for newly installed shower stalls, reinstallation and installation will be done in accordance with this section. The size of a shower stall shall be a minimum of 36 inches by 36 inches for a regular shower stall and 30 inches by 60 inches for a roll-in shower stall. A seat will be provided in shower stalls that are 36 inches by 36 inches. The seat will be mounted 17 inches to 19 inches from the bathroom floor and will extend the full depth of the stall. In a 36 inch by 36 inch shower stall, the seat will be opposite the controls. Where a fixed seat is installed in a 30 inch by 60 inch shower stall, it will be a folding type and will be mounted on the wall adjacent to the controls. The structural strength of the seat will comply with TAS 4.26.3. Grab bars will be installed complying with TAS 4.26. Faucets and other controls will be located as shown below. In shower stalls 36 inches by 36 inches, all controls will be located on the side wall opposite the seat. A shower spray unit with a hose a minimum of 60 inches long that can be used both as a fixed shower head and as a hand held shower unit will be provided. In a 36 inch by 36 inch shower stall the mounting device for the hand held shower head will comply with forward reach requirements. In a 30 inch by 60 inch minimum shower stall the mounting device for the hand held shower head shall comply with either the forward reach or side reach requirements. If provided, curbs in





NOTE: Shower head and control area may be on back (long) wall (as shown) or on either side wall.

shower stalls 36 inches by 36 inches will not exceed ½ inch in height. Shower stalls that are 30 inches by 60 inches will not have curbs. If provided, enclosures for shower stalls will not obstruct controls or obstruct transfer from wheelchairs to shower seats.

E4.22 Toilet rooms

Existing toilet rooms and new toilet rooms that are required to be accessible will comply with this section. Accessible toilet rooms will be on an accessible route. All doors to accessible toilet rooms will comply with TAS 4.13. Doors will not swing into the clear floor space of any fixture. Accessible fixtures and controls will be on an accessible route. An unobstructed turning space will be provided within the accessible toilet room. The clear floor space at fixtures and controls, the accessible route, and the turning space may overlap, however, the only turning space provided will not be located within a stall. If toilet stalls are provided, at least one will be a standard toilet stall. If six or more stalls are provided, in addition to the standard stall, at least one stall 36 inches wide with an outward swinging, self closing door and parallel grab bars will be provided. Water closets in these stalls will comply with TAS 4.16. If water closets are not in stalls, at least one will comply with TAS 4.16. If urinals are provided, at least one will comply with TAS 4.18. If lavatories and mirrors are provided, at least one of each will comply with TAS 4.19. Accessible lavatories and mirrors will not be located within toilet stalls unless other accessible lavatories and mirrors are provided in the toilet room. If controls, dispensers, receptacles, or other equipment are provided, then at least one of each will be on an accessible route and will comply with TAS 4.27.

E 4.23 Bathrooms, Bathing Facilities, and Showers

Bathrooms, bathing facilities, and showers that are required to be accessible will comply with this section and will be located on an accessible route. Doors will comply with TAS 4.13 and will not swing into the floor space required for any fixture. The accessible fixtures and controls will be on an accessible route. An unobstructed turning space will be provided within an accessible bathroom, bathing facility, or shower

room. The clear spaces at fixtures and controls, the accessible route, and the turning space may overlap, however, in rooms and facilities with stalls, the floor area within stalls will not be used to satisfy the turning space requirement. If toilet stalls are provided, then a least one will be a standard stall. If six or more stalls are provided, in addition to the standard stall, at least one stall 36 inch wide with an outward swinging, self closing door and parallel grab bars will be provided. Water closets in these stalls will comply with TAS 4.16. If water closets are not in stalls, then at least one will comply with TAS 4.16. If urinals are provided, at least one will comply with TAS 4.8. If lavatories and mirrors are provided, at least one of each will comply with TAS 4.19. Accessible lavatories and mirrors will not be located in toilet stalls unless other accessible lavatories and mirrors are provided in the bathroom, bathing facility, or shower room. If controls and dispensers, receptacles or other equipment are provided, at least one of each will be on an accessible route and will comply with TAS 4.27. If tubs or showers are provided, then at least one accessible tub that complies with TAS 4.20 or at least one accessible shower that complies with TAS 4.21 will be provided. If medicine cabinets are provided, at least one will be located with a usable shelf no higher than 44 inches above the finish floor.

E 4.24 Sinks

For existing sinks that are not installed in accordance with the standards and for newly installed sinks, reinstallation and installation will be done in accordance with this section. Sinks will be mounted with the counter or rim height no higher than 34 inches above finish floor. Knee clearance that is a minimum of 27 inches high, 30 inches wide, and 19 inches deep will be provided underneath sinks. Each sink will be a maximum of 6-1/2 inches deep. A clear floor space at least 30 inches by 48 inches will be provided in front of a sink to allow forward approach. Sinks that are installed in alcoves deeper than 24 inches will be provided with additional maneuvering area. The clear floor space will be on an accessible route and will extend a maximum of 19 inches underneath the sink. Hot water and drain pipes that are exposed under sinks will be insulated or otherwise configured so as to protect against contact. There will be no sharp or abrasive surfaces under sinks. Faucets will comply with TAS 4.27.4. Lever operated, push type, touch type, or electronically controlled mechanisms are acceptable designs.

E 4.25 Storage

For existing fixed facilities or newly constructed fixed storage facilities such as cabinets, shelves, closets and drawers, that are required to be accessible, will comply with this section. A clear floor space at least 30 inches by 48 inches that allows either a forward or parallel approach by a person using a wheel chair will be provided at accessible storage facilities. The clear floor space will adjoin or overlap an accessible route. In storage facilities permitting full entry by a wheel chair, and allowing a wheel chair to travel clear of the door swing, an unobstructed turning space that

complies with TAS 4.2.3 will be provided within the storage facility. Accessible storage spaces will be within at least one of the reach ranges specified in TAS 4.2.5 and TAS 4.2.6. Clothes rods or shelves will be at a maximum of 54 inches above the finish floor for a side approach. Where the distance from the wheel chair to the clothes rod or shelf exceeds ten inches, the height and depth to the rod or shelf will be 48 inches maximum from the finish floor to the top of the accessible shelf and clothes rod and nine inches from finish floor to the lowest shelf. Hardware for accessible storage facilities will not require tight grasping, pinching or twisting of the wrist to operate. Touch latches and U-shaped pulls are acceptable.

E 4.26 Handrails, Grab Bars, and Tub and Shower Seats

All existing handrails, grab bars, and tub and shower seats and newly installed handrails, grab bars, and tub and shower seats that are required to be accessible will be installed in accordance with this section. The nominal diameter or width of the gripping surfaces of a handrail or grab bar will be between 1-1/4 inches to 1-1/2 inches, or the shape will provide an equivalent gripping surface. If handrails or grab bars are mounted adjacent to a wall, the space between the wall and the handrail or grab bar will be a minimum of 1-1/2 inches. For handrails that are located in a recess, the recess will be a maximum of three inches deep and extend at least 18 inches above the top of the rail. The structural strength of grab bars, tub and shower seats, fasteners, and mounting devices will meet the following specifications:

Bending stress in a grab bar or seat induced by the maximum bending moment from the application of 250 lbf will be less than the allowable stress for the material of the grab bar or seat. Shear stress induced in a grab bar or seat by the application of 250 lbf will be less than the allowable shear stress for the material of the grab bar or seat. If the connection between the grab bar or seat and its mounting bracket or other support is considered to be fully restrained, then direct and torsional shear stresses will be totaled for the combined shear stress, which will not exceed the allowable shear stress. Shear force induced in a fastener or mounting device from the application of 25o lbf will be less than the allowable lateral load of either the fastener or mounting device or the supporting structure, whichever is the smaller allowable load. Tensile force induced in a fastener by a direct tension force of 250 lbf plus the maximum moment from the application of 250 lbf will be less than the allowable withdrawal load between the fastener and the supporting structure. Grab bars will not rotate within their fittings.

A handrail or grab bar and any wall or other surface adjacent to it will be free of any sharp or abrasive elements. Edges will have a minimum radius of 1/8 inch.

E 4.27 Controls and Operating Mechanisms

Controls and operating mechanisms that do not comply with the standards and newly installed controls and operating mechanisms will be reinstalled

or installed to comply with this section. Clear floor space that allows a forward or parallel approach by using a wheel chair will be provided at controls, dispensers, receptacles, and other operable equipment. Controls and operating mechanisms located in alcoves deeper than 24 inches will be provided with additional maneuvering area. The highest operable part of controls, dispensers, receptacles, and other operable equipment will be placed within the reach ranges that are specified in TAS 4.2.5 and 4.2.6. Electrical and communication systems receptacles on walls will be mounted no less than 15 inches above the finish floor. Controls and operating mechanisms will be operable with one hand and will not require tight grasping, pinching, or twisting of the wrist. The force required to activate controls will not be greater than five lbf.

E 4.28 Alarms

Existing alarm systems and newly installed alarm systems that are required to be accessible will be reinstalled or installed so as to comply with this section. At a minimum, visual signal appliances will be provided in buildings and facilities in restrooms and any other general usage areas (e.g., meeting rooms), hallways, lobbies, and any other area for common use. When provided, audible emergency alarms will produce a sound that exceeds the prevailing equivalent sound level in a room or space by at least 15 dbA or will exceed any maximum sound level with a duration of 60 seconds by 5 dbA, whichever is louder. Sound levels for alarm signals will not exceed 120 dbA. Visual alarm signal appliances will be integrated into the building or facility alarm system. If single station audible alarms are provided then single station visual alarm signals will be provided. Visual alarm signals will have the following minimum photometric and location features:

The strobe will be a xenon strobe type or equivalent, the color will be clear or nominal white. The maximum pulse duration will be two-tenths of one second with a maximum duty cycle of 40 percent. The pulse duration is defined as the time interval between initial and final points of 10 percent of maximum signal. The intensity will be a minimum of 75 candelas. The flash rate will be a minimum of one Hz and a maximum of three Hz. The appliance will be placed 80 inches above the highest floor level within the space or six inches below the ceiling, whichever is lower.

In general, no place in any room or space that is required to have a visual signal appliance will be more than 50 feet from the signal. In large rooms and spaces exceeding 100 feet across, without obstructions six feet above the finish floor, such as in auditoriums, devices may be placed around the perimeter, spaced a maximum of 100 feet apart, instead of suspending appliance from the ceiling. No place in common corridors or hallways in which visual alarm signaling appliances will be more than 50 feet from the signal.

E 4.29 Detectable Warnings

Where detectable warnings are required (curb ramps, transit platforms, etc.) will consist of raised truncated domes with a diameter of nominal 0.9 inches, a height of nominal 0.2 inches, and a center to center spacing of nominal 2.35 inches and will contrast visually with adjoining surfaces, either light on dark or dark on light. The domes will be aligned and not staggered. The material used to provide contrast will be an integral part of the walking surface. Detectable warnings used on interior surfaces will differ from adjoining walking surfaces in resiliency or sound on cane contact.

E 4.30 Signage

Existing signage that does not comply with the standards and new signage will be reinstalled or installed to comply with this section. Letters and numbers on signs will have a width to height ratio between 3:5 and 1:1 and a stroke width to height ratio between 1:5 and 1:10 using an upper case “X” for measurement. Lower case letters are permitted. Characters and numbers on overhead signs will be sized according to the viewing distance from which they are read. The minimum height will be measured using an upper case X. Lower case letters will be permitted. Letters and numerals will be raised 1/32 inch, upper case, sans serif or simple serif type and will be accompanied with Grade 2 Braille. Raised characters shall be a minimum of 5/8 inch high, and a maximum of two inches high. Pictograms will be accompanied by the equivalent verbal description placed directly below the pictogram. The border dimensions of the pictogram will be a minimum of six inches in height. The characters and background of signs will be eggshell, matte, or other non-glare finish. Characters and symbols will contrast with their background, either light characters on dark background or dark characters on a light background. When permanent identification is provided for rooms and spaces, signs will be installed on the wall adjacent to the latch side of the door. If there is no wall space on the latch side of the door, including at double leaf doors, signs will be placed on the nearest adjacent wall. Mounting height of the signs will be 60 inches above the finish floor to the centerline of the sign. Mounting location for such signage will be so that a person may approach within three inches of signage without encountering protruding objects or standing within the swing of a door. Facilities and elements that are required to be identified as accessible will use the international symbol of accessibility. Telephones that are required to have a volume control will be identified by a sign containing a depiction of a telephone handset with radiating sound waves. Text telephones will be identified by the international TDD symbol. In addition, if a facility had a public text telephone, directional signage indicating the location of the nearest text telephone will be placed adjacent to all banks of telephones which do not contain a text telephone. Such directional signage will include the international TDD symbol. If a facility does not have banks of telephones, the directional signage will be provided at the entrance (e.g., in a building directory). In assembly areas where permanently installed assistive

listening systems are required, the availability of such systems will be identified with signage that includes the internationals symbol of access for hearing loss.

E 4.11 Telephones

For existing public phones and newly installed public phones, reinstallation or installation will be in compliance with this section. Clear floor or ground space at least 30 inches by 48 inches that allows either a forward or parallel approach by a person using a wheel chair will be provided at telephones. The clear floor space will comply with TAS 4.2.4. Bases, enclosures, and fixed seats will not impede approaches to telephones by people who use wheelchairs. The highest operable part of the telephone will be within the reach ranges specified in TAS 4.2.5 or 4.2.6 (no higher than 48 inches above the finish floor). Telephones will not protrude into accessible routes. Public telephones will be hearing aid compatible and will have volume controls that are capable of producing a minimum volume of 12 dbA and a maximum of 18 dbA above normal. If an automatic reset is provided then 18 dbA can be exceeded. Telephones will have pushbutton controls. Telephone books, if provided, will be located in a position that complies with the reach ranges in TAS 4.2.5 and 4.2.6. The cord from the telephone to the handset will be a minimum of 29 inches long. Text telephones used with a pay telephone will be permanently affixed within, or adjacent to, the telephone enclosure. If an acoustic coupler is used, the telephone cord will be sufficiently long to allow connect of the text telephone and the telephone receiver. Pay telephones designed to accommodate a portable text telephones will be equipped with a shelf and an electrical outlet within or adjacent to the telephone enclosure. The telephone handset will be capable of being placed on the surface of the shelf. The shelf will be capable of accommodating a text telephone and will have six inches minimum vertical clearance in the area where the text telephone is to be placed. Equivalent facilitation may be provided.

E 4.32 Fixed or Built-in Seating

For existing fixed or built-in seating or tables that do not comply with the standards and newly installed fixed seating or tables, reinstallation and installation will be installed in compliance with this section. If seating spaces for people in wheel chairs are provided at fixed tables or counters, clear floor space will be provided. Such clear floor space will not overlap knee space by more than 19 inches. If seating for people in wheel chairs is provided at fixed tables or counters, knee spaces at least 27 inches high, 30 inches wide, and 19 inches deep will be provided. The tops of accessible tables and counters will be from 28 inches to 34 inches above the finish floor or ground.

E 4.33 Assembly Areas

For existing assembly areas and associated areas that are not in compliance with the standards and newly created assembly and associated areas, reconstruction and construction of assembly areas will

be in compliance with this section. In assembly areas having a seating capacity in excess of 25, each wheelchair location will accommodate two persons in wheelchairs by providing minimum clear ground or floor spaces a minimum of 33 inches to 44 inches wide per individual space with a minimum depth of 48 inches for forward or rear access and a minimum depth of 60 inches for a side access to the seating. When the seating capacity of an assembly area exceeds 500, the number of wheelchair spaces required to be in pairs may be reduced to 50 percent of the minimum number of wheelchair spaces that are required by TAS Table 4. Wheelchair areas will be placed so that they are an integral part of any fixed seating plan and will be dispersed so as to provide people with physical disabilities a choice of admission prices and lines of sight comparable to those for other members of the audience. The wheel chair locations will adjoin an accessible route that also serves as a means of egress in case of emergency. At least one companion fixed seat will be provided next to each wheelchair seating space. Readily removable seats may be installed in wheelchair spaces when the spaces are not required to accommodate wheel chair users. The ground or floor at wheel chair locations shall comply with TAS 4.5 Ground and Floor Surfaces. An accessible route will connect wheelchair seating locations with performing areas, including stages, arena floors, dressing rooms, locker rooms, and other spaces used by performers. If the listening system provided serves individual fixed seats, then such seats will be located within a 50 foot viewing distance of the stage or playing area and will have a complete view of the stage or playing area. Assistive listening systems are intended to augment standard public address and audio systems by providing signals which can be received directly by persons with special receivers or their own hearing aids which eliminate or filter background noise. The type of assistive listening system appropriate for a particular application depends on the characteristics of the setting, the nature of the program, and the intended audience. Magnetic induction loops, infra-red and radio frequency systems are types of listen systems which are appropriate for various applications. (Expert consultants will be used to determine the best system for assembly areas that are installed.) Expanded requirements for Toilet Rooms in larger assembly areas can be found in TAS 4.1.3 (19) (c).

E 4.34 Automated Teller Machines

Existing automated teller machines are accessible and located on an accessible route. New automated teller machines will be installed in compliance with this section. The automated teller will be located so that clear floor space complying with TAS 4.2.4 is provided to allow a person using a wheel chair to make a forward approach, a parallel approach, or both to the machine. If only a forward approach is possible, operable parts of controls will be placed so that the reach depth to the operable parts of all controls as measured from the vertical plane perpendicular to the edge of the unobstructed clear floor space at the protrusion of the

automated teller machine or surround in not more than 10 inches, the maximum height above the finished floor or grade will be 54 inches. Where the reach depth to operable parts of any control as measured from the vertical plane perpendicular to the edge of the unobstructed clear floor space at the farthest protrusion of the automated teller machine or surround is more than 10 inches, the maximum height above the finished floor or grade will be in conformance with TAS Table 6. If both a forward and a parallel approach are possible, operable parts of controls will be placed within at least one of the reach ranges stated above. Where bins are provided for envelopes, waste paper, or other purposes, at least one of each type provided will comply with the reach ranges stated above. Controls for user activation will comply with TAS 4.27.4. Instructions and all information for use will be made accessible to and independently usable by persons with vision impairments.

E4.35 Dressing and Fitting Rooms

For existing dressing and fitting rooms that are required to be accessible, and do not comply with the standards, and for newly constructed dressing rooms, reconstruction or new construction of the dressing and fitting rooms will comply with this section and will be located on an accessible route. A clear floor space allowing a person using a wheelchair to make a 180 degree turn will be provided in every accessible dressing room entered through a swinging or sliding door. No door will swing into any part of the turning space. Turning space will not be required in a private dressing room entered through a curtained opening at least 32 inches wide if clear floor space complying with TAS 4.2 makes the dressing room usable by a person using a wheelchair. All doors to accessible dressing rooms will comply with TAS 4.13 Doors. Every accessible dressing room will have a 24 inch by 48 inch bench fixed to the wall along the longer dimension. The bench will be mounted 17 to19 inches above the finish floor. Clear floor space will be provided alongside the bench to allow a person using a wheelchair to make a parallel transfer onto the bench. The structural strength of the bench and attachments will comply with TAS 4.26.3. Where installed in conjunction with showers, swimming pools, or other wet locations, water will not accumulate upon the surface of the bench and the bench will have a slip resistant surface. Where mirrors are provided in dressing rooms of the same use, then in accessible dressing rooms, a full length mirror, measuring at least 18 inches wide by 54 inches high will be mounted in a position affording a view to a person on the bench as well as to a person in a standing position.

E 5 Restaurants and Cafeterias

Existing restaurants and cafeterias including snack bars and other areas for obtaining or consuming food or drink that do not comply with the standards and for newly constructed restaurants and cafeterias will be reconstructed and constructed to comply with all previously written requirements. Where fixed tables (or dining counters where food is consumed but there are no services) are provided, at least five percent,

but not less than one, of the fixed tables (or portion of the dining counter) will be accessible and will comply with TAS 4.32. In establishments where separate areas are designated for smoking and non-smoking patrons, the required number of accessible fixed tables (or counters) will be proportionally distributed between the smoking and non-smoking areas. In new construction, and where practicable in alterations, accessible fixed tables (or counters will be distributed throughout the space or facility. Where food and drink is served at counters exceeding 34 inches in height for consumption by customers seated on stools or standing at the counter, a portion of the main counter which is a minimum of 60 inches in length will be provided in compliance with TAS 4.32 or service will be available at accessible tables within the same area. All accessible fixed tables will be accessible by means of an access aisle at least 36 inches clear between parallel edges of tables or between a wall and the table edges. In new construction, all dining areas, including raised or sunken dining areas, loggias, and outdoor seating areas, will be accessible. In non-elevator buildings, an accessible means of vertical access to the mezzanine is not required if the area of the mezzanine seating measures no more than 33 percent of the area of the total accessible seating area , the same accommodations (including but not limited to smoking areas and non-smoking areas), services and décor are provided in an accessible space usable by the general public, and the accessible areas are not restricted to use by people with disabilities. In alterations, accessibility to raised or sunken dining areas, or to all parts of outdoor seating areas is not required if the same accommodations, services and décor are provided in an accessible space usable by the general public and are not restricted to use by people with disabilities. Food service lines will have a minimum clear width of 36 inches , with a preferred clear width of 42 inches to allow passage around a person using a wheelchair. Tray slides will be mounted no higher than 34 inches above the floor. If self service shelves are provided, at least 50 percent of each type must be within reach ranges specified in TAS 4.2.5 and 4.2.6. Self service shelves and dispensing devices for tableware, dishware, condiments, food and beverages will be installed to have reach ranges not to exceed 54 inches. In banquet rooms or spaces where a head table or speaker's lectern is located on a raised platform, the platform will be accessible by providing a ramp, elevator, or lift. Open edges of a raised platform will be protected by placement of tables or a curb. Spaces for vending machines and other equipment will comply with TAS 4.2 and will be located on an accessible route.

E 6 Medical Care Facilities

Medical care facilities consisting of health clinics will meet the requirements of TAS 4.1 through 4.35, and the requirements of this section. All of the health clinics in the City of El Paso and do not have bedrooms. At least one accessible entrance will be protected from the weather by a canopy or roof overhang. Such entrances will incorporate an accessible passenger loading zone. Toilet rooms will be reconstructed or

constructed to meet the requirements of 4.22 or 4.23 and will be located on an accessible route. Information counters, nurses stations, and similar provisions for the exchange of information, services, goods and equipment will comply with TAS 7.2/

E 7 Business and Mercantile

In addition to the requirements of TAS 4.1 through TAS 4.35, the design and alteration of all areas used for business or other transactions with the public will comply with this section. In department stores and miscellaneous retail stores where counters have cash registers and are provided for sales or distribution of goods or services to the public, at least one of each type will have a portion of the counter which is 36 inches in length with a maximum height of 36 inches above the finish floor. It will be on an accessible route that complies with TAS 4.3. The accessible counters will be dispersed throughout the building or facility. In alterations where it is technically infeasible to provide an accessible counter, an auxiliary counter meeting the requirements of this section may be provided. At ticketing counters, teller stations in a bank or other financial institution, nurse's stations in hospitals or other medical facilities, reception and information counters, registration counters in hotels and motels, box office ticket counters, and other counters that may not have a cash register but at which services are sold or distributed or information exchanged either a portion of the main counter which is a minimum of 36 inches in length will be provided with a maximum height of 36 inches, or equivalent facilitation will be provided (e.g., at a hotel registration counter, equivalent facilitation might consist of provisions of a folding shelf attached to the main counter on which an individual with disabilities can write, and use of the space on the side of the counter or at the concierge desk, for handing materials back and forth if such use does not block access). All accessible sales and service counters will be on an accessible route. In new construction, accessible check out aisles will be provided in conformance with TAS Table 7. Clear aisle width for accessible check out aisles will comply with TAS 4.2.1 and maximum adjoining counter height will not exceed 38 inches above the finish floor. The top of the lip will not exceed 40 inches above the finish floor. Signage identifying accessible check out aisles will be installed and will be mounted above the check out aisle in the same location where the check out number or type of checkout is displayed. Any device used for purposes of security or to prevent the removal of shopping carts from store premises will not prevent access or egress to people in wheelchairs. An alternate accessible means of entry or egress that is equally convenient to that provided for the ambulatory population is acceptable.

E 8 Libraries

Existing libraries that do not comply with the standards and newly constructed libraries will be renovated or constructed to comply with TAS 4.1 through TAS 4.35, all public areas of the library will comply with this section including reading and study areas, stacks, reference rooms, and

special facilities or collections. A minimum of five percent or a minimum of one of each element of fixed seating, tables, or study carrels will comply with TAS 4.2 and 4.32. Clearances between fixed accessible tables and between study carrels will comply with TAS 4.3. At least one lane at each checkout area will comply with TAS 7.2(1). Traffic control or book security gates or turnstiles will comply with TAS 4.13. Minimum clear aisle space at card catalogs and magazine displays will be 36 inches. Maximum reach height will comply with TAS 4.2, with a height of 48 inches preferred irrespective of approach allowed. Minimum clear aisle width between stacks will comply with TAS 4.3, with a minimum clear aisle width of 42 inches preferred where possible. Shelf height in the stack area is unrestricted.

E 9 Transient Lodging

Currently the City of El Paso does not own or have any transient lodging facilities. If the City obtains or opens a transient lodging facility the facility will be remodeled or constructed to meet all the requirements of TAS 4.1 through TAS 4.35 as well as TAS Chapter 9.

E 10 Transportation Facilities

Every station, bus stop, bus stop pad, terminal, building or other transportation facility will comply with the applicable provisions of TAS 4.1 through TAS 4.35, sections TAS 5 through TAS 9, and the applicable provisions for this section.

Bus Stops and Terminals – New Construction

Where new bus stop pads are constructed at bus stops, bays, or other areas where a lift or ramp is to be deployed, they will have a firm, stable, surface, a minimum clear length of 96 inches, measured from the curb or vehicle roadway edge, and a minimum clear width of 60 inches, measured parallel to the vehicle roadway to the maximum extent allowed by legal or site constraints, and will be connected to streets, sidewalk or pedestrian paths by an accessible route. The slope of the pad parallel to the roadway will, to the extent practicable, be the same as the roadway. For water drainage, a maximum slope of 1:50 (2%) perpendicular to the roadway is allowed. Where provided, new or replaced bus shelters will be installed or positioned so as to permit a wheelchair or mobility aid user to enter from the public way and to reach a location, having a minimum clear floor area of 30 inches by 48 inches, entirely within the perimeter of the shelter. Shelters will be connected by an accessible route to the boarding area provided at the bus pad. Where provided, all new bus route identification signs will comply with TAS 4.30.5. In addition, to the maximum extent practicable, all new bus route identification signs will comply with TAS 4.30.2 and TAS 4.30.3. Signs that are sized to the maximum dimensions permitted under legitimate local, state or federal regulations or ordinances will be constructed in compliance with TAS 4.30.2 and 4.30.3 for the purposes of the section.

Bus Stop sitting and Alterations

Bus stop sites will be chosen such that, to the maximum extent practicable, the areas where lifts or ramps are to be deployed comply with the requirements stated for new construction. When new bus route identification signs are installed or old signs are replaced, they will comply with the requirements stated for new construction.

Fixed Facilities and Stations – New construction

New stations in rapid rail, light rail, commuter rail, intercity bus, intercity rail, high speed rail, and other fixed guideway systems (automated guideway transit, monorails, etc.) will comply with the following provisions: Elements such as ramps, elevators or other circulation devices, fare vending or other ticketing areas, and fare collection areas will be placed to minimize the distance which wheelchair users and other persons who cannot negotiate steps may have to travel compared to the general public. The circulation path, including an accessible entrance and an accessible route, for persons with disabilities will, to the maximum extent practicable, coincide with the circulation path for the general public. Where the circulation path is different, signage complying with TAS 4.30.1, 4.30.2, 4.30.3, 4.30.5, and 4.30.7(1) will be provided to indicate direction to and identify the accessible entrance and accessible route. In lieu of compliance with TAS 4.1.3(8), at least one entrance to each station will comply with TAS 4.14 Entrances. If different entrances to a station serve different transportation fixed routes or groups of fixed routes, at least one entrance serving each group or route will comply with TAS 4.14 Entrances. All accessible entrances will, to the maximum extent practicable, coincide with those used by the majority of the general public. Direct connections to commercial, retail, or residential facilities will have an accessible route complying with TAS 4.3 and 4.4 from the point of connection to boarding platforms and all transportation system elements used by the public. Any elements provided to facilitate future direct connections will be on an accessible route connecting boarding platforms and all transportation system elements used by the public. Where signs are provided at entrances to stations identifying the station or the entrance, or both, at least one sign at each entrance shall comply with TAS 4.30.4 and 4.30.6. Such signs will be placed in uniform locations at entrances within the transit system to the maximum extent practicable. Exception: Where the station has no defined entrance, but signage is provided, then the accessible signage will be placed in a central location in the primary pedestrian route(s). Stations covered by this section will have identification signs complying with TAS 4.30.1, 4.30.2, 4.30.3, and 4.30.5. Signs will be placed at frequent intervals and will be clearly visible from within the vehicle on both sides when not obstructed by another train. When station identification signs are placed close to vehicle windows (i.e., on the side opposite from boarding) each will have the top of the highest letter or symbol below the top of the vehicle window and the bottom of the lowest letter or symbol above the horizontal mid-line of the vehicle

window. Lists of stations, routes, or destinations served by the station and located on boarding areas, platforms, or mezzanines will comply with TAS 4.30.1, 4.30.2, 4.30.3, and 4.30.5. A minimum of one sign identifying the specific station and complying with TAS 4.30.4 and 4.30.6 will be provided on each platform or boarding area. All signs referenced in this paragraph will, to the maximum extent practicable, be placed in uniform locations within the transit system. Automatic fare vending, collection and adjustment (e.g., add-fare) systems will comply with TAS 4.34.2, 4.34.3, and 4.34.4. At each accessible entrance such devices will be located on an accessible route. If self-service fare collection devices are provided for the use of the general public, at least one accessible device for entering, and at least one for exiting, unless one device serves both functions, will be provided at each accessible point of entry or exit. Accessible fare collection devices will have a minimum clear opening width of 32 inches; will permit passage of a wheelchair; and, where provided, coin or card slots and controls necessary for operation will comply with TAS 4.27. Gates which must be pushed open by wheelchair or mobility aid users will have a smooth continuous surface extending from two inches above the floor to 27 inches above the floor and will comply with TAS 4.13. Where the circulation path does not coincide with that used by the general public, accessible fare collection systems will be located at or adjacent to the accessible point of entry or exit. Platform edges bordering a drop-off and not protected by platform screens or guard rails will have a detectable warning. Such detectable warnings will comply with TAS 4.29.2 and shall be 24 inches wide running the full length of the platform drop-off. In stations covered by this section, rail-to-platform height in new stations will be coordinated with the floor height of new vehicles so that the vertical difference, measured when the vehicle is at rest, is within plus or minus 5/8 inch under normal passenger load conditions. For rapid rail light rail, commuter rail, high speed rail, and intercity rail systems in new stations, the horizontal gap, measured when the new vehicle is at rest, will be no greater than three inches. For slow moving automated guideway "people mover" transit systems, the horizontal gap in new stations will be no greater than one inch. Exception 1: Existing vehicles operating in new stations may have a vertical difference with respect to the new platform within plus or minus 1-1/2 inches. Exception 2: In light rail, commuter rail and intercity rail systems where it is not operationally or structurally feasible to meet the horizontal gap or vertical difference requirements, mini-high platforms, car-borne or platform-mounted lifts, ramps or bridge plates, or similar manually deployed devices, meeting the applicable requirements of 36 CFR part 1192, or 49 CFR part 38 will suffice. Stations will not be designed or constructed so as to require persons with disabilities to board or alight from a vehicle at a location other than one used by the general public. Illumination levels in the areas where signage is located will be uniform and shall minimize glare on signs. Lighting along circulation routes shall be of a type and configuration to provide uniform

illumination. Text Telephones: The following will be provided in accordance with TAS 4.31.9: (a) If an interior public pay telephone is provided in a transit facility (as defined by the *United States* Department of Transportation *or the Texas Department of Transportation*) at least one interior public text telephone will be provided in the station. (b) Where four or more public pay telephones serve a particular entrance to a rail station and at least one is in an interior location, at least one interior public text telephone will be provided to serve that entrance. Compliance with this section constitutes compliance with section TAS 4.1.3(17)(c). Where it is necessary to cross tracks to reach boarding platforms, the route surface willl be level and flush with the rail top at the outer edge and between the rails, except for a maximum 2-1/2 inch gap on the inner edge of each rail to permit passage of wheel flanges. Such crossings will comply with TAS 4.29.5. Where gap reduction is not practicable, an above-grade or below-grade accessible route will be provided. Where public address systems are provided to convey information to the public in terminals, stations, or other fixed facilities, a means of conveying the same or equivalent information to persons with hearing loss or who are deaf will be provided. Where clocks are provided for use by the general public, the clock face will be uncluttered so that its elements are clearly visible. Hands, numerals, and/or digits will contrast with the background either light on dark or dark on light. Where clocks are mounted overhead, numerals and/or digits will comply with TAS 4.30.3. Clocks will be placed in uniform locations throughout the facility and system to the maximum extent practicable. Where provided in below grade stations, escalators will have a minimum clear width of 32 inches. At the top and bottom of each escalator run, at least two contiguous treads will be level beyond the comb plate before the risers begin to form. All escalator treads will be marked by a strip of clearly contrasting color, two inches in width, placed parallel to and on the nose of each step. The strip will be of a material that is at least as slip resistant as the remainder of the tread. The edge of the tread will be apparent from both ascending and descending directions. Where provided, elevators will be glazed or have transparent panels to allow an unobstructed view both in to and out of the car. Elevators will comply with TAS 4.10. Exception: Elevator cars with a clear floor area in which a 60 inch diameter circle can be inscribed may be substituted for the minimum car dimensions of TAS 4.10. Where provided, ticketing areas will permit persons with disabilities to obtain a ticket and check baggage and will comply with TAS 7.2. Where provided, baggage check-in and retrieval systems will be on an accessible route and will have space immediately adjacent complying with TAS 4.2. If unattended security barriers are provided, at least one gate will comply with TAS 4.13. Gates which must be pushed open by wheelchair or mobility aid users will have a smooth continuous surface extending from two inches above the floor to 27 inches above the floor.

Existing Facilities – Key Stations

Rapid, light and commuter rail key stations, as defined under criteria established by the United States Department of Transportation in subpart C of 49 CFR part 37 and existing intercity rail stations will provide at least one accessible route from an accessible entrance to those areas necessary for use of the transportation system. The accessible route required by TAS 10.3.2(1) will include the features specified in TAS 10.3.1(1), 10.3.1(4) - 10.3.1(9), 10.3.1(11) - 10.3.1(15), and 10.3.1(17) - 10.3.1(19). Where technical infeasibility in existing stations requires the accessible route to lead from the public way to a paid area of the transit system, an accessible fare collection system, complying with TAS 10.3.1(7), will be provided along such accessible route. In light rail, rapid rail and commuter rail key stations, the platform or a portion thereof and the vehicle floor will be coordinated so that the vertical difference, measured when the vehicle is at rest, within plus or minus 1-1/2 inches under all normal passenger load conditions, and the horizontal gap, measured when the vehicle is at rest, is no greater than three inches for at least one door of each vehicle or car required to be accessible by 49 CFR part 37. Exception 1: Existing vehicles retrofitted to meet the requirements of 49 CFR 37.93 (one-car-per-train rule) will be coordinated with the platform such that, for at least one door, the vertical difference between the vehicle floor and the platform, measured when the vehicle is at rest with 50% normal passenger capacity, is within plus or minus two inches and the horizontal gap is no greater than four inches. Exception 2: Where it is not structurally or operationally feasible to meet the horizontal gap or vertical difference requirements, mini-high platforms, car-borne or platform mounted lifts, ramps or bridge plates, or similar manually deployed devices, meeting the applicable requirements of 36 CFR Part 1192 will suffice. New direct connections to commercial, retail, or residential facilities will, to the maximum extent feasible, have an accessible route complying with TAS 4.3 from the point of connection to boarding platforms and all transportation system elements used by the public. Any elements provided to facilitate future direct connections will be on an accessible route connecting boarding platforms and all transportation system elements used by the public.

Existing Facilities – Alterations

For the purpose of complying with TAS 4.1.6(2) Alterations to an Area Containing a Primary Function, an area of primary function will be as defined by applicable provisions of 49 CFR 37.43(c) (United States Department of Transportation's ADA Rule) or 28 CFR 36.403 (United States Department of Justice's ADA Rule).

Airports – New Construction

Elements such as ramps, elevators or other vertical circulation devices, ticketing areas, security checkpoints, or passenger waiting areas will be placed to minimize the distance which wheelchair users and other persons who cannot negotiate steps may have to travel compared to the general public. The circulation path, including an accessible entrance and an

accessible route, for persons with disabilities will, to the maximum extent practicable, coincide with the circulation path for the general public. Where the circulation path is different, directional signage complying with TAS 4.30.1, 4.30.2, 4.30.3 and 4.30.5 will be provided which indicates the location of the nearest accessible entrance and its accessible route. Ticketing areas will permit persons with disabilities to obtain a ticket and check baggage and will comply with TAS 7.2. Where public pay telephones are provided, and at least one is at an interior location, a public text telephone will be provided in compliance with TAS 4.31.9. Additionally, if four or more public pay telephones are located in any of the following locations, at least one public text telephone will also be provided in that location: (a) a main terminal outside the security areas; (b) a concourse within the security areas; or (c) a baggage claim area in a terminal. Compliance with this section constitutes compliance with section TAS 4.1.3(17)(c). Baggage check-in and retrieval systems will be on an accessible route, and will have space immediately adjacent complying with TAS 4.2.4. If unattended security barriers are provided, at least one gate will comply with TAS 4.13. Gates which must be pushed open by wheelchair or mobility aid users will have a smooth continuous surface extending from two inches above the floor to 27 inches above the floor. Terminal information systems which broadcast information to the general public through a public address system will provide a means to provide the same or equivalent information to persons with a hearing loss or who are deaf. Such methods may include, but are not limited to, visual paging systems using video monitors and computer technology. For persons with certain types of hearing loss such methods may include, but are not limited to, an assistive listening system complying with TAS 4.33.7. Where clocks are provided for use by the general public the clock face will be uncluttered so that its elements are clearly visible. Hands, numerals, and/or digits will contrast with their background either light-on-dark or dark-on-light. Where clocks are mounted overhead, numerals and/or digits will comply with TAS 4.30.3. Clocks will be placed in uniform locations throughout the facility to the maximum extent practicable.

Boat and Ferry Docks. [Reserved]