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industrialized housing advisors

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August 1, 2006

To Whom It May Concern:

Please be advised that T. R. Arnold & Associates, Inc. has reviewed plans and specifications for the accessible portion of toilet trailers manufactured by Wells Cargo, Inc. These were determined to conform to all applicable portions of the Americans with Disabilities Act Accessibility Guidelines (ADAAG).

A representative sample toilet trailer manufactured by Wells Cargo, Inc. and designated as Model WC20-ADA has been inspected by T. R. Arnold & Associates, Inc. and found to comply with the plans and specifications reviewed and all appropriate portions of the ADAAG requirements.

Sincerely,
T. R. ARNOLD & ASSOCIATES, INC.



Theodore P. Huff
Director of Certification

TPH/dl



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In the following pages you will find pictures and descriptions pertaining to you **Comfort Elite ADA** unit. We have provided you with the basic information to show compliance with the **ADAAG**.

The Americans with Disabilities Act (ADA) is a landmark law that protects the civil rights of persons with disabilities. These requirements, which were developed by the Access Board, are known as the **ADA Accessibility Guidelines (ADAAG)**. **ADAAG** serves as the basis for standards used to enforce the design requirements of the **ADA**. The **U.S. Department of Justice (DOJ)** maintains these standards. It is these standards that the public is required to follow. Regulations issued from these agencies provide important information on using and applying the standards.

All of the information provided to you was obtained directly from the **ADA Accessibility Guidelines (ADAAG)**.

Further information on **ADA** guidelines and standards can be found at:

www.access-board.gov/adaag/html/adaag.htm
www.ada.gov

Department of Justice
— Disability Rights 202-307-0663
— Access Board 800-872-7234
— ADA info line 800-514-0301 (choose option #7)

Feel free to contact me personally with any questions you may have:

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ADA Accessibility Guidelines (ADAAG)



4.8 Ramps.

4.8.1* General. Any part of an accessible route with a slope greater than 1:20 shall be considered a ramp and shall comply with 4.8. Appendix Note

4.8.2* Slope and Rise. The least possible slope shall be used for any ramp. The maximum slope of a ramp in new construction shall be 1:12. The maximum rise for any run shall be 30 in (760 mm) (see Fig. 16). Curb ramps and ramps to be constructed on existing sites or in existing buildings or facilities may have slopes and rises as allowed in 4.1.6(3)(a) if space limitations prohibit the use of a 1:12 slope or less. Appendix Note

4.8.3 Clear Width. The minimum clear width of a ramp shall be 36 in (915 mm).



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4.8.4* Landings. Ramps shall have level landings at bottom and top of each ramp and each ramp run. Landings shall have the following features:

- (1) The landing shall be at least as wide as the ramp run leading to it.
- (2) The landing length shall be a minimum of 60 in (1525 mm) clear.
- (3) If ramps change direction at landings, the minimum landing size shall be 60 in by 60 in (1525 mm by 1525 mm).
- (4) If a doorway is located at a landing, then the area in front of the doorway shall comply with 4.13.6. Appendix Note

4.8.5* Handrails. If a ramp run has a rise greater than 6 in (150 mm) or a horizontal projection greater than 72 in (1830 mm), then it shall have handrails on both sides. Handrails are not required on curb ramps or adjacent to seating in assembly areas. Handrails shall comply with 4.26 and shall have the following features:

- (1) Handrails shall be provided along both sides of ramp segments. The inside handrail on switchback or dogleg ramps shall always be continuous.
- (2) If handrails are not continuous, they shall extend at least 12 in (305 mm) beyond the top and bottom of the ramp segment and shall be parallel with the floor or ground surface (see Fig. 17).
- (3) The clear space between the handrail and the wall shall be 1 - 1/2 in (38 mm).
- (4) Gripping surfaces shall be continuous.
- (5) Top of handrail gripping surfaces shall be mounted between 34 in and 38 in (865 mm and 965 mm) above ramp surfaces.
- (6) Ends of handrails shall be either rounded or returned smoothly to floor, wall, or post.
- (7) Handrails shall not rotate within their fittings. Appendix Note

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

4.26.1* General. All handrails, grab bars, and tub and shower seats required to be accessible by 4.1, 4.8, 4.9, 4.16, 4.17, 4.20 or 4.21 shall comply with 4.26. Appendix Note

4.26.2* Size and Spacing of Grab Bars and Handrails. The diameter or width of the gripping surfaces of a handrail or grab bar shall be 1-1/4 in to 1-1/2 in (32 mm to 38 mm), or the shape shall provide an equivalent gripping surface. If handrails or grab bars are mounted adjacent to a wall, the space between the wall and the grab bar shall be 1-1/2 in (38 mm) (see Fig. 39(a), (b), (c), and (e)). Handrails may be located in a recess if the recess is a maximum of 3 in (75 mm) deep and extends at least 18 in (455 mm) above the top of the rail (see Fig. 39(d)). Appendix Note



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4.26.3 Structural Strength. The structural strength of grab bars, tub and shower seats, fasteners, and mounting devices shall meet the following specification:

- (1) Bending stress in a grab bar or seat induced by the maximum bending moment from the application of 250 lbf (1112N) shall be less than the allowable stress for the material of the grab bar or seat.
- (2) Shear stress induced in a grab bar or seat by the application of 250 lbf (1112N) shall 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 shall be totaled for the combined shear stress, which shall not exceed the allowable shear stress.
- (3) Shear force induced in a fastener or mounting device from the application of 250 lbf (1112N) shall be less than the allowable lateral load of either the fastener or mounting device or the supporting structure, whichever is the smaller allowable load.
- (4) Tensile force induced in a fastener by a direct tension force of 250 lbf (1112N) plus the maximum moment from the application of 250 lbf (1112N) shall be less than the allowable withdrawal load between the fastener and the supporting structure.
- (5) Grab bars shall not rotate within their fittings.

4.26.4 Eliminating Hazards. A handrail or grab bar and any wall or other surface adjacent to it shall be free of any sharp or abrasive elements. Edges shall have a minimum radius of 1/8 in (3.2 mm).

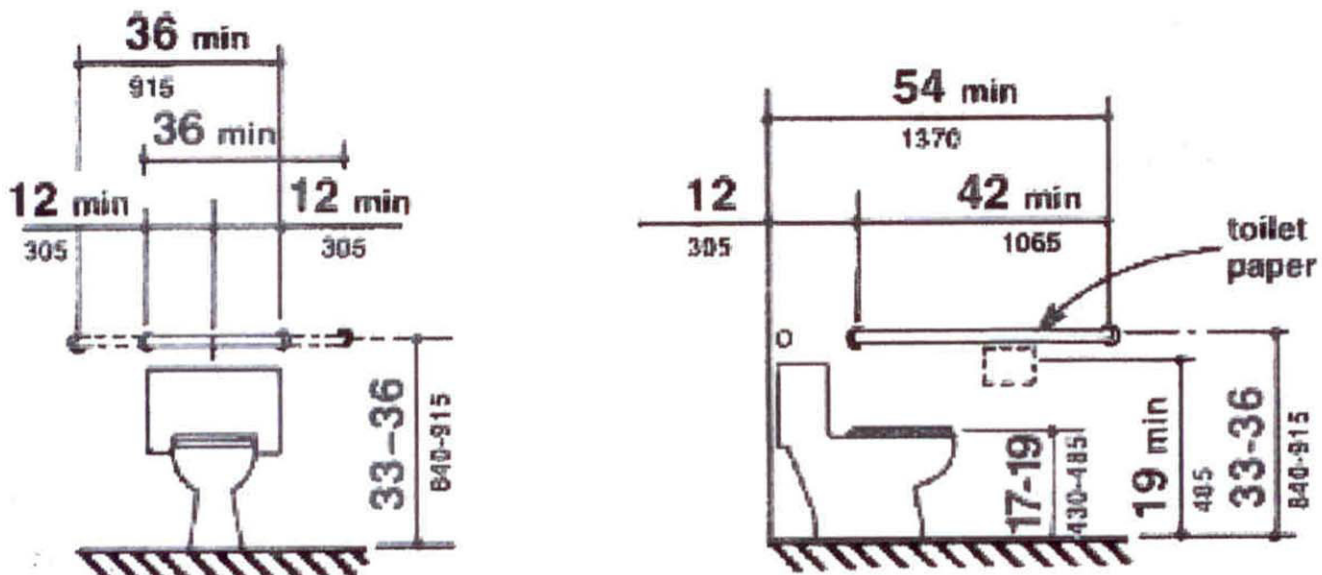


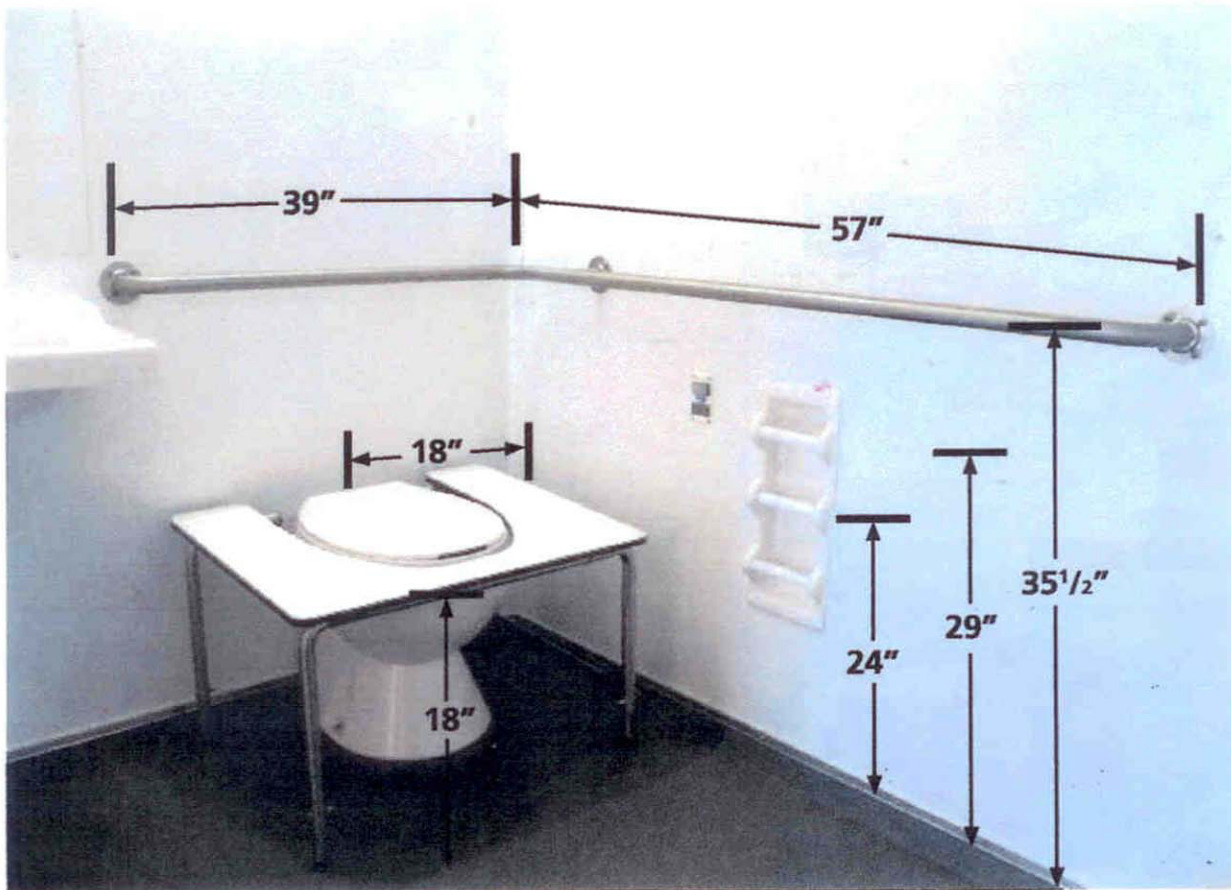
Figure 29
Grab Bars at Water Closets



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Fig. 29(a) Back Wall. A 36 inch (915 mm) minimum length grab bar is required behind the water closet mounted at a height between 33 and 36 inches (840-915 mm). The grab bar must extend a minimum of 12 inches (305) beyond the center of the water closet toward the side wall and a minimum of 24 inches (610 mm) toward the open side for either a left or right side approach.

A4.16.3 Height. Height preferences for toilet seats vary considerably among disabled people. Higher seat heights may be an advantage to some ambulatory disabled people, but are often a disadvantage for wheelchair users and others. Toilet seats 18 in (455 mm) high seem to be a reasonable compromise. Thick seats and filler rings are available to adapt standard fixtures to these requirements.



4.16.5* Flush Controls. Flush controls shall be hand operated or automatic and shall comply with 4.27.4. Controls for flush valves shall be mounted on the wide side of toilet areas no more than 44 in (1120 mm) above the floor. Appendix Note



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4.27.4 Operation. Controls and operating mechanisms shall be operable with one hand and shall not require tight grasping, pinching, or twisting of the wrist. The force required to activate controls shall be no greater than 5 lbf (22.2 N).

A4.16.5 Flush Controls. Flush valves and related plumbing can be located behind walls or to the side of the toilet, or a toilet seat lid can be provided if plumbing fittings are directly behind the toilet seat. Such designs reduce the chance of injury and imbalance caused by leaning back against the fittings. Flush controls for tank-type toilets have a standardized mounting location on the left side of the tank (facing the tank). Tanks can be obtained by special order with controls mounted on the right side. 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 bar may be split or shifted toward the wide side of the toilet area.

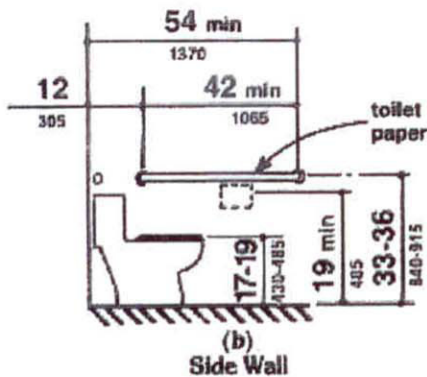
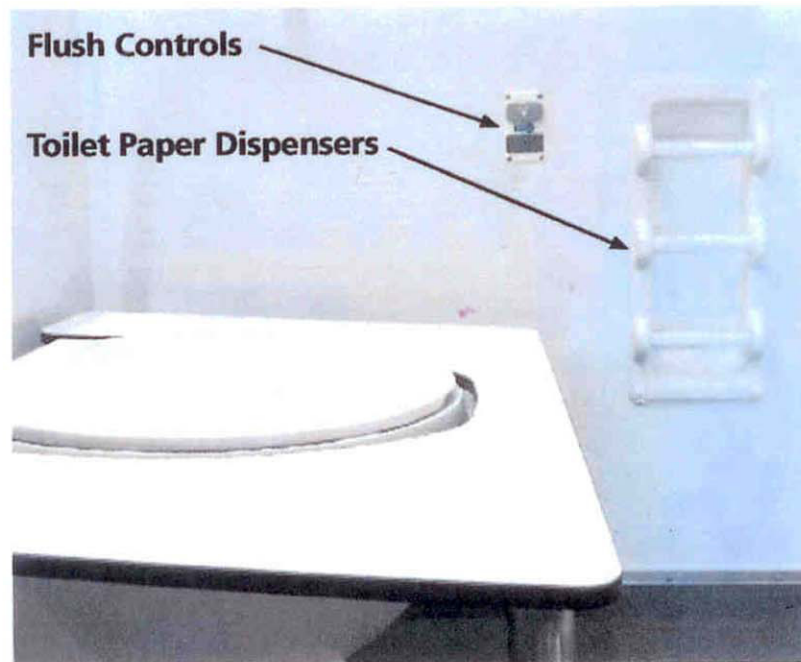


Figure 29b
Grab Bars at Water Closets
Side Wall



4.16.6 Dispensers. Toilet paper dispensers shall be installed within reach, as shown in Fig. 29(b). Dispensers that control delivery, or that do not permit continuous paper flow, shall not be used.

A 42 inch (1065 mm) minimum length grab bar is required to the side of the water closet spaced 12 inches (305 mm) maximum from the back wall and extending a minimum of 54 inches (1370 mm) from the back wall at a height between 33 and 36 inches (840-915 mm). The toilet paper dispenser shall be mounted at a minimum height of 19 inches (485 mm). (4.16.3, 4.16.4, 4.16.6)



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4.19 Lavatories and Mirrors.

4.19.1 General. The requirements of 4.19 shall apply to lavatory fixtures, vanities, and built-in lavatories.

4.19.2 Height and Clearances. Lavatories shall be mounted with the rim or counter surface no higher than 34 in (865 mm) above the finish floor. Provide a clearance of at least 29 in (735 mm) above the finish floor to the bottom of the apron. Knee and toe clearance shall comply with Fig. 31.

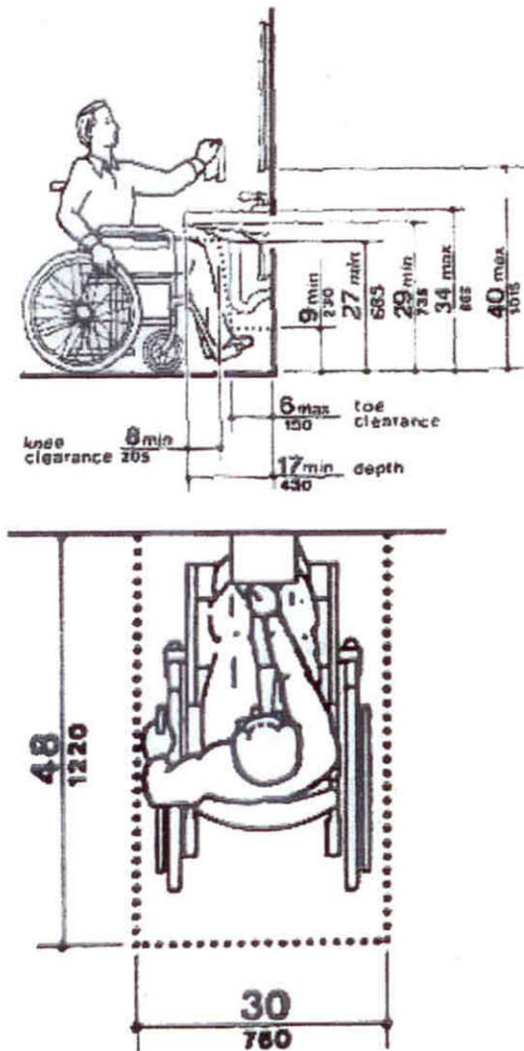
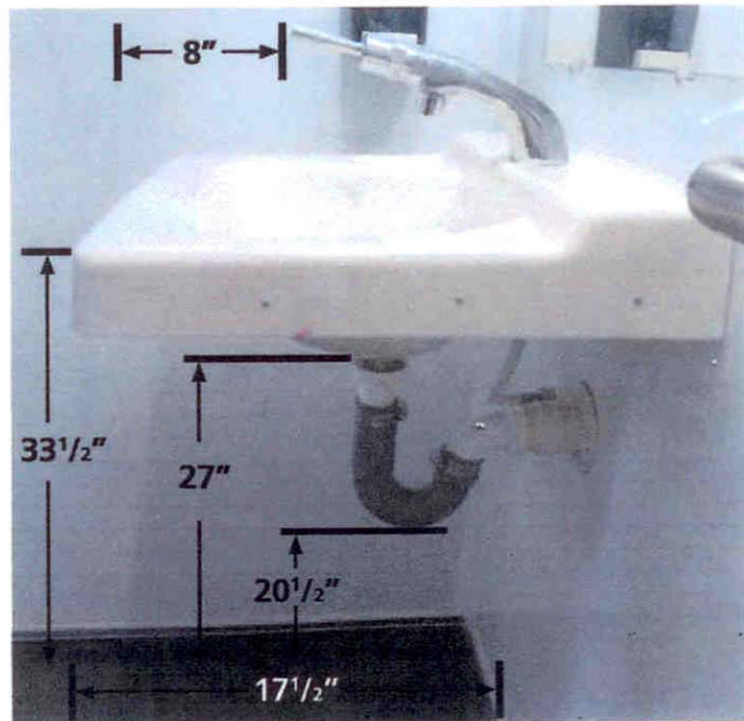


Figure 4b

Forward Approach



4.2.4* Clear Floor or Ground Space for Wheelchairs.



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4.2.4.1 Size and Approach. The minimum clear floor or ground space required to accommodate a single, stationary wheelchair and occupant is 30 in by 48 in (760 mm by 1220 mm) (see Fig. 4(a)). The minimum clear floor or ground space for wheelchairs may be positioned for forward or parallel approach to an object (see Fig. 4(b) and (c)). Clear floor or ground space for wheelchairs may be part of the knee space required under some objects.

4.27.4 Operation. Controls and operating mechanisms shall be operable with one hand and shall not require tight grasping, pinching, or twisting of the wrist. The force required to activate controls shall be no greater than 5 lbf (22.2 N).

4.19.3 Clear Floor Space. A clear floor space 30 in by 48 in (760 mm by 1220 mm) complying with 4.2.4 shall be provided in front of a lavatory to allow forward approach. Such clear floor space shall adjoin or overlap an accessible route and shall extend a maximum of 19 in (485 mm) underneath the lavatory (see Fig. 32).

4.19.4 Exposed Pipes and Surfaces. Hot water and drain pipes under lavatories shall be insulated or otherwise configured to protect against contact. There shall be no sharp or abrasive surfaces under lavatories.

4.19.5 Faucets. Faucets shall comply with 4.27.4. Lever-operated, push-type, and electronically controlled mechanisms are examples of acceptable designs. If self-closing valves are used the faucet shall remain open for at least 10 seconds.

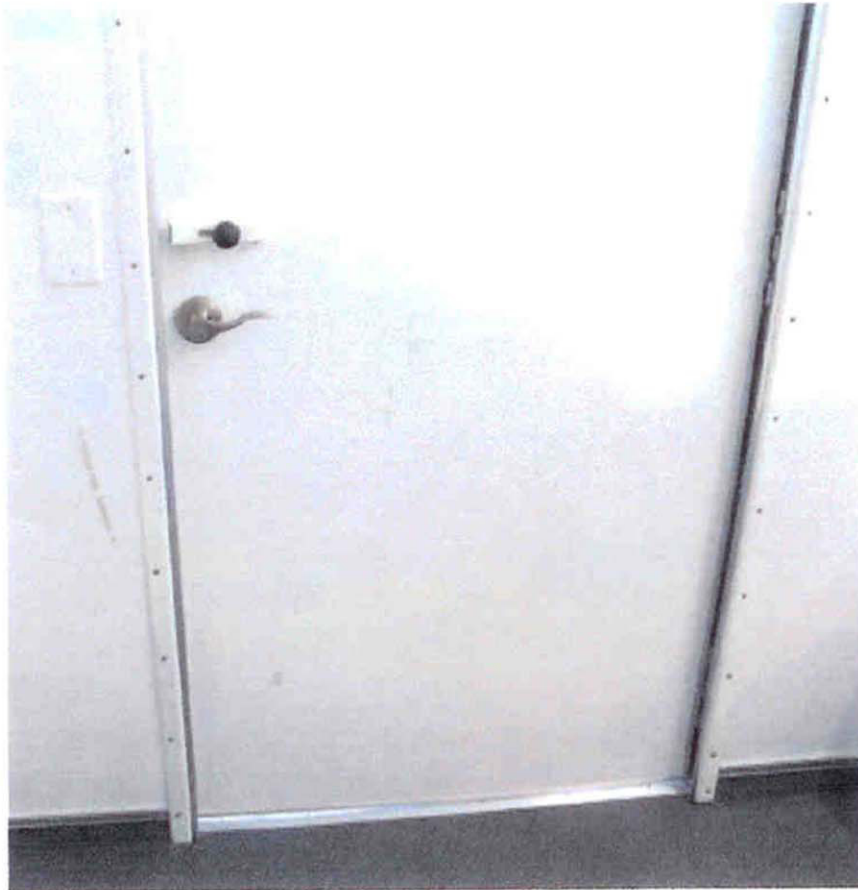
4.19.6* Mirrors. Mirrors shall be mounted with the bottom edge of the reflecting surface no higher than 40 in (1015 mm) above the finish floor (see Fig. 31). Appendix Note

4.2.5* Forward Reach. If the clear floor space only allows forward approach to an object, the maximum high forward reach allowed shall be 48 in (1220 mm) (see Fig. 5(a)). The minimum low forward reach is 15 in (380 mm). If the high forward reach is over an obstruction, reach and clearances shall be as shown in Fig. 5(b). Appendix Note

4.2.6* Side Reach. If the clear floor space allows parallel approach by a person in a wheelchair, the maximum high side reach allowed shall be 54 in (1370 mm) and the low side reach shall be no less than 9 in (230 mm) above the floor (Fig. 6(a) and (b)). If the side reach is over an obstruction, the reach and clearances shall be as shown in Fig 6(c). Appendix Note



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4.13.6 Maneuvering Clearances at Doors. Minimum maneuvering clearances at doors that are not automatic or power-assisted shall be as shown in Fig. 25. The floor or ground area within the required clearances shall be level and clear.

EXCEPTION: Entry doors to acute care hospital bedrooms for in-patients shall be exempted from the requirement for space at the latch side of the door (see dimension "x" in Fig. 25) if the door is at least 44 in (1120 mm) wide.



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Figure 25
Maneuvering Clearances at Doors

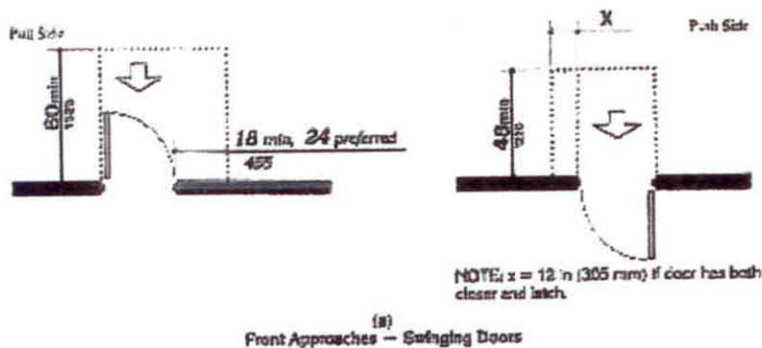


Diagram (a) Front Approaches -- Swinging Doors. Front approaches to pull side of swinging doors shall have maneuvering space that extends 18 in (455 mm) minimum beyond the latch side of the door and 60 in (1525 mm) minimum perpendicular to the doorway.

Front approaches to push side of swinging doors, equipped with both closer and latch, shall have maneuvering space that extends 12 in (305 mm) minimum beyond the latch side of the door and 48 in (1220 mm) minimum perpendicular to the doorway.

Front approaches to push side of swinging doors, not equipped with latch and closer, shall have maneuvering space that is the same width as door opening and extends 48 in (1220 mm) minimum perpendicular to the doorway.