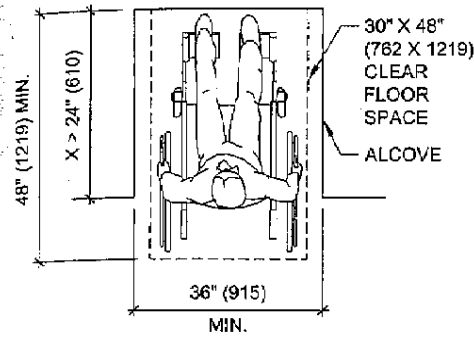
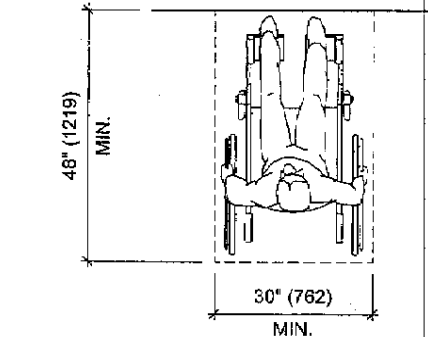


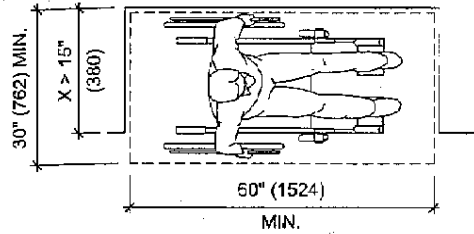
MANEUVERING CLEARANCES



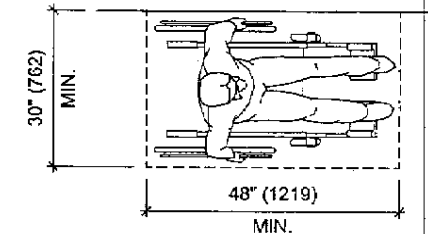
FORWARD APPROACH—ALCOVE



FORWARD

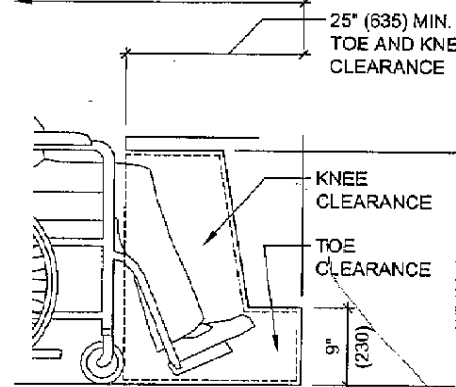


PARALLEL APPROACH—ALCOVE



PARALLEL

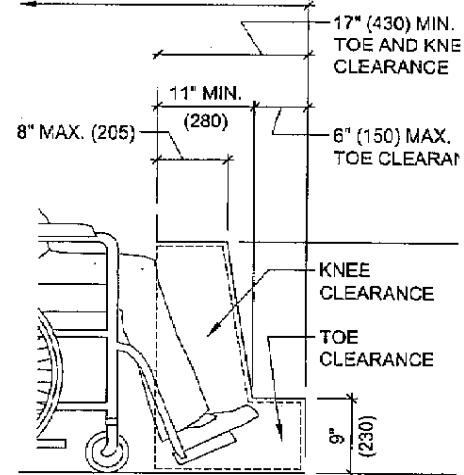
THIS AREA MAY BE USED AS PART OF MANEUVERING CLEARANCE OR WHEELCHAIR TURNING SPACE



MAXIMUM CLEARANCE

Additional space can be provided beneath the table, desk, or other element, but that space is not considered knee and toe clearance.

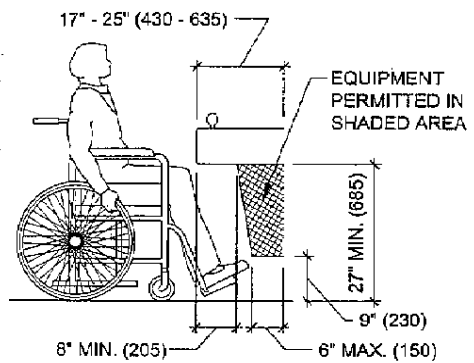
THIS AREA MAY BE USED AS PART OF MANEUVERING CLEARANCE OR WHEELCHAIR TURNING SPACE



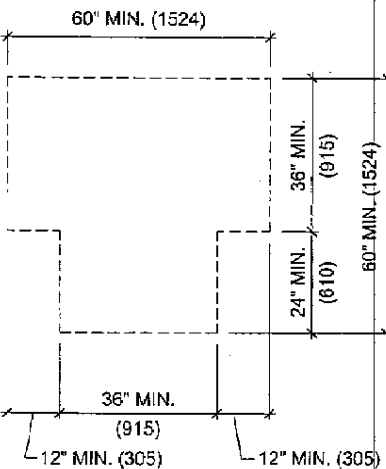
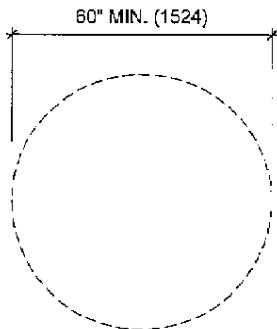
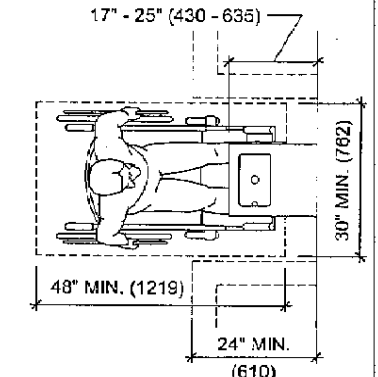
MINIMUM CLEARANCE

Clearances shown are required at specific accessible elements. Knee and toe clearance must always be at least 30 in. (762 mm) wide.

MANEUVERING CLEARANCES



SAMPLE MANEUVERING CLEARANCES—DRINKING FOUNTAIN

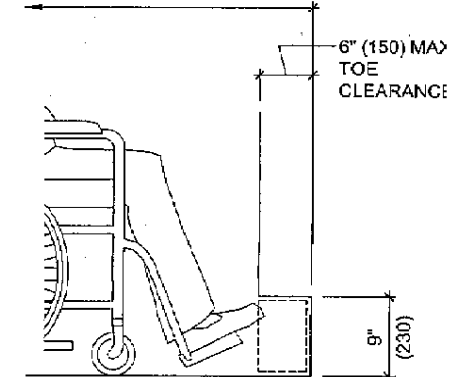


Knee and toe clearance can be included as part of the wheelchair turning space and clear floor space at accessible elements. However, the extent and location of knee and toe clearance can affect the usability of the space.

WHEELCHAIR TURNING SPACE

Knee and toe clearance that is included as part of a T-shaped turning space should be provided only at the base of the T or on one arm of the T. In some configurations, the obstruction of part of the T-shape may make it impossible for a wheelchair user to maneuver to the desired location.

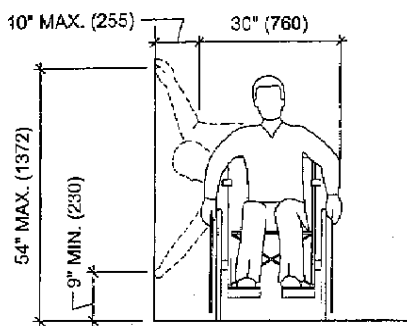
THIS AREA MAY BE USED AS PART OF MANEUVERING CLEARANCE OR WHEELCHAIR TURNING SPACE



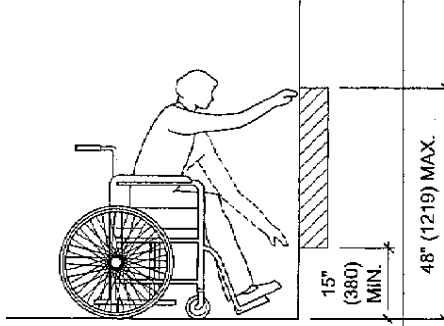
TOE CLEARANCE ONLY

KNEE AND TOE CLEARANCES

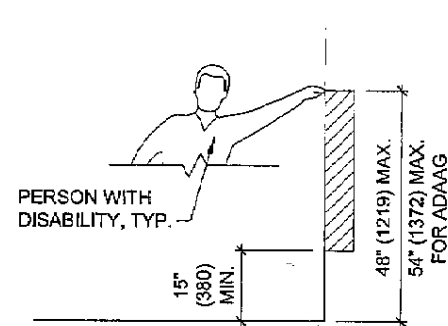
14 Accessibility



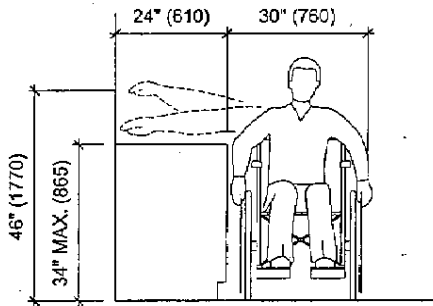
HIGH AND LOW SIDE REACH LIMITS



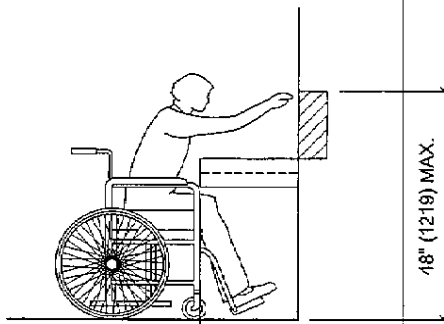
UNOBSTRUCTED FORWARD REACH



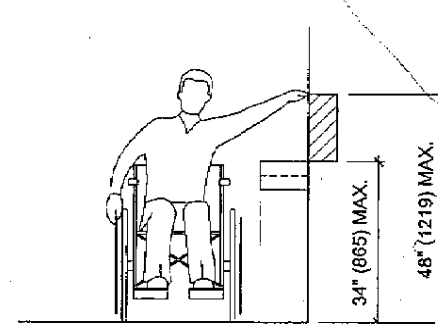
UNOBSTRUCTED SIDE REACH



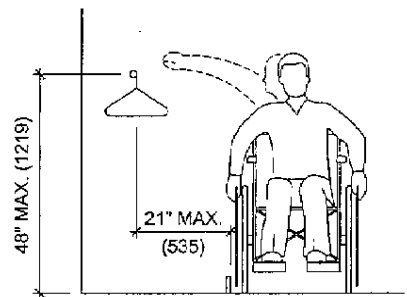
MAXIMUM SIDE REACH OVER OBSTRUCTION



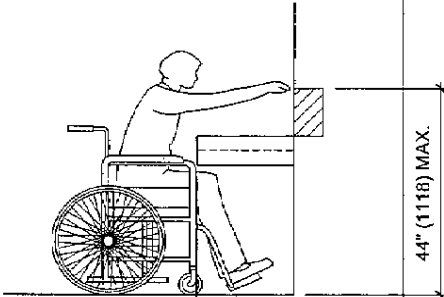
20" (510) MAX. COUNTER DEPTH



10" (255) MAX.

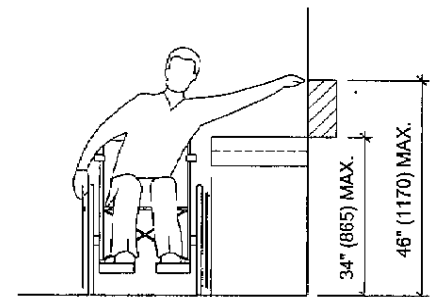


CLOSET



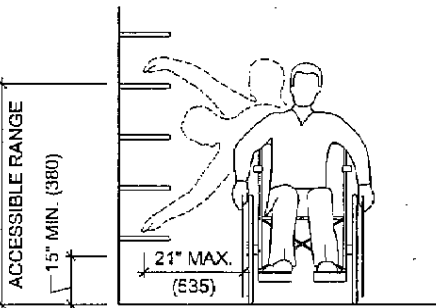
20" - 25" MAX. (510 - 635)

UNOBSTRUCTED HIGH FORWARD REACH



10" - 24" MAX. (255 - 610)

OBSTRUCTED SIDE REACH



SHELVES

Accessible controls and operating mechanisms should be operable with one hand and not require tight grasping, pinching, or twisting of the wrist, with the following exception: FHAG does not regulate the operating force or type of operation required for controls and operating mechanisms in dwelling units.

PARALLEL/SIDE REACH LIMITS

ANSI A117.1 provides exception for existing elements located 54 in. (1,372 mm) maximum above the floor or ground.

A117.1 provides exception for elevator car controls, allowing buttons at 54 in. (1,372 mm) maximum, where the elevator serves more than 16 openings.

A117.1 does not apply the 48-in. (1,219-mm) restriction to tactile signs. Tactile signs must be installed so

the tactile characters are between 48 and 60 in. (1,219 and 1,524 mm) above the floor.

FHAG allows inaccessible controls in covered dwelling units if "comparable" accessible controls are provided.

Floor outlets are permitted if an adequate number of accessible wall outlets is provided.

Electric outlets above kitchen counters can be located in corners, provided additional outlets are located within

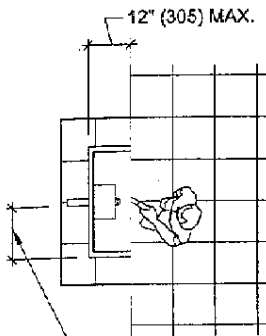
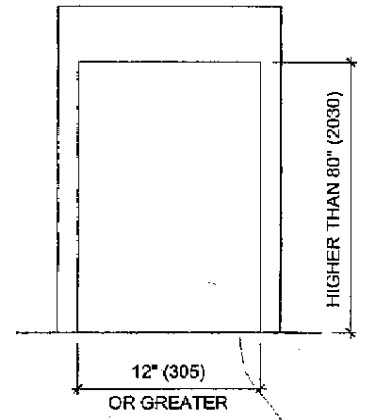
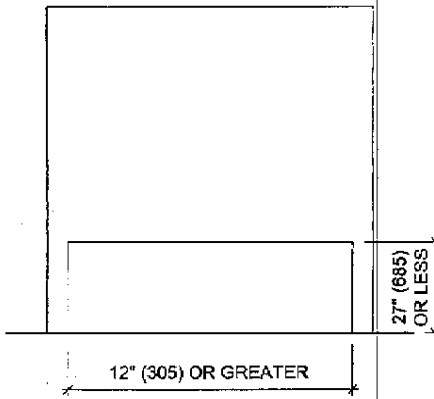
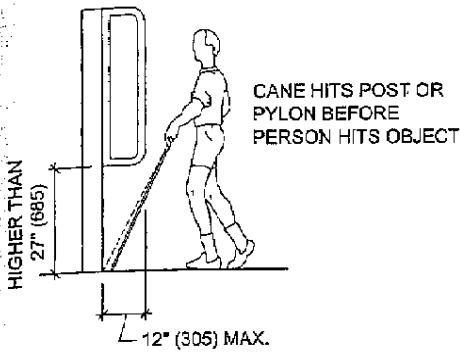
REACH RANGES

SPECIFICATIONS FOR WATER CLOSETS SERVING CHILDREN

DIMENSION	PRE-K-K (AGES 3 AND 4) IN. (MM)	GRADES 1ST-3RD (AGES 5-8) IN. (MM)	GRADES 4TH-7TH (AGES 9-12) IN. (MM)
Water closet centerline	12 (305)	12-15 (305-380)	15-18 (380-455)
Toilet seat height	11-12 (280-305)	12-15 (305-380)	15-17 (380-430)
Grab bar height	18-20 (455-510)	20-25 (510-635)	25-27 (635-685)
Dispenser height	14 (355)	14-17 (355-430)	17-19 (430-485)

CHILDREN'S REACH RANGES FROM A WHEELCHAIR

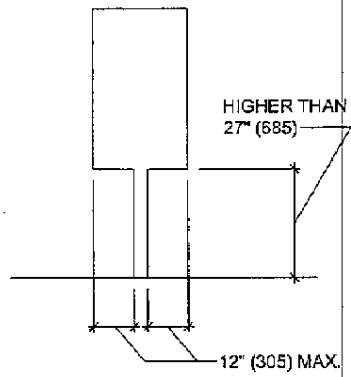
FORWARD OR SIDE REACH	AGES 3 AND 4 IN. (MM)	AGES 5-8 IN. (MM)	AGES 9-12 IN. (MM)
Maximum	36 (915)	40 (1,015)	44 (1,118)
Minimum	20 (510)	18 (455)	16 (406)



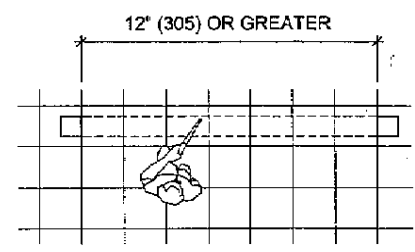
THIS OVERHANG CAN BE GREATER THAN 12" (305) BECAUSE THE OBJECT CANNOT BE APPROACHED FROM THIS DIRECTION

ELEVATION

ELEVATION



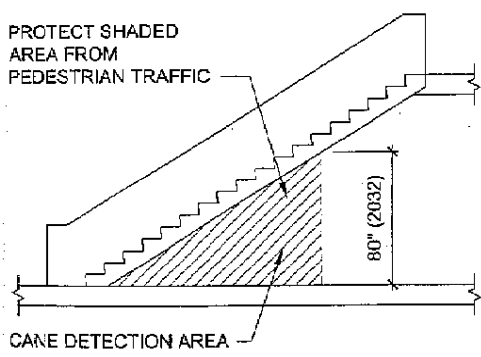
ELEVATION



PLAN

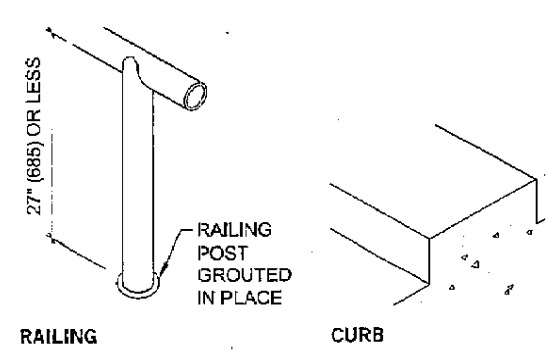
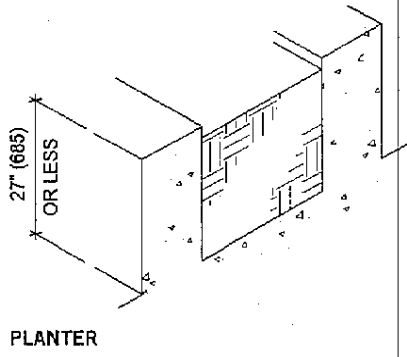
OBJECTS MOUNTED ON POSTS OR PYLONS

FREESTANDING OBJECTS

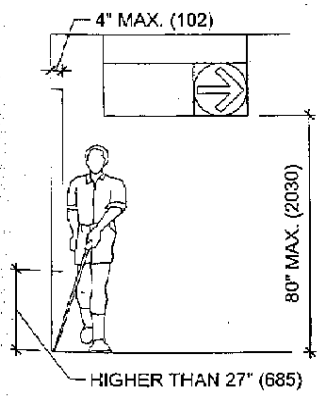


OVERHEAD HAZARDS—EXAMPLE

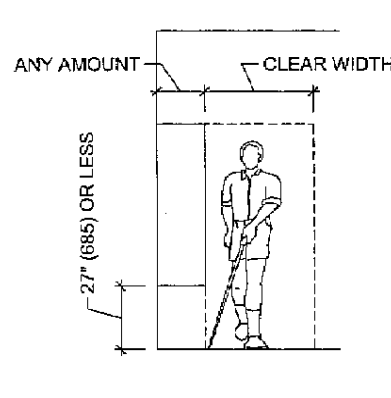
POSTMOUNTED PROTRUDING OBJECTS



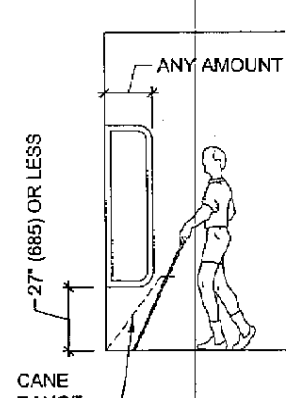
OVERHEAD HAZARD PROTECTION—EXAMPLES



WALKING PARALLEL TO A WALL



WALKING PARALLEL TO A WALL



WALKING PERPENDICULAR TO A WALL

DIMENSIONS OF PROTRUDING OBJECTS

PROTRUDING OBJECTS

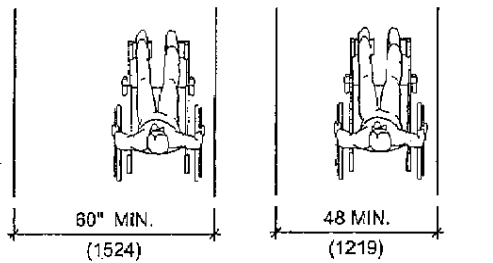
Wall sconces, fire alarm appliances, environ controls, door hardware, signs, and suspending fixtures are examples of protruding objects.

Some standards specify the extent to which door and door closers may protrude into the (2,032-mm) vertical clearance, generally allow 2-in. (51-mm) maximum projection.

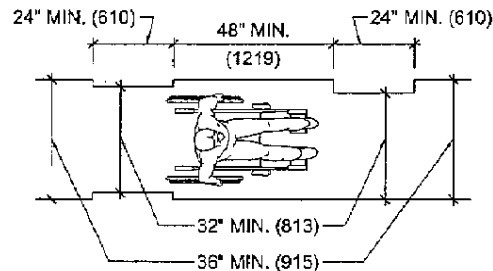
Protruding objects are not permitted to reduce required width of an accessible route (36 in mm), with this exception: a 32-in. (813-mm) w permitted for a 24-in. (6,100-mm) length.

Lawrence G. Perry, AIA, Silver Spring, Maryland

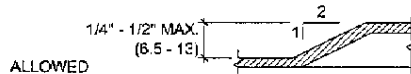
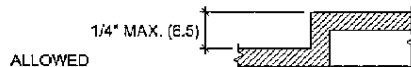
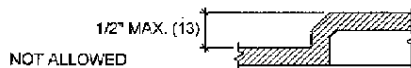
16 Accessibility



TWO WHEELCHAIRS ONE WHEELCHAIR AND ONE AMBULATORY PERSON



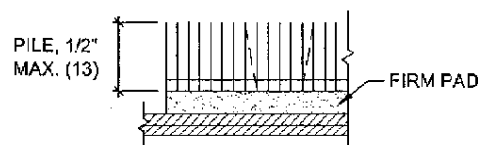
SINGLE WHEELCHAIR



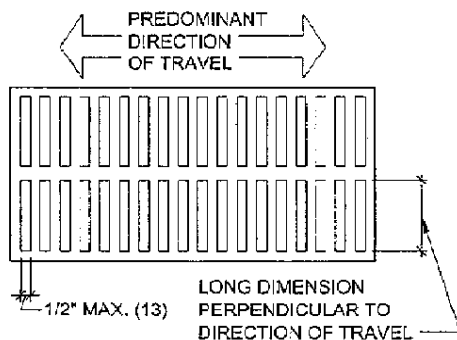
CHANGES IN LEVEL

Changes in level greater than 1/2 in. (13 mm) must be ramped. Some standards prohibit changes in level in clear floor space, maneuvering clearances, wheelchair turning space, and access aisles.

CLEAR WIDTH OF AN ACCESSIBLE ROUTE



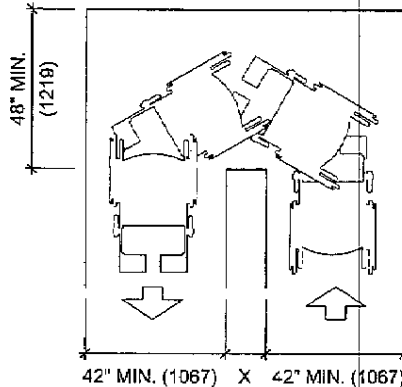
CARPET ON FLOOR OR GROUND SURFACES



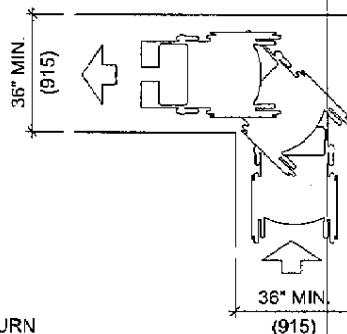
OPENING IN FLOOR OR GROUND SURFACES

All surfaces must be firm, stable, and slip-resistant. Other openings, such as in wood decking or ornamental gratings, must be designed so that a 1/2-in. (13-mm) diameter sphere cannot pass through the opening. The potential for wood shrinkage should be considered.

FLOOR AND GROUND SURFACES



U-TURN AROUND AN OBSTRUCTION



90° TURN

Dimensions shown apply when X is less than 48 in. (1,219 mm).

URNS

REQUIREMENTS FOR INTERIOR ACCESSIBLE ROUTES

Accessible routes are generally required as follows:

Multilevel buildings and facilities: Required between all levels, including mezzanines, in multistory buildings, unless exempted.

- *ADA elevator exception:* Buildings with only two floors are exempt from providing an accessible route to the upper or lower level. Buildings with less than 3,000 sq ft (279 sq m) per floor, regardless of height, are exempt from providing an accessible route to upper or lower floor levels. Neither exception applies to shopping centers, offices of professional health care providers, public transportation terminals, or state and local government facilities.
- *Building code elevator exception:* Model building codes generally exempt a maximum aggregate area of 3,000 sq ft (279 sq m), regardless of the number of levels. Similar to the ADA restrictions, this exception cannot be used in offices of health care providers, passenger transportation facilities, or mercantile occupancies with multiple tenants. Consult the applicable local code.

FHAG elevator requirements: Required for buildings containing dwelling units, and not public or common-use spaces, FHAG does not require accessible routes to all levels. Instead, the existence or lack of an elevator determines the extent of units covered. When elevators are provided, they generally must serve all

floors; an exception is provided for elevators only as a means of access from a garage to a floor. When elevators are not provided, or "ground floor" units are subject to the FHAG requirements. In mixed-use construction, an accessible route is required to the first level containing dwelling units regardless of its location. Consult FHAG for specific requirements.

Levels not containing accessible elements or spaces: For facilities in which only a percentage of the units are provided are required to be accessible (assembly, institutional, and storage), the model building codes do not require an accessible route to serve levels containing required accessible spaces. Specific requirements for dispersion of accessible elements and spaces may still require multiple accessible routes. Consult the applicable local code.

Accessible spaces and elements: To all spaces and elements that are required to be accessible.

- *Toilet rooms and bathrooms:* ADA generally requires that all toilet and bathing rooms be accessible. This does not trigger a requirement for accessible routes if the floor level is not otherwise required to have an accessible route.
- *Alterations:* ADA and the model building codes generally do not require that altered elements trigger a requirement for accessible routes, unless covered under specific "program function" requirements. Consult ADA and the applicable local code.

COMPONENTS OF ACCESSIBLE ROUTES

Accessible routes are permitted to include the following elements: (1) walking surfaces with a slope no steeper than 1:20, (2) curb ramps, (3) ramps, (4) elevators, and (5) platform (wheelchair) lifts. The use of new construction is limited to locations where it is specifically permitted by the applicable regulations. Lifts are generally permitted to be used as part of an accessible route in alterations.

Each component has specific technical criteria that must be applied for use as part of an accessible route. Consult the applicable code or regulation.

LOCATION OF ACCESSIBLE ROUTES

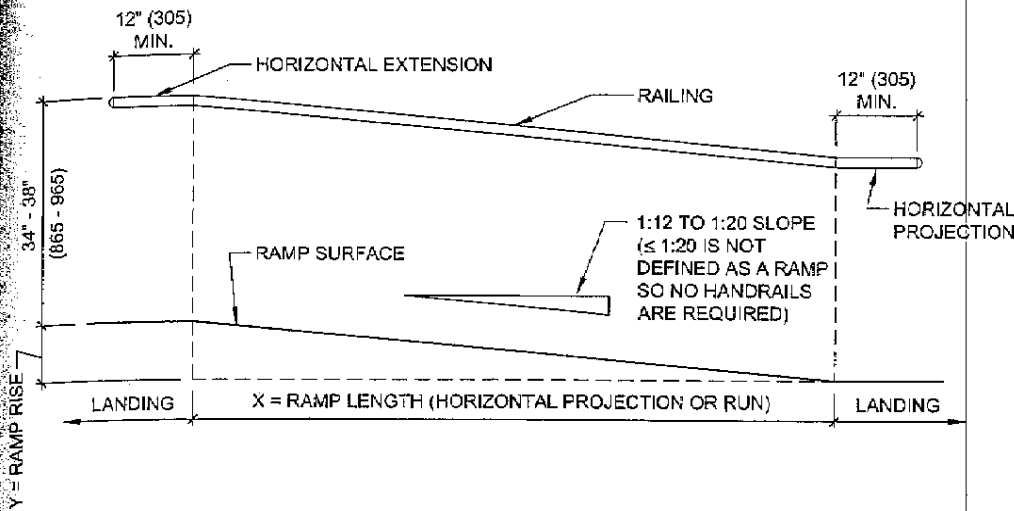
Accessible routes must be located as follows:

Interior routes: Where an accessible route is required between floor levels, and the general circulation between levels is an interior route, the accessible route should also be an interior route.

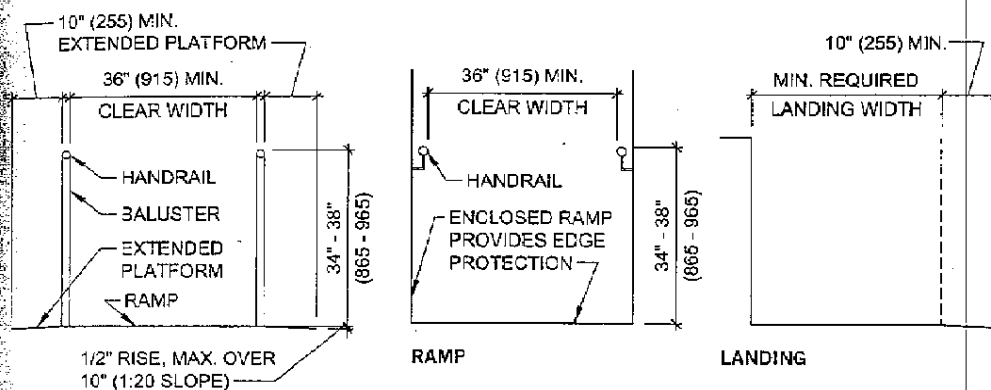
Relation to circulation paths: Accessible routes should coincide with, or be located in the same area as, the general circulation path. Avoid making the accessible route a "second-class" means of circulation. Consult the applicable regulations for additional specific requirements regarding location of accessible routes.

Where the accessible route departs from the general circulation path, and is not easily identified, directional signs should be provided as necessary to indicate the accessible route.

ACCESSIBLE RAMPS

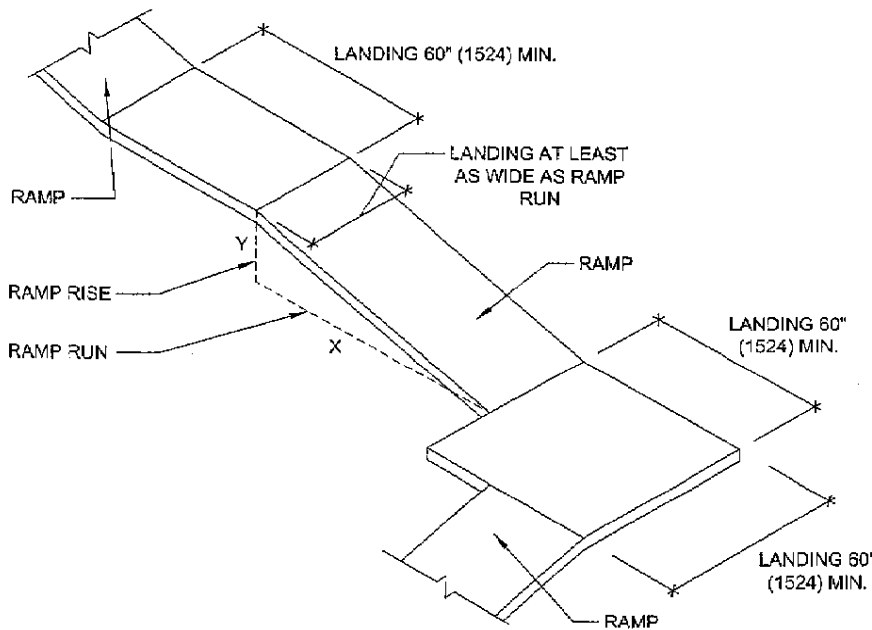


COMPONENTS OF A RAMP



RAMP

RAMP AND RAMP LANDING EDGE

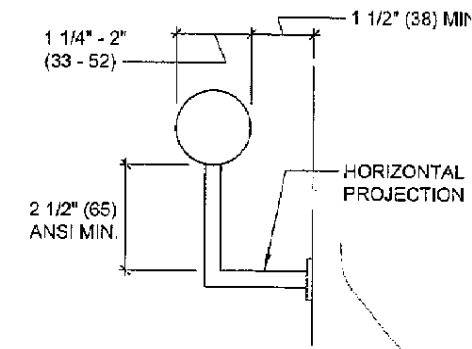


RAMP LANDINGS

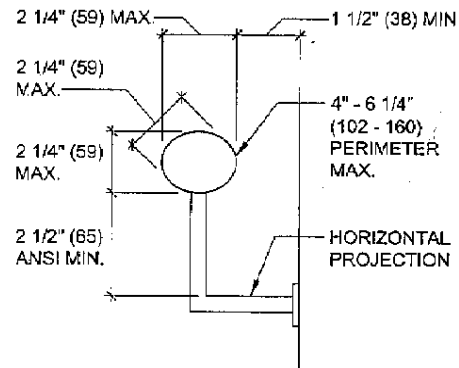
Handrails are required on both sides when rise is greater than 6 in. (152 mm).

Edge protection is required at ramps and landings that drop off.

RAMPS AND LANDINGS—SECTIONS



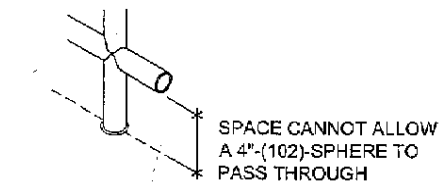
CIRCULAR



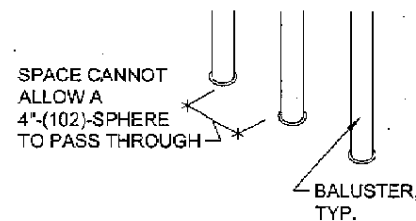
NONCIRCULAR

Provide continuous handrails at both sides of ramps or stairs and at the inside handrail of switchback or dogleg ramps and stairs. If handrails are not continuous at bottom, top, or landings, provide handrail extensions as shown in the ramp and stair example; ends of handrail must be returned smoothly to floor, wall, or post.

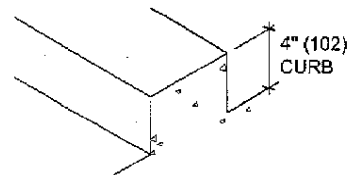
HANDRAIL DESIGN



LOW RAILING



RAILING WITH BALUSTERS



CURB

RAMP AND RAMP LANDING EDGE PROTECTION DETAILS

RESIDENTIAL BEDS

For wheelchair users who can independently transfer between bed and chair, bed heights should facilitate their access from a sitting position.

Quadriplegics or other wheelchair users who cannot independently transfer themselves between bed and chair are typically assisted by attendants, who use a portable lift mounted on a metal stand. The lift base typically requires approximately 8 in. (203 mm) of clearance under the bed.

DRESSERS, CHESTS, AND CABINETS

Dressers and chests for wheelchair users should be situated so there is a clear access aisle of approximately 42 in. (1,067 mm) in front.

Cabinets, tables, stands, and other furniture with doors should have relatively narrow leaves so the arc of the swing when they are opened is small. This makes the leaf easier to operate without moving the wheelchair as the door is opened.

DESKS, TABLES, AND WORKSTATIONS

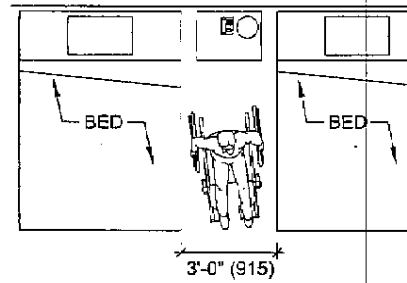
Knee space is integral to the use of desks, tables, and workstations. Furniture must offer knee space that can accommodate the wheelchair in a position that places the user's legs fully beneath the horizontal surface and his or her upper body close to the front edge of the top.

The recommended minimum width for a knee space of 2 ft 5 in. (762 mm) requires an aisle of approximately 3 ft 4 in. (1,016 mm) in order for most wheelchairs to easily complete a 90° turn.

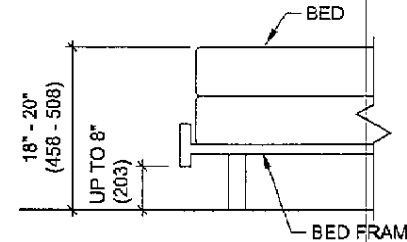
CHAIRS

For ambulatory people who have difficulty maintaining their balance, chairs should be stable in order to provide support. Chairs equipped with armrests help ambulatory users to sit and rise, and are generally more comfortable to sit in. Chair leg supports and cross-bracing should not obstruct kick space below the seat. Kick space allows the chair occupant to position his or her feet partially beneath the body in order to rise.

Ergonomic work chairs allow many aspects of the chair, such as seat height and angle of incline, to be adjusted to suit each individual. Wheelchair users who transfer diagonally can use chairs with armrests, while those who transfer from a parallel position must have clear side access without fixed armrests.

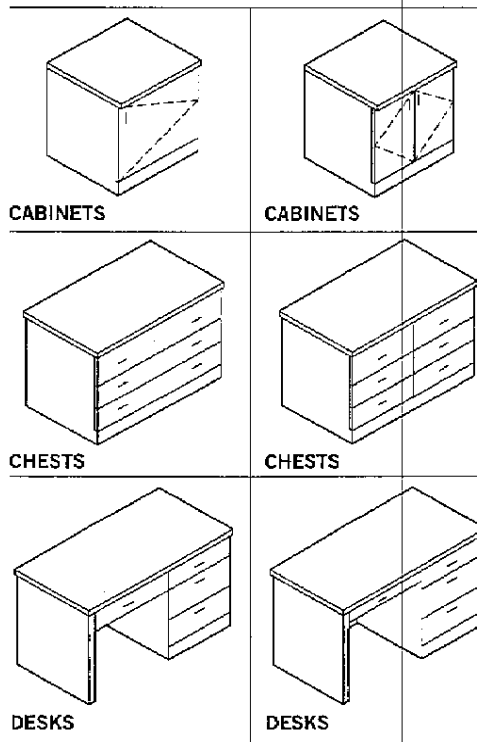


PLAN



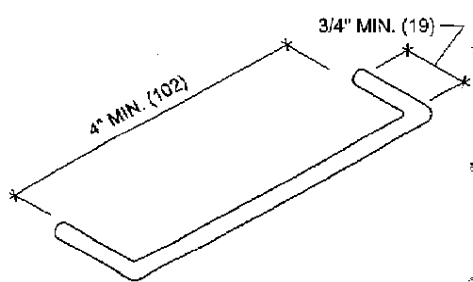
SECTION

BEDS

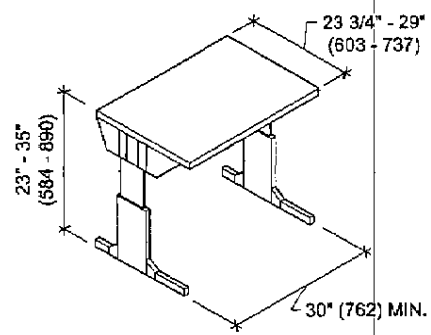


DIFFICULT TO OPERATE EASY TO OPERATE

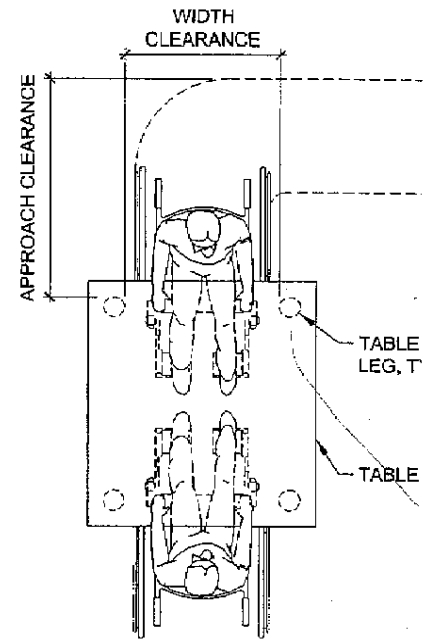
FURNITURE OPERATION FOR ACCESSIBILITY



ACCESSIBLE DRAWER PULL

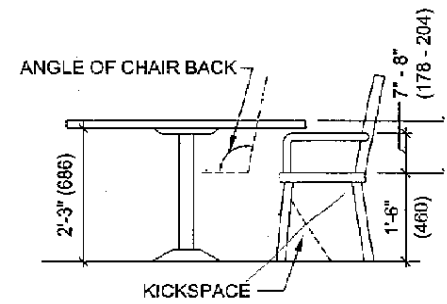


ADJUSTABLE HEIGHT WORK SURFACE

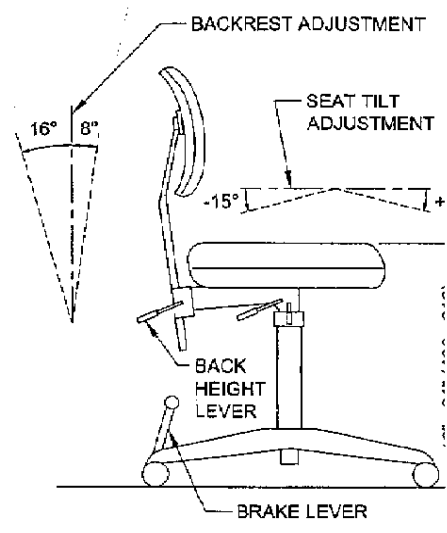


For knee space below a tabletop with a minimum width 2 ft 6 in. (762 mm) between obstructions (e.g., table leg), the approach clearance should be 3 ft 6 in. (1,067 mm). A knee space width of 3 ft 0 in. (915 mm) or more should have an approach clearance of 3 ft 0 in. (915 mm).

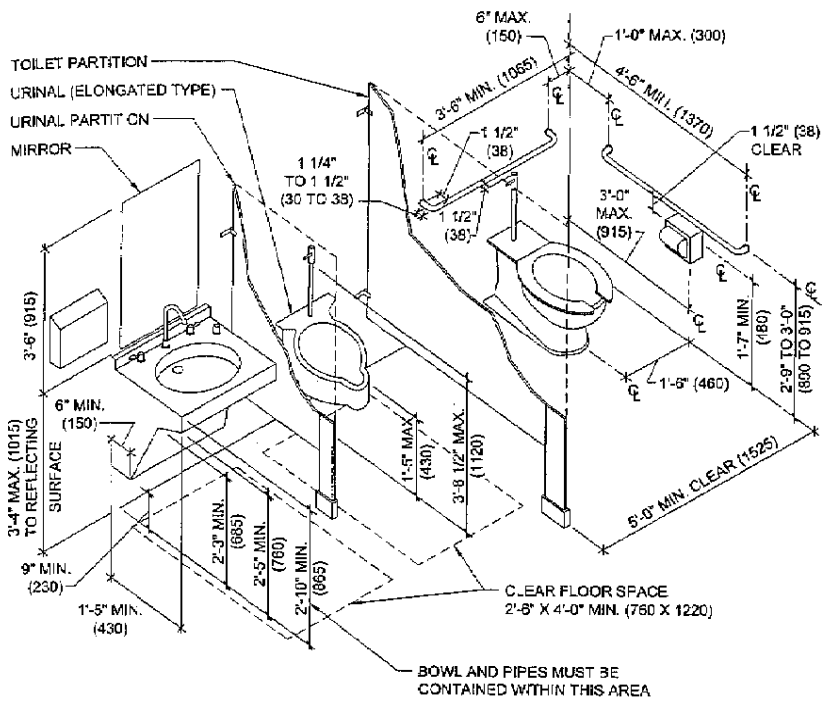
TABLE CLEARANCES



CHAIR FOR DINING OR DESK

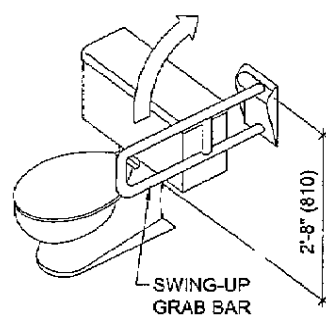
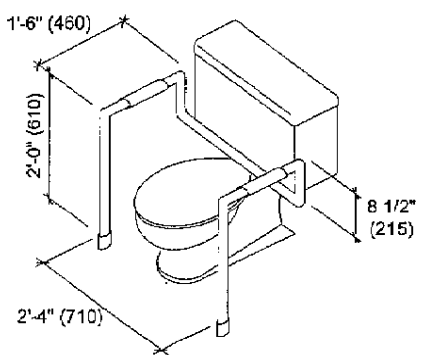


ERGONOMIC WORKSTATION CHAIR



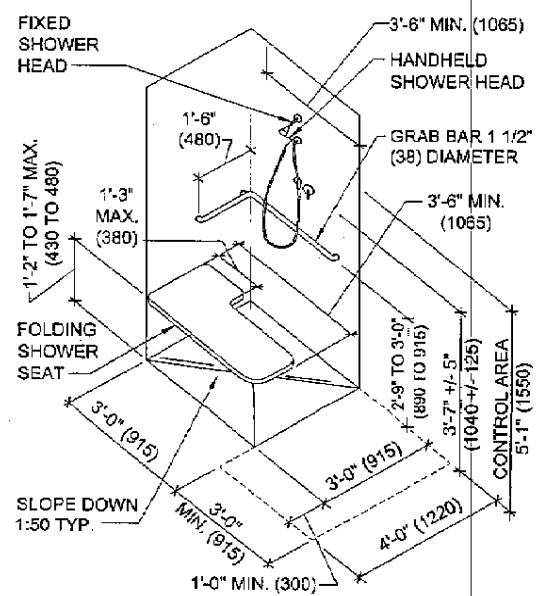
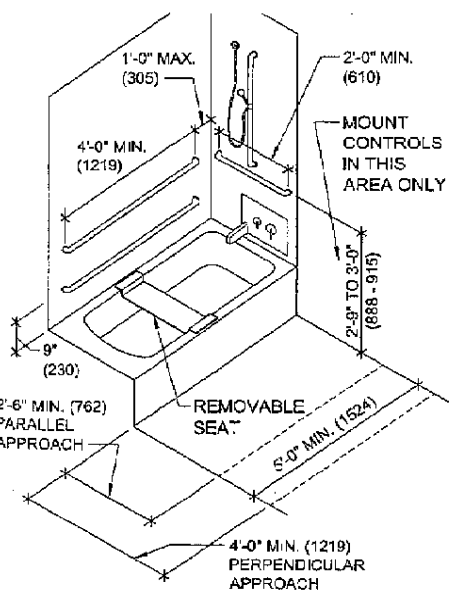
The particular configuration of clear floor space affects the maximum and minimum heights of the controls. If the partition is greater than or equal to 2 ft 0 in. (610 mm) deep, urinal clear floor space must be 3 ft 0 in. (915 mm) wide. If less than 1 ft 5 in. (430 mm) deep, it may be 29 in. (737 mm) wide.

LOCATION OF ACCESSIBLE FIXTURES AND ACCESSORIES

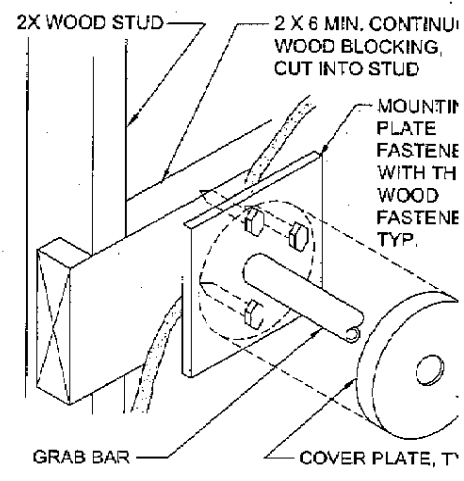
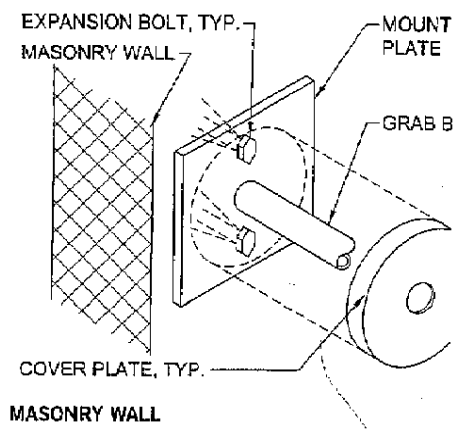


These configurations do not comply with UFAS or ADAAG.

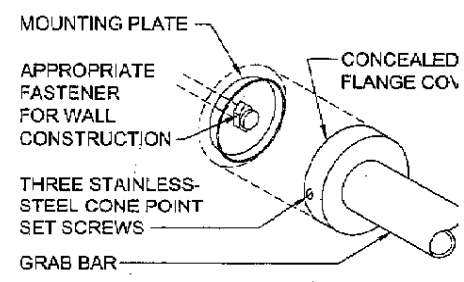
OPTIONAL GRAB BAR CONFIGURATIONS



ACCESSIBLE BATHTUB AND SHOWER



WOOD CONSTRUCTION



CONCEALED FLANGE

Size: 1 1/2 in. (38 mm) or 1 1/4 in. (32 mm) O.D. with 1 in. (38 mm) clearance at wall.

Material: Stainless steel or chrome-plated brass with knurled finish (optional).

Installation: Concealed or exposed fasteners; return ends to the wall, intermediate supports at 3 ft 0 in. (915 mm) maximum. Use heavy-duty bars and methods of installation.

Other grab bars are available for particular situations.

Consult ANSI and ADAAG requirements, as well as applicable local and federal regulations.

GRAB BAR ATTACHMENT DETAILS

ACCESSIBLE TOILET ROOMS

All dimensional criteria on this page are based on ANSI A117.1, and on adult anthropometrics.

In new construction, all public and common-use toilet rooms are generally required to be accessible. Where multiple single-user toilet rooms or bathing rooms are clustered in a single location, and each serves the same population, only 5%, but not less than one, of the rooms must be accessible. The accessible room(s) must be identified by signs.

Single-user toilet and bathing rooms provided within a private office are permitted to be acceptable. Making the room accessible is permitted to involve replacement of the water closet and lavatory, changing the swing of the door, and installing grab bars in previously reinforced walls.

Doors are not permitted to swing into the required clear floor space at any fixture, except in single-user rooms, where a clear floor space is provided beyond the swing of the door.

Unisex Toilets

Recent model codes require accessible unisex toilets in certain assembly and mercantile occupancies. These unisex rooms are beneficial for parents with small children and for persons with disabilities who require personal assistance in using toilet facilities. This requirement applies when a total of six or more water closets (or water closets and urinals) is provided in the facility.

Unisex facilities must be located within 500 ft (152 m), and within one floor, of separate-sex facilities. Doors to unisex toilet and bathing rooms must be securable from within the room.

Accessible unisex toilet and bathing rooms are permitted in alterations in lieu of altering existing separate-sex facilities in certain conditions. Unisex rooms must be located in the same area and on the same floor as the existing inaccessible facilities.

Toilet Room Layouts

Some of the toilet room layouts shown are similar. Variations are in the direction of the door swing and based on whether the width or depth is the more constraining dimension. Dimensions show comfortable minimums and preferred dimensions.

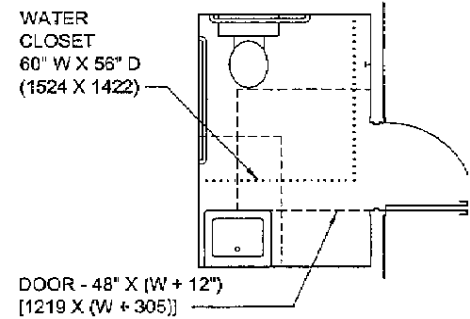
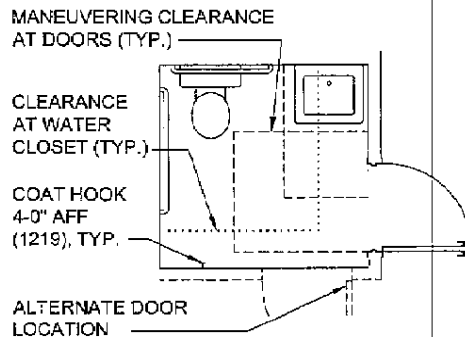
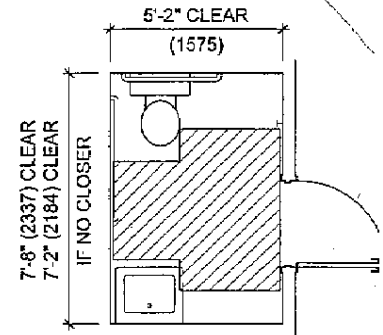
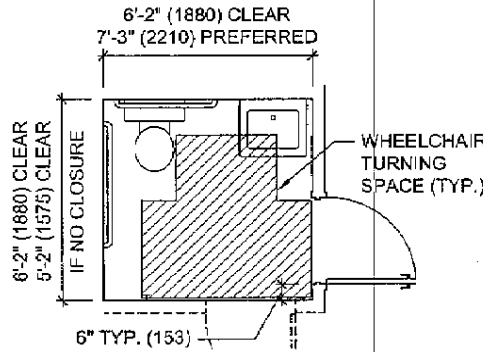
Overall room dimensions include a 2-in. (51-mm) construction tolerance.

Each layout shows the required clear floor space the fixtures and the doors.

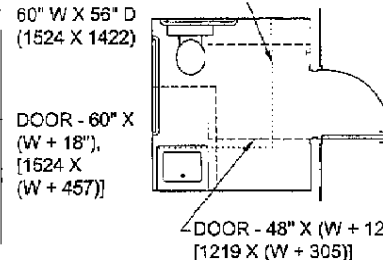
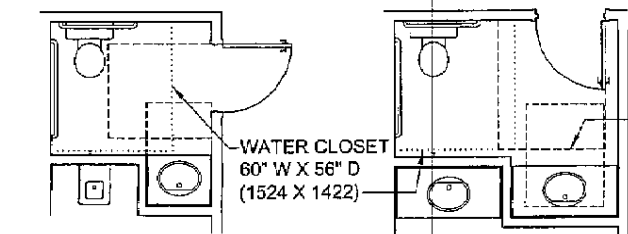
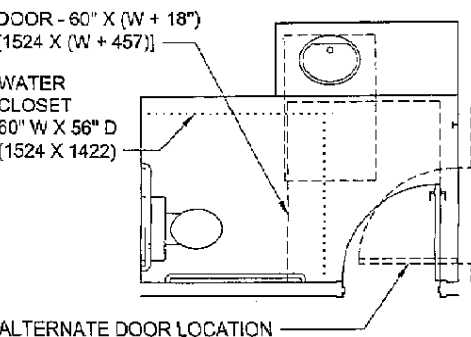
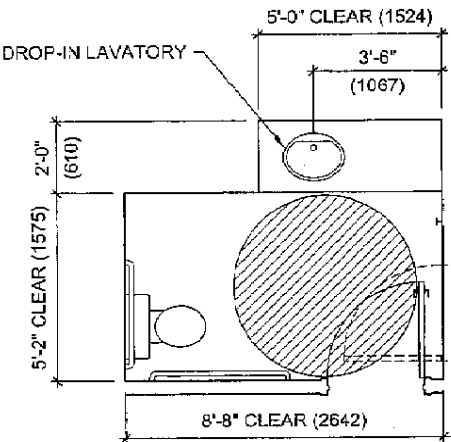
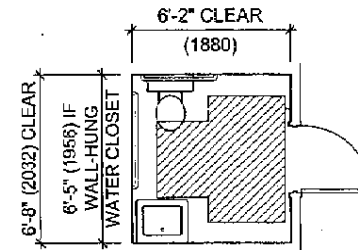
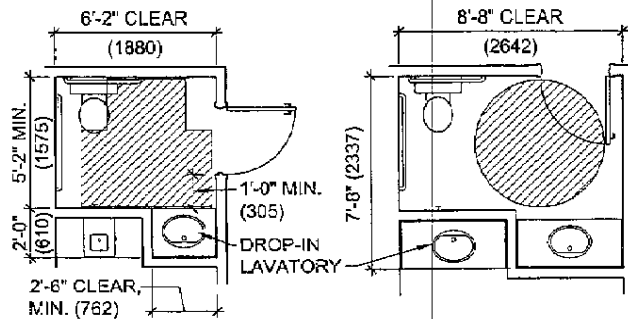
For door maneuvering clearances, see ADAAG (Sect 4.13.6 and Figure 25) for various requirements a conditions. Variables include direction of swing, direction of approach, size of door, and door hardware.

Doors to bathrooms are assumed to be 36 in. (914 mm) wide, with a closer and latch for privacy.

Maneuvering clearances at the base of water closets and below lavatories may vary due to fixture design. Confirm actual water closet and lavatory dimensions for other makes and models.



SHORT AND COMPACT—OUTSWINGING DOOR



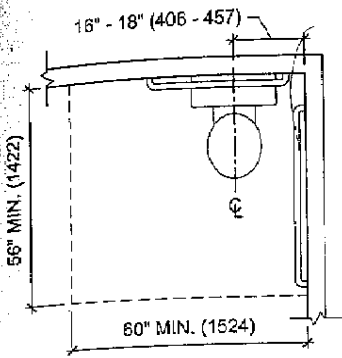
OUTSWINGING DOOR

INSWINGING DOOR

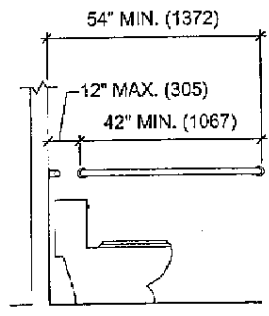
OUTSWINGING DOOR

LAVATORY ON OPPOSITE WALL

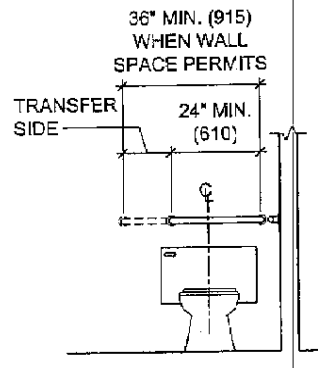
LAVATORY ON SIDE WALL



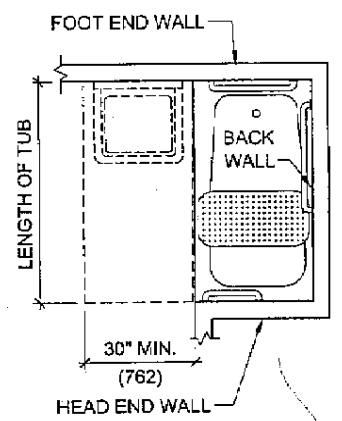
PLAN CLEARANCE



SIDE WALL ELEVATION



REAR WALL ELEVATION

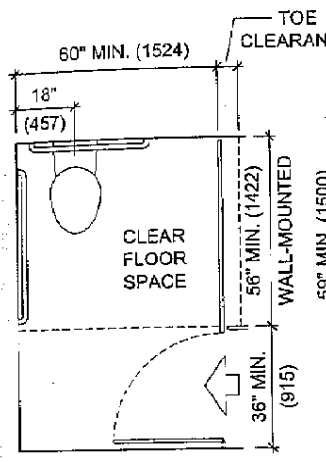


WITHOUT PERMANENT SEAT

ANS. 117.1-1998 requires the water closet clearance to be unobstructed by lavatory or other fixtures. Other regulations allow configurations with a lavatory within the water closet clearance.

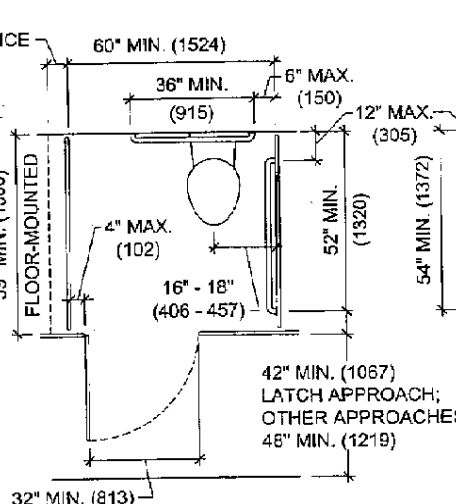
The dashed area indicates the allowable location of the toilet paper dispenser. Dispensers should allow continuous paper flow and not control delivery.

WATER CLOSETS

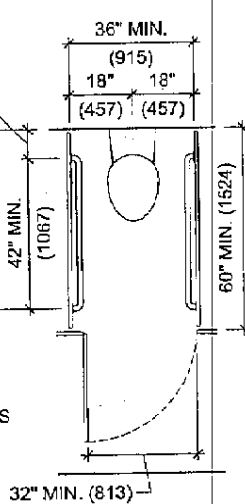


END-OF-ROW WHEELCHAIR ACCESSIBLE

Toe clearance 9 in. (230 mm) high and 6 in. (152 mm) deep is required at the front and at least one side of accessible toilet compartments. Toe clearance is not

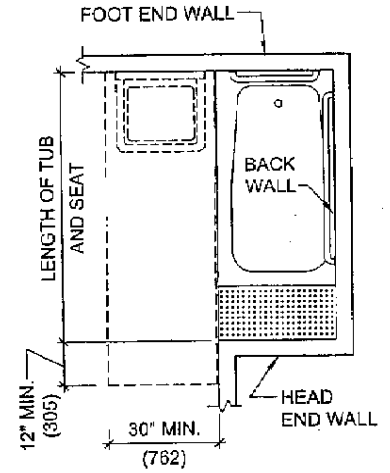


MID-ROW



AMBULATORY ACCESSIBLE

required when the compartment size exceeds the minimum dimension by 6 in. (152 mm) or more.

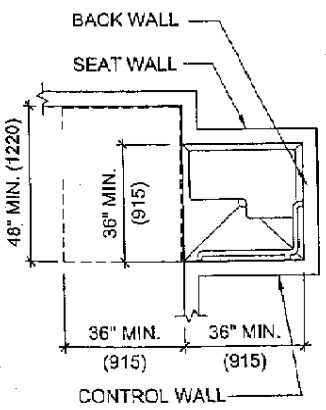


WITH PERMANENT SEAT

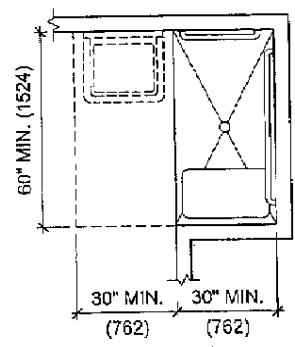
Bathtub controls, other than drain stoppers, must be located on an end wall between the tub rim and grab bar and between the open side of the tub and the midpoint of the tub width. A 59-in. (1,500-mm) minimum-length shower spray unit is required.

Tub enclosures must not obstruct controls, interfere with transfer from a wheelchair to the tub, or have tracks mounted on the tub rim.

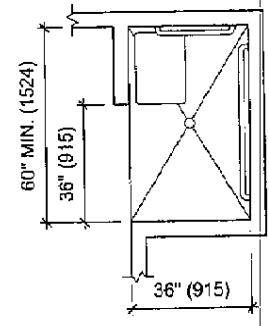
TOILET COMPARTMENTS



TRANSFER-TYPE COMPARTMENT



STANDARD ROLL-IN TYPE

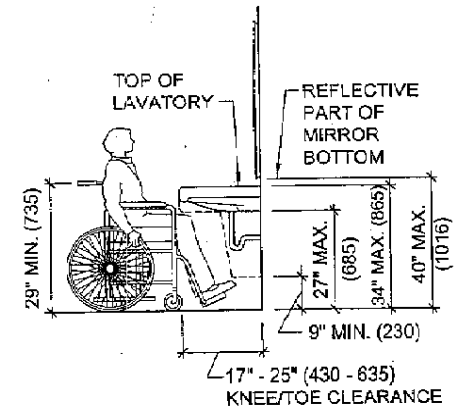


ALTERNATE ROLL-IN TYPE

A fixed, folding, or removable seat is required in transfer-type compartments. Seats in roll-in showers, where provided, should be folding-type and located on the wall adjacent to the control wall.

Shower compartment thresholds are not permitted to exceed 1/2 in. (13 mm). A 59-in. (1,500-mm) minimum-length shower spray unit is required.

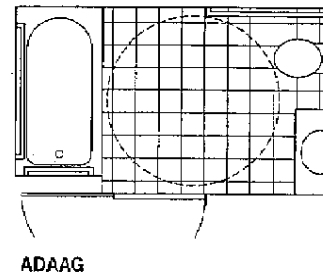
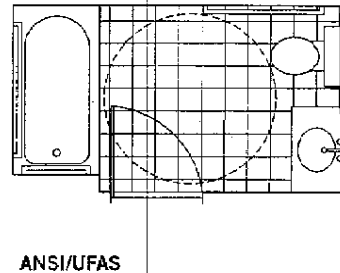
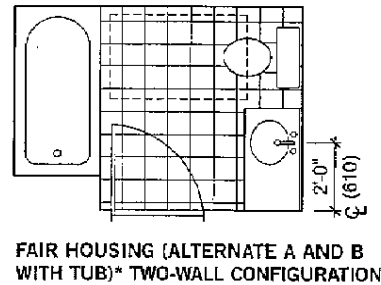
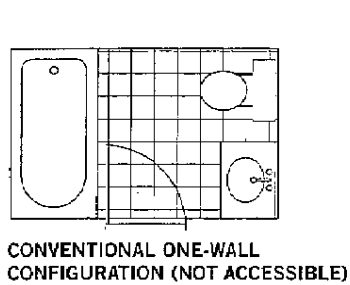
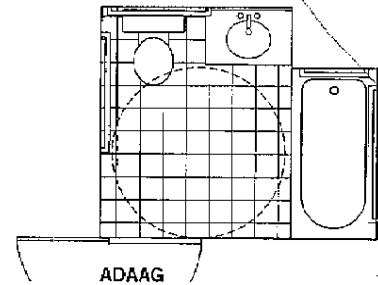
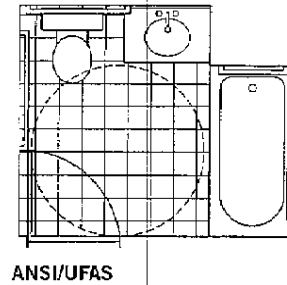
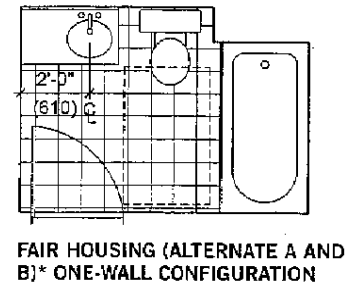
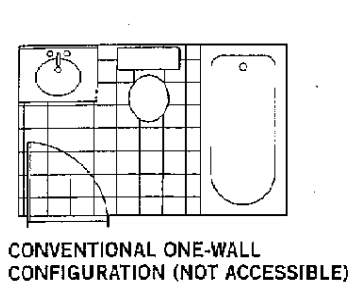
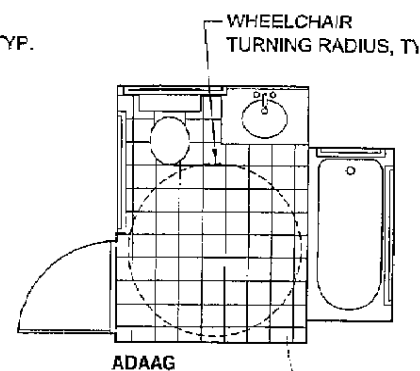
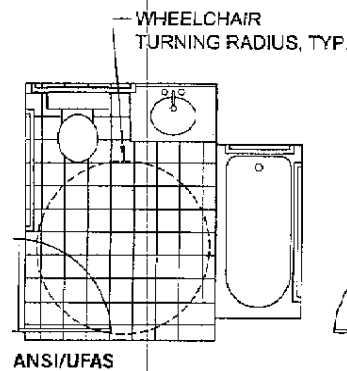
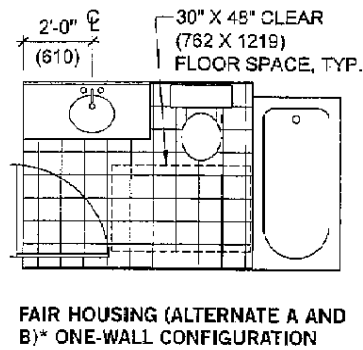
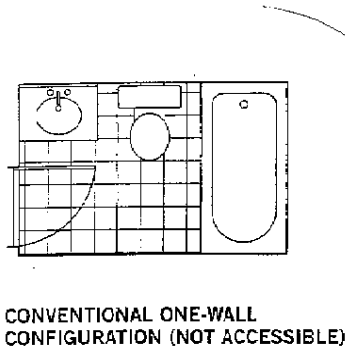
BATHTUBS



Exposed pipes and water supply pipes located beneath accessible lavatories must be insulated or located so as to protect users from contact.

SHOWERS

LAVATORIES



BATHROOM LAYOUTS

*For alternate B, reverse the plumbing at the tub.

ACCESSIBILITY STANDARDS FOR BATHROOMS

Residential bathrooms and single-use toilet rooms can be divided into two general categories: *private facilities* such as those located in single- or multifamily dwellings, and *public or institutional facilities* such as those located in nursing homes, hospitals, dormitories, or hotels.

Wheelchair bathroom standards for private dwellings were first included in the 1981 edition of ANSI A117.1. Four years later, the Uniform Federal Accessibility Standard (UFAS) published nearly identical bathroom standards for dwellings included in federal projects. In most multifamily projects, whether privately or publicly funded, between 1% and 5% of the total dwellings must meet the ANSI or UFAS standards for full wheelchair accessibility.

In 1988, the Fair Housing Amendments Act (FHAA), a federal civil rights law that addressed private multifamily housing design, was enacted. FHAA guidelines included new and different standards for residential bathrooms. The Fair Housing guidelines include two alternative bathroom design standards. In covered dwellings with two or more full bathrooms, the more strict standards can be used for one bath; the more minimal standards can be applied to the second bathroom.

In 1991, the Americans with Disabilities Act (ADA) included new design standards called the Americans with Disabilities Act Accessibility Guidelines (ADAAG). ADAAG standards are not typically applied to private residential facilities because the previously issued Fair Housing standards already apply. However, bathrooms located in "transient lodging" facilities, such as hotels, or public institutional facilities, such as hospitals, may be required to meet both ADA and Fair Housing standards.

Maneuvering Space

Bathrooms that comply with Fair Housing must be "usable" rather than "accessible" and therefore have lower maneuvering space standards. According to FHAA, if the entry door swings into the bathroom, there must be enough clear space to position a wheelchair clear of the door swing.

All of the standards permit required floor space for fixtures to overlap with required maneuvering space. Current ADAAG standards, however, do not permit the bathroom door (even in single-user facilities) to swing into any fixture clearance.

Bathroom Entry Doors

Fair Housing permits a 2-ft-10-in. (864-mm) door to provide a "nominal" 32-in. (813-mm) clear opening. ANSI, UFAS, and ADAAG require installation of at least

a 3-ft-0-in. (915-mm) door to provide the full 32 (813-mm) clear opening.

Grab Bars

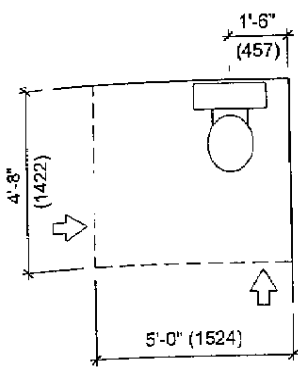
Grab bar arrangement can influence the floor plan of accessible bathroom. FHAA grab bar standards are strict, and this permits the design of smaller bathroom.

Adaptable Features

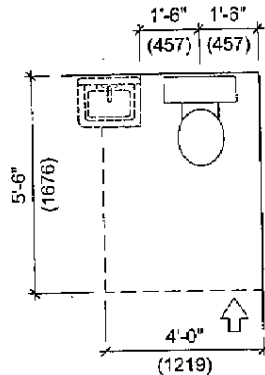
In residential bathroom design, *adaptability* was a term when introduced in the 1980 ANSI edit. Adaptability in this case is defined as "the capability certain elements to be altered or added so as accommodate the needs of persons with or without disabilities, or to accommodate the needs of persons with different types or degrees of disabilities." So codes and civil rights laws require provisions in certain bathrooms for "adaptable" features.

For single-family custom homes or remodeling projects bathroom designs should be specially tailored to the individual homeowners. If a master bathroom is planned for a wheelchair user, for example, the design should reflect that person's individual capabilities and preferences.

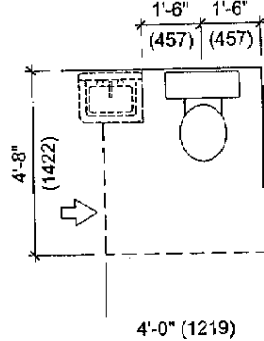
Kim A. Beasley, AIA, and Thomas D. Davies, Jr., AIA; Paralyzed Veterans of America Architecture; Washington, D.C.



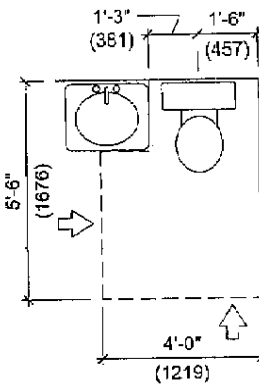
ANSI A/B, UFAS, ADAAG, FHAG (EITHER APPROACH)



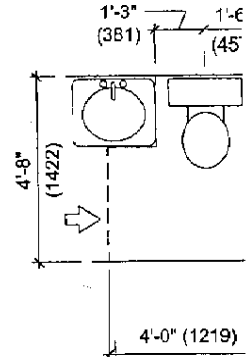
ANSI A, UFAS, ADAAG (FRONT APPROACH)



ANSI A, UFAS, ADAAG (SIDE APPROACH)

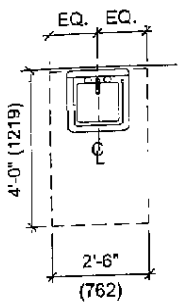


ANSI B, FHAG (EITHER APPROACH)

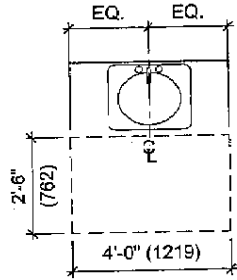


ANSI B, FHAG (SIDE APPROACH)

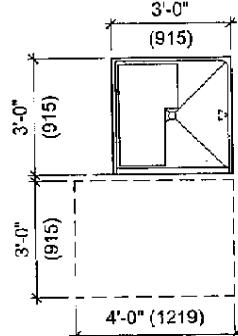
WATER CLOSET SPACE REQUIREMENTS



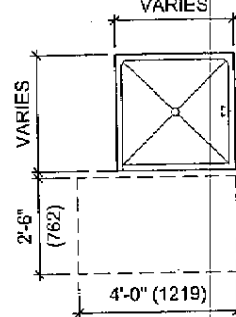
ANSI A, UFAS, ADAAG (WITH KNEE SPACE)



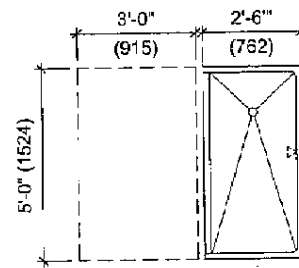
ANSI B (NO KNEE SPACE)



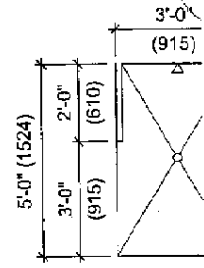
ANSI A, UFAS, ADAAG (STALL SHOWER)



ANSI B, FHAG (STALL SHOWER)

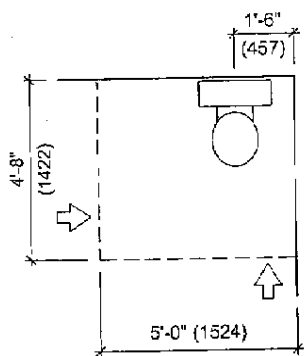


ANSI A, UFAS, ADAAG (ROLL-IN SHOWER)

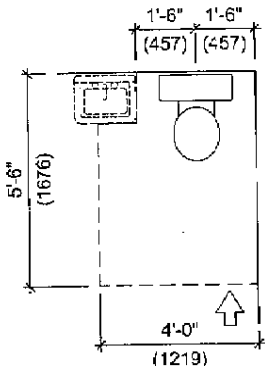


ADAAG (ALTERNATE ROLL-IN SHOWER)

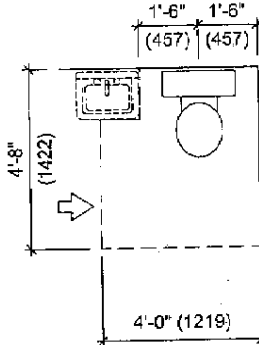
LAVATORY AND SHOWER SPACE REQUIREMENTS



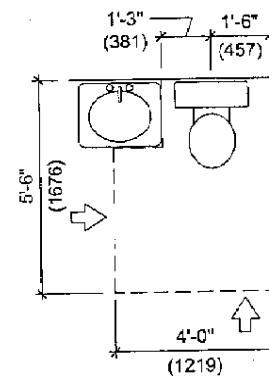
ANSI A, UFAS, ADAAG (PARALLEL APPROACH)



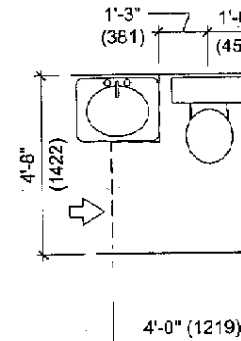
ANSI A, UFAS, ADAAG (PERPENDICULAR APPROACH)



ANSI A, UFAS, ADAAG (TUB/SHOWER WITH SEAT)
For a tub/shower with seat, an additional 1 ft (305 mm) of clear space beyond the seat is required.



ANSI B, FHAG (ALTERNATE A)



ANSI B, FHAG (ALTERNATE B)

BATHTUB SPACE REQUIREMENTS

PLUMBING FIXTURE STANDARDS

Water Closets

The major differences between FHAA and the other standards are the minimum space required behind the water closet and the configuration of the lavatory or vanity that may be located adjacent to the toilet. In order to meet FHAA standards, an adjacent lavatory does not have to include knee space, whereas knee space is an important ANSI/UFAS and ADAAG requirement.

Lavatories and Vanities

FHAA does not require knee space, but the other standards do. In some instances, the knee space height

required by ADAAG is greater than that required by ANSI or UFAS. All accessibility standards except Fair Housing include requirements for a maximum sink depth. ADAAG, ANSI, and UFAS also include requirements for faucets, mirrors, and medicine cabinets.

Bathtubs and Tub/Showers

The ADAAG, ANSI (pre-1998), and UFAS accessible bathtub standards also have subtle differences. The bathtub clear floor space requirements are similar to those for water closets in that an approach direction is indicated (either perpendicular or parallel).

FHAA offers two different clear space requirements; the designer may choose to comply with either these alternatives. Alternate B is stricter because it requires clear space adjacent to the foot of the tub.

Stall Showers and Roll-in Units

Accessible showers include both transfer stalls (where a bather moves from a wheelchair to a bench or port seat) and roll-in stalls (where a bather remains seated in a special shower chair and is either pushed by an attendant or self-propelled into the stall). All accessibility standards require either wall reinforcing or grab bars inside a shower.

ACCESSIBILITY GUIDELINES FOR KITCHENS

The 1980 American National Standards Institute (ANSI) A117.1 and the 1984 Uniform Federal Accessibility Standards (UFAS) were the first to include kitchen design standards that focused on the needs of wheelchair users. The kitchen standards in the 1988 Fair Housing Amendments Act (FHAA), a federal civil rights law, include less specialized wheelchair design features for multifamily housing.

Designers should carefully verify which kitchen requirements are appropriate for their specific project because accessibility codes and civil rights laws have very different design standards.

Accessible kitchens should reflect conventional layout principles with regard to proper workflow and functional adjacencies.

Fixture and Appliances

The three general types of wheelchair standards for residential kitchens are:

- General kitchen maneuvering space
- Individual fixture and appliance maneuvering space
- Other fixture specifications such as basin depths, switch locations, and faucet configurations

Sufficient clear floor space must be provided at fixtures and appliances to accommodate either a parallel or front approach, depending on the applicable design standard requirements.

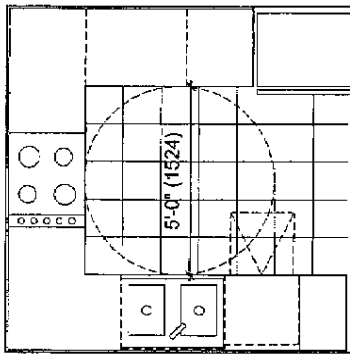
The 1998 ANSI appliance clearances are more sophisticated than previous standards. For example, oven clearances depend on whether the unit is a self-cleaning model and the door is side- or bottom-hinged.

ANSI and UFAS require either adjustable height counters or fixed counters at a height of 34 in. (865 mm). FHAA does not address counter heights.

Adaptable Features

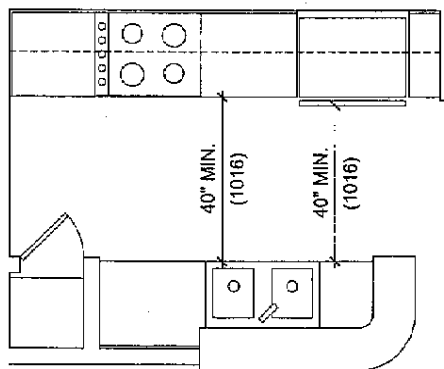
The term *adaptability* is defined as "the capability of certain elements to be altered or added so as to accommodate the needs of persons with or without disabilities." For accessible kitchens, adaptable elements might include removable base cabinets that can be eliminated to provide knee space below countertops, or adjustable-height countertop sections that can be raised and lowered.

Lawrence G. Perry, AIA, Silver Spring, Maryland



FHAA guidelines require a 5-ft-0-in. (1,524-mm) clearance if a sink, range, or cooktop is installed in the base leg of the U. If the base leg fixture includes a knee space or removable base cabinets, the 5-ft-0-in. (1,524-mm) clearance is not required.

U-SHAPED KITCHEN PLAN



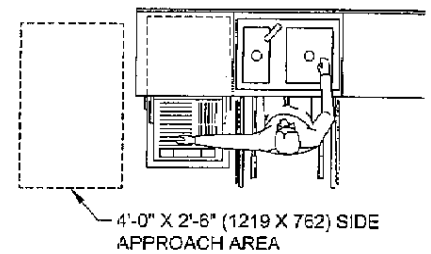
ANSI and UFAS require a 40-in. (1,016-mm) clearance between kitchen cabinets and opposing walls, cabinets, or appliances *where the counters provide knee space*. Otherwise, an accessible route is required. The FHAA guidelines, however, require a 40-in. (1,016-mm) clearance in all cases.

GALLEY KITCHEN PLAN

FLOOR SPACE AND KNEE SPACE REQUIREMENTS FOR FIXTURES AND APPLIANCES

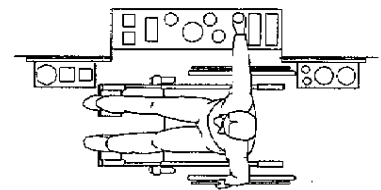
APPLIANCE	REQUIREMENT	FAIR HOUSING	ANSI/UFAS
Sink	Approach	Parallel	Parallel or front
	Knee space	No	Yes
Range/cooktop	Approach	Parallel	Parallel or front
	Knee space	No	Optional
Workspace	Approach	Not required	Front
	Knee space	No	Yes
Refrigerator	Approach	Parallel or front	Parallel or front
	Knee space	No	No
Dishwasher	Approach	Parallel or front	Parallel or front
	Knee space	No	No
Oven (self-cleaning)	Approach	Parallel or front	Front
	Knee space	No	No
Oven (non-self-cleaning)	Approach	Parallel or front	Front
	Knee space	No	Yes (off-set)
Trash compactor	Approach	Parallel or front	Parallel or front
	Knee space	No	No

Note: HUD interpretations of FHAA guidelines require clear floor space to be centered on the appliance or fixture. In a kitchen plan, this can have significant design impact.



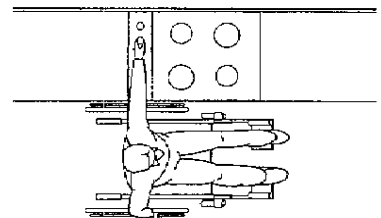
The sink should be a shallow unit with easy-to-operate faucets. A tall spout and a pullout spray attachment are also recommended. Garbage disposals must be off-set in order to provide full knee space under the sink.

KITCHEN SINK AND DISHWASHER



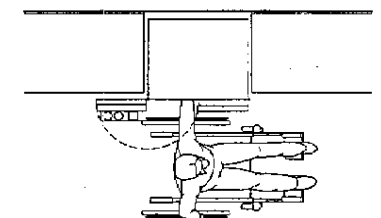
The design of kitchen storage space for wheelchair users should provide both visual and physical access to wall and base cabinets, drawers, and pantries. Base cabinets, for example, can be specified to include pull-out shelves or drawers that will provide easy access to items stored in the back of the cabinets.

KITCHEN STORAGE



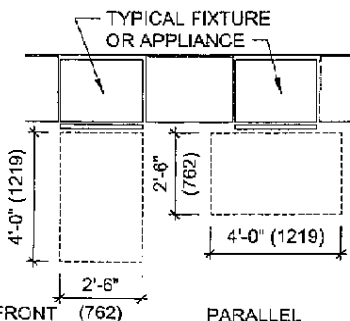
A range or cooktop should have front- or side-mounted controls so the seated user does not need to reach over the heated surfaces. A smooth cooktop surface allows pots to be slid rather than lifted on and off the burners.

STOVES AND COOKTOPS



Side-by-side models offer the user both freezer and refrigerator storage at all height levels from the floor to the top shelf.

REFRIGERATORS



APPROACH DIAGRAM FOR FIXTURES OR APPLIANCES