Section 7 B: Accessibility

When developing housing under the NSP Program, several laws and regulations come into play that deals with accessible housing. These include:

- Fair Housing Act
- Kansas 2020 Accessibility Standards
- Section 504 of the Rehabilitation Act of 1973

While they are generally only applicable to new construction, there are instances where rehabilitation activities must comply also. Further, even if an activity is not subject to a particular law or regulation, grantees are encouraged to make ALL units accessible to the maximum extent feasible.

There are additional laws and regulations related to public spaces (e.g. Americans with Disabilities Act and the Architectural Barriers Act) which the grantee should be aware of. However, this chapter is focused on the three mentioned above.

Fair Housing Act

The Fair Housing Act applies to almost all housing sold or rented in the United States. The Fair Housing Act prohibits discrimination in housing practices on the basis of race, color, religion, sex, and national origin. The Fair Housing Act was amended in 1988 to provide protections from discrimination in any aspect of the sale or rental of housing for families with children and persons with disabilities. The Fair Housing Act also establishes requirements for the design and construction of new rental or for sale multifamily housing to ensure a minimum level of accessibility for persons with disabilities.

The Fair Housing Act requires that covered multifamily dwelling units designed and constructed for first occupancy after March 13, 1991, be designed and constructed to be accessible. Covered multifamily dwelling units are:

- Dwelling units in buildings consisting of 4 or more units served by one or more elevators, or
- Ground floor dwelling units in other buildings with 4 or more units.

The Act, as applied to these units, can be broken down into following technical requirements:

1. The public and common use portions of such dwellings are readily accessible to and usable by disabled persons;

2. All the doors designed to allow passage into and within the premises within such dwellings are sufficiently wide to allow passage by disabled persons in wheelchairs; and

3. All premises within such dwellings contain the following features of adaptive design:

    a. An accessible route into and through the dwelling;

    b. Light switches, electrical outlets, thermostats, and other environmental controls in accessible locations;

    c. Reinforcements in bathroom walls to allow later installation of grab bars; and

    d. Usable kitchens and bathrooms such that an individual in a wheelchair can maneuver about the space.

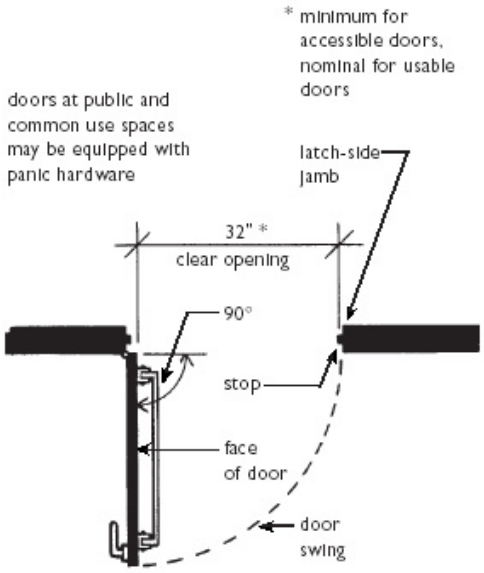
Accessible Public and Common-Use Areas
All public and common-use spaces within a complex must be accessible. This includes:

- Parking areas, curb ramps, passenger loading areas
- Building lobbies, lounges, halls and corridors, elevators
- Public use restrooms
- Rental offices
- Drinking fountains/water coolers
- Mailboxes and laundry rooms
- Community/Exercise Rooms, swimming pools, playgrounds and other recreational facilities.

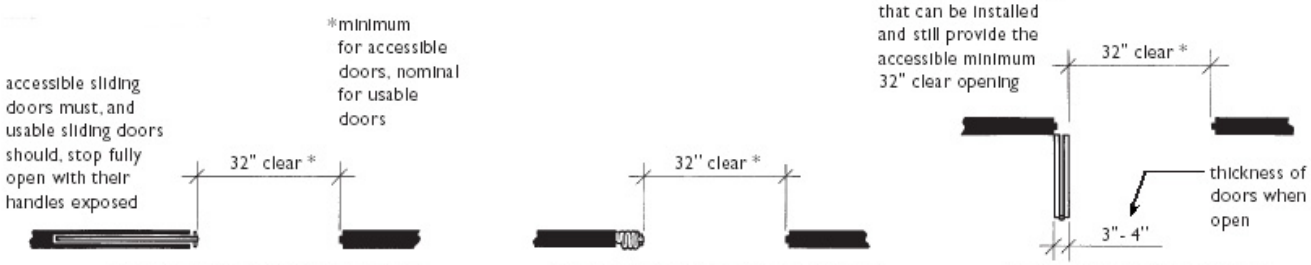
To comply with this requirement, these areas must be on an accessible route and have accessible entrances (discussed below) and have ample maneuvering room. Because of the numerous and varied nature public/common-use areas, owners/developers should obtain a copy of HUD's Fair Housing Act Design Manual to address issues related to common spaces.

Usable Doors

Doors must be wide enough to enable a person in a wheelchair to maneuver through them easily. This includes public and common-use doors, entry doors into individual dwelling units and all doors within the dwelling unit itself. This requirement applies to all types of doors, including folding and sliding doors, but excludes small closets such as linen closets that typically have shelves within easy reach and doors to small mechanical closets dedicated specifically to furnaces or hot water heaters. To comply with this requirement, doorways shall have a minimum clear opening of 32 inches with the door open 90 degrees, measured between the face of the door and the stop.



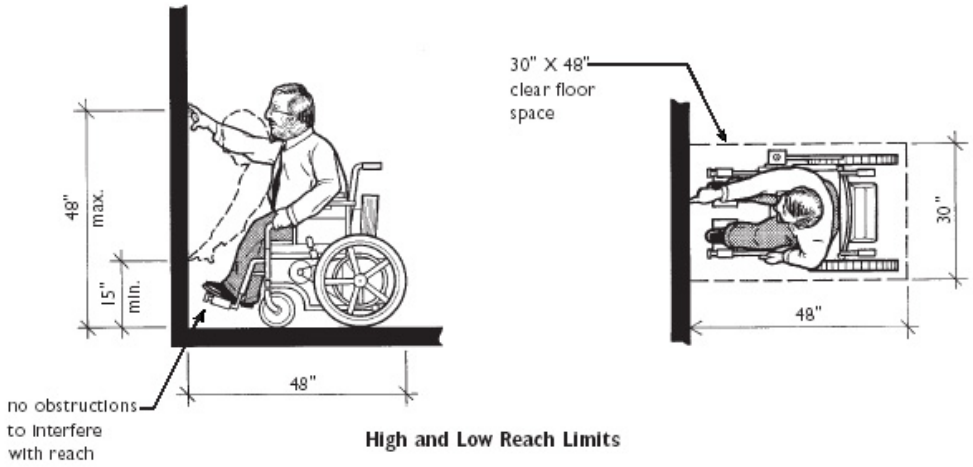
Measuring Clear Width at Hinged Doors



Clear Width at Sliding/Pocket Door **Clear Width at Accordion-Fold Door** **Clear Width at Bi-Fold Door**

Accessible Route & Entrance

When ground floor units have separate entrances, each entrance must be accessible (see doors above). When units in a multi-unit building share a common entrance, at least one common entrance must be accessible. The threshold of a units exterior door may not exceed ¾ inch. An accessible entrance must be located on an accessible route.

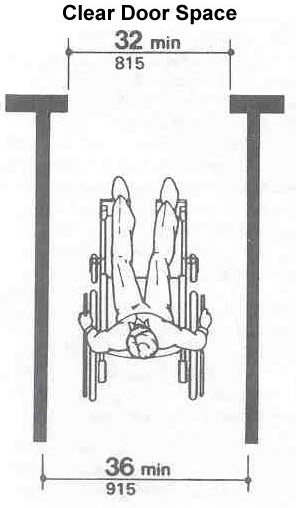


High and Low Reach Limits

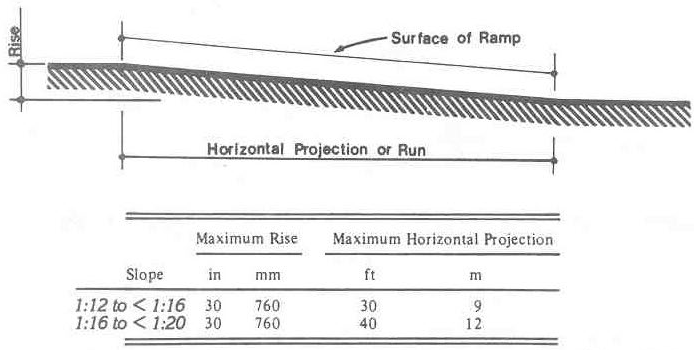
An accessible route is a path that is at least 36 inches wide, smooth, as level as possible, and without hazards or obstructions. If the route includes a change in level, the slope cannot exceed one inch of rise for every 20 inches of length and must be beveled.

Within the boundary of the site, an accessible walk or route on a site must connect public transportation stops, accessible parking spaces, accessible passenger loading zones, and public streets and sidewalks to accessible building entrances. The route also applies to the accessible portions within a dwelling unit.

Clear Door Space



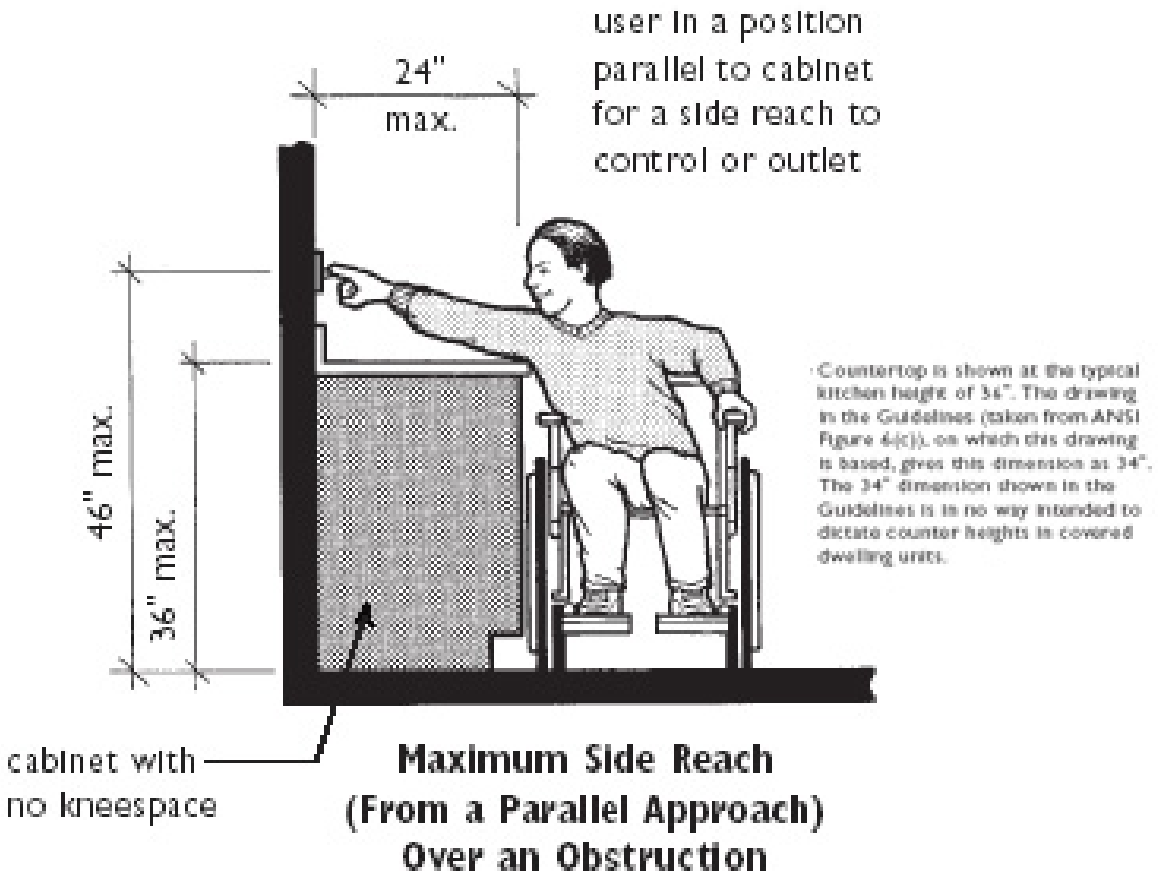
Accessible Route Width

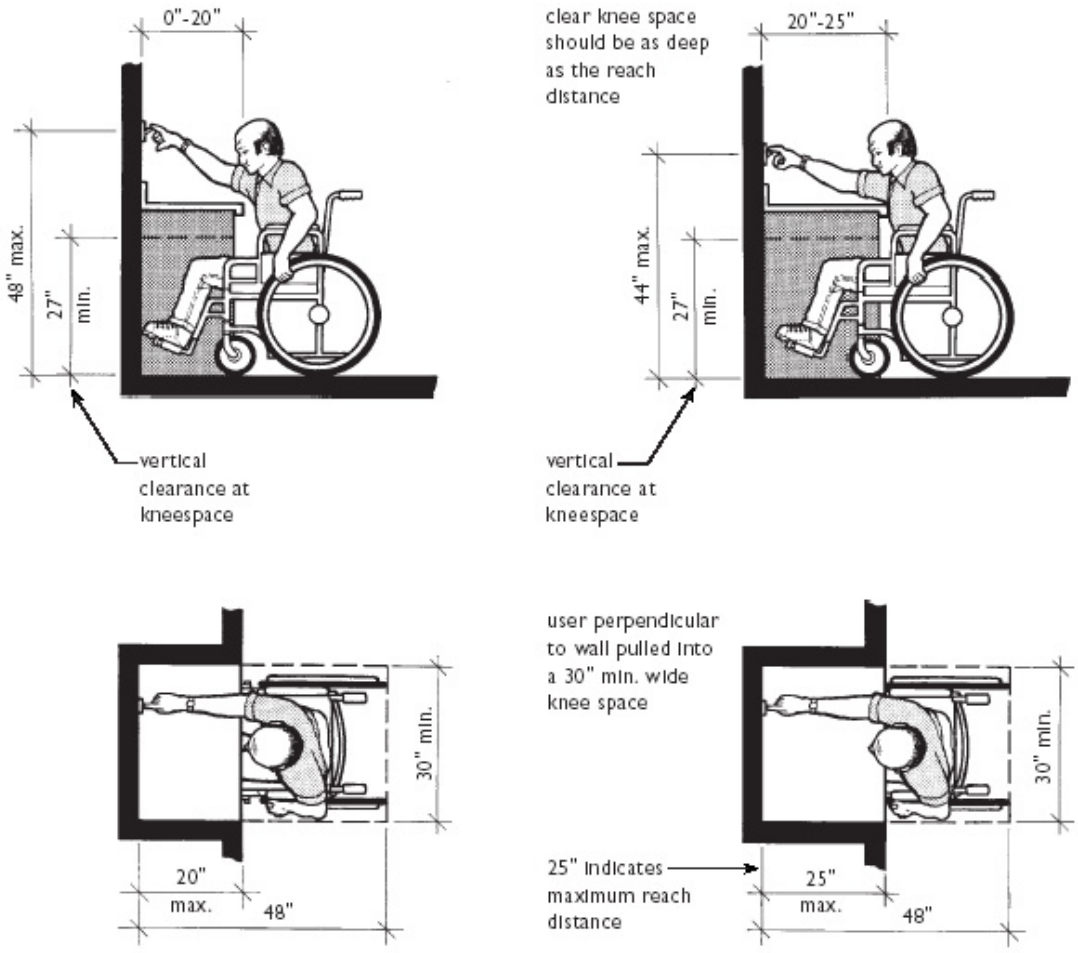


Slope	Maximum Rise in	Maximum Rise mm	Maximum Horizontal Projection ft	Maximum Horizontal Projection m
1:12 to < 1:16	30	760	30	9
1:16 to < 1:20	30	760	40	12

Slope and Rise

Accessible Switches, Outlets and Environmental Controls
All switches, outlets, thermostats and other controls must be accessible to persons in wheelchairs. The operable parts of controls must be no lower than 15 inches and no higher than 48 inches. A clear floor space of 30 inches by 48 inches must be provided at the control.





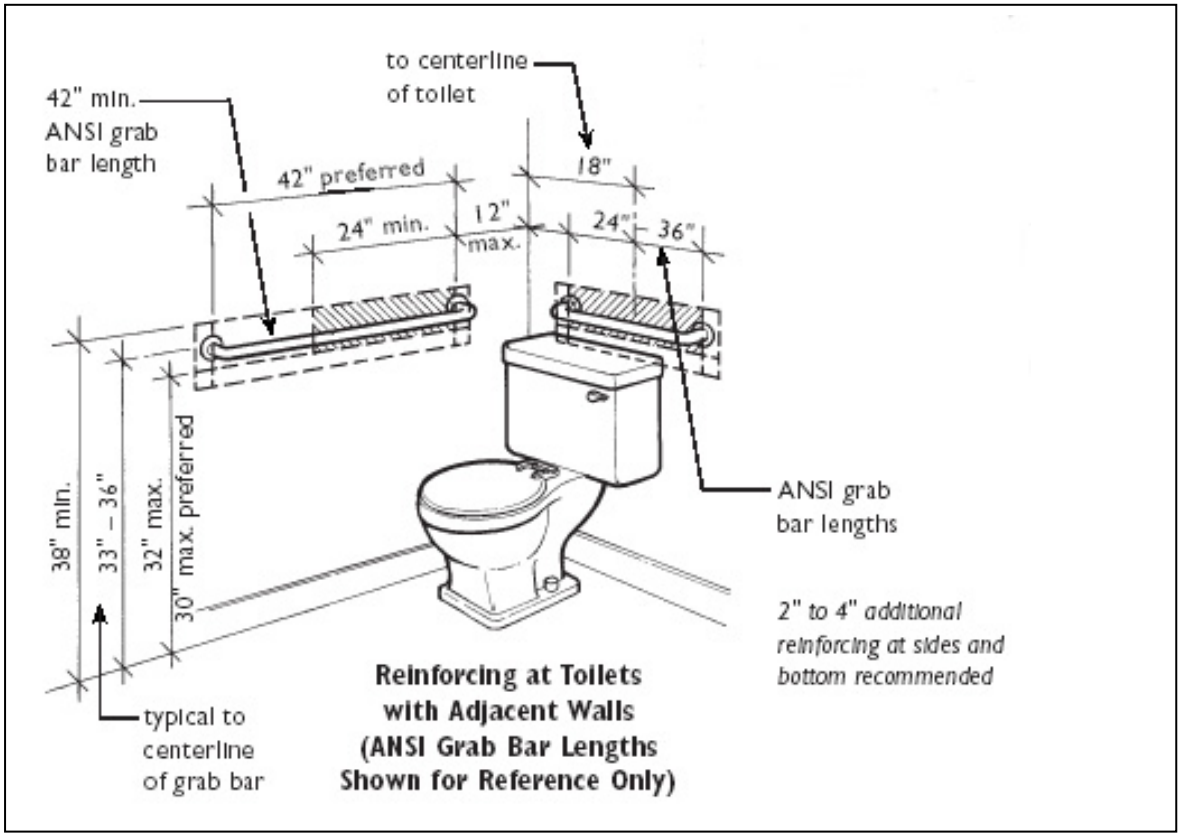
Maximum Forward Reach
(From a Perpendicular Approach) over an Obstruction

Reinforced Walls in the Bathroom
Bathroom walls must be reinforced to allow for the installation of grab bars near the toilet, tub, shower and shower seat.

- Toilet. Structural reinforcement must be provided from 32 inches to 38 inches from the floor and shall allow for the installation of grab bars as specified below:

    - Back Wall. 36-inch minimum length reinforcement is required behind the toilet mounted at a height between 33 and 36 inches. The reinforcement must extend a minimum of 12 inches beyond the center of the water closet toward the sidewall and a minimum of 24 inches toward the open side for either a left or right side approach.

- Side Wall. 24-inch minimum length reinforcement is required to the side of the toilet spaced 12 inches maximum from the back wall and extending a minimum of 36 inches from the back wall at a height between 33 and 36 inches. It is recommended that this reinforcement extend 54 inches from the back wall.

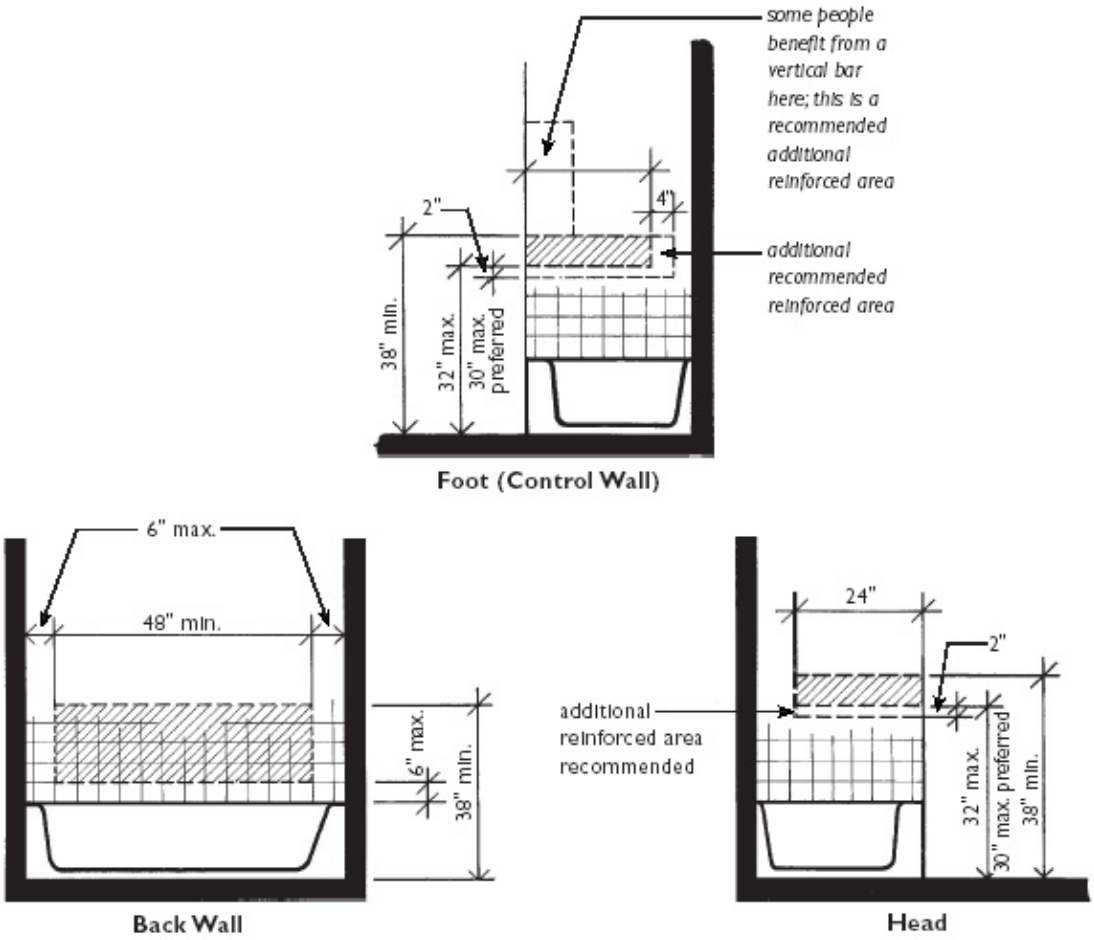


- Tub. Structural reinforcement must be provided to allow for the installation of grab bars as specified below:

  - Back Wall. 48-inch minimum length reinforcement is required, mounted at a height between six inches above the rim of the tub up to at least 38 inches.

  - Side Walls. 24-inch minimum length reinforcement from the tub opening is required, mounted at a height 32 and 38 inches from the floor.

Shower. Structural reinforcement must be provided to allow for the installation of grab bars. Reinforcement should be mounted between 32 and 38 inches, and extend the entire width of both side walls and back wall. When the shower is the only bathing fixture, reinforcement from the base of the shower up to 24 inches must be provided on the wall opposite the shower control. Illustrations below.



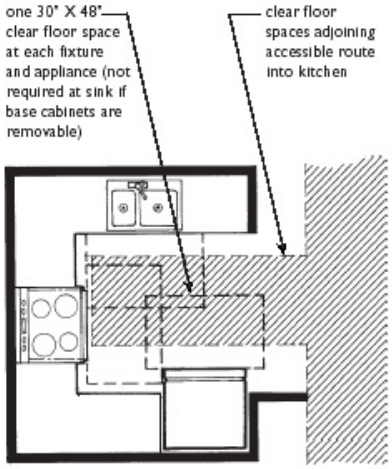
Reinforced Areas Required by the Guidelines at Conventional Bathtubs

Usable Kitchens and Bathrooms

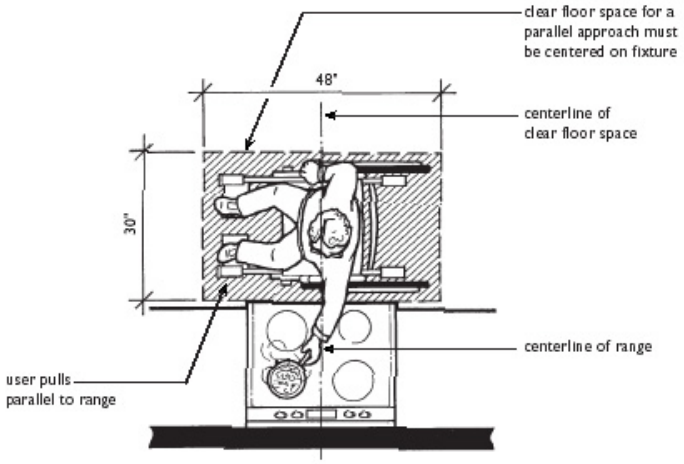
- Usable Kitchens. Kitchens can be designed to look and function like conventional kitchens typically found in multifamily housing and still comply with the Fair Housing Act. "Usable" kitchens are not necessarily "accessible" kitchens, but they do provide maneuvering space for a person who uses a wheelchair, scooter, or walker to approach and operate most appliances and fixtures. There are three primary features of a usable kitchen:

- A minimum 30-inch x 48-inch clear floor space be provided at each kitchen appliance or fixture, and that each of these clear floor spaces adjoin the accessible route that must pass into and through the kitchen. It is anticipated that in any conventional kitchen plan, the overlapping of the minimum 36-inch wide accessible route with the clear floor spaces at all fixtures and appliances provides the necessary maneuvering space to make it possible for a person using a mobility aid to approach, and then position himself or herself close enough to use the fixture safely.

  The clear floor space must be positioned either parallel or perpendicular to and centered on the appliance or fixture, i.e., the clear floor space must have its centerline aligned with the centerline of the fixture or appliance. This centered position is most critical at corners where an appliance may have to be pulled away from the corner to allow a full centered approach. (NOTE: Clear floor space at stoves must be parallel unless knee space is provided below the unit).



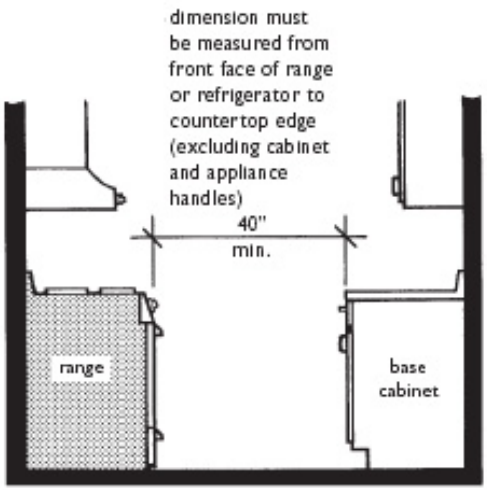
Overlapping Clear Floor Spaces and Accessible Route Provide Maneuvering Space



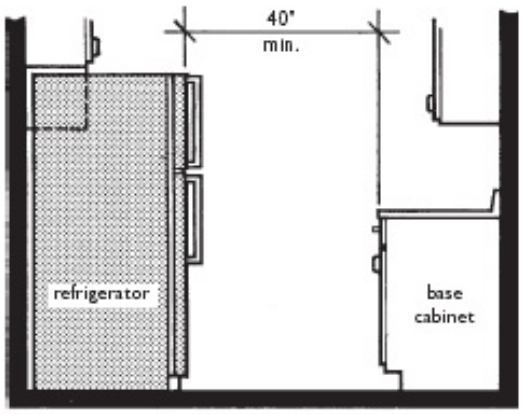
Space for Parallel Approach Required at Range and Cooktop

- A clearance of at least 40 inches between all opposing base cabinets, countertops, appliances, and walls. The 40-inch clearance is measured from any countertop or the face of any appliance (excluding handles and controls) that projects into the kitchen to the opposing cabinet, countertop, appliance, or wall.

  Refrigerators vary greatly in depth and may extend up to eight inches beyond cabinet faces. Standard free-standing and drop-in ranges may project up to three inches. Appliance depths (excluding door handles) must be included when calculating the 40-inch clearances. dimension must be measured from front face of range or refrigerator to countertop edge (excluding cabinet and appliance handles) 40" min.



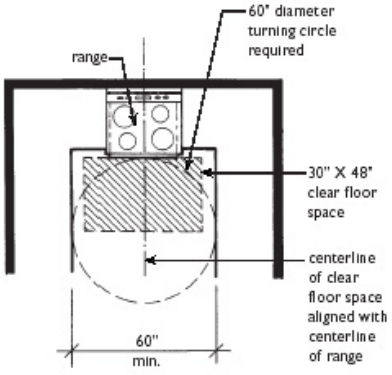
Minimum Clearance between Range and Opposing Base Cabinet



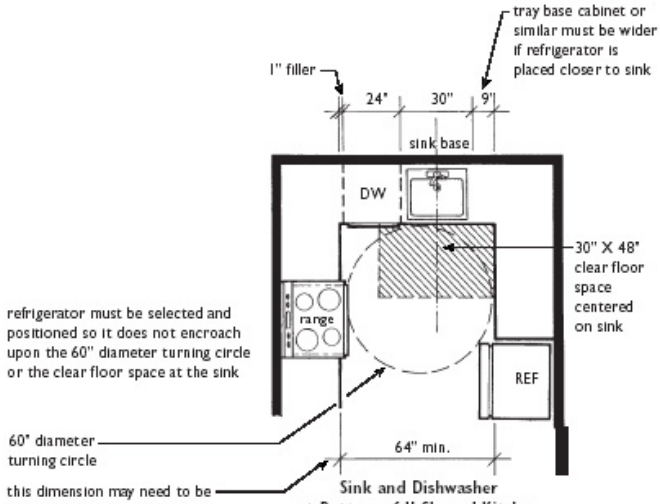
Minimum Clearance between Refrigerator and Opposing Base Cabinet

- A 60-inch diameter turning circle is required in a U-shaped kitchen that has a sink, range, or cooktop at its base. This turning diameter is necessary to provide adequate maneuvering space for a person using a wheelchair to approach and position themselves parallel to the appliance or fixture at the base of the U. Any appliances, such as refrigerators and ranges (excluding door handles), that project beyond countertops and cabinets must not encroach upon this 60-inch diameter turning space.

  In addition to the turning space, the kitchen must be arranged so there is a 30-inch x 48-inch clear floor space for a parallel approach centered on the sink, range, or cooktop. The centerline of the fixture or appliance must be aligned with the centerline of the clear floor space. When a sink, even a standard single basin sink, is at the bottom of the U and a dishwashing machine is planned to be included adjacent to the sink, the distance between the legs of the U must be greater than 60 inches to allow for a full centered approach at the sink. See the lower plan in the right column.



60" Diameter Turning Circle when Sink (Only), Cooktop, or Range is at Bottom of U-Shaped Kitchen



Sink and Dishwasher at Bottom of U-Shaped Kitchen Increases Room Width

- *EXCEPTION: The Guidelines permit U-shaped kitchens with a sink or cooktop at the base of the U to have less than 60 inches between the legs of the U only when removable base cabinets are provided under the cooktop or sink. A clearance of at least 40 inches is required. Since knee space cannot be provided below a range, kitchens with a range at the base of the U must have the 60-inch minimum turning diameter. Once the base cabinet is removed, the resulting knee space allows a person using a wheelchair to pull up under the feature to reach controls and perform cooking/cleaning functions. A note of caution: knee space beneath cooktops provides essential maneuvering space for seated people, but it also creates a greater risk from hot food spilled in the lap. If cooktops are to be provided with knee space below, although not required, it is suggested that they be placed in lowered or adjustable height counter segments so they can be used more easily and safely by people using wheelchairs.*

- Usable Bathrooms. Though not fully accessible, "usable" bathrooms provide a person who uses a wheelchair or other mobility aid with a bathroom that has enough maneuvering space to allow the person to enter, close the door, use the fixtures, and exit. In some cases, a resident with a disability will find it necessary to make additional modifications to meet his or her specific needs.

  In addition to the accessible route, usable doors, controls and reinforcements discussed earlier, a usable bathroom incorporates the following features:

- Maneuvering space within the bathroom to permit a person using a mobility aid to enter the room, close and reopen the door, and exit, and

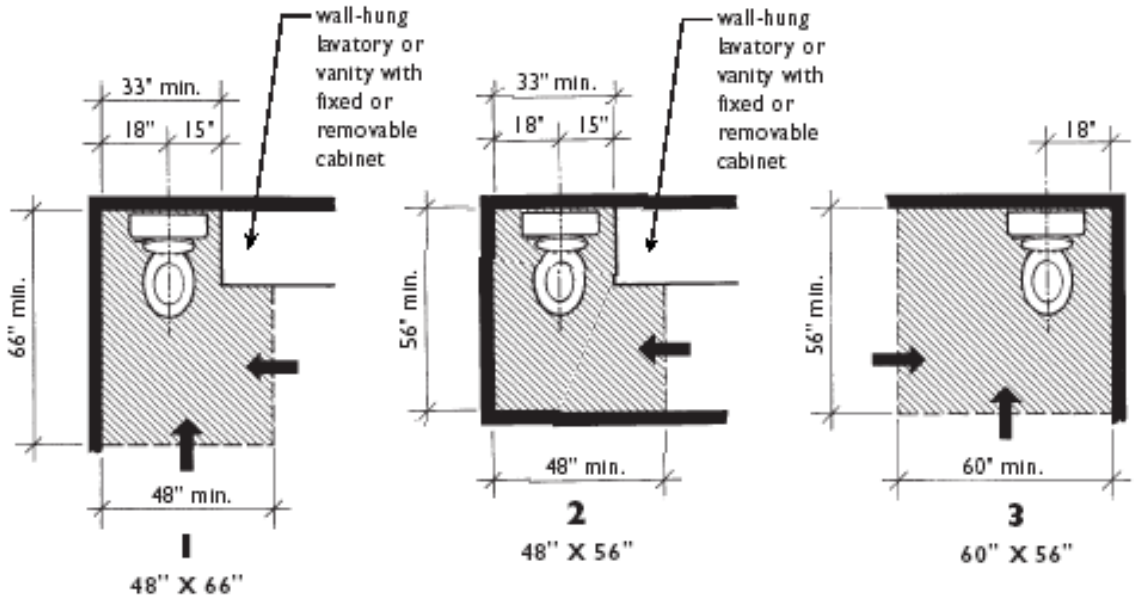
- Maneuvering and clear floor space within the bathroom to permit a person using a mobility aid to approach and use fixtures; fixture dimensions and placement are specified only under certain conditions.

  There are two standards an owner/developer can utilize with regard to usable bathrooms (referred to as Specification A and Specification B bathrooms). Although not the only difference between the two specifications, a bathroom designed to meet Specification B has greater access to the bathtub than a bathroom designed to meet Specification A. The two specifications and their differences will be described in the following discussions of maneuvering and clear floor space requirements.

  In dwelling units containing more than one bathroom, if Specification A is selected as the basis for designing a bathroom, all bathrooms in the dwelling unit also must comply with the A Specifications. If Specification B is selected, only one bathroom in the dwelling unit must meet those requirements; all other bathrooms in the dwelling unit are not required to comply with maneuvering space standards (however, they still must be on an accessible route and contain usable doors, controls and reinforcements).

- Toilet Clear Floor Space. When planning both Specification A and B bathrooms, one of the following three clear floor spaces must be provided at toilets to allow people using wheelchairs and walkers to maneuver, approach the seat, and make a safe transfer onto the toilet.

  The plans shown below to illustrate the clear floor space options at toilets, the arrows pointing in toward the clear floor space are indicating the direction of approach to the toilet by a person using a wheelchair. In plans one and two, the incomplete box at the right of the toilet may be either a wall-hung lavatory or a countertop lavatory. Depending upon the placement of the other bathroom fixtures and the clearances in that room, any vanity cabinet may be fixed or may be required to be removable.



Clear Floor Space at Toilets
(One of the Three Must be Provided in "A" and "B" Bathrooms)

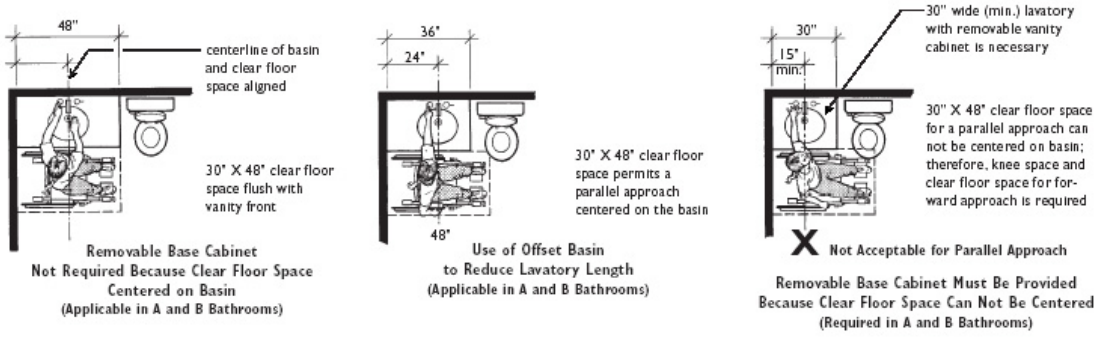
- Lavatory Clear Floor Space . A 30-inch x 48-inch clear floor space is required at the lavatory so a person who uses a wheelchair can get close enough to the basin and controls to use the fixture. When knee space is not provided for a forward approach, this 30-inch x 48-inch clear floor space must be parallel to the cabinet or counter front and centered on the basin.

  Either a countertop lavatory with a vanity cabinet or a wall-hung lavatory may be installed in Specification A and B bathrooms. There are no specifications for control location or type nor for drain location. The lavatory type and width, plus the available maneuvering space in the room, determines whether or not a vanity cabinet must be removable.

  To economize on floor space the basin may be offset so the length of the countertop may be less than 48 inches. In 36-inch wide countertops, the basin may be offset provided it remains centered on the required 48-inch long clear floor space.

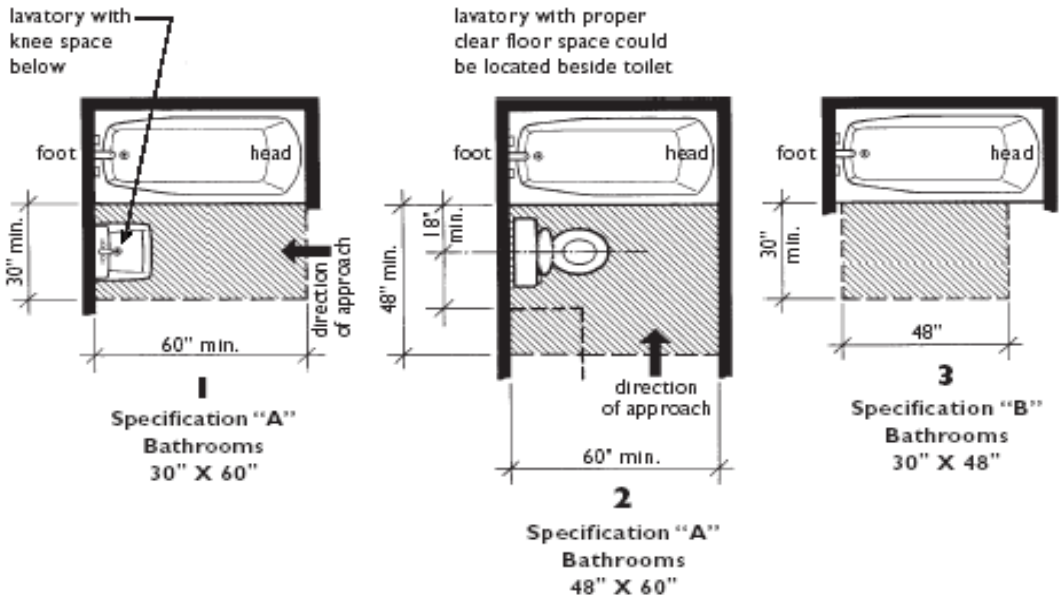
  If a lavatory must be installed where space does not permit a close parallel approach with the 30-inch x 48-inch clear floor space centered on the basin, the centerline of the basin must be at least 15 inches from an adjoining wall or fixture. It must have knee space at least 30 inches wide to allow a user to execute a forward approach into clear floor space beneath the fixture.

Knee space must be provided below narrow lavatories lacking this parallel and centered approach, because, if not, the user must make an awkward and often impossible, painful twisting motion over the side of the wheelchair to reach the faucet handle that is positioned somewhat behind one shoulder. In addition, it is difficult from this position to wash both hands, lean over the basin to clean teeth, etc.



- Clear Floor Space at Bathtubs/Showers. Clear floor space at the bathtub is the primary difference between Specification A and B. The key is that Specification B allows for an unobstructed parallel approach to the tub/shower. The diagrams below, taken from the Guidelines, show the clear floor space requirements for bathtubs; numbers one and two apply to Specification A bathrooms and number three to Specification B bathrooms.

  In all three clear floor spaces, the shaded areas must remain clear, except that in clear floor space diagram number 2, a lavatory that meets all applicable clear floor space requirements for lavatories may be located next to the toilet. In Specification A bathrooms, either a lavatory or a toilet may encroach upon the clear floor space next to the bathtub. In clear floor space diagram number one, the arrow indicating direction of approach is relevant only if the lavatory is wall-hung and has knee space below. The user pulls forward into the knee space to transfer and/or operate controls.



Clear Floor Space at Bathtubs/Showers
Shaded Areas Must Remain Unobstructed
(Taken from Guideline Figures 7(b) and 8)

Kansas 2020 Accessibility Standards

During the 2002 session, the Kansas Legislature adopted accessibility standards for single-family, duplex and triplex new construction with financing provided by the State. The effect of the legislation was to extend most of the new construction requirements of the Fair Housing Act from "covered multifamily dwellings" to all newly constructed dwellings that are financed in part by the state. The Standards address Entrance, Route, Bathroom and Controls.

Entrance
At least one accessible entrance into the unit must be provided.

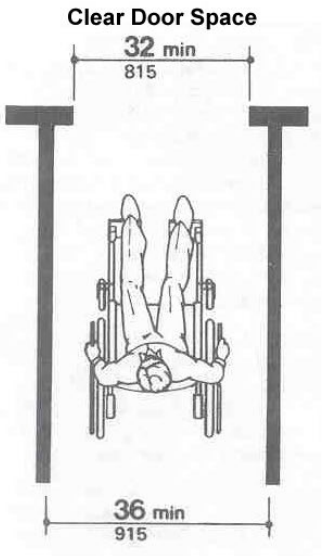
- Door must have a clear opening of at least 32" and a maximum threshold of ½".

- If the accessible entrance is a patio door, a standard six-foot sliding door assembly with a maximum threshold of ¾ inch can be used.

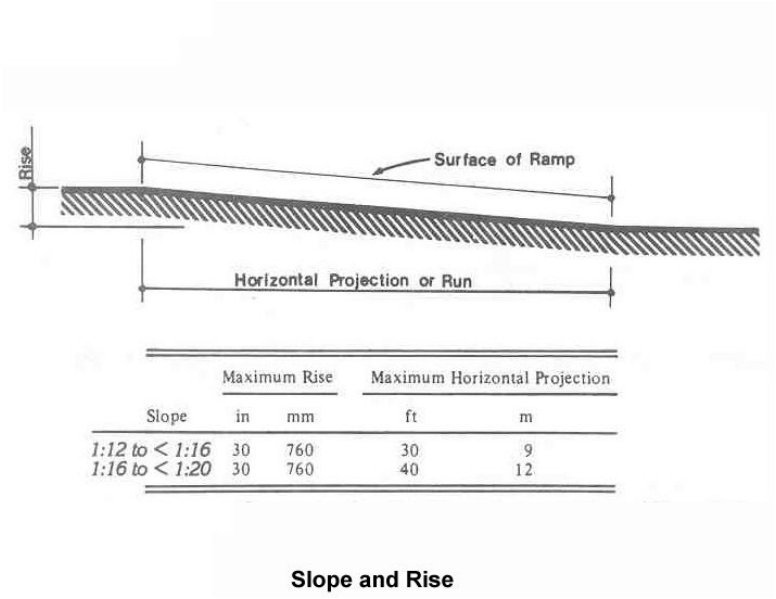
Route

A route, to and through the unit, shall be provided that is:

- At least 36-inches wide with a maximum slope of 1” to 20” (exterior ramp maximum slope is 1” to 12” with level landings)Has beveled changes at door thresholds that do not exceed ½ inch or, in the case of a sliding door, ¾ inch
- Have interior doorways with clear openings of at least 32 inches.



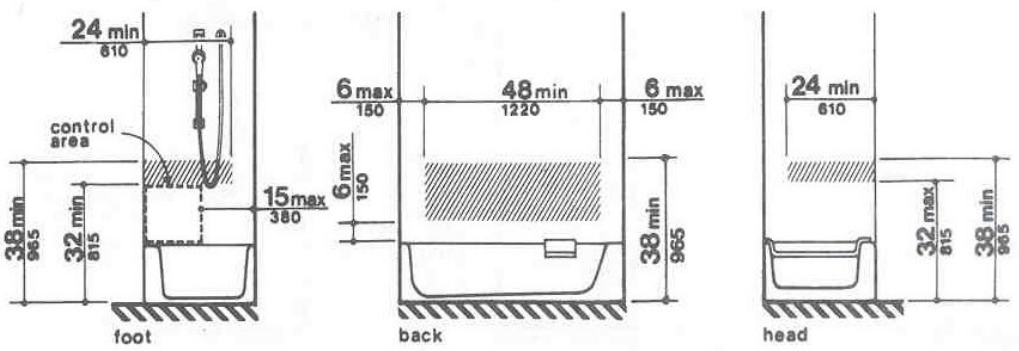
Accessible Route Width



	Maximum Rise		Maximum Horizontal Projection	
Slope	in	mm	ft	m
1:12 to < 1:16	30	760	30	9
1:16 to < 1:20	30	760	40	12

Slope and Rise

Bathroom
Walls must be reinforced for 250 lbs. of force at the tub, shower and toilet to allow for the installation of grab bars.

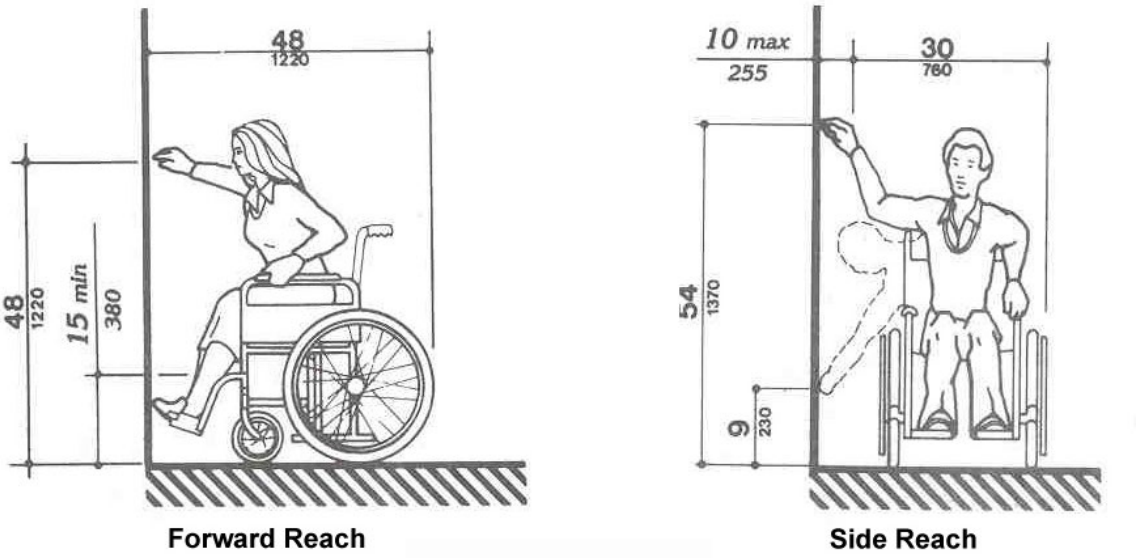


Reinforcement in the Tub

Controls

Controls, including switches, outlets and environmental controls shall be placed:

- Between 15 – 48 inches from floor when the approach to the control is a forward approach (perpendicular)
- Between 9 – 54 inches from floor from floor when the approach to the control is a side approach (parallel).
- *Note: If the unit is covered by the Fair Housing Act, controls must be 15 – 48 inches regardless of the approach.*



Forward Reach Side Reach

Section 504 of the Rehabilitation Act of 1973

Section 504 of the Rehabilitation Act of 1973 prohibits discrimination against persons with disabilities in the operation of programs receiving Federal financial assistance. HUD regulations implementing Section 504 contain accessibility requirements for new construction and rehabilitation of housing as well as requirements for ensuring that the programs themselves are operated in a manner that is accessible to and usable by persons with disabilities.

New Construction

Section 504 requires that new construction of multifamily projects be designed and constructed to be readily accessible to and usable by persons with disabilities. Multifamily housing projects are defined at 24 CFR §8.3 as "projects containing five or more dwelling units". Both the individual units and the common areas in the building must be accessible.

Further, for new construction multifamily rental developments, a minimum of five percent of the dwelling units in the project (but not less than one unit) must be accessible to individuals with mobility impairments. An *additional* two percent of the dwelling units (but at a minimum, not less than one unit) must be accessible to individuals with sensory impairments (i.e. hearing or vision impairments).

Substantial Rehabilitation

Section 504 requires that if alterations are undertaken to a housing project that has 15 or more units, and the rehabilitation costs wall be 75 percent or more of the replacement cost of the completed facility, then such developments are considered to have undergone "substantial alterations" (24 CFR §8.23 (a)). For substantial alterations of multifamily rental housing, a minimum of five percent of the dwelling units in the project (but not less than one unit) must be accessible to individuals with mobility impairments, and an *additional* two percent, at a minimum (but not less than one unit), must be accessible to individuals with sensory impairments.

Other Rehabilitation

When **other alterations** that do not meet the regulatory definition of substantial alterations are undertaken in multifamily rental housing projects of any size, these alterations must, to the maximum extent feasible, make the dwelling units accessible to and usable by individuals with disabilities, until a minimum of five percent of the dwelling units (but not less than one unit) are accessible to people with mobility impairments. If alterations of single elements or spaces of a dwelling unit, when considered together, amount to an alteration of a dwelling unit, then the entire dwelling unit shall be made accessible.

For this category of rehabilitation the additional two percent of the dwelling units requirement for individuals with sensory impairments does not apply. Alterations to common spaces must, to the maximum extent feasible, make those areas accessible.

A recipient is not required to make a dwelling unit, common area, facility or element accessible, if doing so would impose undue financial and administrative burdens on the operation of the multifamily housing project. (24 CFR §8.23(b)) Therefore, recipients are required to provide access in covered alterations up to the point of being infeasible or an undue financial and administrative burden.

Accessibility Standards

Dwelling units designed and constructed in accordance with the Uniform Federal Accessibility Standards (UFAS) are deemed to comply with the Section 504 regulation. A summary of the UFAS standards relating to dwelling units is provided in the Exhibits at the end of this chapter. Owners/developers and their architects will be required to certify that the 504 units meet or exceed the UFAS requirements.

Increasing Program Accessibility

HUD's Section 504 regulations require that a recipient of Federal financial assistance ensure that the development is accessible to persons with disabilities:

- To the maximum extent feasible, distribute accessible units throughout the development, and make them available in a sufficient range of sizes and amenities so as not to limit choice.
- Adopt suitable means to assure that information regarding the availability of accessible units reaches eligible individuals with disabilities. They must also take reasonable nondiscriminatory steps to maximize use of such units by eligible individuals.
- When an accessible unit becomes vacant, before offering the unit to an individual without a disability, offer the unit: first, to a current occupant of the project requiring the accessibility feature; and second, to an eligible qualified applicant on the waiting list requiring the accessibility features.
- When an applicant or tenant requires an accessible feature or modification to accommodate a disability, the owner/developer **must provide such feature modification unless doing so would result in an undue financial and administrative burden.**
- Providers must ensure that activities and meetings are conducted in accessible locations.
- Ask applicants for information that can demonstrate that they can meet the obligations of tenancy including financial information, references, prior tenancy history, etc. However, housing providers may not inquire into the nature and severity of an applicant or tenant's disability, nor may they ask persons with disabilities questions not asked of all applicants, apply different types of screening criteria, or assess an applicant's ability to live independently.
- Ask if the applicant qualifies for a unit designed for persons with a disability, when the housing program or unit is designed for such persons.
- Consider including a lease provision that requires a non-disabled family occupying an accessible unit to move if a family with a disability needing that size unit applies and there is an appropriately sized non-accessible unit available for the relocating family.

Self-Evaluation

Self-evaluation of compliance with all accessibility laws and regulations is excellent management tool for ensuring that an owner/developers current policies and procedures comply with the various requirements. Involving persons with disabilities in the self-evaluation process is very beneficial. This will assure the most meaningful result for both the owner/developer and for persons with disabilities who participate in the programs and activities. It is important to involve persons and/or organizations representing persons with disabilities, and agencies or other experts who work regularly with accessibility standards.

Important steps in conducting a self-evaluation and implementing its results include the following:

- Evaluate current policies and practices and analyze them to determine if they adversely affect the full participation of individuals with disabilities in its programs, activities and services. Be mindful of the fact that a policy or practice may appear neutral on its face, but may have a discriminatory effect on individuals with disabilities.

- Modify any policies and practices that are not or may not be in compliance with Section 504, Fair Housing, etc.

- Take appropriate corrective steps to remedy those policies and practices which either are discriminatory or have a discriminatory effect. Develop policies and procedures by which persons with disabilities may request a modification of a physical barrier or a rule or practice that has the effect of limiting or excluding a person with a disability from the benefits of the program.

- Document the self-evaluation process and activities, including records of the individuals and organizations consulted, areas examined and problems identified, and document modifications and remedial steps.

Internet Resources

Fair Housing Act Design Manual
www.huduser.org/publications/destech/fairhousing.html

Section 504 notices, regulations and supportive documents
www.hud.gov/offices/fheo/disabilities/sect504docs.cfm
HUD's Fair Housing & Equal Opportunity Office
http://www.hud.gov/offices/fheo/index.cfm

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Summary of the

Uniform Federal Accessibility Standards

This is a guide on the requirements of the Uniform Federal Accessibility Standards as applied to the development of accessible housing. The information contained herein is a summary of those standards and should not be relied upon when designing accessible housing. Housing that is required to be made accessible to UFAS should be designed by an architect who has experience with accessible design.

ACCESSIBLE HOUSING

An accessible dwelling unit shall be on an accessible route. An accessible dwelling unit shall have the following accessible elements and spaces as a minimum:

ACCESSIBLE ROUTE

GENERAL

An Accessible Route shall connect the accessible entrances with all accessible spaces and elements within the dwelling units and common spaces and facilities that serve accessible units. All walks, halls, corridors, aisles, and other spaces that are part of an accessible route shall comply with the following:

- At least one accessible route within the boundary of the site shall be provided from public transportation stops, accessible parking, and accessible passenger loading zones, and public streets or sidewalks to the accessible building entrance they serve.

- At least one accessible route shall connect accessible buildings, facilities, elements, and spaces that are on the same site.

- At least one accessible route shall connect accessible building or facility entrances with all accessible spaces and elements and with all accessible dwelling units within the building or facility.

- An accessible route shall connect at least one accessible entrance of each accessible dwelling unit with those exterior and interior spaces and facilities that serve the accessible dwelling unit.

WIDTH

The minimum clear width of an accessible route shall be 36 inches except at doors. If a person in a wheelchair must make a turn around an obstruction, the minimum clear width of the accessible route shall be as shown in Figure 7.

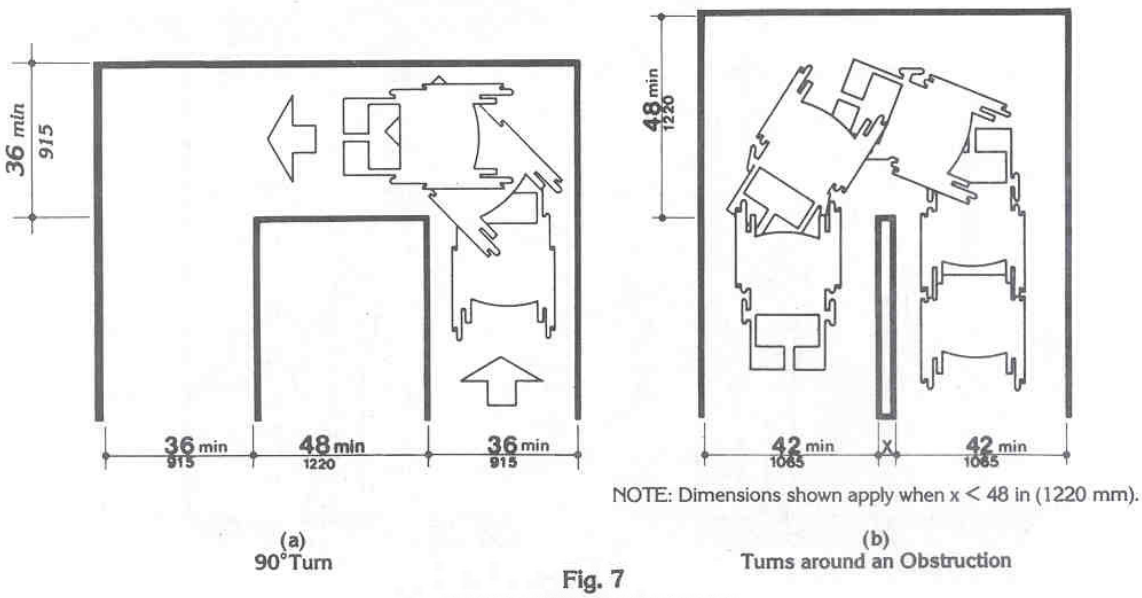


Fig. 7
Width of Accessible Route

PASSING SPACE

If an accessible route has less than 60 inches clear width, then passing spaces at least 60 inches by 60 inches shall be located at reasonable intervals not to exceed 200 feet. A T-intersection of two corridors or walks is an acceptable passing place.

HEAD ROOM

Accessible routes shall have 80 inches minimum clear headroom. If vertical clearance of an area adjoining an accessible route is reduced to less than 80 inches, a barrier to warn blind or visually impaired persons shall be provided.

SURFACE TEXTURES

The surface of an accessible route shall be stable, firm, and slip-resistant.

- **CARPET.** If carpet or carpet tile is used on a ground or floor surface, then it shall be securely attached; have a firm cushion, pad, or backing or no cushion or pad; and have a level loop, textured loop, level cut pile, or level cut/uncut pile texture. The maximum pile height shall be 1/2 inch. Exposed edges of carpet shall be fastened to floor surfaces and have trim along the entire length of the exposed edge. Carpet edge trim shall be beveled with a slope no greater than 1:2. (Changes in level greater than 1/2 inch shall be accomplished by means of a ramp). If carpet tile is used on an accessible ground or floor surface, it shall have a maximum combined thickness of pile, cushion, and backing height of 1/2 inch.

- **GRATINGS.** If gratings are located in walking surfaces, then they shall have spaces no greater than 1/2 inch wide in one direction (Figure 8(g)). If gratings have elongated openings, then they shall be placed so that the long dimension is perpendicular to the dominant direction of travel (Figure 8(h)).

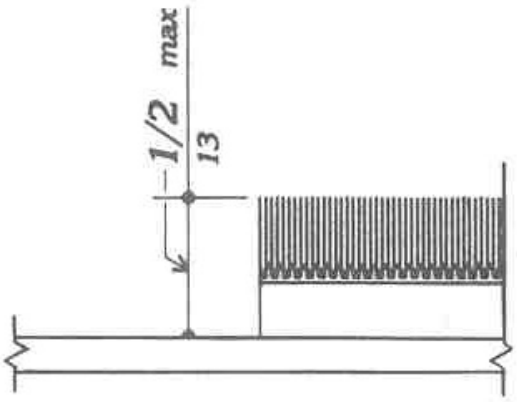
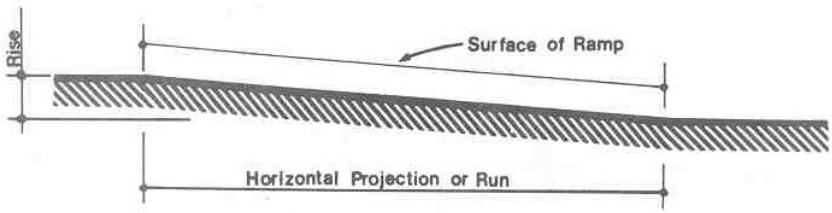


Fig. 8(f)
Carpet Tile Thickness

SLOPE. An accessible route with a running slope greater than 1:20 is a ramp and shall comply with the following. Nowhere shall the cross slope of an accessible route exceed 1:50.



	Maximum Rise		Maximum Horizontal Projection	
Slope	in	mm	ft	m
1:12 to < 1:16	30	760	30	9
1:16 to < 1:20	30	760	40	12

Fig. 16
Components of a Single Ramp Run and Sample Ramp Dimensions

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 inches (Figure 16). Curb ramps and ramps to be constructed on existing sites or in existing buildings or facilities may have slopes and rises as shown in Table 2 if space limitations prohibit the use of a 1:12 slope or less.

CLEAR WIDTH

The minimum clear width of a ramp shall be 36 inches.

LANDINGS

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

- The landing shall be at least as wide as the ramp run leading to it.
- The landing length shall be a minimum of 60 inches clear.
- If ramps change direction at landings, the minimum landing size shall be 60 inches by 60 inches.
- If a doorway is located at a landing, then the area in front of the doorway shall comply with the "**DOOR**" requirements below.

HANDRAILS

If a ramp run has a rise greater than 6 inches or a horizontal projection greater than 72 inches, then it shall have handrails on both sides. Handrails are not required on curb ramps. Handrails shall have the following features:

- Handrails shall be provided along both sides of ramp segments. The inside handrail on switchback or dogleg ramps shall always be continuous.
- If handrails are not continuous, they shall extend at least 12 inches beyond the top and bottom of the ramp segment and shall be parallel with the floor or ground surface.
- The clear space between the handrail and the wall shall be 1-1/2 inches.
- Gripping surfaces shall be continuous.
- Top of handrail gripping surfaces shall be mounted between 30 inches and 34 inches above ramp surfaces.
- Ends of handrails shall be either rounded or returned smoothly to floor, wall or post.
- Handrails shall not rotate within their fittings.

CROSS SLOPE AND SURFACES

The cross slope of ramp surfaces shall be no greater than 1:50. Ramp surfaces shall comply with "**SURFACE TEXTURES"** described above.

EDGE PROTECTION

Ramps and landings with drop-offs shall have curbs, walls, railings, or projecting surfaces that prevent people from slipping off the ramp. Curbs shall be a minimum of 2 inches high.

OUTDOOR CONDITIONS

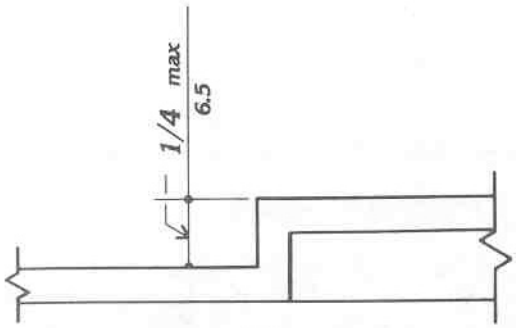
Outdoor ramps and their approaches shall be designed so that water will not accumulate on walking surfaces.

CHANGES IN LEVELS

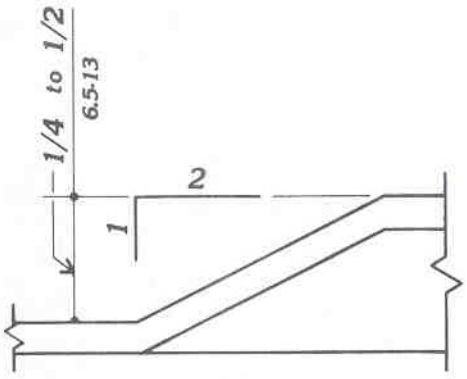
Changes in levels along an accessible route shall comply with the following:

- Changes in level up to 1/4 inches may be vertical and without edge treatment. Changes in level between 1/4 inch and 1/2 inch shall be beveled with a slope no greater than 1:2.

- If an accessible route has changes in level greater than 1/2 inch, then a curb ramp, ramp, elevator, or platform lift shall be provided that complies with UFAS 4.7, 4.8, 4.10, or 4.11, respectively. Stairs shall not be part of an accessible route.



(c)
Changes in level



(d)
Changes in level

EGRESS

Accessible routes serving any accessible space or element shall also serve as a means of egress for emergencies or connect to an accessible place of refuge. Such accessible routes and places of refuge shall comply with the requirements of the administrative authority having jurisdiction. Where fire code provisions require more than one means of egress from any space or room, then more than one accessible means of egress shall also be provided for handicapped people. Arrange egress so as to be readily accessible from all accessible rooms and spaces.

DOORS

Doors along an accessible route shall:

CLEAR WIDTH

Doorways shall have a minimum clear opening of 32 inches with the door open 90 degrees, measured between the face of the door and the stop. Openings more than 24 inches in depth shall have a minimum clear opening of 36 inches.
EXCEPTION: Doors not requiring full user passage, such as shallow closets, may have the clear opening reduced to 20 inches minimum.

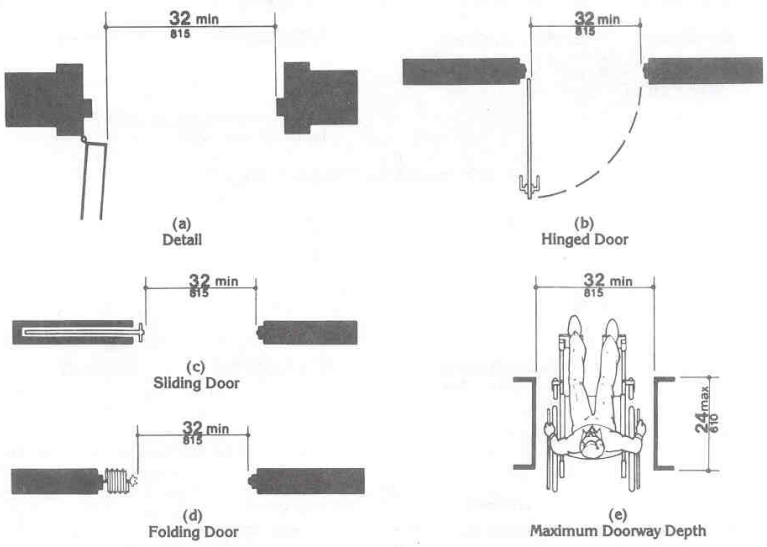


Fig. 24
Clear Doorway Width and Depth

DOUBLE-LEAF DOORWAYS

If doorways have two independently operated door leaves, then at least one leaf shall have a minimum clear opening of 32 inches with the door open 90 degrees, measured between the face of the door and the stop. That leaf shall be an active leaf.

MANEUVERING CLEARANCES AT DOORS

Minimum maneuvering clearances at doors that are not automatic or power-assisted shall be as shown in Figure 25 (below). The floor or ground area within the required clearances shall be level and clear.

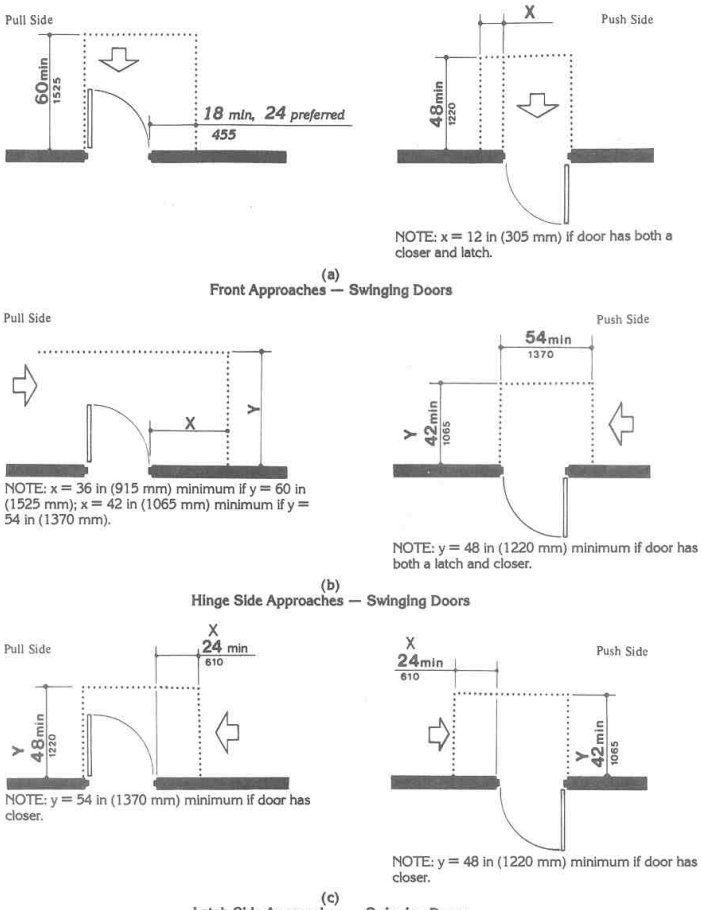
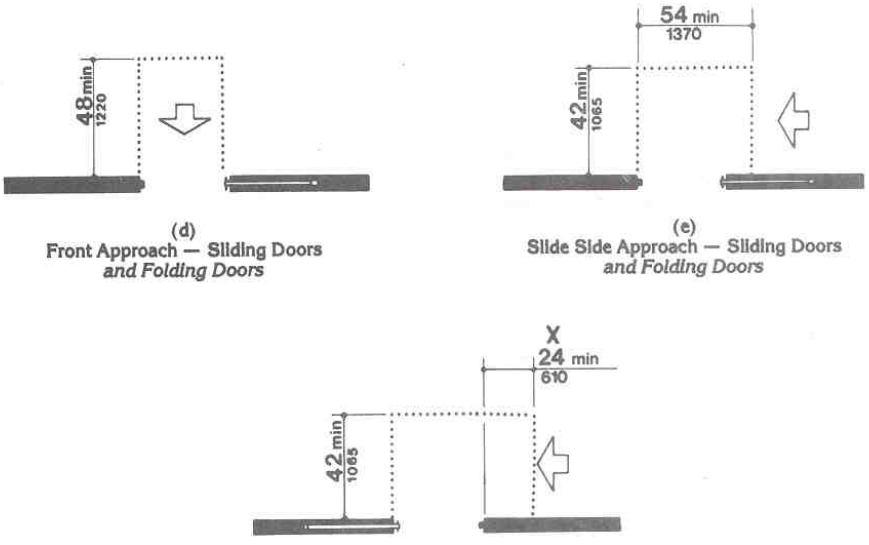


Fig. 25
Maneuvering Clearances at Doors



(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.

Fig. 25
Maneuvering Clearances at Doors *(Continued)*

TWO DOORS IN SERIES

The minimum space between two hinged or pivoted doors in series shall be 48 inches plus the width of any door swinging into the space. Doors in series shall swing either in the same direction or away from the space between the doors.

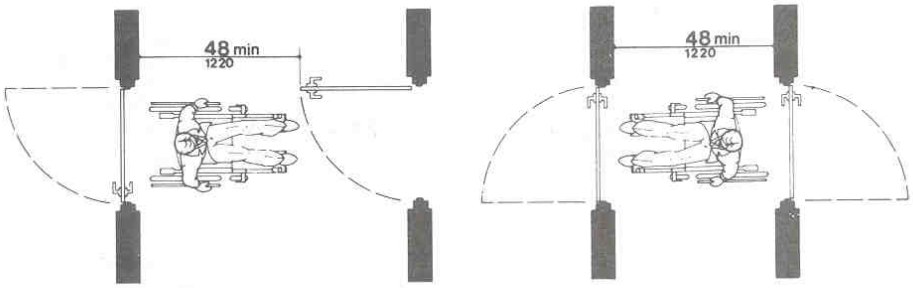


Fig. 26
Two Hinged Doors in Series

THRESHOLDS AT DOORWAYS

Thresholds at doorways shall not exceed 3/4 inches in height for exterior sliding doors or 1/2 inch for other types of doors. Raised thresholds and floor level changes at accessible doorways shall be beveled with a slope no greater than 1:2.

DOOR HARDWARE

In dwelling units, only doors at accessible entrances to the unit itself shall comply with the requirements of this paragraph. Handles, pulls, latches, locks, and other operating devices on accessible doors shall have a shape that is easy to grasp with one hand and does 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 shall be exposed and usable from both sides. Mount no hardware required for accessible door passage higher than 48 inches above finished floor.

DOOR CLOSERS

If a door has a closer, then the sweep period of the closer shall be adjusted so that from an open position of 70 degrees, the door will take at least 3 seconds to move to a point 3 inches from the latch, measured to the leading edge of the door.

DOOR OPENING FORCE

The maximum force for pushing or pulling open a door shall be as follows:

Fire doors shall have the minimum opening force allowable by the appropriate administrative authority.

Other doors shall require no more 5 lbf (22.2N)

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

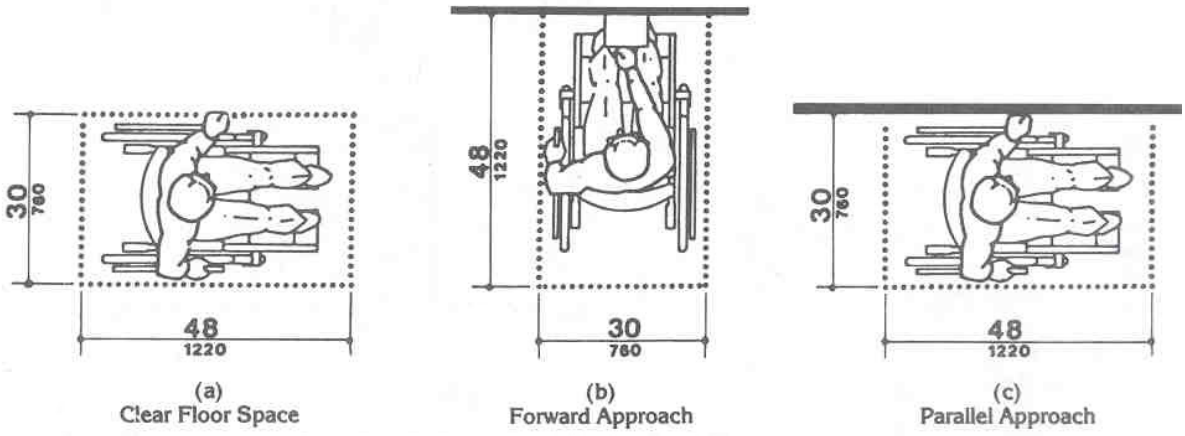
AUTOMATIC DOORS AND POWER-ASSISTED DOORS

If an automatic door is used, then it shall comply with American National Standard for Power-Operated Doors, ANSI A156.10-1979. Slowly opening, low-powered, automatic doors shall be considered a type of custom design installation as described in paragraph 1.1.1 of ANSI A156.10-1979. Such doors shall not open to back check faster than 3 seconds and shall require no more than 15 lbf (66.6N) to stop door movement. If a power-assisted door is used, its door-opening force shall comply with 4.13.11 and it’s closing shall conform to the requirements in section 10 of ANSI A156.10-1979.

SPACE ALLOWANCE AND REACH RANGES.

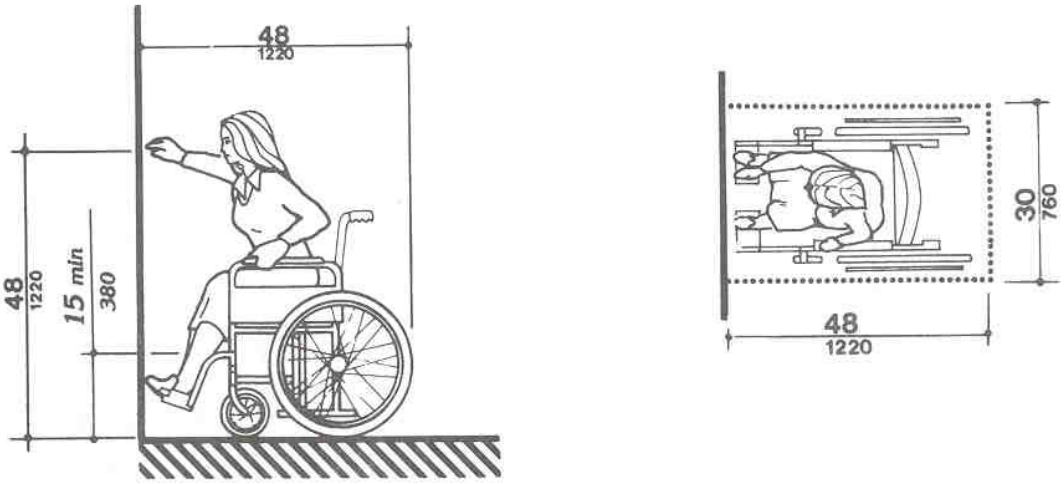
SIZE AND APPROACH

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



(a) Clear Floor Space (b) Forward Approach (c) Parallel Approach

Fig. 4
Minimum Clear Floor Space for Wheelchairs

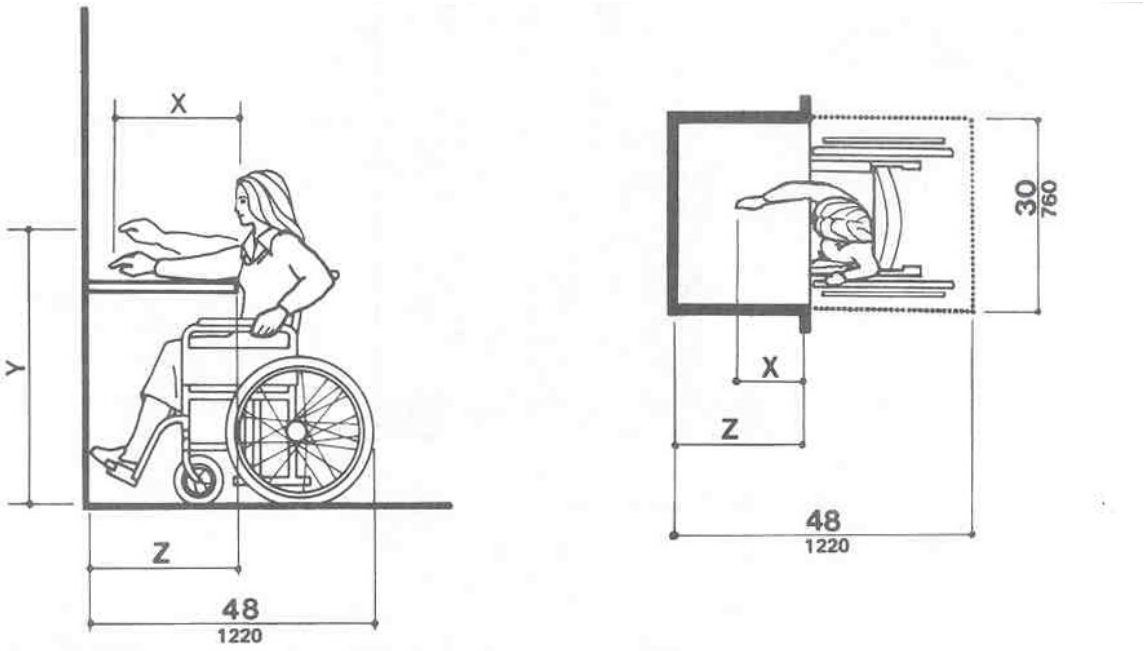


(a) High Forward Reach Limit

FORWARD REACH

If the clear floor space only allows forward approach to an object, the maximum high forward reach allowed shall be 48 inches (Figure A below).

The minimum low forward reach is 15 inches. If the high forward reach is over an obstruction, reach and clearances shall be as shown in Figure B (below).

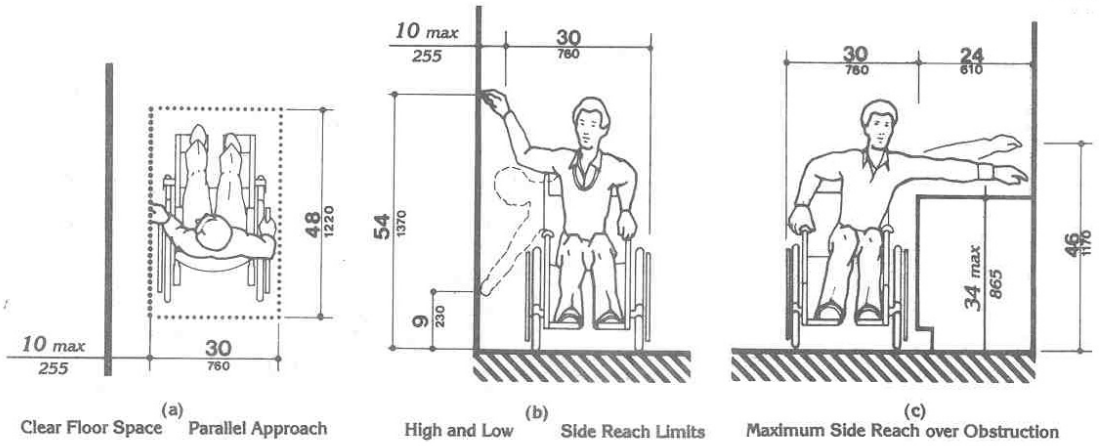


NOTE: x shall be ⩽ 25 in (635 mm); z shall be ⩾ x. When x < 20 in (510 mm), then y shall be 48 in (1220 mm) maximum. When x is 20 to 25 in (510 to 635 mm), then y shall be 44 in (1120 mm) maximum.

(b)
Maximum Forward Reach over an Obstruction

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 inches and the low side reach shall be no less than 9 inches above the floor (Figure 6(a) and (b)). If the side reach is over an obstruction, the reach and clearances shall be as shown in Figure 6(c)).



(a) Clear Floor Space Parallel Approach

(b) High and Low Side Reach Limits

(c) Maximum Side Reach over Obstruction

Fig. 6
Side Reach

RELATIONSHIP OF MANEUVERING CLEARANCE TO WHEELCHAIR SPACES

One full-unobstructed side of the clear floor or ground space for a wheelchair shall adjoin or overlap an accessible route or adjoin another wheelchair clear floor space. If a clear floor space is located in an alcove or otherwise confined on all or part of three sides, additional maneuvering clearances shall be provided as shown in Figures 4 (d) and (e).

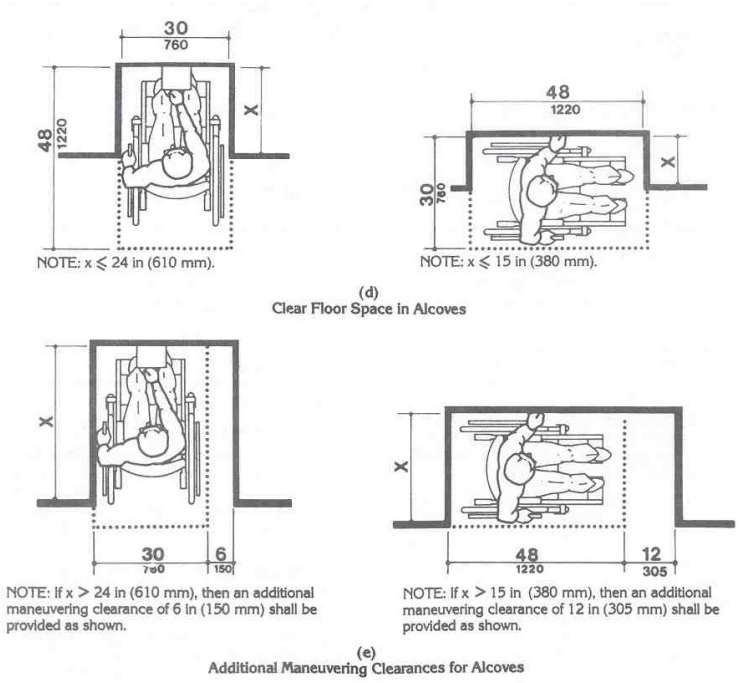


Fig. 4
Minimum Clear Floor Space for Wheelchairs

CONTROLS GENERAL

All Controls and operating mechanisms are required to be accessible, including those portions of heating, ventilating, and air conditioning equipment requiring regular, periodic maintenance and adjustment by the resident of a dwelling shall be accessible to people in wheelchairs. If air distribution registers must be placed in or close to ceilings for proper air circulation, this specification shall not apply to the registers.

CLEAR FLOOR SPACE

Clear floor space of 30 inches by 48 inches that allows a forward or a parallel approach by a person using a wheelchair shall be provided at controls, dispensers, receptacles, and other operable equipment. Clear floor or ground space for wheelchairs may be part of the knee space required under some objects.

HEIGH

The highest operable part of all controls, dispensers, receptacles, and other operable equipment shall be placed within at least one of the reach ranges listed below. Except where the use of special equipment dictates otherwise, electrical and communications system receptacles on walls shall be mounted no less than 15 inches above the floor.

FORWARD REACH

If the clear floor space only allows forward approach to an object, the maximum high forward reach allowed shall be 48 inches. The minimum low forward reach is 15 inches.

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 inches and the low side reach shall be no less than 9 inches above the floor.

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).

EMERGENCY ALARMS

AUDIBLE ALARMS

Audible emergency alarms shall produce a sound that exceeds the prevailing equivalent sound level in the room or space by at least 15 decibels or exceeds any maximum sound level with a duration of 30 seconds by 5 decibels, whichever is louder. Sound levels for alarm signals shall not exceed 120 decibels.

VISUAL ALARMS

Electrically powered internally illuminated emergency exit signs shall flash as a visual emergency alarm in conjunction with audible emergency alarms. The flashing frequency of visual alarm devices shall be less than 5 Hz. If such alarms use electricity from the building as a power source, then they shall be installed on the same system as the audible emergency alarms. *EXCEPTIONS*:

- Visual alarm devices that are mounted adjacent to emergency exit signs may be used in lieu of flashing exit signs.

- Specialized systems utilizing advanced technology may be substituted for the visual systems specified above if equivalent protection is afforded handicapped users of the building or facility.

AUXILIARY ALARMS

Accessible sleeping accommodations shall have a visual alarm connected to the building emergency alarm system or shall have a standard 110-volt electrical receptacle into which such an alarm could be connected. Instructions for use of the auxiliary alarm or connection shall be provided.

STORAGE

Fixed storage facilities such as cabinets, shelves, closets, and drawers required to be accessible.

CLEAR FLOOR SPACE

A clear floor space at least 30 inches by 48 inches that allows either a forward or parallel approach by a person using a wheelchair shall be provided at accessible storage facilities.

HEIGHT

Accessible storage spaces shall be within at least one of the reach ranges specified below. Clothes rods shall be a maximum of 54 inches from the floor (see Fig. 38).

FORWARD REACH

If the clear floor space only allows forward approach to an object, the maximum high forward reach allowed shall be 48 inches. The minimum low forward reach is 15 inches.

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 inches and the low side reach shall be no less than 9 inches above the floor.

HARDWARE. Hardware for accessible storage facilities 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. Touch latches and U-shaped pulls are acceptable.

COMMON SPACE

Common spaces and facilities serving individual accessible dwelling units (for example, entry walks, trash disposal facilities, and mail boxes) shall comply with 4.2 through 4.33 of the Uniform Federal Accessibility Standards.

BATHROOMS

At least one full bathroom shall comply with these requirements. A full bathroom shall include a water closet, a lavatory, and a bathtub or a shower. Accessible shall be on an accessible route and shall comply with the following requirements:

DOORS

Bathroom doors shall have a minimum clear opening of 32 inches with the door open 90 degrees, measured between the face of the door and the stop. Doors shall not swing into the clear floor space required for any fixture.

WATER CLOSETS

- Clear floor space at the water closet shall be as shown below. The water closet may be located with the clear area at either the right or left side of the toilet.

- The height of the water closet shall be at least 15 inches, and no more than 19 inches, measured to the top of the toilet seat.

- Structural reinforcement or other provisions shall be provided from 32 inches to 38 inches from the floor and shall allow for the installation of grab bars as specified below:

- Back Wall. A 36-inch minimum length grab bar is required behind the water closet mounted at a height between 33 and 36 inches. The grab bar must extend a minimum of 12 inches beyond the center of the water closet toward the sidewall and a minimum of 24 inches toward the open side for either a left or right side approach.

- Side Wall. A 42-inch minimum length grab bar is required to the side of the water closet spaced 12 inches maximum from the back wall and extending a minimum of 54 inches from the back wall at a height between 33 and 36 inches.

- The toilet paper dispenser shall be installed within reach, with the center roll height of at least 19 inches and shall not extend more than 36 inches from the rear of the water closet.

GRAB BARS

The diameter or width of the gripping surfaces of a grab bar shall be 1-1/4 inches to 1-1/2 inches, or the shape shall provide an equivalent gripping surface. If grab bars are mounted adjacent to a wall, the space between the wall and the grab bar shall be 1-1/2 inches.

STRUCTURAL STRENGTH

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

- Bending stress in a grab bar or seat induced by the maximum bending moment from the application of 250 lbf shall 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 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.

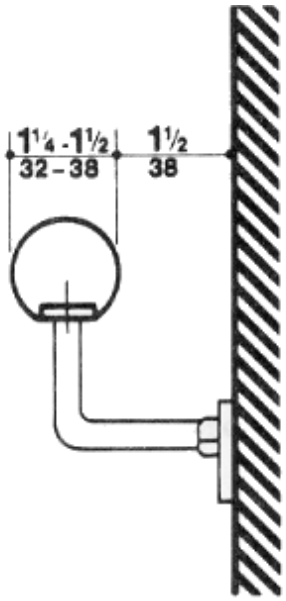
- Shear force induced in a fastener or mounting device from the application of 250 lbf shall be less than the allowable lateral load of either the fastener or mounting device or the supporting structure, whichever is the smaller allowable load.

- Tensile force induced in a fastener by a direct tension force of 250 lbf plus the maximum moment from the application of 250 lbf shall be less than the allowable withdrawal and the supporting structure.

- Grab bars shall not rotate within their fittings.

ELIMINATING HAZARDS

A 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 inches.



LAVATORY, MIRRORS, AND MEDICINE CABINETS

HEIGHT AND CLEARANCES

Lavatories shall be mounted with the rim or counter surface no higher than 34 inches above the finished floor. Provide a clearance of at least 29 inches from the floor to the bottom of the apron. Knee and toe clearance shall comply with figure 31 below:

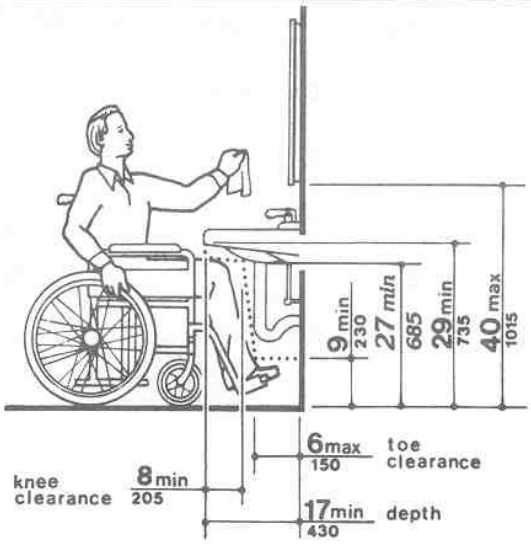


Fig. 31
Lavatory Clearances

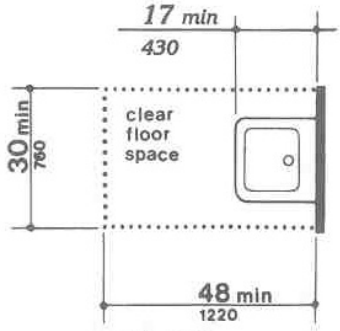


Fig. 32
Clear Floor Space at Lavatories

CLEAR FLOOR SPACE

A clear floor space 30 inches by 48 inches 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 inches underneath the lavatory.

EXPOSED PIPES AND SURFACES

Hot water and drainpipes under lavatories shall be insulated or otherwise covered. There shall be no sharp or abrasive surfaces under lavatories.

FAUCETS

Lever-operated, push-type, and electronically controlled mechanisms are examples of acceptable designs. Self-closing valves are allowed if the faucet remains open for at least 10 seconds. Facets shall be operable with one hand and shall not require tight grasping, pinching, or twisting of the wrist. The force required to activate facets shall be no greater than 5 lbf.

MIRRORS

Mirrors shall be mounted with the bottom edge of the reflecting surface no higher than 40 inches from the floor.

MEDICINE CABINET

If a medicine cabinet is provided above the lavatory, then the bottom of the medicine cabinet shall be located with a usable shelf no higher than 44 inches above the floor.

BATHTUBS

If a bathtub is provided, then it shall have the following features:

SEAT

An in-tub seat or a seat at the head end of the tub shall be provided. The structural strength of seats and their attachments shall comply with the structural strength requirements identified above. Seats shall be mounted securely and shall not slip during use.

FLOOR SPACE

Clear floor space at bathtubs shall be:

- When the Seat is in Tub. If the approach is parallel to the bathtub, a 30-inch minimum width by 60-inch minimum length clear space is required alongside the bathtub. If the approach is perpendicular to the bathtub, a 48-inch minimum width by 60-inch minimum length clear space is required.
- When the Seat is at Head of Tub. If the approach is parallel to the bathtub, a 30-inch minimum width by 75-inch minimum length clear space is required alongside the bathtub. The seat width must be 15 inches and must extend the full width of the bathtub.

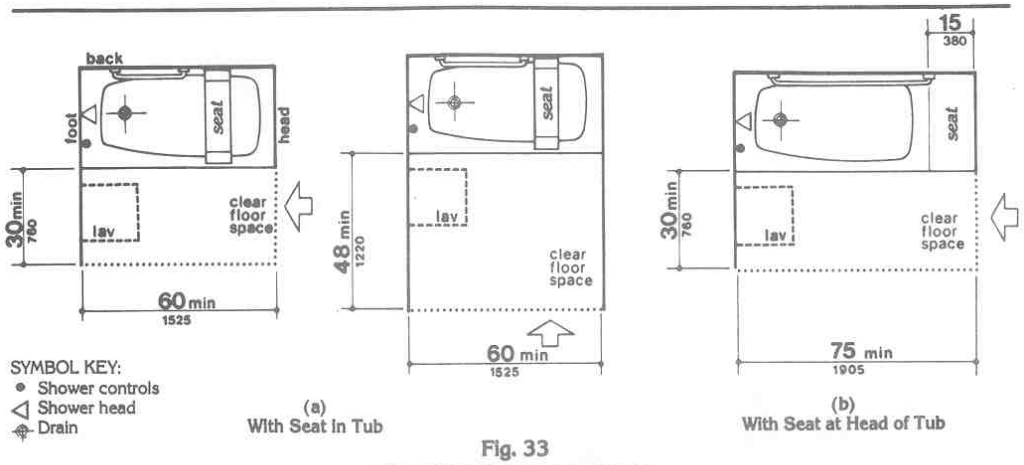


Fig. 33
Clear Floor Space at Bathtubs

CONTROLS

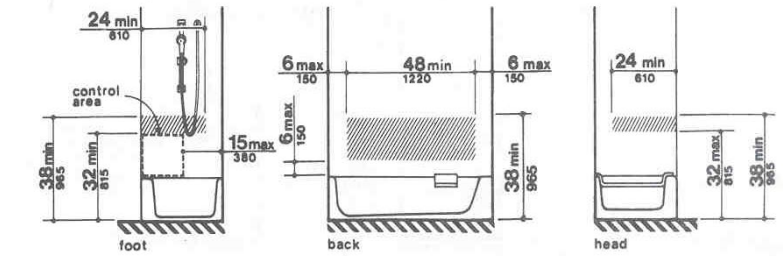
Faucets and other controls shall be located as shown in Figure 48 and shall be operable with one hand and shall not require tight grasping, pinching, or twisting of the wrist. The force required to activate controls shall be no greater than 5 lbf.

SHOWER UNIT

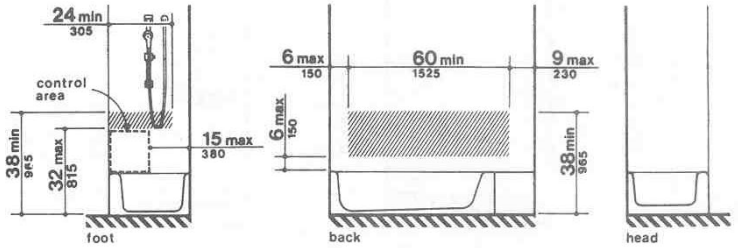
A shower spray unit with a hose at least 60 inches long that can be used as a fixed showerhead or as a hand-held shower shall be provided.

GRAB BARS

Structural reinforcement or other provisions that will allow installation of grab bars shall be provided in the locations shown in Figure 48 below and grab bars shall be installed as shown in Figure 34.



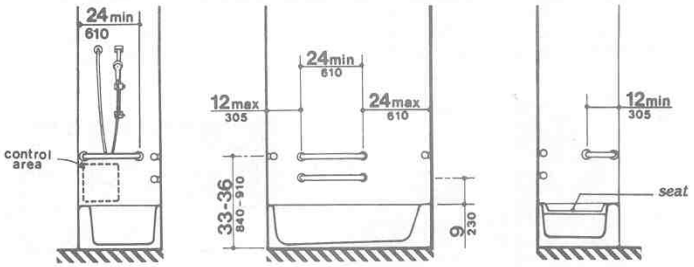
(a)
With Seat in Tub



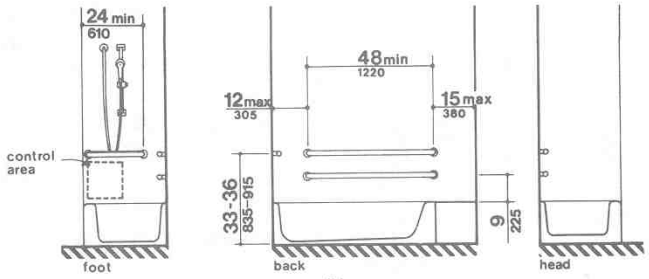
(b)
With Seat at Head of Tub

NOTE: The hatched areas are reinforced to receive grab bars.

Fig. 48
Location of Grab Bars and Controls of Adaptable Bathtubs



(a)
With Seat in Tub



(b)
With Seat at Head of Tub

Fig. 34
Grab Bars at Bathtubs

SHOWERS

If a shower is provided, it shall have the following features:

- **SIZE AND CLEARANCES.** Shower stall size and clear floor space shall comply with either:

- A shower stall shall be 36 inches by 36 inches. The clear floor space shall be a minimum of 48 inches in length by a minimum of 36 inches in width and allow for a parallel approach. The clear floor space shall extend 1 foot beyond the shower wall on which the seat is mounted; *OR*

- The shower stall in will fit into the same space as a standard 60-inch long bathtub. The clear floor space alongside the shower shall be a minimum of 60 inches in length by a minimum of 36 inches in width.

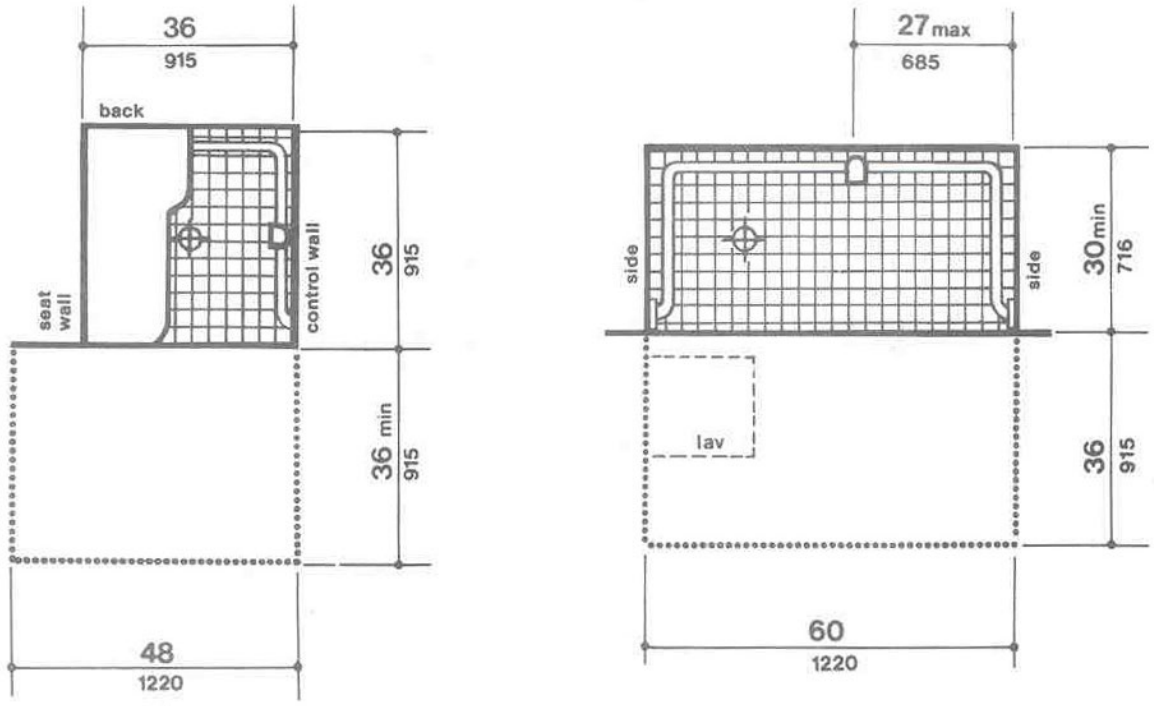


Fig. 35
Shower Size and Clearances

SEAT

A seat shall be provided in the shower stall in Figure 35a (above) as shown in Figure 36 (right). The seat shall be 17 in to 19 in high measured from the bathroom floor and shall extend the full depth of the stall. The seat shall be on the wall opposite the controls. Seats shall be mounted securely and shall not slip during use. The structural strength of seats and their attachments shall comply with the Structural Strength Requirement list above (Grab Bars Section)

CONTROLS

Faucets and other controls shall be located as shown in **Fig. 37** and 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. In the 36" x 36"shower stall, all controls, faucets, and the shower unit shall be mounted on the side wall opposite the seat.

SHOWER UNIT

A shower spray unit with a hose at least 60 inches long that can be used as a fixed showerhead at various heights or as a hand-held shower shall be provided.

GRAB BARS

Structural reinforcement or other provisions that will allow installation of grab bars shall be provided in the locations shown in Figure 49 below. Grab bars shall be installed as shown in Fig. 37 and shall comply with 4.26.

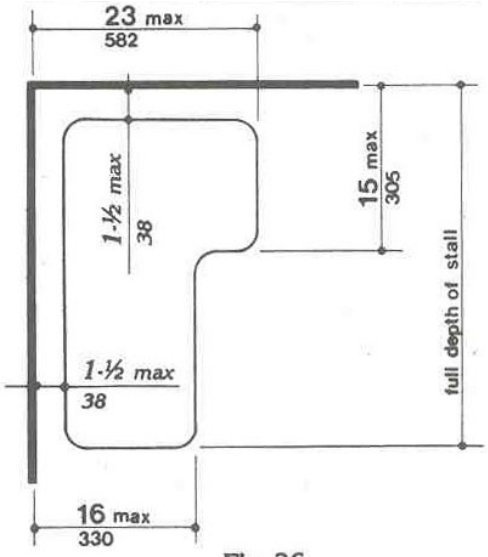
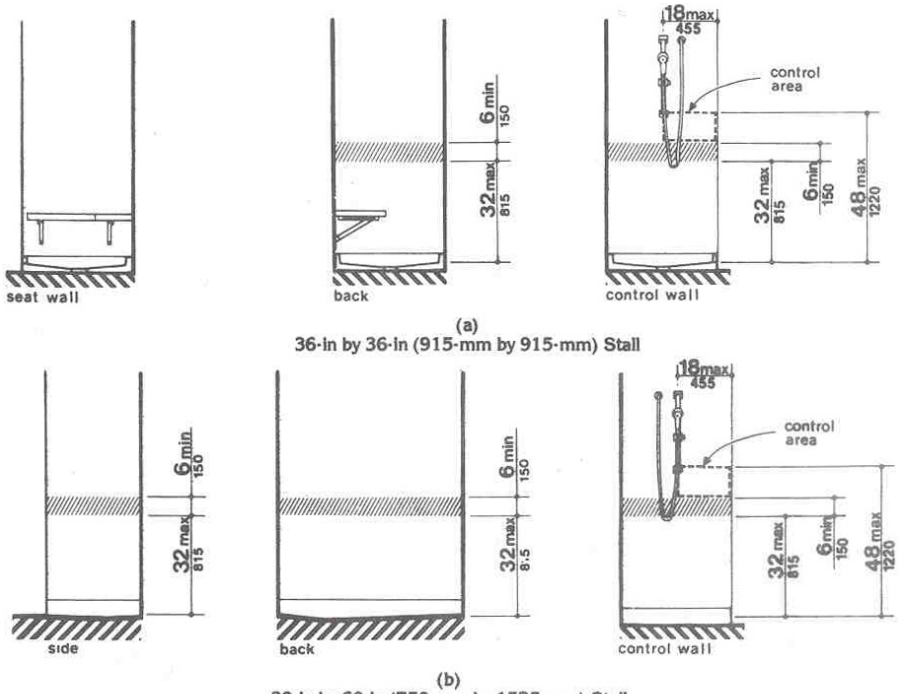


Fig. 36
Shower Seat Design



NOTE: The hatched areas are reinforced to receive grab bars.

Fig. 49
Location of Grab Bars and Controls of Adaptable Showers

BATHTUB AND SHOWER ENCLOSURES

Enclosures for bathtubs or shower stalls shall not obstruct controls or transfer from wheelchairs onto shower or bathtub seats. Enclosures on bathtubs shall not have tracks mounted on their rims.

CLEAR FLOOR SPACE

Clear floor space at fixtures may overlap.

KITCHENS

Accessible kitchen and its components shall be on an accessible route.

CLEARANCE

Clearances between all opposing base cabinets, counter tops, appliances, or walls shall be 40 inches minimum, except in U-shaped kitchens, where such clearance shall be 60 inches minimum.

CLEAR FLOOR SPACE

A clear floor space at least 30 inches by 48 inches that allows either a forward or a parallel approach by a person in a wheelchair shall be provided at all appliances in the kitchen, including the range or cooktop, oven, refrigerator/freezer, dishwasher, and trash compactor.

CONTROLS

All controls in kitchens 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.

WORK SURFACES

At least one 30-inch section of counter shall provide a work surface that complies with the following requirements:

- The counter shall be mounted at a maximum height of 34 inches above the floor, measured from the floor to the top of the counter surface, or shall be adjustable or replaceable as a unit to provide alternative heights of 28 inches, 32 inches, and 36 inches, measured from the top of the counter surface.

- Base cabinets, if provided, shall be removable under the full 30 inches minimum frontage of the counter. The finished floor shall extend under the counter to the wall.

- Counter thickness and supporting structure shall be 2 inches maximum over the required clear area.

- A clear floor space 30 inches by 48 inches shall allow a forward approach to the counter. Nineteen inches maximum of the clear floor space may extend underneath the counter. The knee space shall have a minimum clear width of 30 inches and a minimum clear depth of 19 inches.

- There shall be no sharp or abrasive surfaces under such counters.

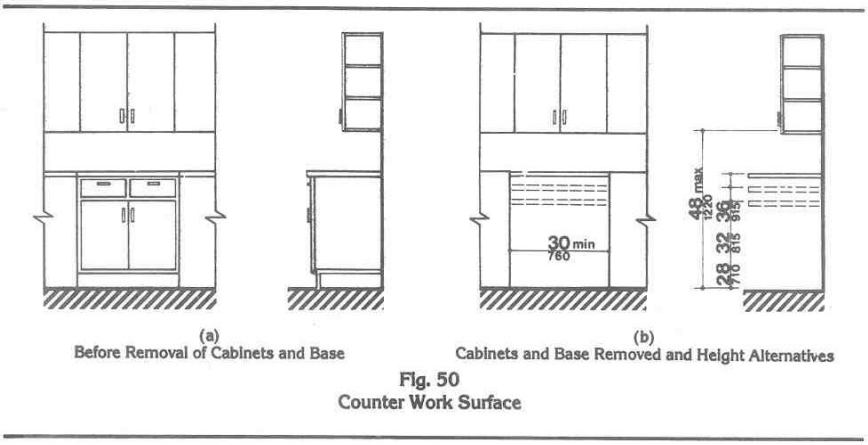


Fig. 50
Counter Work Surface

SINK

The sink and surrounding counter shall comply with the following requirements:

- The sink and surrounding counter shall be mounted at a maximum height of 34 inches above the floor, measured from the floor to the top of the counter surface, or shall be adjustable or replaceable as a unit to provide alternative heights of 28 inches, 32 inches, and 36 inches, measured from the floor to the top of the counter surface or sink rim. The total width of sink and counter area shall be 30 inches.
- Rough-in plumbing shall be located to accept connections of supply and drain pipes for sinks mounted at the height of 28 inches.
- The depth of a sink bowl shall be no greater than 6-1/2 inches. Only one bowl of double- or triple-bowl sinks needs to meet this requirement.
- Faucets 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. Lever-operated or push-type mechanisms are two acceptable designs.
- Base cabinets, if provided, shall be removable under the full 30 inches minimum frontage of the sink and surrounding counter. The finished flooring shall extend under the counter to the wall.
- Counter thickness and supporting structure shall be 2 inches maximum over the required clear space.
- A clear floor space 30 inches by 48 inches shall allow forward approach to the sink. Nineteen inches maximum of the clear floor space may extend underneath the sink. The knee space shall have a clear width of 30 inches and a clear depth of 19 inches.
- There shall be no sharp or abrasive surfaces under sinks. Hot water and drainpipes under sinks shall be insulated or otherwise covered.

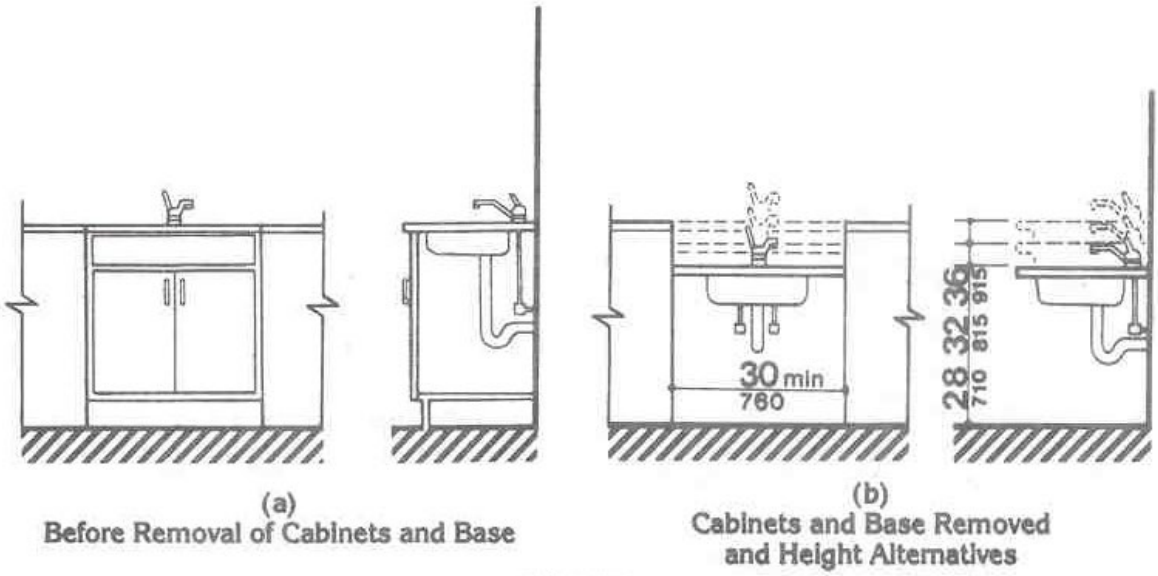


Fig. 51
Kitchen Sink

RANGES AND COOKTOPS

Ranges and cooktops shall have a clear floor space at least 30 inches by 48 inches that allows either a forward or a parallel approach by a person in a wheelchair. If ovens or cooktops have knee spaces underneath, then they shall be insulated or otherwise protected on the exposed contact surfaces to prevent burns, abrasions, or electrical shock. The clear floor space may overlap the knee space, if provided, by 19 inches maximum. The location of controls for ranges and cook-tops shall not require reaching across burners. Controls 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.

OVENS

Ovens shall have a clear floor space at least 30 inches by 48 inches that allows either a forward or a parallel approach by a person in a wheelchair. Ovens shall be of the self-cleaning type or be located adjacent to an adjustable height counter with knee space below. For side-opening ovens, the door latch side shall be next to the open counter space, and there shall be a pullout shelf under the oven extending the full width of the oven and pulling out not less than 10 inches when fully extended. Ovens shall have controls on front panels; they may be located on either side of the door. Controls 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.

REFRIGERATOR/FREEZER

Refrigerator/freezers shall have controls that 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. Provision shall be made for refrigerators which are:

- Of the vertical side-by-side refrigerator/freezer type; or
- Of the over-and-under type and meet the following requirements:
- Have at least 50 percent of the freezer space below 54 inches above the floor.
- Have 100 percent of the refrigerator space and controls below 54 inches.
- Freezers with less than 100 percent of the storage volume within the limits specified above shall be the self-defrosting type.

DISHWASHERS

Dishwashers shall have a clear floor space at least 30 inches by 48 inches that allows either a forward or a parallel approach by a person in a wheelchair. Dishwashers shall have all rack space accessible from the front of the machine for loading and unloading dishes. Controls 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.

KITCHEN STORAGE

Cabinets, drawers, and shelf areas shall have a clear floor space at least 30 inches by 48 inches that allows either a forward (maximum high forward reach allowed shall be 48 inches and the minimum low forward reach is 15 inches above the floor) or parallel (maximum high side reach allowed shall be 54 inches and the low side reach shall be no less than 9 inches above the floor) approach by a person using a wheelchair. Kitchen storage shall have the following features:

- Maximum height shall be 48 inches for at least one shelf of all cabinets and storage shelves mounted above work counters.
- Door pulls or handles for wall cabinets shall be mounted as close to the bottom of cabinet doors as possible. Door pulls or handles for base cabinets shall be mounted as close to the top of cabinet doors as possible.
- Hardware for accessible storage facilities 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. Touch latches and U-shaped pulls are acceptable.

LAUNDRY FACILITIES

If laundry equipment is provided within individual accessible dwelling units, or if separate laundry facilities serve one or more accessible dwelling units, then they shall meet the requirements below:

LOCATION

Laundry facilities and laundry equipment shall be on an accessible route.

WASHING MACHINES AND CLOTHES DRYERS

Washing machines and clothes dryers in common use laundry rooms shall be front loading.

CLEAR FLOOR SPACE

Minimum clear floor space shall be 30 inches by 48 inches that allows a forward or a parallel approach by a person using a wheelchair.

CONTROLS

HEIGHT

The highest operable part of all controls, dispensers, receptacles, and other operable equipment shall be placed within at least one of the reach ranges specified below:

FORWARD REACH

If the clear floor space only allows forward approach to an object, the maximum high forward reach allowed shall be 48 inches. The minimum low forward reach is 15 inches.

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 inches and the low side reach shall be no less than 9 inches above the floor.

OPERATION

Controls 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.

PARKING

Parking spaces at accessible housing shall be provided in accordance with the following:

- Where parking is provided for all residents, one accessible parking space shall be provided for each accessible dwelling unit; and

- Where parking is provided for only a portion of the residents, an accessible parking space shall be provided on request of the occupant of an accessible dwelling unit;

- Where parking is provided for visitors, 2 percent of the spaces, or at least one, shall be accessible

LOCATION

Parking spaces for disabled people and accessible passenger loading zones that serve a particular building shall be the spaces or zones located closest to the nearest accessible entrance on an accessible route. In separate parking structures or lots that do not serve a particular building, parking spaces for disabled people shall be located on the shortest possible circulation route to an accessible pedestrian entrance of the parking facility.

PARKING SPACES

Parking spaces for disabled people shall be at least 96 inches wide and shall have an adjacent access aisle 60 inches wide minimum. Parking access aisles shall be part of an accessible route to the building or facility entrance. Two accessible parking spaces may share a common access aisle. Parked vehicle overhangs shall not reduce the clear width of an accessible circulation route. Parking spaces and access aisles shall be level with surface slopes not exceeding 1:50 in all directions.

EXCEPTION:

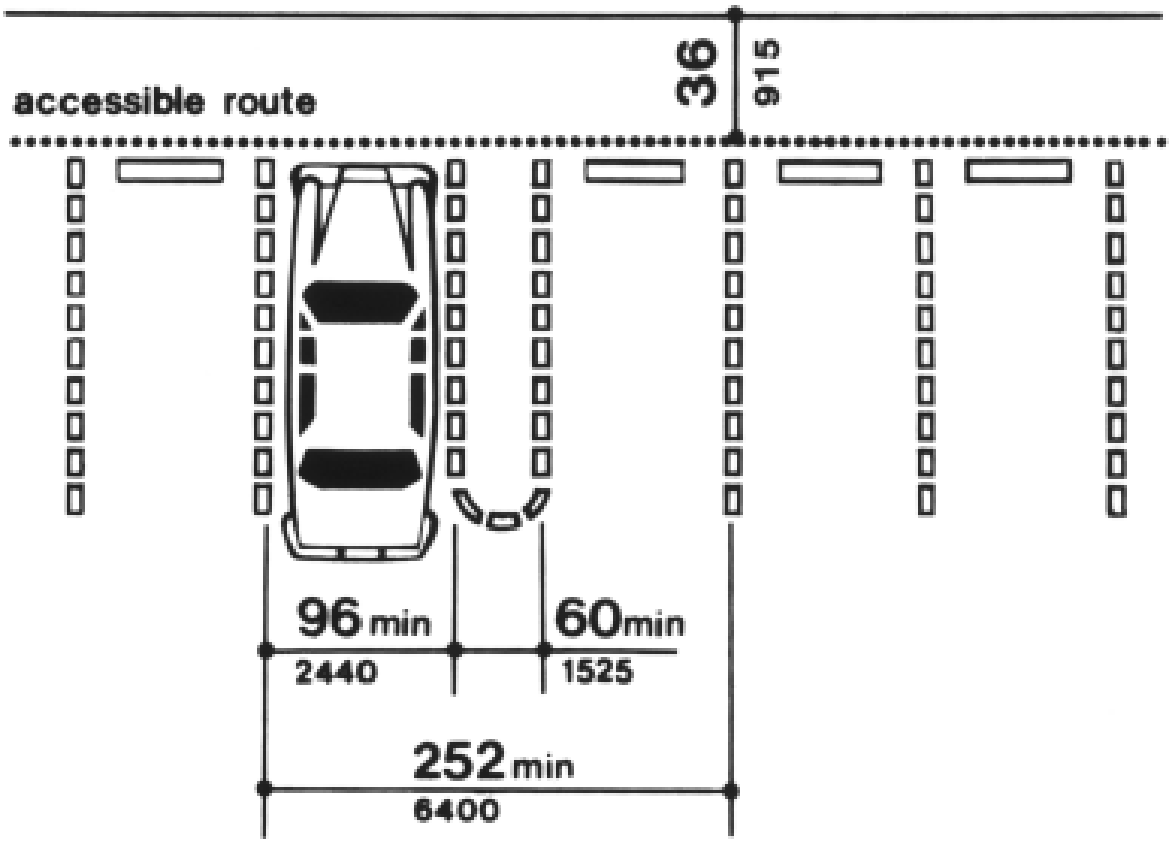
If accessible parking spaces for vans designed for handicapped persons are provided, each should have an adjacent access aisle at least 96 inches wide complying with 4.5, Ground and Floor Surfaces.

SIGNAGE

Accessible parking spaces shall be designated as reserved for the disabled by a sign showing the international symbol of accessibility. A vehicle parked in the space shall not obscure such signs.

VERTICAL CLEARANCE

Provide minimum vertical clearances of 114 inches along vehicle access routes to such areas from site entrances.


accessible route
36
915
96 min
2440
60 min
1525
252 min
6400

Section 504 Compliance Certification

Grantee:

In accordance with the requirements of the Neighborhood Stabilization Program, based on the Architect's Certification and the Grantee's observation, the Grantee certifies that units at

_____

Unit Number/s

_____

Name and address of property

were designed and constructed in accordance with the requirements of the Uniform Federal Accessibility Standards (UFAS), as stipulated by Section 504 of the Rehabilitation Act of 1973.

GRANTEE: _____

By: _____ Date: _____

Architect:

In accordance with the requirements of the Neighborhood Stabilization Program, based on on-site observation, the Architect certifies that units at

_____

Unit Number/s

_____

Name and address of property

were designed and constructed in accordance with the requirements of the Uniform Federal Accessibility Standards (UFAS), as stipulated by Section 504 of the Rehabilitation Act of 1973.

ATCHITECT: _____

By: _____ Date: _____