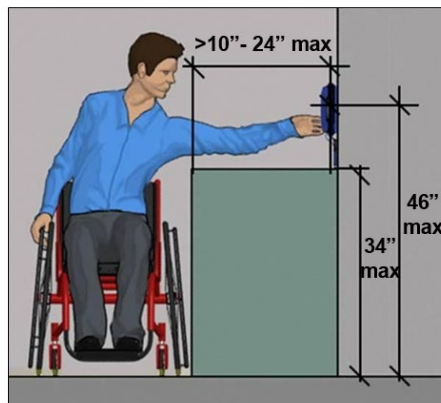
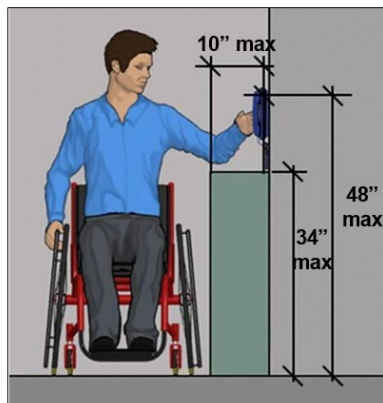




## ADA- Operable Parts and Protruding Objects



## 2 PDH or CE

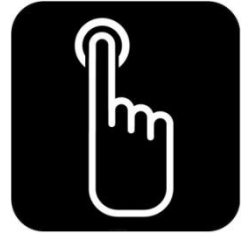
Professional Development Hours (PDH) or  
Continuing Education Hours (CE)  
Online PDH or CE course



## U.S. ACCESS BOARD TECHNICAL GUIDE

# Operable Parts

This guide explains requirements in the ADA Standards for operable parts.



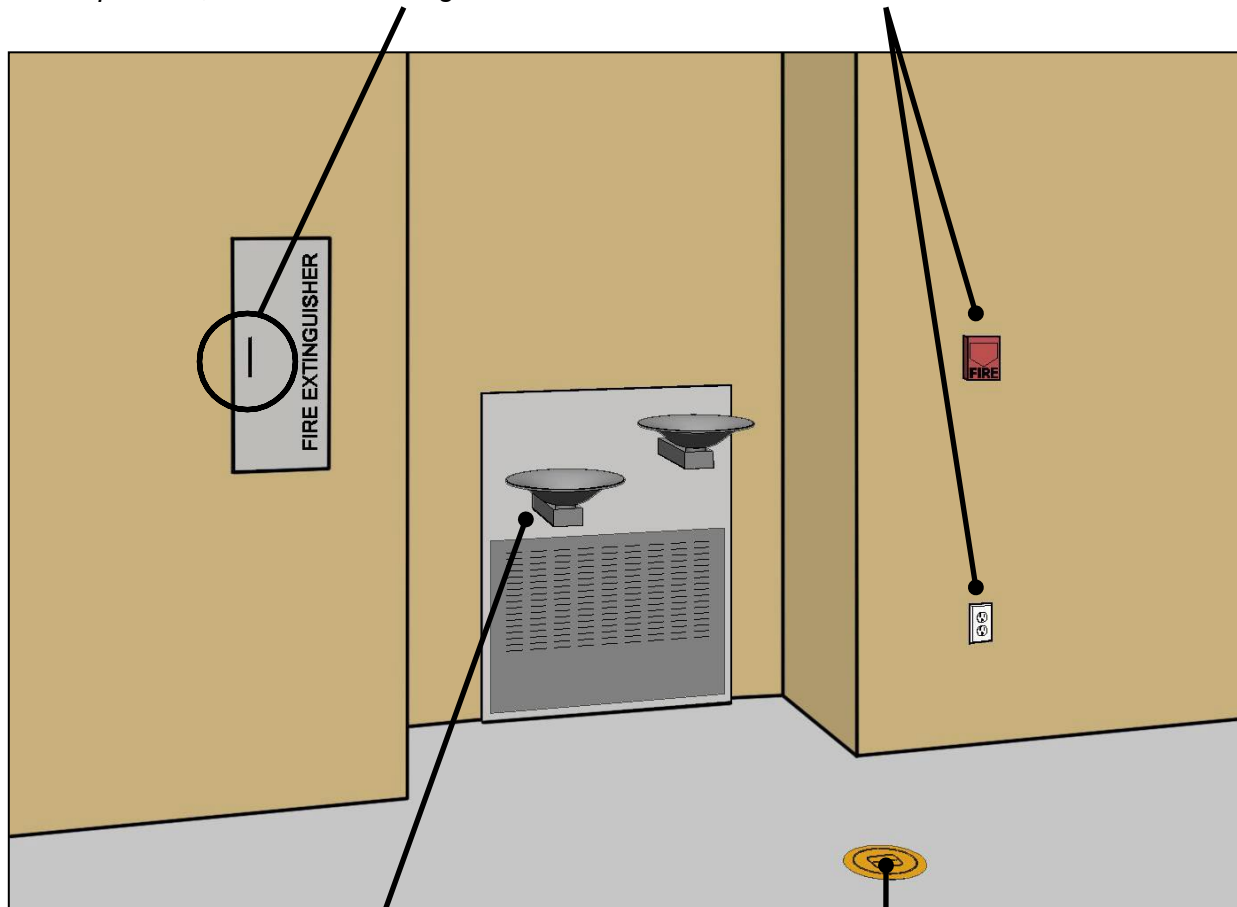
### Operable Parts Covered [§205]

Compliance is required for operable parts located in accessible spaces and along accessible routes. Operable parts include light switches, electrical and communication receptacles, thermostats, alarm pulls, automatic door controls, and other elements used by facility occupants.

### Examples of Operable Parts

*Compliance is required for the operable portions of fixed elements, such as cabinet hardware, but not for inoperable portions or to non-fixed components, such as fire extinguishers.*

*Electrical outlets, alarm pulls, and many other types of receptacles and controls are covered.*



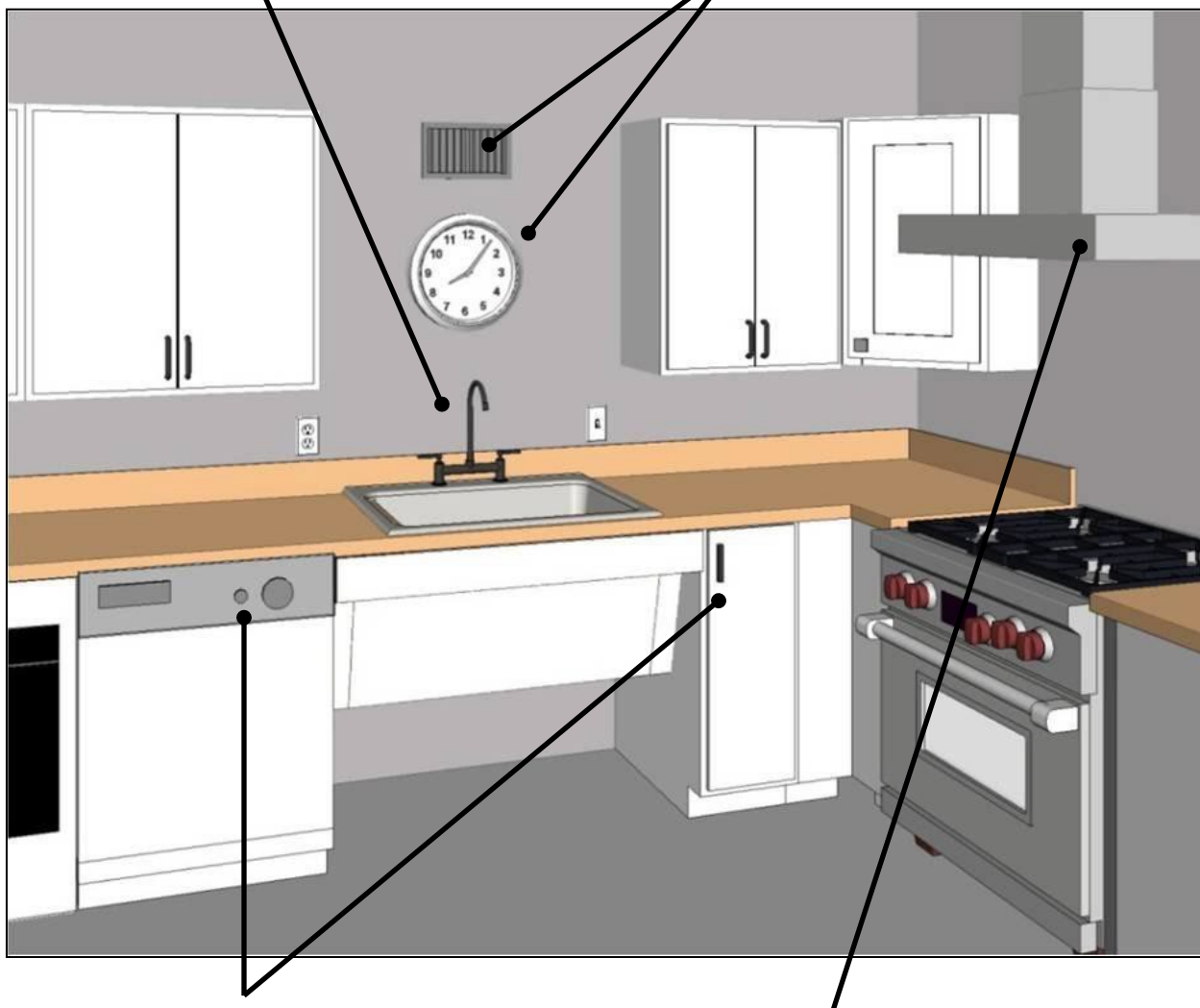
*Provisions for drinking fountains and other elements covered by the standards also apply the criteria for operable parts.*

*Exempt: floor receptacles and operable parts used only by service or maintenance personnel.*

## Examples of Operable Parts in Kitchens

*Electrical outlets, switches, and faucet controls are required to comply.*

*Exempt: HVAC diffusers and dedicated electrical or communication receptacles.*



*Appliance controls and handles to accessible storage are also covered as operable parts.*

*Controls on elements outside reach range, such as range hoods, require provision of a second control.*

*If redundant controls (other than light switches) are provided for an element, one control in each space is not required to comply.*

## Operable Parts [§309]

Requirements apply generally to all types of operable parts covered. They are also referenced by technical sections of the standards covering drinking fountains, faucet and flush controls, ATM and fare machines, appliances, storage, windows, and door and gate hardware, and other elements.

### Accessible Features of Operable Parts

*Operable portions meet usability criteria and are within accessible reach ranges (non-operable portions can be located outside reach range)*

*Clear floor space for approach and positioning*

*An unobstructed side of the clear floor space adjoins a connecting accessible route*



### Forward and Side Approaches

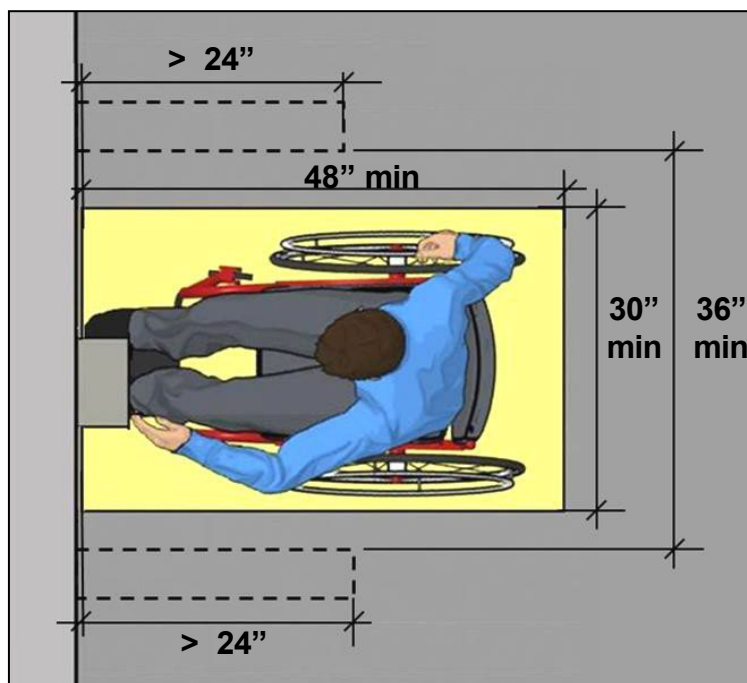
At most elements, clear floor space can be positioned for either a forward approach or a side approach. A forward approach is required at some elements, such as drinking fountains and lavatories, for easier access.

## Forward Approach and Reach

### Clear Floor Space [§309.2]

Clear floor space for forward approaches must extend up to or, if knee or toe space is provided, below operable parts. This facilitates access since the forward reach does not extend beyond a wheelchair user's toes.

If clear floor space is obstructed on both sides more than half the minimum required depth, a wider clearance (36" min.) is required for maneuvering and sway.

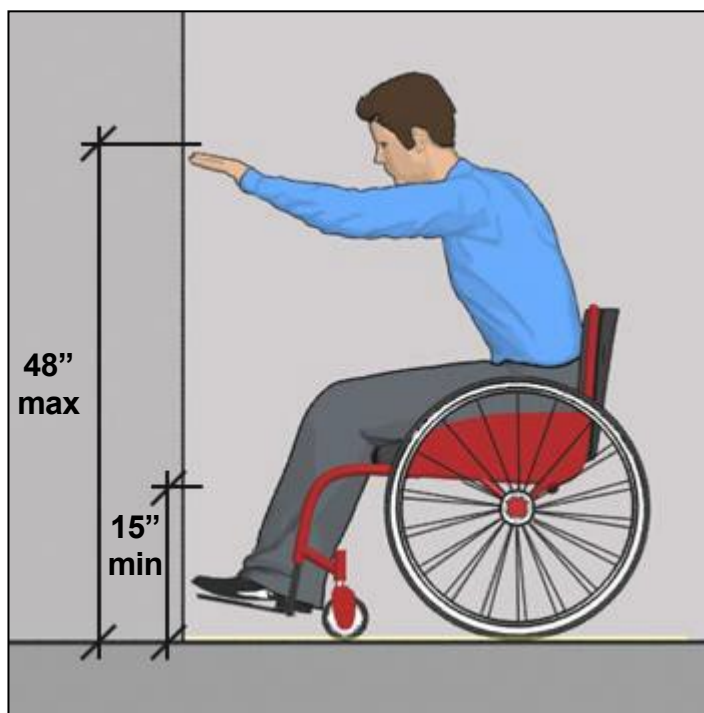


### Knee and Toe Space

If the forward reach to operable parts extends over an obstruction, such as a counter, clearances for toes and knees is required below. The knee and toe space must be at least as deep as the reach depth measured from the leading edge of the obstruction.

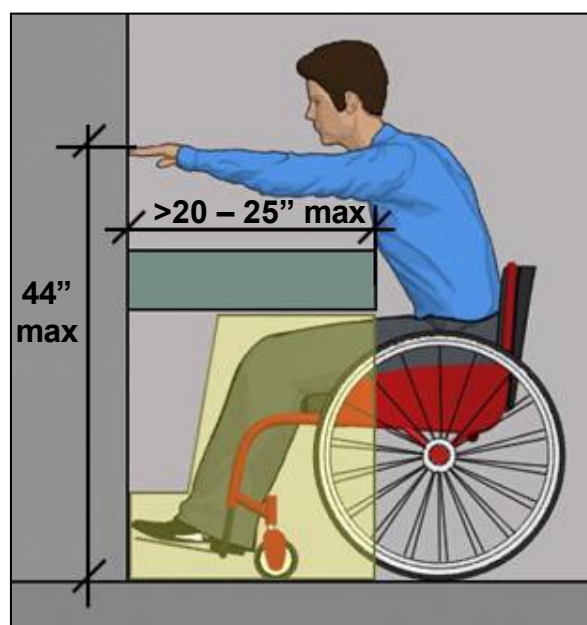
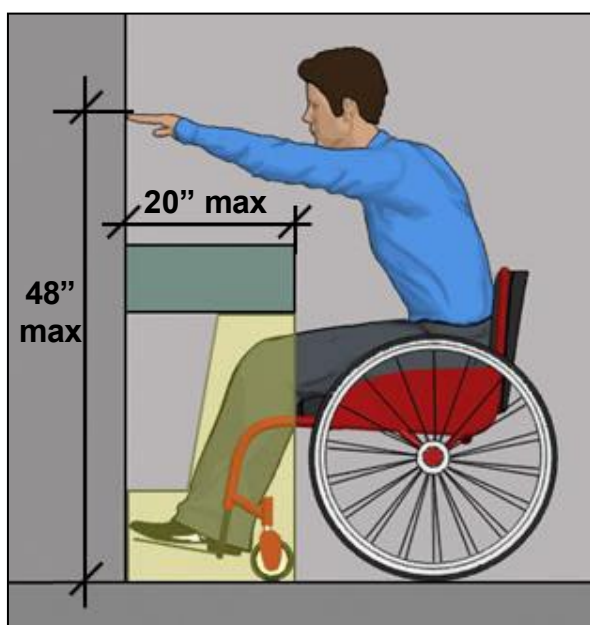
## Forward Reach [§308.2]

The range for unobstructed reaches (15" – 48") applies only to those portions of elements that are operable. Non-operable portions can be located outside the range.



## Obstructed High Reach

The maximum reach of 48" is reduced to 44" when the depth of reach over an obstruction exceeds 20." Knee and toe space must extend the full depth of reach.



## Side Approach and Reach

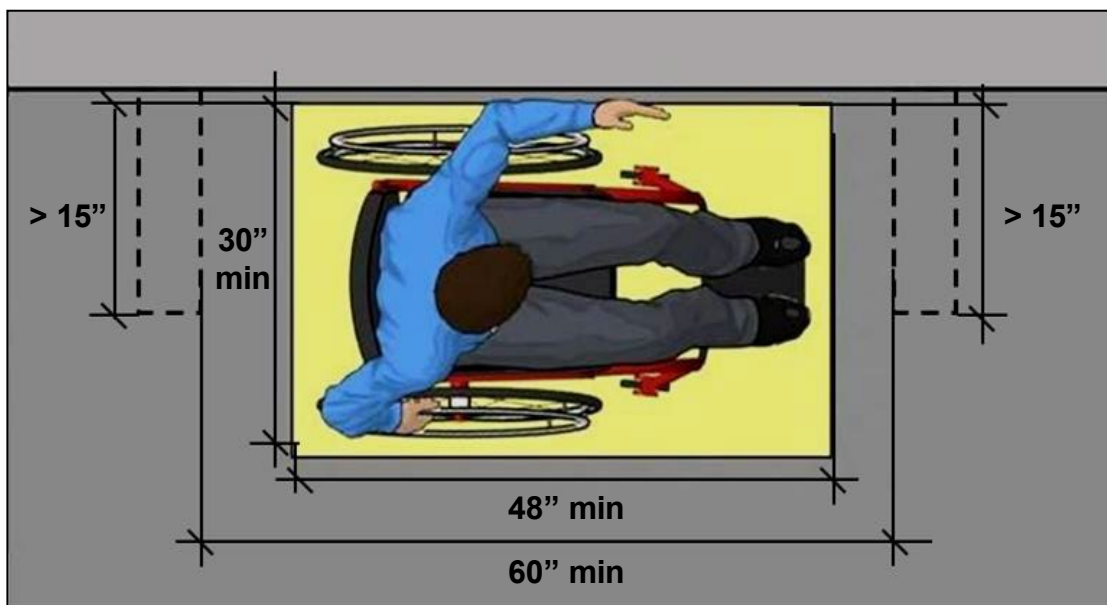


### Clear Floor Space [§309.2]

Clear floor space can be oriented for a side approach instead of a forward approach at most operable parts. Nominal centering of the space on operable portions of elements is advisable, but not required (except at washers and dryers).

### Clear Floor Space

Additional clearance is required if the space is obstructed on three sides for more than half the depth to allow easier maneuvering into the space.



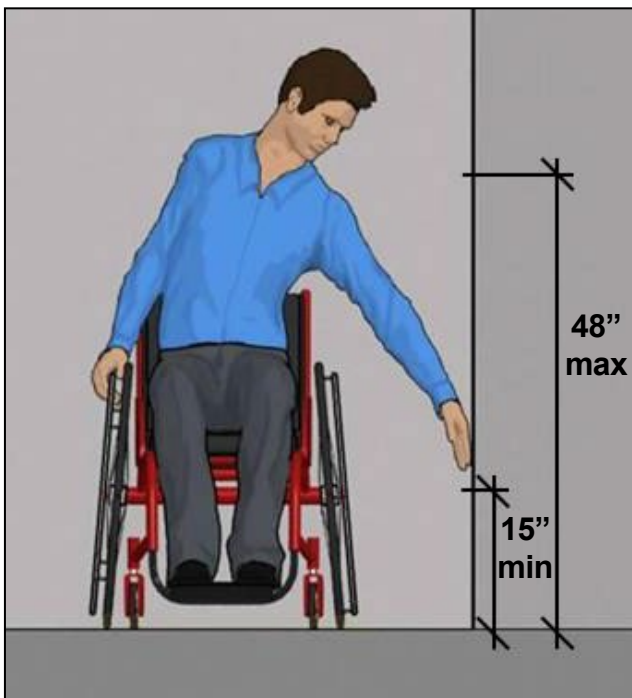
### Side Reach [§308.3]

The range for side reach, like forward reach is 15" to 48" if unobstructed. The maximum reach depth for this range is 10" measured from the available clear floor space.



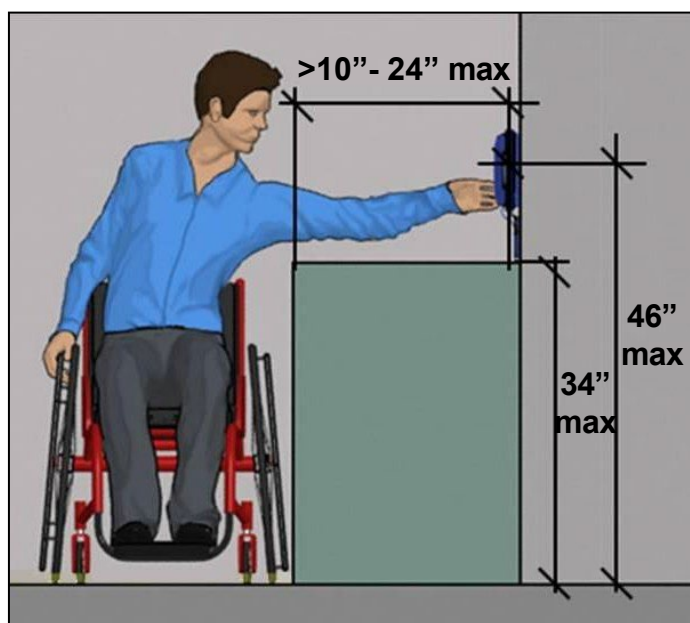
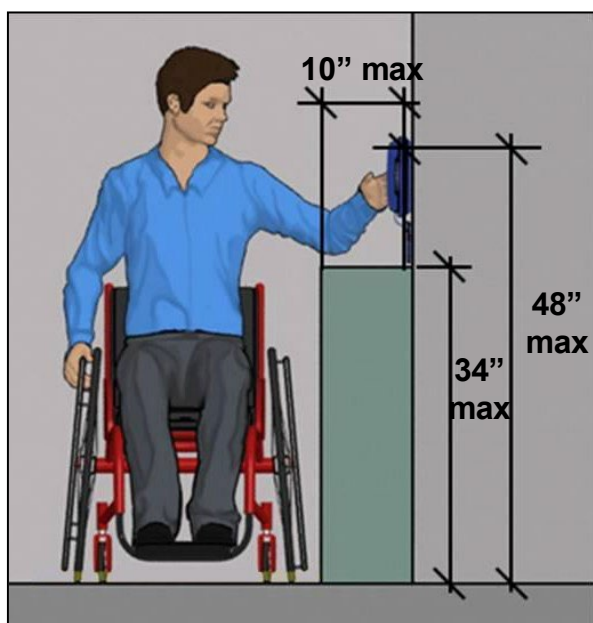
#### **Fuel Dispensers**

*The operable parts of fuel dispensers located on existing curbs can be up to 54" high.*



### Obstructed High Reach

The maximum high reach is reduced to 46" when the reach over an obstruction is deeper than 10" (to a maximum of 24"). Obstructions at side reaches are limited to a height of 34".

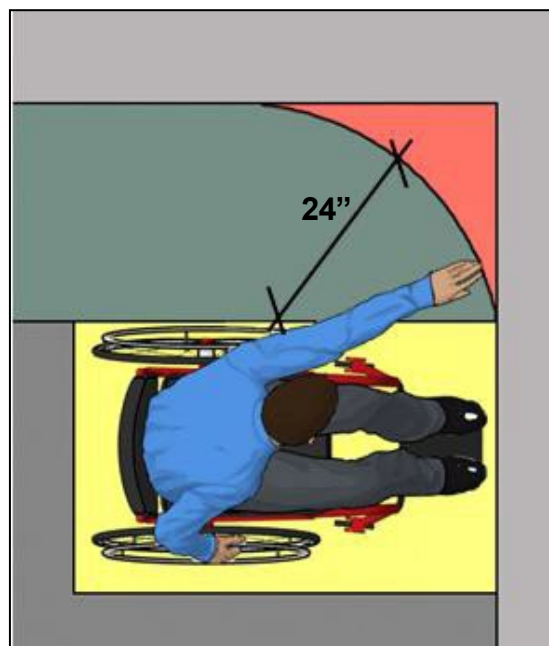
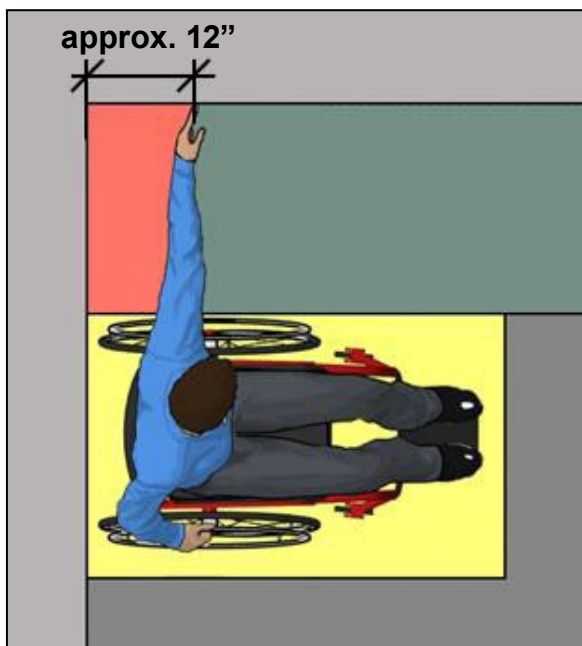


## Side Reach Radius

Elements located in corners can be difficult to reach from a side approach.

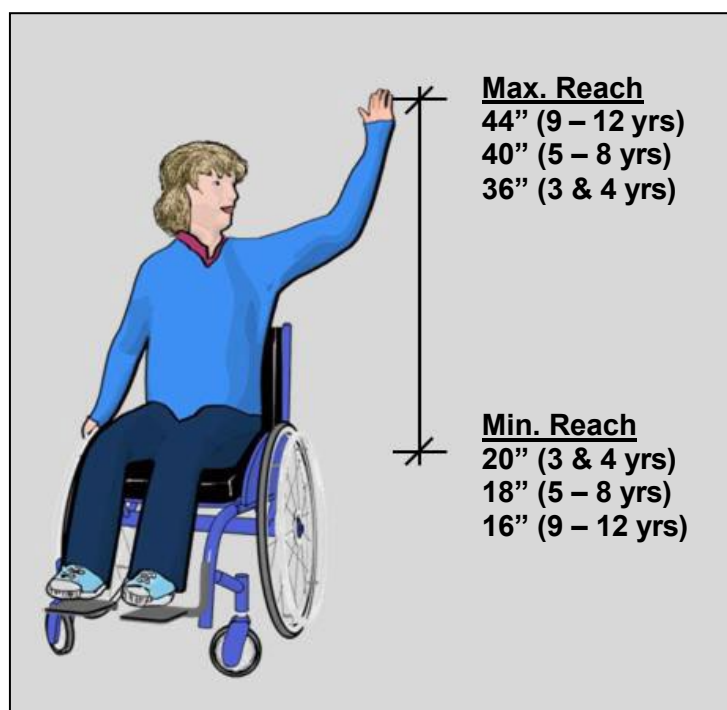


**Recommendation:** Where a side reach is provided, locate elements away from corners in consideration of the typical reach radius.



## Advisory Reach Range for Children

The standards include advisory (non-mandatory) reach ranges based on children's dimensions that can be followed when operable parts are designed for use by children. This guidance provides reach ranges recommended according to three age groups.

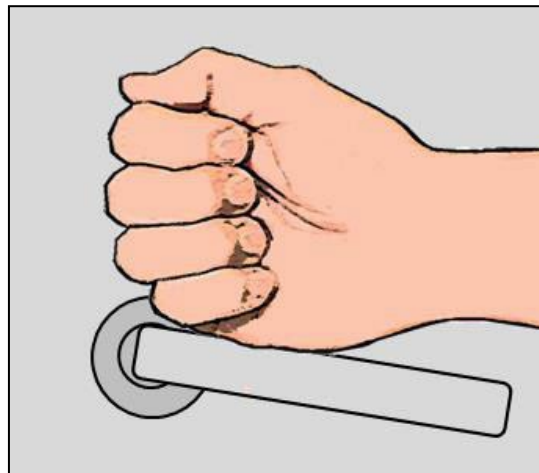


## Operation [§309.4]

Operable parts must be usable with one hand and not require:

- tight grasping, pinching, or twisting of the wrist, or
- more than 5 pounds of force (lbf) to operate.

Parts that can be operated without hand or finger dexterity, fine motor movement, or simultaneous actions provide easier access and accommodate a broader range of users.



*Operability with a closed fist is a reliable test of usability, but is not required by the standards.*



### Push Plates, Buttons, and Bars

Push-activated controls not requiring more than 5 lbf are acceptable. Buttons that are raised or flush are easier to use than those that are recessed. (Elevator control buttons cannot be recessed, and input keys at ATM and fare machines must be raised.)



### Handles, Pulls, and Knobs

Standard U-shaped pulls and lever-shaped handles are acceptable. Stationary knobs with a shape that can be loosely gripped also are acceptable. Knobs that require a full hand grip and turning, including round door knobs and shower controls, do not comply because they require twisting of the wrist.



### Latches and Locks

Latches and locks with small parts that must be manipulated can be difficult to use and will not comply if pinching is necessary. However, non-fixed portions of locks and other operable parts, such as keys and access cards, are not required to comply (but those that do not require pinching or turning provide better access). Hardware that does not require simultaneous actions are better, but some types, such as handles with thumb latches are acceptable.



### Controls and Switches

Dials and other controls that can be turned with the fingers but not the full hand can be used if they do not require twisting of the wrist or pinching. Flip switches and similar controls are acceptable, though push plate types can provide easier access.

## Common Questions



*Are redundant controls for an element required to comply?*

If redundant controls, other than light switches, serve a single element, one control in each space is not required to comply. If a redundant control is located in a different space, however, it must comply. All light switches are required to comply.

*What types of electrical or communication receptacles are exempt because they serve a “dedicated use”?*

Electrical receptacles serving a dedicated use include those installed for appliances, including refrigerators, ranges, and dishwashers, and wall clocks. Floor electrical receptacles are also exempt. Communication receptacles serving a dedicated use include phone jacks, data ports, network and audio-visual connections. Electrical receptacles provided for portable communication devices such as TTYs are not covered by this exception and must comply.

*Do reach range requirements apply to elements or only to operable parts of elements?*

Reach range requirements apply to the operable portions of elements, including handles, controls, switches, buttons, control pads and other mechanisms that must be activated or manipulated for use. Non-operable portions of elements do not have to be within accessible reach ranges.

*Must operable parts be usable with a closed fist?*

Closed-fist operation is a good performance test but is not required by the standards. Many types of operable parts, such as pull handles, satisfy the requirements even though they may not be operable with a closed fist.

*Are turn-key locks prohibited by the standards?*

Key locks or key cards are not prohibited by the standards which apply only to the fixed portions of operable parts. Similarly, items dispensed by ATMs and fare machines, such as receipts, cash, fare cards, and vending machine products are not covered by the standards.



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February 2014



## U.S. ACCESS BOARD TECHNICAL GUIDE

# Protruding Objects

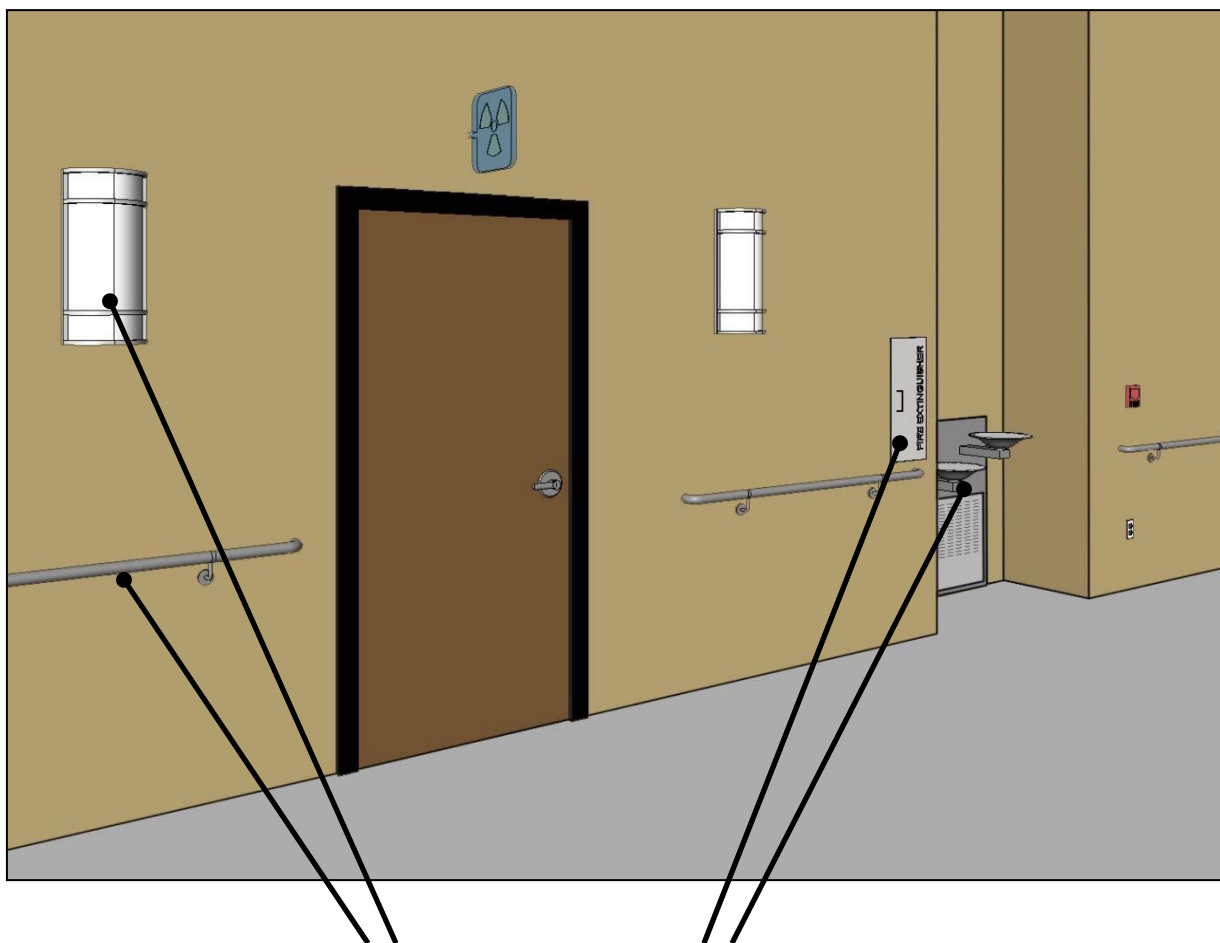


This guide explains requirements in the ADA Standards for protruding objects.

### Protruding Objects [§204]

To prevent hazards to people with vision impairments, the standards limit the projection of objects into circulation paths. These requirements apply to all circulation paths and are not limited to accessible routes. Circulation paths include interior and exterior walks, paths, hallways, courtyards, elevators, platform lifts, ramps, stairways, and landings.

#### Examples of Protruding Objects

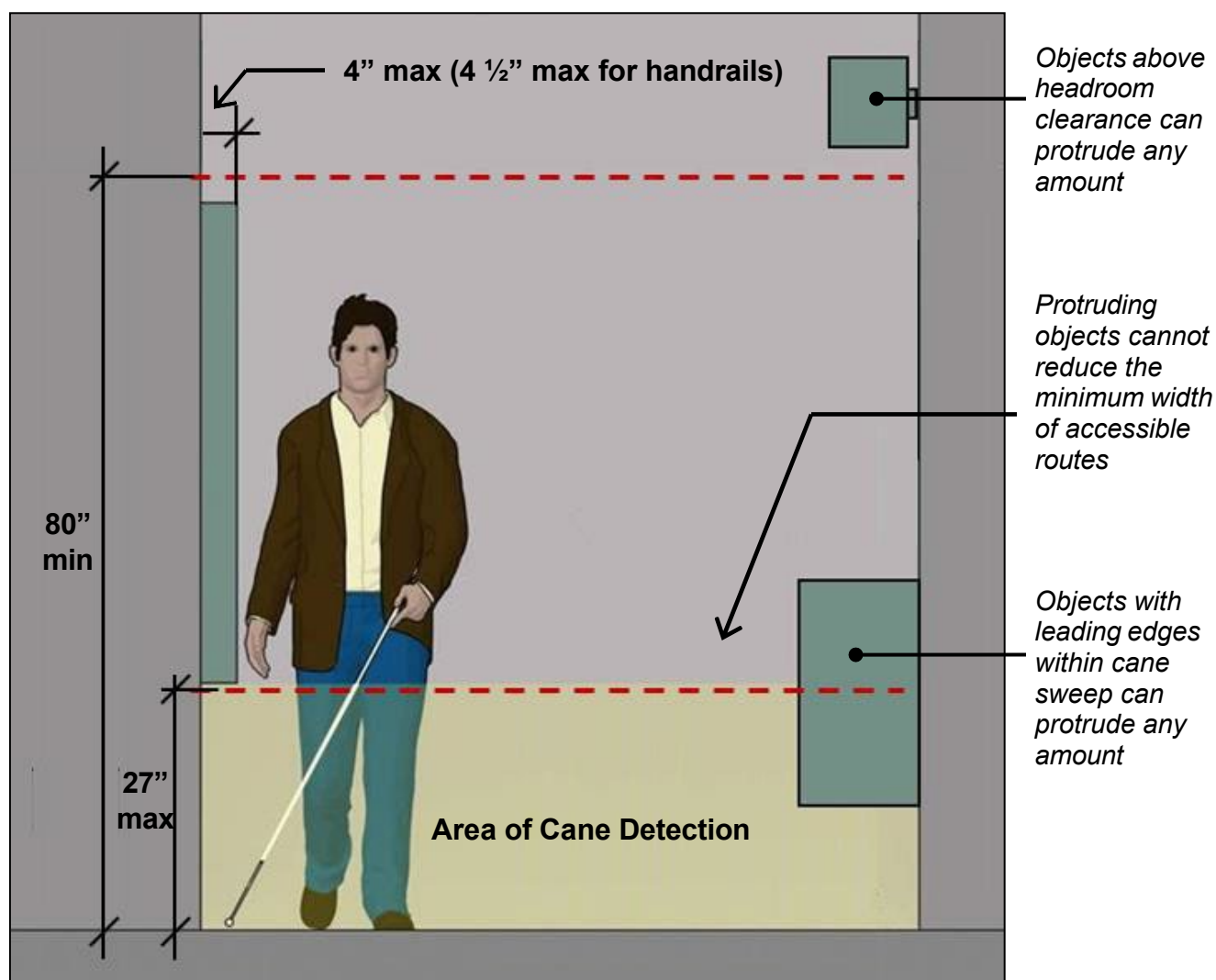


*Scones, handrails, cabinets, drinking fountains and other elements that project into circulation paths must comply with provisions for protruding objects (unless they are located within cane sweep or above headroom clearance). Requirements for protruding objects apply to all interior and exterior circulation paths of sites. They are not limited to hallways and corridors and apply equally to circulation paths in rooms and spaces.*

## Protrusion Limits [§307.2]

People with vision impairments often travel closely along walls which can provide wayfinding cues sometime called a “shoreline.” Objects mounted on walls, partitions, columns, and other elements along circulation paths can pose hazards unless their projection is limited. Those with leading edges that are within cane sweep (27” high maximum) or that provide minimum headroom clearance (80” minimum) do not pose hazards and can protrude any amount.

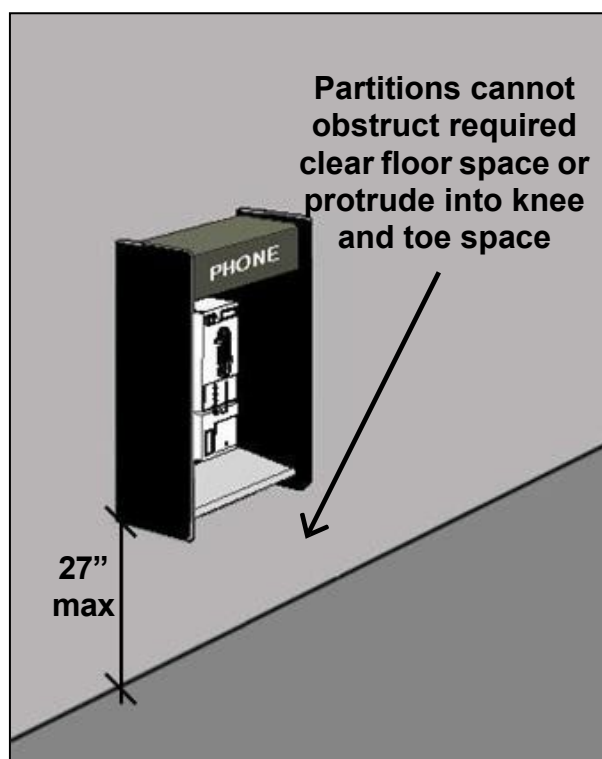
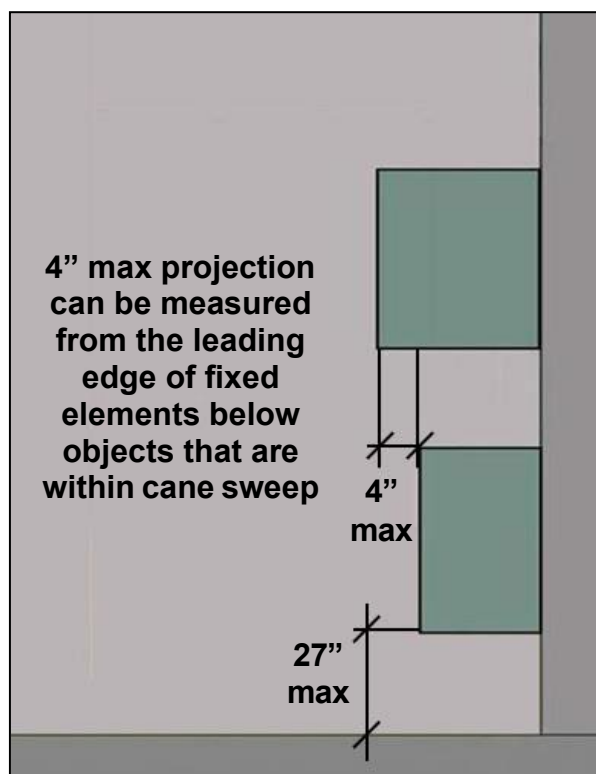
### Limits of Protruding Objects



*Protruding object limits apply to the full width of circulation paths.*

## Location Above Detectable Elements

Objects located above elements that are within cane sweep can protrude 4" maximum from the leading edge of such elements provided that any required reach or clear floor space is not obstructed.

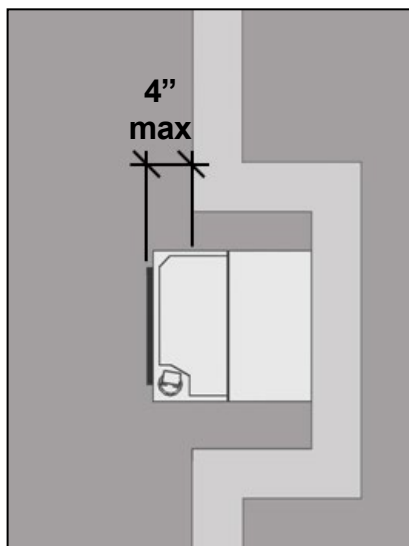
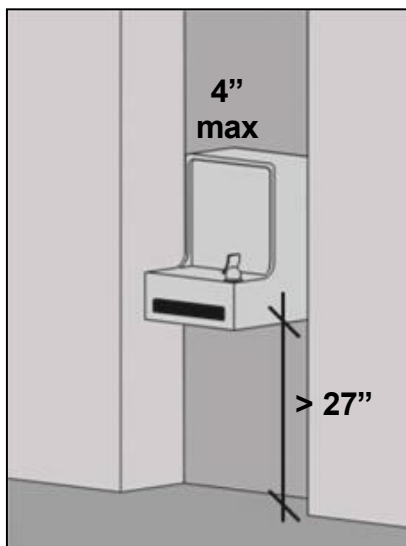


## Side Partitions and Wing Walls

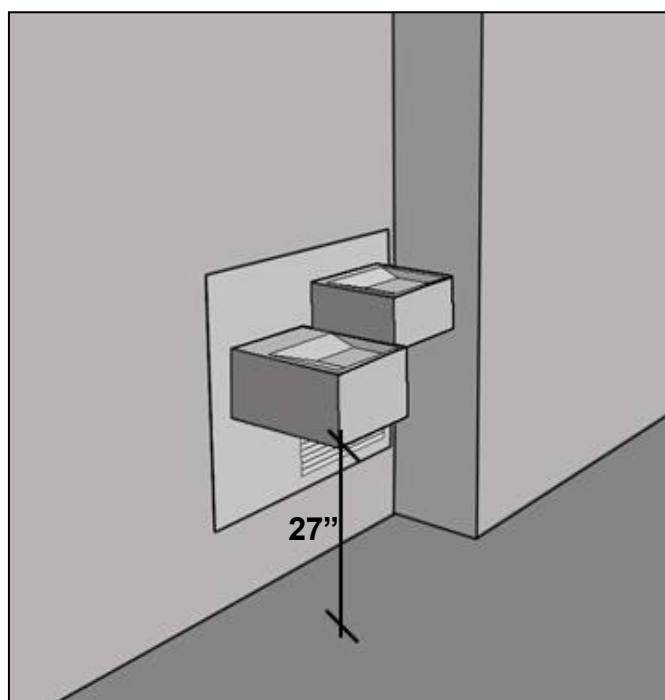
Side partitions or panels and wing walls can also be used to make protruding objects compliant. The bottom edge of panels or partitions must be 27" high maximum.

## Recessed Objects

Objects can be recessed in alcoves so that they do not project more than 4" into circulation paths. Alcoves must be sized to accommodate required clear floor space at accessible elements.



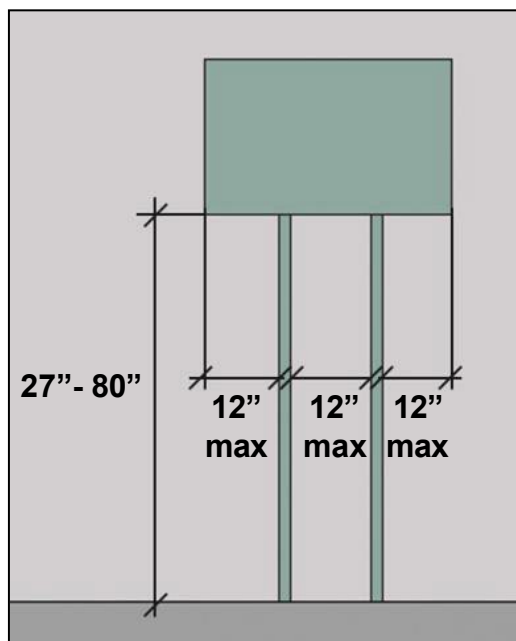
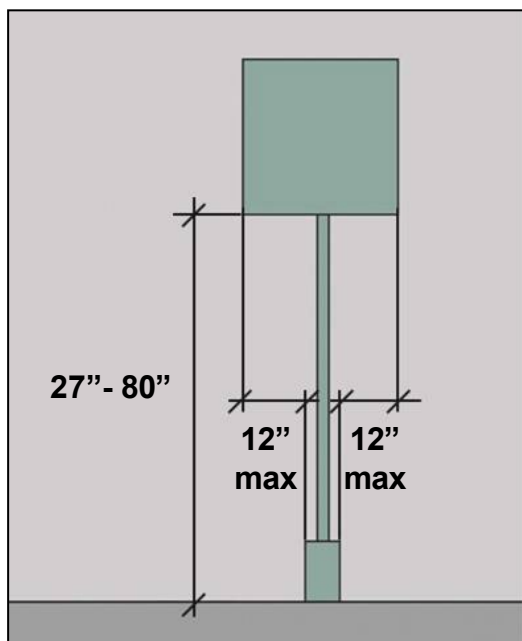
Elements, such as wheelchair accessible drinking fountains, must provide a knee clearance of at least 27". If located to provide, but not exceed this clearance (27" above the floor or ground absolute), they are not protruding objects because the leading edge will be within cane detection.



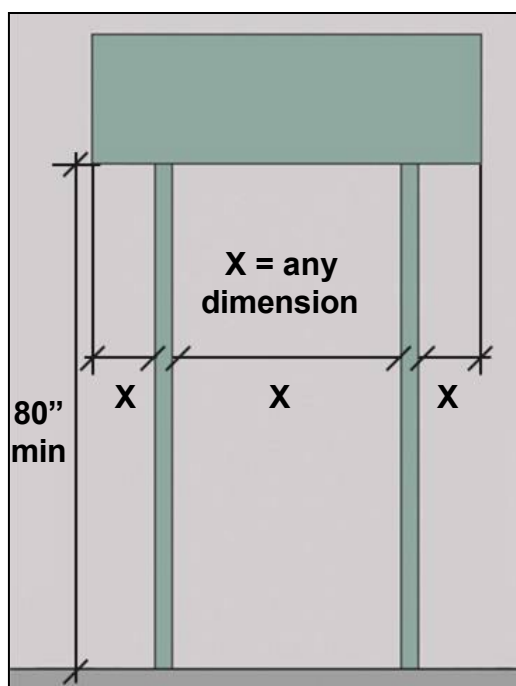
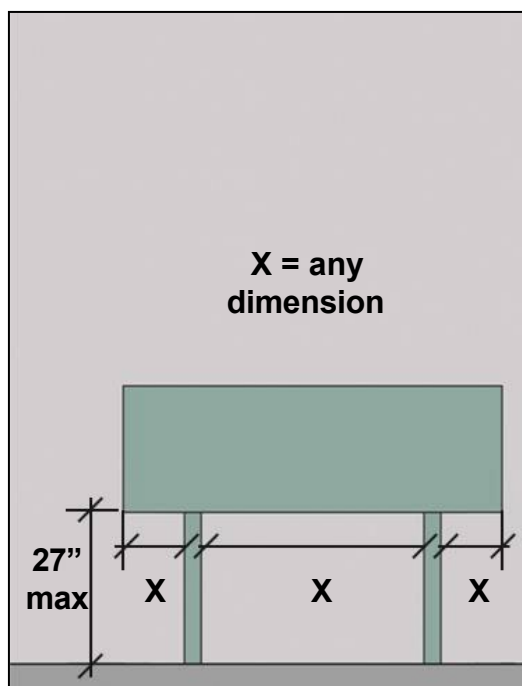
*A wheelchair accessible unit located 27" absolute above the ground or floor is cane detectable and can be used to enclose one side of high units for standing access. In this instance, the 27" height is effectively an absolute dimension because it is the minimum required for knee clearance and the maximum specified for cane detection.*

## Post-Mounted Objects [§307.3]

Free-standing objects with leading edges 27" to 80" high that are mounted on posts or pylons cannot protrude more than 12" into circulation paths. The 12" limit also applies to the clearance between multiple posts (excluding the sloping portions of handrails).



Objects with leading edges 27" maximum or above 80" can protrude any amount from posts or pylons.

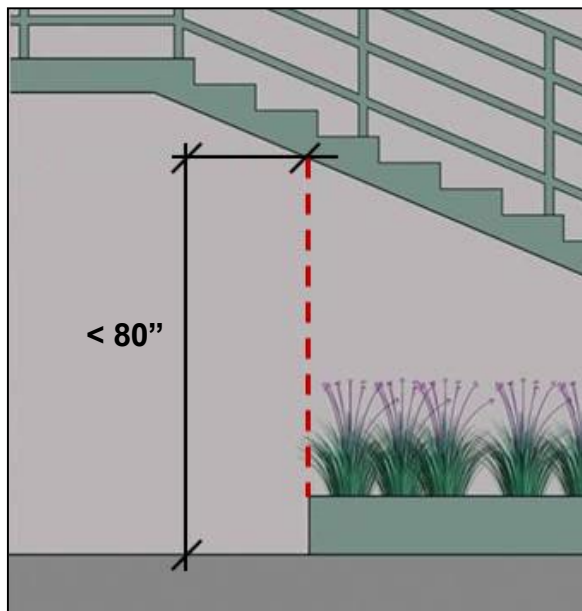


## Vertical Clearance [§307.4]

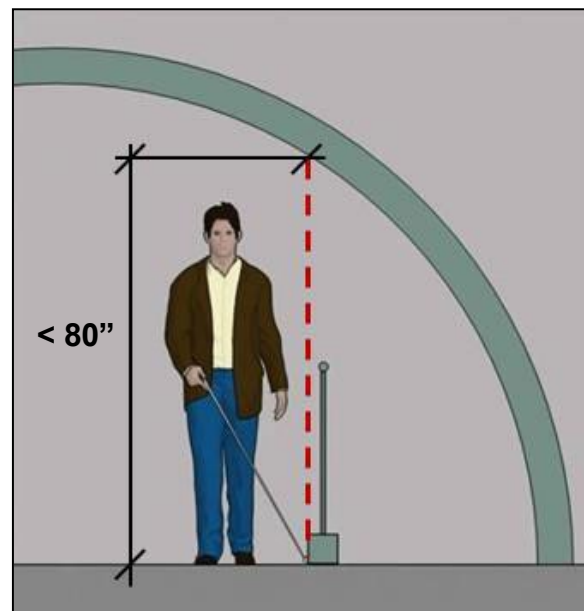
Headroom clearance of at least 80" high is required along all circulation paths (except at doors and doorways where a 78" minimum clearance is permitted to accommodate door stops and closers).

Fixed barriers, such as guardrails, are required where the vertical clearance is less than 80" such as at open stairways and along sloped or curved walls. Barriers must have leading edges no higher than 27" so that they are within cane sweep. Fixed planters, benches, and other elements can be used instead of guardrails.

### Barriers at Circulation Areas with Reduced Vertical Clearance



*Reduced Clearance Below Stairway*



*Clearance Reduced at Curved  
(or Sloped Walls)*



**Recommendation:** A minimum height is not specified for barriers demarcating areas with less than 80" of vertical clearance. It is recommended that barriers be high enough so that they are not mistaken for a step or other change in level and do not pose a tripping hazard.

## Common Questions



*Are requirements for protruding objects limited to hallways and corridors?*

No, requirements for protruding objects apply to all circulation paths, including those in rooms and spaces off corridors. They apply to both interior and exterior circulation paths.

*Do drinking fountains pose hazards as protruding objects?*

Cantilevered units at standard heights for people who stand must be recessed or protected as protruding objects. This is not required for wheelchair accessible units with no more than a 27" clearance below (the minimum required for knee clearance and the maximum recognized for cane detection).

*Can curbs be used to indicate areas with less than 80" of vertical clearance?*

The standards specify a maximum height (27") for the leading edge of barriers so they are within cane sweep, but a minimum height is not specified. Curbs may be mistaken for a step or change in level, instead of a barrier. For this reason, barriers significantly higher than a curb or riser, such as a guardrail, planter box, bench, parapet wall, or similar elements are recommended.



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