Doors and Doorways

4.2

Application

This section applies to all interior doors along an accessible route, intended for staff and public use, which lead into, out of and through a facility (e.g., also includes doors that are entered from or lead to exterior areas). The provision of accessible doors as part of an accessible route is an important consideration for all users of a facility.

Where doors have more than one independently operated leaf (e.g., at a bank of doors), at least one of the door leafs is required to be accessible, meeting the criteria identified in this section.

Reference

Sec. 2.1	Ground and Floor Surfaces
Sec. 2.4	Guards and Handrails
Sec. 5.1	Controls and Operating Mechanisms
Sec. 5.8	Signage and Wayfinding

Note

Additional considerations are required to address issues related to doors used for fire and life safety (e.g., use of electro-magnetic 'hold-open' devices and door closer adjustments).

4.2.1 Clear Width

For doorways used for circulation along an accessible route, including swing and sliding doors: **(Figure 38)**

a. provide a minimum door clear width of 950 mm (37½ in), measured when the door is open 90 degrees from the face of door (and / or exit door hardware that projects into the path of travel) and the opposite door stop;
b. where there is a projection into clear opening width, ensure it is 100 mm (4 in) (maximum), no lower than 865 mm (24 in) high above floor; and
c. required clear width may be reduced to 860 mm (34 in) (minimum), only in retrofit situations where it is technically infeasible.

Figure 38a: Clear Width of Typical Swing Door, Hardware Location and Use of Colour / Tonal Contrast - Plan and Elevation Views

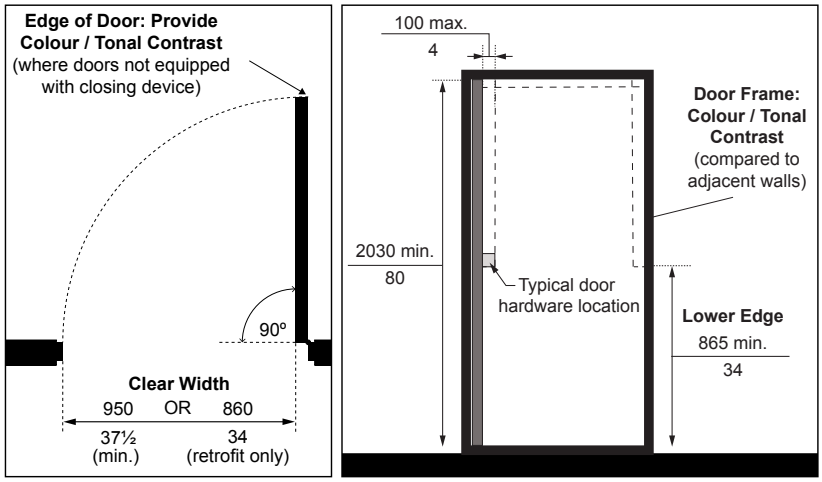
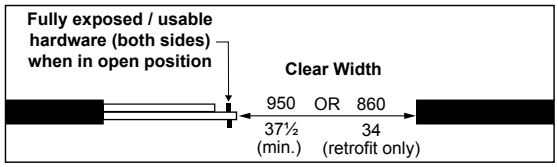


Figure 38b: Sliding Door Clear Width - Plan View



4.2.2 Opening Force and Closers

4.2.2.1 Opening Force

The maximum opening force required for push / pull is:

a. 38 Newtons (8.5 pounds) for exterior hinged doors;
b. 22 Newtons (5.0 pounds) for interior hinged doors; and
c. 22 Newtons (5.0 pounds) for sliding or folding doors.

4.2.2.2 Closers

Adjust door closers to ensure:

a. the least pressure possible is available and never greater than the opening force identified in **Subsection 4.2.2.1**; and
b. a minimum sweep / closing period of 3 seconds, measured from when the door is in an open position of 70 degrees to the doorway, to when the door reaches a point 75 mm (3 in) from the closed position, measured from the leading edge of the latch side of the door.

Exception

Doors not requiring full user passage, such as shallow closets, may have the clear opening width reduced to 510 mm (20 in) (minimum).

Best Practice

Where permitted and where visual or acoustic privacy is not a design requirement, entrances without doors are preferred (e.g., public washrooms in large, assembly type facilities).

Note

Using off-set door hinges to provide the required clear width for some existing doors may be an option for consideration.

Exception

High colour / tonal contrast is not required at service doors (e.g., electrical room, maintenance room, janitor room).

Best Practice

Install door kick plates 300 mm (11¾ in) high, measured from bottom edge of door, covering the entire width of the door, especially for high traffic areas.

Note

Knob door hardware and thumb-latch handles are not appropriate because they require tight grasping and fine finger control.

Where sliding doors are provided, ensure operating hardware is fully exposed and usable on both sides when the door is in the open position such as large D-pull hardware **(Figure 38b)**.

Typical revolving door systems are not considered accessible entrances, recognizing the floor space within a system is limited and the speed of use is typically fast.

4.2.3 Contrast of Doors and Frames

a. provide high colour / tonal contrast, as follows: **(Figure 38)**
   i. to differentate doors and / or door frames from the surrounding environment; and
   ii. on the edge of door compared to the face of the door, where doors are not equipped with a closing device (e.g., to prevent any potential bumping hazard when door remains in the open position, especially for users with vision loss).

4.2.4 Thresholds

a. provide bevel at maximum slope of 1:2 (50%), where transition is between 6 mm (¼ in) and 13 mm (½ in) high; and
b. ensure threshold at door is not more than 13 mm (½ in) high.

4.2.5 Door Hardware

Door hardware includes, but is not limited to, handles, pulls, latches and locks, with the following features:

a. mount between 900 mm (35½ in) and 1100 mm (43½ in) high from finished floor or ground surface;
b. hardware must be usable with closed fist and operable with one hand;
c. ensure tight grasping of hands, pinching of fingers or twisting of wrists are not required to operate hardware; and
d. ensure high colour / tonal contrast hardware finishes are provided when compared to mounting surface.

4.2.6 Control Gates

Where gates are used to control pedestrian straffic for entry / exit: **(Figure 39)**

a. provide accessible gate or door with a minimum clear width of 950 mm (37½ in) and lower edge that is cane detectable at a maximum of 680 mm (26½ in) high, where bottom area may be open;

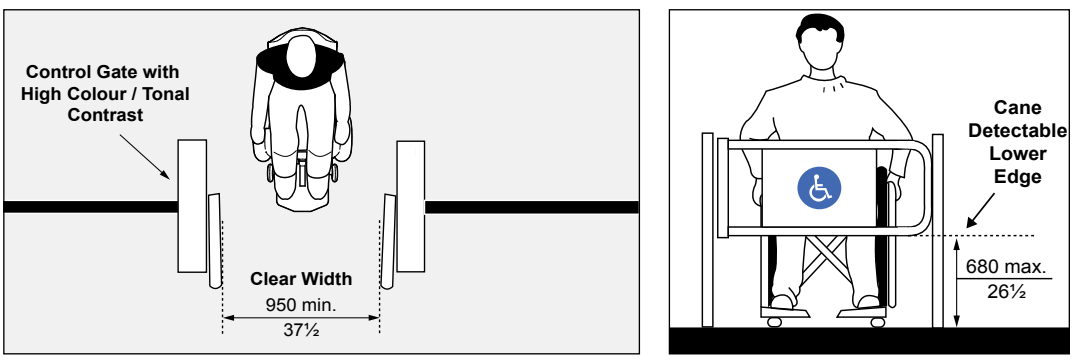


Figure 39: Accessible Control Gate - Plan and Elevation Views

b. ensure accessible gate or door is clearly marked with the International Symbol of Accessibility; and
c. ensure all accessible gates or doors have high colour / tonal contrast compared to surrounding environment including any post at either side of a gate, where gates are incorporated into a chain-link fencing system (e.g., compared to the fence).

4.2.7 Automatic Doors

Where automatic doors are provided, with sliding or swinging doors activated by infrared sensors:

a. ensure sensors are suitably placed to detect users approaching; and
b. ensure timing allows safe passage through doors.

4.2.8 Power-Assisted Doors

Power-assisted doors have two different types of operation:

- automatically activated by a motion detector / proximity scanner that scans at a lower height to allow users of mobility aids to trigger opening of the door when approaching; and
- manually activated by pushing a control.

Doors that open automatically are considered a preferred option where possible, since they do not require manual activation and address the needs of a wide range of users. This recognizes that manual power-assist controls may be difficult to locate and activate for people with limited vision, strength, manual dexterity, reach or users that may have multiple types of disabilities.

Power-assisted swing doors that are activated by pushing a control are required at the main entrance(s) and accessible washrooms of a facility.

Based on the overall design, the level of use of interior spaces and where swing doors are provided throughout a facility, power-assisted swing doors that are activated by pushing a control are also commonly provided at:

- interior doors along accessible routes and / or connecting accessible routes;
- doors into reception areas;

Figure 40: Example of Control for Power Door Operator Promoting Universal Use

Best Practice

For main entrances to larger facilities with a high-occupancy load, an automatic sliding door system is recommended to control the flow of pedestrian traffic and facilitate access for the majority of users.

Provide power door operators for high frequency doors, (e.g., large meeting / multi-purpose rooms) in new construction. Consider providing roughed in power for future power door operators at other locations.

A vertical extended power door operator allows activation from any approach and height level **(Figures 40 & 41b)**.

Note

Where power-assisted doors are activated by proximity card reader devices, ensure timing of door opening is synchronized with operation of proximity device.

A vertical extended power door operator control can accommodate a wider range of users (e.g., can be operated by service animals, foot or foot rest).

Exception

Power door operators are not required for doors that are held-open using electromagnetic hold-open devices.

Note

Rectangular shaped power door operator control with dimensions of 50 mm (2 in) by 100 mm (4 in), may only be used for retrofit situations, where standard control sizes will not fit.

Where wireless power door operator controls are used (e.g., typically mounted on glass mullion systems if adjacent to a door), ensure batteries are maintained regularly as required.

Example of rectangular shaped power door operator control to be used for retrofit situations only, where infeasible to provide larger controls.

- doors into highly used functional spaces (e.g., accessible and universal washrooms / change rooms, larger multi-purpose rooms, meeting or board rooms); and
- doors leading to accessible exits and designated “Areas of Refuge”.

Where power-assisted swing doors activated by pushing a control are provided: **(Figures 41a, 41b & 41c)**

a. mark accessible doors with the International Symbol of Accessibility and other signage (e.g., “Caution” decals to warn of door swing);
b. ensure a force of no more than 66 Newtons (14 pounds) is required to stop door movement;
c. ensure door remains fully open for 5 seconds (minimum);
d. ensure doors take 3 seconds (minimum) to move from a closed to fully open position, when activated; and
e. provide power door operator controls on both sides of doors, for use when entering or leaving, located to allow activation of the door from either direction of travel and without obstructing the path of travel, as follows:
    i. mount in a clearly visible location for easy identification upon approach on the latch side of door (e.g., push / pull side);
    ii. ensure the dimension of the power door operator control is a minimum of 150 mm (5⅞ in) in diameter where it is circular or a minimum of 150 mm (5⅞ in) wide by 915 mm (36 in) long where it is a vertical extended power door operator;
    iii. ensure high colour / tonal contrast is provided between power door operator control and mounting surface;
    iv. ensure they project less than 100 mm (4 in) from mounting surfaces;
    v. mark with the International Symbol of Accessibility;
    vi. ensure controls are operable with a closed fist;
    vii. mount center at height of 900 mm (35½ in) to 1100 mm (43¼ in) from ground or floor surface;
    viii. where rectangular extended power door operator controls are provided, mount so that they extend from not more than 200 mm (7⅞ in) and not less than 900 mm (35½ in) high above the floor;
    ix. mount between a minimum of 600 mm (23⅝ in) and a maximum of 1500 mm (59 in), on a level wall surface or separate post, beyond the door swing where the door opens towards the control; and
    x. provide clear floor space, centered at power door operating controls at:
        i. 920 mm (36 in) wide by 1525 mm (60 in) depth for a forward approach; and
        i. 1525 mm (60 in) wide by 920 mm (36 in) depth for a side approach **(Refer to Section 5.1, Controls and Operating Mechanisms)**.

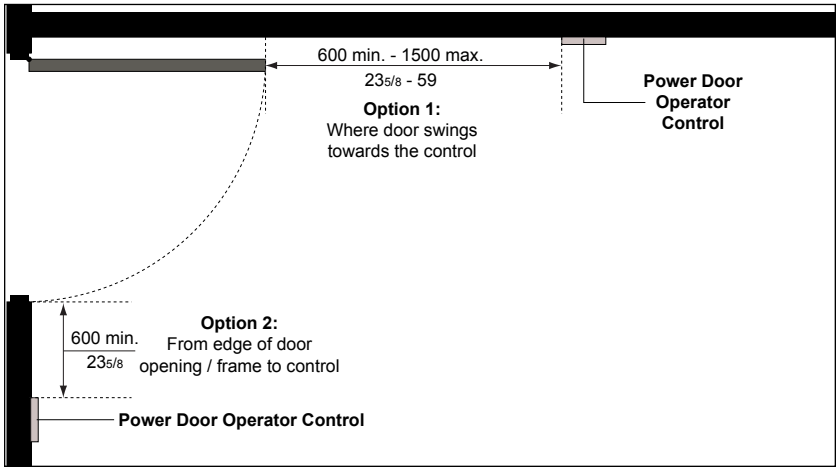


Figure 41a: Power Door Operator Control Mounting Location Options - Plan View

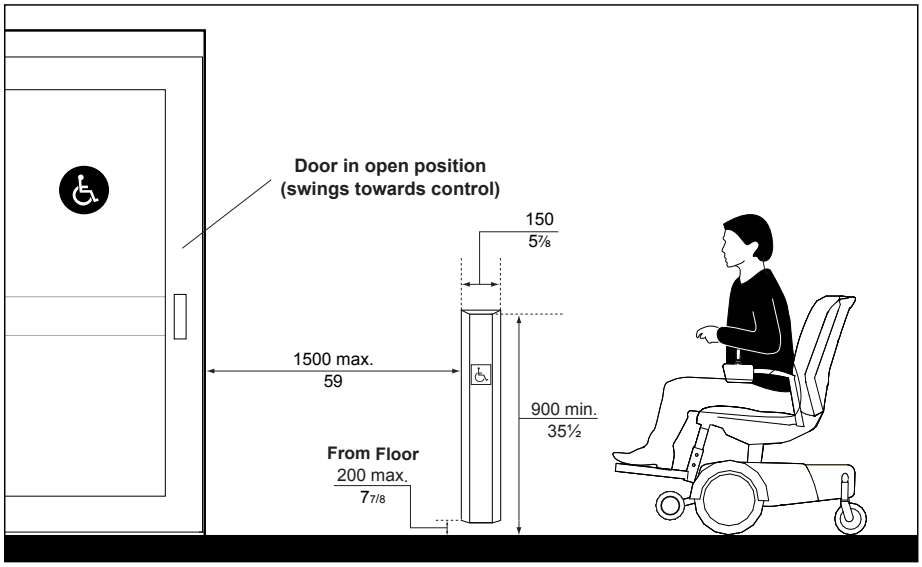


Figure 41b: Vertical Extended Power Door Operator Control - Elevation View

Example of large vertical extended power door operator control.

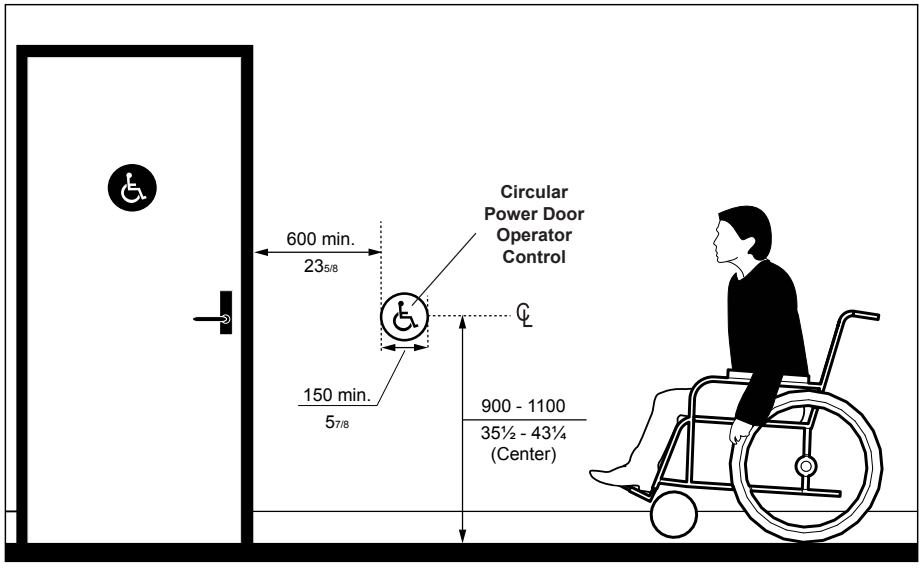


Figure 41c: Circular Power Door Operator Control - Elevation View

Example of circular power door operator control.

Best Practice

Swinging doors equipped with power door operators which are activated automatically and open into passing pedestrian traffic should also have a device (mat or other sensor) on the swing side to prevent the door from opening if someone is standing in the swing area.

Note

Provision of guards is typically required for exterior out-swinging power-assisted doors, where the door is automatically activated by a motion sensor and where the door may swing into high traffic areas.

4.2.9 Doors Swinging Into Accessible Routes

Where automatic or power-assisted doors, whether activated by a control manually or automatically by a motion sensor (e.g., typically used at higher traffic doors), swing into an accessible path of travel: **(Figures 42 & 43)**

a. the provision of recessed doors is preferred; or
b. for swinging doors opening into passing pedestrian traffic, provide cane detectable guards or other devices at right angles to the wall containing the door, with the lower rail surface mounted at a maximum 680 mm (26½ in) high from ground or floor surface, extending a minimum of 300 mm (11¾ in) beyond the door swing, on both sides of doors.

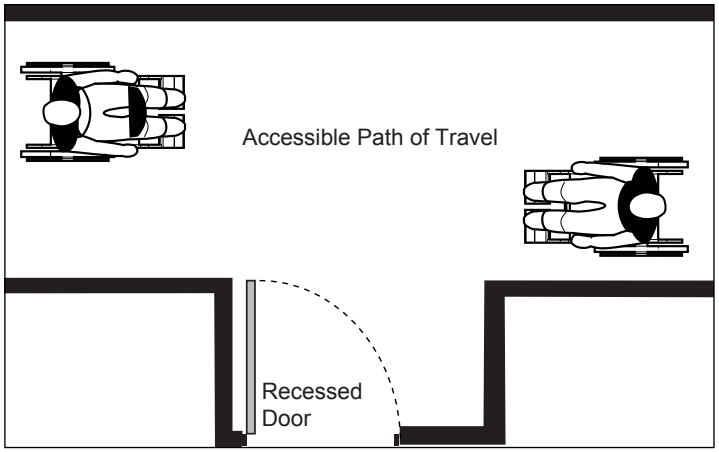


Figure 42: Recessed Door - Plan View

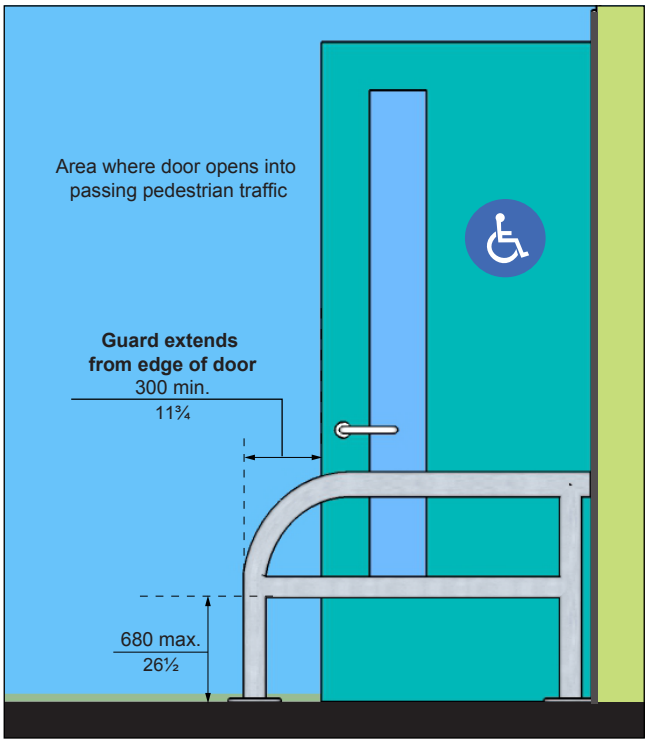


Figure 43: Guard at Out-swinging Door - Elevation View

4.2.10 Approach Clearances at Doors

The floor space requirements at swing and sliding doors are dependent on how doors are approached (e.g., side or front) and on which side an individual approaches a door (push or pull sides).

Unless door is automatic or equipped with a power door operator, clear and level floor space requirements for approach at different types of doors, are based on the size of door and on door swing (e.g., push / pull space on both sides of latch).

Clear and level floor space requirements for approach at different types of doors (both sides) are summarized in **Table 6** with corresponding diagrams referenced.

Note

Ensure that there are no obstructions at the required clear and level floor space beside the latch, for the full height of the door.

Table 6: Minimum Clearance Spaces at Doors

Context	Floor Space Required in mm (in)		
	Depth (min.)	Width (min.)	Space Beside Latch
Swing Door - Front Approach **(Figure 44c)**			
Pull side	1525 (60)	1700 (67)	600 (23⅝)
Push side	1370 (54)	1250 (49¼)	300 (11¾)
Sliding Door **(Figure 44d)**			
Front approach	1370 (54)	1550 (61)	300 (11¾)
Side approach	1370 (54)	2150 (84⅝)	600 (23⅝)
Swing Door - Hinge Side Approach **(Figure 44e)**			
Pull side	2500 (98½)	2500 (98½)	600 (23⅝)
Push side	1370 (54)	1830 (72)	600 (23⅝)
Swing Door - Latch Side Approach **(Figure 44f)**			
Pull side	1370 (54)	1600 (63)	600 (23⅝)
Push side	1370 (54)	1525 (60)	600 (23⅝)
Folding Door			
Front approach	1220 (48)	n/a	n/a
Side approach	1220 (48)	n/a	n/a
Swing Door, Recessed - Front Approach **(Figure 44a and b)**			
Pull side	1525 (60)	n/a	600 (23⅝)
Push side	1220 (48)	n/a	300 (11¾)
Doorways Without Doors			
Front approach	1220 (48)	n/a	n/a
Side approach	1065 (42)	n/a	n/a

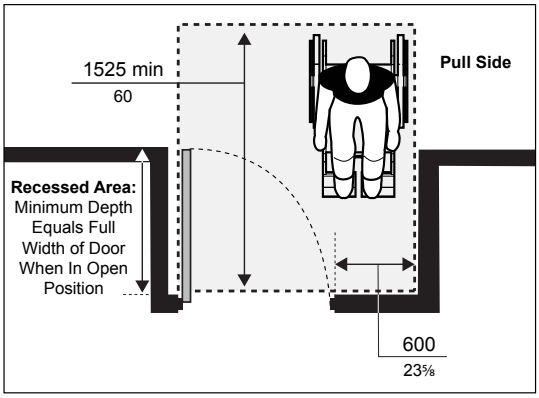


Figure 44a: Pull Side Approach at Recessed Swing Door - Plan View

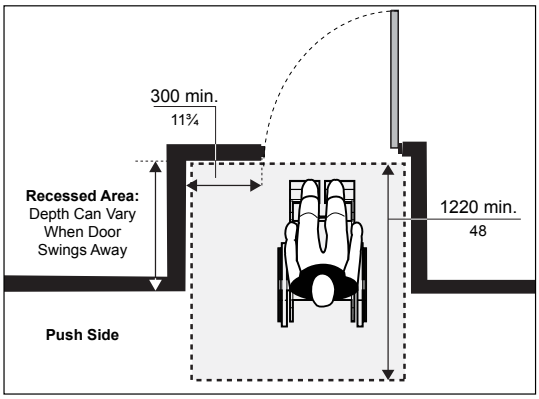


Figure 44b: Push Side Approach at Recessed Swing Door - Plan View

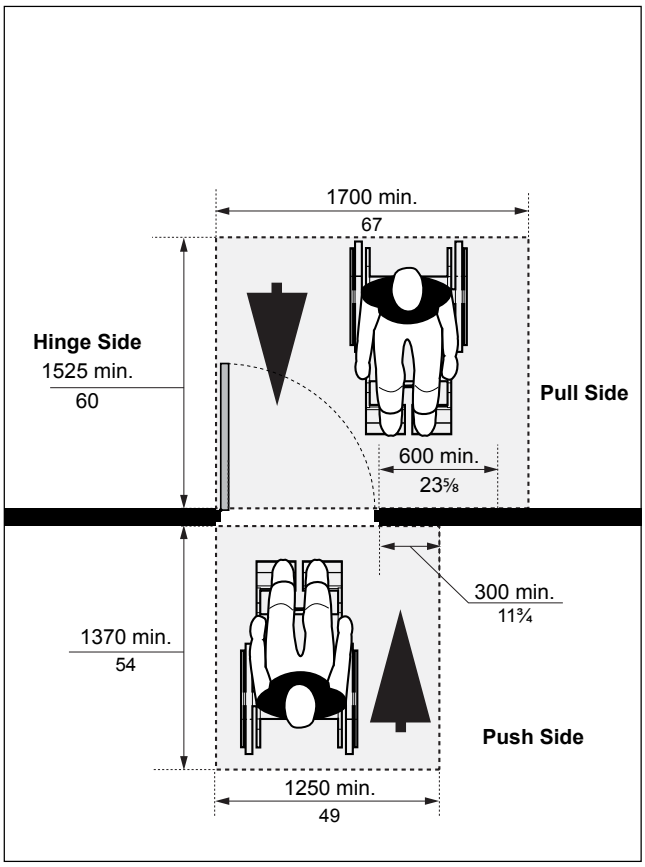


Figure 44c: Front Approach at Swing Door (Hinge Side)

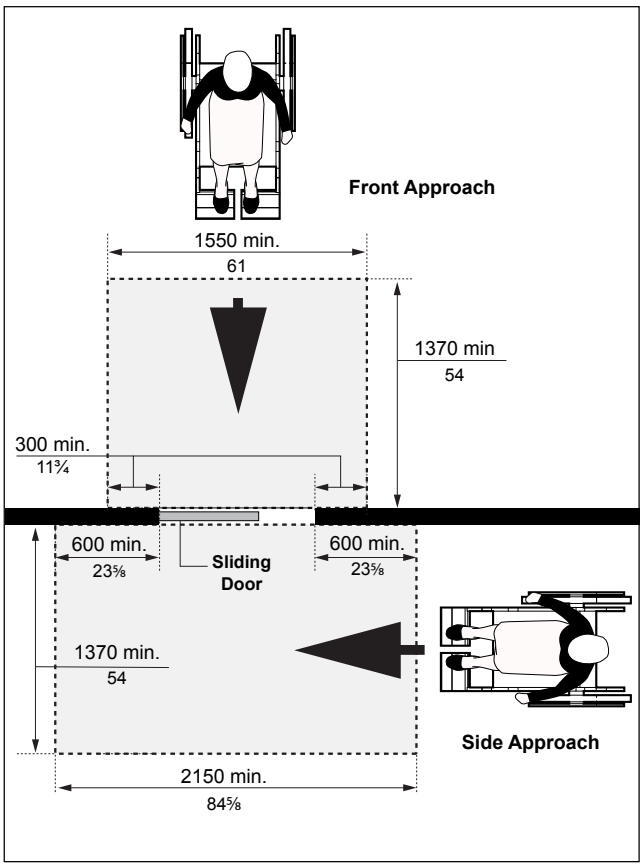


Figure 44d: Front and Side Approach at Sliding Door - Plan View

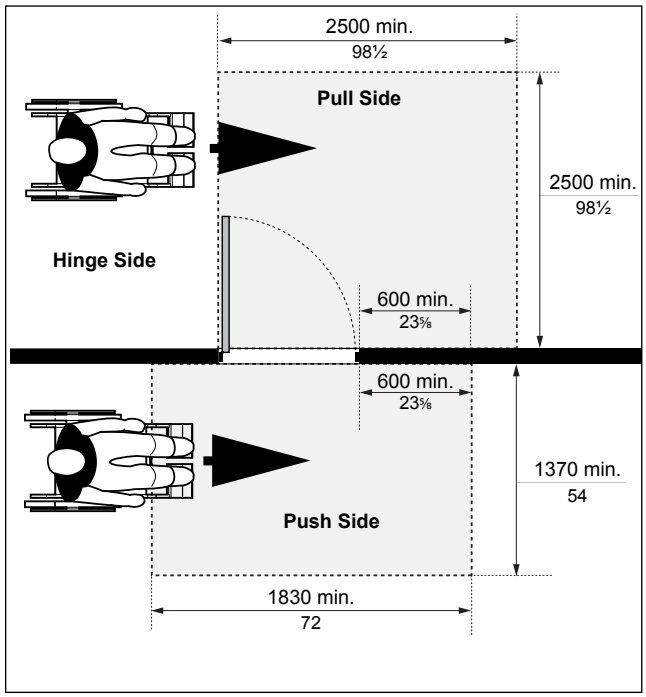


Figure 44e: Side Approach at Swing Door (Hinge Side)

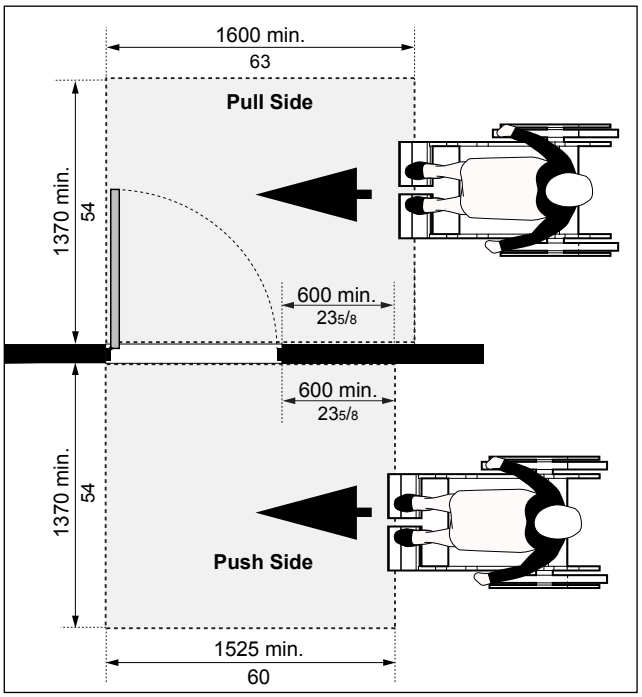


Figure 44f: Side Approach at Swing Door (Latch Side)

4.2.11 Doors in Series

Where doors in series form a vestibule: **(Figures 45a & 45b)**

a. provide a distance between two doors in series a minimum of 1525 mm (60 in), plus the width of any door swinging into the space;
b. where the doors into the vestibule are not aligned, provide a clear turning diameter a minimum of 1525 mm (60 in) within the vestibule clear of any door swing; and
c. arrange vestibule to allow the movement of users of mobility aids between doors.

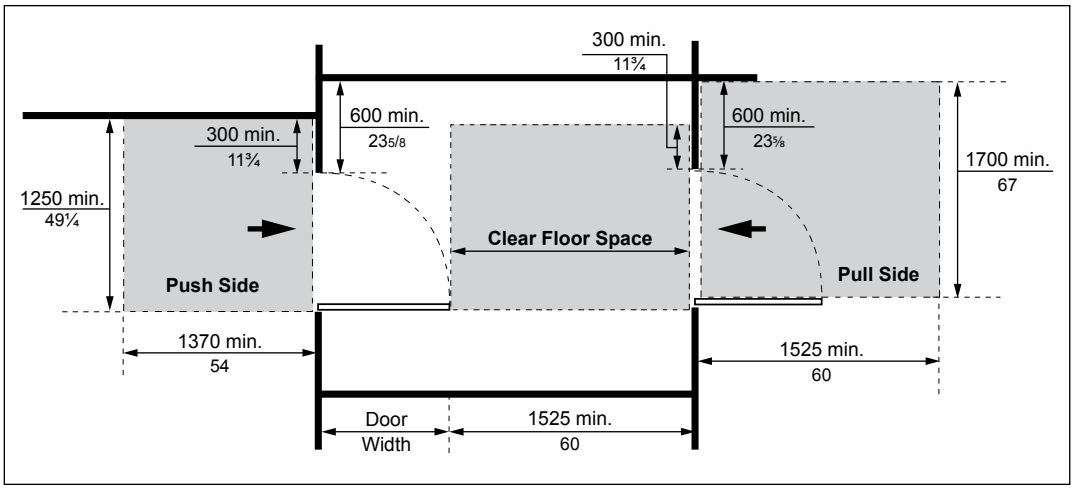


Figure 45a: Doors in Series Where Doors are Aligned - Plan View

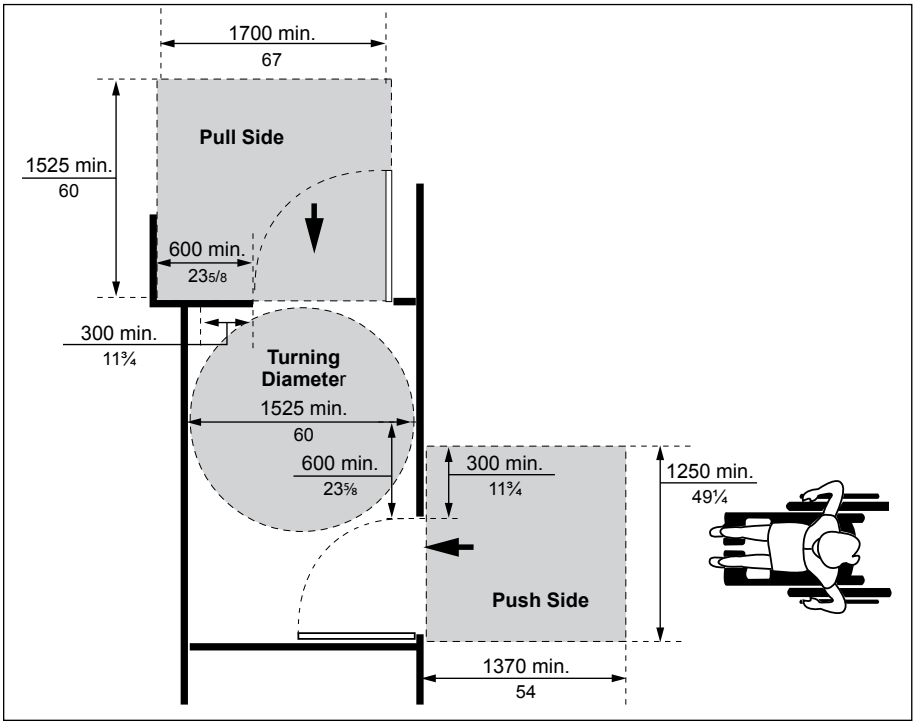


Figure 45b: Doors in Series Where Doors are not Aligned - Plan View

Best Practice

Provide additional space for doors in series with doors operating independently in order to avoid a “wind tunnel effect”.

Ensure the design of vestibules provides enhanced clear floor space and a minimum clear turning space of 2500 mm (98 ½ in) for users of mobility aids where the vestibule may be used as a waiting area at main entrances, for example.

Note

Users of mobility aids must be able to move forward through a vestibule without the risk of being stuck between the two doors. Ensure power door operators are provided on both sides of both doors.

Best Practice

Frameless and fully glazed doors should not be used.

Where there is extensive glazing, provide a strip at a lower level, centered between 850 mm to 1000 mm (33 in to 39⅜ in) high above finished floor level.

Note

Special designs can be used (e.g., logo or symbol) as long as they do not reduce the opacity, width and high colour / tonal contrast of the strip when compared with the background.

4.2.12 Glazed Doors or Doors with Sidelights

For glazed doors or doors with sidelights: **(Figures 46a & 46b)**

a. provide a high colour / tonal contrast between door frame and mounting surface or wall to ensure that when door is in the open position, persons with vision loss can identify edges upon approach;

b. mark the edges of fully glazed doors (e.g., tempered glass without a frame) with a high colour / tonal contrast (e.g., exposed edges to be identified with a vertical safety strip, applied to cap the ends of any exposed glass panel); and

c. provide a continuous opaque and high colour / tonal contrast strip, decal or logo on fully glazed doors:

   i. a minimum of 50 mm (2 in) wide;

   ii. mount at eye level, centered between 1350 mm (54 in) and 1525 mm (60 in) high from floor level; and

   iii. where decals are used (e.g., square, round or other specialized design such as a logo), ensure minimum spacing of 150 mm (5⅞ in) from center to center of each decal, with solid component of decals having high colour / tonal contrast for enhanced visibility, especially for users with a vision loss.

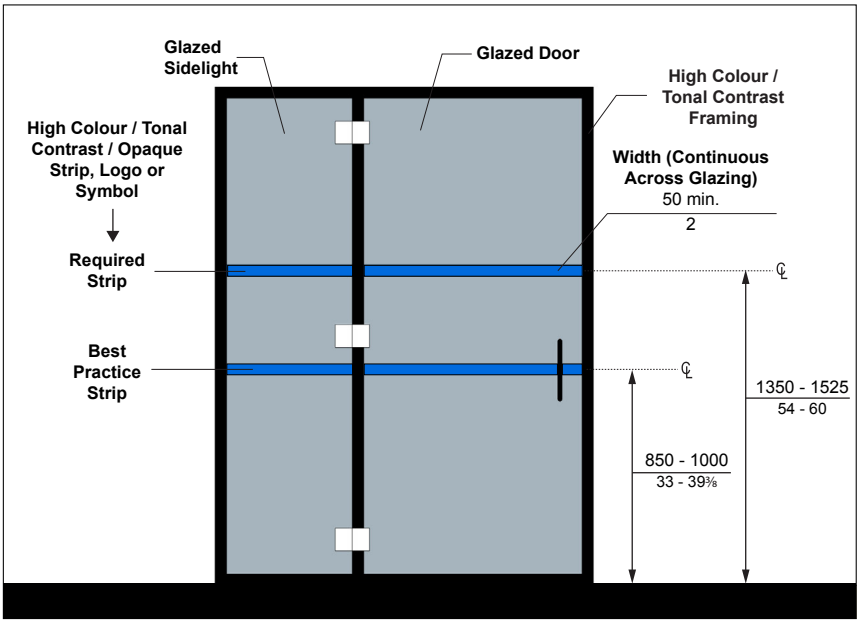


Figure 46a: Glazed Doors and Sidelights - Elevation View

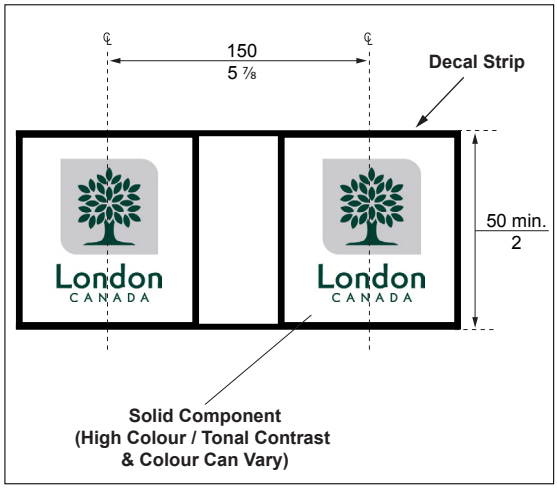


Figure 46b: Spacing For Decal Strip of Specialized Design (e.g., Logo)

4.2.13 Vision Panels

Where provided, ensure: **(Figure 47)**

a. a minimum width of 75 mm (3 in); and
b. lower edge is mounted at a maximum height of 760 mm (30 in) with side edge a maximum of 250 mm (9⅞ in) from latch side of the door.

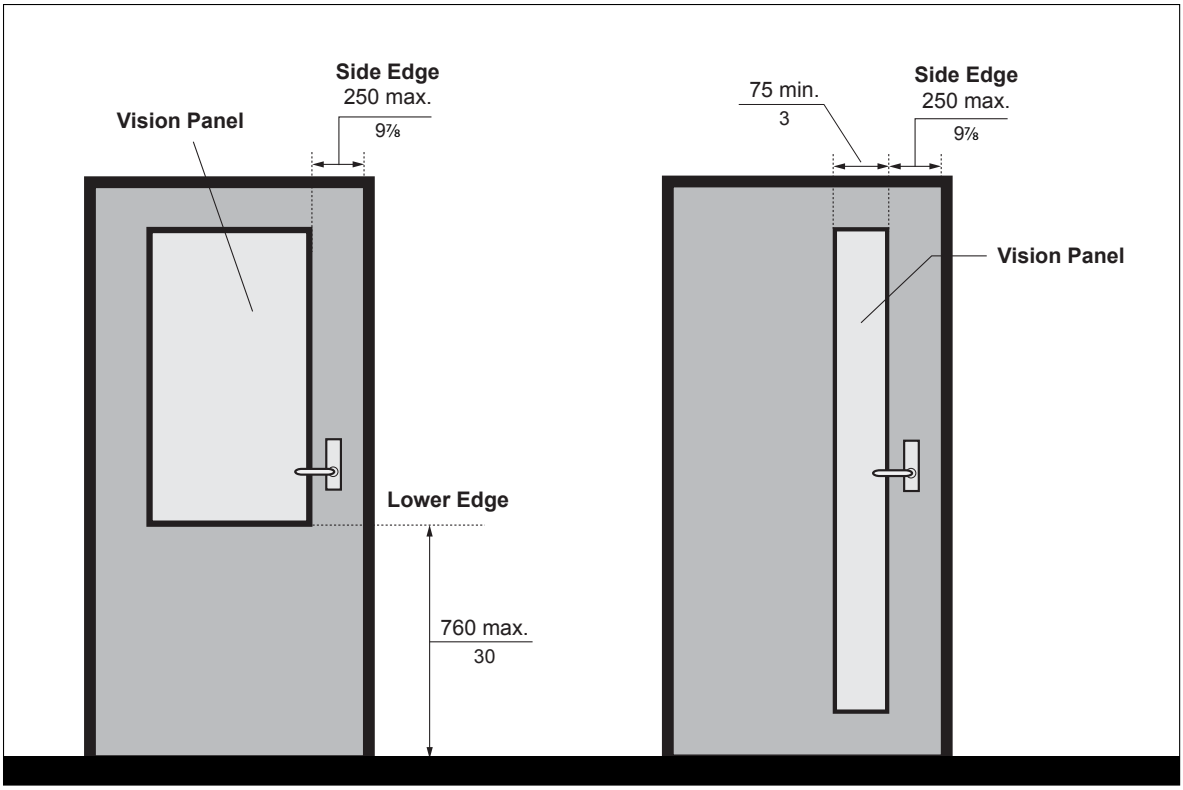


Figure 47: Vision Panels - Elevation View