



“ALL DOORS WHICH ARE NOT AUTOMATIC.....”

An explanation of when to use automatic entrances and door operators to reduce the cost of complying with
The Americans with Disabilities Act of 1990.

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Introduction

The Americans' with Disabilities Act of 1990 has greatly effected the Design Professional's task of getting people into and out of a building space, while maintaining aesthetic appeal. The Building Owner and Building Management Professional has an equally daunting task of preserving valuable floor space, while keeping costs under control. We hope the information contained in this White Paper will be helpful.

About the Author

Charles Vetter started working in the automatic entrance door industry part time in 1978 while attending the Temple University School of Architecture. He has been working full time in the industry since 1980. He has a good understanding of the complexities of interfacing electric door hardware systems and card access security systems with automatic entrance doors and door operators. He has also been actively involved and engaged in numerous custom designed entrance systems for some well known architectural projects.

He is currently employed by Eastern Door Service, Inc. and has been there since 1998. Eastern Door Service is engaged in the design, sales and installation of automatic entrances doors, door operators, automatic industrial doors, cleanroom doors, automatic serving windows and revolving door entrances. Mr. Vetter has previously worked for a major supplier of automatic entrance door systems, Horton Automatics, as their Northeast Regional Business Agent and KM Systems (acquired by Record-USA) as their National Sales Manager.

Accessible Entrances

Automatic doors can save a Building Owner money, by greatly lowering the cost of remodeling. The Design Professional can provide the Owner with a functional and aesthetically pleasing entrance that will comply with ADA regulations. The Building Owner might be able to deduct up to \$15,000.00 per year for expenses associated with architectural barrier removal.

Civil penalties can be awarded up to \$50,000.00, if a business or public accommodation fails to comply. Public accommodations, include public and private businesses that buy or sell products and services. These include businesses, such as hotels, theaters, banks, retail stores, transportation centers, educational facilities, restaurants, as well as other public buildings and private businesses dealing with public accommodations.

All existing buildings and facilities must have barriers removed by January 26, 1992 if readily achievable, without undue hardship, difficulty or expense. All new construction, after January 26, 1993 must be accessible to individuals with disabilities.

The use of Automatic Doors or Door Operators

Accessible entrances ***do not need to be automated***. However, it is very often much less expensive to automate an entrance, rather than provide the necessary maneuvering clearances required for manual doors. This is especially true when bringing an existing building into compliance. Automatic entrances are exempt from maneuvering clearances necessary for manual door operation, therefore they can eliminate the need for more expensive remodeling and entrance reconstruction. **See Figure 1 thru Figure 8 below.**

Automatic doors are also exempt from the low 5 lbs. manual opening forces, that non-automated entrance doors must comply with to meet the ADA law. The spring closing force of an automated entrance can be higher, enabling doors to be kept closed in windy locations. A power failure to the door operator is not a normal condition and therefore the higher spring closing force of an automatic door operator need not to be considered, as long as the closing force does not exceed 15 lbs.

Types of Doors

Accessible entrances should be either swinging or sliding. Revolving doors are excluded in paragraph 4.13.2 of ADA 1990. However, it should be noted, that very large diameter automatic revolving doors, might comply. The Egress Committee of the National Fire Protection Agency, has issued a written opinion, that large diameter revolving doors should be considered hinged entrance doors. The Veterans Administration has also conducted a study of large diameter revolving doors, for use in their facilities. The VA has concluded that they are acceptable for use by disabled persons entering their buildings. However, the door must be of sufficient size and fully automatic.

An independent Design Professional should be consulted, before using automatic revolving doors for accessible applications. Automatic revolving doors are available in large diameters of 12' to 18' and are often referred to as rotating vestibules.

Important Considerations

One half of public entrances into a building must be accessible.

- 1) Public entrances at pedestrian tunnels, parking garages, sky bridges and elevated walkways can not be included as part of the minimum number of accessible entrances required.
- 2) Loading and service entrances are not considered to be public entrances. If a service entrance is the only entrance into a building it must be accessible.
- 3) If access is provided directly from a parking garage, pedestrian tunnel, sky bridge, or elevated walkway into a building, at least one entrance from each must be accessible.
- 4) Multiple occupancy structures, such as strip malls, an accessible entrance must be provided into each tenant's space.

One door at each accessible entrance must meet access requirements. Where possible, accessible entrances must be located at entrances used by the majority of occupants and visitors. One accessible entrance should be located at the ground floor. Each accessible entrance must be marked with proper signage. Signage must be installed, so that the person with a disability does not have to reverse their direction or retrace their approach to the accessible entrance.

All doors within a building, serving an accessible egress route or an area of rescue, must be accessible.

Accessible doors must have a minimum clear opening width of 32" (may vary as dictated by state and local codes), measured from the face of the door opened to 90 degrees to the surface of the latch sided door stop. If no latch side door stop exists, than measure to the latch side jamb surface.

- 1) Doorways deeper than 24" must have a minimum clear opening width of 36"
- 2) When an existing building is altered, the clear opening may be reduced 5/8", if it is structurally or technically impossible to provided a minimum 32" clear opening.

When pairs of doors are used at least one door in that pair must be accessible. *If neither door in an existing pair will meet the minimum 32" clearance as an individual, automatic door operators can be used to operate both doors simultaneously; both doors when opened simultaneously, must provide at least a 32" clear opening.*

Doorways must have a maximum threshold height of 1/2".

- 1) Thresholds or floor height changes must be beveled and must have a maximum 1:2 slope.
- 2) Exterior sliding doors may have a 3/4" threshold height.
- 3) Existing thresholds in remodels may remain if they are not higher than 3/4" and have a beveled edge.

Doors in series or forming a vestibule shall have minimum vestibule depth of 48" plus the width of the door leaf swinging into the vestibule.

- 1) Doors in series or forming a vestibule must swing in the same direction.
- 2) Doors in series or forming a vestibule may only swing in opposite directions, if they swing away from the vestibule area.

Handles, locks, latches, pulls and other door hardware must be easily operable by the disabled.

- 1) Must operate easily with one hand, without grasping tightly, or twisting of the wrist to operate.
- 2) Lever operated or push type mechanisms and "U" shaped handles are recommended.
- 3) Hardware required for passage must not be higher than 48" off the floor.
- 4) Sliding door operating hardware must be exposed and usable from both sides of the door.

Doors with manual closers must not close faster than 3 seconds from 70 degrees to 3" from the latch. Maximum opening force for sliding, folding and swinging interior doors is 5 Lbs.

- 1) The ADA has no determined maximum opening force at exterior doors as of now, but 8 Lbs. is strongly suggested and required by some state and local accessibility codes. Many local codes enforce the 5 lbs. maximum force for interior and exterior doors.
- 2) Automatic doors are exempt from these low manual opening forces. This can be a great benefit at windy locations, which require greater forces to keep the door closed.
- 3) Fire rated doors are exempt if greater forces are required by state or local fire codes.

“Full Power” automatic doors must comply with ANSI 156.10. Low energy or power assist door operators must comply with ANSI 156.19. Power assist doors lower the force necessary to open a door. They do not open a door automatically. Automatic doors and low energy door operators open a door for the pedestrian.

Historic Preservation

Buildings that are protected by historic preservation must have at least one accessible public entrance. If it is determined that no public entrance can comply, then access can be provided at any entrance. The route to the accessible entrance must be well marked from the primary entrance to the building.

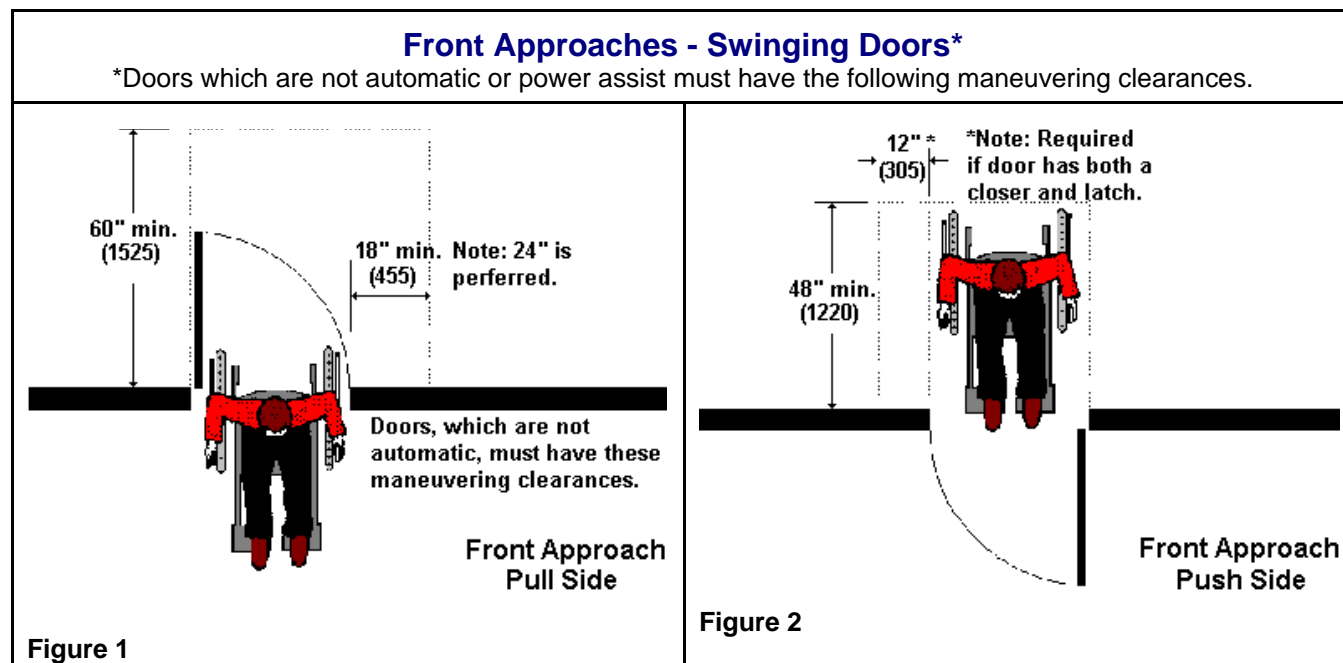
Alterations and Renovations

If the building already has accessible entrances, an entrance that is renovated or altered does not have to be accessible. However, if it affects the usage of a primary area in a building, it must comply.

Maneuvering Clearances

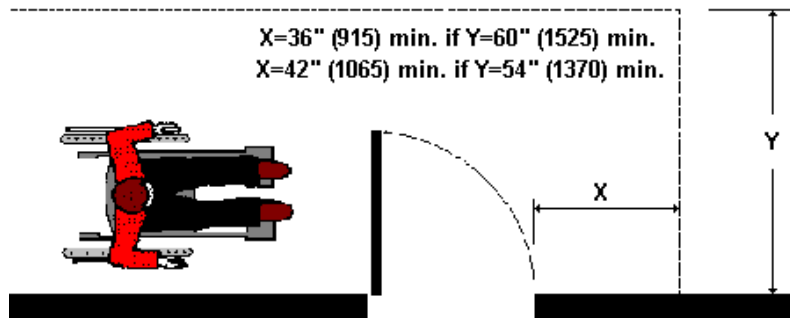
Doors which are not automatic or power assist must have the following maneuvering clearances, as shown below, according to paragraphs 4.1.6, 4.3.3, 4.13.6, 4.13.7 and 4.13.12*.

*Reference FEDERAL REGISTER/VOL. 56 NO. 144/FRIDAY, JULY 26, 1991/RULES AND REGULATIONS.



Hinge Side Approaches - Swinging Doors*

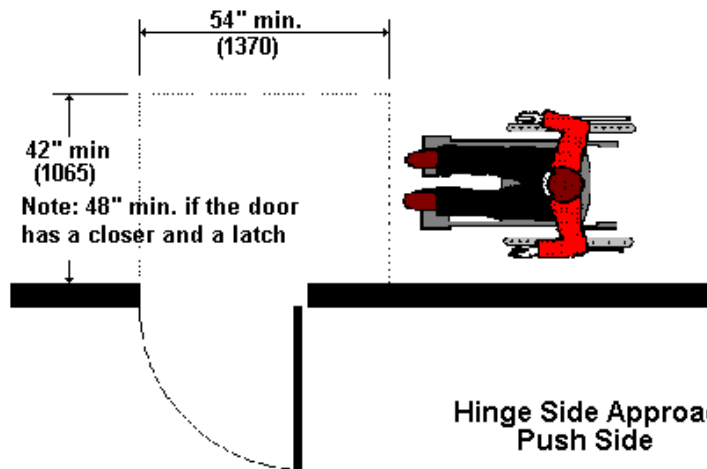
*Doors which are not automatic or power assist must have the following maneuvering clearances.



X=36" (915) min. if Y=60" (1525) min.
X=42" (1065) min. if Y=54" (1370) min.

Figure 3

Hinge Side Approach
Pull Side



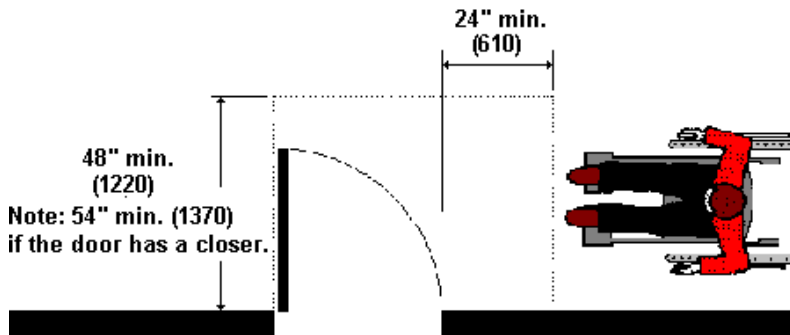
42" min.
(1065)
Note: 48" min. if the door
has a closer and a latch

Figure 4

Hinge Side Approach
Push Side

Latch Side Approaches - Swinging Doors*

*Doors which are not automatic or power assist must have the following maneuvering clearances.



48" min.
(1220)
Note: 54" min. (1370)
if the door has a closer.

Figure 5

Latch Side Approach
Pull Side

Latch Side Approaches - Swinging Doors*

*Doors which are not automatic or power assist must have the following maneuvering clearances.

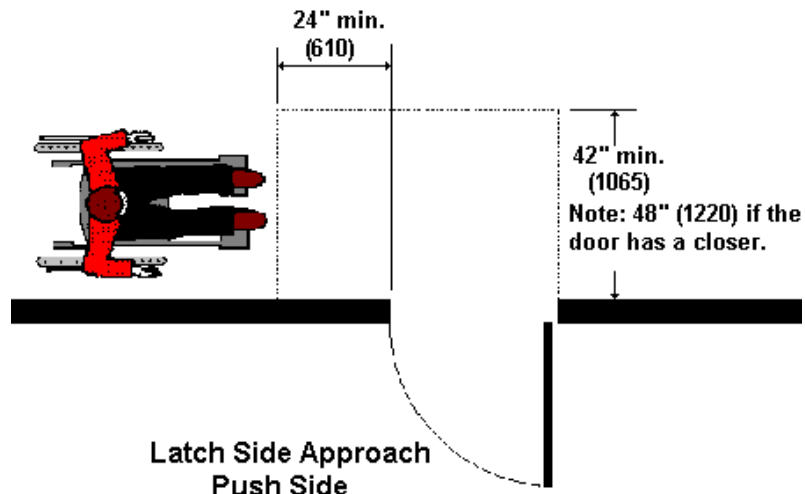


Figure 6

Minimum Vestibule Depths - Swinging Doors*

*Doors which are not automatic or power assist must have the following maneuvering clearances.

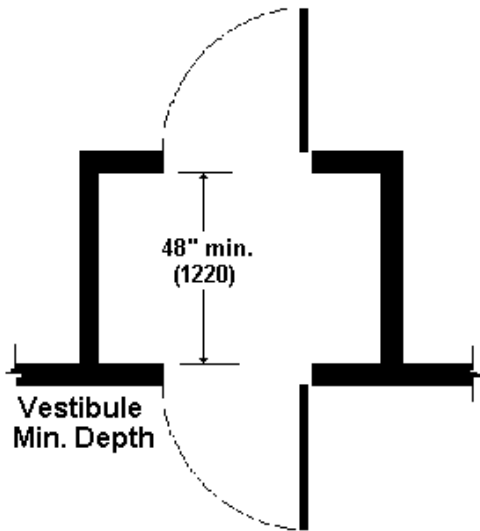


Figure 7

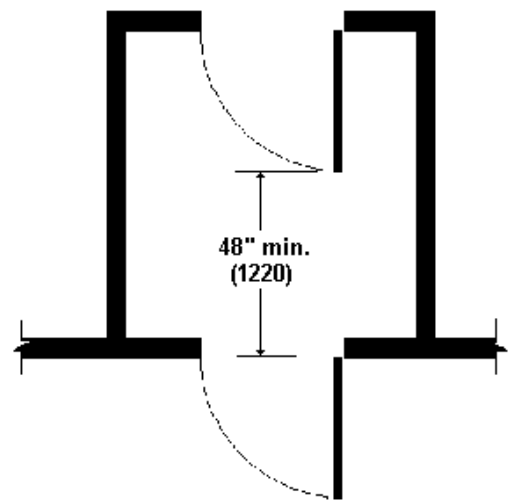


Figure 8

Other Minimum Clearances - Swinging Doors*

*Applies to all doors, manual or automatic.

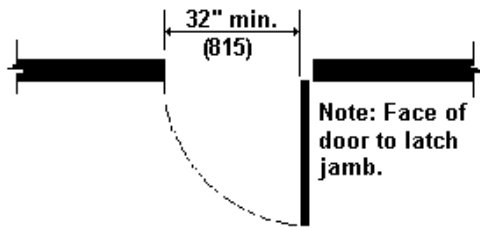


Figure 9

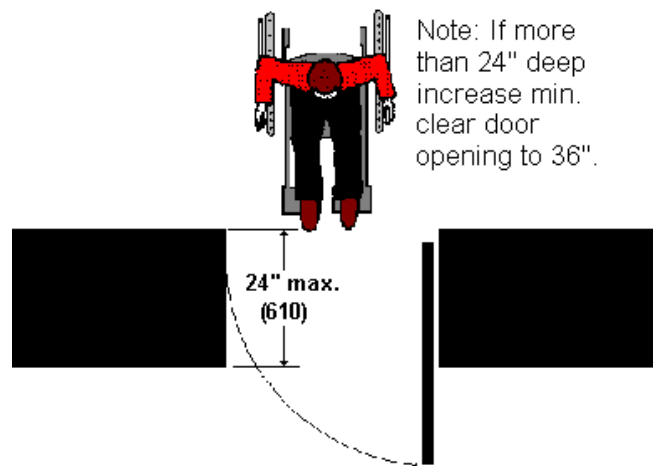


Figure 10

Eastern Door Service, Inc. has a wide variety of automatic entrance door systems to choose from, including accessibility door operators to automate existing swinging entrance doors. We stock a large number of accessibility door operators and accessories to automate just about any type of existing hinge hung door. Please contact us for additional information and details.

Automatic Entrance Doors, Swinging, Sliding and Bifolding, Automatic Door Operators for Accessibility and Revolving Entrance Doors



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