

# Accessibility Bits

## Which to use?

### Manual door closer versus automatic door opener

By Marilyn Sydow, RSC facility planner

Hinged, swinging doors should be easy to open and close for a person using a wheelchair, scooter or walker, or for any walking person with less than average upper body strength. There are two types of door devices to consider as solutions. The manual door closer is a mechanical device that closes a door after someone has opened it and passed through. The automatic door opener is connected to a power source and is therefore more costly to install and maintain.



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While the automatic door might be the best option on outside entrances that encounter prevailing winds and more traffic, their use is not required by the Americans with Disabilities Act (ADA) to provide accessibility, as many people assume. That assumption is a costly one if a less expensive door closer would do for interior or restroom doors.

#### Door closers

The door closer was invented in 1880 by Lewis C. Norton for Boston Trinity Church. He was asked to solve the issue of wind gusts opening and slamming the exterior door during church services. After several attempts, he hit upon using a tube, plunger and air pump that was fitted with brackets onto the door. He controlled the speed of closing by cutting vents in the tubing, to allow the air to escape and the door to close silently. He founded LCN Door Closers, which is still in business today.

The mechanism's components are set into a metal housing that is surface-mounted at the top of the door or its frame, or concealed within the top of the door or frame. The attached hinged double- or single-lever arm is connected at the other end to the bottom of the door frame or top of the door (See photo on next page).

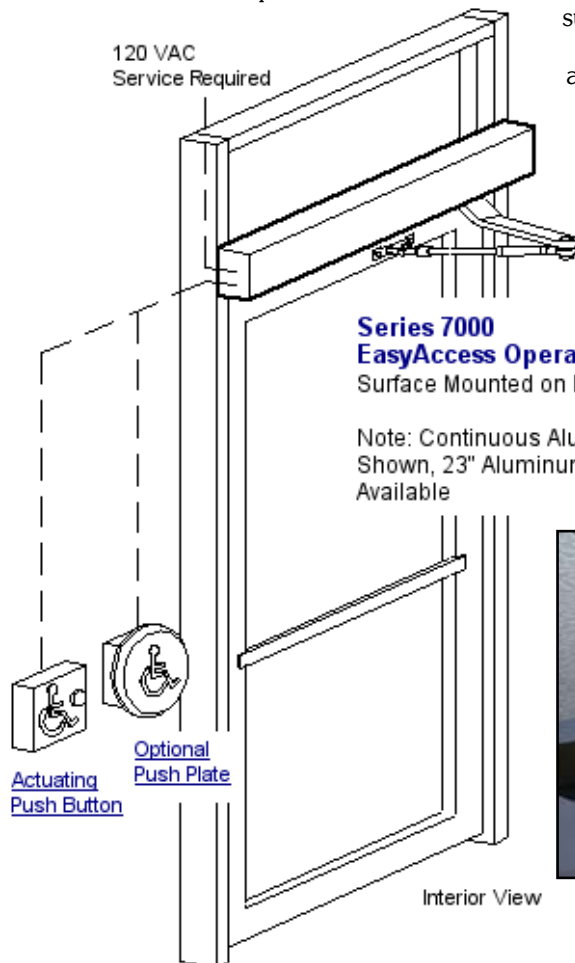
Not all door closers are compliant with the ADA Standards for Accessible Design (ADAAG) and

some do not substantially reduce door opening force. Specific closer models that are ADA compliant have two functions:

- provide a reduced door opening force of no more than five pounds for interior doors, and
- delay the closing action so that doors must take at least three seconds to close from an open position of 70 degrees to a point three inches from the latch. This is to prevent people who use wheelchairs or scooters and those with other mobility issues from being slammed from behind.

Typically, when closers are first installed, they are not adjusted and can be very heavy, requiring a user to exert as much as 20 pounds of force to open the door. Set screws located near the door's hinge end of the closer must be adjusted. A door pressure gauge or fish scale will help in adjusting the closer to the proper door opening force.

An ADA-compliant door closer that has been correctly adjusted after installation meets ADAAG requirements and is a fraction of the cost of an automatic door operator.



Note: One switch is required on each side of the door for two-way automation.

#### Automatic door openers

An automatic door operator is an electro-mechanical, pneumatic or hydraulic device that opens a door by sending an activating signal to the operator via a push button switch, motion detector, photo electric device or floor mat. Often, the door can be opened manually when the power switch is not activated. The length of time that the door remains open and the speed with which it closes can be adjusted.

Like the door closer, the automatic door operator also may have a hinged scissor arm, but the surface mounted operator housing is attached to the header over the door. Or, the operator housing may be designed within a continuous aluminum header and rotate the door directly, through its pivot. There are other variations as well.

The operator requires a low-voltage electrical line run from a power breaker panel in the building. Auto door operators typically used on office buildings are "low energy," and cannot open faster than 3-5 seconds. Further, automatic doors must be labeled as such, so that the user is not surprised by the door when it opens.

Although not required by federal accessibility standards, installing automatic door operators on commercial entrance doors is an essential solution, especially in areas where doors must provide resistance to being blown open by prevailing winds. If automatic doors are the chosen access solution, the ADAAG mandates closing speed no faster than three seconds and force needed to stop door movement no more than 15 pounds.



One of several door closer configurations, this photo depicts a surface mounted door closer with a double lever parallel arm connected to the top of the door frame.

Automatic doors gained acceptance in supermarkets during the 1950s for improving the ability to exit with a shopping cart in tow. Other retail chains, discount centers and home improvement stores followed suit. In the 1990s, drug chains became the big users of auto door operators. In retail environments, auto doors receive heavy use, so they are “full powered” and open faster. They also have more stringent safety requirements and frequently use floor mats and sensing systems to operate.

Power-assist doors reduce the resistance of a manual door closer so that the door may be opened more easily. The reduction of force may be activated automatically, often used in health care or industrial facilities, or may require a push button switch to engage the operator. The switch type provides only intermittent power assist in reducing resistance and becomes a full-force door after someone has passed through the door.

Their interior use is found in hospitals, industrial and sometimes retail facilities. In commercial buildings where an interior door is very difficult to open and cannot meet the five pound maximum door opening force when using a door closer, such as with a metal fire door, an auto door operator may be the best solution. Further, an employee with a disability that includes reduced upper body strength might request interior automatic operators as a reasonable accommodation.

*Sections of the ADAAG used as sources for this article are 4.13.10 Door Closers, 4.13.11 Door Opening Force and 4.13.12 Automatic Doors and Power Assisted Doors.*