



Six Accessibility Changes to Watch Out For

THE 2010 AMERICANS WITH DISABILITIES ACT (ADA) *Standards for Accessible Design* went into effect in March 2012, but there are several requirements that continue to surprise architects and specifiers, as well as door and hardware suppliers. These issues can be costly to resolve if they're discovered after the doors and hardware are on site, so it's important to stay current on the requirements.

This article examines six changes related to doors on an accessible route:

- **Maneuvering Clearance for Recessed Doors** – including openings where the frame has a jamb depth of 10 inches or more
- **Operable Force for Hardware** – hardware for your project may have to be operable with 5 pounds of force or less
- **Flush Bottom Rails** – a minimum of 10 inches with no protruding hardware on the push side of manual swinging doors
- **Vision Lite Location** – a maximum of 43 inches from the floor to the bottom of the lite
- **Low-Energy Automatic Operators with Sensor Actuation** – must meet the safety requirements for a full-powered automatic operator, possibly including safety mats and guide rails
- **Standby Power for Automatic Operators** – required for automatic doors if the proper maneuvering clearance isn't provided

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Resources:

- 2010 Americans with Disabilities Act *Standards for Accessible Design* (www.ada.gov)
- ICC A117.1, *Accessible and Usable Buildings and Facilities* (webstore.ansi.org)
- *International Building Code* (www.iccsafe.org)
- *International Fire Code* (www.iccsafe.org)
- NFPA 101, *Life Safety Code* (www.nfpa.org)

Some of these issues are specific to the 2010 ADA, while others are also addressed by ICC A117.1, *Accessible and Usable Buildings and Facilities*. This standard is referenced by the *International Building Code (IBC)*, *International Fire Code (IFC)*, and NFPA 101, *Life Safety Code*, for doors on an accessible route. The accessibility standards vary by jurisdiction, so check the applicable publication to see which requirements apply to your project.



A door in an alcove or a frame with a large jamb depth can trigger a requirement for extra maneuvering clearance at the door leaf.

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Maneuvering Clearance for Recessed Doors

For manual doors (and some automatic doors, as explained later), clear floor space must be provided adjacent to the opening to allow someone in a wheelchair to maneuver as needed to unlatch and open the door. The dimensions for this clearance vary depending on the direction of the approach, as well as the type of hardware that is installed—for example, if the door has both a closer and latch versus just one or the other.

When there is an obstruction within 18 inches of the latch side of a door that projects more than 8 inches beyond the face of the door, maneuvering clearance for a forward approach must be provided; without this clearance, a person using a wheelchair may not be able to open a door that is recessed in an alcove. A frame with a large jamb depth (approximately 10 inches or more) can create the same situation.

The front approach for a door in an alcove (or having a frame with a jamb depth of 10 inches or more) requires the following:

- If the deep reveal is on the pull side of the door, the maneuvering clearance must extend 18 inches past the latch edge of the door.
- If the deep reveal is on the push side of the door and the door is equipped with both a closer and a latch, the maneuvering clearance must extend 12 inches past the latch edge of the door.
- If the deep reveal is on the push side of the door and there is either a closer or a latch but not both, the maneuvering clearance is not required to extend past the latch edge of the door.

So imagine a 3-foot-wide single door with a frame that has a 12-inch jamb depth. On the push

side, the door is recessed in the frame by more than the 8 inches allowed by the ADA and ICC A117.1. There are several options that could help to resolve this issue:

1. Reduce the jamb depth of the frame, and make sure that neither the push side nor the pull side of the door is recessed more than 8 inches from the wall.
2. Change the single door to a pair of doors so the inactive leaf essentially provides the required maneuvering clearance to operate the active leaf.
3. Use a sidelite frame with a mullion that is not as deep as the rest of the frame so the sidelite provides the required maneuvering clearance.
4. Omit the latch, or omit the closer; the door could have one or the other and not require any additional clearance on the push side beyond the latch edge.

Operable Force for Hardware

Prior to the 2010 edition of the ADA standards, there was no specific limit on the amount of force required to operate door hardware. But an editorial change was made to the 2010 edition in Section 404.2.7, Door and Gate Hardware, which now references Paragraph 309.4, Operation: **“Operable parts shall be operable with one hand and shall not require tight grasping, pinching, or twisting of the wrist. The force required to activate operable parts shall be 5 pounds (22.2 N) maximum.”** By referencing Paragraph 309.4, a limit for the operable force for hardware was established.

Editorial changes are normally used to address errors or make clarifications that do not affect the

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scope or application of the code requirements. These changes do not go through the normal code development process (i.e., committee hearings and opportunities for public comment). In other



Panic hardware has traditionally been required to operate with no more than 15 pounds of force. New ADA requirements limit the operation of door hardware to a maximum of 5 pounds.

words, this change was unexpected. Most lever-operated hardware already met the 5-pound limit, but panic hardware did not, since panic hardware is required by most codes and standards to operate with a maximum of 15 pounds of force. Panic hardware has since been developed that operates with 5 pounds of force, and a new UL listing has been created to certify that the products meet the requirements for panic, fire resistance (where required) and operable force.

ICC A117.1 does not currently include a limit on the force to operate hardware, although a change has been proposed for the 2015 edition. If approved, the proposal would establish a limit of 15 pounds maximum for hardware operated by a forward, pushing or pulling motion and 28 inch-pounds maximum for hardware operated by a rotational motion.

The 2013 *California Building Code* (CBC) includes language virtually identical to the 2010 ADA operable force requirements and requires hardware to operate with 5 pounds of force maximum. However, the code contains conflicting language in Section 1008.1.10, Panic and Fire Exit Hardware, which requires panic hardware to operate with a maximum of 15 pounds of force.

While there is still some confusion in the field about the 5-pound requirement and the potential conflicts, there are projects where the 5-pound limit is being enforced for both lever-operated hardware and panic hardware. For each project, a decision must be made regarding whether to use hardware meeting the requirements of the IBC (and its referenced standard, ICC A117.1)



Protruding hardware within the bottom 10 inches of a door could inhibit passage through a door opening by catching a crutch, cane, walker or wheelchair.

or whether to specify hardware that meets the 5-pound limit to avoid a conflict with ADA standards.

Flush Bottom Rails

For many years, ICC A117.1 has included a requirement for a 10-inch-high flush bottom rail on manual doors, and this requirement has been added to the ADA standards. The text of both standards is similar, except the ADA also addresses existing doors. The purpose of this requirement is to avoid projections that could catch a cane, crutch, walker or wheelchair and inhibit passage through the door opening. Because it appears in the “Manual Doors” section of both publications, it does not apply to automatic doors.

The standards require the push-side surface of swinging doors and gates within 10 inches of the finish floor or ground to have a smooth surface that extends the full width of the door or gate. Narrow bottom rails and protruding surface bolts, surface vertical rods, kick-down stops and full-height door pulls installed on the push side of the door would not comply with this requirement for a 10-inch-high smooth surface. Horizontal or vertical joints in this surface must be within $\frac{1}{16}$ inch of the same plane. If a kick plate is added to a door with a narrow bottom rail to resolve this problem, the cavity between the kick plate and the glass or recessed panel must be capped.

There are several exceptions to this requirement:

- Sliding doors are not required to comply.
- Tempered glass doors without stiles are not required to have a 10-inch bottom rail (if the top

of the bottom rail tapers at 60 degrees minimum from the horizontal), but protruding hardware is not allowed in the 10-inch-high area.

- Doors that do not extend to within 10 inches of the finish floor or ground are also exempt.

As outlined in the ADA, existing doors are not required to provide the 10-inch smooth surface, but if kick plates are added to extend the height of the bottom rail, the gap between the top of the plate and the glass must be capped. Existing doors are not addressed by A117.1, which is typically used for new applications as referenced by the IBC. Now the standards are consistent, and increased awareness and enforcement of this requirement are likely.

Vision Lite Location

Doors on an accessible route are not required by the accessibility standards to have a vision lite, although a vision lite may be required by another code or for safety purposes. If a door opening has a



Small lites found on some existing doors may not meet accessibility standards for lite location, but longer lites may create lite/lock conflicts.



vision lite or sidelite, the 2010 ADA standards and ICC A117.1 both require the bottom of at least one lite to be no more than 43 inches above the floor. This is new to the ADA standards but has been required by ICC A117.1 for decades.

The exception to the 43-inch requirement is for doors that have a lite with the bottom edge located more than 66 inches above the floor; these lites are used for light transmission or aesthetics but not for viewing. A common example of this is a residential entrance door with lites in the top panel locations.

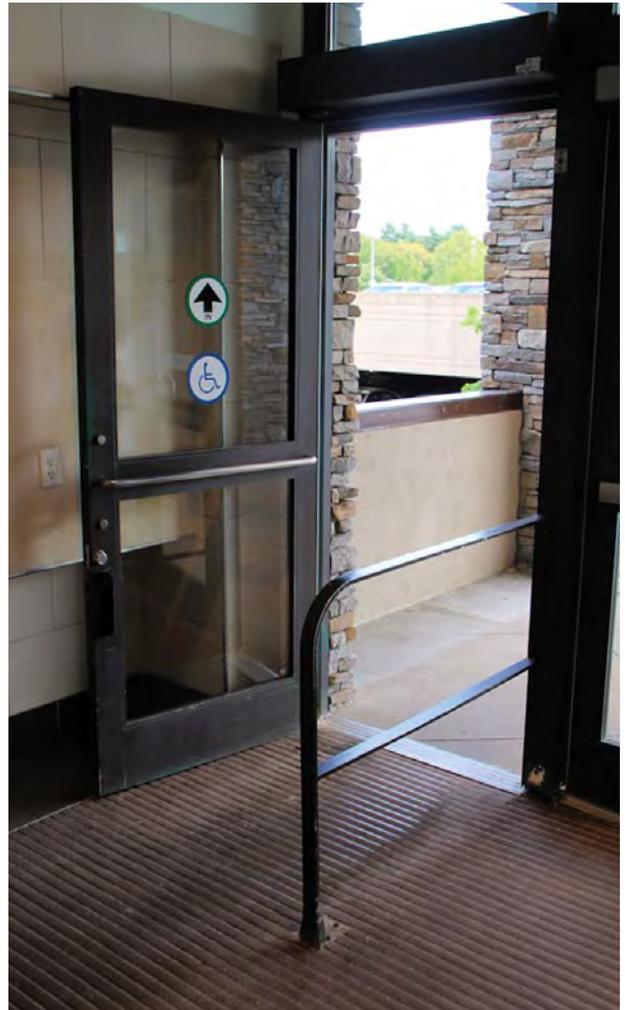
The 10-inch x 10-inch lites that were once used quite often, and even the 4-inch x 24-inch narrow lites that are one of the most common configurations, would not typically meet the location requirement. Half-glass lites are also affected by this change. A 24-inch-high lite mounted at 43 inches above the floor on a 7-foot door would result in an unsightly top rail dimension of 17 inches. So longer lites will become more common, and with longer lites and the 43-inch location, we will see an increase in lite/lock conflicts—problems with fire ratings and warranties caused by failure to maintain the required minimum distance between the cutouts for the hardware and the vision lites. Careful coordination is needed in order to avoid these conflicts.

Low-Energy Automatic Operators with Sensor Actuation

Low-energy automatic operators are often used when the door will be opened manually by some users and automatically by others. According to the ADA standards, ICC A117.1, and other codes, doors must comply with American National Standards Institute/Builders Hardware Manufacturers Association (ANSI/BHMA) A156.19, Power-assist and Low-energy-operated Doors.

This standard includes limitations on opening speed and force to curtail the generation of kinetic energy and the potential for injury. Due to these limits, most doors with low-energy operators are not required to have safety sensors, control mats or guide rails.

The 2002 edition of ANSI/BHMA A156.19 introduced a requirement for power-assist and low-energy power-operated doors to be activated by a “knowing act,” and this requirement carries forward to the subsequent editions of the standard.



Doors with low-energy automatic operators may require safety sensors and guide rails if they are not operated by a “knowing act.”

The “knowing act” may be:

- A push-plate actuator or non-contact switch mounted on the wall or jamb
- The act of manually pushing or pulling a door
- An access control device like a card reader, keypad or keyswitch

Stepping into the field of a motion sensor is not considered a knowing act. If automatic operation via a motion sensor is desired, automatic doors must comply with the standard for full-power operators—ANSI/BHMA A156.10, instead of A156.19. This means that although the door may have a low-energy operator, it has to meet the same requirements as a full-power operator that you would typically see on a supermarket entrance, including the safety sensors or control mats and guide rails.



Photo courtesy of SAS Architects

If an automatic operator is installed to overcome a maneuvering clearance issue on the egress side, the 2010 ADA requires standby power for the operator.

Standby Power for Automatic Operators

The 2010 ADA standards include revisions to the section on automatic doors with regard to maneuvering clearance. (These have not been included in A117.1 to date.) The ADA standards read:

“404.3.2 Maneuvering Clearance. Clearances at power-assisted doors and gates shall comply with 404.2.4. Clearances at automatic doors and gates without standby power and serving an accessible means of egress shall comply with 404.2.4.

EXCEPTION: Where automatic doors and gates remain open in the power-off condition, compliance with 404.2.4 shall not be required.”

Maneuvering clearance for manual doors is addressed in Section 404.2.4 of the 2010 ADA and requires automatic doors and gates without standby power that serve an accessible means of egress to have the required maneuvering clearance for manual doors. Therefore, automatic doors

and gates *with* standby power do not need the maneuvering clearance that would be required for a manual door.

If an existing door serving an accessible means of egress does not have the required maneuvering clearance and an auto operator is added to overcome that problem, the operator needs to have standby power (unless the door stands open on power failure per the exception). This applies to doors that are part of a means of egress and must be accessible in an emergency, and it is intended to avoid entrapment of a person with a disability if there is a power failure. The standard does not currently include a requirement for how much standby power must be provided.

It is important to keep in mind that automatic operators on fire-rated doors are required to be deactivated upon fire alarm.

It is important to keep in mind that automatic operators on fire-rated doors are required to be deactivated upon fire alarm. Therefore, an automatic operator with standby power should not be used on a fire-rated door to overcome maneuvering clearance problems because it will not be functional when the fire alarm is sounding.

Conclusion

With regard to these changes in the Americans with Disabilities Act standards, some accessibility requirements are not prescriptive, and enforcement varies by jurisdiction. Therefore, it can be difficult to apply the standards, especially when conflicts exist. In addition, some states have established their own accessibility standards. Following the most stringent requirements can help to avoid problems, and the local Authority Having Jurisdiction (AHJ) can also provide assistance to determine what is required. 



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