


# Door Security + Safety

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## Sustainable, Wood, Metal and Specialty Doors

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# Securing Sliding Doors in Health Care



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Improving privacy,  
safety, security  
and accessibility.

BY QIANYAN CHENG

My middle school-aged son got stung by a bee recently. The welt on his arm was concerning enough that I took him to the local walk-in care clinic. I could see immediately the medical center had been recently renovated. What a transformation! Driftwood reception walls, apple green corridors, modern curvilinear-shaped couches ... it was a completely different place.

Walking into the consultation room through a wide-open sliding door, we were welcomed by an entire wall of cheerful tulip flowers. I've never been a fan of typical health care facilities with their white walls, ash-grey carpets, the smell of sanitary chemicals and bright fluorescent lights. But now I felt as if we were being hugged by nature. My son relaxed into his seat, and I could tell that he was feeling a little better already.

I went home and did some research. I learned about an emerging concept called "biophilic" designs and spaces, a new trend in health care, educational and professional spaces.

Biophilic interior designs include natural elements, organic shapes and open paths of travel. The concept is to reduce stress, anxiety and depression. Studies show that providing patients with authentic connections to nature assists the healing process.

Sliding doors have become an integral part of these beautifully designed spaces. They offer wider access points, open concept spaces and streamlined paths of travel.

### Challenges in Sliding Door Security

The benefits of the welcoming, mindful environments created by

biophilic design must not come at the expense of security, safety, privacy and accessibility. Sliding doors and door hardware must be able to perform mechanically as well or better than swing doors if they are to find a permanent home in the industry.

There are six challenges in securing sliding doors.

#### 1. Self-latching, Self-locking

Swing doors have a beveled latch that holds the door in place and prevents it from swinging open. For sliding doors, a winged deadbolt is used to enable the sliding door to engage with the frame. To facilitate self-latching, an actuator can be incorporated into the mortise lock. When the actuator contacts the strike, it activates the deadbolt and the wings project into the strike to keep the sliding door in the locked position. This operation is known as self-latching.

The self-latching mechanism facilitates a door system to comply with UL 1784 – Standard for Air Leakage Tests of Door Assemblies. UL 1784 covers the investigation of air leakage through door assemblies installed in wall openings where air leakage is intended to be controlled.

A mortise lock in a sliding door that has been self-latched will still allow

a user to retract the outside lever for access. The term self-locking describes a sliding door that requires a key or operation of the inside lever to unlock the opening once it has been closed.

#### 2. Touchless Unlocking

Healthcare facilities have embraced hands-free access for openings to enhance accessibility for disabled patients and to mitigate the spread of disease by eliminating common touch points. For true touchless openings, sliding door locks must have a motor-driven latch retraction that supports automatic unlocking without the need to touch the lever.

The sliding door also requires an auto slider that moves the door automatically. This allows users free ingress and egress without physical contact with the opening.

#### 3. Fail Secure

Maintaining secure access control with an electrified locking device during a power failure is a challenge for sliding doors. Electrified sliding door locks (i.e., maglocks or electric bolt locks) that rely on magnets for locking operations are fail-safe. This means that if there is a disruption in power supplied to the lock, the door will revert to the unlocked position.

Using a motorized mortise lock with a winged deadbolt design will guarantee that the door remains in the mechanically locked position during a power failure. It also guarantees the lock will be always operable by physical key whether or not power is supplied to the lock. There is always egress by using the inside lever for life safety.

#### 4. Access Monitoring

High-risk areas of a health care facility, such as the ICU or a children's ward, may require door activity to be monitored. Electrified sliding door

## Mechanical and Electrified Self-latching Mortise Locks Functions for Sliding Doors

Application/Use Case	Function	Description
<ul style="list-style-type: none"> <li>• Doctor's Office</li> <li>• Nursing Station</li> <li>• Billing Office</li> <li>• Waiting Room to Doctor's Office</li> </ul>	Entrance	On a self-latching mortise lock, the actuator button on faceplate contacts the strike and automatically engages the deadbolt when the sliding door closes. The outside lever is locked or unlocked by key or inside thumbturn. Provides self-latching and self-locking for spaces that require security and privacy (patient information).
<ul style="list-style-type: none"> <li>• Consultation Room</li> <li>• Examination Room</li> <li>• Chapel</li> </ul>	Office, Inner Entry	Similar to Entrance, but operating inside lever for egress simultaneously resets outside lever and inside thumbturn to unlocked position. For openings that require security at some times and convenience (Passage Mode) at other times.
<ul style="list-style-type: none"> <li>• Medical Office</li> <li>• Procedure/Surgery Room</li> </ul>	Entry with Access Control, Auto Locking and optional Passage	Latchbolt projected/retracted by built-in stepper motor when energized by 12/24V DC power transferred through contacts on lock and strike. For secure areas that allow only authorized users to enter upon credentials being verified.
<ul style="list-style-type: none"> <li>• Pharmacy</li> <li>• Radiation Rooms</li> <li>• Nursery</li> <li>• Airborne Infection Isolation Room</li> </ul>	Entrance with Access Control, Auto Locking and Monitoring	Similar to above with monitoring switches for door position, deadbolt monitoring and Request to Exit. For secure areas that also require monitoring of the door and lock status.
<ul style="list-style-type: none"> <li>• Housekeeping Room</li> <li>• Non-medical Storage Room</li> </ul>	Classroom	Self-latching when door is closed. Key unlocks deadbolt. No thumb-turn to lock from inside. Operating inside lever for egress will not change the locked or unlocked status of outside lever. Suitable for spaces that require free access or passage during certain times but must remain locked at other times.
<ul style="list-style-type: none"> <li>• Electrical Room</li> <li>• Utility/Equipment Room</li> <li>• Medical Waste Disposal</li> </ul>	Storeroom	Self-latching when door is closed. Outside lever is locked or unlocked only by key, and key cannot be removed from cylinder when outside lever is unlocked. No thumb-turn to lock from inside. Suitable for spaces that must always remain locked.
<ul style="list-style-type: none"> <li>• ICU Patient Room</li> </ul>	Self-latching Passage	No thumbturn or keyed cylinder, outside and inside levers are active and can retract deadbolt. For rooms that are already inside of a secured area.
<ul style="list-style-type: none"> <li>• Patient Bathroom</li> <li>• Visitor Restrooms</li> </ul>	Privacy with Indicator	Self-latching when door is closed. Outside lever can retract deadbolt when unlocked, inside thumbturn can lock or unlock outside lever. Emergency release with indicator on the outside. For restrooms or other spaces where personal privacy is required.
<ul style="list-style-type: none"> <li>• Adjoining Rooms</li> </ul>	Communicating/Exit	Lever retracts deadbolt. No lever on opposite side. For doors separating adjoining rooms.

SOURCE: INOX

locks with integrated monitoring switches can provide real-time feedback about door operation. This includes door position, deadbolt engagement and request-to-exit. The information can be displayed at the door or routed to security stations for remote monitoring.

Facility managers overseeing retrofit construction to integrate sliding doors into their facility can reduce costs by choosing locks that interface with existing monitoring terminals and extended access control systems, including keypads and biometric readers.

## 5. Installation and Preparation

Electrified door hardware requires power to be supplied to the lock body. With swing doors, wires typically run through the hinges to the power supply. Sliding doors are installed on track systems where the doors move back and forth. The door hangers and soft-close mechanisms are typically located between the door and the frame.

This configuration makes door preparation and installation of access control much more challenging. Cutting wire chase channels through sliding doors can also be difficult and time-consuming. This is especially true with surface-mounted sliding doors such as ICU barn doors.

One recently engineered industry innovation is a built-in power transfer within the electrified sliding door lock that supplies power directly from the strike to the lock. This greatly simplifies door prep by allowing power to be run to the strike rather than the lock body inside the door. It also eliminates the need to drill the door for a wire chase.

## 6. Available Functions

To successfully provide safety, security and privacy for all types of rooms and applications in the health care environment, commercial sliding door locks must be able to provide all the typical functions of swing door locks. These include, but are not limited to:

### Keyed Functions

- Keyed entrance
- Inner entry/office
- Storeroom
- Classroom
- Dormitory

### Non-Keyed Functions

- Privacy
- Passage
- Communicating/exit

Sliding door systems continue to advance as doors and hardware technologies evolve to meet modern industry demands. Soft-close and soft-open tracks, acoustic gaskets for sound control, drop-down bottom seals for light restriction and automatic door openers are all benefiting from continuous industry improvements. These technological advancements offer improved user experiences, wider openings, and better use of existing spaces while still providing the privacy, safety, security and accessibility required by staff and patients.

The use of sliding doors paired with elegant, functional hardware helps support and enhance the healthcare industry. That has never been more important as medicine moves beyond relying solely on pharmaceutical treatments and into a space where a biophilic environment assists the healing process and encourages wellness, connection, collaboration and happiness. +



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