Door Security + Safety

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Sustainable Wood, Metal and Specialty Doors

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7 Innovations in Barn Door Hardware

With the latest hardware, barn doors can perform like swing doors.

BY QIANYAN CHENG

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Example of a surface-mounted privacy lock with a strike installed inside the barn door; no built-out frame required.

A few years ago, I was drinking in that combined cocktail of exhilaration and exhaustion that always follows the end of the DHI conNextions trade show when I found myself with extra time to think as the flight home was delayed.

Our booth had seen a great deal of interest in sliding and barn door lock innovations that solved alignment and binding issues, and I wondered why essential BHMA functions on swing doors did not carry over to sliding and barn door applications.

I began listing the benefits that barn doors could bring if they had locks capable of performing the same functions as swinging door locks. Before I realized it, the plane was landing, and I had sketches for six core BHMA commercial lock functions for sliding barn doors. I could hardly wait for prototyping and testing to begin.

Why is it important to create hardware that gives architects and designers the option to use modern barn doors in classic swing door applications? Barn doors have become an intricate part of homes, hotels, retail spaces, offices, hospitals and schools because they are a simple and effective approach for devising effective doorway systems.

Barn doors create additional usable space for rooms and corridors and support wider passageways and streamlined paths of travel in an open floor plan. Simple and faster installations are highly desirable in today's construction, and barn doors provide prefabricated headers and jamb extrusions that create modular systems with greater flexibility.

The actuator button underneath the latchbolt engages with the strike to auto-latch or auto-lock the door.

In my experience, a barn door is a sliding door that is installed over the surface of a wall instead of within a wall. Headers and jambs are optional, such as in the completely frameless decorative barn doors that are popular in residential and hospitality use.

New barn door applications, including patient exam rooms in health care facilities or a school administrator's office, are driving hardware innovations around privacy, safety and security.

Here are seven innovations to watch for in barn door locks and hardware.

1. Mechanical Auto-Latching and Auto-Locking

When a sliding door is closed, the latch typically remains in a disengaged position until it is manually engaged. A self-latching sliding door lock automatically engages the deadbolt into the strike every time the door is closed. The latest innovations use a built-in actuator that triggers the deadbolt to project. This enables auto-locking as an option for keyed functions and supports self-latching for non-keyed functions.

Older self-latching locking mechanisms often require force and impact to move the deadbolt into the strike, which presents a higher risk of damaging both the lock and the doorframe. Newly designed self-latching locks, however, use an actuator button that activates a controlled latch activation. Deadbolt hooks are never exposed during an open position. These features provide better performance and longevity.

2. Sliding Door and Barn Door Mortise Guidelines

Currently, there is no dedicated chapter in ANSI/BHMA A156 for commercial grade sliding door or barn door mortise locks. Only ANSI/BHMA A156.25 provides some baseline performance and strength test guidelines.

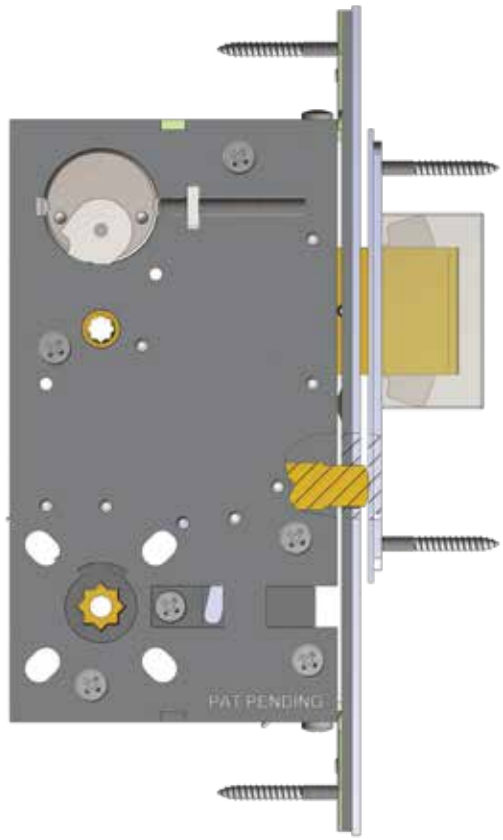
Since commercial doorways with swing door locks are clearly defined with distinctive functions, ANSI/BHMA will need to create consistency in this area by creating guidelines for commercial grade sliding door or barn door mortise locks.

Until then, ANSI/BHMA A156.13 provides comparable swing door mortise lock function guidelines that can guide the mapping of sliding door and barn door innovations.

KEYED ENTRANCE (Comparable to BHMA A156.13 F20 Function)

A sliding door mortise lock allows the user to unlock the door for access by key from the outside, while an inside thumb turn locks and unlocks

An example of a mortise lock with actuator, illustrating how the latch is triggered when it meets the strike plate. This is an innovative alternative to mechanisms that use force and impact to engage the deadbolt.



the outside trim. When the door is closed, the deadbolt is self-latched, and the outside trim is locked. The outside trim is then unlocked by key from outside or thumb turn inside, and the inside lever always retracts the deadbolt for emergency egress. This function is ideal for rooms where security is more important than convenience. Passage mode can be set temporarily and disabled by closing the door.

INNER ENTRY/OFFICE FUNCTION (Comparable to BHMA A156.13 F04 Function)

For this function, a sliding door mortise lock allows the user to unlock the door for access by key from the outside, while an inside thumb turn locks and unlocks the outside trim. When the door is closed, the deadbolt is self-latched, and the outside lever is unlocked. The outside trim can be locked by key from outside or by the thumb turn inside, while the inside lever always retracts the deadbolt for emergency egress. This function provides security as well as the convenience of leaving the door in passage mode until the user locks it intentionally by key or thumb turn.

STOREROOM FUNCTION (Comparable to BHMA A156.13 F07 Function)

For storerooms, a sliding door mortise lock allows access only when a key unlocks the deadbolt from the outside. Closing the door will auto-lock the deadbolt. The outside lever is only active when the key is engaged, and the key can be removed only when the deadbolt is in a locked position. There is no thumb turn on the inside, but the inside lever is always free for

emergency egress. This function is suitable to prevent unauthorized access and avoids leaving a door unlocked by accident.

CLASSROOM FUNCTION (Comparable to BHMA A156.13 F05 Function)

This type of sliding door mortise lock allows access after a key unlocks the deadbolt from the outside. Closing the door auto-latches the door lock, but the lock remains in passage mode. The outside lever retracts the deadbolt unless it is locked by key from the outside. There is no thumb turn on the inside, and the inside lever is always free for emergency egress. This function is suitable for spaces that require free access or passage during certain times but must remain locked at other times.

PRIVACY WITH INDICATOR FUNCTION (Comparable to BHMA A156.13 F22 Function)

The privacy with indicator function serves sliding door mortise locks that allow access without a key. The lock is self-latching, and the outside lever is locked once the inside thumb turn is set to privacy position. A rosette with a coin-turn slot provides emergency release, and a red or white indicator shows when the door is locked. The inside lever is always free for emergency egress and resets the inside thumb turn and outside access. This is a perfect function for restrooms or other spaces where privacy is required.

SELF-LATCHING PASSAGE FUNCTION (Comparable to BHMA A156.13 F01 Function)

This is a sliding door mortise lock that allows access without a key. The lock is self-latching so the outside lever can retract the deadbolt at any time. The inside lever is always free for egress.

3. Motor-Driven Electrified Sliding Barn Door Locks

Today's access control systems employ many identification, recognition

An electrified mortise sliding door lock with the power transfer through the strike has the capability to easily integrate with access control monitoring switches.

Installing the lock inside the jamb with the strike in the sliding door reverses how privacy locks have always worked, providing a simple yet elegant option where none existed before.

and verification technologies from a simple digital keypad to mobile phones to biometric scanning. Data communication is also evolving with available protocols such as low energy Bluetooth, encrypted radio-frequency identification (RFID), Zigbee or ZWave mesh technologies.

Nevertheless, the heart of access control for a sliding barn door lies in the mechanism that connects the door to the frame and locks. These hardware innovations are the first step toward an industry game-changer: a touchless electronic locking and unlocking device.

A motor-driven electrified sliding barn door lock engages and retracts without a user needing to touch the lever and maintains a secure connection even when power is out.

4. Sliding Door Mortise Locks with Built-In Power Contacts

Transferring power between sliding doors is not as large of an issue as many have previously thought. An external power contact can be installed on the edge of the door and frame, and latest innovations have power contacts incorporated into the faceplate and strike of the lock, eliminating the need to create channels inside the door for the power leads.

5. Electronic Auto-Latching or Auto-Locking

Auto-latching and auto-locking electronic systems detect that the door is in a closed position and the deadbolt is latched or locked automatically. A new generation of sliding and barn door locks incorporate a built-in door position switch (DPS) connected to a standard request-to-exit (REX) relay, making this another simplified access control solution.

6. Monitoring Switches

Access monitoring enhances safety and security, so do not miss the chance to add capabilities such as a DPS, REX, deadbolt monitoring switch (DBM) or a lever movement switch to a sliding barn door.

7. Multifamily Frameless Barn Doors

A “lock-inside-jamb” system is a simple yet elegant privacy bolt that breaks from the conventional lock-inside-the-door concept through its

Example of a surface-mounted strike with concealed vandal-resistant anchored bracket, enhanced security for a barn door.

unconventional design approach. A concealed or surface-mounted lock with a strike is installed inside the door, and an emergency release is available through a pinhole from the outside to combine privacy and safety.

Surface-mounted wall strikes with a concealed vandal-resistant anchored bracket allow a floating barn door with a sliding door lock to be secured. It is a clean, modern and cost-effective solution as compared to installing built-out frames. The built-in adjustability accommodates an alignment between the lock and the strike.

It's important to note that privacy, safety and security are also driving extensive sliding door hardware innovation in the areas of rollers, soft-close mechanisms, soundproofing, auto-operators, smart access controls and glass door applications.

The demand for manufacturers that are capable and willing to partner with customers to develop custom solutions means new product innovation is happening quickly in order to be introduced to the market at record speeds. +

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