

doors + hardware

SPORTS & ENTERTAINMENT

Case Study: Minnesota Vikings US Bank Stadium

Fire-rated Glass and Customized Applications

How to Install Locks on Barn Doors

2017 conNextions Wrap-up

Case Study: Atlanta's New Stadiums

Tips for Specifying Sporting Arenas



Now and then a design trend sweeps the industry, whether it's commercial-style appliances in the kitchen or a new paint color like "greige." In our industry, a more recent example is the barn door.

HOW TO INSTALL LOCKS ON BARN DOORS

*Best Practice May Not Be
What You Expect*

By Qianyan Cheng

Barn doors are beautiful. They combine Old World charm with spatial efficiency and lots of other advantages I'll discuss in a minute. One area where they decidedly fall short is privacy. This weakness transcends residential, commercial and hospitality applications. I can attest to this personally: During a recent stay at a beautiful California resort, I decided to soak in the bathroom's fancy Jacuzzi tub. It was supremely relaxing—until my eight-year-old son decided to roll back that big barn door and destroy my moment of Zen.

Fortunately, there are now ways to add locking functionality to barn doors. Before I walk you through the best-practice how-to's, let me briefly review what makes barn doors so great in the first place.

It's no surprise that barn doors have become popular among designers, architects and home builders. They combine character and efficiency like no other option. Consider:

They save space. Much like pocket doors and sliders, barn doors make a terrific choice for enclosed spaces where in- or out-swing doors would be restricted by the floor plan. This is especially the case in hospitality settings and small family dwellings, where a swing door would often block another entrance or interfere with fixtures or furniture.

They conserve pricey real estate. In expensive metropolitan areas, hotels and high-end rental units, every square inch counts. Making it functional is *key*. Barn doors answer the call: They eliminate the three-foot span required for a swing door. They're even more valuable in ADA (Americans with Disabilities Act) installations, where *five* feet is required. Therefore, barn doors provide architects "free" floor space to give to their clients.

They look great. Interior designers love barn doors, and with good reason. Barn doors are simply beautiful, and they can make themselves at home in a broad range of decorating styles, from traditional to contemporary. A nearly endless variety of textures and colors is available. A barn door makes an exciting and undeniably cool design statement in virtually any room.

They're healthcare friendly. You might not think "barn door" when you think "hospital," but think otherwise. They're great when used for private bathrooms for hospital patients. Why? Given the wide doorway openings required for IV devices or patients needing extra assistance, barn doors are a great solution. The alternative is pocket doors where germs could hide in the pockets, compromising patient safety. By its simplicity, a barn door is a far better choice.

But can they be locked? Having worked in the industry for more than 20 years, I know the options are not only limited but aesthetically undesirable. One option is to build out the jamb to allow for the installation of a strike for a standard pocket-door lock. Another is to install a shoot-bolt mounted on the door, extending to the top rail of the opening.

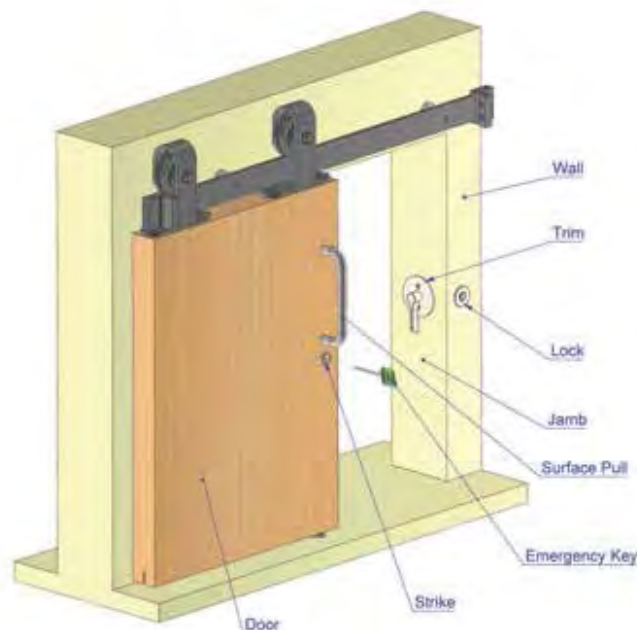


Figure 1. A privacy lock for barn doors.

As you can probably guess, both of these options have significant drawbacks. The construction costs can be hefty, and the price to be paid in the loss of the door's inherent beauty can't be underestimated. (You don't want your barn door to look like it's, well, in a *barn*.) More importantly, neither of the above options includes an emergency-release function. That's a deal-breaker for many designers and specifiers; as a result, they often simply give up their search for a workable privacy barn-door lock.

Move forward by thinking backward. Conventional locks install on the door; the locking point is on the jamb. When locked, the door stays attached to the jamb.

But a barn door is different; it's essentially a large piece of wood, floating along a wall. This makes *alignment* the big issue. In a traditional pocket door installation, the locking bolt can't be easily aligned with the strike that's intended to be the locking point.

Thus, the key challenge for barn doors is aligning the lock and the strike. The best solution is to have a tubular privacy barn-door lock that installs into the jamb wall, with the strike in the door.

Think about that. It's the exact opposite of what you're used to: *The lock installs into the wall, not the door. And the strike installs into the door, not the jamb.*

You can see how this looks in *Figure 1*, above.

Diving into the Details

This type of configuration features a locking mechanism that's similar to a deadbolt, installed inside the jamb wall, featuring a one-inch bolt that's activated by a thumb piece, and projecting into the door. A dust-proof strike is installed on the door itself and locked in place when aligned with the lock bolt in the closed position. Note that privacy locks

must be accompanied by an emergency release that can unlock the door from outside the room in the event of a crisis, such as someone falling or fainting inside the room while the door is closed.

With this type of privacy barn-door lock, the locking mechanism is concealed inside the wall. The trim is attached with a minimally-projecting thumb-turn or even a recessed trim with a finger-pull turn. Both options are functional and aesthetically pleasing. *See photo on page 22.*

The strike itself features a spring-loaded, dust-proof cover to conceal the strike opening on the door; there's a small decorative cap on the opposite side of the door. Most importantly, this type of locking solution includes an emergency-release hole built right into the strike. This allows the lock bolt to be pushed back from outside the barn door, allowing immediate access to the room in the event of an emergency.

Before I walk you through the steps for installing such a barn-door lock, I must apprise you of its limitations. This type of lockset is only suitable for a barn door that's hung on the *outside* wall of a room. Note, too, that the lock is only intended for privacy; it doesn't offer the higher security of a keyed lock.

Now that we have those details out of the way, let's take a look at the installation procedure.

STEP 1: Ensure the optimum opening. It's extremely important that you follow these steps when prepping and installing privacy locks on existing barn doors.

First, determine your wall conditions. These instructions apply to drywall with or without standard trim casing; they even work for slim trim casing. Drywall openings, jamb casing and width, wall thickness and stud placement will all impact where you place the lock, and how deep you set it.

Next, you'll perform your jamb measurement for proper lock installation and backset. This is crucial prep for lock drilling and installation. Standard door openings feature two wood studs

behind the drywall or trim casing; this will determine your lock and strike prep and installation points. Before beginning installation, measure any casing your door opening has to help you determine the placement and size of the lock you need.

For drywall openings with no trim casing, I recommend that you drill the hole in the wall with a minimum of one inch from the center of the lock bolt to the edge of the drywall, subject to the overlap size (to be discussed in Step 2). *See Figure 2.*

For drywall openings with trim casing, the lock can be positioned in the most aesthetically pleasing position on the trim in the range of 1 to 2¼ inches from the center of the lock bolt to the edge of the wall, subject to the overlap size (to be discussed in Step

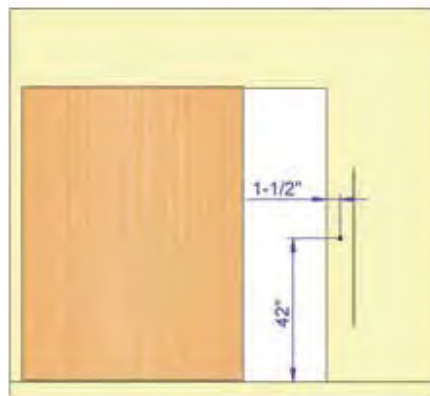


Figure 2. Proper measurement guidelines, no trim casing.

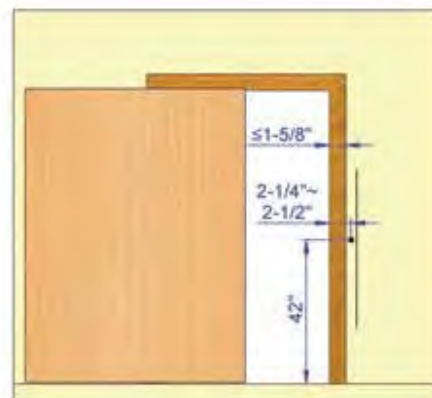


Figure 3. Proper measurement guidelines for applications with trim casing, both wide and narrow.

2). For openings with narrow casing (less than 1½ inches), the lock should be installed next to the trim casing, a minimum of 2¼ inches from the edge of the wall, subject to the size of the door overlap. *See Figure 3.*

STEP 2: Consider the overlap. For our purposes, "overlap" refers to the width of the door overlapping the wall while the door is fully closed. With this type of barn door lock, a minimum overlap is required to ensure alignment and stability for the door; it's also needed to provide enough structure to install the strike properly.

Overlap dimensions are critical for the lock to align properly with the strike that's installed in the door. Without sufficient overlap, you won't have enough room to install the strike inside the door.

For a standard drywall opening, a minimum two-inch overlap is recommended. I recommend the same for openings with a casing width of 1½ inches or wider. While there's no restriction of the maximum overlap, the maximum distance for installing the lock from the edge of the wall is 2½ inches. For wider distances, extended fixings can be requested, but wall stud conditions must be checked to ensure that more than two studs are stacked at the opening jamb inside the wall. For openings with a casing width of less than 1½ inches, a minimum overlap of 3¼ inches is recommended. *See Figures 4 and 5.*

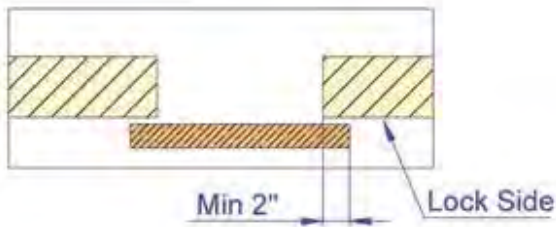


Figure 4. Minimum overlap between door and wall.

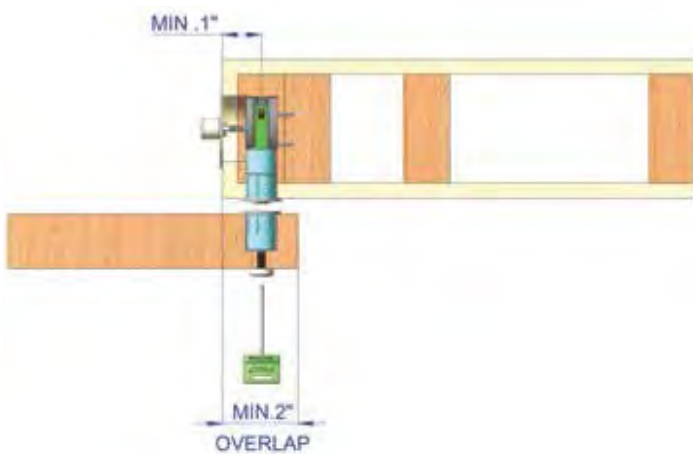


Figure 5. Overlap with lock hardware shown.

STEP 3: Install the lock. Before you complete this step, you'll need to first determine the gap between your wall and the door. This gap varies from door to door, but typically ranges from about $\frac{3}{8}$ of an inch to a half inch. If necessary, install a quarter-inch spacer into the lock recess before inserting the lock itself, which can accommodate a gap up to $\frac{3}{4}$ of an inch between the door and the wall.

Install the lock through the one-inch lock bore on the wall. The spindle hub should be at the center of the trim bore. Next, use a spindle or screwdriver to test the bolt retraction. Use two wood screws to secure the lock body to the stud and mount the trim. Then use the thumb-turn connected to the spindle to test movement of the lock bolt and make any adjustments necessary. Then fasten the provided trim screws.

STEP 4: Add the emergency release. You're almost done. To install the emergency release, re-hang your barn door in the fully-closed position. Throw the lock bolt and mark the exact position of the strike center, which must be at least one inch from the edge of the door. Using this mark as your guide, drill a pilot hole through the door with an

Privacy locks for barn doors come in different styles and finishes. Some are flush and discreet; others are designed to comply with ADA standards for commercial and hospitality applications. Choose the trim that best suits your needs and aesthetics.

eighth-inch bit. Now use the pilot hole to guide a one-inch-diameter hole saw and drill a $\frac{1}{4}$ -inch deep hole. *Do not drill through the door!* Install the strike and secure it with emergency release screws. Finally, install the decorative cap over the release screw.

STEP 5: Trim with ADA in mind. Privacy locks for barn doors come in different styles and finishes. Some are flush and discreet; others are designed to comply with ADA standards for commercial and hospitality applications. Choose the trim that best suits your needs and aesthetics, bearing in mind that ADA regulations mandate a clear width of 32 inches for the door, with the hardware installed 34 inches above the floor. Consult ADA guidelines for more information.

Congratulations! Just like that, you've transformed a beautiful and trend-setting door into a truly functional privacy solution.



QIANYAN CHENG is the Co-Founder and Vice President of Product Development of INOX™ hardware. Her manufacturing and industrial design expertise come from working more than 20 years in the hardware and lock industry in Europe, Asia and America, with the last decade devoted to the growth and innovation of INOX hardware in Sacramento, Calif. She can be reached at qcheng@unisonhardware.com.