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Accurate Lock and Hardware Co., LLC

1 Annie Place

Stamford, CT 06902

Tel: 203.348.8865

Fax: 203.348.5234

Email: jeff@accuratelockandhardware.com

Web: <http://www.accuratelockandhardware.com/>

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Hardware for Residential and Commercial Pocket and Sliding Doors



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Hardware for Residential and Commercial Pocket and Sliding Doors

Presented by: Accurate Lock and Hardware Co., LLC
1 Annie Place
Stamford, CT 06902

Description: There has been a resurgence in the popularity of pocket and sliding doors, largely due to their contribution to space-saving design. Innovations in door hardware allow these doors to serve a number of functions. This course explores the evolution of pocket and sliding doors, and discusses how the selection of the type of door, size, weight, track system, functionality, and application ultimately affects the selection of the appropriate door hardware.

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Purpose and Learning Objectives

Purpose:

There has been a resurgence in the popularity of pocket and sliding doors, largely due to their contribution to space-saving design. Innovations in door hardware allow these doors to serve a number of functions. This course explores the evolution of pocket and sliding doors, and discusses how the selection of the type of door, size, weight, track system, functionality, and application ultimately affects the selection of the appropriate door hardware.

Learning Objectives:

At the end of this program, participants will be able to:

- summarize the history of the pocket door and its role in current design
- identify key elements of consideration when selecting doors, tracks, and hardware for pocket or sliding doors
- list the four functions of door hardware and define basic hardware terms, and
- specify residential and commercial pocket and sliding door hardware based on door type, size, weight, functionality, and ADA requirements.

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Evolution of the Pocket Door

What Is a Pocket Door?

A pocket door slides and is conveniently hidden (when fully open) within a section of the adjacent wall. Pocket doors were once the domain of high society: Victorian-style homes of the late 19th century and early 20th century (1875 to 1925). They were used mostly as grand entrances to lavish libraries, stately dining rooms, and sitting rooms. They were not intended to save space. These period doors were outfitted with ornate flush style trim and locking hook mechanisms still used by many mortise type locks. Then suddenly, pocket doors went out of style, not returning until the 21st century.



Villard Houses Music Room: pocket door to main hall, New York, NY

Waning Popularity

There is speculation as to why their popularity ceased. Some suggest changes in architectural styles, but it is common to hear stories related to doors becoming difficult to operate, coming off floor tracks, the trim not being user-friendly, or that they were just too noisy. Older pocket doors tended to make a scraping and grinding sound. Some of the noise was attributed to the overhead track systems that emerged in the 1880s. They were heavy-duty cast iron wheels without ball bearing technology—the larger the wheels, the less friction. Other problems pointed to doors getting stuck or jammed inside the pocket.



Arthur Marston House: pocket door between hall and dining room, San Diego, CA

Their Resurgence

But, as is common, necessity is the mother of invention. Space-saving designs drove the eventual re-emergence of pocket doors and their modernization. Think of finding 10 to 20 square feet of extra room in an urban home!

In the early days, most interior pocket doors were just that—pocket doors. Most of the trim was flush, while locking mechanisms provided security by skeleton or bit keys that actuated a hook bolt.

Up until the last few years, sliding and pocket door hardware had seen few innovations. The biggest innovation was the use of overhead track systems with anti-friction technology that vastly improved the size and weight, ease, quietness, and reliability of pocket door systems.

New entrants to the category emerged, offering ordinary to luxurious flush trim designs so doors fit neatly into pockets. They can be sorted by price point, quality of construction, and intended use—commercial or residential.



Warner Hutton House, Santa Clara, CA

Americans with Disabilities Act (ADA)

Perhaps the greatest catalyst to the category's recent growth and innovation is due to commercial use. The same space-saving needs in commercial office space have pushed more projects to incorporate pocket, and more recently, barn-style sliding doors. Because of commercial usage, ADA requirements became necessary as well as other code-mandated features.

One example of this is sliding doors used in commercial office space. Rigid pulls instead of flush pulls are installed with a simple sliding door lock actuated by a lever. The net door opening increases another four inches as the trim will not tuck into a pocket. But the payoff is worth it, as the hardware is easy to use, even by those who are in elder care or extended care facilities.

A recent healthcare project incorporated a similar sliding door utility for its patient room bathroom doors. Bridgepoint Active Healthcare, in Toronto, Canada, treats patients with complex health conditions who require extended healing times. The hospital incorporated evidence-based design centered on enhanced healing. Sliding doors facilitated easy access to one of its featured amenities: state-of-the-art washrooms and shower facilities. Similar functions are used in non-patient areas such as staff office areas.

Applications

Common residential applications for pocket and sliding doors include bathrooms, closets, laundry or utility rooms, offices, and as room dividers.

In addition to their use in commercial office and healthcare applications, the hospitality segment emerged as a large market for pocket door hardware, and decorative architectural hardware brands quickly responded. Established brands rounded out their offerings, while early entrants to the category have improved their offerings to compete in this segment.

As commercial applications continue to grow, so do functionality requirements. This course will discuss pocket and sliding door hardware options that address the various needs of both the residential and commercial building industries.



Design Considerations for Pocket/Sliding Doors

General Considerations

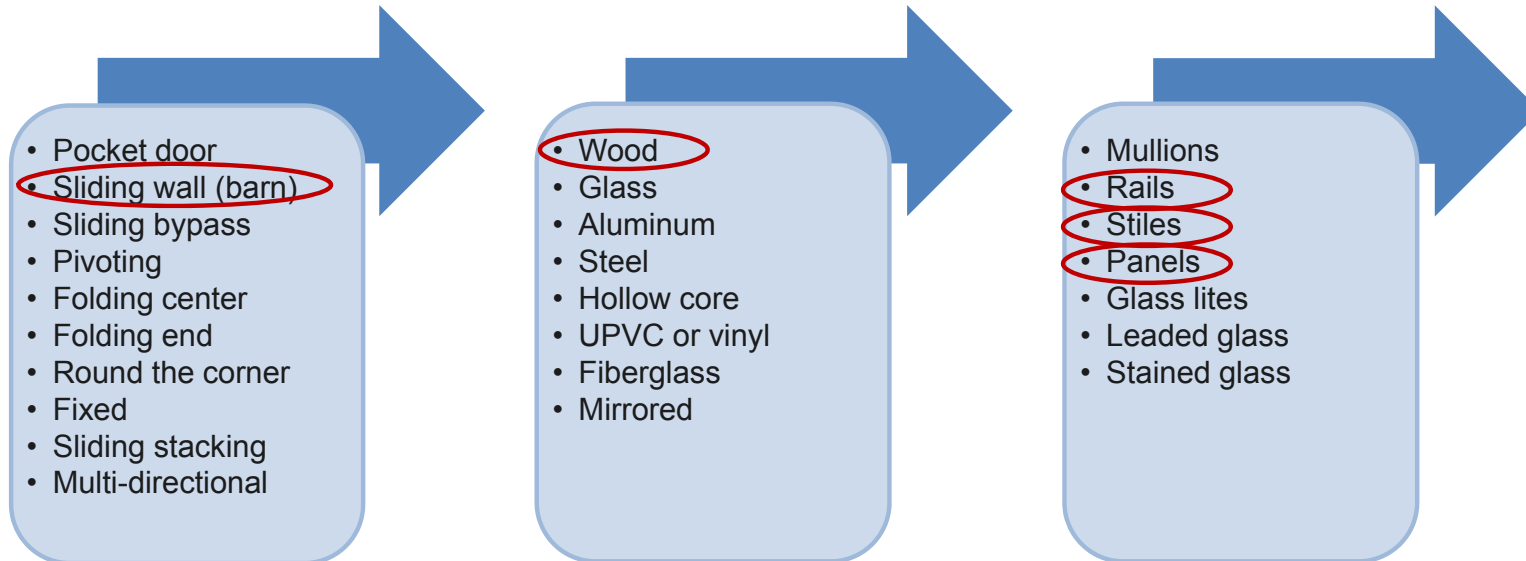
Consider the following:

- The placement of existing electrical wiring, pipes, switches, and sockets may affect the location of the door or its feasibility.
- Obstructions such as windows, radiators, and associated pipework will also affect the location or feasibility.
- The placement of new electrical wiring, pipes, switches, and sockets in a new build must not interfere with door operation.
- The wall space next to the door opening must be at least the width of the door.
- Establish whether an existing wall is load-bearing or non-load-bearing, as support and a lintel may be required.
- For some load-bearing walls or solid walls, wall-mounted sliding doors may be an easier option.
- A sliding/barn door can take up significant wall space.
- Although a sliding door system provides a parallel diffusion of weight across the header, the point load for the track, hardware, and door will be on the exterior of the frame. The door must not be too heavy for the track system it'll be utilizing.
- Is privacy a concern? A sliding/barn door covers the opening completely but does not seal the opening the way a typical door does.

Door and Hardware Selection: Door Type

The selection of door hardware follows the selection of the type of door, size, weight, track system, and functionality.

First select the type of door, the door material, and style. For example:



Door and Hardware Selection: Door Size

Determine the measurements for the opening. The opening width is from the finished wall edge to finished wall edge. The opening height is from the finished floor to the finished ceiling (for full height doors) or to the header. Then determine the thickness and weight of the door.

Average Door Weights of Architectural Grade Doors						
Door Thickness	1 ³ / ₈ "	35 mm	1 ³ / ₄ "	44 mm	2"	51 mm
	lb/ft ²	kg/m ²	lb/ft ²	kg/m ²	lb/ft ²	kg/m ²
Hollow Metal	4	19.5	5	24.4	6 ½	31.7
Kalamein	-	-	5	24.4	-	-
Hollow Core	2	9.8	2½	12.2	-	-
Solid Core	3½	17	4½	22	5¼	25.6
Mineral Core	3½	17	4	19.5	-	-
Pine (White)	3	14.6	3½	17	4	19.5
Oak	5	24.4	7	34.2	8	39
Ash	4	19.5	5	24.4	6	29.3
Fir	3	14.6	3½	17	4	19.5
Birch	4¼	20.8	5½	26.9	6¼	30.5
Mahogany	3½	17	4½	22	5¼	25.6

Door and Hardware Selection: Door Weight

Most architectural grade doors will be below 220 lb. For example, if you refer to the table to the right, a 3'x8' solid oak door that is two inches thick weighs about 192 lb. Barn doors tend to be larger since they overlap the opening on three sides. The table shows approximate door weights (hardware not included) up to two inches thick. For larger doors it is best to refer to the manufacturer's specifications.

	Height	1½" Thick Door			Height	1¾" Thick Door			Height	2" Thick Door		
		Door Width 32"	36"	48"		Door Width 32"	36"	48"		Door Width 32"	36"	48"
Pine	80"	53	60	80	80"	62	70	93	80"	71	80	107
	84"	56	63	84	84"	65	74	98	84"	75	84	112
	96"	64	72	96	96"	75	84	112	96"	85	96	128
Oak	80"	89	100	133	80"	124	140	187	80"	142	160	213
	84"	93	105	140	84"	131	147	196	84"	149	168	224
	96"	107	120	160	96"	149	168	224	96"	171	192	256
Ash	80"	71	80	107	80"	89	100	133	80"	107	120	160
	84"	75	84	112	84"	93	105	140	84"	112	126	168
	96"	85	96	128	96"	107	120	160	96"	128	144	192
Fir	80"	53	60	80	80"	62	70	93	80"	71	80	107
	84"	56	63	84	84"	65	74	98	84"	75	84	112
	96"	64	72	96	96"	75	84	112	96"	85	96	128
Birch	80"	76	85	113	80"	98	110	147	80"	111	125	167
	84"	79	89	119	84"	103	116	154	84"	117	131	175
	96"	91	102	136	96"	117	132	176	96"	133	150	200
Mahogany	80"	62	70	93	80"	80	90	120	80"	93	105	140
	84"	65	74	98	84"	84	95	126	84"	98	110	147
	96"	75	84	112	96"	96	108	144	96"	112	126	168
Solid Core	80"	62	70	93	80"	80	90	120	80"	93	105	140
	84"	65	74	98	84"	84	95	126	84"	98	110	147
	96"	75	84	112	96"	96	108	144	96"	112	126	168

Door and Hardware Selection: Track System

Once the door is chosen an appropriate track system must be specified. Pocket door frame materials may be sold as individual components, component sets, or as complete kits. Track system components can include: running rails, guide rail tracks, channels, and rollers. Additional components include: stoppers, guides, running gear, housing, bumpers, screw sets, and buffers or soft-closing mechanisms. They are available to accommodate a variety of door sizes and wall thicknesses.

Sliding door tracks are essentially the same but the trolley interface varies depending on the door or substrate. Tracks are often made of extruded aluminum as it ensures an even rolling surface. The trolley that rolls along the track can have three or four wheels: usually lower quality sets have three wheels, and higher quality sets have four wheels for smoother operation. Sliding doors are typically top-hung and will have one or more floor guides to keep the door in the correct positioning.

Door and Hardware Selection: Track System

Ceiling- or Top-Hung Track System

The track can be either surface-mounted or recessed in the door opening. The rolling trolley hardware is attached to the top of the pocket door. It is essential that the track and trolley are sized to accommodate the weight of the door.

Nylon wheels with ball bearings are typical of modern trolleys as they provide low rolling resistance and quiet operation. Track systems utilize bumpers to keep the door from becoming recessed in the pocket; soft-closing mechanisms will provide this function as well.

A full-height door—from floor to ceiling—maximizes the opening. When the pocket door is in the fully open position, it gives the impression it is not even a door opening. The full height door typically utilizes a recessed track and delivers a contemporary aesthetic. This application requires a high quality track that won't deflect under load because it will be a permanent feature.

Bi-Parting Pocket Track System

In a bi-parting pocket door system it is important to center the doors and keep them from colliding. Adjustable bumpers within the track stop the trolleys at a fixed point.

Door and Hardware Selection: Track System

Floor-Mounted Track System

Using a floor-mounted track means the top of the system can be relatively light because it does not carry the weight of the door. This is the system of choice when the ceiling is inaccessible or when the bearing capacity of the structure above is unknown. A very level floor is a prerequisite for this option. A floor-mounted track has the potential to be an obstruction or tripping hazard; recessed floor tracks are available to minimize this effect.

Ceiling and Floor Track System for Multi-Pass Sliders

These systems rely on a both a top and a bottom track or guide to keep doors aligned and sliding properly. Given that the floor tracks and/or guides can be a tripping hazard and can collect debris, they are best suited to lower traffic applications.

Sliding/Barn Door Track System

Sliding/barn doors can slide on a box rail or a round/tubular rail. The hanger/trolley system will be specified depending on the type of rail chosen. Wall-mounted sliding door hardware kits are available. Guide rails, stops, guides, bumpers, and stay rollers are among the many accessory options offered.

Door and Hardware Selection: Function

Door hardware is available in four basic functionalities to accommodate different applications.

Interior






- Privacy – Privacy hardware provides secure locking from the interior. It affords privacy for bedrooms and bathrooms, and any other room where privacy is desired but keyed-entry is not necessary.
- Passage – Passage hardware is non-locking. It does not have keyed cylinders or locking buttons. It is most commonly used on hallway doors, closets, laundry rooms, and other rooms that do not require a privacy option.
- Dummy – Dummy hardware is usually one-sided and has no working parts. It is often used on closet doors, on the inactive side of a French door, or used in pairs on sets of double doors.

Exterior/Interior

- Keyed Entrance – Keyed entry hardware is generally used on exterior doors and on interior doors in residential and commercial applications where security is essential.

Door and Hardware Selection

As mentioned, the selection of door hardware follows the selection of the type of door, size, weight, track system, and functionality. Hardware options include flush pulls, ring pulls, rectangular pulls, floor guides, door guides, strikes, locks, brackets, hinges, connectors, and ADA-compliant handles and locks.

Hardware: Pulls, Locks, and Accessories				
<ul style="list-style-type: none"> • Pocket • Passage • Lightweight door 	<ul style="list-style-type: none"> • Pocket • Privacy • Lightweight door 	<ul style="list-style-type: none"> • Pocket/barn • Passage • Med/heavyweight door 	<ul style="list-style-type: none"> • Pocket/barn • Keyed entrance • Med/heavyweight door 	<ul style="list-style-type: none"> • Pocket—double door • Keyed entrance • Med/heavyweight door
				

Door and Hardware Selection

Hardware: Pulls, Locks, and Accessories

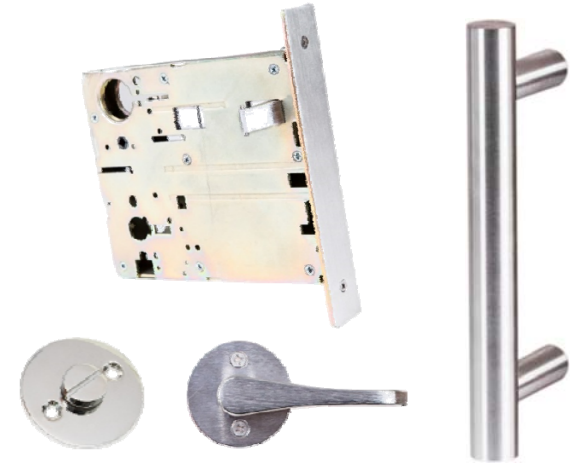
- Barn/sliding
- Passage
- All sizes/weights
- ADA








- Barn/sliding
- Privacy
- All sizes/weights
- ADA



- Barn/sliding
- Privacy
- All sizes/weights
- Solid-core
- ADA



Door and Hardware Selection

Hardware: Pulls, Locks, and Accessories				
<ul style="list-style-type: none"> • Barn/sliding • Privacy • All sizes/weights • ADA 	<ul style="list-style-type: none"> • Barn/sliding • Privacy • All sizes/weights • ADA with simultaneous egress 	<ul style="list-style-type: none"> • Barn/sliding • Self-latching • Privacy • All sizes/weights • ADA with simultaneous egress 	<ul style="list-style-type: none"> • Barn/sliding • Self-latching • Privacy • Heavy-duty ADA with simultaneous egress 	<ul style="list-style-type: none"> • Barn/sliding • Keyed entrance • Glass • ADA with simultaneous egress
				

Glossary of Hardware Terms

Active Door/Inactive Door: In a double door set, the active door has a working lockset, and the inactive door receives the latch or bolt of the active door.

Backset: The horizontal measurement from the edge of the door to the center of the bore hole drilled for the lock.

Bolt: The piece of metal that extends from the deadbolt mechanism in the door into the strike plate and secures the door.

Bore: The hole that is drilled through the door to allow for the installation of hardware; typically 2 $\frac{1}{8}$ inches in diameter.

Cam: A component fastened to the back of a mortise cylinder plug or mortise cylinder thumbturn. When rotated, it engages the lock mechanism and either locks it or unlocks it.

Cylinder: The round or cylindrical-shaped mechanism containing the keyway and the pin tumbler.

Edge Bore: A hole that is drilled into the side edge of the door through to the larger main bore hole.

Jamb: The frame that surrounds the door when it's closed and to which the hinges are attached.

Mortise Lock: A lock fitting a rectangular-shaped cavity in the edge of a door. A round hole in the face of the door receives a spindle to which knobs or levers are attached.

Pull: A device applied to the face of a door that, when grasped, permits the user to pull or slide the door open.

Thumbturn: The turnpiece located on the inside trim of a deadbolt that operates the latch mechanism.



Residential Hardware

Pocket Doors: Single, Double/Bi-Parting, Passage

Passage doors are often used for closets, and as entries from mudrooms to kitchens and from kitchens to dining rooms. Pairs of doors often serve as entries to studies, libraries, or offices.

True pocket doors disappear or slide all the way into a pocket. To retrieve the door an edge pull is required. Flush trim is often used to ease the movement of the door sideways along the sliding path. Install flush pulls far enough from the edge to avoid hitting knuckles against the frame when initially opening door from its closed position. Edge pulls should be large enough to allow multiple fingers. Heavy doors, friction within the track system, and the door jamming inside the pocket can all make it difficult to pull the door out of the pocket.



Passage set



Spring-loaded edge pull



Flush pulls

Pocket Doors: Flush Pulls

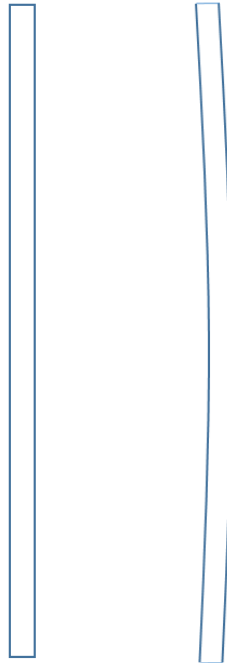
Flush pulls come in a multitude of designs to match any decor. Beyond design style, the utility of the pull is to slide the door back and forth. Keep these factors in mind:

1. Depth of pull is important: Deeper is better, since it is more comfortable on the fingers. Machined pulls versus stamped is an important detail regarding depth of pull. Machined products have more depth and are preferred when doors are 1¾ inches or more, solid wood (heavy).
2. Surface mounted vs. flush: Some pulls have a taller projection off the door when surface mounted. This can cause binding inside the pocket if the pocket frame clearances are tight or the door warps slightly. Flush-mounted pulls eliminate most binding issues and are a preferred aesthetic. Keep in mind flush-mounted pulls are often more shallow in depth. They are also more difficult to install as door preparation needs to be much more precise, but the effort is worth it.
3. Location: When the door is closed, the flush pulls are used to move the door back into its pocket. Keep pulls far enough back from the door edge to avoid scraping knuckles.

Pocket Doors: Flush Pulls



Mount so there is room for knuckles when opening the door.



Door warping inside pocket can cause surface-mounted pulls to bind. Flush-mounted pulls minimize warping issues.



Flush mount



Surface mount

Pocket Doors: Single, Double/Bi-Parting, Passage

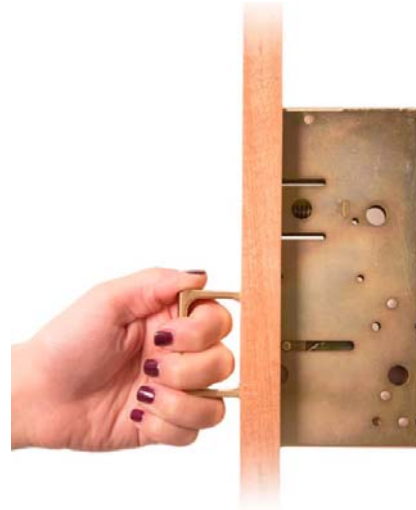
Machined vs. Stamped: Machined flush trim tends to have a deeper finger edge versus stamped flush trim. Lighter, hollow core doors can use more shallow depth trim, while heavier, solid wood core doors require a deeper trim depth. A large bale or pull allows easier door access from the pocket compared to a spring pull, which is best suited for lighter, hollow core doors.



Machined depth: $\frac{3}{8}$ "



Stamped depth: $\frac{1}{4}$ "



Large bale



Spring pull

Pocket Doors: Single, Passage

For lighter doors and easier installation (and lower cost), consider edge pulls that do not require mortise preparation. The images below show a tubular edge pull that fits into a bored hole. The pull is equipped with a catch that keeps it flush when not in use. It releases when depressed, similar to a touch latch.



Edge pull in use



Edge pull retracted when not in use



Simple door prep: round hole versus mortise



Easy to prep and install and best for lighter doors (<100 lb)



Simple finger edge pull

+



Flush cup pulls

Pocket Doors: Single, Double/Bi-Parting, Passage

Sometimes design will dictate the hardware choices.

This taller edge pull has two advantages:

1. It has the same dimensions as mortise locks used for swinging doors, creating a consistent look throughout the home, and
2. It eases door preparation—installers and door companies mortise the same pocket for all doors.



Pull

Mortise lock

Both locks use the same door preparation and have the same visible dimension.



Large spring-loaded edge pull

+



Flush pulls

Pocket Doors: Single, Double/Bi-Parting, Passage

Some residences have 2¼" thick doors, including the pocket doors, so that design style is consistent. In addition, some residences have eight- to ten-foot-tall doors made of solid species: oak, mahogany, birch, walnut, or cherry. A larger bale on a pocket door allows use of the entire hand, similar to an entrance pull. It also has the added benefit of matching the look of mortise entry locks, creating a consistent look from door to door. For people with large hands, a larger bale is more comfortable to use.



Large bale spring-loaded edge pull

+



Flush pulls

Pocket Doors: Single, Privacy

Many pocket doors require the ability to be locked. In residential settings, privacy hardware is most often used on bathrooms and bedrooms, and sometimes an office or study. This is commonly accomplished with an inside thumbturn for privacy. An emergency coin release turn can be used to unlock the door. The pocket door also requires an edge pull. This can be a separate piece of hardware or can be more conveniently combined into a single lock case—which improves door preparation, installation, and design aesthetics. It is important to consider the backset, which should be 2½ inches minimum, but is dependent on the door stile width.



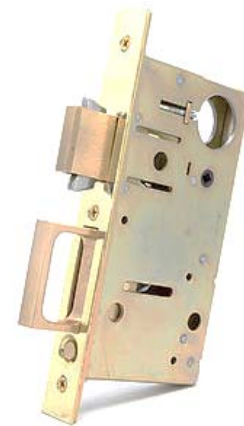
Door lock combines pull and lock bolt



Leave room for knuckles



Privacy set



Combination pull and lock

+



Flush privacy pulls

Pocket Doors: Single, Privacy

One of the latest innovations in pocket and sliding doors is the ability to self-latch. As the door slides closed, a hook latch is thrown and secures the door. This way, the door is used as a normal door and will close and latch by itself. For locking functions, simultaneous egress is standard.



Self-latch actuator

Note how clean the lock face appears in the open position.

No snagging hazards



Self-latch in thrown position

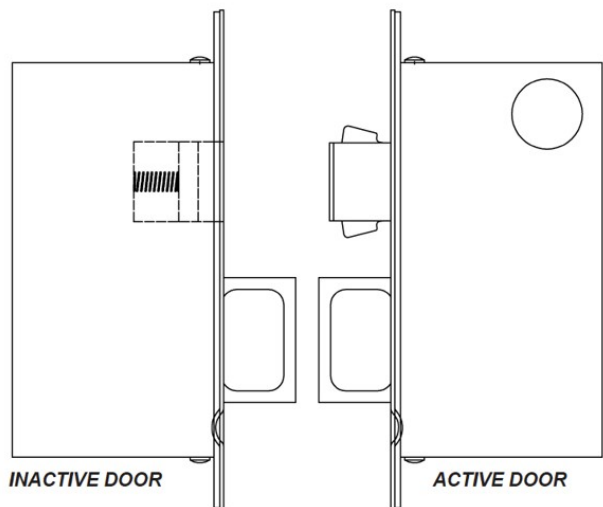


Lock shown as if closed and the privacy bolt thrown (view from inside room).

A turn of the lever will simultaneously retract the privacy bolt and latch while sliding the door open.

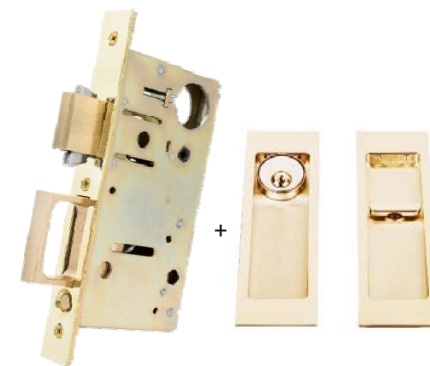
Pocket Doors: Double/Bi-Parting, Privacy

Bi-parting or double sliding pocket doors receive hardware similar to a pair of swinging doors. One leaf is active, the other leaf is inactive and is often called the strike side. Both leaves disappear into their pockets and thus both require edge pulls and flush pulls to manipulate. Active leaf hardware is treated like a single locking pocket door and equipped with flush trim that has a thumbturn. The inactive leaf requires both an edge pull and strike, and flush trim to match the active leaf.



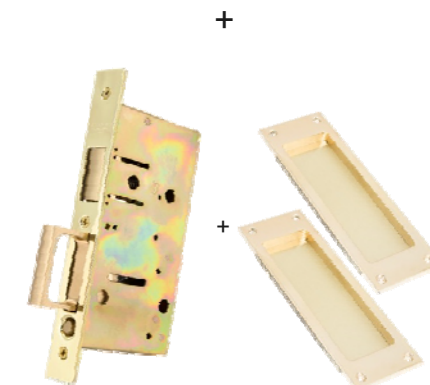
Both pieces of hardware work in tandem to secure the opening.

A combination edge pull and dust-proof strike creates a matching finish hardware appearance.



Combination pull and lock

Flush entry pulls



Combination pull and strike

Flush passage pulls

Pocket Doors: Double/Bi-Parting, Privacy

It is common to require pocket doors to have a keyed lock. Examples of this include a storage closet, apartment terrace, or a back door to a patio. A keyed cylinder outside allows the user to secure the door. A closet will not require an inside turnpiece but an entrance door will. The turnpiece should be wide enough to comfortably rotate to throw/retract the locking bolt. A minimum size recommendation is 1½ inches and thus the flush pull width should be 1⅝ inches min. A ¾-inch length mortise cylinder is easy to install and can be keyed to match other locks in the residence.



Flush pulls equipped with cylinders allow the user to lock the door with a key. It is important to note that the cylinder face should be flush with the door face. This protects fingers from bumping against side wall of pull when turning key. A ¾" cylinder collar is used in this example.



A benefit of specifying hardware that is machined versus stamped is the availability in almost any custom size, shape, and design style. Stamped items require tooling investment and large quantities to justify production cost. Wider pulls are common for comfort and larger hands.



Combination pull and lock

+



Flush entry pulls



Optional combination pull and strike
(for double or bi-parting doors)

Pocket Doors: Double/Bi-Parting, Privacy

Common household locking functions include the following.

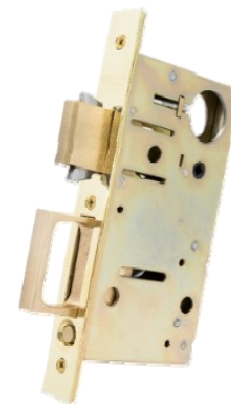
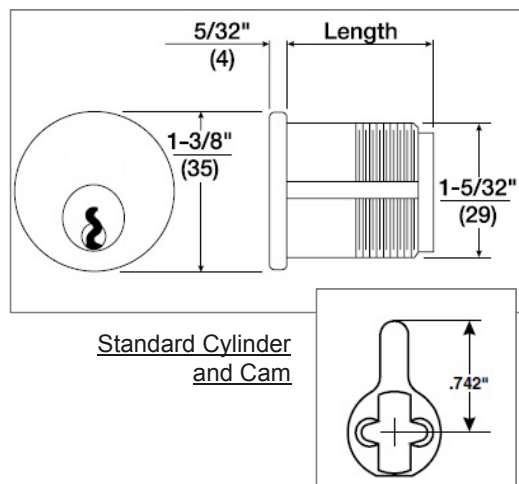
Keyed, outside only – Commonly used for a home office. Typically a home office only requires locking when not in use. Storage closets are often locked when homeowners are away or while the home is being serviced.

Keyed, outside and inside – Double cylinder functions are for higher security or when a window is next to the door.

Keyed outside, thumbturn inside – Commonly used for entrance functions, such as a door to a terrace or a back hallway door.

Thumbturn, inside only – This function is okay if the room has a second entrance or means of egress (window): no method to enter the room from the outside in an emergency. It can be used for back entrances for security reasons (no cylinder to pick).

Thumbturn inside, emergency coin turn outside – Standard privacy function used for bathrooms and bedrooms.



Combination pull and lock



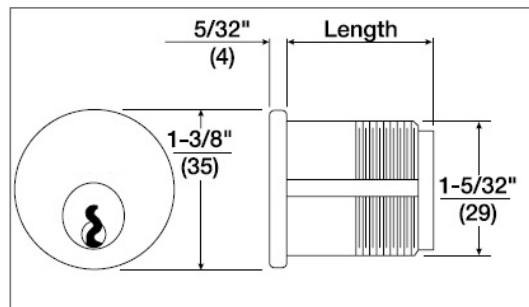
Mortise cylinder

Pocket Doors: Double/Bi-Parting, Privacy

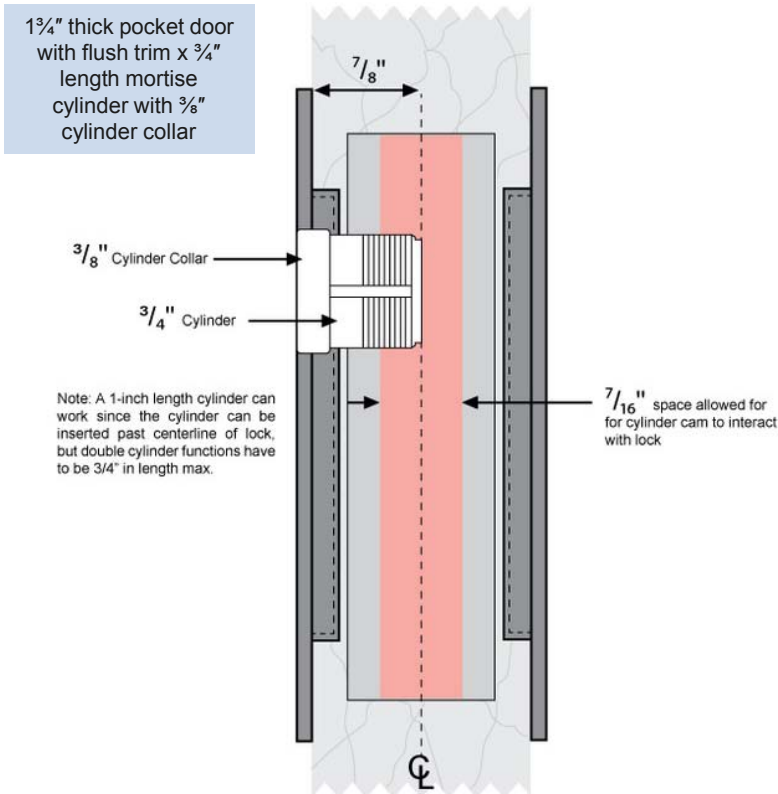
Cylinders

A typical door thickness is $1\frac{3}{4}$ inches; however, residential doors are commonly $1\frac{3}{8}$ inches thick. Because flush pulls are mortised into the door, cylinder lengths have to be shorter versus standard swing door locks. This becomes important if the homeowner wants to key all doors alike. Typically a six-pin cylinder is $1\frac{1}{8}$ inches in length and a five-pin cylinder is $\frac{3}{4}$ inches in length, and they require different keys.

Standard Cylinder and Cams



Length is determined from the back of a face to the backside of a cam. Specify the correct cam.



Pocket Doors: Single, Privacy

Sometimes ease of installation is the deciding factor in hardware choice. A bored or cylindrical prep is a common door preparation and often referred to as “161 prep” (short for ANSI 161). This allows for simple hole cuts and minimal mortise work for face plates. This type of hardware is also less expensive and ideal for lighter doors. Keying is not available for tubular sets.



161 bored lock prep



Privacy sets installed with separate edge pull



Tubular pocket door lock

+



Tubular edge pull

+

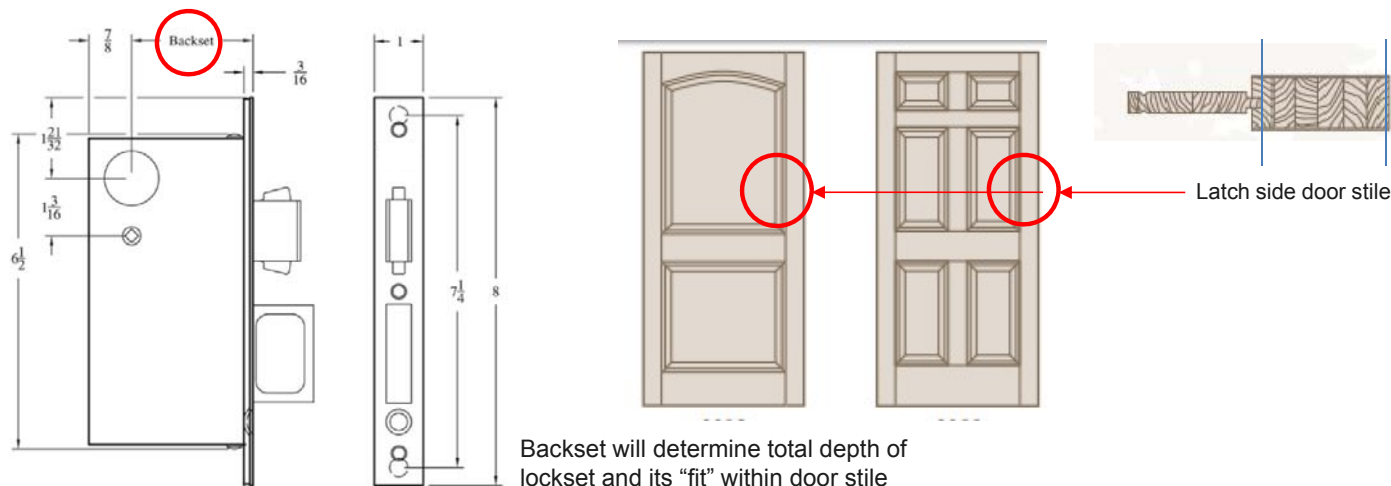


Flush pulls

Narrow Door Stiles

Door stiles are an important consideration when specifying pocket door hardware. Sometimes stiles are less than four inches and require locksets with narrow backsets. For privacy-only sets (non-keyed functions), a mortise pocket door lock can be built with a $1\frac{3}{4}$ -inch backset with an overall case depth of $2\frac{5}{8}$ inches.

For keyed functions, backsets down to two inches with overall case depth of $2\frac{7}{8}$ inches are available. Pay attention to glass or wood panels that protrude into the stile.



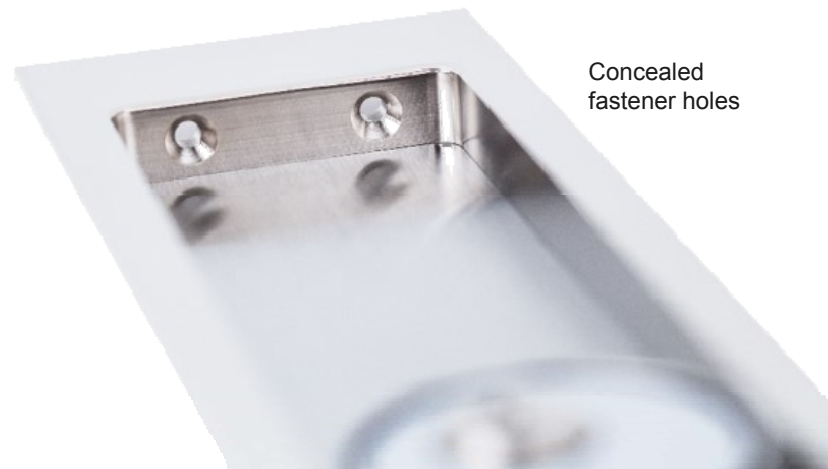
Narrow backset pocket door lock



Petite flush pull

Concealed Screws vs. Exposed

Flush pulls come with many options beyond size, shape, and depth. Often, designers prefer concealed fasteners for a clean and minimal hardware aesthetic. This is accomplished by moving fastening screws to the sidewalls of the flush pull. This is yet another advantage of machined versus stamped pulls. Machined pulls have greater depth and allow for larger screws, which makes for a stronger and easier installation.



Occupancy Indicator

Sometimes it is necessary to relay to others that a room is occupied. An occupancy indicator is a simple way to signal that the door is in the locked position.



Bolt retracted;
green signal
indicates door
is unlocked



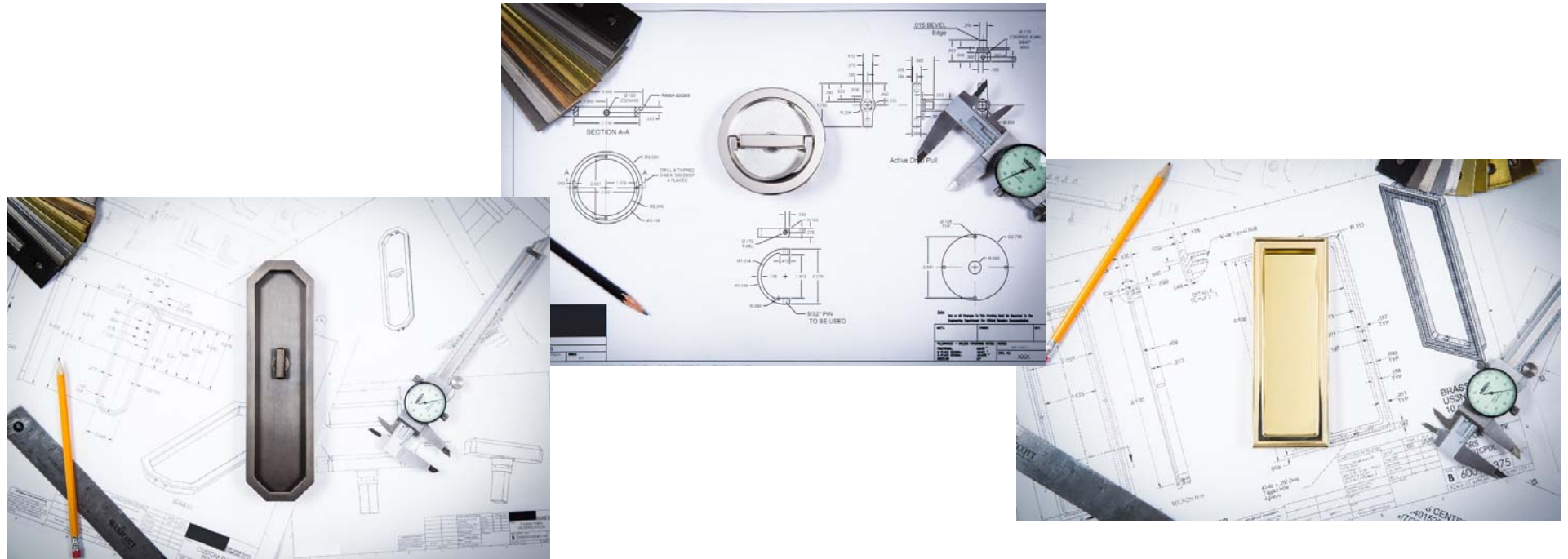
Bolt thrown;
red signal
indicates door
is locked



This occupancy
indicator uses
emergency turn with
an arrow to signal
status of door

Decorative Hardware

There are endless decorative pocket door pulls to choose from. Functionally, they are the same.



Sliding Barn Doors

Growing in popularity, sliding barn doors offer tremendous design options and do not require special pocket framing. These doors cover the opening and typically conceal the opening framing. Thus, these doors overlap the opening by about three inches on either side. Flush trim or pulls are not always required.

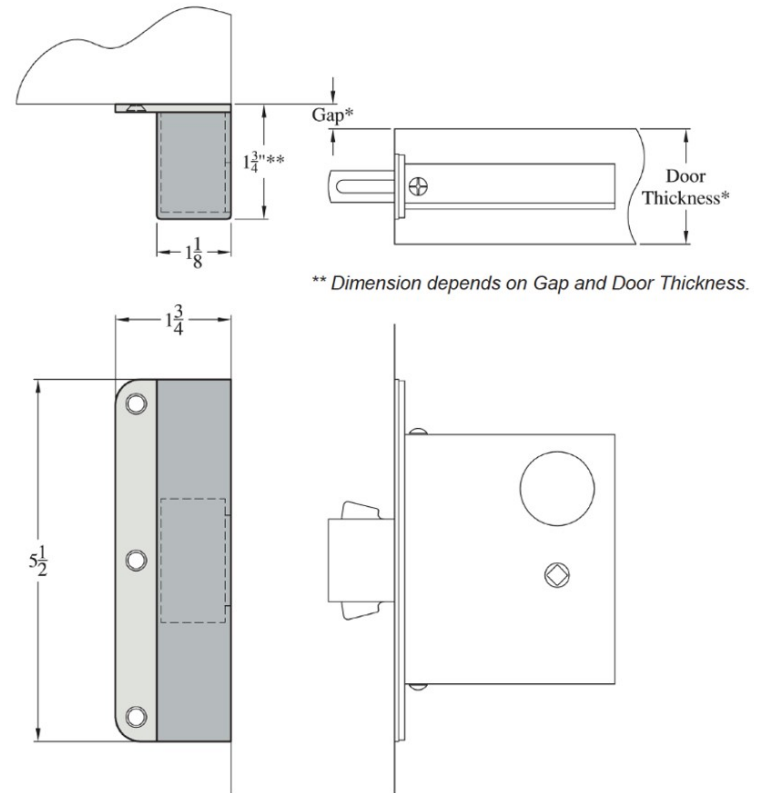


Sliding Barn Doors

Passage barn doors are very common. However, privacy functions are nice to have for bathrooms and bedroom barn doors. A couple of options exist to accomplish a locking mechanism. Because the door is proud of the opening, the strike has to come out off the wall and meet the lock.

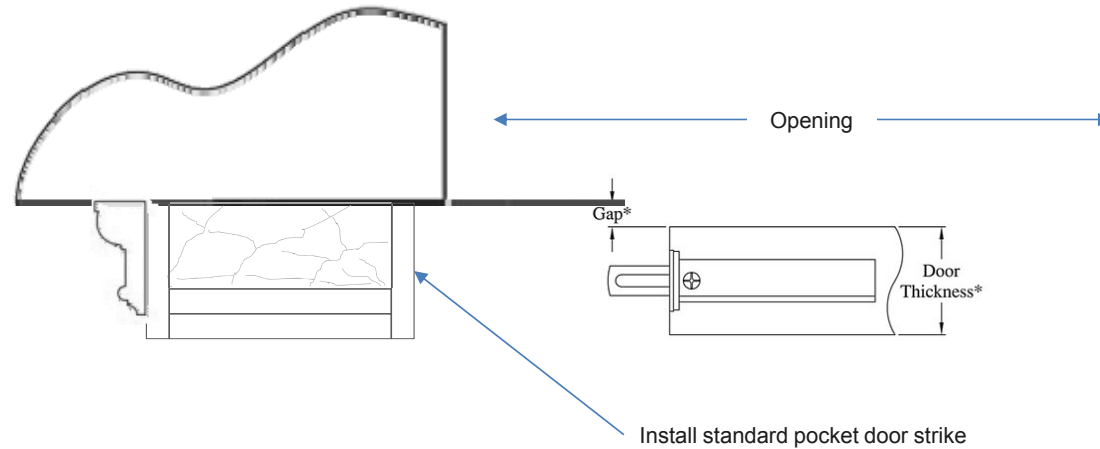


Barn door strike



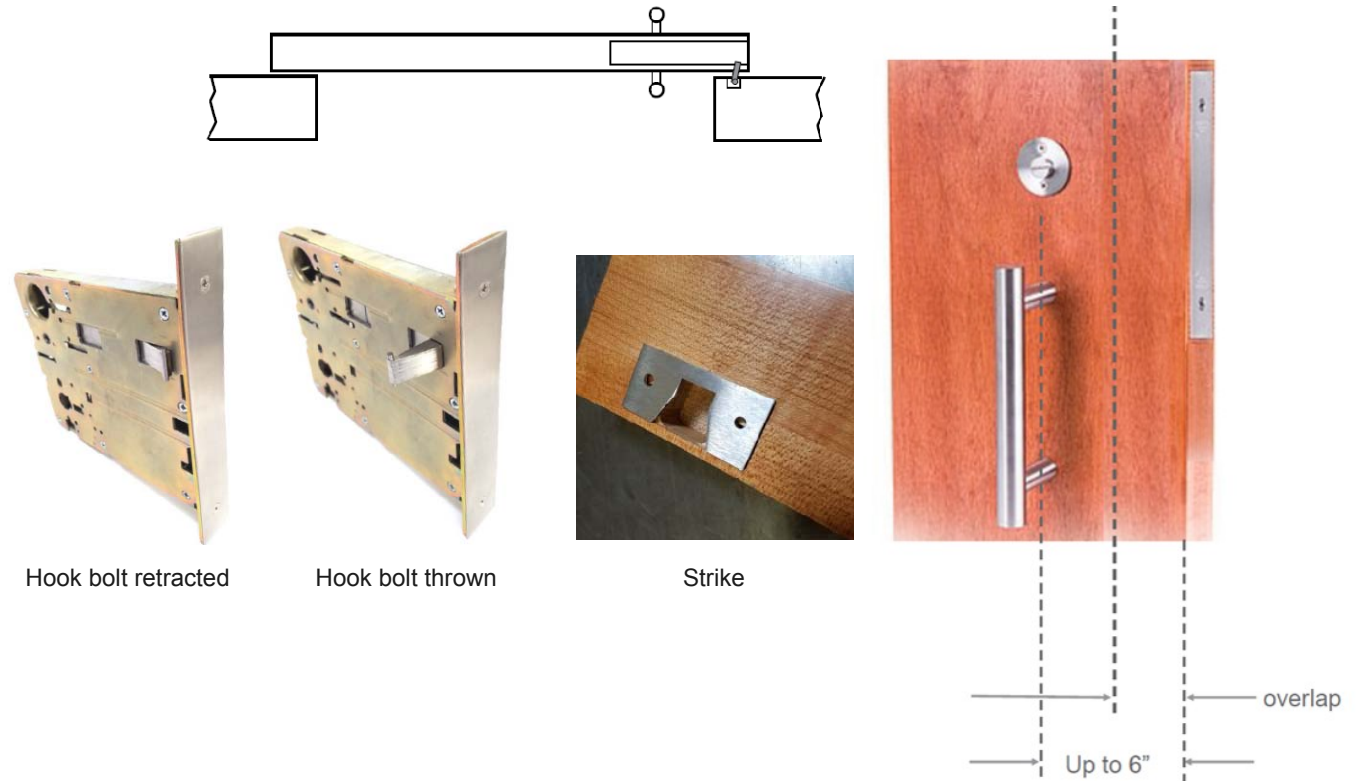
Sliding Barn Doors

Another option for barn doors with a locking function is to build out the latch side jamb so that the door meets it as if it were a pocket door.



Sliding Barn Doors

Suitable for a residential or commercial application, a barn door lock throws a perpendicular hook bolt into a wall strike. The barn door will travel past the opening up to three inches and meet a positive stop. A thumbturn is used to throw a hook bolt into the wall strike, preventing the door from sliding open. This produces a clean appearance with no obstructions on the jamb side of the doorway.





Commercial Hardware

ADA Compliance

The same space-saving convenience in homes is also desired in commercial office space, but there is an added requirement for commercial openings: doors need to meet the Americans with Disabilities Act (ADA) requirements. These requirements include:

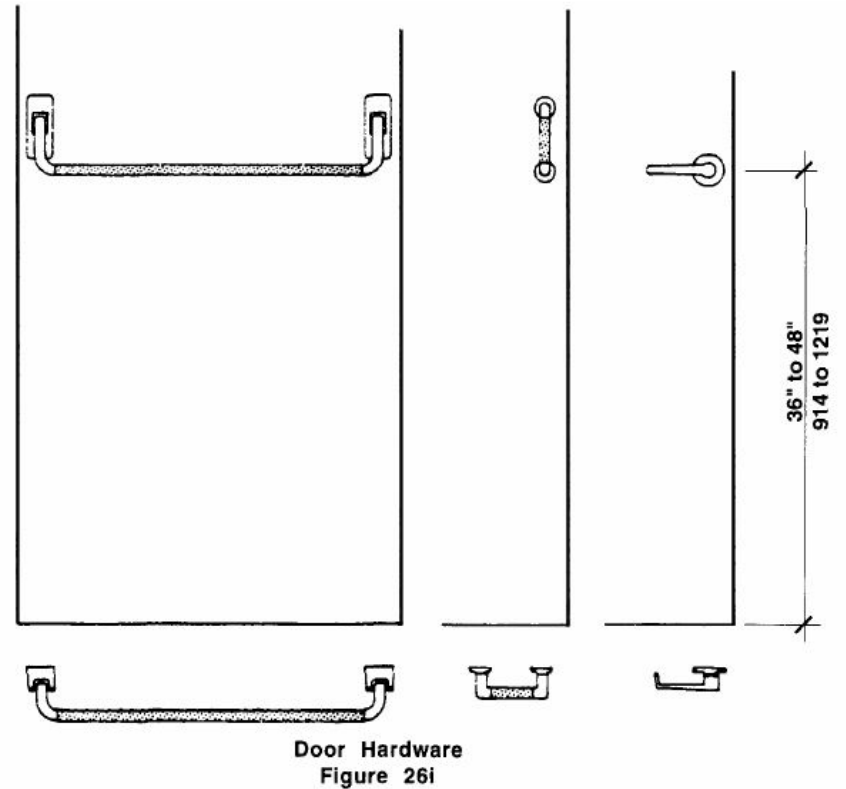
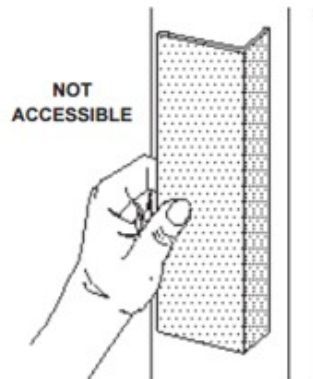
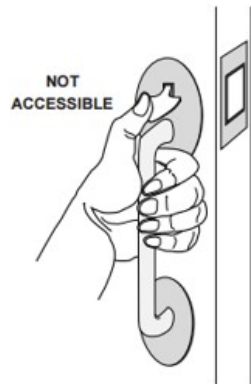
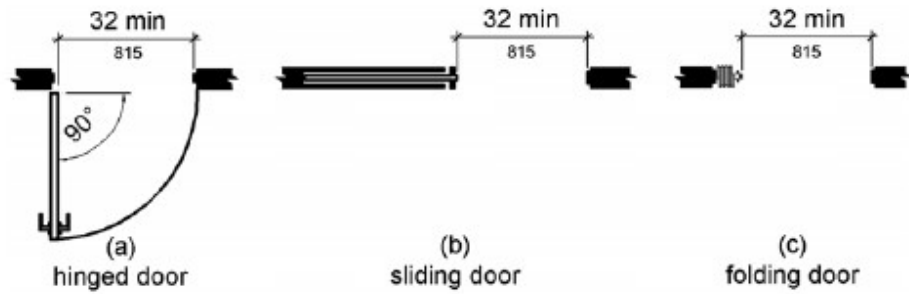
404.2 Manual Doors, Doorways, and Manual Gates.

- 404.2.3 Clear Width. Door openings shall provide a clear width of 32 inches (815 mm) minimum.

309 Operable Parts.

- 309.1 General. Operable parts shall comply with 309.
- 309.2 Clear Floor Space. A clear floor or ground space complying with 305 shall be provided.
- 309.3 Height. Operable parts shall be placed within one or more of the reach ranges specified in 308.
- 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.

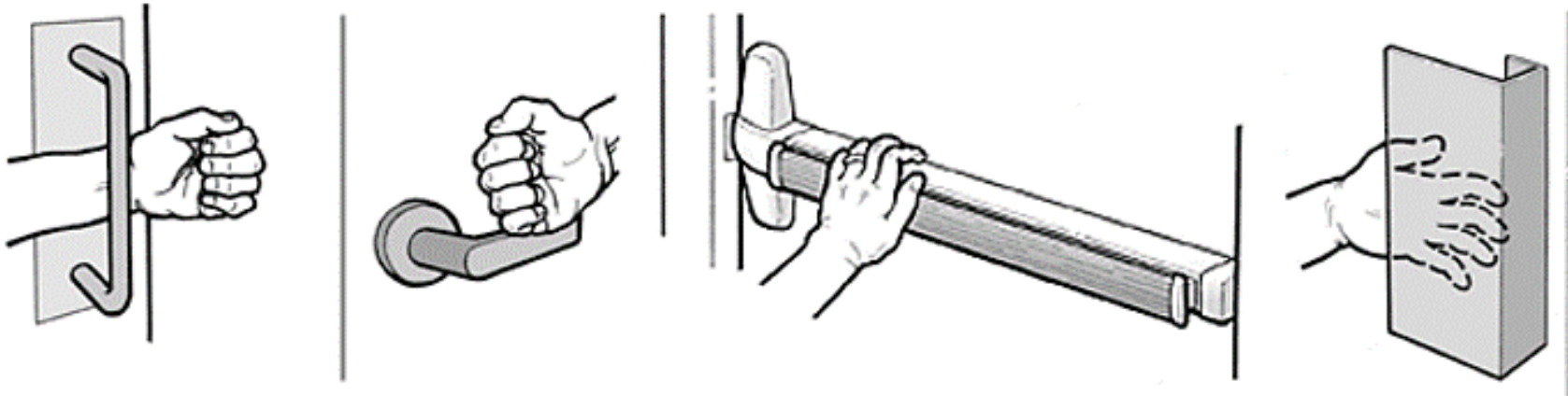
ADA Compliance



ADA Compliance

Think of ADA compliance this way: if you can make a fist and open the door, then the opening likely meets the goals of ADA. Of course, there are always exceptions, and opening force requirements to consider.

ADA-Compliant Examples



Pocket Doors: Healthcare Application

This image shows a pocket door with a large ADA-compliant door pull. One of the methods to meet ADA minimum opening requirements while using ADA-compliant door pulls is to ensure the total opening width is a minimum of 36 inches, leaving four inches “open” to accommodate pulls.

★ Please remember the **exam password OPENING**. You will be required to enter it in order to proceed with the online examination.



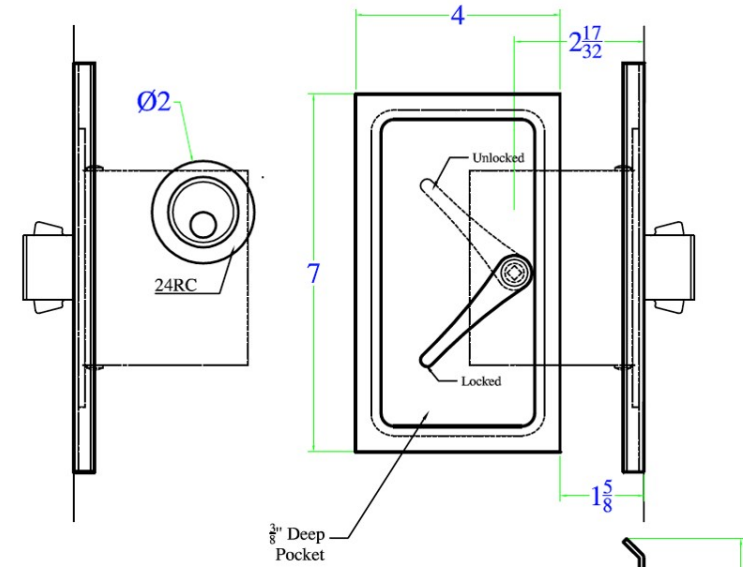
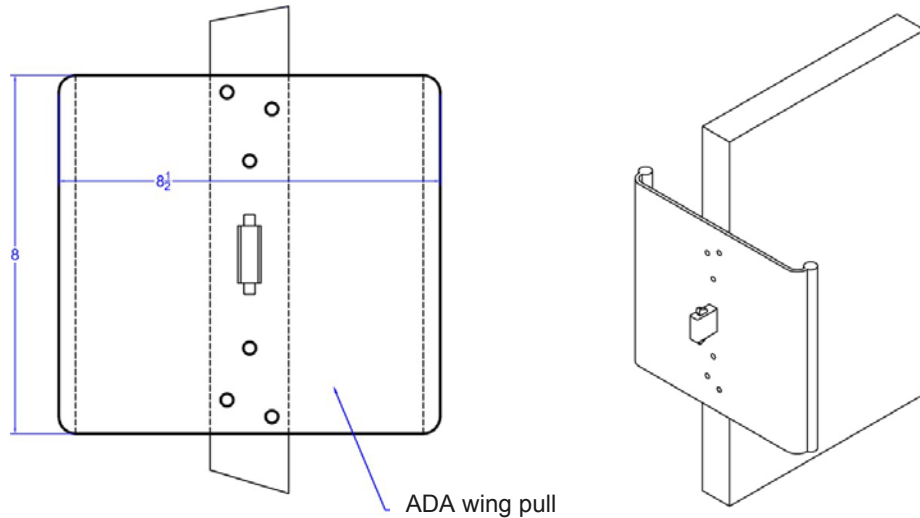
Sliding Doors: Office Application

The image shows an office corridor with barn-style doors equipped with rigid pulls. Note that the each door is closed up against a protruding jamb, which is built to create a positive stop as well as enhance noise insulation. Assuming the doors open up to a minimum 32 inches wide, these openings are ADA-compliant.



Pocket Doors: ADA Upgrade

One challenge for designers is when an existing pocket door with flush pulls requires upgrading to meet ADA requirements. If the opening is 32 inches maximum, then using ADA pulls is not feasible, since the door would only open up to 28 inches to make room for the pulls. One strategy is to install “batwing” pulls— basically an oversized faceplate.



ADA lever thumbturn

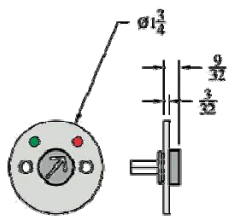
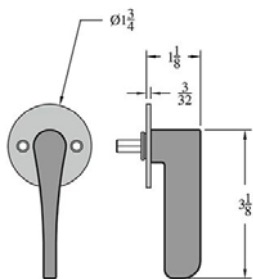
Overhead view

Pocket and Sliding Doors

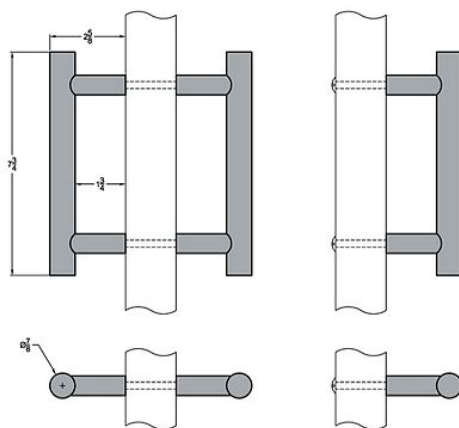
An easy solution for pocket or sliding doors in commercial settings is a simple rigid pull combined with a sliding door lock. An oversized thumbturn three inches in length is used to enable privacy bolt projection/retraction via a fist. Rigid pulls can be almost any size and style and allow the user to easily slide doors into their open and closed positions.



Decorative pull



ADA thumbturn and emergency release



Back-to-back pulls



Sliding door lock

+



ADA thumbturn

+



Emergency release

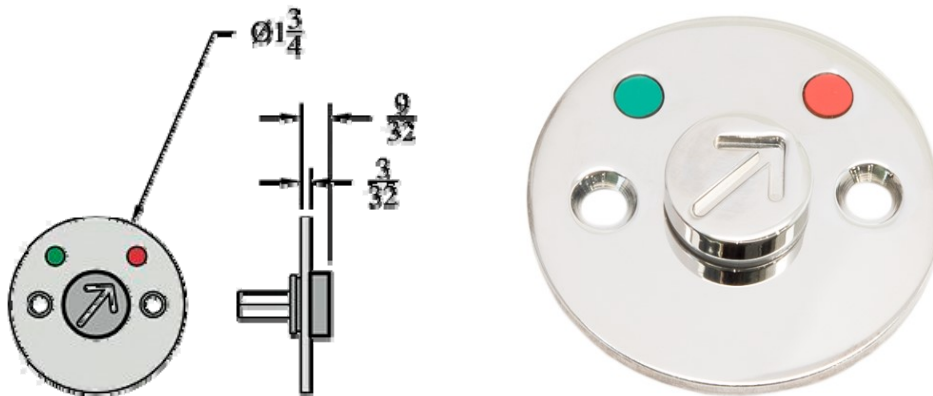
+



Rigid pull

Pocket and Sliding Doors

Emergency release turns are necessary in case a person needs assistance while inside a locked restroom. They are also conveniently available with occupancy indicators. A small coin or flathead screwdriver is used to turn the slot of the arrow.



Sliding door lock

+



ADA thumbturn

+



Emergency release

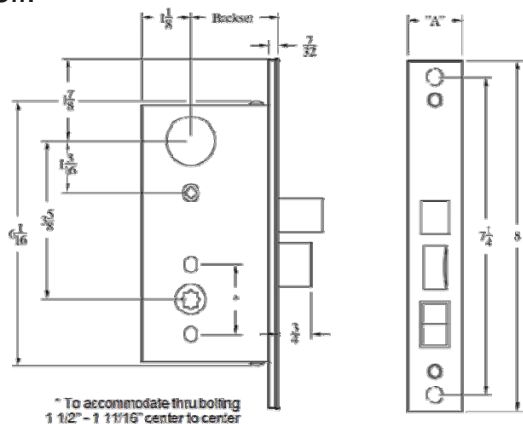
+



Rigid pull

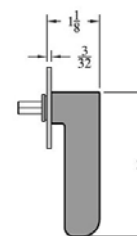
Pocket and Sliding Doors: Emergency Egress

Another important requirement of ADA and fire safety codes is emergency egress or simultaneous egress. This means that a user should be able to open a door with one motion. An interconnect device provides an emergency egress function on various handle sets. When the deadbolt is in the locked position, simply turning the knob or lever will retract both latches. This same feature is available on pocket and sliding door locks. This is accomplished by using a full case mortise body to house both the levers and ADA thumbturn. The outside lever is always rigid and the inside lever simultaneously retracts the privacy bolt while sliding door open, all in one motion. The mortise case allows for cylinder functions as well.



Full case sliding door lock

+



ADA thumbturn

+



Emergency release

+



Lever

Pocket and Sliding Doors: Levers

Because levers are usually ADA-compliant, they are used with the sliding door lock with simultaneous egress. Any design style can be incorporated, enabling design consistency throughout the facility.



Pocket and Sliding Doors: Self-Latching

One of the latest advancements in pocket and sliding door hardware functionality is the ability to self-latch. As the door slides closed, a hook latch is thrown and secures the door. This way, the door is used as a normal door, and when closed, will latch by itself. For locking functions, simultaneous egress is standard in commercial applications.

Many of today's decorative track systems incorporate large and visible wheels, which are great for rolling heavy doors, but once the door impacts the stop, it bounces. One of the biggest benefits of self-latching is the elimination of door bounce.



Self-latch actuator

Note how clean the lock face appears in the open position.

No snagging hazards



Self-latch in thrown position



Lock shown as if closed and the privacy bolt thrown (view from inside room).

A turn of the lever will simultaneously retract privacy bolt and latch while sliding the door open.

Pocket and Sliding Doors: Self-Latching

Think of a 5'x8' sliding door for a hospital patient bathroom. This large door is necessary to allow easy wheelchair access in and out of the bathroom. It has to roll easily as users are sitting in a wheelchair. The self-latching feature makes this door much more comfortable to use and eliminates the need to spin around, close the bounce gap, and then latch the door by hand. Users can simply enter the room and gently slide the door closed until it self-latches. The image shows a manual sliding door lock with back to back pulls, ADA thumbturn (not visible) and emergency release outside. Because of the weight of these doors, a heavy-duty latch version is recommended.



Fortified self-latchbolt for heavy commercial doors up to 400 lb



Photo courtesy of Tom Arban Photography

Pocket and Sliding Doors: Glass

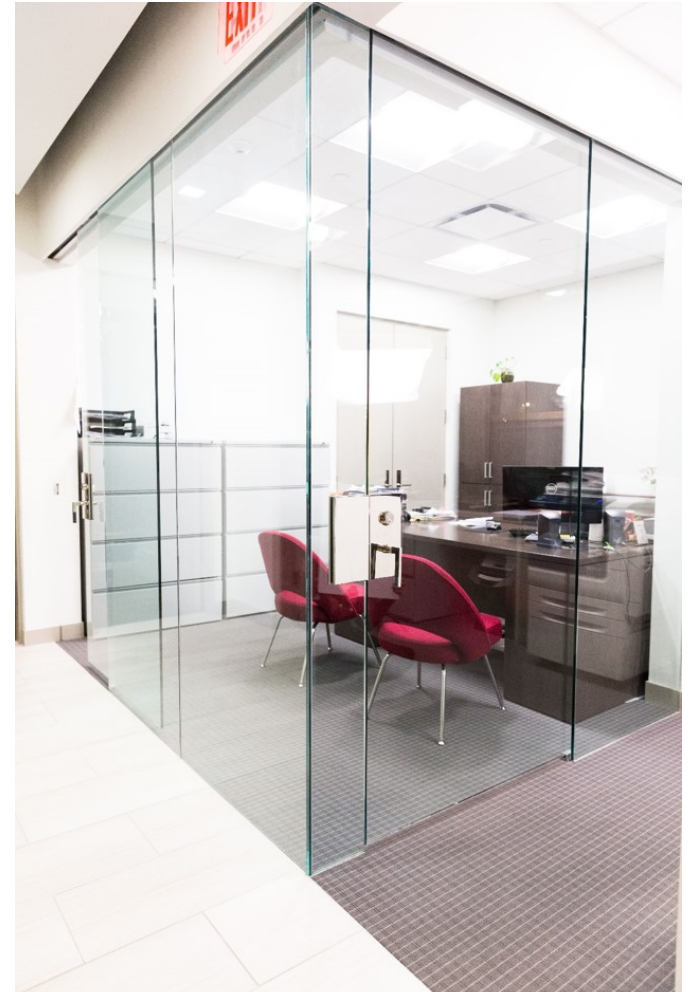
One of the more exciting design innovations in commercial office space is the incorporation of glass. Several companies offer complete wall partitions that totally redesign empty office space into contemporary designs with open space utility. Sliding and swinging glass doors on some offices require privacy and locking security. Patch style locks physically install over a ½-inch glass panel, latching into a traditional or patch style strike for frameless glass wall openings.



Frameless ½" thick glass wall partition opening—sliding glass door lockset and glass patch strike

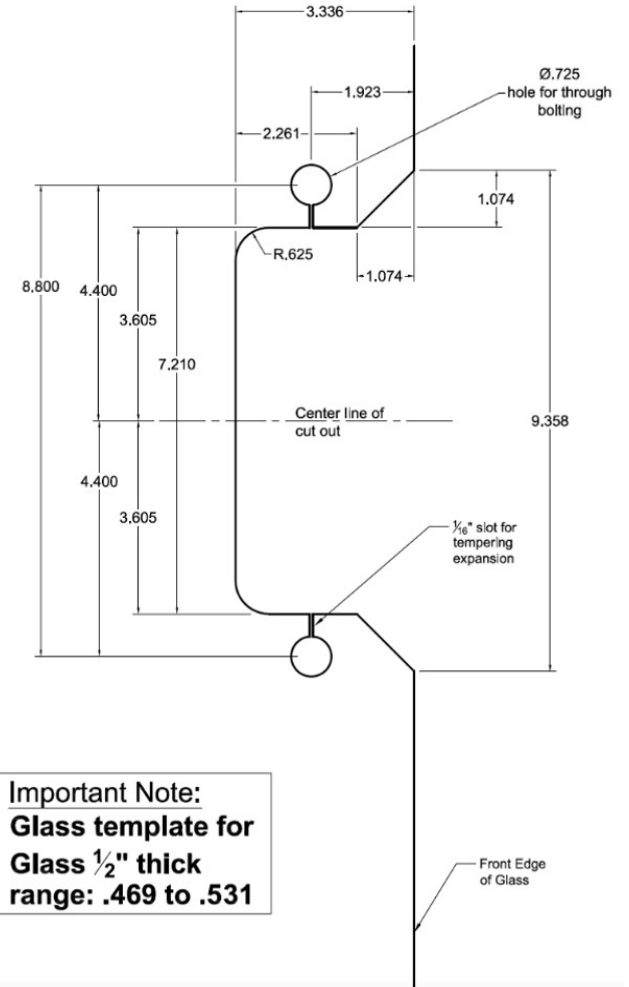
Pocket and Sliding Doors: Glass

The image shows an office with a frameless glass wall partition. The sliding frameless glass door is equipped with a keyed self-latching sliding door lock and strike.



Pocket and Sliding Doors: Glass

Glass wall partition systems use tempered glass, so once the glass is prepped for a patch lockset, it cannot be changed. Pictured here is a typical glass cut-out pattern.





Summary and Resources

Summary

- Pocket doors were once the domain of high society, and were used mostly as grand entrances to ornate libraries, stately dining rooms, and sitting rooms. They were not intended as space-saving architectural features. Space-saving designs drove the eventual re-emergence of pocket doors and their innovation.
- The selection of door hardware for pocket and sliding doors follows the selection of the type of door, size, weight, track system, and functionality.
- Door hardware is available in four basic functionalities: dummy, passage, privacy, and keyed entry.
- There is a variety of hardware options available for pocket and sliding doors for both commercial and residential applications. Commercial applications must also meet the requirements of ADA.

Resources

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Conclusion

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