



Swing (Butt-Hinge) Door

Design and Order Guide

Issued: 2025-02-10





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OVERVIEW

What is a DIRTT Swing (Butt-Hinge) Door?

DIRTT offers a variety of doors to use on a project, one of which is the swing (butt-hinge) door. This door opens and closes by pivoting around the pin of the butt-hinges. A butt-hinge has two rectangular sheet metal leaves screwed into the edging of a door module and adjoins to a door frame. A metal rod, also known as a hinge pin, connects the two leaves together.

Why Choose a Swing (Butt-Hinge) Door

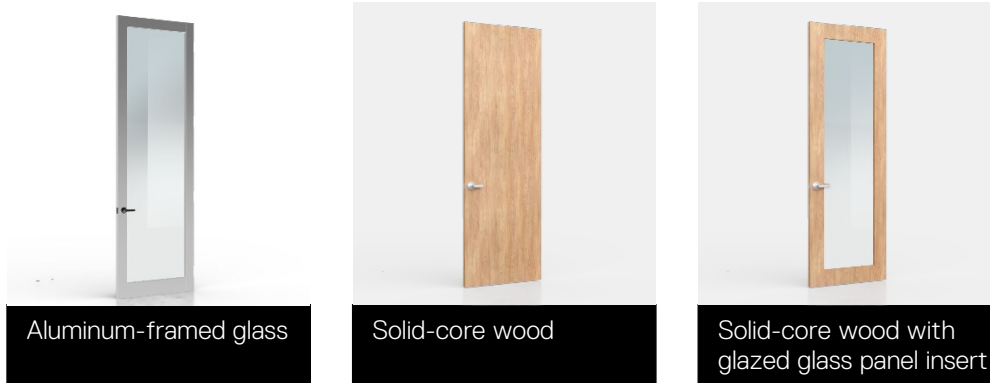
Swing doors offer several key benefits including reliability and ease of installation. They are a simple and straightforward option that can be easily maintained and repaired if needed. Swing doors are also available in several styles and designs to complement any architectural or interior design approach.



A set of aluminum-framed swing doors installed with DIRTT solutions.



Review Door Types



KEY DESIGN ELEMENTS

Aluminum-framed Glass Door

Aluminum-framed glass doors combine the sleek look of aluminum with the transparency and light-transmitting qualities of glass. The key design elements include a minimalist aluminum frame that allows the glass panels to take center stage. The glass panels can be clear or frosted, depending on the desired level of privacy or aesthetic effect. Hardware, such as handles or pulls, can be selected to complement the overall design. Together, these elements create a modern and functional door that allows plenty of light penetration and a seamless transition between rooms.

Solid-core Wood Door

The solid-core wood door is a popular option for those who value the natural warmth and beauty of wood. Key design elements include sound insulation and durability from the solid-wood panels. This door style features a veneer wrap, providing a consistent appearance and preventing warping or splitting.

Solid-core Wood with Glazed Glass Panel Insert Door

The solid-core wood glazed door combines wood with the transparent qualities of glass. Similar to aluminum-framed glass doors, these doors feature a glass panel surrounded by a solid wood frame. The wood frame provides a warm and inviting look while adding strength and durability to the door. The glass, installed as an insert and securely adhered through glazing, allows light to permeate the room, creating a bright and airy atmosphere. The wood frame can be finished with a variety of stains or paints to match the desired interior design style.



Review Door Stiles

DIRTT offers four aluminum-framed glass door stiles: 2” stile (Slim), 4” stile (Goldie) and 6” stile (Phat) and Spectra which has 2” stiles and 2” rails. The stile of the door refers to the vertical framing members on the edges of the door and the rails refer to the horizontal framing members. All doors include a 4” rail unless specified as Spectra, which features a 2” rail all around. The following examples show the stiles of DIRTT door offerings.

DOOR STILE OPTIONS





Review Door Frame Options

FULL-HEIGHT FRAME

Full-height door frames are often customized to the specific needs of the project to accommodate doors that are the full height of the surrounding walls. This customization means that the design of the entire solution, including the door frame and hardware, works within the height limitations of the door type and stile. When designing a full-height door frame, consider the weight and height of the door and the surrounding walls. The door frame must not only be strong enough to support the weight of the door but also provide proper clearance for opening and closing.



Swing door in full height door frame.

TRANSOM FRAME

The height of the surrounding walls may exceed the maximum height limitations of a standard door. To accommodate this, a transom may be added above the door frame. A transom is an additional glass wall panel that is installed above the door frame to provide additional height clearance next to the surrounding walls. The use of a transom can provide a practical and aesthetically pleasing solution for accommodating taller walls while maintaining full-height clearance for the door opening.



Swing door in full height door frame.

IMPORTANT: When placing a door frame with a clerestory next to the base building, the connection must include either a Wall Flower (Classic/Enzo) or a Telescoping Door Start (Inspire).



Door Hardware Considerations

The choice of door hardware can impact which stile of door can be used with implications for both function and aesthetics. Review the information included in the [Standard Door Hardware Glossary](#) to understand the standard door hardware offerings that DIRTT provides for each stile of door.

NOTE: Remember, door hardware must be chosen to accommodate the full height of the door, including the locking mechanism and handles or pulls.

Choosing the hardware for the door types and their functions requires you to consider some specific issues. Below are some best practices for you to keep in mind regarding door hardware.

ALUMINUM-FRAMED GLASS DOORS

1. They can support numerous hardware options, including pulls and levers.
2. Door hardware type can affect the overall aesthetic of the door and influence the choice of stile design. If you are looking for a more minimalist look, you may prefer a narrower stile with a door pull handle. This hardware provides a cleaner look that blends in more seamlessly.
3. The width of the stile may depend on the type of hardware being used. For example, if a door is being designed with a locking system, you will need a wider stile. A locking door requires a larger pocket in the stile for it to be installed properly.
4. Mechanical locks require a key or thumbturn and are a good choice for areas that require high security.

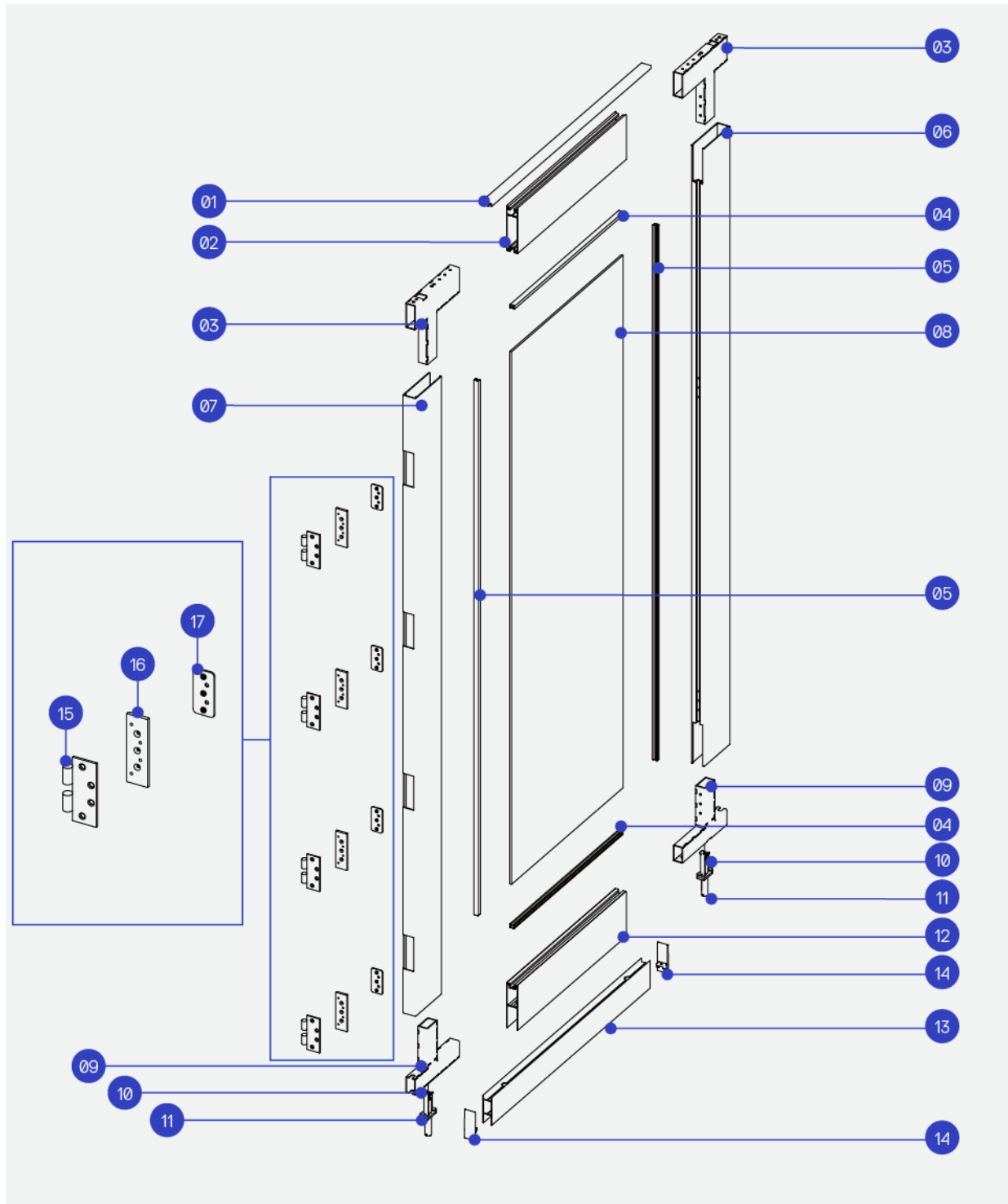
SOLID-CORE WOOD AND SOLID-CORE WOOD WITH GLASS PANE INSERT DOORS

1. SCW doors are more heavy-duty and less fragile than some other door materials.
2. Wood doors can support many hardware options, including pulls and levers. The hardware can be chosen to complement the overall design of the door.
3. If the door has no glass, it may provide a higher level of security and privacy compared to a door with glass.
4. The door may require milling to ensure proper installation of hardware like a lock or hinge. This process involves creating precise cuts and mortises in the door to accommodate them.
5. Mechanical locks require a key or thumbturn and are a good choice for areas that require high security.



ANATOMY OF A SWING DOOR

Below is an exploded-view diagram of a 6" aluminum-framed swing door. Naturally, 4" aluminum-framed and solid-core wood doors may vary from what is shown below, but this diagram generally describes the parts of a swing door.





EXPLODED VIEW—ALUMINUM-FRAMED SWING DOOR

NUMBER	PART
01	Door filler
02	Upper horizontal
03	Top connector assembly
04	Horizontal glass wipe
05	Vertical glass wipe
06	Door vertical
07	Door vertical with hinge milling
08	Door glass
09	Bottom connector assembly
10	Upper leveler assembly
11	Leveler guiding block
12	Lower horizontal
13	Door skirt
14	End cap
15	Best BB1409 hinge half
16	Hinge spacer
17	Butt hinge door plate



DESIGNING SWING DOORS

Key Designing Factors for Swing Doors

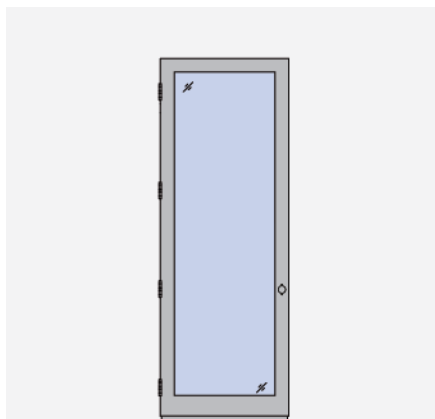
SELECT DOOR TYPE

IMPORTANT: If your project requires smoke-rated swing doors, see the [Smoke-rated Door Design and Order Guide](#).

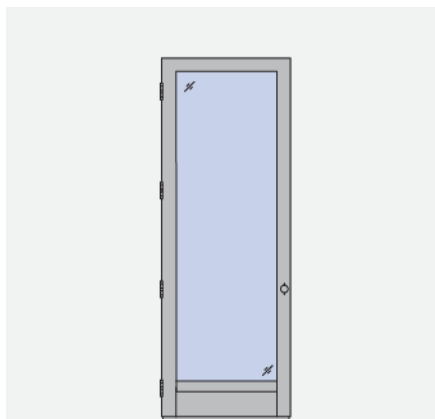
Aluminum-framed 4" (Goldie) and 6" (Phat) Stile Swing Door

See the [Aluminum Framed 4" and 6" Stile Swing \(Butt-Hinge\) Door Tech Sheet](#) for technical information on this door.

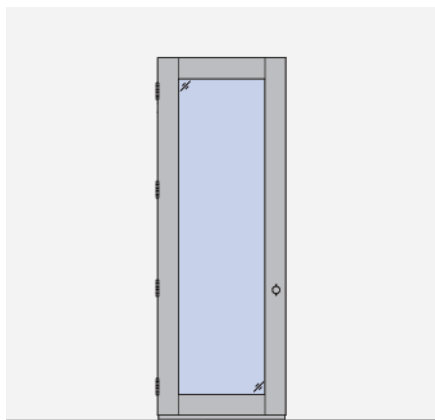
NOTE: Aluminum doors ship factory assembled.



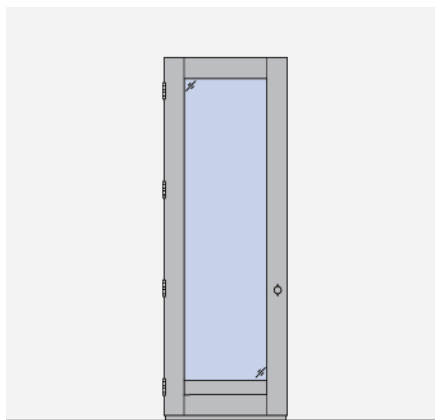
Swing door slab with 4" stile.



Swing door slab with 4" stile and ADA kickplate.



Swing door slab with 6" stile.



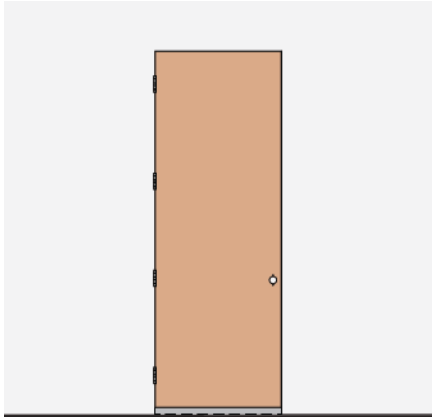
Swing door slab with 6" stile and ADA kickplate.



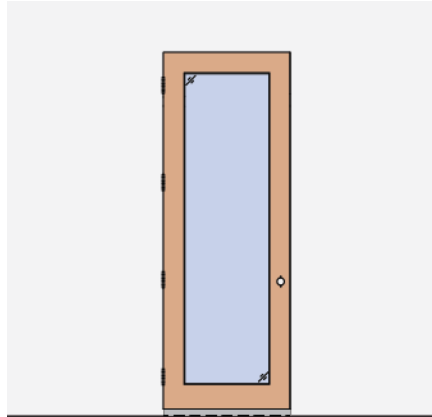
Solid-core Wood Swing Door

See the [Swing Solid-core Wood Door Tech Sheet](#) for technical information on this door.

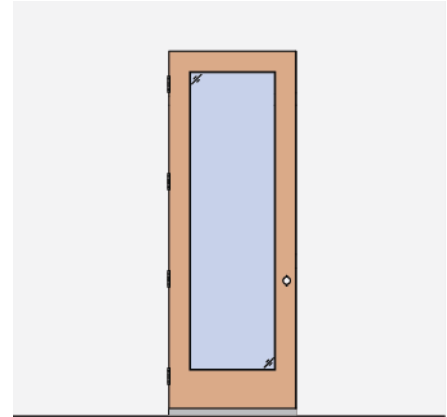
NOTE: Wood doors need to be cut to length in the field.



SCW swing door slab.



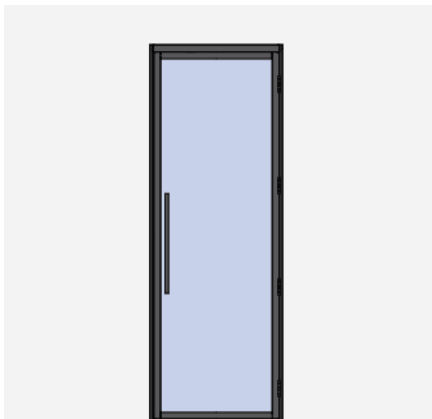
SCW swing door with glass insert.



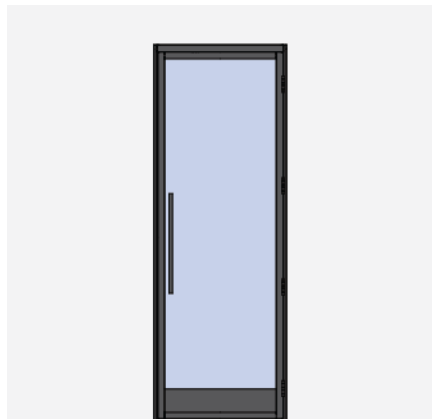
SCW swing door with glass insert and ADA kickplate.

Spectra 2" Stile Swing Door

See the [Spectra Thin Profile Swing Door Tech Sheet](#) for technical information for this door.



Spectra swing glass door.



Spectra swing glass door and ADA kickplate.

NOTE: This document does not describe designing or ordering the Spectra swing door. See the dedicated [Spectra Thin-profile Swing Door Design and Order Guide](#) for details on design and ordering it.



CHOOSE DOOR HARDWARE

Concealed Closer

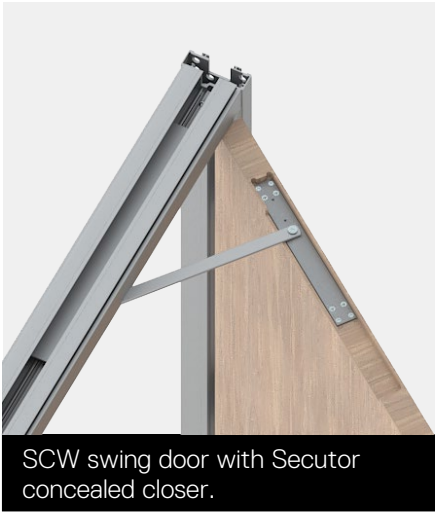
The Secutor Concealed Closer uses brackets to support the closer in applicable swing door applications. The bracket assemblies for the concealed closer allows easy access to valve adjustments without compromising the functionality of the closer.

NOTE: See the [DIRTT Provided Concealed Closer \(Article # DOR08\)](#) from DSS for more information on specifying and ordering the concealed closer.

BEST PRACTICES—SECUTOR CONCEALED CLOSER RECOMMENDATIONS

ENVIRONMENT	NOTES
RECOMMENDED SCENARIOS FOR CONCEALED CLOSERS	
Swing door with maglock or electric strike.	Ensures secure latching after use.
Doors that must remain closed.	Ideal for schools, hospitals, and similar settings.
Single office and meeting room doors.	Suitable for maintaining privacy and controlling access.
NOT RECOMMENDED SCENARIOS FOR CONCEALED CLOSERS	
High Volume of Air Exchange Areas: Concealed closers perform poorly in these conditions.	<ul style="list-style-type: none">• Corridor doors adjacent to elevator lobbies• Main building entrances• Spaces with poor air balancing• For these doorways, it is recommended to use a stronger powered COM surface mounted closer.

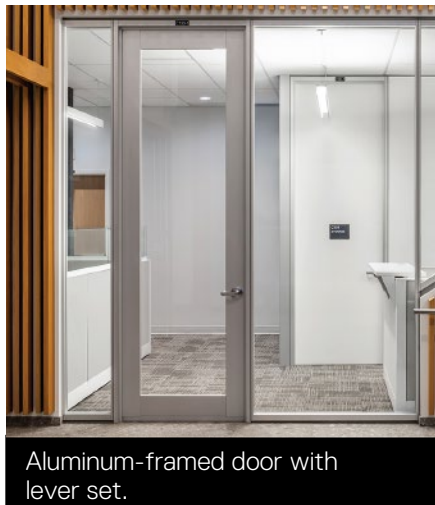
NOTE: Refer to [DIRTT Limited Warranty](#) for warranty information on the closer.



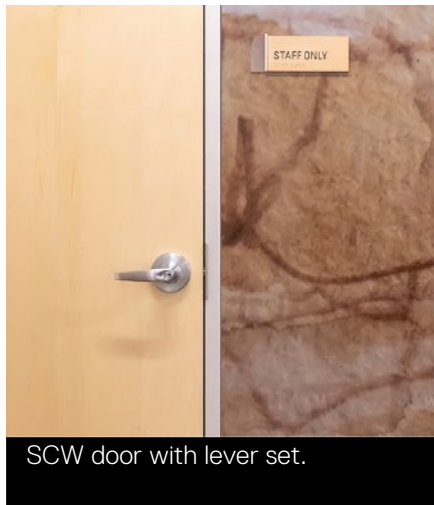


Lever Sets

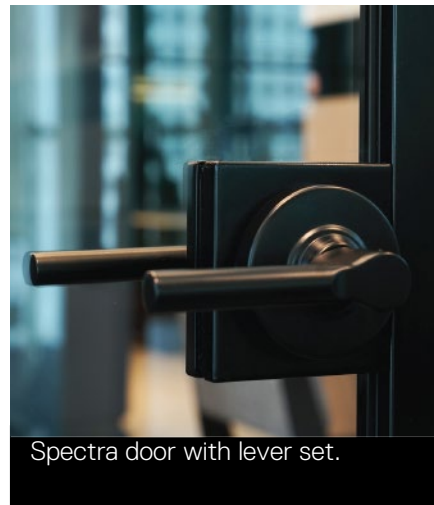
Standard lever set options for the aluminum-framed and solid-core wood DIRTT swing doors are the Schlage S Series and the Falcon B Series. Spectra uses Schlage ALX Series. For more information on each lever type available in those series, see the [Standard Door Hardware Glossary](#) on myDIRTT. Below are examples of installed lever sets in DIRTT swing doors.



Aluminum-framed door with lever set.



SCW door with lever set.



Spectra door with lever set.



CONSIDER DOOR WEIGHT

Door weight affects how you can design with swing doors. Closers have a maximum weight allowable as part of their designs, so you will need to consider this in your designs. The maximum door weights for several design scenarios are listed in the table below.

MAXIMUM WEIGHT—SWING (BUTT-HINGE) DOORS

DOOR TYPE	MAXIMUM DOOR WEIGHT	NOTES
WITH CLOSER		
Classic Door Frame		
<ul style="list-style-type: none">4" (Goldie) and 6" (Phat) aluminum-framed	200 lb (85 kg)	Minimum door weight: 55 lb (25 kg).
<ul style="list-style-type: none">2" (Slim) aluminum-framed	130 lb (62 kg)	
<ul style="list-style-type: none">Solid and solid-glazed wood	200 lb (85 kg)	
<ul style="list-style-type: none">Spectra	200 lb (85 kg)	
Inspire Door Frame		
<ul style="list-style-type: none">4" (Goldie) and 6" (Phat) aluminum-framed	176 lb (80 kg)	
<ul style="list-style-type: none">2" (Slim) aluminum-framed	130 lb (62 kg)	
<ul style="list-style-type: none">Solid and solid-glazed wood	165 lb (75 kg)	
<ul style="list-style-type: none">Spectra	200 lb (85 kg)	
WITHOUT A CLOSER		
Classic Door Frame		
<ul style="list-style-type: none">4" (Goldie) and 6" (Phat) aluminum-framed	176 lb (80 kg)	
<ul style="list-style-type: none">2" (Slim) aluminum-framed	130 lb (62 kg)	
<ul style="list-style-type: none">Solid and solid-glazed wood	176 lb (80 kg)	
<ul style="list-style-type: none">Spectra	200 lb (85 kg)	
Inspire Door Frame		
<ul style="list-style-type: none">4" (Goldie) and 6" (Phat) aluminum-framed	176 lb (80 kg)	
<ul style="list-style-type: none">2" (Slim) aluminum-framed	130 lb (62 kg)	
<ul style="list-style-type: none">Solid and solid-glazed wood	165 lb (75 kg)	
<ul style="list-style-type: none">Spectra	200 lb (85 kg)	



CHOOSE AN OPTIONAL AUTOMATIC DOOR SWEEP

Function of the Automatic Door Sweep

DIRTT's standard aluminum framed glass doors for swing—including the 2", 4", and 6" stiles (Slim, Goldie, and Phat) and solid core wood—are designed with adjustable door skirts featuring two levelers, one on each side, to accommodate floor level variations. To enhance acoustic performance, these doors can include an Pemko 411APKL automatic door sweep, which activates when a plunger touches the jamb as the door closes, pushing the seal down against the floor or threshold.



Important Design Consideration when Including a Pemko Door Sweep

When the Pemko door sweep is specified for Slim, Goldie, and Phat doors, the adjustable range of the door skirt is significantly reduced. The size of the sweep reduces the adjustable range by $\frac{5}{16}$ " (8mm), and the hardware protruding below the skirt further decreases it by $\frac{5}{32}$ " (4mm). As a result, the total loss in adjustability compared to the standard skirt without a door sweep amounts to $\frac{15}{32}$ " (12mm), limiting the ability to compensate for variations in the finished floor (AFF) height.

NOTE: This consideration applies specifically to these aluminum-framed doors, as solid-core wood doors are always cut to size onsite and do not use a skirt with the Pemko sweep.

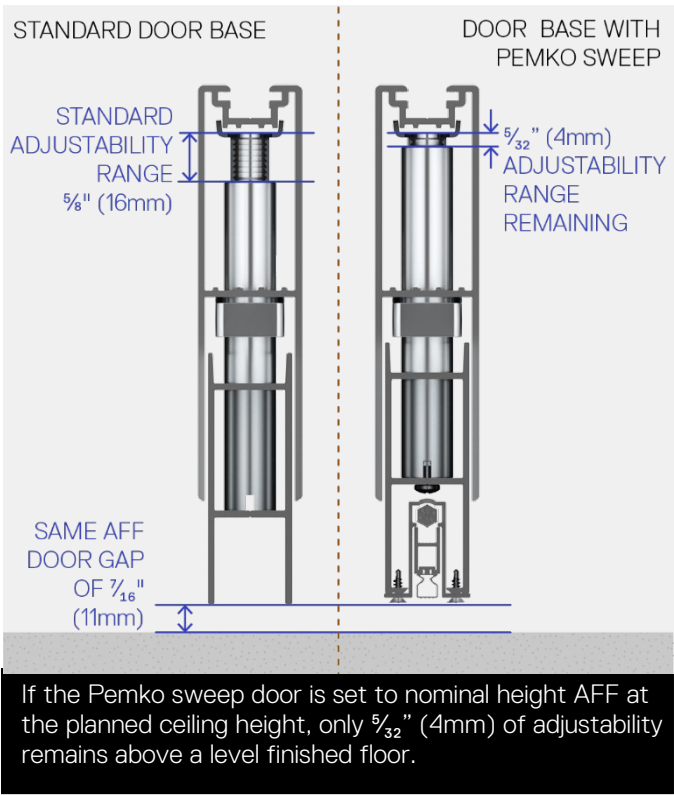
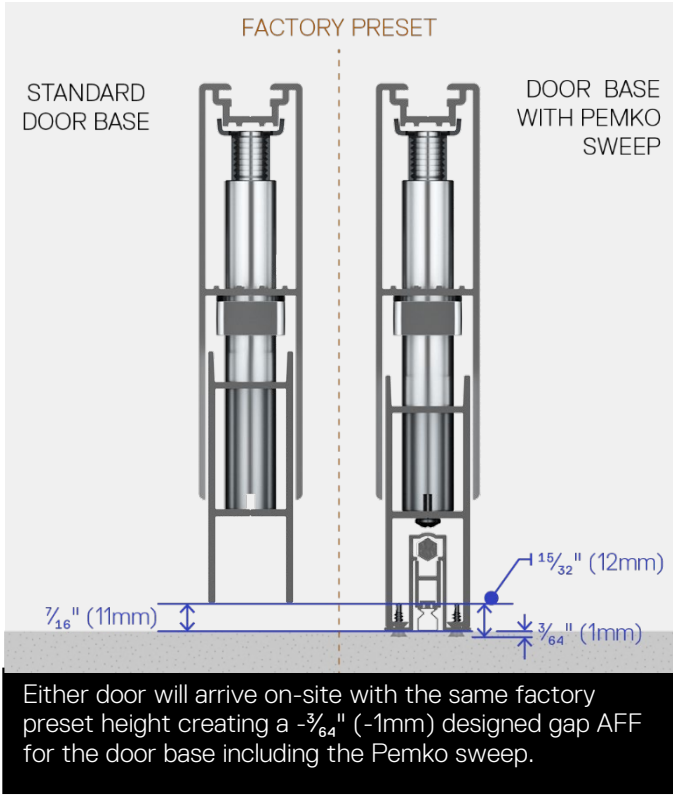
Adjustability Challenges with the Pemko Door Sweeps On-site

The Pemko automatic door sweeps for aluminum-framed glass doors are factory-assembled and delivered on-site with a preset gap AFF, matching the standard door skirt height without a sweep.



STANDARD DOOR BASE VS. DOOR BASE WITH PEMKO SWEEP

PRODUCT	FACTORY PRESET DESIGNED DOOR GAP AFF	VISIBLE SKIRT	IDEAL ADJUSTABILITY RANGE
DOOR—NO SWEEP	$\frac{7}{16}$ " (11mm)	$1\frac{27}{64}$ " (36mm)	$\frac{5}{8}$ " (16mm)
DOOR—WITH SWEEP	$-\frac{3}{64}$ " (-1mm)	$1\frac{27}{64}$ " (36mm)	$\frac{5}{8}$ " (16mm)



Managing Adjustability Challenges with Pemko Door Sweeps

To accommodate the Pemko door sweep while maintaining proper floor clearance, the skirt levelers may need to be modified. This modification allows the door skirt to be adjusted to the required height without compromising the sweep's functionality, ensuring proper floor clearance.

When cutting down the levelers is necessary, installers will be required to disassemble the door sweep assembly on-site to adjust the leveler system, trimming components with a band saw as required. For detailed instructions, refer to the [Framed-Glass Swing \(Butt Hinge\) Door with Pemko Sweep Product Alert](#).

NOTE: The Spectra Swing door uses a different automatic door sweep. For more information on it, see the [Spectra Thin Profile Swing Door Design and Order Guide](#).

Retrofit kits are available upon request, for more information contact info@dirtt.com.



Automatic Door Sweeps for Solid-core Wood Doors

For solid core wood doors, the automatic door sweep will be included with the order and will be installed on-site due to the necessary door trimming and dado cut. A local carpenter will need to make the dado cut at the bottom of the door to mount the automatic door sweep. Specification documents will be provided with the sweeps.



Wood door with dado cut.



ORDERING SWING DOORS

Key Ordering Factors for Swing Doors

PRE-ORDERING INFORMATION

Documents

- [4" and 6" Swing \(Butt-Hinge\) Door Tech Sheet](#)
- [Spectra Thin Profile Swing Tech Sheet](#)
- [Swing Solid Core Wood Door Tech Sheet](#)
- [Door Handing Diagram](#)
- [Prefit Door Hardware Glossary](#)
- [COM Hardware Ordering Process](#)

Drawings

- [All Door Types in Classic Door Frame Details](#)
- [Swing \(Butt-Hinge\) Doors in Curvilinear Door Frame Details](#)
- [Swing \(Butt-Hinge\) Doors in Rectilinear Door Frame Details](#)
- [UL1784 Swing \(Butt-Hinge\) Smoke Door Details](#)
- [Spectra Thin Profile Door Details](#)

WHAT'S IN ICE?

- 4" (Goldie) butt-hinge doors
- 6" (Phat) butt-hinge doors
- Spectra swing (butt-hinge) door
- Inspire door frames
- Secutor concealed closer
- Automatic door sweep

WHAT'S NOT IN ICE?

- 2" (Slim) butt hinge doors



CUSTOMIZING AUTOMATIC DOOR SWEEP

Door slabs that require custom size sweeps include:

- Under 36"
- Between the size of 38" to 46"
- Over 48"

NOTE: All order entries for custom size sweeps have a lead time of 6 to 9 weeks.

For more information on how to order custom automatic door sweeps, review the [Rule 187—Custom Auto Sweep](#) article.

IMPORTANT: Door sweeps **should not** be trimmed more than 2" to fit the door slab.



Order Swing Doors

OPTIONS	DESCRIPTION
Door type	<input type="checkbox"/> 4" (Goldie) stile aluminum-frame <input type="checkbox"/> 6" (Phat) stile aluminum-frame <input type="checkbox"/> Solid-core wood door <input type="checkbox"/> Solid-core wood door with glass insert <input type="checkbox"/> Spectra thin profile swing door
Hinges	<input type="checkbox"/> Standard: Best BB1409 (or equal) (satin chrome) <input type="checkbox"/> Dorex BB1709 (matte black) <input type="checkbox"/> Optional: COM NOTE: If hinges are not DIRTT standard or the option noted above, they must be dimensionally the same with the same mounting hole locations.
Lever set	<input type="checkbox"/> 4" Standard: Schlage S Series cylindrical hardware <input type="checkbox"/> 6" Standard: Schlage S Series or Falcon B Series cylindrical hardware <input type="checkbox"/> Optional: COM
Glass	<input type="checkbox"/> ¼" (6 mm) glass <input type="checkbox"/> ⅜" (10 mm) glass <input type="checkbox"/> ½" (12 mm) glass NOTE: 12mm glass requires approval through the Custom Finishes team.
Door finishes	<input type="checkbox"/> Clear anodized <input type="checkbox"/> Powder coat finish <input type="checkbox"/> Stainless-steel finish (single-pane door only) <input type="checkbox"/> Custom colors available (with approval)
Will you use optional automatic door sweeps? If yes, which ones?	<input type="checkbox"/> Pemko Auto Sweep 38" <input type="checkbox"/> Pemko Auto Sweep 48" <input type="checkbox"/> COM
Optional bar pulls (with roller catch)	<input type="checkbox"/> 12" <input type="checkbox"/> 12" D-pull <input type="checkbox"/> 30" <input type="checkbox"/> 72"
Door stop	Standard DIRTT door stop integrated into door frame
Concealed door closer (full-height frames only)	<input type="checkbox"/> Standard: Secutor Concealed Closer <input type="checkbox"/> COM (requires input and support from the COM Hardware team in Product Development) <input type="checkbox"/> Partial-height Secutor concealed closer (Inspire only)



OPTIONS	DESCRIPTION
Does the project require ADA kickplates on the doors?	<input type="checkbox"/> Yes
	<input type="checkbox"/> No
ADA kickplate finish	<input type="checkbox"/> Clear anodized
	<input type="checkbox"/> Powder coat finish
	<input type="checkbox"/> Stainless-steel finish (single-pane door only)
	<input type="checkbox"/> Custom colors available (with approval)
IMPORTANT: ADA compliance varies by jurisdiction.	



REVISION REFERENCE

VERSION	INITIAL	DESCRIPTION	DATE
1.0	NS	First release	2022-03-31
1.1	SR	Added order information and notes on page 8	2023-01-31
1.2	MS	<ul style="list-style-type: none">Information has been transferred to new branding for consistency and alignment with our current corporate identity.Added the "Ordering Swing (Butt-Hinge) Doors" section.Removed wrap-around butt hinge door frame content	2024-06-06
1.3	SR	<ul style="list-style-type: none">Additional information	2024-06-12
1.4	SR	<ul style="list-style-type: none">Include note regarding a door frame with a clerestory against base building.	2024-07-15
1.5	SR	<ul style="list-style-type: none">Added black hinge to checklistDoor weight capacity updates	2025-02-10