Shower Guide to Success™

By RexShowerDoors.com

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Table of Contents

Planning and Design Considerations ........................................................................... 4
Safety Issues .................................................................................................................. 4
Design Issues ................................................................................................................. 5
Common Design Configurations ...................................................................................... 8

Constructing the Shower Opening .............................................................................. 11
Preparing the Area .................................................................................................. 11
Measuring for the Shower .............................................................................................. 11

Installing Your New Shower Enclosure ................................................................... 16
Tools and Materials ........................................................................................................ 16
Getting Started ............................................................................................................. 17
Installing U-Channel ..................................................................................................... 17
Setting Glass into U-Channel ......................................................................................... 17
Butt Glazing Fixed and Return Panels ......................................................................... 18
Installing the Header ..................................................................................................... 20
Installing the Hinges and the Door ............................................................................... 21
Installing the Door Sweep ............................................................................................ 22
Installing the Door Strike ............................................................................................. 22
Installing the Pull / Handle .......................................................................................... 22

Appendix A: Hardware ............................................................................................... 23
Channel .......................................................................................................................... 23
Clamps/Clips .................................................................................................................. 23
Glass ............................................................................................................................... 23
Header ............................................................................................................................ 24
Hinges ............................................................................................................................. 24
Panel, Inline .................................................................................................................... 25
Panel, Return .................................................................................................................. 25
Pulls/Knobs .................................................................................................................... 25
Strike ............................................................................................................................... 26
Surface Protectant (ClearShield) .................................................................................. 27
Appendix B: Fabrication Terms .................................................. 28
Butt Glazing ................................................................................. 28
Step Up Notch Cut ....................................................................... 28
Planning and Design Considerations

After decades of reviewing and installing thousands of frameless shower door designs, we think we’ve seen it all, from the basic single door to numerous panel, multi-angle enclosures. In this section we will show basic illustrations for our six most popular designs with the most common variations associated with them.

Do not underestimate the importance of design and planning. Over the years we've assisted customers having installation problems and have discovered that the root of the problem was due to poor design. We encourage you to spend a few minutes and review the list of design considerations we have assembled which explain the most common safety issues and potential problems that may arise.

Please also look at the information in the appendices in order to get a better understanding of the hardware and fabrication terms used throughout this guide.

Safety Issues

1. **Always adhere to the manufacturers specifications for hardware concerning weight and width capacities.** Don't worry - we will make sure this happens! Whether you choose from our standard designs or have a "one-of-a-kind design", we assure you that the hardware provided will be more than adequate. Anytime we have to modify a customer’s design, it is usually a safety or a function issue.

2. **Make sure that when using wall mount hinges, the wall has a wood stud behind it, or the surface substrate is strong or thick enough, and secured sufficiently to accommodate appropriate screw anchors.**

3. **Consider a header kit for almost all designs with the exception of a single swing door.** You will notice that a header kit is optional for certain products. You are strongly encouraged however, to get the header kit for any fixed panel exceeding 24" width positioned next to a door.

   There is no safety code that we are aware of that insists you must have a header. Panels not secured at the top edge will wobble and flex. The degree of this is always determined by the size. In the name of safety, we feel the phrase "header is better" is appropriate. Many in the design community may feel a header is not aesthetically appropriate, but we know from experience it is always safer to use one.

4. **Do not hinge a door off of a fixed glass panel using glass-to-glass hinges, if the panel has no top support.** If a door is to be hinged off of a fixed panel using glass-to-glass hinges, one of the following criteria must be met:

   - The door must be hinged off of a fixed panel that is secured at both the curb and the ceiling with either 'U' channel or glass clamps.
   - If the fixed panel does not go to the ceiling, the top of the panel must be secured with a header system or a support bar.

   If the design allows, using wall mount hinges, and not glass-to-glass hinges (to avoid swinging a door from an unsupported fixed panel) is a good solution. A shower door swinging from an unsupported panel can cause the panel to wobble or flex, and be unsafe.
Figure 1: The design on the left is not recommended to use glass to glass hinges when the fixed panel has no top support. The design on the right is recommended as support is provided.

It is not necessarily a case of right or wrong when selecting between wall mount hinges, glass-to-glass hinges or pivot hinges. It is a case of which one is more proper for the application. Wall mount hinges are the most cost effective hinge you can choose, and also require minimal glass fabrication costs. If you have a fixed panel of glass that does not go to the ceiling and you do not want a header, wall mount hinges present your best option.

**Design Issues**

1. **Make certain the door swing opening is not impaired by other fixtures in the bathroom.** For out-swing applications, placement of vanities or commodes are the two most critical elements. If the door is to have in-swing capabilities also, placement of the showerhead, controls, hand-held sprays, grab rails and seating should be considered so they don’t come in contact with the glass.

2. **When using wall mount hinges with a combination towel bar and a pull mounted on it, design consideration must be given to whether or not the end of the towel bar closest to the hinges will hit the wall, before the door opens up to its full 90 degrees.** Should you choose a towel bar on the door, we will need to supply a different type of hinge and offset (not center) the towel bar. It’s common; it looks fine, and the cost minimal. In some cases a header could be required depending on how much clearance is required. We will not alter the size of the door, so please be aware that the actual opening into the shower will decrease by a couple inches.

   See Figure 2 for an illustration of this issue.
3. When using wall mount hinges, and the same wall has a towel bar mounted on it, design consideration must be given as to whether that towel bar will be hit by the door when it opens to its full 90 degrees. This situation can cause two problems. It restricts access to the shower, and more importantly, with the glass hitting the towel bar, there is a chance of the door glass breaking. A possible solution is to use top and bottom pivot hinges, and inset the hinges enough so that the pivot point projects far enough from the wall to clear the towel bar.

Most towel bars that mount on a wall are deeper than our through-the-glass towel bars. To obtain the proper clearance, a top mount pivot hinge with a header kit would be required. You would need to let us know the depth of your existing or new wall mount towel bar.

See Figure 3 for an illustration of this issue.
4. **With multiple panel showers, avoid using panels less than 6” wide.** Glass panels smaller than 6” are not very attractive to the overall design. They tend to bow during the tempering process, and their size makes them less stable.

5. **Consult with us before you build the shower if you have questions regarding buttress or knee walls, seat areas or various angles in your design.**

We could easily have you reading twenty more pages on this subject. In the interest of your time, please don’t hesitate to contact us with any questions you have. Let us take the time to solve your problems.
Common Design Configurations

Single Door

The following images in Figure 4 illustrate the most basic configuration, the single door, using wall mount hinges.

![Figure 4: The single door and door and panel configurations are shown using wall mount hinges.](image)

Door and Panel

Starting with a door, an inline panel can be added, as shown in Figures 5 and 6. As shown in Figure 5, glass to glass hinges are used in order to mount the door to the inline panel. Note that in this scenario a header must be used. Figure 6 shows the use of top and bottom pivots to mount the door instead of glass to glass hinges.

Figures 7 and 8 show how the shower can be configured when there is a knee wall in the opening. In these scenarios, the inline panel is installed on top of the knee wall. Note that wall mount hinges or top and bottom pivots can be used.

![Figure 5: A door is mounted to a fixed inline panel using glass to glass hinges and a header.](image)

![Figure 6: Top and bottom pivots are used to mount a door next to an inline panel.](image)

![Figures 7 and 8: Single doors are shown with fixed inline panels on a knee wall with wall mount hinges or top and bottom pivots, respectively.](image)

Panel, Door, Panel

Following the single door and then door and panel configurations, the next more involved configuration is the door with panels on adjacent sides. Figures 9 and 10 display the panel, door, panel configuration. Typically the minimum width of a given panel is 6". As was demonstrated in Figures 7 and 8, either panel could be installed on a knee wall.
Figures 9 and 10: Doors with adjacent panels are shown using wall mount hinges or top and bottom pivots, respectively.

**Door, Panel and Return**

A very common situation is to have a door, an inline panel, and a 90° return panel, as shown in figures 11 and 12. Note that in Figure 11, a corner clip is used to secure the return panel to the inline panel. An alternative technique is to use a header, as shown in Figure 12. It is also common for the inline panel and return panel to be notched in order to be positioned on top of a knee wall such as for a shower seat. Figures 13 and 14 demonstrate this technique. Again, wall mount hinges or pivot hinges can be used.

Figures 11 and 12: The door, panel, and return configuration is shown using wall mount hinges or top and bottom pivots, respectively.

Figures 13 and 14: The door, panel, and return configuration is shown with step-up notch cuts for a knee wall or shower seat.
Panel, Door, Panel and Return

The panel, door, panel, and return configuration is just a combination of the standard configurations described above. This configuration is illustrated in Figure 15 and 16 below.

![Figure 15: The panel, door, panel, and return configuration is shown using glass to glass hinges.](image1)

![Figure 16: The panel, door, panel, and return configuration is shown using top and bottom pivots.](image2)

Neo Angle

The final common shower configuration is the neo angle shower. A true neo angle configuration is defined by 2 panels adjacent to the door at 135° angles. Figures 17 and 18 illustrate the neo angle configuration.

![Figure 17: The neo angle shower is shown. The door is attached to the left panel using glass to glass hinges.](image3)

![Figure 18: The neo angle shower is shown. The door is attached using top and bottom pivots.](image4)
Constructing the Shower Opening

The actual construction of the shower area is just as critical to success with the products we sell as is the design and planning stage. In the trade, we refer to a well constructed shower area as a "good opening". Whether you do it yourself or hire a professional, insist on covering the points we have outlined in the following sections.

Preparing the Area

1. All vertical and horizontal surfaces of the shower itself should be plumb and level to within 1/8". Out of square cuts are required for each piece of glass that needs to fit into a non plumb and level opening. Each out of square cut adds additional cost to the product.

2. All sill areas (where the bottom of the glass rests) should be sloped slightly toward the interior of the shower. This will allow all water landing on these areas to return to the inside floor of the shower, and ultimately the drain.

3. All surfaces of the shower that will come in contact with the glass should be covered with a waterproof material (tile, marble, granite, solid surfaces, etc.) Avoid attaching glass or channel directly to drywall or water-proof underlayment board. These materials were designed to be used underneath other waterproof materials, so use them for what they are intended.

4. Should you choose a decorative accent strip for the inside shower walls, try to choose one that does not have heavily textured or severe raises in the finished surface, such as many "listello" tiles. Should you do so, make certain they are not placed in areas where edges of the glass or channel would come into contact. It is best to create a starting and stopping point for these decorative tiles. These types of applications can adversely affect placement of the shower door and the type of hinges that can be used.

5. Provide solid wood backing behind any wall surfaces where the structural components of the shower enclosure (hinges and headers) are to be fastened. A typical 28" wide x 80" high door in 3/8" thick glass weighs close to 80 lbs, while ½" thick glass approaches 120 lbs. It is imperative that the hinges be securely attached to solid backing.

6. Be certain that the finish surfaces on the interior of the shower walls (tile, marble, granite, solid surface) are securely fastened to the wall substrate board. When these materials develop a crack when being properly drilled, 80% of the time it is related to poor installation of these finishing materials.

7. Avoid using glass composition tiles at any wall surfaces that require holes to be drilled, such as door hinges. If you have had success with glass tile installed at these areas, it's more likely due to luck than anything else!

Measuring for the Shower

Measuring for your shower door is not difficult. It does, however, require your undivided attention when performing this task. The tools necessary to perform the task are:

- a level (we suggest levels of 24", 48" and 72" if possible)
- tape measure
- pencil or marker
- paper
- a square
It’s best to avoid any and all interruptions (phone calls, watching television, etc.) If your eyesight is poor or you’re not completely sure how to read a measuring tape, we suggest someone else perform this task.

Measure everything to the 1/16” of an inch. The more precise your measurements, the easier it will be to obtain the correct fit and finish during installation. Be certain to double check your figures and to use a decent quality measuring tape.

1. **Complete finish work before measuring!** Finish measurements are defined as measurements taken after all tile, marble, granite or solid surface work have been completed. Some people believe they can anticipate finish measurements before this work is completed, but our experience has proven that it fails more often than it succeeds. Be patient, be smart, and have this work complete before measuring.

2. **Determine the location of the glass center lines.** Begin measuring by drawing lines on all horizontal surfaces where the glass will rest. Start at the sill or the curb area of the shower (where the shower door will be placed). Generally, the glass is installed in the center of the curb. The standard measurement used in the shower door industry is center-line measurements. The use of center-line measurements allows us to correctly determine the glass and metal sizes. Many people are confused by the term center-line. Some feel it’s the center-line of the curb, when in reality it’s simply the center-line of the glass thickness. This means at the time of installation you will have equal amounts of glass or metal on either side of the center-line.

   The center-line of a shower unit can be centered on the curb, or moved to the outside / inside of the curb. If you are using wall mounted hinges, remember that the back plate of the hinge (where it screws to the wall) is wider than where the glass will be located on the sill. Check to make sure your placement of the glass will allow for the back plate to rest completely on the tile, marble, or granite sidewalls for a solid attachment.

   Mark the center of the curb in several places and use a straight edge or level to connect the marks with a line using a marker that can later be washed off. At the left and right ends of this line, you should finish into the vertical wall surfaces. With the use of a level to insure accuracy, set the edge of existing line and continue the line up the vertical or perpendicular surface.

   Should your design include buttress, knee walls or seat areas in line with the curb, you will again encounter additional horizontal surfaces. Using your level, continue these lines on the top of the horizontal surface until you reach the outermost vertical walls of the shower.

3. **Determine if you have a "good opening".** Frameless enclosures aren’t like the aluminum integrated units that have a great deal of adjustability. Glass sizes must be adjusted accordingly for out of level and or out of plumb conditions. Out of level refers to the orientation along the horizontal plane - whether it’s a curb, sill, floor, ceiling or tub deck. Out of plumb refers to the orientation along the vertical plane - walls, step-ups or buttresses. Figure 19 illustrates the concepts of out of level and out of plumb.
Figure 19: In the first image, because the plane along the horizontal axis is not level, the opening is considered out of level. In the 2nd image, the opening is considered out of plumb because the plane along the vertical axis is not level. In the third image, the wall is bowed along the vertical axis.

When encountering an out of plumb/level condition, a notation must be made to ensure the proper glass sizing. If one places a level on the vertical wall and figures "It's not very far off", or "It's close enough", that person is planning for failure. Measuring precisely is important.

Always take complete and thorough measurements. Measure and make note of all outages no matter how seemingly insignificant. The reason we ask this is to give the best information possible to make glass sizing decisions. It is always better to provide more information, as opposed to less. Be sure to place a level on all mounting surfaces to note various outages.

**Straight vs. Plumb**

One of the most problematic situations that one can run into is the vertical wall not being straight. A word of caution: Don’t confuse the term straight with the term plumb. A wall doesn't have to be plumb to accommodate a wall mount hinge; however, it does have to be straight. When we refer to straight, the definition would be: A straight edge or level (being used as a straight edge) is touching consistently when placed against the wall that the door will hinge off of, or there are no gaps that exceed 1/32". We can’t emphasize the importance of the previous statement enough. If the straight edge is touching at the top and bottom and there is a concave (bowed-in) condition that leaves a 1/8" gap in the middle, we need to know! This wall could be plumb and still be a major problem. The reason that this occurs is due to the fact that the hinges operate on pivot points, and the pivot points must align with one another or they will work against each other. Figure 20 illustrates this point.

Figure 20: In the first image, the wall is straight and plumb. In the middle image the wall is out of plumb but is still straight. In the third image, the wall is actually plumb but it is not straight due to bowing.
Measurements and Outages Must Match Up
A great way to double-check the accuracy of both measurements and outages is to mathematically confirm the information by cross-checking. This process must be done on the job, otherwise the mistake (if there is one) won’t be found until it’s too late. For example, if a door opening measures 27 ¼" at the bottom, and one wall is plumb with the other wall leaning out of plumb ¼" at the top, the width measurement at the top must be 27 ½". If the measurement doesn’t match the outage, then a mistake has been made and it’s time to re-evaluate the information until it adds up properly. If dimensions and outages are not confirmed on the job, there is no chance to re-evaluate the information.

Figure 21: Measurements and outages must match up.

4. **Record your measurements.** It is now time to record your measurements on the form(s) we provided. With the proper information, we can fabricate your new shower enclosure to best fit all the conditions you have indicated. Note that for out of square conditions, costs are calculated per cut, thus any panel requiring two cuts will incur two charges. As you can see, it is more cost effective to build the shower correctly from the start. It doesn’t cost any more to build it correctly than it does to build it incorrectly.

Other helpful hints:

- When measuring any shower that goes to the ceiling with bisecting angles involved, it’s very helpful to have a plumb bob. A plumb bob allows one to get the most accurate measurements possible. After doing the layout on the curb, use the plumb bob to find the bisecting points on the ceiling or the tile lid. This point will be helpful in determining the center-line dimension on the ceiling or tile lid, as well as figuring the outage (if any) on the vertical wall.

- When measuring buttress heights, place a level horizontally on the buttress with a small portion of the level hanging off. Now a measurement can be taken to the bottom of the level to obtain the buttress height.

- Place a level on the curb to determine if the curb is pitched properly inward for water drainage. If this problem is detected prior to glass sizing, allowance can be made for the corrective product.

**A Word about Neo Angle Construction**

When constructing a neo angle shower with buttress walls on end, the door curb should be perpendicular to the buttress walls, hitting them at a 90 degree angle. Figures 22 and 23 illustrate an incorrectly constructed neo angle opening.
Figure 24 shows the correct way to build a neo angle shower.

When measuring a neo angle shower with a buttress, it is imperative to provide a plan view (overhead) drawing in order to see what the relationship is between the curb and the buttress. This information is important for many reasons. Hinge choice, center-line dimensions and mitering angles on the glass are just a few of these.

When measuring a neo-angle shower, it's important to confirm the fact that it's a "true" 135° neo angle. An angle measuring stick is the most certain way to determine any specific angle. There is, however, a way to visually inspect an opening to help assure that it is a true neo angle. As shown in Figure 25, with a true 135° neo angle the tiles are square with the corners of the enclosure and the half tiles at the door curb are all exactly the same size.

Figure 22: In this example, the door curb incorrectly hits the buttress wall at 45°, not 90°.

Figure 23: In this example, the door curb and buttress walls incorrectly divide the angles.

Figure 24: This example shows a correctly constructed neo angle shower. The door curb hits the buttress walls at 90° and the buttress walls are at a 45° angle.

Figure 25: A true neo angle is shown. The half tiles at the door curb are all the same size.

Figure 26: This example visually illustrates an enclosure that is not a true 135° neo angle. Note that even though the tiles are square with the corners, the half tiles at the door curb differ in size.
Installing Your New Shower Enclosure

Now that you’ve finished designing, planning, constructing your good opening, and measuring precisely, it’s time to finish the project with a successful installation. Heavy glass frameless shower doors are much heavier than the standard aluminum framed enclosures, but that’s why you purchased it. Be certain to have competent help available, as we do not consider this to be a one person job. Like standard framed products, you will have some metal cutting to do. However, it won’t be flimsy aluminum components that can bend or damage easily. The major things to keep in mind at all times are the following:

- **Patience - take your time.** You didn’t rush the front end of this project, so don’t allow yourself to become impatient now.

- **Handle the glass carefully.** Tempered glass is 3-4 times stronger than standard glass, but it can still break. Never set the glass down on any hard surface without having wood, rubber or carpet underneath. The edges of the glass are most sensitive to impact rather than the face surface, so exercise care and caution.

- **Handle the glass with a suction cup.** We recommend renting a glass suction cup or two as it makes handling the glass a night and day task. It’s not essential, but it is worth it.

- **Use caution with electric drills.** Obviously you will use this tool to drill various holes as required. We do not recommend using these types of drills to tighten down any hinge cover plates or screws into the back plate unless it has an adjustable torque setting. Set the torque at a lower setting, and drive the screw only until it is almost seated. Further tightening can be accomplished by hand with the proper screwdriver. This should insure that you won’t crack any tile or accidentally scratch any of the metal components.

**Tools and Materials**

We recommended the following tools and materials for completing the installation:

- a good tape measure
- a good level
- cordless drill
- screwdriver with #2 and #3 bits
- rubber mallet
- razor blades (utility knife)
- hacksaw
- file
- wood shims
- mildew resistant silicone sealant, preferably water clear
- #6 stainless steel screws
- low adhesive painter’s tape

As mentioned previously, glass suction cups would be very helpful, along with a power miter saw in lieu of a hacksaw.

Depending on which of our frameless glass shower enclosure designs you have purchased, the task of installation will vary depending on the various components that come with each product. A single swing shower door will be the least complicated of all, as it comes with the least amount of hardware. It includes two wall mount hinges, one door pull, and one door sweep, total of four hardware components. As the designs get more complex when inline panels, return panels, or angled panels are added, additional hardware items are furnished. Those items are
primarily 'U' channel, header kits, glass clips and optional polycarbonate door stops. All sections of the installation guide are a condensed review of the most common hardware pieces, their function and how they are installed.

**Getting Started**

Depending on the product you have selected and the options you have chosen, the steps and parts will undoubtedly vary from one installation to the next. Thus, there is not a universal set of installation steps. There are however 2 standard starting points that we will discuss. The rest of this chapter is broken into various sections that describe in detail how to install various parts of your shower. As mentioned, there is not always a specific order that needs to be followed. Use common sense, intuition, and the following information to complete the install. If at any point you have questions, don't hesitate to call us.

**Hinges**

If all you need to install is a single door, then hinges are obviously going to be your starting point. If you have a door and at least 1 panel, it's usually a better idea to start with the panel(s) and add the door last. In cases where the door connects to the panel via glass to glass hinges, the panel has to be installed first.

**Channel**

When installing a panel, the first thing you'll need to do is to install the U-Channel along the base and or wall. From there it's just a matter of installing and securing the glass.

The following sections are organized in a somewhat chronological order but may differ depending on each individual and unique installation scenario.

**Installing U-Channel**

If your design requires more glass panels than just a door, the additional glass panels in the design will need to be secured to the base and walls of the shower. The most cost-effective and recommended way to complete this task is by using a 'U' shaped channel component.

1. **Cut the stock channel lengths to size.** The U-Channel will be shipped in oversized lengths, which you will cut to the required lengths you need. A good power miter saw or hack saw is all you need. The lengths we send to you will be long enough for you to do a few practice cuts before the final cut. We recommend corners (inside and outside) to be miter cut, and we suggest you make those cuts first before the final length cut is made.

2. **Install the channel pieces.** The channel should be placed on the centerlines you had drawn within the opening when you measured. The channel is not pre-drilled, so you should position all cut pieces of channel over the centerlines to verify good fit before you drill. We recommend a #6 stainless steel screw and hole depth of 1 ¼", with a countersunk drill bit to insure screw heads are flush to the inside of the channel. The channel is not heavy and does not need many screws to hold in place. In most cases, one screw every 24" is fine. Use your best judgment with the lengths that you are working with. Drill in the same fashion you had for the door hinges, and use an appropriate plastic anchor. (Don't forget to cut the head of the anchor off). Fill the center of the anchor with silicone, put a small bead of silicone on the bottom of the channel and proceed to fasten all channels in place. You are now prepared to set the glass panels into the channel.

**Setting Glass into U-Channel**

Once the U-Channel pieces are installed along the base and walls, the next step is to set the glass into the channel.
1. **Install setting blocks.** You will find clear plastic strips known as "setting blocks" of various thicknesses shipped with your order. Your glass was fabricated to use the 3/8" thick blocks placed inside of the channels as both a cushioning and leveling device. The thicker blocks provide you the ability to shim the panel if it is not standing plumb and level when it is installed. Two to three blocks are plenty for most panels, and they can be cut shorter if more are required. You could superglue the blocks to the inside of the channel so they won’t move during installation. Do not set the blocks over the screw heads.

2. **Place silicone in the channel.** Silicone the top of the screw heads and all mitered channel joints, do not silicone on top of the setting blocks. See Figure 27 for an illustration on where to place silicone.

![Figure 27: Silicone should be placed in the channel along the back (or bottom), inside joint seams, and over screw heads.](image)

3. **Set glass into channel.** Lift the glass above the channel (using suction cups and or help) and gently lower into the channel. Keep the panel close to any vertical wall channel that will also attach to the panel. Drop it down into the bottom channel, and gently work it left or right into the vertical channel. After all is in place, a final silicone seal (small bead please!) should be applied to both the inside and outside bottom edge of the channel. A cap bead should also be applied to the inside and outside top edge of the channel where it meets the glass. A blue low adhesive transfer tape (painters tape) should be applied to the glass approximately 1/16" to 3/32" above the sight line of the top of the channel. Using the same tape, apply it along the top edge of the channel itself. This will provide an even and attractive bead width when the cap bead is tooled, and clean up should involve no more than removing the tape itself.

**Note:** If your shower has a return panel, set the return panel before the fixed panel. See the section on Butt Glazing Fixed and Return Panels for more information.

![Figure 28: A cap bead of silicon is applied to the top edge of the channel where it meets the glass.](image)

**Butt Glazing Fixed and Return Panels**

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When the shower enclosure features a fixed panel and then a 90° return panel, the two pieces of glass are "butted" up against one another to form a butt joint. This section describes the method for correctly joining the panels of glass once they are set into channel.

There are various methods and opinions as to the correct way to do a butt-glazed corner. After years of experimentation, we believe our recommendation to be the simplest, the least frustrating, and least messy way to accomplish this. The ultimate goal is to end up with a clean joint and no air bubbles.

1. **First, set the return panel, as described in Setting Glass into U-Channel.** Your return panel should stand on its own since it is now captured on the bottom and rear edges with U-channel.

2. **Next, set the panel next to, or inline, with the door.** The front edge of the panel next to the door should overlap and line up with the outside surface of the return panel. At this time, you may want to verify the remaining space you have left for the door opening. If the door opening is incorrect, now is the time to make the appropriate adjustments before things are more permanently in place.

   ![Figure 29](image)
   
   Figure 29: This illustration shows the correct way to position the return panel relative to the fixed inline panel.

3. **Install the mechanical stabilizer.** Install the glass corner clamp at the top of the glass corner, or the optional header kit if you’ve so chosen. Either of these items will stabilize joining of the corner to prepare for final sealing. The clamp is secured in place with two nylon tipped Allen set screws. See the Installing the Header section for more information on installation of the header.

4. **Secure with tape.** Starting at the top and working down, apply a 1" or wider strip of a good quality masking or painters tape approximately every 6". The tape should cross the corner and attach to the outside of each panel. The purpose of this is to secure the alignment of each panel in preparation for the silicone sealant to be applied from the inside of the shower.

   ![Figure 30](image)
   
   Figure 30: This illustration shows how to tape the corners of the joined panels on the outside in preparation for the sealant.
5. **Seal the joint with silicone.** On the inside glass corner of the shower, run a strip of tape on each panel from top to bottom. Hold the edge of the tape 1/8” to 3/16” out from the corner of the inside joint. Cut the tip of the silicone tube to produce the proper size of the silicone bead. Working from top to bottom, produce an even and consistent bead of silicone into the corner joint. Run your finger to smooth the bead into a 45° angle in the corner, and leave it to set up for a day if possible. If you’ve worked successfully with silicone caulk before, you will find this step easy. If you’ve failed miserably at this before, you may want to ask someone confident to do it. Clear, mildew resistant silicone (or water clear silicone) is always most recommended. We have found no reason to apply silicone to any outside surface of the corner. Our method holds fine, is easiest to do and requires little clean up if you’re careful...just remove all the tape!

![Figure 31: Apply the silicone to the inside of the joint. Allow it to set for 24 - 48 hours.]

**Installing the Header**

Configurations requiring a header will come with a kit that contains all of the necessary components including the header extrusion, aluminum wall mounting brackets, snap-in filler insert, and clear vinyl sealer.

1. **Cut the header to the desired length.**
2. **Slide the wall mounting brackets into the top pocket sleeve and tighten to the top of the header.**
3. **Place the clear vinyl over the top edge of the fixed glass.**
4. **Lightly tap the header over the vinyl with a rubber mallet.**
5. **When snug on the glass, attach the wall brackets to the wall.**
6. **Fill the pocket above the door opening.** When your door glass is sized for design requiring a header, it is fabricated slightly shorter in height so it swings under the header. When the door is open, you will see the underside pocket of the header. Cut the snap in filler piece to size to fill the pocket.

For designs utilizing 90° return panels or 135° angled panels, the header kit will include adjustable angle brackets as shown below. You simply miter your header as required and use the appropriate bracket to attach the pieces from the top. The remaining steps are identical to those for inline installation.
Installing the Hinges and the Door

When you remove a hinge from its packaging, it will be fairly obvious how it’s to be installed. There are three rubber gaskets included with each hinge, but only two will be used. The thickness of your glass (3/8” or 1/2”) determines which two you use, and it is explained in the instructions found in the box.

The steps below are specific to wall mount hinge installations. Pivot hinges require similar steps, and glass to glass hinges don’t require drilling any holes.

1. **Install the hinges to the door.**
   a. Remove two screws from the cover plate to open the hinges and expose the main body of the hinge.
   b. Apply the proper gaskets to both sides of the shower door around the glass cutout (light pressure will keep them in place) and put the main body of the hinge into the cutout.
   c. Center the hinge up and down, align the edges of the cover plates with the edge of the glass, and reattach the inside cover plate with the two screws.
   d. Tighten only by hand and alternate screws from one to the other to assure even pressure. Allow 10 to 20 minutes for the gaskets to settle, and then tighten them down a little more.

2. **Position the door to mark hinge locations on the wall.**
   a. Place shims on the shower curb and arrange the shims to provide ½" clearance at the bottom. A door sweep / seal will be applied later to close the gap.
   b. With one person inside and one person outside the shower, lift the door onto the curb and align it in the opening with the predetermined center line you made while measuring.
   c. With both hinge mounting back plates flush to the wall, each person should mark the hinge mounting holes on the tile, both inside and outside. Remove the door so that the mounting holes can be drilled.

3. **Drill hinge holes in wall.** The mounting screws are furnished with the hinges. Drill ¾" holes into the tile a minimum of 2" deep, insert the appropriate plastic wall anchors and tap them into the hole. We recommend cutting off the head of the anchors to insure the back plate of the hinge rests completely flush to the wall.

4. **Install the door.** Repeat setting the door back into the opening, fasten the hinge screws and tighten by hand. Gently slide out the shims and you have the perfect installation.
Installing the Door Sweep

Remember the 1/2" clearance space we left beneath the shower door? It’s time to close that space with our shower door sweep. The hard channel portion of the sweep slips over the bottom edge of the door glass, and the dual soft sweeps on the bottom should press firmly over the sill. You will have to open the door to work the sweep channel over the hinge side of the door, and a small amount of Vaseline may help make the task a little easier. Initially, the sweep may seem tight, but it will wear down eventually. It can be adjusted up or down to create the right contact.

Installing the Door Strike

The strike simply snaps on to the fixed panel with the "strike" part extending towards the door on the interior of the shower so as to stop the door from swinging in. Please see Appendix A for more information on strikes.

Installing the Pull / Handle

The shower door glass has been drilled in the proper location for attaching the door handle or pull. Most styles use the same through the glass mount system. On back to back 'C' shaped pulls, the inside handle will be the one with the two small set screws (they face downward and remain very much out of sight). An Allen wrench is provided to remove the screws and separate the handles. Before separating the handles, take note of the order of the plastic washers and sleeve. During assembly, the plastic washers should be resting against the glass, and a plastic sleeve should be inside of each hole. This obviously protects the glass. Push the outside handle studs through the sleeve hole, then slide the inside handle over the studs. Tighten the set screws on the inside handle with the Allen wrench. While doing this, the handle will tighten itself to the glass.
Appendix A: Hardware

In this section we present the common components and hardware pieces used in frameless glass showers. While this listing is not all inclusive, it should give you a general idea of how the standard parts work together and what they look like.

Channel

Also known as U-Channel, the channel is a piece of metal that comes in many types of finishes that is used to secure the glass to the base and or walls of the shower. Unlike traditional framed showers that have 2" profiles, the channel used in frameless showers has only a ¾" profile. When fabricated and installed correctly, it will be the least noticed metal component of the entire design.

There are other applications for attaching fixed panels other than U-Channel. Various types of clamps can be specified if so desired, however they can affect the cost substantially. Secondly, glass edges held in place by clamps require fabrication cut-outs, holes and high polishing...more cost! Third, the tolerance for a tight fit to the wall is close to a ¼" gap, which ultimately means a larger silicone bead to seal, or a potential to leak. Lastly, installation can be more difficult as there is no lee way in how exact the panel has to fit...it must be right on! As always, the choice is yours. We will be happy to entertain designs desiring clips as opposed to U-channel, just ask.

Clamps/Clips

Clamps, or clips as they are sometimes called, are used as a mechanical fastener to secure a return panel to a fixed panel when a header is not used.

Glass

You probably don't need much explanation on what glass is. However, glass isn't as simple as it may seem. When building a frameless shower, you have the choice of two glass thicknesses. The standard glass thickness is 3/8". You can upgrade (at a cost) to a thicker ½" size. When upgrading to ½" glass, the weight of the glass increases (thus increasing shipping costs) and the metal and hardware costs increase as well.

All glass that goes into showers is tempered. The tempering process makes the glass stronger and it creates a safety effect. If tempered glass breaks, it breaks into many harmless small pieces.
Glass also has a slight green tint to it due to its mineral composition. This tinting should be considered when designing the shower and tile work. Glass can be purchased that features a reduced tint (for a cost of course), such that the glass appears extremely clear.

Finally, different glass textures are available as well as special characteristics such as fade to clear sandblasting.

**Header**

The header is a piece of metal that comes in many types of finishes that is used as a mechanical fastener along the top of the glass. A header is only used when there is at least 1 panel of glass (in addition to the door). The headers that we supply are 1 ¼” high and have a curved face profile that makes them appear to be smaller.

Headers are optional on some of our products, but not all. Designs utilizing pivot hinges require either a header, or need to have the hinge mounted to a bulkhead or the ceiling. Designs requesting doors hinging on an adjacent glass panel will require either a header, or need to have the top of the adjacent panel attached to a bulkhead or the ceiling. Headers, like U-channel, can be more cost effective than using taller, oversized glass panels (many times requiring more than two people to properly handle) building bulkheads or tiling ceilings and are easier to install.

**Hinges**

Hinges allow the door to swing open and shut from either a fixed glass panel or a solid wall. Hinges fasten to glass panels that have been fabricated with a precise, notched cut-out located on either a vertical or a horizontal door edge, depending on the type of hinge. Wall mount and glass-to-glass hinges install on a vertical (side) edge, while pivot hinges install on horizontal (top or bottom) edges.

The standard hinge choices for our various
products were selected on the basis of functionality, ease of installation and cost effectiveness. Combined with our years of experience in knowing what works, it’s a winning formula. Aside from any design restrictions of your particular project (door swing obstructions, etc.) the only reason to modify these selections would be purely aesthetic, especially with glass mounted to glass hinges. All three types of hinges have different costs, and glass to glass mounted hinges require additional fabrication notches that also increase the cost. The choice will always be left to you provided safety is ensured.

Panel, Inline

An inline panel is a panel of glass adjacent to the door at a 180° angle. Inline panels should be at least 6" wide and can range in maximum width depending on the design.

Panel, Return

A return panel is a panel of glass in a shower enclosure that “returns” at a 90° angle to the wall and completes the enclosure.

Pulls/Knobs

Below are some common examples of pull handles, knobs, and towel bars that can be incorporated into the shower door.
Strike

The strike is a piece of polycarbonate that seals the opening between the door and a fixed panel.

In the "Design and Planning" section of this guide, we mentioned proper placement of shower heads and / or sprays. Unlike traditional framed doors, frameless showers eliminate any vertical metal components between two pieces of glass. The chances of water escaping the shower are greatly increased when this is done. It's not only fixture placement that can cause this to occur, but the simple act of showering causes water to bounce off of your body towards the glass. Polycarbonate is a very clear, rigid plastic. Our seal / strike piece can be attached to the fixed panel to create a sure seal between the door and panel. The strike cannot be placed however on a panel that is not secured at the top edge and made rigid. When the door closes to a panel that is not captured at the top and has the polycarbonate seal / strike installed, the sheer weight of the door hitting the strike will cause the panel to deflect and wobble to an unacceptable level.

If you wish to have the shower door swing both in and out, or double-acting, you do not want to use the polycarbonate seal / strike, as this will prevent the door from swinging in.

If your shower is only 30"-36" deep, we believe you should have the polycarbonate seal / strike solely to protect the water from "bouncing" out of the shower. After all, at that depth, an inswing door is not practical to enter the shower.

This is not an issue with a single swing door, although we do have wall mounted type door seal / strikes available if you feel water leakage could be an issue.

Our Door-Panel and Door-Panel-Return model products do not come with a polycarbonate strike as standard unless you order a header kit.

Our Panel-Door-Panel, Panel-Door-Panel-Return, and Neo Angle models do come standard with two (2) polycarbonate seal / strikes. This will allow sealing of both vertical edges of the door. We can do this because the header is standard and the standard pivot hinges allow for the application. Neo Angle type showers are especially vulnerable to leakage as the shower head placement will ultimately face directly at one side of the door.
Please note: When we use a polycarbonate seal / strike, it directly effects how we size your glass for proper fit. If for any reason you wish to delete or add a polycarbonate strike, we need to know! If no mention is made, we will proceed with production according to the offerings associated with each of our products.

**Surface Protectant (ClearShield)**

You may elect to purchase ClearShield protective coating for your shower glass door. ClearShield forms a strong, multi-molecular bond on the glass surface. The result is a shower door that stays cleaner longer, is easier to clean and protects your investment by helping to keep your glass looking like new. ClearShield warrants their treated glass for a period of five years, and up to eight years with the use of their AfterCare product.

**Sweep**

A sweep is a piece polycarbonate that attaches to the bottom of the shower door to prevent water from escaping between the sill and the door. Most sweeps also have a drip rail to shed water back into the stall. Over time door sweeps wear down and need to be replaced. They can be taken off to be cleaned.
Appendix B: Fabrication Terms

Butt Glazing

Butt glazing simply means to join two pieces of glass by butting them together. In the case of frameless shower doors, the intent is to perform this task without the use of any mechanical fasteners in places other than the top and the bottom. And to perform it in a fashion that will stay together and not leak.

With our standard product offerings, this application occurs when a return panel is used. Each of these products has a 90° corner area where two pieces of glass join together. The intention here is to complete this corner in a fashion that resembles a fish tank "aquarium", often referred to an "aquarium corner". It certainly gives your frameless shower a more sophisticated appearance than the traditional method of having a 90° metal corner post create this joint.

Step Up Notch Cut

A step up notch cut in the glass is necessary when you have a shower seat or when you need to accommodate a tub adjacent to the shower. When choosing to add a notch, simply tell us how many notches you would like during the purchase process. After you place your order, we will finalize your dimensions and notches with you.