



Semi-Frameless Enclosures



Heavy Glass Enclosures

Framed Enclosures

### Framed Enclosures Swing Doors or Bypass Doors (Sliders)

The purpose of a shower enclosure is the containment and management of water, temperature and humidity. There are only two categories of shower doors - doors either swing open or slide open.

Within the two categories of swing- or sliding-doors, there are three styles; framed, semi-frameless, and heavy glass.

Framed swing units have an aluminum frame that is fully encased with vinyl around the perimeter of the door and panel, respectfully. The door comes with a concealed hinge that has a top and bottom anodized aluminum hinge pin for added strength and a solid through-frame handle.

Semi-Frameless swing enclosures have the same characteristics as the framed units but without the metal that surrounds the door on the top, bottom, and handle side of the door. The exposed sides of the door have polished edges; non-exposed side a concealed hinge. The door receives an edge mount/knock-on handle or a C-pull handle.

Our framed sliding doors (bypasses) are also fully encased with aluminum framing and have towel bars through the frame on each panel (one on the inside and one on the outside). Bypasses feature roller brackets that are mounted to the top portion of the frames.

The semi-frameless sliding doors (bypasses) are similar to the framed bypass version but without the metal around the doors. All glass edges are polished and the roller-brackets mount to the glass. The doors feature through-glass towel bars on each side.

Heavy Glass or Frameless units use 3/8" or 1/2" thick glass, which have high polished perimeter edges and drilled holes for a though-glass knob, handle, or towel bar. Hinges for these enclosures mount directly to the glass and panels are added with u-channel, clamps, and/or a header system.

For angled corners, the edges can be mitered to give an aquarium-style look for added strength and more of a seamless, luxurious presentation. Quality Enclosures recommends using a header on all door and panel combinations for added strength and safety.







### Heavy Glass Hinge Types

#### Wall-Mount Types

With any wall-mount hinge, always check to see if there is decorative tile or any tile face that might rise outward when you are doing your layout. Standard doors have a hinge cut-out that is 8" centered from the top or bottom edge.

These hinges are all mouse-ear type; the cut-out in the glass door has a Mickey Mouse-style 'ear' look to it, which helps keep the door from slipping down, but only gives you 1/8" for adjustment. They are designed to hold up to 80 lbs. and a maximum door width of 28" with two hinges, or 120lbs. and a maximum door width of 32" with three hinges.

For larger, heavier doors, a hinge with all square/round cut-outs is used, which allows 1/4" of adjustment overall, a maximum door weight of 100 lbs. and a maximum width of 36" with two hinges. Quality Enclosures also uses hinges with radius corners and beveled edges for a more appealing presentation.



#### Pivot-Hinge Type

Our standard pivot series hinge has square corners and edges and is used for top, bottom, headermount (used with euro-header system), glass-to-glass, overhead transom and wall-mount brackets. They are designed for 3/8" and 1/2" glass that can hold up to 120 lbs. with two hinges and a width up to 32".

Pivot hinges come in several other varieties. The Montreal hinge has the same specifications as the Prestige except that it has radius corners and beveled edges. The Prima hinge also has radius corners and beveled edges, and the same specifications as the Prestige except it can only be used for 3/8" glass and a maximum door width of 31" with two hinges. The Senior Prima hinge has radius corners and beveled edges, and is used for 1/2" glass. When using two hinges they can hold up to 145 lbs. and have a maximum width of 36".

#### Wall Conditions

It is recommended that hinges mount to wood when possible. This means that the hinge screws drill through the tile, "drywall-like material" and finally ties into wood, allowing a more firm grip and more stability than mounting to "drywall-like material" via anchors. This is generally suggested prior to construction of the walls if possible.



### Heavy Glass Clip Types

U-channel can be used for 1/4", 3/8", and 1/2" glass panels and is mechanically fastened to the wall and sill. Silicone is then applied on the inside of the unit to help prevent water leakage.

Standard glass clips are a two-piece assembly that are mechanically fastened to the wall and through the glass with a finger notch. This allows some adjustment and is closer to the wall than if the glass had a hole fabricated for the clip to go through.

There are also no-fab clips available, meaning they do not require holes or notches to be made in the glass. An advantage to using a no-fab clip is that it can be set at any grout line. A disadvantage is that they are not mechanically fastened to the glass, so they do not offer the same level of stability as other options.

When ordering panels with clips, these clips will replace the u-channel that is our mounting standard. Panels should have two points of contact if they meet a wall or at least one point of contact if they are between other glass lites such as a door or another panel.





### **Tools and Terminology**

*How to find square footage φ:* 

Multiply the width times the height and divide that total by 144. That will yield the square footage. Industry standard is to always round up to the nearest even number.

Example: 30" x 72" = 2,160 divided by 144 = 15 sq. ft.

*How to find the weight of glass:* 

Use the square footage,  $\phi$ , to determine the weight of each piece of glass. Multiply the square footage by the weight using the table below:

Glass Thickness	Lbs. per sq. ft.	Square Footage	Equation for weight
3/16"	2.45	ф	2.45*φ
1/4"	3.23	ф	3.23*ф
3/8"	5.05	ф	5.05* <b>φ</b>
1/2"	6.40	φ	6.40*ф





#### **Centerline Measurements**

Enclosures are generally installed on the center of the curb or sill. The perspective should always be standing outside looking in and then starting from the left side, work towards the right. Also check the curb/sill to see if it is pitched inward a couple of degrees for proper water drainage and make a note of the location of the shower head.

Quality Enclosures recommends using a header when installing a glass door and panel combination for added strength. This is required when building heavy glass units that have glass to glass hinges.



#### Shower Enclosure Layouts

Frameless doors swing both inward and outward. When designing, keep obstructions clear of the door swing area so as not to create impact points such as shower heads, towel bars or toilet paper dispensers.

A properly built shower sill will have a pitch to help facilitate easy water return. A pitch of 1/8 inch is ideal for water to drain properly and door to operate properly.

The shower head location is very important. A shower head to be directly pointing towards the door could cause water leakage.

When drawing a door for a quote, the position of the door is critical. To properly draw a door, draw from the perspective of the outside looking in at the enclosure. Include squares to indicate hinges and a line to indicate a handle (see below). Also add an arrow to indicate how the door will open outward.



Hinge Left Swing Out Wall Mount Hinge



Hinge Right Swing Out Wall Mount Hinge



Hinge Left Swing Out Pivot Hinge



Hinge Right Swing Out Pivot Hinge



### Measuring Enclosures Correctly

#### Tools Needed:

- A good measuring tape
- A sharp pencil
- A two-, four- and six-foot level
- A laser level and angle-finder/protractor





• Measure the desired height of the door on each side of the opening to the nearest 1/16 inch; make sure the top of the door is above the level of the shower head.

• Compare the two height measurements. Save the larger one. If you are planning to install a custom door, save both measurements and make a note of which measurement belongs with which side.

• Measure the width of the opening at the top and bottom to the nearest 1/16" inch. Compare the two measurements. If one is larger than the other, save the larger unless you are planning to install a custom door, if you are planning to install a swinging model, use your measuring tape to make sure the door has room to open freely.

• Hold a level against each side of the opening. If the opening is not the same width at the top as the bottom, one wall is out of plumb. Determine which wall it is with the level. Measure the opening a third time, halfway up. Record all three measurements, how far up the wall the middle one is and which wall is out of plumb.

• Use center-line measurements. Generally a unit is installed in the center of the curb or sill and starting left to right \*outside looking in \* as a reference point. Also check on the curb to see if it is pitched inward a couple of degrees for proper water drainage. Are any of the walls, step-ups or buttresses "out of plumb" in the vertical plane? Is the wall on which the door will hang straight? Does a straight edge or level touch consistently when placed against the wall?



#### Measuring Enclosures Correctly

Tools Recommended for Installation: A Good Measuring Tape (Fat Max)

If the tape measure is 'bumped' to the end of the opening, do not forget to add the width of the measuring tape (usually 3").

Example: If measuring an opening from wall to wall while bumping the back of the tape measure to the wall, the tape measure reads 18-1/2". The width of the measuring tape (3") needs to be accounted for to get an accurate measurement. Add 3" to  $18 \ 1/2"$  for a total measurement of  $21 \ 1/2"$ .





Actual Size = 21 1/2"

To avoid the movement of the metal lip at the end of the tape measure, start the measurement from the 1" mark. After reading the measurement, do not forget to subtract the 1" originally added.

Example: In the picture below, the measurement of the black rectangle is 22" long. Since the measurement begins at 1" on the tape, subtract the 1" from the 22" for a true measurement of 21".



Folding the measuring tape is not recommended and is usually inaccurate.

Make sure the tab of the measuring tape is tight against the wall or bottom sill so that measurements are accurate.



#### Measuring Enclosures Correctly

Tools Recommended for Installation: Two-, Four-, and Six-Foot Levels, Laser Level

When a level is used on or against an object or surface, the location of the bubble tells you whether or not that object or surface is level.

- If the bubble floats to the middle of the vial, the surface is level.
- If the bubble floats to the left side, the surface is low on the right side.
- If the bubble floats to the right side, the surface is low on the left side.

To adjust the object, raise either the left or right side until the bubble inside the level floats to the exact middle of the vial, depending on the level reading. When the level is against the wall tile, the bubble in the vial may not be level. Adjust the level until the bubble in the vial floats to the middle of the vial, then measure the gap between the wall and level with your measuring tape and write that information down.

There can also be a gap above or below the level. If there is a gap on the top side, the wall is wider at the top than it is at the bottom. The opposite can also be true: a gap on the bottom side means the wall is wider at the bottom than the top.

Example 1: Wall is bowed outward in the middle.

If the level is touching the wall and is level itself, measure both the distance between the wall and top of level and the wall and bottom of the level. In this example, those dimensions are 1/8" and 3/8" consecutively. Measure the distance from the bottom to where the wall sticks out the most (32" in this example). The result is that the wall is 1/8" out at the top, 3/8" out at the bottom and bellies at 32".

Example 2: Wall comes outward at the top.

If the level touches to the top of the wall and hangs straight down, measure the distance from the bottom of the wall to the edge of the level. If this dimension is, for example 1/4", the left wall is out 1/4" at the bottom.

Example 3: Wall comes outward at the bottom. Measure the distance between the top of the right wall and the edge of the level. If this dimension is, for example 3/8", the right wall is out 3/8" at the top.









### Measuring Enclosures Correctly

Tools Recommended for Installation: Two-, Four-, and Six-Foot Levels, Laser Level

Example 4: Curb/Still not level

Place the level on the curb. If the curb is not level and one side sits lower than the other, measure the distance from the curb to the level. If this is, for example 1/8", the curb/sill is down on that side by 1/8". The example diagram shows this on the right side.

Example 5: Finding out of square using a square corner

Measure the width of the base and the top of the opening. If the two distances are not the same, but both of the walls look straight, the corners should be checked for a 90 degree angle. If one side is 90 degrees and the other side is not, the one that is not in square will have the top of the wall out.

As shown in the diagram, if the bottom of the opening is 30'' and the top of the opening is 30-1/2'', one of the sides is out of square. If the left corner is square, it can be determined that the right wall is out 1/2''.



To properly describe the walls for the entire enclosure, begin with the left wall and move to the right. "Example 3" above showed the wall out 3/8" at the top. "Example 4" showed the sill down by 1/8" on the right. "Example 1" showed the right wall with a belly outward at 32" (see diagram).

Combining these features would read that the left wall is out 3/8'' out at the top, the right curb is down 3/8'' and the right wall is out 3/8'' at the top, out 1/4'' at the bottom, and it bellies at 32'' from the bottom.









#### Measuring Enclosures Correctly

Tools Recommended for Installation: Angle Finder / Protractor

Protractors can be used to find the angle difference between two glass panels.



Standard Glass-to-Glass Miter Angle - 45 °





Standard Glass-to-Glass Miter Angle - 22.5°

#### Miter Angles

Right angle: The right angle is one of the most easily recognizable angles. It's in the form of the letter "L" and it makes a square corner. It measures exactly 90 degrees.

Acute angle: Angles that measure more than 0 degrees and less than 90 degrees are acute angles. (Examples include 45 degrees, 22.5 degrees, etc.)

*Obtuse angle: An obtuse angle is a form of angle that measures wider than 90° and less than 180° (Example 135 degrees)* 



#### Measuring Enclosures Correctly

#### How to Measure Angles

*First mark the center line by measuring the depth of the curb/sill and then dividing it by 2 (i.e., in half). Then mark the center line from the front at the distance just found.* 



Once this distance is marked, make the same mark 3" on either side of the first mark at the same distance from the front of the curb. With all three lines marked, draw a line through them and extend it as far as possible on the curb.



Repeat the same steps for any other section of the curb/sill. The extended center lines from the different sections of the curb will intersect with each other. Use an angle finder/protractor to determine the angle from the intersecting lines.



#### **Additional Notes:**

- Shower Enclosures: with showers, measure wall to wall along the sill and wall to wall at unit height.
- When installing a door, don't forget to use some type of shim system at the bottom of the door in order to have 7/16" room for the bottom sweep (if you're planning on using a door sweep).
- Neo Angle Shower Stall: Measure along the center line of the sill to the intersection of the angles and locate the angles using an angle finder or protractor.
- 90° corner shower stall: Measure along the center line of the sill to the intersection of the angle and locate the angle using an angle finder or protractor.

