

Understanding the Story Stick Tool

The Story Stick tool is a simple, yet powerful tool, which is the heart of CabWriter. Its genesis is the story stick (aka story pole) carpenters traditionally used to layout kitchen cabinets. Some carpenters still use this technique today; see <https://www.finehomebuilding.com/2006/03/01/making-a-story-stick>.

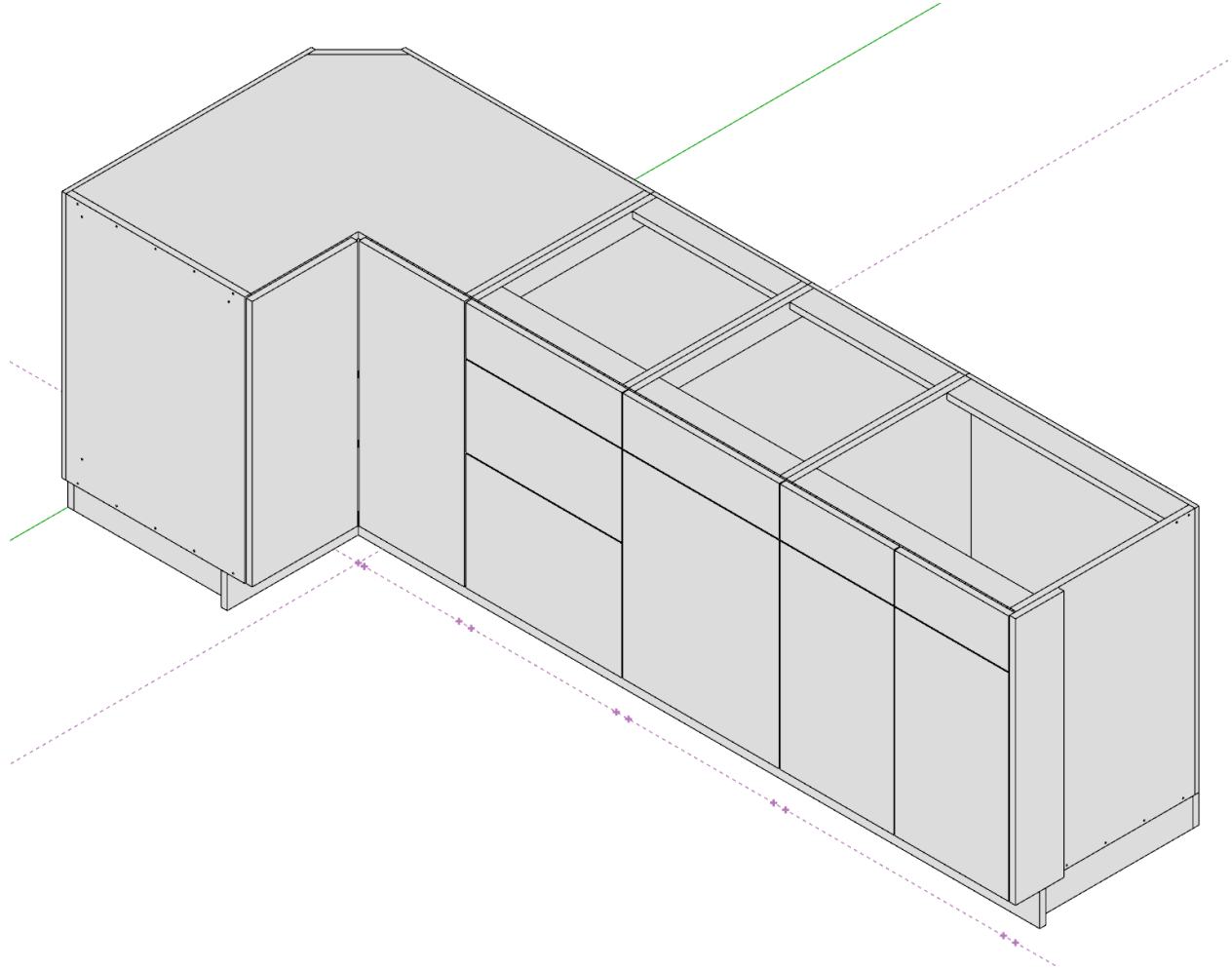


Figure 0-1 A Four Box Cabinet

Let's start from the end and work backward. The four box cabinet in Figure 0-1 includes, from left to right, a Lazy Susan Corner box, a three Drawer Bank box, a Standard base with Drawer box and finally a Sink box. This cabinet is a frameless design, though the Story Stick works the same for face frame designs. In this case the Story Stick was drawn from left-to-right, but you can also draw it from right-to-left; CabWriter will keep track of how it was drawn. Notice the construction points in Figure 0-1. Those are remnants from the Story Stick. Now let's go back and look at the beginning.

The un-annotated Story Stick is shown in Figure 0-2 just as it was drawn in SketchUp. Notice it is five sets of two red triangles or five red triangle pairs; known as Story Stick markers. Markers always come in pairs. Also notice the markers on the left are narrower than the other four. The left and right most markers always represent how the ends of the cabinet are treated, and the markers in between

represent how boxes are connected. In this case the left most marker in Figure 0-2 is not really the end of the cabinet as you can see in Figure 0-1; the cabinet wraps around a corner, but is symmetrical along a 45° line that runs through the left most red triangle. You will see in a moment that this marker contains extra information about its box than the others.

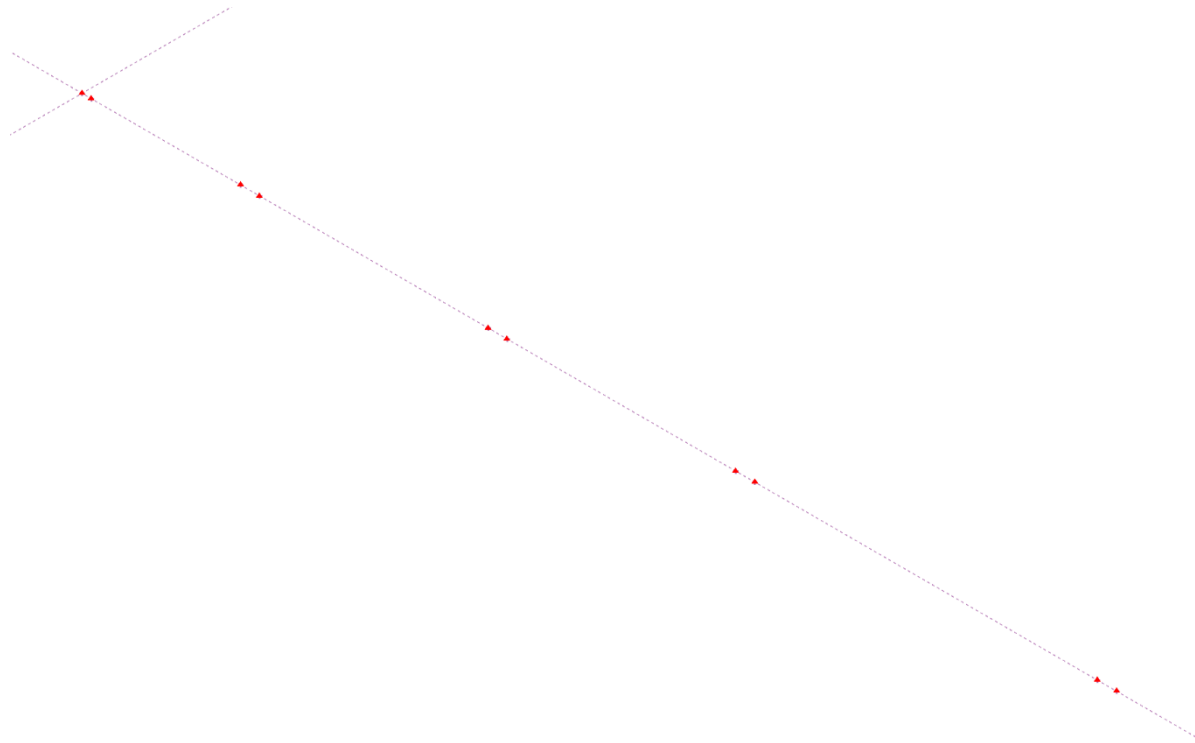


Figure 0-2 The Un-Annotated Story Stick as Drawn in SketchUp

The annotated Story Stick is shown in Figure 0-3. The left most marker is called Left Pivot Connector and is $\frac{3}{4}$ " wide. The word Pivot in Left Pivot Connector is a reminder that this marker does not represent the middle of the box, but rather the left end of the box on the left of the line of symmetry. In other words, CabWriter internally pivots it around to define the left end of the cabinet and in this case it is simply a cabinet that ends so that it can be connected to another cabinet. In frameless designs, since face frames are not drawn, and this cabinet is going to connect to another cabinet, the left most marker only represents the thickness of the cabinet's left side, which is $\frac{3}{4}$ ".

Now look at the right most marker called a Right Opening. It indicates that the cabinet will end on an opening where either a dishwasher, stove or some other appliance will reside. To appear finished, a narrow filler sheet panel is added as shown in Figure 0-1. The right side of the right most box is $\frac{3}{4}$ " thick and the filler sheet is also $\frac{3}{4}$ " thick, hence the drawn marker is $1\frac{1}{2}$ " wide; the sum of the *Base Cabinets : Base Carcass : Side/Partition Thickness* and the filler sheet thickness, which is also represented by *Base Cabinets : Base Carcass : Side/Partition Thickness*.

The markers in between are all Connector markers, and are all $1\frac{1}{2}$ " wide to represent the thickness of two carcass sides. The distance between adjacent markers is, in general, the opening width of the box. That is not quite true for the Lazy Susan nor would it be for a Diagonal Corner box.

Let's complicate matters a bit and design the same four box cabinet, but with an End Sheet on the right end of the cabinet instead of a Right Opening. Further, let's make that End Sheet 1" thick. To do this we need to do the following:

1. Set the *Panels : Base End Panels : Sheet Thickness* parameter to 1"
2. This step requires a little arithmetic. The sides of the carcass are $\frac{3}{4}$ " and if we are going to treat the ends of a cabinet with 1" End Sheets, then the marker width to represent this needs to be $1\frac{3}{4}$ ". To do this, set *Face Frame : Base Stiles & Rails : Sheet Stile* to $1\frac{3}{4}$ ".

So, you might ask, why do I need to change a stile width when I am designing a frameless cabinet and not drawing the stile? The simple truth, which I don't like to talk about, is that CabWriter was originally written for face frame cabinets, and later modified to include frameless. But ignore that and think of it this way; the width of each stick marker is a function of the type of treatment used (end panel, end sheet, end opening, end connector etc.), the thickness of that treatment, plus the thickness of the carcass side, plus a side setback which is almost always 0" for frameless designs and hence not a factor. That sum is the width of the applicable stile in the case of face frame designs, and in either face frame or frameless designs it is the width of the marker. So the stile width parameter is just a convenient place to store the marker width parameter. The designer needs to remember to set this width prior to the beginning of drawing cabinets, because it can not be changed with a simple cabinet redraw later; cabinet redraws do not change the width of markers because they happen after the Story Stick creation. Table 1 explains which parameters must be considered when setting the stile width parameters on the Face Frame tab.

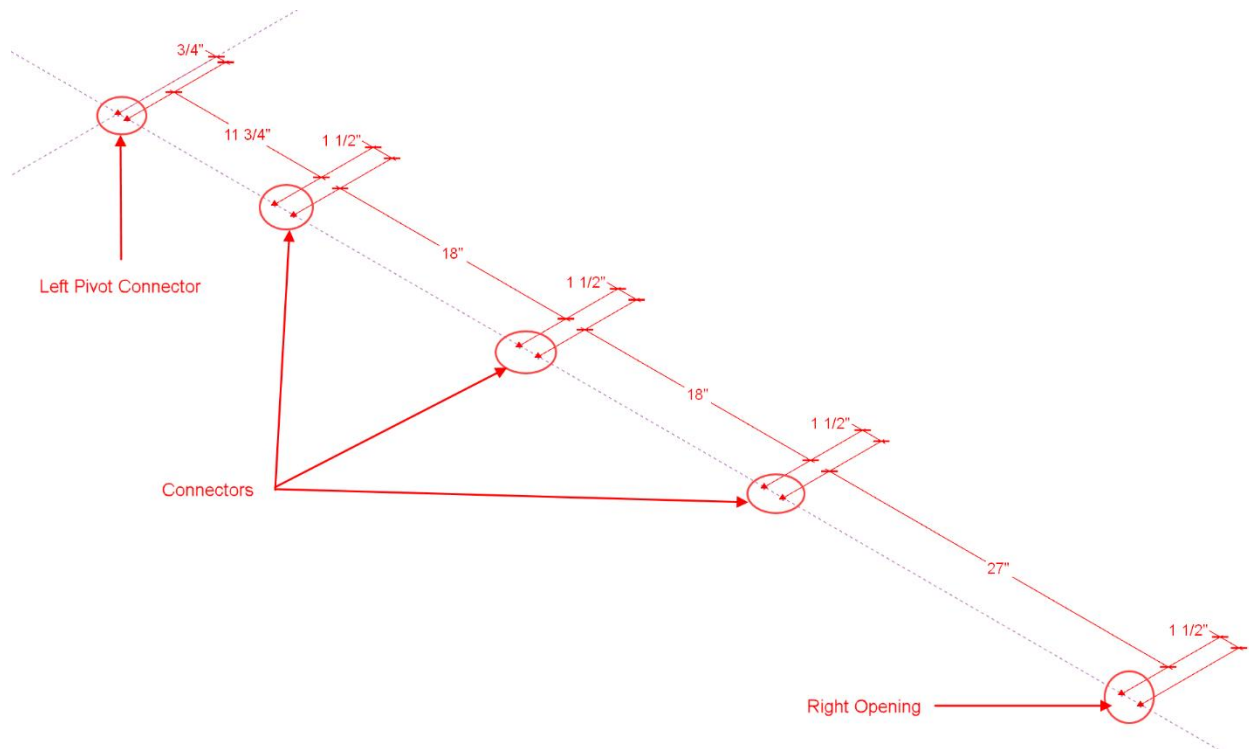


Figure 0-3 The Annotated Four Box Story Stick

The new Story Stick and resultant cabinet can be seen in Figure 0-4 and Figure 0-5. Notice the Left Pivot Connector remained the same as did the three connectors in-between the ends. However the Right Sheet marker width is now $1 \frac{3}{4}$ " as a result of changing *Face Frame : Base Stiles & Rails : Sheet Stile* width to $1 \frac{3}{4}$ ", even though the stile is not drawn in a frameless design. This new stile with allows for the $\frac{3}{4}$ " side and the 1" sheet.

To demonstrate what would happen if we didn't change the stile width to $1 \frac{3}{4}$ ", Figure 0-6 is drawn without performing Step 2 above, but only Step 1.

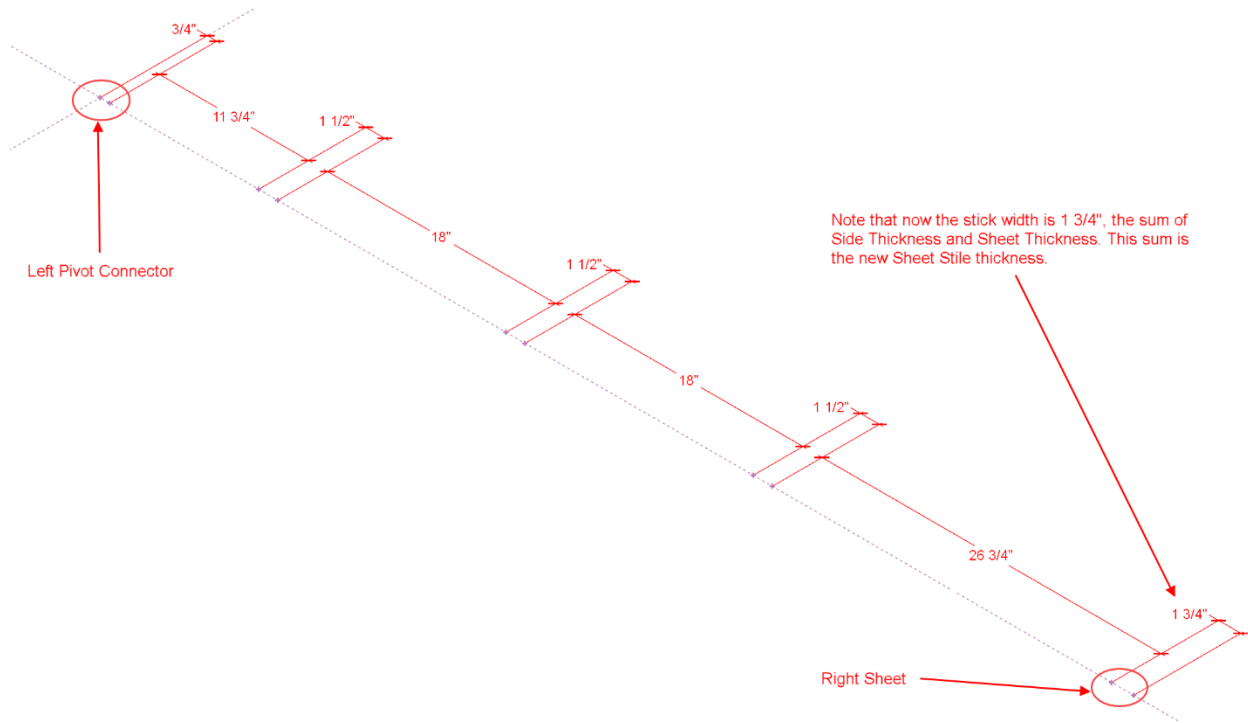


Figure 0-4 Story Stick With 1 3/4" Wide Stick for 1" End Sheet

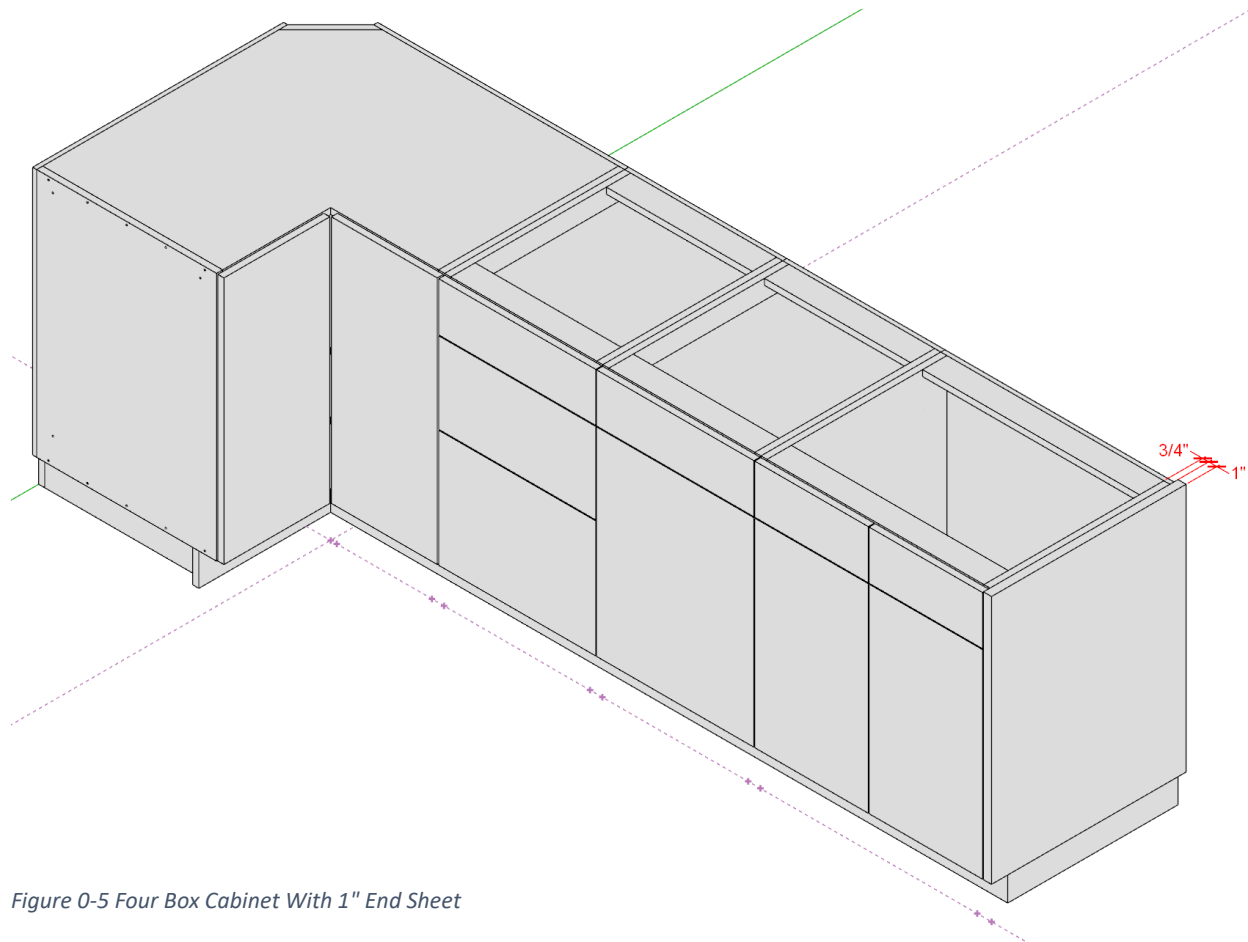


Figure 0-5 Four Box Cabinet With 1" End Sheet

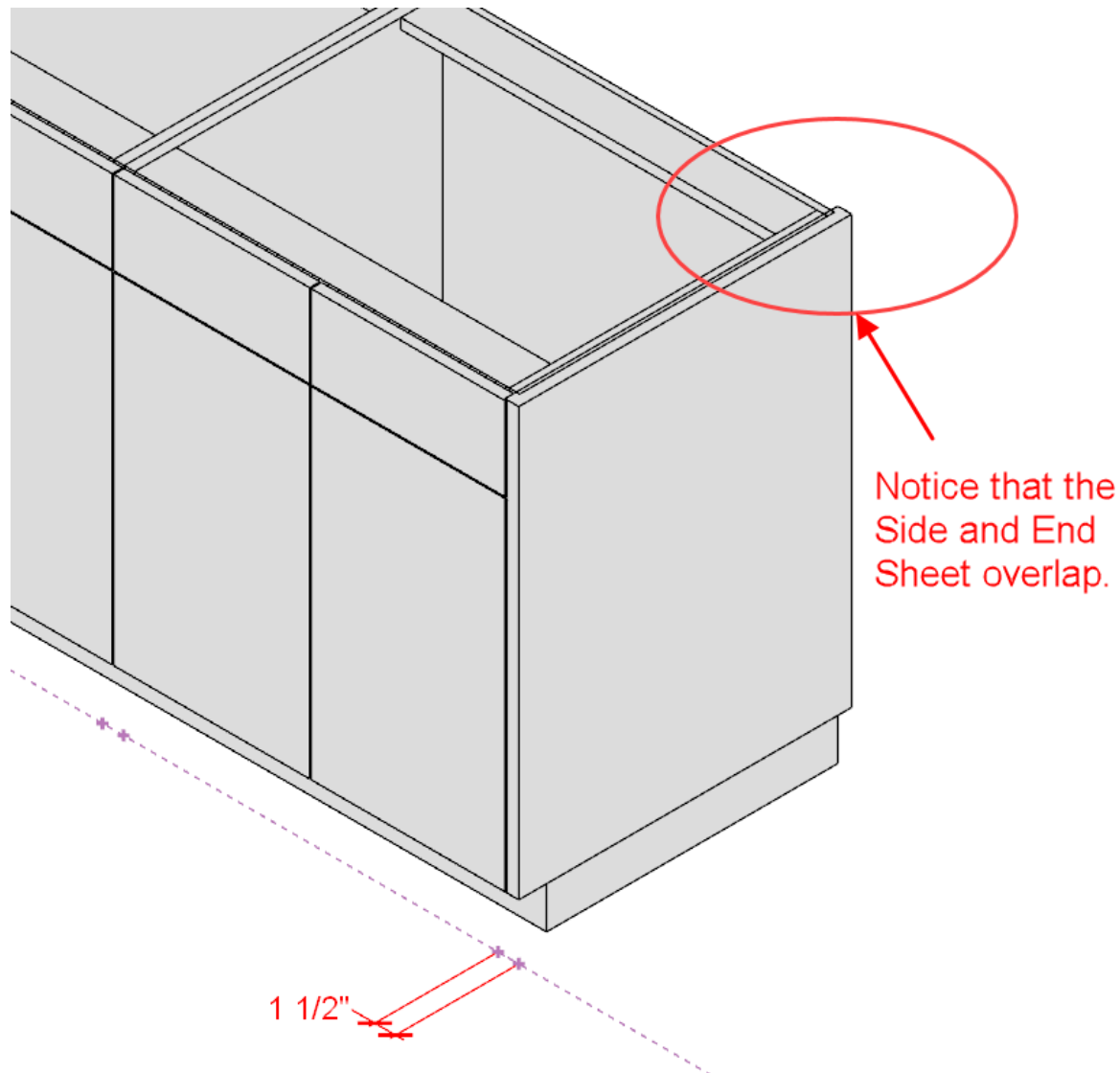


Figure 0-6 Drawn With 1 1/2" Stile Width, Hence 1 1/2" Stick Width

Notice in Figure 0-6 that the marker width is 1 1/2" as a result of *Face Frame : Base Stiles & Rails : Sheet Stile Width* still being set to 1 1/2". This forces CabWriter to draw both the cabinet side and the end sheet within the constraints of a 1 1/2" space, which does not leave enough room to draw the carcass side and end sheet without overlapping.

In frameless designs, the marker width (or the appropriate stile width) must equal the width of a side plus an end treatment if the marker represents an end, or equal to two carcass side widths if the marker represents where two carcass sides butt together. In face frame designs a third factor has to be added in; the Side Setback. *Base (or Upper) Cabinets : Base (or Upper) Carcass : Side Setback* is a parameter that permits a stile to extend beyond a side by a specified dimension. Figure 0-7 shows a cross section of a one box cabinet with a Side Setback of 1/2". This isn't as common in custom cabinets, but does exist frequently in purchased standardized cabinets. In this case the stile width must include the Side Setback.

Notice in Figure 0-7 that the stile width is 2 1/16", the sum of the 13/16" End Panel, 3/4" Side and 1/2" Side Setback.

Table 1 shows the parameters that must be considered when setting up the Stile Width parameters. This table applies to both Face Frame and Frameless because in both design styles Stile Width also represents the marker width, which in turn defines where end treatments and carcass sides are placed.

Stile (or Marker)	Parameters	Notes
Wall	Side Thickness + distance from side to wall	1
Opening	2 * Side Thickness	
Sheet	Sheet Thickness + Side Thickness + Side Setback	
End Panel	Panel Thickness + Side Thickness + Side Setback	
Finish	Side Thickness + distance from side to adjacent cabinet	2
Connector	2 * Side Thickness	
Blind/Butt	Side Thickness + distance to orthogonal connecting cabinet	3

Table 1 Table 1 Parameters That Determine Stile (or Marker) Width

Where:

Side Thickness = *Base (or Upper) Cabinets : Base (or Upper) Carcass : Side/Partition Thickness*

Sheet Thickness = *Panels : Base (or Upper) End Panels : Sheet Thickness*

Panel Thickness = *Panels : Base (or Upper) End Panels : Frame Thickness*

Notes:

1. In Frameless designs you cannot account for the "distance from side to wall" component by adding it to the Wall Stile default Width. But you can account for it by adding it to the side thickness and entering that dimension into the VCB during Story Stick creation. See manually defining a default stile width during Story Stick creation.
2. In Frameless designs you cannot account for the "distance from side to adjacent cabinet" component by adding it to the Finish Stile default Width. But you can account for it by adding it to the side thickness and entering that dimension into the VCB during Story Stick creation. See manually defining a default stile width during Story Stick creation.
3. In Frameless designs you cannot account for the "distance to orthogonal connecting cabinet" component by adding it to the Blind/Butt Stile default Width. But you can account for it by adding it to the side thickness and entering that dimension into the VCB during Story Stick creation. See manually defining a default stile width during Story Stick creation.

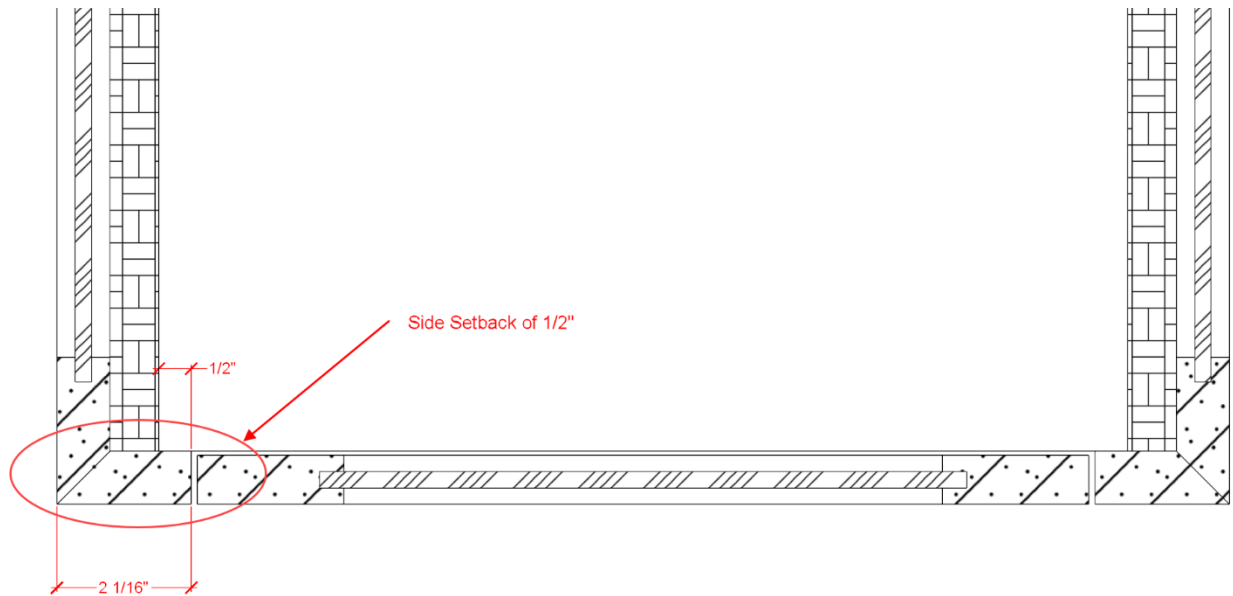


Figure 0-7 Face Frame Design With 1/2" Side Setback, 13/16" End Panels & 3/4" Sides Requiring a 2 1/16" Stile

It is also helpful to understand how CabWriter places components relative to the markers. In the case of end markers, if the marker represents a left end, the right most triangle is where the right front point of the side is placed assuming a 0" side setback. If the setback is greater than 0" the side is moved to the left the setback amount. The leftmost triangle is where the left front point of the end treatment is placed. The end treatment could be an End Panel, End Sheet or End Opening. For a right end stick all of this is reversed. Note that it is possible to have a gap between the end treatment and the side in cases where the stile width is greater than the sum of the end treatment width, carcass width and side setback. Figure 0-8 demonstrates this.

Be aware that the Story Stick creation occurs only once in a cabinet design. When using any of the re-draw or editing tools, their operation occurs after the Story Stick creation. So the cabinet designer should always be sure that stile widths, end treatment thicknesses and side setbacks are set up before drawing with the Story Stick. The marker widths may not be changeable after that point. Of course you can always delete the whole cabinet and redraw it using the Story Stick, but that is less efficient. So plan these critical dimensions before you begin drawing.

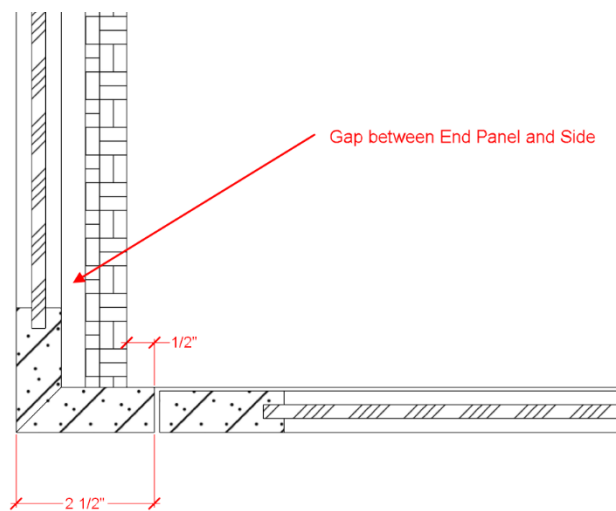


Figure 0-8 Stile Width Increased to 2 1/2" Creating a Gap

Manually Defining a Default Stile Width During Story Stick Creation

When creating a Story Stick the usual procedure for placing a marker is:

1. Click on the line to place the first triangle
2. Move an unspecified distance and direction away for the second triangle and click again.
3. This brings up the End Selector and you choose an end treatment and enter OK.
4. The default width of the end treatment then determines the width of the marker.

For Frameless designs, when either Wall, Finish or Blind/Butt ends are chosen, this will always produce a marker width of the Side Thickness.

There are a number of reasons why you might want the marker width to be greater than the Side Thickness. For example, in a Frameless design you might want to start your cabinet $2\frac{1}{2}$ " from the wall to leave room for a filler, so you would want a marker that is $3\frac{1}{4}$ " wide. To do this, follow this procedure:

1. Click on the line to place the first triangle.
2. Move an unspecified distance and direction away for the second triangle but DO NOT click.
3. Type a dimension into the VCB and press Enter.
4. This brings up the End Selector and you choose an end treatment and enter OK.
5. The value you entered into the VCB determines the width of the marker.

The above procedure works for any marker; for example, Connectors between End markers. It also works for Face Frame or Frameless designs.

Story Stick Summary

1. Plan and set up end treatment thicknesses, appropriate stile widths and side setbacks before you begin drawing with the Story Stick tool.
2. For end stiles in Frameless designs *Base Cabinets : Base Carcass : Side Setback* or *Upper Cabinets : Upper Carcass : Side Setback* are almost always set to 0", hence:
Stile Width \geq End Treatment Width + Side Width

See Table 1 for exceptions and Notes.

3. For end stiles in Face Frame designs:
Stile Width \geq End Treatment Width + Side Width + Side Setback width
4. In either 2 or 3, if the Stile Width is greater than the right side of the equation there will be a gap between the side treatment and the side.
5. You can use the Understanding the Story Stick Tool method to specify a Stile Width (marker width).