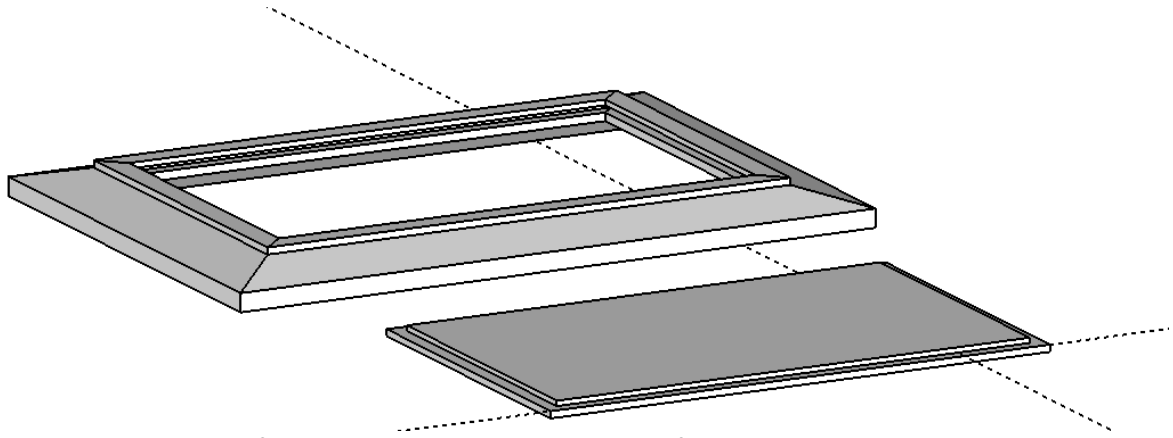


Raised Panel Jewelry Box Lid

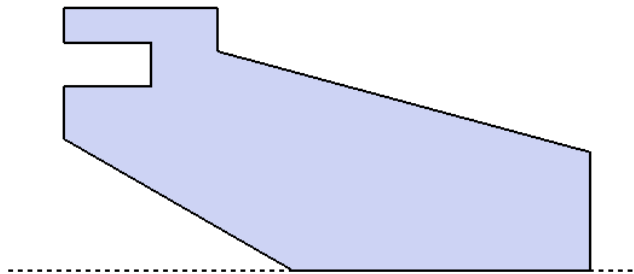
It is desired to make a raised panel lid for a jewelry box. The outside dimensions of the frame are 12"x8 1/2" and is made from 3/4" stock. The completed project is shown below:



At the end, there should be four components in the model: profile, short leg, long leg, and panel. The legs should have mitered corners.

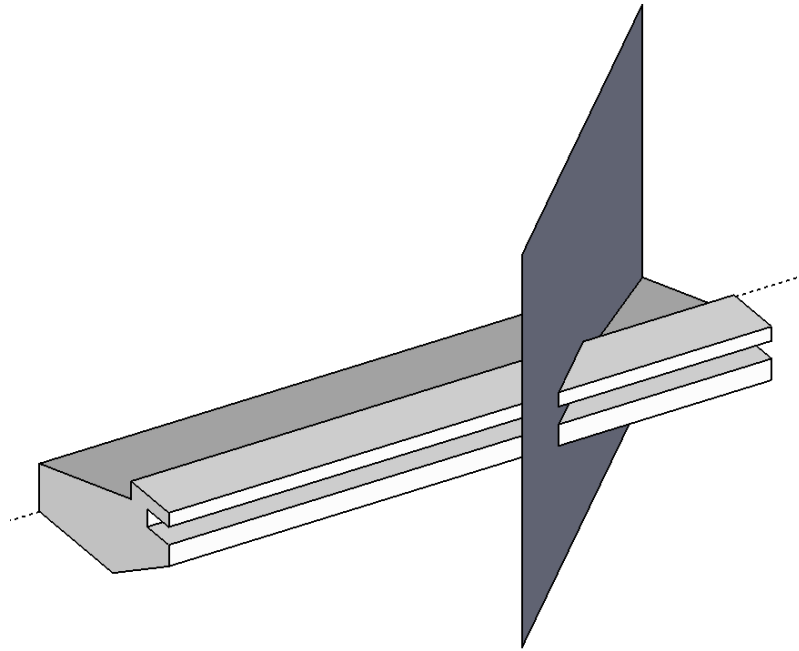
Step 1: decide the profile (cross section) of the long and short legs of the frame

The selected profile is shown below:



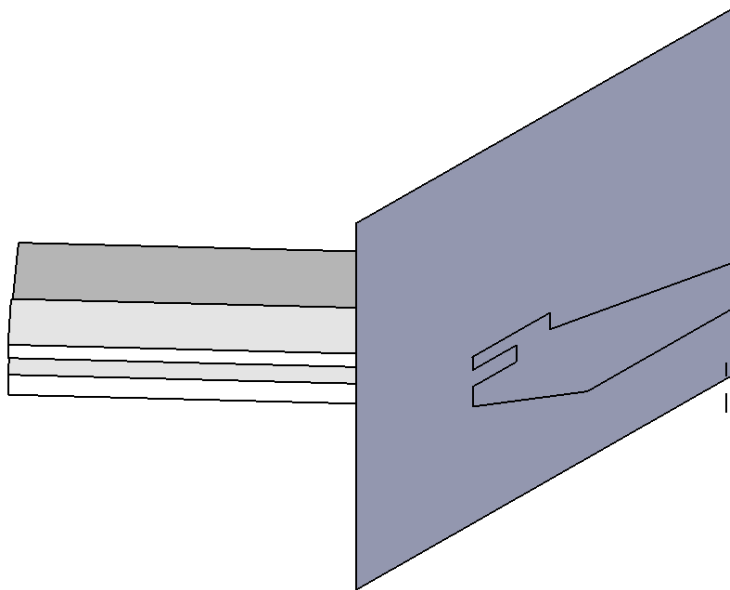
Step 2: draw half the short leg (4 1/4" long) without mitered corner

Apply Push/Pull along the green axis to the cross section to create a half leg (4 1/4" long). One end of the short leg will be mitered at 45 deg. Draw a rectangle perpendicular to the green axis and bigger than the cross section of the leg. Use the Rotate tool to rotate this rectangle 45 deg and move the rectangle into the position shown below. A guide point maybe helpful in moving the 45 deg cutting plane into the correct position. Select the 45 deg cutting plane and then Edit/Intersect Faces/With Model. The cutting plane has divided the leg into two pieces.



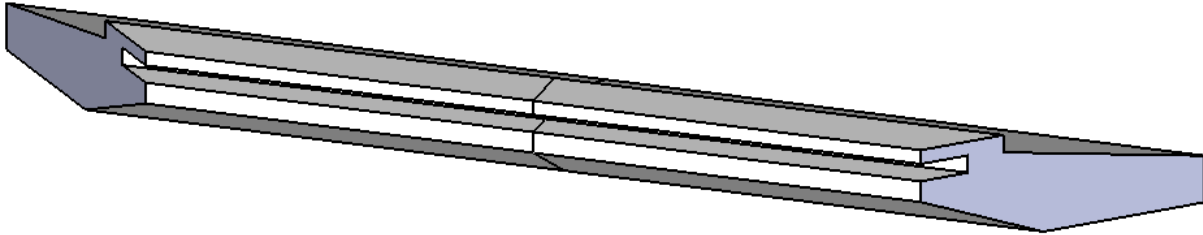
Step 3: waste away the excess material

Draw a right-to-left selection box around the material to be wasted away. Rotate the model to make sure none of the lines on the mitered face are selected. This step may take several tries. Delete the material to be wasted away, resulting in the figure below. The complete outline of the mitered cross section should be visible. If not, Undo and repeat. Delete the cutting plane and check to make sure everything is ok. There may be some minor cleanup to be done.



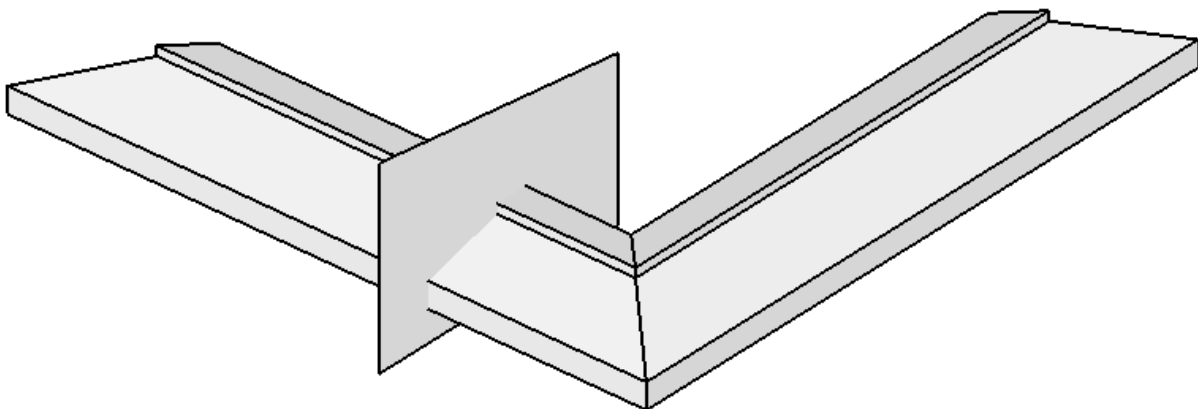
Step 4: Create 2nd half of short leg from first half

Select the half leg, use Move/Copy to create the 2nd half of the leg, flip along the (green) axis and move the 2nd half of short leg into place. Check the overall length to make sure it is 8 ½" long. There will be extra lines where the two halves were joined. If these lines bother you, then remove them; the x-ray view may be helpful . Make this a component with the name short leg.



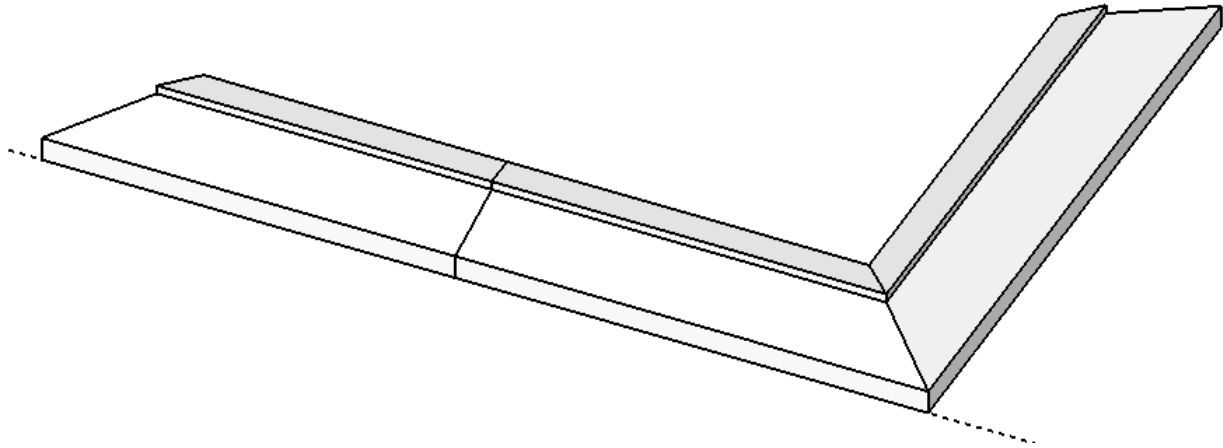
Step 5: Create long leg from short leg

From the components library , bring a short leg into the work space and rotate it 90 deg so that it can be turned into a long leg. Draw a rectangular cutting plane as shown below:



Separate the leg into individual lines/faces with Explode. Select the cutting plane and then Edit/Intersect/With Model to divide the leg into two pieces. The location (along the length of the leg) of the cutting plane is not critical. Delete the cutting plane. Draw a left to right selection box around the left portion of the leg. With the Move tool, select an outside corner of the miter and stretch it to the final long leg length of 12" .

Step 6: create long leg component



The lines joining the two portions of the long leg can be removed with the Eraser tool and perhaps the X-ray view. Draw a selection box around the resulting long leg and create a component.

With the Move/Copy tool and Flip Along, the other two sides of the frame can be completed. Zoom in on the corners and if the alignment is not perfect, adjust things.

The actual construction of the frame will require cutting eight 45 deg miters. However, the SketchUp model was created by drawing only one 45 deg miter.