

## Edge Clamp Joinery Jig Install and Usage



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## Introduction

This document will explain the setup and usage of the Edge Clamp Joinery Jig accessory. It is compatible with the DT3 edition Desktop and the Desktop MAX.

## Installing

Run the squaring and XY homing routines before installing the Edge Clamp Joinery Jig

## Tools Required and Parts List

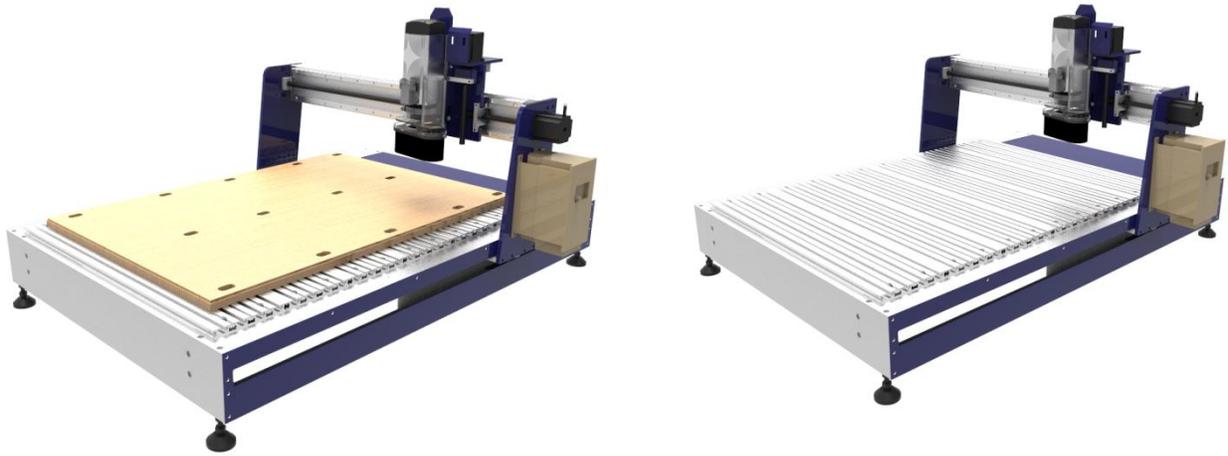


Edge Clamp Joinery Jig accessory (005697)



Hex key 4mm (003884)

Start by removing the spoil board on the Desktop or Desktop MAX using a 4mm hex key.



Use a 4mm hex key to remove the first 3 pieces of aluminum decking.



Place the jig assembly into the Desktop where the decking was just removed. Secure it to the frame using 4 of the M6-1.0x10mm button head cap screws that held the aluminum deck pieces in place. Push the clamp up against the remaining deck to make sure it is square. Then tighten down the screws, two on each side.



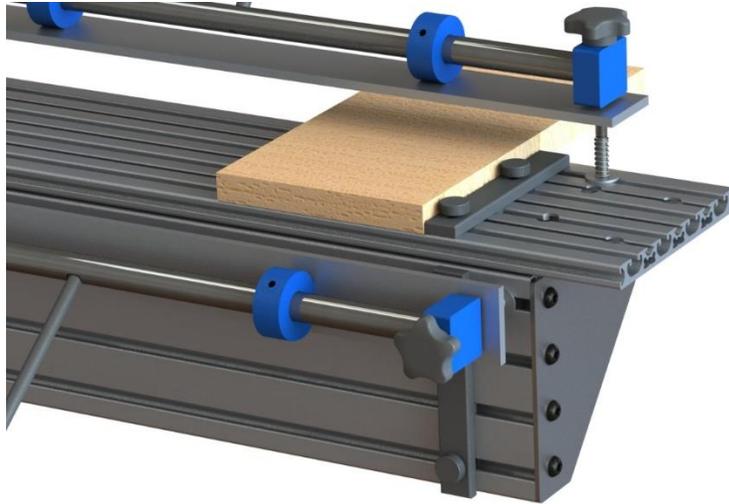
### Alternate Installation Method

By installing the clamp so that it faces inward, the router has more space to move and runs less of a risk of colliding with the clamping mechanism. Keep in mind that it may be harder to clamp and adjust material with this configuration. Line it up with the outermost set of screw holes and square it by pressing against the forward wall. Tighten with two screws on each side.



## Clamping Material

1. Adjust the fence to the preferred position and tighten by twisting the two knobs. Place the horizontal board on first, lined up with the fence and the outer edge of the clamp.



2. Push the lever down so that the sides of the cams with set screws are pointing up (the position with the most pressure). Tighten the two knobs on the edge of the assembly until the material is secure. If you need to readjust the material, simply pull the lever back up to release the pressure.



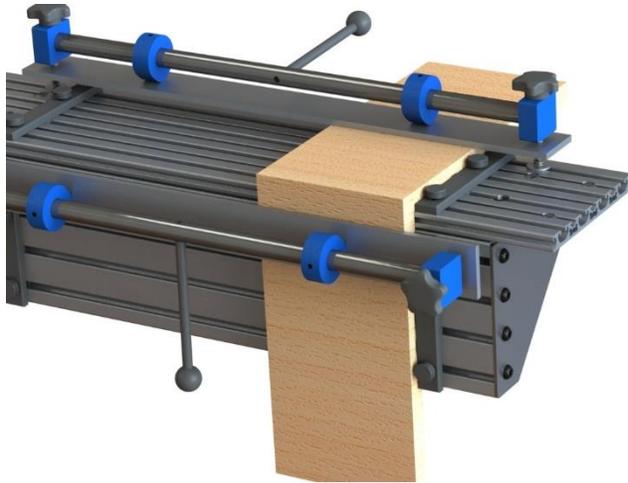
3. Slide the vertical board roughly into place and repeat the same process to tighten the clamp.



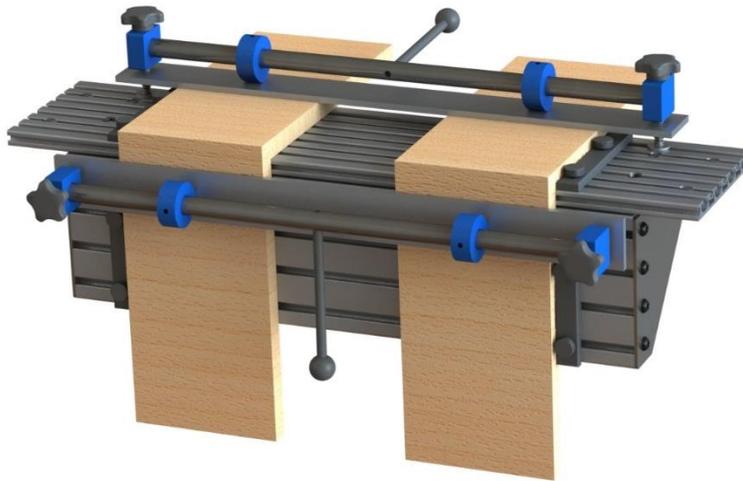
4. Position the vertical material so that both of its sides line up with the horizontal board's sides. Release the clamp to move it as needed. Once in position, slide the vertical fence up to the material and tighten it.



5. Finally, move the vertical board so that its top face is flush with the horizontal board. Make sure that both clamping mechanisms are tight before performing a cut.



6. This process can be repeated on the other side if multiple joints are being cut simultaneously.



### Before Cutting

Zero the X and Y axis to the outermost edge of the material (bottom right if you have installed the clamp facing outward and are facing the machine head-on). Use the Z-plate to zero the Z-axis. You are now ready to run a cutting file.

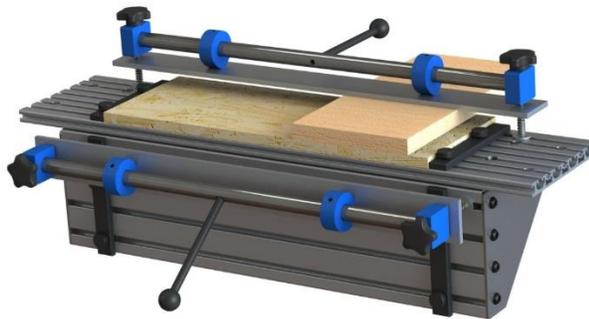
## Adding an Optional Spoilboard

These are instructions for adding your own spoilboard to prevent the risk of cutting into the deck.

1. Begin by cutting out a piece of material roughly 17" x 6" with a thickness anywhere between  $\frac{1}{2}$ " and  $\frac{3}{4}$ ". Place it onto the edge clamp, making sure to keep it flush with the outer face of the clamp.



2. When you clamp a piece of material with the spoilboard, you may need to manually hold up the clamping surface to fit the material in, as the springs that hold it up may not be long enough.



## Using Angled Fences

The Edge Clamp includes two optional fences that allow for material to be clamped at an angle. Follow these instructions to swap out the preinstalled fences with the angled ones.

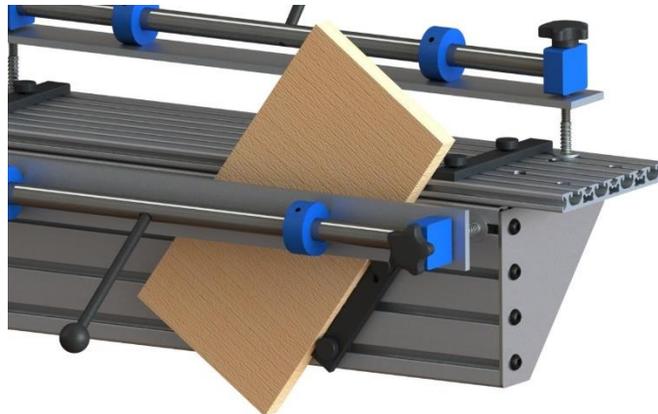
1. Begin by removing the two screws from the fence you wish to swap out.



2. Attach the angled fence with the slot on top and the hole on the bottom. Put the bottom screw in first, then the top one. Don't tighten them all the way yet.



3. Reference the material you want to cut to figure out what angle to set the fence at. Slide the top knob from side to side to adjust and tighten both to set the position. Clamp the material.



## Creating a Tenon (Desktop)

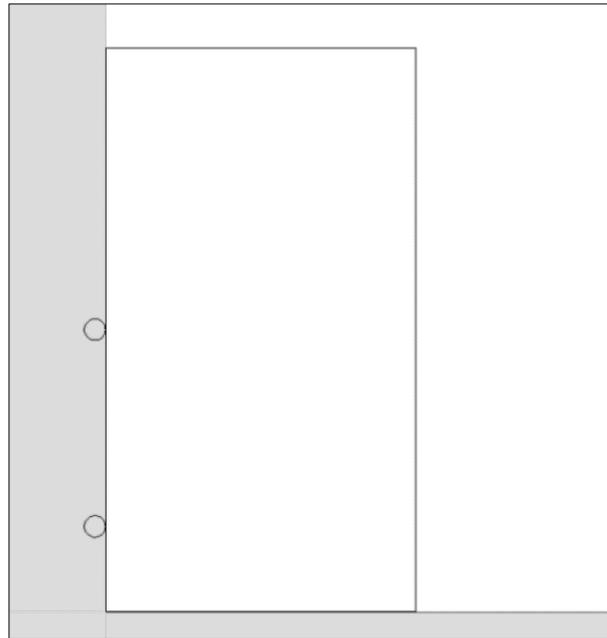
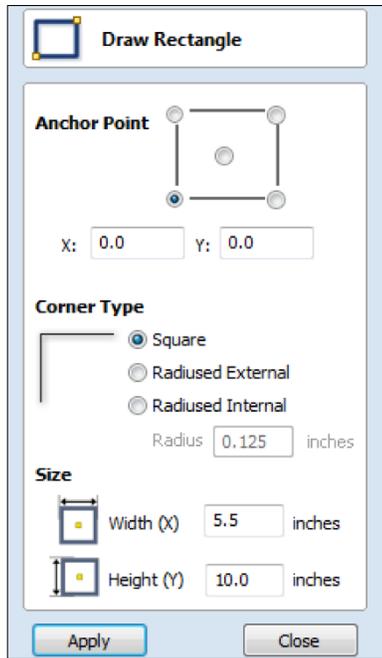
### Layout the Blanks

This example is written as if using a Desktop. NOTE: for a Desktop MAX orient the tenon along the Y-Axis instead of the X.

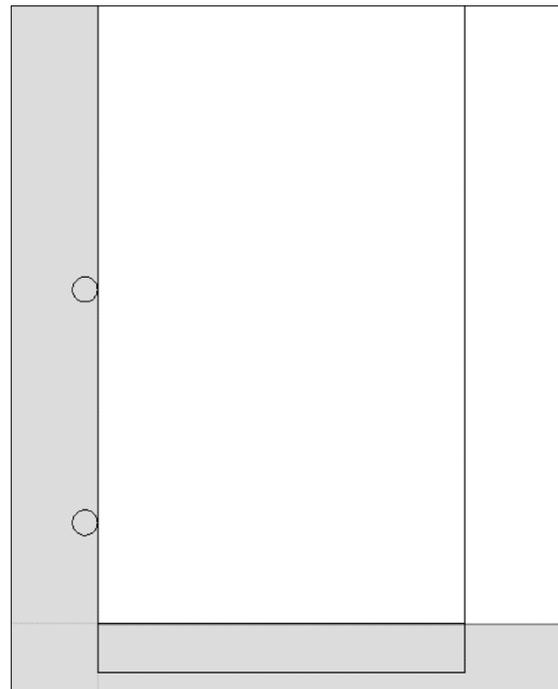
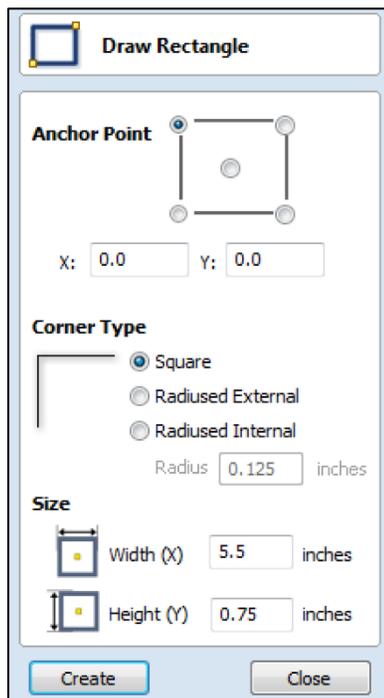
1. Create a new VCarve job.

The screenshot shows the 'Job Setup' dialog box in VCarve software. The 'Job Type' section has 'Single Sided' selected. The 'Job Size' section shows 'Width (X): 15 inches', 'Height (Y): 12 inches', and 'Thickness (Z): 0.75 inches'. The 'Units' are set to 'inches'. The 'Z Zero Position' is set to 'Material Surface'. The 'XY Datum Position' has 'Use Offset' unchecked and 'X: 0.0' and 'Y: 0.0'. The 'Modeling Resolution' is set to 'Standard (fastest)' (1 million points). The 'Appearance' section has 'Solid Color' selected. Red arrows on the right point to the dimensions: 'Width = 15"', 'Height = 12"', and 'Thickness = 0.75"'. 'OK' and 'Cancel' buttons are at the bottom.

2. Draw a 5.5" x 10" rectangle at X, 0 and Y, 0:



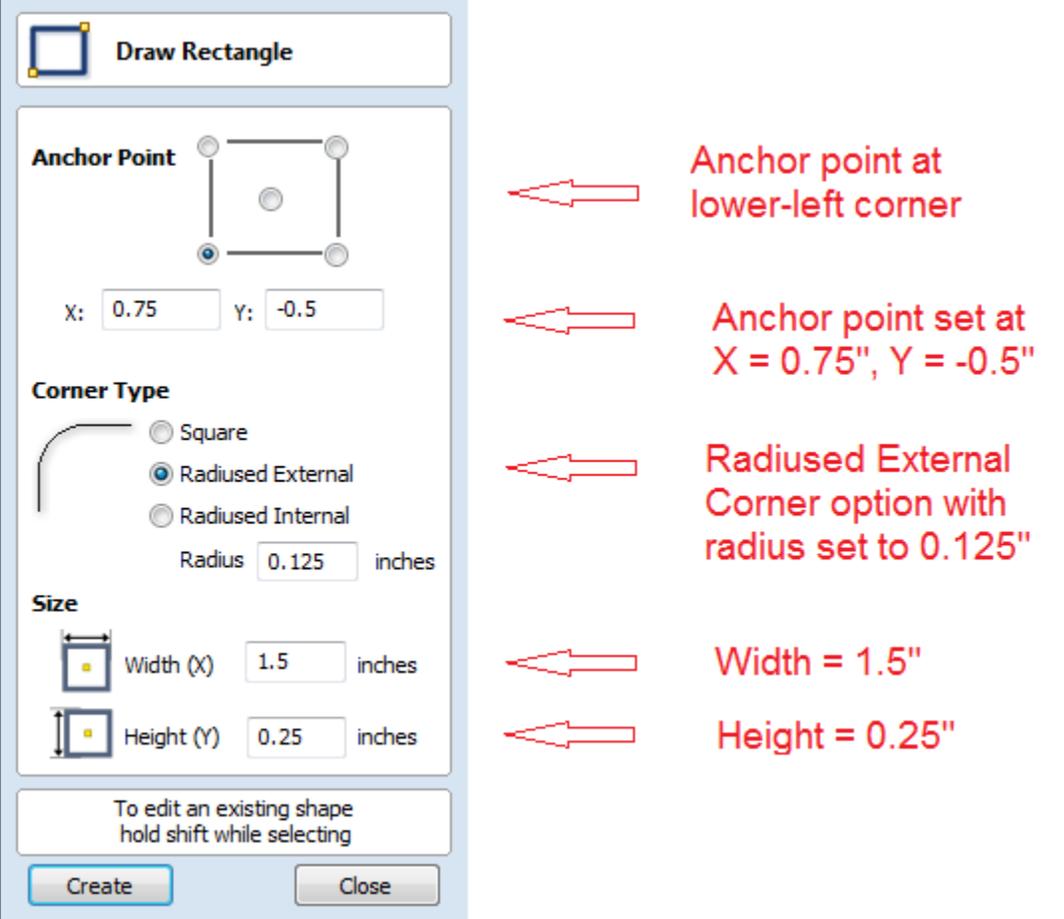
3. Draw a 5.5" x 0.75" rectangle at X, 0 and Y, 0.  
**Note:** Set anchor point to the upper left.



## Draw the Tenons

Draw two rounded rectangles on the lower piece that will become the tenons.

First tenon:



**Draw Rectangle**

**Anchor Point**

Top-Left  
 Top-Right  
 Bottom-Left  
 Bottom-Right

X:  Y:

**Corner Type**

Square  
 Radiused External  
 Radiused Internal

Radius  inches

**Size**

Width (X)  inches

Height (Y)  inches

To edit an existing shape hold shift while selecting

Create Close

Anchor point at lower-left corner

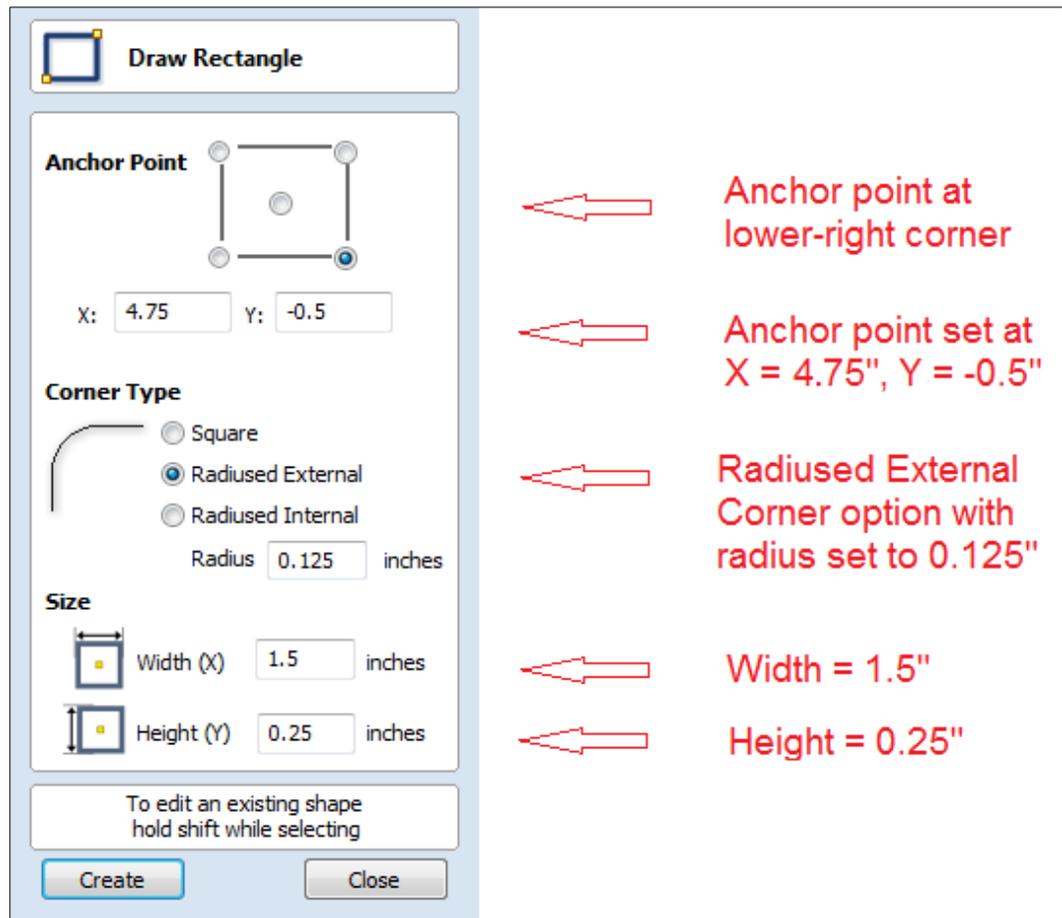
Anchor point set at X = 0.75", Y = -0.5"

Radiused External Corner option with radius set to 0.125"

Width = 1.5"

Height = 0.25"

Second Tenon:

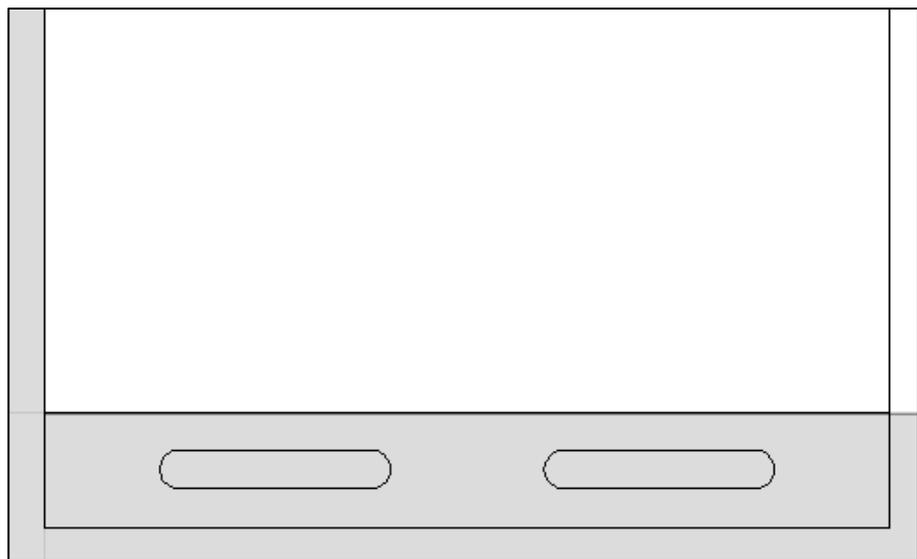


The screenshot shows the 'Draw Rectangle' dialog box with the following settings and annotations:

- Anchor Point:** A diagram shows a rectangle with a central dot and four corner dots. The lower-right corner dot is highlighted in blue. A red arrow points to this dot with the text: "Anchor point at lower-right corner".
- Coordinates:** X: 4.75, Y: -0.5. A red arrow points to these values with the text: "Anchor point set at X = 4.75\", Y = -0.5\"".
- Corner Type:** Radio buttons for Square, Radiused External (selected), and Radiused Internal. A red arrow points to the 'Radiused External' option with the text: "Radiused External Corner option with radius set to 0.125\"".
- Radius:** 0.125 inches.
- Size:** Width (X) 1.5 inches. A red arrow points to this value with the text: "Width = 1.5\"".
- Height (Y):** 0.25 inches. A red arrow points to this value with the text: "Height = 0.25\"".

Buttons: Create, Close. Text: To edit an existing shape hold shift while selecting.

The layout should look like this:

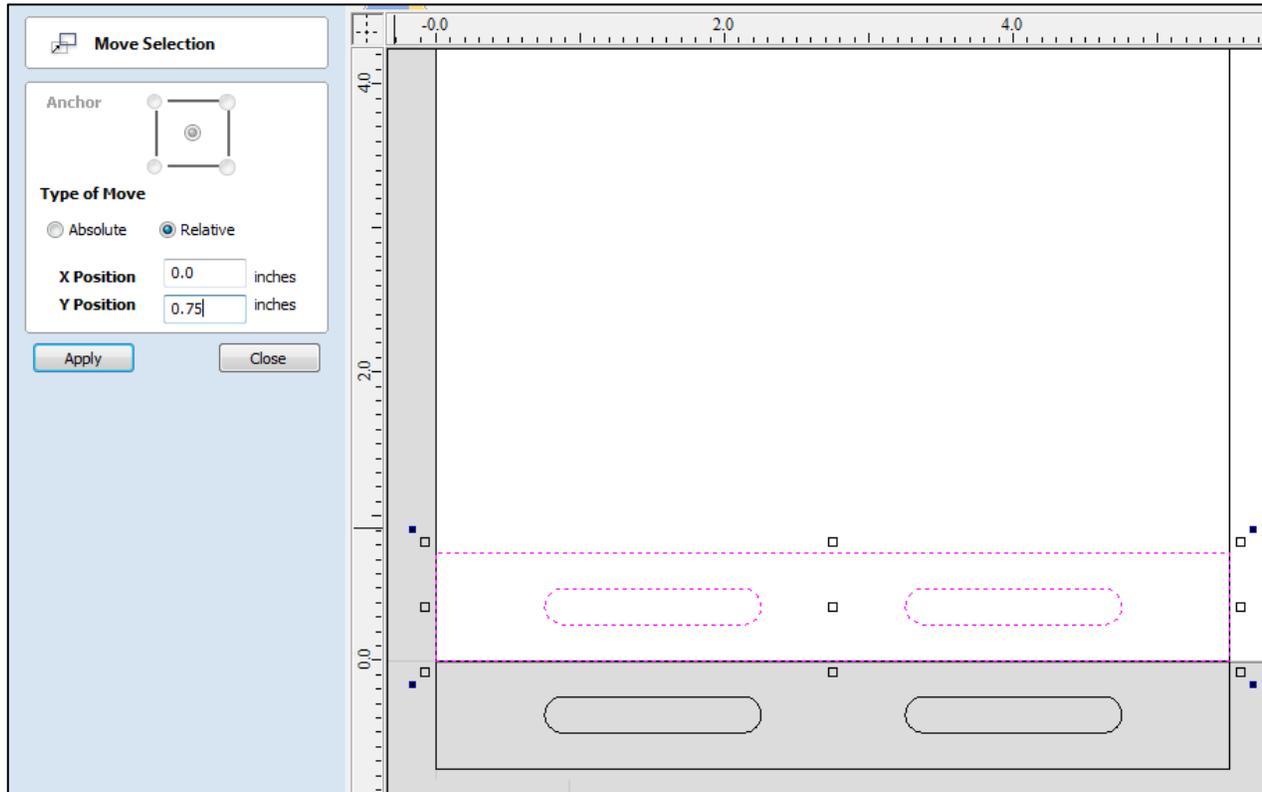


Next, to create the layout for the mortices.

Select the smaller rectangle with the two tenon rectangles, then go to Edit menu and select Copy.

Next, select Paste and a second copy will be superimposed over the original. While that copy is still selected, move it up 0.75" in the Y-axis

When complete, it will look like the below image:



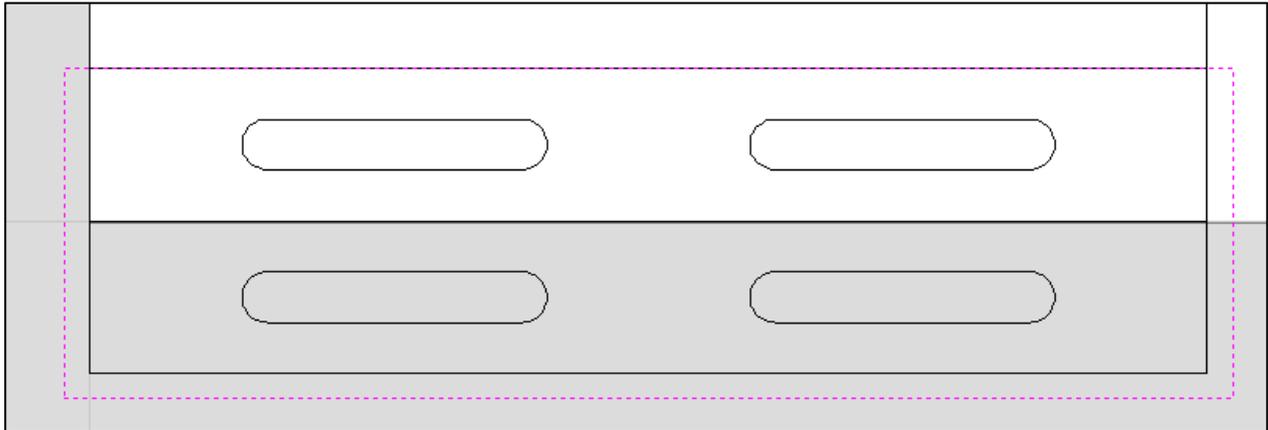
One more rectangle is needed to be the boundary for the tenon pocket. Draw that rectangle using the following settings:

The image shows a software dialog box titled "Draw Rectangle" with several sections and settings. Red arrows point from text annotations to specific settings in the dialog:

- Anchor Point:** A diagram shows a square with a dot at the top-left corner. Below it, the X coordinate is set to  and the Y coordinate is set to . A red arrow points to this section with the text "Anchor point at upper-left corner". Another red arrow points to the X and Y input fields with the text "Anchor point set at X = -0.125\", Y = 0.75\".
- Corner Type:** Three radio buttons are present: "Square" (selected), "Rounded External", and "Rounded Internal". Below them is a "Radius" field set to  inches.
- Size:** Two dimension fields are shown: "Width (X)" set to  inches and "Height (Y)" set to  inches. Red arrows point to these fields with the text "Width = 5.75\"" and "Height = 1.625\".

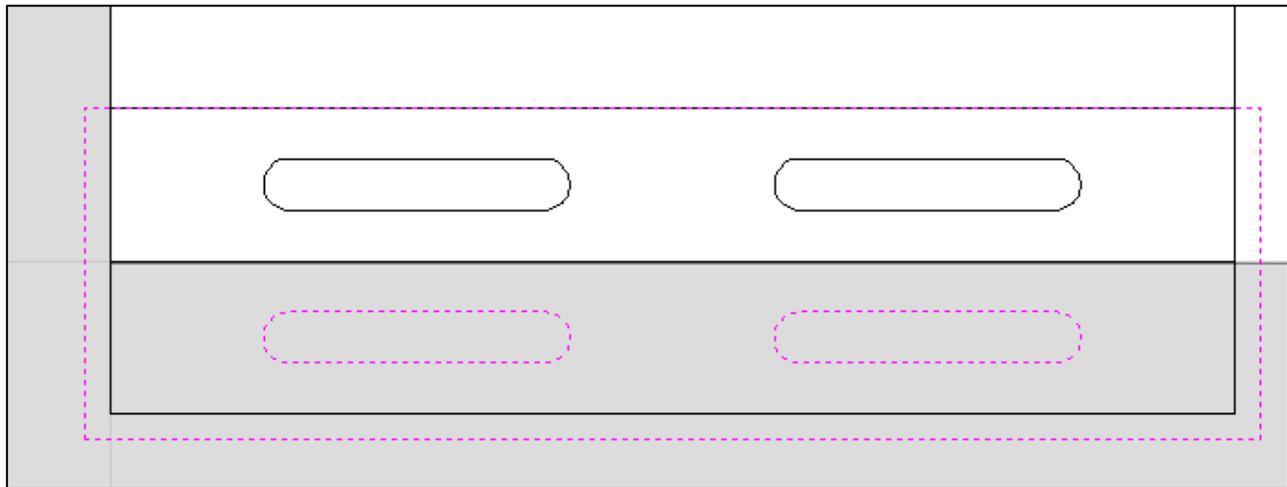
At the bottom of the dialog, there is a note: "To edit an existing shape hold shift while selecting". Below this note are "Apply" and "Close" buttons.

When finished, the drawing will look like this:



### Toolpath the Tenon Pockets

Select the larger rectangle and the two lower tenons



Create a pocketing toolpath using the selected vectors:

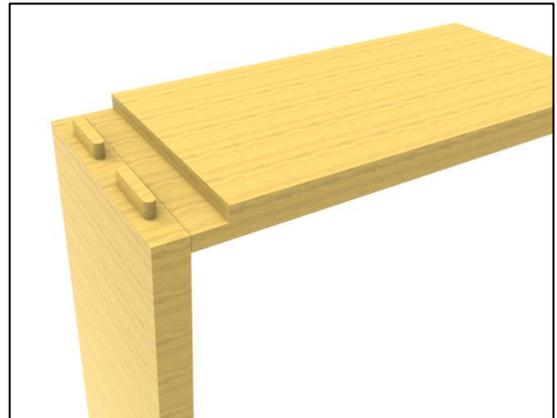
The screenshot shows the 'Toolpaths' dialog box for a 'Pocket Toolpath'. The dialog is divided into several sections with various settings and options. Red arrows point to specific settings with corresponding text annotations:

- Cutting Depths:** The 'Cut Depth (C)' is set to 0.375 inches. A red arrow points to this field with the text "Set Cut Depth to 0.375\"".
- Tool:** The tool is set to "1/4\" Up-cut (52-910)". A red arrow points to the tool name with the text "Select 1/4\" bit".
- Clear Pocket ...:** The "Offset" radio button is selected. A red arrow points to this option with the text "Select OFFSET option".

Other settings visible in the dialog include:

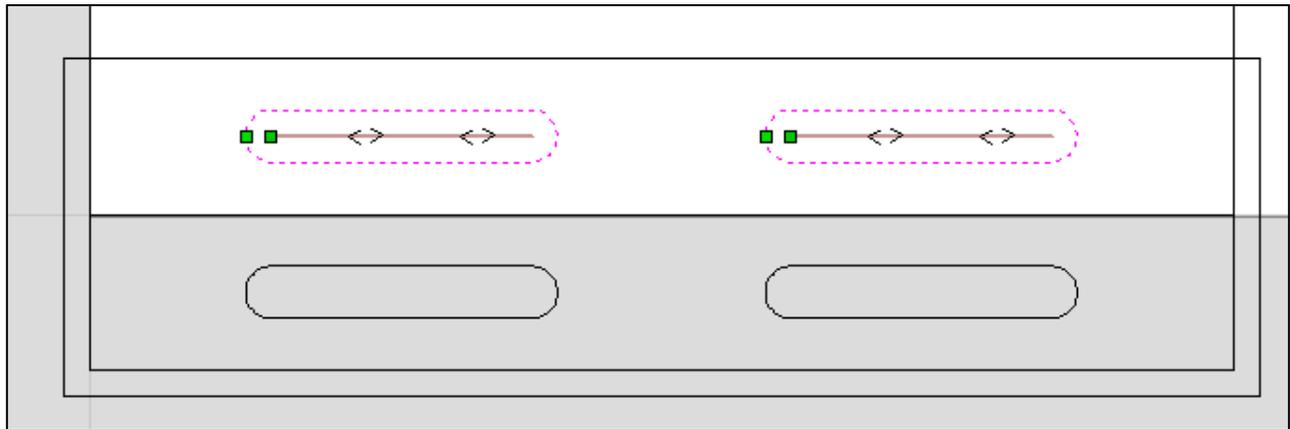
- Start Depth (D): 0.0 inches
- Show advanced toolpath options:
- Passes: 2
- Use Larger Area Clearance Tool:  (Not using area clear tool)
- Clear Pocket ...:  Offset,  Raster; Cut Direction:  Climb,  Conventional; Raster Angle: 90.0 degrees; Profile Pass: Last
- Pocket Allowance: 0.0 inches
- Ramp Plunge Moves:  (Distance: 0.1 inches)
- Use Vector Selection Order:
- Safe Z: 0.2 inches; Home Position: X:0.00 Y:0.00 Z:0.80
- Project toolpath onto 3D model:
- Vector Selection: Manual (Selector ...)
- Name: Pocket 1
- Buttons: Calculate, Close

This will create the tenons on the vertical piece and a rabbet on the horizontal.



**Create the Mortices:**

Select the other two rounded rectangles



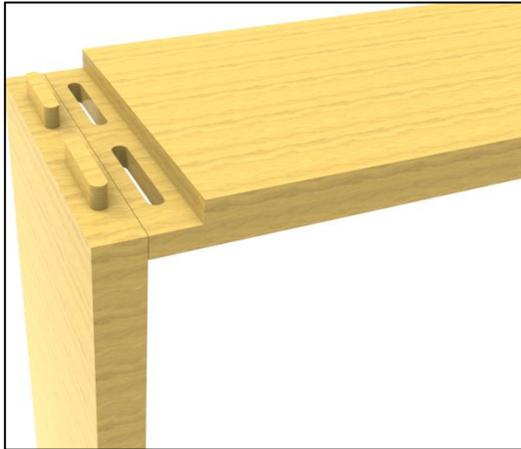
Using the 2D profile toolpath option, use the inside option to create mortices

The image shows a software dialog box titled "2D Profile Toolpath" with various settings. Red arrows point from text instructions to specific fields in the dialog:

- Two arrows point to the "Start Depth (D)" and "Cut Depth (C)" fields, both set to 0.375 inches and 0.376 inches respectively.
- An arrow points to the "Tool" dropdown menu, which is set to "1/4\" Up-cut (52-910)".
- An arrow points to the "Inside / Left" radio button under "Machine Vectors...".
- An arrow points to the "Allowance offset" field, which is set to -0.005 inches.
- An arrow points to the "Add ramps to toolpath" checkbox, which is checked, and the "Spiral" radio button under "Type".
- An arrow points to the "Name" field at the bottom, which contains the text "Profile 1".

At the bottom of the dialog, there are "Calculate" and "Close" buttons.

This will create the mortices on the horizontal piece.

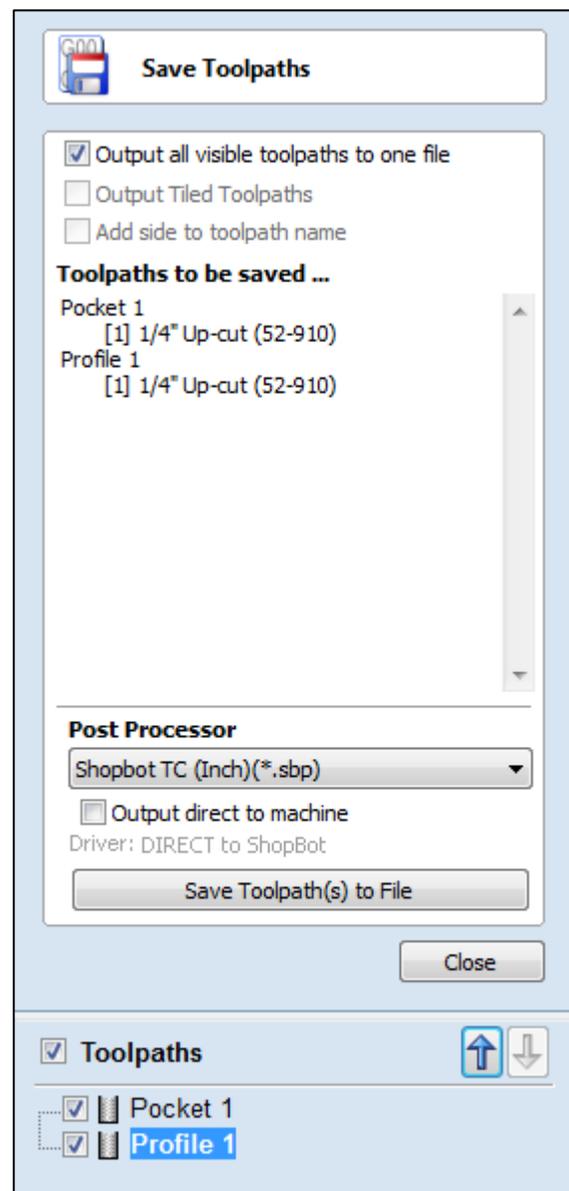


## Save the toolpaths

Now to save the cutting file.

Click the checkbox to make all toolpaths visible, then click the icon to save toolpath.

Add a check to output all visible toolpaths to one file, then click “Save Toolpath(s) to File”, which is the file needed to run on the ShopBot.



## Exploring other tenon shapes

The same technique for creating these tenons can be applied to make all kinds of interesting connections that would be very difficult to do any other way. Here are some examples of other possibilities:







Item Number	Quantity	Part Number	Description
1	4	002997	Threaded Rod 5/16-18 x 0'
2	1	002688	Deck Aluminum 100mm x 16mm Clamp
3	1	002687	Extrusion 1.5 x 0.6 x 23
4	4	002238	Knob 5/16 Five arm
5	4	002694	Spring Compression OL 1" OD 375
6	1	002690	Guest Clamp Right
7	4	002468	T-nut 5/16-18
8	2	002235	Rod .75 x 21
9	4	002698	Forco Block HDPE
10	4	002848	Washer Flat 5/16 Z USS
11	2	002234	Forco Anvil
12	2	002737	Lower Handle
13	8	002699	Thumb Knob 1/4"
14	4	002228	SHCS M6-1.0 x 14
15	8	002033	B/HCS 5/16-18 x 3/4
16	4	001986	Set Screw 1/4-20 1/2"
17	8	002854	Nut Weld 1/4-20
18	1	002685	Guest clamp left
19	2	002236	Bar Aluminum Clamp
20	4	002533	Block Mount Rod .75
21	8	002696	SHCS 1/4-20x3/4
22	4	002238	Cam bore .75 - .40 to .59
23			

