

Compatible with the Current Version of



This month's project's Edge Lit LED Signs. The samples were made using Walnut, Maple and Alder however, you might use woods of your own choosing. We recommend using any suitable hardwood. This is a nice project to give as a gift or make for yourself. These projects have RGB LED electronics, they have the ability to change colors. Each Edge Lit LED Signs have 5 basic parts, the box, that hold the acrylic, the .220" thick acrylic and LED electronics At the end of the article are pictures of Various night lights and other stands.

The Instructions, crv. files and videos are found on Nextwave's Automation Website [nextwaveautomation.com](http://nextwaveautomation.com)

This project is aimed at the woodworker with moderate to intermediate skills. You will need access to the current version of V-Carve with updates, and the tools are listed below.

With the V-Carve software, open the project CNC files. Carefully review all the toolpaths and make necessary changes to suit your tools and machine. The toolpaths are currently set with tool, feeds and speeds that were used in designing the original project. Be sure to review them for your machine. Edit the tools and change the settings to fit you own

machine and requirements. It is very important to recalculate all toolpaths after making any changes. Once having made the necessary recalculations for your own machine and tools, reset the preview, and then preview all toolpaths again to visually verify the project outcome. Create the tap file for your machine by using the correct post processor. Once satisfied with your settings, save the tool paths using the appropriate Post Processor for your machine. Check tool paths by air cutting the project or use rigid foam board to run a sample tool path. Now you're ready to make your own **Custom Edge Lit LED Signs!**

### Project material list for Edge Lit LED Signs:

- 1- 12"x8"x.25" Hardwood Blanks
- 1- 8"x8"x.220" Acrylic Sheet
- Various grade of sandpaper

### Project Tool List:

- 1/8" straight bit
- 1/4" dia. 60° V-Carve bit
- 1/2" 90° V-Carve bit
- Sanding and finishing tools.

### Project CNC Files:

- 8 inch box 150 sides\_2.crv
- Merry Christmas.crv

### Video Files: found on [nextwaveautomation.com](http://nextwaveautomation.com)

- Edge Lit Signs Designing.mp4
- Edge Lite Signs Machining.mp4
- Edge Lite Signs Finishing and Assembly 1.mp4
- Edge Lite Signs Finishing and Assembly 2.mp4

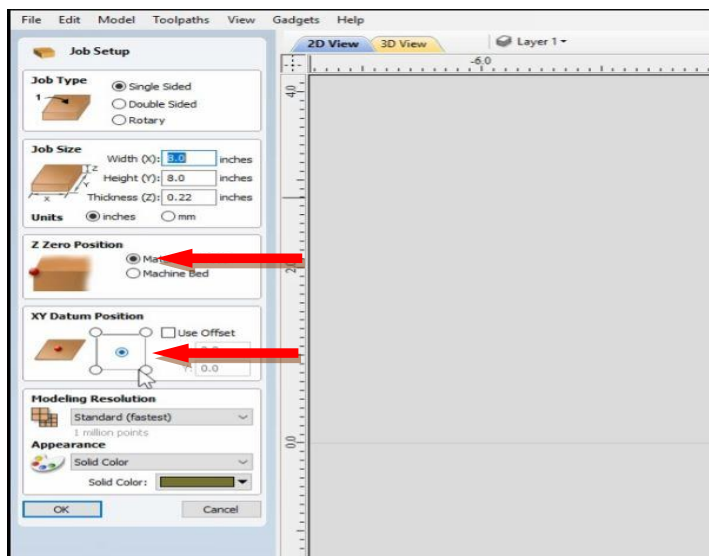
For more information on how to create the Edge Lit LED Signs tap files and how to modify the Instrument Stands, watch the video Edge Lit LED Signs Designing.

### Milling the Stock:



Mill all of your stock according to the material list. Clamp down to your blank to the spoil board I use screws in the corners. Now, you are ready for machining.

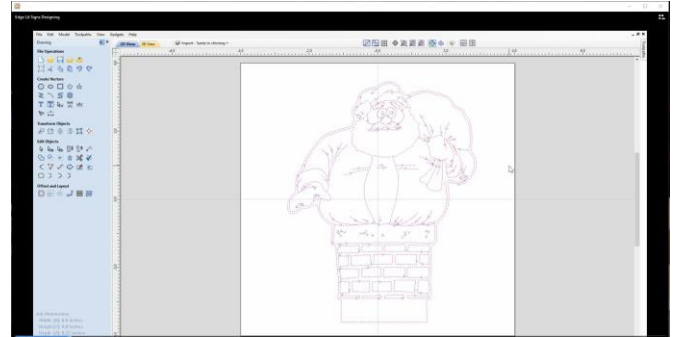
### Step 1: Creating Tap Files:



Make sure to have the following items checked in the Job setup menu to get the best results.

Zero position: Material Surface

XY position: Center



The first step in creating a tap file is to open a project file crv. Make necessary changes for styles and personal taste. Carefully review all the toolpaths and changes to suit your tools and machine. Use the correct corresponding post processor to save the tap files. For this project you should be creating many tap files. When everything is prepared, go over to the tool path menu and save each of the tool paths. The Base should have 5 tool paths. The Acrylic should have 3-8 tool paths



### Step 2: Machining the Base:

Mount the material so it is square with the X and Y axis. (above illustration.) Secure in the corners with screw or clamps as in the figure above. Make sure the clamps or screws do not obstruct the bit during machining. Install 1/2" 90° V-Carve bit. Touch off the Z-axis on the "TOP of the Material" (Reference Video).



## Project Tutorial

December Project: Edge Lit Signs

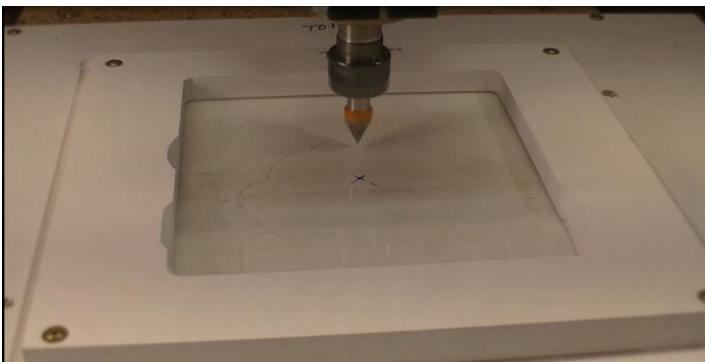
Designs by Rick Frazier

Load the [8 inch/150 sides v-groove](#) Run the tap file with a router speed at 12,000 to 16,000 RPM.



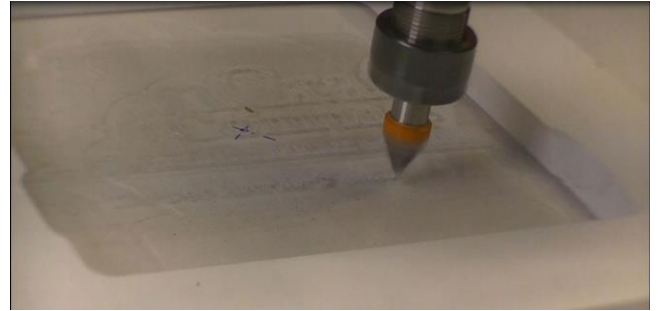
Clean the fixture of all debris. Install a 1/8" spiral straight bit. (above illustration.) Touch off the Z-axis on the "TOP of the Material" ( [Reference Video](#)). Load the [8 inch\\_150 sides Pocket 1.tap](#) file. This will combine all of the 1/8" bit files into one. Run the tap file with a router speed at 12,000 to 16,000 RPM. The box machining is now complete.

### Step 3: Machining the Acrylic:



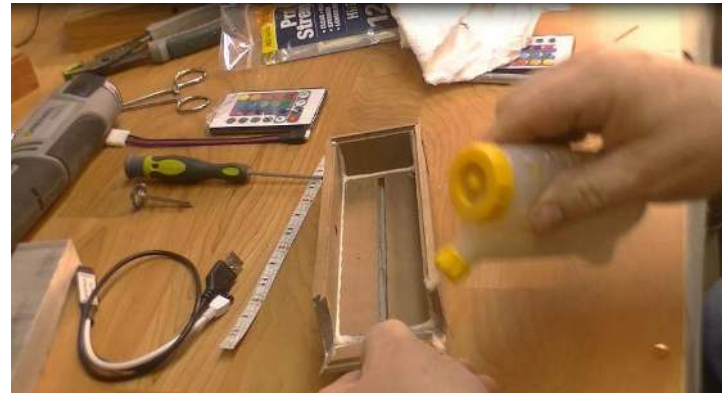
Mount the acrylic material so it is square with the X and Y axis. (above illustration.) Secure in the corners with screws or clamps as in the figure above. Make sure the clamps or screws do not obstruct the bit during machining. Install 60° V-Carve bit. Touch off the Z-axis on the "TOP of the Material" ( [Reference Video](#)). Load the [8 inch\\_150](#)

[sides vgroove.tap](#) Run the tap files with a router speed at 8,000 to 9,000 RPM.



Vacuum the top of the fixture. Install the 1/8 straight spiral bit. (above illustration.) Touch off the Z-axis on the "TOP of the Material" ( [Reference Video](#)). Load the [Merry Christmas outline.tap](#) files. Run the tap file with a router speed at 8,000 to 9,000 RPM. The Acrylic machining is now complete.

### Step 4: Assembling and Finishing the base



#### Base assembly:

The first thing I do is put tape on the outside of the seams so they don't crack during the folding process. Then glue and fold the seams and corners securing with tape. See the Reference video for more information on the folding and assembly

## Project Tutorial

December Project: Edge Lit Signs

Designs by Rick Frazier

### Sanding:



Route with a trim router the top edge of the base with a profile of your choice. Sand the base starting with 120 grit sandpaper going up to 320 grit sandpaper. Be careful no the sand away the details.

### Finishing the Base:



Before installing the electronics, stain and finish all base. I used CrystaLac Stain and finish. After sealing and final sanding, it is time to spray one coat of CrystaLac All-purpose topcoat with an amber tint added. This gives the base a warm tone. Then I spray 3 coats of Bright Tone Topcoat. Sanding with 320 grit sand paper and wiping down with a damp lint free towel between coats.

For a complete tutorial on the finish technique (the reference video:) [Edge Lite Signs Finishing and Assembly 1.mp4](#)

### Assembly



To assemble the base electronics, you need

- LED strip
- LED Light controller
- Controller to LED strip Harness
- Hot glue gun
- Tape
- Dremel tool with soft wire wheel
- Power supply
- Led remote
- Felt bottom

Assemble the LED strip, Led strip harness, controller and power supply. Make sure everything works. Place the LED strip and harness into the slot of the base, hold in place with tape. Hot glue the LED strip, let cool. Place the infrared eye and power jacks into there respective holes, hot glue in place, let cool. Adhere the controller body with a dab of hot glue, let cool.

Install the felt bottom with hot glue, let cool.

Set aside the base. Take the acrylic sign and sand the edges to 400 grit. The take a propane torch and just lick the blue part of the



flame on the acrylic edge to final polish. Wear gloves during this operation to avoid burning your hands. Put the acrylic into the slot on the base and you are done!



Hope you enjoy the making of this project. This project will make great gift and night lights. So, keep your creative juices flowing and come back next month for another cool project.

Happy Carving!  
Rick Frazier

