Laser-Cut Stacked Slice Model using Slicer for Fusion 360

Introduction

This is a guide for using Slicer for Fusion 360 to create a laser-cut stacked slice model from plywood or strawboard.
Slicer lets you easily create linework for laser cutting based on a 3D model by slicing it into 2D segments (contouring) and laying out those contours to the size of your material.
Slicer for Fusion 360 ("Slicer") is a standalone, free piece of software. You do not need to use Fusion 360 to use it. It is no longer being developed or maintained, so support is limited.

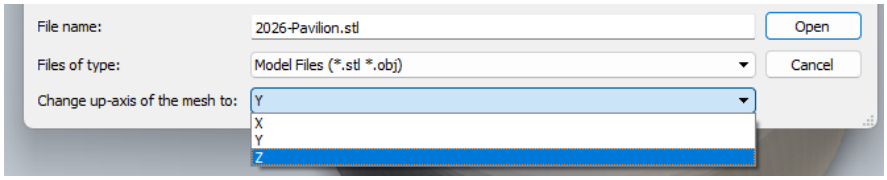
Download and install

Download Slicer for Fusion 360 here, or by copying and pasting this link into your browser: https://www.autodesk.com/support/technical/article/caas/tsarticles/ts/3yg7zznS94MHNDG7KMV8Qg.html

Using Slicer for Fusion 360

Import model

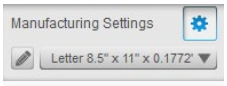
1. Save or export your work from your 3D design software as a .stl file.
2. Click *Import...* to import your model. Select your work using the file navigator.
3. Set the *up-axis*. Usually, you will set this to Z. If you import your work and it's not upright, change the up axis until it appears the right way up on your screen.



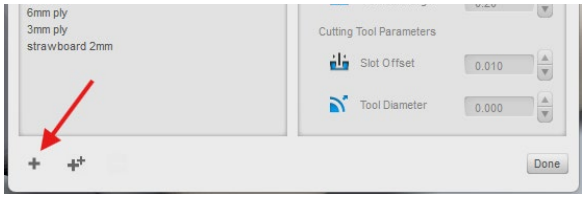
4. Click *Open* and confirm that your file looks correct on screen.

Create and select your material

1. The first time that you use a material with Slicer, you need to create its manufacturing settings. Click the pencil icon under *Manufacturing Settings* to add or edit a material.



2. Click the plus icon at the bottom of the Manufacturing Settings window to add a new material.

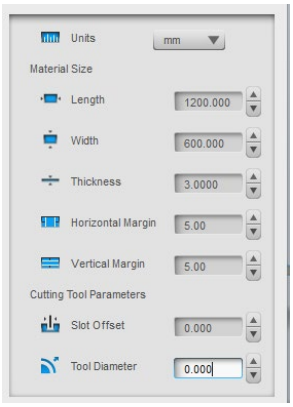


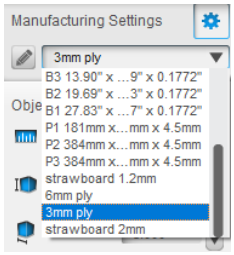
3. Double-click the newly added material to rename it descriptively.
4. Set the *units* to mm.

5. Set the *size* and *thickness* to match the material you're using. The supplied material sizes in the Makerspace are:

   Plywood 3mm or 6mm thick: 1200 x 600mm, 900 x 600mm, 300 x 600mm

   Strawboard 1.2mm or 2mm thick: 900 x 600mm
6. Set the *horizontal* and *vertical margins* to 5mm.
7. Set the *slot offset* and *tool diameter* to 0.
8. Press *Done* to add your material.
9. Select your chosen material from the drop-down list in *Manufacturing Settings*.



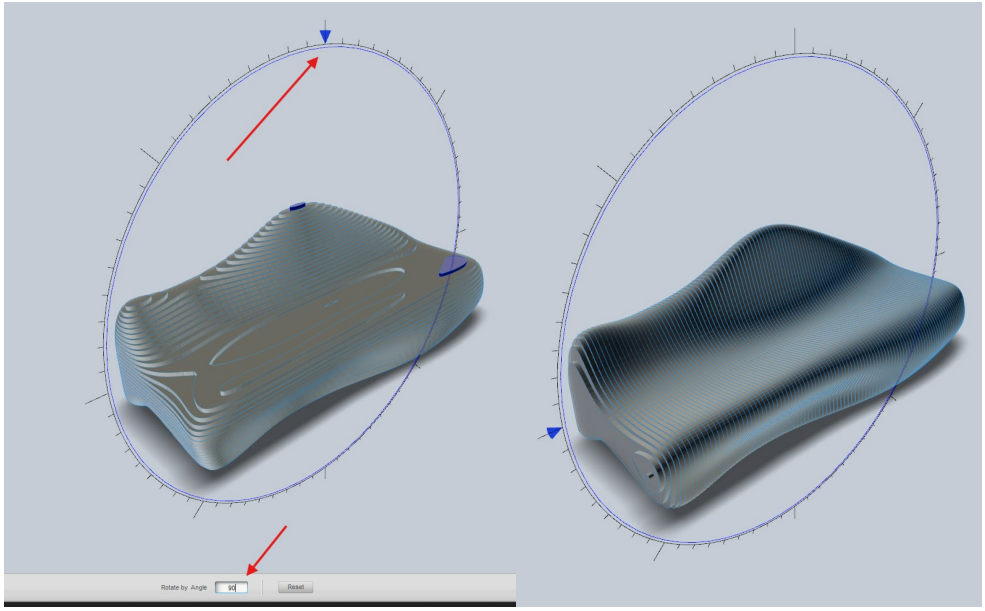


Object size settings

1. In the *Object Size* panel, set your units to *mm*.
2. Set your height, width, and length, or select *Original Size* to work at the size you exported your model at.

Construction technique

1. To create a stacked slice model, select *Stacked Slices* from the *Construction Technique* drop-down.
2. Check that the *slice direction* looks correct, and if not, modify it using the *Slice Direction* tool. The easiest way to do so precisely is to select the axis of rotation, then enter the angle by which to rotate it (e.g. 90°).



3. (Optional) You can use the *Modify Form* settings to make minor alterations to your model relevant to the construction technique, e.g. to hollow or thicken it.
4. (Optional) Dowels aren't usually necessary, but can be used, especially for larger objects, to align your work. If you want to use dowels, you will need to source them yourself. Then, input their diameter and shape into the *Dowels* section if desired. You can also use the *cross* or *slot* options and Slicer will generate the dowel(s) for you in your cut layout.
5. A Cut Layout preview should be visible on the right-hand side of the screen. If the number of sheets is 0, follow the troubleshooting steps under "0 Sheets" below.
6. Export your plans as PDF using *Get Plans*. At the bottom of the screen, set the file type to *PDF* and click *Export to My Computer*.

Preparing files for laser cutting

1. Open the PDF in your chosen vector illustration software, e.g. Adobe Illustrator.
2. Select all the red lines generated by Slicer and set them to RGB green (0, 255, 0). These marks will be engraved, and include slice numbers and alignment marks.
   To do so in Illustrator, select one red line, then click Select > Same > Stroke Color*, then change the stroke colour to RGB green*.
3. Select all the blue lines generated by Slicer and set them to RGB red (255, 0, 0). These marks will be cut.
4. Export each sheet as a separate PDF and name the files clearly.

Troubleshooting

0 Sheets

"Number of sheets generated is 0. Please change your manufacturing settings to fit model slices in stock dimensions."
This is a known bug. It can usually be resolved by changing your slicing direction by 180°. This won't affect the slices (it just flips them back-to-front), but will usually allow Slicer to slice your work.

More help

You can find more detail in Slicer by hovering over the *question mark* icon in the top-right corner of the screen and clicking *Help*. This will open the manual which includes detail on manufacturing settings and further troubleshooting.