General Setup in Rhino:

- Your file should only contain the geometry needed to mill. Do not have extra geometry in your file.
  - There is a downloadable template file on the Fabrication Lab Website on the CNC Mill page. Please copy and paste your geometry into this file before coming in.

- You must leave a minimum of a 1" border all around your geometry so that your material can be secured down to the table.

- Your geometry must be scaled down and fit fully inside the material provided with proper borders.

- Organize your file into layers as outlined below and in the template file:
  - For 3d Milling:
    - **Stock-** A box representing your material set at and below the origin
    - **Mill-** The geometry you are milling out this must be already scaled and placed fully inside the stock. Keep in mind required borders.
    - **Boundary-** Line work placed on top of your stock that represents the areas being milled. These must be closed curves.
  - For 2D cutouts you only need the **Stock** and **Boundary** layers.

- Once your Rhino file is prepared you must meet with an approved technician who will walk you through setting up your file in RhinoCAM.
  - Please fill out the CNC Google form to setup your appointment. A link to the form can be found on the Fabrication Lab Website on the CNC Mill page.

General Information:

- The SoA has a Panther CNC Router by CAMaster. The Mill can accommodate material up to 4'-0" x 8'-0". Please check with a technician before planning to mill deeper than 2" material as this may require purchasing a specialty endmill.

- The CNC Mill is only run when an approved technician is present. The mill is not available for use on the weekends.

- Do not plan to mill the same day your file is checked.
  - Once your file is checked, setup in RhinoCAM with a technician and you have your material we will schedule you a day and time to mill.
  - You must be present the entire time your project is being milled. Files can take anywhere from 30mins to all day depending on complexity and size.

- Please check with a technician before stacking your material.
  - Any material laminated together must be fully cured before we mill; with Plywood and MDF that means 24hrs. Foam may take longer depending on the adhesive used. No exceptions.
  - You may not need to stack the entire surface, your stock material does not need to be a perfect box.

- Endmills are round. Any inside corner being cut out will have a round over equal to the bit being used to cut it out.
  - The smallest diameter bit we will use for cutouts is a 1/4" bit
- Try to avoid drilling holes the diameter of the endmill. Drilling holes with the mill creates an excessive amount of heat and is dangerous if not setup properly.
  - Holes that are slightly bigger than the endmill being used can be cleared out without causing as much heat.

Materials:

You supply your own materials. The material must be a high quality material. If you have questions about a specific material please come in and speak with a technician.

Allowable Materials

High Quality Plywood- Such as Baltic birch, or cabinet grade, must be a minimum of A/B plywood.

Wooden Boards/Solid Wood- Must be high quality, lay flat and have no visible knots.

MDF- All MDF used in the shop must be NAF

Insulation Foam- The green insulation foam from Lowe's mills nicer than the pink and blue foam found at Home Depot

High Density Foam- (Balsafoam, Corafoam) This is a specialty foam made for milling. It can be found at the Complet Sculptor in Manhattan as well as through . Check their website for pricing and shipping info.

Prohibited Materials

Low Quality Plywood- Such as CDX plywood and anything labeled as sheathing. If it is not laying flat it is not allowed on the mill.

MDF- Any MDF not labeled as NAF

Metals- No metals are to be milled on the CNC mill. The Zund can accommodate thin, soft aluminum. See a technician for more info.

All material supplied must lay flat, if the material you supply is bowed or bending we will not accept it. We will not accept any material that has a lot of knots it in, all material must be checked and cleared for metal/staples before being milled.