

# How do I use the CNC router?

## 1. General Guidelines

- The use of this CNC router is restricted to academic work only. You may not use it for personal projects, work for professional firms, or for academic work outside of Penn Design.
- Students may not operate the CNC router. Only trained personnel may operate the CNC router.
- Unauthorized use of the router will result in immediate suspension of routing privileges.
- Students may not bring files to the CNC router until they have read and agreed to all notices and guidelines in this document.
- Students are expected to maintain a high level of respect for the CNC router operator. Disrespect to the operator will result in immediate suspension of routing privileges.

## 2. File Creation (Design, Modeling & Formats)

- **Students must prep their files correctly, using the CNC Template, prior to submitting their work to the operators.** \\juno\Public\DigitalFabrication\CNC-Template
- Files can be created in either Rhinoceros or Maya. **Rhinoceros is preferred**
- Files size is limited to 64MB. **No files larger than 64MB will be accepted.**
- **No extra layers.** Files with layers that do not pertain to the CNC routing process will not be accepted.
- **Please use NURBS modeling when possible, as this format easily exports using the IGES format. Mesh files are allowed with the following requirement: mesh settings must be set no finer than .01 precision. Exporting mesh files at a higher level makes them unworkable.**
- **All files must be expressed in inches at a 1:1 scale**
- **Models must be limited to 2000 cubic inches** (e.g.: 20" x 25" x 4"). The 2000 cubic inches refers to the blank material prior to being machined, **not** the finished model size.
- Group or class projects must be sub-divided into 2000 cubic inch modules and submitted by individuals.
- Students must submit and review their file with the CNC operator in order to be placed into the router queue.
- Students may be required to modify their models to accommodate the cutting limitations of the CNC router. The limits of router cutters and model complexity affect the size and detail available to any model.
- **Delete all unnecessary information.**

## 3. Materials (Choice, Routing & Finish)

- Students must supply all materials to be routed.
- Choices of materials are restricted to various types of foam, HDPE and wood. **Metal and acrylic routing is unavailable.**
- Students must prepare their material prior to routing, but after their file review with the CNC operator. Students must supply the CNC operator with the appropriate size blank to mill their project.
- Finish levels will be determined by the CNC operator, based on queue size, model complexity and CNC limitations.

## 4. Scheduling your project.

- The CNC scheduling queue is posted on the door in the Digital Fabrication area of the lab. You may place your name, contact info (Phone & email) and class info in the queue on the next available slot, **only if your file is ready, reviewed with an operator and you have supplied materials to be routed.**
- Due to the nature of the routing process, once a project is begun, it must be completed in its entirety.
- Projects will be completed on a **first-come, first-served basis.** **There will be no exceptions.** Please plan accordingly.
- No design changes can be made once you have reviewed your file with the CNC operator and the file is being routed. Additional files cannot be added to your routing time.
- Students will be allowed to submit additional files for routing only after their name has been "worked off" the list. The only exception to this rule is that if the routing queue is totally empty, a student may sign up for one additional project.
- Students will be notified by email when their project has been finished. Students will then have 48 hrs to pick-up their work. **Lab staff does not take any responsibility for projects not retrieved within the allotted time.**

**All scheduling conflicts will be resolved by Dennis Pierattini, not the faculty member or the CNC operator.**

