MACHINES & MATERIALS

THERE ARE 3 CNC MACHINES AT THE D+TL

1

MULTICAM5000 CNC ROUTER + KNIFE CUTTING ATTACHMENTS

- Most commonly used for cutting wood, plastic, and styrofoam
- The knife cutting attachment Can cut pliable sheet materials that can't be processed on our laser cutters (ex. honeycomb cardboard, styrene, rubber mat, felt, foam)
- Can, in some cases, cut thin, non-ferrous materials such as aluminum, copper, and brass
- Max. travel distance: 60 x 120 x 8" (1524 x 3048 x 208 mm)

2

SHAPER ORIGIN HANDHELD CNC ROUTER

- Great for custom joinery, engraving, in-lays, and small builds
- Cuts wood and plastic
- Max cut depth: 1 3/4" (45 mm)
- Virtually no X+Y travel limitations; you are limited to the amount of Shaper Tape you have on-hand
- You may pickup and learn this tool yourself upon completion of a Lab Safety Orientation and Training

3

TORMACHPCNC440 METAL MILL WITH 4-AXIS ATTACHMENT

- Often used for cutting soft, non-ferrous metals
- Can cut some hard, ferrous metals
- Can be used for machining plastic
- Max. travel distance: 10 x 6 1/4 x 10" (254 x 159 x 254 mm)

TRAVEL LENGTH DOES NOT ACCOUNT FOR TOOL LENGTH AND WORK HOLDING!

DESIGN

SUGGESTED SOFTWARE

	2D	3D	4-axis
Rhino3D	✖	✖	✖
Fusion 360	✖	✖	✖
AutoCAD	✖		
Vectorworks	✖		
Illustrator	✖		
Blender		✖	✖

RHINO3D & FUSION360 *are the primary CAD/CAM softwares at the D+TL.* ***.DXF, .DWG, .STEP, .AI*** *file formats can be exported from your preferred software.*

COMMON CNC METHODS

2D MILLING: *Pocketing, Profiling, Engraving (vector file only)*

3D MILLING: *Horizontal Roughing, Parallel Finishing (3D model + vectors)*

4-AXIS / FLIP MILLING: *Case by case basis (3D model + vectors)*

DESIGN LIMITATIONS
Our CNC machines are limited to 3 axes of reach which means we cannot perform undercuts. Only the Tormach metal mill has a 4th axis.

MODEL IN INCHES
The primary unit of measurement for all of our CNC machines is inches.

DESIGN DETAILS
The CNC cuts with a Rounded Endmill Tool which means ***internal corners*** *will have a radius. Use* ***dogbones*** *when designing joinery details.*

Nest *your profiles 1/2" apart from one another and within a 1/2" margin of your material.*

CNC MILLING

PRICING

JOB COST IS CALCULATED ACCORDING TO:

TIME

$27.5 PER HOUR

CNC runtime depends on the type of material, its thickness, and the complexity of your design

+

MATERIAL

THE COST VARIES BY KIND, THICKNESS, SIZE, AND AMOUNT
Using offcuts or your own material has no charge

FULL LIST OF MATERIALS WITH PRICING IS AVAILABLE ON OUR WEBSITE!
4'x8' & 4'x4' sheets are available for purchase

THE LAB ONLY ACCEPTS ONECARD AS PAYMENT

we recommend loading your OneCard beforehand which can be done in-person @ the OneCard office, @ the campus PHIL machines, or online. Link with this QR code:

CNC PROJECT WORKFLOW

ALL CNC MILLING JOBS REQUIRE A CONSULTATION WITH A TECHNOLOGIST.

1 ***HAVE A DESIGN*** *IN MIND (SKETCH IT OUT!)*

2 ***CREATE A 3D MODEL*** *OR VECTOR FILE*

3 *DROP IN DURING OPEN LAB HOURS OR SUBMIT A* ***PROJECT REQUEST*** *TO CONSULT A TECHNOLOGIST*

4 *ORDER /* ***PREPARE*** *YOUR MATERIALS*

5 *DEVELOP A* ***CUT FILE***

6 ***BOOK*** *CNC TIMES*

~~NO RUSH JOBS~~ PROTOTYPING ENCOURAGED!
We recommend testing joinery and other crucial details of your design prior to CNC cutting your final piece. Please plan your time and budget to account for CNC prototyping.

You will be responsible for monitoring the CNC as it runs and cleanup of the machine and the area around it.

SUBMIT VIA OUR PROJECT REQUEST FORM. *A technician will be in contact to book a consultation and discuss project feasibility, timeline and cost.*

The Creative School
Design+Technology LAB