Mechanical: Shop Sabre 23 CNC machine

- Working Surface (Machine travel): X =25 ” Y =36 ” Z =5 ”

Software: Vectric's ASPIRE software

- Design a part in Aspire

- Import a vector file created by another software package

  - (Craig Smith's music box file - dxf)

  - Sketch Up?? (I've never done this, but if this is important I can look into using Sketch Up

Common Cutting Tools

　　　End mill

　　　Ball nose (used mostly for carving)

Upward or Downward Spiral Cutting Tool

- Upward cutting spiral bits efficiently remove cutting waste material, BUT may damage surface of material by pulling away surface (chipping)

- Downward cutting spiral bits provide a clean surface at the expense of inefficient chip removal resulting in heat build up on deep cuts potentially overheating (damaging) cutting tool and burning the wood

- Vendor has a wide variety of cutting tools and I am will to purchase additional cutting bits

For every cut, you need to specific the cutting tool and the depth of cut

Two general types of cuts, inside cuts and outside cuts

　　　Outside cuts – cutting a rectangle is generally not a problem. Problems occur with inside angles, such as, with a pizza missing a piece. The accuracy of the inside angles will depend on the diameter of the cutting tool.

　　　Inside cuts – cutting a circular cutout is not a problem, but cutting a rectangular hole will have rounded corners.

Cutting errors

- Using a smaller diameter cutting tool will reduce radius error

Text can be cut in either a straight line or along a curve.

FEES: Generally $35/hr. Besides actually cutting the part, additional time is required to create toolpaths from the dxf file (material setup, tool size, inside cut, outside cut, depth of cut, etc.), and machine setup. All material supplied (plywood, mdf, balsa wood, etc.) by customer.