Overview of Design Software

Before you even turn on the CNC to begin your first project you must first create instructions to tell the CNC machine what to do as it relates to your project. To create these instructions, you must generate something called G-Code. There are several different software tools that can be used to layout and design your project, and then create this G-Code. Some of these tools are free, and some can cost thousands of dollars per year for each individual licensed user. As you can guess, this wide difference in price results in a wide variance in terms of functionality. If you go out to the Internet, you will find evangelicals for each software package touting how their software is the best to be used with the CNC machine.

Other Software available for CNC design

Although the Guild supplies free CAD/CAM software (CCAM Pro, VCarve Pro and Aspire) for Guild members to use at the Guild there are other software packages, some of which are listed below, that can be purchased. It should be noted that post processors (to generate the G-Code) may not be available in other vendors' products that will allow the Guild members to machine their projects at the Guild. It may be necessary, if using software other than CCam Pro, VCarve Pro and Aspire to export a design from the other software package and then import it into the Guilds software to be able to generate the G-Code. This extra process may introduce errors. Extreme caution is recommended when designing in any software other than CCam Pro, VCarve Pro or Aspire.

- o www.autodesk.com : Fusion 360 CAD/Cam software
- o www.Turbocad.com : Basic CAD software for Drafting and Drawing (Designer)
- o www.cabnetsensesoftware.com : Cabinetry software plug-in for Sketch-up
- o www.mozaiksoftware.com : Month to Month Cabinetry Software CAD/CAM

Below are some of the online resources available for clipart that will work with VCarve Pro and Aspire.
- o [https://store.designandmake .com:](https://store.designandmake.com) A library of 3D models
- o www.carver3d.com : A library of 3D models
- o www.Vectorclip.com : A library of 3D models

In addition to the online clipart software listed above the Guild has clipart available on the Guild computers and also CD disc available in the Design Studio (Computer Room).

For most of the guild members who wish to use the CNC machine at the shop, there is no good reason to go out and spend their personal money and purchase their own software. Why? Because several years ago key guild members purchased CAD

(Computer-Aided Design) – CAM (Computer-Aided Machining) software that guild members can legally use for no cost to you. There are four different software products that that were purchased, and can be used in the design and production of your CNC project. For the purposes of this initial document, we are only going to discuss the first two software products. They are:

VCarve Pro

Makerspace

Both of these products are provided and supported by a company named Vectric. Vectric is a software company based in the UK. They are highly regarded in the CNC community and because of that fact many CNC hardware manufacturers partner with them to provide software. Later in this guide you will find articles that will instruct you in obtaining and installing the free VCarve Pro with the Makerspace software. Makerspace is a complementary product used with VCarve Pro which allows guild members to download the VCarve Pro software at home, where they can create and refine their project. Then, when they are finished with the design, they can save their project to a flash drive and bring the flash drive down to the Guild so they can put finishing touches on the model (adding the G-Code). Then the final VCarve Pro files (the G-Code) can be saved back out to your flash drive, taken into the CNC room, and be loaded into the CNC machine for the machining operations.

VCarve Pro only works with the Windows Operating System. There are some programs that will allow an Apple computer to emulate a Windows based computer, however, it is not recommended to do this because complete functionality of the VCarve Pro software cannot be guaranteed. If all you have is an Apple computer at home, you can use the Guild computers to design your projects or you may wish to purchase a used Windows system to use with your design software. Consider shopping at a thrift store or ask friends and family if they have a Windows based system they no longer need.

The minimal requirements for your computer system to run VCarve Pro Makerspace Edition are:

- At least a 2 Ghz Multi-Core X86 or X64 CPU
- At least 4Gb RAM
- At least 1GB free Disk Space
- Windows 7.8, 8.1, 10 or 11
- 1024 X 768 Graphics Display

- Optional Minimum Graphics Card requirements
  - 2 GBs of dedicated RAM
  - Open GL 3.3 or later

  Note: Vectric software can be run with CPU rendering as fallback