

GCC Laser Cutter

Overview

- Reads Adobe Illustrator files
- Can cut:
 - along a vector path (for lines, contours, etc)
 - in a raster pattern (for filled areas)
- Can cut a variety of materials
 - Examples: mat board, foam board, balsa wood, plexiglass, some metals
 - **WARNING:** No shiny metals
 - Laser beam will bounce off it – very dangerous
 - If material too thick, can't cut
- Material must be flat
 - not warped
 - because height of beam above material is important
- Laser beam cuts by heat
 - It burns its way through the material
 - So...
 - Ventilation is crucial!
 - If material burns too much,
 - need to hit Panic button to stop machine immediately
- Maximum size of material is 18"x24"

Produce your Illustrator file

- Make sure dimensions are set properly
- For cross-section contours,
 - write directly to Illustrator .ai format
- For Pepakura,
 - export .eps format
- For vector cutting
 - stroke color = Black
 - stroke width = 0.025 pt
 - no fill
- Any other settings => raster cut
- You may arrange your artwork on an Illustrator artboard
- Alternatively you can position artwork in GCC menus

Power on and Set up

- Call Myrtle Hall Security, x 5656

- ask them to call Building Management
 - to turn on the roof fan
- Power strip on floor, turn on
- Power on GCC LaserPro
 - right rear, side
- Power on Macintosh
- Turn on ventilation fan by door
 - Turn knob to Hand/1

Position LaserPro

- Lift glass lid
 - Keep it open for now
 - until you are ready to cut
 - **SAFETY FEATURE:**
Laser beam will not operate while lid is open
- GCC panel: rightmost down arrow button
 - to lower bed of cutter
- Manually move laser head out of way if necessary
- Place material on bed
- Manually move laser head over material
- GCC panel: Auto Focus
 - head height adjusts automatically

Inside Illustrator

- Open your Illustrator file
- Define colors of your line work
 - Color of Illustrator line will determine how the cut is made
 - (This will be defined later inside GCC menus)
- **TIP:**
 - Text will be treated as a raster cut
 - To cut it as vector,
 - >Type >Convert to Outlines
- Select all the artwork you want to cut
- **TIP:** Do not group the artwork
 - (I believe groups don't work – not sure)
- In the “GCC Panel” window of Illustrator,
 - click tiny Export icon
- This opens the GCC menu window

Prepare the Cutting

- Inside the GCC window...
- At bottom left,

- click Eye icon to see what artwork will be cut
 - as Vector or as Raster
- Top menus:
 - “Pen” tab:
 - Pen1 = Black, 0.025 width = vector cut
 - Set Speed and Power
 - Slower speed = hotter
 - Higher power = hotter
 - Examples:
 - Speed = 1, Power = 100 => a slow, hot cut
 - Speed = 60, Power = 100 => a quick and therefore not so hot cut
 - **TIPS:**
 - Keep Power=100 and change only the Speed
 - Values can be fractional – e.g, 1.5
 - (See table at bottom of this document for suggested settings for different materials)
 - Other pen colors => different kinds of cuts
 - For example, a faster cut to score rather than cut
 - “Advance” tab:
 - Placement according to your Illustrator layout
 - (I don't remember the exact wording here)
 - “Center” => you manually position the head over the material
 - Your artwork will be centered there
 - When your settings are ready,
 - Hit the tiny Export icon (lower right)
 - You should get two messages about your file being successfully exported
 - On the GCC machine's panel,
 - the name of your Illustrator file appears

Do a Non-Cutting Test

- Keep the lid of the machine open
 - This prevents the beam from activating
- Confirm that your file's name is showing on the GCC machine panel
- Hit the Start/Stop button
- The cutter head moves over the material
 - at exactly the speed and in exactly the pattern as it will when it cuts,
 - but the beam does not go on
 - and therefore it doesn't cut

Cut the Material

- When you are ready to cut...
- Close the lid

- Hit Start/Stop button again
 - The head moves, beam is on, beam cuts material
- **WARNING:**
 - If too much smoke or if flames,
 - Immediately hit the round red **Panic** button
 - on right side of machine
 - This immediately stops the machine
 - To reset the Panic button,
 - turn it
- If material is not cut all the way through...
 - Without touching your material or the head,
 - Hit Start/Stop again
 - to cut exact same pattern a second time
 - and/or
 - Change the Speed setting, export again, start again

Finish Up

- Open the lid
- Remove your material
- On the little GCC panel
 - Hit Delete
 - to delete your file from GCC's memory

Shutting Everything Down

- Turn off the big fan near the door
- Shut down the Macintosh
- Power off button on the GCC LaserPro
- Power off power strip on the floor

Some Suggested Settings for Cutting Speeds & Powers

- 3/16" FoamCore foamboard
 - To cut: Speed = 1.5; Power = 100
 - To score: Speed = 60; Power = 100
- 1/8" matboard
 - To cut: Speed = 1; Power = 100
 - To score: Speed = 60; Power = 100