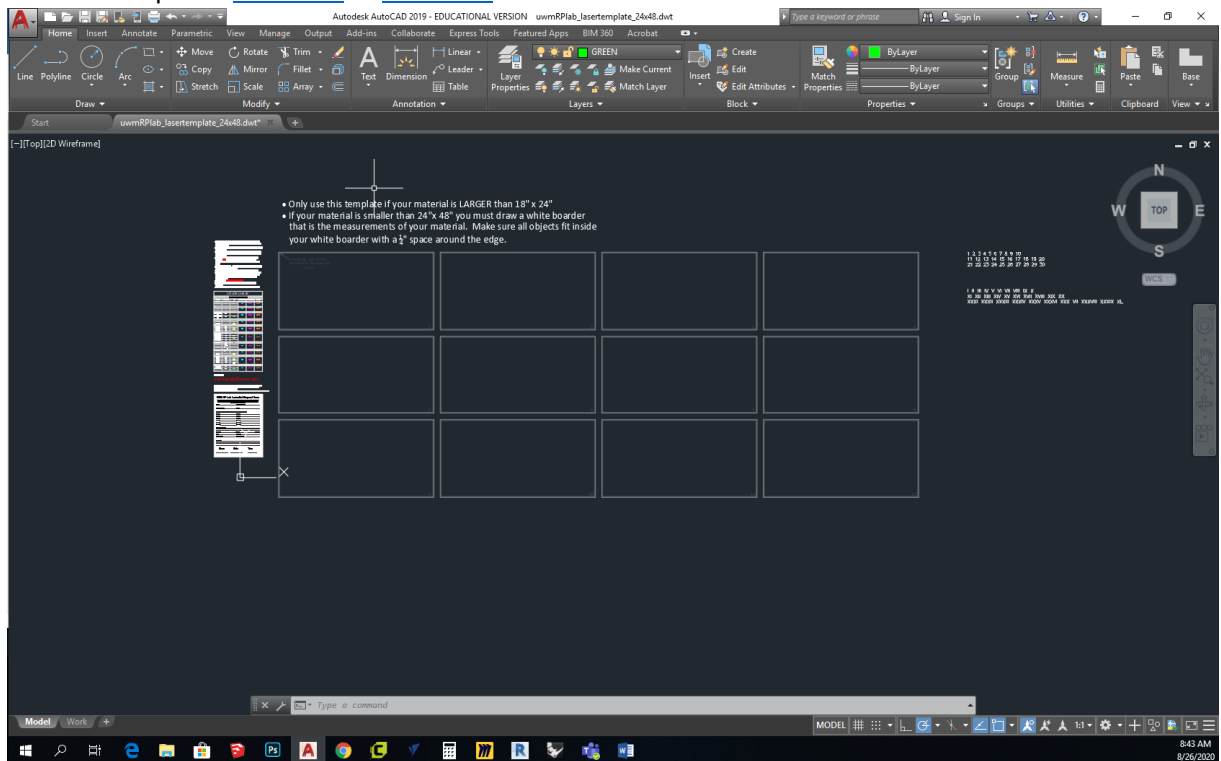


Using the RP Lab (Rapid Prototyping Lab)

Laser cutting

1. Make a 2-dimensional (2d) file from your preferred drawing software of parts you would like to get laser cut.
2. Export your 2d file to a DWG file (AutoCAD file type)
3. Open AutoCAD, NOT AutoCAD Architecture , AutoCAD is free with a .edu email address
 - a. [Get AutoCAD](#)
4. Open your file you exported in AutoCAD
5. Open the drawing template file for the size of material needed to get your parts cut out.
 - a. Templates [18" x 24"](#) or [24" x 48"](#)

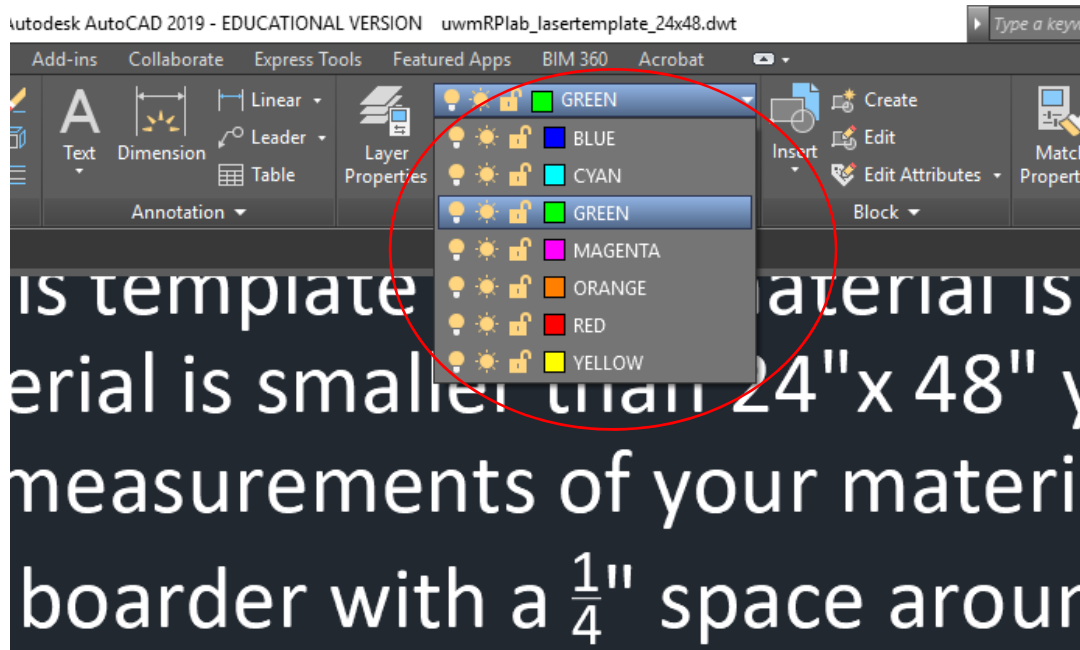


6. Copy and paste your drawing file into the drawing template file you have chosen.
 - a. Tip: Our template units are set to inches. If your part come in to large or small you have not scaled or drawn your files in inches. Please scale your file and double check that the parts are the correct size in inches.

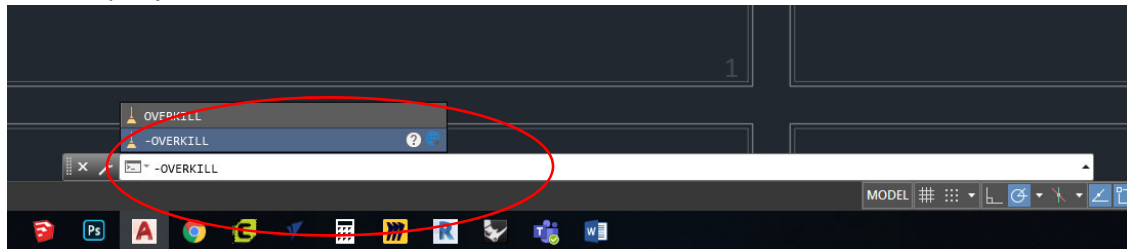
7. Now look at the Color chart on the left-hand side of the template. You will see different materials and thicknesses. Pick your material and then pick your thickness of your material you would like to have laser cut. If the material thickness is not shown go to the closest thicker material.

COLOR CHART					
PAPER PRODUCTS					
MATERIAL	THICKNESS	CUT	SCORE (light)	SCORE (heavy)	ENGRAVE
CHPBOARD	1/32"	RED	CYAN	MAGENTA	ORANGE
CHPBOARD	1/16"	GREEN			
CHPBOARD	1/8"	YELLOW			
CARDBOARD	1/16"	RED	CYAN	MAGENTA	ORANGE
CARDBOARD	1/8"	GREEN			
CARDBOARD	1/4"	YELLOW			
MUSEUM BOARD, Butter board Matte Board	1/32"	RED	CYAN	MAGENTA	ORANGE
MUSEUM BOARD, Butter board Matte Board	1/16"	GREEN			
PAPER		RED	CYAN	MAGENTA	ORANGE
CARDSTOCK		GREEN			
SANDPAPER		YELLOW			
HARDWOOD	1/32"	RED	CYAN	MAGENTA	ORANGE
HARDWOOD	1/16"	GREEN			
HARDWOOD	1/8"	YELLOW			
HARDWOOD	1/4"	BLUE			
MASONITE, MDF, and HARDBOARD	1/8"	RED	CYAN	MAGENTA	ORANGE
MASONITE, MDF, and HARDBOARD	1/4"	GREEN			
MASONITE, MDF, and HARDBOARD	3/8"	YELLOW			
MASONITE, MDF, and HARDBOARD	1/2"	BLUE			
BASSWOOD	1/32"	RED	CYAN	MAGENTA	ORANGE
BASSWOOD	1/16"	GREEN			
BASSWOOD	1/8" or 1/8"	YELLOW			
BASSWOOD	1/4" or 1/4"	BLUE			
PLYWOOD	1/8" or 1/16"	RED	CYAN	MAGENTA	ORANGE
PLYWOOD	1/8"	GREEN			
PLYWOOD	1/4"	YELLOW			
ACRYLIC	1/8"	RED	CYAN	MAGENTA	ORANGE
ACRYLIC	3/16"	GREEN			
ACRYLIC	1/4"	YELLOW			
ACRYLIC	3/8"	BLUE			
ACRYLIC	1/2"	BLUE MULTIPLE PASSES			
THIN PLASTICS -PETG-DURLAR	1/32"	RED	CYAN	MAGENTA	ORANGE
THIN PLASTICS-ACRYLIC	1/16"	GREEN			

8. Make all the lines that you want the parts to be cut out the color that corresponds to your material and thickness. All the lines you would like to be scored (not cut all the way through) either CYAN or MAGENTA. Each cut color has a color layer. Please put your lines on the appropriate layer. This makes fixing files easier and you have better control of the file. Questions about scoring can be answered in the lab. We have a material sample board on the door to the RP Lab.




9. Now you need to remove overlapping lines. Some softwares produce files with overlapping lines and because you pay for the laser cutting service we don't want you to pay for extra time on the machine that isn't necessary. The command in AutoCAD to remove some but not all overlapping lines is OVERKILL. Type that in the command line inside autocad and press enter. The default settings are normally pretty good. Then test deleting some lines to make sure overkill didn't leave any objects



10. Now your file is ready to be sent to the RP Lab. SAVE your file!!!

11. Fill out the [laser cut request form](#)

a. The file name is the file name you saved your file as.



Job Request Form

University of Wisconsin-Milwaukee
Rapid Prototyping Lab

Laser Cut Request Form

This form must be printed off and brought to the RP Lab after the CAD files and this form have been emailed to uwmrplab@uwm.edu.

In order to receive laser cuts with this form you must also use the RP Lab CAD template that is available on the R Drive. Please use the proper sized template for your material. You are limited to 12 sheets of material per day. Files that are not named as the form lists will not be accepted. Improperly filled out forms will result in the denial of the laser cut request.

By submitting a laser cut request with this form, you are acknowledging to have read and agreed to all UWM RP Lab policies and procedures. Failure to comply with these policies will result in print request being denied.

User Details:

First Name: Last Name:

Due Date: / / Email: Gold Account ID #:

File Details:

File Name:

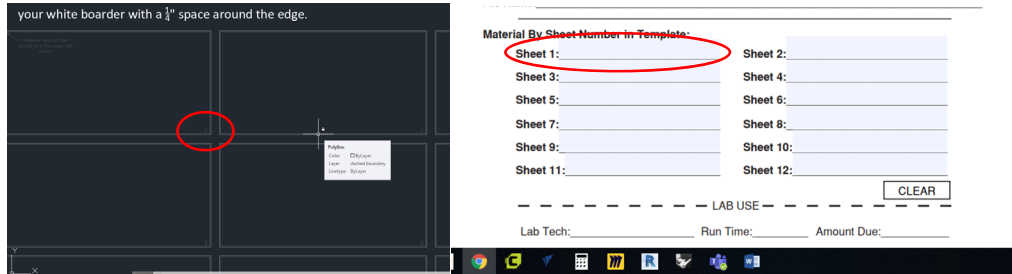
Material By Sheet Number in Template:

Sheet 1: <input type="text"/>	Sheet 2: <input type="text"/>
Sheet 3: <input type="text"/>	Sheet 4: <input type="text"/>
Sheet 5: <input type="text"/>	Sheet 6: <input type="text"/>
Sheet 7: <input type="text"/>	Sheet 8: <input type="text"/>
Sheet 9: <input type="text"/>	Sheet 10: <input type="text"/>
Sheet 11: <input type="text"/>	Sheet 12: <input type="text"/>

LAB USE

Lab Tech: Run Time: Amount Due:

12. The section “Material by sheet number” corresponds to the sheet number on the AutoCAD template. So sheet 1 on the template is sheet 1 on the request form. If you had 12 different material you could put them all on one template. Make sure you label your material with sheet numbers so there is no confusion in the lab.



13. Once the request form is filled out. Print the request form and bring your material with the request form to the RP Lab room 179 inside the School of Architecture and Urban Planning.
14. Email the RP lab your DWG file and your request form to uwmrplab@uwm.edu
15. The lab will look over your files and ask you if they have questions.
16. Your job will be cut in the order your material was recieved. At the slow times your jobs will be cut in a few minutes to a couple of hours. During the RUSH (end of the semesters and midterms) it sometimes takes 24 hours to get a job back.
- TIP: if your parts can fit on 18"x24" laser bed you will get your parts back quicker during RUSH times
17. The lab will email you when your job is done with a total cost and and invoice you to pay for your cuts.
18. Please pay for the laser cut before coming to pick up your material. If there are any questions please talk to Matthew Mabee, mpmabee@uwm.edu
19. Your parts will be ready to be picked up and time to assemble your model!