

Laser Service

AMS Service Guide

www.nyu.edu/its/ams
its.rp@nyu.edu

The AMS Laser Service features a Universal Professional Series PLS6.120D unit with 60 watt CO2 laser to cut and etch flat materials from digital plan files. A variety of materials up to 18" x 32" in size, can be cut or etched, including acrylic plastic, vinyl, paper, matte board, cardboard, cork, fabric, leather, rubber, and wood. Glass, stone, and certain metals can be etched only. Highly flammable materials, and plastics emitting chlorine compounds, are prohibited.

Plan files should be prepared in Adobe Illustrator and placed in the official AMS laser_template.ai file to ensure proper processing. Within the AMS template, vector lines or text are assigned specific colors to code a cut or etch instruction, which the laser then interprets and executes. In addition, pixel-based graphics such as JPEGs or PSD files, with an image resolution of 300 dpi or greater, can be embedded in the laser_template.ai file and etched into a surface as a duotone or grayscale image. The PLS6.120D uses an extremely thin laser beam and highly accurate X/Y plotter mechanism producing fine detail for continuous tone images.

Payment Terms

Method of payment must be confirmed on the Laser Service Job Order Form at the time of job submission. Completed jobs will not be released to the client until the job order is paid in full. Grant approval for laser, where applicable, must be obtained prior to job submission. Please refer to the Advanced Media Studio Price Guide for complete payment terms and pricing. Price quotes are normally issued at the time of job submission but can be given ahead for planning purposes.

Appointment for File Review

Appointments are required for Laser Service job submissions. Please send appointment requests by email to its.rp@nyu.edu and include a list of dates and times you are available during the Laser Service hours. The AMS Staff will confirm a 30 minute appointment with you by email; appointments are cancelled after 15 minutes due to lateness. The appointment's purpose is to review the plan file for any existing errors, approve the job order material, and generate a price quote if the file is "print ready". During your appointment we will answer all project questions, and specify any corrections you must make to ensure your plan file is correct. When your file is approved as "print ready", a price quote will be issued for the job order.

Optional Etching and Cutting Tests

Cut and etch tests can be requested for proofing sensitive or unusual materials. A small section of the plan file can be cut and/or etched into a spare section or separate piece of the job order material. You will be contacted by email when the tests

are ready for review. Once the test results are approved, the final job is run.

Job Completion Time and Pick-Up

You will receive an e-mail notice when your job order is complete. Simple job orders are generally completed in a calendar week or less. Jobs involving more testing will require more time.

Laser Service Hours

The Laser Service operation is restricted to the Laser Service hours. These hours are updated every semester, made available to each department account manager, are posted at the Advanced Media Studio, and are available on the AMS website www.nyu.edu/its/ams.

Preparing Plan Files

Plan files must be placed in the laser_template.ai file, available on the AMS website. Place all designated cuts and etches inside the Material Box, in the upper left-hand corner of the 18"x32" Laser Bed Boundary Box. The Material Box represents the outer edges of the client's material and should be the same size as the material. The material box has handles and can be sized as needed to match material, up to 18" x 32". Non-rectangular delicate or unusual materials should be attached to a shallow rectangular support. Leave a margin of 1/4" around all plan file edges; this will ensure proper alignment when cutting.

Use the Color and Lineweight Legend at the right-hand-side of the Laser Boundary Box in the laser_template.ai file to assign cut, etch, and raster settings to vector strokes and fills. Be sure to use the exact colors and stroke weights provided in the template. All text should be converted to Outlines and Brush strokes should be expanded into vector lines and fills. Grayscale raster image files should be embedded rather than linked when saving your plan file in Illustrator.

Stability of laser cuts for vector objects drawn closer than 1/8" depends on the material composition and thickness - 1/16" is the closest distance we recommend but should always be tested since warping or burning can occur.

AMS Approved Materials

Materials can be no greater than 18" x 32". The maximum thickness for cutting is 1/2", though the AMS recommends a thickness depth of 1/4" for most materials. The maximum thickness for material to be etched is 8". Be advised that materials at or nearing 1/2" require more laser power and potentially more passes to cut. Certain materials, such as plastic and wood varieties yield better results with a thinner depth such as 1/4".

Material	Cut	Etch
ABS Plastic	yes	yes
Acrylic	yes	yes
Aluminum*		yes
Anodized Aluminum		yes
Avonite	yes	yes
Brass*		yes
Brick		yes
Cardboard	yes	yes
Ceramic		yes
Chipboard	yes	yes
Cobalt*		yes
Copper*		yes
Corian	yes	yes
Delrin	yes	yes
Fabrics	yes	yes
Foam	yes	yes
Glass		yes
Granite		yes
Iron		yes
Kevlar	yes	yes
Laminated Plastics	yes	yes
Leather	yes	yes
Linoleum		yes
Marble		yes
Masonite	yes	yes
Mat Board	yes	yes
MDF	yes	yes
Mylar	yes	yes
Nickel*		yes
Nylon	yes	yes
Paper	yes	yes
Particle Board	yes	yes
Pewter		yes
Polyester	yes	yes
Pressboard	yes	yes
Resin	yes	yes
Rubber	yes	yes
Silicon	yes	yes
Silk	yes	yes
Stainless Steel		yes
Steel		yes
Stone	yes	

Material	Cut	Etch
Styrene	yes	yes
Tile	yes	
Titanium		yes
Tyvek	yes	yes
Wood	yes	yes

* Requires special Metal Marking Compounds and can only be used on raw metal. No coating or polish.

Plan File Building Tips

Raster etch instructions are paths, or fills, or .jpeg or .psd image files; the R,G,B value for black is 0,0,0. Cut instructions are paths only with a stroke at 0.1 pt. weight; the R,G,B value for red is 255,0,0. Vector etch instructions are paths only with a stroke at 0.1 pt. weight; the R,G,B value for blue is 0,0, 255. Green assignments are reserved for AMS guidelines only to ensure proper alignment. Please refer to the legend section taken from the AMS laser_template.ai file, and the complete template file itself, which both follow below.

Fills and images are executed as a raster etch. Lines can be executed as a raster or vector etch, but for crisp, clean outlines, vector etch is preferable. The AMS website offers a valuable resource of laser project examples using the AMS laser_template.ai file; these example files are provided with images documenting the project results, and can be used as a reference when building plan files.

BASIC COLORS
use these first

Color	Description
Black	Black Fills and Lines - Raster Etching
N/A	Red Lines - Vector Cutting
N/A	Blue Lines - Vector Etching
Green	Green Fills and Lines - Ignored, use as guides

Fill color for solid etching
0.1 pt line for vector cuts/etches

Description :

Material always aligns to this Corner (0,0)

12" x 12" Material Box
(make this box to match your material size)

18" x 32" Laser Bed Boundary

Laser ServiceTemplate Notes:

For correct viewing of the templates, make sure page *fitting* is turned off by selecting View > Hide Page Fitting.

Your plan file must be placed within the Material Box in the upper left-hand corner of the 18" x 32" Boundary Box. The Boundary Box gives a visual representation of the laser bed and helps us ensure proper alignment when cutting or etching.

The Material Box represents the outer edges of your material, your designs should fit within this Material Box. You should leave a margin of 1/4" from the edges of your designs to the edge of the material. The Material and Boundary Box should remain green as seen below for proper interpretation. The Material box is set by default to 12" x 12" and should be adjusted to the exact size of the material you will be using and placed exactly in the upper left hand corner.

Color and Lineweight Legend :

(Use the eyedropper tool on the examples below to set cut/etch styles or choose from the graphic styles palette)

Color	Description
Black	Black Fills and Lines - Raster Etching
N/A	Red Lines - Vector Cutting
N/A	Blue Lines - Vector Etching
Green	Green Fills and Lines - Ignored, use as guides
Yellow	Yellow fills and lines - [enter description]
Cyan	Cyan fills and lines - [enter description]
Magenta	Magenta fills and lines - [enter description]

ADVANCED COLORS
use these only if necessary