

DBE MAKERSPACE | BUILDING 418

LASER CUTTING GUIDE

WORKSHOP INFO & HOURS

DBE MAKERSPACE SPACE | BUILDING 418

Technicians: Amy Hickman Joshua Webb & Daniel McMurray
Phone: 9266 4743 or 9266 4034
Email: dbemakerspace@curtin.edu.au

Monday 8am - 6pm
Tuesday 8am - 4pm
Wednesday 8am - 4pm
Thursday 8am - 6pm
Friday 8am - 5.15pm

DIGITAL MODELING SPACE | BUILDING 202

Technician Nick Wright
Phone: 9266 4641
Email: digitalmodelling@curtin.edu.au

Monday 8am - 4pm
Tuesday NA
Wednesday 8am - 4pm
Thursday 8am - 4pm (every second Thursday)
Friday NA

MATERIAL INFORMATION

Material used in the laser cutter is supplied by the workshop.
Material Variable Size Cost per sheet

Plywood - 3mm

1200 x 600 \$21.14 Cost per sheet
900 x 600 \$15.85
300 x 600 \$5.30

Plywood 6mm

1200 x 600 \$33.80 Cost per sheet
900 x 600 \$25.35
300 x 600 \$8.45

Strawboard 1.2mm thick

900 x 600 \$5.00

Strawboard 2mm thick

900 x 600 \$7.00

Acrylic

We can cut up to 6mm acrylic.

We do not stock any acrylic but please come speak to us to find the best place to purchase it depending on your requirements.

DBE MAKERSPACE | BUILDING 418

LASER CUTTING GUIDE

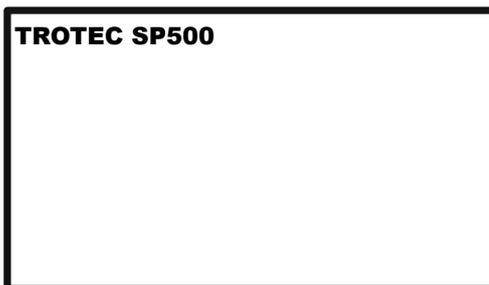
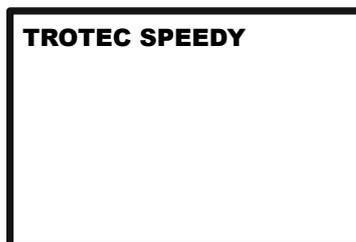
1. Choose the correct laser cutter based on the material its maximum cut size.

The templates to the right have the dimensions and material.
Your job should be smaller size then then Max Material Size.

EMBLASER 2
MAKERSPACE DBE @ BUILDING 418
MAX MATERIAL SIZE = 500mm x 300mm x 3mm
Strawboard & Plywood

TROTEC SPEEDY 400
DIGITAL MODELLING @ BUILDING 202
MAX MATERIAL = SIZE 900 x 600 x 12.7mm
Strawboard, Plywood, Acrylic, leather , other upon request

TROTEC SP500
DBE MAKERSPACE @ BUILDING 418
MAX MATERIAL SIZE = 1245 x 710 x 12.7mm
Strawboard, Plywood



2. Ensure that your objects are at the appropriate scale.

The Laser Cutter cuts at 1:1 scale.
For example, if you need your models at 1:100,
they should be scaled down by 0.01.

Having trouble with Scale | Try a scale converter:
https://www.ginifab.com/feeds/cm_to_inch/scale_converter.html

Scale Conversion Calculator		
Scale Ratio	1	: 12
Real Length	120	mm
Scale Length	10	mm
Scale Ratio 1:12		
Real Length mm		
Scale Length mm		

AUTOCAD | LASER CUTTING GUIDE

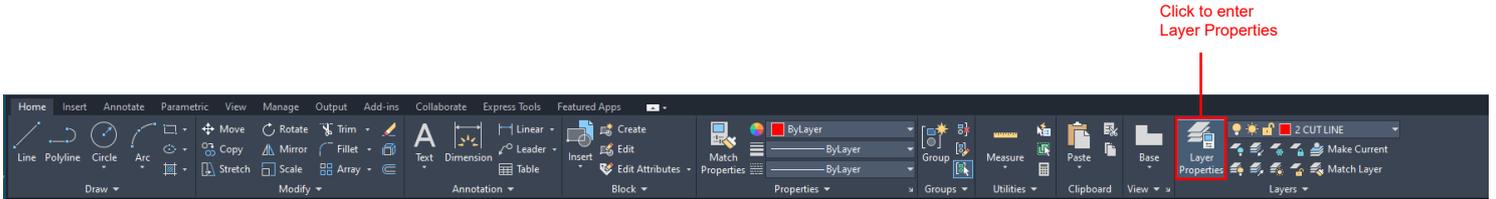
Download: <https://dbemakers.github.io/>

AUTOCAD EMBLASER 2 TEMPLATE.dwg

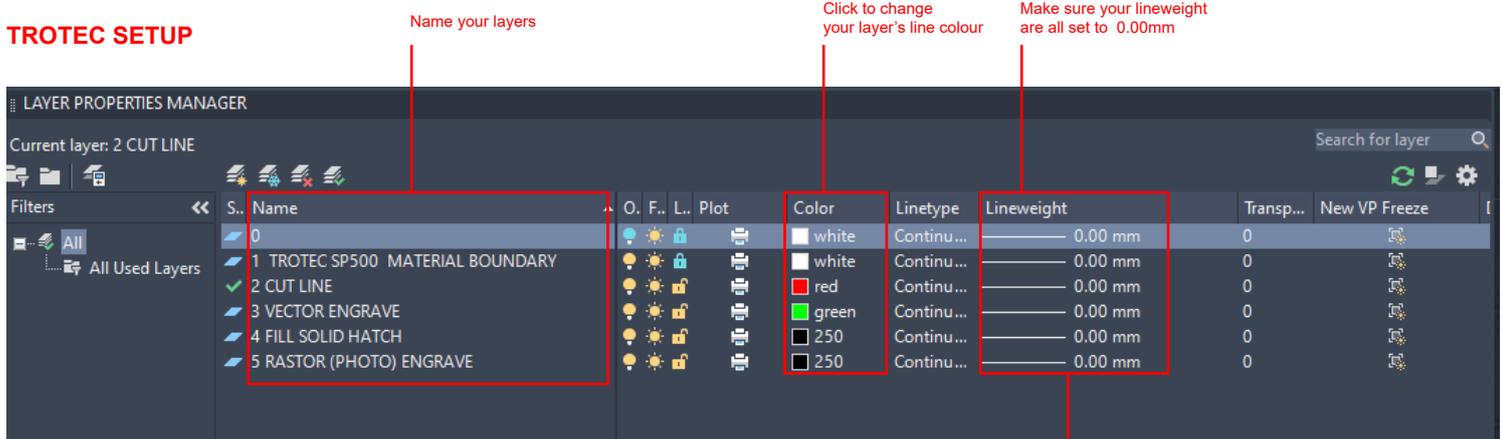
OR

AUTOCAD TROTEC SP500 TEMPLATE.dwg

ALTERNATIVELY SET UP YOUR LAYERS FROM SCRATCH.



TROTEC SETUP



TROTEC

LAYER / COLOUR SETUP FOR

LAYER 1 = (NA) MATERIAL BOUNDARY | (NO PRINT)

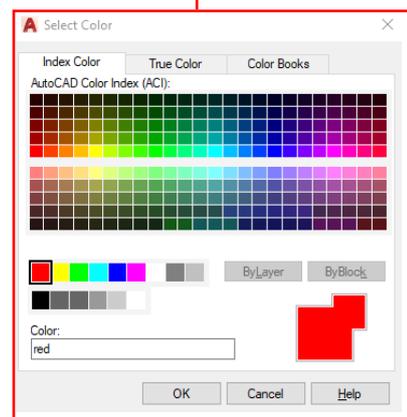
LAYER 2 = (BLACK) RASTOR ENGRAVE | Engraving photographic type images

LAYER 3 = (GREEN) VECTOR ENGRAVE | Engraving / scoring lines

LAYER 4 = (BLACK) FILL / solid Hatch | Fill / solid Hatch pattern engraving

LAYER 5 = (RED) CUT | Cut lines

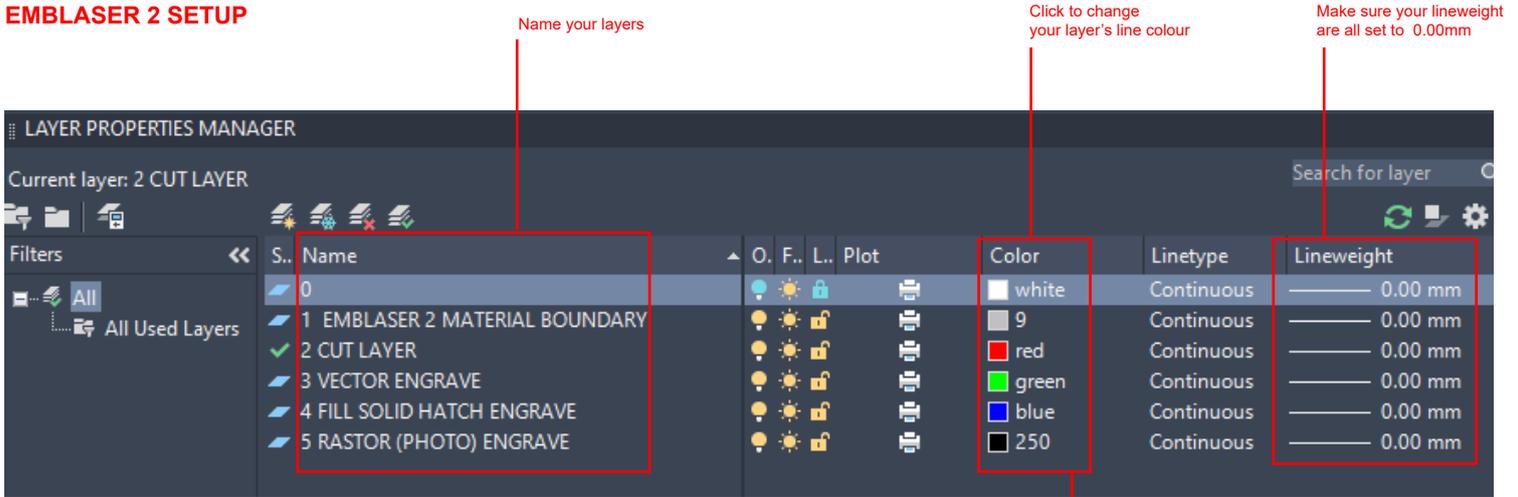
Colour	Red Value	Green Value	Blue Value
BLACK	0	0	0
GREEN	0	255	0
RED	255	0	0



Maker sure colours are set to RGB

AUTOCAD | LASER CUTTING GUIDE

EMBLASER 2 SETUP



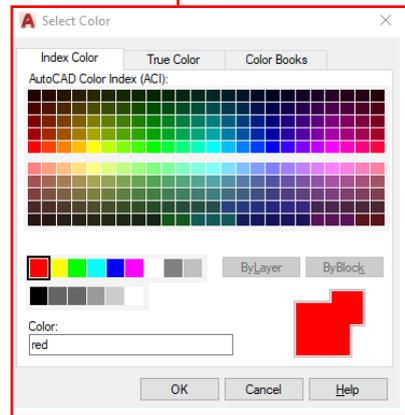
EMBLASER 2

LAYER / COLOUR SETUP FOR

LAYER 1 = (NA) MATERIAL BOUNDARY | (NO PRINT)

- LAYER 2 = (BLACK) RASTOR ENGRAVE | Engraving photographic type images
- LAYER 3 = (GREEN) VECTOR ENGRAVE | Engraving / scoring lines
- LAYER 4 = (BLUE) FILL / solid Hatch | Fill / solid Hatch pattern engraving
- LAYER 5 = (RED) CUT | Cut lines

Colour	Red Value	Green Value	Blue Value
BLACK	0	0	0
GREEN	0	255	0
BLUE	0	0	255
RED	255	0	0



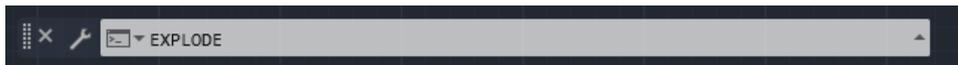
BEFORE YOU SUBMIT, CTRL+A TO SELECT ALL AND DOUBLE CHECK THAT ALL LINES ARE SET TO COLOUR BYLAYER AND ARE THE CORRECT LINEWEIGHTS - 0.00MM

FINAL STEPS | ALWAYS DO ALL 3 | EXPLODE | OVERKILL | JOIN

EXPLODE

This command breaks polylines into line or curve segments and hatches into lines segments.

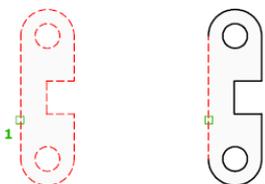
In the comand line (located bottom/ middle of screen) Type EXPLODE



Breaks a compound object into its component objects.



Explodes a compound object when you want to modify its components separately. Objects that can be exploded include blocks, polylines, and regions, among others.



The color, linetype, and lineweight of any exploded object might change. Other results differ depending on the type of compound object you're exploding. See the following list of objects that can be exploded and the results for each.

To explode objects and change their properties at the same time, use XPLODE.

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OVERKILL

Removes duplicate or overlapping lines, arcs, and polylines. Also, combines those that are partially overlapping or contiguous.

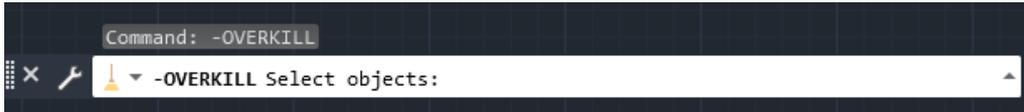


Find

The following changes are made to geometric objects in the drawing area or the block editor:

- Duplicate copies of objects are deleted
- Arcs drawn over portions of circles are deleted
- Lines at the same angle that partially overlap are combined into a single line
- Duplicate line or arc segments are deleted
- Overlapping and zero-length polyline segments are deleted

In the command line (located bottom/ middle of screen) Type OVERKILL - Push Enter Key



In the command line, 'Select Objects' will appear.

Select everything in your drawing and push the Enter key and the following window will appear.



No need to change any of these setting – Just push OK

JOIN

Joins the endpoints of linear and curved objects to create a single object.

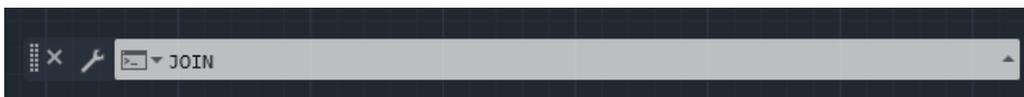


Find

Combines a series of finite linear and open curved objects at their common endpoints to create a single 2D or 3D object. The type of object that results depends on the types of objects selected, the type of object selected first, and whether the objects are coplanar.



In the command line (located bottom/ middle of screen) Type JOIN - Push Enter Key



PRINT SETUP

EMBLASER 2

LAYER / COLOUR SETUP FOR ALWAYS IN RGB

- LAYER 1 = (NA) MATERIAL BOUNDARY (NO PRINT)
- LAYER 2 = (BLACK) RASTOR ENGRAVE | Engraving photographic type images
- LAYER 3 = (GREEN) VECTOR ENGRAVE | Engraving / scoring lines
- LAYER 4 = (BLUE) FILL / solid Hatch
- LAYER 5 = (RED) CUT

EXAMPLE PAGE LAYOUT

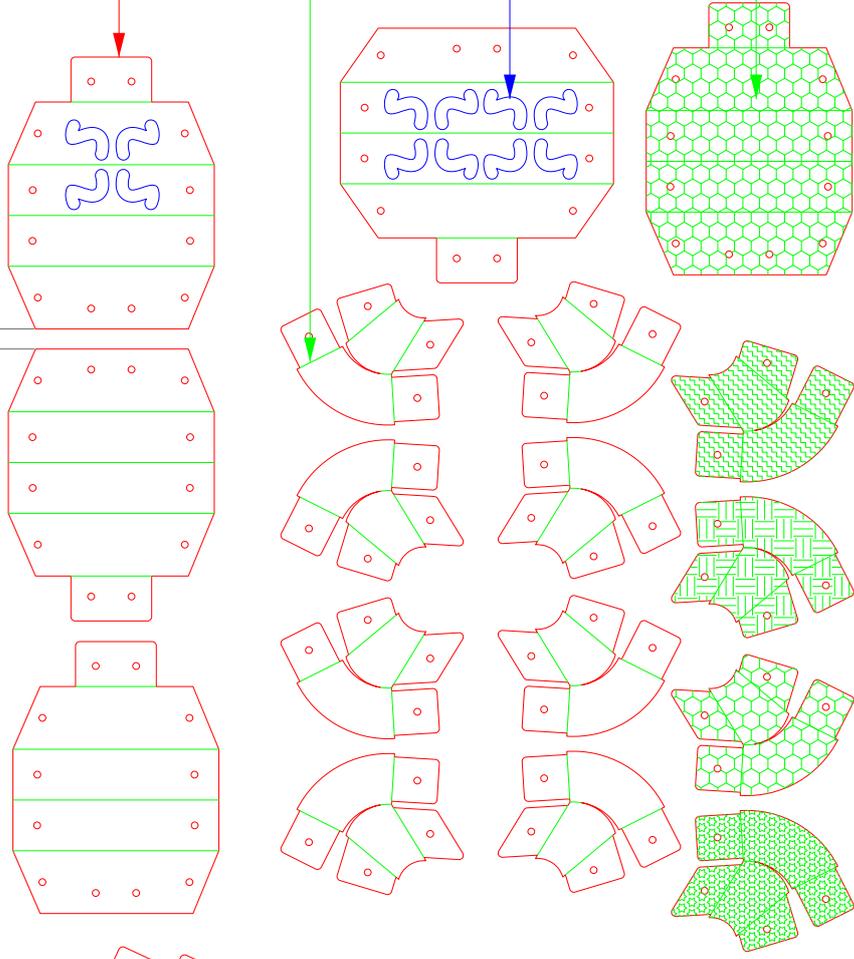
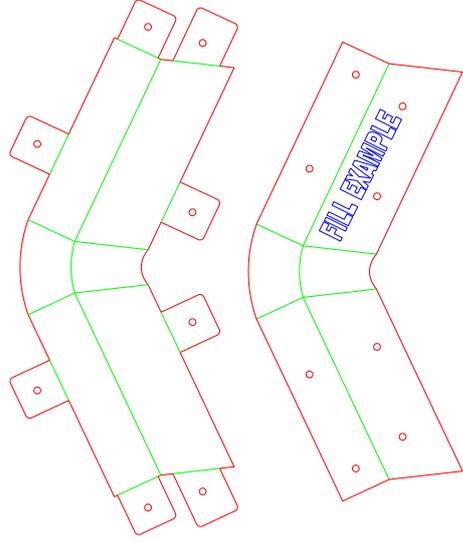
MAKERSPACE DBE @ BUILDING 418
 MAX MATERIAL SIZE = 500mm x 300mm x 50mm
 Strawboard & Plywood

Print width = Line Weight = 0.0
 Line type = Continuous

Colour	Red Value	Green Value	Blue Value
BLACK	0	0	0
GREEN	0	255	0
BLUE	0	0	255
RED	255	0	0

← 2mm Minimum distance between parts

PAGE SIZE OUTLINE
 500mm x 300mm



CUT LINE
 Always join line to be continuous polylines

VECTOR ENGRAVE LINE

FILL / SOLID HATCH
Emblaser 2 only
 A single closed blue polyline.
 Will result in solid black hatch:



VECTOR ENGRAVE PATTERN
 Always explode and then join line based pattern hatches



RASTOR ENGRAVE
 From a photo .jpg, .png etc
 The Laser cutter will engrave your photo

TROTEC

TROTEC SPEEDY 400 | DIGITAL MODELLING @ BUILDING 202
MAX MATERIAL = SIZE 900 x 600 x 12.7mm

Strawboard, Plywood, Acrylic, leather, other upon request

Print width = Line Weight = 0.0

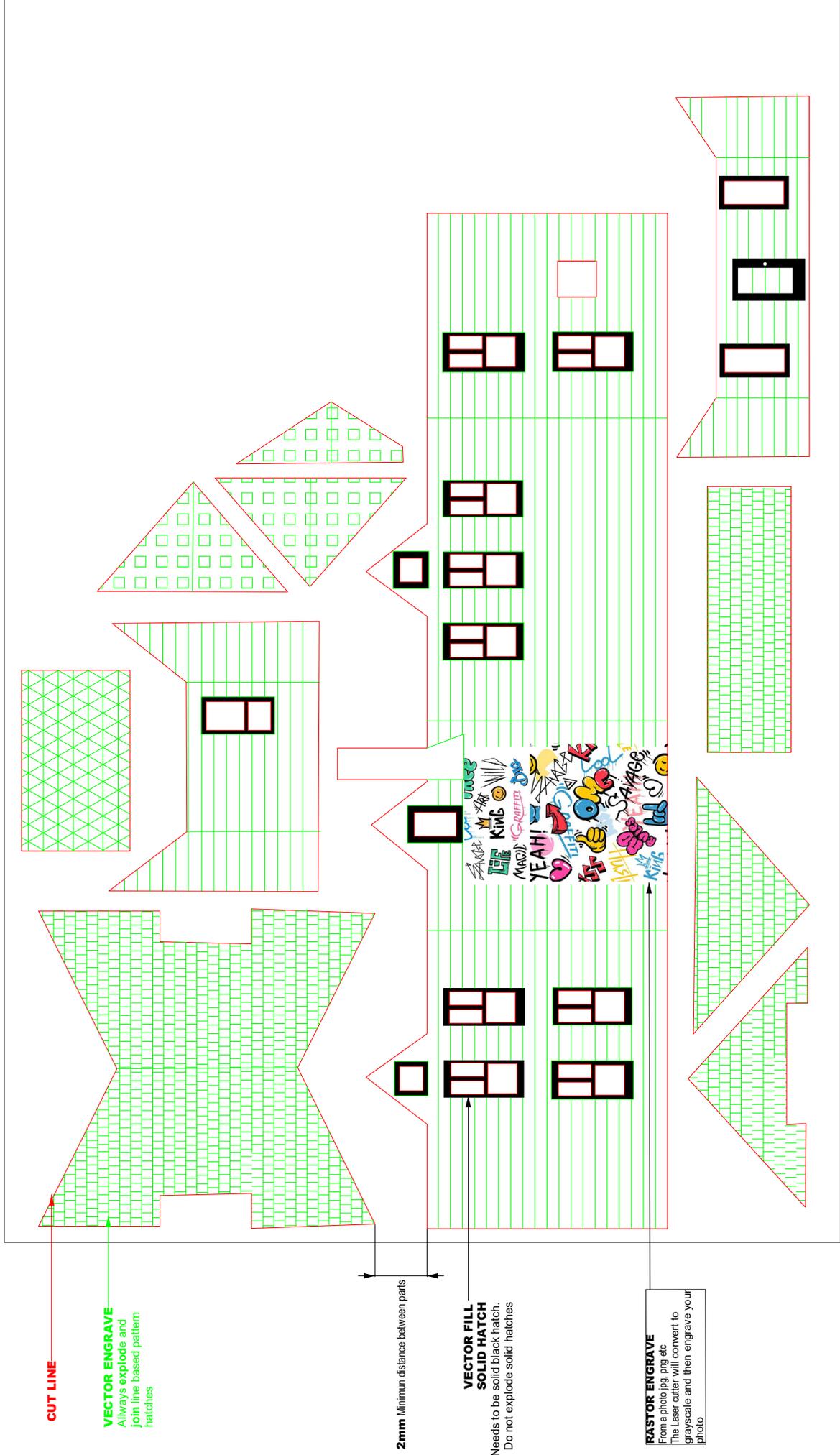
Line type = Continuous

LAYER / COLOUR SETUP FOR

LAYER 1 = (NA) MATERIAL BOUNDARY | (NO PRINT)

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- LAYER 4 = (BLACK) FILL / solid Hatch | Fill / solid Hatch pattern engraving
- LAYER 5 = (RED) CUT | Cut lines

Colour	Red Value	Green Value	Blue Value
BLACK	0	0	0
GREEN	0	255	0
RED	255	0	0



CUT LINE

VECTOR ENGRAVE
 Always explode and join line based pattern hatches

2mm Minimum distance between parts

VECTOR FILL SOLID HATCH
 Needs to be solid black hatch.
 Do not explode solid hatches

RASTOR ENGRAVE
 From a photo jpg, png etc
 The Laser cutter will convert to grayscale and then engrave your photo