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4.510 Digital Design Fabrication
Fall 2008

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Assignment I

Sept 8, 2007

Design and Fabrication of Tag (Name Tag) *Prof. Larry Sass*

This assignment is due in class and posted on Stellar, Monday, September 17, 2PM

Graffiti artists are famous for tagging (labeling) walls and spaces with visually rich artwork. A tag is an expressive graphics for graffiti artists a covert name (dondi, Zyphr). Create your own tag as a 2d image (your name) it can be a covert name such as – spice, babyboy or gouch. Draw the tag in AutoCAD, next create an assembly between the letters, setup your file in EZ Cam and cut on the router. See method below.

Tag and photograph removed due to copyright restrictions.

Figure 1, Art work of Donald White one of the first well known graffiti artists in NYC



Figure 2 Digitally fabricated tag

1.0 Design Modeling

Start by drafting a tag in AutoCAD or Rhino. The box should be no larger than 6" x 20" square. I recommend building an example similar to the one in this tutorial. Consider materializing the design with the methods outlined in the lecture notes and in this tutorial.

Modeling Rules

- 1) Always model designs as solid object at full scale.
- 2) Priority in a design model is shape and appearance and shape relationship within the prescribed boundary
- 3) Focus Attention: Appearance, size and visual function



Figure 3, Design drawing, 2D line drawing

2.0 Construction Modeling

A construction model is a three dimensional description a design inclusive of all components. Most important is that construction model represents an artifacts construct as well as its appearance. Components are oriented as they would be in the artifacts final assembly.

Fabrication

Material: Plywood – 1/2" thick 6" x 20" Area
Assemblies: Embedded
Tool: Laser Cutter & CNC router

Modeling Procedure

- 1) The process starts by explosion of the initial design shape into faces (fig. 1) this is further subdivided into constructible objects based on a relationship between parts
- 2) Build attachments between a base and the letters the machines prefer curved geometries
- 3) Focus Attention: Building components & attachments

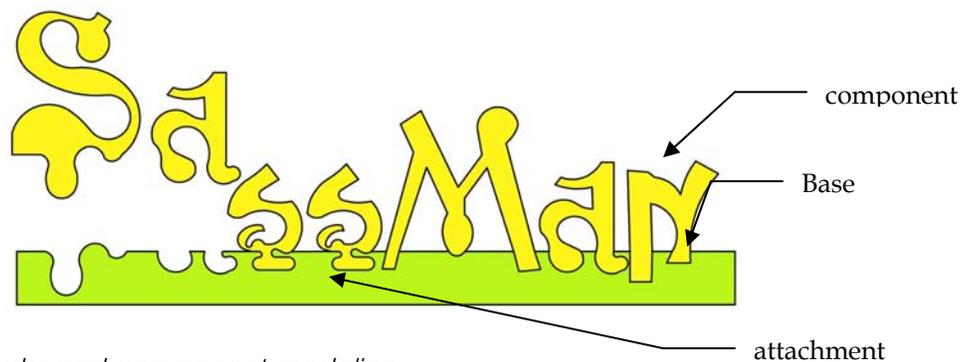


Figure 4, tabs and component modeling.

3.0 Cut Sheet

A construction model is a three dimensional description of all components oriented as it would be in final assembly. Cut sheets represent the artifact oriented for tool cutting and tool processing.

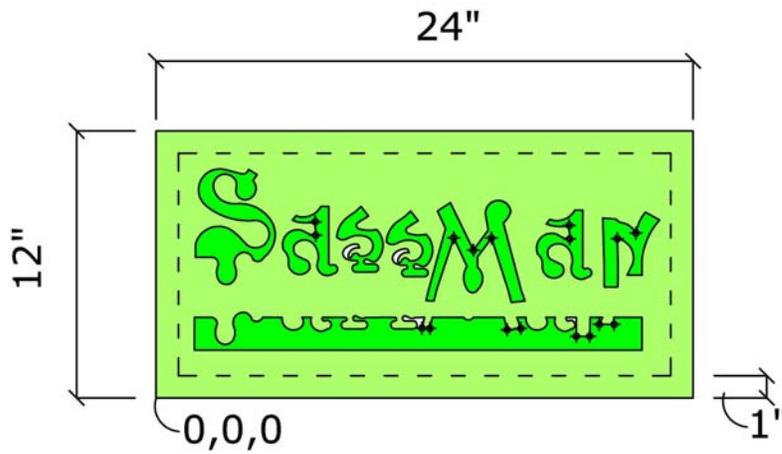
Fabrication

Material: Plywood – 1/2" thick 12" x 24"
Spacing : 1/2" min.
Tool: 1/8" fluted bit

Figure 7 Setup drawing

Modeling/Drawing Procedure

- 1) Arrange parts on a base sheet of 12" x 24"
- 2) Space all parts minimum of 1/2" apart
- 2) Next two types by placing lines on one layer, points on another
 - a) CutSheet (figure 7)
 - b) Mill – Cutting drawing
 - c) Pocket – Internal cuts
 - d) Drill – internal edges.



(a) Cut Sheet

Annotated cut sheet drawing
This drawing includes drill
objects (points) and milling lines



(b) Drill

Drawing #1 - "Drill" build with
points.



(c) Mill

Drawing #2 - Mill drawing built
of external lines only

Figure 5, series of drawing files for cutting

4.0 Grading

Gradings best of 100 points of the following breakdown

1. Quality of Structure & Assembly 30%
2. Visual appeal (Can I read your name) 30%
3. Fabrication efficiency (waste) 20%
4. Presentation (paper drawing) 20%
 - Use MS Word for formatting
 - 1 - Photo of final product (Good Photo)
 - 1 - 2d View of Cut files

5.0 TURNING IN PROCEDURE FOR STELLAR

UPLOAD: PDF
(By 2PM)
*** – 5 Points for Lateness

- a. Name, Date, Assignment #
- b. Image of Design Model (Axonometric View)
- c. Image of Construction Model (Axonometric View)
- d. Digital Photo of final figure
- e. 3 Pages maximum

IN CLASS: Paper Copy

MODEL: Bring to Class