

# Arch 3690

## Intermediate Computation and Fabrication

Tue. 11:30 pm - 1:30 pm | Fri. 11:30pm - 1:30pm

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### **ASSIGNMENT 02** **PART B** MATERIAL EXPLORATION - SIMPLE COMPONENT

Assignment 02 - Part A dealt with basic operational procedures of heat bending. Now that you know how to use this tool, this assignment will allow you to focus on creating assemblies with the techniques you have learned. The assignment is for you to create a single component which can be arrayed and connected with other components like itself to form a 'closed' assembly. The overall size of the assembly can be between 6"x6"x6" and 12"x12"x12" (the smaller you can make working details, the smaller your assembly can be). Look at Fig.1 on the next page for a few possible examples.

It is recommended that you start with a 3D geometric primitive (e.g. sphere, cube/box, toroid, cylinder, pyramid) as these shapes are often formed from the same arrayed shape (e.g. a cube = 6 squares). In this assignment, you may use bolts or other small hardware to join your components together.

**DUE:** October 4th, 2013

Critical issues to remember:

1. Acrylic has a thickness, so intersections may occur wherever two planes come together at a corner or edge. This will require you to modify your Rhino geometry.
2. If multiple heat bend lines intersect at a single point, you may have to remove material around this point to compensate for material thickness.
3. You may want to design small tab connections, but be aware that if they are too small, you may not be able to heat and bend them properly.
4. Distortion from heat bending accuracy may not exactly match your Rhino geometry, so screw holes or other connections may need to be oversized to compensate for this lack of precision.
5. If you are using bolts to hold the geometry together, you will have to make sure your design allows you to reach inside and fasten the connection - think about the order of assembly.
6. It is recommended that you test these designs using 1/8" corrugated cardboard or foam-core before jumping right into the acrylic.
7. Limit the amount of component pieces you need. In Fig. 1 - some assemblies take 2 components, some take 6...fewer is usually better. You are only required to make a minimum of 2 components.

**What you need to bring to the class on Friday:**

1. **Your final component assembly**
2. **Any prototypes or failures**

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Fig.1 - Possible Component Assemblies

