



**Visual Studies II: Arch 1291**  
**Fall 2012**

**Assignment Number:** 2 – Surface Creation Strategies  
**Computer Program(s):** Rhino

**Student Learning Objectives:**

To review Rhino commands for creating curvilinear objects in solid and surface form.

To practice techniques for splitting and recombining geometry.

To practice proper layer management.

**Assessment:**

*To evaluate the student's achievement of the learning objectives, the professor will do the following:*

1. Evaluate the student's digital models for dimensional accuracy based on their physical models
2. Evaluate the student's remixed models for appropriate use of the split, Boolean, and surface modeling commands.
3. Evaluate InDesign layout graphic design and Photoshop image editing.

**Summary**

This project will focus on complex curvilinear forms in tandem with 1210. You will digitally model the forms that you created in 1210 using solid primitives, surfaces, and whatever other modeling techniques you think are most suitable to the task. As you become more comfortable modeling, you will begin to sense immediately that there are different methods for creating the same geometry, even when it is very simple, and choose the one you feel would be the most effective.

Simple geometries can be split and recombined in many ways to create new configurations. This iterative process lends itself particularly well to digital tools due to the ease of generating new configurations based on an existing form.

In addition to recreating your 1210 groupings, you will create new geometry by “remixing” your work.

**Requirements**

You will create one digital model of 2 of your 4 groupings, and create 2 new alternative groupings (4 total groupings). For your alternative grouping, you will begin with your original groupings and then “slice and splice” them into 2 new configurations. You can also use advanced surface modeling techniques to modify the geometry to create your “remix.”

**Process**

1. Review the manual pages listed in the process below to re-familiarize yourself with the commands before beginning the assignment. **Read the complete assignment before beginning!**
2. Create a new Rhino file using the “Small Objects, Inches” template.
3. Please use the correct NAMING convention for your file, i.e. Valdez\_F12\_First-Last(P02.0) with each following file (P02.1), etc.
4. Recreate 2 of your 4 groupings from 1210 at 1:1 scale. Use solids for one, and surfaces for the other. If possible, try to choose groupings that have significantly different geometries. Use the techniques to generate the models that make sense for your particular configuration. Remember that the solid primitives are available to you (**cylinder, sphere, cone, etc.**). Use them in tandem with the Boolean operations and the **split** command as well as **revolve, loft**, etc.
  - a. Create a layer for each group of shapes (ie group1).
  - b. Create sub-layers for each object in the group as you create them. Name the sub-layers after the geometry you place on them (ie sphere1, cylinder 3, cone slice 2, etc).
5. Now create 2 new groupings based on the groupings you have already created. Create a copy of the two groups you have already modeled. Use planes (you choose where to place them) to **split** the copies of your geometry into pieces.
  - a. Move the planes you used to split your groups onto a layer called “SplitPlanes” and hide it.

- b. **Join** and **Cap** the split objects to create new solids.
  - c. Reconfigure those new solids.
  - d. Experiment with the transform tools such as **twist, bend, taper, and cageEdit**. Use at least one tool when created each group. Using these tools, try to create new hierarchies in the new groups. Attempt to maintain a sense of balance and proportion, but don't worry so much about structural stability.
6. Create a **boundingBox** around each grouping. Using the bounding box, line your four groups up along the X axis, beginning at the origin, placing 4" of space between each group and the next. The bottom of your bounding boxes should be at 0 on the Z-axis. Place the bounding boxes on their own layer called "BoundingBoxes" and turn visibility for that layer off.
  7. Create a 4 page 8.5x11 landscape InDesign Layout without facing pages.
    - a. For each original composition: Each page will contain a perspective view and at least 1 elevation for each digital assembly and its physical analogue, as well as a hand drawn isometric drawing from 1210. (5 images on each page). You can take these images by using the print screen command on your keyboard in Rhino and pasting them into PhotoShop. Crop the images appropriately and consistently and save the file as a .jpg. Take digital photos of your physical models, and scan your isometric drawings. Write a brief comparison of your digital, physical, and hand drawn images for each group.
    - b. For each remixed composition: Each page will contain a perspective view and at least 1 elevation for each original and remixed digital assembly (4 images on each page). You can take these images by using the print screen command on your keyboard in Rhino and pasting them into PhotoShop. Crop the images appropriately and consistently and save the file as a .jpg.
  8. Create a titleblock for your layouts.
  9. Label each image, noting what technique was used to produce it.
  10. Save and then File>Package your InDesign file.

### **Submittal**

Please submit to the project folder, within the first fifteen minutes of next week's class, your digital model.

P02.0...03: Rhino Files (4)

P02.4: InDesign Package Folder