



ARCH1291 - Visual Studies II
Assignment 1: The Cube

INTRODUCTION

This and the following assignments will center on the development of a design exercise that transforms a cube through a series of subtractive operations in the 3D modeling application, Rhino, in order to maintain its basic "cube-ness" while transforming its interior volume into a "spatial experience," in other words something you might see yourself inhabiting.

READING

Rhino Primer pp. 1-10 + 16, InDesign Primer pp. 1-16 + 27, Rhino Video Tutorials 1-4 at <http://vimeo.com/26192702>

INSTRUCTIONS

1. You are to produce a minimum of three studies wherein a series of objects are "carved away" from a 10" cube via Boolean difference operations.
2. Each study must demonstrate a methodical process by showing each and every step spaced at even increments in your Rhino file. Each step should be labeled with a Rhino dot object to explain what command is being used.
3. The objects must be organized on the appropriate layers, sorted by object type. These layers should be nested within layers that correspond with each study. This will make it easy to hide and show various aspects of your studies.
4. The following strategies must be utilized *in at least one* of your studies, and you may wish to organize your studies by the use of particular commands:
 - a. Use of **OSnap** to place objects (**end snap**, **mid snap**, **point snap**, etc.)
 - b. Use of **Group/Ungroup** to organize objects (also try **Lock/Unlock** and **Hide/Show**)
 - c. Primitive creation with **Box**, **Sphere**, **Ellipsoid**, **Torus**, etc.
 - d. Basic transformations with **Move** and **Copy**
 - e. Subtracting solids using **Trim**, **Split**, **Boolean Difference**, **Boolean Intersection**, etc.
 - f. Dividing edges and curves with **Divide**
 - g. Reflecting objects across a plane using **Mirror**
 - h. **Rotate** and **Rotate 3D** with and without making a copy
 - i. Finding centers with **Area Centroid** and **VolumeCentroid**
 - j. Non-uniform scaling with **Scale1D** and **Scale2D** and uniform scaling with **Scale**
 - k. Advanced transformation-copies with **Array** and **Polar Array**

GRADING

To receive a grade, your Rhino (*.3dm) file must be submitted to your Dropbox folder by the beginning of the next class.

Assignment 1a will be graded as follows:

1. Is the file named properly (*Professor's name_SP2013_YourLastName_Assignment1.3dm*)? 10%

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| 2. Is your box a 10 inch cube placed at the origin of the XY plane? | 10% |
| 3. Did you produce a minimum of three studies? | 10% |
| 4. Did you demonstrate process by maintaining every step in each study, evenly spaced? | 10% |
| 5. Is each step labeled with a Rhino dot to explain what command is being used? | 10% |
| 6. Are all objects on the correct layer and does the file exhibit good layer management? | 10% |
| 7. Were all of the outlined strategies and commands used at least once? | 10% |
| 8. Are your final objects in each study closed polysurfaces? | 10% |