

Architecture Studio: 1st Year Spring

Spring 2014, CMU, Arch #48-105, M/W 12:30-4:20
Class Website: www.andrew.cmu.edu/course/48-105

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(1/25/14)

Project 1A: TECTONIC SYSTEMS: Sticks & Planes

Proj.1a, ASSIGNMENT 5 - IN CLASS & HOMEWORK (due Mon. 1/27, 1:30pm)

"Architects do not make buildings; they make drawings of buildings" - Robin Evans

Part 1: ANALYZE & DESCRIBE

Architects must employ and invent methods of description to capture and communicate design ideas to clients and construction workers clearly and logically. The process of measuring, mapping, and drawing serves not only as an act of communication, but as a means of analyzing and better understanding the project's underlying orders and ideas.

Use the tools introduced in Rhino to construct the geometric "skeleton" that underlies your sticks and planes structure. Use Points, Curves (lines are straight curves), and Surfaces. Since your model materials (wood sticks and paper) were not flexible, you should use primarily "ruled" or "developable" surface geometry to create your skeleton (see the chapter in *Architectural Geometry* on Blackboard). *Avoid literally modeling the volumetric objects that compose your stick-paper structure.* Instead, abstract it into a geometric "framework" or a "wire-frame" diagram. Build the "scaffolding" or geometric "armature" for your structure.

Consider our past discussions of the word "structure" as more than just fighting gravity, but a tool to organize and clarify. Seek to discover rules and relationships that provide order in your model. What are the rhythms, proportions, and geometric techniques that DESCRIBE your structure? What is the SYSTEM that would allow some unfamiliar with your model to understand and reconstruct it?

From this Rhino model, produce a "drawing" on a single tabloid sheet (11 x 17) that communicates these geometric systems. Remember that a drawing is a 2D representation in any medium or multiple media; it is a projection of one view, or a series of views of your model onto paper, often done in multiple steps and in several layers.

To do this, export the model to Adobe Illustrator from one or several views (for axonometric views consider and experiment with the "Make 2D command" under the Dimensions tab), then manipulate line weights and layers to improve legibility. Use rigorous layering in Rhino to make this process easier. Consider overlaying color, shading, hand drawings, or photoshop work in a multi-step process to create a multi-layer drawing to further improve clarity, hierarchy, and focus.

Part 2: RATIONALIZE, EXPERIMENT & GENERATE

Design is an iterative process. Different media and tools help us to explore different aspects of a design. Rebuild or alter the descriptive Rhino model from part 1 of this assignment in order to produce a new iteration of your design. Consider this an evolutionary descendant or distant relative of the previous model. Ask yourself how you can leverage the order of geometry and the capabilities of the computer to push your design forward. Experiment with multiple variations. Expand the scale or increase the fineness. Ask how you can realize your intentions in a more precise and rigorous way. Add "systematicity" to your model, rationalize arbitrary surfaces, add rules, make difficult shapes even more constructible and controllable. *Experiment with using the computer to design.*

From this second generation of your Rhino geometric framework model, produce a drawing or series of drawings on a single tabloid sheet (11 x 17) that communicates the potentials and advantages of your added or expanded SYSTEMS logic. Continue to explore 2D manipulations to enhance the drawing. Avoid stubbornly sticking only to your original design intentions; allow the computer's logic to take your design to new places.

Use this 2nd Rhino model to test and inform the final physical model that is due on Wednesday.

