

# Architecture Studio: 1<sup>st</sup> Year Spring

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

Coordinator: Kai Gutschow  
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Off. Hr: by appt. in MM302

(1/12/14)

## Project 1A: TECTONIC SYSTEMS: Marble & Plane

### LEARNING OBJECTIVES:

Students develop and refine abstract thinking skills as they explore:

- the definition and use of basic compositional elements involving planes and surfaces
- a 1:1 investigation of motion and manipulation of simple materials
- issues of “measurable performance criteria,” even in abstract design
- ideation and iteration through sketching and modeling of paper
- visual literacy and imagination, the need to develop multiple solutions
- craft in drawing and modeling

### Proj.1a, ASSIGNMENT 1 - IN CLASS (Mon. 1/13 )

Part 1) You will be given 15 minutes, several pieces of 11x17 paper, and a marble. Shape the paper in any way you like, to achieve these two goals: 1) make your marble move, using only gravity and your paper structure, and 2) make your marble stop, using only the paper and your shaping of it.

Follow your instructor’s guidelines to create several variations in 15 minutes, such as:

- do the first one with only one sheet, and without any tape, glue, cutting, or tearing
- in subsequent iterations, allow yourself to use tape or glue
- then begin to cut or tear the paper
- then connect more than one sheet to create bigger structures
- record your model with a quick sketch after it is done
- design an idea through a quick sketch, and then attempt to model it in paper

Work quickly at first to explore many options: make a lot. Design is an iterative process: often a process of trial and error, with good ideas, and failed experiments. You will not get it “right” on the first try, but by speculating, imagining, making, seeing, critiquing and reworking, you will learn with each attempt. Build upon this knowledge as you move forward. Do not be afraid to make and test ideas, or partial ideas, that may not work, as these can yield surprising results later on.

Save and record each design, sketch, and iteration with at least one photo. Post later to the class Flickr site (more on that later).

After 15 minutes, gather with classmates and instructor to share, discuss, and critique your first ideas. Work to articulate your thoughts, work process and results; be clear. Learn from your neighbors and instructor; be flexible and allow your ideas to change. Be self-critical; announce your own “mistakes” or “failed ideas.” Deepen your concepts.

### SOME SOURCES (for future reference)

Ching, Architecture: Form, Space, and Order 3<sup>rd</sup> ed. (2008); and Ching, F. & J. Eckler, Introduction to Architecture (2013) Ch.6.

Wigley, M. “What is an architect?” Interview with J. Clement in Domus (2009)

Angelil, M. & D. Hebel, Deviations. Designing Architecture. A Manual (2008), pp.36-63

Colvard, D. & L.R. Weinberg, “Marble & Plane,” exercise, BAC, 2012

Eckler, J. Language of Space and Form: Generative Terms for Architecture (2012)

Jackson, P. Folding Techniques for Designers: From Sheet to Form (2011)

Reiser & Umemoto, Atlas of Novel Tectonics (2006)

Steino, N. & M. Ozkar, eds. Shaping Design Teaching (2012)

Vyzoviti, Sophia. Folding Architecture: Spatial, Structural, Organizational Diagrams (2003)



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### Proj.1a, ASSIGNMENT 1 - IN CLASS, Continued

Part 2) Architectural design cannot be merely intuitive or yield arbitrary form: it must address specific criteria and solve particular problems. In the course of your discussion, work to develop “design criteria” and “performance measures,” as well as clear “concepts” and “intentions” that will allow you and your classmates to evaluate the success of your work, and define concrete ways to “improve” your work.

Think about the “performance” of your marble and design with respect to the following:

- creating a defined path
- creating topography or a “field”
- creating and defining “spaces” using ideas of “spatial definition”
- controlling the motion of the marble, and change over time
- how the paper might change over time, through deformation, etc.
- stopping the marble in various ways

Consider the material qualities of the paper. What are the conventional ways to shape paper? What might be unconventional but productive ways to shape paper?

What are paper’s limitations? Think about:

- strengthening the paper
- altering the physical properties of paper
- combining or attaching multiple pieces of paper

Part 3) Repeat the assignment several more times, in 15-30 minute sessions, as determined by your instructor, but add more criteria and goals. Work to develop multiple ideas, variations on a theme. Avoid being stubborn, or sticking only to your first instinct or one line of thinking. Force yourself to pursue an uncomfortable or difficult direction.

Follow the guidelines of your instructor, and consider the following variations:

- instead of blank paper, use textured “grid” paper (provided by instructor) and integrate the added layer of information to help guide the shaping of your paper
- design, build, or continue an idea proposed by another student
- collaborate with a partner, synthesize two ideas
- double the size of the project
- change the scale of the project to accommodate a (hypothetical) bigger marble

We will discuss your projects as a group and by the end of class you will begin to formulate what your intentions are for this project.

### ASSIGNMENT 2 - HOMEWORK (Due Wed. 1/15, 1:30pm)

Follow the guidelines and specific advice of your instructor and the coordinator to “improve” your model with respect to: 1) your particular design intent/concept, 2) the functionality of the moving marble, and 3) the beauty and spatial sophistication of the crafted form. Consider:

- using heavier paper (but not cardboard) to create a more structurally sound, well-crafted version of several of your marble-moving designs.
- create a series of sketches that diagram the main idea of your designs;
- chart the abstract path of the marble, as well as the visual/sculptural form of the design
- using ink or paint on the marble to “track” or “record” the motion and path of the marble
- describe your concept and the path of the marble in words (200-300 words)
- increase the scale of your object dramatically in a drawing so that it reads as architecture.

Stay tuned for more detailed instructions.

