

Architecture Studio: Foundation II / 1st Year Spring

Spring 2016, CMU, Arch #48-105, M/W/F 1:30-4:20
Studio Website: www.andrew.cmu.edu/course/48-105

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Off. Hr: by appt. in MM302

(2/1/16)

Proj.2: WOOD SPAN - Tectonic System

Your charge is to collaborate with a partner to design and build a full-scale, furniture-sized wood structure spanning between two supports that can carry substantial loads from above (e.g. a small person). The emphasis should be on the inventive and elegant joining of multiple thin wood elements to achieve a stable span. The span will be judged for creative and tectonic expression (both the overall span and the detailed joinery and assembly), but also for efficiency, structural performance, and stability.

Design Parameters:

- each team will rest their span on 2 supports, each 8"x5"x16"H
- inside faces of the supports must be exactly 48" apart
- connection of span to supports should be tectonically expressive & structurally sound
- spans may not touch the ground between supports
- spans must be a minimum of 8" wide at all points between supports
- to prevent waste, and encourage efficiency, each team is limited to 8 bd.ft of wood (a "board foot" is a volume of wood, 1"x12"x12")
- the wood can be cut, shaped, and bent in any way you wish, but all pieces you make must be min. 8" and max 18" in longest direction, except for joinery elements such as peg, spline, butterfly, etc. "Sub-assemblies" of pieces may be up to 24" long
- use glue only within a "sub-assembly"; sub-assemblies should inter-lock, telescope, or connect without the use of glue to span 48"
- no metal, plastic, or other fasteners are allowed: you should research joinery and other inventive applications of geometry and intuitive structural thinking

Advice / Goals:

- collaborate: two minds should be better than one; two people can produce more than one; as in an orchestra or sports team, rich and better results come from the variety of talents that pool together and maximize different strengths and abilities
- engineers can calculate the optimized solution; we are asking instead for the best architectural ideas, a thoughtful balance of strength, function, and delight
- work to create a rigorous, expressive, tectonic system: explore geometry and test different wood joints to connect many small pieces to span between supports.
- architects must develop a familiarity and comfort with construction and making: spend time in the shop testing ideas, remember your block building skills, get dirty
- work toward elegance, be careful what you design, you will have to build it in wood.

Proj.2, ASSIGNMENT 1, DUE WED. FEB 3, 1:30pm

Each student should invent at least three substantially different span structures using the given parameters. Bring 3 cardboard models and sketches/drawings

Begin with an open mind. Don't settle on one idea too quickly; keep several equally good and very different ideas going at once. Work within the parameters, but also realize that perhaps at first not all parameters can be satisfied equally... Iteration will lead to better solutions. Research and think broadly about possible inspirations or precedents. Although the project will terminate in a furniture-sized construction, it may be useful to understand "span" flexibly as a "bench," or a "shelf," or a "beam," or a "truss," or a "bridge" or any other kind of structure or path connecting two points.

Consider the issue of "joinery" right from the start, both how to create "sub-assemblies," and how to connect several sub-assemblies without glue. Model proper thickness and joinery in your models.

On Wednesday you will be paired with another student and invent other ideas.

By Mon. Feb. 8, read the article by Marco Frascari, "The Tell-the-Tale Detail" (1984), which discusses the role of construction details as generators of architectural ideas, performance, design, and interpretation. We also recommend M. Cadwell, "Flooded at the Farnsworth," Ch.3 in Strange Details (2007) on details at Mies van der Rohe's famous house; and G. Simmel, "Bridge and Door" (1903), for a more philosophical take on "bridge" and the idea of "connecting" and "separating."

