Architecture Studio: Foundation II / 1st Year Spring
Spring 2015, CMU, Arch #48-105, M/W/F 1:30-4:20
Studio Website: www.andrew.cmu.edu/course/48-105

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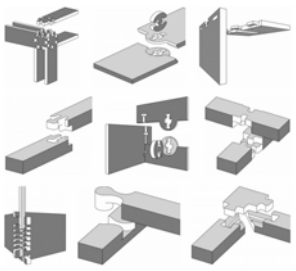
Off. Hr: by appt. in MM302

(2/16/15)

Project 1: TECTONIC SYSTEMS: Span

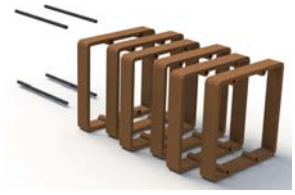
Proj.1, ASSIGNMENT 7 (due Fri. 2/20, 4:30pm)

Build an accurate wood model of your span, "to scale," at 1:4 or 1:3 or 1:2 size, following your instructor's advice. This means that the span in the model should be either 12" or 18" or 24" (rather than the full-size 48"). Each piece of wood must be "to scale" in all dimensions. You can purchase bass wood (NOT balsa) "sections" in the art store, or better yet, make them out of scrap wood (any kind) in the woodshop. The model should contain the same number of pieces as the final Span, and be configured and glued in the same way. The connections should be similar to the real-life, 1:1 connections (e.g. if you intend to use dowels in the full-size version, use miniature wood dowels in the model).



As Frascari, Alberti, Vitruvius, and many other designers have noted, good design challenges limits, but also seeks a good balance of form, function, and use of materials, sometimes even an "optimal solution." As a result you should keep your design efficient and lean, avoid using too much material or over-doing any aspect.

In order to prevent waste, and to encourage efficiency, each team should endeavor to build their span with a material limit of 8 board feet maximum. A "board foot" is a volume of wood, 1"x12"x12", so the material limit is approx. 16 full-size "sticks", each 2-5/8' x 7/8" x 24". Remember that cutting the sticks into smaller/thinner strips will increase the number of pieces (cutting them in half, in any direction will yield 32 sticks, cutting them in thirds will 48 sticks, etc...)



CONSTRAINTS - EXISTING, CHANGED, ADDITIONAL:
- a maximum of 8 board-feet (16 full size "sticks") can be used for your Span design
- the dimensions of the hollow box piers are not set at 8" x 5" x 16" (outside dim.)
- the 48" o.c. gap or span is NOT flexible. If necessary, change your design to fit.
- your Span does NOT need to be contoured to fit a human seat... We will allow you to put the weight on it in different ways (from the top)

FINAL PRESENTATION REQUIREMENTS will include:
- process models at various scales and in various materials, including possible full-scale models in cardboard, or full-scale demos of wood joinery, wood bending, etc.
- diagrams and sketches illustrating concepts, ideas, systems, assembly, etc.
- an accurate wood model of your span, "to scale" at 1:4 or 1:3 or 1:2 (work with instructors to decide)
- precise Rhino drawings showing all the pieces, and the assembly method (exploded axo, or Ikea-like assembly drawings)
- precise list of every piece needed in the construction process, including dimensions, and number of pieces, and perhaps diagram of the shape or type of connection. This is needed to get an overview of what you need to make in the shop.
- one rendering showing the "Span" project life size, at full scale, with scale figure and any background you want for "atmosphere" or "meaning"
- one rendering showing an alternative scale or size of their project… e.g. making a bench into a bridge, OR growing the system, such as extending a narrow beam system laterally to create a roof structure…
- final 1:1 wood construction