CourseNo: ARCHA4656_001_2014_1
Meeting Time: T 06:00P-08:00P
Meeting Location: AVERY HALL 114
Instructors: Mark Bearak and Brigette Borders

FAST PACE/SLOW SPACE using the concept of time to drive form.

The goal of our class will be to make a physical space for meditation over the course of a semester. Parametric and computational software offer designers a high degree of specificity which can be used to create complex forms, intricate details, and material efficiency, yet high-level results become insignificant if construction methods are too complicated to be timely. Fast Pace/Slow Space will focus on the marriage of complex form and logical assembly, with detailing, hardware and construction methods informing design decisions from the onset. Students in groups of 4-6 will design an installation or environment with slow pace sensibilities, while utilizing details that allow for high-speed assembly and disassembly. The class will explore the nature of the digital process, material techniques and fabrication process in the human environment; students will generate unique solutions that satisfy architectural requirements, building standards, cost ceilings and aesthetic aspirations, and efficiency of time.

In today's cities people work not only at their place of business but often while mobile, utilizing the digital tools and infrastructure that allow us to stay constantly interconnected. While moving between fast-paced environments, many people have no chance to experience respite. This occurrence is even more amplified in Manhattan where space is premium and the pace of life rarely slows down. We propose high speed construction of a space for meditation, relaxation and atmospheric therapy; a cohesive environment built upon the relationship between man and his built environment. The space could be a room, a tunnel, a free-standing structure, an implied enclosure that still allows light and air through but creates a sense of privacy; the program is completely open to any installation that would create an environment.

Deliverables:
-Conceptual design thesis (due week 3) to be updated throughout the semester
-Drawing set including plans, details, assembly sequence/instructions, and hardware specifications
-Photo documentation of fabrication/prototyping process
-Final statement reflecting upon successes/failures of concept measured against criteria of the class
-Final Installation/Assemblage at full-scale interior space or freestanding structure, construction to be begun by the end of term and completed by the End of Year Show.

Design Development:
Student groups will prepare a conceptual design thesis that will guide them throughout the design and construction processes. Detailing will be developed simultaneously with form so speed of assembly is considered from the beginning, and joints are neither post-rationalized nor tacked on. The students will develop their theses throughout the design and construction process in order to create a detailed analysis of the project that can easily be packaged for publication or presentation. Final constructions should comprise of only a few materials, allowing the form and fabrication techniques to remain the most prominent elements.

Techniques:
A parametric modeler will be a two-fold part of the design process. Scripting algorithms and parametric plug-ins will be used to generate forms (primarily rhinoceros, rhino-script, and grasshopper). The designers will also feed the parameters of their models according to the following criteria: fabrication speed and technique, site conditions, and material properties. Teams will test a portion of their designs at full-scale keeping track of timing in order to estimate total assembly time. The technical portion of the class will be devoted to parametric modeling and scripting, fabrication processes and construction. The

rationalization, detailing and construction of the digital models will separate the course from the paper architecture that often results from the use of such digital tools in academia.

Key Points:

Technical Value: grasshopper, digital fabrication/prototyping/construction, detailing, rhino scripting, design documents with details and assembly sequences

Experimental Fabrication: It is critical that the students go beyond known fabrication techniques. Sometimes a solution for your design does not exist, or isn't produced locally, or is prohibitively expensive. We as architects must generate our own solutions that satisfy the architectural requirement, building standards, cost ceilings and our aesthetic aspirations.

Ecological Sensitivity: Efficiency as a key to environmentally responsible design will be introduced at the beginning of the course. It will be integrated into the conceptual process with the development of digital models showing actual material constraints.

Schedule Outline

Phase 1: Generation

- Conceptual exploration on the nature of space, site specific location, development of program
- The generation of a digital model by working within the computer (Rhino)
- Initial material tests

Week 1:

- Lecture: typology, intro, documentation techniques
- Assignment: Decide upon a program and put together a presentation showing precedents and material ideas

Week 2:

- Lecture: Grasshopper
- Discussion: presentation of research based on program / paragraph on design intent due
- Assignment: Produce 3 iterations of your design idea, focus on scale, social interaction, and details

Week 3:

- Field trip 1: Fabrication facilities (Ass Fab, Situ)

Week 4:

- Short Lecture: organizing fabrication material
- Desk Crits

Week 5:

- Phase 1 review: digital prototype and material exploration due / discussion + review
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Phase 2: Iteration

- Development of joint technique, refinement of materials
- Preparation of construction document set
- Completion of node prototype (rhino, mastercam)
- The automation of the digital detailing process (via grasshopper or rhino.script)

Week 6:

- Lecture: detailing / design progress due in standard format

Week 7:

- Fabrication lecture / design progress due in standard format

Week 8:

- Field trip 2: Interiors

Week 9:

- Short Lecture: putting together a cad set with details
- Desk Crits

Week 10:

- Phase 2 review: Joint prototype review / discussion + review

Phase 3: Fabrication
- The construction scheduling process
- Finishing of fabricated elements
- Assembly sequence
- Documentation of process

Week 11:
- Lecture: fabrication technique

Week 12:
- Lecture: Finishing techniques

Week 13:
- Site visit: Structural installation: Clocktower Gallery (Bill Massey)
- Site Discussion: Structural Fabrication and detailing

Week 14:
- Short Lecture: Project documentation (blog, slide show, pdf)
- Desk Crits

Week 15:
- Phase 3: End of the year show installation

Extras:

Potential assignments:
- Prepare a laminated model
- Prepare a jointed connection that does not use glue
- Prepare a model that works at multiple scales

Potential Field trips:
- Lindy Roy Vitra
- Lorelei BKLN
- LTL Fluff Bakery
- Carlos Miele Flagship
- Alessi Flagship

Precedents:
- serpentine gallery
- sukkah city
- digital tea house
- solar pavilions 1-3
- ps1
- AA pavilions
- Georgia Tech Fabrication exercises
- http://www.dezeen.com/category/all/pavilions-all/