

CourseNo: ARCHA4781_001_2013_3

Meeting Location: [AVERY HALL 600](#)

Meeting Time: R 07:00P-09:00P

Instructor Information: [Joseph Vidich](#)

PLEASE VISIT THE CLASS BLOG FOR PREVIOUS SEMESTER'S WORK:

<http://digitalfabrication.wordpress.com/>: You can download all course material here.

[Fall 2013 Graphic Schedule](#) - Download

[Fall 2013 Full Schedule](#) - Download

NOTE: This course has a *strict class limit of 28 students*. If there are too many registered students I will require a written (group) proposal for what you would like to accomplish in the class. Thank you.

COURSE THESIS:

This course focuses on the design and digital fabrication of sun screening systems. Primarily an applique, the screens will perform as ornamental expression and functional shading. Students will design thoughtful solutions that are graphic, spatial and creatively resolve light transmittance and structural requirements. At the building scale, the screening systems will be designed, iterated and optimized using Rhino. At the scale of the panels and connection details, a full-scale prototype will be further designed using Solidworks, a parametric sheet metal modeling software. Prototypes will be made from stainless steel sheet metal and one other material to be chosen by the student. The screening system prototypes will be necessarily constrained by physical properties (thermal expansion, machine limitations, light transmittance requirements and assembly requirements) and students will need to design with such realities in mind. The site for the screening systems will

be the 5th floor of the Adidas Sport Performance store at 610 Broadway.

DIGITAL FABRICATION + PROTOTYPE:

The digital fabrication will be done either with Maloya Laser and their 4000 watt laser cutter or with GSAPP's fabrication lab. Students will have the opportunity to learn and work directly with Maloya Laser's President, Reto Hug, and CAD/CAM fabrication experts. In addition, throughout the semester students will meet with and discuss their design strategies with licensed structural engineer, David Bott, and expert designer/builder Todd Fouser of FACE Design.

The prototype, literally a 3D sketch, allows for an unparalleled opportunity to experiment, learn and modify. It emphasizes a circular rather than linear process, informing the digital design which in turn will inform future prototype iterations. Each prototype will be tested for material, tectonic and design failures, combining hands-on learning with physical optimization. The digital model, capable of numerous simulations, will be iterated with the data received from the prototypes to advance the design and further analysis of the system as a whole. Students will work in pairs to design and realize two full-scale prototypes.

COURSE STRUCTURE:

1. Utilize Rhino as generative modeling tools in order to design a screening system that is responsive to the material capabilities of metal, natural and artificial light transmittance and CNC machine techniques.
2. Review design work with David Bott, a structural engineer, to analyze the forces that will act globally upon your cladding system as well as locally at each joint or connection.
3. Use Solidworks to create an accurate parametric model, materially and structurally, of a single connection detail.
4. Digitally fabricate two stainless steel prototypes using Maloya Laser and the CNC routers available at the GSAPP