ARCH 303 Design and Construction 1
Section 001/004

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This studio course probes the interplay between the generation of physical form and the articulation of architectural programme. Programme is construed broadly here to encompass the functional, behavioral, atmospheric, and narrative aspects of architectural space. The first part of the studio consists of short exercises in which students define and iterate formal systems (systems of shapes and relations in two- and three-dimensional space) to generate architectural conditions amenable to human habitation. In order to assist the students' exploration of new methods for generating and representing form, ARCH 342 Digital Representation is closely connected with these exercises. In the second part of the studio, students edit or merge the formal systems that they have developed in the short exercises to produce a medium-scale temporary occupancy building located in an urban site. Alongside exhibiting formal and programmatic resolution, the building is also expected to respond to two or three parameters (social, cultural, environmental, topographic or other) that students isolate from the site. Ultimately, the studio aims to promote personal strategies for making and talking about physical form and to cultivate awareness of its larger implications -- for inhabitants and context alike.

PART 1:

Step A [Transforming Shapes]:
Draw a two-dimensional plan or elevation of an object, ornamental condition, or pattern in your everyday environment. Extract lines or curves from the two-dimensional drawing. Using copies and transformations (translation, rotation, mirroring) of the existing lines produce a new drawing with double the number of lines, which fits in the bounding box of your original drawing. In the resulting field of lines, identify three or four emergent shapes, consisting of multiple lines or parts of lines. Use copies and transformations of these shapes to produce a new drawing that fills the area of the bounding box.

Step B [Generating Drawings]:
Step A was about identifying shapes in an existing drawing and defining rules for transforming them in order to produce a new drawing. This new drawing suggests a formal system, a set of shapes and relationships. These shapes and relationships might be different than the ones you initially used or intended to have. For example, you might have started by adding and copying a component and ended up with a drawing that suggests more the subdivision of a boundary. The next step is to clarify what your formal system is and turn it into a *generative* system -- something that you can use to create new drawings.
Step B's deliverable is at least two new drawings generated through your system. Start with a diagram capturing the fundamental logic of your formal system and then use this as a guide for your new drawings.

Step C [Making Space] :
Use one of the drawings in Step B as an elevation and one as a plan. Produce at least two three-dimensional models of the three-dimensional space evoked by these two drawings. There are different strategies for doing this: extruding both drawings and resolving collisions among the elements of the two models (by moving or deleting elements); using points or lines from one drawing as a way to lift elements from the other drawing in the Z axis; producing surfaces that are described by elements in both drawings; ….

Step D [Culling Strategies]:
Document and diagram architectural strategies that you see in your three-dimensional model – for example, a strategy for creating enclosures, a strategy for circulation, a structural strategy, possibilities of activities etcetera.

[PART 1 REVIEW]

Interlude:
New York City Trip and Site Visit [Gowanus Canal]

PART 2: TOWARD AN ARCHITECTURE

Step A [Site Research]:
In teams, during studio, create a collective database with resources about press coverage, as well as policy and architectural proposals for the Gowanus area. Each team will report at the end of studio day.

Step B [Siting your Intervention]:
Gowanus is the context, not the site. Your project's site is something you will each construct. This construction entails three steps
1. Projecting into the future: you will use your research about forces and tendencies in the site to construct an image of Gowanus in 50 years.
2. Situating your intervention: you will decide on the specific parts of the area in which you will position your project. Is it on street intersections? On the water? On the bridge? In an abandoned lot? Next or inside buildings?
3. Isolating forces or parameters that you will respond to (in the intervention site that you've identified): This is where you explicitly put on the glasses of your formal system and look at the kinds of forces that it will have to mediate, change, or adapt to. These can be physical things like a set of boundaries, going from a high place to a low place, bridging two edges, following circulation lines, or they can be less tangible forces like wind movement, noise levels, human movement etc. The deliverable for this step is three or four diagrams each visualizing a different force or parameter. How do you show with drawings and diagrams what you would describe verbally?

Step C [Programming your Intervention]:
300 description of your architectural programme, annotated with sketches or drafts of digital models. The description should include one or two sentences describing the functions you will work with (e.g. temporary dwelling of athletes and visitors participating in sporting event on the canal, which hosts sanitation workers and researchers for the rest of the year). These should include a form of temporary dwelling, broadly construed, hybridized with other functions. The rest of the description should be about how your formal system will be accommodating the programme. Essentially, this exercise is about describing a project that you have not designed yet.

Step D **[Partial Architectures]:**
Develop the annotations of your description into partial views of an architectural project, by specifying scale, refining geometry and dimensions in view of specific activities and thinking about structure and materials.

[MIDTERM REVIEW]

Step E [A Project]:
Continue developing and refining these partial views until the final, while thinking about the scope and specificity of your project. (How) do the partial views assemble into a whole? How does the architectural condition that you have developed relate to the formal system? How does your project sit within a space of possibilities afforded by the formal system?

Final deliverables:
- One booklet (11X17) documenting the work throughout the semester
- Architectural drawings in one 22X34 panel (scale and type selected by the student)
- Two (or more) mixed technique perspective views
- Physical model OR stop-motion animation