Section Project:
placeholders

Abstract:
“This section emphasizes the role of substitutions in geometric modeling. A placeholder is a simple block embedded in a hierarchy of blocks with the intent of search-and-replace substitutions later. (Rhino and AutoCAD do this by block redefinitions.) The use of placeholders simplifies work on complex assemblies. It invites better thinking about levels of detail. It clarifies relationships between essential and circumstantial properties of morphed reusable geometric elements. This section practices these core competencies in standard Rhino, through a look at abstraction hierarchy in the influential 19th century pedagogy of J.N.L. Durand. Each participant will receive two drawings from Durand’s typologies as a point of departure. The project works in three stages: first to construct an assembly hierarchy, by which to abstract the type as a set of shape subdivisions in three planes; second to vary the elements of this composition; and third to substitute different, more detailed, possibly 21st century expressions.”

Textbook:
Jean Nicholas-Louis Durand, Précis of the Lectures on Architecture (1805), and Graphic Portion of the Lectures on Architecture (1821), in Getty Research Institute edition (2000), David Britt translation, Antoine Picon introduction. Selections will be provided. This book would be valuable to own for future use, but that expense will not be necessary for this project.

Project ideas and terms:
Mashup
You will be sampling from Durand and from recent work of your choosing, and eventually mashing the ordering of the former with the elements and texture of the latter. The scope and interrelationship of your samples will be key.

Given drawings
To seed the project, you will randomly receive two elevations from the Durand Précis. Please choose one of these as the point of departure for your work.
Orthographics
This elevation, together with a sampled plan and a speculative section
will provide the armature for the work. There is no expectation of
resolving a complete 3D model.

Interpretation
By conjecture, you should quickly compose a plan and a section to go
with your received elevation. The plan should employ elements and
organizations sampled from the courtyard and vestibule plates from
Durand. Then you will need to improvise a section to fit the plan and
elevation, and to establish an educated guess about a central space.
This section should be along the central axis perpendicular to the
elevation. It may also prove useful to have a lateral section of the
spaces just behind the elevation.

Proportions
Wherever possible, work by geometric derivation instead of numerical
dimensioning. You should become adept with dividing a distance into
equal segments, with scaling one shape to match the edge length of
another, and with stretching some elements to fit to regulating lines. It
will help to keep separate layers of the latter.

Placeholders
The key stage to the project involves creating a set of block definitions
as placeholders within your multiplane composition. These should be
six to ten in number, not more; and some blocks may be part of other
blocks.

Substitutions
The payoff on the project involves redefining these blocks to alter the
character (but not the organization) of the composition. Weekly stages
will ask you to document three stages of substitutions: first within the
spirit of Durand’s drawings, second by sampling some 21st century
work, and third to tune the coherence of the project by refining the
content and level of detail of the latter.

Presentation
By the end you should have a portfolio-worthy image from this. Yet the
final state of the work is not the sole goal of the work, for obviously
this is just as much about process. Thus should carefully document all
stages of the work, for possible inclusion in the final presentation, in a
format to be agreed on when two weeks remain.
First assignment:

As a start to this project, choose one of your given elevations as a basis. Draw this elevation, then a plan, and then a section, all in 2D wireframe, all in the same 3D model. The plan should employ elements and organizations sampled from the courtyard and vestibule plates from Durand. Then you will need to improvise a section to fit the plan and elevation, and to establish an educated guess about a central space. This section should be along the central axis perpendicular to the elevation. (It may also prove useful to have a second, lateral section of the spaces just behind the elevation, but you do not need that right away and should not show it with this stage of the work.) Draw main shape relations and regulating lines first, on their own layers. Use proportional relations to construct these wherever possible. You may want to use the image of the given elevation as an underlay, but do not just trace it. Derive it. Then when working on the next plane, Snap to the elements on the plane just drawn to construct or scale new elements. For display, use line color to distinguish each plane. Use line color to distinguish each plane. Use a less bright variant of the plane’s assigned color, for the related layer of regulating lines.

For the next session (1 Nov.) please post two views of the results in the usual manner, at 1024x768 resolution, as multiplane1.jpg, multiplane1i.jpg, multiplane2.jpg, and multiplane2i.jpg

Calendar

1 Nov. Multiplane wireframe.
8 Nov. Block hierarchy first draft
15 Nov. Documentary set of substitutions
22 Nov. Block hierarchy final draft. Mashup set of substitutions
29 Nov. Project presentation format established. Refined set of substitutions
6 Dec. Completed project due. Presentations by all in section.