Architecture Studio: 1st Year Spring
Spring 2012, CMU, Arch #48-105, M/W/F 1:30-4:20
Class Website: www.andrew.cmu.edu/course/48-105

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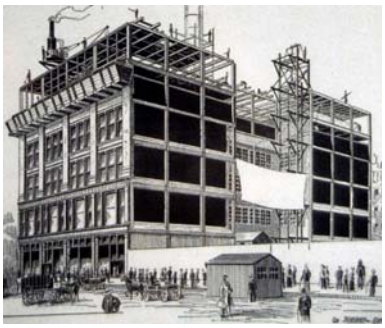
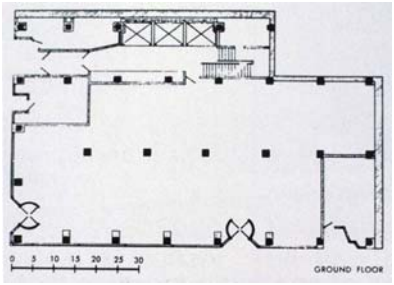
Off. Hr: M/W/F 12:30-1:00pm & by appt. in MM302

(3/3/12)

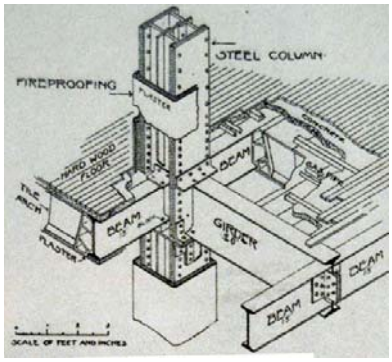
Project 3: BUILDING SPACE



MINDSET: This project continues to engage the primary themes of the studio: drawing as a tool to explore architectural design in relation to "making." It builds on: 1) the first project that introduced the stick, stack and planes tectonic systems; 2) the second project that analyzed a series or highly articulated modern buildings with respect to a specific, constructed "building element" (you are encouraged to borrow from these projects and buildings); and 3) the general theme of residential architecture from the first semester and the analysis project, this time in a steel-frame loft building in Chicago. It anticipates the final project of the year: the design of a modest courtyard house.

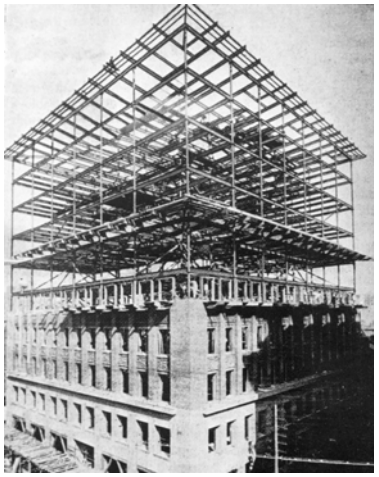


PROJECT: Convinced that the most important work facing today's architect is the retrofitting, reuse, and re-imagining of existing buildings in America's struggling inner-cities, a developer has purchased the top floor of a typical steel-frame "Chicago School" commercial building in order to convert it to a series of live/work lofts for designers. She has commissioned you to design one of a series of "modern," open, 72ftx20 ft live/work units according to the following parameters:



Structural Requirements: The units are laid out as follows (see plan):
- a pre-existing structural steel column grid runs 16ft o.c. in both directions, with columns 1ft square
- an existing exterior curtain wall is hung 4ft out from the last column row
- apartments will be 20-foot wide and 72ft long from the front street facade facing south, to the alley facade facing north
- walls between apartments are floor-to-ceiling 8" thick concrete block
- ceilings are 15ft high, with 8" deep steel ceiling joists at 24"o.c. spanning between 16" tall primary beams that connect structural columns
- cutting more than one of the joists requires the addition of a supporting wall

Functional Program: The apartment should include the following spaces:
- living area
- sleeping Area
- eating area, adjacent to kitchen
- galley-style kitchen alongside one wall of the bathroom to share plumbing
- bathroom (rectangular, 6'x8' min)
- outdoor terrace (balcony and/or interior courtyard)
- laundry/Utility space
- closet / Storage
- darkroom
- work area with 2-4 work stations
- existing elevator and entry stair core (8'x29' conc. block), shared with neighboring apt., with some flexibility in doorway opening.



Design Guidelines: Given the long, narrow configuration of the spaces, and the fact that only the end-walls have windows, the developer is seeking a generally open and flexible "loft-like" spatial sensibility (avoid many closed rooms). Since this is a top floor, the ceiling/roof may be opened in a limited way to bring light into the central spaces, particularly indirect north light.

Primary Design issues:

1) Columns vs. Wall: With the structural system separated from the enclosure system, and the primary structural loads carried by the existing building, there is great freedom to make any walls or enclosures that you wish. The free-standing columns must remain, but can be seen in musical terms as the point or counterpoint to the distribution of partitions or planes in the space. The columns should be central in creating and articulating the spatial and programmatic organization of the loft.

2) Free Plan: The narrow layout of the apartments demands an open and flexible feel that is nonetheless highly ordered and controlled. The problem of choice implicit in the free plan requires that you impose your own constraints and rules consistent with the tradition of the free plan, including transparency and a geometrically articulated "spatial architecture" as explored last semester.

3) Sectional Space: The 15ft ceiling height encourages you to explore ideas of transparency and spatial ideas with vertical layers in section, as well as in plan. Think carefully about the height and porosity of each element. Use book shelves and screen walls to separate spaces partially. Consider lowering the ceiling height of subsidiary spaces to emphasize the primary spaces and to articulate ideas of promenade, hierarchy, and spatial organization. Elevate other sections of your ceiling over the existing roof height to organize space and experience in connection with the light this will let in. Register overhead features in floor or furnishing, or through columns or lightweight walls.

4) Light Through the Roof: the narrow space with windows only at the ends, and the design-centered work spaces demands that the architect attempt to bring some daylight in through the roof. Use skylights, roof monitors, clerestories, roof geometry, and courtyards to bring light into your space. Work with Ecotect to model and visualize the light in your Chicago-latitude loft at various times of the year.

5) Poche: given that walls neither need to have thickness nor hold up anything but themselves, you are encouraged to use non-structural thickness and mass (poche) to organize functions (served vs. servant zones), and to give privacy and hierarchy to specific spaces. This is often achieved by implication rather than fact, through the zoning of common functions, and the layering of surfaces, walls, and shelves/furniture.

6) Facade: This is an interior-design project: your loft design, including the courtyard or balcony must stay completely within the 72ftx20ft boundaries of your given unit and may not penetrate or overhang its boundaries. Details about the existing facade, as well as assignments related to designing your own facade will be given at a later date: for now you should presume a mostly glazed, generic curtain wall-type construction, and only interior views.

Assignment 3a (Due Fri. Mar. 2)

- Each student will be assigned one of the four variations of unit layout (see plan: Apts. A,B,C,D)
- In order to gain confidence and experience working in the stack/stick/plane systems at the core of this studio, your design is required to work with either one of the two tectonic systems NOT explored in your shop project as the primary means by which you create partitions and articulate space and structure. E.g. if you explored "stacks" in your shop project, you must explore either "sticks" OR "planes" in this apt. design.
- Begin the work in model and with sketches to explore quickly the spatial and structural parameters. Begin to define a primary organizational strategy based on the structural grid, the primary circulation, and the functional zones, and then begin to articulate the primary "building elements" using your chosen tectonic system (stick, stack, plane).
- Required Drawings for Friday:
  - Plans cut at 3'-0", and one other height above that with a substantially different plan
  - Sections (2 min; 1 in each direction)
  - 3D paraline drawing of space/layout
- Scan drawings, filename *lastname_loft1.pdf*, and upload to archpcserver