

Capital Stack

Architecture as Liquid Asset



4.154 Architecture Design Studio
Units: 0-10-11, G
T Th 1-5pm, Fall 2026

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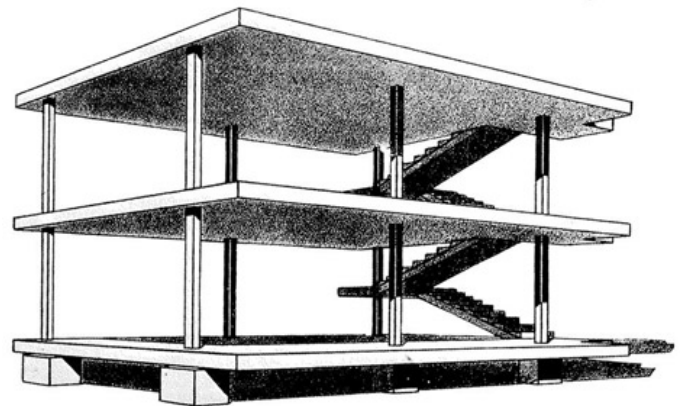
Overview

Somewhere between volatile markets and volatile governance, between prediction betting and networks of desire that proliferate at the speed of fiber optics, money seems to flow ever faster. Architecture attempts to keep up. Think of light-frame buildings, big box stores, apartments that constantly change hands, restaurants and commercial districts in a state of perpetual flux. Each features structural frameworks with articulated and customized surfaces, furnishings, and layouts—blending the specific and the generic into new interwoven configurations that prioritize transformability over permanence.

Sometimes our tools fail us and the speed of building crashes into the speed of economy. In 2020, work stopped on 161 Maiden Lane (aka Seaport Residences), a 670-foot tall residential condominium building in Manhattan's Financial District. Due to a faulty foundation strategy chosen to save money, the building was leaning. Enough that slabs were misaligned by eight inches in some areas; enough to trigger a stop work order. The building has been left a (now-stable) partly-built shell with an exposed concrete core, clad with patchy swaths of glass that freeze it between construction and completion.

This studio will use this concrete shell as a site to explore intersections between market failure and adaptive reuse: as a *Tour Dom-Ino* to test how to inhabit a structural frame, as a capital stack to balance a collective ownership model, and as an experiment to account for varied scales of time and value. Students will work on a large hybrid model-drawing throughout the semester that they will build, rebuild, elaborate, and append as a primary design tool. We will look at how to operate on an existing building to make it perform differently: to use design to register broader economic conditions at the scale of a material or a detail. If money and time have conspired to demand new forms of architecture, this studio intends to supply corresponding designs from lobby to roof, from core to shell.

Le Corbusier, Maison Dom-Ino



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Seaport Residences



Program/ Financialize the Frame

Capital Stack is a real estate term that outlines the breakdown of all funds in a development, including the order in which investors get paid and the relative risk burden for each. The breakdown balances debt and equity, risk exposure and rates of return in a diverse mix designed to ensure financial stability. From their investment to their maintenance, from their occupants to their resident businesses, buildings contain economies. As Matthew Soules writes in *Icebergs, Zombies, and the Ultra-thin: Architecture and Capitalism in the Twenty-First Century*: 'Architecture is not the result of finance capitalism but rather is finance capitalism.'

After touring New York City's iconic towers in *Delirious New York*, Rem Koolhaas imagines the 'Welfare Palace Hotel': a city-within-a-city made of material fragments 'as diverse as possible—marble, steel, plastic, glass—providing the hotel with the history it would otherwise lack.' He combines his description of the Downtown Athletic Club as a site of 'definitive instability,' a 'machine to generate and intensify desirable forms of human intercourse,' and the Waldorf Astoria, where he found a self-contained fully operational total-environment. Both suggest how economy and desire interweave to produce a vertical landscape to satisfy a population's needs and wants. Architecture spatializes these through sectional organization, circulation, and material expression.

In New York, such economies are in a state of perpetual flux as developers and tenants flow in and out of buildings, demanding constant architectural transformation as leases are signed and broken, as shops open and close, as residents customize their corner of the city. Endless change is met with a desire to express individualism: of self, of brand, of corporation. This takes place in the frenetic density of urban centers, where materials seem to flow at the same rate as its citizens, mirroring the speed of investment and debt.

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Program/ Asset Mix

What if we approached programming more like a capital stack? Early in the semester you will outline a set of actors, interests, and lease terms to define a financial situation as the basis of the design project. This financial plan can be systemic and inventive.

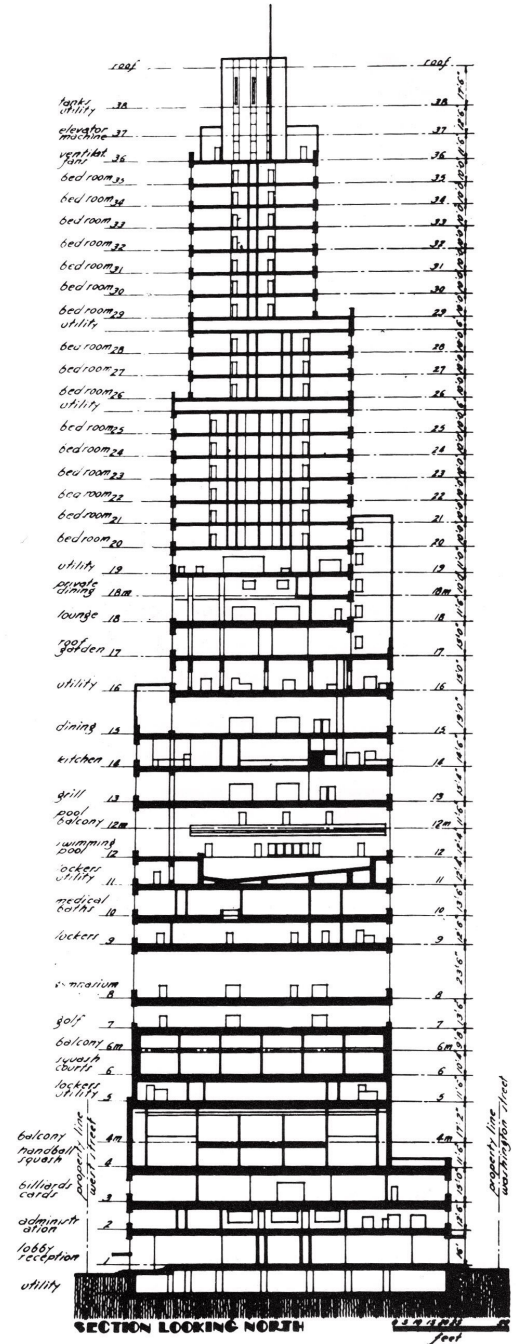
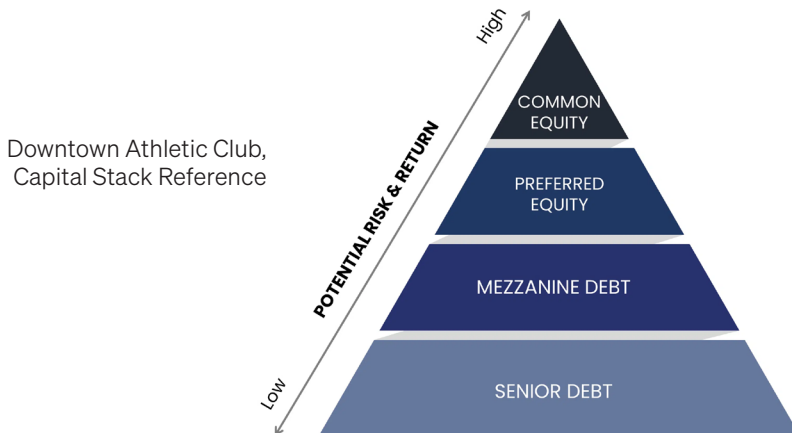
You might think about kinds of ownership: from public to private, collective to individual.

You might think about different uses: from luxury to need, from specific to flexible.

You might think about different spans of time: from day to night, ephemeral to permanent.

You might think about relative location: from ground to sky, core to perimeter.

Together, these considerations will produce a new kind of program map—a market, a financial framework—designed around ‘value’ instead of use. This will provide the basis of the design project, and will guide design decisions throughout the project.



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Material Language/ Embodied Economies

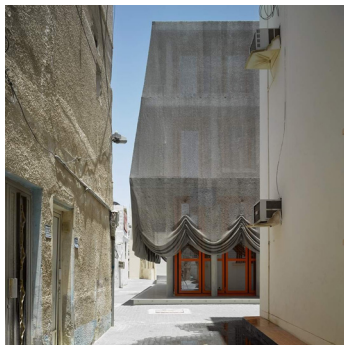
Architecture so often follows the market: serving clients, chasing capital, responding to material desires. Trends, of course, have consequences. Think of hardwoods like wenge or bubinga or zebra: all prized in luxury design to the point of near-extinction. Or marble quarry overmining which leads to aquifer degradation and geologic instability. And the frenetic pace of the city? New York's perpetual reinvention is accompanied by secondary infrastructural frameworks: scaffolding, dumpsters, and trucks full of steel studs and sheet materials that endlessly drive through the city's dense grid.

Materials have embodied energy, which accounts for the totality of their impacts: energy spent on extraction, labor, processing, transportation, fabrication, installation, repair, and disassembly. We might also say they have *embodied economies*, which account for the totality of their global and local economic values: trade partnerships, tariffs, business interests, advertising, branding, taste, and fashion. And these conditions are shaped by the portfolios and political entanglements of the clients who commission them.

These embodied economies also reflect relationships to time: to permanence and longevity. In Executive Order 14344, 'Making Federal Architecture Beautiful Again,' the Trump Administration called for a return to 'Classical' and 'Traditional' architecture to 'convey to the general public the...stability of America's system of self-government.' Think granite, stone, and marble: heavy, permanent, and timeless. They're built to last, or at least until the next administration. But if money circulates, shouldn't architecture?

Students will develop materials and assemblies that might be deployed at the scale of a lease: for a day, for ten years, for a lifetime. These materials will weave through Seaport Residences's concrete frame and partial cladding, responding to its floorplates, core, and perimeter. The result might be more metabolically aligned with the liquidity of our economy: a building less like a monument to capital and more like a trading floor.

Left to Right:
Office KGDVS,
Lacaton & Vassal,
ZAV Architects



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Framework

This studio prioritizes a slower, iterative design process. The work will center exploration through a hybrid model-drawing that will act as a design tool that you'll build early in the semester and work, re-work and revise throughout. The goal is to build up a consistent methodology for drawings and models to develop and accumulate over the semester.

At the same time, we will begin the studio by building shared resources for the site and by establishing the 'capital stack,' our market-interrogative approach that explores the relationship between architecture and finances as a site of critical invention.

1. Cooperative Assets

We need to do some forensic work to understand the building. The studio should work together to generate shared plans, sections, and a detailed 3dm of the site. These 'cooperative assets' will set the tone for our collective endeavor throughout the studio.

You will use this time to design and build your individual model bases with a plan for a system by which to draw and build over the course of the semester.

2. Financial Modeling

Per the statement on programming (above), you will come up with a financial framework for your project, and produce a diagrammatic map of relations, investments, and leases which will guide your design work.

3. Liquid Assemblies

Per the statement on material language (above), you will research material systems and assemblies based on financial flows, investments, and leases. The material systems should establish short- and long-term timelines, and should support the financial model established previously.

4. Portfolio Analysis

For the final, you will be asked to perform a 'portfolio analysis' that tests the connection between your designs, the existing building frame, and your financial models through different scenarios. What happens when a foundational part of the capital stack goes under? When public administration changes? When the cost of materials shifts due to supply chain shortages and international tariffs?

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Schedule

Wk1	Th	9/10	Studio Introduction; Kick off Part 1/2.
Wk2	T Th	9/15 9/17	Desk Crits. Guest Lecture on Fabrication. Reading Group. Desk Crits.
Wk3	T Th	9/22 9/24	Group discussion on model design and assets. Reading Group. Desk Crits.
Wk4	T Th	9/29 10/1	Paired Crits. Guest Lecture on Structure. Reading Group. Desk Crits.
Wk5	T Th	10/6 10/8	Part 2 Final: Program analysis, model design Kick off Part 3. Group Discussion.
Wk6	T Th F	10/13 10/15 10/16	No Class Reading Group. Desk Crits. Make-up Class.
Wk7	T Th	10/20 10/22	Mid-term Alternative Development Conference
Wk8	T Th	10/27 10/29	Desk Crits. Reading Group. Paired.
Wk9	T Th	11/3 11/5	Desk Crits. Reading Group. Desk Crits.
Wk10	T Th	11/10 11/12	Model Review Desk Crits. Guest Lecture on Program.
Wk11	T Th	11/17 11/19	Paired Crits. Reading Group. Desk Crits.
Wk12	T Th	11/24 11/26	Pre-final Workshop, Kick off Part 4. No Class: Thanksgiving
Wk13	T Th	12/1 12/3	Desk Crits. Penultimate Review
Wk14	T Th	12/8 12/10	Paired Crits. Final Check-in before Final review (date TBD)

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Studio Culture

Work in the studio will build sequentially. Therefore, student commitment to incremental development on a daily basis is of great importance. The demanding nature and pace of this studio necessitates regular attendance and requires that deadlines are consistently met. Attendance in studio and for the duration of all formal reviews is mandatory. Greater than two absences from studio without medical excuse supported by a doctor's note or verifiable personal emergency could result in a failing grade for the studio.

Grading: Grading is cumulative over the semester per the design methodology of the class. The final review will be weighted at 30% of the overall semester.

Evaluations: Mid and end of term letters of warning will be issued as needed.

Learning Objectives:

Ability to research, conceptualize, develop, and represent an architectural project

Learn and practice presentation skills

Represent an architectural design concept in accurate plan and section drawings

Translate ideas from two dimensional sketches to three dimensional models

Selected projects need to be properly prepared and formatted, and delivered to the Archiving TA. Studio TA will collect project archives from each student immediately following the review.

The Department of Architecture promotes a learning environment that supports the diverse values of the entire MIT community of students, faculty, administration, staff and guests. As architectural design learning is often accomplished through project-based activities during and outside of class times, maintaining this environment at all times is the responsibility of the entire community. Faculty and students should strive to understand and mutually respect the varied commitments of each other and work together to manage expectations of time and effort devoted to assignments, pin-ups, and public reviews.

MIT's expectations and policies regarding academic integrity should be read carefully and adhered to diligently: <http://integrity.mit.edu/>