

RADICAL ADDENDA

Envisioning a Code for the Climate Crisis

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NJIT Hillier College of Architecture and Design

Option Studio II - 90105 - ARCH 464 - 009

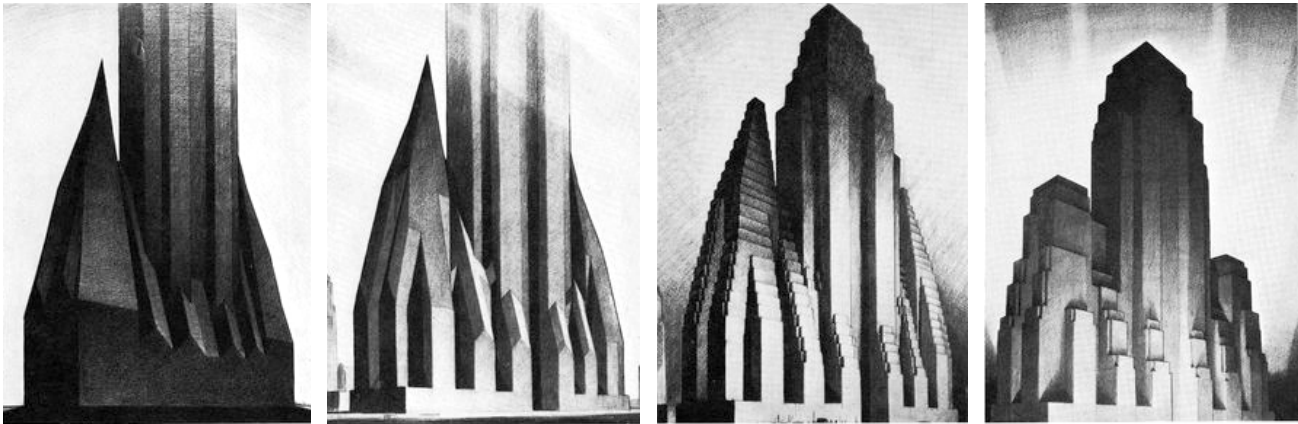
Prerequisites: ARCH 364

Fall 2020 - Mon./Thurs. 11:00am-4:50pm

"The climate crisis is also a crisis of culture, and thus of the imagination." - Amitav Ghosh

According to the 2018 report by the United Nations Intergovernmental Panel on Climate Change (IPCC), the world has only 12 years to halt carbon emissions before we face global catastrophe. For architecture, which accounts for 30-40% of carbon emissions, this will require immediate and radical change of our building practices.

The task at hand, to fundamentally redesign our buildings, is certainly monumental, but not without precedent. At the beginning of the 20th century, New York City faced a similarly urgent need to reshape the built environment. In 1915 the Equitable Building finished construction in Lower Manhattan, it's 1.8 million square feet topping out at 528 feet but occupying no more than a single acre. The building cast permanent shadow over its surrounding streets and buildings, prompting fear among the public that buildings would soon blot out the sky. Soon thereafter, the first citywide zoning code in the United States was established: the Zoning Resolution of 1916. In it were new height restrictions and setback requirements for taller buildings, with the goal of preventing new buildings from blocking light and air at street level. While the initial concern had been righted, it wasn't until Hugh Ferriss illustrated it's effects that the underlying potential of these codes would be truly understood. Through these illustrations and similar visionary work by the architect Raymond Hood, the "setback" style soon came to dominate high-rise architecture in New York and beyond for the decades following. It is with this combination of policy and vision, that we can begin to approach the magnitude of change which the climate crisis requires.



Hugh Ferriss, from "The New Architecture," *The New York Times*, March 19, 1922.

More recently, a much more subtle, but nonetheless impactful change has occurred. The "stick-frame-over-podium" building type was first established in the 2009 International Building Code. The code was the first to allow for mid-rise buildings constructed of wood framing on a concrete base. Soon after the revised code became current, developers seized on the new typology, exploiting its higher density and cheaper construction materials and methods. Often called a "5-on-1" "6-on-1" or "5-on-2" this new building type has gradually come to define much of the urban development in US cities within the past decade. These buildings are noticeable by their typically letter-shaped plans (H, O, C, etc.), ground floor parking and flat, unrelenting facades. In this example, the code change came without any clear vision, leaving us with uninspired buildings which we choose to ignore rather than embrace, when they nonetheless represent radical change.

COURSE DESCRIPTION

The goal of this studio is to engage both policy and vision equally, utilizing the building code itself as the mechanism for change and backing it up with compelling visions of its implementation. These "Radical Addenda" will be formulated as hypothetical additions to the upcoming IBC 2021 with the primary goal of addressing the climate crisis and reducing carbon in the atmosphere.

WEEKS 1-4: RESEARCH PHASE

During this phase students will investigate the various codes at work in a given building as well as learn about emerging sustainable construction methods. This will include deep investigations into prevailing codes and standards involved in the built environment. This phase will also incorporate a weekly seminar component intended to introduce students to the broader climate debate within architecture through readings and discussion.

To organize and present their research, students will select a building code "case-study" and demonstrate its impact on building form, materiality, and spatial experience. The goal being to reveal the underlying architectural design of these code texts. This will take the form of highly detailed axonometric and/or perspective drawings.

WEEKS 5-16: DESIGN PHASE

During this phase students will be asked to write an addendum to the upcoming 2021 International Building Code. These "Radical Addenda" will directly target combating the climate crisis. These addenda will need to balance applicability with radicality to create a convincing case while also providing the fundamental change needed.

Along with this code text, students will then demonstrate the implementation and impact of their addenda across multiple scales utilizing varying media:

- A building detail model (1:1)
- A full building (1:100)
- A neighborhood (1:1,000)
- A climate region (1:100,000)
- The planet (1: 10,000,000)

These representations are the primary outcome of this studio and should focus on providing a persuasive and intriguing vision. Students will use these representations to continually test their addenda, accounting for all consequences, no matter how far-reaching. These representations should strive to show not only the resulting architecture but also the impact on labor, equality, and our way of life.

PROVOCATIONS

Adaptation vs. Prevention	Zero Waste
Flooding/Resilience	Net Zero Carbon
Timber Construction	Re-Wilding
Equity	Engineered Sinks
Rights of Construction Workers	Increasing Density
The Anti-Suburb	Bio Materials
The Good Suburb	Local Materials
Symbiosis with Nature	The Rural / Urban Divide
White Roofs / Solar Power	New Contract Structures
Plastic-Free	New Project Delivery Systems
Degrowth	New Models of Ownership
Building for Demolition	Agriculture and Food Production

LEARNING OBJECTIVES

RULES

As architects we are often tasked with designing within a certain set of constraints. In this typical scenario, the act of designing could be interpreted as a type of game, in which a pre-determined set of rules (code, budget, context) governs the building. The project is judged as beautiful/ugly/provocative/innovative/boring but only after it's found to be rule-abiding. If a project breaks the rules it is invalidated.

In this studio we are instead engaging the rules themselves as the object of design. As a framework, students are creating a game and then playing it out. As with any good game, the rules need to be specific but open to interpretation, limiting but not oppressive, while also evidencing a distinct goal or outcome.

VISION

Representation will be our means of testing these rules and 'playing the game'. Rules by themselves can only exist in the generic and written, it is the duty of the students to validate and express these rules through varied modes of representation. These drawings/images/documents/apps/maps/ should be treated as working documents, developed in tandem with the rules. In order to maintain consistency and coherence across the varied media, students should focus on developing an aesthetic language and toolkit of software workflows and processes. It is also encouraged to develop a narrative or set of narratives to guide the development of these representations.

MULTIPLE SCALES

Often in studio our focus is limited to a single building or site. While practical for purposes of approximating a real-world architectural scenario, it disallows consideration beyond a certain scale. In this studio, the site will exist at multiple scales, from that of a building detail to that of the entire globe and many points in between. In order to navigate across and between these scales, students will develop a narrative rather than a single entity. The goal of approaching these varied scales is to anticipate impacts that are often externalized and invisible at the typical scale.

FORMS OF REPRESENTATION

As architects and designers our modes of representation are numerous. With these skills, we are among the best equipped to provide convincing visions of the built environment. As part of this studio we will approach these modes critically while exploring their capacity to inspire. We will also seek out new and emerging forms of representation that may not have found their way to architecture.

CLIMATE CRISIS AND INDEPENDENT RESEARCH

While approaching from an architectural perspective, it is imperative to understand the climate crisis as all-encompassing. For that reason our investigations and will seek out discussions distinctly beyond the realm of architecture. It will be the responsibility of the student to bring outside materials into the studio conversation and maintain substantial sources for all assertions related to your project.

SCHEDULE

Sept 3 - Studio Presentation

Sept 8 - Review Readings and Full Group Meeting

Sept 10 - **REVIEW EXERCISE 01: RULES AND VISION**

Sept 14 - Full Group Meeting [HCAD Lecture Series 5:00pm]

Sept 17 - Individual Group Meeting [HCAD Awards Ceremony]

Sept 21 - Pin-Up [HCAD Lecture Series 5:00pm]

Sept 24 - Individual Group Meetings

Sept 28 - **REVIEW EXERCISE 02: CODE CASE STUDY** [HCAD Lecture Series 5:00pm]

Oct 1 - Individual Crits

Oct 5 - Small Group Crits

Oct 8 - Pin-Up [HCAD Lecture Series 5:00pm / Design Showcase]

Oct 12 - Individual Crits

Oct 15 - Small Group Crits

Oct 19 - Individual Crits

Oct 22 - **MID REVIEW**

Oct 26 - Individual Crits / Mid Review Debrief [HCAD Lecture Series 5:00pm]

Oct 29 - Individual Crits

Nov 2 - Small Group Crits [HCAD Lecture Series 5:00pm]

Nov 5 - Individual Crits

Nov 9 - **3/4 REVIEW** Last Day to Withdraw [HCAD Lecture Series 5:00pm] [

Nov 12 - Individual Crits

Nov 16 - Small Group Desk Crits

Nov 19 - Individual Desk Crits

Nov 23 - Small Group Desk Crits

Nov 26 - NO CLASS

Nov 30 - Individual Desk Crits

Dec 3 - **FINAL REVIEW**

Dec 7 - SUPERCRIT

READING LIST

CODE

Ben-Joseph, Eran. *The Code of the City: Standards and the Hidden Language of Place Making*. MIT Press, 2005.

Bui, Quoc Trung, and Matt A. V. "40 Percent of the Buildings in Manhattan Could Not Be Built Today." *The New York Times*, The New York Times, 20 May 2016, www.nytimes.com/interactive/2016/05/19/upshot/forty-percent-of-manhattans-buildings-could-not-be-built-today.html.

Ching, Francis D. K., and Steven R. Winkel. *Building Codes Illustrated: a Guide to Understanding the 2018 International Building Code*. Wiley, 2018.

Fox, Justin. "Why America's New Apartment Buildings All Look the Same." *Bloomberg.com*, Bloomberg, 2019, www.bloomberg.com/news/features/2019-02-13/why-america-s-new-apartment-buildings-all-look-the-same.

VISION

Chakrabarti, Vishaan, and Norman Foster. *A Country of Cities a Manifesto for an Urban America*. Metropolis, 2013.

Ferriss, Hugh. *The Metropolis of Tomorrow*. I. Washburn, 1929.

Goldin, Greg, et al. *Never Built New York*. Metropolis Books, 2016.

Ghosn, Rania, and El Hadi Jazairy. *Geostories: Another Architecture for the Environment*. ACTAR, 2018.

Lai, Jimenez. *Citizens of No Place: An Architectural Graphic Novel*. Princeton Architectural Press, 2012.

Monchaux, Nicholas De. *Local Code: 3659 Proposals about Data, Design, and the Nature of Cities*. Princeton Architectural Press, 2015.

CLIMATE CRISIS

Benjamin, David N. *Embodied Energy and Design: Making Architecture between Metrics and Narratives*. Columbia University GSAPP, 2017.

Ghosh, Amitav. *The Great Derangement: Climate Change and the Unthinkable*. The University of Chicago Press, 2017.

Klein, Naomi. *This Changes Everything: Capitalism vs. the Climate*. Vintage Canada, 2015.

Latour, Bruno. *Down to Earth: Politics in the New Climatic Regime*. Polity, 2018.

Nixon, Rob. *Slow Violence and the Environmentalism of the Poor*. Harvard University Press, 2013.

GRADE DEFINITIONS

<https://www5.njit.edu/registrar/policies/grading.php>

In addition to the NJIT's grading standard students at the CoAD must have a yearly 2.0 minimum studio GPA to proceed to the next studio year.

STUDIO CULTURE

For a studio to be a successful experience for students and teachers alike, an atmosphere of mutual trust must be established. The key to this, we believe, is the establishment of open communication at the outset of each studio and the recognition by all parties of a set of core principles that describe the studio experience: professionalism, collegiality, and solidarity. NJIT's Studio Culture Policy: <https://kepler3.njit.edu/SitePages/Studio%20Culture%20Policy.aspx>

ARCHIVING STUDENTS WORK

All students have to submit all their work for review and archiving to their instructor. Students also have to upload all final requirements for the entire semester on Kepler. Please ask your instructor for the specific format. In addition, students will be asked to provide selected work such as images, drawings, renderings or photographs of models (No composed boards – just individual images) in the "Featured Works" folder on Kepler: File type: pdf or jpg (260dpi, 8"/11.5" horizontal or vertical) File name: Student'sFirstName_Student'sLastName. Link to Kepler will be provided.

<https://kepler4.njit.edu/>

ATTENDANCE AND TARDINESS POLICY

Excused Absences: Are for medical and religious reasons or pre-approved for student-athletes only. An absence due to illness can be excused if the student has filed official documentation (licensed medical practitioner including NJIT Health Services) with the Office of the Dean of Students. The Office of the Dean of Students will, in turn, notify the instructor(s) that appropriate documentation has been received and confirmed, and detail what accommodation is warranted. These accommodations may range from identified dates for excused absences (normally for temporary illness) to extra time for projects and assignments (for ongoing medical issues).

Contact Dean of Students: <https://www.njit.edu/dos/>

Unexcused Absences: Students will be penalized half a grade for each absence after three unexcused absences. The instructor is under no obligation to repeat any missed information or provide access to lecture notes or presentation materials to students who arrive late. Yet it remains the responsibility of the student to learn the material presented.

Attendance Policy for Undergraduate Students:

<https://www5.njit.edu/registrar/policies/attendancepolicy.php>

ACADEMIC INTEGRITY

Academic integrity and honesty are of paramount importance. Cheating and plagiarism will not be tolerated. The NJIT Honor Code will be upheld, and any violations will be brought to the immediate attention of the Dean of Students. All students are responsible for upholding the integrity of NJIT by reporting any violation of academic integrity to the Office of the Dean of Students. The identity of the student filing the report will remain anonymous. All students are expected to adhere to the University Code on Academic Integrity and to the Code of Student Conduct:

<https://www.njit.edu/dos/policies/conductcode/index.php>

PLAGIARISM

It is extremely important that students and faculty familiarize themselves with a proper way to cite visual and intellectual sources. Plagiarism whether deliberate or inadvertent simply cannot be tolerated. Simply put, plagiarism is the use of visual or intellectual material created by others without proper attribution. Even the use of ones own material for more than one assignment can also be considered plagiarism. Students should not do so without the expressed consent of all instructors involved.

Our librarian Maya Gervits has assembled excellent resources on copyright, plagiarism citing, and avoiding plagiarism:
<https://researchguides.njit.edu/c.php?g=671665&p=4727920>

MEDICAL OR HEALTH

If the issue is medical or health related, students should contact the Dean of Students Office first at
<https://www.njit.edu/dos/>

STUDENTS WITH DISABILITIES

It is the school's moral, ethical, and legal obligation to provide appropriate accommodations for all students with physical and/or learning disabilities. If students need an accommodation related to disabilities, all official documentation must be filed with the Dean of Students and the Disability Support Service Office. It is the responsibility of the student to notify the instructor at the beginning of the semester if accommodations are warranted.

Dean of Students: <https://www.njit.edu/dos/>

Disability Support Service: <https://www.njit.edu/studentssuccess/accessibility>