OPTIONS STUDIO

Media Architectures: Immersive Design Tools

ARCH-463-00x   Fall 2024
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STUDIO DESCRIPTION

This Options Studio engages emerging digital media practices and technologies as an expanded field of architecture. It looks at photogrammetry, augmented reality (AR), and virtual reality (VR) as new frameworks for design thinking and virtual habitation/immersion. It discusses the role gamification plays in enabling in-depth interactions with/in the built environment. This course points to creative opportunities associated with these technologies and demonstrates effective pipelines for a wide range of design applications. While grounding its discussion in virtually-built environments, the studio provides opportunities for broad interdisciplinary topics and creative collaborations from the media and interactivity to interiors and exhibition design.

Students will research the use of these technologies across various creative disciplines with associated conceptual frameworks and will develop their own group projects that integrate these technologies into design/media and digital heritage practices. Specifically, students will develop mobile-based AR and/or VR projects (fully functioning environments) utilizing Unity3D game engine that build on one of the themes provided by the instructor that will include digital heritage, historic preservation, building user interface (smart building interactions), and data visualization. The structure of the studio—its open framework--will allow students with various technical backgrounds and proficiency levels to interact effectively and contribute to team projects. With the successful completion of the course students will gain hands-on ability to author within mobile extended reality (XR) and to conceptualize and design mobile experiences using Unity3D game engine.

RADICAL ADDENDA
Envisioning a Code for the Climate Crisis

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Option Studio Proposal - Fall 2024

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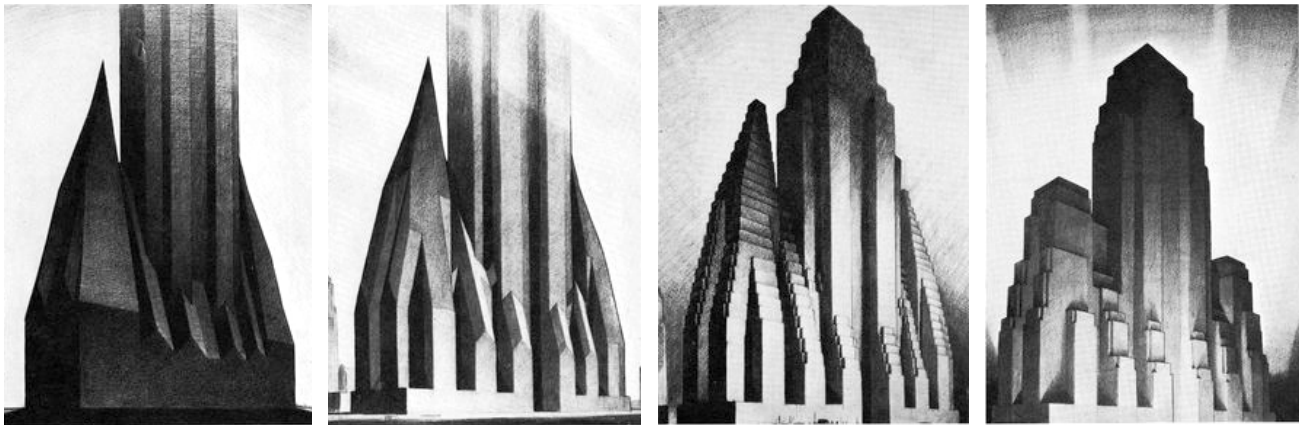
Hugh Ferriss, from "The New Architecture," *The New York Times*, March 19, 1922.

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.

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.

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 2024 with the primary goal of addressing the climate crisis and reducing carbon in the atmosphere.

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 local scale.

FORMS OF REPRESENTATION

As architects 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.

The now ubiquitous "stick-frame-over-podium" building type.

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 lectures by experts in charge of writing building and zoning code, specifically the International Green Construction Code, Passive House, and LEED. 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 2024 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.

READING LIST

CODE

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VISION

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