

COLUMBIA UNIVERSITY
GRADUATE SCHOOL OF ARCHITECTURE, PLANNING AND PRESERVATION
STUDIO 4: ENVIRONMENT

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OVERVIEW

In the context of climate change, Studio 4 will develop a multi-scalar, environmental framework for designing the materials, architecture, cities, infrastructure, and landscapes of the future. The semester will focus on some of the most critical and forward-looking issues of architectural education and practice. It will move beyond default responses to environment and explore fresh possibilities for design. Studio 4 will emphasize a common discussion across the class, while allowing each of the seven studios to explore unique ideas and approaches. Critics and students will develop critical positions and formulate thoughtful, design-driven answers to the question: What is your position on environment?

ENVIRONMENT AND TECHNOLOGY

The studio will explore past, present, and future models of environment and technology. This exploration will include concepts related to nature that have been advanced in a wave of recent books and articles—including intermediate natures, next nature, subnature, and hypernatural. Discussions and design projects will address a wide range of questions along these lines. What can we learn from past experimental approaches to environment and technology? Do new technologies such as synthetic biology and gene drives change everything? How can we challenge the received notion of ecology as something precious and untouchable? Should environment and technology drive the buildings and cities of the future, or be driven by them?

RESILIENCE

The studio will consider the recent momentum of the concept of design with resilience. Over the past few years, as climate change and the damage of natural disasters have accelerated, resilient systems have been promoted as a model for design with massive change, design with uncertainty, and design with shifting and unknowable forces. Shaun Donovan, former Secretary of the U.S. Department of Housing and Urban Development, explains, “Sandy marked a new era of public awareness, an understanding that helps us change our practices, thinking, and, ultimately, our way of living to address this new reality.” The Rebuild by Design initiative in New York City states, “The impacts of climate change are forcing our developers, policymakers and communities to evolve: a necessary step to ensure that our region remains resilient enough to withstand its uncertain future.” Yet some people argue that resilient systems are not enough. While resilient systems are defined as recovering quickly from stress, “antifragile” systems are defined as thriving and improving under stress. How might we design resilient and antifragile architecture and landscapes? How might a new set of urban practices emerge that are grounded in inherently changing ecological processes? How might design strategies incorporate risk and change to forge new ecologies and community structures?

THE CIRCULAR ECONOMY

The Circular Economy is an emerging concept for a new era of design across multiple disciplines. This concept is based on creating industrial economies with two types of nutrients: biological nutrients that are designed to circulate without unhealthy waste products, and technical nutrients that are designed to circulate at high quality without material impact. The Circular Economy promotes renewable energy and materials with low embodied energy, but it also involves a broader range of open source scientific projects and solutions that are healthy in terms of environment, finance, and society. A recent report by the World Economic Forum explains, “In a world of close to 9 billion—including 3 billion new middle-class consumers—the challenges of expanding supply to meet future demand are unprecedented. Our current ‘take-make-dispose’ approach results in massive waste.... The switch from a linear to a regenerative circular economy provides credible and quantified perspectives to address this generational challenge. Ultimately the circular economy could decouple economic growth from resource consumption—truly a step-change.” In this context, could we similarly aim to decouple architecture from resource consumption? How might we design buildings, landscapes, and cities as part of regenerative circular economies? Should the domain of architectural design expand over space and time to incorporate global supply chains and recycling/composting of construction material? How should agency and responsibility be shared in this context? What are the social, political, and economic levers that designers might pull?

SCALE

Studio 4 will operate at multiple scales simultaneously. Over the course of the semester, each studio and each student we will develop a position about rethinking architecture from the scale of the brick to the scale of the site plan. We will look at new multi-scalar paradigms that include robust biological and social dynamics, energy generation, and adaptability. How exactly do the different scales relate to each other? What are the dependencies and the feedback loops? As we scale up or scale down, which concepts and approaches change, and which stay the same? Is it possible to explore design from the scale of material composition, including molecules with a diameter of about 10^{-9} meters, to the scale of global production, including the earth with a diameter of about 10^7 meters—16 powers of ten in the same studio?

SCHOOLS AND WATER BODIES

The sites and programs for the studio will involve the intersection of schools and water bodies. In an expanded definition of schools, we will explore school as a framework for communities and collectives, as well as education and research. In an expanded definition of water bodies, we will explore interconnected environmental phenomena and constructed habitats. We will study how the waterfronts of global cities have transformed from sites of fortification against enemies, to sites of trade, to sites of redevelopment, and now also to sites of fortification against rising sea levels. We will design new models for addressing these competing demands through schools, and will apply the best of our new models and techniques to the design of visionary and viable buildings.

FORMAT

The studio will meet for desk crits and pinups on Mondays and Thursdays from 1:30 PM to 6:30 PM. The studio will have workshop/seminar sessions on Wednesdays from 3:00 PM to 5:00 PM.

