Columbia University
Graduate School of Architecture, Planning, and Preservation
A4005/ Advanced Architecture Studio V
CIEN E4260 Urban Ecology Studio
Fall 2017
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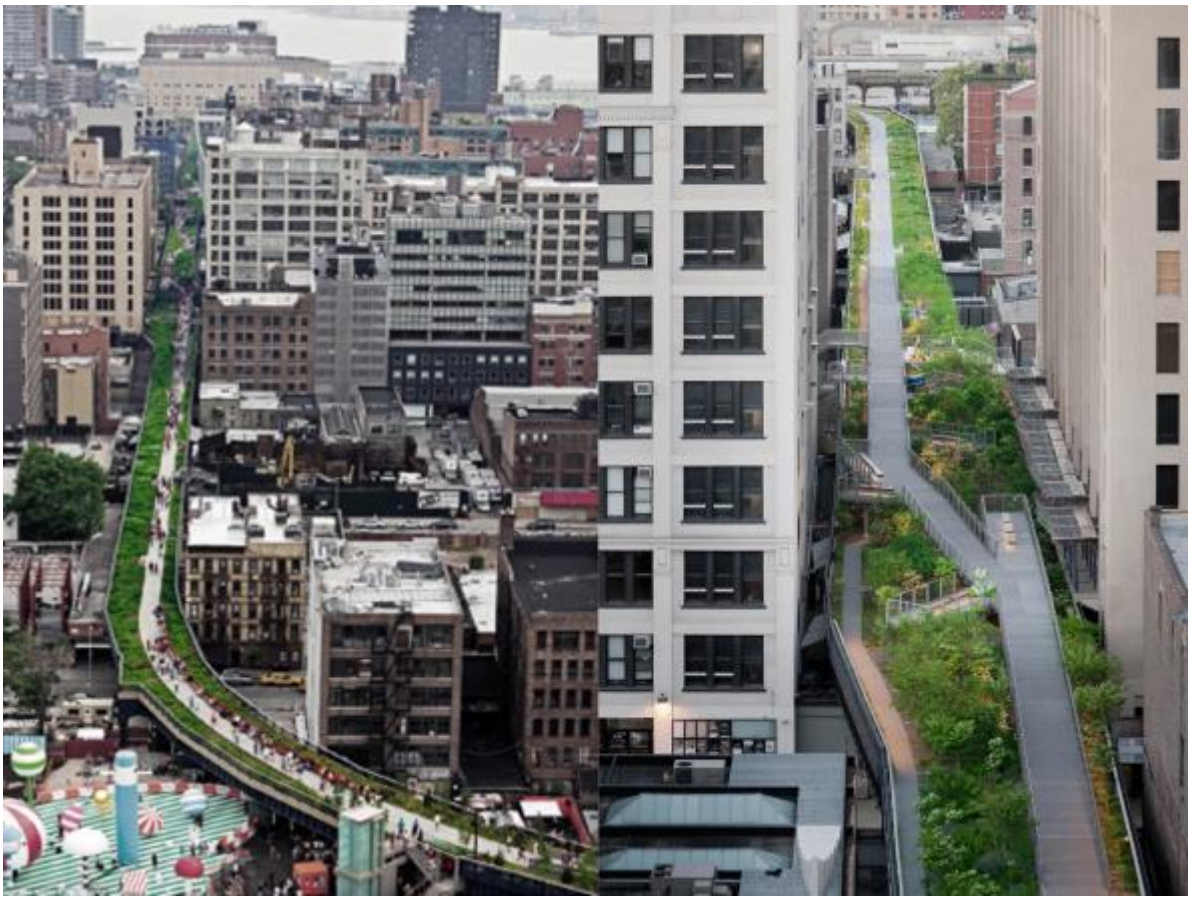
***MORPHOSES NATURAE*: THE HIGH LINE**



South from West 30th

North from West 25th

Urban Morphoses. The biologist Edward O. Wilson has referred to cities as the "greatest of machines," which raises the interesting question of "what about urban nature." And if the common aphorism holds that cities are the "natural" habitat of humankind, then by implication "urban," "natural," and "machine" enjoy a transformative relationship. A combination of buildings, vegetation and citizens assume symbiotic morphoses. Probably no better example exists in New York of such relationships than along the High Line.

Vegetation / Building Symbiosis. Our concern will focus on understanding the symbiotic relationship between the High Line park and its neighboring building and resident context. The present vegetation on the High Line dates from the opening in 2009 of the first of three phases of development. The final phase opened in 2014, but is still in development, and all of the vegetation has acclimated to one degree or another. Parallel to this sequence has been the progression of urban building infill along its edges which

is extraordinary in its scale and intensity and unanticipated at the time of the original High Line inception. Now this urban hyper- development is impacting the High Line and most obviously, its vegetation. In certain areas, the new urban buildout is transforming the climactic context, creating problems in maintaining the planting. For example, sun and heat exposures are intensifying due to the changing building morphologies. Even changes in facade reflectivity can burn vegetation. And in certain areas, changing prevailing wind direction and intensity is also destructive of vegetation. Given that the permissible New York City building bulk zoning is encouraging substantial further large-scale building development along the High Line edges, deep understanding of the effect on vegetation is a necessity, and especially for the northern final phase, which will be most impacted.

The Design Challenge / Stealth Buildings. We are assuming that along the High Line the relationship between vegetation, building and citizens implies a symbiosis that effects the health and well-being of both. Within this relationship the more expansive variable has to do with changing adjacent volumes; and our work will focus primarily on this question of the new buildings. Fundamentally we will research how building mass and tactility effects the High Line. We will develop a lexicon of shapes and materials that hold the potential to reduce the negative impacts and enhance the positives. Our goals will include envisioning adjacent buildings that can minimize negative impacts on High Line vegetation; that can incorporate their own vegetation in empathy with HL vegetation; that maximize the context for vegetation in general. Each designer or team will produce a "stealth" building for a specific High Line site adjacency. It must address the question of impacts of buildings on High Line and vice versa.

Digital Tools. Digital tools for urban planning, environmental analysis, and parametric modelling have expanded drastically in the last generation, but coordinating their different processes remains a challenge. The objectives of this studio will require students to develop an integration of these different digital processes. *CityEngine* will be incorporated as the principal tool to correlate procedural modelling of massing and architectural articulation with environmental data and analytics. Students will work toward fluency in the transfer of environmental data between various software packages.

Studio Resources. The High Line studio is building on research begun in summer 2017 by Plunz and Moskalenko in the Earth Institute Urban Design Lab under a grant from the Landscape Architecture Foundation; in collaboration with Friends of the High Line and James Corner Field Operations. Among the initial recommendations is the necessity to focus further on the relationship between the High Line vegetation and the adjacent new building; with identification of a number of problematic impacts. This studio will continue the research, and the collaboration with Friends of the High Line and Field Operations. Hypotheses will be developed and tested incorporating scientific data and expertise to the extent available. For designers desiring expanded studio involvements with cutting-edge issues pertaining to our next generation urban development; as well as a robust design project of immediate use in advancing beyond the normative academic project, this studio experience will be a rewarding one.

Collaborations. Apart the Friends of the High Line and James Corner Field Operations, this studio will share resources and collaborate with CIEN E4260 Urban Ecology Studio in the Columbia School of Engineering and Applied Science (SEAS). It will also share resources with SDEV UN3280 Workshop in Sustainable Development taught in Columbia College. The SEAS studio connection affords the opportunity for collaboration across design disciplines in architecture and engineering, with emphasis on the relationship between urban ecology and public space. This innovative teaching forum on questions pertaining to the ecological impacts related to urban development comprises a team of graduate architecture and advanced engineering students that is tasked to work with place-based community stakeholders as clients in addressing their pressing developmental issues. Students and faculty represent both the School of Engineering and Applied Science and the Graduate School of Architecture, Planning and Preservation. The Urban Design Lab (UDL) http://urbandesignlab.columbia.edu/at Columbia's Earth Institute plays an important role in expediting this initiative.

Working Assumptions. Architecture students will work individually or in teams of two; and with the option of collaborating directly with engineering students. Architecture students will produce a conceptually and tectonically well-developed building scale project for a specific location adjacent to one of ten High Line "gardeners" sections. Initially engineering students will research case studies in built/natural environment symbiosis; architects will research specifics of NYC bulk zoning and build-out at the High Line. Each research component can evolve to student partnerships, ultimately combining design proposals with technical analytics, at a convincing level of detail not normally possible in a traditional architecture design studio.

Principal Resource Persons:

Nicole DeFeo, Planning & Design Manager, Friends of the High Line
Margaret Jankowsky, Director of Marketing and Business Development, James Corner Field Operations
Stuart Gaffin, Research Scientist, Center for Climate Systems Research, Columbia University
Elizabeth Moskalenko, Graduate Landscape Researcher, SEAS

Rough Timeline:

First Weeks:
- -Introduction to existing conflicts between High Line and adjacent buildings.
- -Examination of existing NYC bulk zoning exigencies.
- -Introduction to modeling tools and their limitations.

Middle Weeks:
- -Exploration of possible design responses to differing contexts along the High Line.
- -Development of lexicon of mass and material responses.
- -Initial testing and evaluation of differing built responses relative to context.

Last Weeks:
- -Development of detailed architectural proposals for specific sites.
- -Detailed evaluation of each proposal relative to High Line contextual factors.
- -Preparation of summary report.

Beginning Schedule:

Wed Sept 6: Studio Lottery
Fri Sept 8: First Class: Introduction & First Exercise Handout for Architects
Mon Sept 11: Architects & Engineers Joint Class
Tue Sept 12: 10:30-12:00 (optional) Project General Discussion at High Line Offices (rain date Thursday.
Wed, Sept 13 Optional Crits
Thurs Sept 14: 2:00-5:00 Briefings at High Line and Tour (rain date Friday)

Mon Sept 18 First Exercise Review & Second Exercise Handout
Wed Sept 20 Optional Crits
Thurs, Sept 21 Crits

Mon Sept 24 Second Exercise Due & Third Exercise Handout
Wed Sept 27 Optional Crits
Thurs Sept 28 Crits