

DOMESTICATING BIGNESS

Speculating on a future for ecological social housing infrastructures

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“As a microcosm organized according to the same oppositions which govern all the universe, the house maintains a relation with the rest of the universe which is that of a homology: but from another point of view, the world of the house taken as a whole is in a relation with the rest of the world which is one of opposition, and the principles of which are none other than those which govern the organization of the internal space of the house as much as they do the rest of the world and, more generally, all the areas of existence.”

– Pierre Bourdieu, *The Berber House or the World Reversed*, 1970



La Vedette with Mountain Scenes [colorized], Viollet-le-Duc, 1880



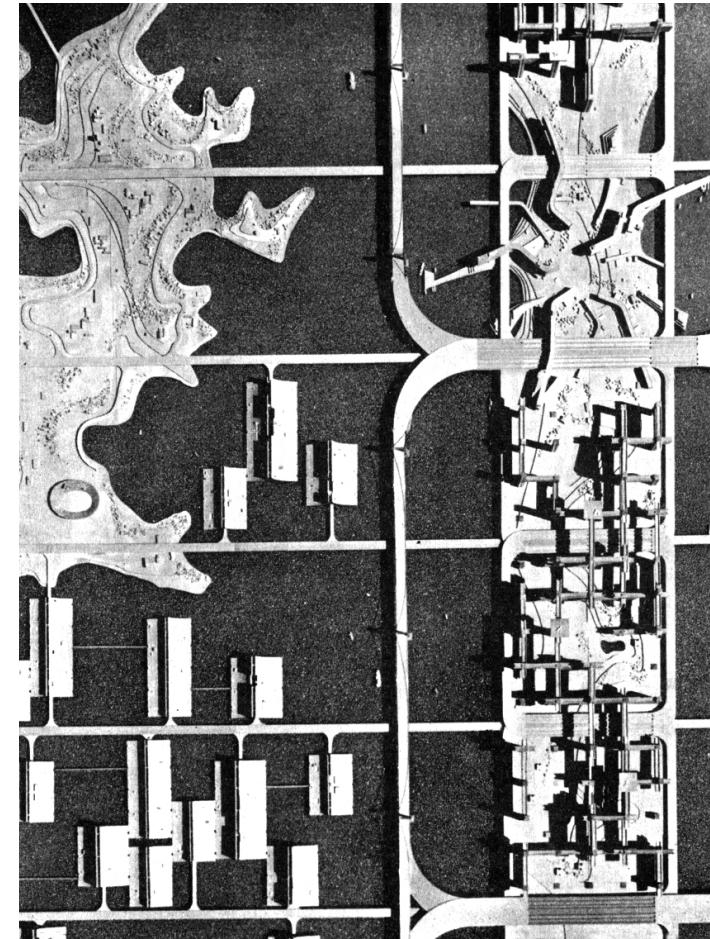
Supersurface: Happy Island, Cristiano Toraldo di Francia, 1972

ABSTRACT

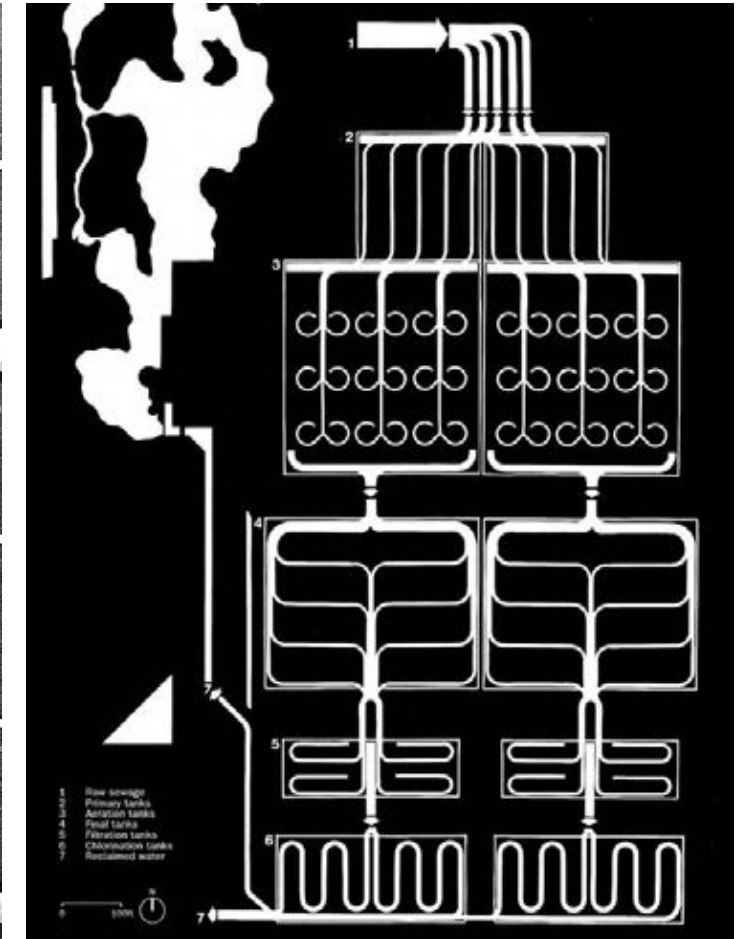
Historically, the architectural discipline has struggled to formalize the relationship between nature and our inherently unnatural domestic environment. From bringing potted plants into the home for the first time to frescos depicting nature, the 19th-century estate owners used various methods of interiorizing nature, estranging it from its “natural” setting. However, mid-20th century speculative architects produce a new kind of home, a new domestic landscape, by taking domestic space outside. A phenomenon that can only occur with the precondition that work had already been done in considering nature as domesticated.

The 21st century has seen a comparable take on the relationship between artificialized nature and domestic space but at an infrastructural scale. Today, landforms rise out of the oceans entirely for housing, massive flood control infrastructures in coastal cities make dangerous land habitable, and enormous water supply systems bring water hundreds of miles to waterfront lawns in dry cities. Like the 19th-century estate owners, our society domesticates nature at an entirely different hyperobject scale, a term coined by Timothy Morton that refers to an object or event whose dimensions in space and time are massive in relation to human life, for example, a forest, or an oilfield.

Typically, the notion of a home is associated with settlement and reconciliation, where radical ideas become domesticated. Pittsburgh is one of the hundreds of cities nationwide facing aging water systems that can no longer provide reliable and safe service. How can new infrastructural prototypes for water and housing improve the severely impacted ecological systems of the Rust Belt? Today, domesticating the ecological rejuvenation of infrastructure might not be considered radical, but it can't be overlooked as a potentially potent remedy for a growing crisis.



A Plan for Tokyo Bay, Kenzo Tange, 1970



Tillman Water Reclamation Plant: water processing diagram, A.J. Lumsden, 1997

PROGRAM

The project program will include social housing, a wastewater treatment plant, amenities/facilities, and an accessible park irrigated with reclaimed water from the plant. The studio will research typically non-architecturally designed structures and social housing projects to design a multi-use infrastructural typology that produces an alternative understanding of domestic spaces, organizations, and scales and to speculate on new ecological living forms.

In 2021, President Biden signed a trillion-dollar bipartisan infrastructure bill into law. The legislation will support the creation of infrastructure that “will reduce climate change, increase equity, and redress infrastructure gaps in disadvantaged communities,” however, social housing, an essential remedy for inequities, is not included in the bill. Social housing is any rental that may be owned and managed by the state, non-profit organizations, or a combination of the two. Adrienne Walnoha, CEO of Community Human Services, states, “the income you need to afford a moderately priced two-bedroom apartment is \$15.90 per hour. The minimum wage, on the other hand, is \$7.25 an hour.”

The studio asks that you imagine a novel infrastructure that coexists between its services and those to whom it provides services in hopes of producing a new ecological development model. Some questions that will drive internal conversations will be: What does it mean to have a multi-use infrastructure? What are its aesthetic and spatial qualities? How does the overlap create new types of land use? How does it tackle environmental injustice? While looking closely at the overall studio criteria: What is in/outside? What is/isn't accessible? What is natural/synthetic? Who or what gets prioritized? How do you resolve modular repetition with an overall system?



Studio Site, Allegheny River, PA, 2021

SITE

Located on the Allegheny River, the I-shaped site is approximately 55-acres. The studio will combine the north strip, the Aspinwall Riverfront Park, the south strip, located in Pittsburgh's East End, and the Brilliant Branch Railroad Bridge, which links the two riverfronts.

The North Strip

In 2011, the Aspinwall Marina was slated for commercial development; however, the local community dreamt up the idea of a public park and came together to raise the \$2.3 million required to buy the property. Work will soon begin on a plan to create a space to enhance the community's quality of life with a commitment to riverfront revitalization and inclusive community engagement through recreational, educational, cultural, and social activities.

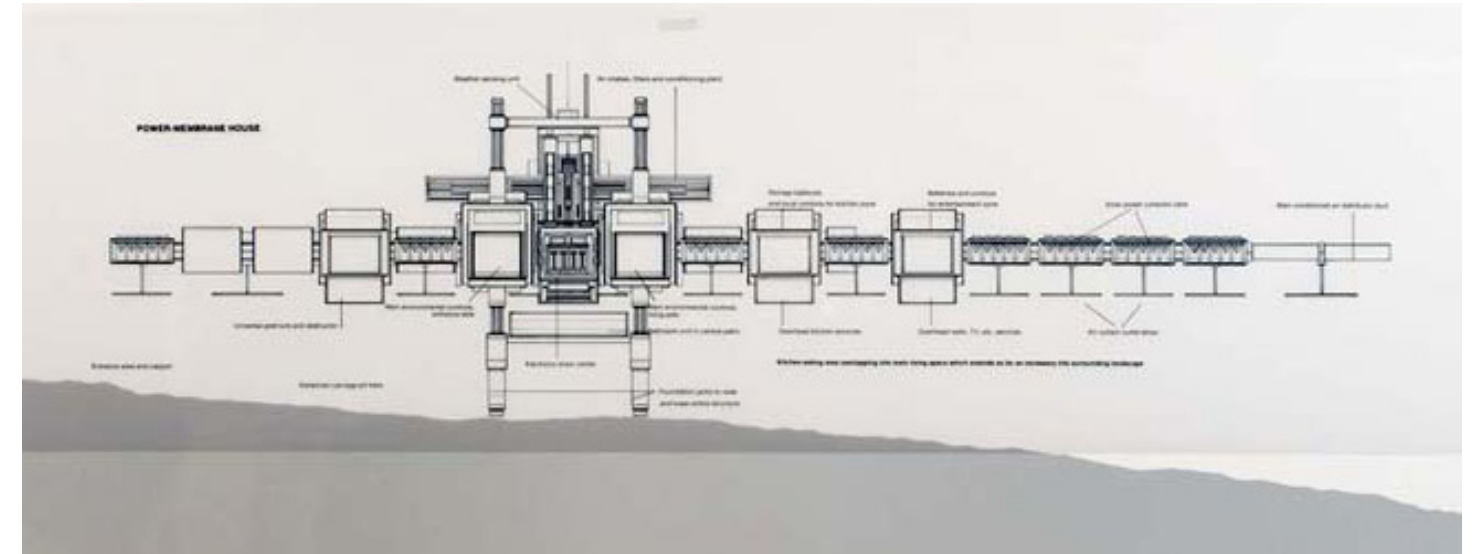
Adjacent to the site, the Pittsburgh Water and Sewer Authority are currently developing a \$300 million blueprint for a reliable water infrastructure to strengthen and add redundancy to its water system. The studio will absorb plans for the existing Water Treatment Plant, assuming the conversion of the current site into a public green space.

The Bridge

Opened in 1904, the Brilliant Branch Railroad Bridge is a 1,100-foot-long truss bridge that carries Allegheny Valley Railroad's Brilliant Branch across the Allegheny River. Allegheny Valley Railroad has agreed to sell the railroad with plans to convert it into a trail for bicyclists and pedestrians. The corridor would be the largest bike/pedestrian-only access across the Allegheny River and help 300,000 people who live within a 10-minute drive of the Brilliant Line to reduce their carbon footprint by biking to jobs, shopping, and more.

The South Strip

The smaller 12-acre strip currently houses a site owned by the Public Works Departments, a PWSA admin building, and the Bruecken Pump Station, built in the 1930s it will soon be decommissioned and replaced with a new facility on the premises. The new proposal, part of the Water Reliability Plan, will have to meet the Art Commission requirements, which works to improve the aesthetic quality of the City's public spaces.



Power-Membrane house, François Dallegret for Reyner Banham's article, entitled "A Home Is Not a House," 1965

PROCEDURE

The semester will be split into four exercises towards developing a new infrastructural model of ecological-based social housing.

Exercise 1: Research

Select and study two structures, a social housing project, and a wastewater treatment plant that will be drafted into the local community. The initial research will require the collection of literature and visuals, including, but not limited to, advertisements, images, drawings, diagrams, and articles. You will use the gathered materials to present your findings, and the studio will collectively brainstorm.

Exercise 2: Prototype

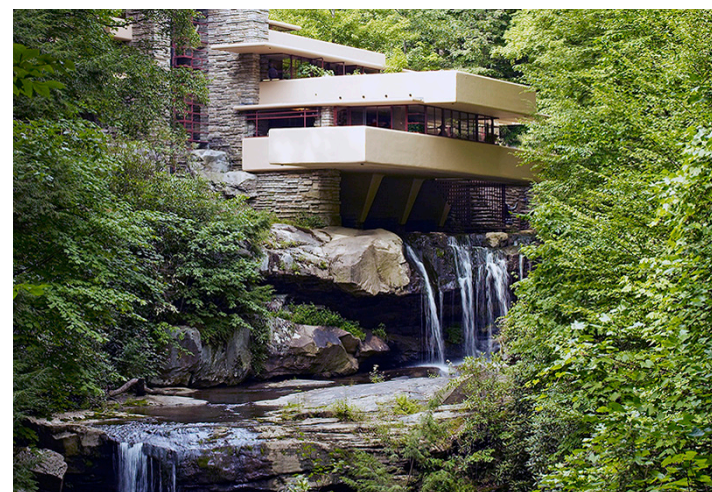
Rather than designing a project from scratch, you will leverage existing structures to generate a kit of parts which you will then deploy at the project scale. By interrogating and mutating the precedent's qualities, you will produce a housing module that questions what it means to domesticate nature at the scale of a unit. Your proposal must present evidence of improved living conditions that co-exists and engages with community needs.

Exercise 3: Site Strategy

Imagine new forms of ecological social housing infrastructure hybrids through machine-learning techniques. Rather than focusing on the historical context surrounding the chosen precedents, you are encouraged to creatively misinterpret the source materials and speculate on new forms of understanding. In tandem, select a plug-in program to benefit and support the inhabitants in and around the site.

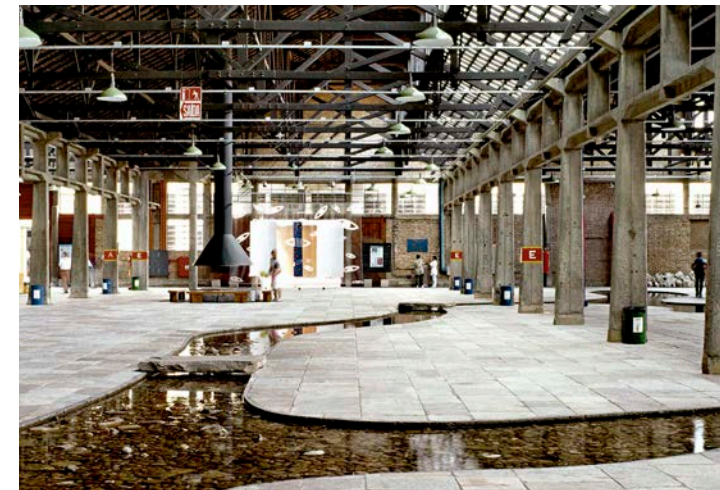
Exercise 4: Production

Finally, the semester will culminate in individual projects to persuade local authorities and developers of the urgency of new forms of infrastructure that tackle Pittsburgh's need for ecological social housing. Knowledge, expertise, and skills developed in the previous three exercises must be evident and incorporated into the presentation.



(Top) The High Line, Diller Scofidio + Renfro, 2004-09
 (Middle) Vanke Center Shenzhen, Steven Holl Architects, 2006-09
 (Bottom) Yokohama Terminal, Foreign Office Architects, 2002

(Top) The Ford Foundation, Kevin Roche John Dinkeloo & Associates, 1968
 (Middle) Fallingwater, Frank Lloyd Wright, 1935
 (Bottom) Alexandra Road Estate, Neave Brown, 1968-78



(Top) Louvre Abu Dhabi, Ateliers Jean Nouvel, 2017
 (Middle) Indian Institute of Management, Balkrishna Doshi, 1972-76
 (Bottom) SESC Pompéia Factory, Lina Bo Bardi, 1977-86

COURSE OBJECTIVES

The studio aims to develop and integrate research skills, technical expertise, and design strategies into a cohesive project. On successful completion of this studio, you should be able to; Identify key social and environmental issues that benefit from architectural intervention. Examine references in and out of the discipline to assemble individual project criteria. Survey the site and devise methods of constructing artificial nature. Critique traditional limits of the discourse and propose equitable alternatives. Demonstrate advanced digital skills in computation, modeling, and fabrication. Develop a comprehensive project that directly responds to the studio brief.

ORGANIZATION

The course will be organized around desk critiques and weekly pinups with the instructor. Internal lectures and workshops will be held throughout the semester to bolster assignments and introduce required skills. You will be developing individual projects, however, collective discussions and brainstorming will play a pivotal role in our studio culture. You may be asked to attend lectures at different departments if a topic overlaps with the studio's interests. Additionally, attending all programs organized by the SoA is strongly encouraged and essential to building an overall discourse around this year's theme of "Materiality."

READINGS/REFERENCES

- Reyner Banham, "A Home is Not a House," 1965
- Alison Smithson, "Mat-Building," 1974
- Stan Allen, "Field Conditions" in Points + Lines," 1985
- Anthony Vidler, "Architecture's Expanded Field," 2004
- Elizabeth Diller, "Agri-tecture," 2014
- Charles Rosenblum, "Deconstructing the Housing Dilemma," 2017
- Mabel O. Wilson, "Mine Not Yours," 2018
- Sylvia Lavin, "Plant Architecture," 2019
- Holly Jean Buck, "After Geoengineering," 2019
- Marco Vanucci, "Paolo Portoghesi: The Field Theory," 2020
- Jane Hutton, "Reciprocal Landscapes," 2021



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