

## Crisicity: Cyborg Infrastructure in the Anthropocene

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In the Anthropocene thesis, nature is partly a human creation. Human activity has affected all ecologic, geologic and biological systems, eroding the boundary between human and non-human life and between nature and culture, producing catastrophic impacts on the Earth that have brought us to a point of climate crisis. As recent texts have argued, the current social and health crises are direct resultants of human actions dating back to the time of Western colonization. “[T]he familiar contrast between people and the natural world no longer holds. There is no more *nature* that stands apart from human beings. There is no place or living thing that we haven’t changed.”<sup>1</sup> Human pollution of the global ecosystem has produced the climate crisis. As the pandemic of COVID-19 continues to show, the health of people, animals, ecosystems and the environment are intimately linked.<sup>2</sup> The health crisis has also exposed weaknesses in our global supply chain network for consumer goods and accelerating conditions of food and energy insecurity.

As city migration continues on its current trajectory, urban areas will face ever increasing demands for food and energy supplies.<sup>3</sup> The separation of urban centers from their food sources threatens food security, produces pollution, and compromises healthy food supply by the need for preservatives to maintain freshness during transit. Localizing food and fuel production and storage for easy distribution is a key approach to addressing these issues, and indoor vertical farming and biofuel production is quickly gaining traction in urban centers like New York City. Water-based growing techniques like aquaculture, hydroponics and aquaponics can be grown in compact interior spaces without access to natural light, which is ideal for dense urban environments.

### PROJECT PROPOSAL

The Pratt Institute graduate architecture studio projects propose a hybrid program of aquaculture farming and public



Figure 1. Cows and Oysters Rendering. Sohhee Oh.

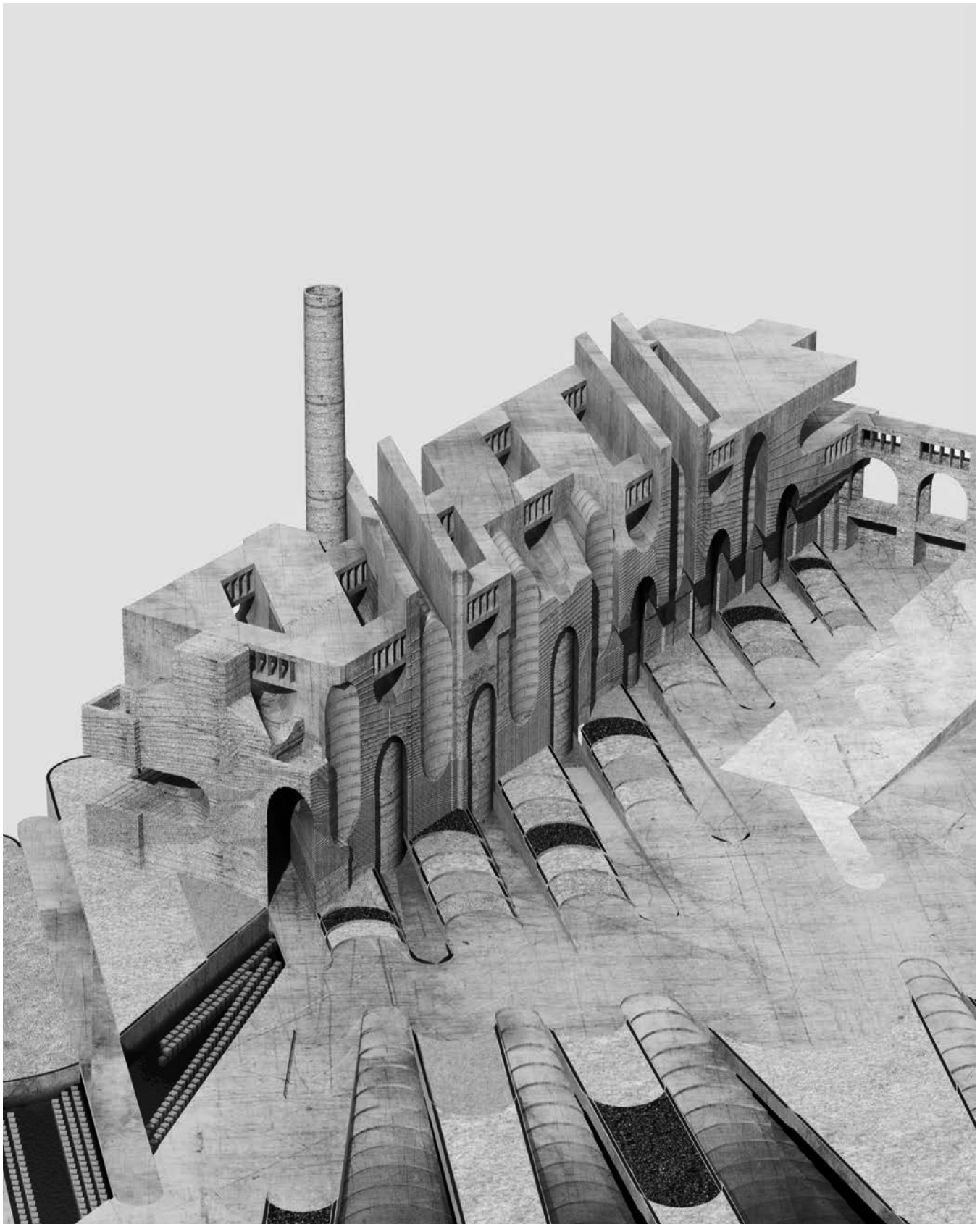


Figure 2. Cows and Oysters Axonometric. Sohhee Oh.

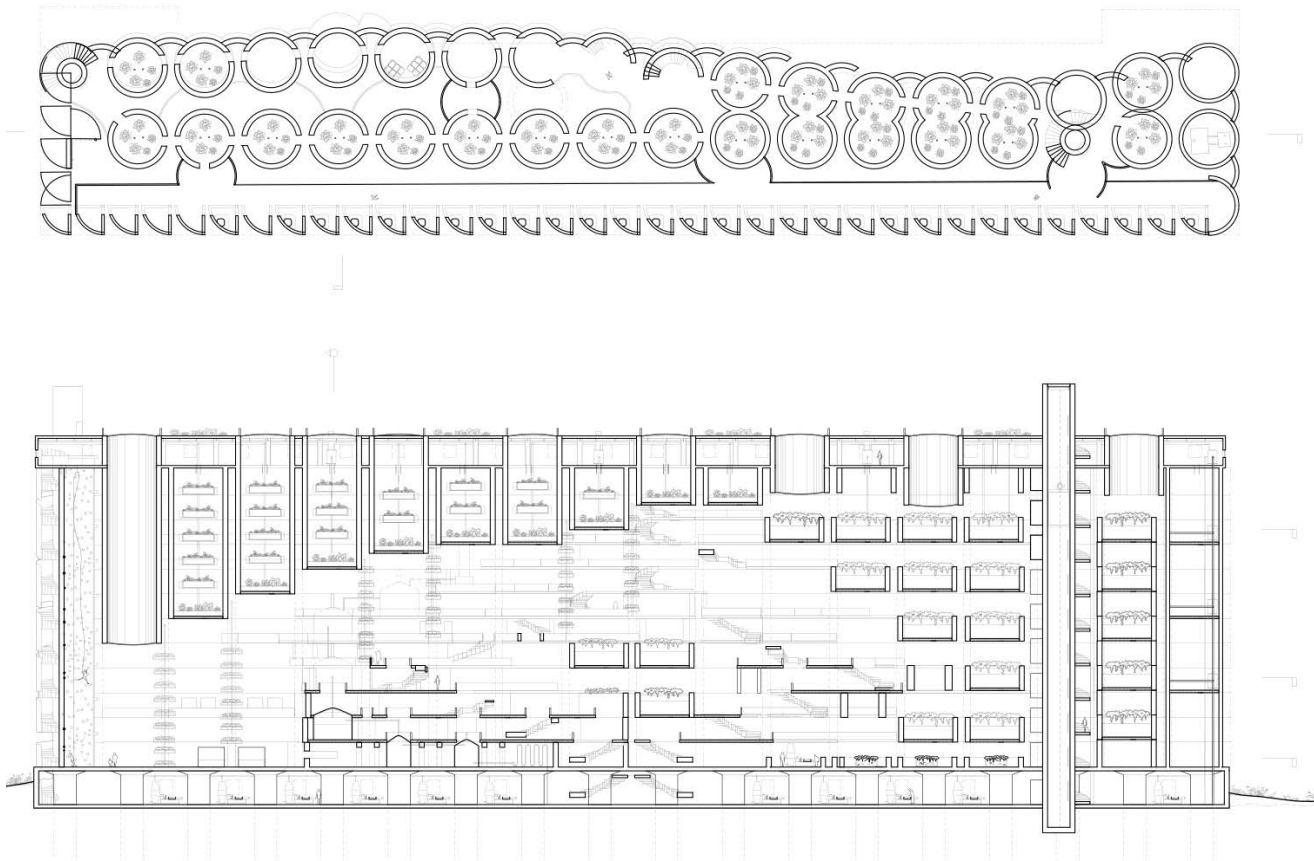


Figure 3. Biofuelery Plan and Section. Brett Rappaport.

space using addition and alteration strategies on abandoned industrial waterfront structures, including the Red Hook Grain Terminal, a concrete grain elevator located adjacent to the Gowanus Canal, and the Brooklyn Army Terminal, a complex of concrete structures that served as storage for Army supplies in World War 2, located in Sunset Park. Projects explore ways to interweave spaces for plants, animals, humans and machines in configurations that challenge typical hierarchies and partitions between programs. Green food and fuel production and storage programs explored include vertical farming, hydroponics, aquaponics, grain-based food production, and food banking, while energy production programs like biofuel and geothermal production were proposed. These light manufacturing programs provide local jobs that do not require a college degree. Programs to engage the general public and local communities include job training facilities, food markets, and cultural spaces for performance and exhibition.

The project approach to hybridize manufacturing and public space was driven in part by the ideas of the theorist Donna Haraway, writing in 1985 in the context of the Cold-War-era Strategic Defense Initiative (“Star Wars”) proposal, introduces a cyborg theory that reflects the time period’s anxiety about technology. “By the late twentieth century, our time, a mythic

time, we are all chimeras, theorized and fabricated hybrids of machine and organism—in short, cyborgs.”<sup>44</sup> Cyborgs are incomplete and without origin, and blur the traditional hierarchy between nature and culture. The methodology of design drew upon anamorphic projective drawing strategies that have their roots in 16th century artwork where part or all of an image is only legible when viewing from a certain oblique vantage point. The projection embeds in the development of the design the viewpoint or orientation of the different human, animal, plant, or machinic inhabitants of the space. By explicitly referencing a position these projections expose the privilege afforded to certain vantage points. This “anamorphic gaze” reveals hierarchies in the design of the built environment.

In “Biofuelery,” an adaptive reuse of the Red Hook Grain Terminal, the grain silos are recast as a lenticular projection. An image of a deep void or tunnel is imprinted on a portion of each silo and is visible from the land-side approach to the building, while the water approach reveals the decayed surface of the existing silos. The program was developed in parallel with the massing strategy and includes oyster aquaculture, vertical farming, and two grain-based food storage and production facilities, a bakery and a brewery. In another project, an alteration to the Brooklyn Army Terminal powerhouse, the projected

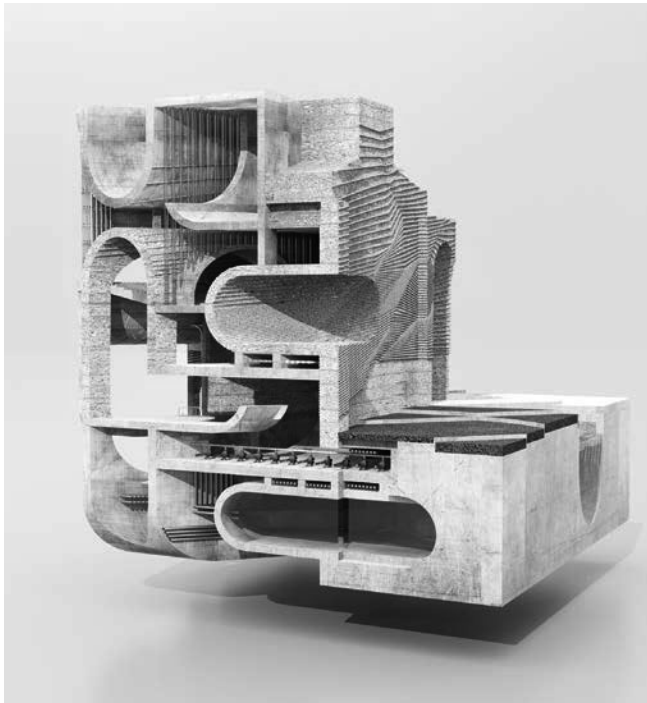


Figure 4. Chunk Model, Cows and Oysters. Sohhee Oh.



Figure 5. Chunk Model, Cows and Oysters. Sohhee Oh.



Figure 6. Biofuelry rendering. Brett Rappaport.

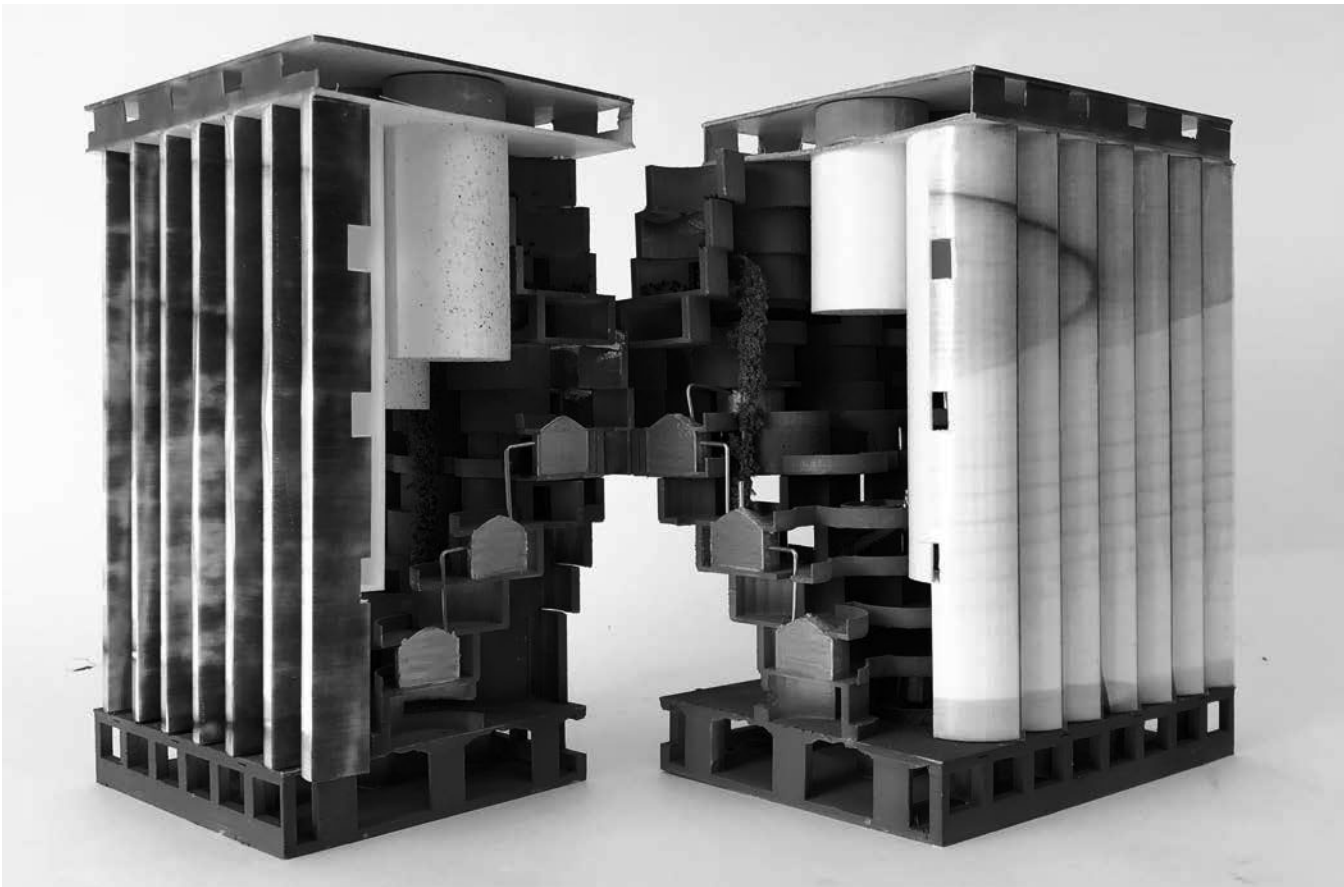


Figure 7. Biofuelry, Brett Rappaport

linework was derived from the geometry of arches taken from the existing buildings. The proposed programs include oyster farming and algae production as well as an agricultural farm with a small amount of stock animals which use the land and supplement an anaerobic digester. The anaerobic digester receives food waste from the surrounding neighborhood, returning it back as usable electricity.

These projects knit together a multipronged approach to sustainable, resilient urban development. The proposal of localizing access to food, energy, and jobs, the fundamental needs of a multiethnic urban community, within the boundaries of their neighborhood, working within a hybrid industrial-typology that engages the public, and operating on existing structures is a way to reclaim waterfront redevelopment projects for the local community. Localizing food and energy production is a health crisis response strategy to make a city more self-sustaining in times of food and energy insecurity and a smart development strategy that can form part of a critical climate crisis action plan. By hybridizing the new and the existing and the spaces for the machine, the plant, the animal, and the human, this project posits a sort of Haraway-esque chimera or cyborg. As Haraway states, the

project is an “argument for pleasure in the confusion of boundaries and for responsibility in their construction.”<sup>5</sup> The cyborg approach, she writes, is about “transgressed boundaries, potent fusions, and dangerous possibilities, which progressive people might explore as one part of needed political [and design] work”<sup>6</sup> to combat the crises of the Anthropocene using an anamorphic gaze to subvert the hierarchies inscribed in the built environment.

#### ENDNOTES

1. Purdy, Jedidiah. *After Nature: A Politics for the Anthropocene*. Cambridge: Harvard University Press, 2015.
2. Anne Chin et al., “Editorial: Anthropocene in an Age of Pandemics,” *Anthropocene*, vol. 30, June 2020, page 100247.
3. Fatemeh Kalantari et al., “The Significance of Vertical Farming Concept in Ensuring Food Security for High-Density Urban Areas,” *Jurnal Kejuruteraan*, vol. 1, page 105.
4. Donna Haraway, “A Manifesto for Cyborgs: Science, Technology, and Socialist Feminism in the 1980s,” *Socialist Review* 80, vol. 15, March-April 1985, page 67.
5. *Ibid.*, page 65.
6. Jodi Dean, “The Anamorphic Politics of Climate Change,” *e-flux Journal*, January 2016, page 4.



Figure 8. Aerial view of Brooklyn Army Terminal, Sirinya Wuthilaohaphan, Carlos Acosta Perez, Sohhee Oh, Ricardo Palacio, Charles Verni, Mary Gavin, and Krati Maurya

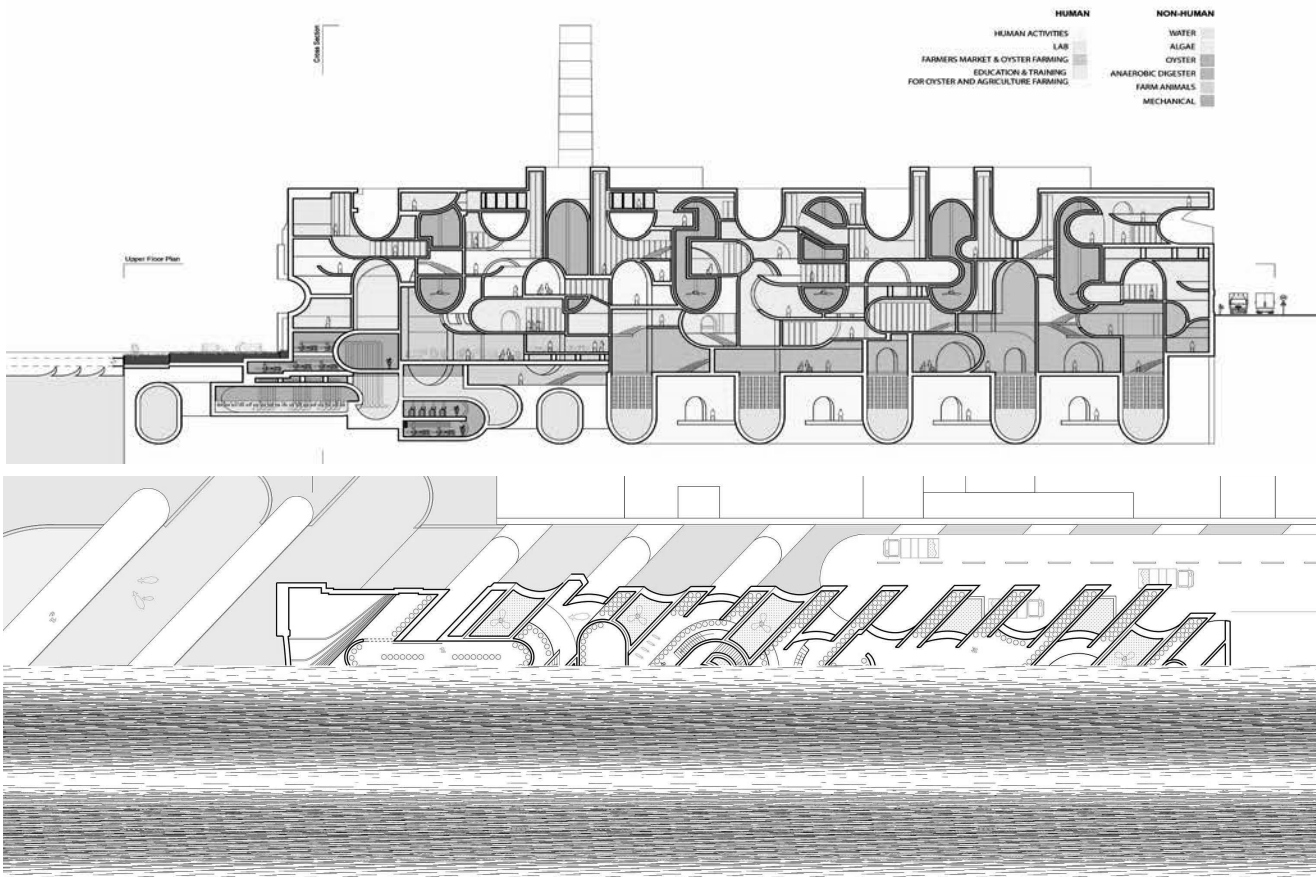


Figure 9. Plan and section, Cows and Oysters, Sohhee Oh