

QIYANG XU

ARCHITECTURE PORTFOLIO
SELECTED WORKS 2022-2023

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01

UN Hotel

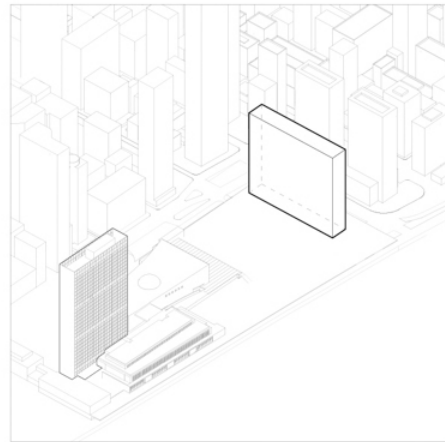
Investigating Migration Problems in Chinese Architecture and Culture

*Advanced Architectural Design Studio
Instructors: Eric Bunge
Partners: Renwen (Annie) Yu
Summer 2022*

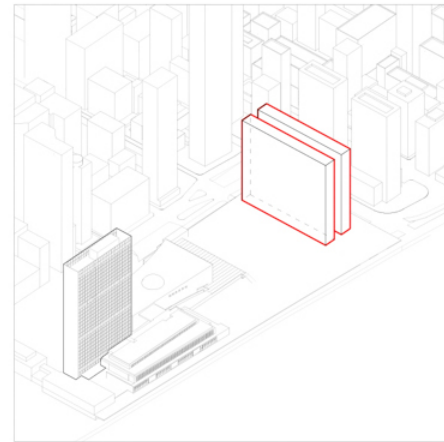
Delegates of the 193 UN Member States gather at the UN Headquarters in New York for conferences each year, generating exchanges and cooperation. Our proposal is a new hotel at the UNHQ, primarily for UN delegates. Instead of recreating the original abandoned idea of a hotel in scheme no. 23B, the proposal rethinks the hotel program, considering contemporary challenges while designing a gradient of living to accommodate various cultures. —Our design aims to subvert some of the modernist principles in the site while maintaining certain parallels to the current UN program, structural parameters, and form.

We usually consider “governance” and “temporary stay” as two separate programmatic

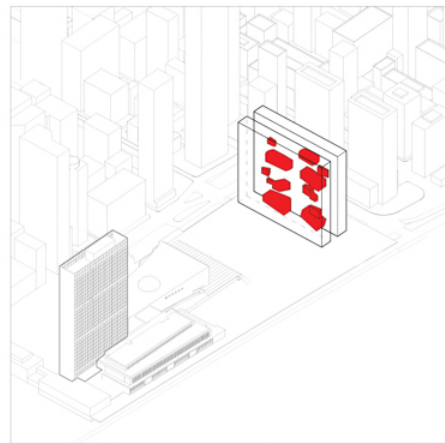
uses. But in our project, we are trying to explore the relationship, boundaries, and exchanges between these two. The building complex is separated into two towers but connected at particular moments. The South Tower provides various types of hotel rooms for delegates to stay in during sessions; the North Tower provides office spaces for general operations. Hotel rooms are designed for different security levels and configurations, providing various opportunities for domestic life, and accounting for various forms of living, family structures, and different cooking modes, sleeping, and reaction. Formal and informal spaces exist between the two towers offering various opportunities for cultural exchanges.



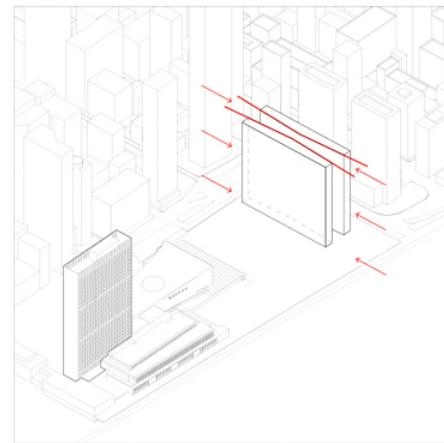
1. The cancelled 23B design proposal



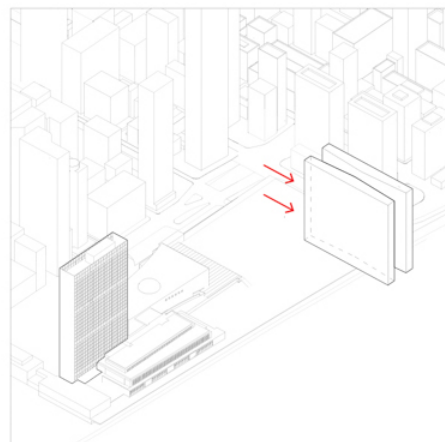
2. Separating into two volumes



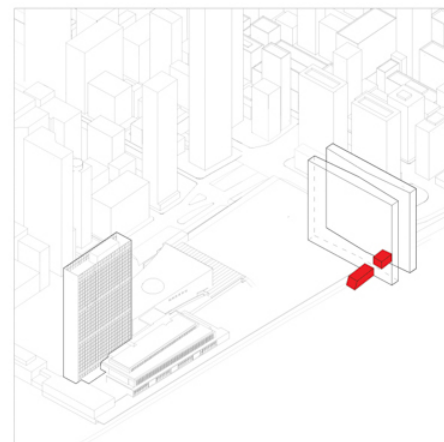
3. Adding the formal interstitial spaces



4. Adjusting the volumes form

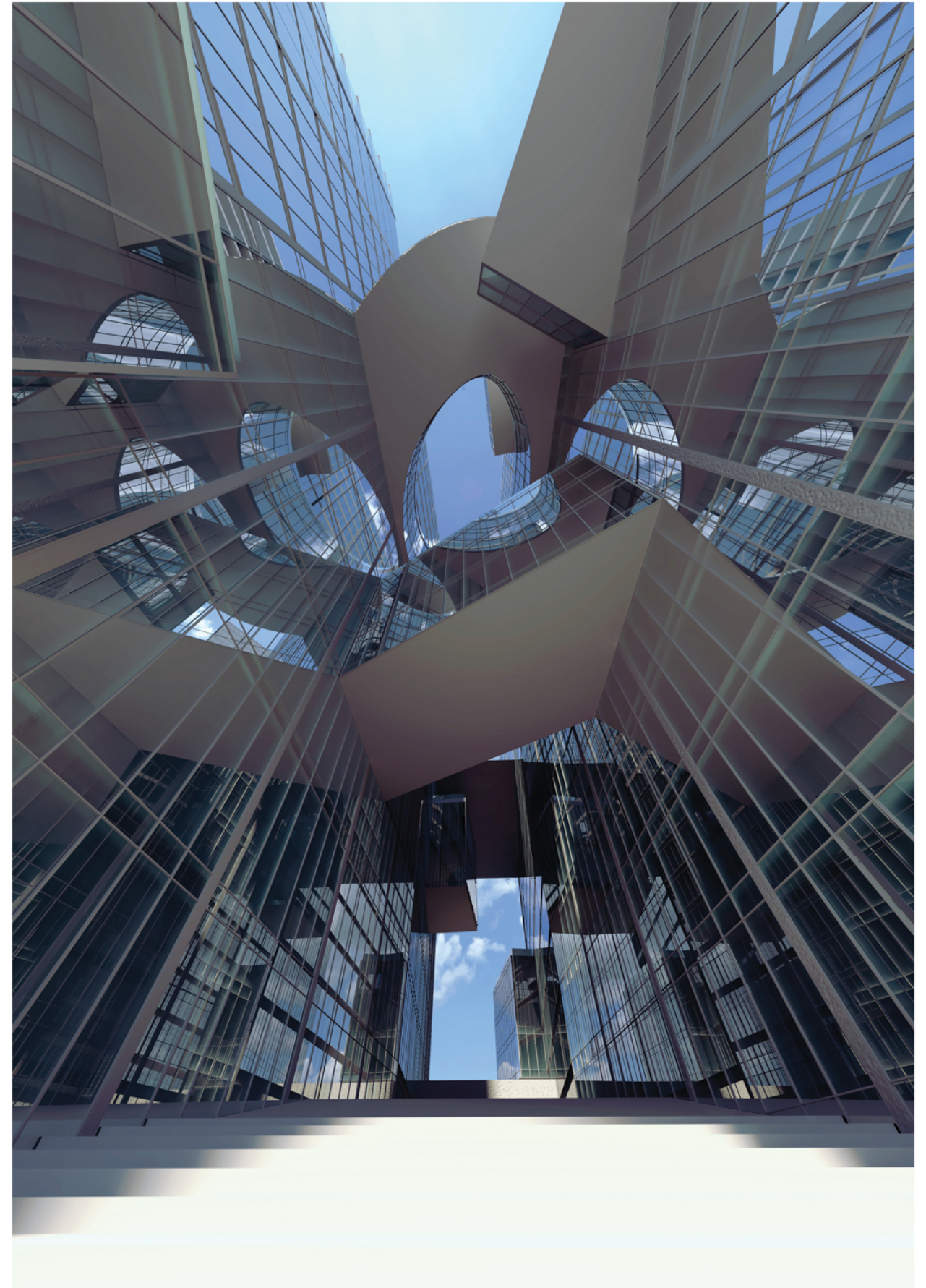


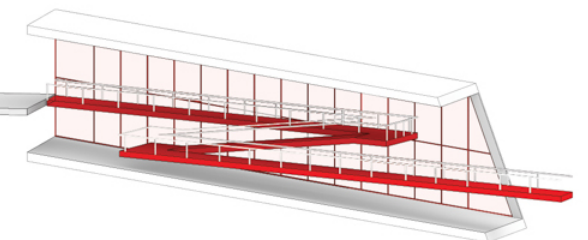
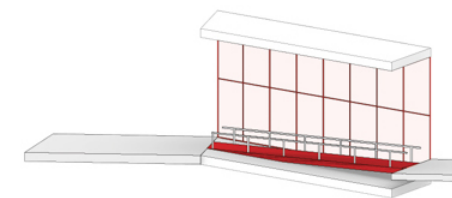
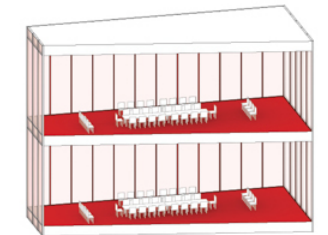
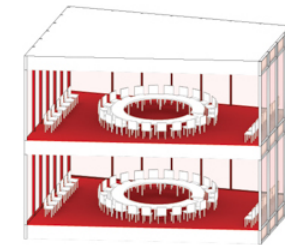
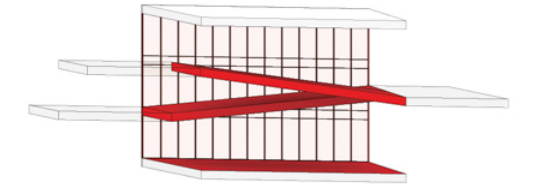
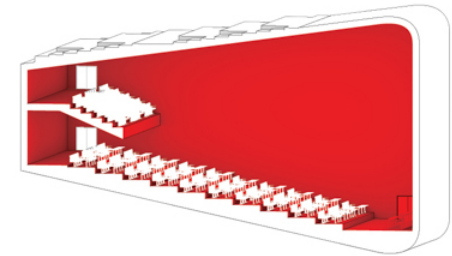
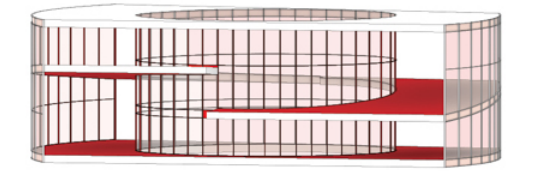
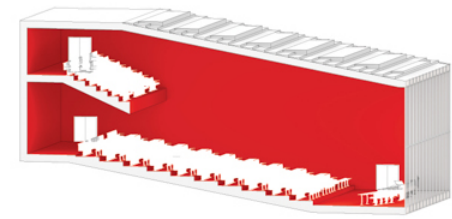
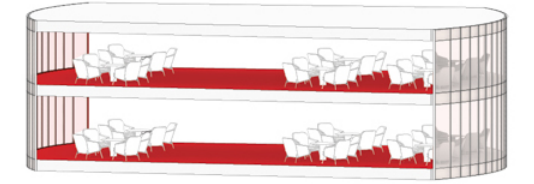
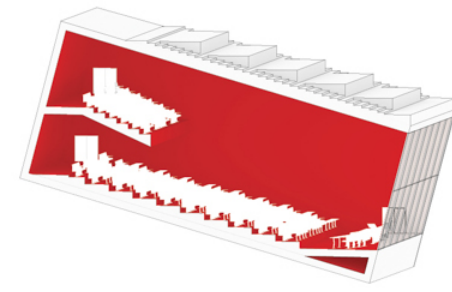
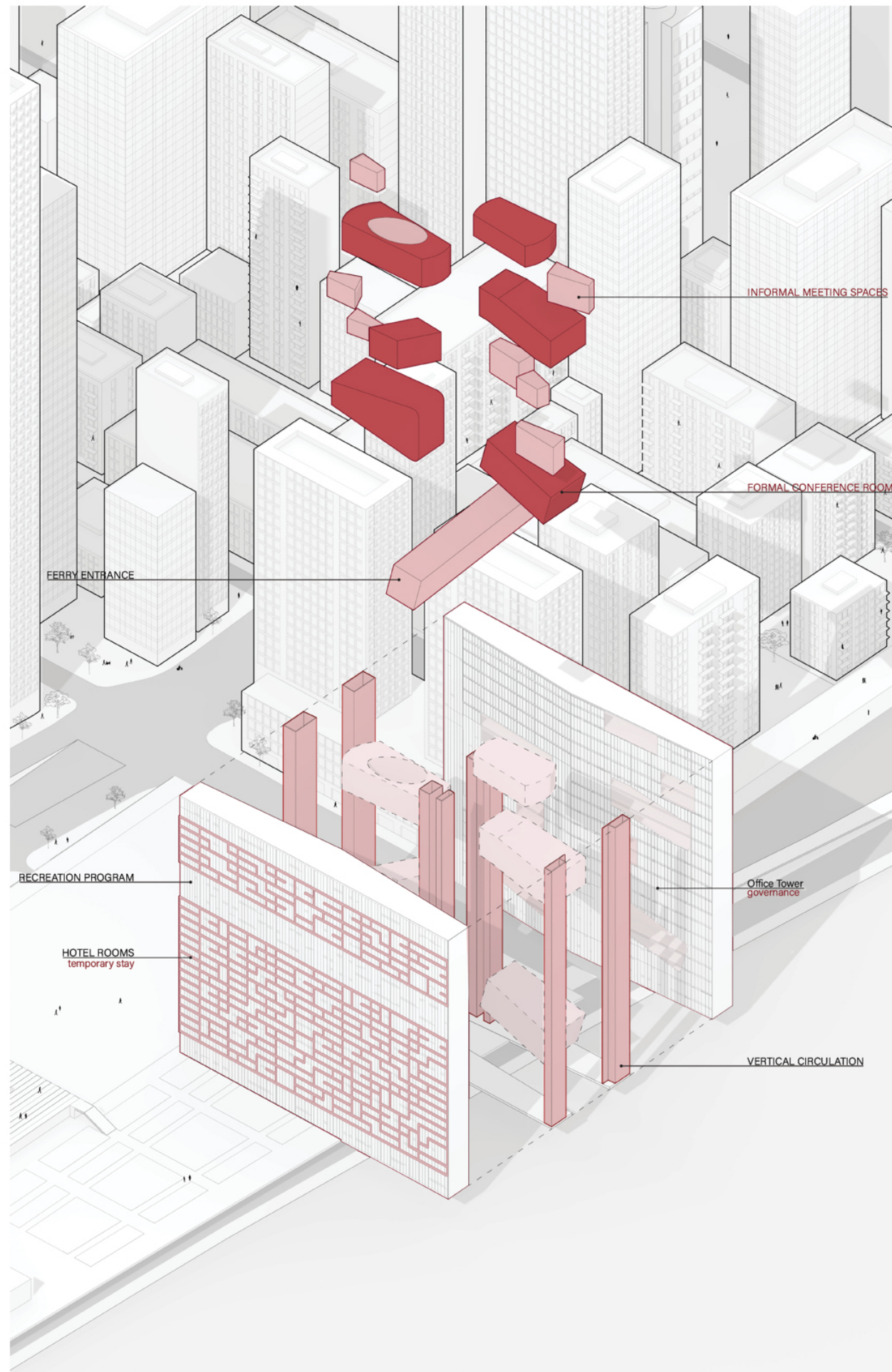
5. Shifting volumes to partial cantilever on river

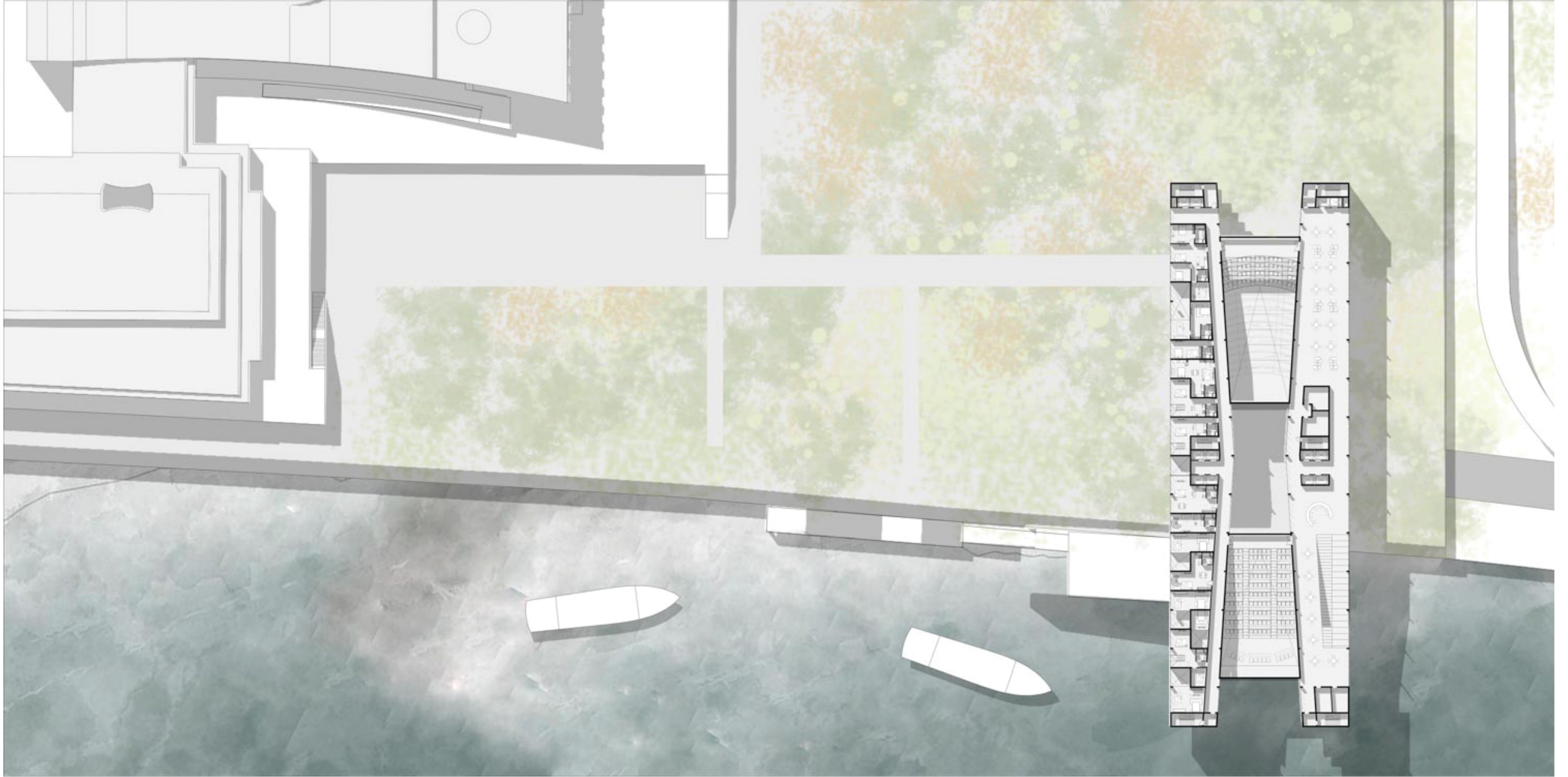


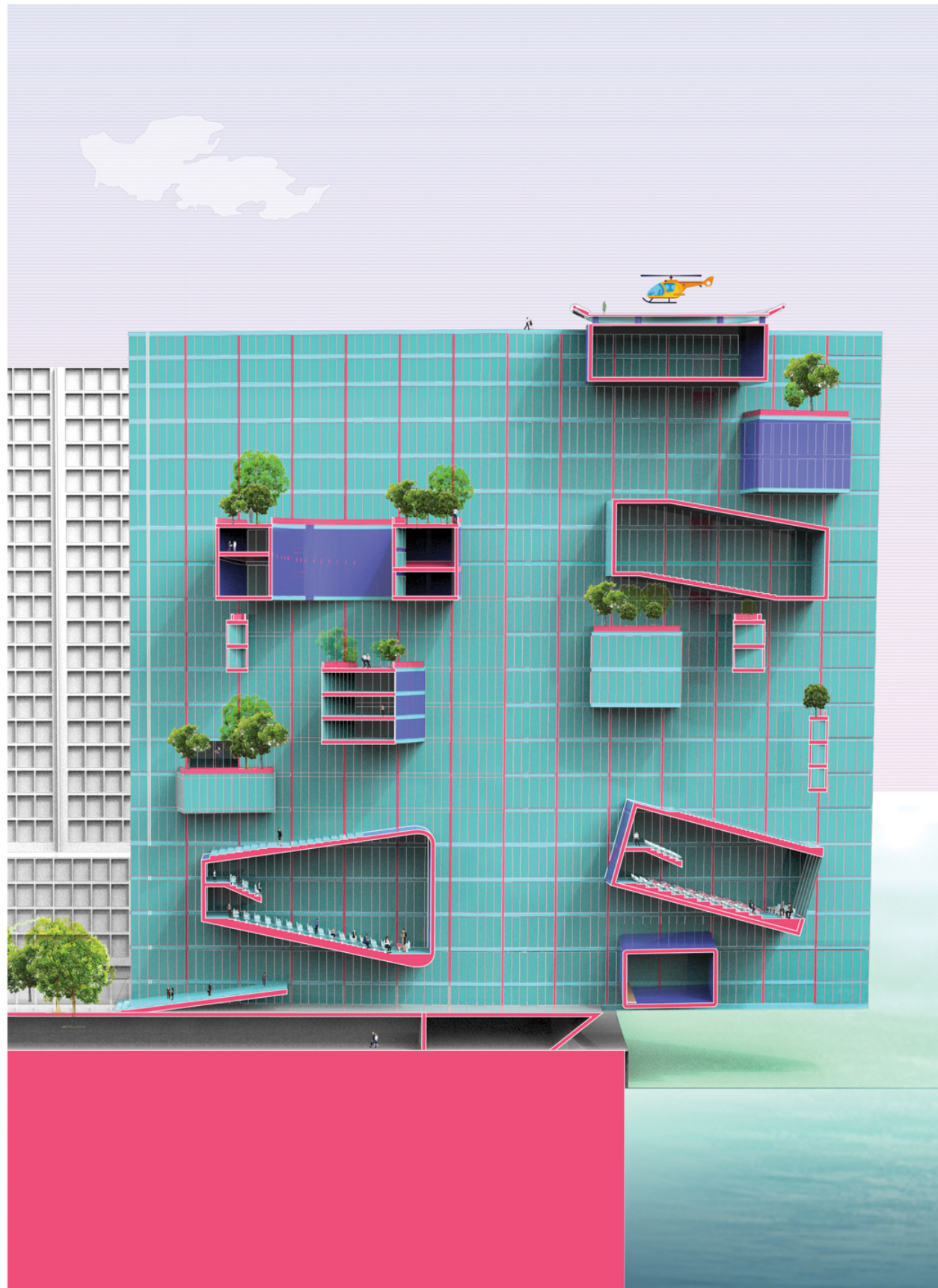
6. Creating a new ferry system

Design volumes based on site history and environment

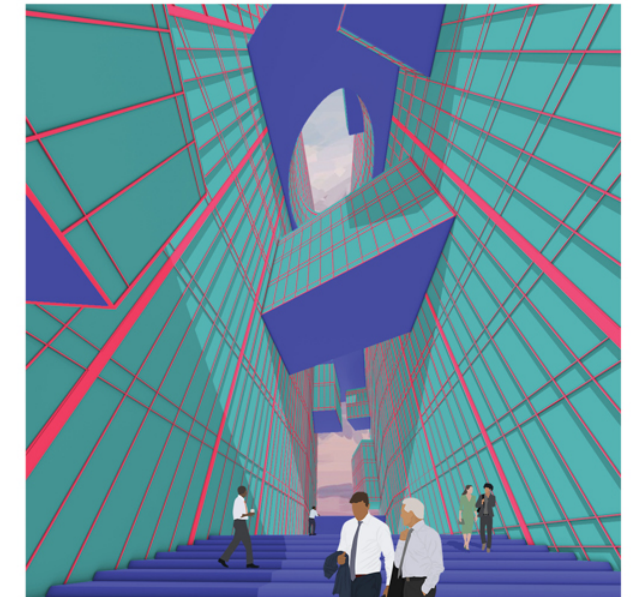




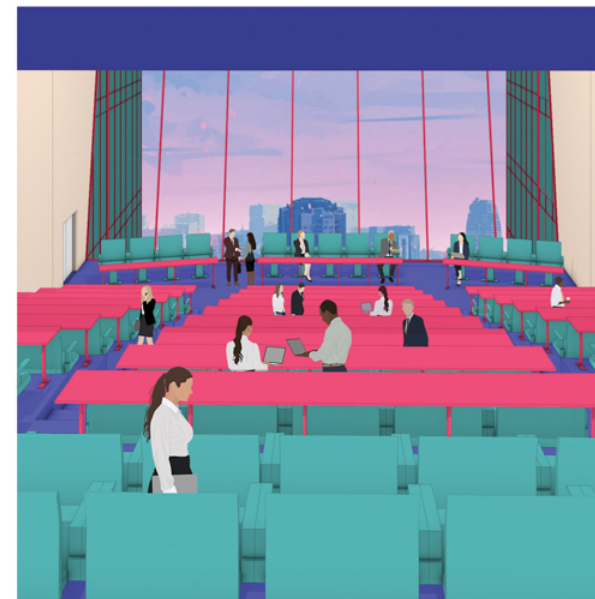




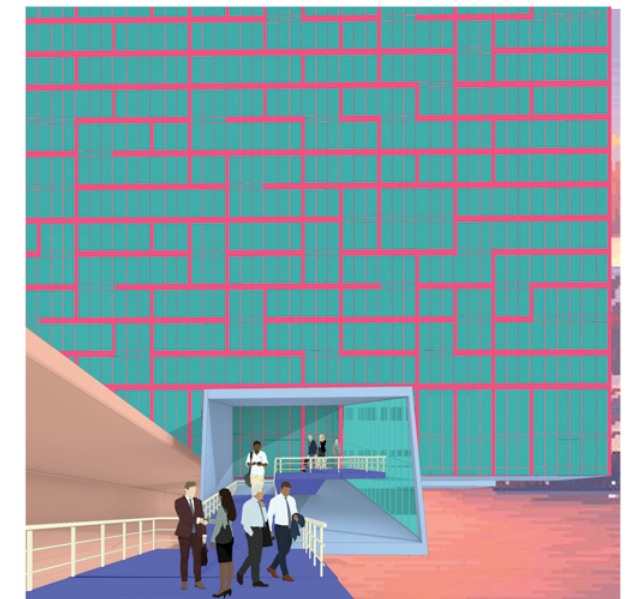
Conversion Floor



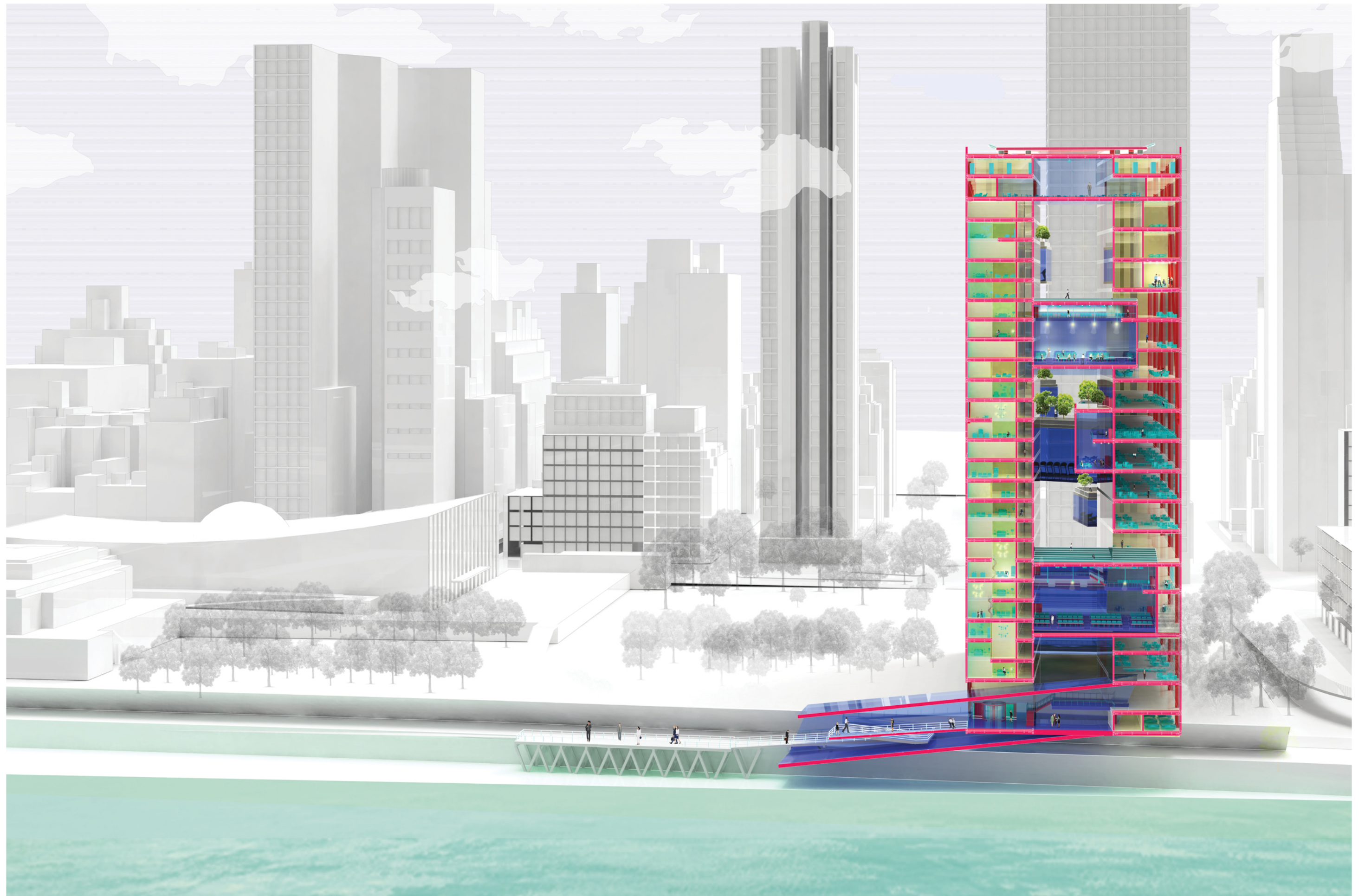
Exterior Garden



Conference Room



UN Ferry





02

Coexist with Water

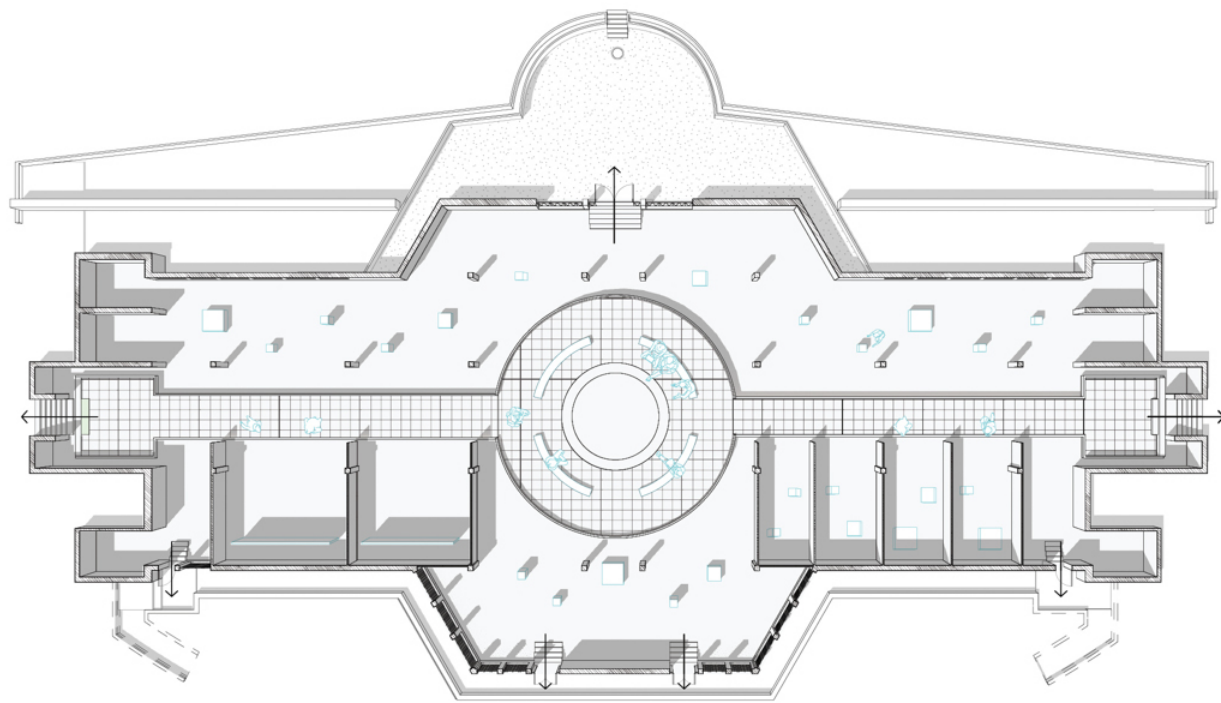
Climate Adaptation of Venice's Green Theater

*Advanced Architectural Design Studio V
Instructors: Mark Rakatansky , Jorge Otero-Pailos
Fall 2022*

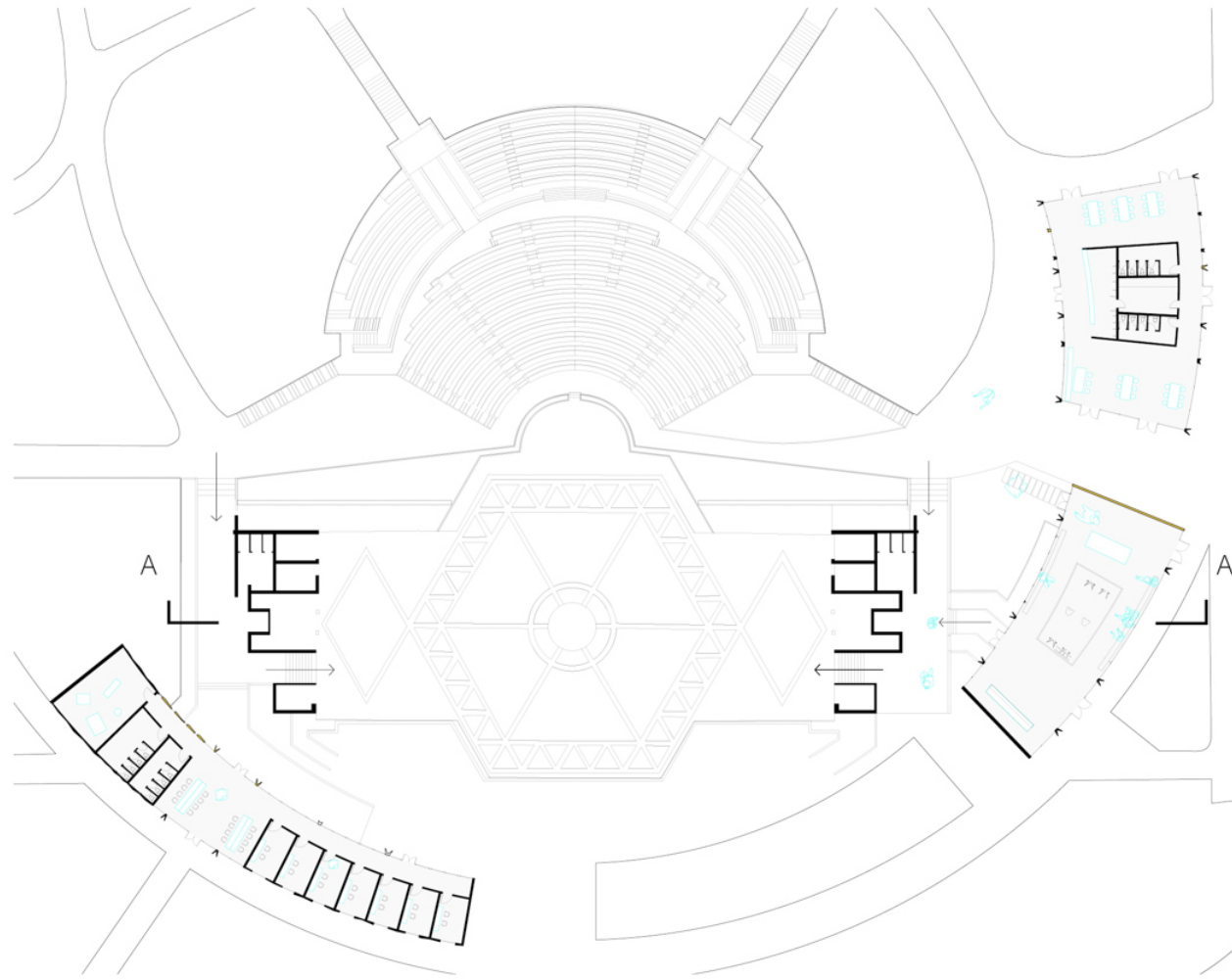
Based on frequent high water erosion, the underground space of the Green Theater in San Giorgio Maggiore has been abandoned for use completely. My proposal explores the possibility of embracing water, allowing flooding into the site environment rather than resisting it and portraying the impact of high water on the community. Considering that the underground space of the Green Theatre has been abandoned by flooding for a long time, the design will reuse the existing underground space to create an open space for cultural activities in response to the impact of flooding through the specific removal and reuse of walls. The underground space is a responsive landscape to raise awareness of the catastrophic consequences of

flooding. The actors' dressing rooms will be relocated above ground in an arc around the side of the stage.

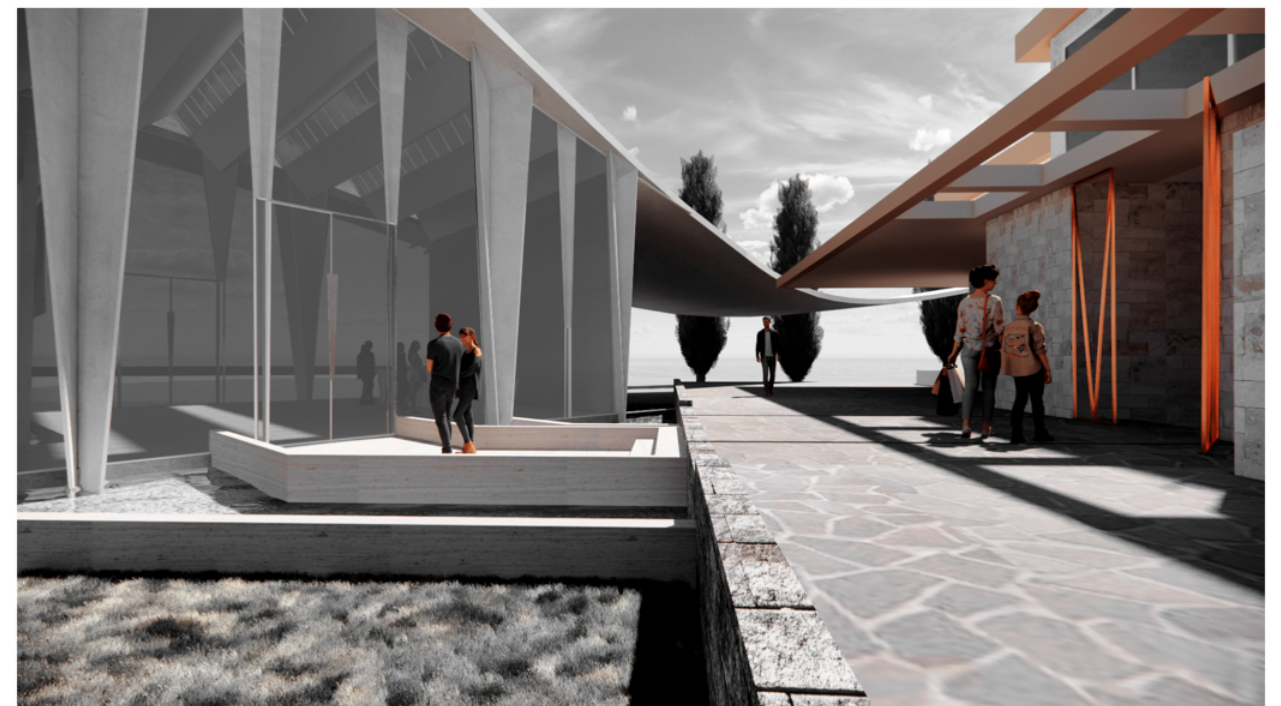
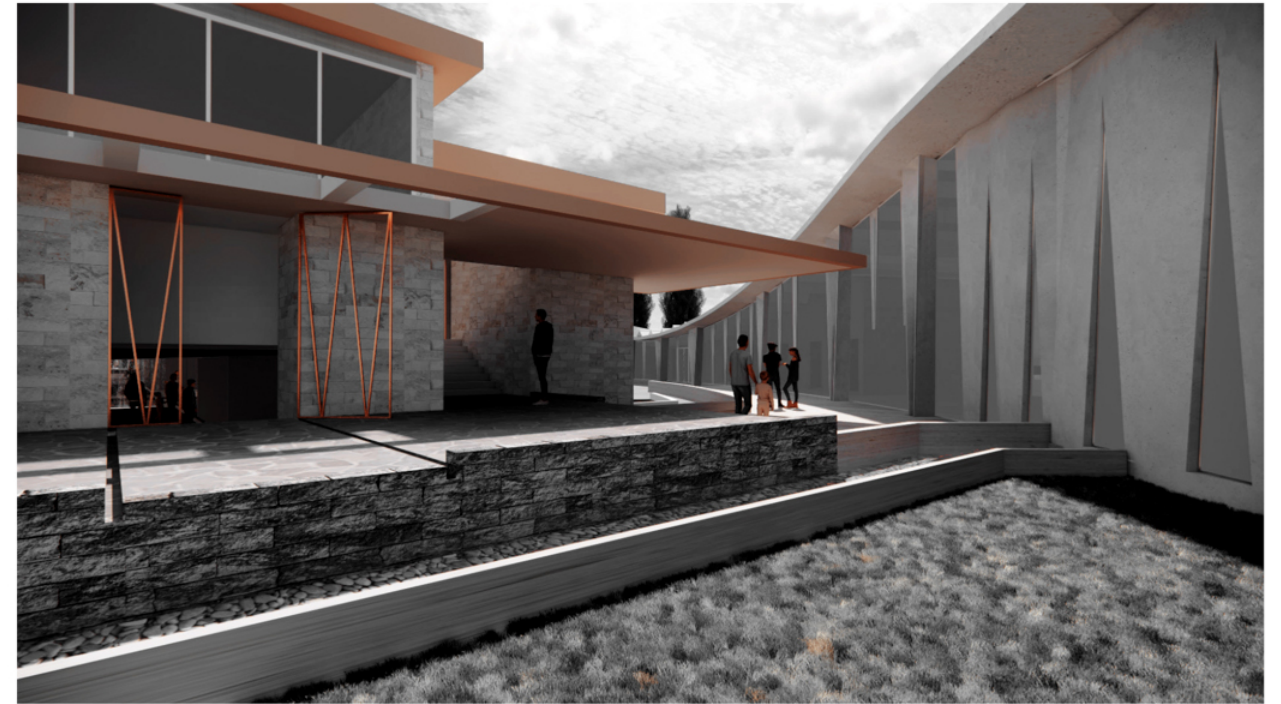
By creating an entanglement of the site with water culture, a shared culture of awareness of possible threats due to environmental change is created, and the adaptive role of nature is demonstrated through the responsiveness of the building. Considering the specificity of the site, the floods of Venice have a particular material expression as it reveals and erodes the history and identity of a place where architecture will decay and deform. The combination of salt water with metal and stone rusting will leave traces in the landscape that will be the same as the human impact on the environment: continuous decay.

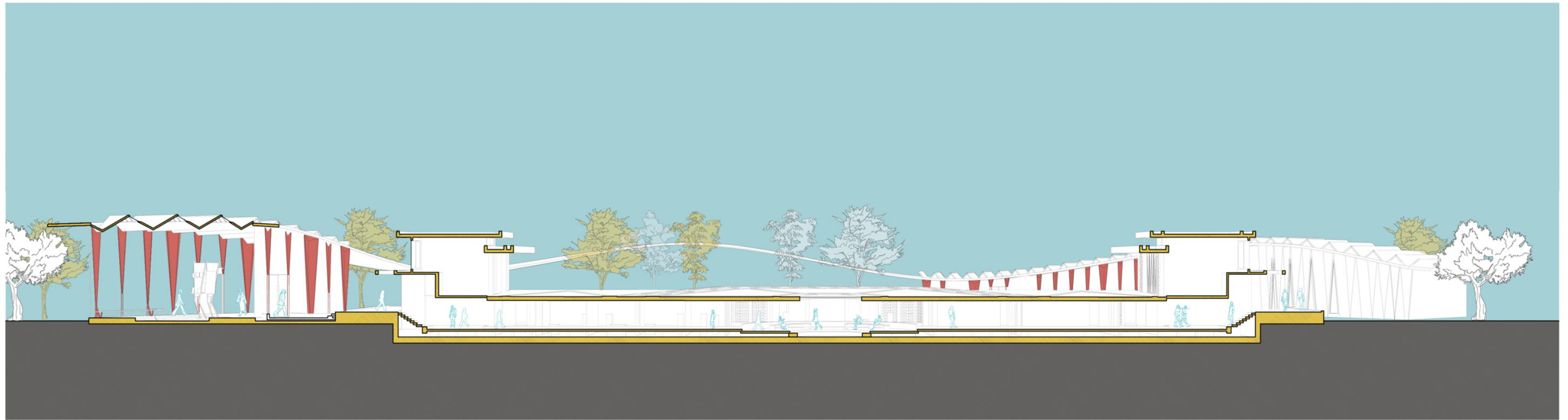


Repurposing the underground changing room space to create an experiential raised path for pedestrians.



Considering the tourists' movement, setting the functions of right part design as a public space for tourists, a bar, a gathering place, and the gallery. The left of design is set up as space for the actor's dressing room.







03

Eco - Oyster

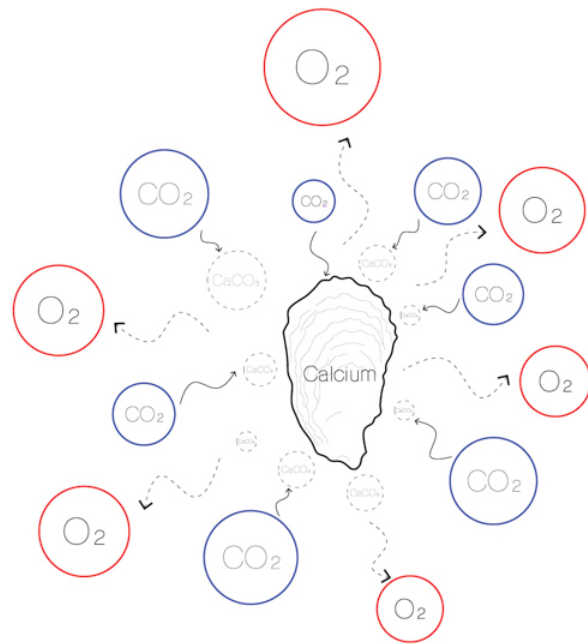
Floating community in New York Harbor

Advanced Architectural Design Studio VI
Instructors: David Benjamin
Partners: Kaixi Tu
Spring 2023

Oyster reefs bring multiple benefits to coastal cities, not only resisting the impact of rising sea levels on cities but also creating economic value and becoming an industry in cities. This project imagines the important role oysters play in the face of climate change. Oyster shells, which have the ability to absorb carbon dioxide in water, will be recycled and used as an important source of eco-friendly building materials, creating an economic and ecological dual-cycle while providing a new way of living.

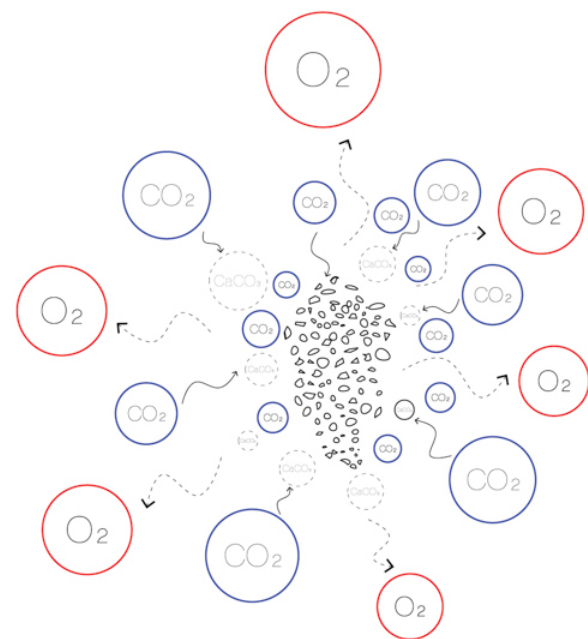
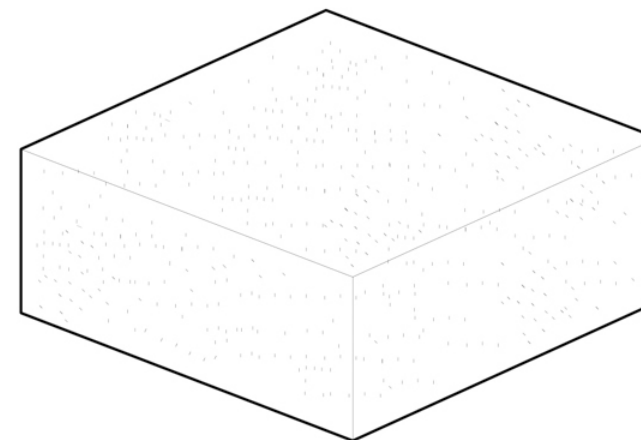
The project explores the plasticity of oyster shell materials in the field of architecture and designs two types of boards. One is an oyster board

with floating function, which has excellent strength and waterproof performance and can be used in the construction of offshore buildings, solving the problem of limited urban development. The other type, the oyster marine parasitic board, adopts the design concept of bionics, integrating the building with the natural environment, improving the adaptability of the building in the marine environment. At the same time, the marine parasitic board will be equipped with artificial intelligence algorithms to monitor the surrounding ecological conditions of the building in real-time and calculate data on ocean carbon sinks.

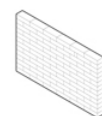


1 ACRE OF OYSTERS SEQUESTERS ABOUT **1.4 TONS** OF CARBON PER YEAR.

THE CARBON SEQUESTRATION CAPACITY IS **7 TIMES HIGHER** THAN THAT OF MANGROVES.



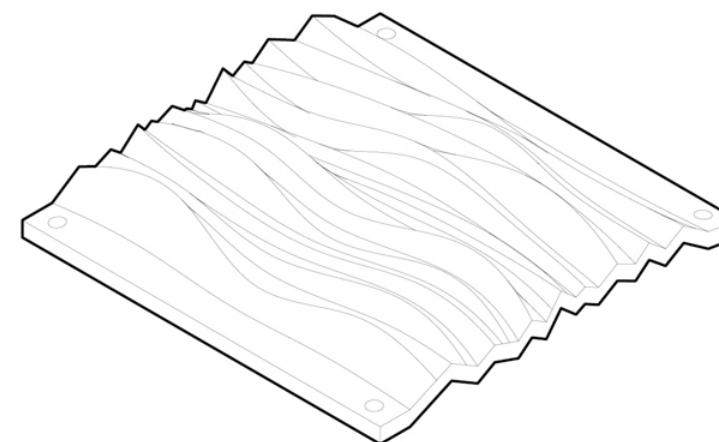
GROUND OYSTER SHELLS HAVE A LARGER SURFACE AREA AND CAN **REACT MORE QUICKLY** WITH CARBON DIOXIDE IN THE WATER.



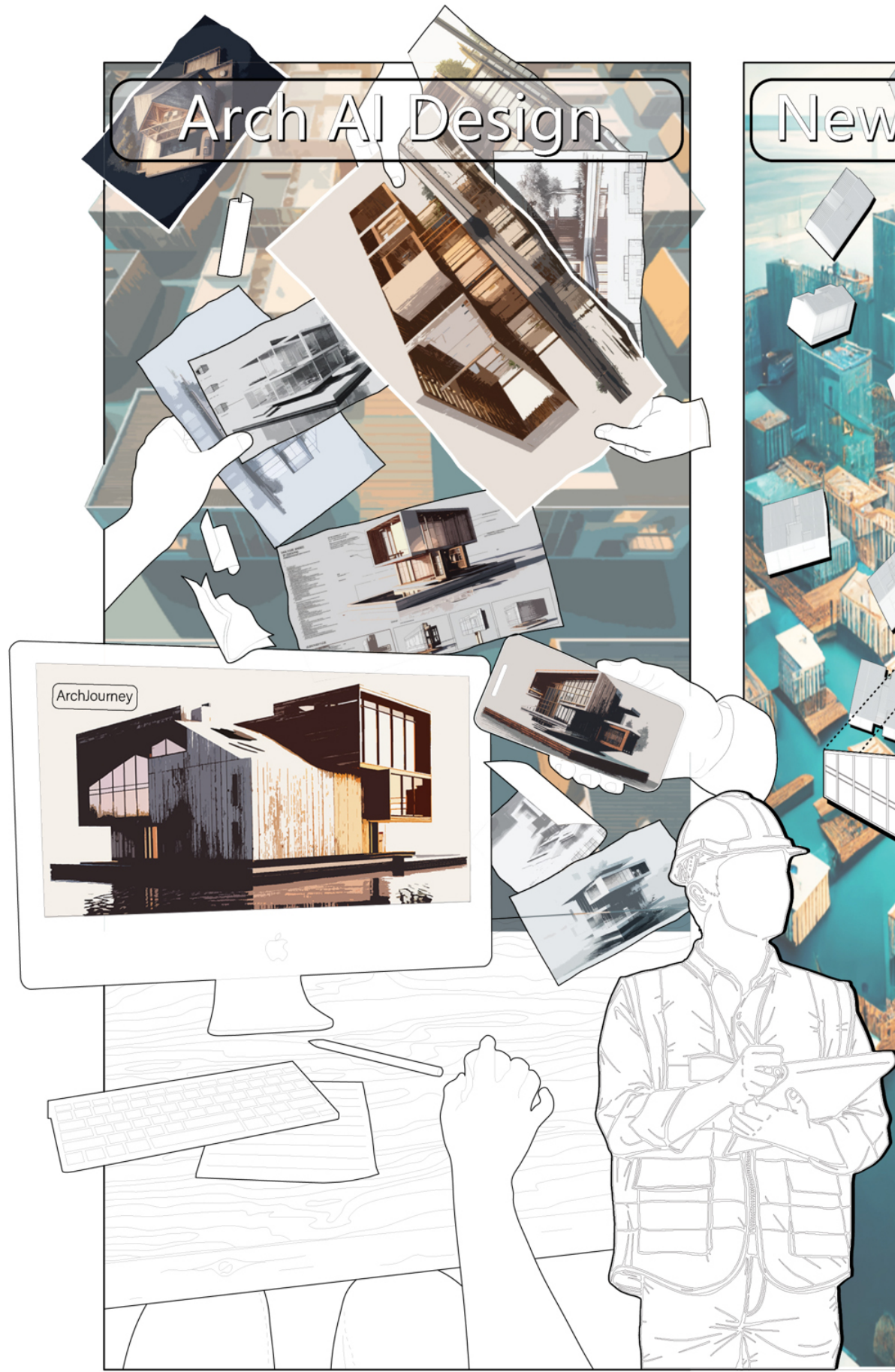
BRICKS



CONCRETE



Arch AI Design

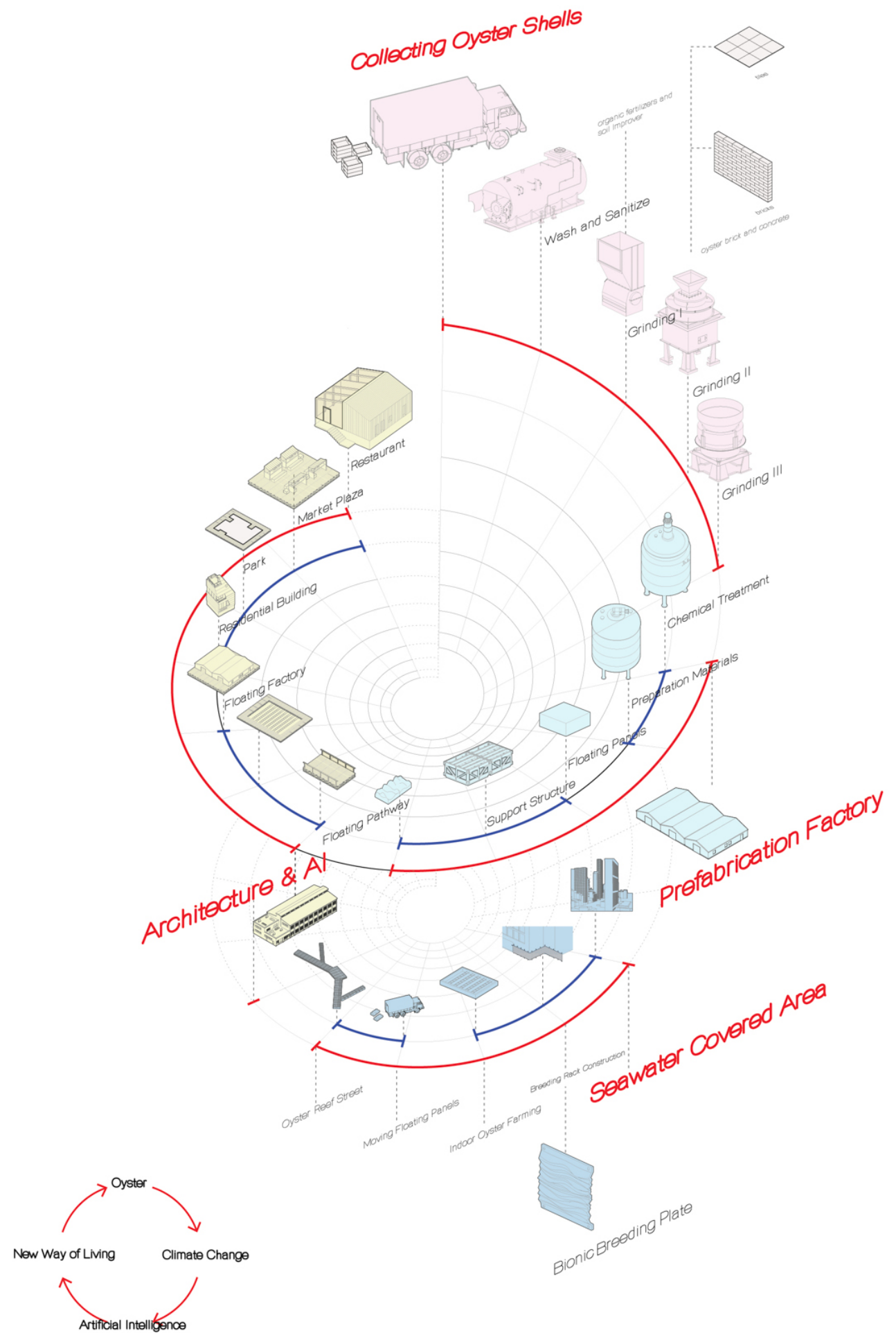


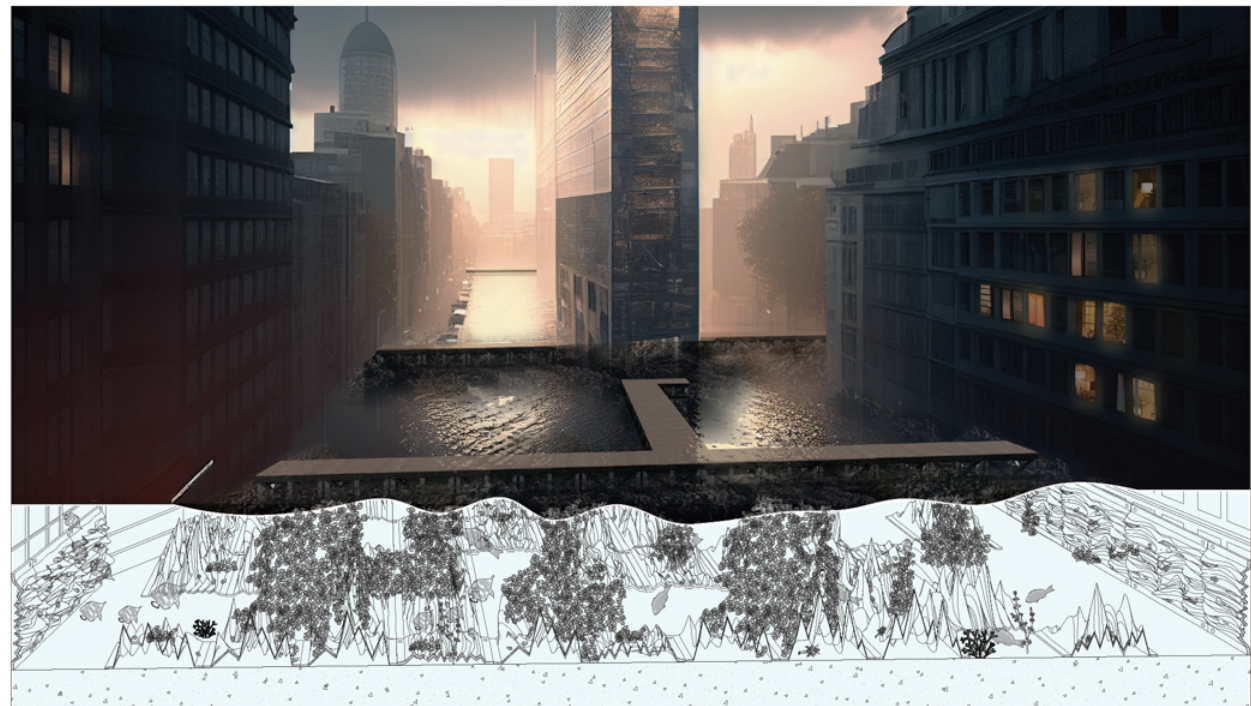
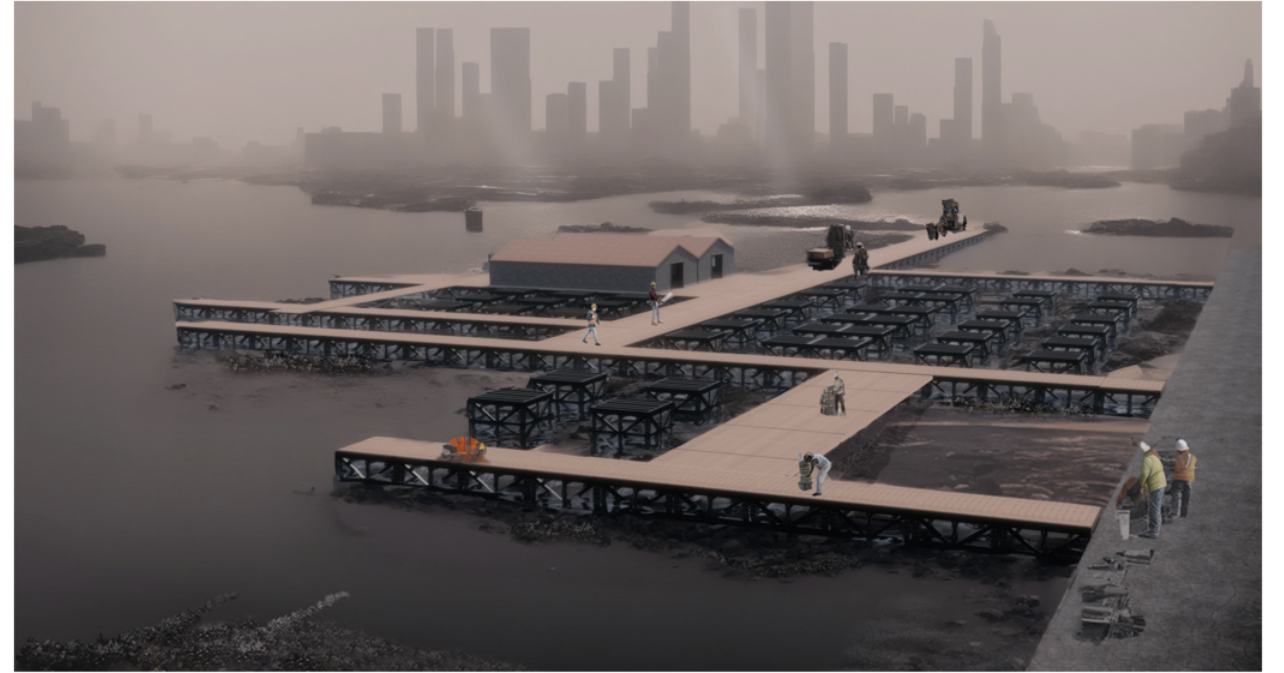
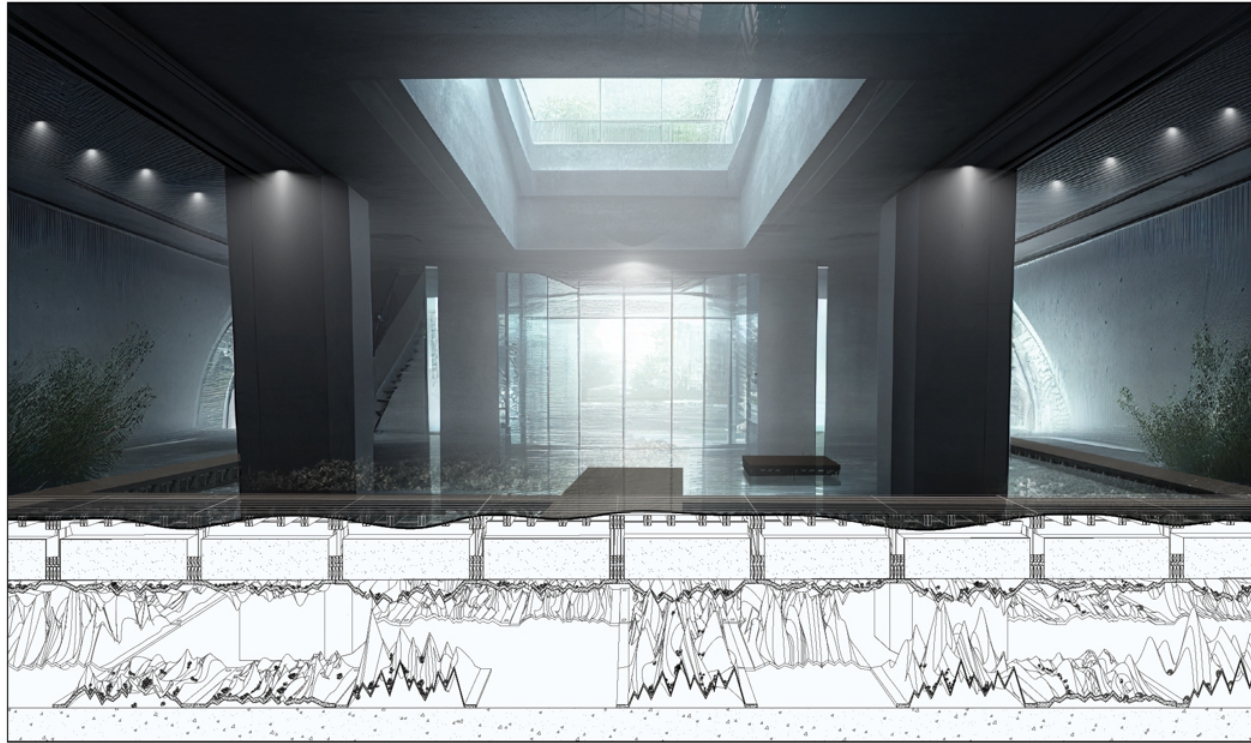
New Floating City



Ocean Carbon Sink





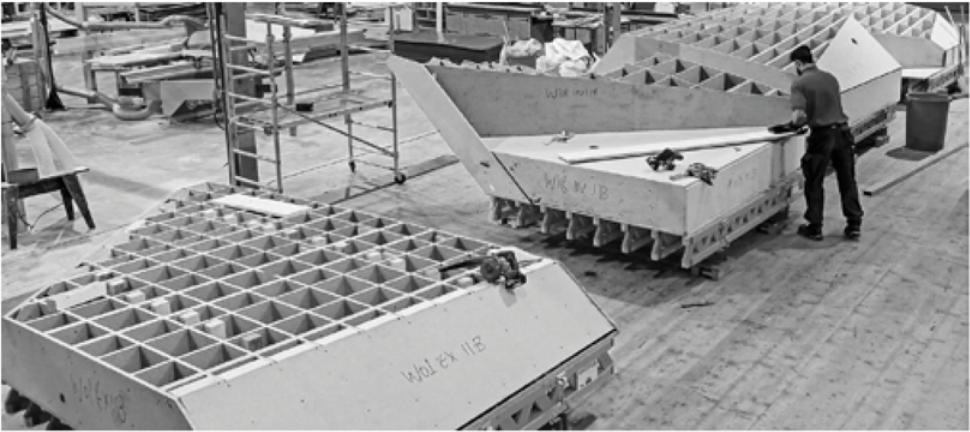
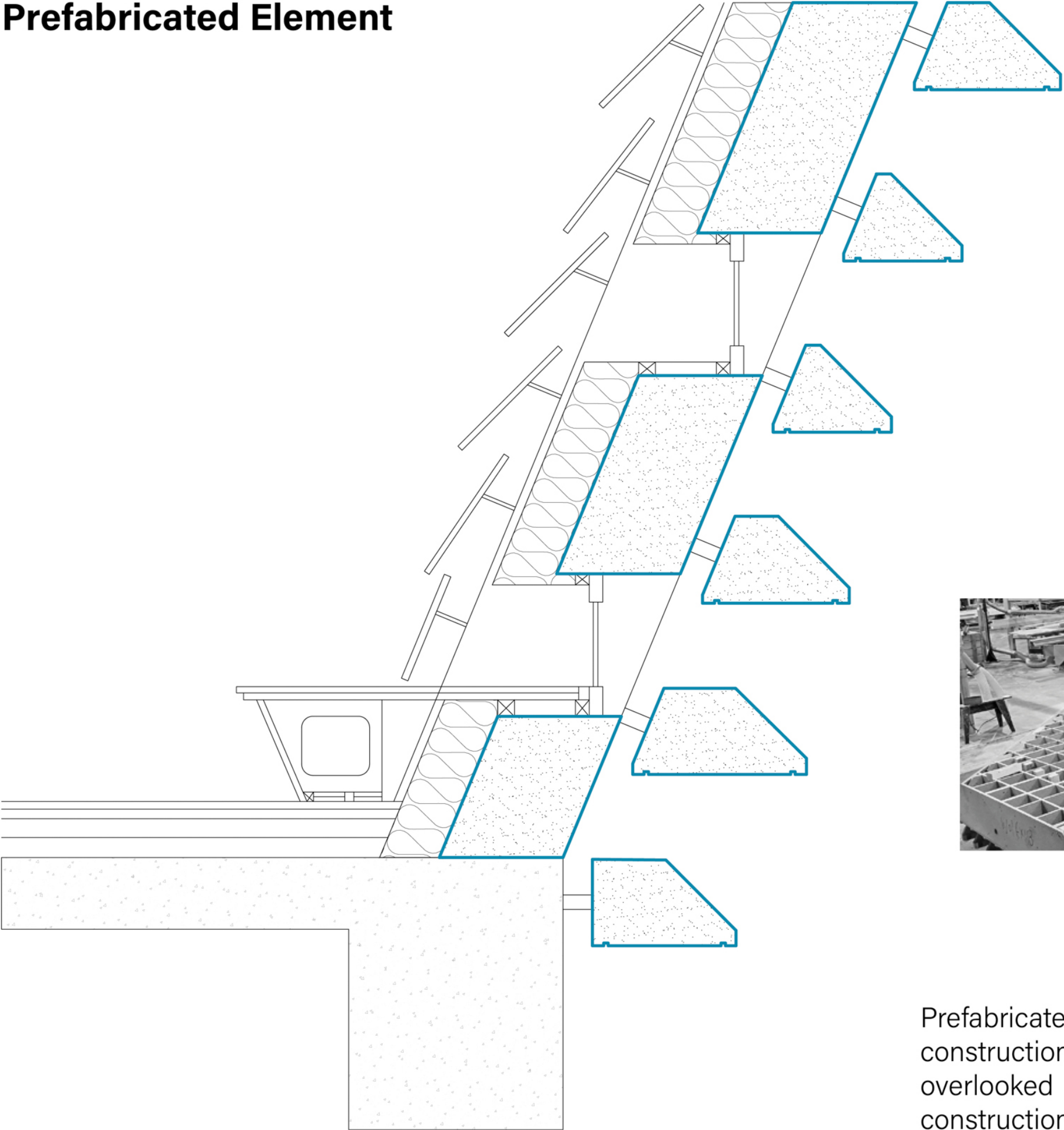


Materials prefabrication, assembly, production cycle

Prefabrication and Assembly of Materials



Prefabricated Element



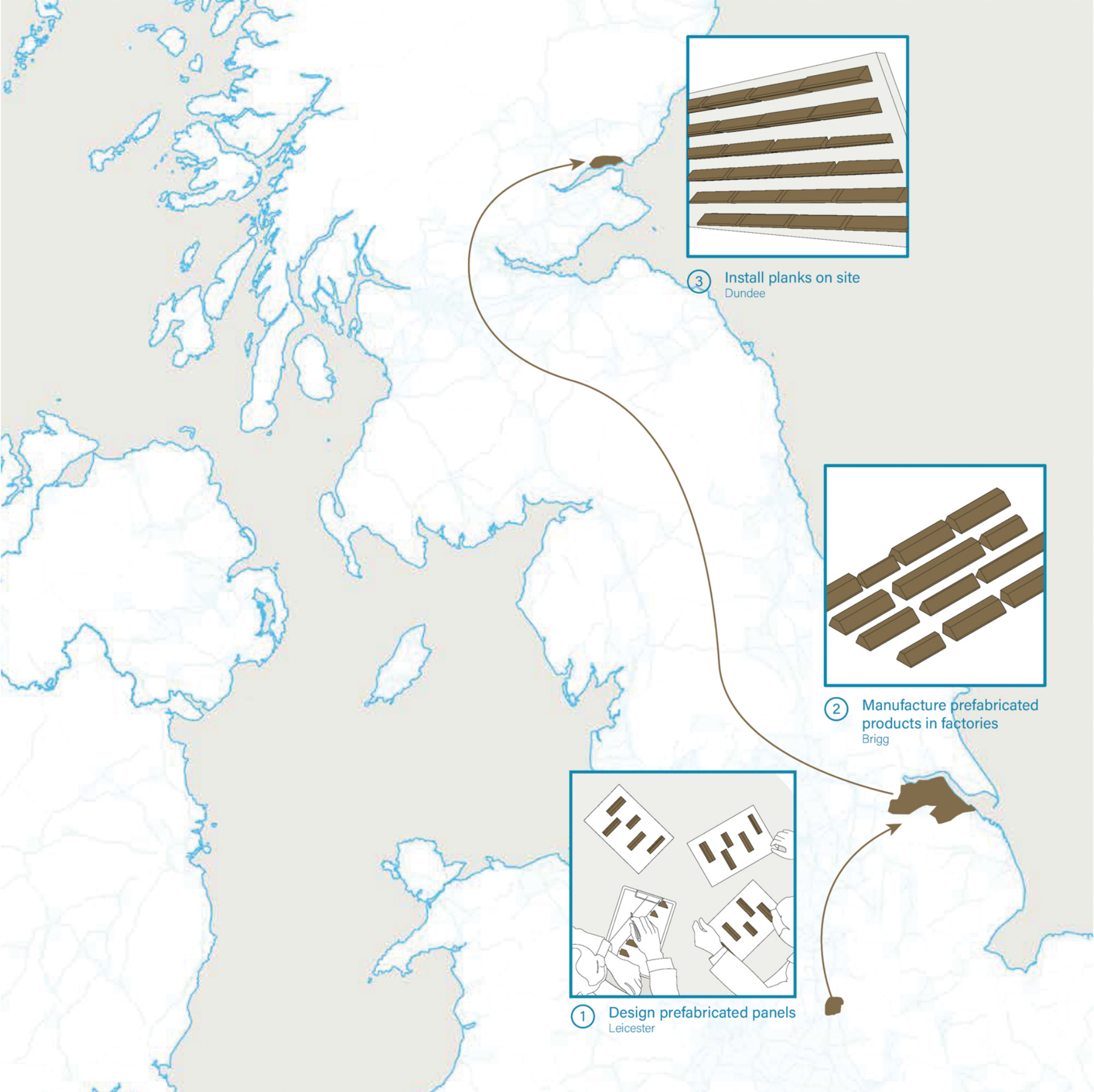
Prefabricated elements are becoming increasingly widely used in construction, yet the consumption of prefabricated elements is often overlooked in many processes when calculating the consumption of construction in terms of materials, cycles, and workers.

Precast Concrete Panels

Manufactured by Techrete

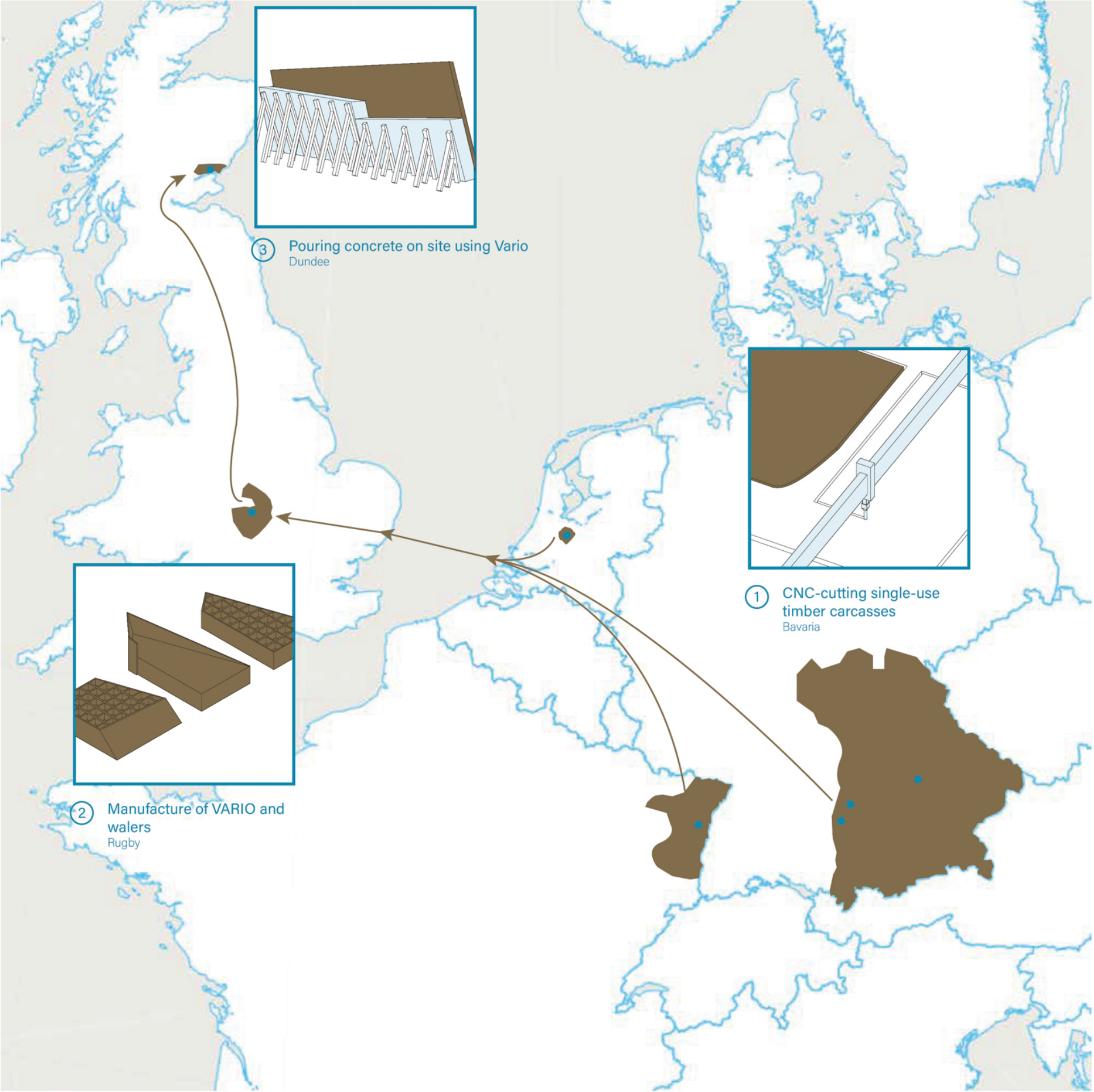


2,429 precast concrete panels, covering **8,787** square meters. The panels range from **0.9 - 2.8** tonnes, and are up to **4m** long.



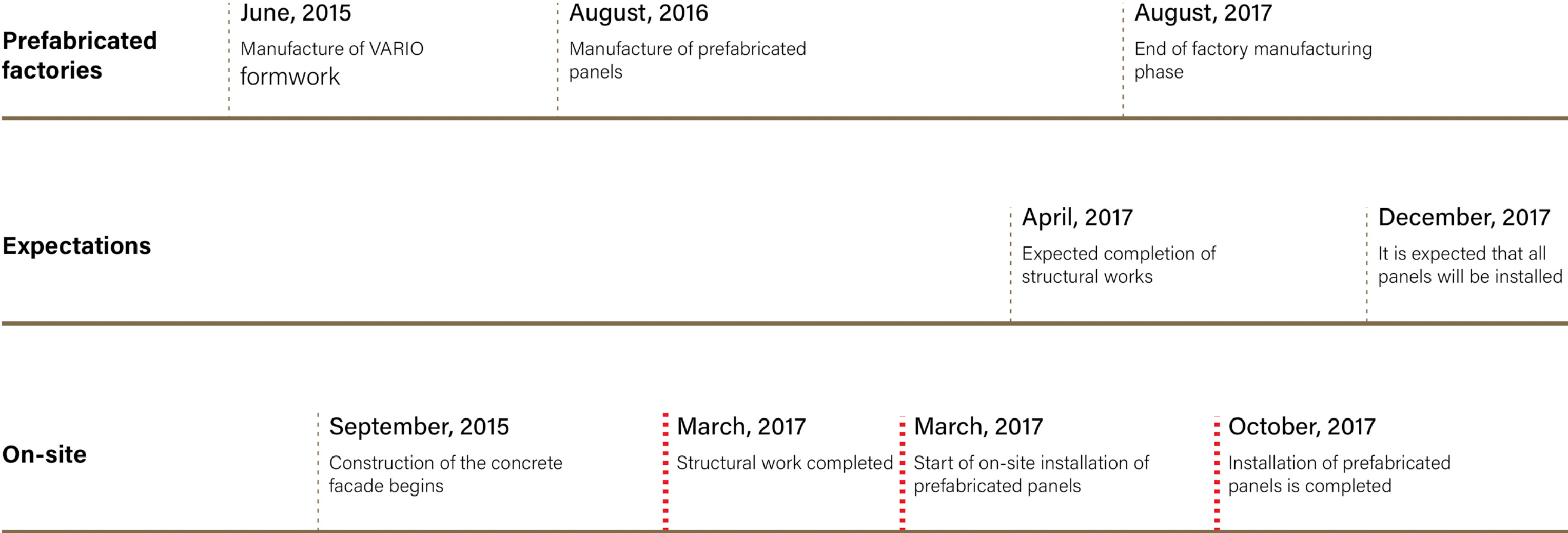
Black concrete wall

Manufactured by PERI



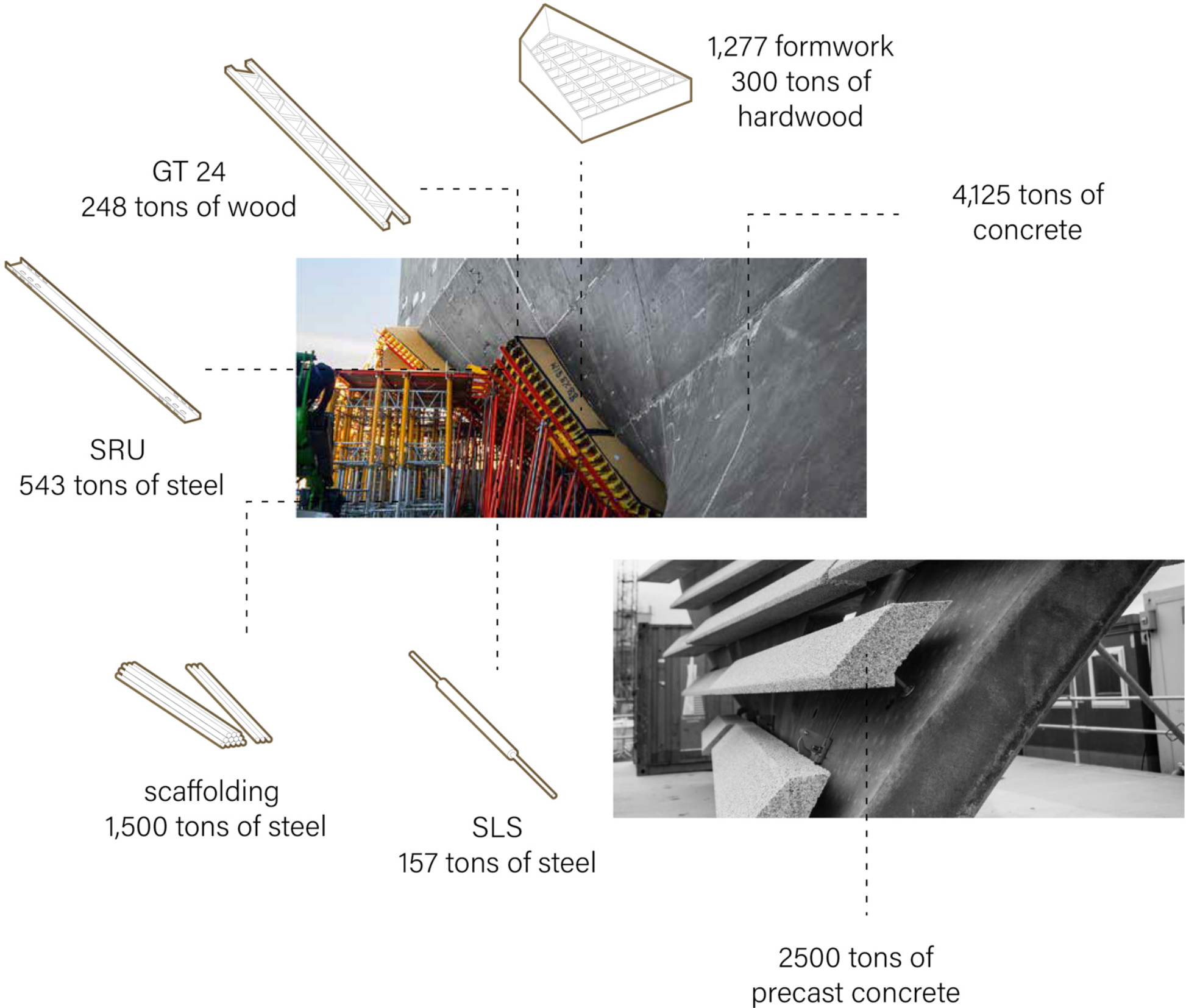
The molds for pouring concrete with three dimensional curves were made in Germany using steel plates, and transported to Dundee by ship.

Does Prefabrication Really Save Time ?



Prefabricated elements helped the VA museum save about 4 months in overall construction planning. It accelerated the installation process, achieving time savings and increasing job site capacity.

Consumption of materials



	Volume	Carbon High	
Concrete	1749 m ³	1,823,515.2	kgCO ₂ e
Precast Concrete	1250 m ³	700,000.0	kgCO ₂ e
<hr/>			
Hardwood	320 m ³	181,683.2	kgCO ₂ e
Plywood	332 m ³	339,885.0	kgCO ₂ e
Steel	282.1 m ³	5,478,946.2	kgCO ₂ e
<hr/>			
Construction Consumption			
Total		2,523,515.2	kgCO ₂ e
<hr/>			
Support Consumption			
Total		6,000,514.4	kgCO ₂ e
<hr/>			
Total		8,524,029.6	kgCO ₂ e

Support consumption is a part that is often overlooked, while they are a significant component of the building construction process. In this case, by calculating the total consumption of prefabricated elements from manufacturing to installation on site, the total consumption is much higher than the consumption embodied in the building itself.