As the polar ice cap in the Arctic region continues to melt at an increasing speed, human activities are quickly spreading to areas that we were not able to access in the past. These newly introduced vessel traffic on water as well as deep-water oil/gas exploration activities may lead to increased underwater noise, which can be devastating to marine mammals, as they depend on reflected sound waves to navigate underwater.

Moreover, human beings cannot relate to the damage these noises bring for the marine mammals as we do not perceive sound in the same way as they do. Beyond being a data collection center to monitor and better understand the harmful underwater noise, this project also aims to translate such noise by creating disorientation in the building both visually and physically, in order to better sympathize with the marine lives.
Several small remote research centers are distributed along the coastline of Prudhoe Bay, Alaska. The site is located close to the start of the Trans-Alaska Pipeline, where lots of drilling and sea transporting happen on a daily basis. These research centers provide lodging for the researchers, as well as a deployable vessel to go out further into the ocean daily to record and monitor underwater noise. Located more inland near the region’s airport, the main building is easily accessible by the public. Data gathered from the remote research centers are then transferred to and collected at the main building.
The landscape of Prudhoe Bay is mostly permafrost, which consists of thick layers of frozen ground that undergoes a freeze-thaw cycle constantly now because of increasing temperature. As a result, a special condition called the drunken forest is created, where the trees tilt and eventually fall due to the instability of soil. The structure system was inspired by this condition; Pairs of angled columns, like trusses, are designed to counterbalance this instability in their foundation.
The main volume of the building is suspended in between the column structure, enabling it to be entirely flexible and elastic. Therefore, other strictly functional spaces are placed outside on the perimeter. These spaces include the living space for an on-site researcher, a data processing office, two restrooms for visitors, as well as one exterior stairwell connecting to a water vessel motor testing room which is hung from the ceiling.
On the interior of the main volume, sound gathered by remote data collection centers in proximity are processed and translated into visual projections on the ribbon-like screen partition that divides the interior space. Inside each divided compartment, the actual sound recorded from each marine mammal is played within a metal bubble chamber, mimicking the sound reverberation condition underwater.
Instructor:
Laurie Hawkinson

Higher sea levels and increasing coastal flood exposure pose growing challenges for the large population and major economic assets along New York City's shoreline. Historically, a number of severe coastal floods (both hurricanes and nor'easters) have struck the city, causing great harm. Superstorm Sandy in 2012 generated the highest water levels in at least 300 years and caused an estimated $19 billion in damages and 43 fatalities. How do we mitigate this through our design at the water edge?

In my project, I reimagined the ferry terminal at Anable Basin, Long Island City. By moving the existing ferry terminal up North, it will better serve the large community at the Queensbridge Housing, which is the largest social housing project in Northern America. In addition to its function as a ferry terminal, the building also serves the community as a library, gather place, and outdoor playground.
Early study models focused on how to connect the new ferry terminal back across the Anable Basin, as well as bridging towards the nearby subway station.
There is a waiting lounge/cafe on the ground floor of the building, with direct connection to the ferry terminal that extends over the water. The outdoor theater on site acts as a stormwater management basin in case of heavy rain and flooding.
The second floor is a community library, which will act as a branch of the nearby Queens Public Library at Hunters Point. The bridge that connects to the high-rise buildings across the Anable Basin can also be accessed from here.
The community library is located above the design flood level at +15 feet, which will keep the books dry even during a 100-year flood.
In Transssclarities during the summer semester, I researched about the Rebirth Bricks by the Chinese architect Liu Jiakun. This concept of reproposing existing building materials inspired my design for studio in the summer.
Rebuilding Memories - Summer 2022

Instructor:
Elias Anastas
Yousef Anastas

As time goes on and technology advances, people’s ways of living are constantly changing. We are seeing more and more abandoned buildings because of this, whether they have been deserted due to deteriorating structures or outdated functions. This project takes an historical building under the threat of demolition, and investigates ways to reconstruct the structure with the exact same existing building members.

The site is located in the Garment District in Midtown, which is a historical area that has been limited in its renovation possibilities. To study the concept of rebuilding, I first researched about the Ise Jingu in Japan, which is rebuilt in its exact form every 20 years.
The redesigned structure will be built with the existing building materials.
Instructor:
Kate Ascher
Thomas Mellins

New York Rising: How Real Estate Shapes a City offered a historical survey of the last two centuries of real estate development in New York City, with a primary focus on Manhattan. It relied on sources held by Columbia libraries and others, including material from the collection of Seymour Durst – the patriarch of one of New York’s foremost real estate families and a passionate collector of the City’s historical memorabilia.

In this class, I extended my interest developed in the summer semester studio and research more in-depth on the topic of the Garment District.
In the beginning of the class, we each chose one piece of art work to develop a curtain wall design. The primary focus of the course was a semester-long Technical Studio Design Project. We designed our own unique custom curtain wall, developing detail drawings and preparing outline specifications.
The facade design resulted in many different variations in the detailing, due to its angulation glass frames.
The Toledo Glass Pavilion by SANAA is an internally organized autonomous object that creates its own context, situated on the site of a glass-making institute. Bonded by a clear boundary, the pavilion has a non-hierarchical plan that is entirely independent from its surroundings. With a careful juxtaposition of programs, visitors traverse through the building across a series of public spaces freely, abandoning the use of corridors. Layers of curved glass walls blur the boundaries in between individual rooms with their reflections, further erasing any ordering of the interior spaces, although in an extremely organized manner.
Thank you

Siyu (Tara) Zhang
selected GSAPP works
2022-2023