WEIWEI WANG
PORTFOLIO
GSAPP
WORKS
2022-2023
A Collection of work that focuses on Spatial experiment, Materiality, and Social impact
THE LEAST WE CAN DO

Planting Lab for Climate School in 2035
Summer 2021 Advanced Studio, GSAPP
Collaborator: Liwei Guo/ Eleanor Yuan
Instructors: Emmett Zeifman

This architecture project is located in West Windsor, which is near Princeton University. The design focus on both urban and architectural scale. We designed a climate school, which is set to be completed by 2035, with a focus on sustainability and resilience. Following the completion of the climate school, individual groups in our studio designed a planting lab and a wetland park that provides a natural and public-friendly space shared by the community.

Our design prioritizes community engagement and social interaction by promoting public accessibility and incorporating natural elements. We believe that architecture has a responsibility to create spaces that encourage social connections, and our project aimed to achieve this by shifting the focus from constructing social spaces to facilitating social interaction.

This is the least we can do.
Our architecture project is located in West Windsor, which is connected to New York and Philadelphia via the NJ transit system. This diagram shows that the site is easily accessible by train, with just a one-hour commute from both cities. The train also connects to nearby Princeton, as illustrated in the diagram. However, it’s worth noting that the residents of Princeton Junction primarily rely on cars for transportation, as mentioned in the diagram. Despite this, we believe that our site’s convenient location and accessibility by public transportation will encourage more sustainable transportation options in the area.
By 2035, we plan to expand the range of parks in our landscape project and connect them through additional bike lanes. This will provide easy access to nature and contribute to students’ mental health. However, according to the predicted flooded map, the water level will rise in 2035. To address this, we intend to transform a part of the parking lots into a wetland park and connect it to the lake and ditch.

The community context will also change in 2035. The development of sustainable housing areas with farms will change the traditional sense of suburban housing and land ownership. Additionally, people will move closer to the school district, resulting in more dense housing. This, in turn, will challenge the car-centric community in West Windsor, with the introduction of more electrified public transportation.

As electric cars become more prevalent, gas stations will be replaced by parking lots with charging piles. The increased availability of bike-sharing programs and public transportation will also reduce the need for parking lots in the future.
This diagram illustrates the relationship between our climate school and the surrounding township.

Our plan for the site includes using the lawn as a test farming field that will serve the climate school's lab and also become a landscape that connects with pedestrian routes. The ground floor will be open for walking through, making it easier to access the testing farms from nearby buildings and communities.

Due to the predicted rise in water levels in 2035, we plan to transform the artificial lake and ditches into a wetland park. This park will feature several pieces of wetland and marshland with wood platforms, providing a unique opportunity for bike and pedestrian access through the township bike lanes system.

In addition, we plan to replace ground floor parking lots with a landscape that will provide a habitat for wildlife and people, thus reducing the need for cars. We intend to connect the pedestrian and bike lanes to the wetland park, bringing people closer to nature from the surrounding buildings.
This is a satellite image of our climate school, which includes a lake that connects to a ditch and pond, becoming a beautiful wetland park. The bike and pedestrian system will also connect the community with the landscape, allowing easy access to the wetland park from Princeton Junction through a wooden trail. As part of our plan, a portion of the old residential area and parking lots will be converted into a forest, transforming our climate school into a forest.
This is our transportation plan for the climate school. There are four parking lots on our site, and six bike stops with charging piles in the community area, powered by solar panels. Pedestrian paving connects the landscape and recreation. For public transportation, we connect the old bus line with two smart electric shuttle loops, serving students, researchers, and communities. The solar panels will be set up on the roof of the shuttle bus hub, an abandoned warehouse next to our site.
This is an oblique masterplan of the climate school, where existing buildings are repurposed. The college, library, and auditorium provide study areas for students, while the planting lab and material recycling labs serve both educational and research purposes. Additionally, there is a museum and community center that offers exhibitions and day care services for the local community.
For individual group, we propose an individual planting lab surrounded by a wetland park. We designed a waterfront walking system on the ground floor for easy site crossing. The landscape features organic grass slopes with scattered greenhouses of different heights. Near the building entrance, there are landscape seats and rest platforms.

Architectural plan is based on the original grid structure, which we disrupted using circular curves to create new program spaces. The ground level provides full public access to the natural landscape, which transforms into wetlands. The program includes an Animal Hospital and individual greenhouses scattered around the landscape. A storage room for bikes and planting tools is located near the main entrance. We will use landscape and original columns and buildings to create playful and functional public use furniture.

The lab level retains the original building's shape with a circulation corridor along the outer edge and the center courtyard. Most programs are set between the corridor to ensure sunlight does not interfere with experiments. The Private Lab Core creates a large lounge and meeting space, with four labs connected to office space, and two individual indoor planting observation rooms will be connected to two of the labs. A preparation area will also be available for the Main Lab.
Insulation & Ceiling

Facade Outer & Inner Wall

Existing Structure & Core

Ground Floor Garden & Ramp System
In the axon, it's clear that we retained the original structure system while removing the first floor structure. The elevated floor was used as independent laboratories. The landscape ramps can connect to the waterfront walkway system to blur the line between indoor and outdoor space. The transparent core and elevated ramp system provide first-floor landscape space. The walkway system is bike and pedestrian-friendly for people to enjoy the wetlands. The light and transparent laboratory contrasts with the solid and stable core. The wetland environment can be a habitat for birds, promoting harmony between humans and nature.
The Planting Lab serves both the community and researchers with two cores: the Public Planting Core and the Private Lab Core, both accessible from ground level to rooftop. The Private Lab Core is exclusive to lab access. The ramp system connects the Public Planting Core on the 2nd and 3rd levels for public access and the Private Lab Core on the 2nd and 3rd levels for private research. To address the future underground water flooding crisis of the site, the interior architecture space is elevated from ground level, and the ramp system provides safe circulation and platforms for activities. The building houses six different labs on the Lab level and the rooftop level has potential for alternative programs between roof garden and green house planting spaces. Visitors can also enjoy the overall view of the wetland park from here.
THICKNESS
OF RETREAT

Early Education Center for Autism
Fall 2022 Advanced Studio, GSAPP
Instructors: Marc Tsurumaki

Over the past decade, Autism prevalence has increased by 178%, with 12,757 kids in New York City alone affected, and 2000 of them have not received early education. This project aims to address this issue by providing an early education center that caters to the unique challenges faced by children with autism, such as social communication problems, repetitive and restrictive behavior, over or under-sensitivity to senses, extreme anxiety, and meltdowns and shutdowns. The project’s goal is to create a safe space for children with autism to retreat to their own world while still receiving early education.

Ultimately, improving the accessibility of our entire built environment for people with Autism is ultimately the end goal.

But for autistic children, their childhood should have the right to retreat within the thickness.
Located on Amsterdam Ave in New York, this project is designed to address the high rate of autism in the area. The design offers six layers based on a grid, forming three connected blocks. To cater to the three levels of retreat action needed for kids with autism, the walls can be reformed into three levels of “retreat space.”

The design includes small and large “withdrawal rooms” within the thickness of the wall in every classroom and public space. These rooms are intentionally small and cozy, providing a safe space for autistic children to retreat to when they experience a meltdown or extreme anxiety.
PERMEABLE CITY

REIMAGINING HUMAN-SOIL INTERACTION IN HOUSING
Spring 2023 Advanced Studio, GSAPP
Collaborator: Ruonan Joan Du
Instructors: David Gissen

Drawing inspiration from Otto Wagner’s aesthetic and health principles of the early 20th century, which advocated for smoothness and impermeability, Vienna’s urban landscape has been shaped by a detachment of exposed soil from people’s daily lives. This has resulted in a disconnect between residents and the natural environment.

This proposal aims to spark a dialogue on alternative perspectives towards soil, emphasizing that it does not have to be viewed negatively when considering diverse ways of coexisting with it. Rather than isolating residents from soil through fixed programs and rigid spatial designs, the Permeable City project integrates an array of functions within a flexible and permeable landscape.

By embracing a more harmonious relationship with soil, the Permeable City not only reconnects residents with nature but also fosters a sustainable and adaptive urban environment that can better respond to the evolving needs of its inhabitants.
Critics on Otto Wagner’s the Great City (1915)

By measuring the area, only 4% of land is permeable because of the prevention of soil fecundity by Otto Wagner.

If we reverse the amount of hard and soft ground in the city, what becomes possible?

alternative study
IF WE REVERSE THE AMOUNT OF HARD AND SOFT GROUND IN THE CITY, WHAT BECOMES POSSIBLE?
Challenging the conventional notions of openness and enclosure in urban design, the site comprises approximately 200 distinct yards, surrounded by buildings that create a unique interplay between interior and exterior environments. This innovative design fosters a sense of interconnectedness, both within the community and with the natural world.

The yards offer a diverse range of programs tailored to suit various interests and needs, such as different types of farming, engaging landscapes, and versatile multipurpose fields for recreational and leisure activities.
The yards in the Permeable City are designed as a series of personal open spaces, originally featuring exposed soil and devoid of physical barriers. This layout encourages intimate public interactions with soil, fostering a sense of connection to the natural environment and promoting a healthier urban lifestyle.

The yard programs and activities are determined by community discussions. This rendering depicts one possible activity - an open weekend market where residents can bring their harvests and exchange goods, fostering a sense of community and connection.
Public programs are thoughtfully embedded within a carefully designed grid system to facilitate community services and foster shared activities among residents. These programs are strategically arranged in harmony with the yard layouts, ensuring a seamless integration of public and private spaces. To further enhance the residential experience, versatile toolboxes have been designed to supplement the dwellings, providing residents with additional amenities and resources that cater to their needs. Moreover, the bridges connecting various sections of the development have been thoughtfully planned to feature larger, more expansive spaces. These bridge areas serve as integral community hubs, promoting social gatherings and fostering a strong sense of community among residents.
Tactile model making
All housing units in the Permeable City are designed along a horizontal axis, ensuring maximum sunlight exposure for each residence. The interior spaces are thoughtfully divided into two sections, allowing for natural airflow and ventilation to pass through. This intentional design consideration makes living in close proximity to soil not only possible but also comfortable, fostering a harmonious and healthy relationship between residents and the environment.
Upon selecting their desired neighborhood, residents are presented with an array of housing options, thoughtfully designed to foster a more intimate connection with nature. The guiding principle behind these designs is to broaden the spectrum of living harmoniously with soil, creating a seamless transition between the built environment and natural surroundings. The design process is divided into three interconnected steps: open yard, in-between space, and personal spaces. These components come together to form an integrated and cohesive living environment. In each scheme, various soil coverage levels are highlighted, demonstrating the diverse ways residents can engage with and embrace the natural landscape. Through this innovative approach, the Permeable City empowers residents to explore and adopt varying degrees of soil integration in their daily lives, nurturing a deeper connection with the environment and promoting sustainable urban living.
Expand the spectrum of living with soil

...home and the degree of enclosure for their personal open space...
TENSION  Jewellery/Metal Arts

REFORMATION  Color Glass Blowing

LIVING ARCHITECTURE WALL  3D Printing Soil Wall