PORTFOLIO

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ARCHITECTURE STUDIO

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With a series of private developments taking place around the North Shore area in Staten Island, there are less and less available spaces for the local artists to occupy, leaving the originally artistic neighbourhood gradually gentrified and capitalised. Meanwhile, Staten Island has also been a territory of abandon and disuse with a lot of large-scale infrastructures dotted across the island.

The project aims to reutilize these large abandoned or disused infrastructural pieces and reassemble them in a new architectural form, enabling them to fulfill their original promises of providing community facilities while serving the local artist groups. The building is seen as a reassembly of made elements instead of a new construction of materials.
New Developments & Disused/Abandoned Infrastructures in Staten Island

The drawing above shows a collection of 6 typical private developments around the North Shore on Staten Island that have been gradually gentrifying the neighbourhood along with some of the existing notable abandoned or disused infrastructures dotted across the whole island, such as the abandoned railway and highway, gas tanks and derelict housings. All of these frames Staten Island as a conflicting territory of new constructions versus abandoned structures.
Layering

The physical model conceptually demonstrates the stacking of each horizontal level that has come from different sources and is dedicated to different programs—a public park maintained on the ground level, an art center with large-scale trusses on the second level, co-working spaces made with shipping containers and a residential level with steel girders as the facade enclosures.

Each of these elements has come from an abandoned/disused large infrastructure on Staten Island and is reassembled as a new architectural form.
Co-working level plan

Artist housing studio interior view
Level 01 entrance of the public park

Level 02 interior view of the art center

Level 03 artists' co-working shop

Level 05 roof terrace
Located in Newburgh, the sanctuary campus proposes a new type of campuses distributed across the city. Based upon both the main professions by the immigrants and the needs of the city, the interventions serve both the immigrant community and aim to gradually rejuvenate and transform Newburgh as a whole. Instead of a conventional enclosed campus, the scattered typology aims to blend in better with the existing urban fabric and create soft barriers, protecting the undocumented immigrants from deportation. More than providing a sheltered space, each of these four campuses serves beyond the means of protection and has its own unique functions and addresses different issues derived from the context they are interacting with.
Hudson Valley as Sanctuary Zones

Hudson valley has long been associated with the notion of sanctuaries for refugees or fugitives and there are currently approximately 360,000 immigrants living in the Hudson valley area. The analysis drawing below focuses on the locations of sanctuary states and cities across the US and specifically mapped out the immigrant-related instances in Hudson Valley, such as local institutions, organizations and businesses.

Undocumented Immigrants Spatial Typologies & Distributions, Newburgh

Newburgh, as one of the sanctuary cities in the Hudson valley, is also currently the city that has the most undocumented immigrants. The drawing above shows the distribution and concentration of 12 different spatial typologies related to immigrants in Newburgh, including local businesses and hispanic churches, non-profit organizations and local institutions and community centers.
Four specific sites are identified (marked in red) based upon an analysis of the existing spatial typology of the city, each of which is intended to intervene with existing buildings of a unique characteristic. These four building types are vacant or derelict buildings, a hospital, a city court and a catholic church.
Institute of Water

Los Angeles has long been associated with water crisis due to its dry climate with little annual rainfall. It is crucial to raise the public’s awareness about the water issues and realize the value of water and reveal and exploit the potential embedded within the water.

The Institute of Water is a research campus situated among the Santa Monica Mountains in LA, a place of monumental isolation where water is being treated as gold and appreciated by the people while most importantly, it acts as a manifestation of water collection, filtration and reuse system while creating its own water ecological typologies and unique landscapes that are educational, meditative and entertaining.
Site Strategy & Sloping Typology

Instead of using the flat ground on top of the hill, the campus is situated along the hill, taking the advantage of the slope and allowing water to flow through from top to bottom using gravity. The massing model above shows the position of each building in relation to the site topography.
The diagrams above illustrate the massing development of the campus masterplan, starting with a construction of water reservoir on top onto a stepping spatial typology complimenting the journey of water. One important feature of this masterplan is the integration of housing into each research program. Instead of dividing the campus into research and residential precincts, the scheme aims to create a community with a combination of housing and research programs distributed around the site.
Stepping garden and cascading housing with water flowing through.

**Algae research & housing complex**

**Underground Plan**

At the bottom of each complex, a research/institutional program is inserted, from an auditorium, research labs, to a library and market/dining hall, so that the scholars and residents living inside the housing will start to circulate around the whole campus and start sharing in between each complex, triggering interaction and reinforcing a sense of community.
Plan of the water & energy complex with housing units at the front and a library at the back.

Fragment model showing the spatial organization of the living units and library as well as the water route.
We strongly believe sharing leads to a more efficient, social and sustainable model of living. We see sharing not only as a method to eliminate underutilized appliances, but also an effective tool to bridge social segregation and stimulate human interaction.

Conceived as an urban mountain landscape, the project encourages sharing at different scales: from a kitchen space shared by multiple families to the cascading rooftop shared by the whole community, aiming to create a more self-sustainable culture and a more intimate relationship between the residents.
There are four key components of our project that is dependent upon one another to some extent in terms of the scale of sharing and different human activities: the shared kitchen, public path, courtyards and shared roof landscape, each of which also responds to different environmental strategy of the building at both micro and macro scales.
Massing Strategy ---- Roof & Courtyards

Instead of a large courtyard, the block is divided into several smaller courtyards, each of which varies in size in accordance with the height of the surrounding buildings. The several smaller courtyards not only offer a wide range of different activities, but also aim to create a sense of ownership due to its small scale.

The cascading roof landscape maximizes the natural daylighting into the courtyards and the housing units while allowing direct access to the roof to enjoy the views from almost every level without taking the elevator for vertical circulation.
We recognize food and dining as the essence of homes—a social construct that is both an essential ritual of one’s daily life and that could potentially bring people together and encourage other interactions around it. We believe sharing a kitchen between multiple families could maximize the efficiency of the shared space and minimize underutilized spaces. The shared kitchen is the core of the families’ living—a space more than cooking and dining, but a place to meet, talk, relax, planting or doing laundry.
The XR School is a New York City public elementary school with a curricular focus on climate change – its causes and the paths to stabilize it. Other than the classes offered at the school, the building itself will be an integral tool to these lessons for both the public and the students. An open air 24/7 ADA ramp, as a vertical extension of the sidewalk, overlaps with and carves out the existing building, providing a universal access for the general public and connecting a series of shared programs between the public and the school. The school itself becomes an urban interface where the poetics of nature and farming is complimented and elevated through the architecture, redefining the relationship between man-made and nature.
Existing Building Block

24/7 Public Ramp

Lifting Ground Level for Public Space

Community Center on Top

Reshaping the Community Center

SCHOOL

SCHOOL

SCHOOL

SCHOOL

SCHOOL

PUBLIC

PUBLIC

PRIVATE

PRIVATE

PRIVATE

PRIVATE

PUBLIC

PUBLIC

GYM/AUDITORIUM

CLASSROOM

GALLERY

LIBRARY

CLASSROOM

STUDIO

CLASSROOM

LOBBY

PARK

24/7 Public Ramp

Shared Programs Along the Ramp

Greenery Navigation

Proposed Massing

Conceptual collage
Located under three cantilevered affordable housing over the cliff with a dramatic height difference of 40 meters between the road above and the ground with a lot of inaccessibility and inconveniences for the residents, my new infrastructure, as an extension of the sidewalk, emerges right below the buildings atop, as a cohesive social platform connected by programs, both for the residents and the public. Offering an alternative vertical circulation instead of a detour around, the new vertical sidewalk is seen as a secondary entrance, a grand back door into the existing housing units while offering the community with a series of spaces that really don’t belong to anyone as a new third space.

Reactivating the exterior fire escapes above that are dangerous and disused, the system creates an extension of both the public realm and domestic space. It is constituted by key programs that are Inwood-specific, such as a commercial ground level, leisure programs in the middle like basketball court, amphitheatre and a swimming pool. More importantly, more housing units as it approaches the top. There are also spaces left intentionally for the user’s definition. As a community also fabricated by void spaces and nature, the sidewalk responds to the natural characteristics of the site and weaves between the cliff surface and exterior based upon different programs, creating a dialogue between the rock and its users.

The intervention questions the on-going Inwood rezoning plan and proposes a new vertical stratification with its own zoning and programs that aim to serve both the community and the city.
1:1 steel construction exploring the spatial possibilities
Located in Bronx, the Melrose community center serves as a multifunctional hub that houses a movie theatre, a cafeteria, two basketball courts, a gymnasium and various study spaces and classrooms. The building features a playful stack of boxes connected through an exterior circulation from the sidewalk to a rooftop garden.

The building also combines multiple sustainable features, such as the sucken garden, green roofs, perforated facade cladding and a central atrium space that acts as a stack ventilation and optimizes the daylight into the interior.
**Sustainability Strategy Overview**

**Perforated Aluminum Panel**
- Preventing solar glare from south and west and reduce solar heat gain

**Solar Panels**
- Maximizing energy efficiency with solar energy

**Atrium**
- Acting as both a solar chimney for the adjacent programs and provide natural stack ventilation for the lobby space

**Green Roof**
- Aside from a landscaped roof terrace, the planting roof will increase the thermal mass of the roof slab and optimize the building energy efficiency

**Sunken Courtyard**
- Creating a semi-public buffer zone for safe exterior activities while bringing natural light and ventilation to the staff offices located on the basement level

**Geothermal Wells**
- Laid out under the sunken courtyard to provide both heating and cooling in winter and summer through heat exchange

**Water Tanks**
- Rainwater collected from the green roof and stored for grey water use throughout the building

**Distribution System Diagram**

**Building Facade View & Interior Views**
The Lloyd’s Building has always been conceived as a model for high-tech architecture. Inspired by the retaining Gothic facade that is still used as a secondary entrance for the building along with its towering atrium, the following drawings and models, however, reinterpret the Lloyd’s building as a Gothic Church. The section drawing explores the relationship between light and its atrium while the exploded axonometric drawing shows the correlation in terms of physical presence, such as the similarities shared between its repetitive circulation towers and the flying buttresses. The model converts the building into a relief where the negative space of the building pops out and create a sacred atmosphere with light and shadows.