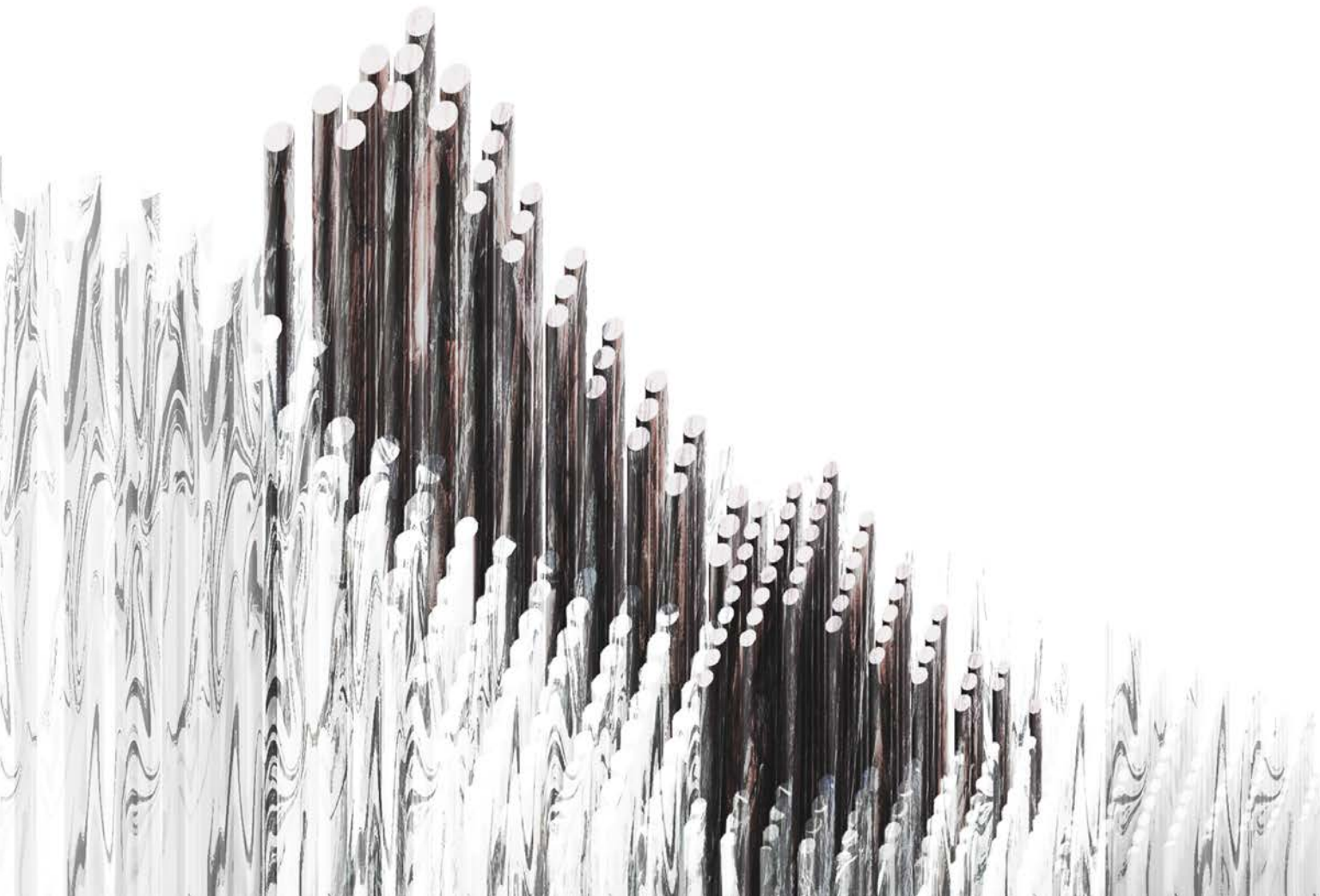
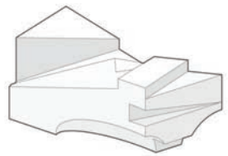
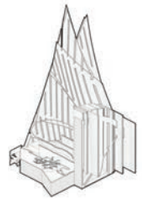
RICARDO PALACIO

PRATT INSTITUTE
GAUD PORTFOLIO

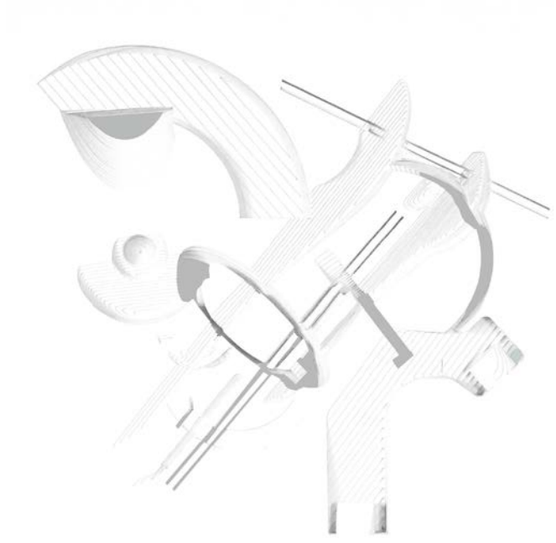




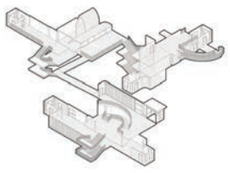
WASTE-TO-ENERGY



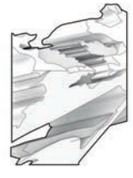
THRESHOLD



HIGH RISE



INTERIORIT-IES



AQUACULTURE

WASTE-TO-ENERGY

DESIGN STUDIO IV

PROFESSOR JONAS COERSMEIER

LOCATION: BROOKLYN NAVY YARDS

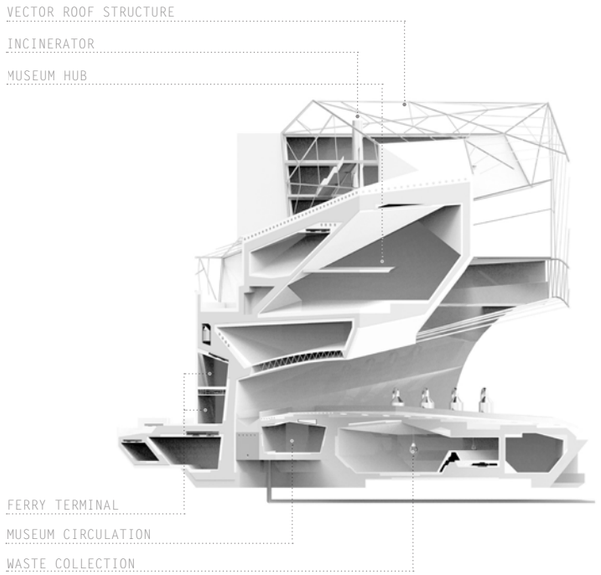
STUDIO PARTNER: SUNGHWAN UM

PROJECT SELECTED FOR:

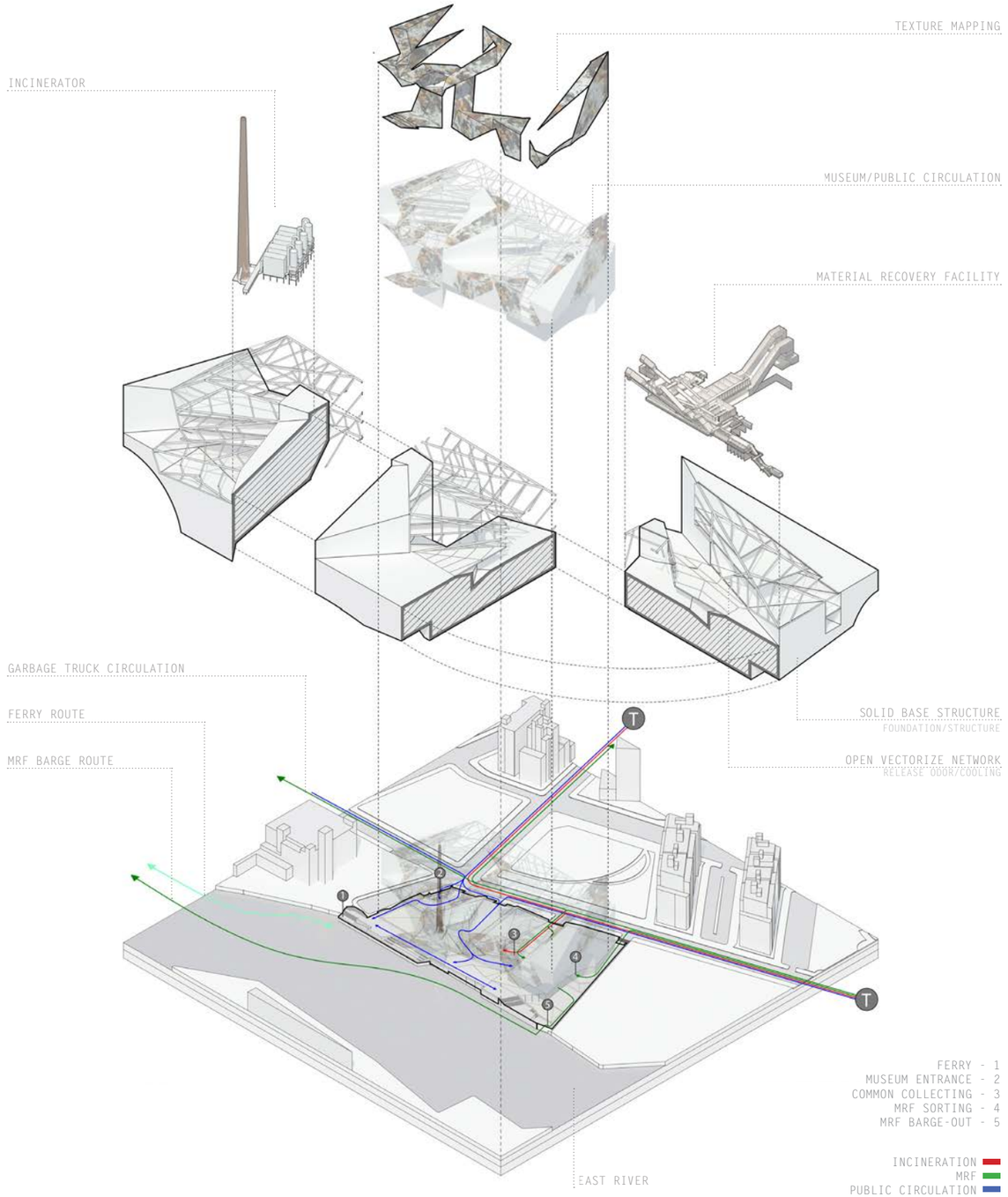
- CRITIC AT LARGE W/MACK SCOGIN & MERRILL ELAM
- PRATT EARTH WEEK W/BJARKE INGELS GROUP

New York generates 14 million tons of garbage per year, or 12,000 tons per day. Most is sent to landfills out of state. A 2009 study shows that burning waste is greener than landfills and generates more energy. Localizing waste management reduces pollution and cost from regional transportation networks as exemplified by WTE facilities in Long Island that serve local jurisdictions.

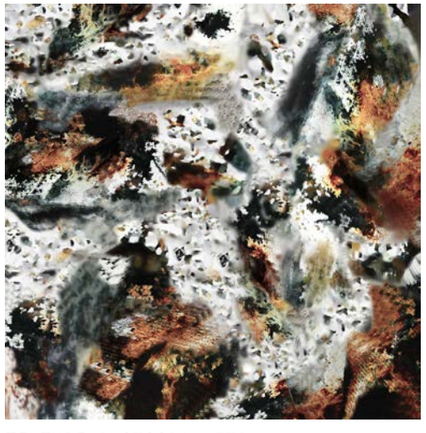
Layering public programs onto infrastructural programs increases awareness of waste issues, creates a public amenity, and anticipates the increased densification of the city, where scarcity of ground-level space will prompt public spaces to continue to stratify. With the purpose of inspiring the user to make a change in their daily routines. This strategy has been employed in downtown Tokyo where a combined WTE and recreation center has managed to clean 99% of facility emissions.



ELEVATION CHUNK-MODEL



CIRCULATION DIAGRAM



TEXTURE PHOTOGRAMMETRY

TEXTURE INSPIRED BY BROOKLYN'S COLOR PALLETTE AND TOPOGRAPHY, TO INSPIRE DESIGN STRATEGIES THAT WILL BE APPLY TO THE WASTE-TO-ENERGY FACILITY.

IN ORDER TO PRODUCE THIS TEXTURE WE CONDUCTED A SERIES OF MATERIAL STUDIES, CAST MODELS, TO STUDY THE DIFFERENT EFFECTS. WE THEN IDENTIFY THE EFFECTS AND QUALITIES IN RELATION TO ARCHITECTURAL ELEMENTS.

EFFECTS/QUALITIES: TRANSPARENCY, MERGING, POROSITY

COLLAGE TEXTURE + MASSING

WE GENERATED A SERIES OF COLLAGE STUDIES INTEGRATING FORM AND TEXTURE TO IDENTIFY HOW THE TEXTURE CAN GENERATE INSPIRATION FOR MULTIPLE DESIGN STRATEGIES.

TRANSPARENCY - SOLID + VOID
INSPIRED STRUCTURAL IDEA ALLOWING THE BUILDING TO SIT IN A SOLID BASE TO PROTECT AND HOUSE THE MACHINERY OF BOTH INCINERATOR/MRF FACILITIES.

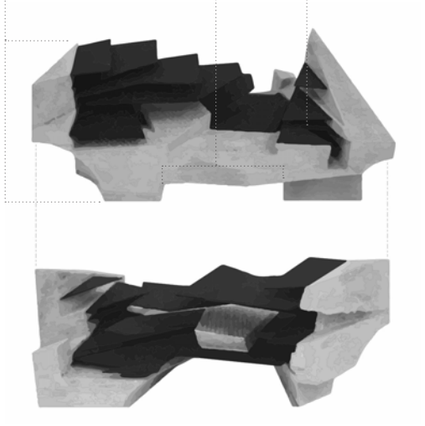
MERGING - CONTINUITY
THIS CONCEPT WAS USED FOR THE ORGANIZATION OF THE MUSEUM OF THE ANTHROPOCENE. TO CREATE A CONNECTION BETWEEN BOTH FACILITIES AND EDUCATE THE PUBLIC.

POROSITY - VOLUME
THE ARCHITECTURAL TECTONICS WERE INSPIRED IN THE POROSITY EFFECTS TOWARDS THE TEXTURED VOLUME. CREATING VARIATION IN SCALE TO FIT THE PROGRAMS REQUIREMENTS.

SOLID BASE:
TWO MAIN CORES THAT CONNECT IN THE UPPER LEVEL. CARVED TO OPTIMIZE CITY VIEWS AND PUBLIC ENTRANCE.

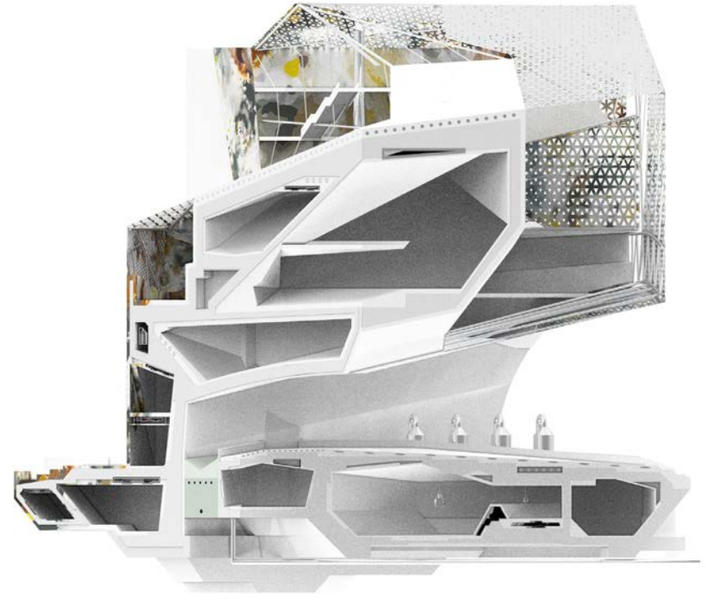
OVERHANG:
WELCOMES THE PUBLIC TO ALL PROGRAMS. CREATES A SPACE THAT IS BOTH INT/EXT. UNDER-GROUND MATWASTE COLLECTOR.

OPEN SPACE:
SPATIAL AND VISUAL INTERIOR CONNECTION BETWEEN FLOOR LEVELS. ALLOWS RELEASE OF WASTE ODOR.



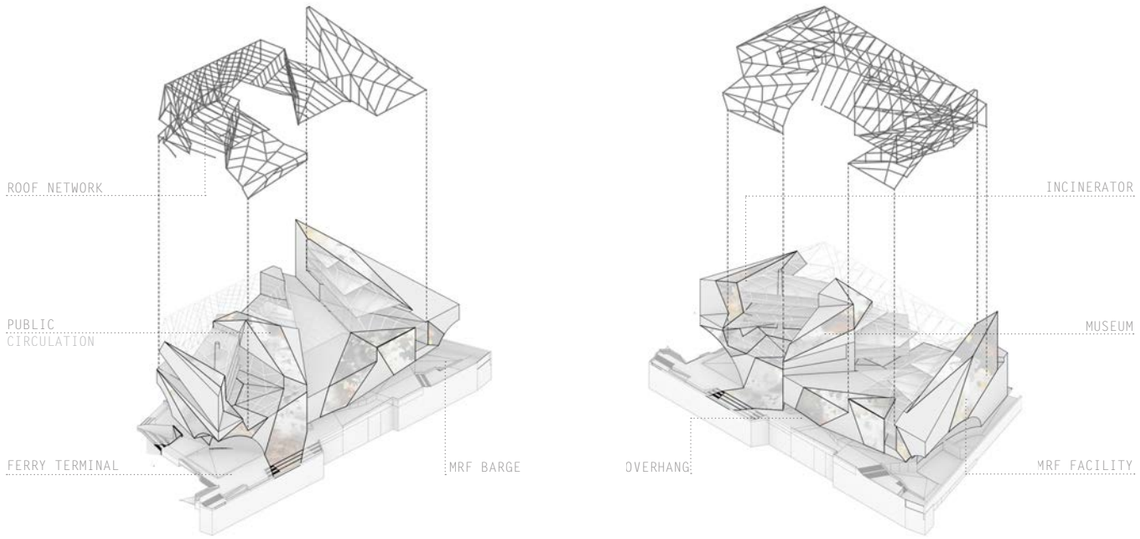
STRUCTURAL MODEL SOLID + VOID

MAPPING STRATEGY MASSING + TEXTURE

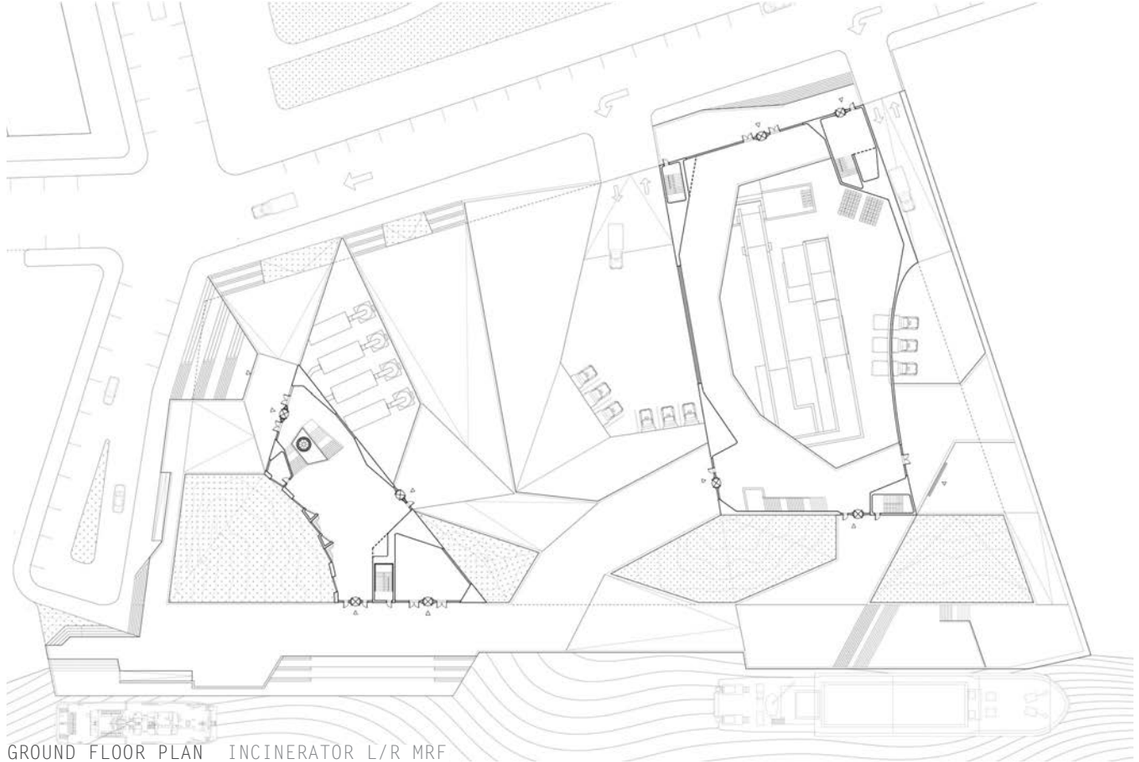


ELEVATION CHUNK-MODEL

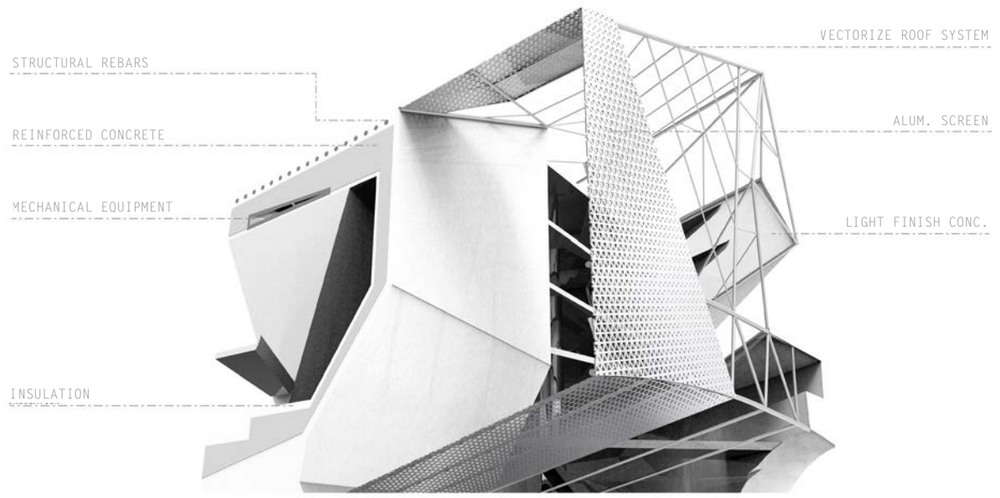
FROGVIEW CHUNK-MODEL



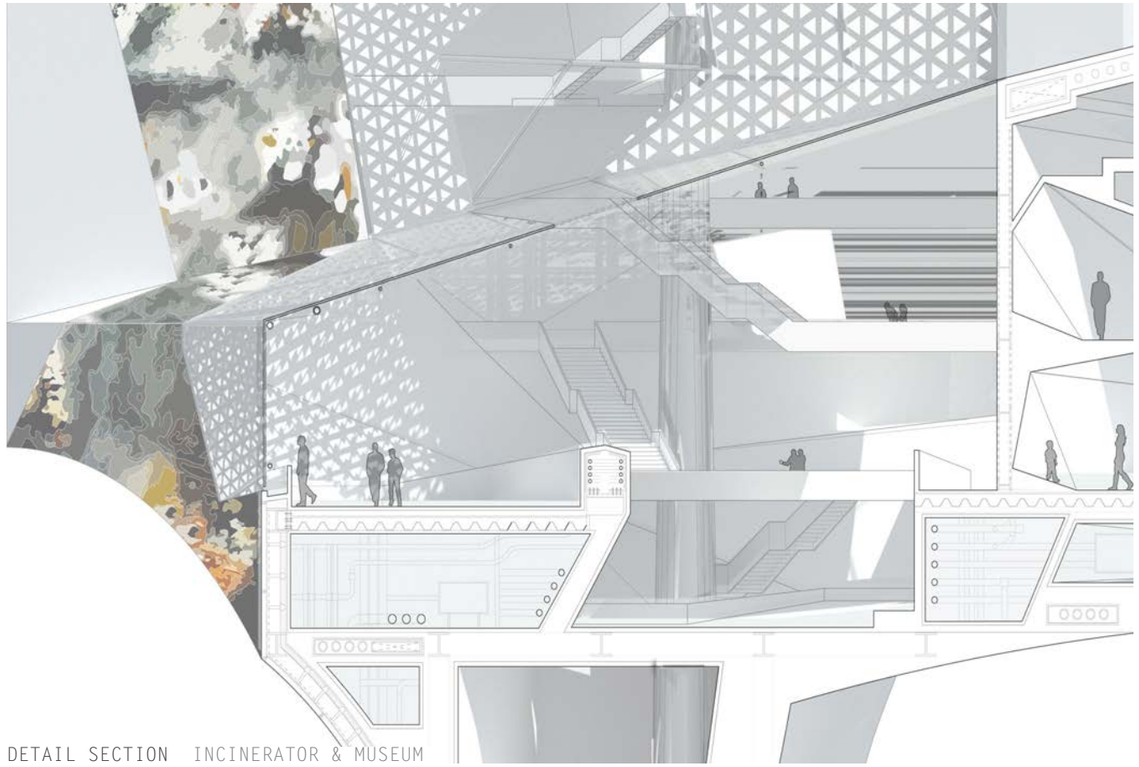
ISOMETRIC EXPLOTED VECTORIZE NETWORK



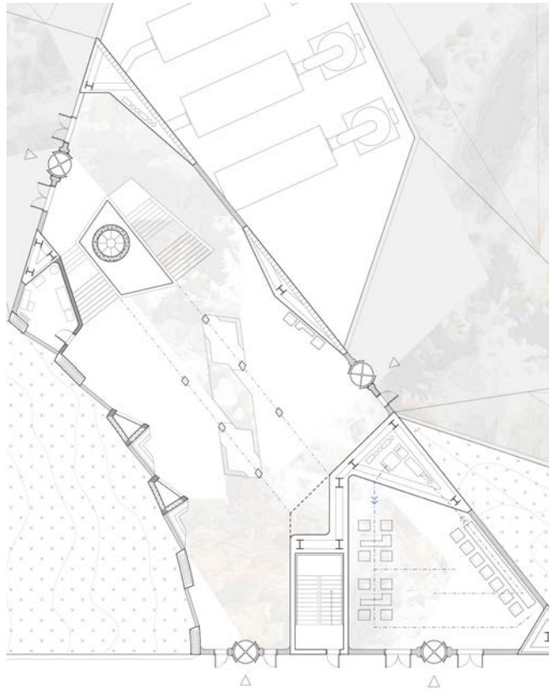
GROUND FLOOR PLAN INCINERATOR L/R MRF

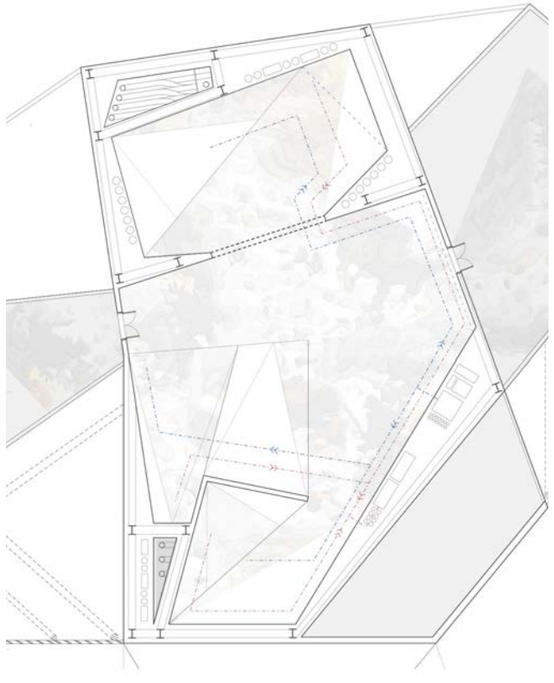


FACADE DETAILS BUILDING ZONES

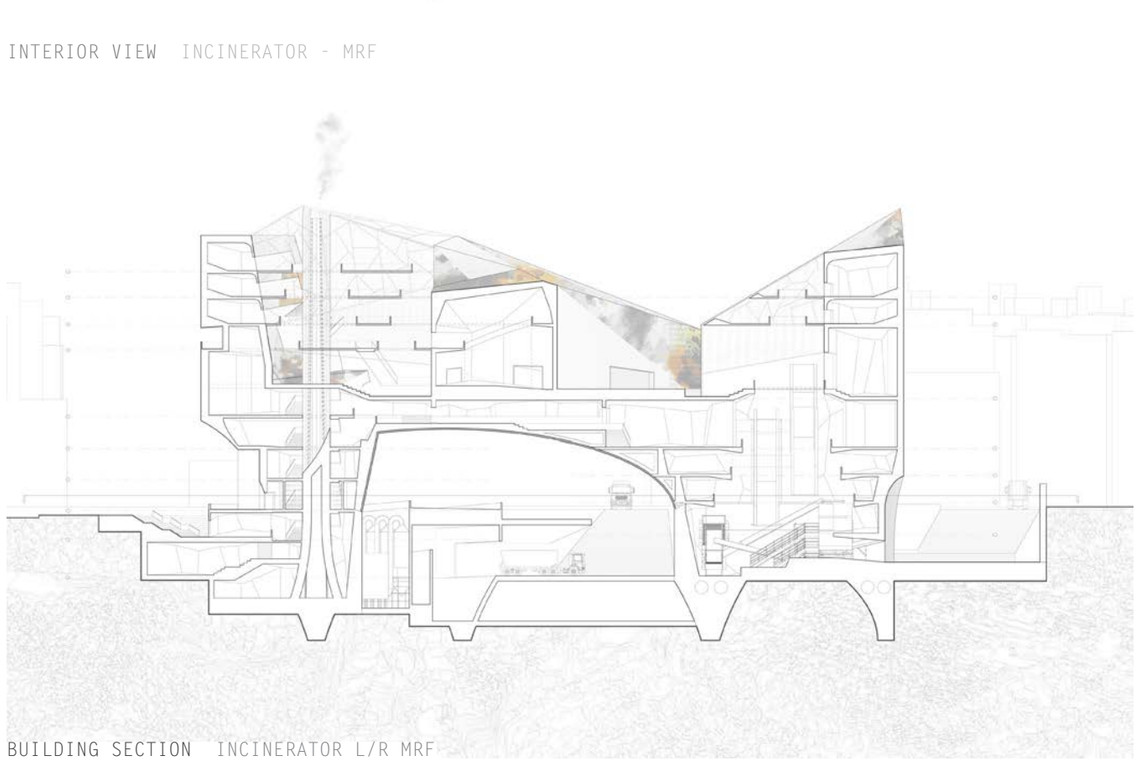


DETAIL SECTION INCINERATOR & MUSEUM



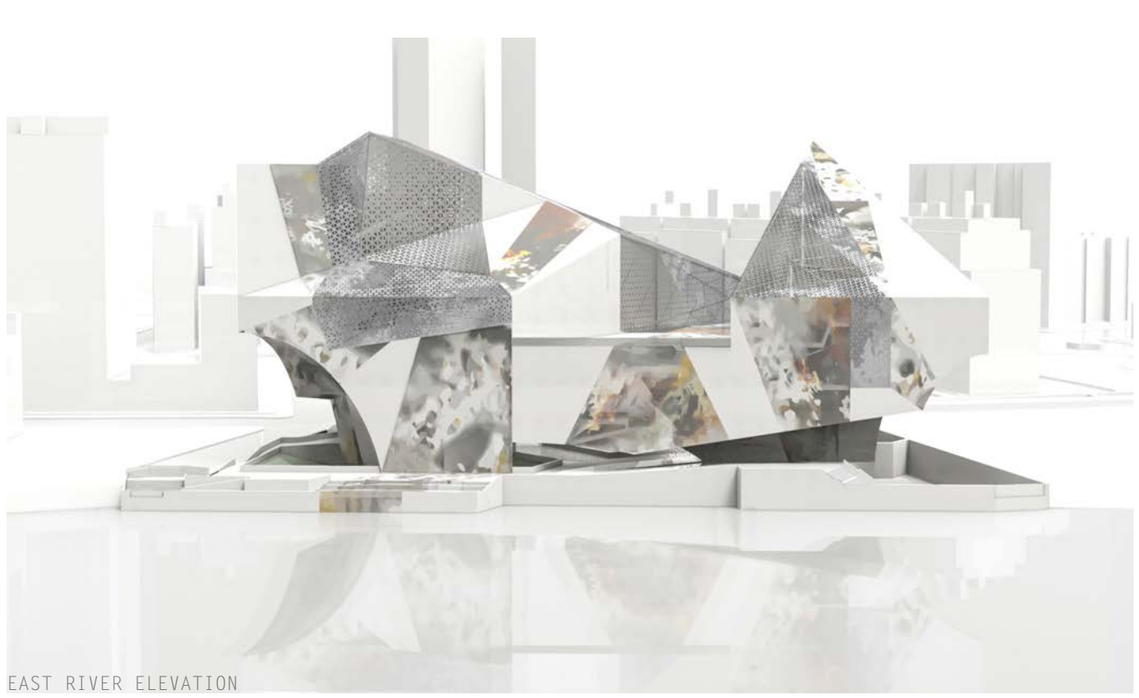


INTERIOR VIEW INCINERATOR - MRF



BUILDING SECTION INCINERATOR L/R MRF

INTERIOR VIEW INCINERATOR - MRF



EAST RIVER ELEVATION

THRESHOLD

MEDIUMS I

PROFESSOR ROBERT CERVELLIONE

LOCATION: BROOKLYN, NY

THRESHOLD-OBJECT-SPACE

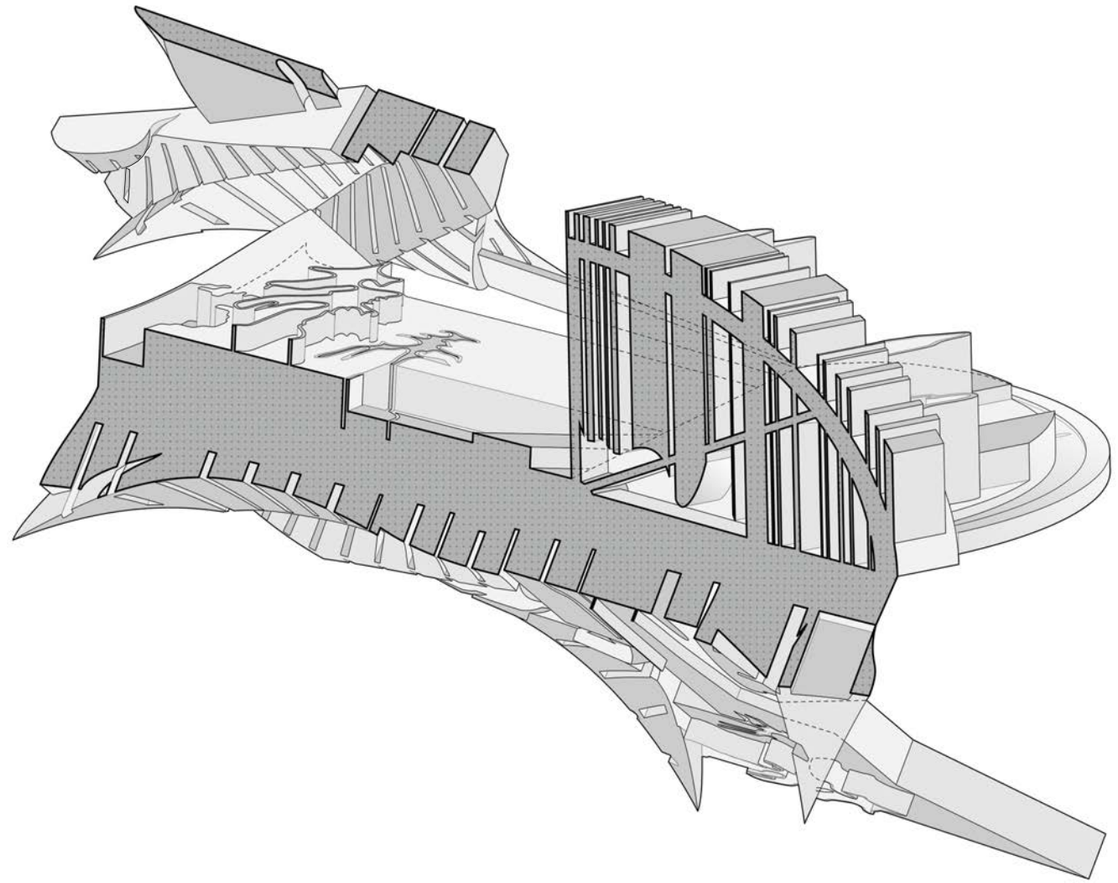
Introduces contemporary mediums, methods and theories of how digital tools impact basic concepts of architectural representation and experience. This course emphasize the integrated use of drawing and modeling as a representational aspect of architectural communication. The architectural representation used in this project where a series of doors found in Brooklyn, NY. Then those doors were explored using different architectural techniques in order to create a new hybridized threshold.

After different studies from existing doors around Brooklyn I came up with an abstract composition. This abstract composition is successfully modified with the use of joints and continuity. Giving the new abstract threshold a lot of possibilities of spaces and circulation. With the use of a photo-montage and a white model the texture of the hybrid threshold was inspired.

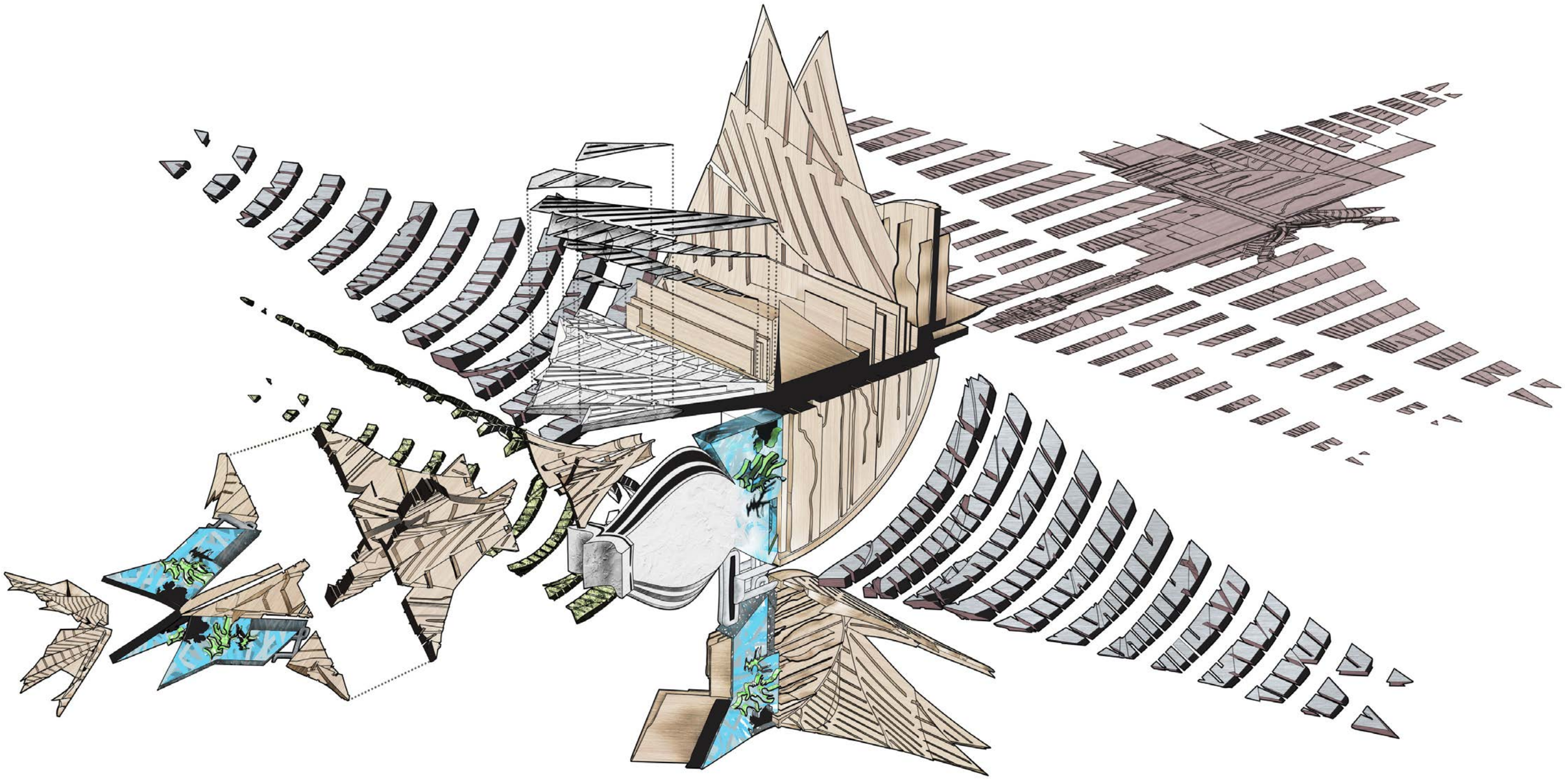
Exploring the different ways that doors can connect with each other with the purpose of creating a new architectural object. This new object can be modified to multiple sites. You can identify many circulation strategies that were taken in consideration to create a fluid circulation from side to side as well as up and down. Without losing the main characteristics of each door I modified them in order to bring new architectural spaces to bring the community together in transitional and public spaces. The different types of textures are defining the spacial composition,

THRESHOLD COLLAGE COLLAGE/3D MODEL MAPPING 3D COLLAGE MODEL

THRESHOLD VARIATION



HYBRID SECTION PERSPECTIVE



HYBRID EXPLOTED PERSPECTIVE

RESIDENTIAL HIGH RISE

DESIGN STUDIO III

PROFESSOR SULAN KOLATAN

LOCATION: DOWNTOWN BROOKLYN

PROJECT SELECTED FOR CRITIC AT LARGE W/THOM MAYNE

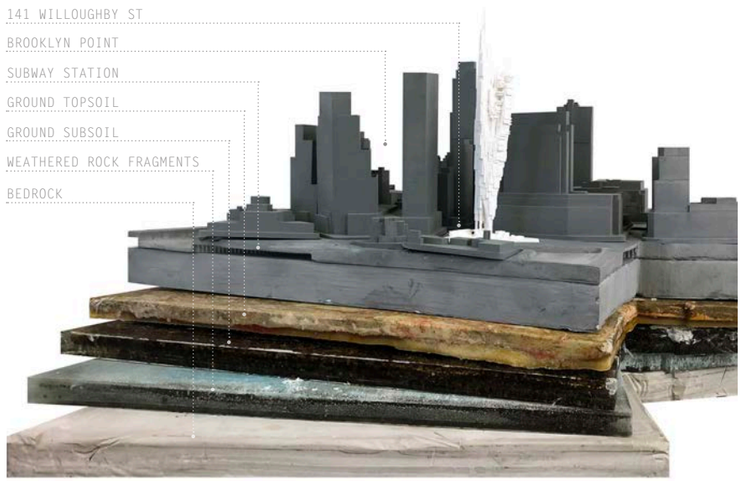
Cultural production has entered a stage in which achieved digital material can be used at will, thus making canonical architectural work accessible beyond mere quotation by turning it into hackable material for new work. The studio takes Mies Van Der Rohe's Barcelona Pavilion, as a data base to be hacked and extended into a residential high rise in Downtown Brooklyn.

Worked with three interrelated terms: Remix, Picturesque and Fractal.

Remix - The studio uses reflexive remix mode - a term that describes the creative reinterpretation of a single source material often with significant departure from the original.

Picturesque - The studio takes Caroline Constant's surprising association of the Barcelona Pavilion with the term picturesque as inspiration to dial-up the picturesque and consider its usefulness as an esthetic category in present-day urbanism.

Fractal - The source material is extended and remixed through various fractal algorithms to create the new project.

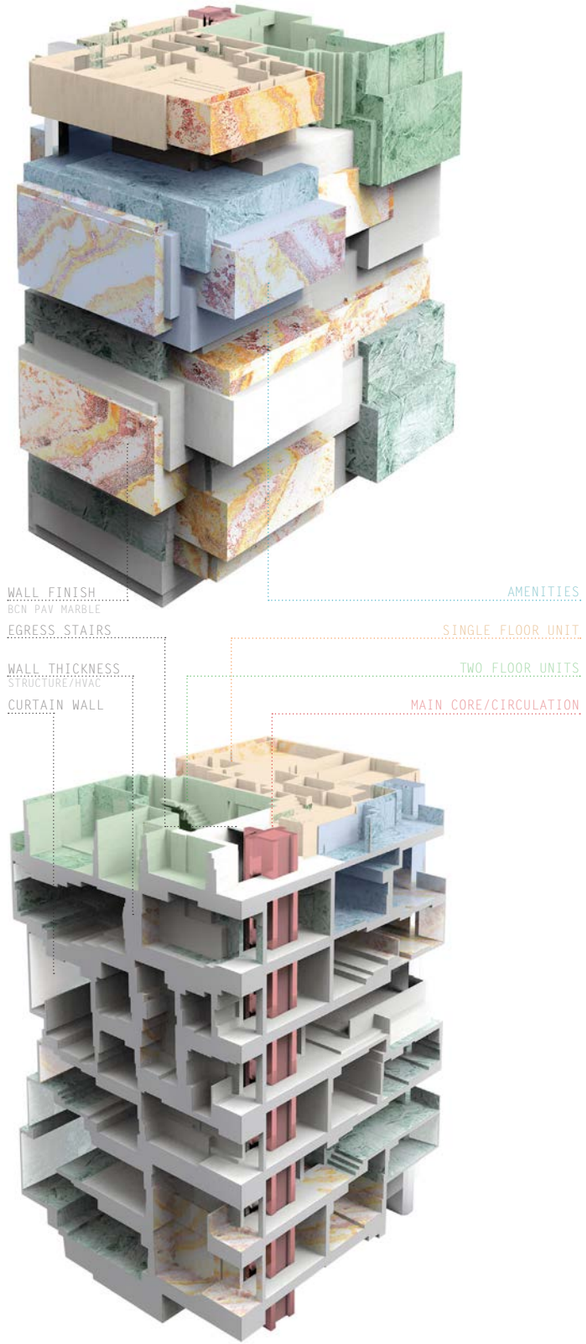


SITE MODEL + MASSING MODEL

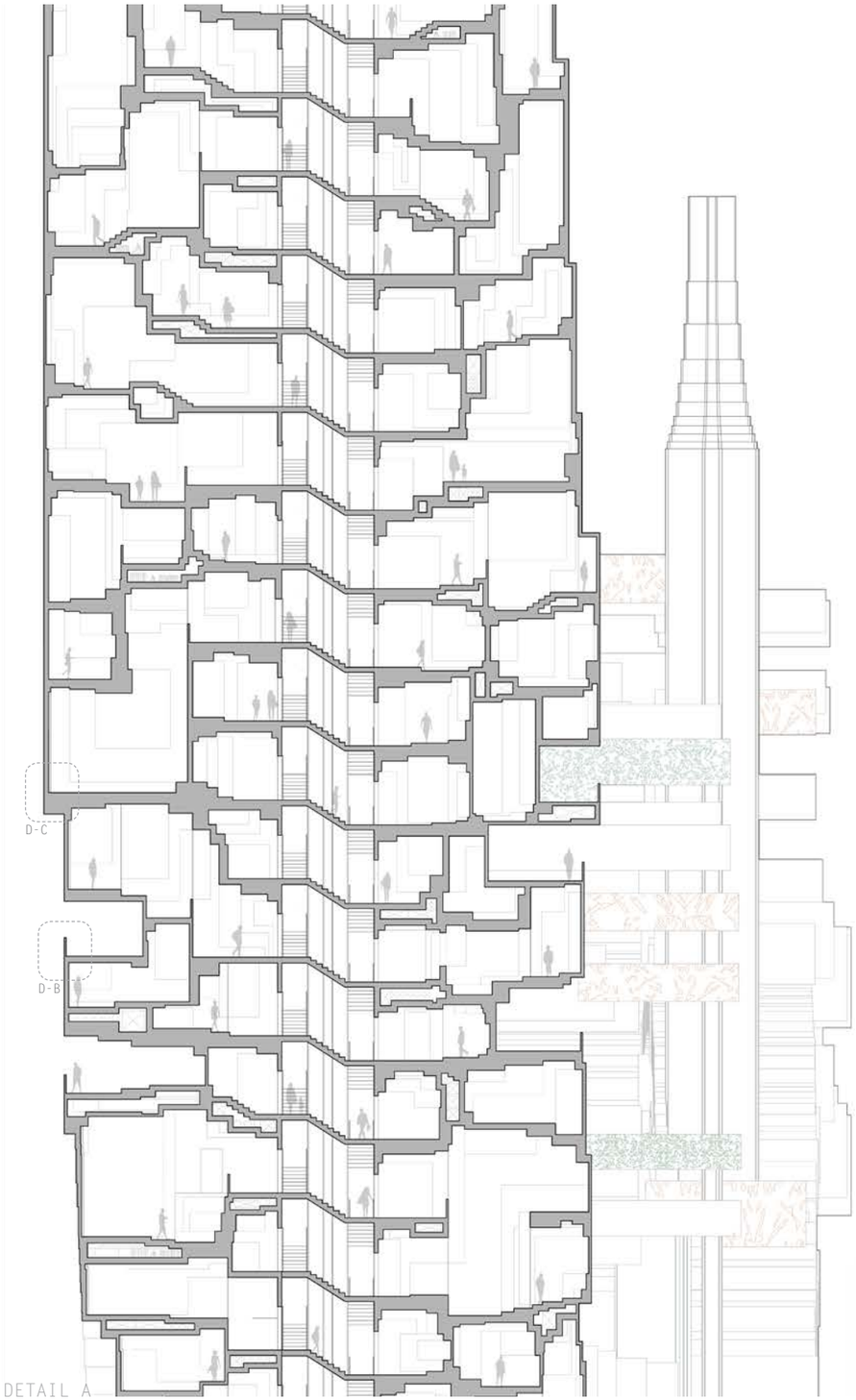
PERSPECTIVE VIEW

CLOSE-UP VIEW

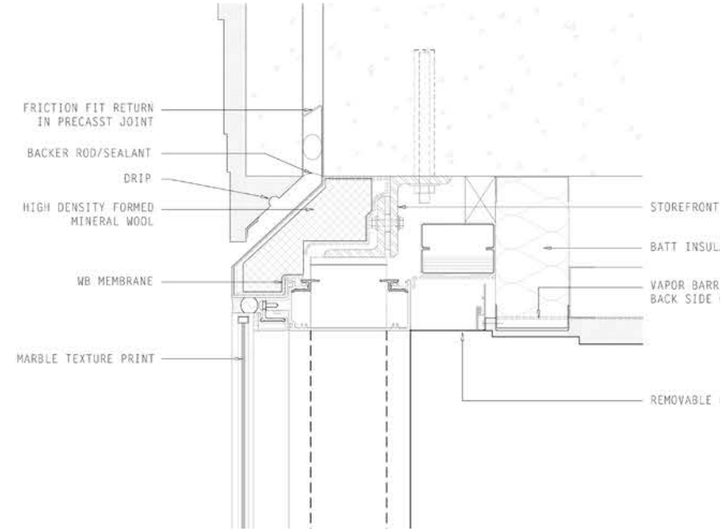
ELEVATION



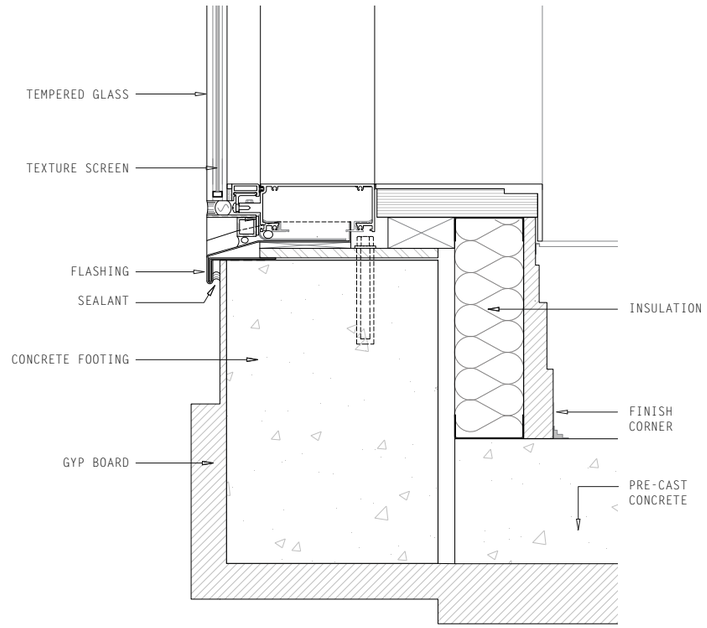
C-A CHUNK MODEL



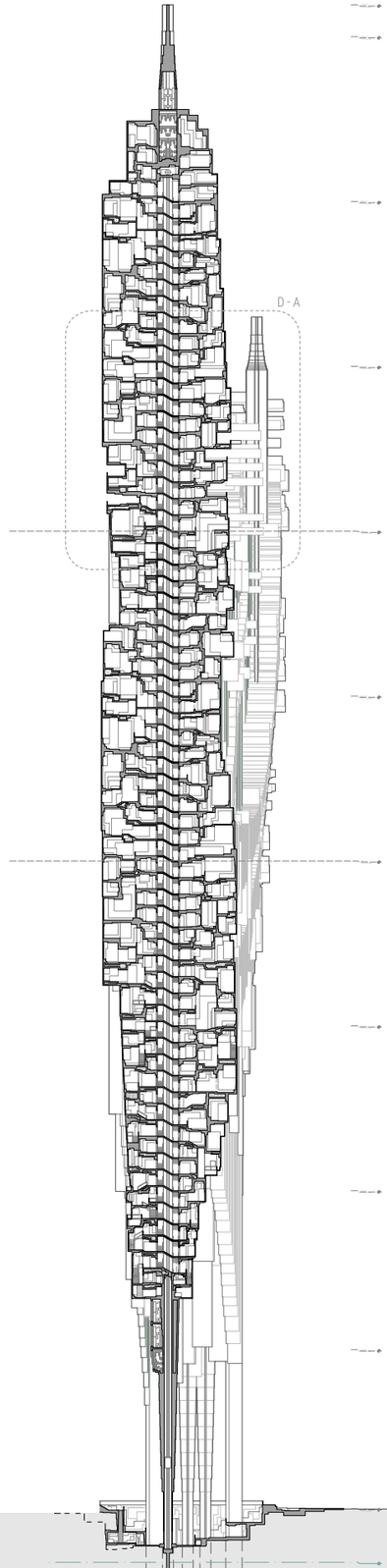
SECTION DETAIL A



CURTAIN WALL/BALCONY DETAIL B



CURTAIN WALL/FLOOR DETAIL C



GROUND LEVEL + LEVEL 48

INTERIOR VIEW MULTI-PLEX

INTERIOR VIEW DUPLEX

INTERIORIT-IES

MEDIUMS II

PROFESSOR BEN MARTINSON

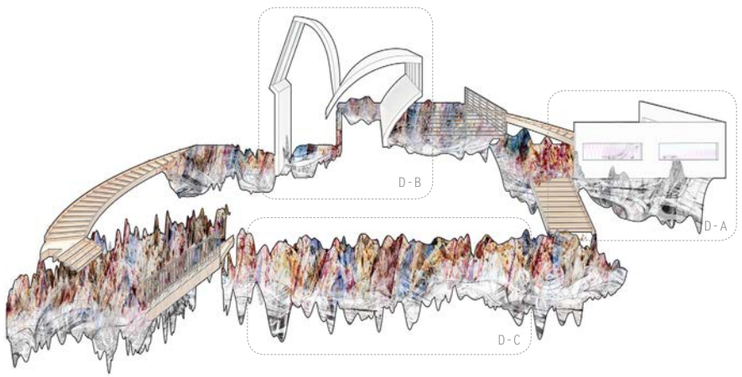
LOCATION: HIGGINGS HALL, PRATT INSTITUTE

CIRCULATION-SPACE-TRANSCENDENT

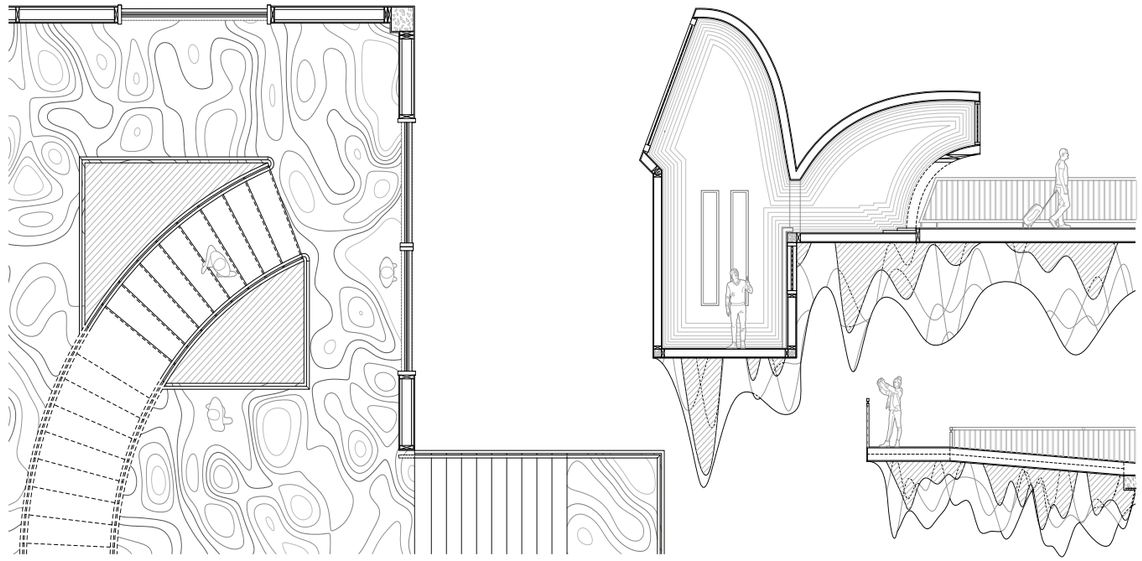
This course introduces contemporary mediums, methods and theories of how digital tools impact basic concepts of architectural representation and experience. This course introduces advanced methods of architectural modeling, drawing and visual communication. The focus of the course emphasizes multimedia methods of modeling and drawing. Topics include the introduction of composite modeling, fabrication, assembly, composite visualization, methods of developing Building Information Models (BIM) and methods of scripting within various modeling environment. From BIM the studies are transfer to Rhino + Grasshopper.

With inspiration taken from the architecture building at Pratt Institute we got our first circulation diagrams. Using different variations of textures and colors our idea for a circulation drawing start to develop. The idea of adding the ground dripping from architectural elements gave a sense of life and unity between architecture and nature. The ground is re-interpreted with a variation of textures.

In the circulation drawings you can also observe different details like sections going throughout the composition and floor plans that define a specific space. This gave me the inspiration of transforming the ground and use it as an additive in architectural objects giving the space an imaginary perspective. Some of this drawings tells a story that can only be explain in an unknown dimension.

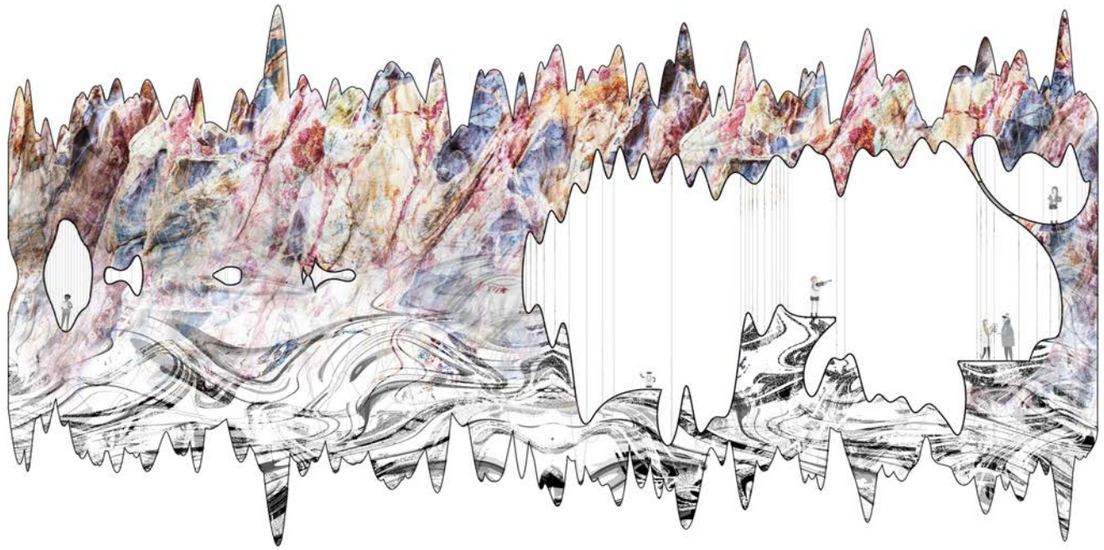


CIRCULATION PERSPECTIVE DIAGRAM

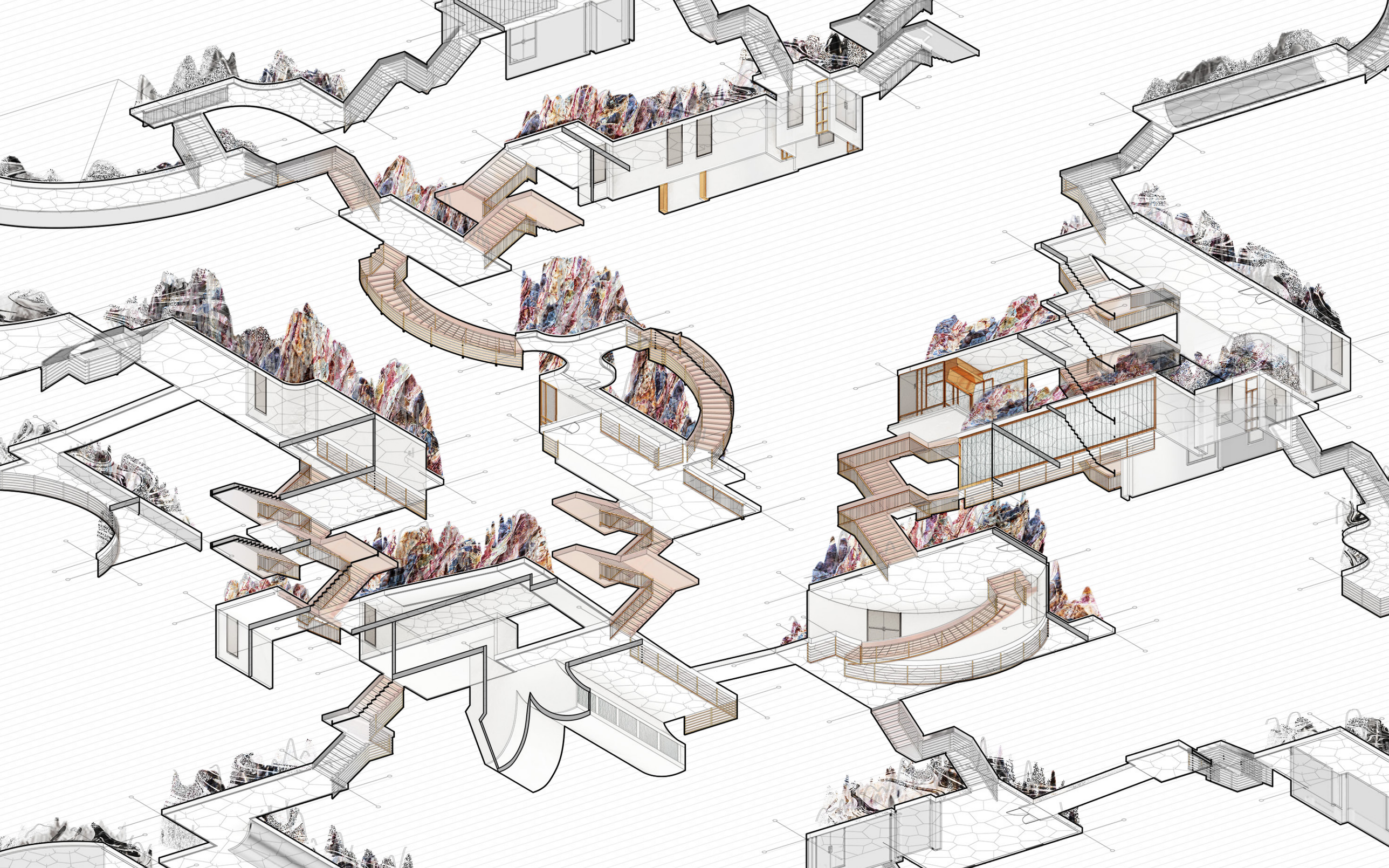


D-A DETAIL FLOOR PLAN

D-B DETAIL SECTION



D-C DETAIL GROUND SECTION



AQUACULTURE

DESIGN STUDIO V

PROFESSOR ALEXANDRA BARKER

LOCATION: SUNSET PARK, BROOKLYN

PROJECT SELECTED FOR CRITIC AT LARGE W/NEIL DENARI

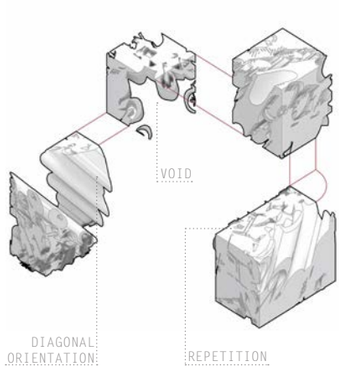
Located in Sunset Park, the Brooklyn Army Terminal has currently started a series of projects for public use including a terminal for NYC ferry. The once referred as the Boiler House is one of the buildings of the army terminal complex. The building is currently decaying and has no significant purpose in such prominent site.

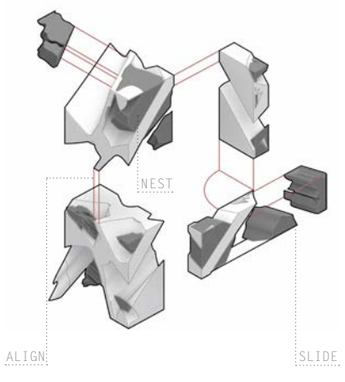
The addditions and alterations concept proposes to use the Bioler House as a base to create a project that will include the community perspective. UPROSE is an organization managed by Sunset Park's residence that allows and creates engagement in community based decisions. Driven by their expectations for the future of Sunset Park the idea of creating an urban market that will offer goods produced by the community is a strategy that can stimulate pulic activity and network.

DESIGN STRATEGY
Inspired by artwork instalations, architectural drawings and aerial photography I created multiple drawings that were then used as anamorphic projections to drive design decisions in the existing Boiler House.

CUBE STUDIES
LINE-DRAWING PROJECTION TOWARDS A SOLID CUBE DIRECT BY ONE POINT PERSPECTIVE TO CREATE INSIPIRATION FOR DESIGN STRATEGIES.

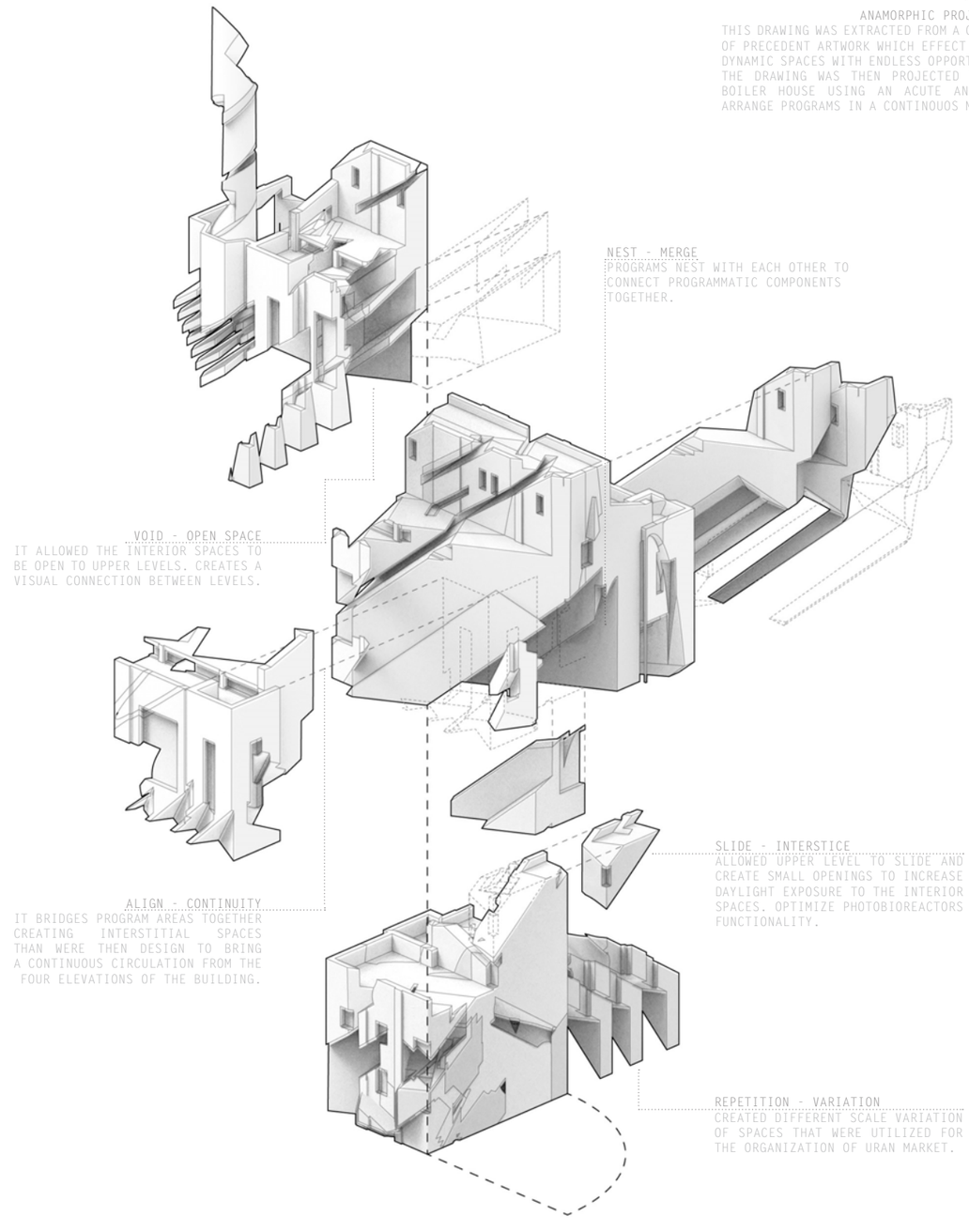
TEXTURE MAPPING
INSPIRED BY THE TEXTURE EFFECTS FROM THE PRECEDENT ARTWORKS. APPLIED SPECIFICALLY TO THE NEW ITERATIONS OF THE CUBE.





ANAMORPHIC PROJECTIONS STUDIES

ANAMORPHIC PROJECTION
THIS DRAWING WAS EXTRACTED FROM A COLLAGE OF PRECEDENT ARTWORK WHICH EFFECT CAUSES DYNAMIC SPACES WITH ENDLESS OPPORTUNITY. THE DRAWING WAS THEN PROJECTED TO THE BOILER HOUSE USING AN ACUTE ANGLE TO ARRANGE PROGRAMS IN A CONTINOUOS MANNER.



BUILDING EXPLODED CONCEPT DIAGRAM

ADDITIONS + ALTERATIONS
THE ANAMORPHIC PROJECTIONS INSPIRE DESIGN STRATEGIES EX: APERTURES, PROGRAM ORGANIZATION, CIRCULATION.

EXISTING STRUCTURE
THE BOILER HOUSE MAIN INFRASTRUCTURE HAS REMAIN AND IT HAS BEEN ALTERED/ MODIFIED TO FIT NEW PROGRAMS.

TEXTURE EFFECTS
THE TEXTURE APPLIED TO THE ADDITION AND ALTERATION WAS INSPIRED FROM MULTIPLE FOREST AERIAL PHOTOGRAPHS THAT WERE USED TO CREATE A MONTAGE.

MAIN ENTRANCE
CREATING ONE ENTRANCE PER FACADE FOR ACCESSIBILITY AND TO CONNECT WITH SURROUNDINGS. THIS ENTRANCE CONNECTS WITH FERRY TERMINAL USERS.

CONTINUITY
N'S ENTRANCES

EAST ENTRANCE

FERRY
BOOTH

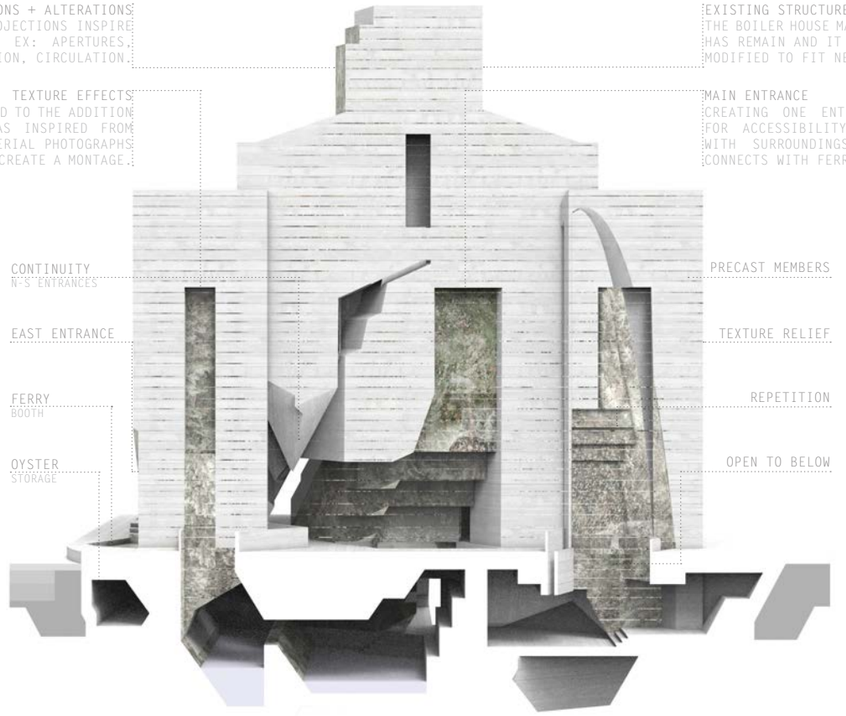
OYSTER
STORAGE

PRECAST MEMBERS

TEXTURE RELIEF

REPETITION

OPEN TO BELOW



NORTH ELEVATION GROUND SECTION

PHOTOBIOREACTORS
ALGAE CULTIVATION

PUBLIC SPACE
MARKET+ROOF ACCESS

PUBLIC ENTRANCES
N/E/W ELEVATION

NESTING

REPETITION

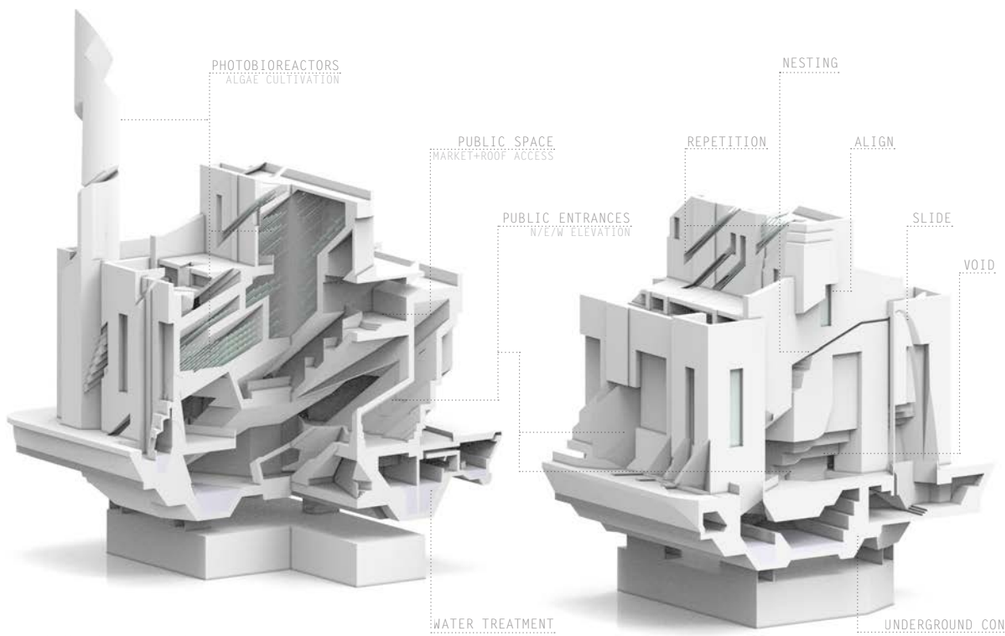
ALIGN

SLIDE

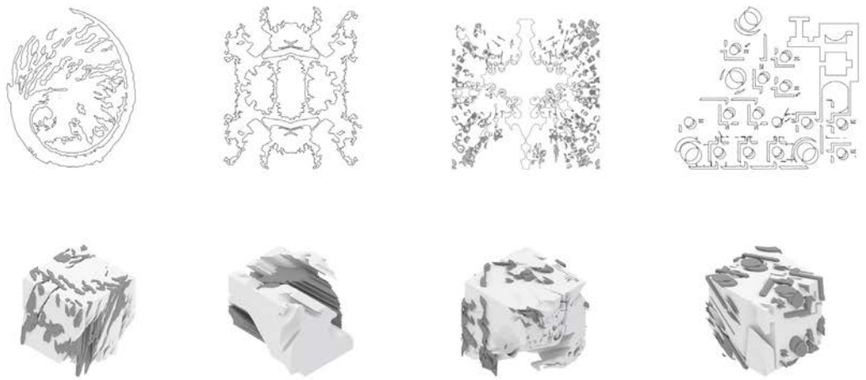
VOID

WATER TREATMENT
OYSTER CULTIVATION

UNDERGROUND CONNECTION
TO EAST RIVER



BUILDING SECTIONAL MODEL



OJECTIVE

To implement the idea of additions and alterations of the Boiler House, the design strategy focused on anamorphic projection. This played an important role in the modifications of the existing infrastracture. It allowed the main components of the Boiler House structure to remain as cores that holds the new alterations in the building. The new alterations were carefully arrange to bring the programs together and create spaces that can be dedicated for public use.

DESIGN PROCESS

A series of architectural drawings (Louis Kahn Casabella), art instalations (Ai Weiwei Incolation), aerial photography (Anthropocene) were used as the base for the anamorphic projection. This projection was then applied to multiple cubes to identify the effects/qualities that will help solve future design decisions. After multiple studies the angle of the projection was set acute angle since diagonal circulation is a key aspect to introduce spaces for human and non-human occupants. The non-human spaces will be dedicated to aquaponics activity.

Effects/Qualities:

• Repetition • Align • Void • Slide • Nest

After identifying the effects, the projection was projected to the Boiler House to see the results. A series of modifications were placed to blend the existing architectural details with the projection. The idea was to reserve the most prominent details of the BH and apply alterations to revive formal expression. The areas that lacked of detail are the perfect opportunity to carved and open the space to the public.

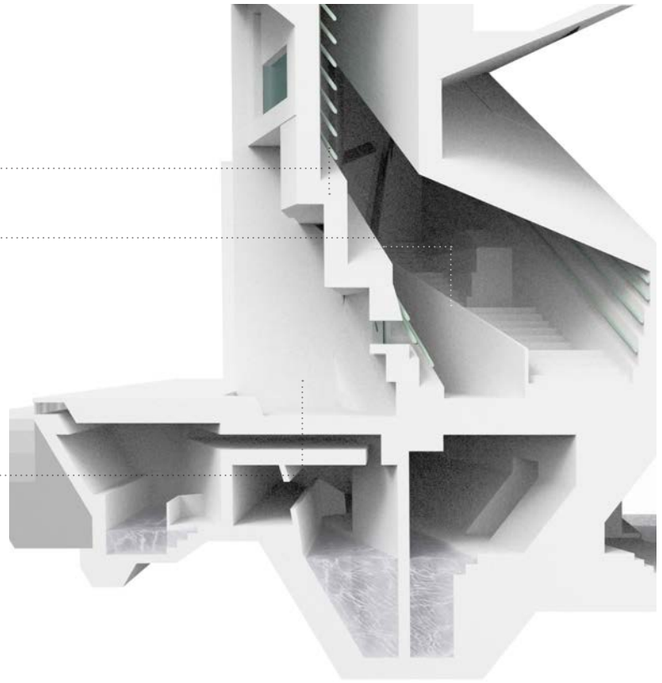
INTERIOR

The interior spaces were driven by a diagonal circulation that will direct the public to the urban market and learn about the importance in aquaponics. This will create awarness and will engage with educational guidance to reproduce this farming technique.

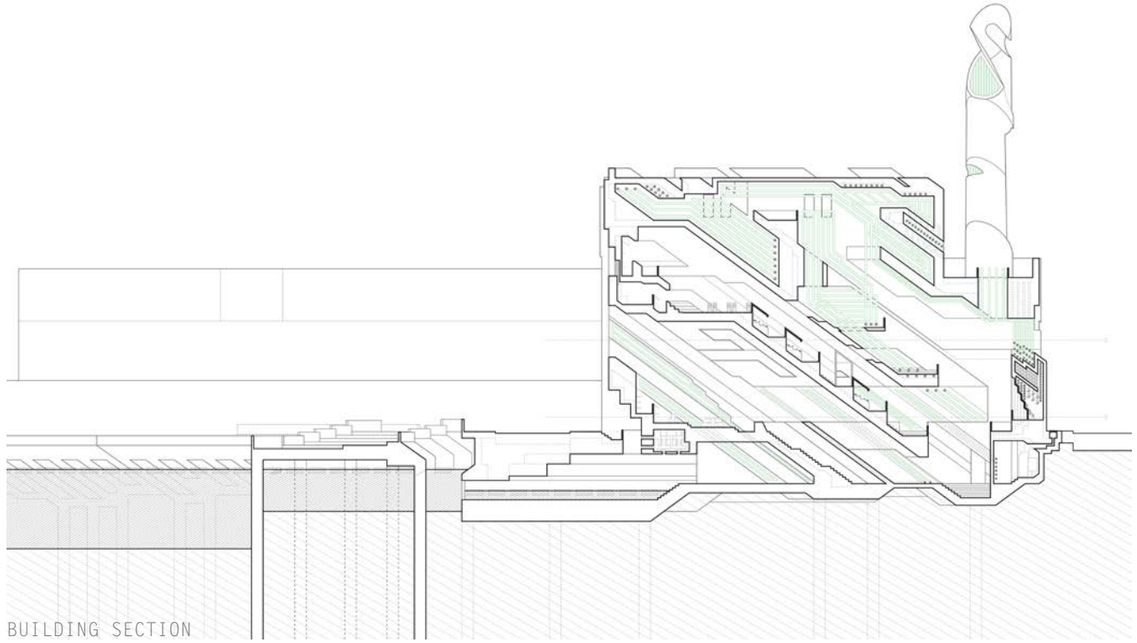
REPETITION + ALGAE CULTIVATION
THE REPETITION OF ARCHITECTURAL ELEMENTS ARE USED IN THE INTERIOR SPACES TO ARRANGE THE PHOTOBIOREACTORS IN A SPECIFIC WAY TO GUIDE THE USER TO SPACES DEDICATED FOR PUBLIC USE. THEY ARE ALSO WORKING AS A SIGN OF AWARENESS TOWARDS THE USE OF SUSTAINABLE MATERIAL/TECHNIQUES TO CREATE GREEN-RESILIENT JOBS. THE ALGAE IS ALSO UTILIZED IN THE PRODUCTION OF OYSTERS IN THE UNDERGROUND LEVEL.

NEST + URBAN MARKET/CIRCULATION
WITH THE USE OF THE ANAMORPGIC PROJECTION THE BOILER HOUSE WAS SPLIT INTO MANY PIECES THAT WERE MOVED AND REARRANGE TO FIT A COTINUOUS PIECE THAT WAS USED TO ORIENT THE SHAPE OF THE CIRCULATION AND URAN MARKET. THIS STRATEGY WAS MADE TO ALLOW THE PULIC TO MOVE AROUND THE BUILDING MEANWHILE SHOPPING AND LEARNING ABOUT THE USE AND FUNCTION OF THE AQUAPONICS. NESTING ALL THE PROGRAMS TOGETHER IN ONE BUILDING.

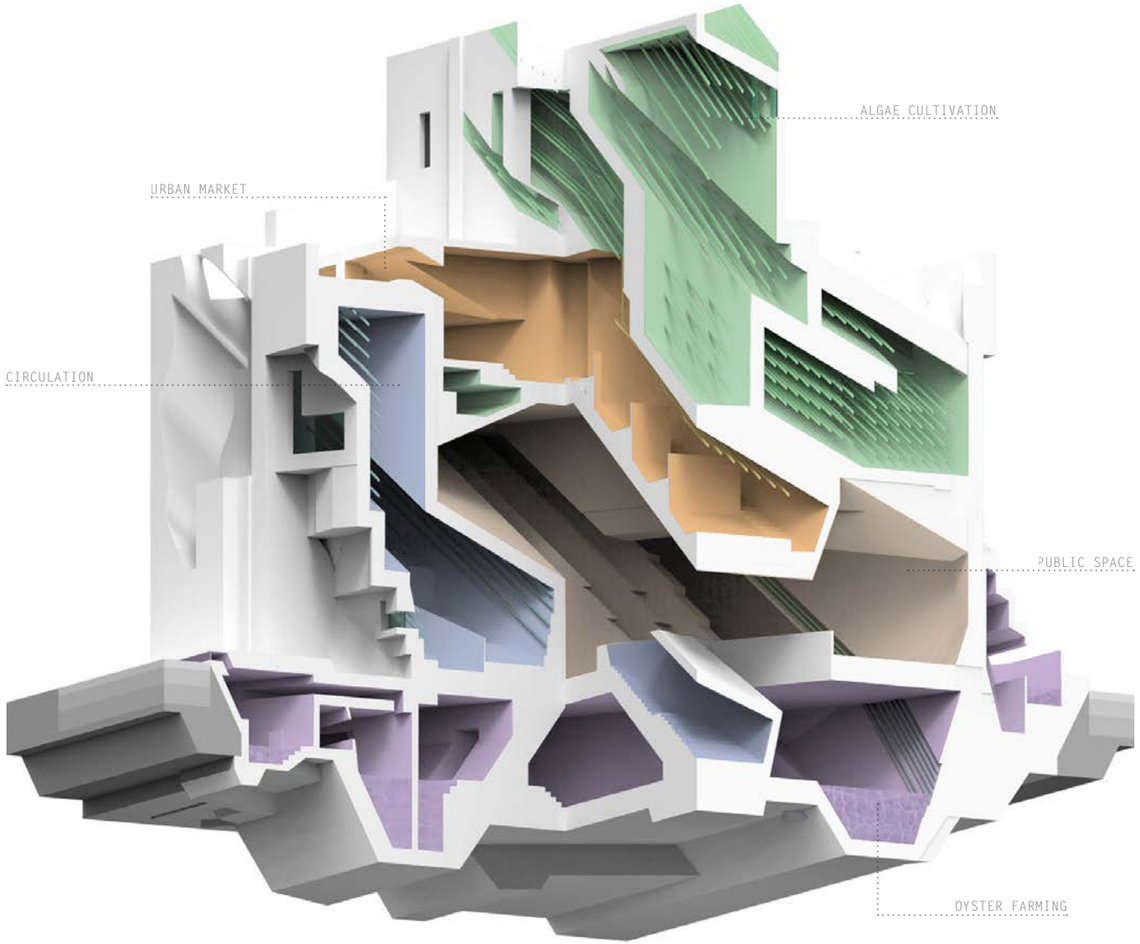
VOID + PUBLIC SPACE/APERTURE
THE USE OF VOIDS GAVE THE OPPORTUNITY TO REMOVE AND REDESIGN EXISTING INTERIOR SPACES AND WALLS. USING THAT INTO THE BENEFIT OF OPENING UP THE ENTRANCE SPACE, CREATE OPENINGS DEDICATED FOR DAYLIGHT EXPOSURE FOR INTERIOR SPACES AND PHOTOBIOREACTORS. IN THE INTERIOR SPACE THE VOID EFFECT ALLOWED THE BUILDING TO BE EXPOSED TO ABOVE AND LET WIND AND ODOR OF THE AQUAPONICS TO MOVE QUICKLY TO THE EXTERIOR.



BUILDING DETAIL PERSPECTIVE WEST ENTRANCE



BUILDING SECTION



Sunset Park is known as one of New York's most heterogeneous neighborhoods. Scandinavian vestiges meet Puerto Rican social clubs and entire blocks of Dim Sum restaurants. Offering New York's biggest Chinatown. Manufacturing and design is up-coming with Industry City taking a big impact socially and economically. As well for the transportation and sustainable light industrial area.

The design intent is mainly focusing on the social and economic issue that is currently affecting the locals. The integration of a social market will give an opportunity to residents of Sunset Park to network and stimulate their economic growth. With the purpose of activating the shoreline with local business and public events.

The integration of green energy and aquaculture will spread environmental awareness in the community. This two programs are situated specifically around the social market to create a continuos interaction between the user and program.

PROGRAMS

Algae Cultivation:
The cultivation of algae will be located in the top part of the building for better exposed of natural light. Photoioreactors are placed to produce large quanitities of algae to then be utilized for food production, fertilizer, bioplastics, chemical feedstock, pharmaceuticals and algae fuel. This require sunlight exposure and LED lighting.

Urban Market:
The social market will give an opportunity to residents of Sunset Park to advertise and sell their products. With the purpose of activating the shoreline with local business and events. To give the locals an opportunity to network and stimulate their economic growth.

Oyster Farming:
Underground: Divided in "ponds" that each has a specific treatment in order to cultivate oysters.After the oyster is cultivated it will be stored in cages and placed along the existing pier.

ALGAE CULTIVATION

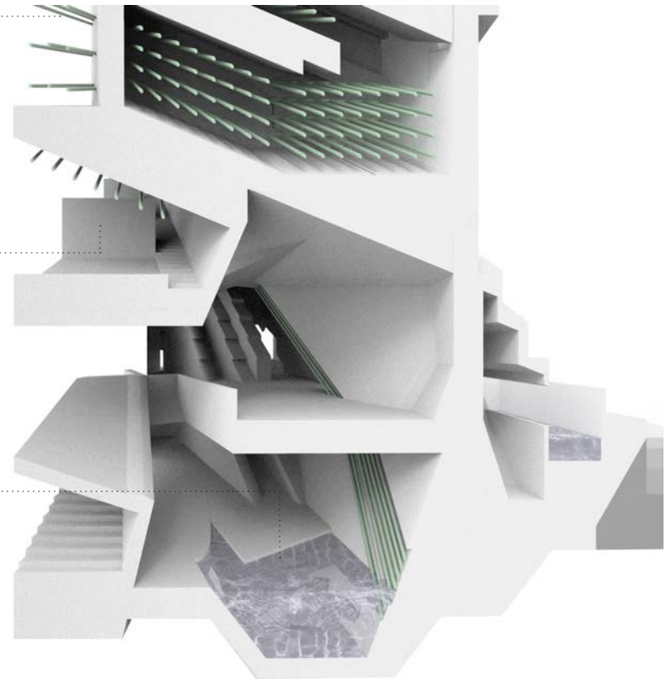
COMPARED TO OPEN SYSTEMS, PHOTOBIOREACTORS HAVE A NUMBER OF ADVANTAGES: REPRODUCIBLE CULTIVATION CONDITIONS WITH REGARD TO ENVIRONMENTAL INFLUENCES; REDUCED RISK OF CONTAMINATION, LOW CO2 LOSSES AND SMALLER AREA REQUIREMENTS. OFFERS SEVERAL ADVANTAGES COMPARED TO RACEWAY PONDS, INCLUDING BETTER CONTAMINATION CONTROL, HIGHER MICROALGAE BIOMASS YIELD PER UNIT REACTOR VOLUME AND THE POSSIBILITY OF USING SINGLE-STRAIN CULTURE FOR A PROLONGED DURATION.

URBAN MARKET

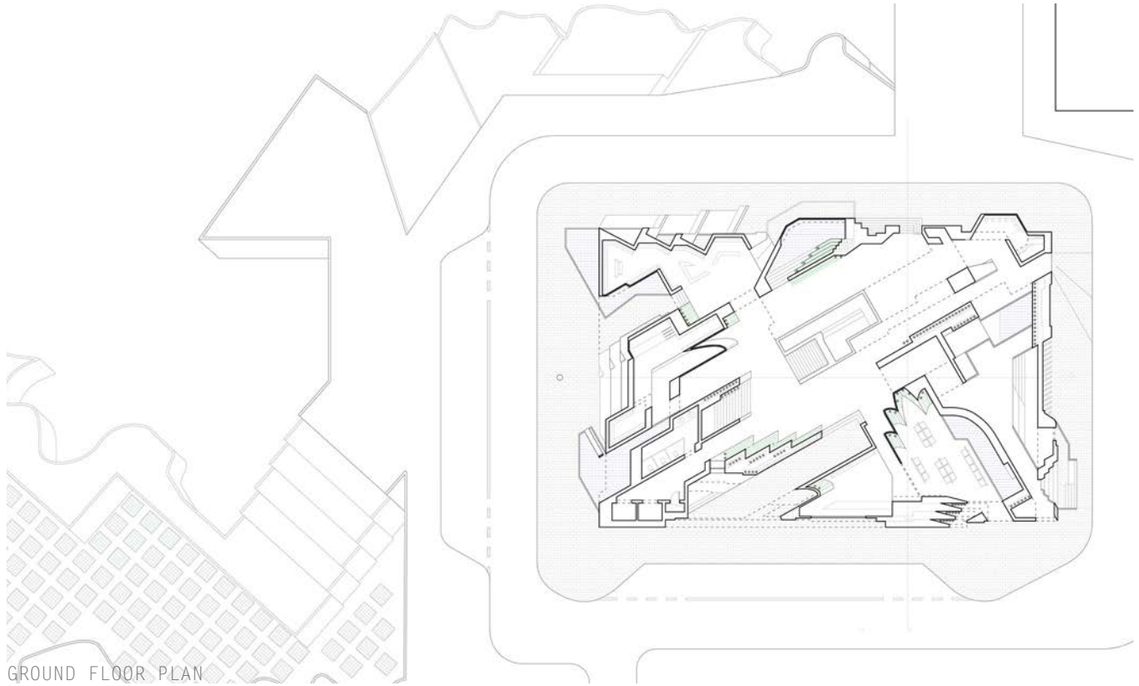
SUNSET PARK'S RESIDENTS HAVE SUFFERED FROM THE NEW INTEGRATION OF INDUSTRY CITY IN THEIR COMMUNITY. RENT HAS INCREASED AND SMALL FAMILY BUSINESSES THAT HAVE MADE WHAT SUNSENT PARK IS TODAY ARE SUFFERING ECONOMICLY. (CHINATOWN/ HISPANIC REST/BARS) THIS URBAN MARKET IS DEDICATED FOR THE RESIDENTS, TO SELL THEIR PRODDUCT AND NETWORK WITH PEOPLE THAT THEY HAVE NOT HAD THE OPPORTUNITY BEFORE. IT WILL GIVE THEM BACK ACCESS TO THE RIVER SIDE.

OYSTER FARMING

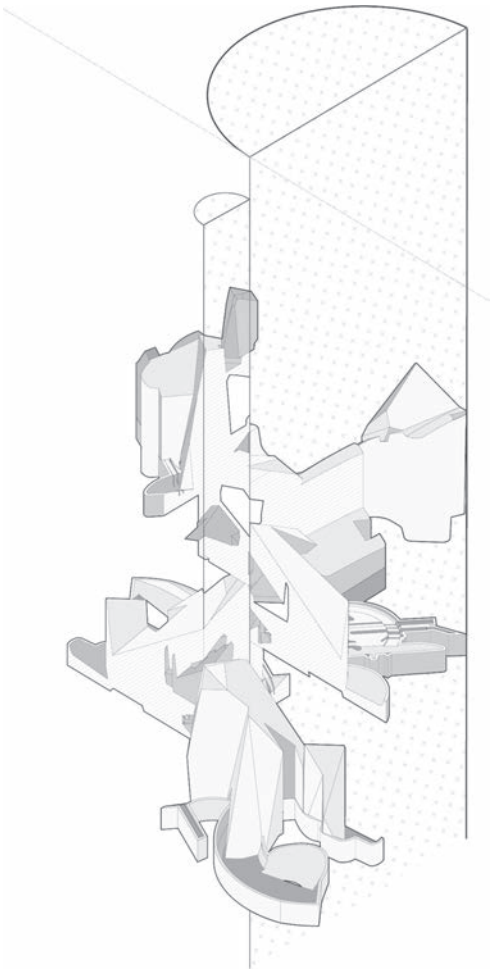
THE UNDERGROUND IS DIVIDED INTO DIFFERENT KINDS OF POOLS TO FIT THE REQUIREMENTS OF THE OYSTER CULTIVATION STAGES. THE MAIN POOL CONNECTS TO THE EAST RIVER TO CREATE OYSTER BEDS TO STABILIZE SEDIMENTS AND TO USE SEA WATER FOR OYSTER CULTIVATION. OYSTERS ARE ALSO USED TO IMPROVE WATER QUALITY AND CLARITY SINCE IT REMOVES PARTICULATES, EXCESS NUTRIENTS, ORGANIC MATERIAL, VIRUSES AND BACTERIA. THIS FARM WILL CREATE GREEN JOBS FOR THE COMMUNITY.



BUILDING DETAIL PERSPECTIVE EAST ENTRANCE



GROUND FLOOR PLAN



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