

# PORTFOLIO

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[2019-2020] MS. AAD GSAPP

DYLAN MO



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Summer 2019

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Fall 2019

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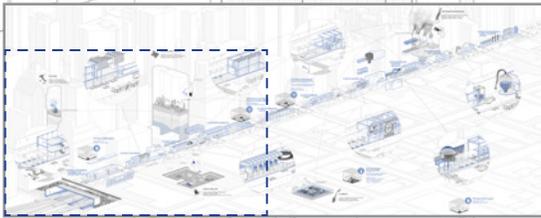
The Street Studio - Liu Jing  
Spring 2020

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**PHOTOGRAPHY** 59-62

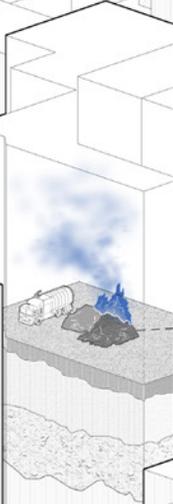
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Michael Vahrenwald  
Fall 2019

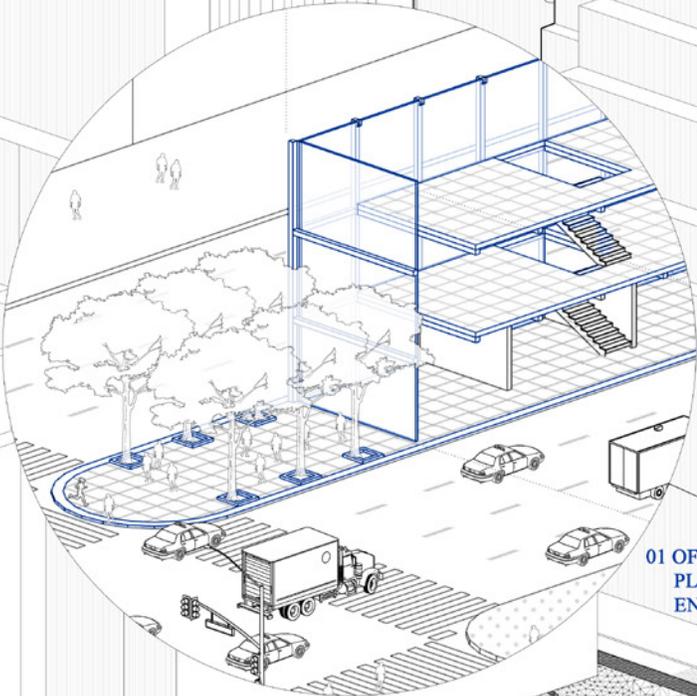
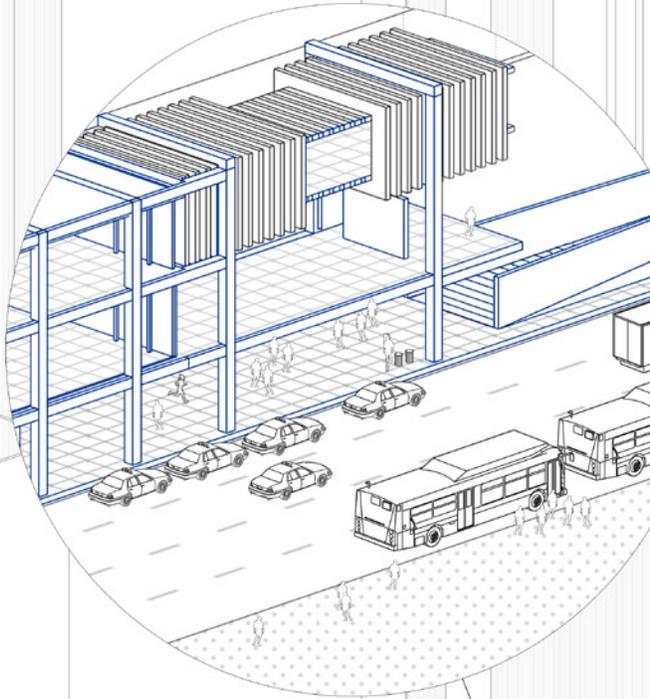


### ENI CHEM

Location: 485 Madison Avenue  
Ecological Footprint: Burning Trash  
Footprint Location: Central/Southern Italy

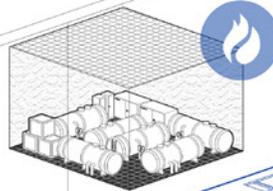


Documented and shown to the public



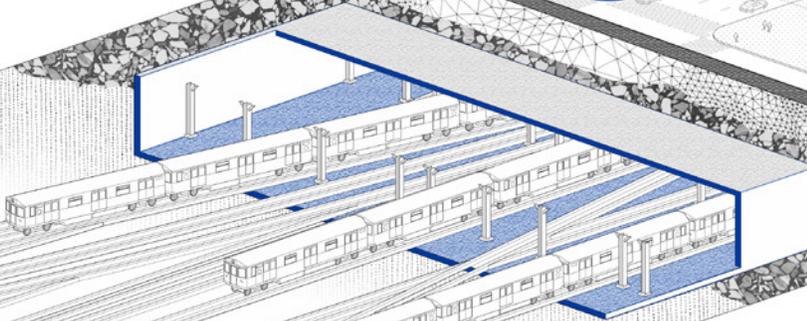
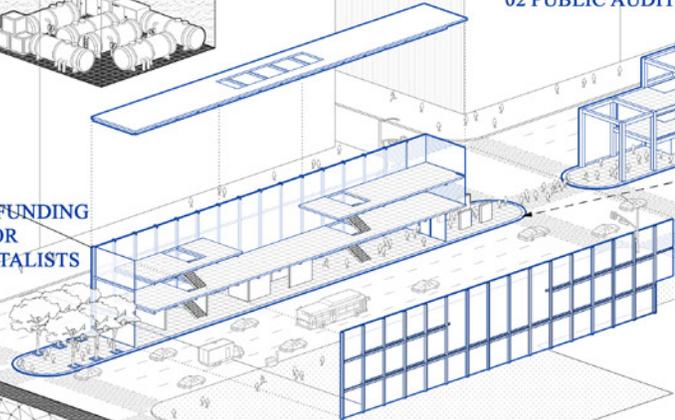
### NYS Open Oil Spill Location

Spill Number: 211613  
Location: 21 East 52nd Street



### 02 PUBLIC AUDIT

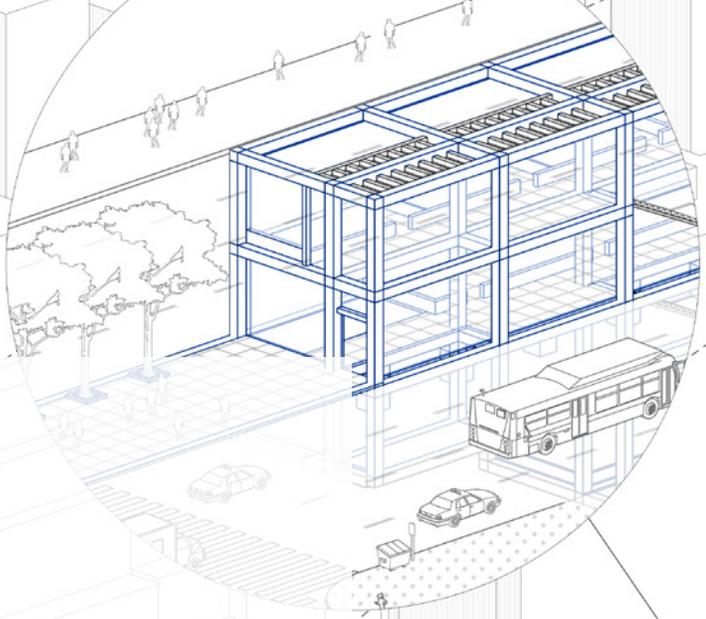
### 01 OFFICES AND FUNDING PLATFORM FOR ENVIRONMENTALISTS





### ALCOA GLOBAL CENTER

Location: Lever House/390 Park Avenue  
Ecological Footprint: Excessive Water Drawdown  
Footprint Location: Rockdale, Texas, USA



PROJECT 1

# CIVIC HOUSE AGAINST ECO-CRISES

Park Avenue, New York, NY

TIME Summer 2019 GSAPP

STUDIO LINES X CITIES

TEAMMATE Jose Vintimilla

INSTRUCTORS Nahyun Hwang, David Eugin Moon

*New York has experienced an architectural renaissance over the past decades. In Midtown East, breath-taking towers accommodate numerous large corporations; some have expanded their detrimental ecological footprints not only along Park Avenue but also worldwide. This design investigates these ecological crises and explores the possibility of utilizing the narrow, linear medians of Park Avenue to create spaces as a platform to raise public awareness and encourage civic engagement, and as a tool for citizens to tackle the environmental issues through joint efforts.*

NYS Resource Conservation Recovery Act Facilities (RCRA)

Reg. ID: F-H0004566452  
Facility Name: Quest Intl. Fragrances



05 LAND USE CENTER



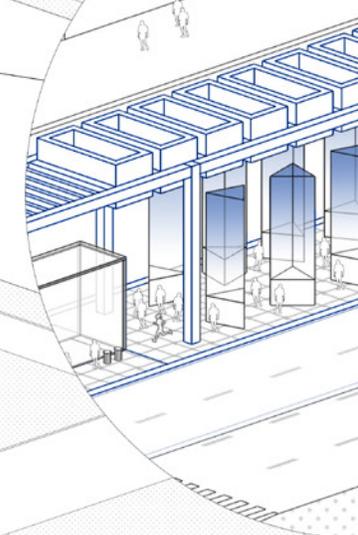
03 PUBLIC EXHIBIT & GATHERING SPACE

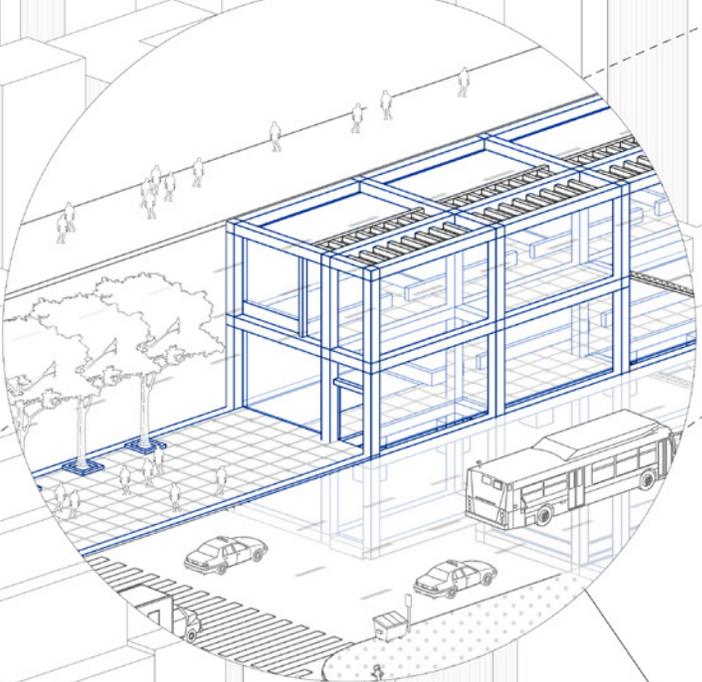
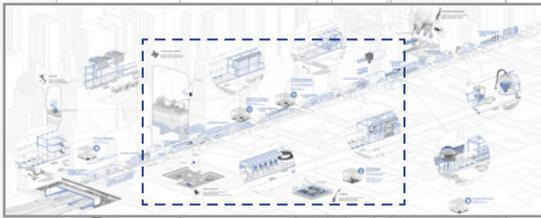
04 LIBRARIES & ARCHIVES

RIUM

### CONOCO-PHILLIPS

Location: Seagram Building/375 Park Avenue  
Ecological Footprint: Oil Spill  
Footprint Location: Bohai Sea-Yellow Sea-East China Sea

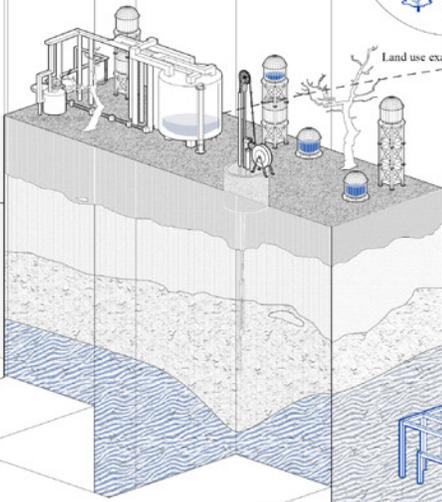




Test adaptable plants



Land use example



**NYS Resource Conservation & Recovery Act Facilities (RCRA)**

Reg. ID: H0004566452  
Facility Name: Quest Intl. Fragrances



**05 LAND USE RESEARCH CENTER**

**04 LIBRARIES & ARCHIVES**

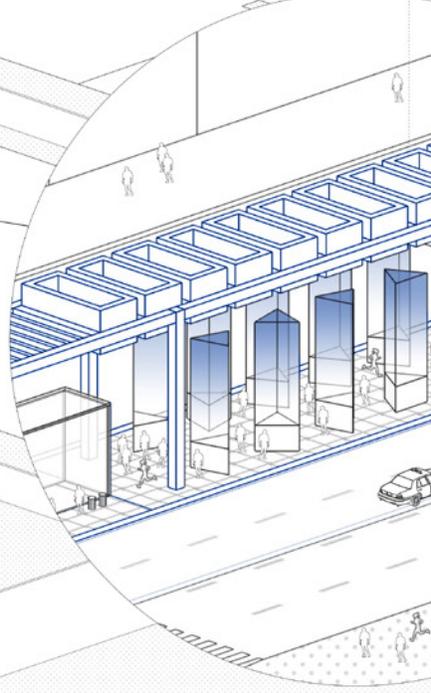
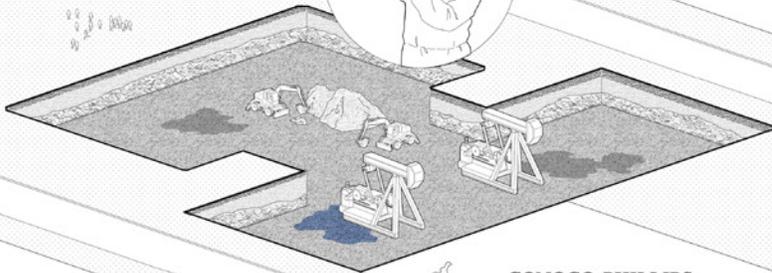
**03 PUBLIC EXHIBITION & GATHERING SPACE**

AMPHITHEATRE

Polluted soil sample displayed



Working space



**CONOCO-PHILLIPS**

Location: Seagram Building/375 Park Avenue  
Ecological Footprint: Oil Spill  
Footprint Location: Bohai Sea-Yellow Sea-East China Sea

**NYS Resource Conservation & Recovery Act Facilities (RCRA)**

RURA is a combination of the first federal solid waste statutes and all subsequent amendments.

Reg. ID: H10012185269  
Facility Name: Drake Hotel



**06 OPEN EXHIBITION CENTER**

**07 BIO-FILTRATION LAB**

**08 GREENHOUSE FOR SCIENTIFIC RESEARCH**

RCH

**NYS Chemical Bulk Storage Site (CBS)**

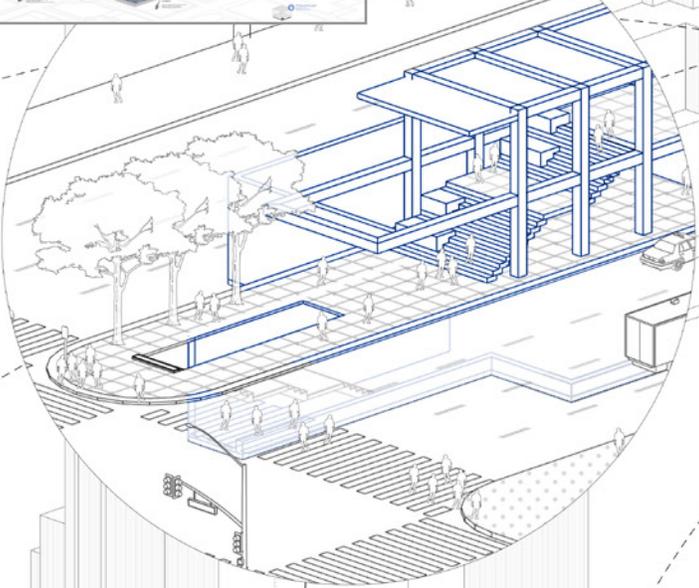
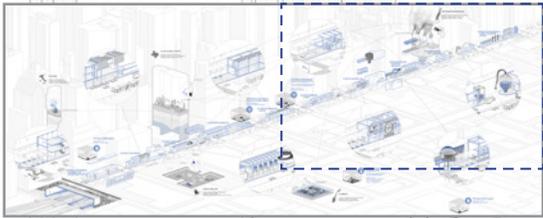
The CBS program applies to properties that store a hazardous substance.

Site Number - Program:  
2-000192 - Newtown Creek Concrete Plant  
2-000193 - 26th Street Concrete Plant  
2-000195 - 127th Street Concrete Plant  
Location: 641 Lexington Ave.

Research on new methods of cleaning pollutants

**CITIGROUP**

Location: Citigroup Center/601 Lexington Avenue  
Ecological Footprint: Ocean Dumping  
Footprint-Location: Repparfjord, Norway



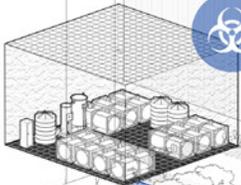
**NYS Resource Conservation & Recovery Act Facilities (RCRA)**

RURA is a combination of the first federal solid waste statutes and all subsequent amendments.

Reg. ID: H0012185269  
Facility Name: Drake Hotel

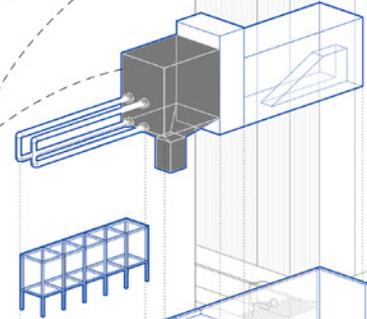


**06 OPEN EXHIBITION CENTER**

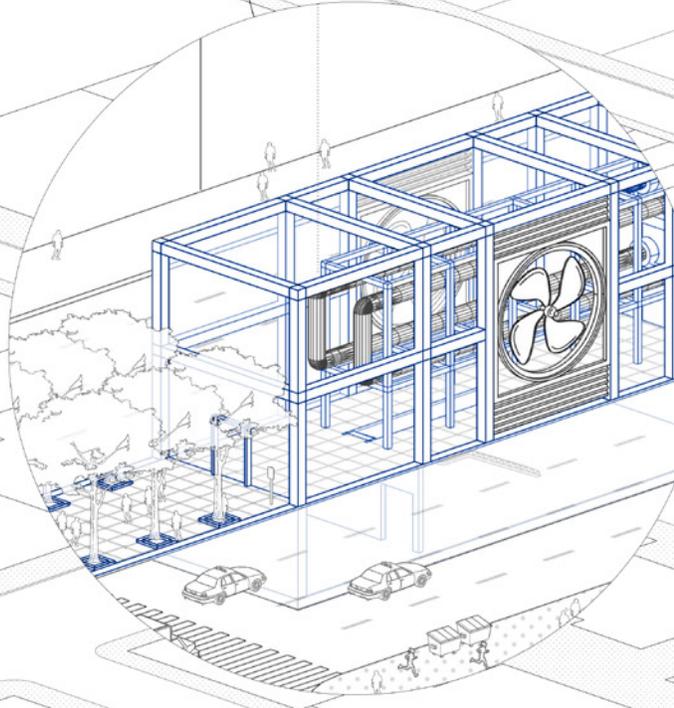


RESEARCH

**07 BIO-FILTRATION LAB**



**08 GREENH  
SCIENTIF  
RESEARCH**



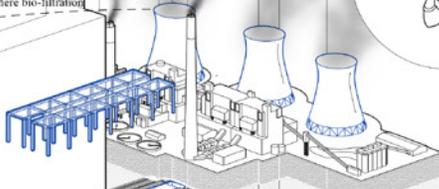
# THE TRUMP ORGANIZATION

Location: Trump Park Avenue LLC/502 Park Avenue  
Ecological Footprint: Excessive Energy Use  
Footprint Location: Manhattan, NY, USA

A place to  
voice yourself



on atmosphere bio-filtration



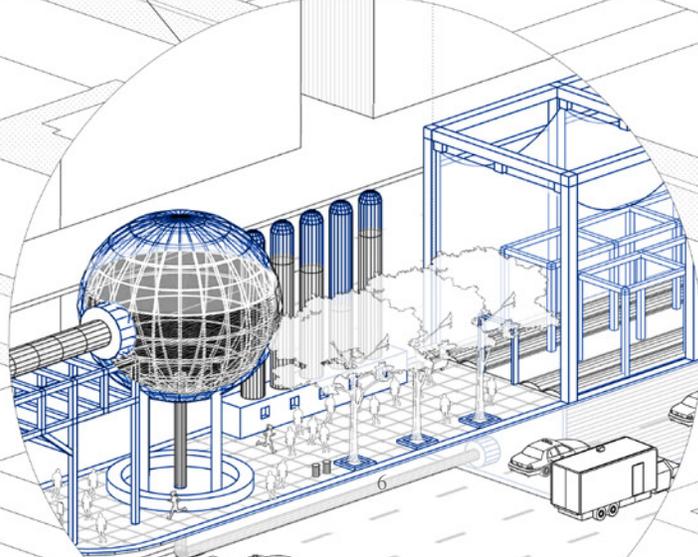
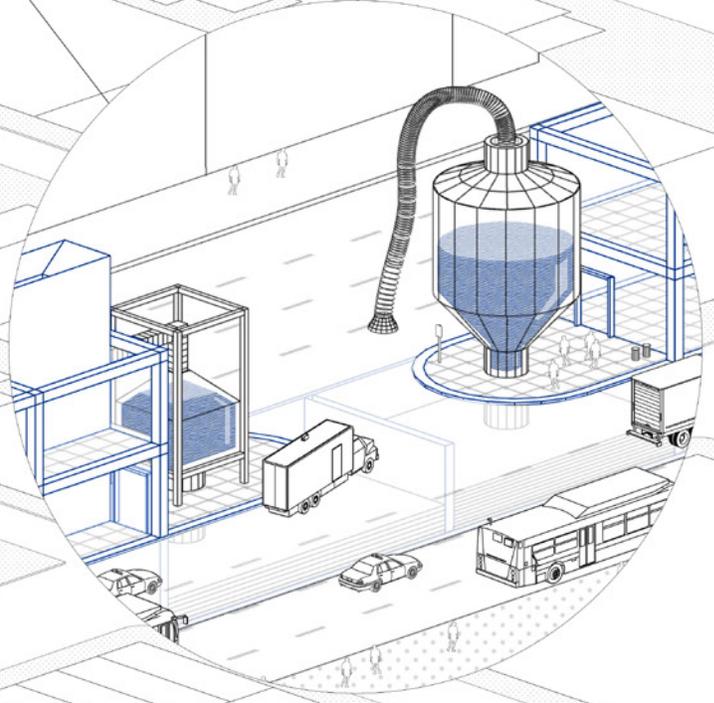
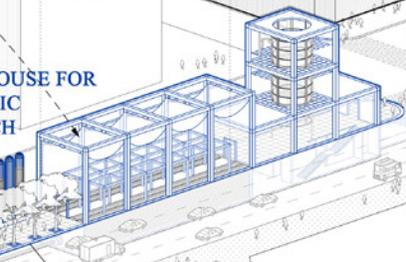
10 ENERGY/EXPERIMENTAL  
SAMPLE TRANSPORT  
CENTER

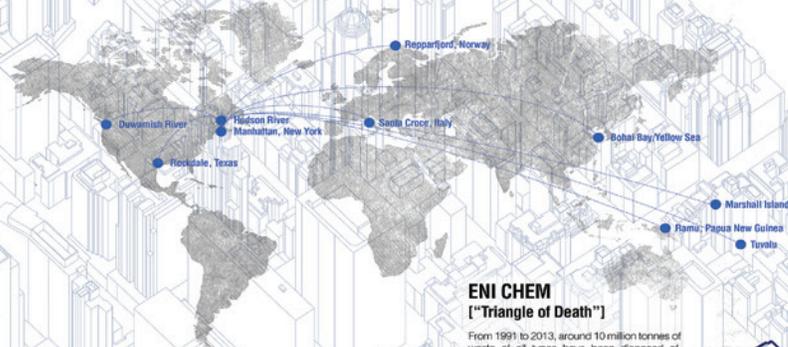


09 COMPREHENSIVE  
RECYCLING LAB



HOUSE FOR  
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**TRUMP PARK AVENUE LLC**  
[Excessive Energy Use]

Among all the luxury buildings in Midtown with excessive energy use, Trump buildings are top on the list. One of the most well known one is the Trump Park Avenue at 502 Park Ave — a prewar building, completely renovated in 2004, where residents enjoy valets and laundry service as well as daily maid service.

**ALCOA GLOBAL CENTER**  
[Excessive Drawdown]

Sandow lights produces the more than 104,000 self-reported tons of pollutants that Alcoa's facility dumps into the air over Rockdale each year. Almost all of the pollution enjoys grandfathered exemption from the 1971 Texas Clean Air Act, making Alcoa Rockdale Texas' largest unregulated stationary source of air pollution.

**ENI CHEM**  
[“Triangle of Death”]

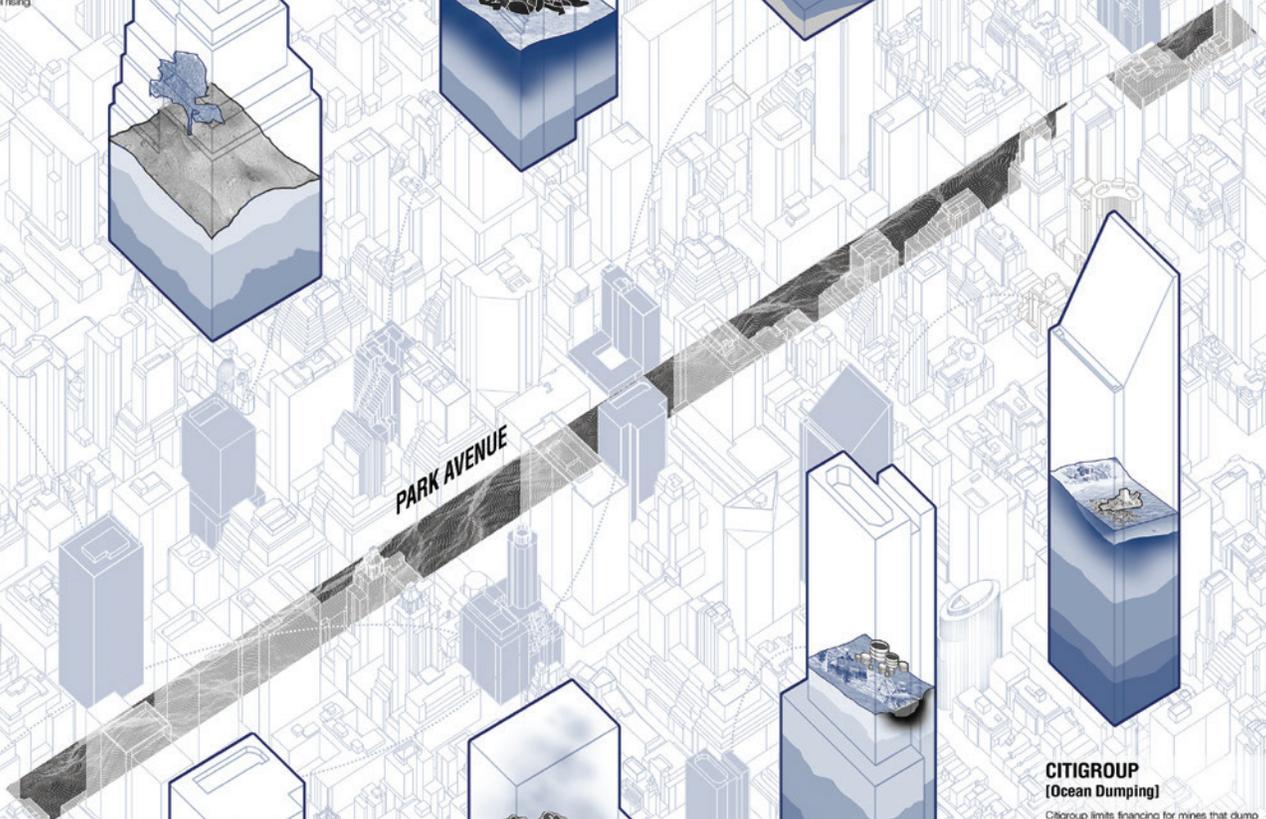
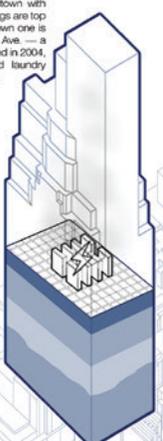
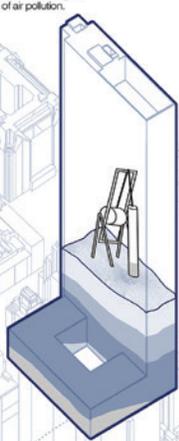
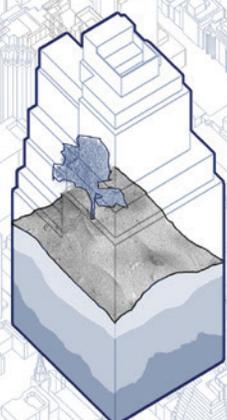
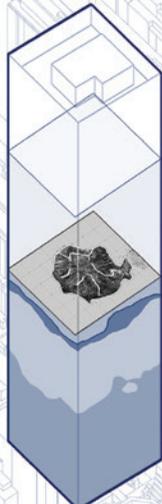
From 1991 to 2013, around 10 million tonnes of waste of all types have been disposed of, dumped in the Land of Fires, in the provinces of Naples and Caserta. “Triangle of Death” is used to described high rates of cancer in the area, which resulted from the pollution.

**COLGATE-PALMOLIVE**  
[Land Degradation]

The palm oil sector is rife with corporate social responsibility issues and is linked to deforestation, where its land-intensive farms denude the Indonesian jungle and deny rare species.

**JP MORGAN CHASE**  
[Sinking Islands]

For banks that have been invested most heavily in fossil fuel projects, JPMorgan Chase is on the top of the list. The use of fossil fuels leads to significant amount of CO2 emission and cause global warming and sea level rising.



**CITIGROUP**  
[Ocean Dumping]

Citigroup lends financing for mines that dump tailings at sea, which contains toxic chemicals that contaminate drinking water and ecosystems.

**BOEING CO.**  
[Taste of Cancer]

Boeing's facility discharges industrial stormwater to the Duwamish River. Records show discharge of cancer-causing PCBs thousands of times above the human health criteria set by state water quality standards. The facility is also violating a number of other permit provisions, and discharging excessive amounts of zinc, copper, and total suspended solids to the river.

**DUPONT CORPORATION**  
[Death of Marshall Islands]

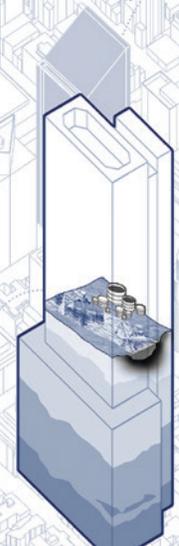
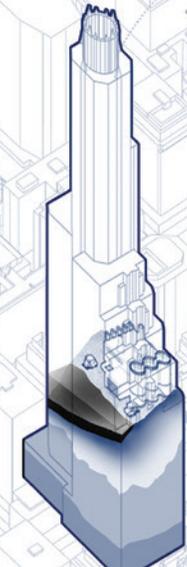
Dupont were involved in the Manhattan Project. Castle Bravo test, one of the first atomic bomb tests, was launched on Marshall Islands which was about exposing Marshallese people to nuclear radiation for medical studies without getting their consent or even explaining to them.

**CONOCO-PHILLIPS**  
[Oil Spill]

ConocoPhillips has said more than 2,100 barrels of oil and oil-based mud — a substance used as a lubricant in undersea drilling — have leaked from two platforms, reportedly polluting beaches and killing marine life in the area.

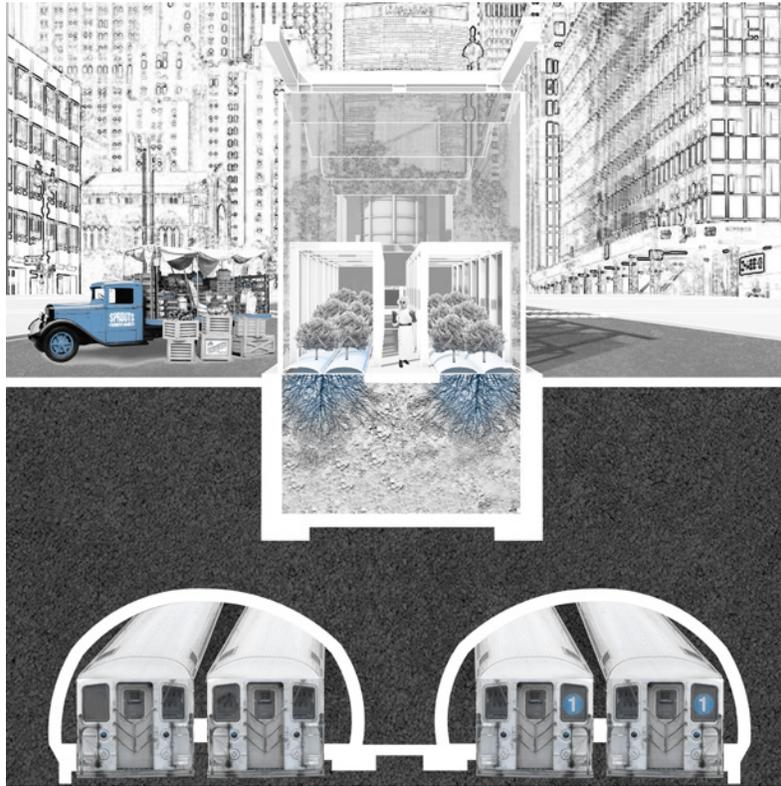
**GENERAL ELECTRIC**  
[PCB Contamination]

General Electric's best-known legacy of environmental contamination is the estimated 1.3 million pounds of PCBs the company discharged for decades into the Hudson River from its Fort Edward and Hudson Falls capacitor plants.



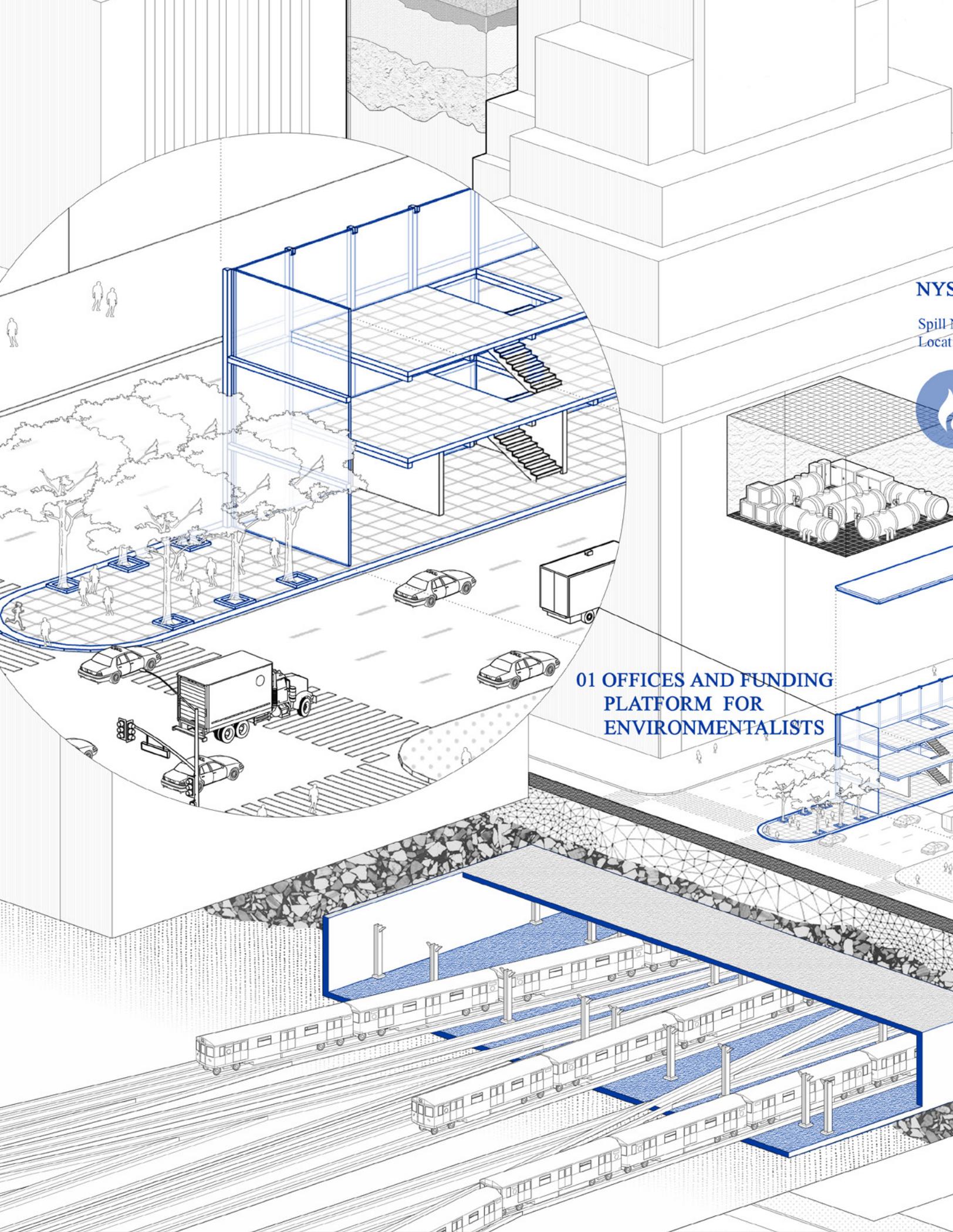
**ECOLOGICAL FOOTPRINTS OF MULTINATIONAL CORPORATIONS**





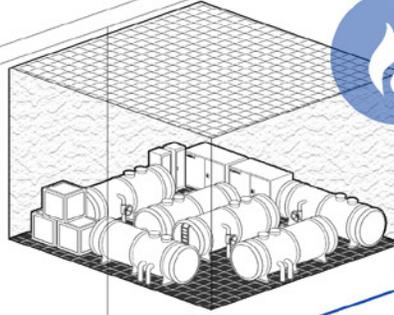
### *ARTIFICIALITY OF PARK AVENUE*

*After centuries of urban development, the original ecology at Park Avenue no longer exists--the lanscape on the ground has been replaced with pavestone and decorative greening; its underground part has been filled with concrete, tunnels and mechanical void.*

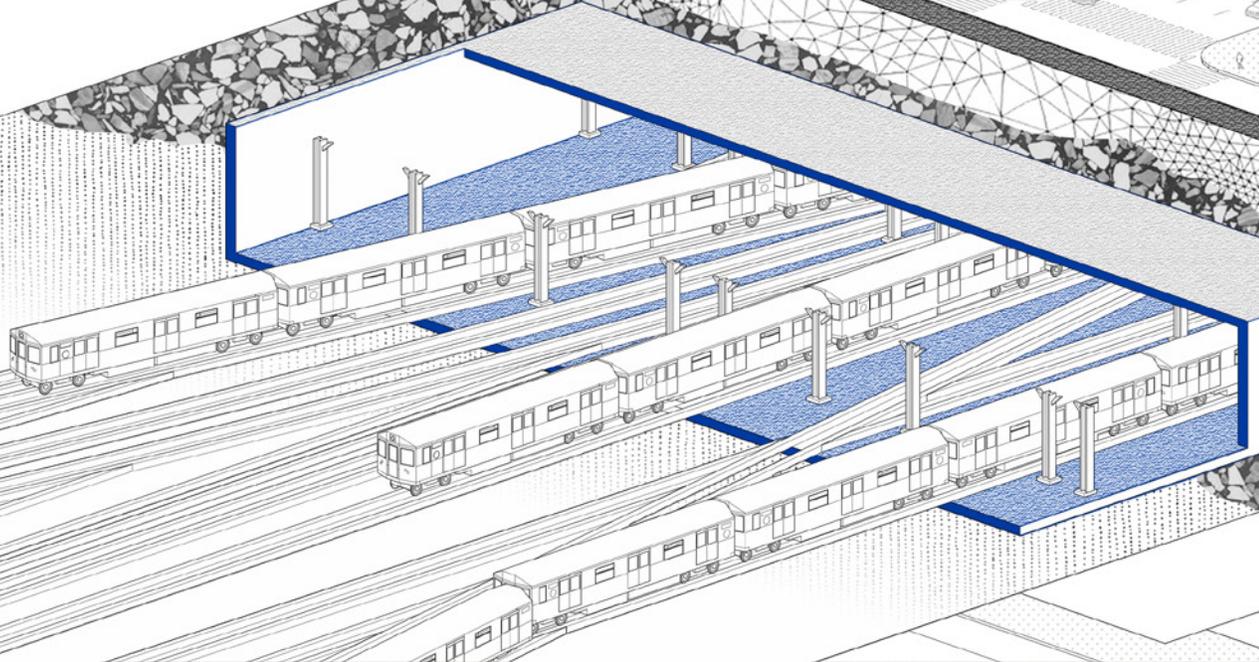
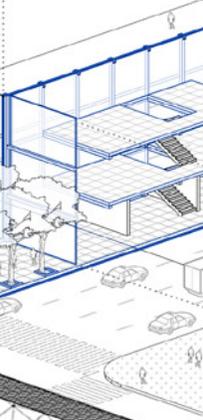


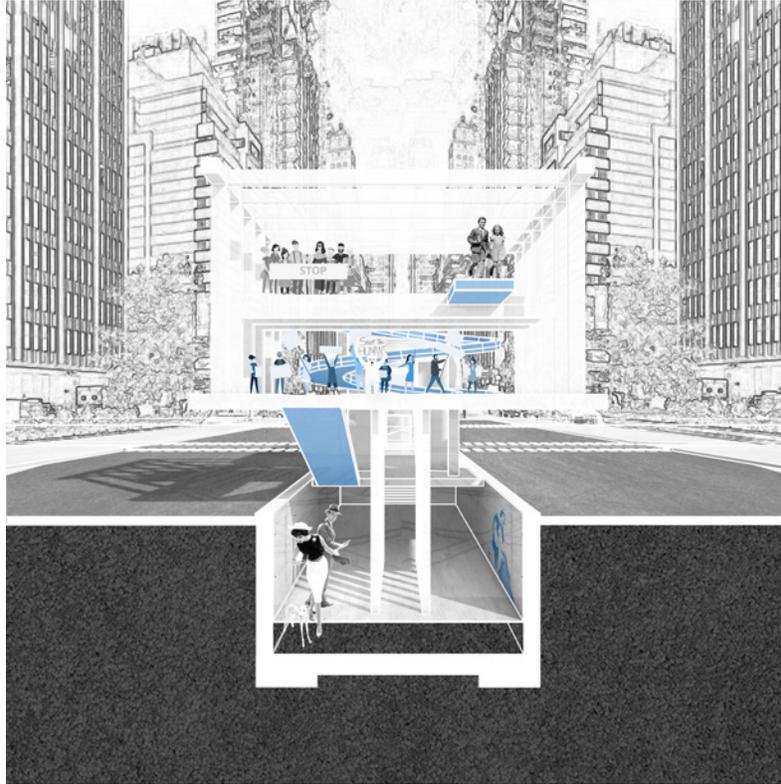
NYS

Spill-  
Locat



**01 OFFICES AND FUNDING  
PLATFORM FOR  
ENVIRONMENTALISTS**





## ***OFFICES & PLATFORMS***

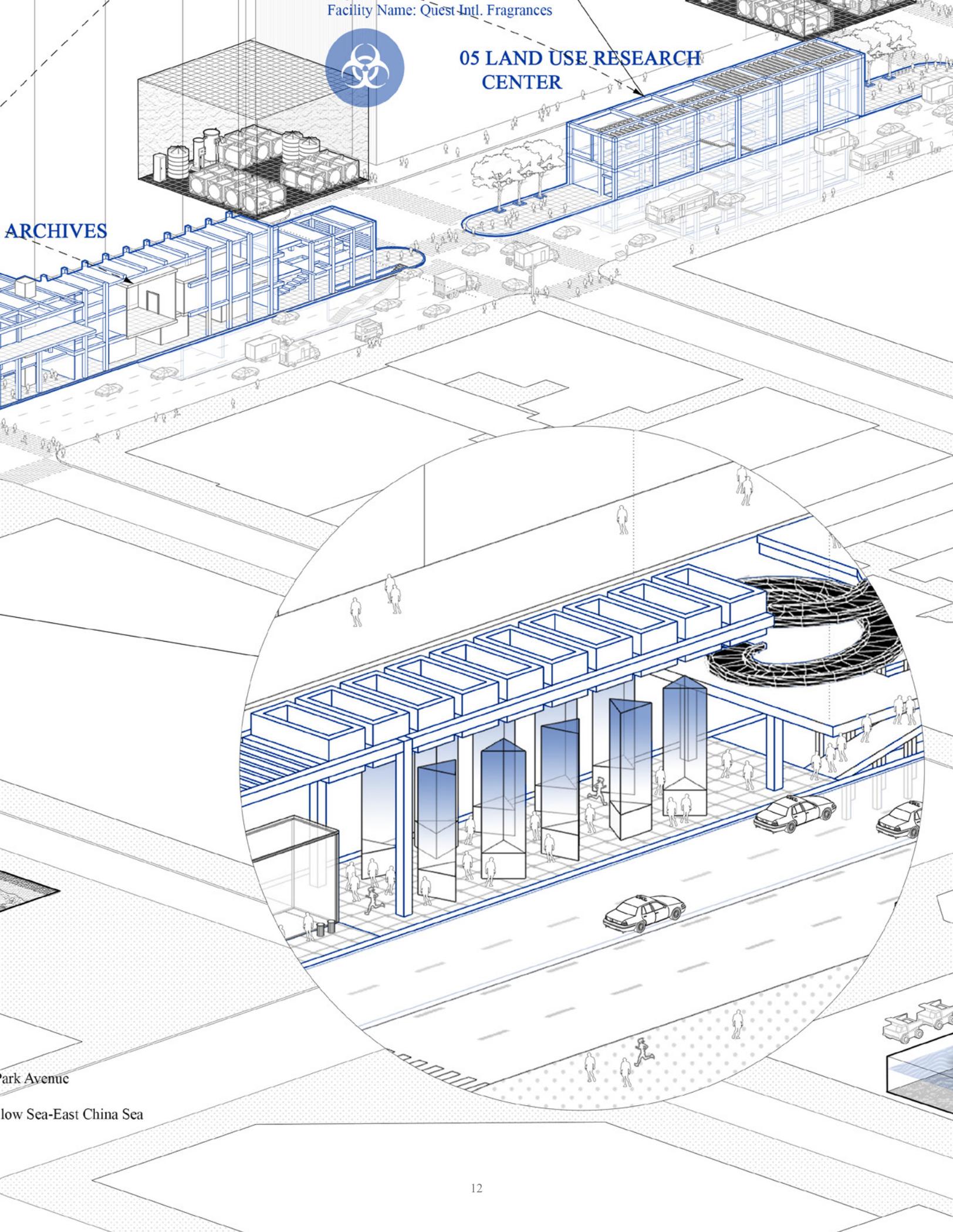
*01 Offices and funding platforms for environmentalists*

*This medium provides environmentalists and environmentalist lawyer with a place where they can meet, work together and raise funding.*



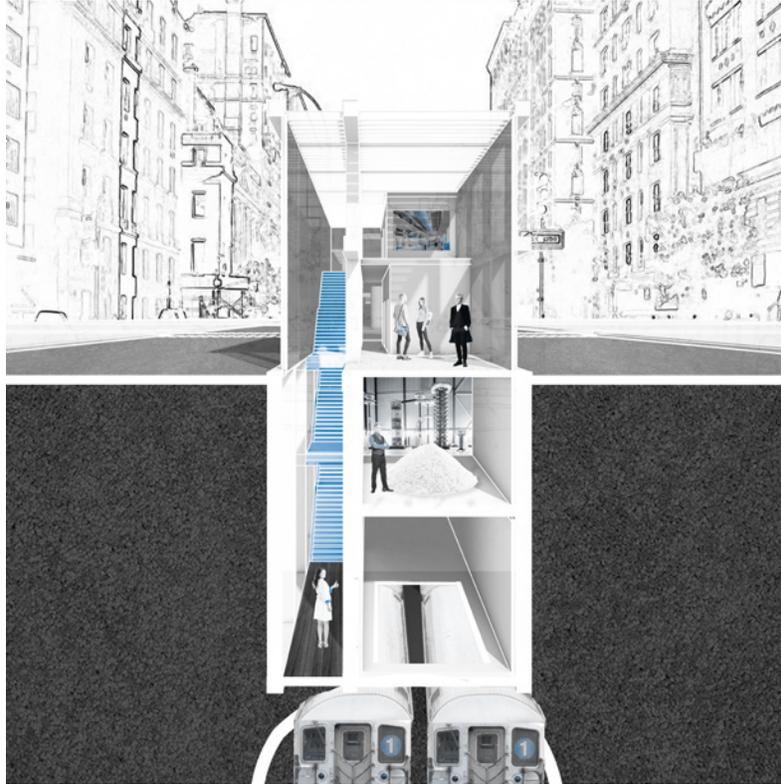
# 05 LAND USE RESEARCH CENTER

ARCHIVES



Park Avenue

Low Sea-East China Sea



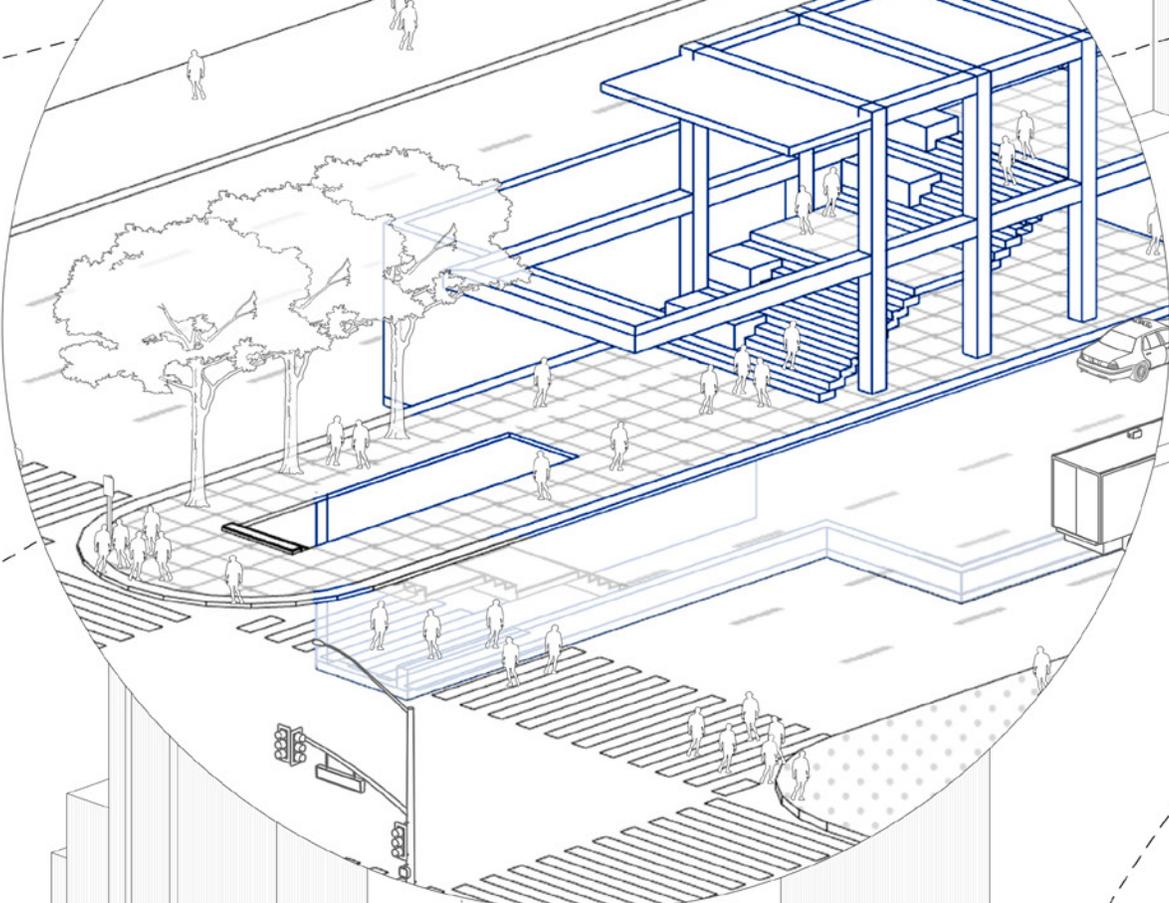
## ***PUBLIC SERVICES***

*02 Public auditorium*

*03 Public exhibition & gathering space*

*04 Libraries & archives*

*This zone provides opportunities for the public to learn about the history of Park Avenue's (and beyond) ecology, express their opinions/ideas and exchange information concerning environmental issues.*



### NYS Resource Conservation & Recovery Act Facilities (RCRA)

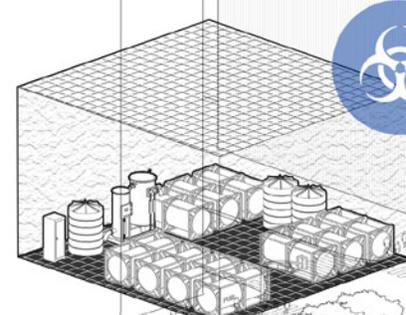
RURA is a combination of the first federal solid waste statues and all subsequent amendments.

Reg. ID: 110012185269  
Facility Name: Drake Hotel

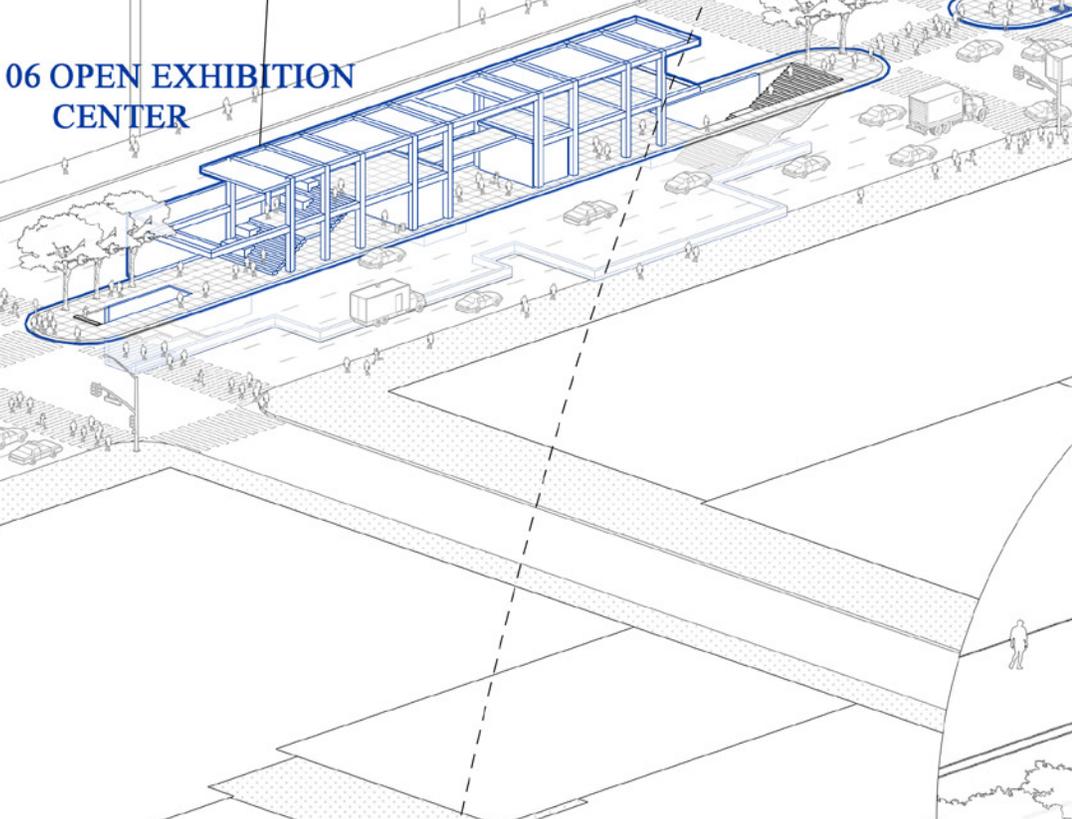


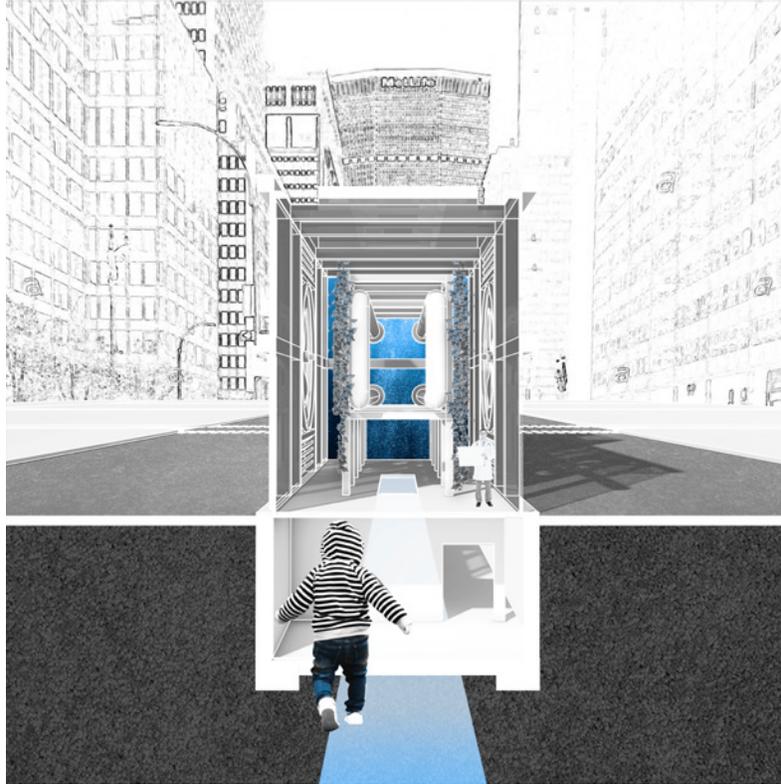
### 06 OPEN EXHIBITION CENTER

### 07 BIO-FILT



CH

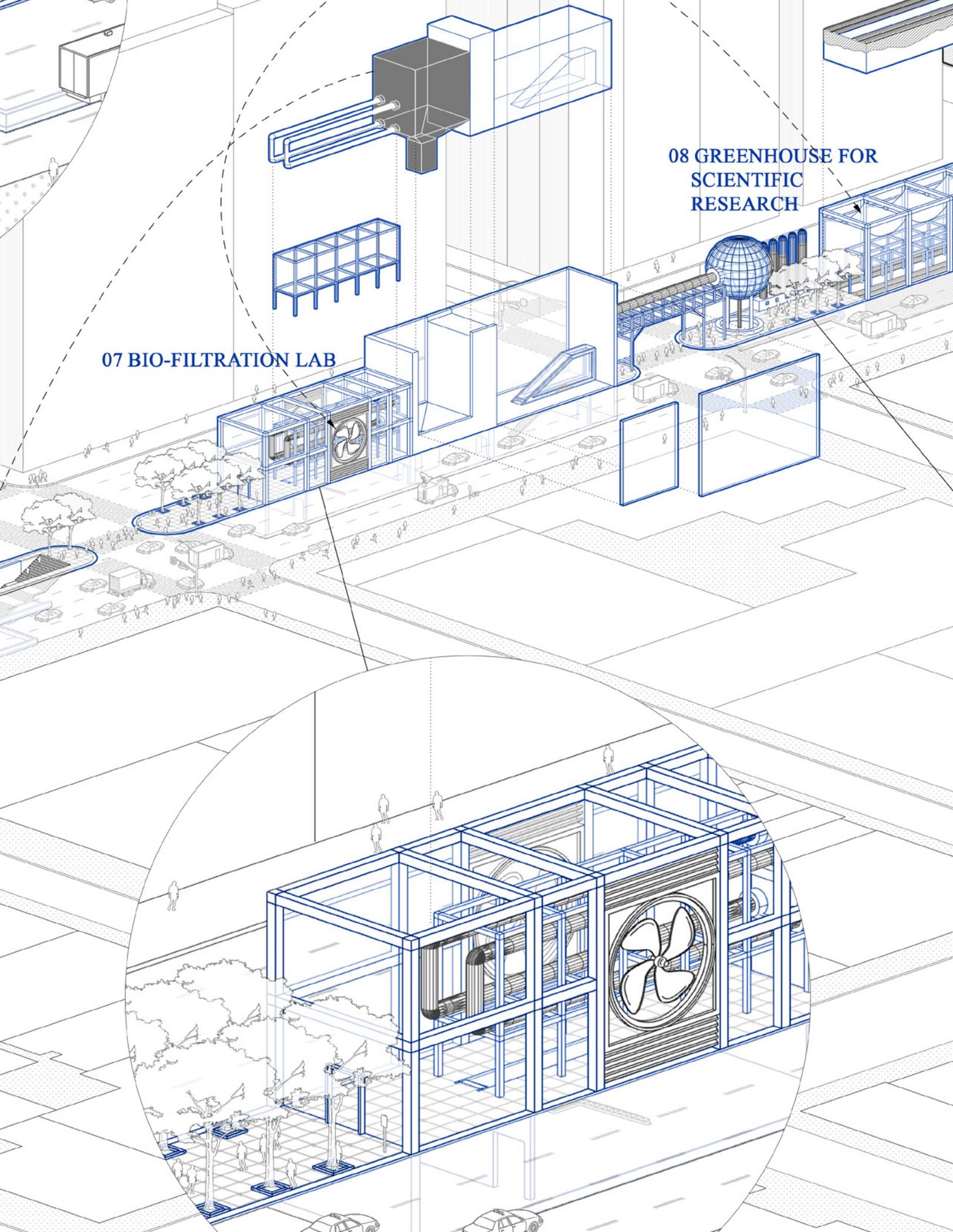




## ***RESEARCH CENTER & LABS***

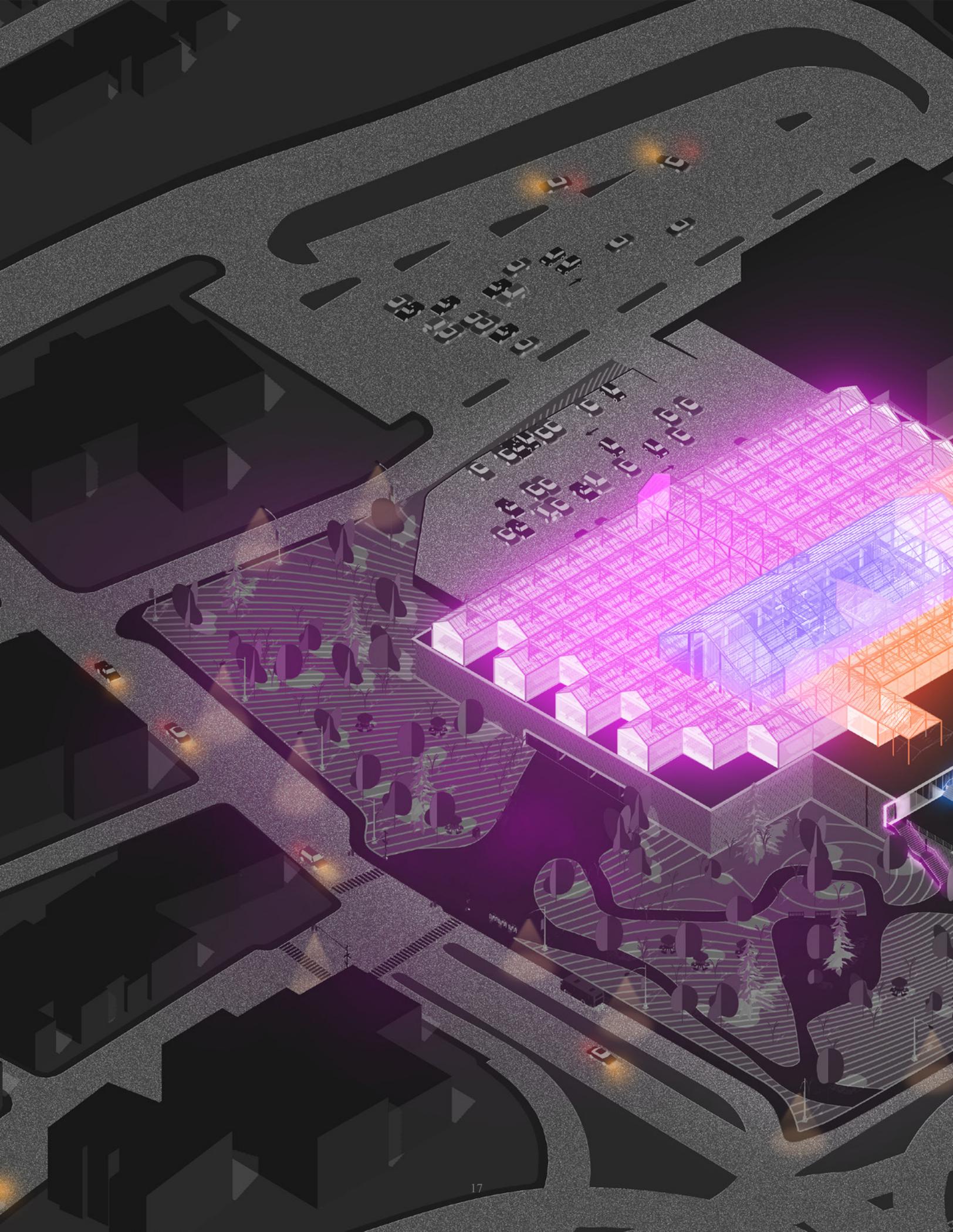
- 05 Land use research center*
- 06 Open exhibition center*
- 07 Bio-filtration lab*
- 08 Greenhouse for scientific research*
- 09 Comprehensive recycling lab*
- 10 Energy/experimental sample transport center*

*By allowing and even encouraging the passers-by/citizens to take a look at the scientists' most up-to-date research projects as well as a range of labs for various ecological fields, these interventions can help people better understand the eco-crises around us and how ordinary people can do to make a difference.*



08 GREENHOUSE FOR  
SCIENTIFIC  
RESEARCH

07 BIO-FILTRATION LAB



PROJECT 2

## RIVERFRONT CANNABIS CAMPUS

*Riverfront Center, Amsterdam, New York*

**TIME** *Fall 2019 GSAPP*

**STUDIO** *A[X]\*2*

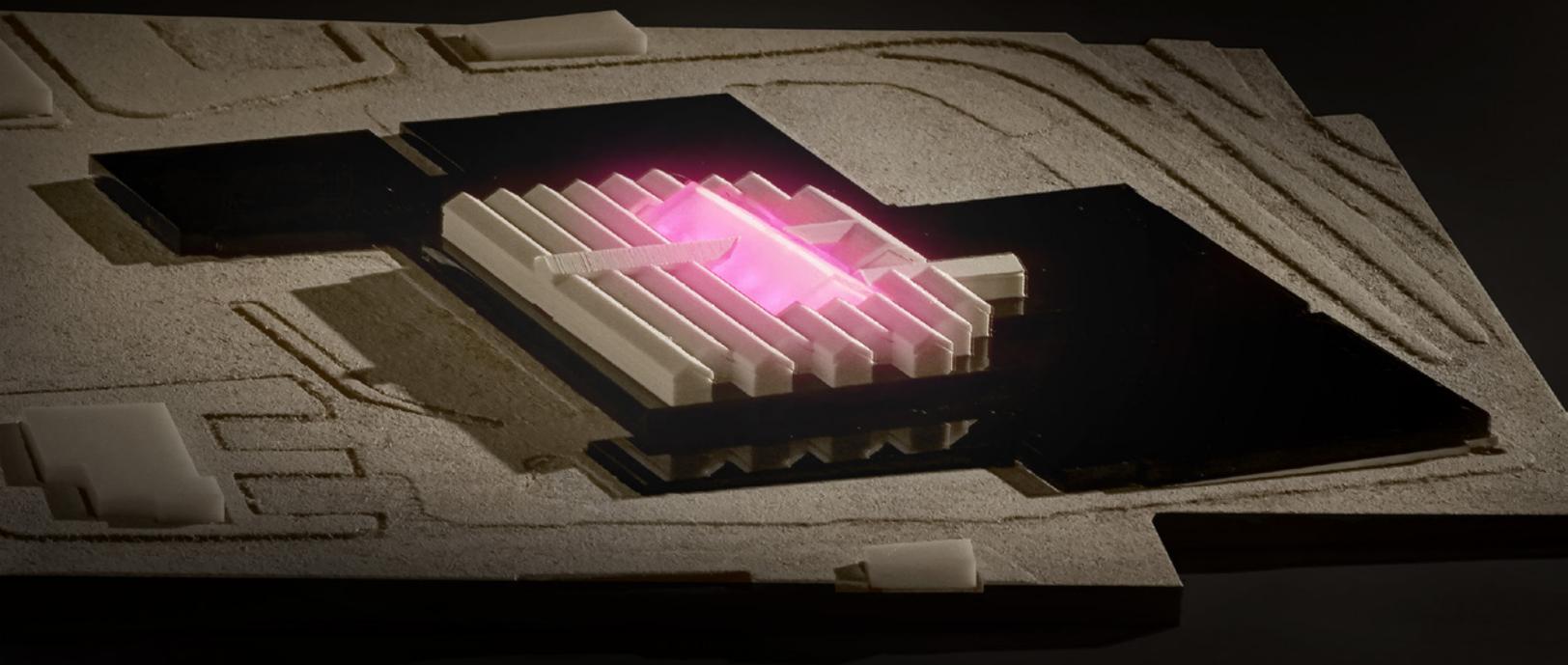
**TEAMMATE** *Daniel Mauricio Bernal*

**INSTRUCTORS** *Kate Ascher, Christoph Kumpusch*

*Our project originates in Amsterdam's geography within New York State. Our vision assumes that New York State laws will be amended in line with the Governor's desire to legalize cannabis. The site itself will be transformed into a place where cannabis is grown, processed and sold. The goal is to quite literally "put Amsterdam on the map", through name recognition (and association with its Dutch counterpart) and through adaptive reuse of a structure that today draws few if any visitors from beyond the borders of the town.*







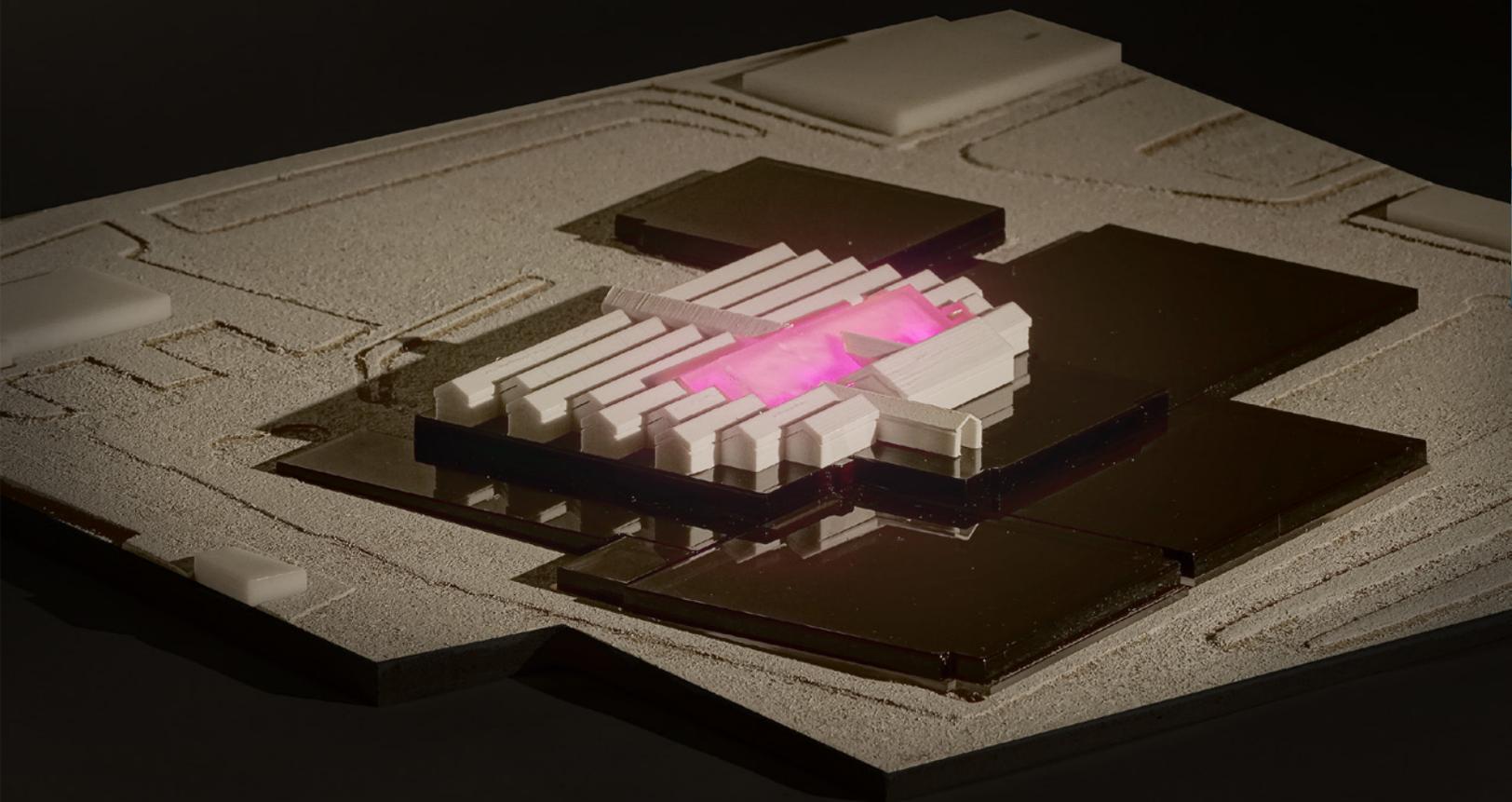


# RIVERFRONT CANNABIS CAMPUS

A M S T E R D A M , N Y

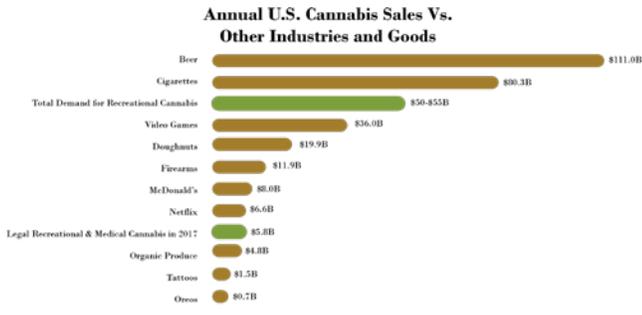
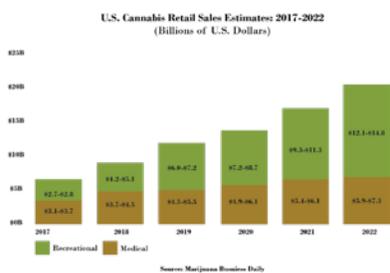
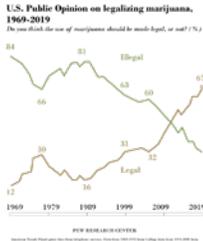
Address:	2000 Riverfront Ctr, Amsterdam NY
Owner:	Cranesville Properties LLC
Fair Market Value:	\$2,399,880.00

Fair Market Value comes from Municipality of City of Amsterdam official Tax Map ID/Property Data\*





**Recreational cannabis use in the US is extensive and the opportunities associated are exponential**



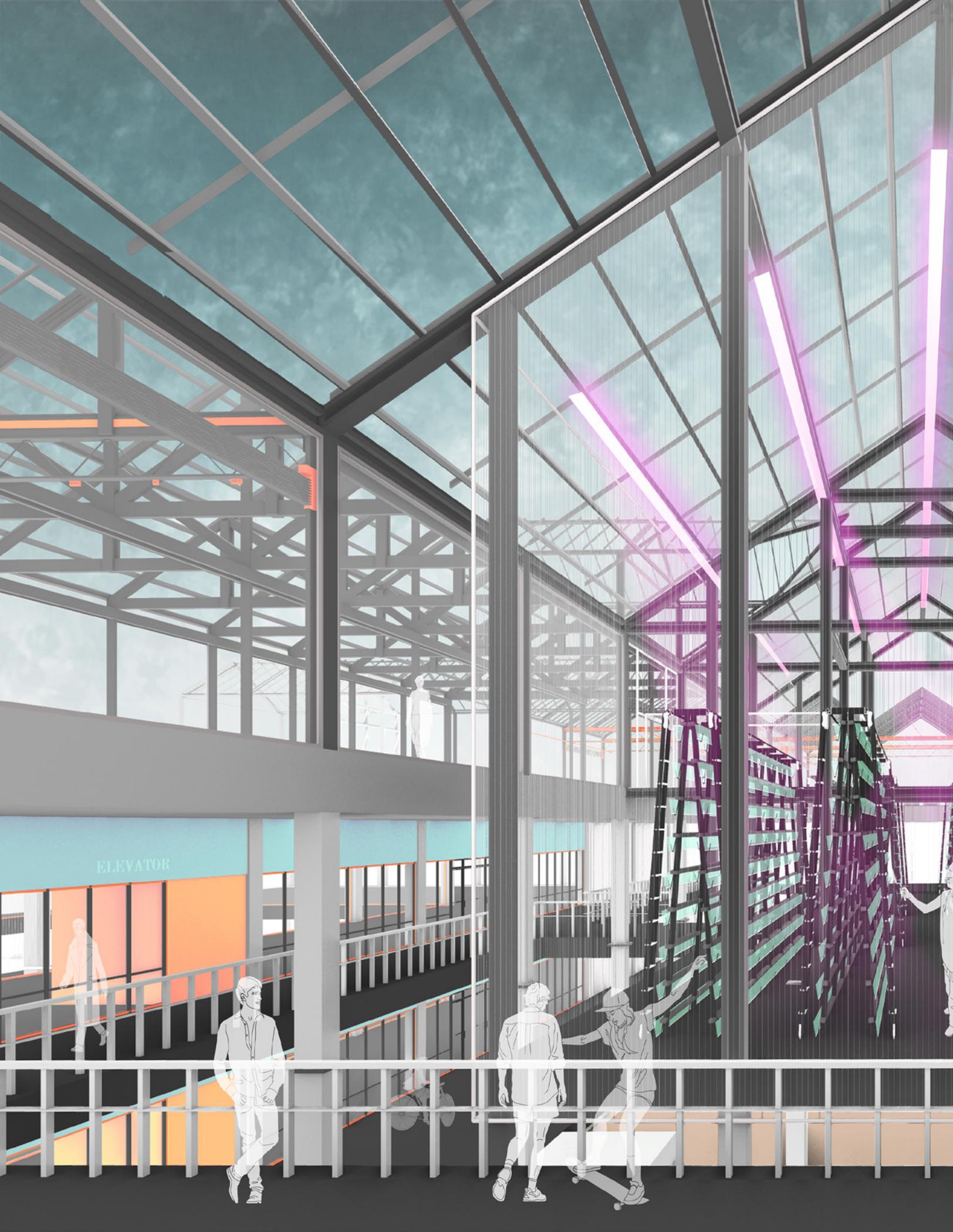
Source: Brewers Association, Alcohol & Tobacco Tax & Trade Bureau, Entertainment Software Association, Goldstein Research, IBIS World, Netflix, Nielsen, Nabisco, Marijuana Business Daily.

**3x annual sales of tequila in the US**

*Wedged between the Catskill and Adirondack Mountains, Amsterdam boasts not only the Erie Canal but more importantly a series of highways and rail lines that connect it to population centers and vacation destinations. Roughly 1.6 million visitors come to the Capital region each year, under an hour away; another 10 million visit the Adirondacks - immediately to Amsterdam's north. Local destinations such as Saratoga, Troy and Rome are roughly an hour away.*

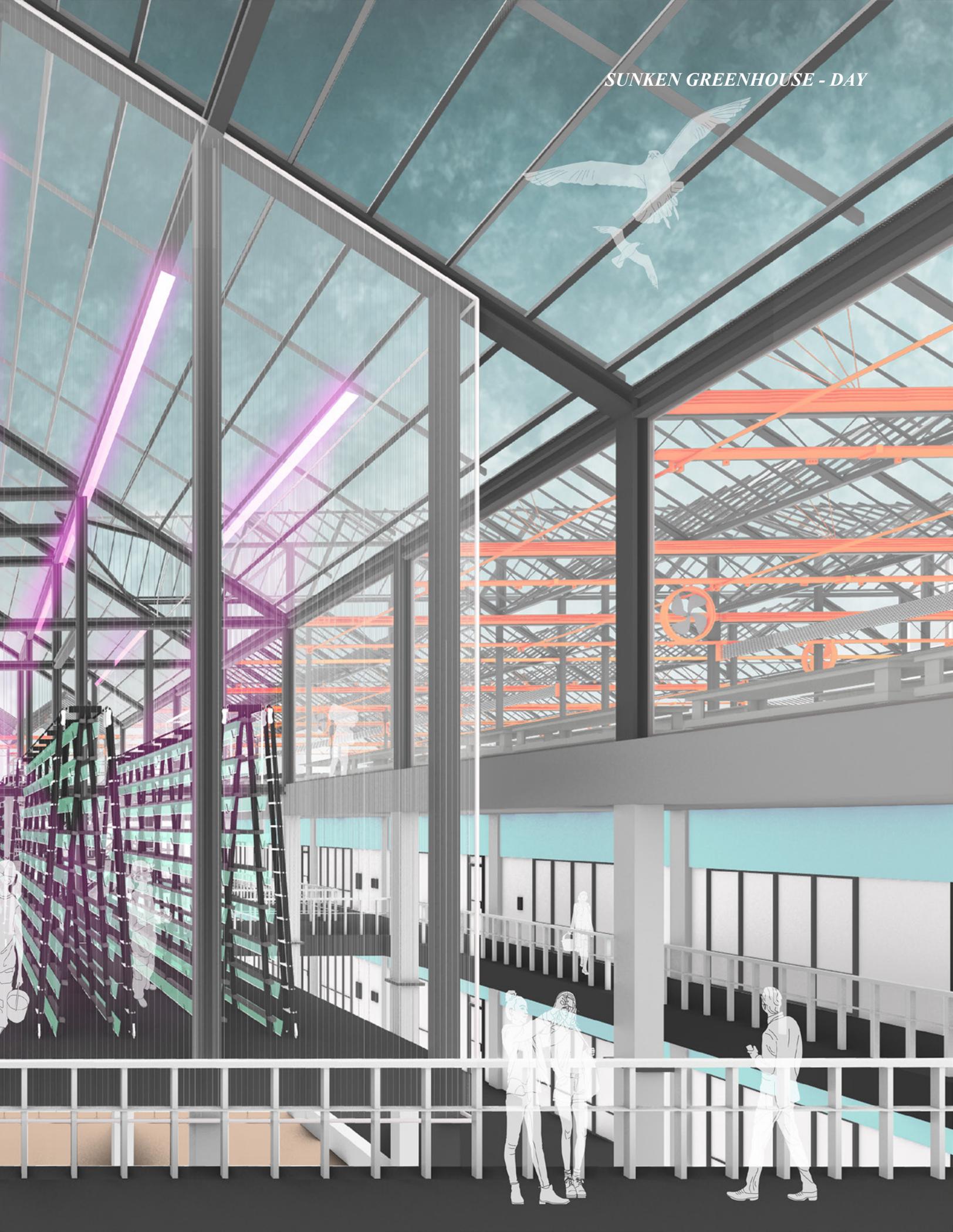
*We envision the Riverfront Center mall in downtown Amsterdam transformed as a new "cannabis campus". Our vision assumes that New York State laws will be amended in line with the Governor's desire to legalize cannabis, as has been done in Massachusetts and a variety of other states. Once this occurs, demand for cannabis products will no longer be funneled into invisible markets but can serve to jumpstart a new economy for the state.*





ELEVATOR

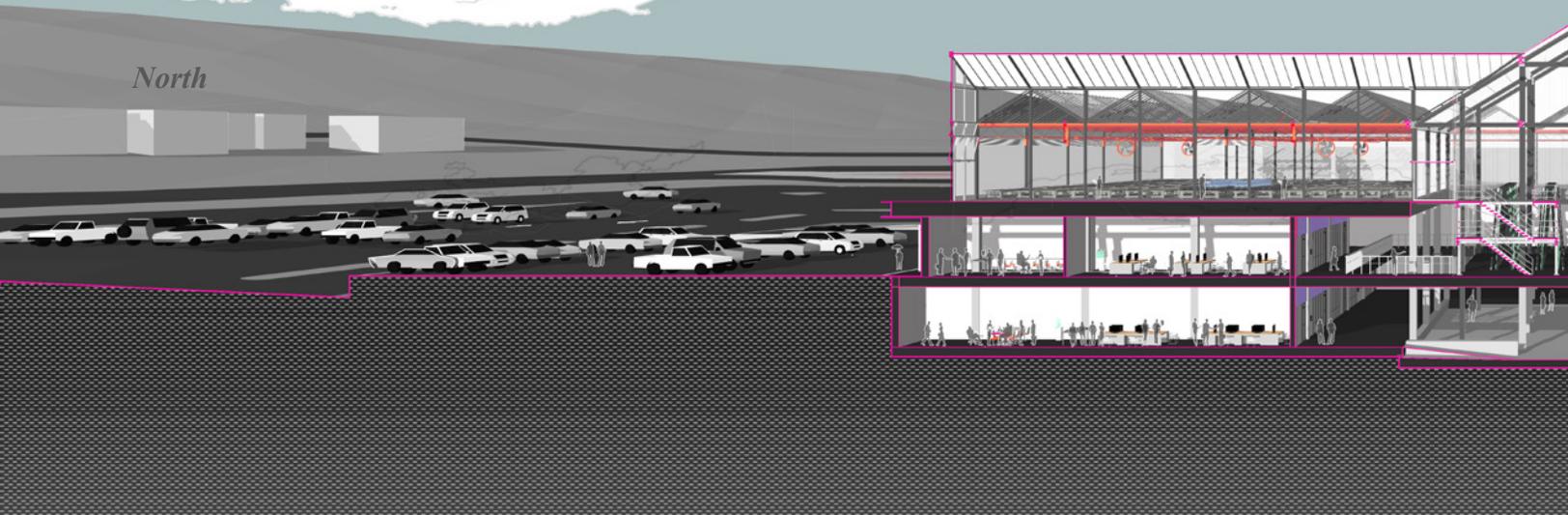
*SUNKEN GREENHOUSE - DAY*



Tax Underwriting	
Gross Revenue	\$39,010,765.83
Tax Expense	-\$8,582,368.48
Shades of Green Amsterdam Fund	-\$780,215.32
<i>Cuomo Proposed Tax</i>	
\$1.00/g Grower Tax for Cannabis Flower	-\$951,565
\$0.25/g Grower Tax for Cannabis Trim	-\$44,364
Operating Expense Cannabis Adjacent	-\$5,084,320
Net Cash Flow	\$23,567,932

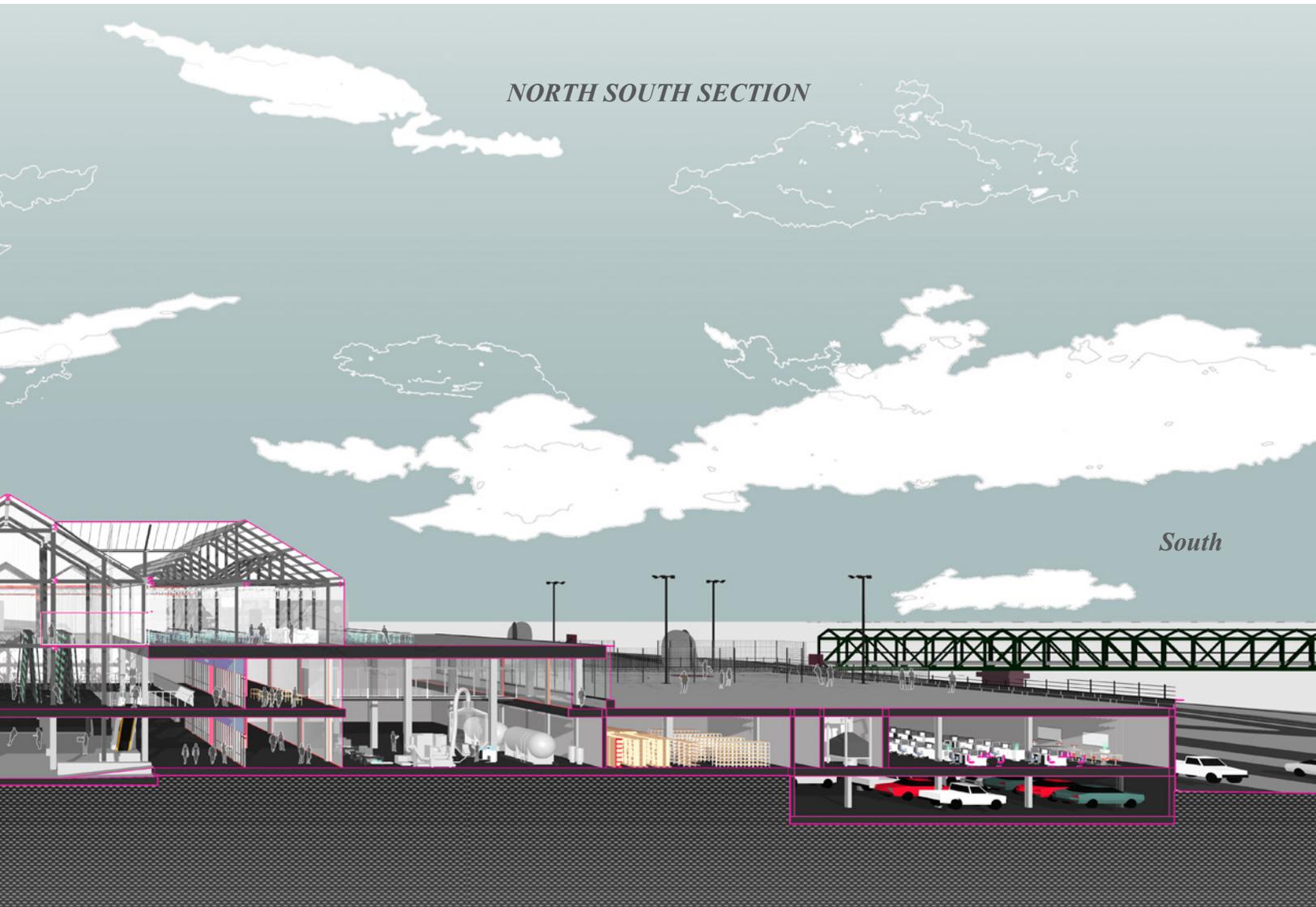
## CUOMO PROPOSAL

- Establish licensing programs for marijuana growers, distributors, and retailers.
- Impose 20% sales tax and 2% local tax on the sale of cannabis from wholesalers to retailers.
- Per-gram tax on growers.
- Ban marijuana sales to anyone under the age of 21.



RCC Construction Costs			
	<i>Use</i>	<i>PSF</i>	<i>Total \$</i>
<b>Hard Costs</b>			
Renovation		\$200	\$24,000,000
Greenhouse		\$300	\$12,000,000
Park		\$100	\$5,000,000
Demo		\$30	\$6,000,000
<b>Soft Costs</b>			
Renovation	25%	\$50	\$6,000,000
Greenhouse	15%	\$45	\$1,800,000
Park	10%	\$10	\$500,000
Demo	5%	\$2	\$300,000
Construction Subtotal			\$55,600,000
Contingency			\$5,560,000
<b>Total Construction Costs</b>			<b>\$61,160,000</b>

## NORTH SOUTH SECTION

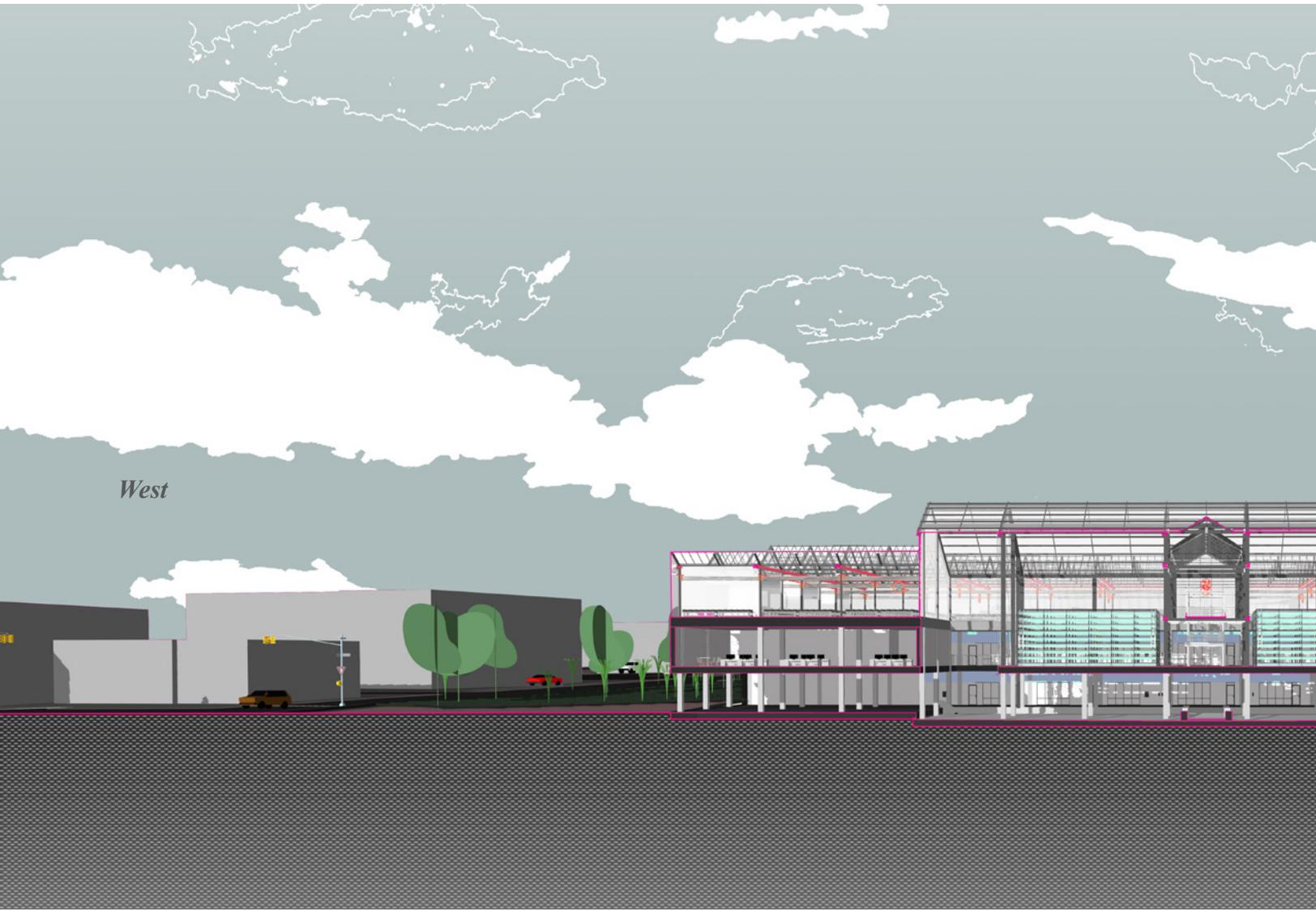


Growth Rate	3%
Discount Rate	10.5%
Cap Rate	10.0%

Potential Sales Price	\$432,778,907
Valuation	\$375,216,493

LP IRR	29.05%
Levered IRR	34.78%
LP Equity Multiple	4.97 x

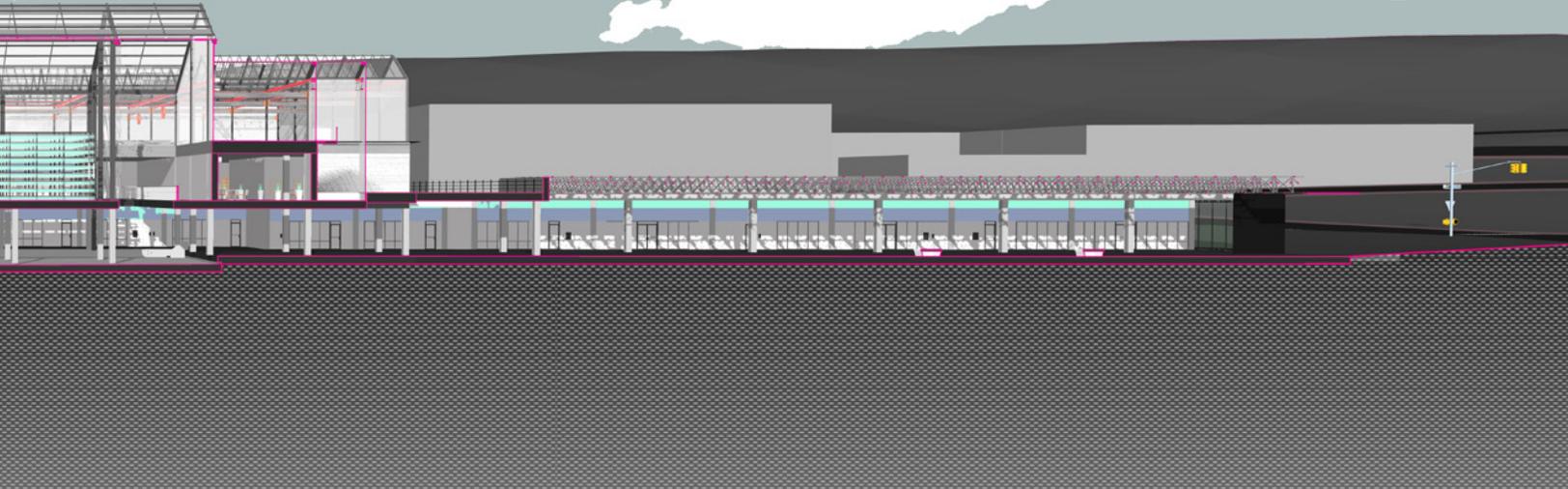
Riverfront Cannabis Center Revenue								
Source	Output	Distribution	Comp Units*	Measure	Underwritten Comp Unit Ratio	Units	Price/Unit	Revenue/Annum
Flower		0.5 Wholesale	1,680	lbs	0.37	2800	<u>\$1,130</u>	\$3,164,000.00
Flower		0.5 Retail	53,760	1/8 oz	11.95	89600	\$45.00	\$4,032,000.00
Extract	30% to Extract Product	Wholesale	137,166	g	30.48	228610	\$22.50	\$5,143,725.00
Extract	30% to Extract Product	Retail	34,291	g	7.62	57152	\$45.00	\$2,571,825.00
Extract	10% to 5mg Edible	Wholesale	4,572,187	mg	1,016.04	7620312	\$1.50	\$11,430,467.50
Extract	10% to 5mg Edible	Retail	1,143,047	mg	254.01	1905078	\$3.00	\$5,715,235.00
Extract	10% to 100 mg Edible	Wholesale	228,609	mg	50.80	381015	\$12.00	\$4,572,180.00
Extract	10% to 100 mg Edible	Retail	57,152	mg	12.70	95253	\$25.00	\$2,381,333.33
*Number of units produced from 4,500lb/annum comp set used to understand unit distribution of product, The High End.								\$39,010,766



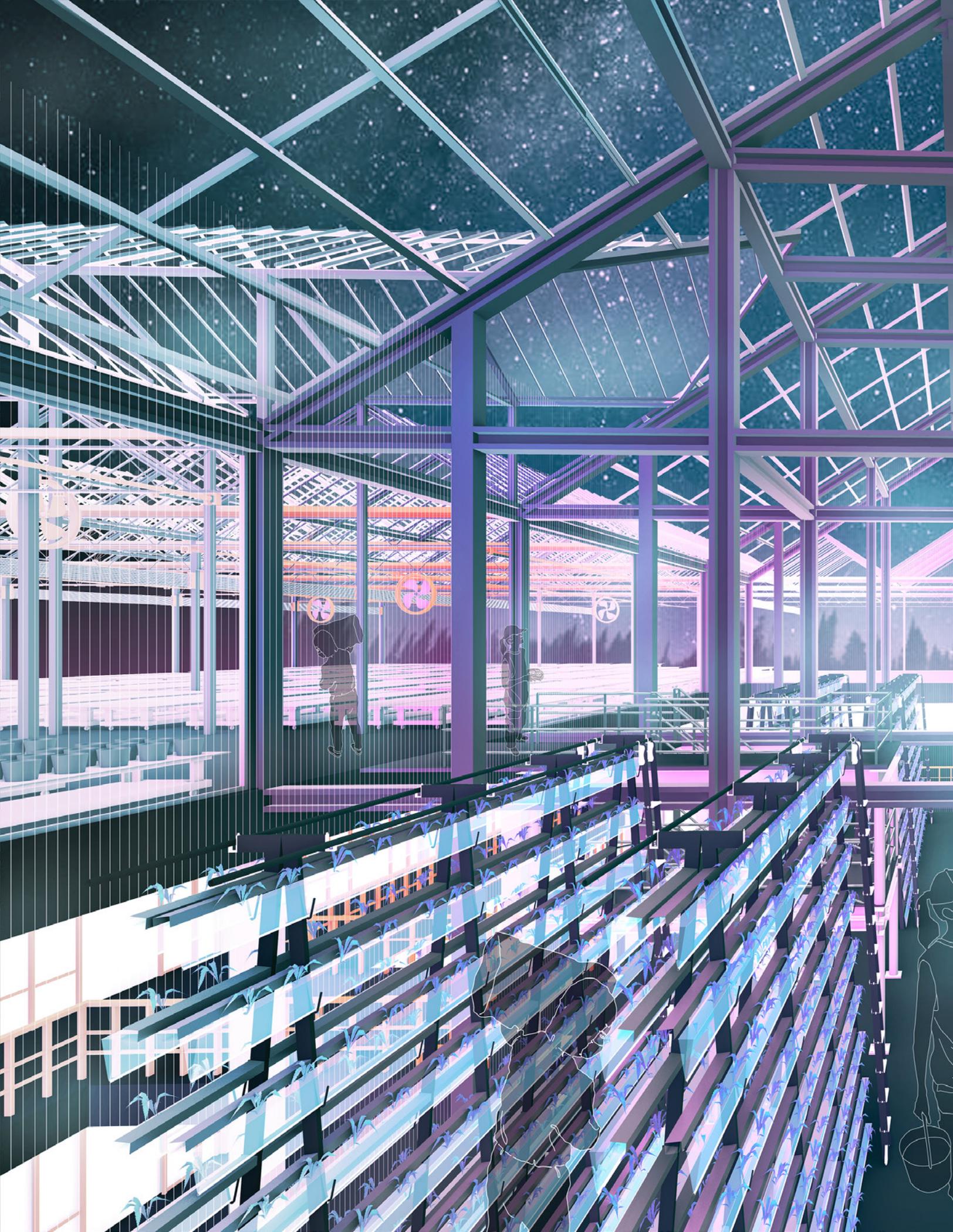
Projected Valuation	2	3	4	5	6	7	8	9	10	11	12
Gross Revenue Cannabis Adjacent	\$39,010,766	\$40,181,089	\$41,386,521	\$42,628,117	\$43,906,961	\$45,224,169	\$46,580,895	\$47,978,321	\$49,417,671	\$50,900,201	\$52,427,207
Gross Revenue Non-cannabis Adjacent	\$823,650	\$848,360	\$873,810	\$900,025	\$927,025	\$954,836	\$983,481	\$1,012,966	\$1,043,375	\$1,074,676	\$1,106,917
A Better Amsterdam Fund	-\$780,215	-\$803,622	-\$827,730	-\$852,562	-\$878,139	-\$904,483	-\$931,618	-\$959,566	-\$988,353	-\$1,018,004	-\$1,048,544
Grower Tax Flower Cuomo	-\$951,565	-\$951,565	-\$951,565	-\$951,565	-\$951,565	-\$951,565	-\$951,565	-\$951,565	-\$951,565	-\$951,565	-\$951,565
Grower Tax Trim Cuomo	-\$44,364	-\$44,364	-\$44,364	-\$44,364	-\$44,364	-\$44,364	-\$44,364	-\$44,364	-\$44,364	-\$44,364	-\$44,364
Operating Expenses Non-cannabis Adjacent	-\$1,026,000	-\$1,056,780	-\$1,088,483	-\$1,121,138	-\$1,154,772	-\$1,189,415	-\$1,225,098	-\$1,261,851	-\$1,299,706	-\$1,338,697	-\$1,378,858
Operating Expenses Cannabis Adjacent	-\$5,084,320	-\$5,236,850	-\$5,393,955	-\$5,555,774	-\$5,722,447	-\$5,894,120	-\$6,070,944	-\$6,253,072	-\$6,440,664	-\$6,633,884	-\$6,832,901
<b>NET OPERATING INCOME</b>	<b>\$31,947,951</b>	<b>\$32,936,267</b>	<b>\$33,954,233</b>	<b>\$35,002,738</b>	<b>\$36,082,698</b>	<b>\$37,195,057</b>	<b>\$38,340,786</b>	<b>\$39,520,888</b>	<b>\$40,736,392</b>	<b>\$41,988,362</b>	<b>\$43,277,891</b>

*EAST WEST SECTION*

*East*



<b>TOTAL NET REVENUES (Operating &amp; Sale)</b>	-\$37,289,940	-\$37,289,940	\$33,724,096	\$34,735,819	\$35,809,597	\$36,915,588	\$38,054,759	\$39,228,105	\$40,436,652	\$41,681,455	\$42,963,602	\$477,063,120
<b>IRR</b>	<b>44%</b>											
<b>AFTER TAX RETURNS:</b>												
Federal Tax Expense			-\$8,582,368	-\$8,839,840	-\$9,105,035	-\$9,378,186	-\$9,659,531	-\$9,949,317	-\$10,247,797	-\$10,555,231	-\$10,871,888	-\$11,198,044
Capital Gains Tax												-\$ 59,110,459
<b>NET AFTER TAX REVENUES</b>	-\$37,289,940	-\$37,289,940	\$25,141,727	\$25,895,979	\$26,704,562	\$27,537,402	\$28,395,228	\$29,278,788	\$30,188,855	\$31,126,224	\$32,091,714	\$406,754,617
<b>After Tax IRR</b>	<b>36%</b>											

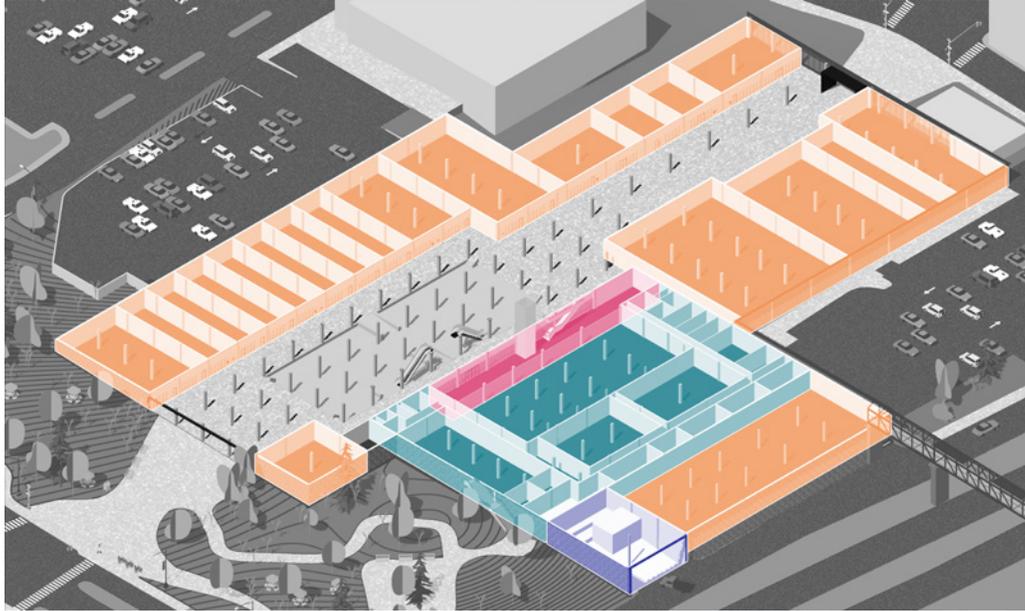


*SUNKEN GREENHOUSE - NIGHT*

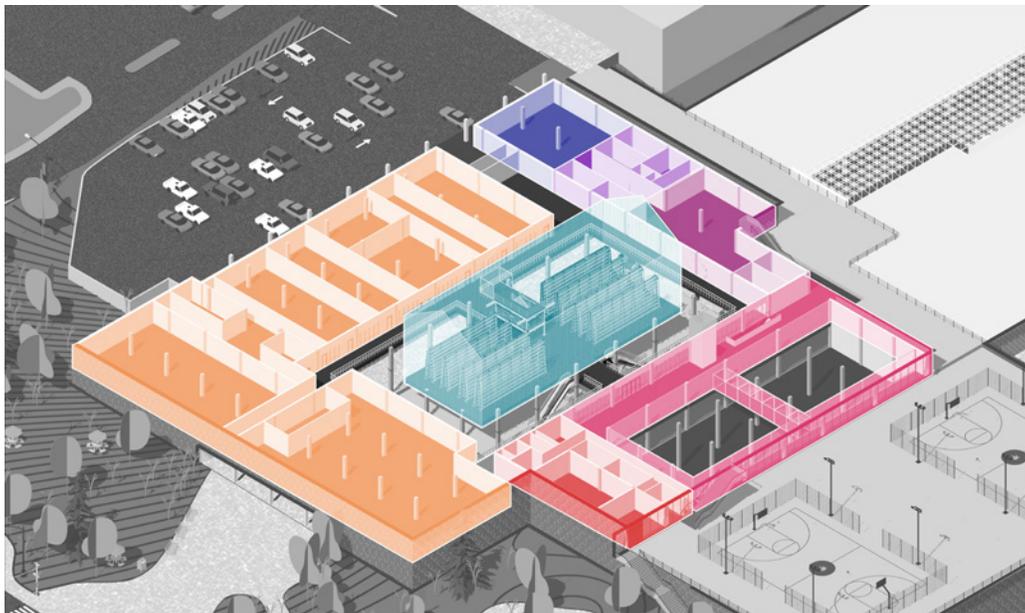




*AXONOMETRIC VIEW - DAY*



*FIRST FLOOR*    Yellow - Existing tenants    Green - Process/abstraction/packaging  
 Purple - Existing loading dock    Pink - Dispensary storefront

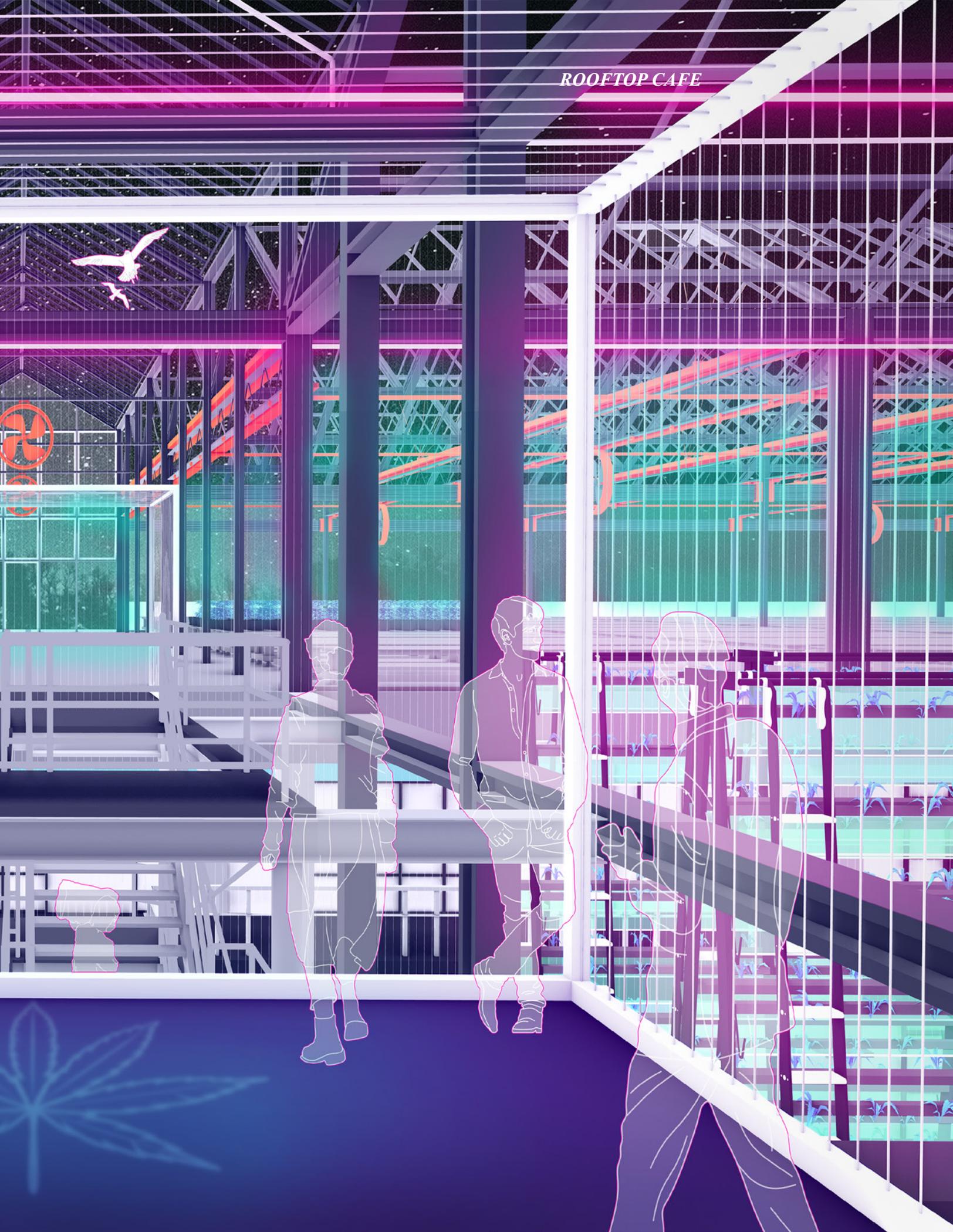


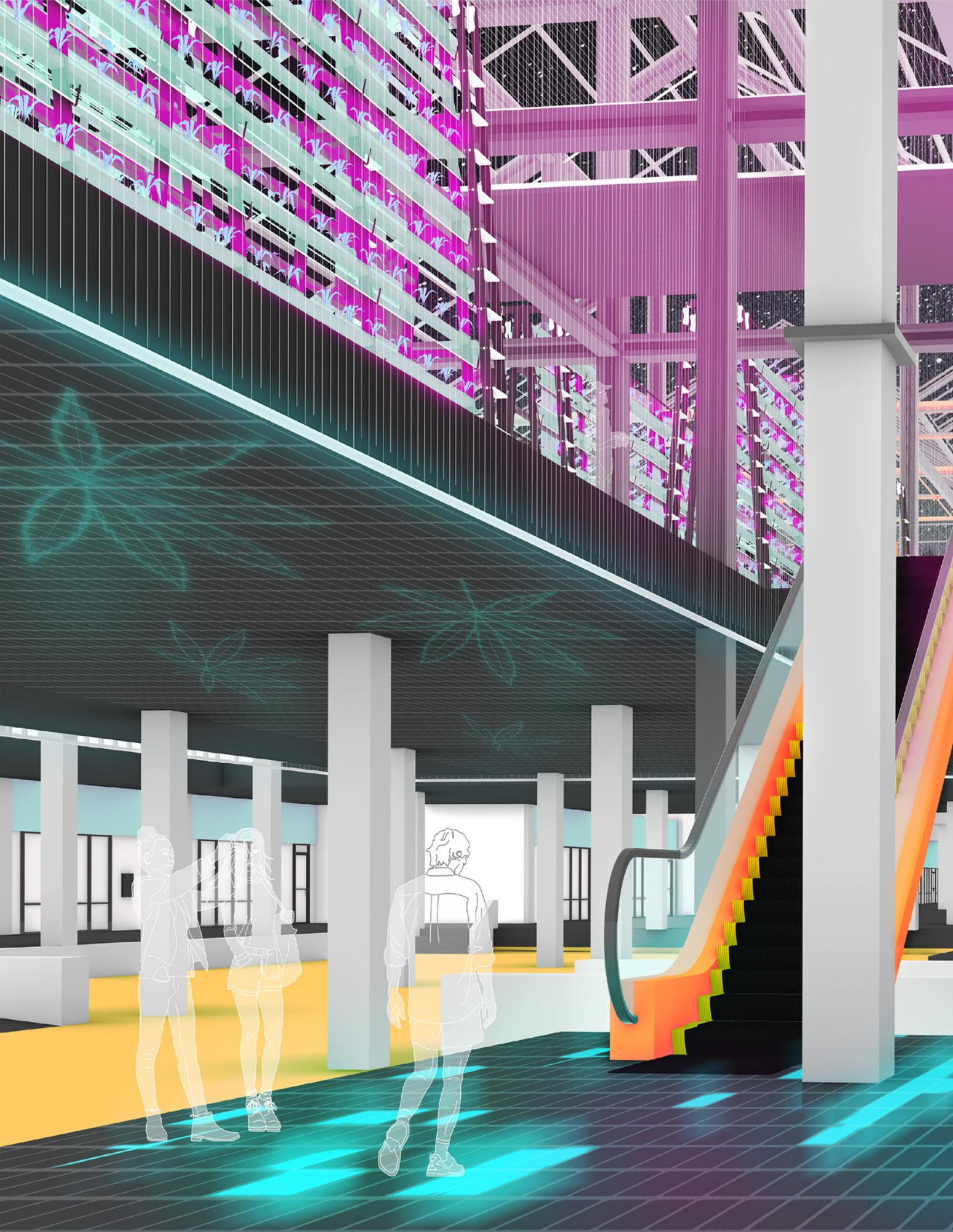
*SECOND FLOOR*    Yellow - Existing tenants    Green - Sunken greenhouse    Purple - Lobby  
 Garnet - Security/pickup    Pink - Dispensary    Red - Offices/BOH

***FUNTIONAL AREAS***



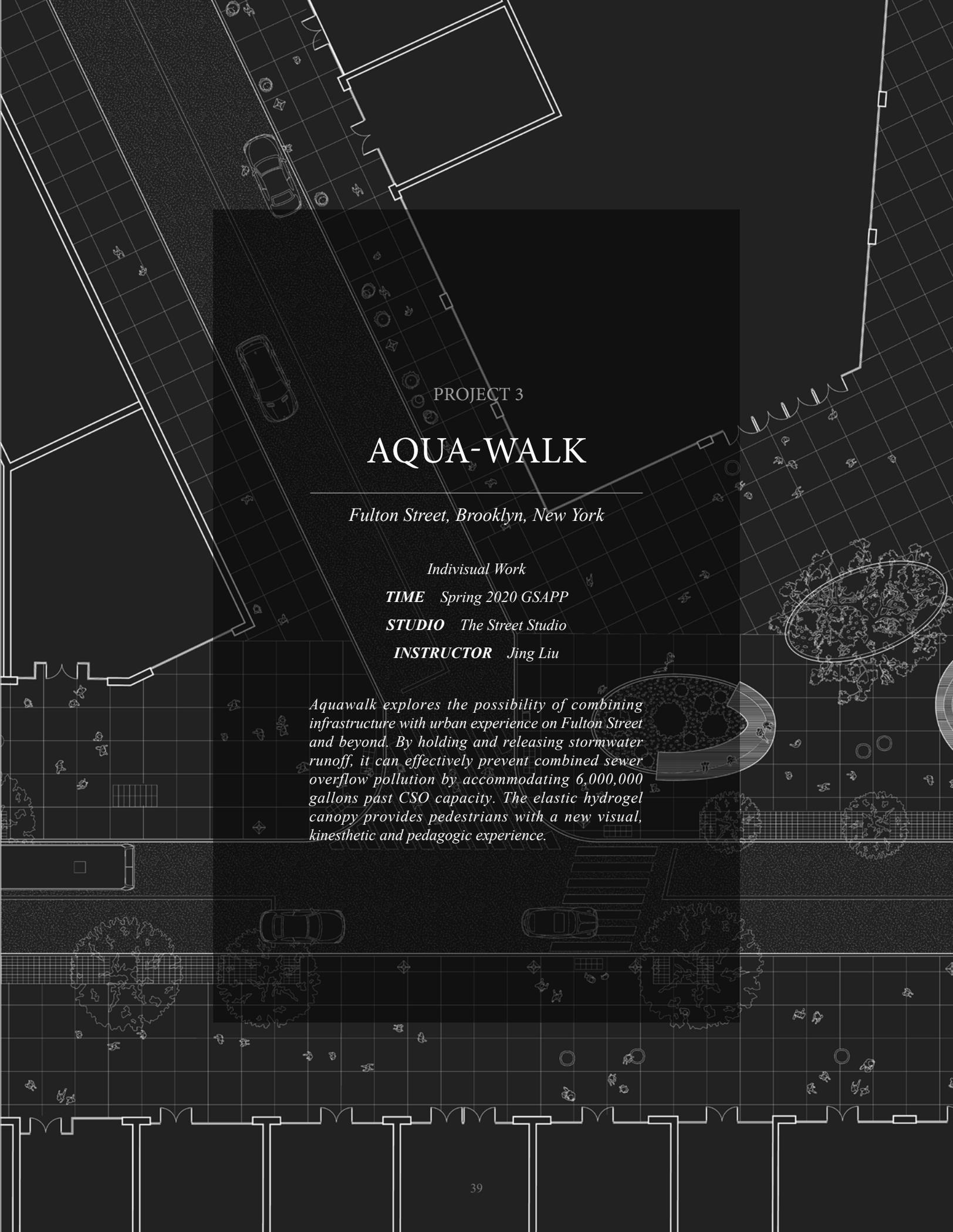
ROOFTOP CAFE





CENTRAL PLAZA





PROJECT 3

# AQUA-WALK

*Fulton Street, Brooklyn, New York*

*Individual Work*

**TIME** *Spring 2020 GSAPP*

**STUDIO** *The Street Studio*

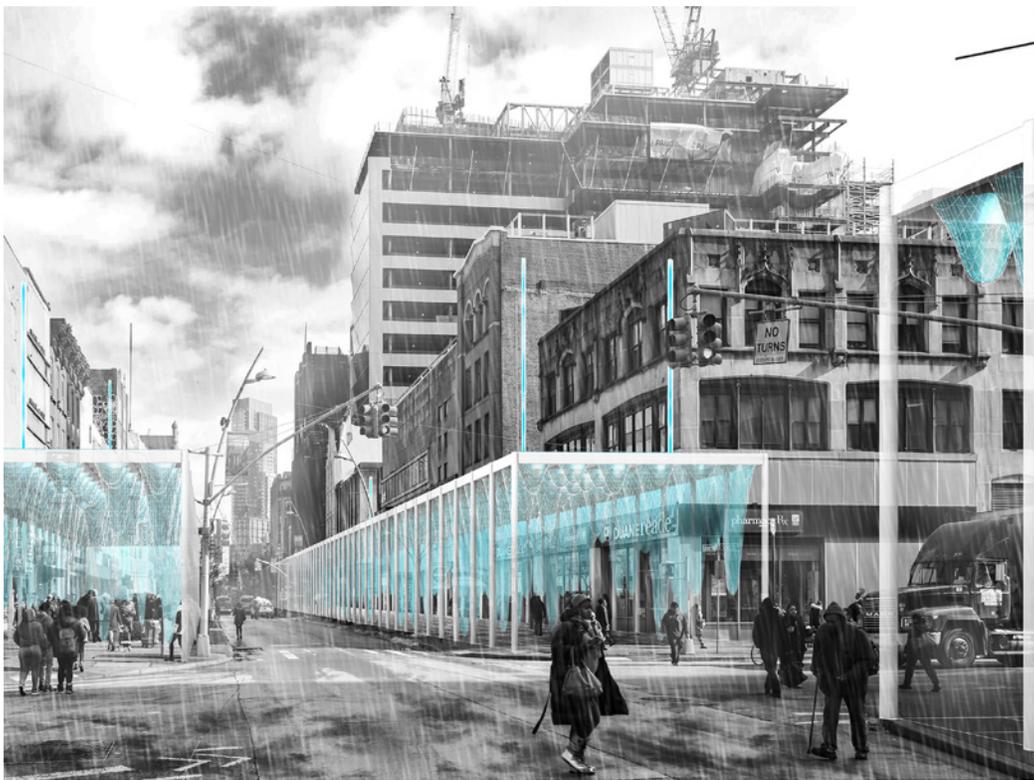
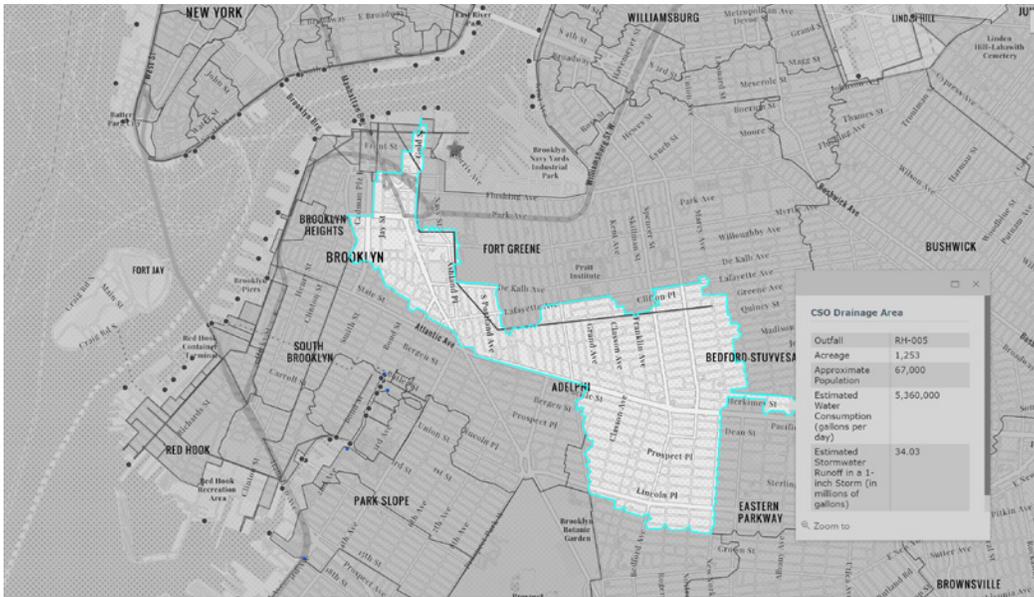
**INSTRUCTOR** *Jing Liu*

*Aquawalk explores the possibility of combining infrastructure with urban experience on Fulton Street and beyond. By holding and releasing stormwater runoff, it can effectively prevent combined sewer overflow pollution by accommodating 6,000,000 gallons past CSO capacity. The elastic hydrogel canopy provides pedestrians with a new visual, kinesthetic and pedagogic experience.*



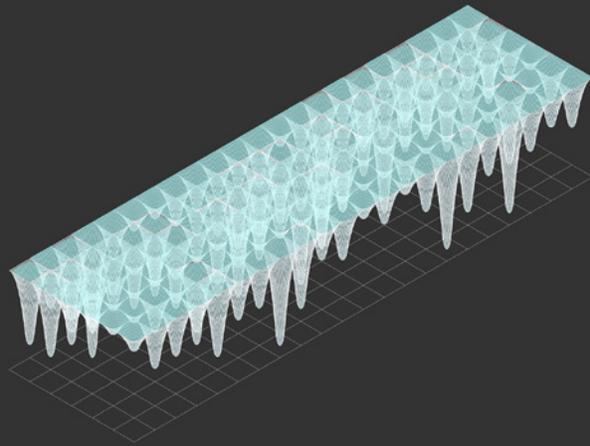
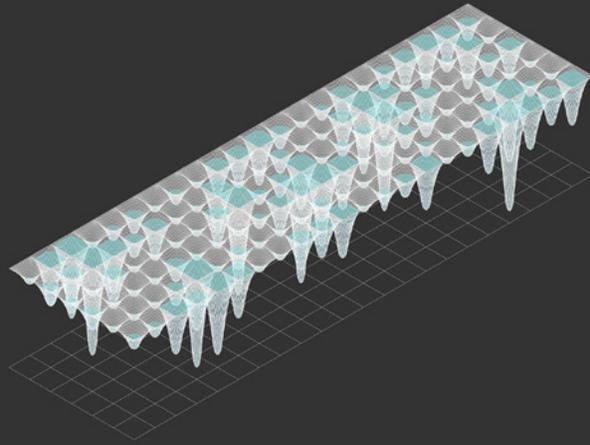
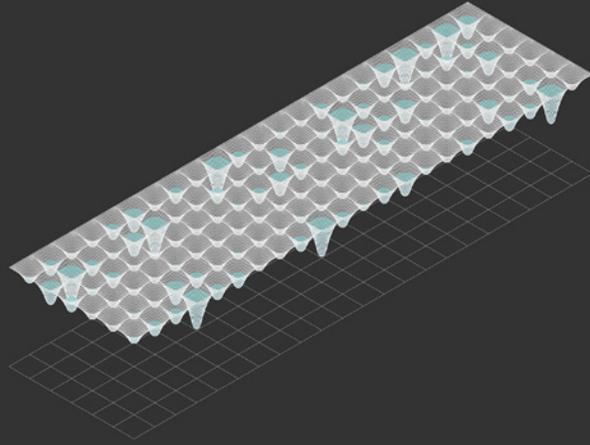
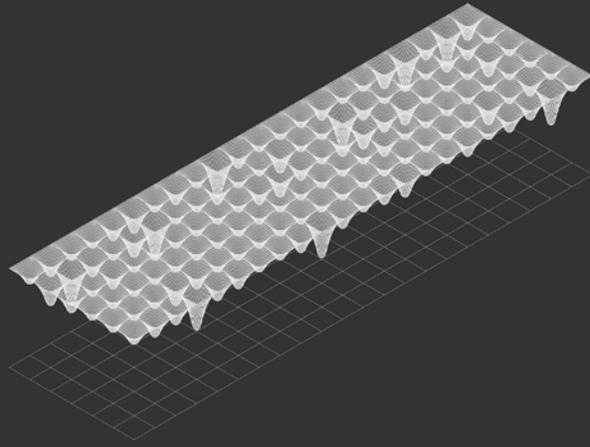






*Although the temporal and spatial distribution of rainfall remains uneven, CSOs can still be avoided if we can delay and even diminish the peak of stormwater runoff by holding an amount of rainfall for a period of time. Based on the most recent CSO statistics in this drainage area(RH-005), we can calculate the average CSO volume per event, which is 5.8 million gallons.*

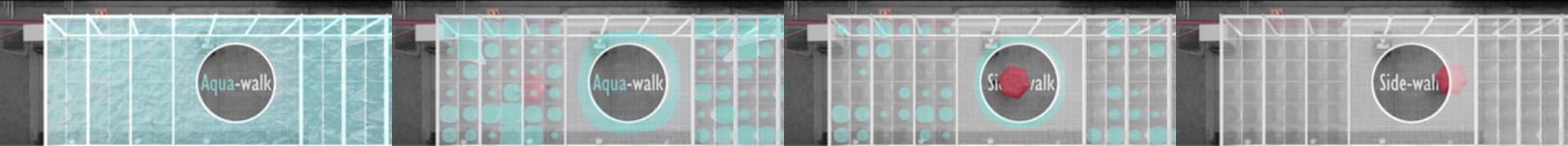
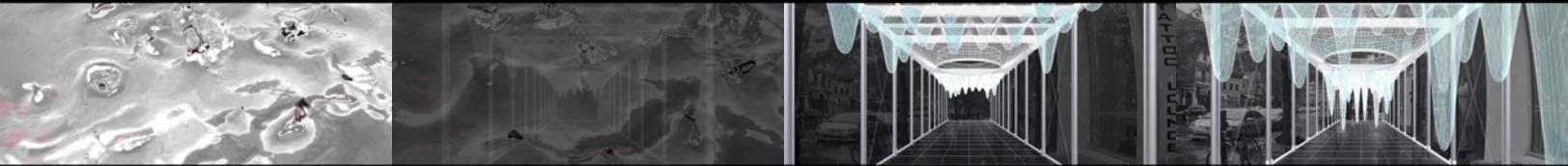
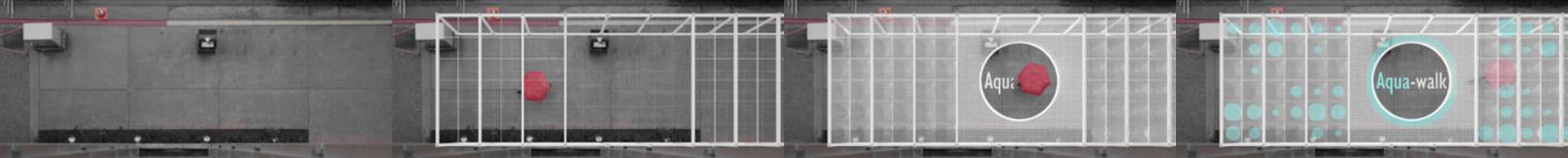
*Supposing the intervention is to be installed on both sides of Fulton Street. The estimated maximum water storage capacity is 6 million gallons, which is more than the average CSO volume 5.8 million gallons.*

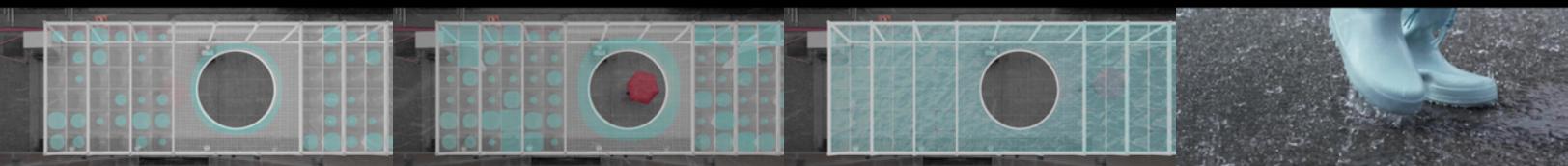
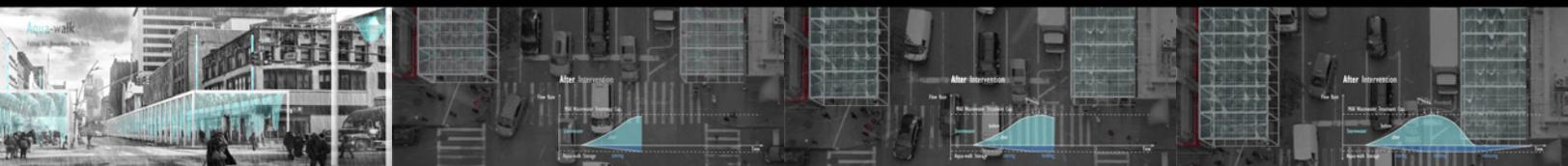
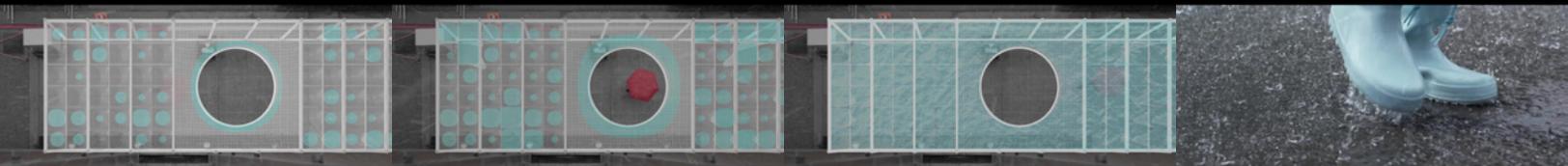
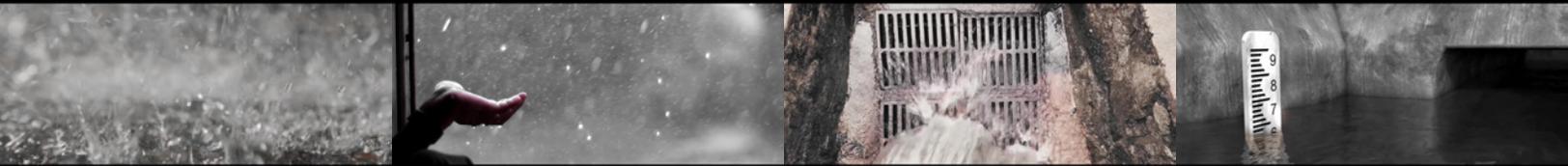


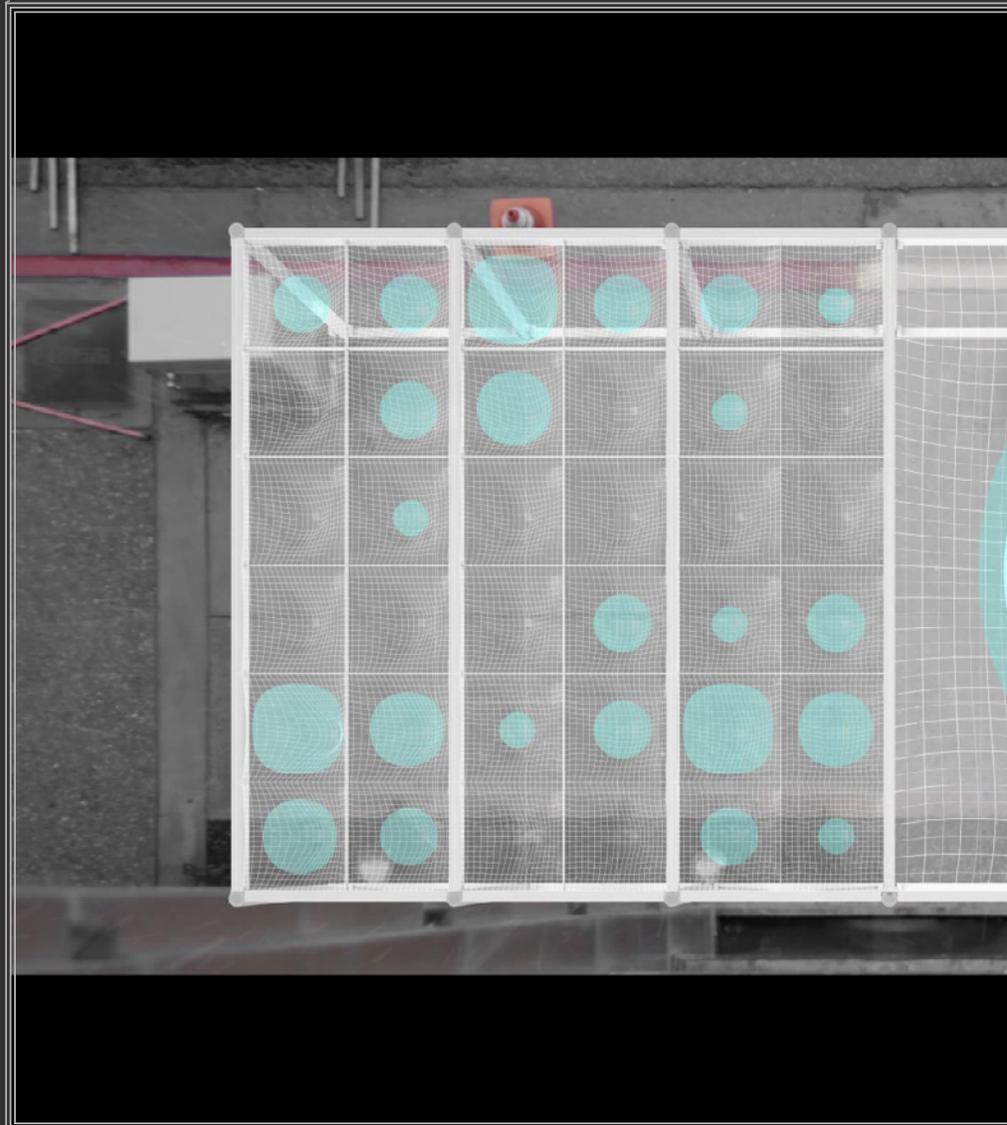
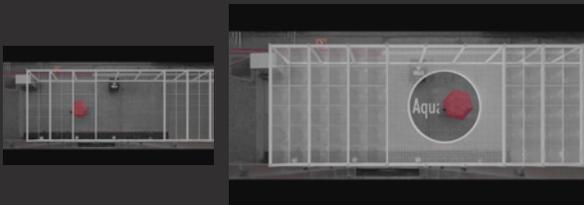
*The installation has a canopy that comprises a number of stretchy hydrogel sacks. Each unit is 1m\*1m and Fulton Street sidewalk is about 6 units wide.*



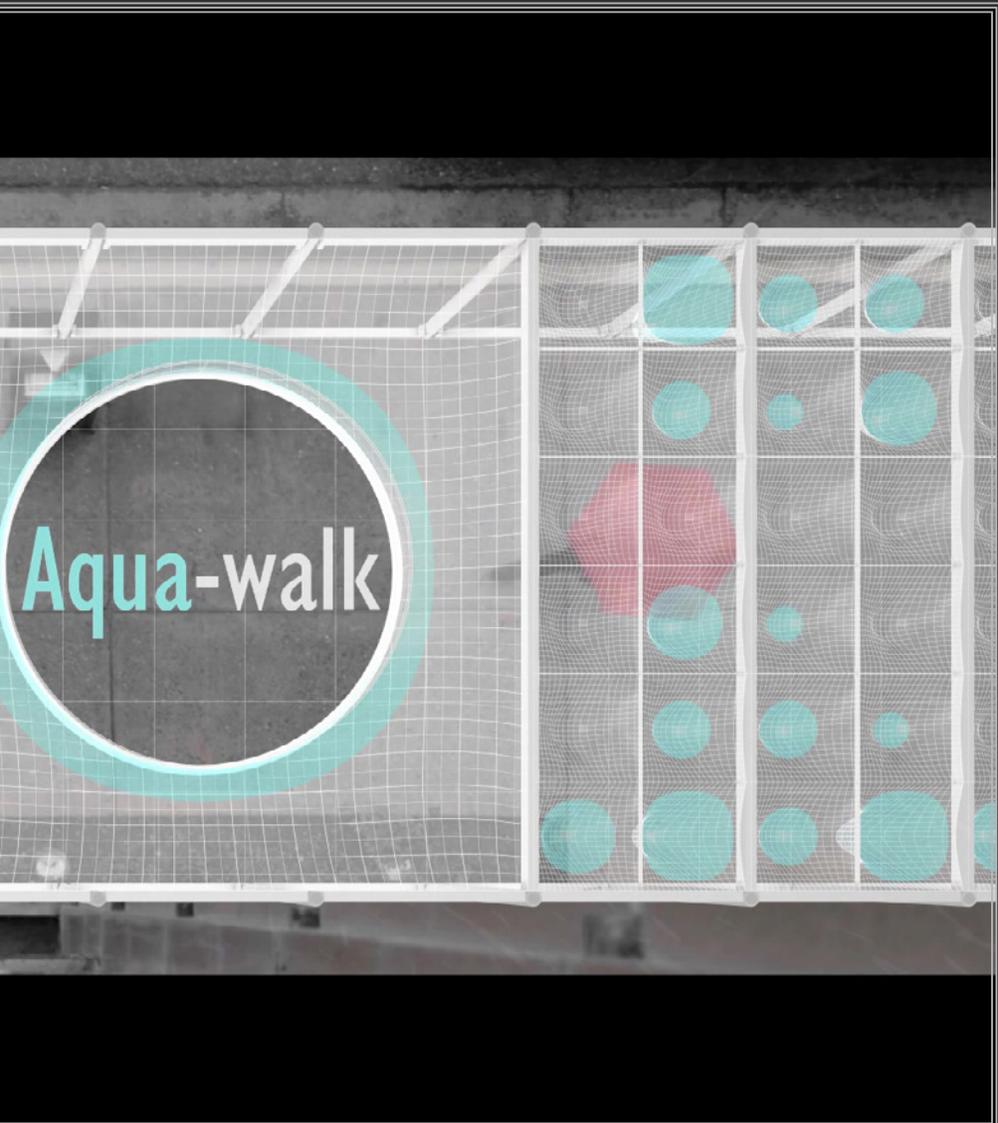
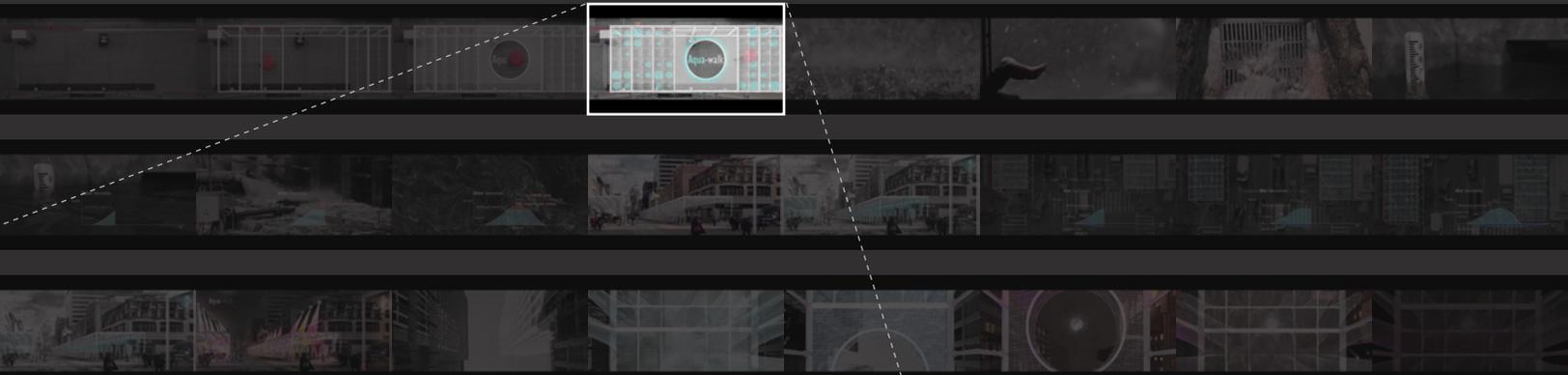
A STORY OF WATER

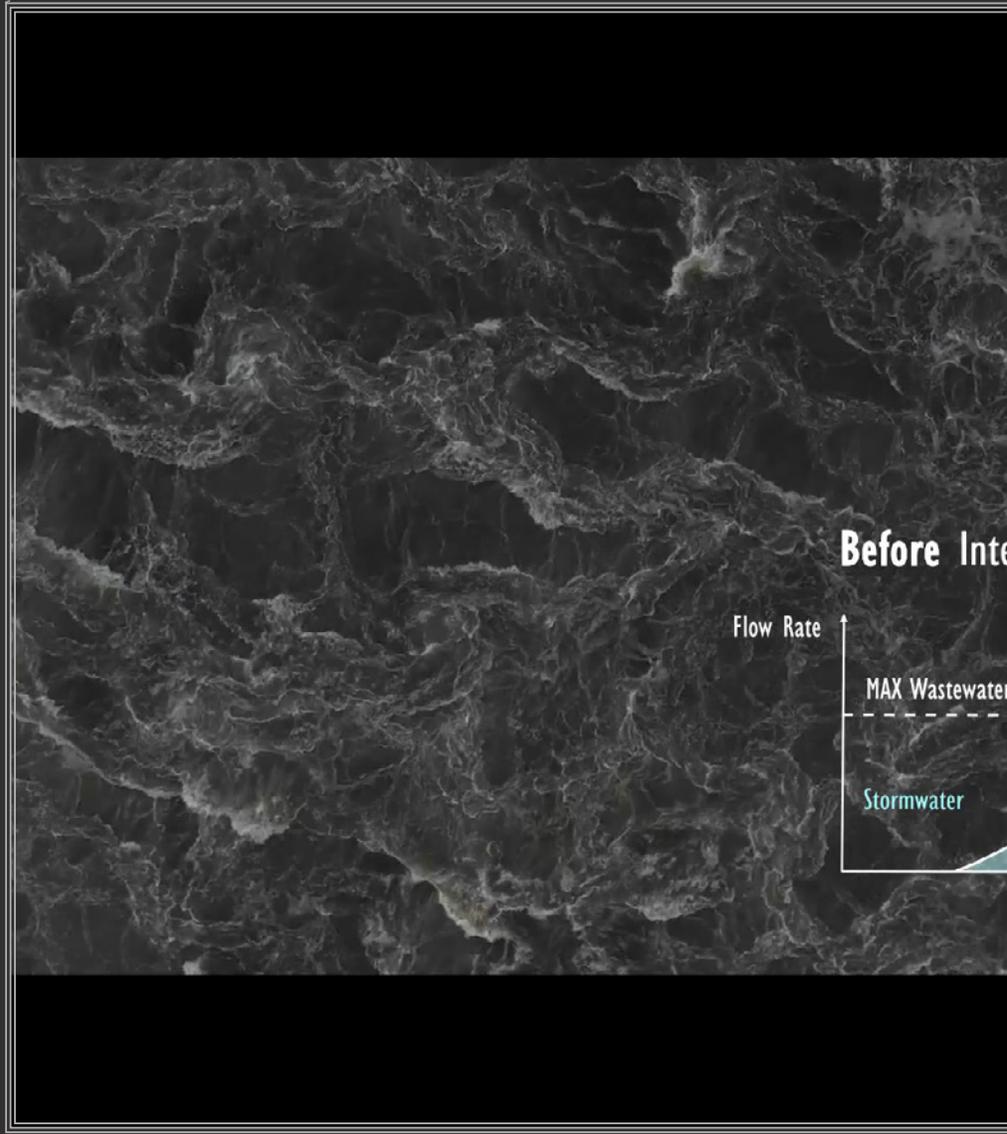
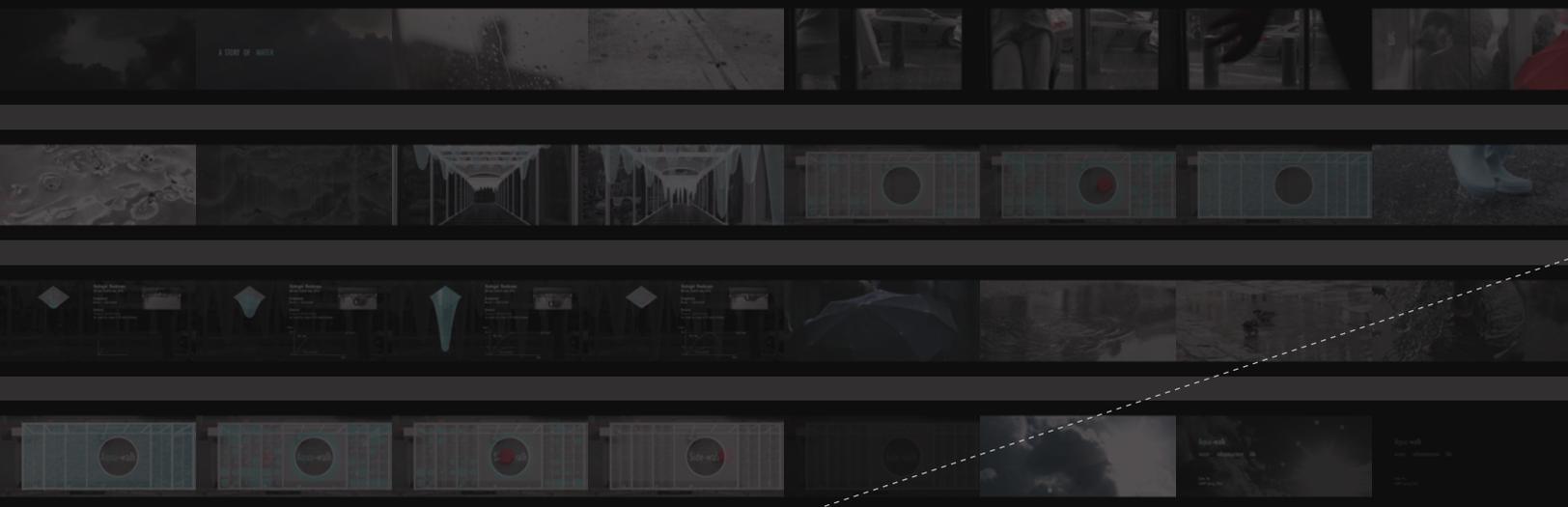




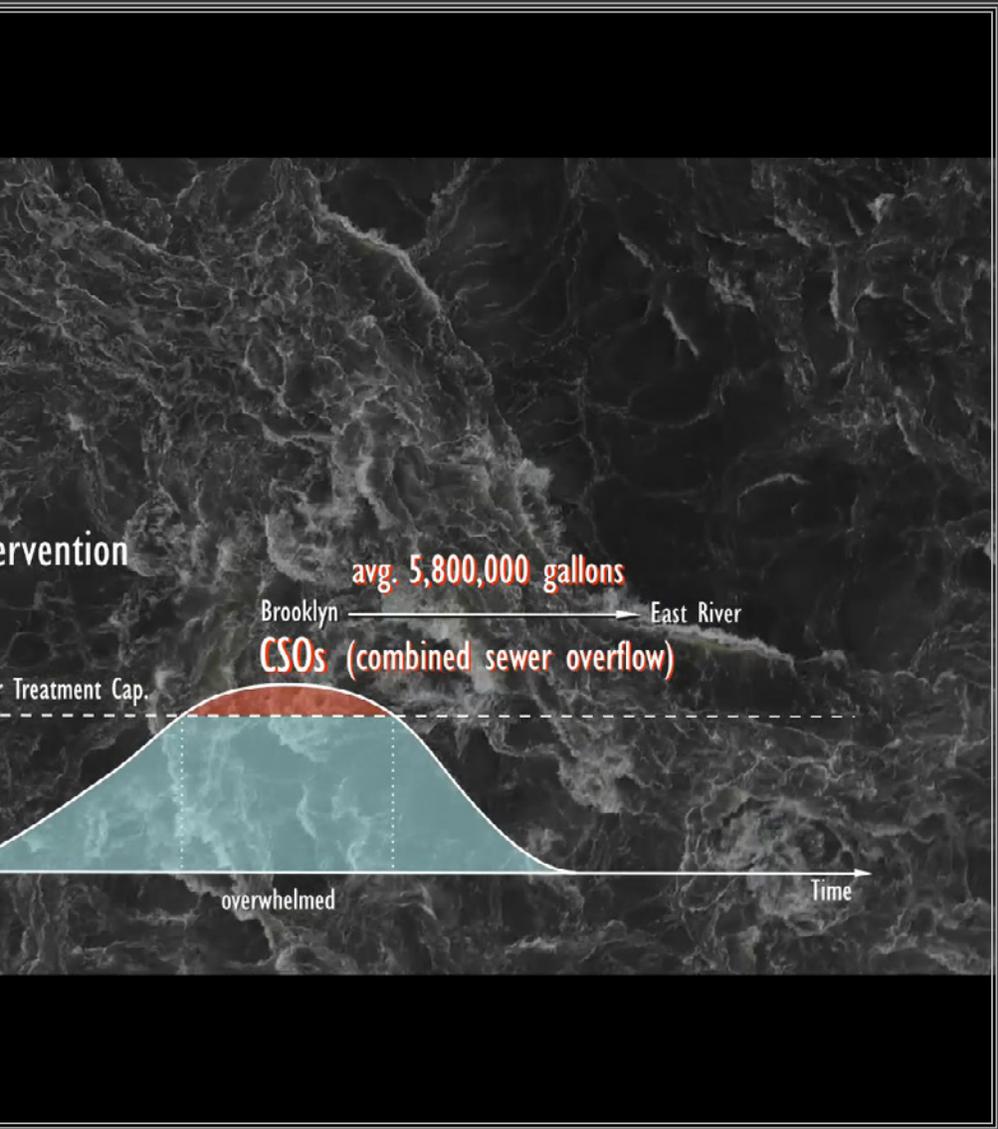
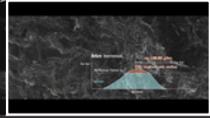


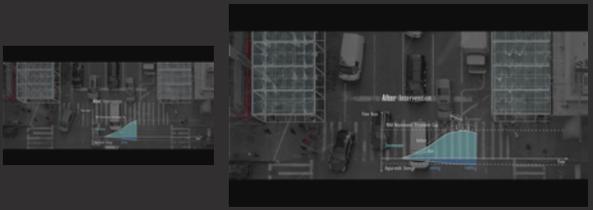
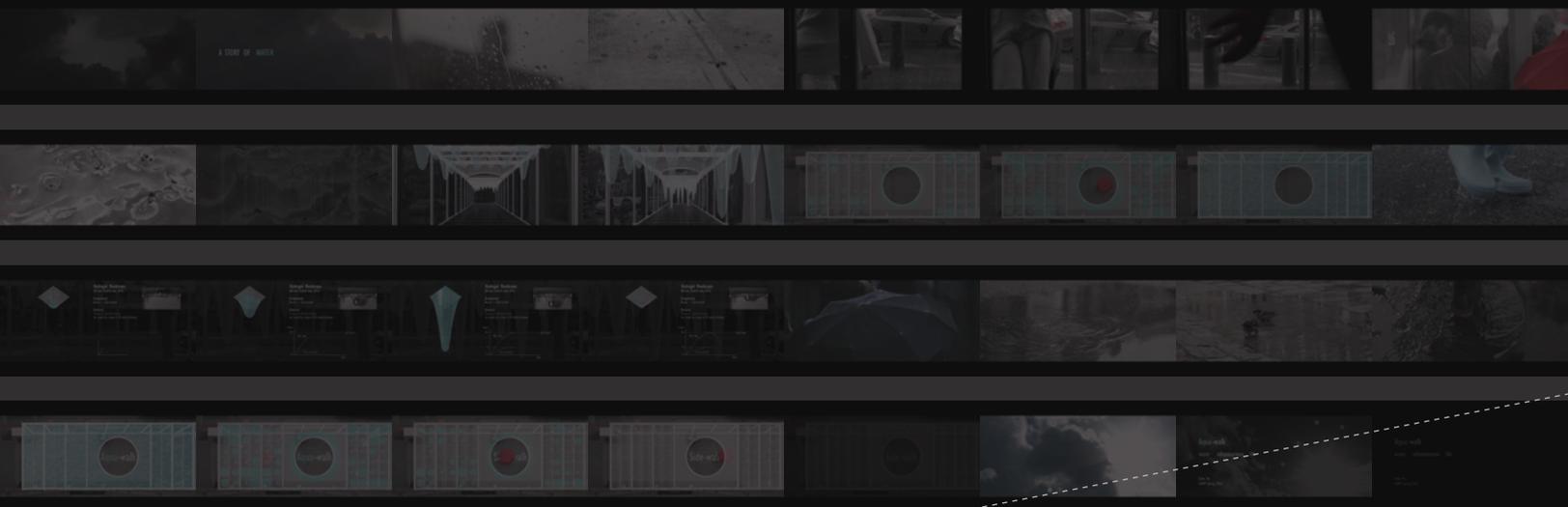
*Storm Approaching*



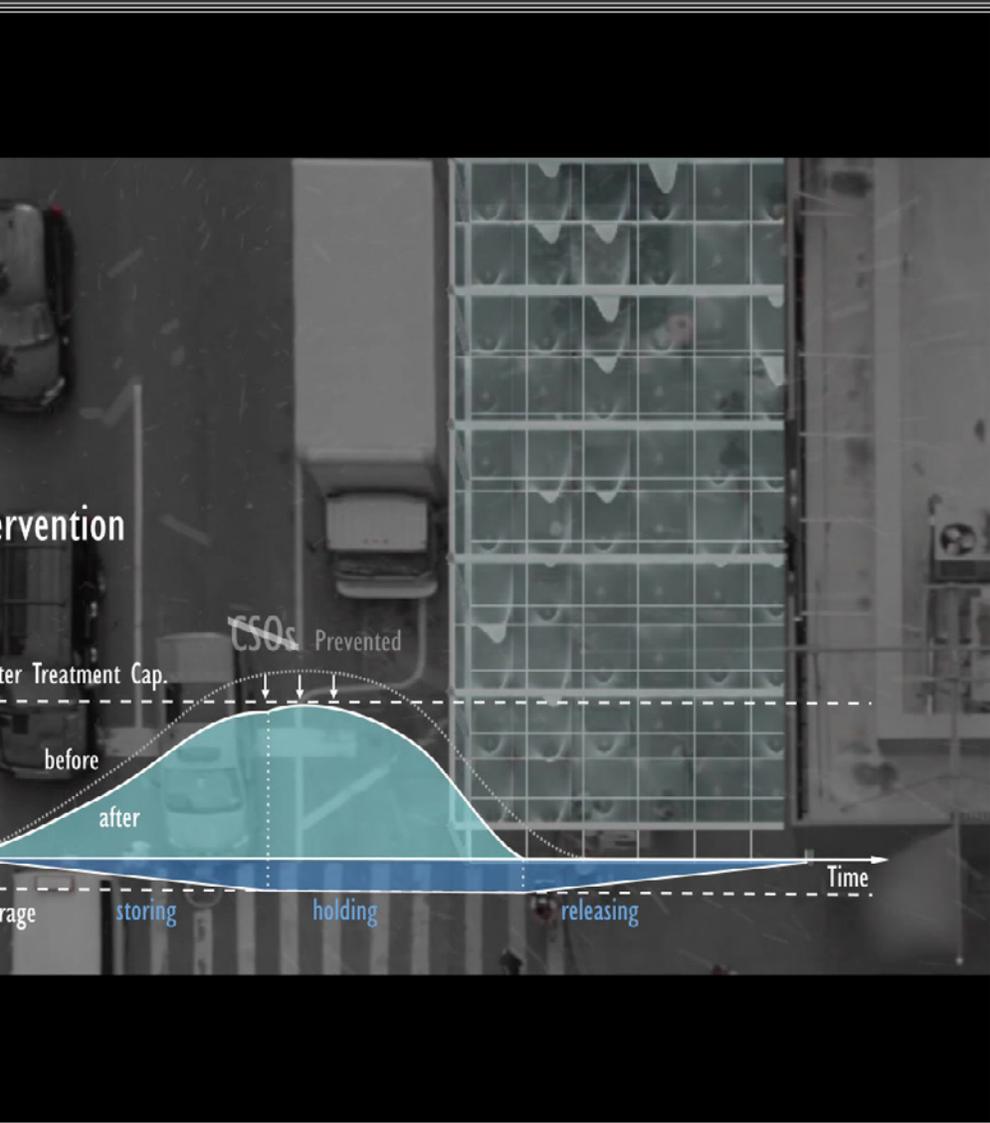
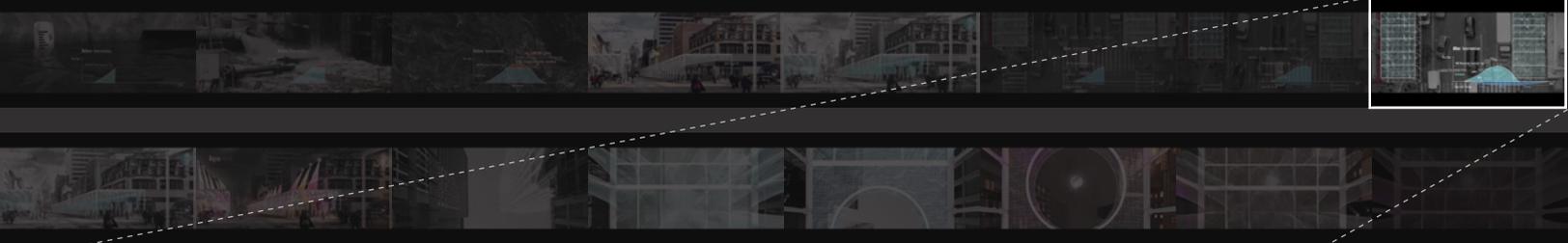


# CSO Pollution

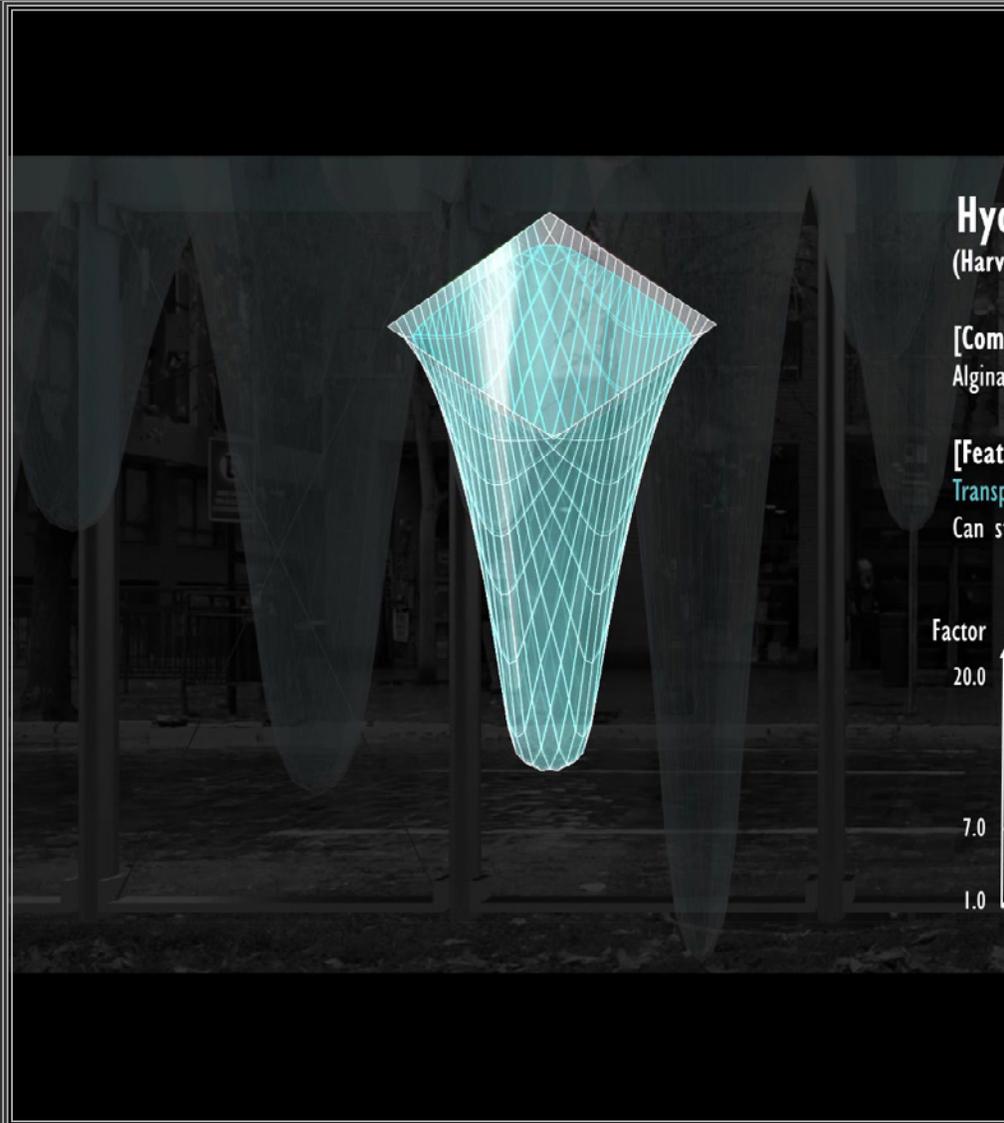
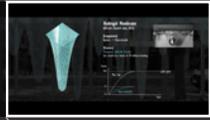




"Flatten the curve"



*Material: Hydrogel*





# Hydrogel Membrane

(developed by Harvard research team, 2012)

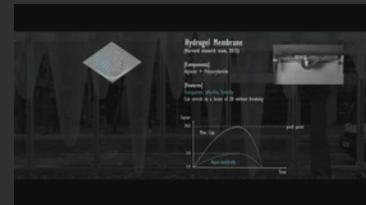
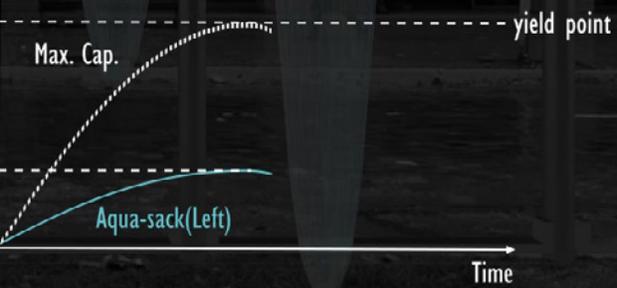
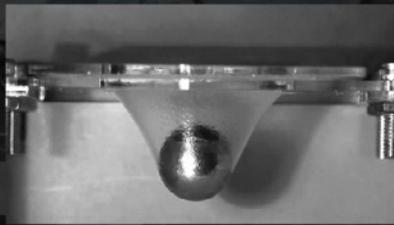
## Components

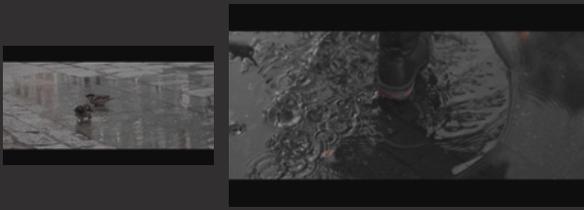
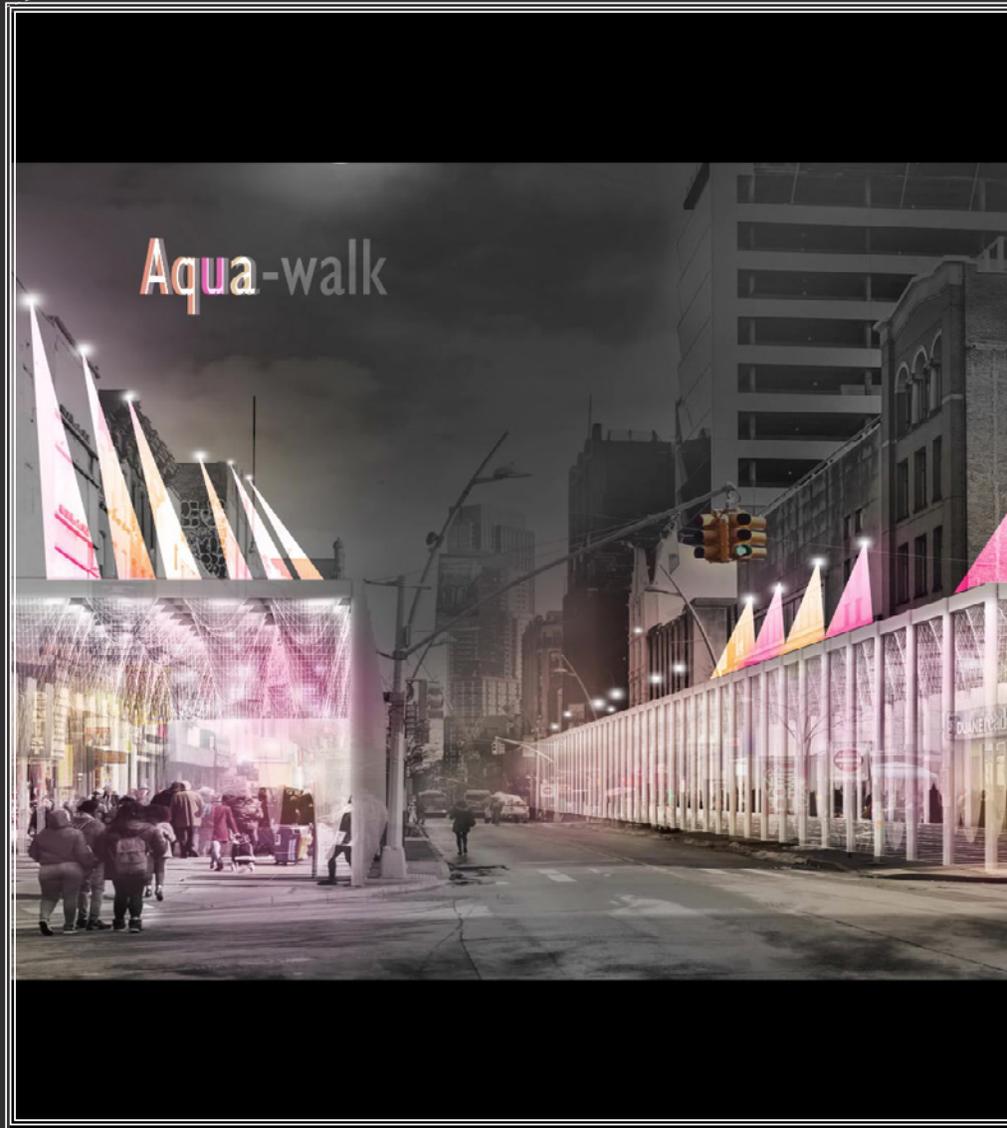
Hydrogel + Polyacrylamide

## Features

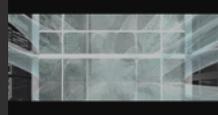
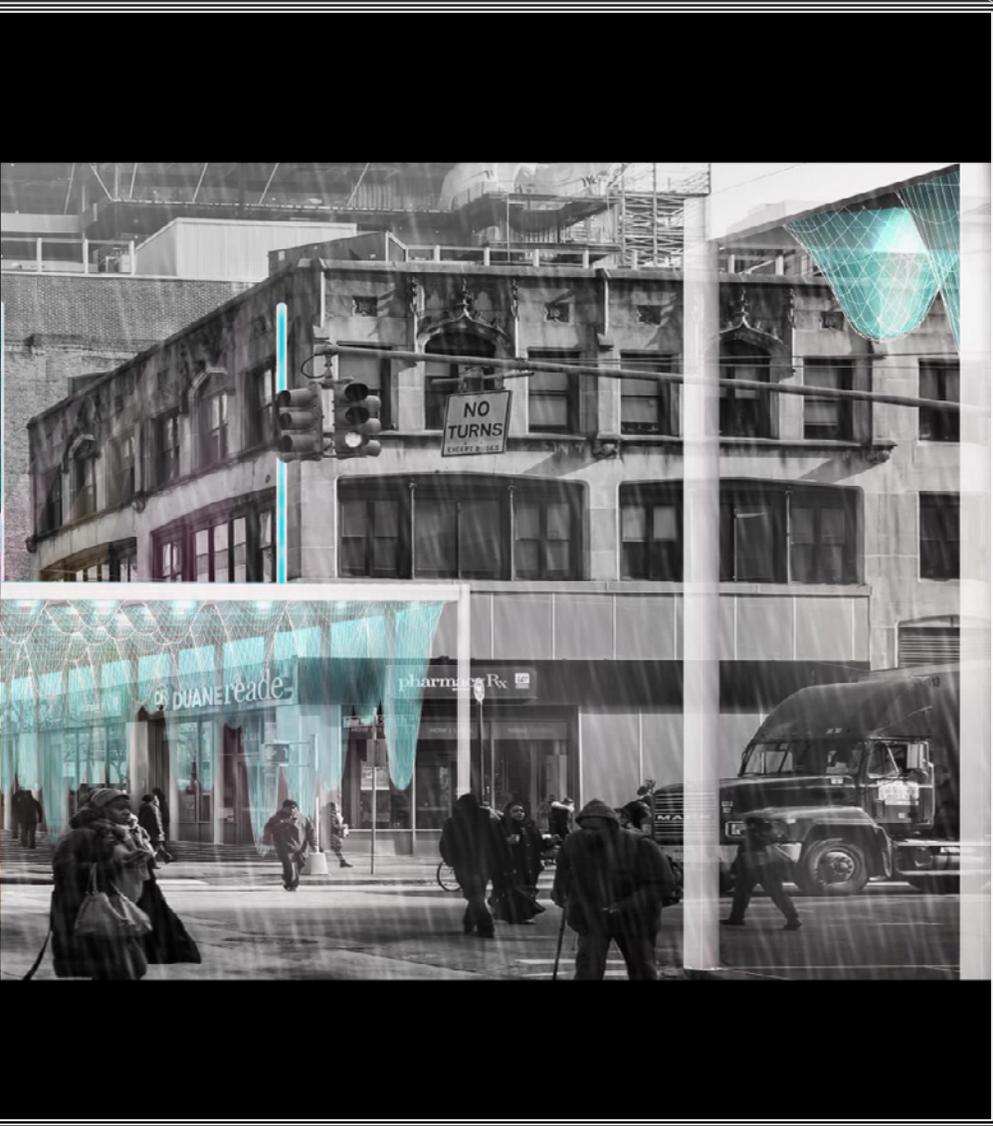
Transparent, Jelly-like, Stretchy

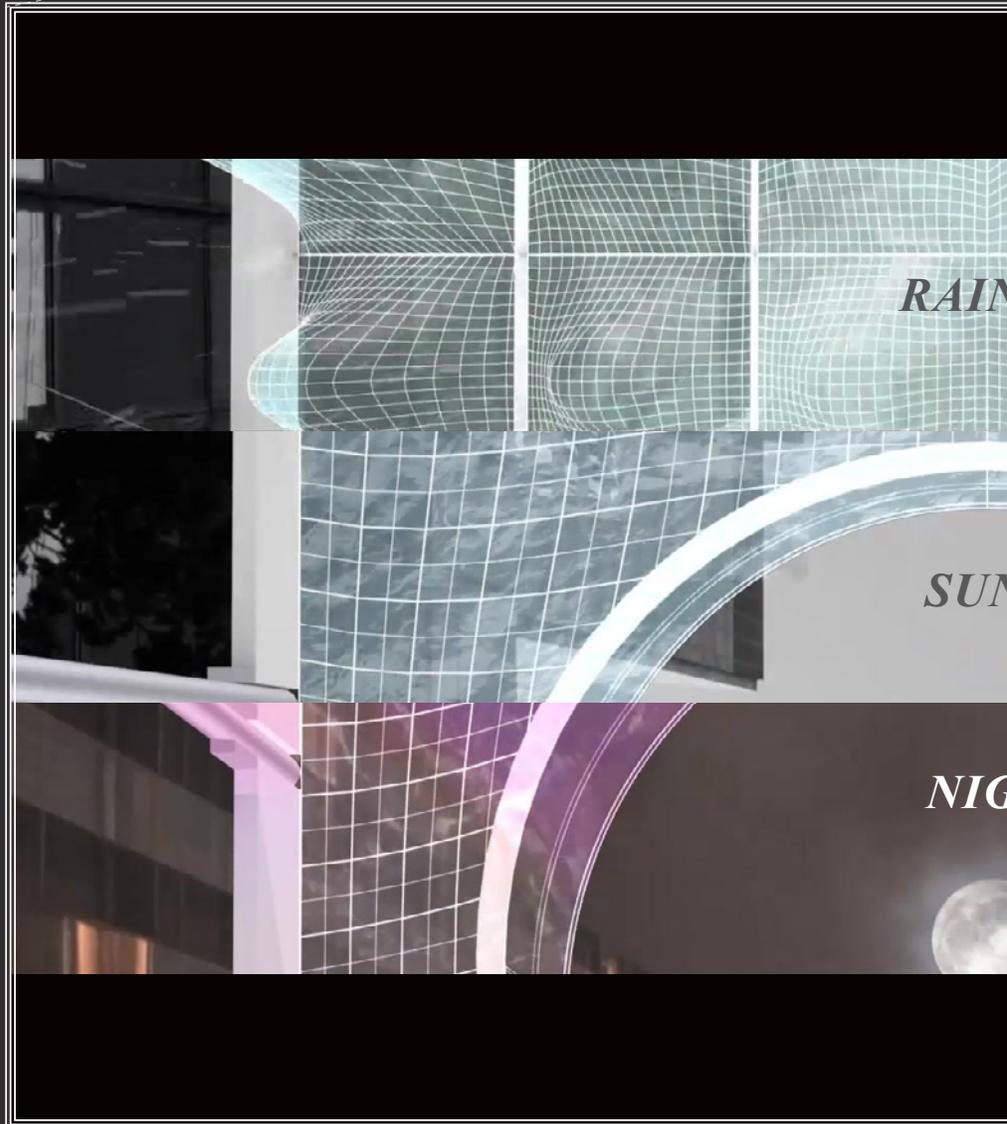
Can stretch by a factor of 20 without breaking

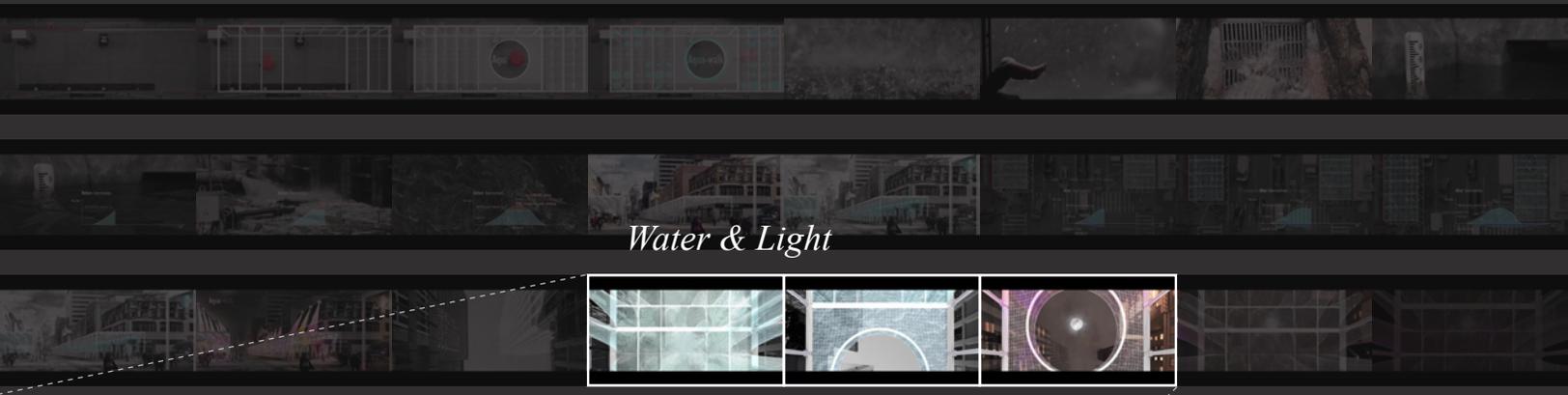




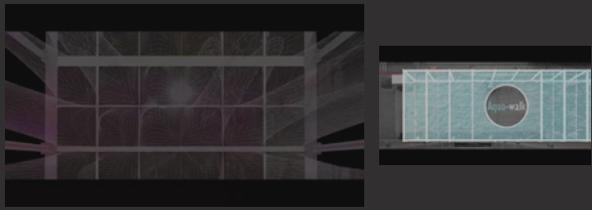
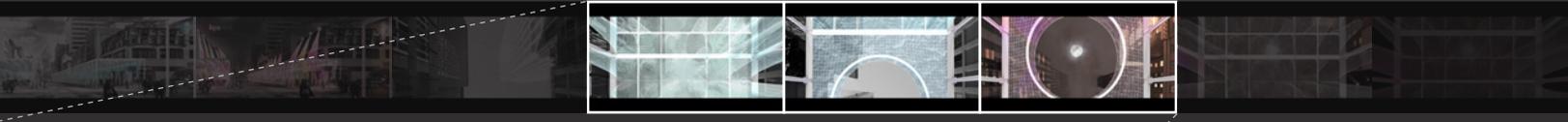
*Infrastructure & Urban experience*







*Water & Light*







*Grand Central Station*

ELECTIVE

ARCHITECTURAL  
PHOTOGRAPHY

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*New York City*

**TIME** *Fall 2019 GSAPP*

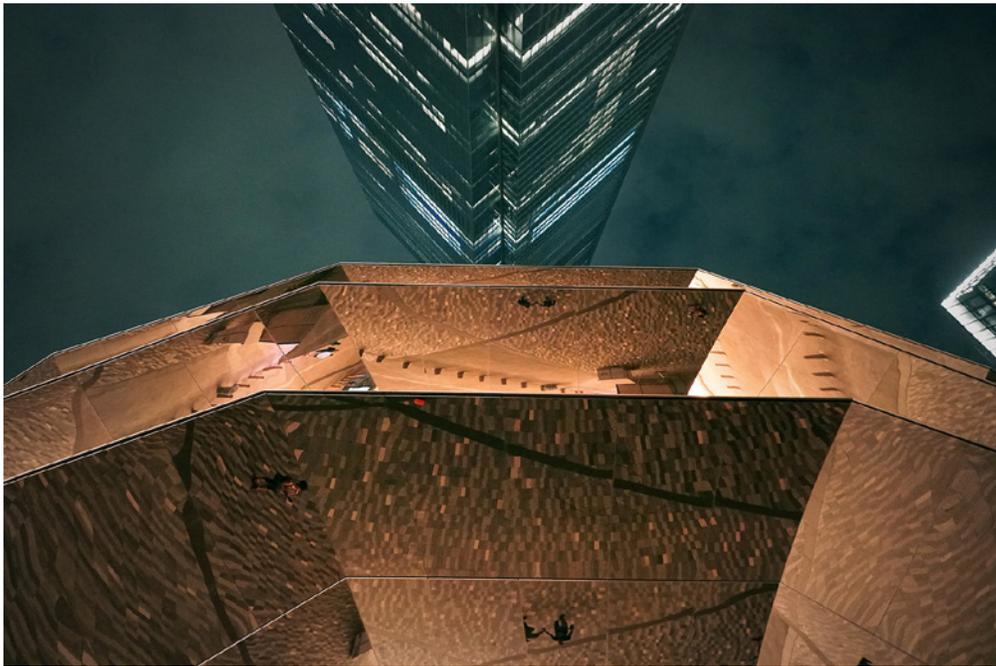
**INSTRUCTOR** *Michael Vahrenwald*



*Firescape, 5th Avenue*



*The High Line*



*The Vessel*

