ПORTFOLIO

RIDHI CHOPRA

CONTENTS
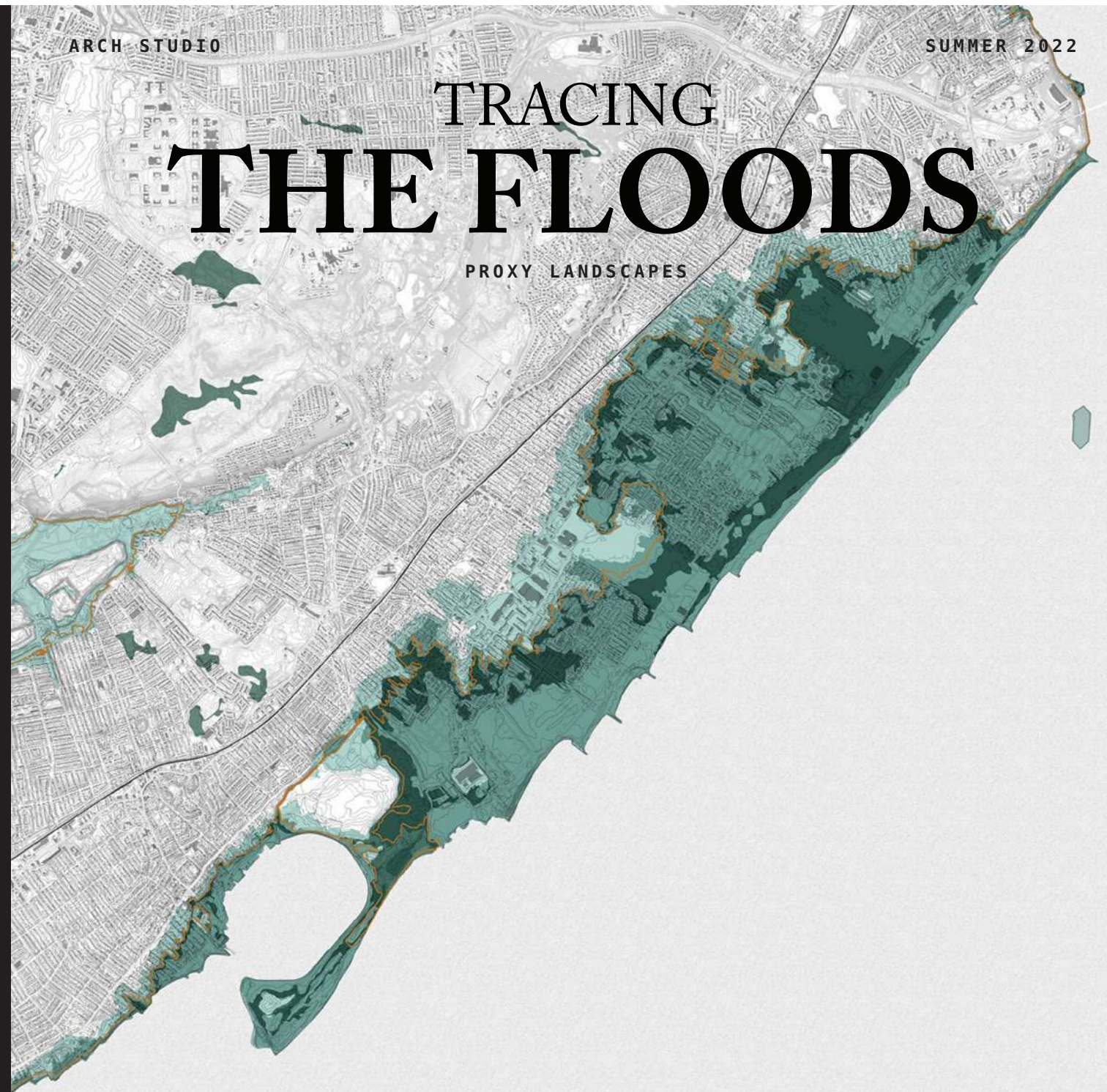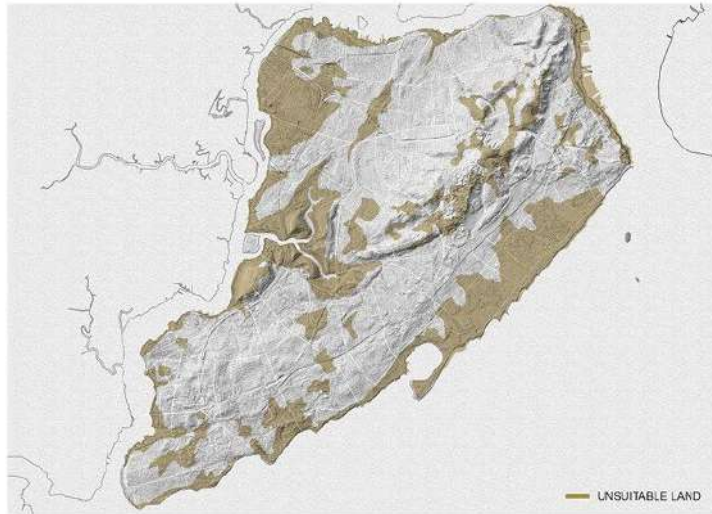
TRACING
THE FLOODS

PROXY LANDSCAPES

STATEN ISLAND

EAST SHORE MAPPING

IAN MC HARG'S LAND SUITABILITY, source: ian mcharg design

In the 1960s, Ian McHarg examined land-use suitability for Staten Island with attention to ecological planning by analyzing physical and cultural characteristics of land features and biophysical vulnerabilities to spot the areas that are least suitable for urbanization in the city.


LAND-USE, source: nuc.gov

Staten Island saw an influx of tourists and urbanization during the early 90s when the connectivity of the island improved. In the following years, the rapid development led to the island facing repercussions like flooding.

UNSUITABLE FOOTPRINT, source: ian mcharg design with nature

The current building footprint of Staten Island overlays in some areas with the unsuitable urbanization zoning suggested by McHarg. 16.5% of the total population lives within the Hurricane Sandy Inundation Zones. A dominant number of those people belong to the East shore.
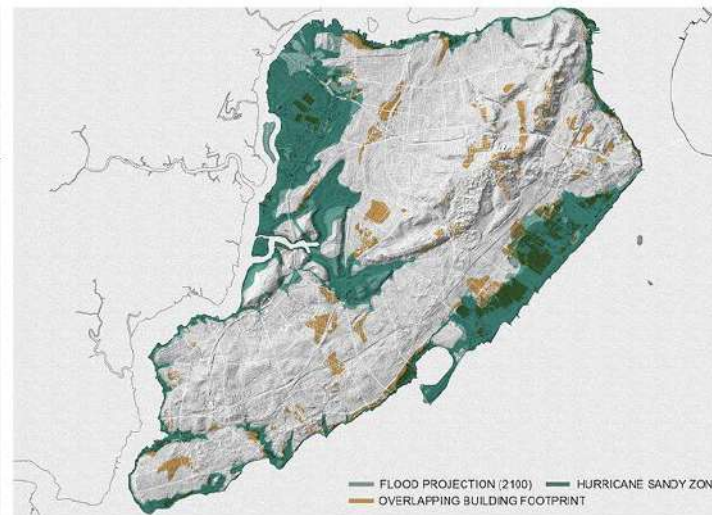
HURRICANES AND FLOODS, source: fema.gov

The East Shore has been vulnerable to flooding and hurricanes in the past. A large amount of the East Shore was affected by Superstorm Sandy in 2012 as already suggested by McHarg.

As coastal shores grow in population, more people are exposed to the risks of sea-level rise and flooding. These threats are aggravated by the climate crisis, which contributes to erratic storms, storm surges, and shoreline erosion. Through our index, survey, and projection, we wanted to examine the current and possible changes in flooding conditions in Staten Island. Additionally, the project intends to explore this change in flooding conditions and use it as a proxy to understand the potency of reclaiming wetlands in other endangered sites all around the world.

Staten Island is in the southernmost part of New York. It has a population of less than 500,000. It is the least populous borough in New York state. During the early 90s, Staten Island saw an influx of tourists and urbanization when the connectivity of the island improved. Due to its rapid development, the island started facing the repercussions of these developments such as flooding. As a measure of control, various city departments have taken initiatives to amend these issues over time.

In the 1960s, Ian McHarg examined land-use suitability for Staten Island with attention to ecological planning by analyzing physical and cultural characteristics of land features and biophysical vulnerabilities such as tidal inundation and coastal flooding. He analyzed the map to spot the areas in Staten Island that are least suitable for urbanization in the city.

The current building footprint of Staten Island, when overlaid, coincides in some areas with the unsuitable urbanisation zoning suggested by McHarg. This was also one of the worst affected areas during Hurricane Sandy, images of which you see on the bottom left corner of the left page.

To understand the flooding conditions of Staten Island, we studied Federal Emergency Management Agency maps. FEMA is the agency responsible for leading the country's efforts to prepare, protect and mitigate against, respond to, and recover from the impacts of natural disasters and man-made incidents. It also provides flood hazard data to support the National Flood Insurance Program.

As FEMA is currently updating their flood insurance rate maps, we looked at the Sea level rise data available for the east shore. This map illustrates the potential impact of sea level rise on the areas of New York City that could be subject to the 100- and/or 500-year flood in the 2020s and 2050s due to high estimate projections for sea level rise. There is a range of 11- 31 inches of sea level rise. However, this map does not account for other changes in climate, such as possible changes in storm intensity and frequency that could affect storm surge occurrences and heights.

Besides the FEMA maps, a non profit initiative— First Street Foundation Flood Model—calculates a house's probability of flooding from four major flood types and then incorporates high-precision elevation and building footprint data along with local adaptation measures like seawalls and levees into its flood projections, validates against modeled historic floods, and then analyzes and maps the flood risk. The maps for the categories are stated below.

Flood Risk for a house is best considered as a combination of these risk factor maps with FEMA maps. According to the data from the First Street Foundation Flood Model, Deeper floods from major events, like hurricanes, are less likely to occur, but properties are more susceptible to damage from shallow flood events, like heavy rains. Furthermore this type of event has a 26% chance of occurring at least once over the life of a 30 year mortgage.

If a low-likelihood storm resulting in severe flooding was to occur in these zip codes today, around 8161 properties would be affected. 30 years from now, an event of this same likelihood would affect 9162 properties due to a changing environment.

50 out of 141 miles of road are at a minor risk of flooding in these zones whereas 108 miles are susceptible to moderate risk.

Critical infrastructure includes hospitals, police stations, fire stations, airports, seaports, power stations, wastewater station plants, superfund / hazardous waste sites, and wastewater treatment facilities. Out of these, 10 of 26 properties are at a risk.

Social facilities include schools, houses of worship, museums, and government and/or historic buildings. 17/19 properties are at risk.

100-YEAR FLOODPLAIN — RESIDENTIAL TYPOLOGY — COMMERCIAL TYPOLOGY ● EVACUATION ZONES
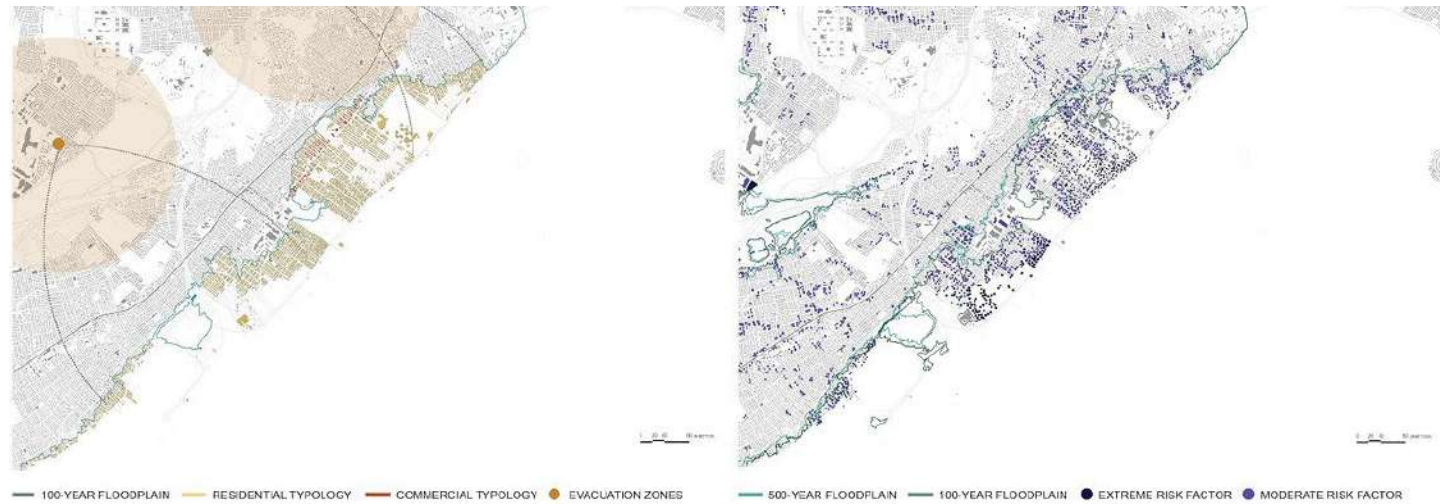
LAND-USE, source: nyc.gov

The East Shore has a high vulnerability to flooding. The dense and varied development in the area, along with the extent of the 1% annual chance floodplain, means that over 10,000 residential units are within the Preliminary Flood Insurance Rate Maps

500-YEAR FLOODPLAIN — 100-YEAR FLOODPLAIN ● EXTREME RISK FACTOR ● MODERATE RISK FACTOR

RESIDENTIAL RISK FACTOR, source: riskfactor.com

The number of homes at risk is classified as minor, moderate, and major. Where 1410 houses are minor at risk, 3516 are at moderate, and 4609 are at major risk factor. These include residences beyond the FEMA flood insurance lines


● WASTEWATER TREATMENT ● FIRE STATIONS ● HOSPITALS ● POLICE STATIONS
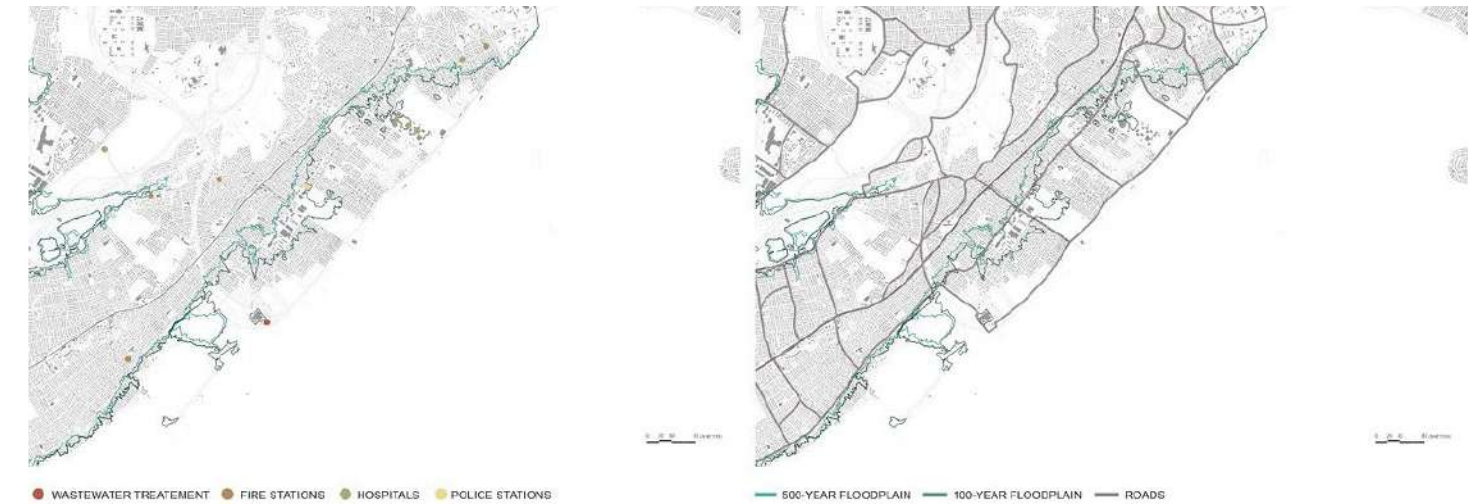
CRITICAL RISK FACTOR, source: riskfactor.com

Critical infra includes hospitals, police stations, fire stations, airports, sea ports, power stations and waste water treatment facilities. Out of these 26 properties on site, 10 are at risk of flooding

500-YEAR FLOODPLAIN — 100-YEAR FLOODPLAIN — ROADS

URBAN INFRASTRUCTURE RISK FACTOR, source: riskfactor.com

50 miles of road out of 141 are at a minor risk of getting flooded in these zones whereas 108 miles of roads are susceptible to moderate risk


100-YEAR FLOODPLAIN — 500-YEAR FLOODPLAIN ● COMMERCIAL PROPERTIES
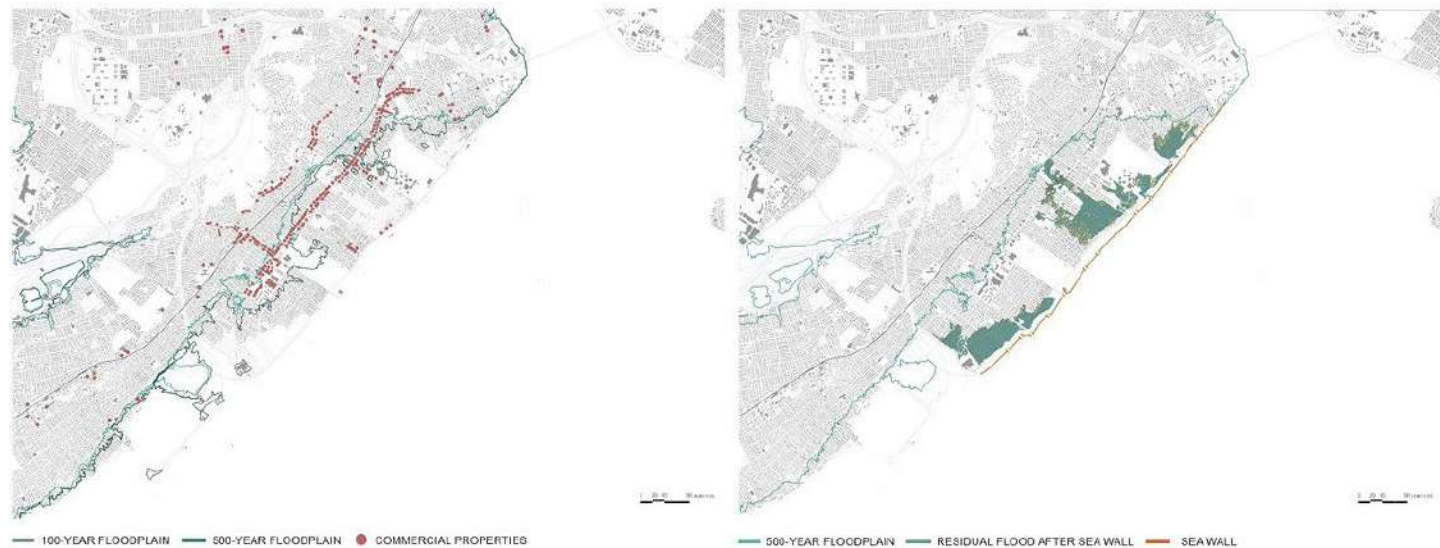
COMMERCIAL RISK FACTOR, source: riskfactor.com

324 properties are in these zip codes which are facing a moderate risk of flooding. 282 are at major risk and 352 are in fact facing severe risk factors.

500-YEAR FLOODPLAIN — RESIDUAL FLOOD AFTER SEA WALL — SEA WALL

SEA-WALL, source: thenyc.gov

Upon planned completion in 2023, the hybrid system of armored levees and buried sea walls called the Line of Protection will reduce flood risk. The plan also involves a complementary interior drain plan with tidal gates, road elevations, and excavations

— 100-YEAR FLOODPLAIN ○ PARTICIPATING UNITS ● RELOCATED UNITS ● COMMUNITIES
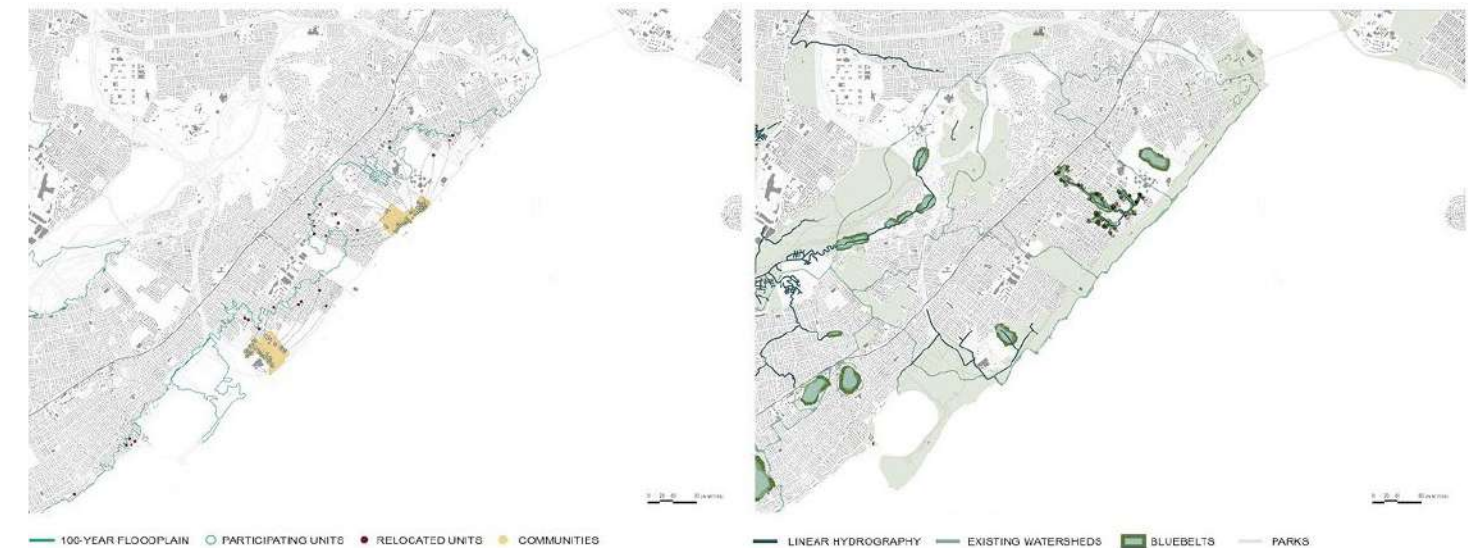
BUY-OUT PROGRAM, source: mcghee, duke university

The majority of participants in the managed retreat program relocated to zip codes 10306, 10312, 10314, and 10308. Nearly 40% of all the buyout participants who relocated within Staten Island relocated to 10305 and 10306.

— LINEAR HYDROGRAPHY — EXISTING WATERSHEDS ■ BLUEBELTS — PARKS

BLUE BELTS, source: nyc.gov

Blue belts are ecologically rich and cost-effective drainage systems that naturally handle the runoff precipitation that falls on our streets and sidewalks. The combination of ecology with technology, indigenous to its location can also help.

The intervention works on recognising and tracing the current flooding
conditions of East Shore, Staten Island. This works in two ways.
Horizontal tracing and vertical tracing. The path for the trail is derived from the 1%
floodplain line, which is the data for highest possibility of a flood occurring in a 100
years. With an intent of having physically minimal inserts, the trail focuses on more
visual experiential connections. The path is broken down into relationships with its
environment and is made up of nodes from these combinations

RELATIONSHIP DIAGRAM A
Relationship with Parks: Wherever the trail crosses
a park or an open piece of land, we have designed
benches from the profile derived out of the 1%
Annual flood hazard line. These benches are
placed on each end of such parks to not hamper
its usage.

RELATIONSHIP DIAGRAM B
Relationship with urbanisation : To show this
whenever the trail passes a house, we have
utilitied the plants in front of that particular house
and marked a yellow line around the bark at the
level of an average human height in the Unites
states which is 5ft 4 in. Since the average flood
line in the East shore is 10 feet, we want this
visual to communicate the urgency of flooding in
relation to scale.

RELATIONSHIP DIAGRAM C
Relationship with roads: For this, wherever the trail
crosses a road, we have placed a square in those
particular nodes to form a path along with signage
boards giving description of the trail acro
ss its length. For this insert we have used the color
red which is also associated with danger and
impact.

RELATIONSHIP DIAGRAM D
relationship with Bluebelts : A trail meandering
through the site traces this inundation using its
shape from below and acts as a walki
ng/ evacuation path from above. The silhouette of
this trail is decided on the basis of the ground it sits
on and the trees it passes through.

○ ROADS
○ STREET TREES
○ BENCHES
○ ROADS

A   B   C   D

01.

02

03
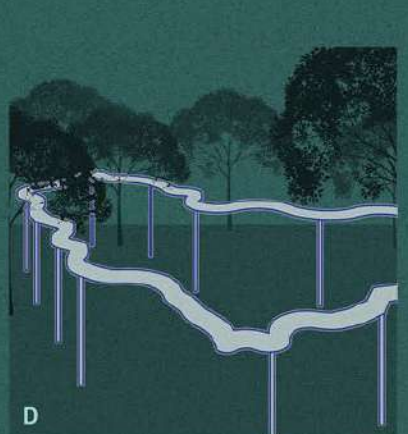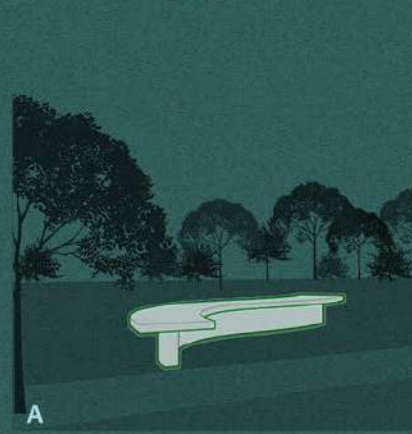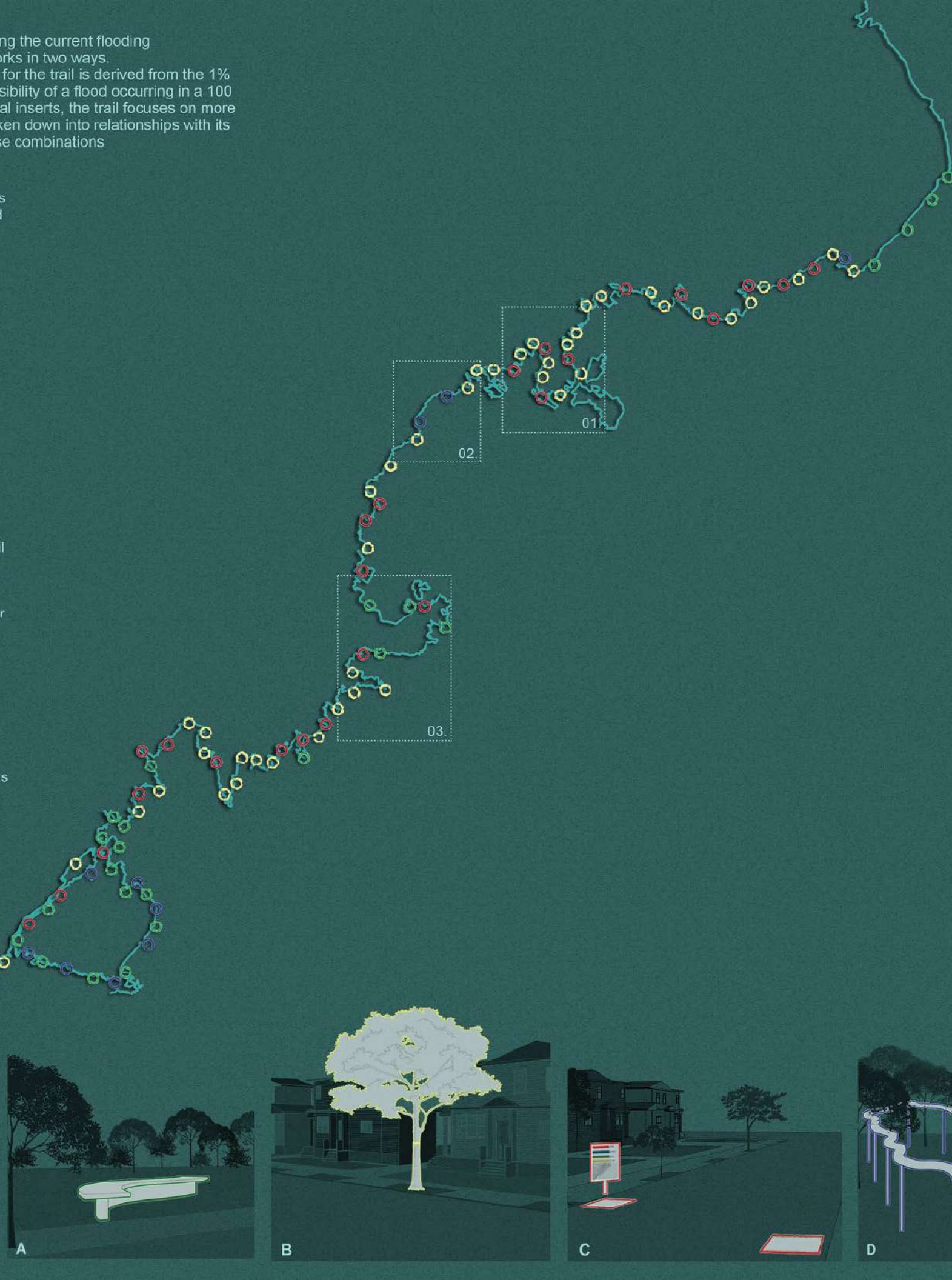
In the mid-1970s, Staten Island was in the midst of a huge wave of development and it lacked the infrastructure to support it. Specifically, storm drainage and sanitary sewers. The Department of City Planning in the late 1900s recognized that a lot of wetlands existing in the city were at a risk of loss of habitat. They were also familiar with the works of architect Ian McHarg, who argued that Staten Island had a uniquely rich natural environment that should be preserved. So they combined their process of stormwater management with natural area restoration to get a bunch of benefits in one go namely: flood control, water quality improvement and a new natural area for birds, aquatic life and, in some cases, park access for residents. This came to be known as the Bluebelt program.

Once it rains, water is collected in the new storm water systems of the bluebelt. These catchment areas are surrounded by native plants and greens that preserve, restore, and enhance the land around these sites. The differentiating aspect of the Bluebelt is that at each and every storm sewer discharge point, there are BMPs — Best management practices - that address the issues of urban stormwater discharge in wetland conditions. Sometimes it's as simple as a series of sumps — or holes in the ground — that slow the storm water down and allow for sediments to settle, accumulate and eventually get removed by their maintenance forces. Some species of native plants are planted around the catchment basins because their roots are home to beneficial bacteria that help clean the water. Further, the DEP also utilizes the NYC parks as a part of their bluebelt systems and enhances their usage. Eventually these sites aim to offer a natural and effective solution for stable stormwater management and urban flooding.

Bluebelts have consistently proven to improve flood-prone sites by controlling the run-off which would otherwise inundate the chosen site. The concept of this intervention is to map the flow of that inundation. It is a part of the relationship diagrams shown earlier where we are zooming into the relationship with the bluebelts to highlight the design strategy utilised in this area.

A trail meandering through the site traces this inundation using its shape from below and acts as a walking path from above. In the worst case scenario of a storm, the path can also act as an evacuation node for the people living closer to the beach. Since most of the evacuation zones are as far as 3.5 miles, this provides us with an opportunity to design with intent.
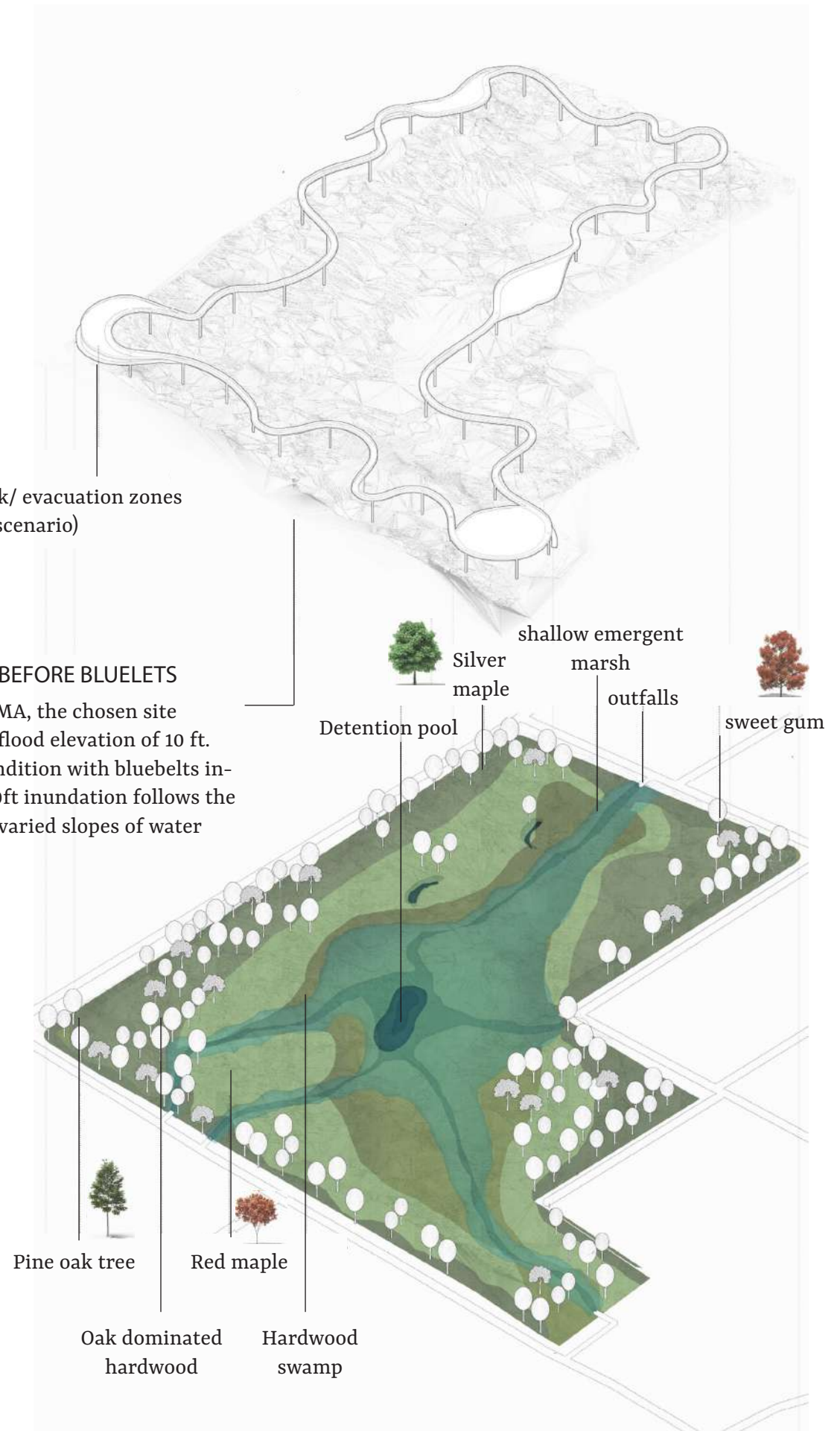
The silhouette of this trail is decided on the basis of the ground it sits on and the trees it passes through. It is designed to be minimally invasive because the concept of bluebelts revolves around reclaiming wetlands and reviving ecology. As per the study done by FEMA, the chosen site (NC-11) inundates with a base flood elevation of 10 feet. This 10-feet inundation follows the flow of contours to give a varied slope of water. Using this data, we have elevated the walkway in a manner that the lowest point of the path is at 10 feet, thus forming a relationship with the flood hazard data available for this area.

Hence, a proxy of flooding conditions and its relationship to bluebelts becomes the information through which other sites in the world can realize the potency of Bluebelts.

Viewing deck/ evacuation zones
(worst case scenario)

10 ft FLOOD INUNDATION BEFORE BLUELETS

As per the study done by FEMA, the chosen site NC-11inundates with a base flood elevation of 10 ft. This is the existing flood condition with bluebelts intervening in the site. This 10ft inundation follows the flow of the contours to give varied slopes of water

Silver maple

shallow emergent marsh

outfalls

sweet gum

Detention pool

Pine oak tree

Red maple

Oak dominated hardwood

Hardwood swamp

WALTZ
WITH BASHIR

THE ARAB CITY IN FILM

ABSTRACT

INTRODUCTION TO THE CONVERSATION

'...animation's escalating visibility within documentary contexts can look often like an artistic strategy geared towards 'implying reality, and potentially risking the possibility of denying or undermining it.' [1]

How does a built, physical space become a solidified memory fragment in people's minds? Everyone experiences space differently, and so the very urban landscapes that contribute to the collective memories of the people are still distinct, dissimilar and personal.

Waltz with Bashir, by Ari Folman is an experimental documentary on the massacre of several Palestinian civilians in the Sabra and Shatila camps in Beirut as a 'violent ethnic cleansing'. The movie ties the 1982 war between Israel and Lebanon, and the genocide in Beirut through retelling of missing memories leading to the manipulation of the same.

Using this cinema as a case study, the purpose of this research is to uncover the interconnections between memories, cityscapes and geo-political spheres.

The conclusion is, thus, landed in the potential of how urban spaces can be interpreted by designers, architects, and planners through a different lens of memories and perception and feelings. Further, it questions the applied methodology of how cities are constructed in the contemporary part of the discipline.

METHODOLOGY

The research examines how movies, as a medium combining imagery, sound, literature(lyrics), and historiography, could be therapeutic as well as a documentary for personal and collective trauma. Such analysis involves a full historiography investigation upon the massacre in the Sabra and Shatila Refugee Camps, Beirut, Lebanon in 1982, together with a structured storyboard and visual analysis of the movie itself. The materials from the two parts of research are then compared and contrasted through architectural aspects of mapping, collage and diagram analysis.

Specifically, the research looked into how animation, as a cinematic genre, could be applied as a medium of depicting memories, symbolism and personal experiences, and in reverse, how these factors tie back to the existing physical urban environment. This includes a series of comparisons between the symbolic representation of the animated cinema and the actual real life incidents which happened before, during and after the massacre.
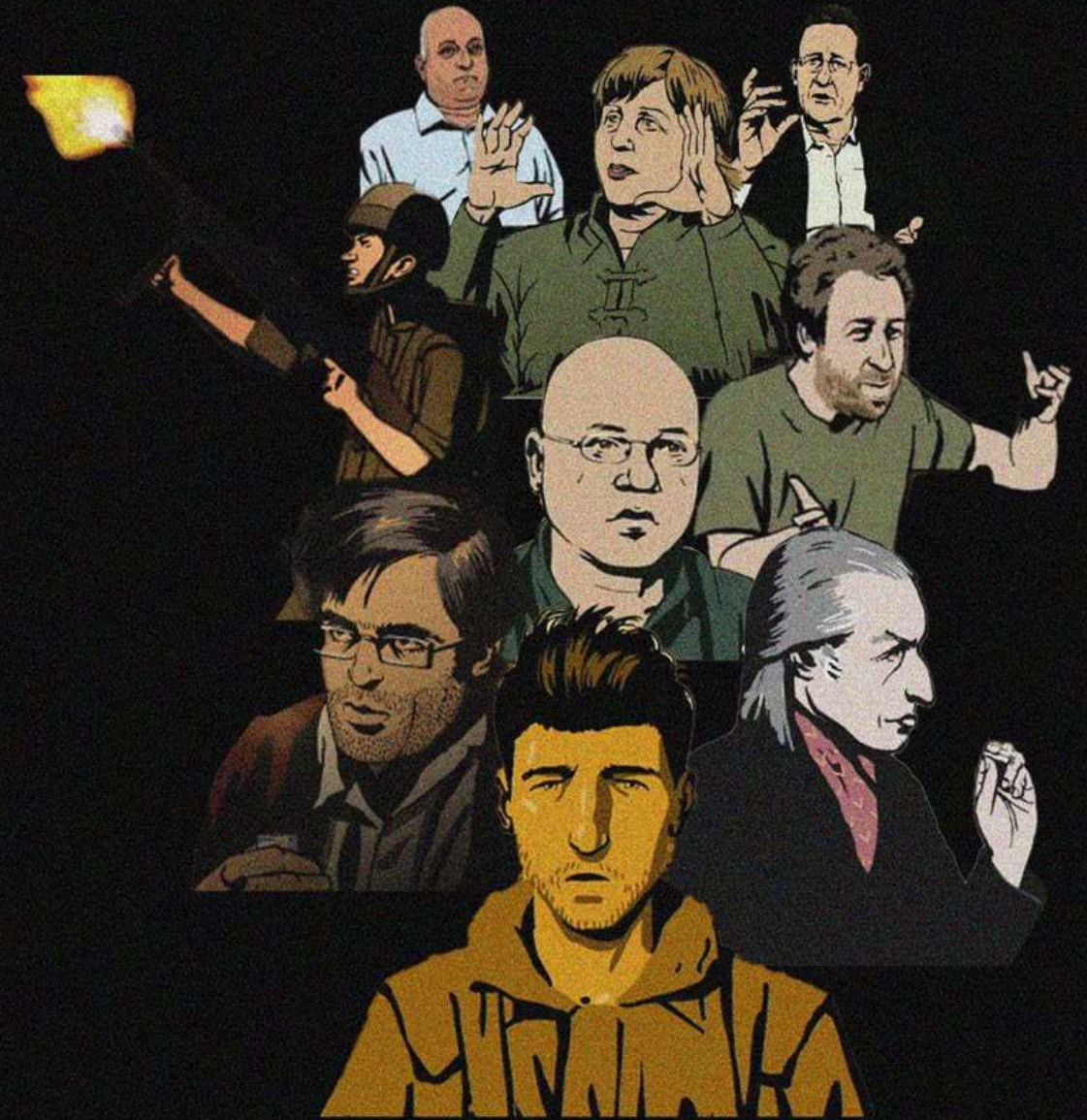
CHARACTERS

The movie explores the many facets and narratives of this war through an animated visual medium, placing the story across varying landscapes of peace, unrest, real and intangible backdrops to bring forth an unconventional documentary

In the movie, Ari Folman (the director) is pushed to recollect traces of his memories from his time in Beirut at the time of the Sabra and Shatila Massacre. He remembers snippets from the day of the massacre. His friend, a therapist, explains that, given the nature of human memory, the vision might not be an exact record of what actually occurred, though it certainly deals with matters of great importance to Ari's inner world. Ari interviews friends and other soldiers who served in the war, as well as a psychologist specializing in PTSD and Israeli TV reporter Ron Ben-Yishai, who was in Beirut covering the war when the massacre took place. Eventually, Ari's memories start to come back into focus, and he remembers that he "was in the second or third ring" of soldiers involved in the massacre, as his unit fired flares into the sky at night with Lebanese Christian Phalange militia while they perpetrated the massacre.

Zahava Solomon, an Israeli psychologist and researcher in the field of psychological trauma. Zahava provides professional analysis for some events in the movie, using clinical terms. For example, she explains that Folman's confrontation with the boy with the RPG was forgotten because his brain used a defence mechanism called dissociation. At some point, his dissociation ceased to work and he lost his mind.

Ronny Dayag, an Israeli Lebanon War veteran and high food engineer. During the war, he was a Merkava tank crewman. Dayag testifies that, as the only survivor of an ambush on his unit, he suffers from survivor's guilt.

Carmi Can'an (voiced by Yehezkel Lazarov), an Israeli Lebanon War veteran who once was Folman's friend and now lives in the Netherlands. Carmi chose to be a combat soldier to prove his masculinity, but, in response to Folman's remark that he was expected to excel in science, testifies that, after the war, "he could be nobody".

Ori Sivan, an Israeli filmmaker who previously co-directed two films with Folman and is his long-time friend.

Boaz Rein-Buskila (voiced by Miki Leon), an accountant and Israeli Lebanon War veteran suffering from nightmares.

Ron Ben-Yishai, an Israeli journalist who was the first to cover the Sabra and Shatila massacre.

Ari Folman Israeli filmmaker who recently finished his military reserve service. Some twenty years before, he served in the IDF during the Lebanon War.
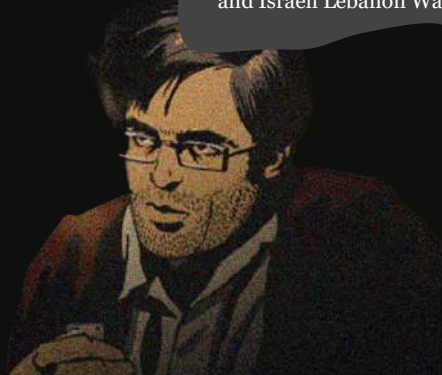
Shmuel Frenkel, an Israeli Lebanon War veteran who was in Ari Folman's infantry unit. By interviewing Frenkel, Folman learns he had repressed the fact that, at one point, his company were confronted by and killed a boy who had an RPG. The title of the film comes from a scene in which the unit is under heavy fire and Frenkel forcefully takes another soldier's MAG, goes into the open, and fires wildly, in "some sort of trance" as he "waltzes" between enemy bullets with Bashir's image on posters in the background.

GENRE: ANIMATION

Films have always been tools to portray the surreal and manipulate, even implant memories and narratives. This goes on to form deep-rooted impressions and stir up emotions of a permanent nature of the existing cityscapes. The telling of history and of events has always been reliant on memory, where city landmarks help tie together these unfolding events in a timeframe few have experienced or seen. Cinema has thus been used to evoke a sense of living historiography.

The animation employed in the movie does just that. The varied lived experiences, stances and narratives over the events before, during and after the massacre make the documentary singularly difficult to depict through conventional movie visuals. The animations assist in carrying forth the movie.

As an animation, the film experimented with a novel way of depicting the relationship between the protagonist and the spaces they are in. The waltz itself is a weave of symbolism and histology, with the murky presence of nationalism, the Israeli soldier's body moves through a surrounding of uniformed high-rises. This fabricates a weirdly alienated waltz extracted from history.

Oral History

Pornography

Personal Experience

Childhood

Hallucination

Memories

1
Intimacy of Narration

Heavily depicted through personal experience, the genre of animation gives the movie maker the freedom to tie between memories and personal experiences. Through flashbacks of oral narrations, memories, hallucinations and drugs, sensory and pornography, central preoccupation of the movie landed into a repressed memory kept "out of time", which will return to the present in unexpected and distorted forms.

2
Density of Narration

Using animations also dilutes the impossibilities and density when it comes to documenting war and massacre. The film was able to show a continuous narrative of a cityscape that no longer exist in the real life, since it has been bombed and destroyed.

The motion pictures animated through illustrations originate from historical photographs, but then become much more impactful for the audience.

As the last part of the movie shifted into the real imagery of the massacre, the cinema put the audiences into a sudden psychological transition that moves from the seemingly fictional animation into the real historiography. This created an overwhelming point of shock and density, where the audiences would suddenly realize that all the narratives are true. Such transition forms an ironical contrast with the ever growing misbelief in media in contemporary society.
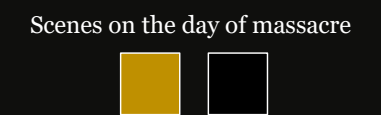
3
Pre Animation

Although the only released part of the cinematic was the animation itself, the film was made first as a real video based on a 90-page script. It was shot in a sound studio and cut as a 90-minute length video film. It was made into a storyboard, and then turned into animation.

Non-massacre scene

Scenes on the day of massacre

4
Color Palette & Symbolism

The genre of animation also empowered the filmmaker to manipulate the color palette as a means of conveying emotion. While the other parts of the movie are depicted in a pastel-like illustration style, when the narrative comes to scenes of that specific to the day of the massacre, a highly saturated yellow filter is applied to the visualization. The binarization of exposure depicted a sharp light-dark relationship, magnifying the conflict and ignorant vengeance cast upon Palestinian refugees.

I bombed Sidon today

amid the clouds of smoke at dawn

Among the smoky "mushrooms" clouds,
I could have also returned inside of a coffin

Everyday, I have bombed Sidon
Everyday, I have bombed Beirut

I got out from there alive
but I also could have died

I bombed Sidon today

5
Music, Lyrics and Sarcacism

Animation also created space for sarcasm when the film incorporated music as a way of transition and contextualization. In one of the scenes, a cynical pop music started to rock. As the lyric sings 'i bomb Beirut everyday' repetitively, the storyboard turned into a funky montage of how the bombing, firing and shooting were carried out on different occasions.

WHAT IS THE END?

City-dwellers are particularly at risk when their complex and sophisticated infrastructure systems are destroyed and rendered inoperable, or when they become isolated from external contacts. The daily life of cities turns into a massive struggle against darkness, cold, immobility, hunger, isolation, fear of crime and violence.

The urban morphology of Beirut is synonymous to the one of Tel Aviv, portraying a homogeneity and universality in the language of the built forms and design of the cities.

Which leads us to question if architecture and urban planning for refugee camps of the future can integrate cultural fabrics of the inhabitants in a way that it can hold an identity in its most bare form?
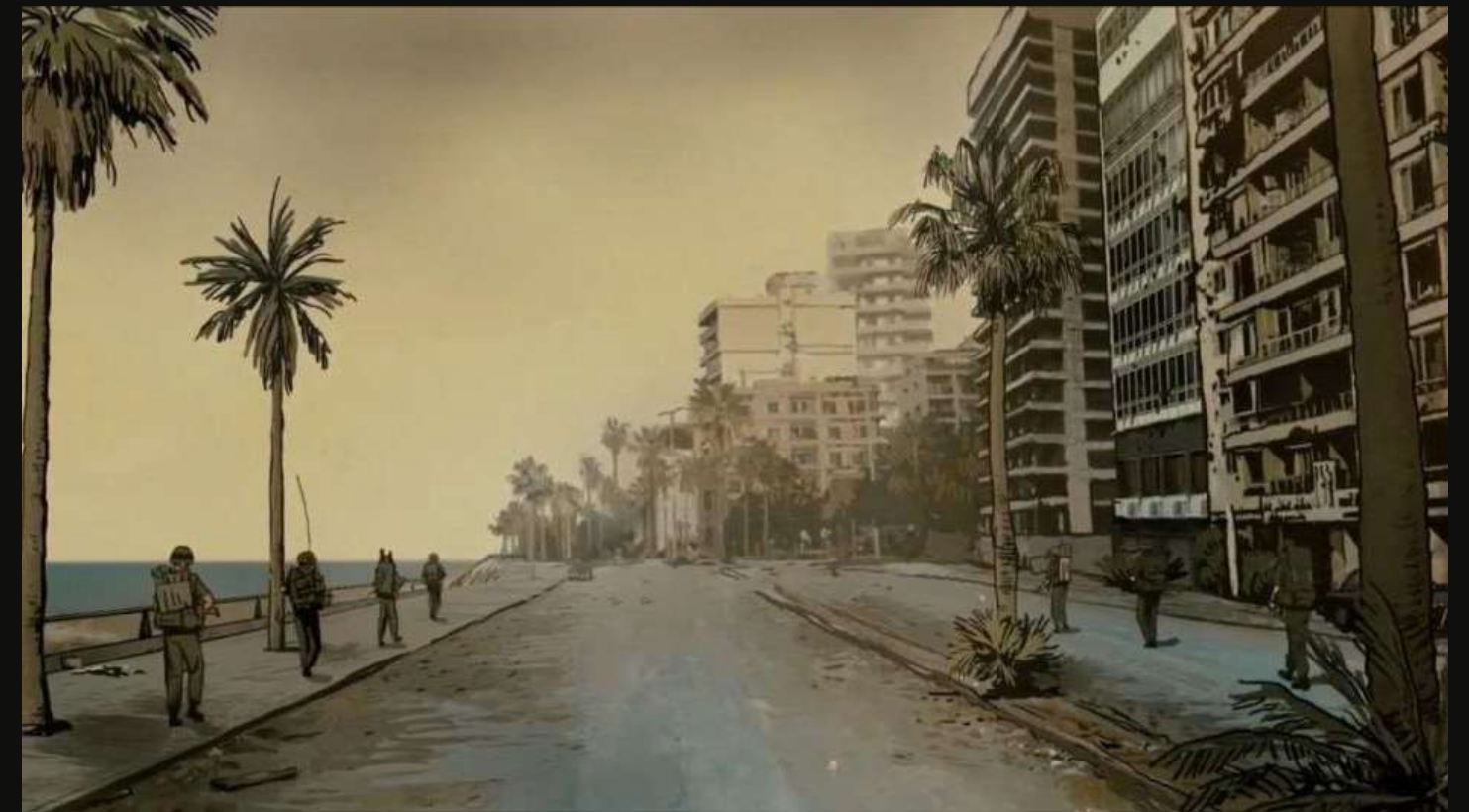
The battleground shifted from the open fields to the city walls and further positioned itself within the heart of the city, as a fight for the city itself. If historical siege warfare ended when the envelope of the city was broken and entered, urban warfare started at the point of entering the city, in this case the refugee camps. From the alleyways that still hold memories of the massacre to the mass graveyard that is situated adjacent to the refugee camps, all are examples of living historiographies.

A city is built on the community that inhabits it. When cities offer space for othering and the construction of difference, it divides its foundations, creating rifts that fester into irrevocable wounds to the urban fabric. For cities already possessing segregation, urban planners can intervene in the dissolution of these segregations. When dissolving boundaries within city borders, it is imperative to not erase urban character encompassed by the infrastructure. The spaces created within the economic and infrastructural urban valley are those that have experienced the many facets of the city's history, and contain a heritage of urban know-how that is often unavailable to the 'accepted' residents of the city. Community Led Redevelopments of these spaces could bring forth a mutually shared vision of the city that resolves issues at grassroot levels. This enables the betterment of infrastructure as well as nodes and landmarks of the city, while also offering a chance for placemaking for the marginalized communities. The identity of a city exists as much in the tangibility of it as in the memories of the residents. The creation of local identity for wayfinding and memorability through landmarks and nodes can help better read the city for residents and visitors alike.

Lastly, the animated medium is globally perceived as a mode for light entertainment. Waltz with Bashir redresses the 'cartoon' as a tool to convey the gruesome history of the Lebanese and Israeli armies. The new military urbanism and its wars are overwhelmingly performed and consumed as visual and discursive spectacles within the spaces of electronic imagery. The movie in its ending, pulls off the veil of animation to remind the audience that they are not watching a cartoon. They are watching true life.

SET
YOUR SCENE

CODING FOR SPATIAL PRACTICES
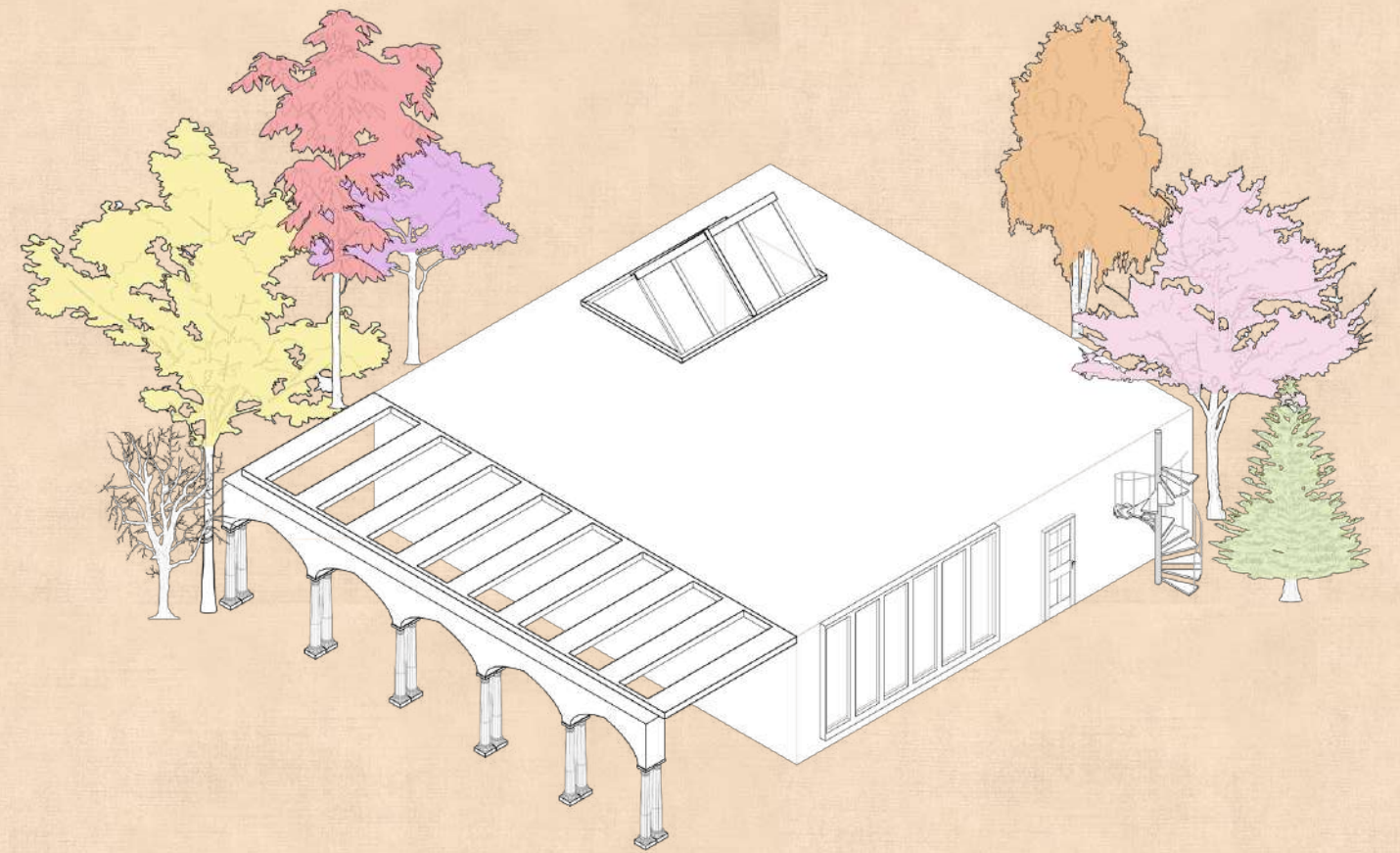
GITHUB LANDING PAGE
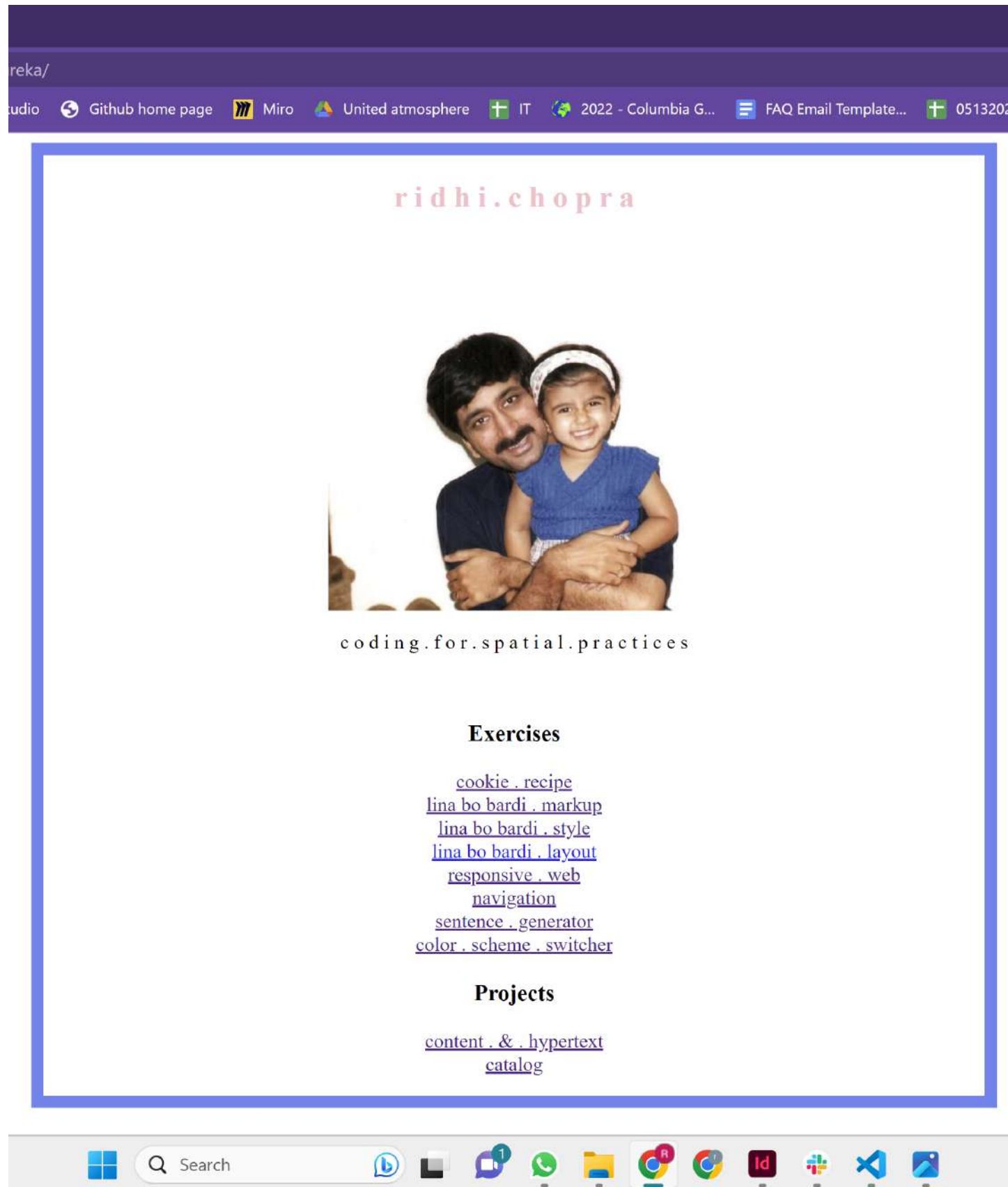
The idea of the class was to understand how we can perform exercises and assignments together and on our own and to do so we all were required to make a landing page where we can reference all the work we do throughout the semester for ease of access. The page on the left is my landing page with a basic introduction to my name and appearance.

EXERCISE 01: COOKIE RECIPE

EXERCISE 02: STYLE AND MARKUP OF AN ARTICLE

Back to home page

Best Chocolate Chip Cookies

Eat warm and enjoy with a glass of cold milk.

Adapted from The New York Times

PREP TIME

25 minutes

---

2 dozen 3-inch cookies

INGREDIENTS

- 2 cups minus 2 tablespoons cake flour
- 1 2/3 cups bread flour
- 1 1/4 teaspoons baking soda
- 1 1/2 teaspoons baking powder
- 1 1/2 teaspoons coarse salt
- 2 1/2 sticks unsalted butter
- 1 1/4 cups light brown sugar
- 1 cup plus 2 tablespoons granulated sugar
- 2 large eggs
- 2 teaspoons natural vanilla extract
- 1 cup dark chocolate chips
- 1 cup milk chocolate chips
- 1 teaspoon sea salt

INSTRUCTIONS

- Sift cake flour, bread flour, baking soda, baking powder and salt into a medium bowl. Set aside.
- Using an electric mixer, cream together the butter, white sugar, and brown sugar in a large bowl until very light, about 5 minutes.
- Add eggs, one at a time, mixing well after each addition.
- Beat in the vanilla.
- Reduce speed to low, add dry ingredients and mix until just combined, 5 to 10 seconds.
- Drop chocolate chips in and incorporate them without breaking them.
- Press plastic wrap against dough and refrigerate for 24 to 36 hours. Dough may be used in batches, and can be refrigerated for up to 72 hours.
- When ready to bake, preheat oven to 350°F. Line a baking sheet with parchment paper and scoop 1/3 cup mounds of dough (the size of golf balls) onto baking sheet, making sure to turn horizontally any chocolate pieces that are poking up for a more attractive cookie.
- Sprinkle lightly with sea salt and bake until golden brown but still soft, 18 to 20 minutes. Transfer immediately to a wire rack.
- Repeat with remaining dough, or reserve dough, refrigerated, for baking remaining batches the next day.
- Eat warm, with a glass of milk.

EXPERT TIPS

The secret to richer Chocolate Chip Cookies with a more sophisticated flavor is letting the dough rest for 24 to 36 hours before baking.

RELATED RECIPES

- Amazing Chocolate Chip Cookies!
- Beer and Pretzel Chocolate Chip Cookies

Back to home page

HOUSES OR MUSEUMS?

Lina Bo Bardi, 1958

What should come first, houses or museums?

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The problem of the museum has to be tackled today on 'didactic' and 'technical' grounds. These foundations are essential if the museum is not to become petrified, that is, entirely useless.

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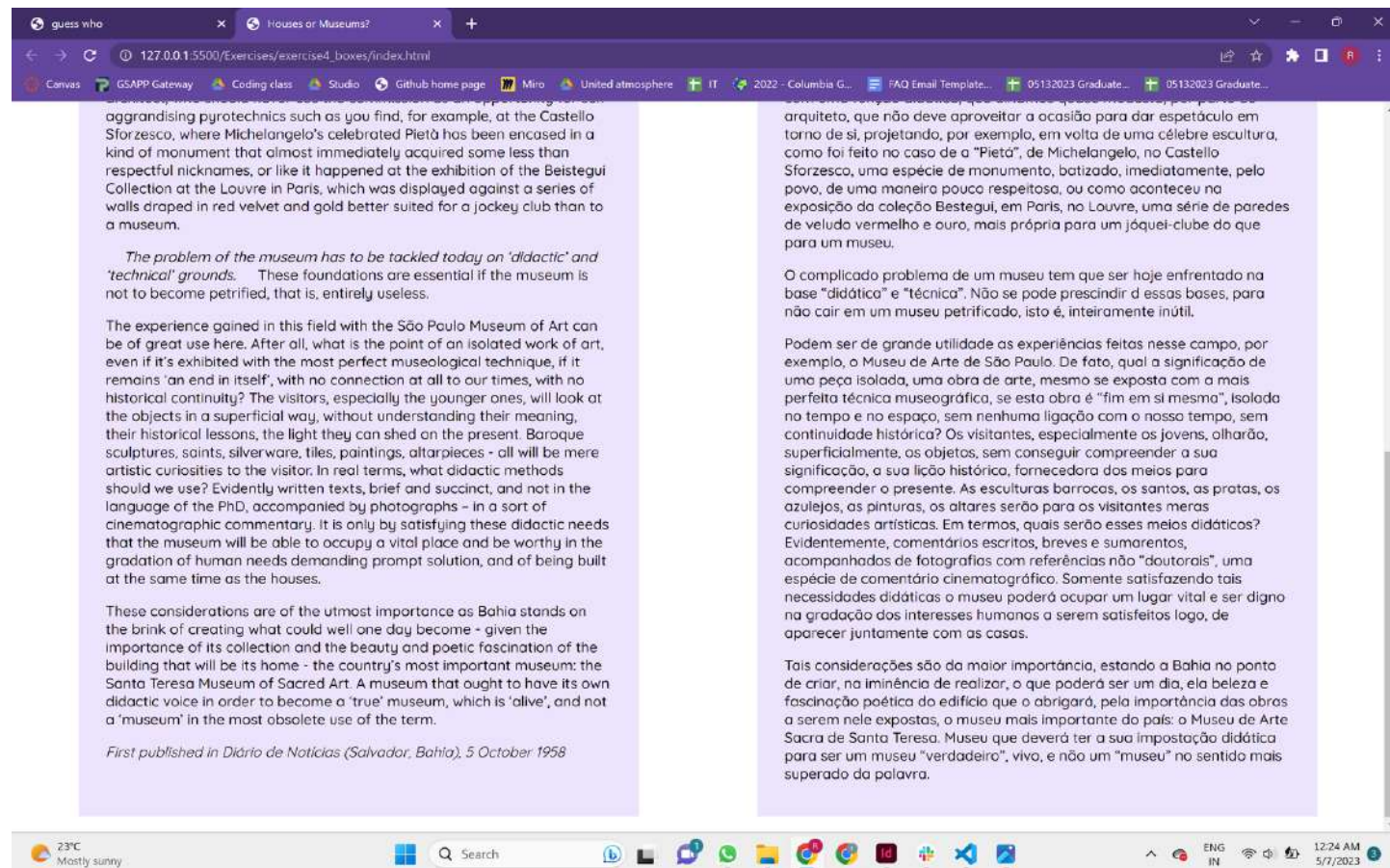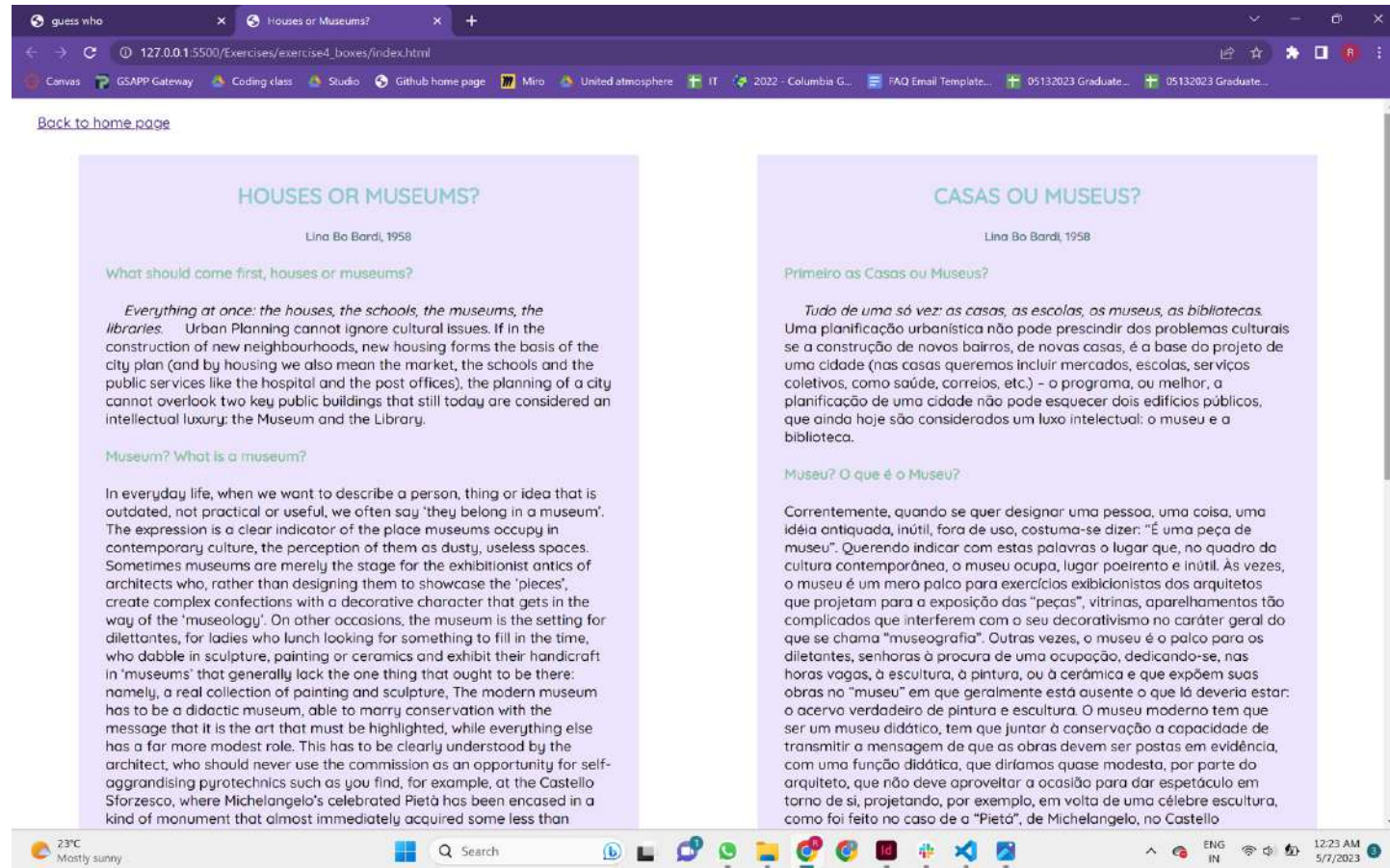
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EXERCISE 04: LAYOUT OF AN ARTICLE

EXERCISE 06 & 07: NAVIGATING BAR WITH SENTENCE GENERATOR

Back to home page

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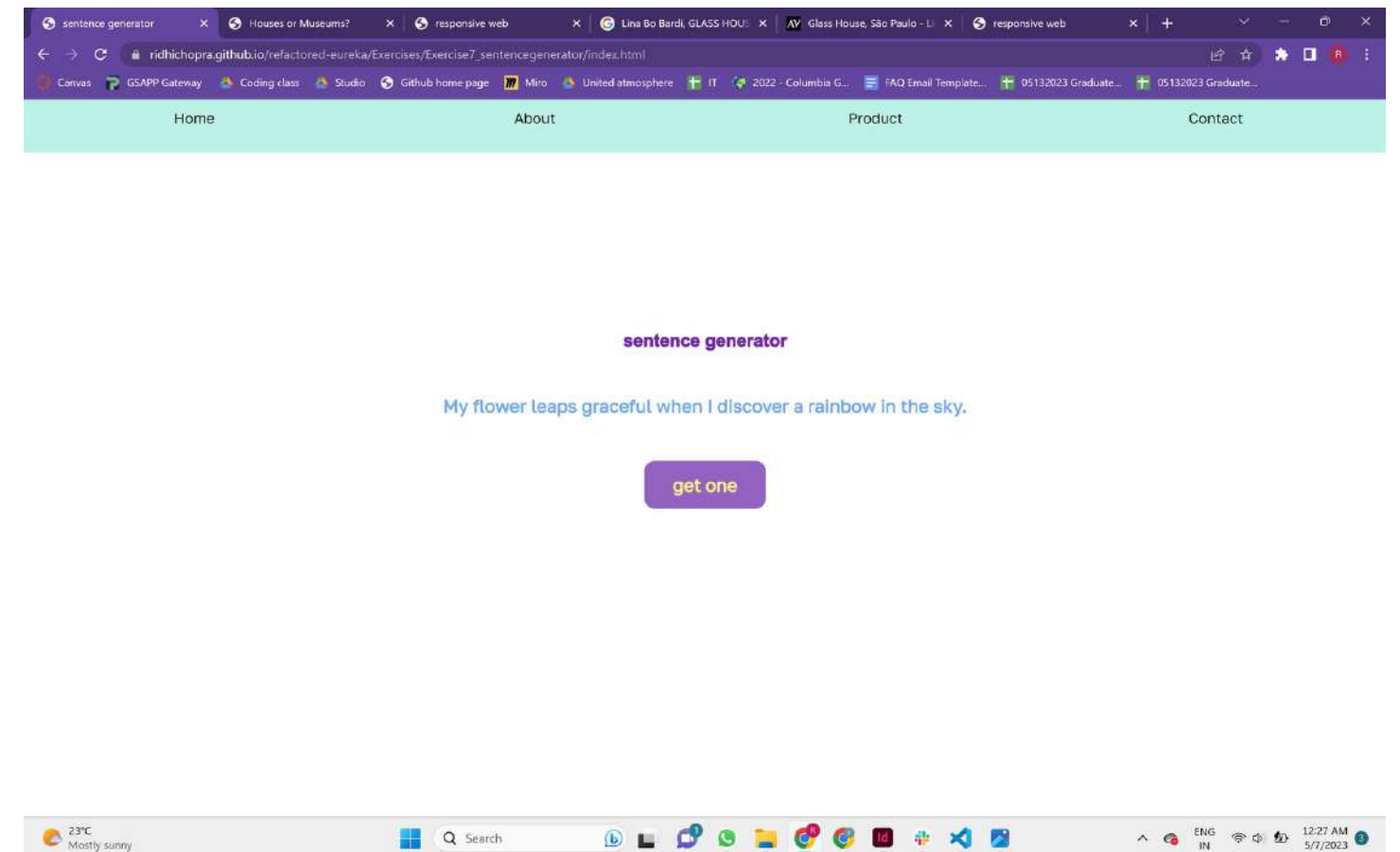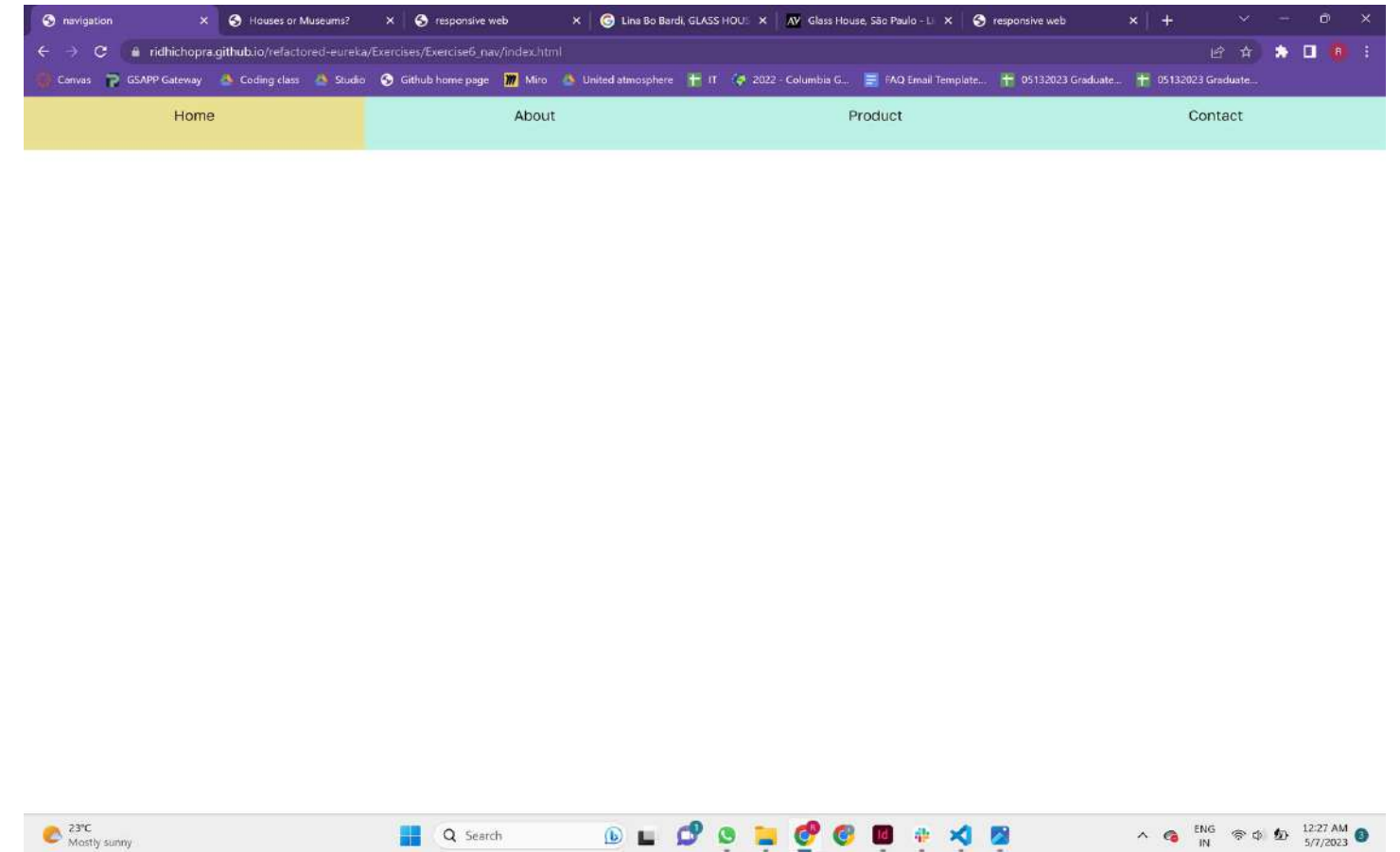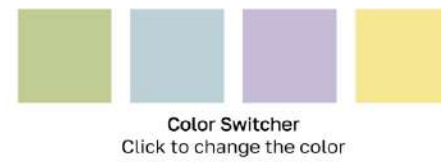
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| Home | About | Product | Contact |

sentence generator

My flower leaps graceful when I discover a rainbow in the sky.

get one

# EXERCISE 08: COLOR SCHEME SWITCHER

PROJECT 01 : CONTENT AND HYPERTEXT

The first project we were introduced to was to use a website or a page that is already existing and in a way reimagine it by using the content and the text and styling it in different and more innovative ways.

For the purpose of this website, I chose the color factory, specifically in NYC. The idea was to play with color and different commands that one can utilise to create a more attractive space for people to interact with.

The various features of this include layout, styling, hovering buttons, use of images and flex boxes as well as general information on how to navigate this page.
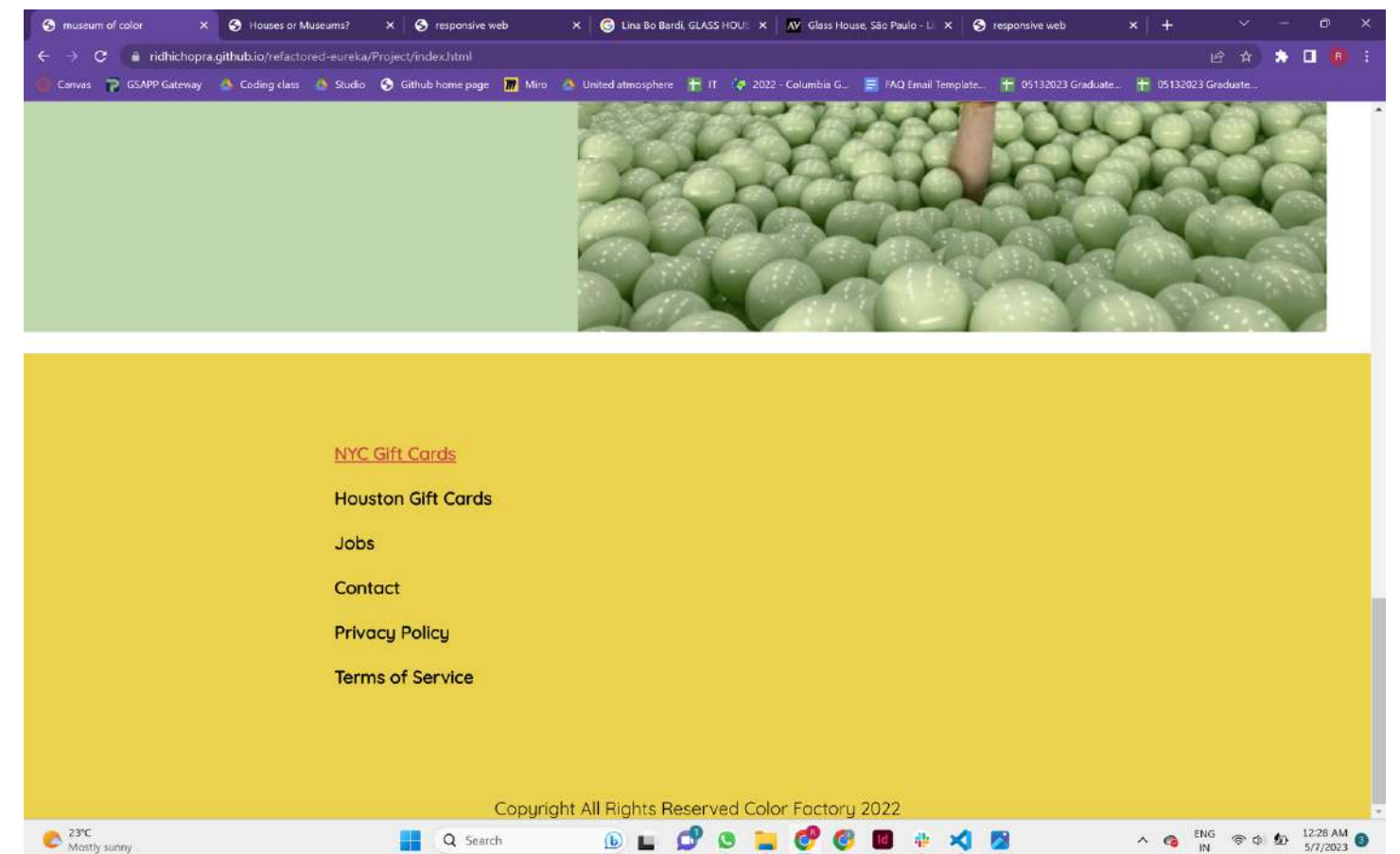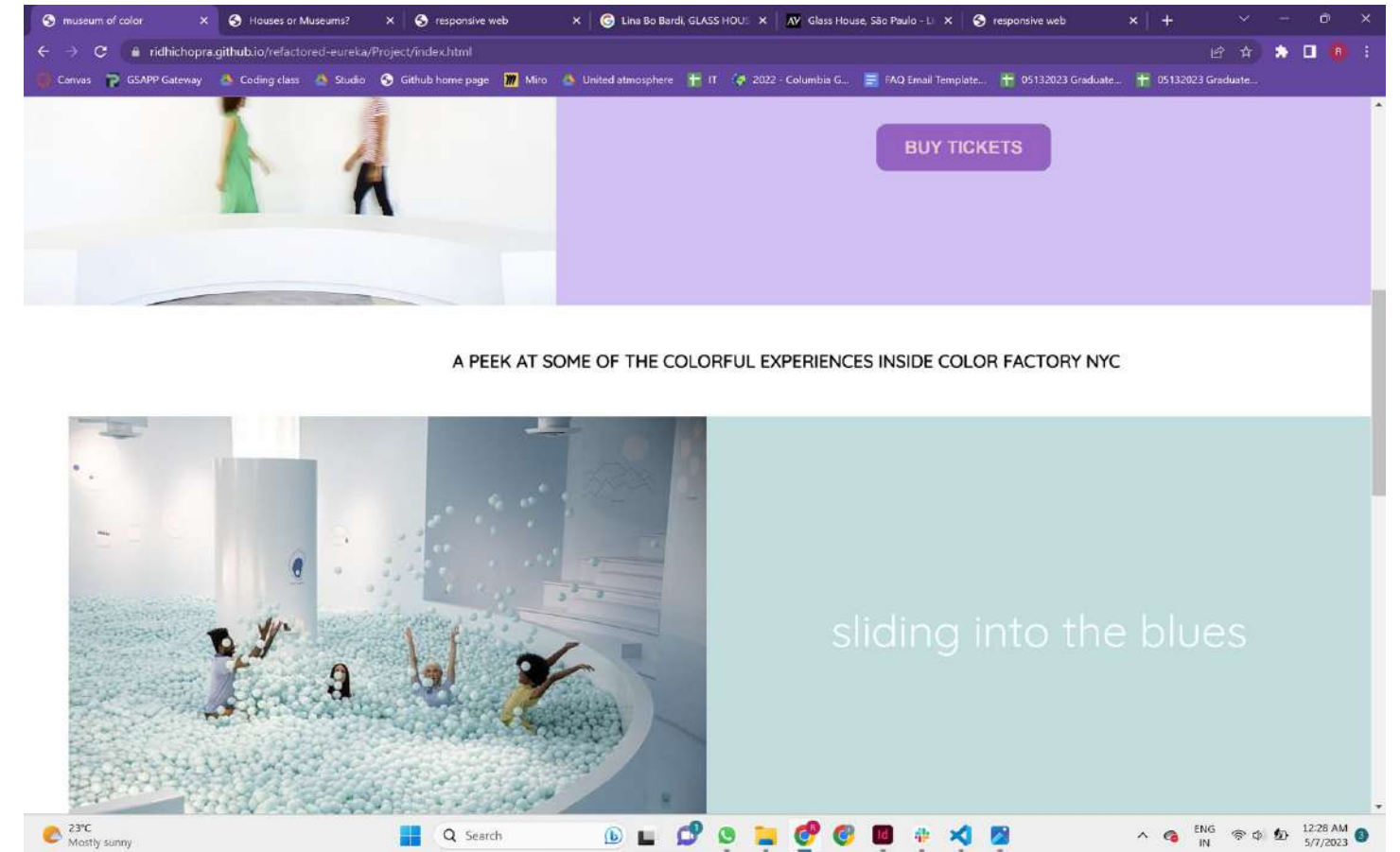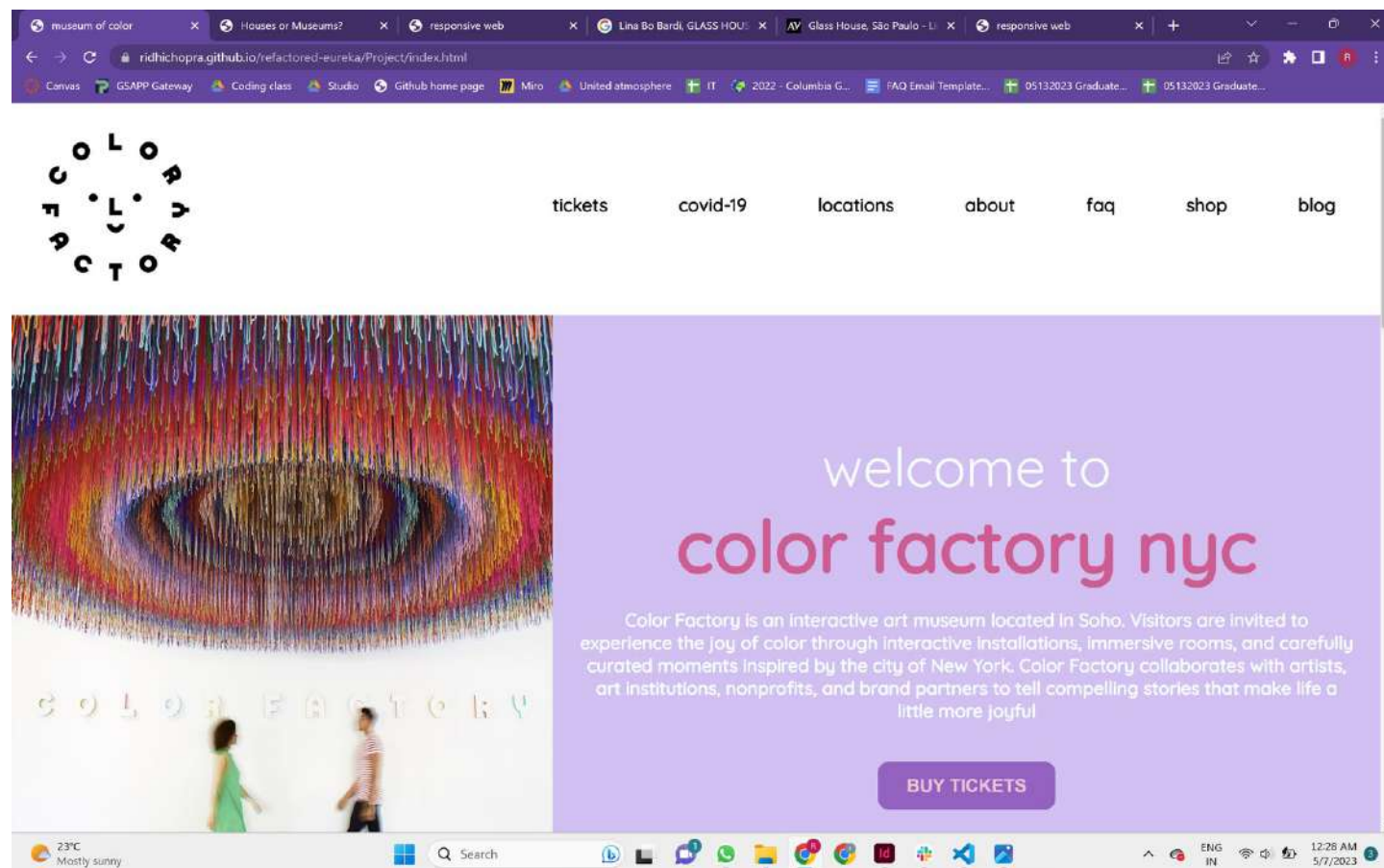
PROJECT 02: CATALOG

For years now I have been obsessed with the idea of clicking pictures of doors, windows, trees and random architectural building features and they all would just somehow end up in my data repository but never make it out of there.

The final exercise challenged us to find around a hundred images of the theme we select and filter and sort those images into different categories in order to create a catalog.

To work on my existing image base, I combined the idea of having architectural imagery with nature to call my project 'set it up'. Here you can filter out the images on the basis of the icons of the objects you select. For example, clicking on the spiral staircase will only show images of staircases and clicking on the pink tree would only show images of pink trees, so on and so forth. One can use these images to build up the kind of spaces they envision.
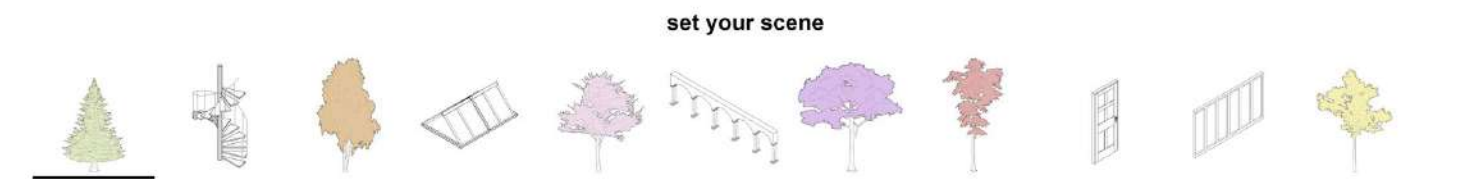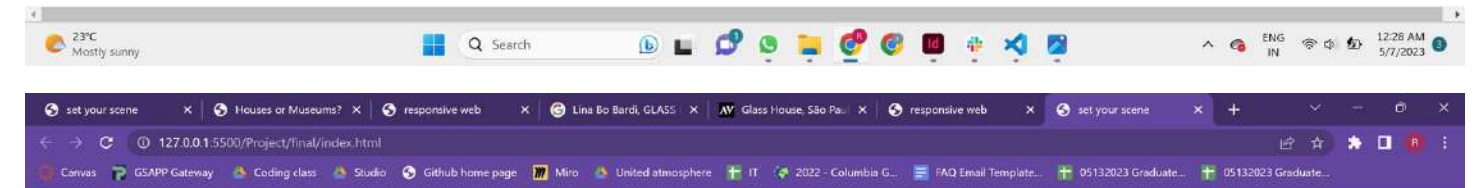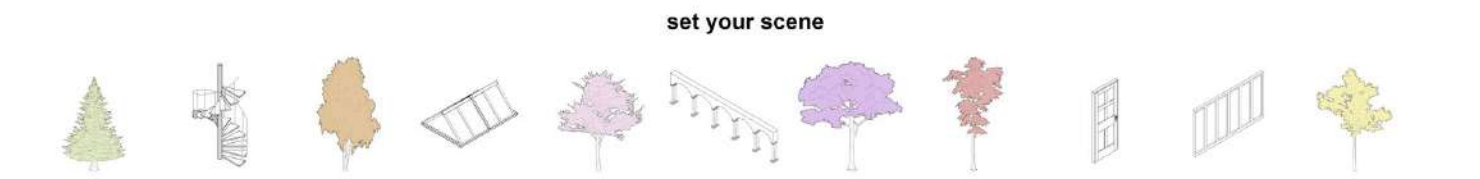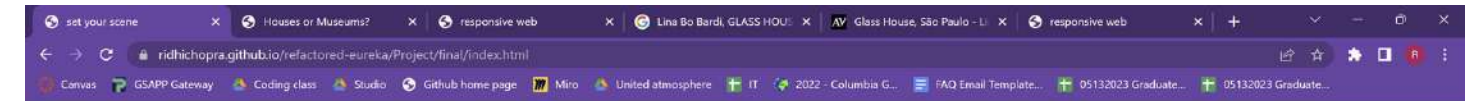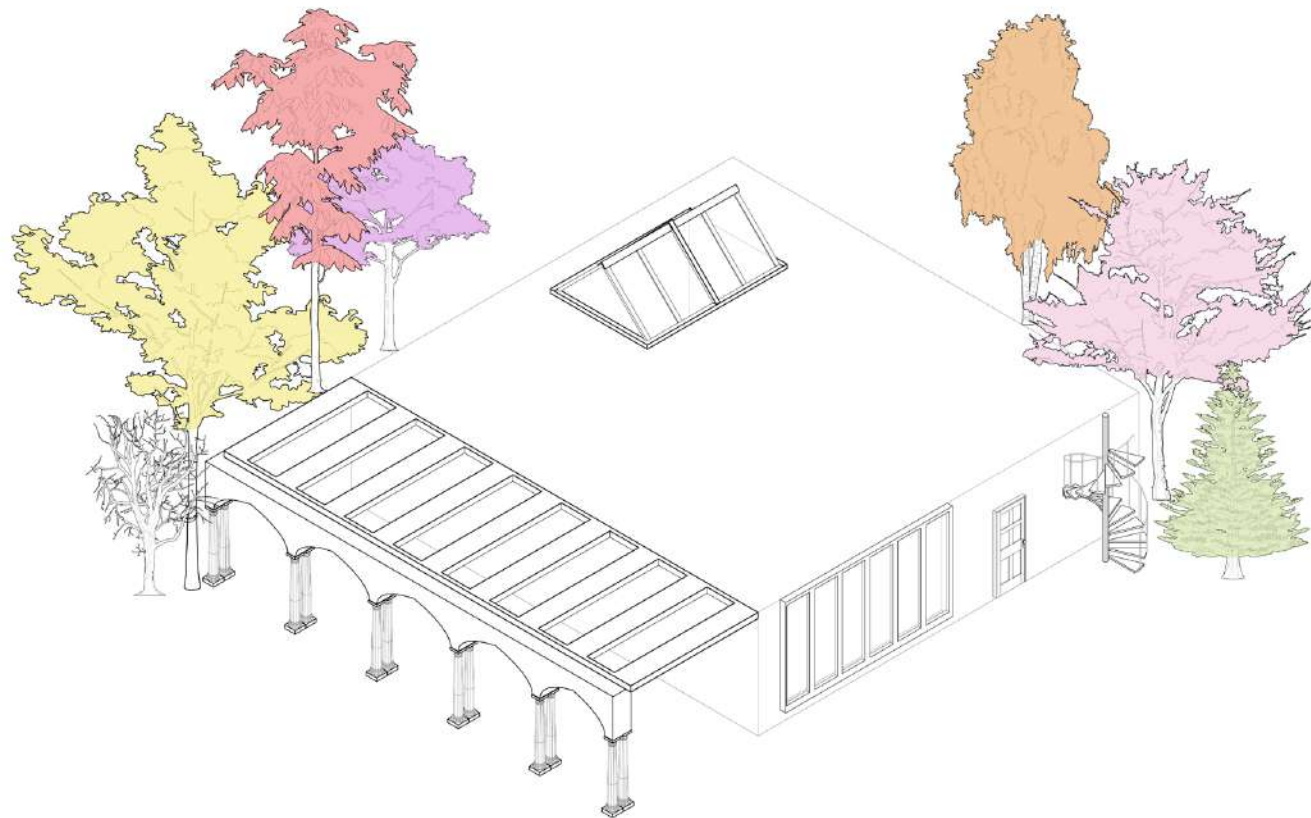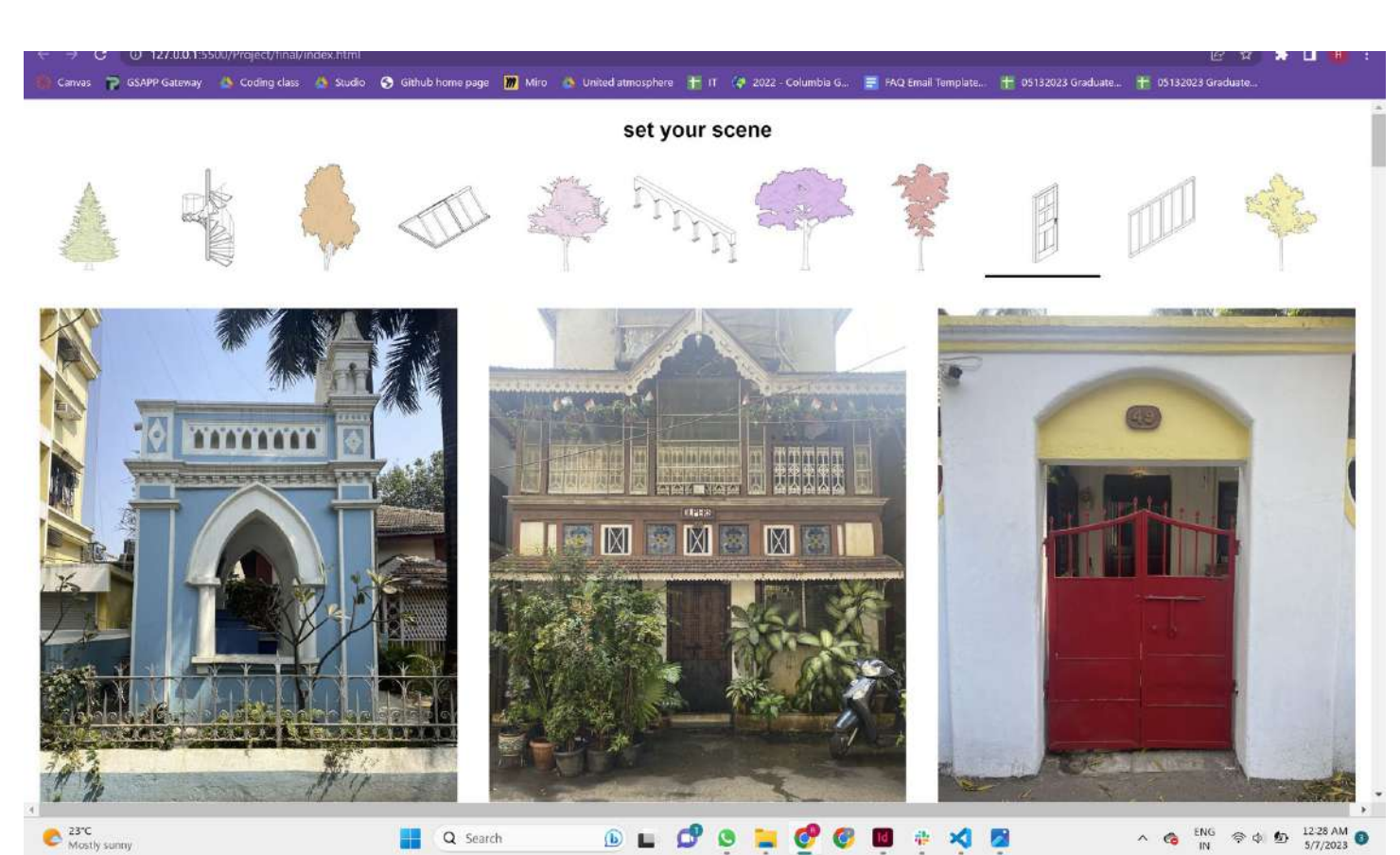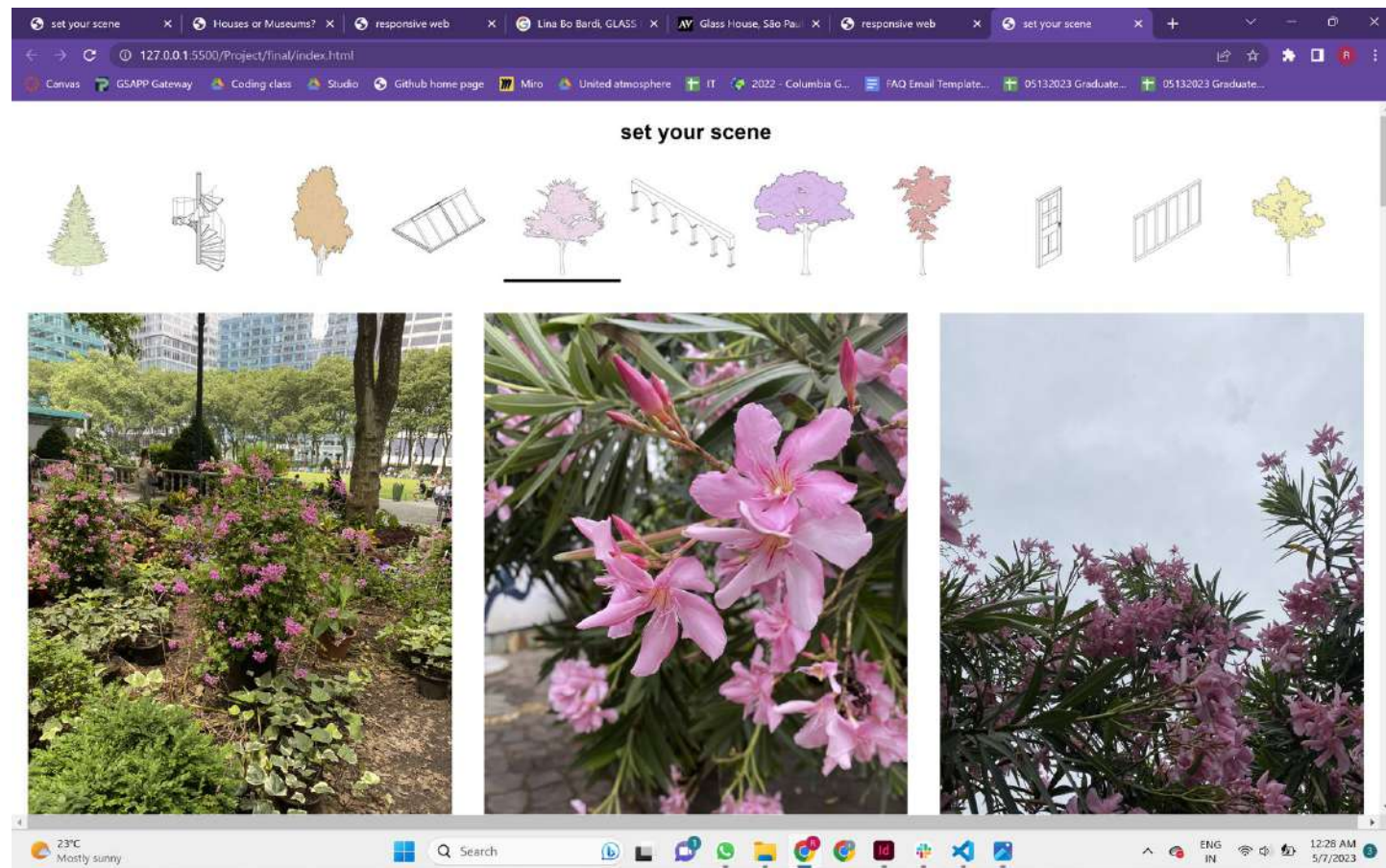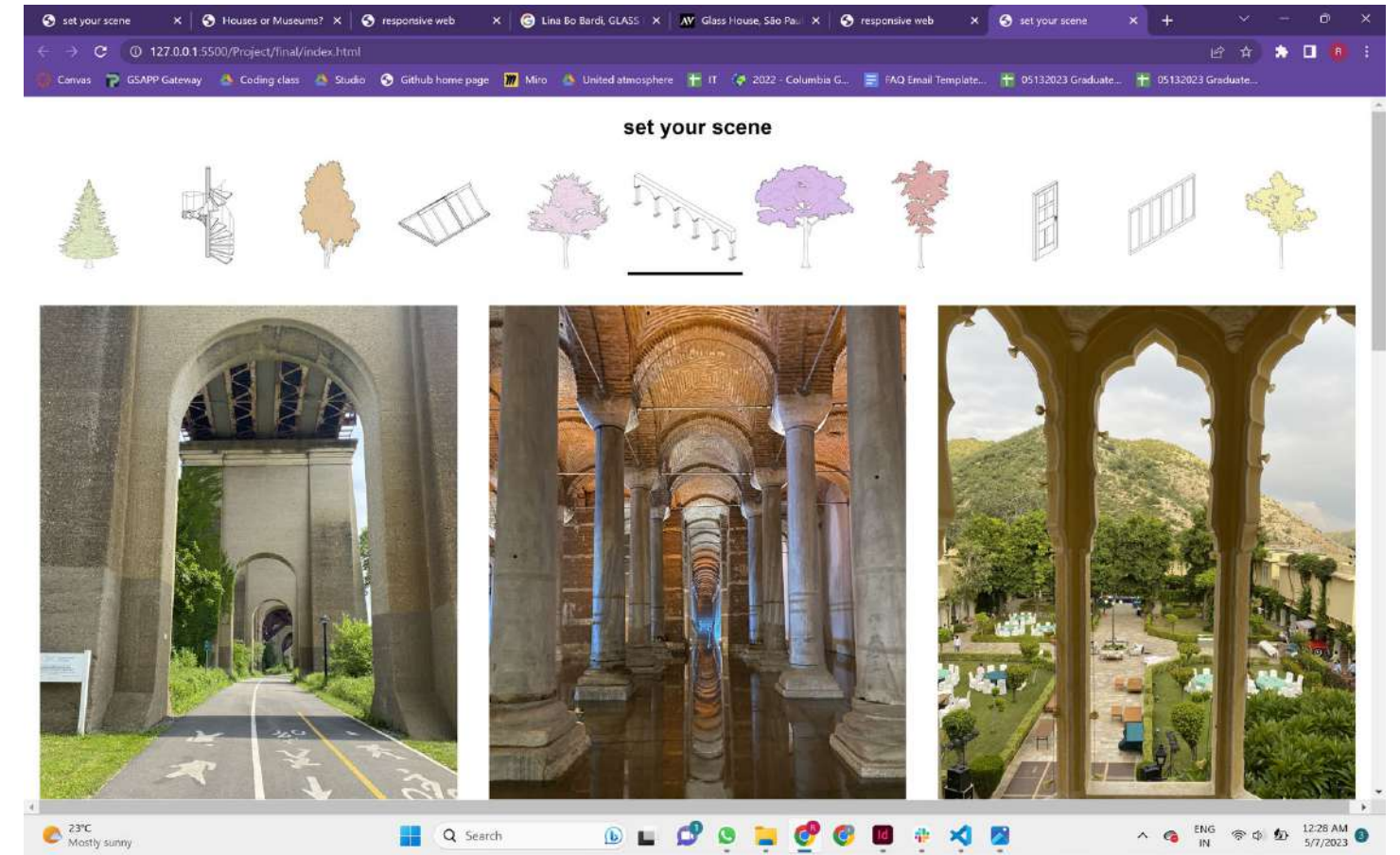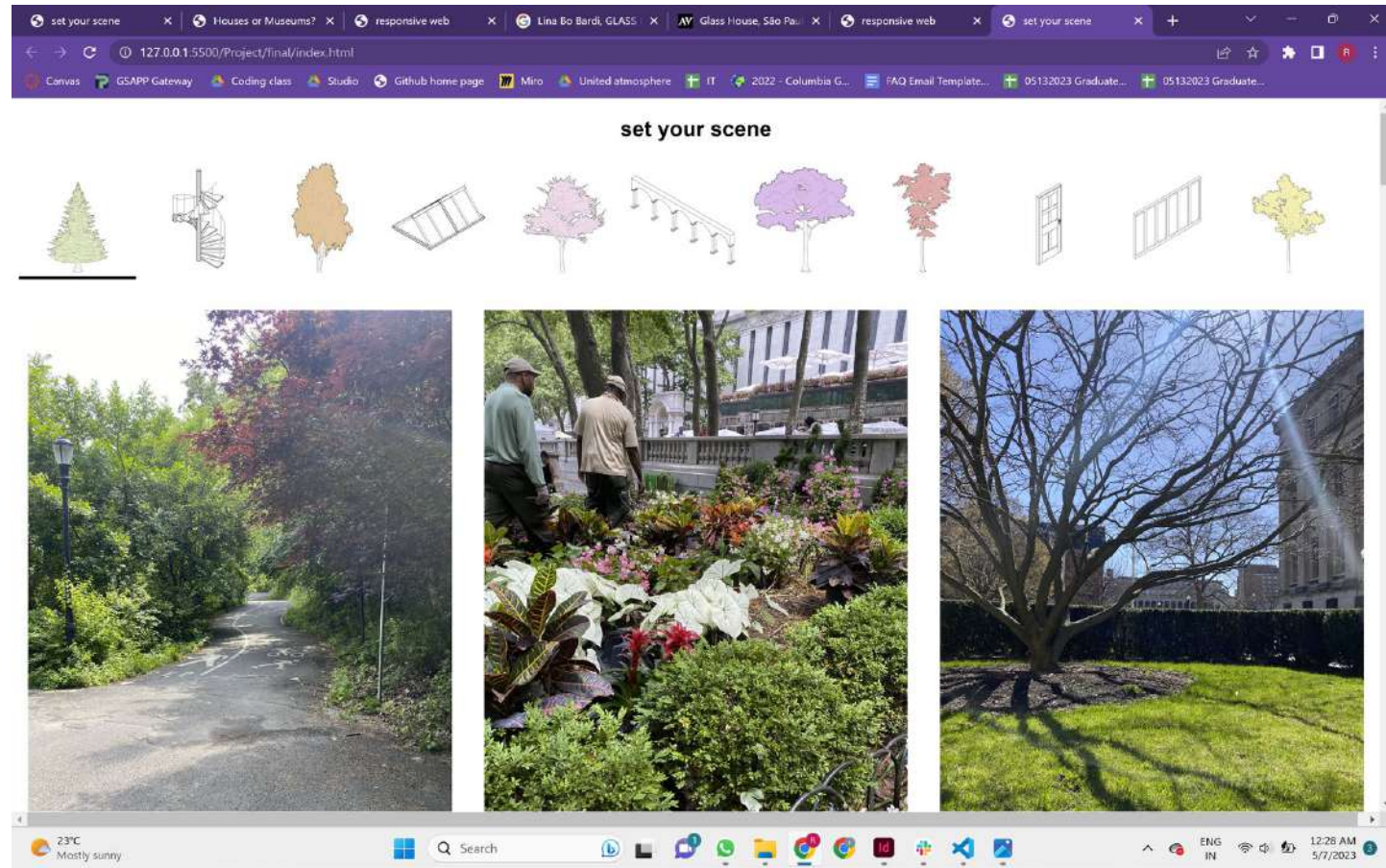
JOURNEY
OF CARE

REPRODUCTIVE JUSTICE

LIFELINE EXPRESS, INDIA

REPURPOSING URBAN INFRASTRUCTURE

States & Union Territories (UT)

Andhra Pradesh
Andaman and Nicobar Island (UT)
Arunachal Pradesh
Assam
Bihar
Chandigarh (UT)
Chhatisgarh
Daman & Diu (UT)
Delhi (UT)
Goa
Gujarat
Haryana
Himachal Pradesh
Jammu & Kashmir (UT)
Jharkhand
Karnataka
Kerala
Ladakh (UT)
Madhya Pradesh
Maharashtra
Manipur
Meghalaya
Mizoram
Nagaland
Orissa
Punjab
Rajasthan
Sikkim
Tamil Nadu
Telangana
Tripura
Uttrakhand
Uttar Pradesh
West Bengal

As a part of Advance Studio V led by Bryony Roberts called Reproductive Justice Network, the aim was to design for radical care while looking into the various social models of care and support that exist today. Journey of Care, a product of the studio, is a project based in India that seeks to reimagine the country's public transport infrastructure as a means of providing access to healthcare. India faces many challenges when it comes to healthcare, with the Global Gender Gap Report of 2021 showing that China and India together account for around 1.5 million missing female births each year worldwide. In addition, almost half of the 47 million pregnancies in India each year are unintended, and women and mothers in particular face gaps in healthcare access. To address these issues, Journey of Care proposes to repurpose the Lifeline Express train as a mobile healthcare facility that can reach people across the country.

India has one of the latest train systems in the world. A symbol of British colonialism, this state-owned system operates on a massive scale, with over 7000 stations and more than 68,000 km of tracks, spanning across the country. For many Indians, the train is not just a mode of transportation but an important part of their culture and heritage and its connections to the far-flung corners of the country played a crucial role in the creation of a shared national identity that transcended regional and linguistic differences.

The Lifeline Express is a hospital train that has been in operation in India since 1991. It was established through a collaboration between Impact India Foundation, the Indian Railways, and the Health Ministry, and has run around 200 projects since its inception. Currently, the train has seven coaches, including an office space, a conference car, staff car, two operation theater cars, and, in recent years, a mammography machine and a cancer awareness coach (pictures of some which you can see on the next page). The train operates on a project-based model, with government or private companies sponsoring the cost of healthcare camps in cities of their choice.
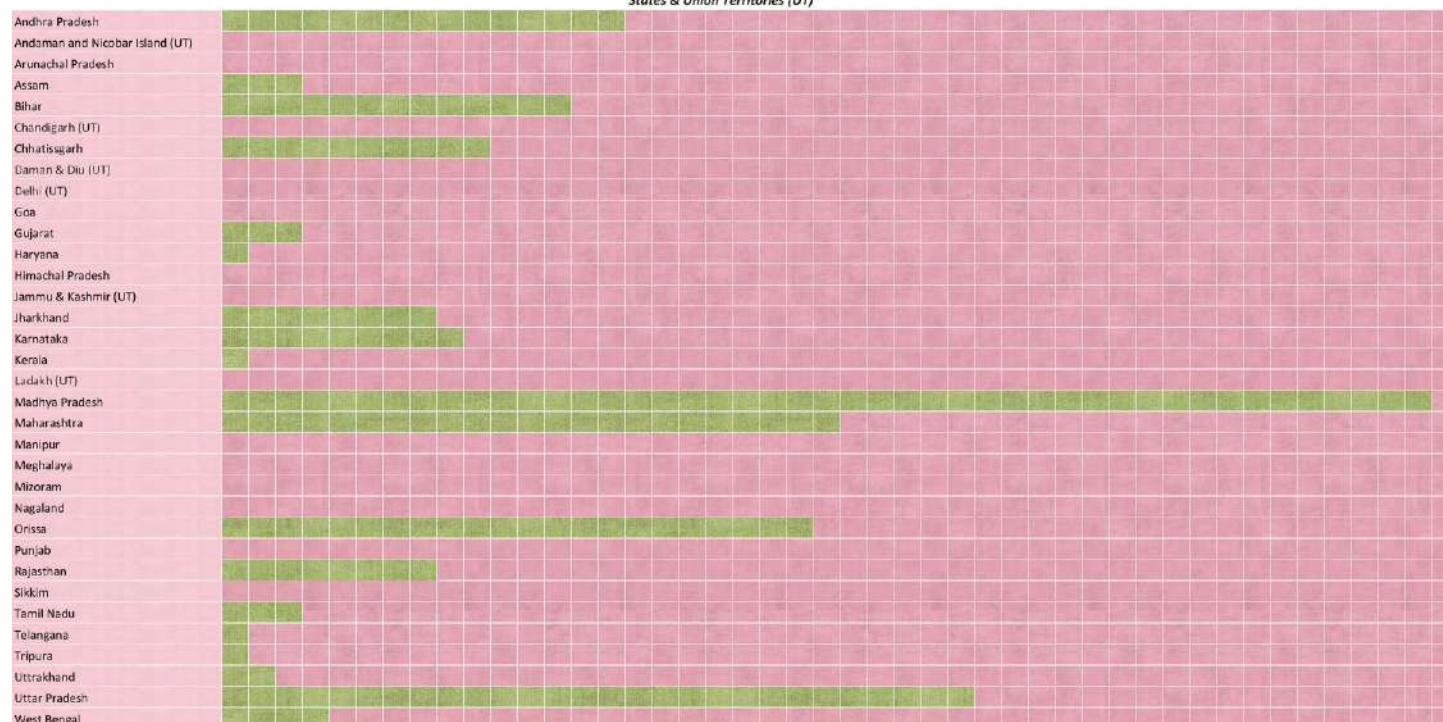
STAFF CAR

DOCTORS AREA

CONFERENCE CAR

OPERATION THEATRE

MASSING OF THE TRAIN
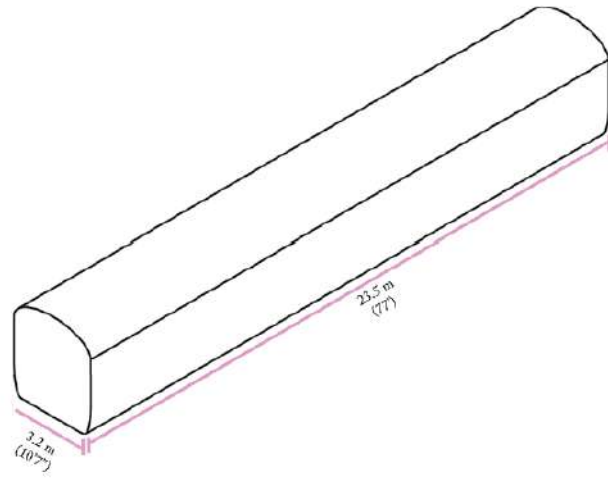
To start with, I worked with a mass produced train module of 23.5 x 3.2m instead of taking a custom size from the get go
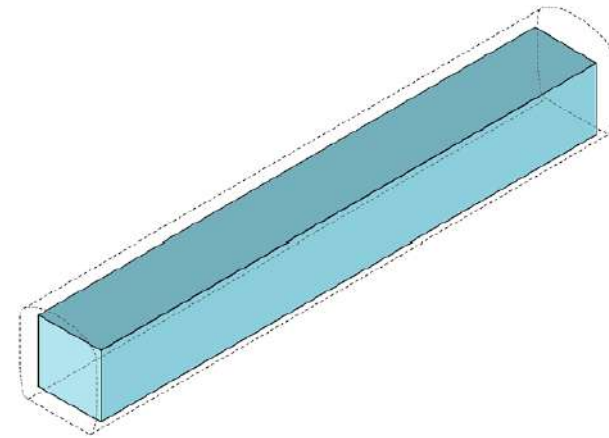
The tube like form of the train allows for linear planning of spaces
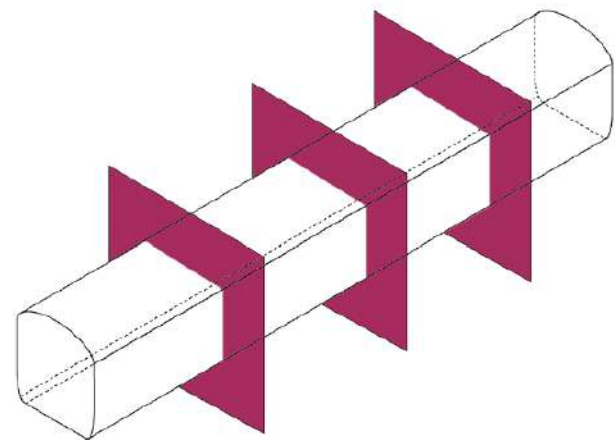
Little scope for reduction in length, making it restrictive in its development
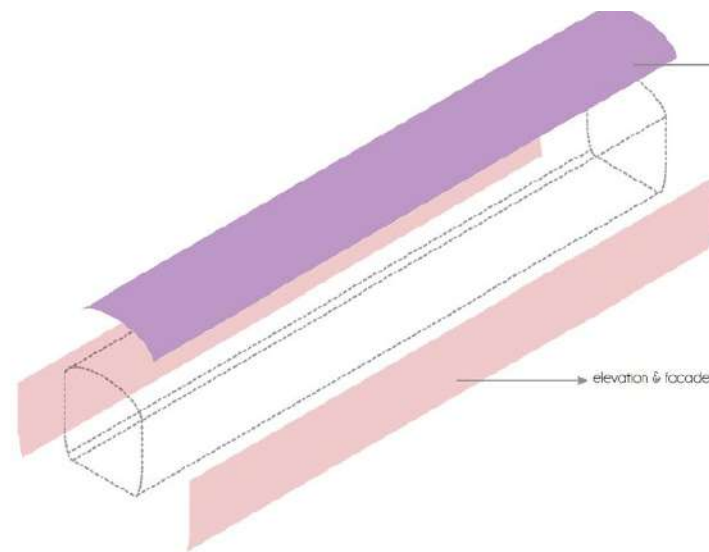
To tackle that, the ceiling and the elevation of the train were looked at in order to break the monotony of this form

The hospital train works on the idea of network of care where local schools and empty marriage halls can be used as makeshift spaces for waiting for patients and even extend the care facility if required. It also goes on to include and collaborate with NGOs and hospitals to come and service the train as their space for practice to be a part of the process. This network in turn provides the oppurtunity for this healthcare system to fragment out into pieces only to come back together and form a much stronger response to the issues existing in the society today. For this to work the train also needs to station itself in villages and towns with a parking bay for people to easily access it and the schedule of the trains not to be hampered,

IDENTITY OF THE TRAIN

The Khajuraho temples are a group of Hindu and Jain temples located in the Chhatarpur district of Madhya Pradesh, India. These temples were built during the Chandela dynasty between the 10th and 12th centuries and are recognised as a UNESCO world heritage site.

The Khajuraho temples are famous for their intricate carvings, including many sculptures depicting various sexual positions described in the ancient Indian text of the Kama Sutra. These sculptures are found mainly on the outer walls of the temple, and they represent only a small portion of the temple's artwork.

Despite their explicit nature, these sculptures are not intended to be pornographic or vulgar. They are actually seen as a celebration of love, sexuality, and the human body. In Hinduism, sex is considered a sacred act and is believed to be a means of attaining spiritual enlightenment.

In tandem with this, the first car of the train uses these elements as a design feature to narrate stories about health and wellness as well as reproduction. The idea is for the train to just have the first car as a standout element for people to be able to differentiate, however the rest of the train works on the model of it looking like any regular train on the outside, till it stations itself on the deck.

Since the train services the urban and rural poor, it is met with multiple situations of context. In some cases it meets the platforms of metropolitan cities where the infrastructure of the station extends to make it into a smaller village type clusters to form spaces of interaction, On the other extreme a lot of stations do not have updated infrastructure and in that case the train itself can turn into an extension of its model to provide shade, waiting and spaces to convene
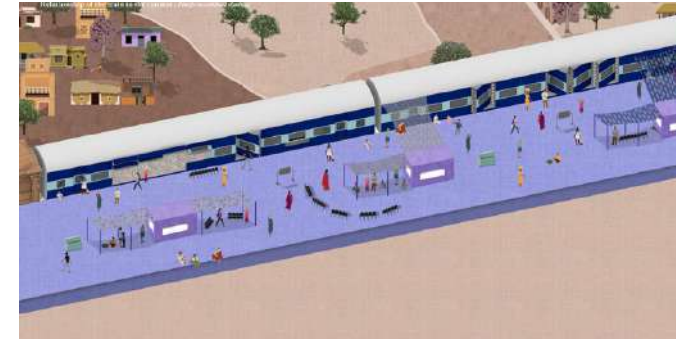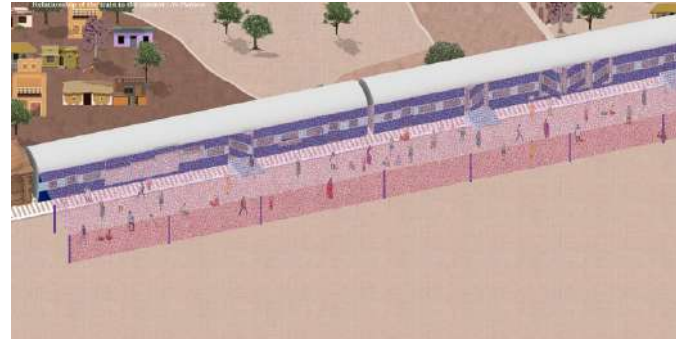
Educational coach : *conferences and workshops*

FIRST CAR - SERVICES
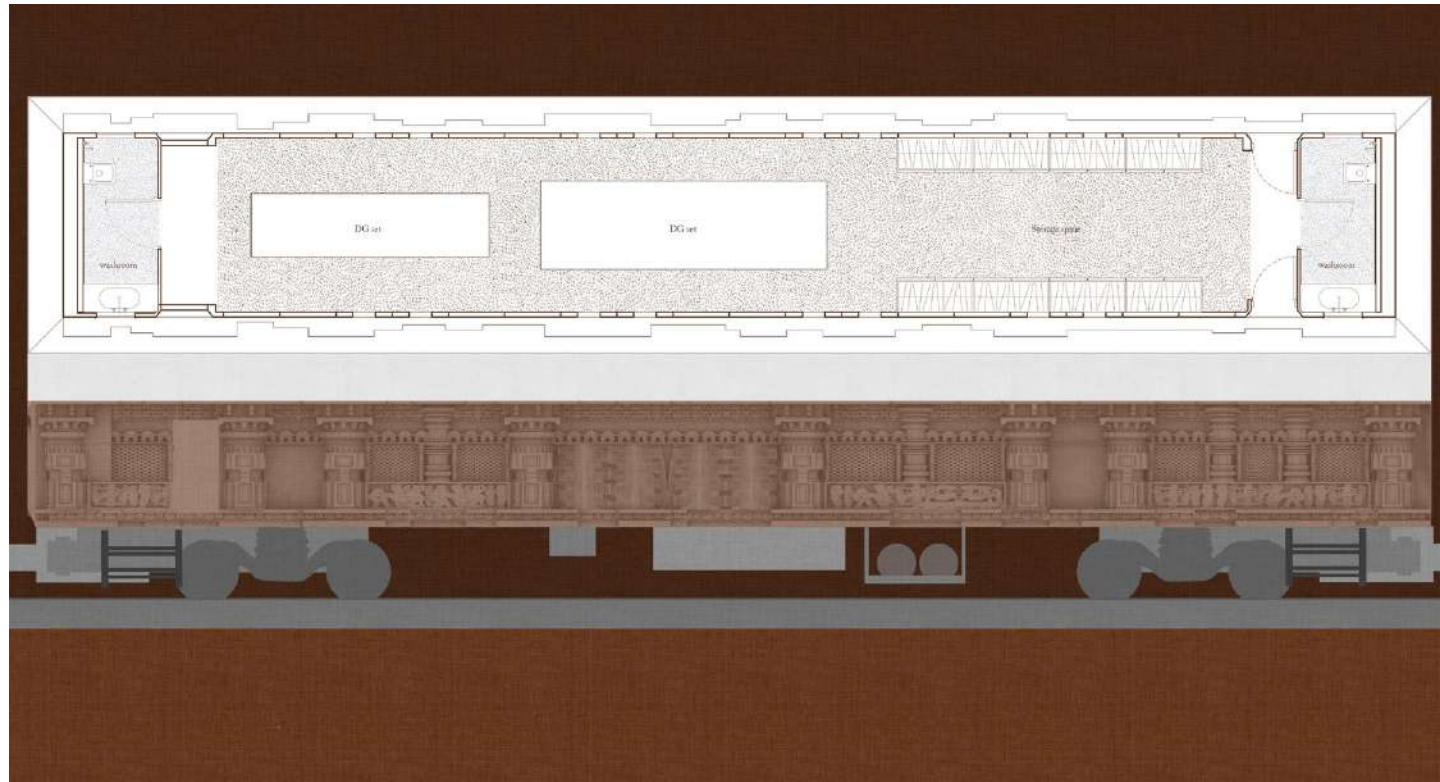
THIRD CAR - OPERATION THEATER 01
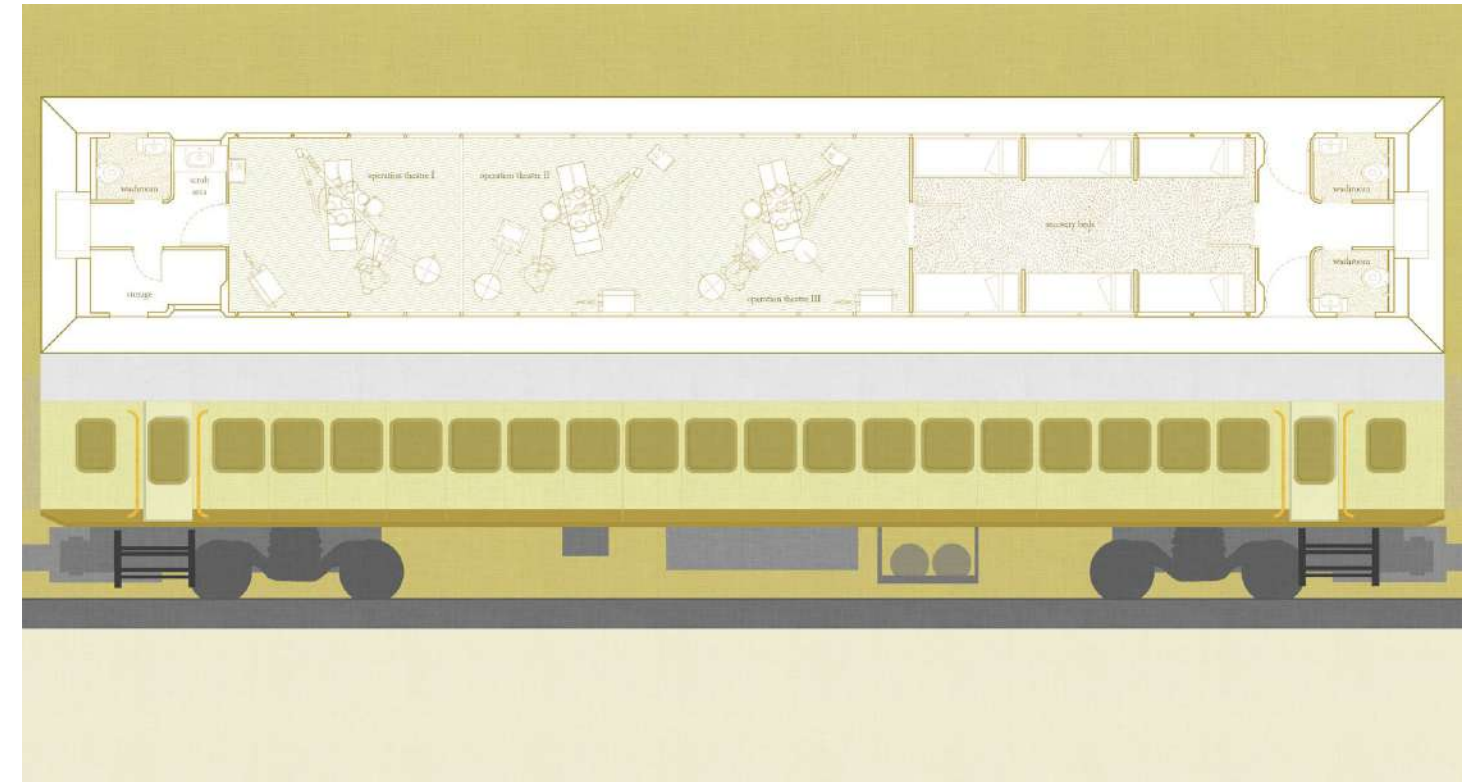
SECOND CAR - STAFF CAR

FOURTH CAR - OPERATION THEATER 02

FIFTH CAR - WAITING SPACE

SIXTH CAR - OB/GYN CLINIC

SEVENTH CAR - PEDIATRIC CARE
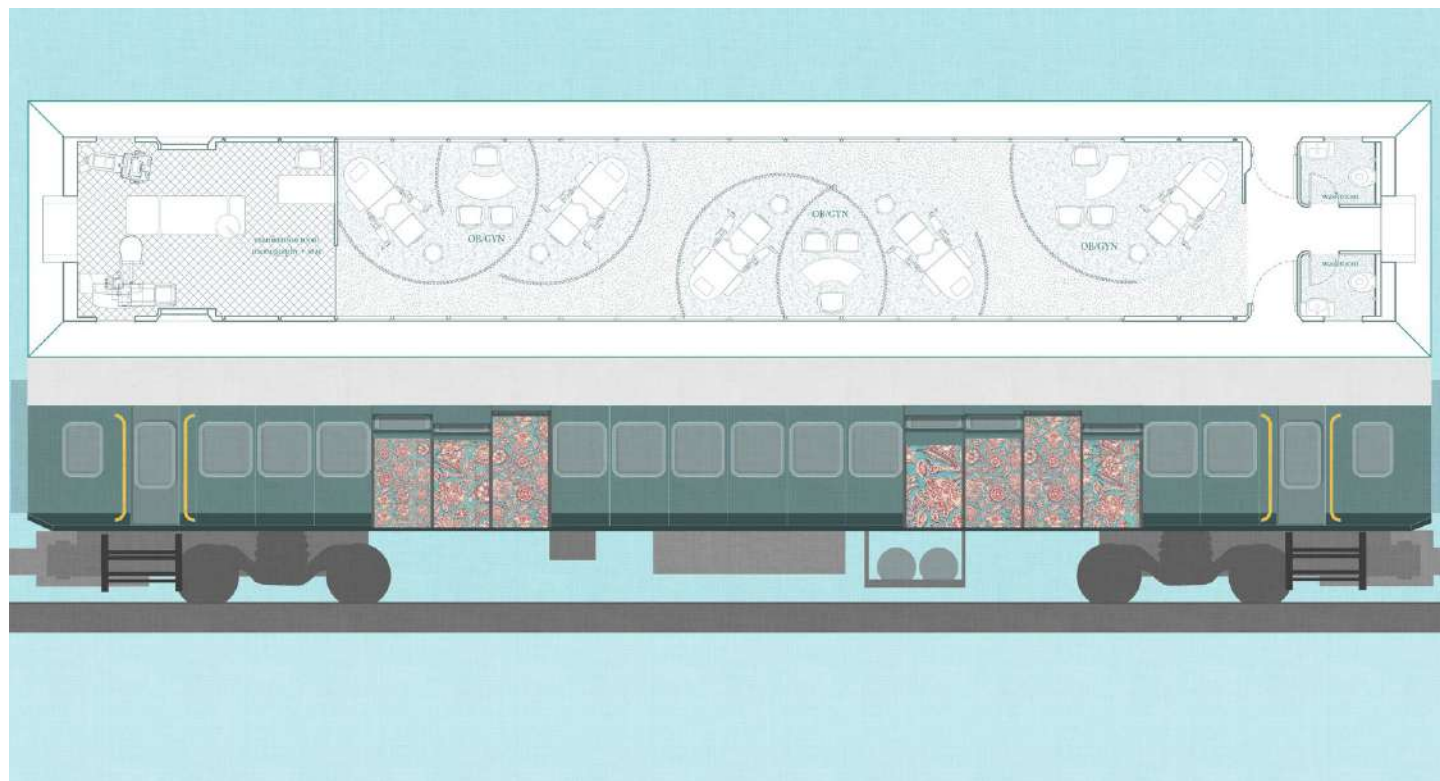
EIGTH CAR - LABORATORY
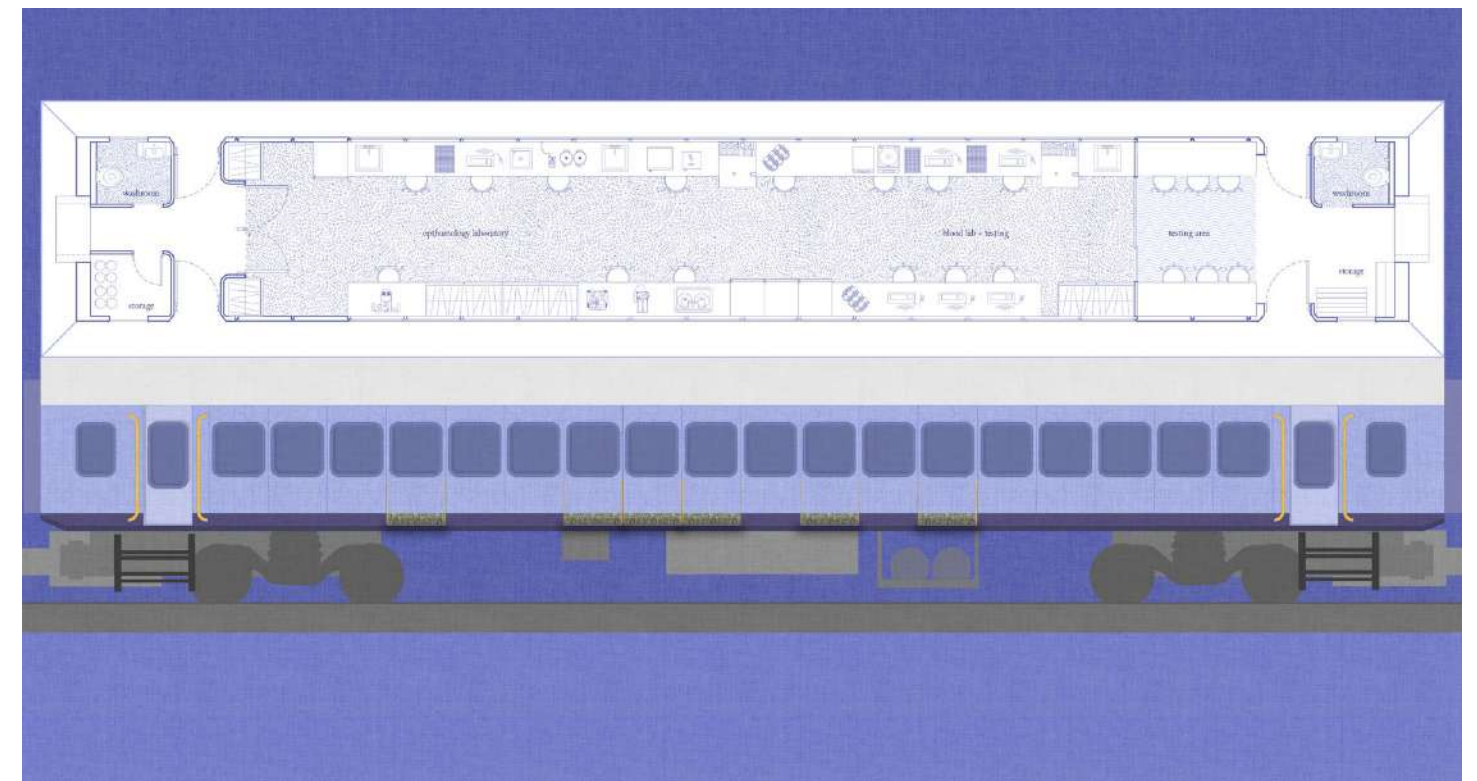
NINTH CAR - CANCER AWARENESS
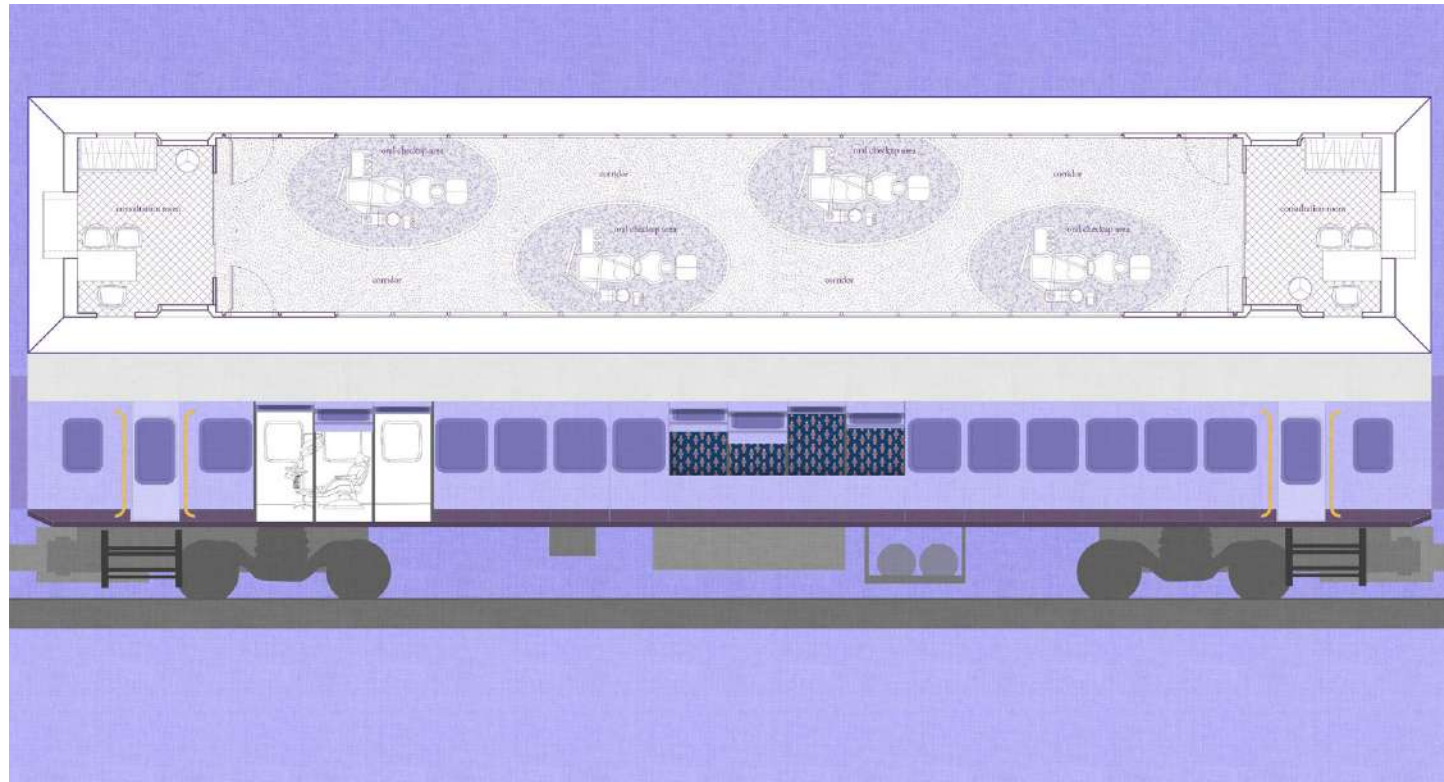
ELEVNTH CAR - MENTAL HEALTH COACH
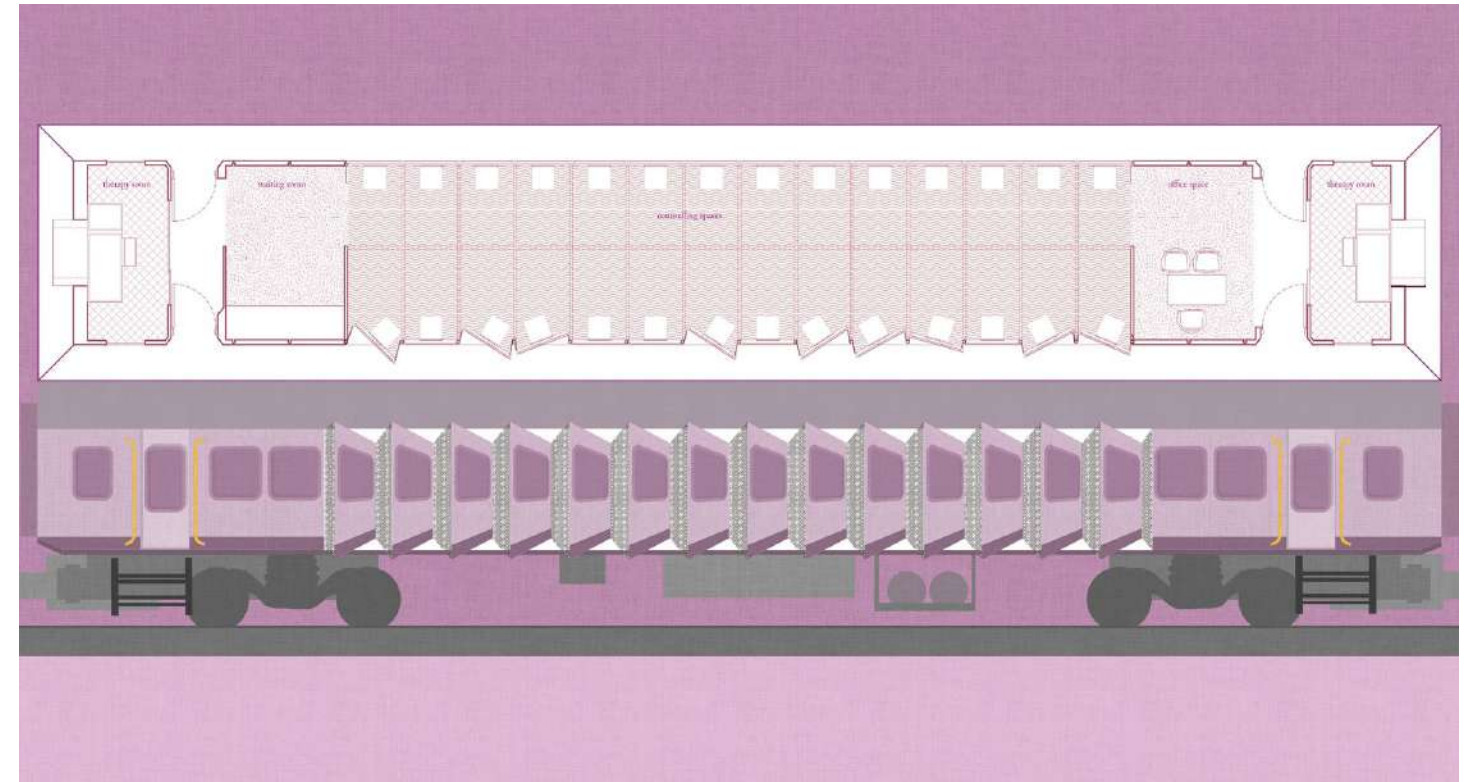
TENTH CAR - EDUCATIONAL SPACE
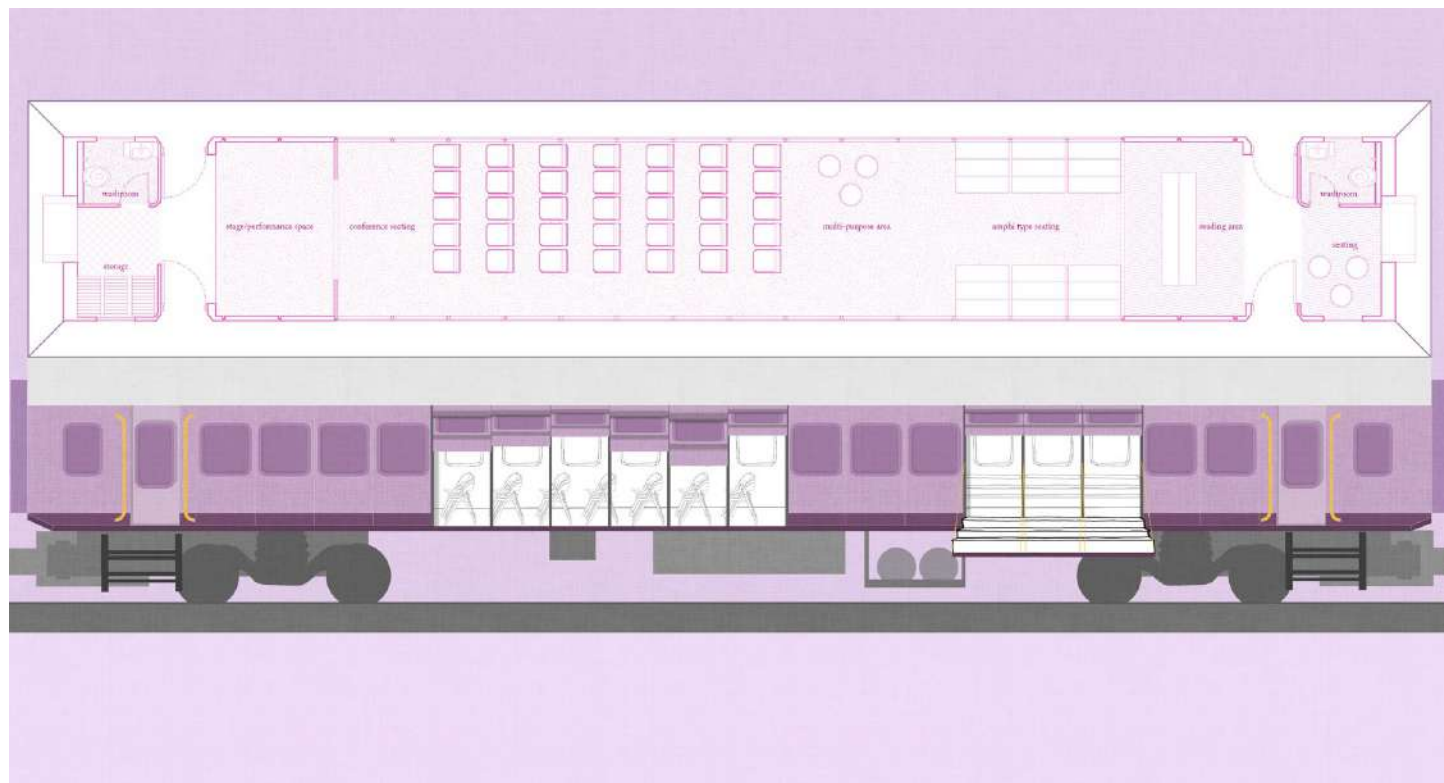
TWELVETH CAR - STAFF RESIDENCES
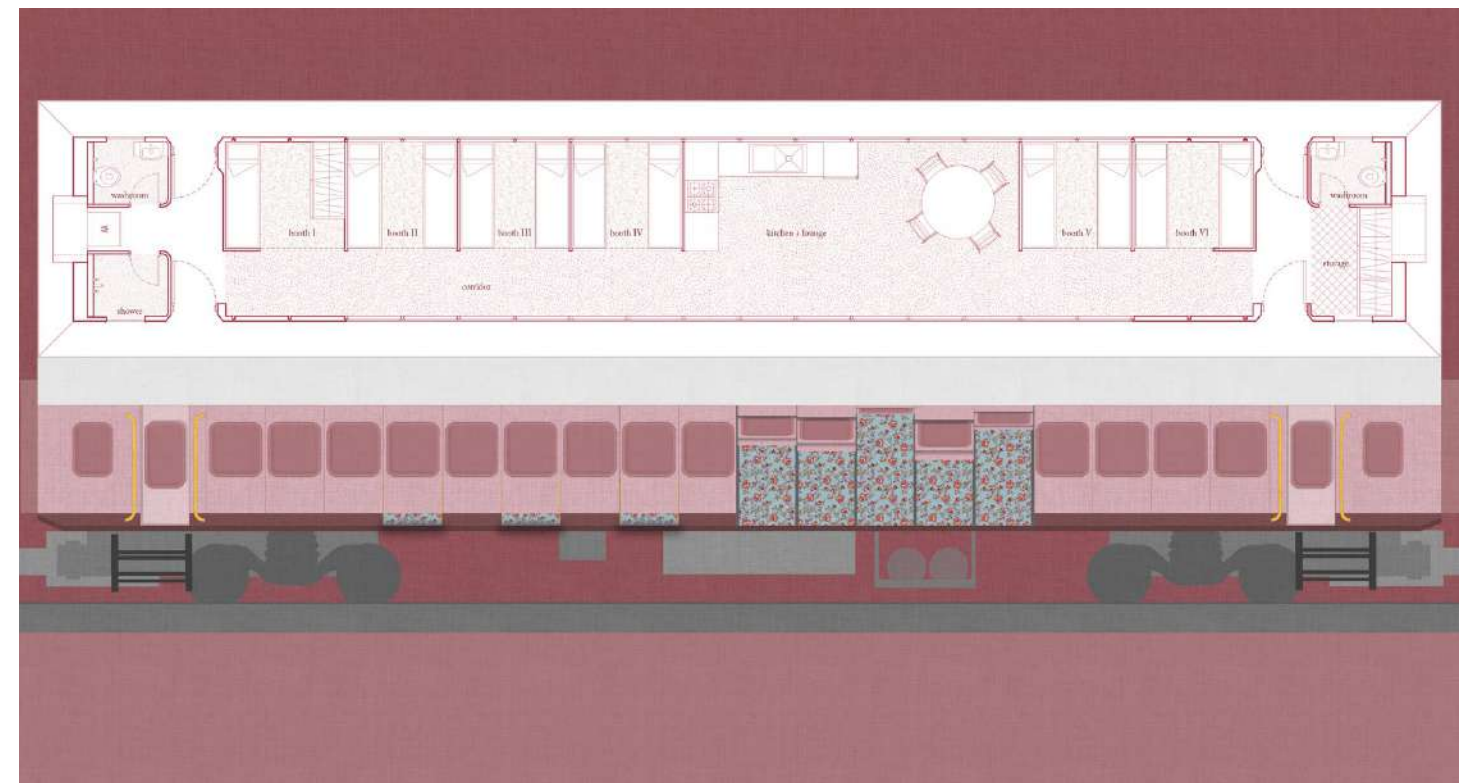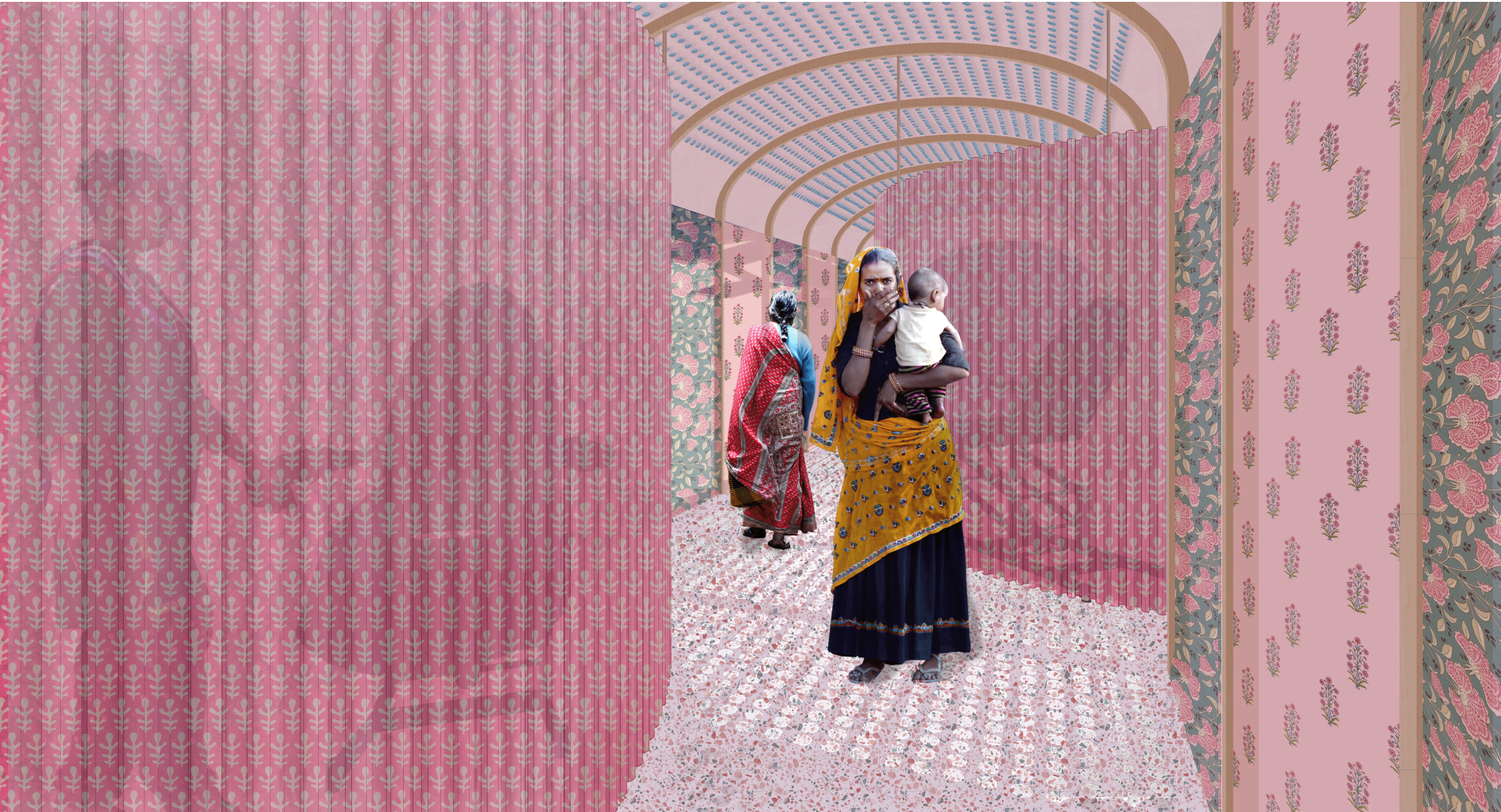
AFTER
COMFORT

CRITIQUE ON PAPER BY DANIEL BARBER

Modern Architecture and Climate
Design before Air Conditioning

Daniel A. Barber

AFTER COMFORT RESPONSE

INSTRUCTOR: JESSICA NGAN

"After Comfort", published in the architectural journal Log in November 2019, authored by Daniel A Barber, talks about the lifestyle choices we make as humans to survive in this Anthropocene era, and its consequences. The writing, portrayed as a manifesto uses comfort and discomfort as an analogy to understand the dire results of the climate crisis that loom over us. The author uses his writing to pose questions surrounding architecture and its discourse.

HVAC as a part of the building system has been a hidden and matter-of-fact stage in the cycle of construction. As architects when we design, we don't end up questioning the codes and standards set before us for these systems that end up governing our lifestyles and surroundings. Daniel challenges the idea of a cookie-cutter approach to design where we integrate these ideas into our concepts without rethinking them or taking the time to reassess their impacts.

Comfort in the article has been associated with luxury and development. While discomfort has been addressed as a futuristic opportunity where we move beyond the conventional design by 'changing our expectations of the interiors and relying less on air conditioning.' The conflict with the manifesto comes down to the point where, discomfort as a new category of design has been brought down to just one system of building operations, air conditioning. While Daniel manages to give strong examples where an HVAC system can be considered a part of luxury living, the whole narrative seems to be placed in a very specific geophysical location while it's being discussed. The reason behind that comment is its scalability. To make Daniel's argument global, one would have to first understand how these building systems work across the world and how the idea of luxury and comfort differ across borders and time zones. In India, even in the coldest/hottest of places, having a centrally heated/air-conditioned house is not considered common practice. Even under extreme weather conditions, you have the freedom to utilize every appliance according to the user's demands, which also translates to the fact that most of the transitionary spaces in their homes don't have any sort of a 'luxury' system of building management to enhance their experience and make it more comfortable. This contradicts Daniel's idea of discomfort which is based on designing with relying upon less on-air conditioning. What is considered as something that might cause uneasiness to an experience (discomfort), is actually common practice in a country across the world. Hence, it is necessary for us to understand that discomfort as an idea based on comparison to the climate crisis cannot be globalized to a greater degree because of its singular nature.

Daniel Barber in the assembly however agreed with the idea of comfort and discomfort being subjective. The article limits their usage to HVAC but they lie on a much larger spectrum of data. He spoke about public spaces like museums, hospitals, and performance spaces where the need for HVAC cannot be eliminated. However, what we fail to realize is that, when you are in those centrally controlled spaces which are inaccessible in terms of regulating their conditions to the user, discomfort might be felt in the coolest of zones. Body temperature and a person's response to how warm or cold they feel varies. So even in terms of the bodily scale, one can manage to feel discomfort sitting in a fully air-conditioned movie hall which just uses averaging as a method to optimize the system of air conditioning. Hence the discussion surrounded how architecture can use this system of comfort for survival instead of associating it with luxury. In the article, the author specifies the role of architecture and architects. He talks about architects designing for discomfort in order to make it desirable in a way that 'resolves itself by tempering the inequity, exploitation, and destruction that increase with climate instability.' The idea of designing here for discomfort directs towards the sense of adapting to change or having new desires and aspirations for the profession instead of looking into how we can understand these positions locally and address them on those levels first.

The assembly with Daniel Barber addressed the idea of net zero buildings which in the present times are the alternative to buildings without traditional HVAC systems. These buildings were seen as a way to move forward with the brief of designing for climate change. While there are roadmaps in place for the world to be carbon-free by 2050, the chances of these strategies working are dim. The IPCC report for 2022, states that for us to achieve net zero buildings we need to stop the use of carbon emissions in the next 2.5 years. However, the building industry is not equipped for this change. One of the reasons discussed was the slow building process and scalability. The amount of net zero buildings produced in the world today and over the next few years won't be able to counterbalance the number of buildings that add to the carbon emission in the environment. The speculation around technology solving this problem adds more to the uncertainty of its success. Daniel spoke about how buildings are generally formed around emergencies which validates the existence of urban environments. Architecture is in a way limited to designing for survival but without the freedom of choosing its course of action with the existence of intense building codes and systems. While the article 'After comfort' makes you question its manifesto statements at various points, the argument it poses in regards to our attitude towards leisure and convenience makes you look twice around you. Despite the disconnect between reality and the paper, the hypothesis of both still remains the same which is- How can architects use these mediators of comfort in those moments where the climate makes it unbearable to adapt to itself, in a manner where we don't end up becoming a catalyst of the problem itself?

BEYOND THE
GREEN WALL

UNITED ATMOSPHERES

AIR POLLUTION

DESIGNING FOR A BETTER ENVIRONMENT

The world is experiencing a time where the air we breathe is having a direct impact on our health. Often which goes unnoticed, air quality as a parameter to define quality of life should be important when it comes to designing not just for the indoors, but also the outdoors. With roughly 90% of the world population living in air pollution levels exceeding the WHO guidelines, lets have a look at the indoor air pollutants that we can control in our surroundings to begin with. Many Common household products are the cause of poor air quality in the home and any interior spaces. When chemicals are used in the process of production, especially affordable furniture, the adhesives and plastics slowly off gas post-production which become recirculated throughout interior spaces. Here are some examples of the same shown in the figure to the side of the page:

- FABRIC SOFTENERS AND PERFUMES: Using perfumes and fabric softeners can contribute to indoor air pollution by releasing volatile organic compounds (VOCs) which can cause respiratory irritation, headaches, and other health problems.
- CLEANERS: Using cleaners can be bad for indoor air pollution because they can emit volatile organic compounds (VOCs), ammonia, chlorine, phosphates, trichinosis, and other harmful chemicals that can cause respiratory irritation, headaches, and other health problems. These chemicals can also react with other pollutants in the air to form secondary pollutants.
- FURNITURE: Furniture can release chemicals such as formaldehyde and volatile organic compounds (VOCs) due to the use of adhesives, foams, and fabrics that contain these chemicals in their composition
- ELECTRONICS: When heating up, electronics can release a variety of pollutants into the air, including Brominated Flame Retardants, Polyvinyl Chloride, lead, mercury, and cadmium.
- COMMON HVAC & WINDOW AC FILTERS: The filters used in window AC units and HVAC systems may not be of high enough quality to effectively capture smaller particles or certain types of pollutants. These particles then recirculate throughout the space and become more concentrated. If the unit is located in a polluted area, it can draw in polluted air, which can then be circulated throughout the building
- GAS STOVES: Compounds used in furniture, such as adhesives, foams, and fabrics, can release a variety of chemicals into the air, including volatile organic compounds (VOCs) and formaldehyde
- PARTICLE BOARD: Using particle board materials can be bad for indoor air pollution because it can emit formaldehyde and other volatile organic compounds (VOCs) that are used for adhesives and compounding components.
- ANIMALS: Pets can bring outdoor pollutants such as pollen and dust into the home on their fur and paws, which can further worsen indoor air quality.

Indoor air pollution Contributers

Electronics

Fabric softeners & Perfumes

Common HVAC and Window AC Unit Filters

Cleaners

Gas stoves

Particle Board

Furniture

Animals

PRECEDENT STUDIES

CASE STUDY: GSAPP, COLUMBIA UNIVERSITY
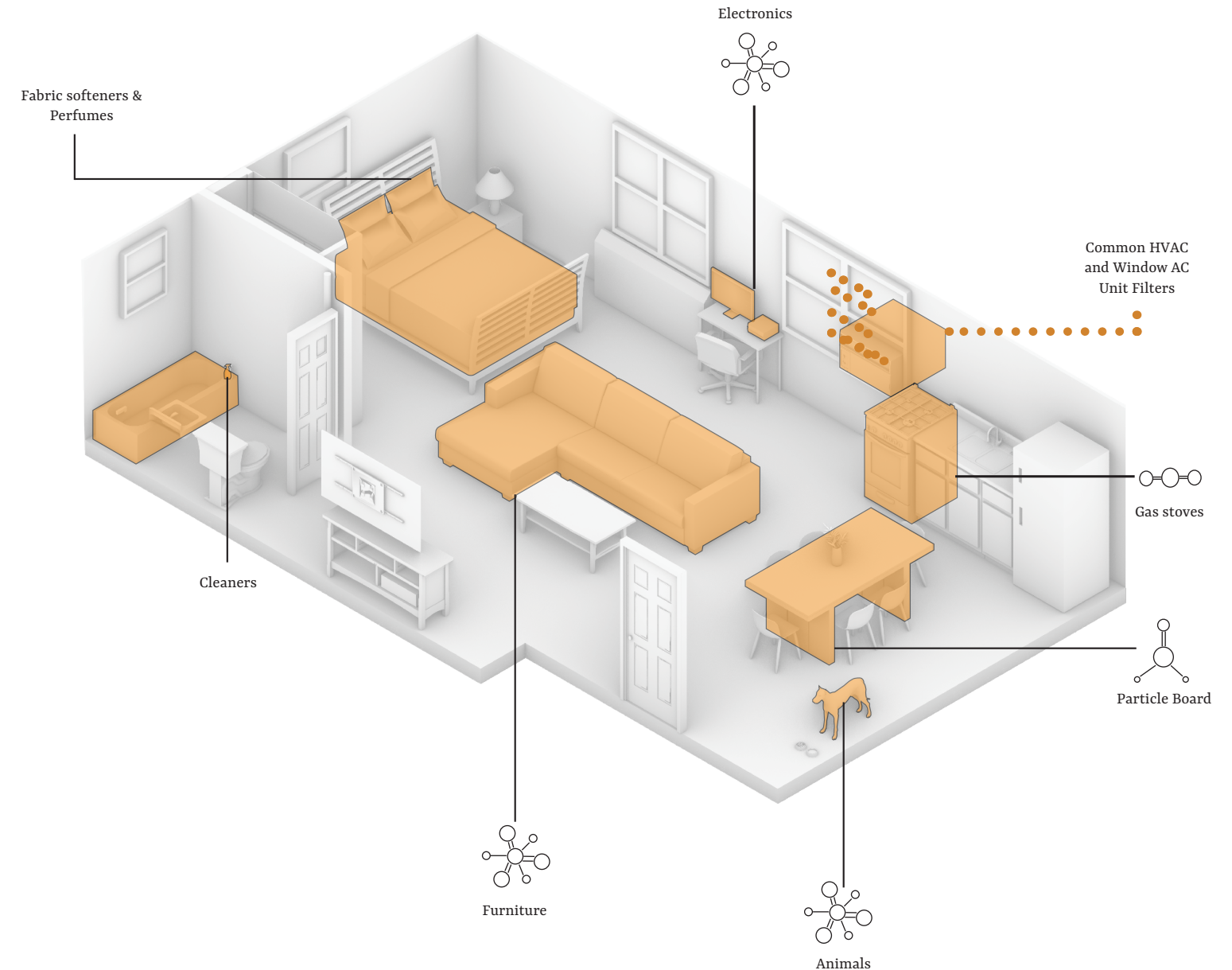
To understand the complexities of the topic, the class looked into various precedences selected from across the globe and used a matrix to compare the findings based on a particular set of criterias. To further analyse the findings through the semester, we installed air quality sensors in selected spaces to see the dataset and understand its implications on the mind and our health. Given we study in the building it was important to first study our context.

| Deteriorating Walls | Compound Board | Spray paint | Decomposing trash and excess materials | Printers | Computers |

	AURA TOWERS, Studio Symbiosis	**MARKER,** Air Ink	**SARGABLOCK,** Omar Vázquez	**ALGAE CURTAIN,** EcoLogicStudio	**CARBON TILES,** Carbon Craft
SIZE					
ABOUT	Air Purifying towers to be integrated throughout Delhi at multiple scales to address air quality concerns.	Captured carbon is concentrated and used as a medium for ink that can be repurposed in markers and other products for art and writing	Sargablock is a construction material made from sargassum seaweed, brown algae that washes up on Caribbean beaches and costs a fortune to the tourism industry.	PhotoSynthetica Curtains use the power of algae to absorb carbon dioxide from the air.	Captured pollution is used as a bounding agent for cement blocks that help the absorbtioin of excess CO2 from the air
SITES OF					
UNIQUE					
INTERVENTION					

RECORDED DATA

CLASSROOM OF RECORDED DATA

PARTICULATE MATTER DATA
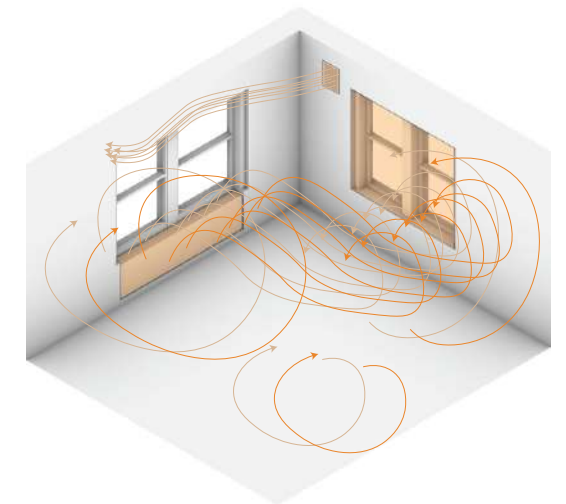
Lack of Ventilation

CARBON DIOXIDE DATA
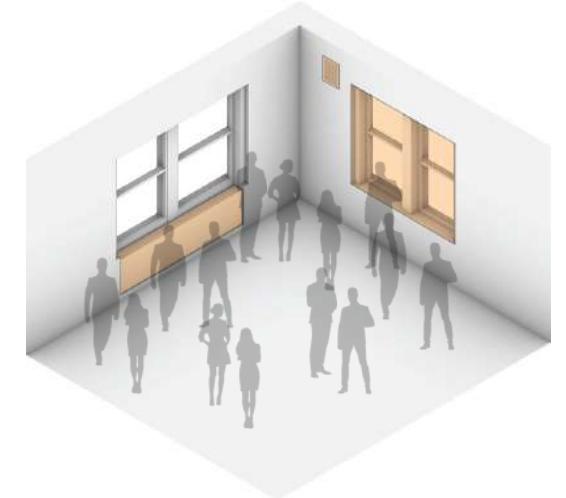
Increase in Capacity

BIOPHILIC AIR PURIFIER

Many air filters available for purchase currently are often not designed to capture very small particles. For example, some filters may not be effective at removing gases like radon or volatile organic compounds (VOCs) that can be harmful to health. So to address the urgency surrounding the topic of the class, the elective performed as a lab where the students and professor designed a biophilic air purifying system that is installed in GSAPP to counter the influences of indoor air quality of the space. The idea of a biophilic air purifier is to enhance both the physical and psychological

health of occupants by creating a healthier and more natural indoor environment while bringing about a much needed visual attention towards the effects of the kind of air we are all breathing today. In addition to the process of photosynthesis, which uses the upper part of the plant to purify air, this air purification system utilizes the roots of the plant which has been proven to effectively remove Volatile Organic Compounds (VOCs) and other smaller particulate matter otherwise left unfiltered by on the market purification systems and basic filtration systems in HVAC systems.

GROW LIGHTS

WATER TANK
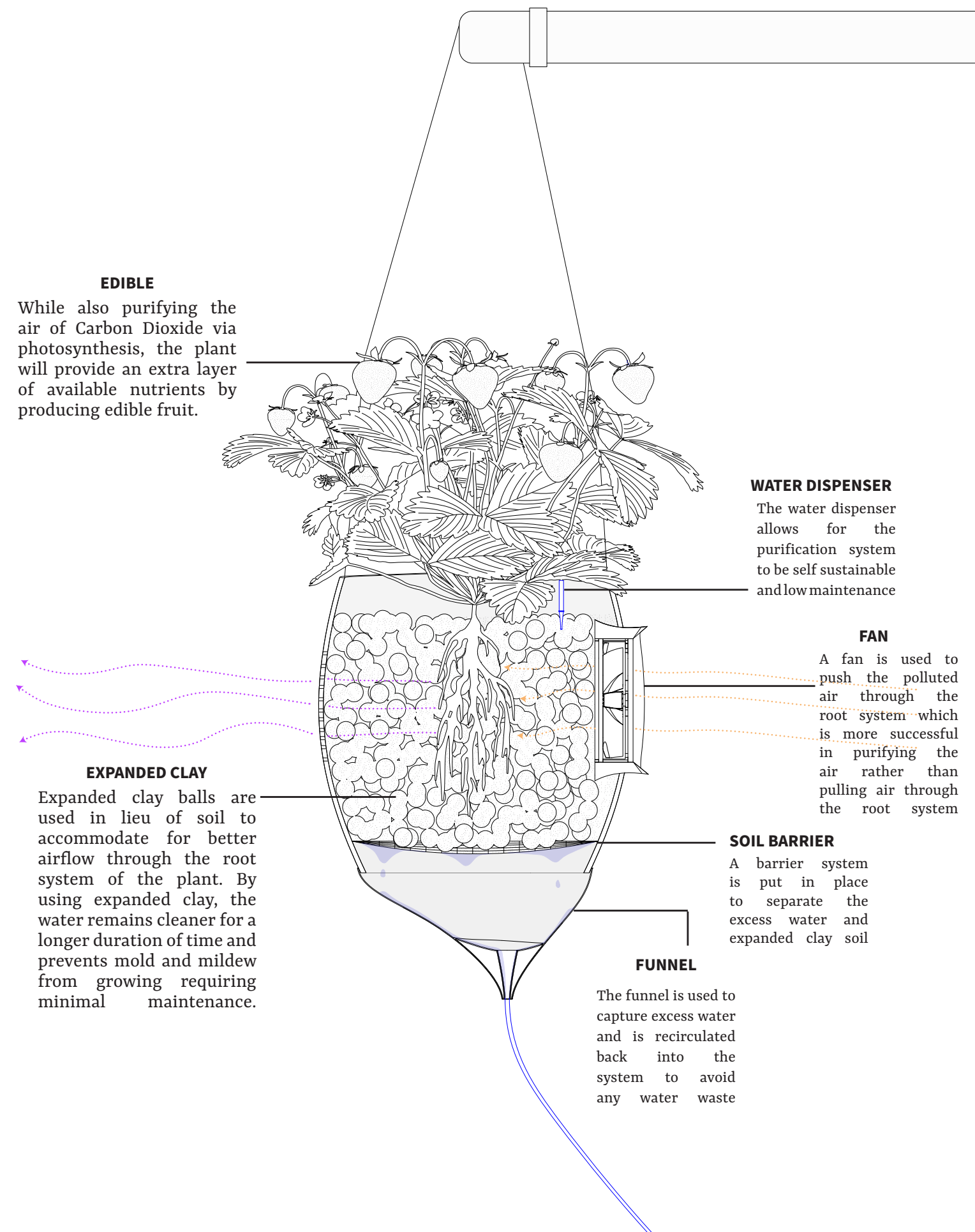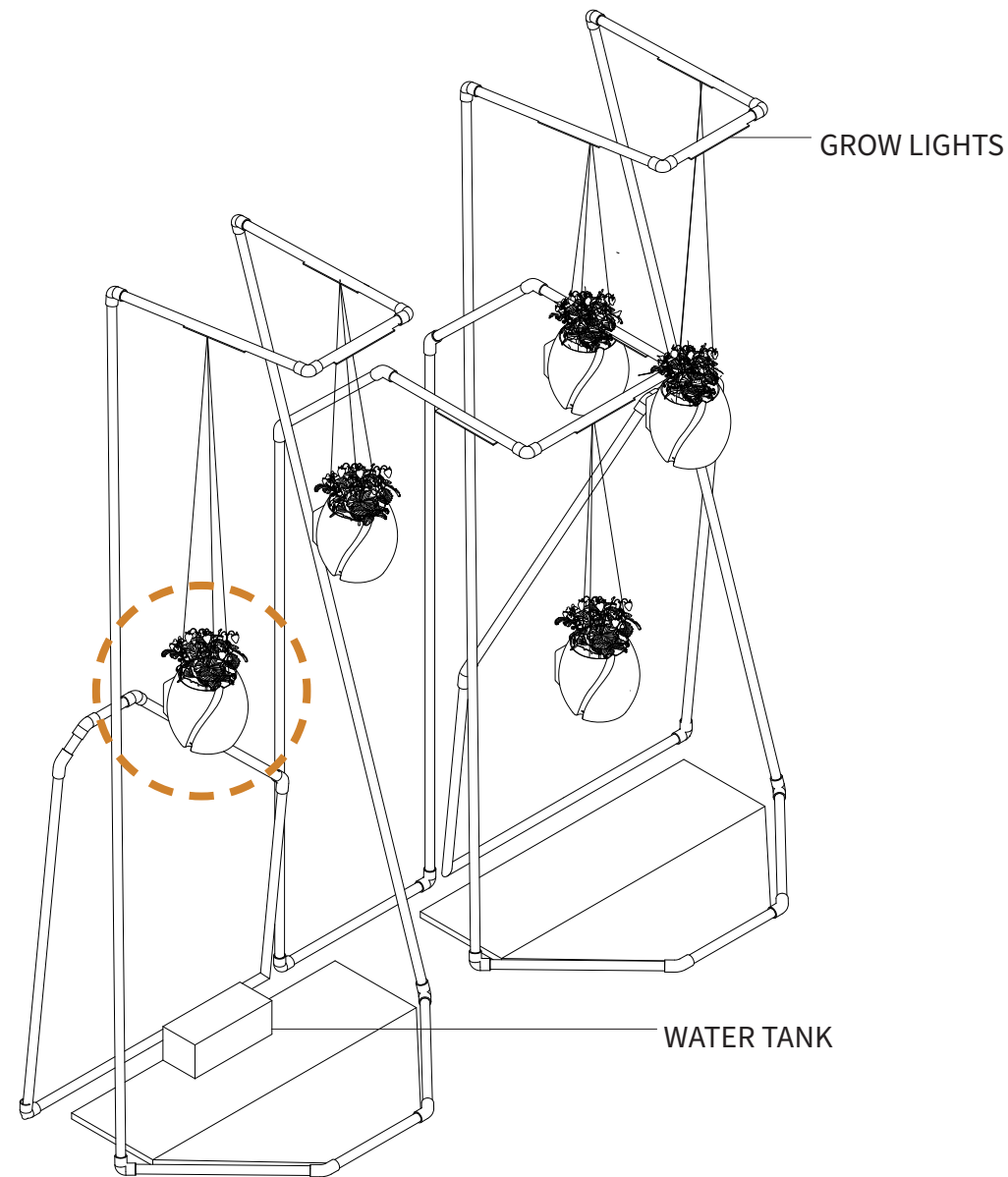
EDIBLE
While also purifying the air of Carbon Dioxide via photosynthesis, the plant will provide an extra layer of available nutrients by producing edible fruit.

WATER DISPENSER
The water dispenser allows for the purification system to be self sustainable and low maintenance

FAN
A fan is used to push the polluted air through the root system which is more successful in purifying the air rather than pulling air through the root system

EXPANDED CLAY
Expanded clay balls are used in lieu of soil to accommodate for better airflow through the root system of the plant. By using expanded clay, the water remains cleaner for a longer duration of time and prevents mold and mildew from growing requiring minimal maintenance.

SOIL BARRIER
A barrier system is put in place to separate the excess water and expanded clay soil

FUNNEL
The funnel is used to capture excess water and is recirculated back into the system to avoid any water waste
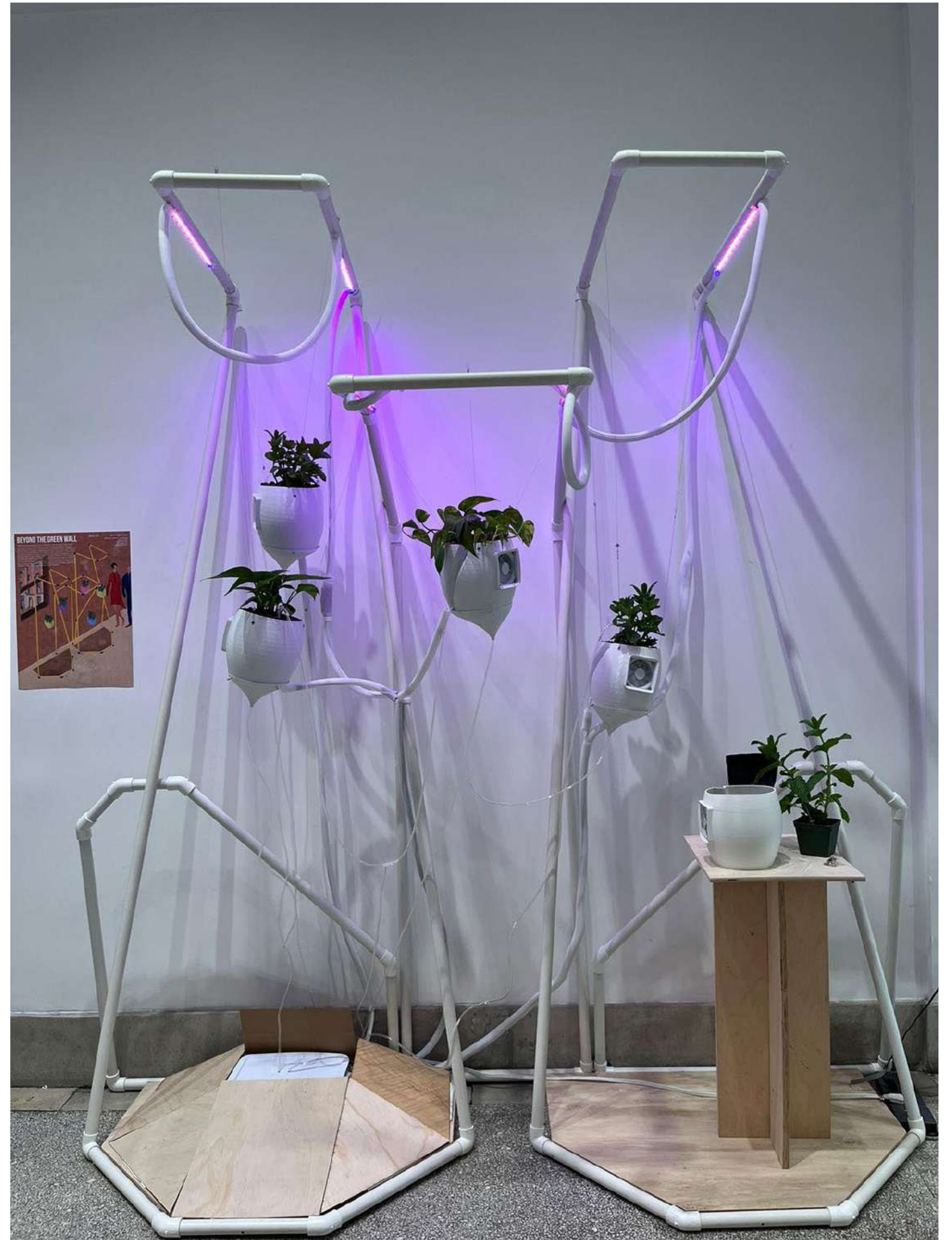
QUEENS OF
THE MARKET

CIVIC FUTURES

INTERPRETING EXPERIENCES THROUGH SPATIALITY

Spring studio focussed on the idea of what civic spaces are. We dove into the deep end of the pool, trying to figure out the definition of a civic space, redefining it with every piece of new information we received; contesting the idea of what we already knew as civic and brainstorming on a taxonomy of words to describe these conversations. One of the exercises pre mid term was to choose a memory that we associated as being civic. It could be a memory, an opinion or an emotion as long as it was strong to with hold the task of being able to be represented physically.

For the purpose of this exercise I chose a crematorium. Crematoriums in hindu religion are sacred. Its the place the body of a human disintegrates and the final place to mourn and grieve. The idea with the models above was to show this idea of grief by burning the materials that you use in the process of a cremation. Burning these materials in the left one and keeping them fresh in the right one to show the comparative of how life feels. The one that is burnt was an experiment which yielded fascinating results. For starters the whole act of burning ended up becoming civic in nature because it happened on the sidewalks outside my building. The fire ended up bringing people together in a shared experience and often serve as a symbol of unity or even familiarity.

Secondly the fire did not burn in a linear fashion. It went its own way, it got out multiple times just trying to depict the idea that grief too is not linear and can come in multiple ways, forms and times in our lives.

MAKOLA MARKET

DESIGNING FOR TEMPORALITY

Civic spaces and identities are not restricted to physical structures or buildings, but can exist in a variety of forms, including objects, time and measurability. The civic-ness of a space or identity can be assessed at the scale of the human experience and the various interactions that occur within it. Makola market, a critical part of Accra's economy, is the second largest informal market in the world. Trading within its boundaries, the market is home to a diverse array of vendors, selling everything from fresh produce to textiles, clothing and crafts. The government's attempts to construct large scale infrastructure for the market are facing opposition from the local population, indicating that a top-down approach might not be the most effective strategy for the development of the space. Given this understanding, how can we design for a segment of the society that lives with the temporality of everyday life? How can we create a sense of ownership over space and provide agency to individuals who want to have an identity within the common collective?

It is essential to the hypothesis that we design for stakeholders that face the brunt of the social

hierarchy and support their needs in a way that allows them to feel empowered when they leave their homes. The aim is not to establish and heighten the stratification that exists today, but to offer opportunities for improving conditions for traders; and supplement that with developing organizational schemes that coordinate the provision, maintenance and use of the intervention. Our objective is to address the intricacies present in Accra by incorporating trust, impermanence, adaptability and security into the approach and creating prototypes that can be duplicated and scaled beyond the boundaries of problem solving frameworks.

Makola Market has a rich and colorful history dating back to the 1920s, when it was established as a small trading center by women from the Ga tribe. These women would travel from their rural homes to sell their produce in the market, which was then located near the present-day Accra Central Mosque. Over time, the market grew in size and popularity, attracting vendors and buyers from across the region. In the 1930s, the market was moved to its current location on Kojo Thompson Road, and it continued to expand throughout the 20th century. During the 1960s and 70s, Makola Market played an important role in Ghana's political and social movements. The market was a gathering place for activists and political leaders, who used it as a platform to promote their causes and rally support.

CATALOGING SPACES & OBJECTS IN MAKOLA MARKET
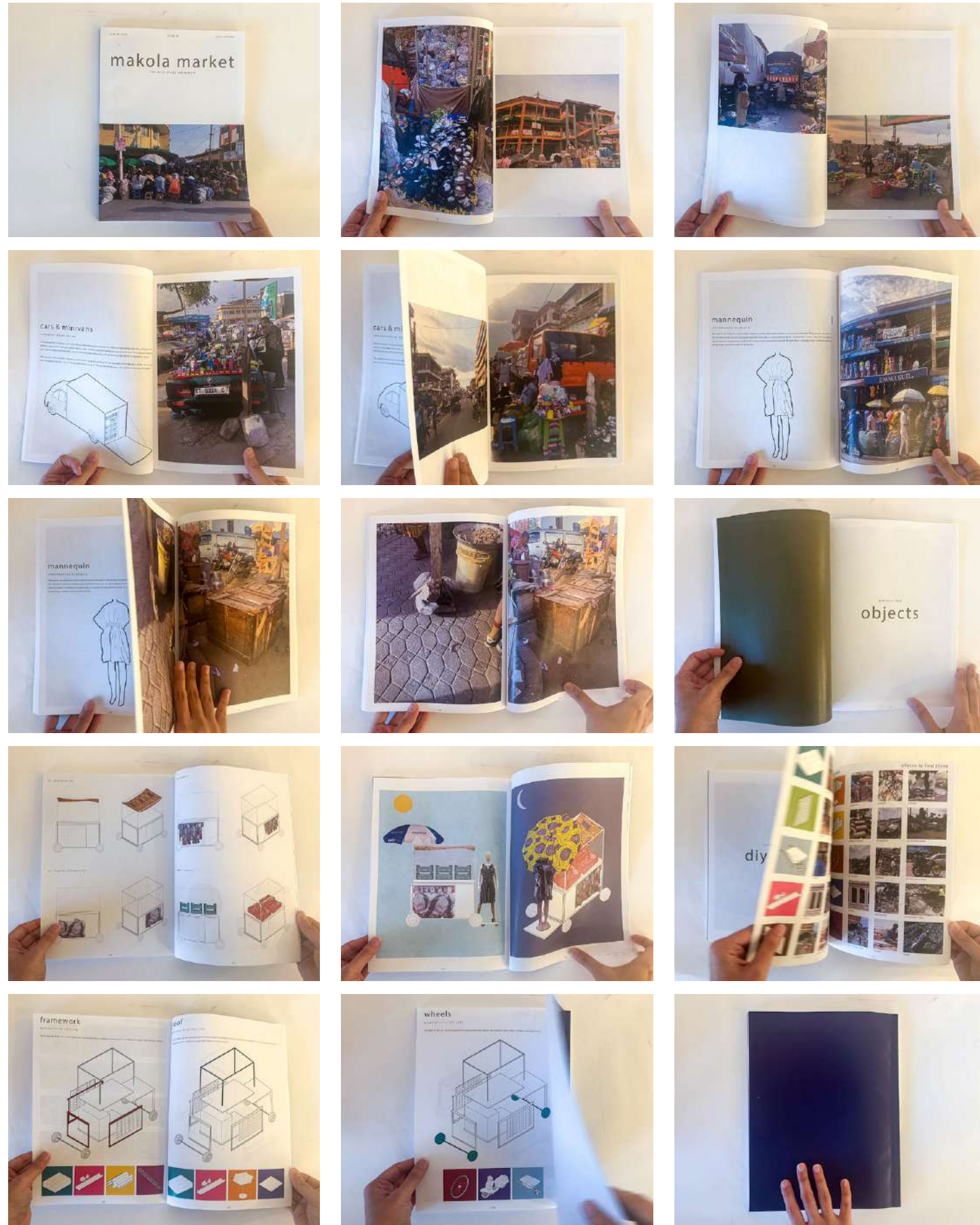
Today, Makola Market remains one of the largest and most important markets in Ghana, serving as a hub for trade and commerce in the region It sells a wide range of items including fresh produce, textiles, clothing, shoes, jewelry, electronics, household items, and much more. These ranges often also tend to divide the market for ease of access and availability. The hustle and bustle of the market, bargain with vendors for goods and street food all sum up to create a full experience of the place. Throughout our journey in the market, we took a certain route that made us go through these different categories of the economics going on. Every turn and crossing had something new to offer with so much invisible structure to a very openly informal market.

Our initial intervention was to create a catalog showcasing the objects and spaces that are widely used and appropriated in the area. Our aim was to highlight the resourcefulness and beauty of these everyday items and locations. By documenting these impressions on paper, we gained a deeper understanding of the market, and we hoped to offer others a glimpse into the lives of the people who use these inanimate objects and landscapes. The catalog takes readers on a visual journey through the market, capturing the essence of these everyday interactions. We sought to showcase the unique character and charm of the market, celebrating the creativity and ingenuity of its people. Through the catalog's photographs and illustrations, readers can appreciate the market's vibrancy and energy, gaining a new perspective on the space and the people who use it.

In response to the catalog of spaces and objects we brought forth on being appropriated, the approach we decided to go for was at multiple scales. The table below (on the next page) shows the scale of the intervention and the infrastructure related to it. For example, in Energy, we have lighting the streets through solar at the neighborhood level, solar panels on the roofs of the buildings at the individual building level and solar powered roof of the cart for that scale. Similarly we came up with interventions for water, making, storage and shading as well.
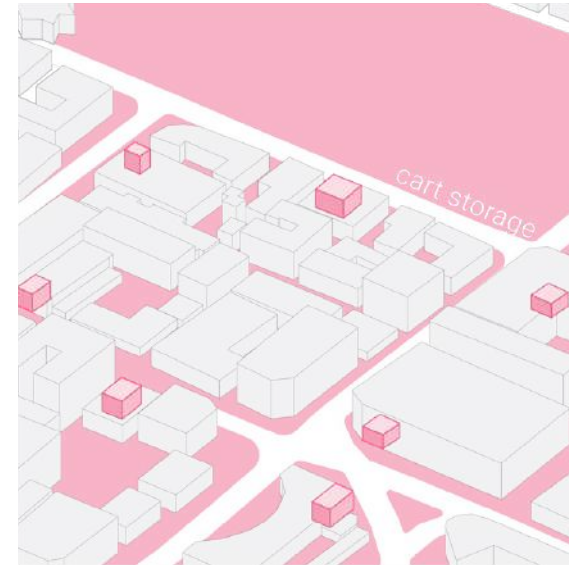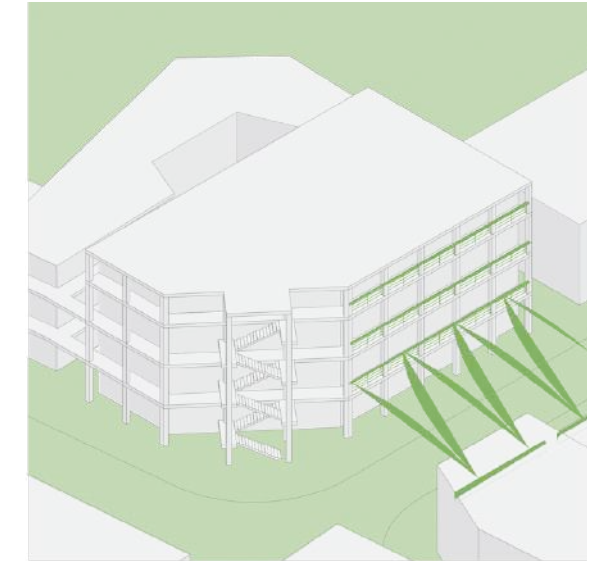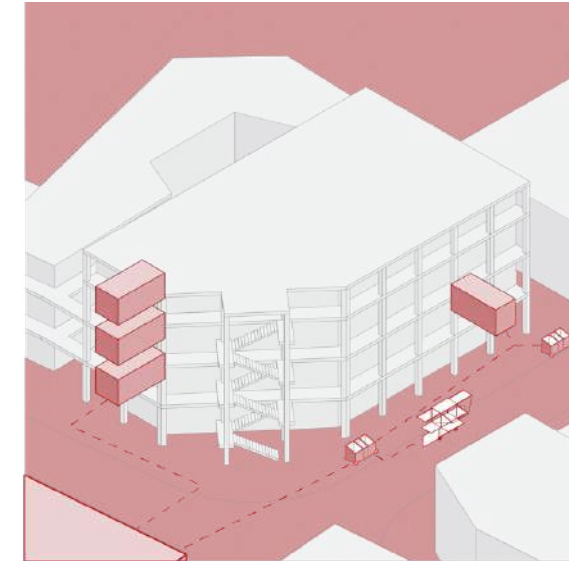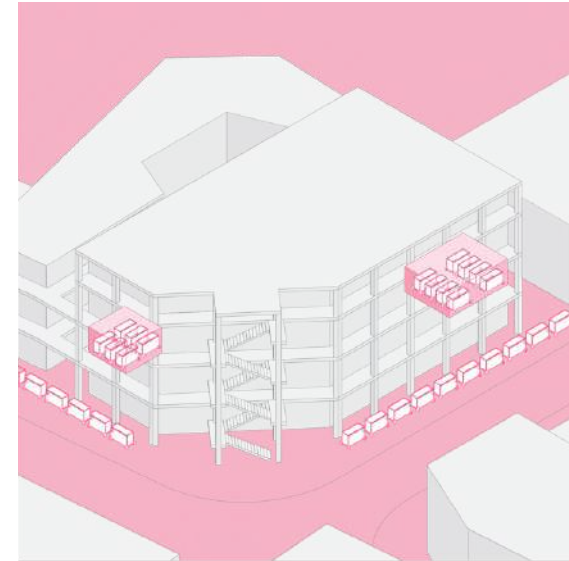
ENERGY	WATER	STORAGE	WASTE	SHADE

NEIGHBOURHOOD SCALE
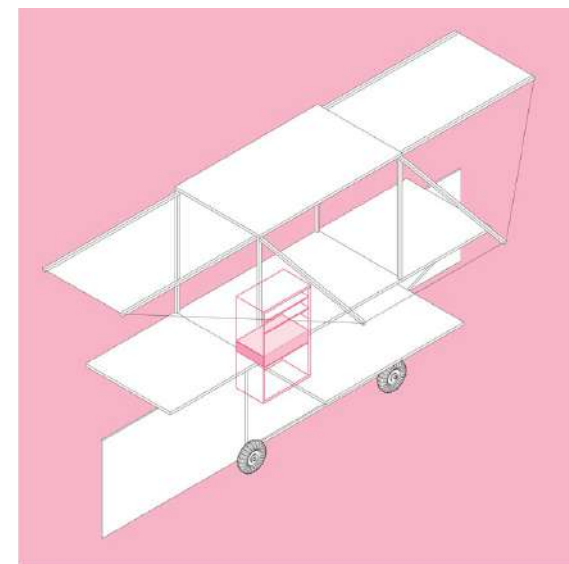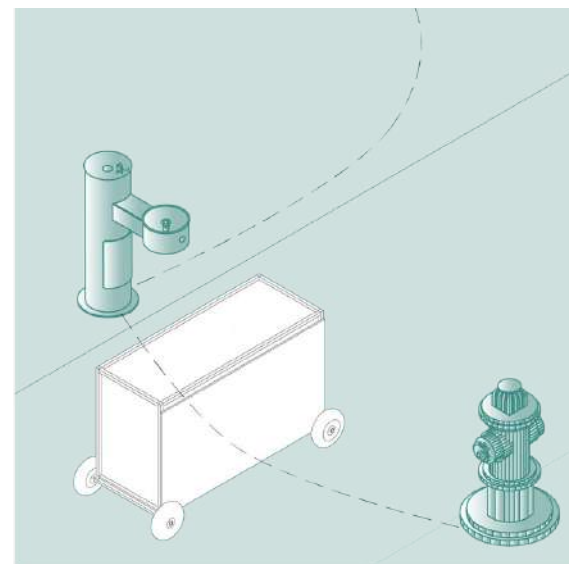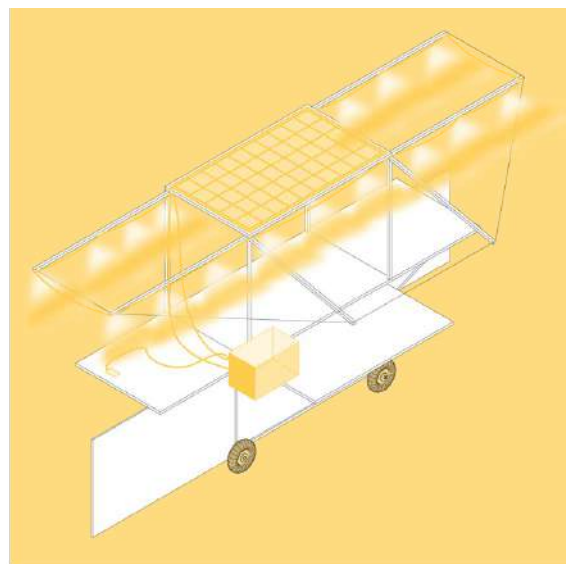
porous pavers · cart storage · waste collection · shade

BUILDING SCALE
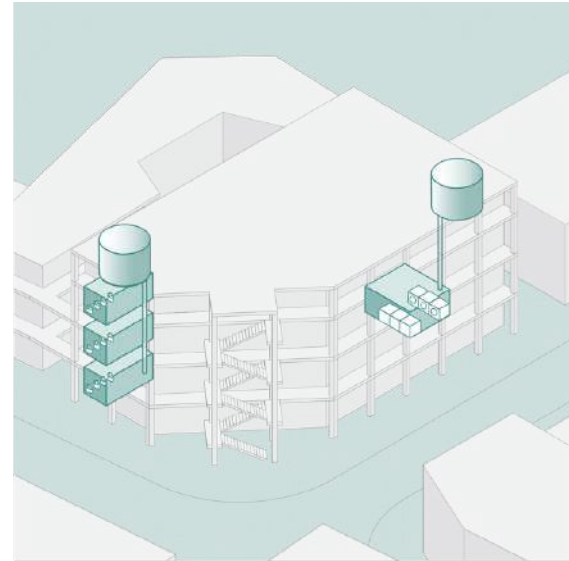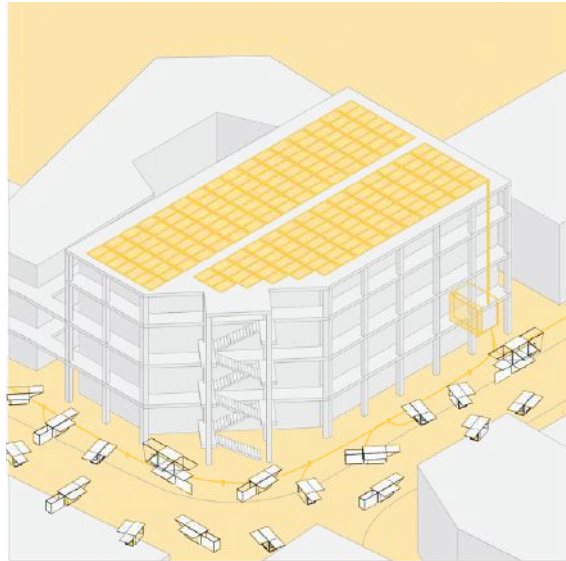
CART SCALE
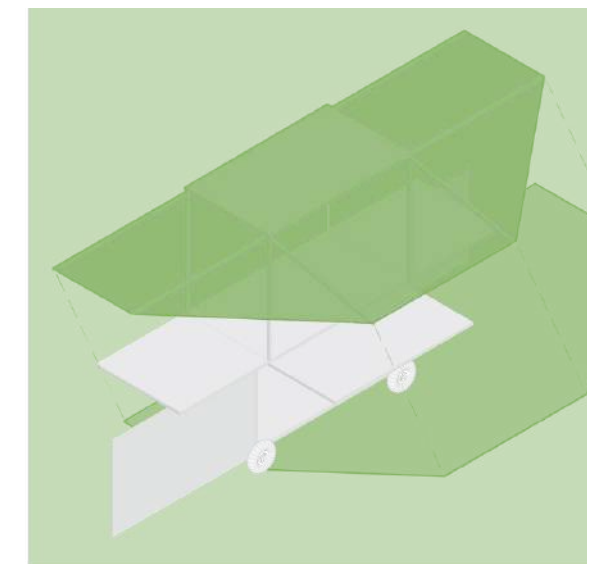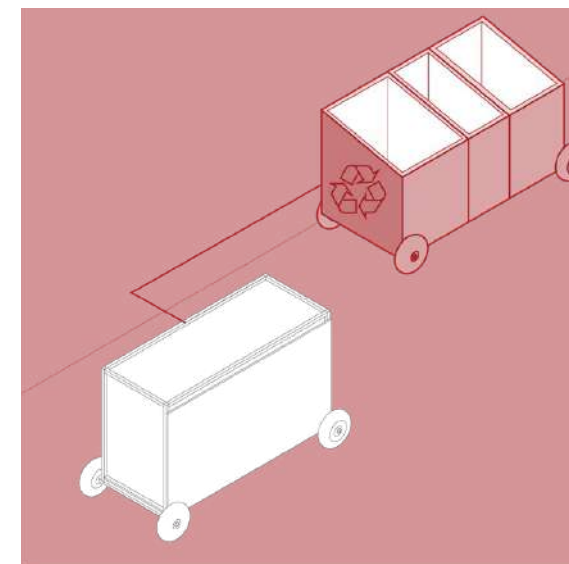
As a part of our intervention, we also decided to scale and build upon one of the tools of infrastructure we were proposing in the Makola market. The idea here was not to redesign a street cart and look into the aesthetics and design principles of those objects, but to create an apparatus that can be used by everyone in the market to become more self-sufficient.

Since we were proposing designs being able to be made out of scraps, we led the initiative to build a 1:1 street vending cart, with simple mechanisms and frameworks but made entirely out of the scrap materials found in the GSAPP shop. Besides certain hinges, nothing has been purchased and everything was found in the metal workshop. From steel to aluminum to even wood, screws, etc.

As a supplement to the actual cart, we performed the functions in front of the jury and presented all the drawings and ideas on paper, choreographing every move and element that gets to be revealed at the right time. On the right you also see a 'build it yourself' version of the cart with instruction manuals on the steps to take to build our version. The idea was to prove the theory of whether or not you can make a heavy duty street cart entirely out of scrap and given our situation not being in proximity to a scrap yard, I would say the experiment was a success at various levels.