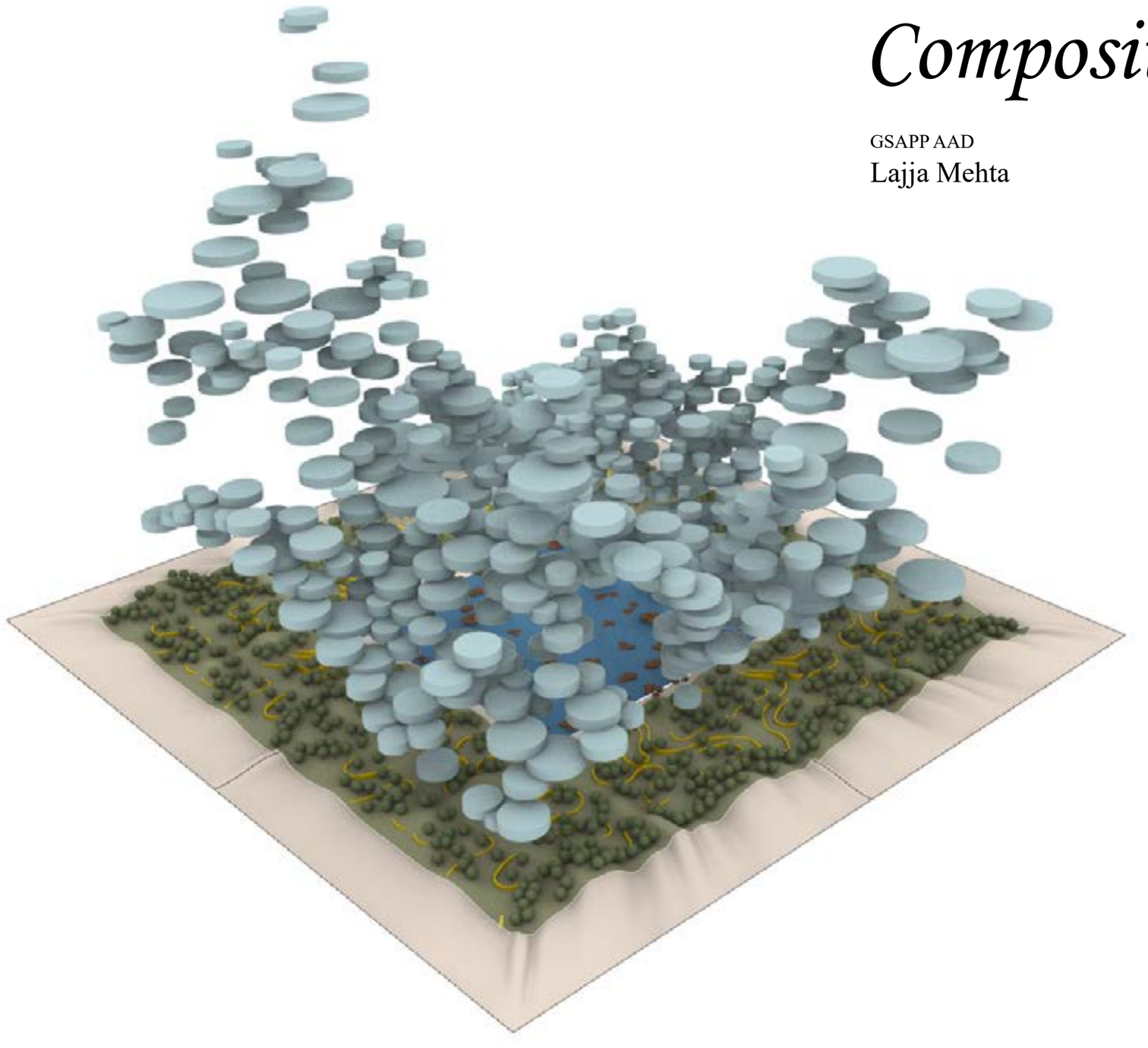
2024 - 2025

Composition of Works

GSAPP AAD
Lajja Mehta



Contents

01 *Fall'24*
How to live in Paris 2100

Instructor: Philippe Rahm and Mariami Maghlakelidze

The project looks back at the Indian step-well and the Iranian Qanat system for inspiration and works water into the building. The projects aim to work in the manner old step-wells did - as a place of respite. In the busy and heavy foot traffic of Champs de Elysee, one could find a place of rest, restoration, replenishment, and rejuvenation.

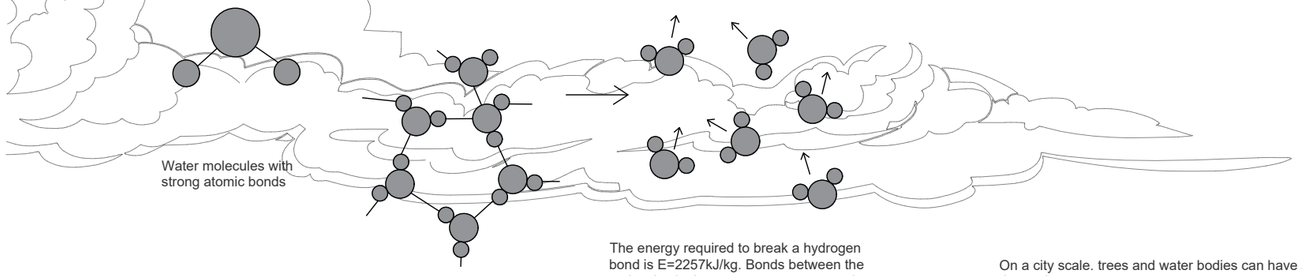
The structure is made of steel and has earth-packed walls to help increase the thermal insulation. There are several water features throughout the place to allow for cooling via evaporation in the hot and dry days of Paris in 2100.

The structure is meant to be a space that is adaptive for the use of the future. It breaks the barrier between the indoors and the outdoors and allows for enough flexibility for the user to determine how the space is used. It is essentially not designed in a rigid manner. The lowermost level serves as a reserve for food in the future. The level above that becomes an underground water café that overlooks the pool of the step well. The ground level becomes a thoroughfare which is important as it draws people into the central courtyard. The levels above are spaces that are centered towards making, serving, and growing food for the people that visit this place.

The space is located on 48.8713, 2.3016, and is going to experience a climate that is tropical and will be extreme. Therefore, it was important to look at tropical climates and how they adapt to the various climatic challenges that they face.

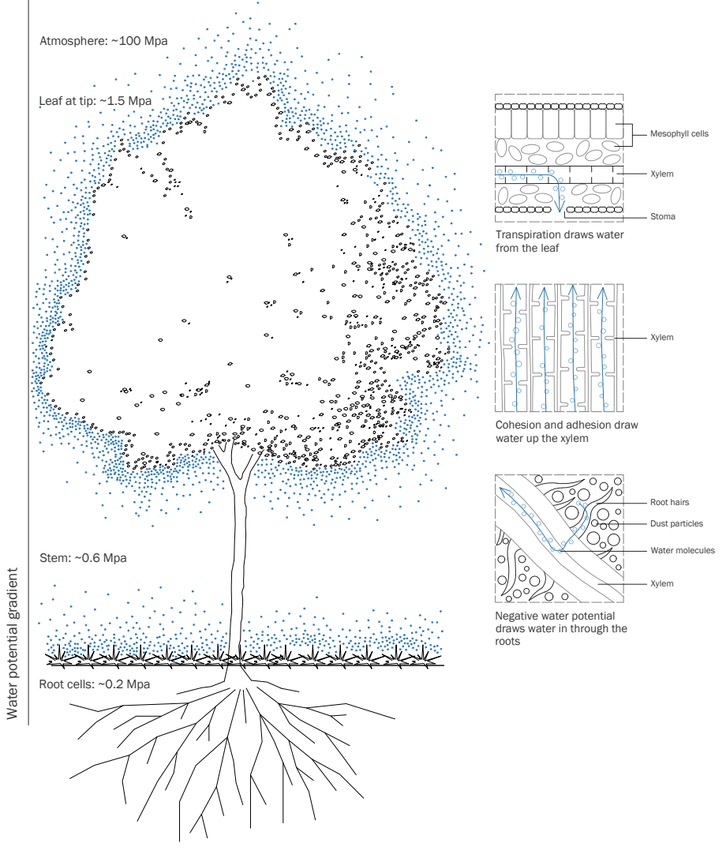
Evaporation | phase I

Evaporation is the process of water turning from liquid state to gaseous state at any temperature over 0 degree.



The energy required to break a hydrogen bond is E=2257kJ/kg. Bonds between the molecules in the gaseous state are weak, so they move

Depending on its temperature, air may contain more or less water vapor. If the air cools, clouds form. If the air warms up again, the liquid water will evaporate again and become invisible.



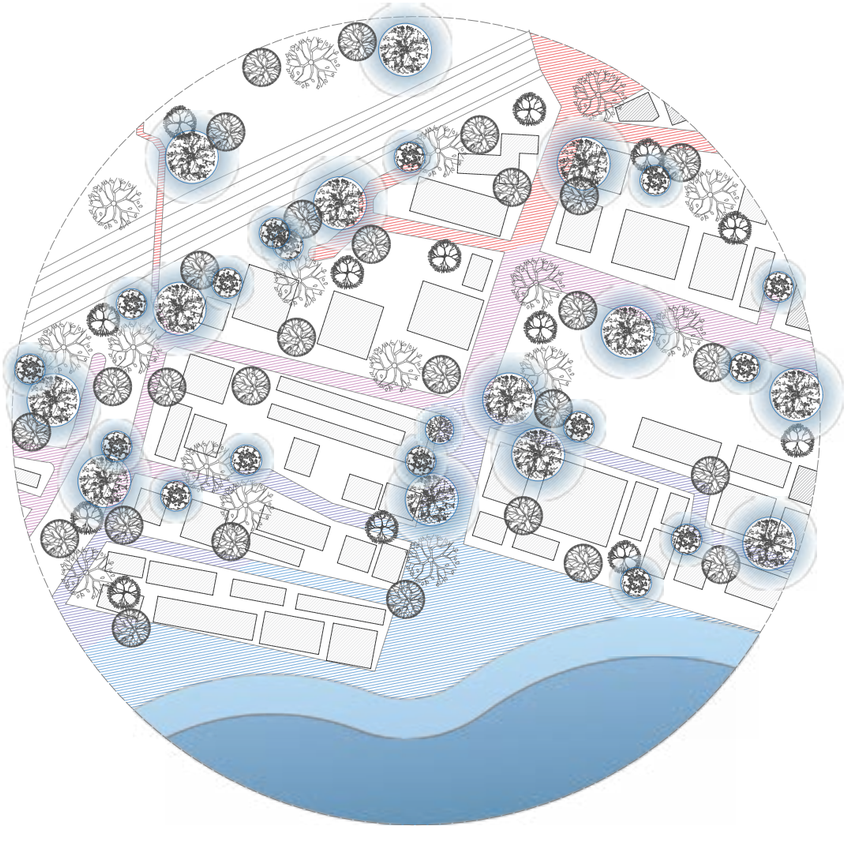
Transpiration draws water from the leaf

Cohesion and adhesion draw water up the xylem

Negative water potential draws water in through the roots

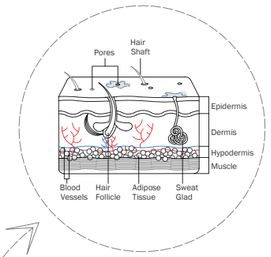
On a city scale. trees and water bodies can have a cooling effect on the environment.
The leaves of the canopy create shade preventing it from heating up. Transpiration by the leaves gives off tiny droplets of water that evaporate naturally in the form of gas, removing the heat from the air.

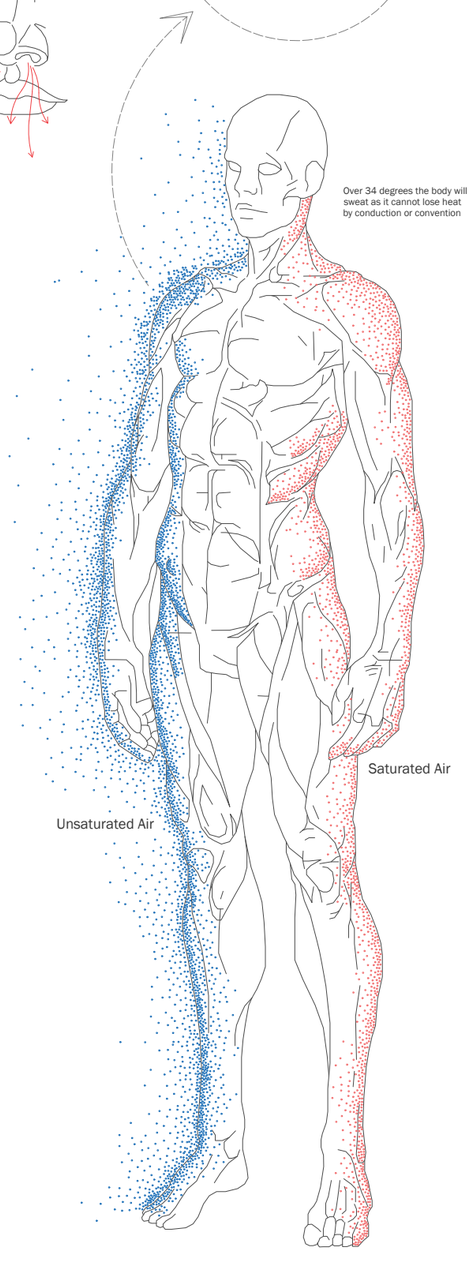
Water in liquid form continuously evaporates in the form of gas, which lowers the air temperature. The smaller and more numerous the droplets, the more the air temperature will fall. Therefore, a flat, calm expanse of. water, such as a pond, will cool the surrounding air less than a jet of water that sends thousand tiny water droplets into the air when it evaporates.

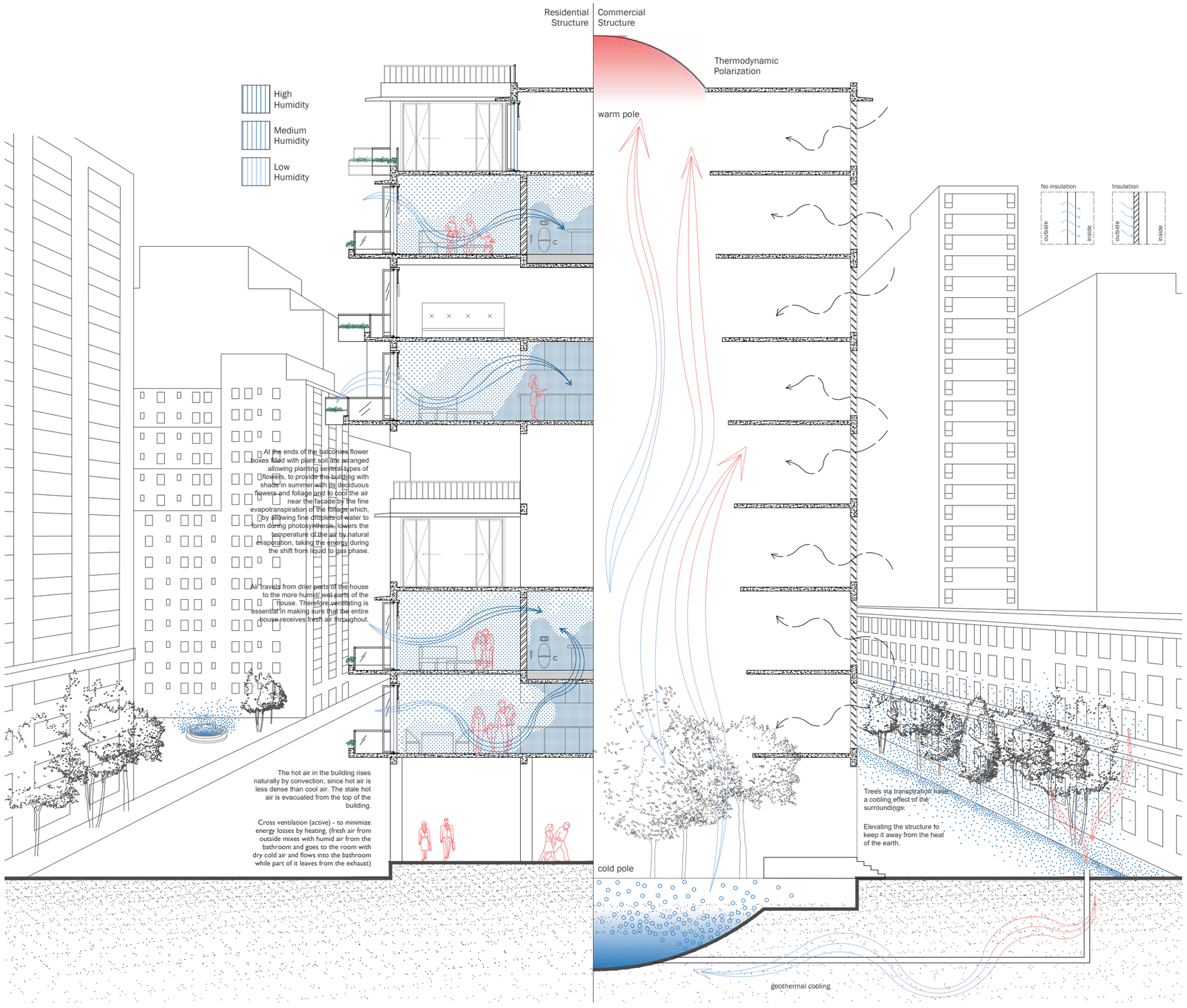


Humidity rate of the air breathed in is 45 percent

Humidity rate of the air breathed out is 90 percent





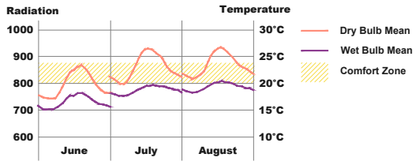


Evaporation removes heat from a surface as water turns into vapor, reducing the surrounding temperature.
In Buildings:
Roof Ponds or Earth Cooling Systems: In underground structures or earth-sheltered buildings, systems can use water or moisture for evaporation to cool the interior.
Water that evaporates from surfaces (like ponds or water layers) absorbs heat, naturally cooling the building.
Green Roofs/Ground Surfaces: By planting vegetation on roofs or nearby ground areas, you introduce moisture into the environment. As this moisture evaporates, it provides a cooling effect for the building.
Integrated Use of Both
A combination of thermal inertia and evaporative cooling can be used in underground buildings for maximum efficiency. For example, an underground structure could use earth tubes for air cooling (thermal inertia), while roof ponds or nearby vegetation can use evaporation to cool air and enhance temperature regulation.

Evaporation | phase II

COOL + HUMID — COOL + DRY — HOT + DRY — HOT + HUMID

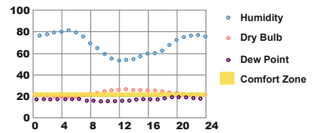
DIURNAL AVERAGES



The dry bulb temperature is an indicator of heat content of the air. As the DB temperature increases, the capacity of moisture the airspace will hold also increases.
The wet bulb temperature is indicator of moisture content of air. Wet bulb temperature is very useful in evaporating cooling processes as the difference between the dry bulb and wet bulb temperature is a measure of the cooling efficiency. At 100% relative humidity, the wet bulb temperature equals dry bulb temperature.

RELATIVE HUMIDITY X DRY BULB X DEW POINT

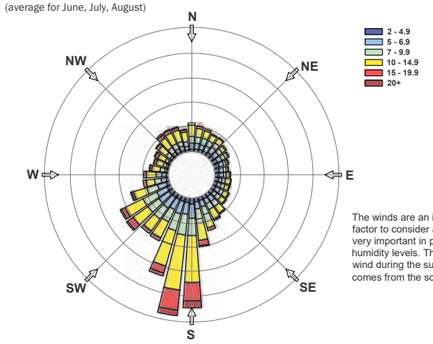
(average for June, July, August)



The Dew Point is the temperature at which water vapor starts to condense out of the air and becomes completely saturated. Above this temperature the moisture will stay in the air. The dew point temperature is an indicator of the actual amount of moisture in air.

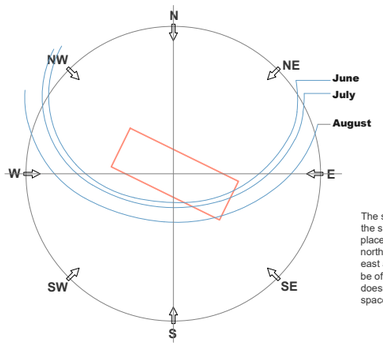
WIND DIRECTION

(average for June, July, August)



The winds are an important factor to consider as ventilation is very important in places with high humidity levels. The maximum wind during the summer months comes from the south.

SUN PATH + IDEAL ORIENTATION

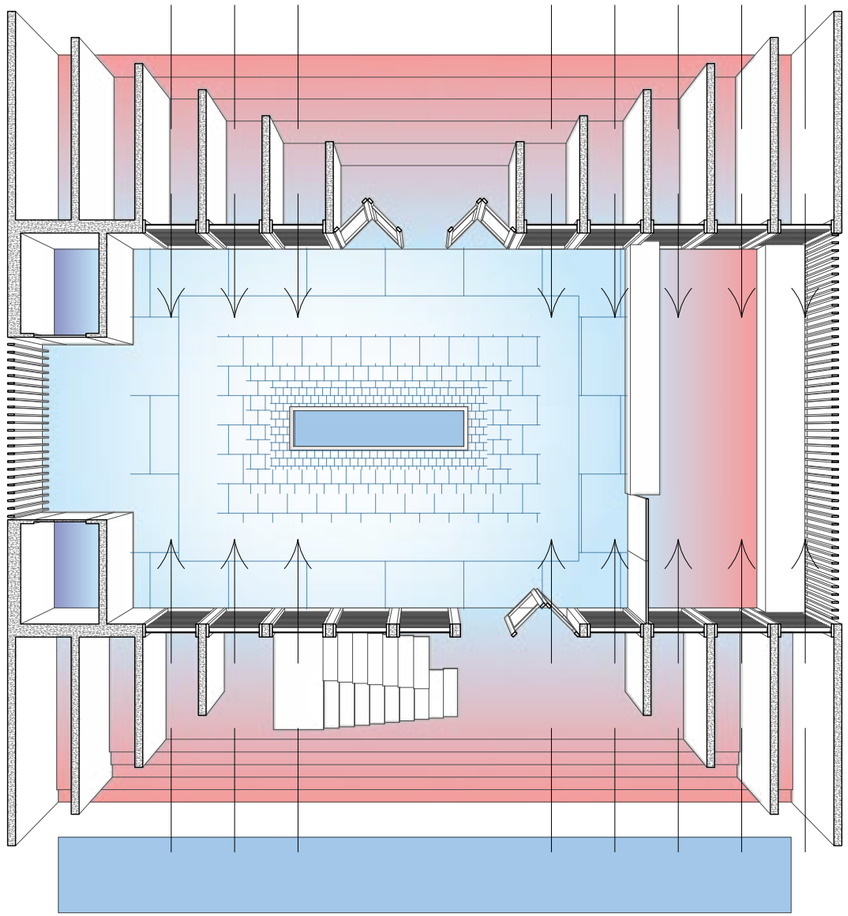


The sun is mostly overhead in the summer. It is ideal to place the building to face the north and the south over the east and the west. It needs to be off-setted so that the sun doesn't directly enter the spaces.

The following design is a restaurant space. The space offers a variety in the humidity levels. There is a highly humid space the washroom, the hot and humid space, the kitchen, and then finally the dining space which is relatively dry.

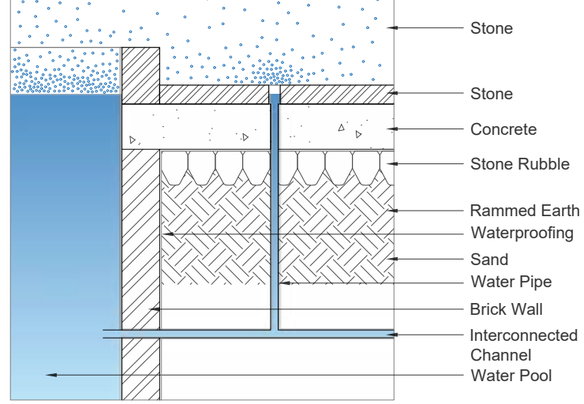
The design of the building helps in getting the fresh ventilated air from the outside throughout the building so that the space can feel fresh and comfortable. Channels of fins and louvers help in making a path for the wind movement. Another important facilitator in making the space feel cool is the orientation o the building and the material palliate.

The other feature of the build space is the flooring space and the hanging plants that helps the space feel cooler through the evaporative process.



Plan for a proposal in NYC

FLOORING DETAIL



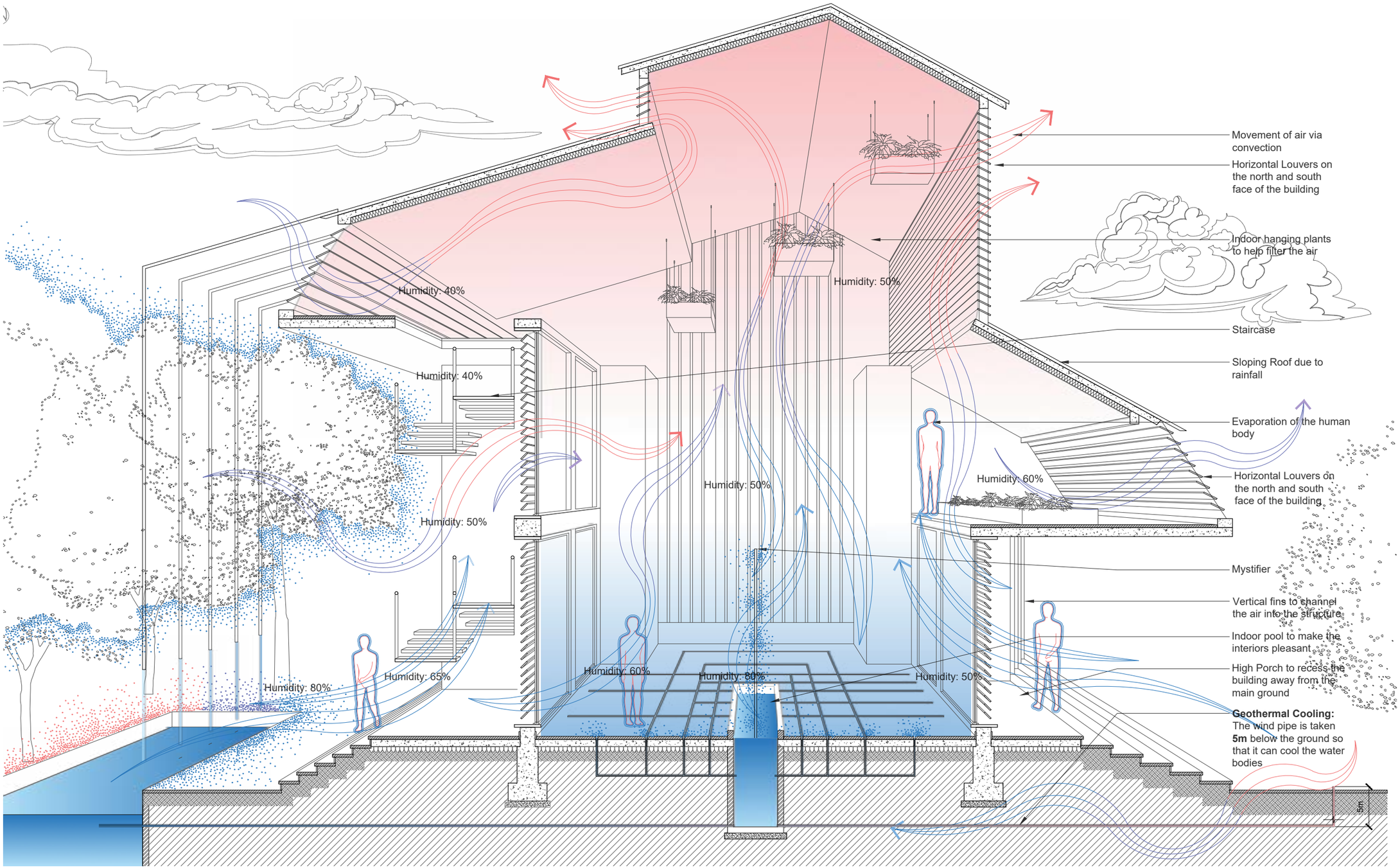
MATERIAL PALETTE

BRICK
- Moisture Resistant
- Breathable (allows airflow)
- Prevents moisture from getting trapped

CONCRETE
- Durable
- Moisture resistant
- Doesn't rot - long lasting

STONE
- Non-porous
- Resistant to moisture
- Resistant to temperature

ALUMINUM
- Rust and moisture resistant
- Low maintenance
- Light weight
- Strong



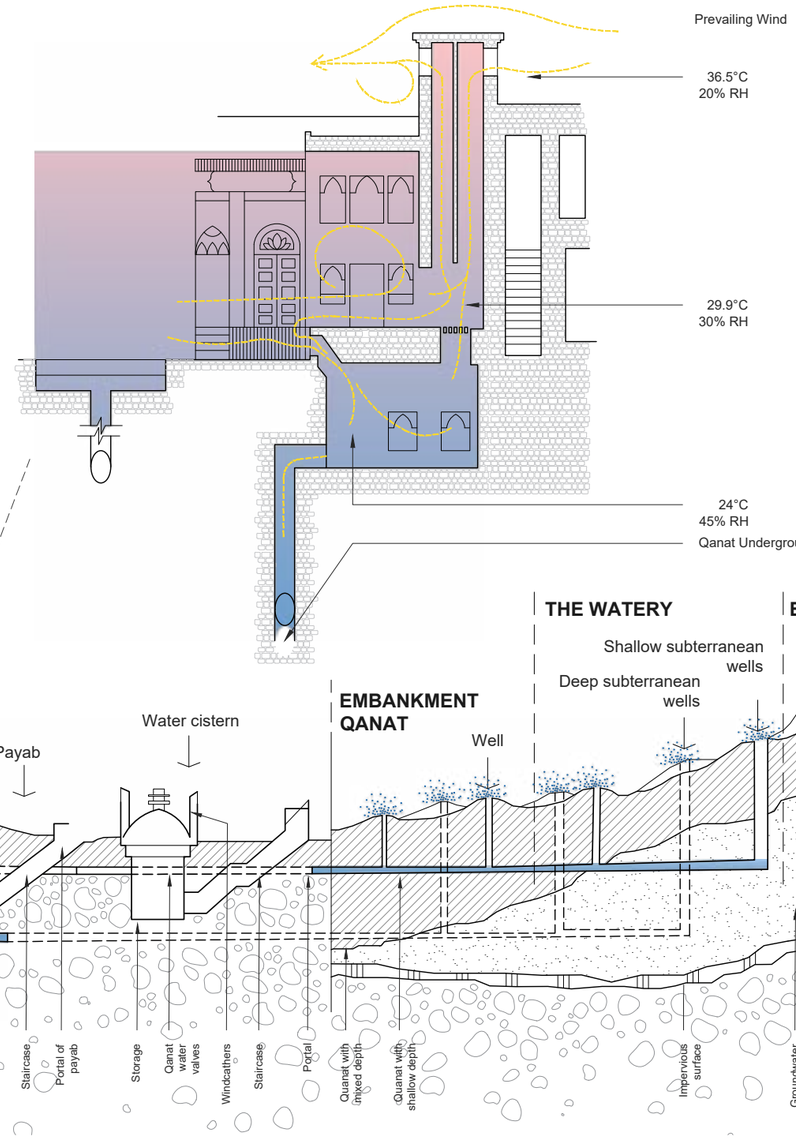
Section for a proposal in NYC

Evaporation | phase III

PERSIAN ARCHITECTURE | Phase 3.1

Qanat Syatem

A line of evenly spaced spoil craters snake along the surface of the desert from the high Elburz Mountains to the Plains of Iraq. They are the only evidence of an invisible, subterranean man-made stream called a **qanat**, which will appear kilometers away in a fanned oasis of agricultural land that seems alien to the arid alluvial plain. Qanats are meticulously designed tunnels and channels, constructed first by the Persians during the early years of the first millennium BCE. They sourced, directed, and transported underground water from the mountains of present-day Iran to Tehran. *Qanat tunnels are hand-dug up to several kilometers long, with vertical shafts, sunk at intervals of twenty to thirty meters, to remove excavated material and provide ventilation and access for repairs. A main ganat tunnel slopes gently down from deep within a mountainside through villages to eventually distribute irrigation water to fields and beyond. This ancient innovation allowed Persian farmers to succeed despite long, dry periods when surface water was unavailable.



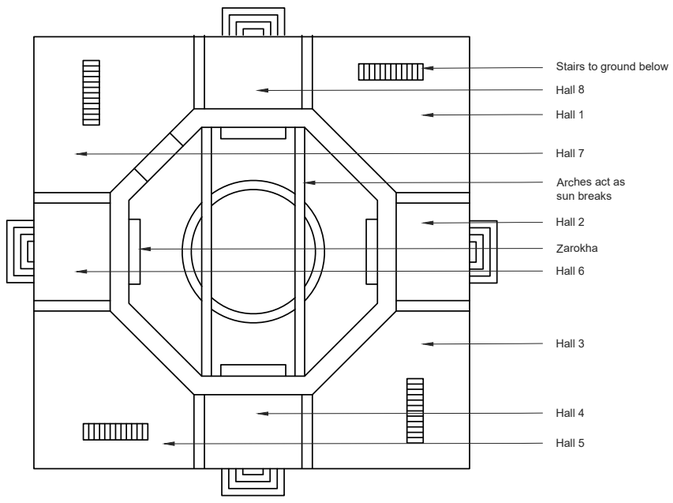
Evaporation | phase III

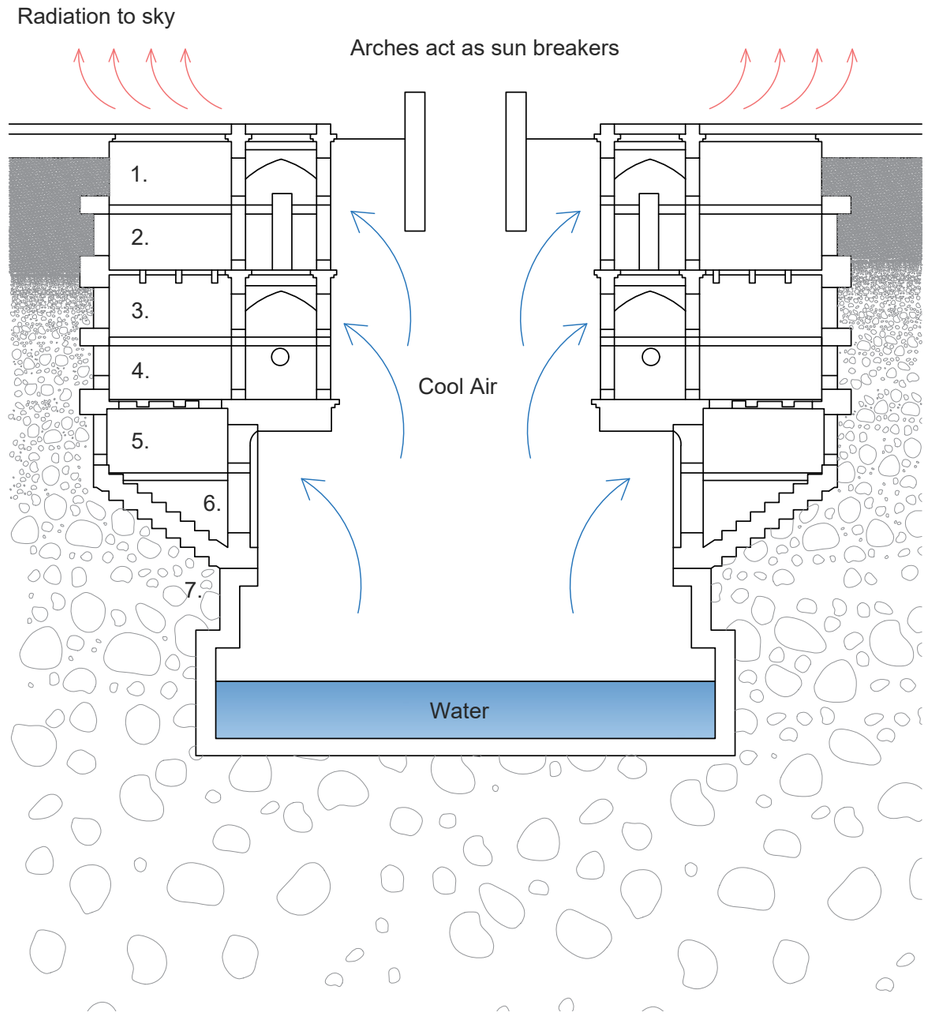
INDIAN ARCHITECTURE | Phase 3.2

Step-well System

The “Bhammariyo kuvo” is octagonal in shape, built by Mahmud Begda in the 14th Century in the outskirts of Mahemdabad town of Ahmedabad district is well known for its cooling. This step-well was exclusively built to achieve cooling in the mid-summer season. The structure has seven-storied depths completely under ground. The recorded midsummer temperature outside the well was 43°C, and at the same time, the inner temperature was just 20°C, which is really engineering excellence. The mechanism of the cooling effect in the Step-well is that, where the radiated heat creates airflow inside the step-well as well as the aeration created in the water of the well makes it drinkable pure.

The outer octagonal shape has a diameter of about 30 m and the well diameter is about 11 m. The structure was designed so that in mid-summer afternoon when the outside atmospheric temperature is 43°C, the inside temperature of the well is about 28-32°C. The temperature difference (decrease) of 10°C is really good to achieve for cooling inside the structure. The entry steps are in the form of a narrow stone staircase indicating that it was exclusively built for human beings and not for caravan animals. Another exclusive arrangement is separate rooms in the periphery of the well in different eight segments with the cantilever “Zarokha” towards the well to achieve the effect of passive cooling. The halls 1, 3, 5, 7 are corner rooms with a large area compared to halls 2, 4, 6, 8 and the same geometrical plan is repeated till the 4th ground story. The structure is totally underground and solely used for rest place in the summer season for the royal family. The two vertical arches act as a sun breaker which restricts the entry of direct sunlight that can increase the temperature inside.





Evaporation | phase IV

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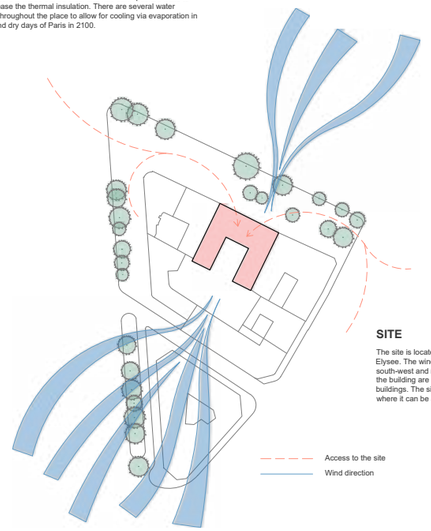

Access to the site

Wind direction

SITE

The site is located in the historic Champs de Elysee. The winds are predominantly from the south-west and north-east. Two of the sides of the building are shared with the neighboring buildings. The site has one one phase from where it can be accessed.

SUN PATH + IDEAL ORIENTATION

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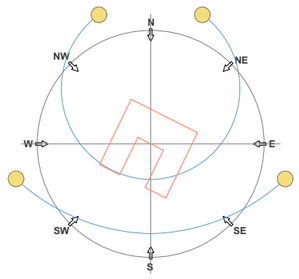
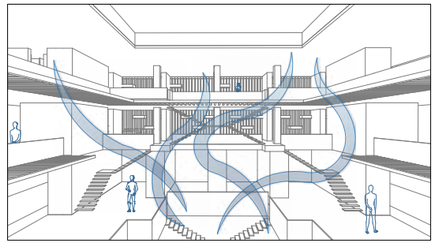
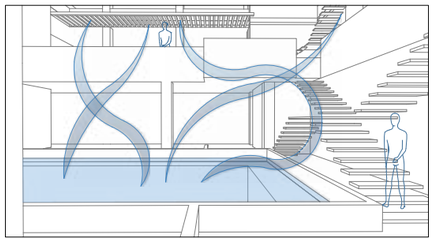
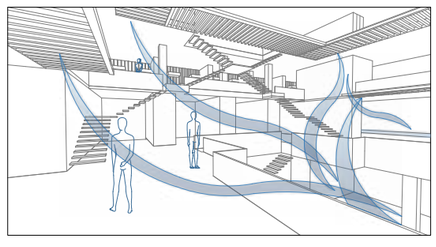


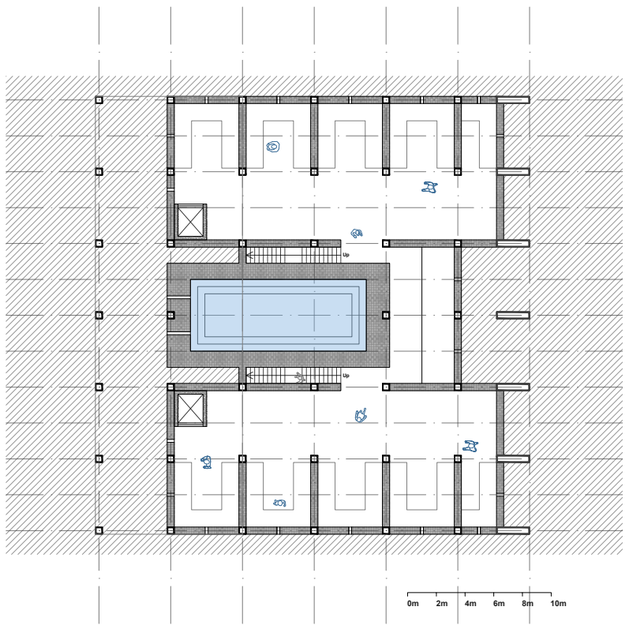




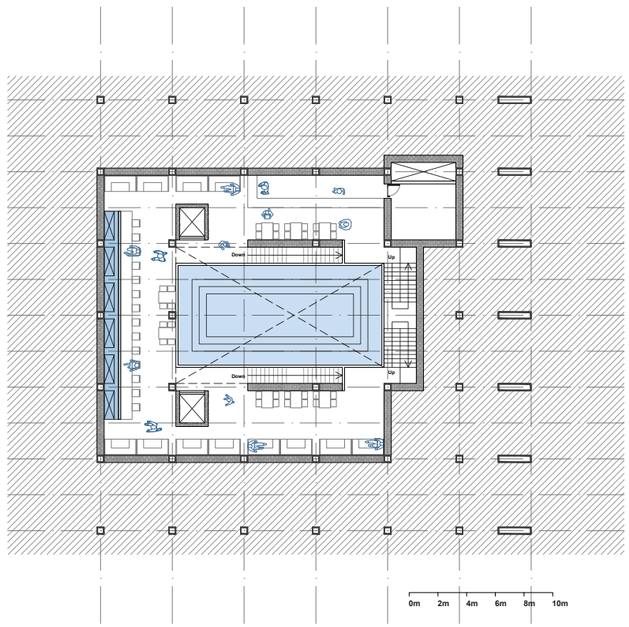


Due to the surrounding buildings the site doesn't receive much air so wind catchers are introduced to catch the air.

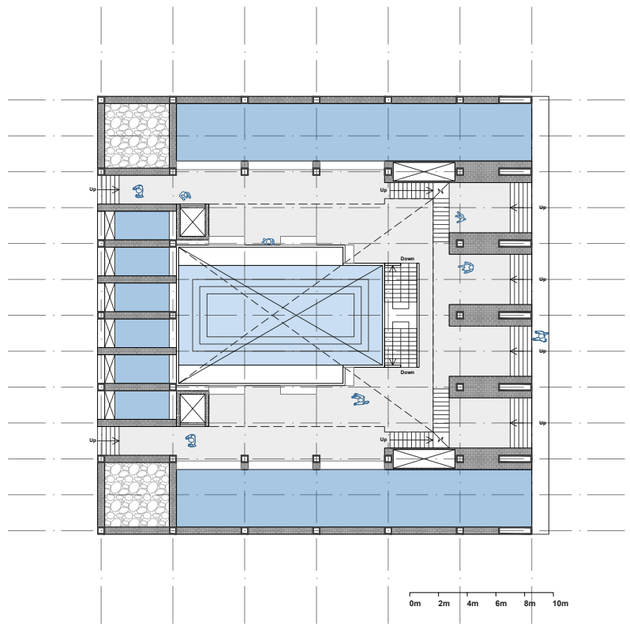
Plan at -7.5m | Food Storage



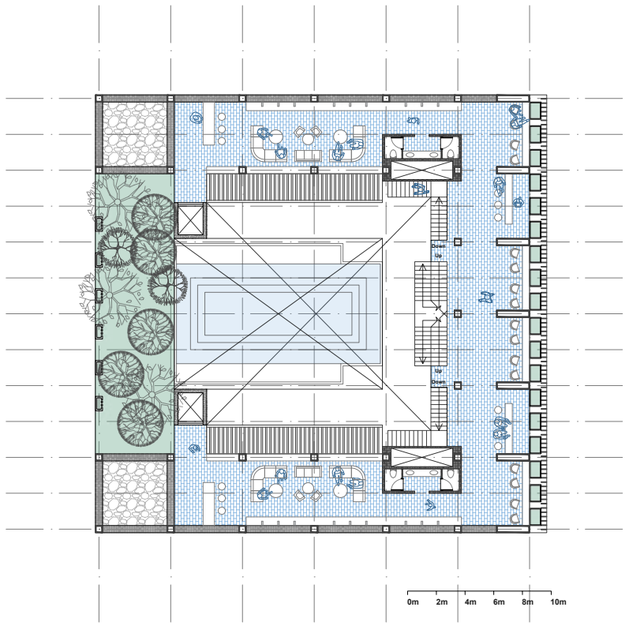
Plan at -3.5m | Cafe



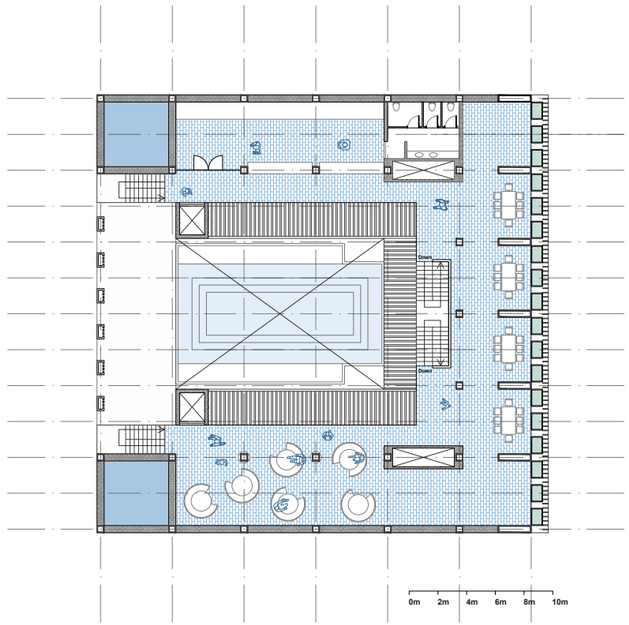
Plan at 0m | Thoroughfare



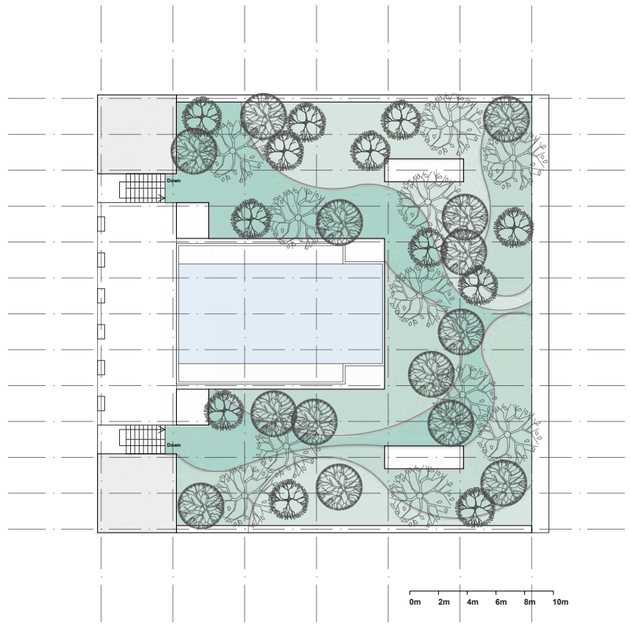
Plan at 4.5m | Water Cafe



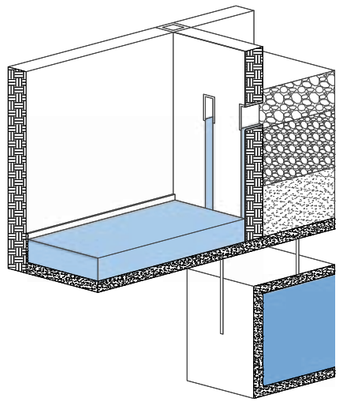
Plan at 4.5m | Restaurant

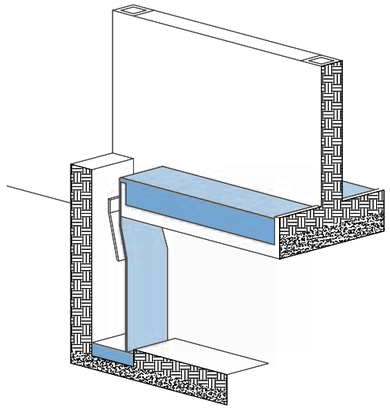


Roof Plan

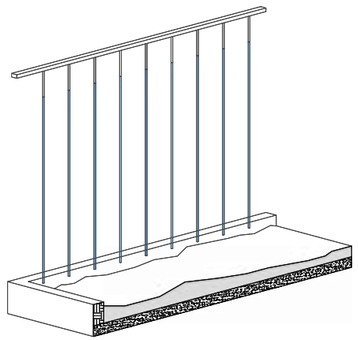


This shows how the water comes out of the filtration tank (water that is collected from the surface runoff and from the roof) is filtered and pumped into various parts of the building.

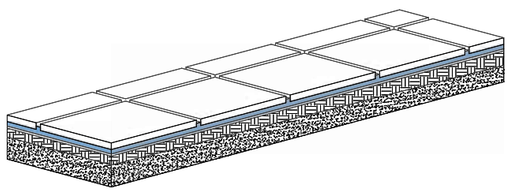




This is from the ground level to the cafe underground. It shows how the water runs down to the lower level and creates a fountain.



This shows the water curtain that can be switched on when it is hot. It acts as a sun breaker and allows for cooling.



Floor level water channels that help cool and heat the floors

THE TERRACE GARDEN
This layer collects all of the water from the roof and supplies it to growing vegetation on the roof. The remaining go into the tanks and get filtered and go into the rainwater harvesting tank.

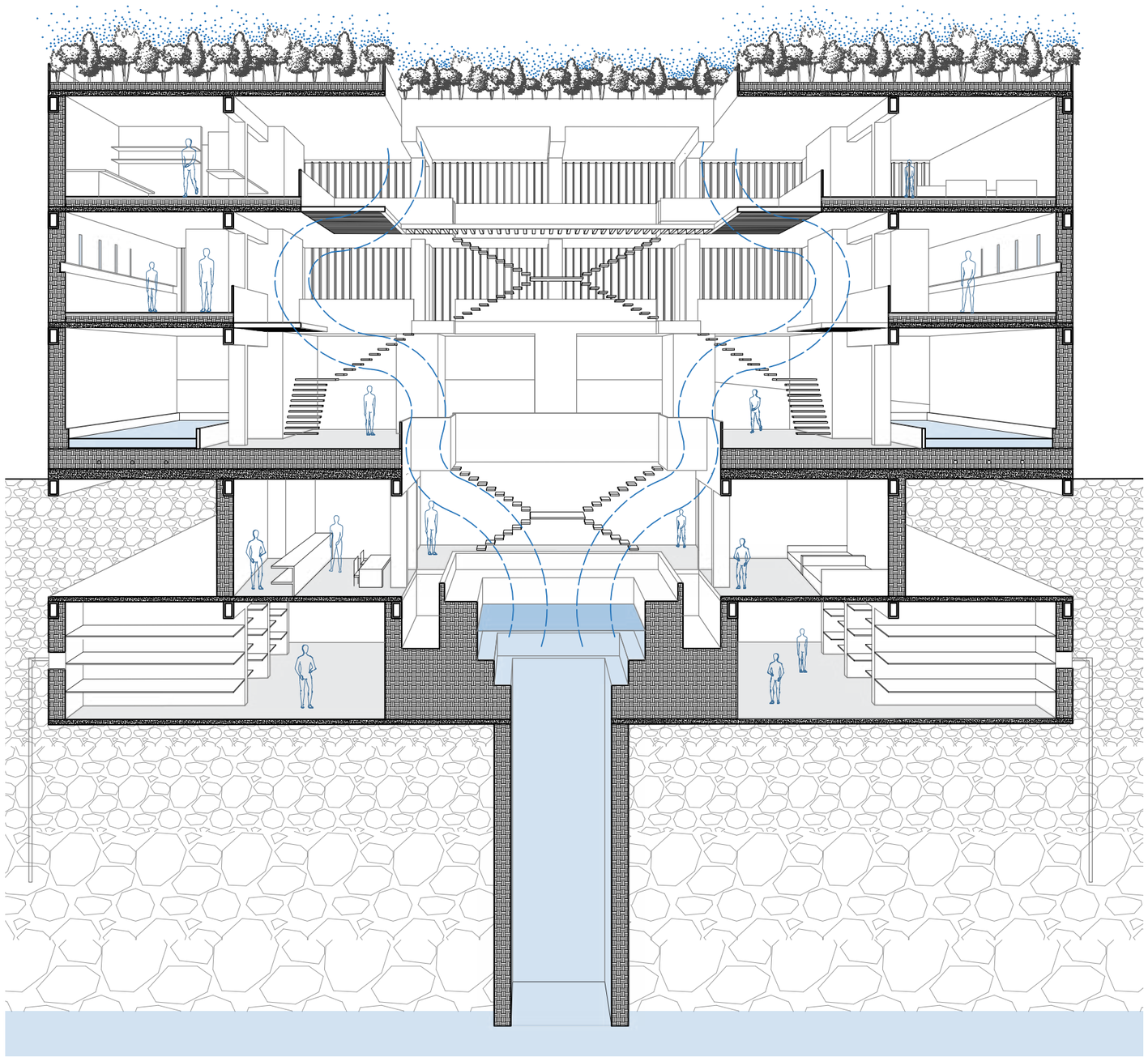
THE RESTAURANT
On this level there id food served. Locally prepared for people visiting and it offers a place to enjoy the water body

THE BAR
This level works with the later that is collected from the step-well and offers it as drinking water. It also has a bar and lounge area from weary travelers.

THE THOROUGHFARE
This is the point where the building meets Champs Elysee, A connection is created between the road and the interior space of the plot for people to come and pause.

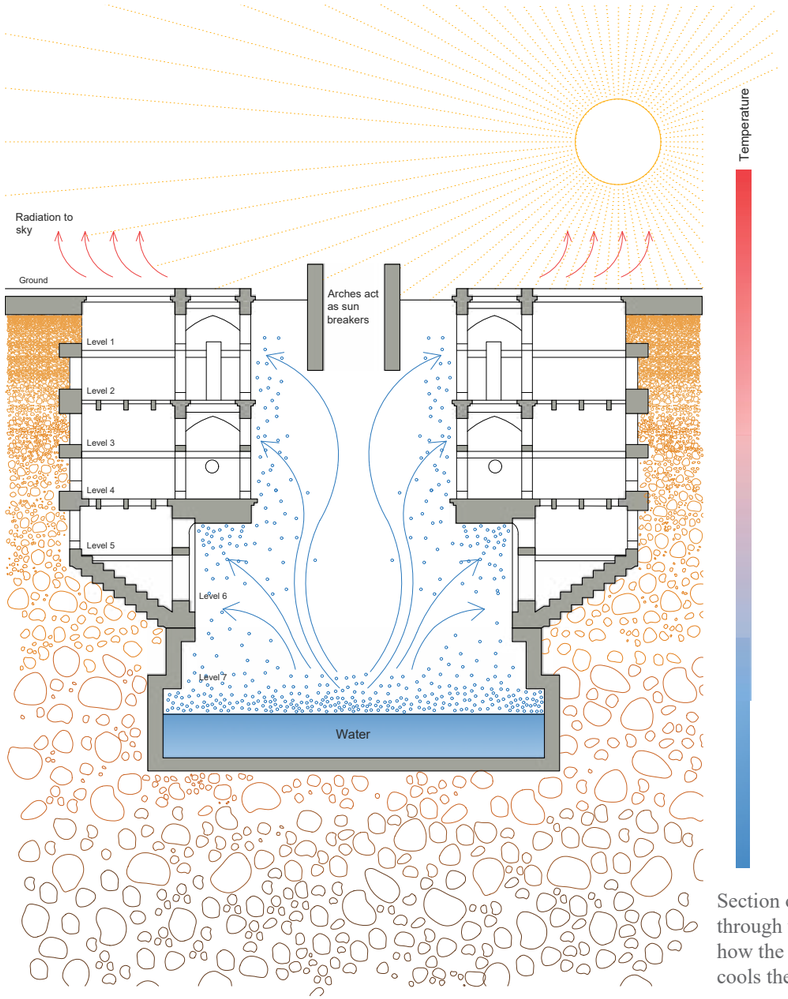
THE CAFE
On this level, the building meets the underground well water. The water can be had while sitting at the cafe and enjoying the water features.

THE FOOD STORAGE
The building in the future also holds a place where we can naturally refrigerate food for long term as the earth acts like a natural cooler.
There are also geothermal pipe inlets that help bring in cool air to this place.



Submission for Versailles Biennial | May 2025

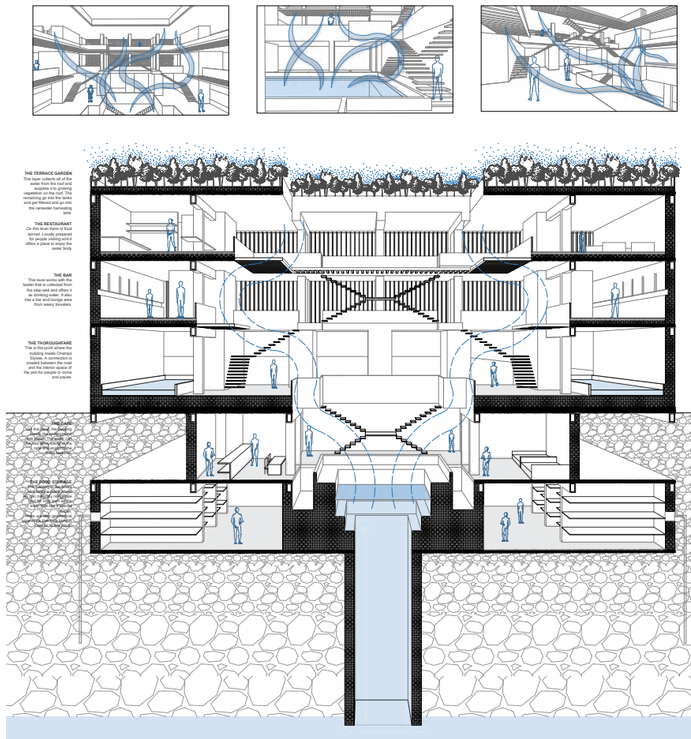
The “Bhammariyo kuvo” is octagonal in shape, built by Mahmud Begda in the 14th Century in the outskirts of Mahemdabad town of Ahmedabad district is well known for its cooling. This step-well was exclusively built to achieve cooling in the mid-summer season. The structure has seven-storied depths completely under ground. The recorded midsummer temperature outside the well was 43°C, and at the same time, the inner temperature was just 20°C, which is really engineering excellence. The mechanism of the cooling effect in the Step-well is that, where the radiated heat creates airflow inside the step-well as well as the aeration created in the water of the well makes it drinkable pure.

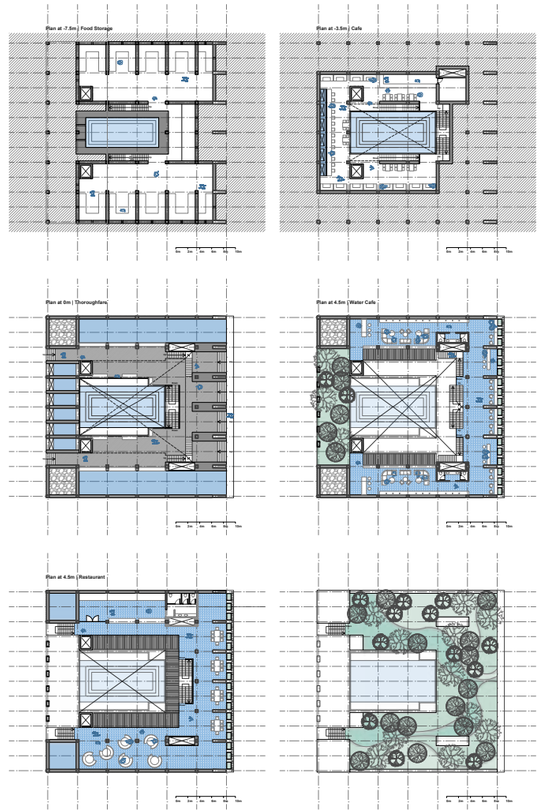


Section of the step well through the ground showing how the water evaporates and cools the spaces

EVAPORATION | Architectural Intervention

The project looks back at the Indian step-well and the Iranian Qanat system for inspiration and works water into the building.



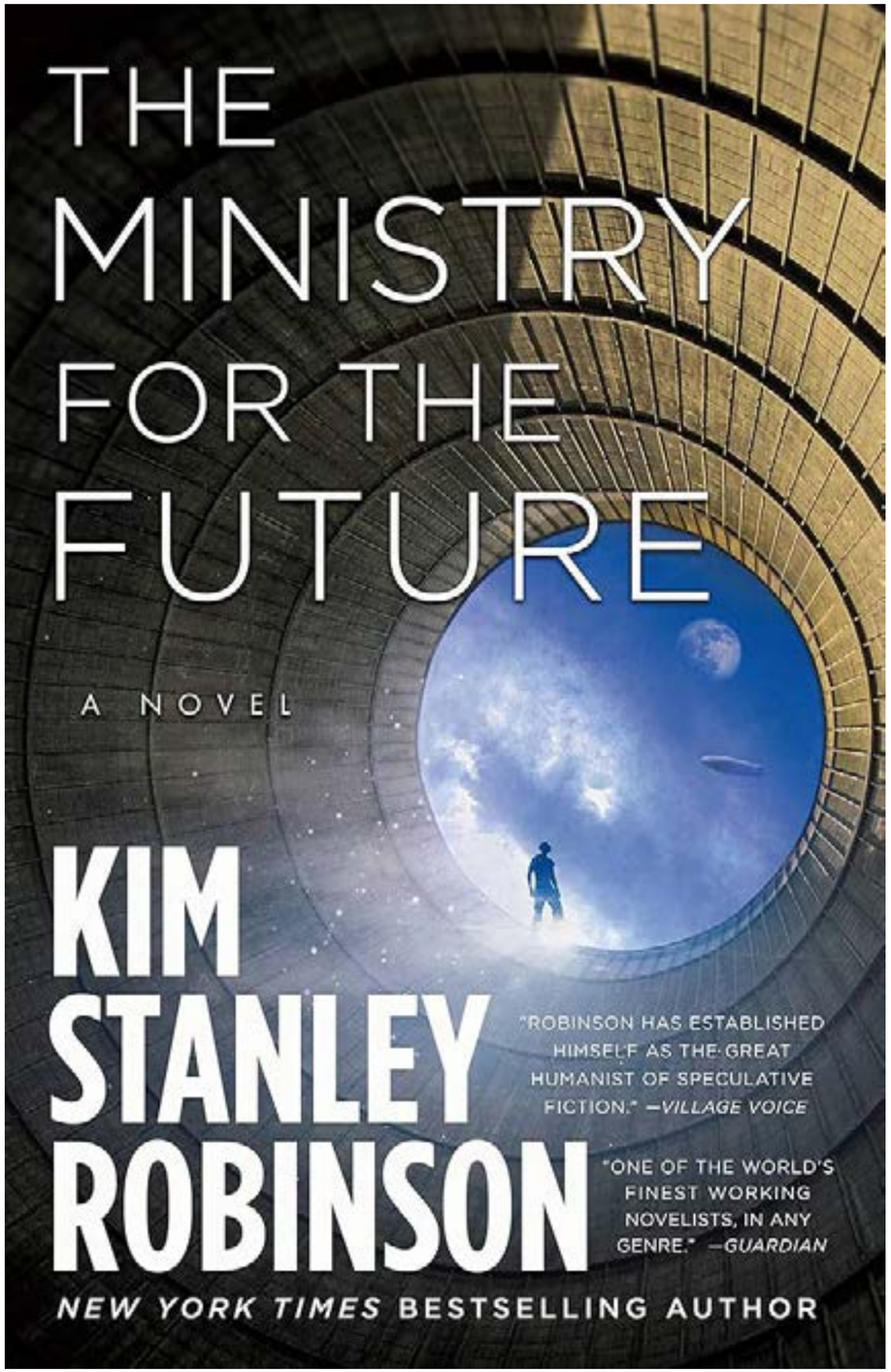


02 *Summer'24*
Future's Future

Instructor: Dan Wood

In the future's future, the ground space will be scared and it will be a common practice to work outdoors when the climate is suitable. We will work towards building vertical cities and move towards creating structures that mimic nature.

Through horizontal curved spaces I have created a space that is meant to cater to different age groups and become a public realm for their daily rituals. The design merged from layering horizontal planes and then carving out openings and spaces for the programs.



The book by Kim Stanley Robinson was used as a context for project. The book was analyses and a ministry was designed for the future. The book served as a helpful base to be able to draw out functions and construct a ministry for the future.

I have designed a ministry for Climate Resistance and Adaptation. There is a construct as to how this would be programmed.

Program

General Functions

workspaces
meeting rooms
pantries, break rooms,
lounges,
lobbies,
Galleries,
education spaces,
circulation

Adaptation Spaces

meeting rooms
multipurpose room
auditoriums

Labs

research spaces,
labs,
study spaces,
supporting spaces like
libraries

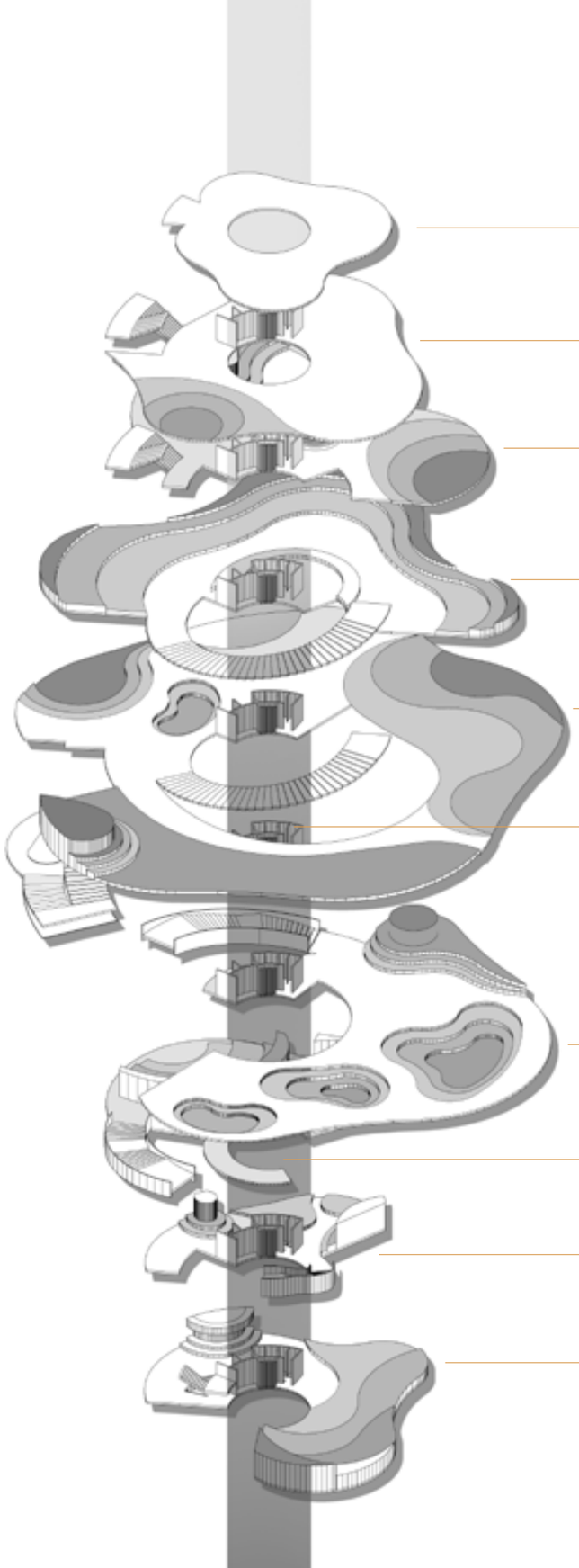
Nature

Technology

Social

Process

Exploded Axonometric



Level 10
Social Research Space

Level 9
Multipurpose Spaces

Level 8
Library 2

Level 7
Auditorium

Level 6
Educational Spaces and Labs

Level 5
Cafe

Level 4
Meeting Rooms

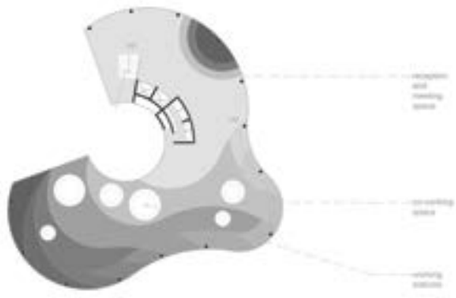
Level 3
Auditorium

Level 2
Technology Labs and Work Stations

Level 1
Technology Labs

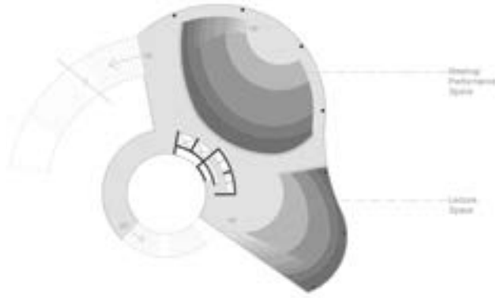
Plans

Level 1
Technology Labs

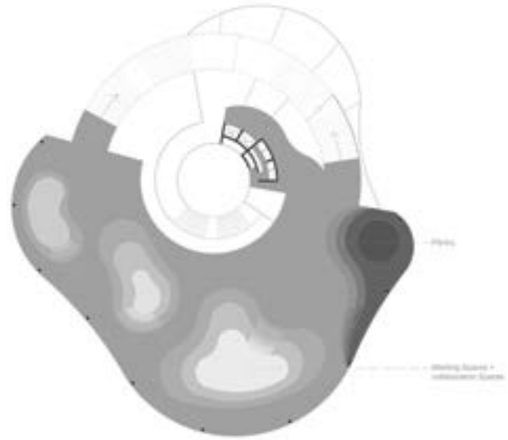


Level 2
Technology Labs and Work Stations

Level 3
Auditorium

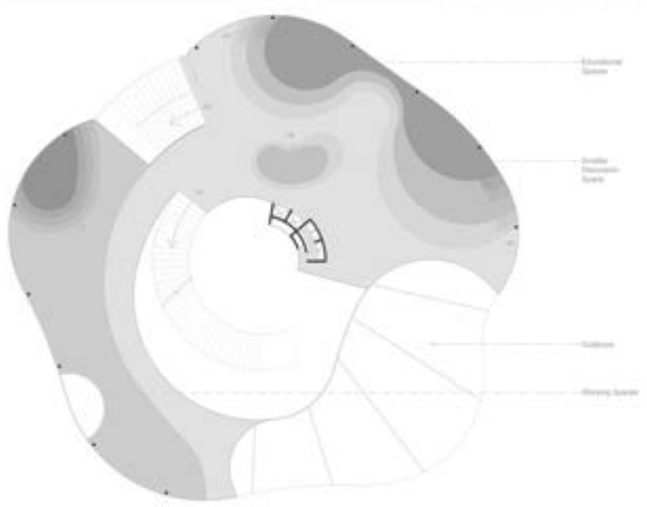


Level 4
Meeting Rooms

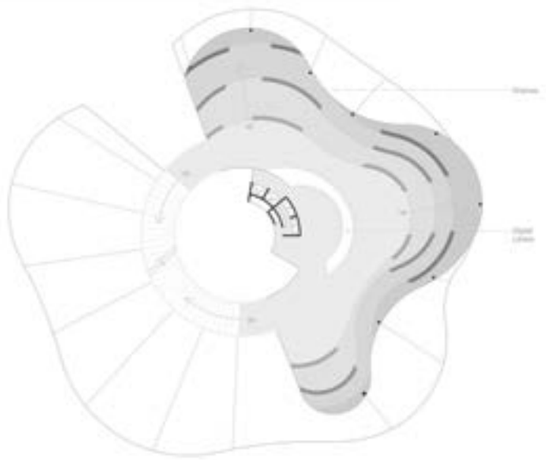


Level 5
Cafe

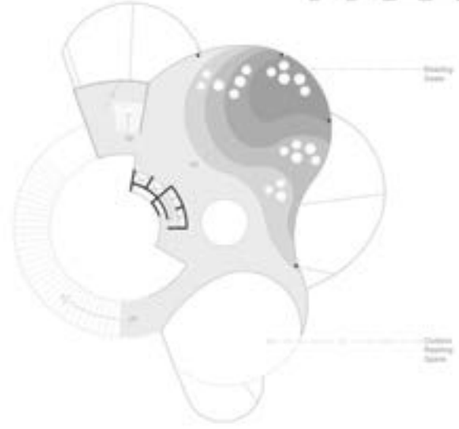
Level 6
Educational Spaces and Labs



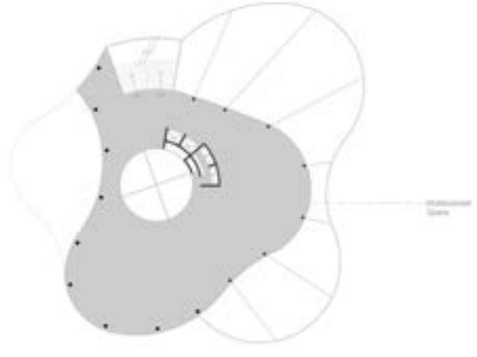
Level 7
Auditorium



Level 8
Library 2



Level 9
Multipurpose Spaces



Level 10
Social Research Space

Sectional Perspective

Section

Different levels of the Ministry

Model Pictures

03

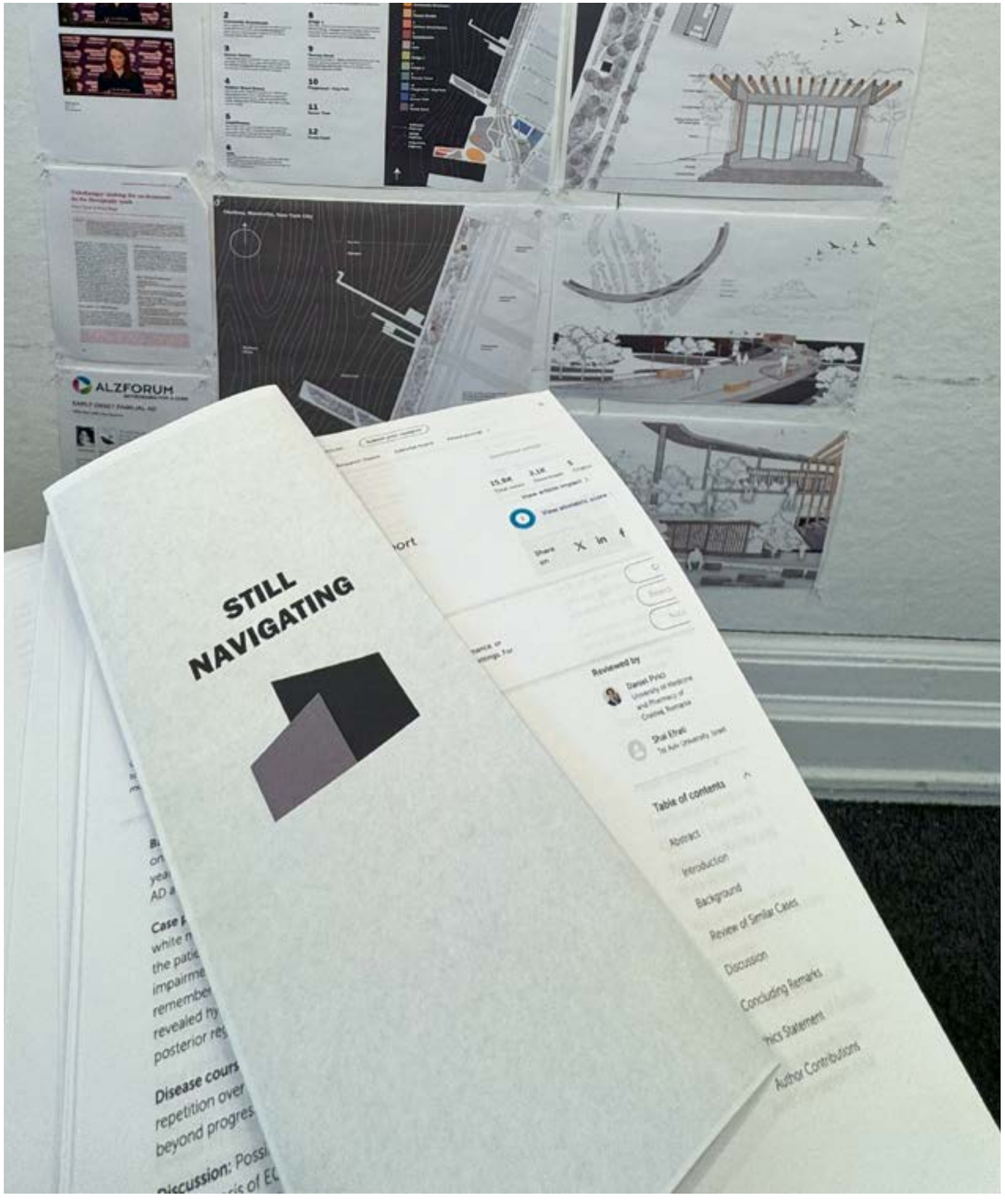
Spring'25

Transitions

Instructor: Anthony Clarke and Alonso Ortega

The studio dealt with complex mental health diseases and how architecture can be an aid to people when going through this. The disease was studied in depth for six weeks and there was a deeper understanding done of what the problems that people go through.

The project is an outcome of the done research and the severals cases understood. Through my project I studied people affected by Early Onset Alzheimer's Disease. I wished to make our urban spaces accessible to people with different mental disabilities.



Early Onset Alzheimer's Disease

Project Statement

The project aims to deal with people struggling with Early Onset Alzheimer's disease (people diagnosed with Alzheimer's before the age of 65. Alzheimer's disease is a brain disorder that causes a progressive decline in memory, thinking, learning, and organizing skills over time. Eventually, the condition makes it difficult for individuals to carry out basic daily tasks. In many cases, additional support is necessary for people with Alzheimer's disease, including memory care.

People with EOAD are often distressed as this disease has no cure, and in most cases progressively degenerates. The disease is in most cases is also genetic and can be detected early on. This also is a cause of anxiety in people and patients are distressed with the knowledge that this is something that is going to happen to them as well.

It is almost impossible for an individual to fathom how they can loose their senses and their sense of self. Alzheimer's is common disease that affects a large number of people in the United States. For this reason, I wish to design something that allows us to forget and be able to normalize forgetting.

Through designing to make the space less stimulating, and easy to navigate and to be able to go through with ease, a person with EAOD can live normally, not just in spaces indoors but also outdoors. Along with that what if there was a space where they could mingle with different people and have a restorative and rejuvenating space that they can frequent without feeling like they don't belong.

Stage I
No Impariment
No visible cognitive decline, though brain changes may be occurring.

Stage II
Very Mild Decline
Minor memory lapses, often mistaken for normal aging.

Stage III
Mild Cognitive Decline
Noticeable cognitive decline with difficulties in word-finding and organization.

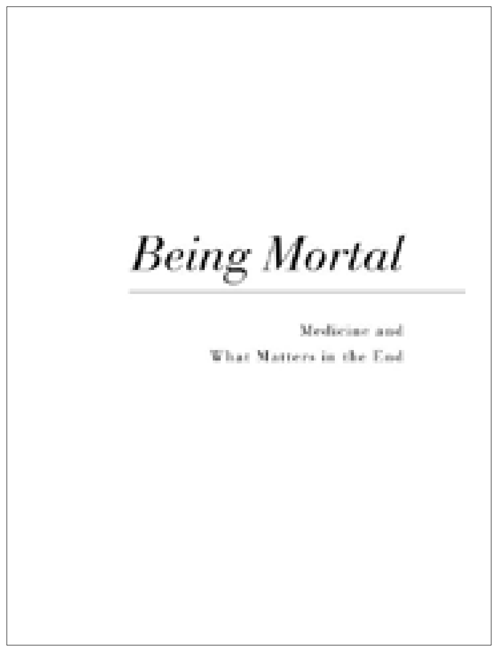
Stage IV
Moderate Cognitive Decline
Difficulty performing complex tasks and increased social withdrawal.

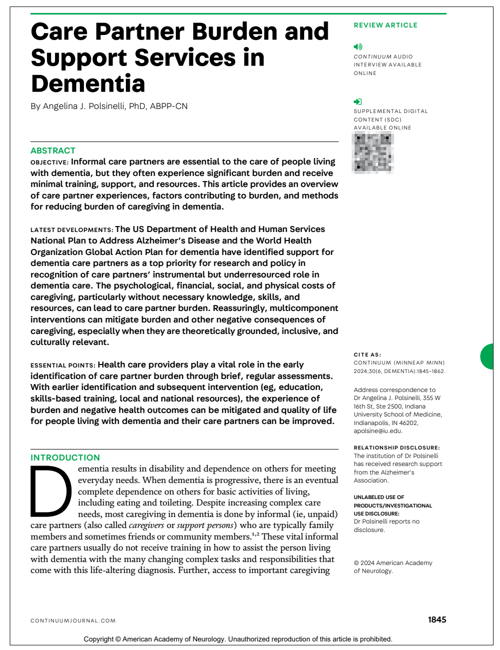
Stage V
Moderately Severe Decline
Need for assistance with daily activities and memory of personal details.

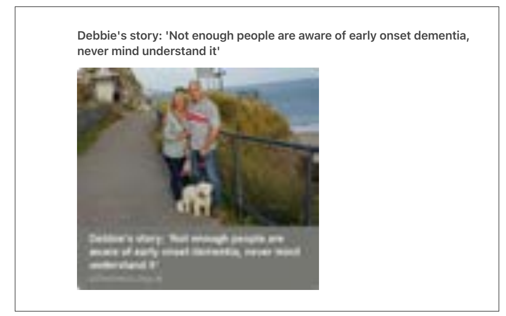
Stage VI
Severe Cognitive Decline
Confusion about personal identity and need for assistance with basic activities.

Stage VII
Very Severe Decline
Loss of communication and physical control, full dependence on caregivers.

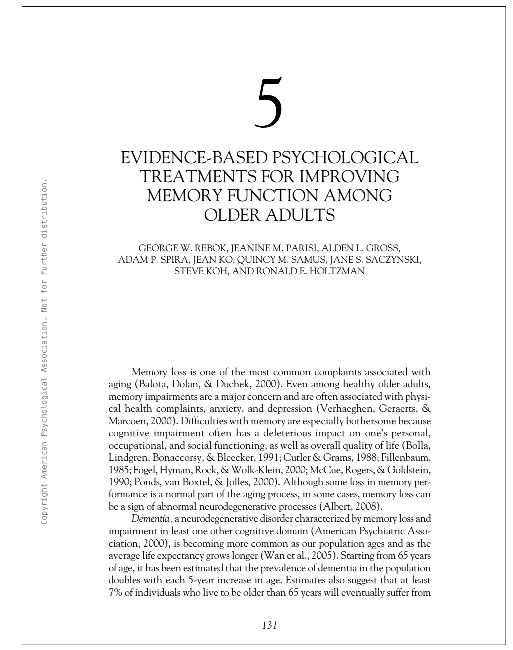
Research

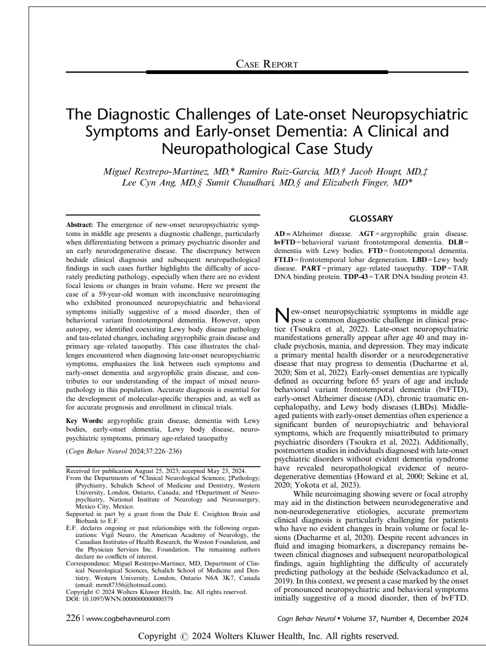

Being Mortal
Medicine and What Matters in the End

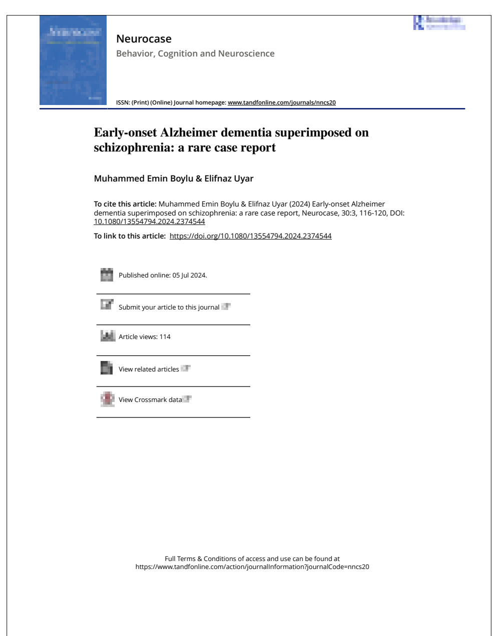

Care Partner Burden and Support Services in Dementia
By Angelina J. Polsinelli, PhD, ABPP-CN
REVIEW ARTICLE
ABSTRACT
INTRODUCTION

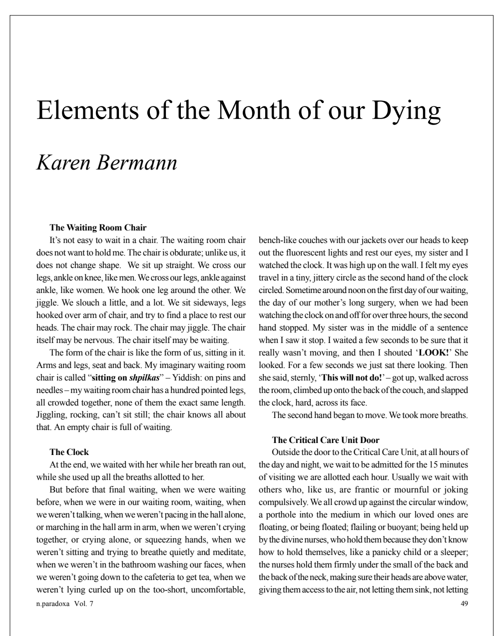

Debbie's story: 'Not enough people are aware of early onset dementia, never mind understand it'

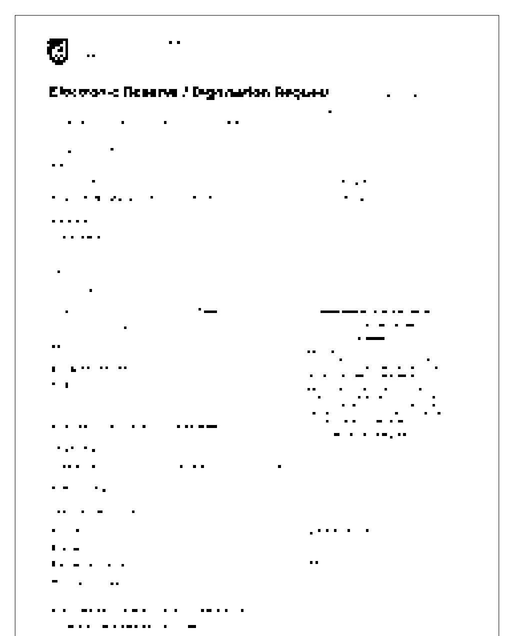

Early-Onset Alzheimer Disease (EOAD) With Aphasia: A Case Report


5
EVIDENCE-BASED PSYCHOLOGICAL TREATMENTS FOR IMPROVING MEMORY FUNCTION AMONG OLDER ADULTS


Case Report
The Diagnostic Challenges of Late-onset Neuropsychiatric Symptoms and Early-onset Dementia: A Clinical and Neuropathological Case Study
GLOSSARY
Copyright © 2024 Wolters Kluwer Health, Inc. All rights reserved.

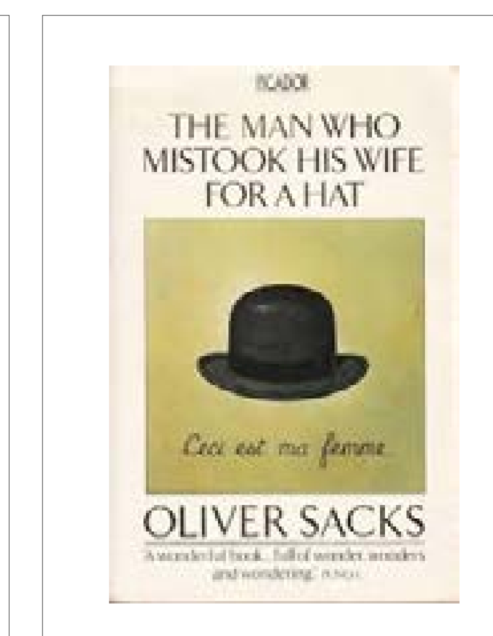

Neurocase
Behavior, Cognition and Neuroscience
Early-onset Alzheimer dementia superimposed on schizophrenia: a rare case report
Muhammed Emin Boylu & Elifnaz Uyar


Elements of the Month of our Dying
Karen Bermann
The Waiting Room Chair
The Clock
The Critical Care Unit Door




ENTERTEXT
Storying Alzheimer's Disease in Lisa Genova's Still Alice
Author: Sarah Falcus
Source: EnterText, "Special Issue on Ageing and Fiction," 12 (2014): 73-94.
Abstract
Taking as its starting point the value of literary studies to work on ageing, this paper explores the contribution of literature to the discourse of ageing and illness, focussing on an illness synonymous with ageing in the cultural imagination: Alzheimer's disease. This is a condition that poses a challenge not only to narrative and meaning-making, but also to the idea of coherent selfhood. The focus of this paper is the popular novel Still Alice, a text praised for its depiction of Alzheimer's from the perspective of the sufferer. This novel explores the complexity and contradictions of Alzheimer's disease, ageing and selfhood. It does not always escape the dominant representation of Alzheimer's as a loss of self that is associated with ageing as decline, but it also contains elements which critique the way Alzheimer's functions as a metonym for ageing and offers a vision of selfhood that might be called postmodern in its emphasis upon relationality and the fragmented affirmation of self and being. This makes clear that despite the risks – ethical and artistic – in writing dementia and aestheticizing Alzheimer's, popular fiction has an important part to play in the discourse of dementia.

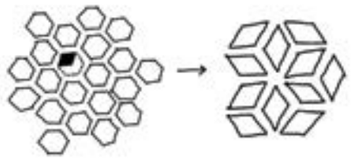

Nidotherapy: making the environment do the therapeutic work
Peter Tyrer & Priya Bajaj


PICADOR
THE MAN WHO MISTOOK HIS WIFE FOR A HAT
Ceci est ma femme
OLIVER SACKS

Understanding the Disease through emotions

Struggle

Belonging



Fear

Struggle

This is important to know when you are speaking and referring to the patients. Through the movie and all the other things that I have read, the common theme is that people with Alzheimer's are not suffering but struggling. The distinction is that they have not succumbed or surrendered to their state. They are still fighting. While they battle the disease, the stereotypes, and the changes it brings to their surrounding and the people around them, they are really trying hard to retain their unaffected states. There is no suffering like there is during a physical injury when people have to be patient. There is a constant attempt to beat it.

Belonging

The sense of belonging is a strong important feeling required by people with dementia and people who are aging as that is the one familiar environment that they can navigate in and feel safe in. It also has to do with them knowing and being able to remember the place where they have created so many vital memories. The place then becomes a part of their identity and having to leave makes them feel like they are losing a part of themselves. Alzheimer's is considered to be a disease where one loses their sense of self and so patients tend to fight to keep their identity intact as far as possible. The house also becomes a symbol of their well-being and a healthy life while any other would possibly make them feel ill and be a constant reminder.

Fear

It is alarming when a person reaches an age when they fear what is going to happen to them and how they will tackle everyone and every day. Especially when dealing with dementia, the extent of that is to the maximum – they fear themselves and it feels impossible to believe anyone and trust them. The fear is losing themselves and becoming an alien that their own loved ones will fail to recognize. The fear is of being independent. Especially in the case of early onset, upon realizing that they have it, the prematurity of it makes them stress about the next turn of events. Knowing that they might pass it on to their children is also something they fear. The fear of people and places becomes a part and parcel of surviving

Discomfort

The discomfort arises from disrupting normal life. It is also uncomfortable to tell people that you have a disease they cannot relate to as most of the complex mental health issues are not visible. It is what one feels when they have to accept their new reality. Discomfort is the most obvious result of all the changes that a person is experiencing at that point. Transitioning from being a fully independent person to requiring help to hold a glass of water has people going through different amounts of discomfort. Another factor to consider is in the west, most of the time the person aiding you is not going to be your family and that removed relationship cause also become an obstacle in the journey.

Frail

Everyday activities that you did not have to think about, becoming impossible to dress yourself or go to purchase yourgroceries have to be thought of twice. Your body is no longer on your side and one injury can lead to a cascade of issues that have to be dealt with. The physical and mental state can be described with this word. It includes the manner in which one day you lose a lot. In the movie, Still Alice, Alice also talks about the art of losing. That is something that they have to start mastering – the art of losing. They are left feeling frail at this point, worrying about what will they be unable to do next.

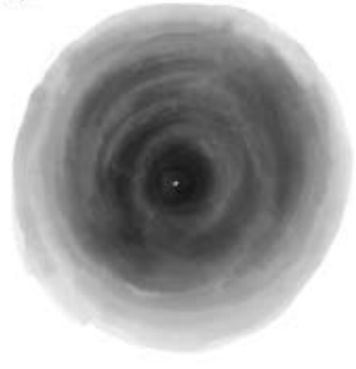
Hope

This has to be the concluding word for my research. Through the whole process of coming to terms with the fact that they have this disease and accepting that they will be losing their sense of self, the patients still have hope that they might be able to overcome their problems and perhaps be able to retain parts of themselves. I also think this word is linked to everyone connected with the patients. The faint memories and habits that they retain are the little things that they live for. It really makes people appreciate the small things and somehow it makes the struggle worth it.

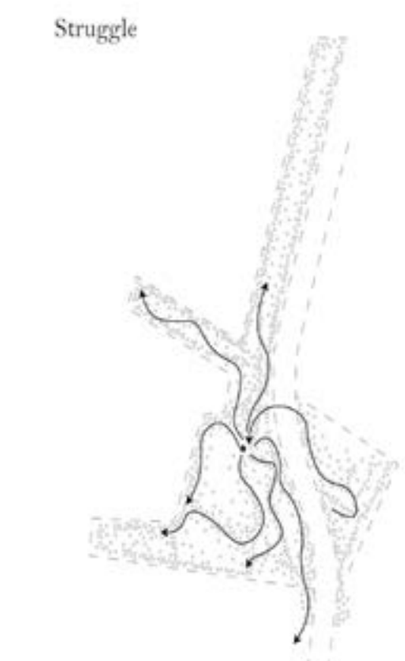
Discomfort

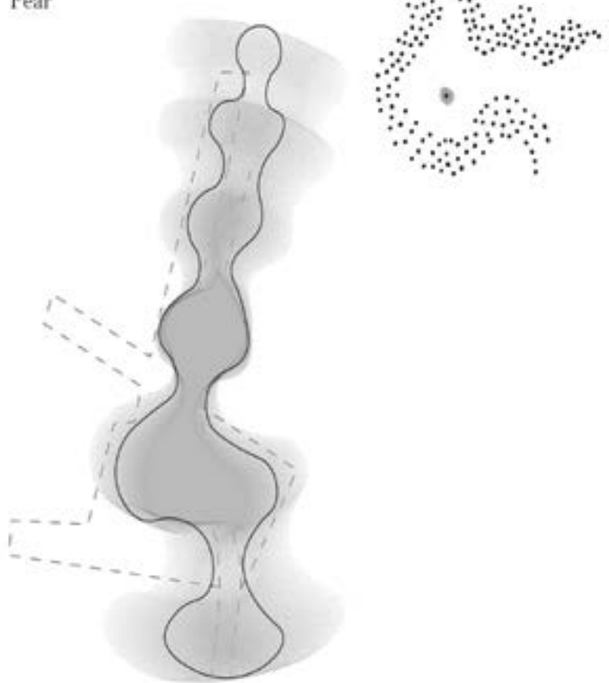
Frail

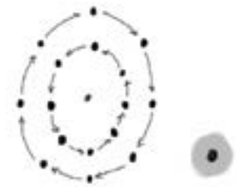
Hope

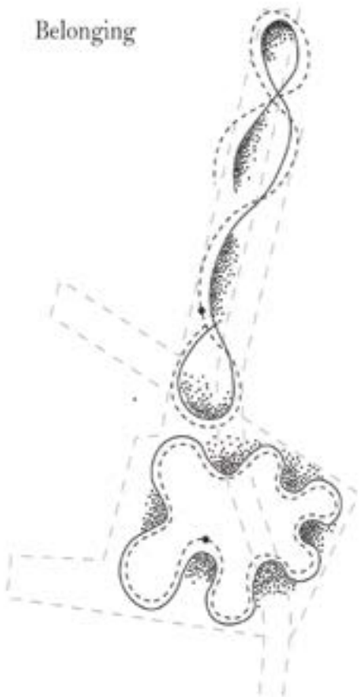


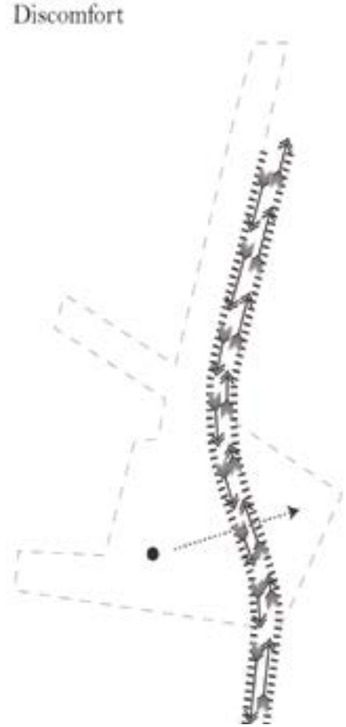
Understanding the Emotions through Spaces

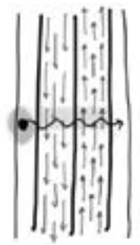


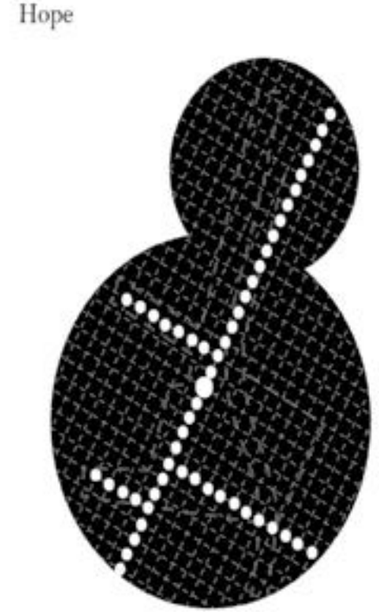






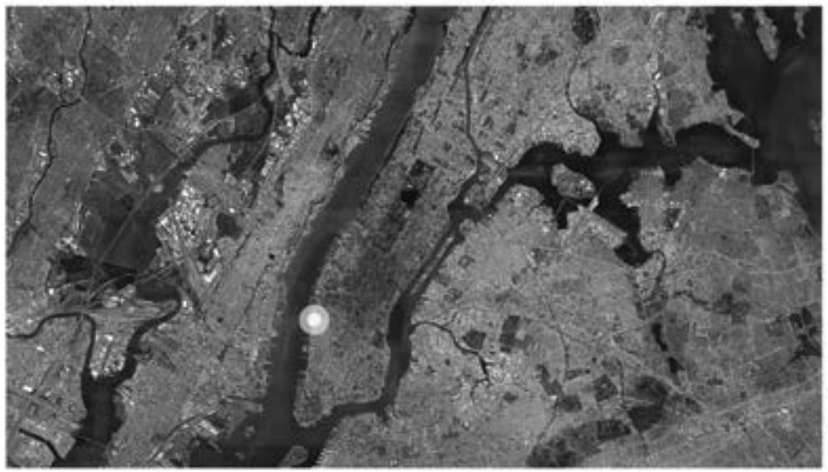


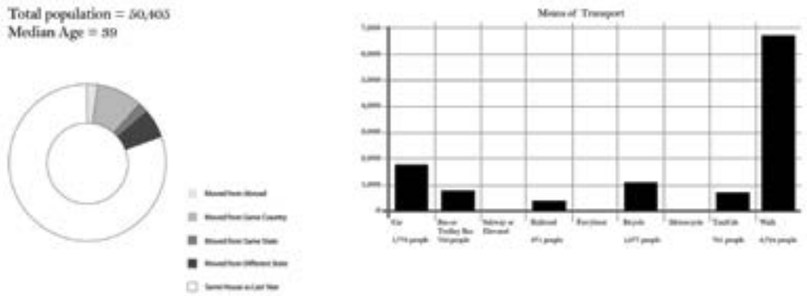


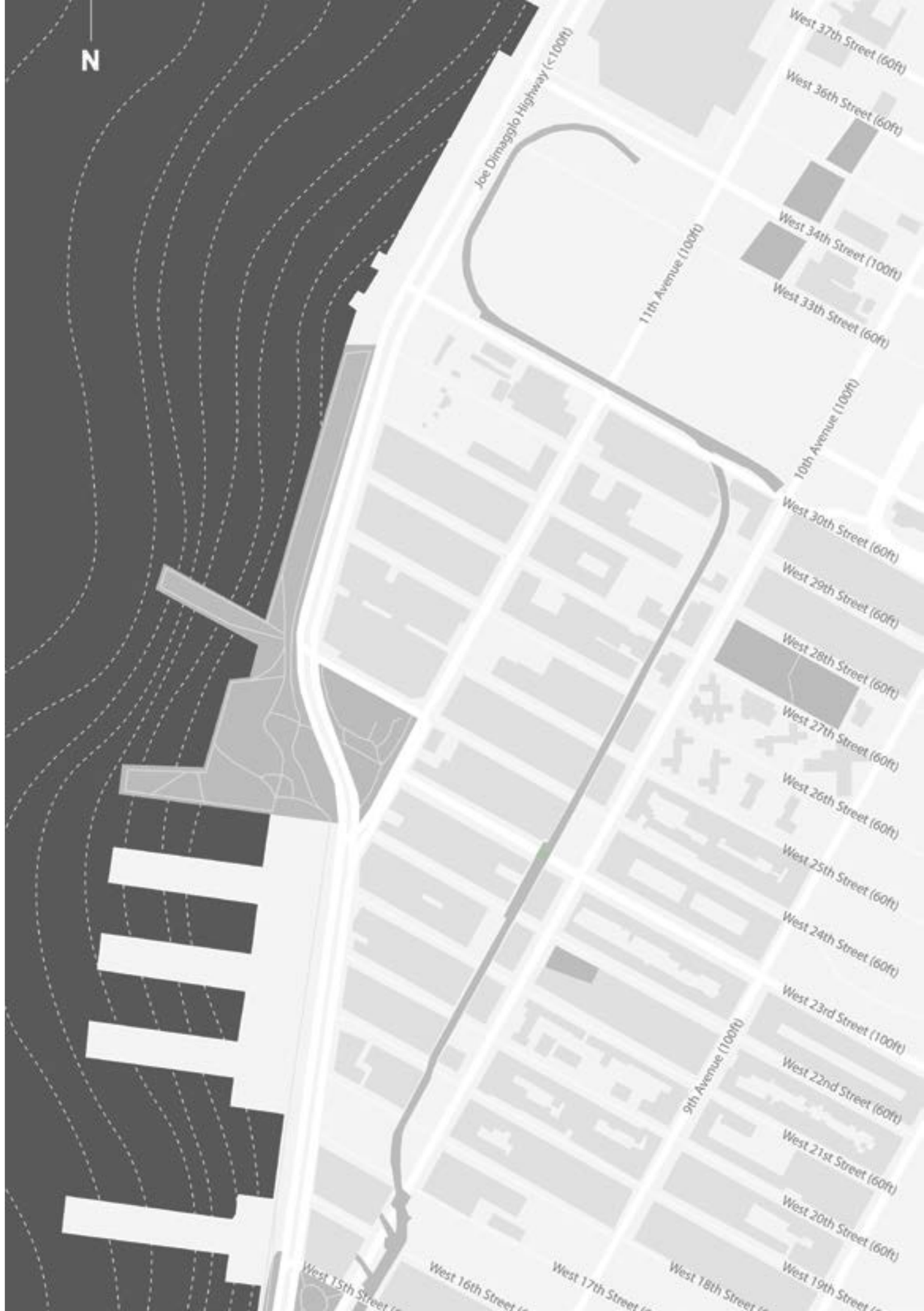


Site Analysis

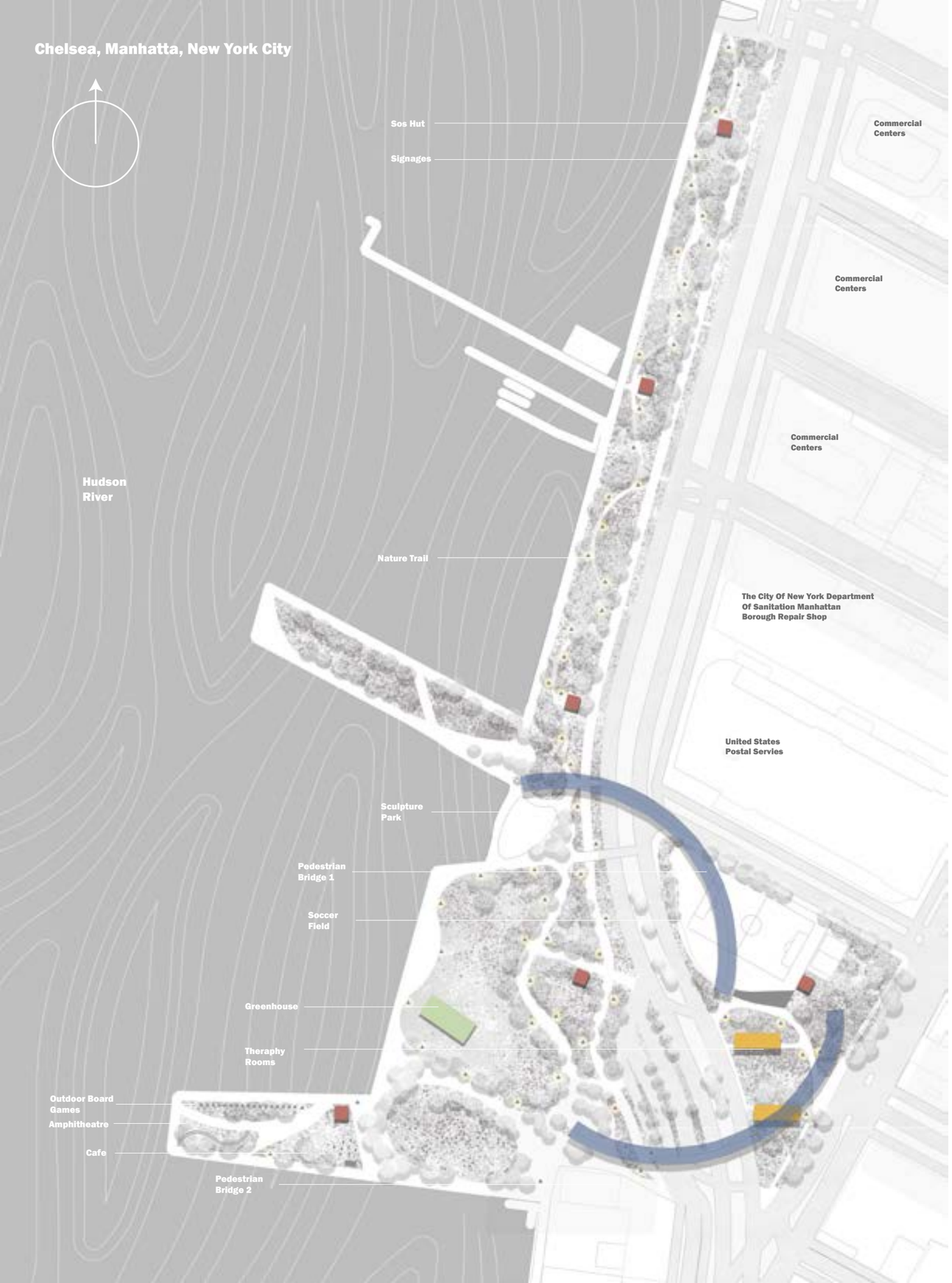
Chelsea, Manhattan



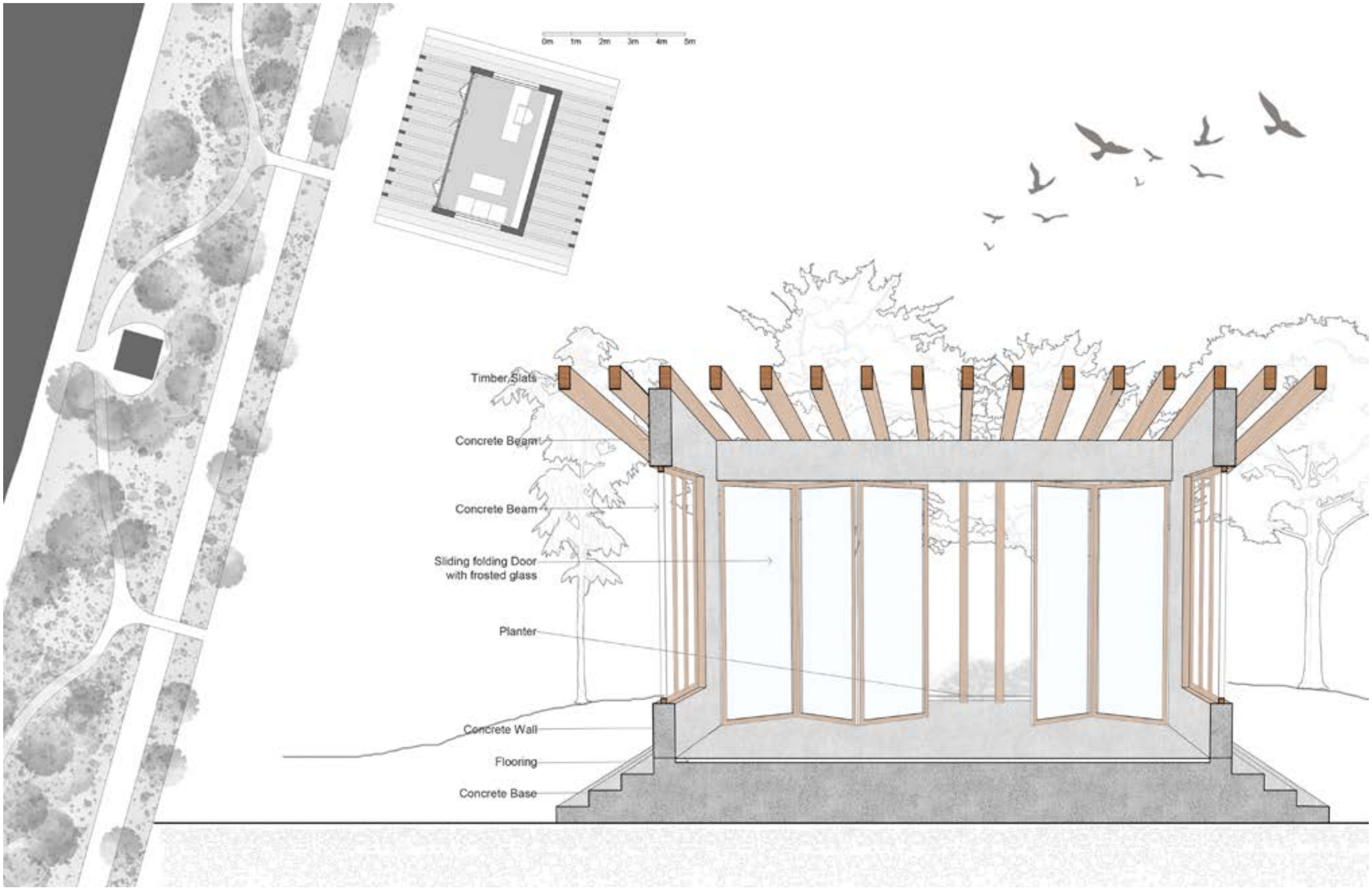




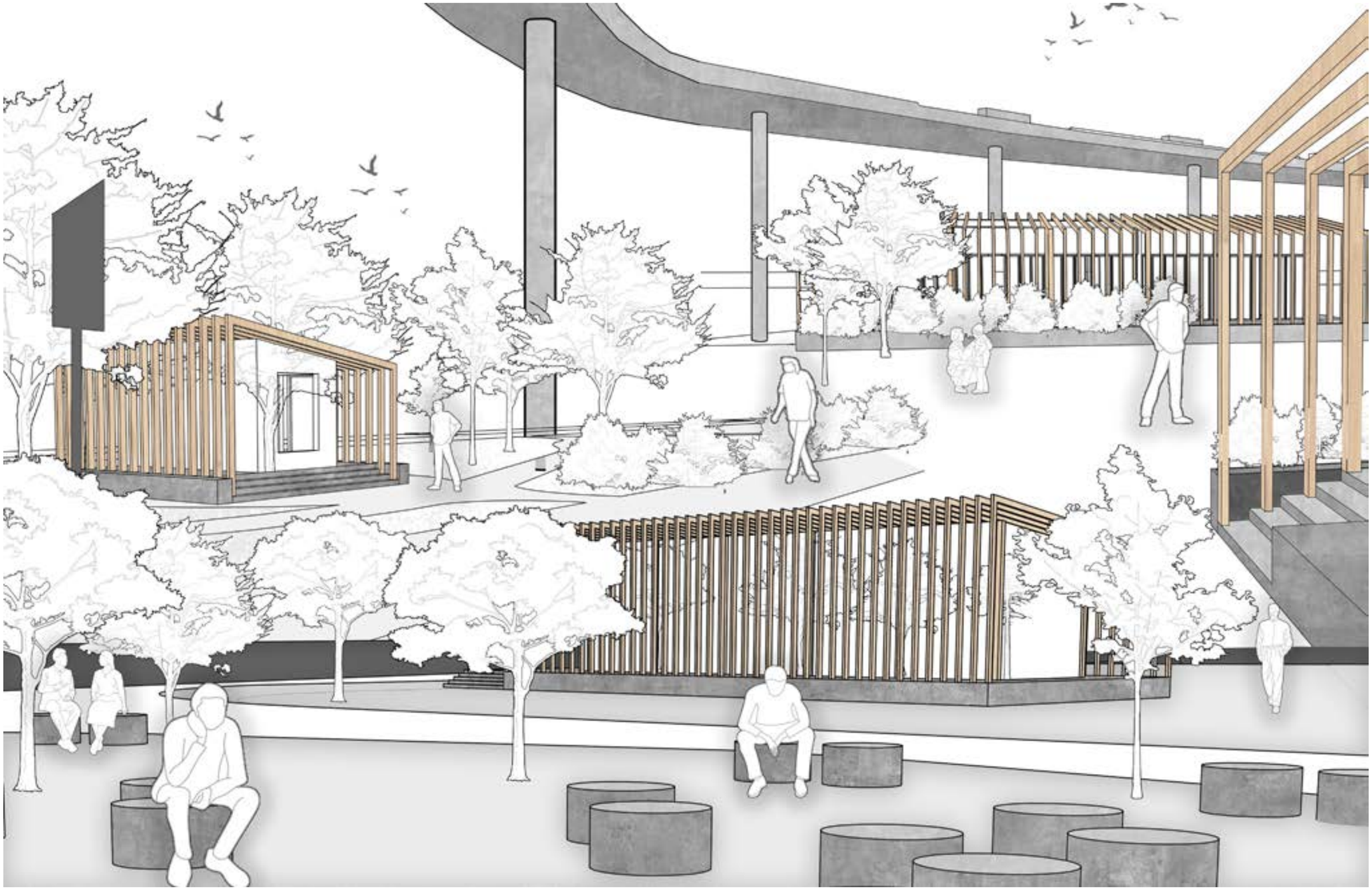
Urban Strategy



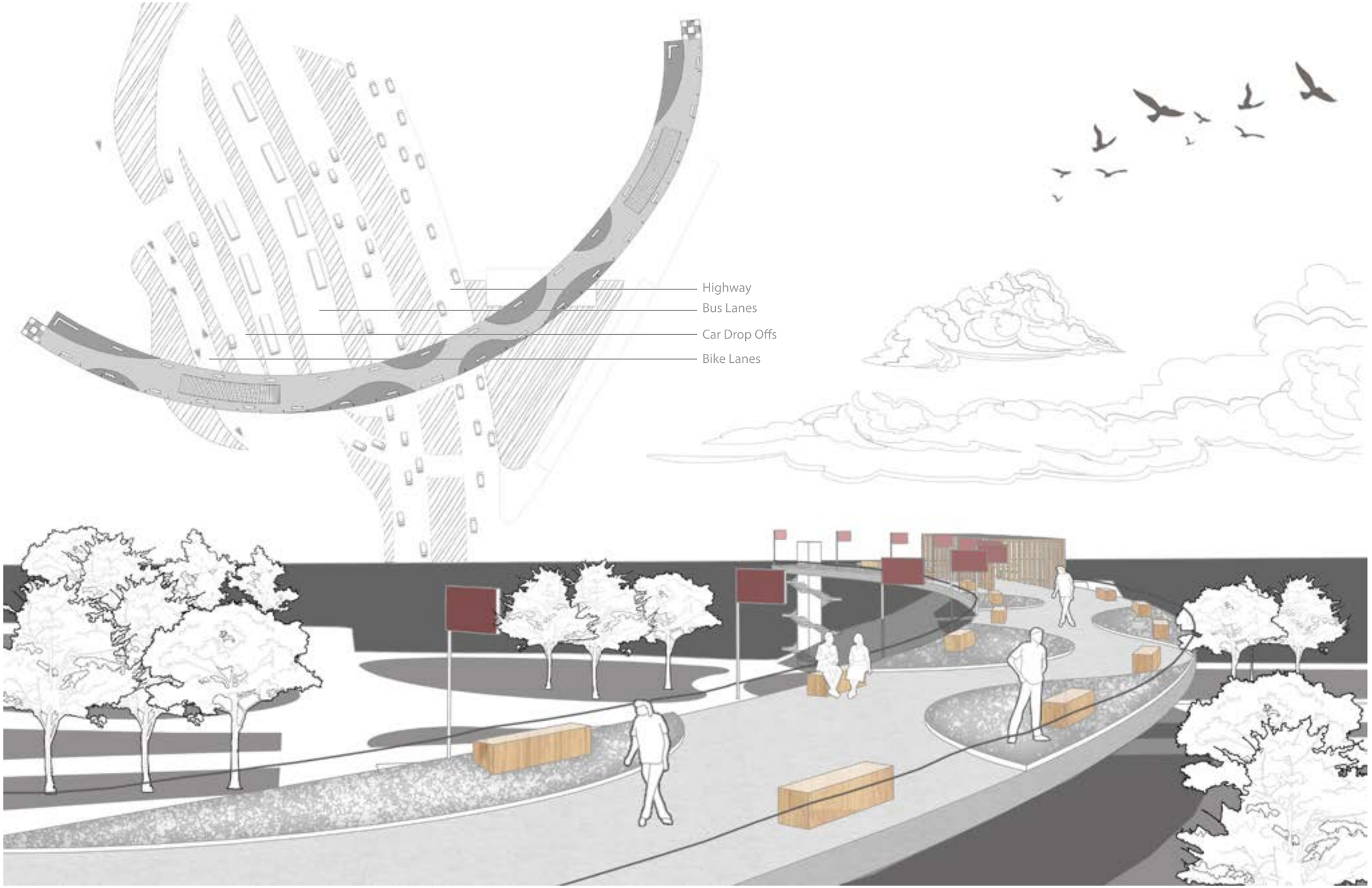
Design of the SOS Pods



Collage of Spaces



Crossing Bridge



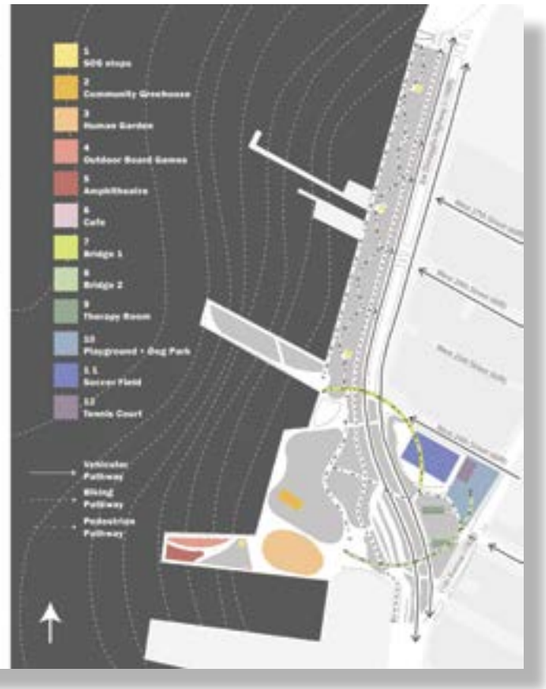
Brochure


STILL
NAVIGATING


DISOREINTED?
1
WE GOT YOU
2
THIS PLACE IS SAFE
3
THESE PEOPLE WILL
HELP YOU


PEOPLE ARE HERE
TO HELP
Where are you?
How to get home?
How did you get here?
Feeling anxious?


1
SOS steps
2
Community Greenhouse
3
Human Garden
4
Outdoor Board Games
5
Amphitheatre
6
Cafe
7
Bridge 1
8
Bridge 2
9
Therapy Room
10
Playground + Dog Park
11
Soccer Field
12
Tennis Court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Cafe
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Bridge 1
8
Bridge 2
9
Therapy Room
10
Playground + Dog Park
11
Soccer Field
12
Tennis Court
Vehicular Pathway
Biking Pathway
Pedestrian Pathway


What is happening here?

04 *Summer'25*
Transclarities

Instructor: James Heard

Essay 1

From up here, everything looks different

ROTOR, Manifesta 12, Palermo

Lajja Mehta

Manifesta is a European biennale held post-Cold War that showcases work that gently weaves into the existing urban fabric. It is not a biennale of decadence and nostalgia, but of revitalization and care, despite old problems and new emergencies (Casavecchia 2018). In this paper, I would argue that aesthetics is still of importance when intervening while discussing the work of Studio Rotor in Palermo for Manifesta 12. Nestled in the hills of Pizzo Sella, 'the hills of dishonor', approximately one million square meters anthropized by a combination of mafia, large-scale construction, and corrupt politics, is an example of how the project succeeds as a sustainable one with minimum intervention but does not impart a sense of comfort and safety (Peluso 2018).

174 buildings that were a case of illegal land parceling, built without a regulatory agreement between the public and private sectors, and were too expensive to be demolished and completed, were repurposed and made into decks that overlook the vistas offered by the Italian valleys (Emanuela Cammarata 2018).

The efforts and the ideology of Manifesta 12 are something unique and successful as a festival. The method of choosing practices that enhance cultural values and encourage local participation instead of creating something temporary, is remarkable. Rotor followed the path created by nature, insects, and the military and formulated a trail along the structures, avoiding making a grand statement. They developed a new relationship between people and the landscape and reused materials from the site (Rotor n.d.). The project used leftover bamboo from the scaffolding to create ramps and railings, for people to enjoy views and make them hot spots for social media. They also worked on the roads that led up to these houses (Peluso 2018).

While the project diffuses the tension for the conflict between the land mafia and the government and emancipates it for the good of the public, it does so in a fashion that makes one think of its merits as an architectural project. It has been opened for the public to use and in a way return to. But from the documented images, it still imparts a sense that it is not secure. The final output seems unappealing and has an eerie feel to it. It is difficult to conceive how an abandoned structure succeeds in attracting people. Minimizing the usage of the materials is a great feat but there can be further improvements made. In recent times the locals are holding workshops to activate the space. The locals themselves could add details like plants and artwork, or invite artists to work on the blank grey canvas. This could perhaps connect the people further with the landscape and the skeleton structures.

Aesthetics are subjective but certain elements of built spaces feel safe, inviting, comfortable, and appealing that all humans can identify, features missing from the project. Rotor's muted approach is truly environmentally friendly but has given up on making the space look good in the bargain and made them merely utilitarian. Can utilitarian architecture be also made comfortable? Is it the job of an architect to add these features? It is vital to think about what the role of architecture is in the longer run when we speak about working in spaces like Pizzo Sella.

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Peluso, Salvatore. 2018. *Rotor in Palermo: "From up here, it's a whole other story".* June 19. https://www.domusweb.it/en/speciali/manifesta/2018/rotor-in-palermo-from-up-here-its-a-whole-other-story.html.

Emanuela Cammarata, Gaetano Giordano. 2018. *Palermo. Re-interpreting Pizzo Sella for a different present.* June 30. https://www.domusweb.it/en/speciali/manifesta/2018/palermo-re-interpreting-pizzo-sella-for-a-different-present.html .

Rotor. n.d. *Manifesta 12 16.06.18 - 04.11.18 Palermo.* https://m12.manifesta.org/artists-rotor/index.html .

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Essay 2

New German Parliament, Norman Foster

Norman Foster

Lajja Mehta

(Source: Image 1: Wikipedia, Image 2: Wikipedia, Image 3: Foster and Partners)

The Reichstag Parliament Building is a monumental structure and an integral part of the German Political saga. It is a symbol of the nation's commitment to designing in an ecologically sensitive manner and is an exemplary example of sustainable public building. The building was designed by Paul Wallot in Baroque and Renaissance styles. This adorned structure comprised a central dome and contained sculptures and reliefs and took a decade to build.

The structure was a seat for the imperial government in 1889. After World War 1, the nation attained democracy. The Reichstag became the parliamentary center of the Weimar Republic for 14 years. Controversies suggest that the 1933 Fire of Reichstag, was used by Hitler to take over as the dictator, posing this as a ruse by the opponents. World War 2 led to heavy damage to the structure, symbolizing the downfall of the Nazi government. In 1949, the partition of Germany placed the structure in West Berlin. During the 1960's it went through restorations and became a museum. In 1989, during the reunification of the country, and the Fall of the Berlin Wall, Reichstag became the seat of the Bundestag. The capital of Germany was shifted from Bonn to Berlin in 1991, by the Bundestag reinstating the building as the center of democracy.

Norman Foster, a British architect, won the design competition for the building. The building gained a dome, which was the literal symbol of the transparency of the government. The facade of the dome and the liberty of the public to roam inside the structure are meant to communicate the political philosophy. While the idea seems pseudo, Germany is politically stable with little corruption and it works wonderfully as a democracy. People can practice free speech and therefore the structure translates well. It facilitates people to look into the working chamber, providing a visual insight and making it feel accessible, unlike most parliaments.

In 1999, the refurbished building opened. The building since then has become a backdrop for activism and dissidence, while not housing the actual demonstrations. It has also hosted conferences reinforcing solidarities with the EU. Much like the Eiffel Tower and the Empire State, this structure behaves like an icon to represent the city.

The structure uses solar power, geothermal energy, and biomass fuel to power itself. It uses natural methods of ventilation, via the glass dome, using the stack effect, reducing the need for air conditioning. The double-skinned façade, the green roof, and rainwater harvesting are other features that add to the structure moving towards net zero. In this effort, the building has been successful and delivered its promise, a rare occurrence for a structure of this stature.

The structure has an eventful history layered with stories of the German government's dynamism. It is a structure worthy of being noted as an architectural symbol.

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05 *Summer'25*
Arguments

Instructor: Benjamin Weisgall

Gentle Architecture by Xu Tiantian

Xu Tiantian is a visionary architect whose work blends futuristic innovation with profound simplicity. At first glance, her projects may seem minimalist, but they possess a depth and richness that extend far beyond their surface appearance. What distinguishes her from other architects, and what I find particularly inspiring, is her distinctive and holistic approach to design. Unlike many of her contemporaries, who often seek to create bold, attention-grabbing structures, Xu Tiantian's creations are characterized by quiet humility. Her architecture does not aim to dominate or overshadow its surroundings; instead, it harmonizes with the environment, crafting spaces that are both innovative and deeply rooted in their natural and cultural context.

One of the most compelling aspects of Xu Tiantian's architectural philosophy is her belief that the essential elements for great design are often already present within the site itself. Rather than imposing an external vision upon a place, she begins her creative process by carefully observing and understanding the site's inherent qualities—its landscape, culture, history, and even its ecological systems. From this foundation, Xu crafts her designs to amplify and celebrate what is already there, resulting in architecture that feels both inevitable and timeless, as if it has always belonged to the landscape.

This approach is particularly evident in her work on Meizhou Island, a project that exemplifies her commitment to respecting and enhancing the existing environment. Initially, I approached Xu's work with a degree of skepticism. After encountering her projects through a film, I questioned whether they could truly deliver on their promises, especially in terms of environmental sustainability. In a world where the commodification and exploitation of cultural and environmental heritage are all too common, I feared that Xu Tiantian might inadvertently contribute to the commercialization of places like Meizhou Island. The island's rich cultural and environmental heritage seemed at risk of being reduced to a mere commodity, packaged for tourists with little regard for its true significance.

These concerns were not without precedent. In the Koilwadas of Mumbai, for example, well-intentioned projects had led to the erosion of local culture and identity, transforming vibrant communities into superficial tourist attractions. I worried that a similar fate might befall Meizhou Island, with its unique character being diluted by an influx of tourists seeking to experience a sanitized version of its past. The commercialization of such culturally and environmentally significant sites often leads to their degradation, both physically and in terms of their deeper meaning and value.

However, my fears were put to rest after I had the opportunity to speak with Xu Tiantian and hear her articulate her vision for Meizhou Island. Her approach to the project, and to visitors in general, was both thoughtful and refreshing. Rather than viewing visitors as mere tourists, Xu sees them as participants in a dialogue with the site—individuals who can engage with the architecture in a meaningful and respectful way. This perspective is indicative of her broader commitment to creating spaces that are not only visually stunning but also intellectually and emotionally engaging.

Xu Tiantian's sensitivity to the potential risks of her projects, and her commitment to ensuring that her work does not contribute to the degradation of the sites she engages with, reassured me about the future of Meizhou Island. Her careful, informed approach demonstrated that she is acutely aware of the complexities involved in working with culturally and environmentally sensitive locations. Xu's architecture is not about imposing a vision from the outside but about uncovering and enhancing the potential that already exists within a place. This approach ensures that her work not only preserves the unique qualities of the sites she engages with but also elevates them, creating spaces that resonate deeply with their surroundings and with the people who experience them.

My admiration for Xu Tiantian's work deepened when I considered it in light of my background. Coming from a family that follows Jain principles, I have always been taught to value, respect, and preserve all forms of life. Jainism, with its emphasis on non-violence and the interconnectedness of all living beings, has profoundly shaped my worldview. However, as an architect, my design approach has often been anthropocentric, focusing primarily on human needs and rarely taking into account the state of the organisms present on the sites I work on. This disconnect between my spiritual beliefs and my professional practice has always been a source of internal conflict.

Xu Tiantian's work has profoundly shifted my perspective in this regard. Her designs do not merely accommodate the natural environment—they actively engage with it. Xu considers the entire ecosystem as her client, and she skillfully addresses the needs of all its components, from the smallest microorganisms to the larger landscape. This holistic approach stands in stark contrast to the conventional belief that architecture is primarily about constructing buildings. For Xu, architecture is about creating, mending, and rejuvenating environments. She works with spaces that can be repaired and repurposed, ultimately enhancing the quality of life not only for humans but for all organisms that inhabit these spaces.

Xu Tiantian's design philosophy challenges traditional notions of what architecture can and should be. Her work invites us to rethink the role of the architect—not as a creator of isolated structures but as a steward of the environment, responsible for shaping spaces that are in harmony with their natural and cultural surroundings. By integrating her creations into the landscape with care and leaving an impactful yet gentle footprint, Xu opens up new avenues for architects to explore. Her work is a powerful reminder that true architectural innovation lies not in imposing grand visions but in enhancing and harmonizing with the world around us.

In conclusion, Xu Tiantian is not just an architect; she is a visionary who is redefining the field of architecture through her thoughtful, innovative, and deeply respectful approach. Her work on Meizhou Island and beyond exemplifies a new kind of architecture—one that is humble, responsive, and profoundly connected to the world around it. As an architect, I find her work not only inspiring but also a call to action—a reminder that we must strive to create spaces that honor the complexity and beauty of the natural world and the cultural contexts in which we work. Xu Tiantian's architecture is a testament to the power of design to not only shape our environment but to elevate our understanding of our place within it.

06 *Fall'24*
The Outside In Project

Instructor: Laurie Hawkinson and Galia Solomonoff

Preface for the project

Seminar Overview: The Outside In Project II

The Outside In seminar, an annual initiative by the Graduate School of Architecture, Planning and Preservation (GSAPP), focuses on researching, designing, and building temporary pavilions on campus. This hands-on course enables students to bridge theory and practice through real-world projects that emphasize collaboration and innovation. Guided by Professors Laurie Hawkinson and Galia Solomonoff, teaching assistants Tristan Schendel and Syed Hasseeb Amjad, with support from Structural Engineer Hubert Chang from Silman, students bridge the gap between theoretical concepts and practical application.

Students engage in various aspects of design, material management, programming, graphics, and structural planning. The seminar's team-based structure allows participants to hone specialized skills while contributing to the collective progress of the project. The seminar was structured around three main teams, each playing a crucial role in the project's success.

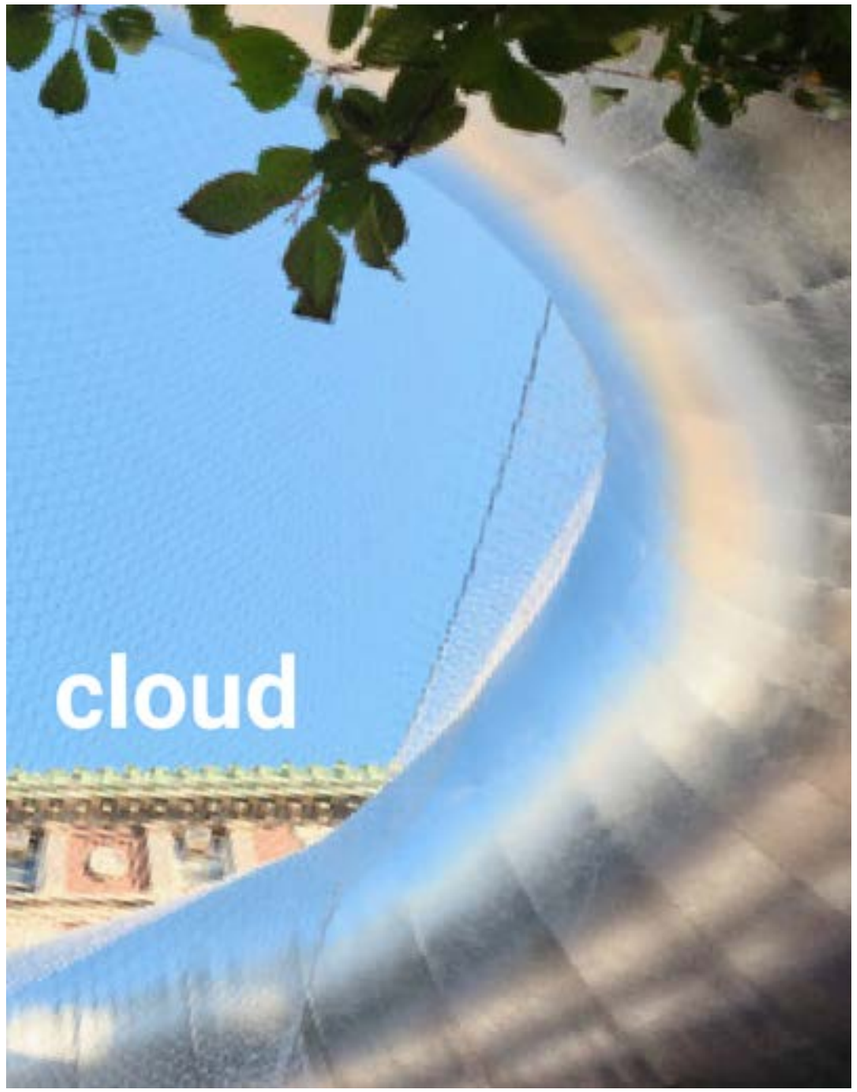
The Executive Team oversees the inventory of existing materials at GSAPP and identifies any additional resources needed for the project's completion. This team coordinates closely with the Structural and Graphics teams to ensure the availability of essential components, tools, and supplies. Their responsibilities include managing procurement, collaborating with Yonah Elorza and the isntructors to secure materials on schedule, and prioritizing items with long lead times to avoid delays. Additionally, they develop a detailed installation plan, outlining construction steps, coordinating equipment, and creating a staffing strategy for participants and volunteers. Post-installation, they also manage deconstruction plans.

The Drawing and Structural Team prepares construction documentation and ensures seamless coordination with the Executive Team to meet installation requirements. Their work involves compiling and refining both existing and new drawings, with input from the instructors to finalize a comprehensive set. Collaborating with Hubert Chang, they develop structural connection and detailed plans for the installation of the inflatable.

The Programming and Graphics Team works with GSAPP Events to organize space usage and programming. They create FF+E (Furniture, Fixtures, and Equipment) plans and lighting designs while also preparing layouts for media, projection, and sound. This team coordinates with GSAPP IT to fulfill AV/IT needs. Their scope extends to designing room signage, instructional graphics, and credits, as well as preparing press releases and managing social media content. To ensure cohesive communication, they collaborate with Ilana Curtis, Assistant Director of Communications.

Weekly check-ins with the instructors help track progress and maintain alignment. Periodic class presentations provide opportunities for feedback and necessary adjustments, keeping the project aligned with the seminar's objectives.

This seminar exemplifies a comprehensive approach to design-build education, promoting practical skills, teamwork, and strategic problem-solving.



Process pictures

Workflow - as a part of the executive team

241017 - Critical Path Revised

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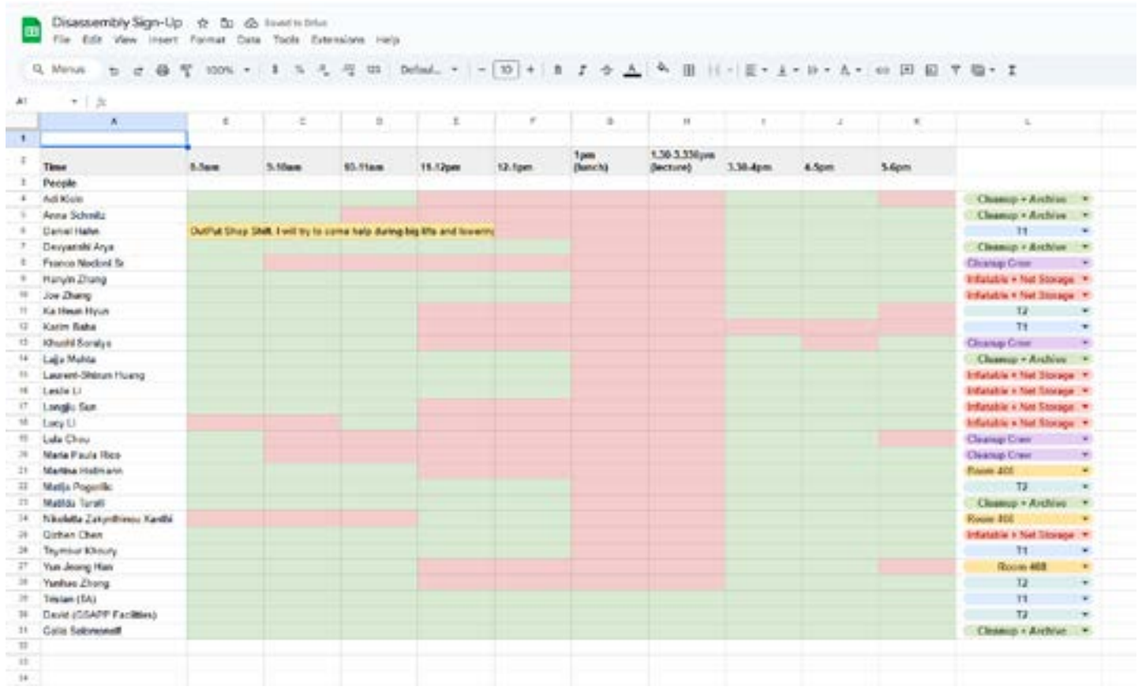
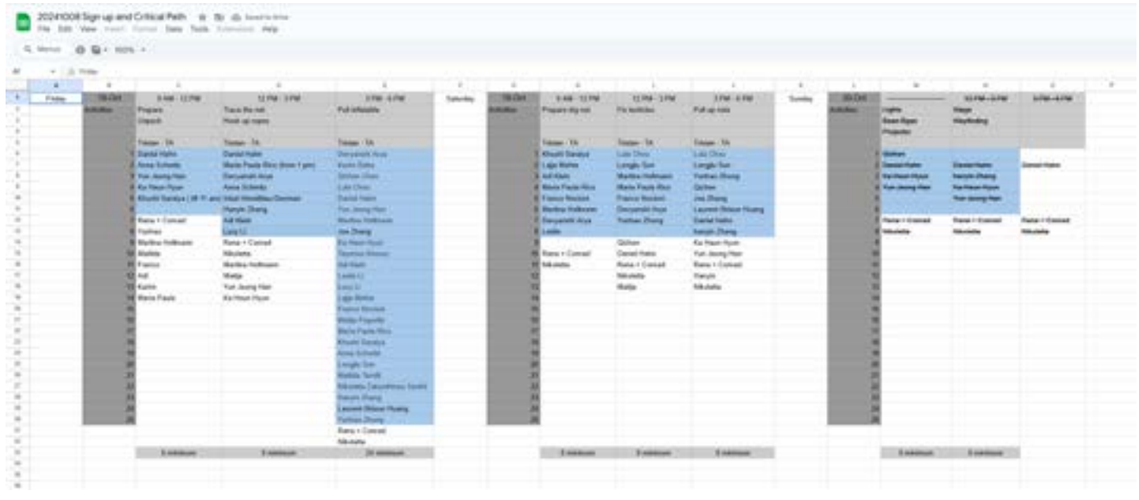
	A	B	C
1	**Time**	**Activity**	**No. of People**
2	9-10am	**Transport the materials**	4
3		1. Bring the main inflatable	4
4		2. Bring the nets	4
5		3. Bring the smaller inflatable to 408	4
6		4. Bring the blowers and connect the cords	
7		5. Sand Bags	
8	10-10.30am	**Attach the plexi Glass**	
9		1. Attach the glass	
10	10.30-12pm	**Attach the net**	
11		1. Orient the net on the floor	4
12		2. Situate people in the corners where the net gets tied	12 (3 in each corner)
13		3. Throw down the ends and catch	4 (one corner at a time)
14		4. On ground coordination	4
15		5. Pull the ropes up	All corner people
16	12.00-12.30pm	**Pizza break**	
17	12:30 - 2pm	**Inflatable prep**	
18		1. Place a cover on the ground	6
19		2. Open and orient the inflatable	4
20		3. Attach the blowers	2
21		4. Plug the cord	2
22		5. Attach the ropes to the main inflatable	6
23		Attach rope to inflatable arm	
24		6. Loosely fix the ropes to the beams that they go to	6
25	2-2.30pm	**Room 408**	
26		1. Place the smaller infaltable in the room	4
27		2. Open + orient + attach to the plug	4
28	2.30-4pm	**Inflate**	
29		1. Paople take places (on ground and in the place closest to where the inflatable is tied)	16
30		2. Start the blowers	1
31		3. Lift from the corners	12
32		4. Attach to the anchors	12+
33		5. Zip to the small inflatable	4
34		6. Start the door blower (room 408)	1
35		7. Secure the Inflatable	12+
36	4-6pm	**Net**	
37		1. Loosen the net tiles	
38		2. Make the marks	
39		3. Attach the tentacles + bean bags	
40		4. Hook them to the main net	
41		5. Hoist the net back up	





07 *Fall'24*

New Towns to Smart Cities

Instructor: David Smiley

Prins Alexanderpolder

Janvi Chandrashekhar Patil and Lajja Mehta

Professor David Smiley

New Towns to Smart Cities

December 12, 2024

Columbia GSAPP

Prins Alexanderpolder

The popular saying, "God created the world, but the Dutch created Holland', is about the two provinces - North and South Holland - that make up Randstad (an arc-shaped conurbation that spans the country). The Dutch were technologically advanced and with a thorough knowledge of their topography and record of civil engineering and urban development they have reshaped their landscape in unique ways. With their skill of building and their understanding of hydrological principles, they have made land out of water through the technology of the polder: new land.

Rotterdam, Prins Alexanderpolder

The lowland delta, the former Zuyder Zee facing the North Sea, shaped the use of groundwater and the control of rainwater and surface water making up the regional water system. This system is pivotal for the process of development and urbanization of the Dutch polders. Dutch cities, especially in the Randstad, are hydrological constructions with a spatial layout that is strongly connected to the division of land and water on regional and local scales through civil construction and building site preparation[1].

Timeline of Alexanderpolder before the 20th century

The storm surge barrier under construction, completed in 1958[1]

[1] HOOIMEIJER, F., MEYER, H., & NIENHUIS, P. H. (2005). ATLAS OF DUTCH WATER CITIES.

At the end of the nineteenth century, technological advances and booming economy and urban growth put pressure on polder cities. Across the 20th century, what might be called the "manipulative era", produced electricity and fossil fuels. Dutch engineers and planners reshaped the water systems to fit with city growth and change.

The introduction of motor vehicles, industry and quickening of urbanization created a new spatial order These new actions were also tied to the "progressive" or universalist beliefs of the modern era that everything was possible and, more specifically, people were not restricted by the (so-called) laws of nature when it came to dealing with water.. The built infrastructures were essential in separating groundwater level, the discharge of wastewater, and the supply of drinking water, and notably a large part of this water "machine" was underground. Water was imperative for drainage, discharge, and storage, and it remained essential for daily life but it was soon hidden.

Another factor of Dutch 20th century urbanization was the concept of the neighborhood unit. This modular approach to urban expansion and city planning was not a new concept and had partially emerged in Garden City studies but was formalized as part of the Regional Survey of New York and Its Environs (1921-1931). The Dutch variation of the neighborhood unit had a distinct ideological character that made it different from most other instances. The principles of the Unit model were formulated by architect Van Tijen and Alexander Bos, the director of Rotterdam's Municipal Housing Department.

Unit ideas were developed during the war and published in De stad der toekomst, de toekomst der stad (1946) (The Future of the City, the City of the Future), edited by Bos. The book's main concern was the relationship between the individual and the collective, that is, how individualism affected the shared culture of the Netherlands – from clothing to housing. Liberal capital and its focus on the individual was a threat (especially because of rising consumerism and the emergence of mass media).

Both prior to and during the twentieth century, urbanization was frequently fragmented, taking place progressively on a lot-by-lot basis with no overall planning. Each parcel was designed to meet specific demands, resulting in a rigid, unchanging urban plan that lacked integration. This uncoordinated process resulted in a variety of disconnected elements, including ropewalks, pleasure gardens, manufacturing complexes, villa parks, and thick building blocks. The disparate nature of these developments represented the conflict between individual land ownership and larger urban coherence. By the twentieth century, planners began to address these difficulties in more structured ways, adopting concepts such as the neighborhood unit to encourage coordinated expansion.

Rotterdam grew significantly in the late nineteenth and early twentieth century as a result of industrialization and its status as a port city. In places with orderly lot patterns, coherent urban forms arose. However, scattered lot arrangements in other sections of the city resulted in a lack of cohesiveness among zones. Inspired by movements such as Garden City and modernist planning, early twentieth-century urban planning

initiatives aimed to address these difficulties by improving infrastructure and living conditions. These efforts paved the way for a more integrated urban structure, culminating in massive post-war reconstruction following the deadly 1940 Rotterdam Bombing.

Efforts to optimize Rotterdam's traffic structure sought to increase communication through efficient roadways and railroads, resulting in a more compact city. However, this contradicted the purpose of restricting expansion. While transportation lines established distinct borders and concentrated growth, they also limited the city's natural expansion, causing problems in urban planning.

In the context of lot-by-lot urbanization, this technique of development failed because it did not consider the overall city outlines or the integrated plans established by urban planners. The lot-by-lot method, with its fragmented and disorderly expansion, was wasteful and did not integrate well with larger urban planning aims, resulting in poor urban cohesiveness and functionality. Essentially, it was an ineffective strategy for establishing a well-organized and harmonious metropolitan layout.

It was only with the Housing Act of 1901 the planners had the regulations and instrumentation to deviate from the lot-by-lot land division. Only then was it possible to create a single design for an amalgamated area and to lay out new networks of streets before or independent of "lotting." On this basis, experiments were carried out in

Rotterdam until WW2. Experiments broke with the traditional construction of building blocks, lots and street networks (in Spangen/Tussendijken, Vreewijk and the Kiefhoek, for example)[2].

The Dutch version of the neighborhood unit arose in response to "personal socialism," a theory established by the Dutch elite during World War II, particularly while detained during German occupation. This concept emphasized the person's relationship with society, calling for strong, self-sufficient local units that maintained individual autonomy within a social framework. This concept had an impact on the creation of neighborhoods as geographical and social units. These communities valued coherence, self-sufficiency, and a feeling of community, which encouraged social engagement and neighborhood identity. This technique revolutionized urban development in the middle of the twentieth century, shifting away from fragmented growth[3].

The optimum size of a neighborhood, according to the book, De stad der toekomst , was about 20,000 inhabitants, and it was to be divided into sub-neighborhoods numbering 2,000 to 4,000 people. In order to enable it to function as a separate community, it was separated both from the built-up area of the existing city and from other neighborhoods in the vicinity. Accompanying the re-definition of public spaces, the traditional shopping street was replaced by various "centers:" shopping centers, cultural centers, and sports centers. In the former case, various facilities on busy traffic thoroughfares with a constant flow of customers was an older conception of the city.

[2] NEW URBAN FRONTIERS (1993)
[3] WAGENAAR, C. (2013). NETHERLANDS PLAN UNITS. WAGENAAR 13

Under modernist and unit-based conceptions, facilities were located in the center of new housing estates and supplemented with smaller facilities in sub-neighborhoods within the "annual ring" expansion model, the "compact city" that was one of the goals of town planning in the 1920s and 1930s.

The implementation of neighborhood units, some critics believe, led to the suburbanization of the Randstad, the functional withering of older cities of a certain size, and destruction of the landscape. It was easily adopted and accepted as the main program for renewing the postwar world. By providing a setting for social integration - all classes were brought together within the confines of the neighborhood – it promoted social equality, was the belief . (The main distinction between the housing typologies derived from the size and make-up of families rather than from the social status of the inhabitants.) The concept was meant to enhance community spirit. Moreover, in a period of economic instability, it provided the means to construct a complete city irrespective of its projected size. If the economy was slow to pick up, causing a stagnant population, the number of neighborhoods could be limited without negatively affecting the level of facilities needed for everyday life. In case of prosperity, neighborhoods could be added with relative ease. Finally, the low densities inherent in the neighborhood concept resulted in cities that were better adapted to the risk of air raids than the compact, historical centers had been.

Having said this, the concept received a lot of criticism. Fledderus considered Bos's assumption that the neighbourhood units are fitting framework for family life, "a paradox that takes us back to a society poor in spirit, typical of the rural communities that existed until 1600 or 1700, or to a ghetto concept, and it is absolutely contradictory to the community idea befitting a larger city," Another commentator found the idea utterly romantic: romantic people would like nothing better than to accommodate everyone in villages and, in case the city could not be avoided in single family houses, adding that "the romanticist will take care that everybody, from the moment he is born to the time he is grown up, will be handled by meddling ladies and cocksure gentlemen, who make sure he is drenched in community spirit."

With the shortage of housing due to WW2, the government didn't build new homes, but rushed to rebuild the damaged homes, at first. Eventually, during WW2, the Dutch government wanted to get employment and exports going again. This policy enabled the city to grow exponentially and by the 1950s, the Netherlands faced a massive housing shortage. In Rotterdam, the planning of the Alexanderpolder was complicated due to the range of interests and claims. There were four competing groups for priority: the practically oriented employees of the Department for Urban Development and Reconstruction of Rotterdam, the philosophically oriented representatives of the New Building, politicians from Rotterdam and Capelle on the IJssel and not to forget the farmers and gardeners in the polder. The varied interests made the process of making the polder a polder city complicated.

Alexanderpolder in the fifties was a vast area of swampy grassland, running up against high meandering dikes on its periphery. It is bordered by the Hollandsche IJssel river on the south and by the smaller river Rotte on the north. The land division of the polder has two faces. Just below sea level, a medieval fan-shaped allotment system, following the course of the river, lies along the delta rivers. With a rational 19th century allotment, north of that the deepest polder of the Netherlands can be found, at a maximum of seven meters (23 feet) below sea level. Regular and rectangular, it is independent of the course of the surrounding rivers. The boundary between these two sections is formed by a relief line that encompasses the whole area, east to west, in a large arc. Subsequently, a wide-mesh network of traffic routes residual zones that will pose problems with regard to the urbanization models[4] .

The western section of Alexanderpolder belongs to the Municipality of Rotterdam and the eastern section to the rural Municipality of Capelle aan den IJssel. The boundary is a jagged line running straight through the area and is not physical, it is administrative as well as political. It divides two political cultures: the red city, socialistic Rotterdam with its ambitions of becoming a modern metropolis as well as an international seaport, and the Calvinist establishment, the orthodox culture of Capelle aan den IJssel, carefully guarding its age-old stability. This antithesis also has an important influence on the urbanization process: center versus periphery, fast time versus slow, the scale of the expanding big city versus that of the small autonomous (and threatened) village?.

[4] NEW URBAN FRONTIERS (1993)

Capelle wanted to expand and urbanize but used different ideas of what a city is than Rotterdam. During this time, Alexander polder with the regional water authority? (Hoogheemraadschap Van Schieland) proposed to use the harbor's silt or sand to raise the ground of the polder by 10 meters.

During the 9th CIAM congress, a study of Prins Alexander polder by Lotte Stam Beese (among others) was selected. The theme of CIAM that year was 'habitat,' the residence of future and was presented as "The city of tomorrow." Prins Alexander Polder was to be an independent city, flexible and offer gradual growth. Additionally the Dutch group De Opbouw (who are they, Bakema?) also investigated the city as a site of large-scale residential units and large green areas.

Bakema's concept of the 'visual unit', a vertical city built-up of high-rise towers, was connected to the 'district idea', where residential neighborhoods merge harmoniously into a concentric and hierarchical whole. It was a construction on the flat surface of the city map. The 'visual units' made this a three-dimensional composition by introducing a vast elementary sculpture in which architecture and urban design converged. In the plan for Alexanderpolder, these visual units were directly linked to the larger scale of the highway and functioned as autonomous urban units. The geographical circumstances of the deep-lying polder and the poor soil condition were the reason that Stam-Beese and Bakema introduced the idea of vertical neighborhoods (Schilt, 1982). By founding the highway and these 'Mammoths', as Bakema called them, on piles, the city was

disconnected technically from its landscape, which could be used for agriculture and recreation. The vertical neighborhoods were, according to Bakema, addressed the bad soil conditions in the Lage Land. People with an open state of mind and life- style could live in this city on piles with a view of the open agricultural landscape (Palmboom, 1993). Eventually, when Stam-Beese designed the executed plan for Lage Land, only a very small part of the Mammoth concept remained in the shape of four large flats that are positioned in the form of a mill wing[5].

Plan by Stam-Beese

[5] ZONNEVELD, W., & NADIN, V. (Eds.) (2020). THE RANDSTAD: A POLYCENTRIC METROPOLIS. ROUTLEDGE.

Until the 1950s, Rotterdam mainly expanded in a southern and western direction. Map from period 1930-40

The Netherlands was under German occupation until the mid-forties. After the war, the infrastructure for housing was deeply affected. There was an urgent need for reconstruction. The fifties in the Netherlands was an economically miraculous period as their industries boomed and they recovered economically. Along with that the next few years saw a baby boom and the society received a lot of young population. Religion was not of prime importance as it used to be. While nuclear families persisted, people were open to different types of family arrangements as well. The society was now more liberal than it was pre-war.

The Structural plan of 1959 is the first structural plan for the intended subsidiary city. The city is bordered by highways, railroad lines and rivers. Within these borders the existing morphology (including the relief line along a Gravenweg) has been rubbed out.. The city center is in the middle, located exactly on the 'kink' in the municipal boundary

line. Green areas are found on the periphery, between the districts and in the vicinity of the center. These green areas offer room to clusters of high-rise apartments in a windmill pattern, an extremely distinctive design element reminiscent of the 'vertical residential neighborhoods' in the Opbouw studies. They are meant to lend an architectonic dimension (a striking silhouette) to a plan primarily determined by two-dimensional urban-planning principles. The road system consists of a network with a north-south bayonet junction around the center. The network has a tortuous pattern reminiscent of the meanders of the rivers. The upland and the deep polder, Capelle and Rotterdam, are thus depicted as one flowing whole[6].

[6] NEW URBAN FRONTIERS (1993)

Structural Plan on Alexanderpolder in 1959

In 1962, the plan had an elementary structure: a composition of detached planes (the districts) that create a non-emphatic centrality by means of a windmill-like pattern. The bayonet junctions within the network of roads and the green structure surrounding the central facilities, now moved north in the direction of the railroad station. The layout as a whole is rectangular. The directions found in Alexanderpolder are dominant and are carried over into the surrounding area as much as possible. The district Het Lage Land - the oldest section of Alexanderpolder - was developed according to this plan, including two high-rise clusters[7].

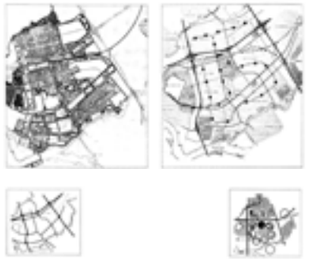
Plan of operations 1962

[7] NEW URBAN FRONTIERS (1993)

By 1967, the most important new element in this plan was the metro system: a trunk line (north-south) and a circle line. The trunk line provides a connection with Rotterdam; the circle line guarantees coherence within the subsidiary city. The city center is now located at the intersection of the railroad line, metro trunk line and metro circle line, next to a central park around which most of the districts are situated in the form of a corona. Ommoord to the north and Middle/watering to the southeast were built in accordance with this plan (or were included in it in their previously designed state). A brutalist vernacular slips into the plan, an echo of the Team 10 experiments in which the city is seen as the rampant growth of mega-buildings[8].

Part of Prins Alexanderpolder belongs to Capelle Aan Den Ijssel 1967

[8] NEW URBAN FRONTIERS (1993)



Plan of operations 1967

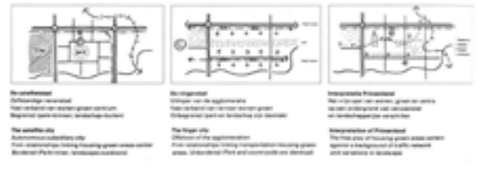
In the finger-city plan of 1973, all residential areas are directly connected to Rotterdam's city center via two east-west metro lines and the existing railroad line. The north. The south trunk line has been eliminated. Development is grouped into two wings. one around the rail lines in the north of Alexanderpolder and one around the southern rail line on the upland along the delta rivers. In between a continuous green zone runs from the Kralingse Woods via the Scholle Woods to the Hollandsche IJssel. The eastern boundary found in the previous structural plans (highway plus railroad line) has been eliminated: here there is an open landscape. The relief line and the zone along 's-Gravenweg form one elongated, uninterrupted whole within the composition. The

center has shrunk: it has lost its special position on the intersection of rail line and trunk line and is merely one of the many modest concentrations of facilities[9].

Plan of operations 1973

In 1977, the administration had heated debates on the finger city plan. The system of coordinates of railroad line plus metro trunk line was maintained, including the adjacent subsidiary-city center. Capelle keeps its own north-south arterial road at the expense of the unity of the Scholle Woods. All agreements are noted according to sector (housing, green, traffic, etc.); no overall picture has been drawn to reveal the conflicts between the agreements (and, with that, potential design assignments).

[9] NEW URBAN FRONTIERS (1993)



Plans to explain different schemes

Plan of operations 1977

In 1988, the District Policy Plan East analyzes the area as the superposition within three strata: the delta rivers and the dikes; the backbones of the original pattern of land division, transformed into main streets within the urban network; and the new traffic routes, particularly the junction of national highways that divides Alexanderpolder into various compartments. The strata lend a sense of coherence to the fragments making up the city.

Ten areas of interest (key projects) are indicated in the District Policy Plan that are related to recreation and infrastructure in particular. The Kralingse Woods and the riverbank zones are to be developed into a facility for both Alexanderpolder and the city of Rotterdam. Interventions with respect to the infrastructure are aimed at improving the relationship between Alexanderpolder and the city, and at making the recreational areas more accessible. The impact of the infrastructural lines - once viewed as the 'natural boundaries of the city of tomorrow' - has become a central theme within a totally urbanized area. Compared to the inner city, Alexanderpolder is seen as a 'garden city[10].

[10] NEW URBAN FRONTIERS (1993)

Plan of operations 1988

Prins Alexander Polder's planning is related to larger concerns in urban development, such as smart urbanism, historical planning ideals, and critiques of corporate-driven cities. It may incorporate smart technology for efficiency and sustainability, as proposed by Ratti, Claudel, and Luque-Ayala. Furthermore, drawing on Garden City ideas, it is expected to emphasize green areas and community togetherness, mirroring the postwar New Town ideals shown in works by Llewellyn and Home. Finally, the concept of planetary urbanization (Brenner & Schmid) is relevant, as Prins Alexander reflects on the spread of urban processes into previously rural places, changing their infrastructure and community life.

The neighborhood unit by Clarence Perry in the early 20th century, emphasized on designing residential areas in a way that fosters a sense of community while also promoting efficiency, accessibility, and safety as the central goal. The main idea was to maintain the size to a manageable amount. They were designed to be self-contained, pedestrian-friendly communities, typically serving around 5,000 to 9,000 people. However, the neighborhood planning, ideologically, was different when it came to the Netherlands. The Netherlands wanted to create a unit that ensured that the masses were kept docile and didn't create a threat that dominated in any way. The prime focus was using the neighborhood unit as an intermediate level between the individual level and the community level, so that the masses could be mitigated well. The Dutch society of the time was liberal and capitalist and the biggest threat to the society was the growth of the individual[11].

The marshy water that naturally dominates the area, which has been a recurring problem, with the impending climate change, will become one of the greatest challenges for Rotterdam as a whole. According to the IPCC, the Netherlands is likely to face significant climate change impacts in the future, including rising sea levels, more extreme weather events like heavy rainfall, increased heat waves, and potential disruptions to its coastal ecosystems, making adaptation measures like reinforcing

[11] PERRY, C. (1929). *THE NEIGHBORHOOD UNIT*: COMMITTEE ON THE REGIONAL PLAN OF NEW YORK AND ITS ENVIRONS, VOLUME 7, NEIGHBORHOOD AND COMMUNITY PLANNING

dikes and managing water levels is crucial for the country's future resilience. This has a number of direct consequences for Prins Alexanderpolder.[12]

The polder however falls within dike ring 14 which is critical for Holland, and has a chance set at 1 in 10,000 meaning once in 10,000 years the dike cannot hold back the water, resulting in a flood. That one time could last a very long time, but it could also happen tomorrow. Dike ring 14 in the Netherlands has the highest safety standard and approximately 4.5 million people live here because of the logistical hubs and industrial and service activities here, so the potential for economic damage is enormous [estimates to 37 billion euros].

In the event of such a 'worst thinkable flood' the Netherlands would more or less undergo bankruptcy due to the disastrous material consequences, not to mention the immaterial damage. Alexanderpolder is a relatively small basin that fills up quickly. Dike ring 14 is determined that this area cannot actually be evacuated. 4.5 million city dwellers are like rats in a trap. Maintenance of the dike's costs around 2 billion euros annually and at the moment only 1 billion euros is being spent on the dikes. This tells us that the dikes will not meet the standards until around 2035.

[12] INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE (IPCC) (2023). *SIXTH ASSESSMENT REPORT (AR6): THE PHYSICAL SCIENCE BASIS OF CLIMATE CHANGE, IMPACTS, ADAPTATION, AND MITIGATION STRATEGIES*. WORLD RESOURCES INSTITUTE

Raising the entire land is not a solution and evacuating will be very problematic economically. In the event of a disaster, the need for self-reliance of the residents of Prins Alexanderpolder is a necessity. Prins Alexanderpolder continues to develop in the 21st century as it should but half of the housing stock dating from before 1980's these homes will be outdated by 2050, and what happens to more than 7000 flats is unclear. Based on the past, the Prins Alexanderpolder has a good reputation for coping with these changes in the housing stock. Past 50 years, new living spaces have been created here for almost 100,000 residents. In 2012, the idea that living in the polder is a step forward in the housing careers is apparently timeless[13].

Prins Alexanderpolder - now

[13] VEENMOERAS, L. (2014). *DE PRINS ALEXANDERPOLDER EN ROTTERDAM: VAN VEENMOERAS TOT POLDERSTAD*. W BOOKS.

The study of this New Town has been an interesting investigation for us. The town has evolved with time has has quickly supported itself and has cleverly mitigated through the problems that it has faced along the way. They will need to prioritize sustainable practices and long-term planning to keep the polder habitable for future generations.

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08 *Spring'25* Footprint

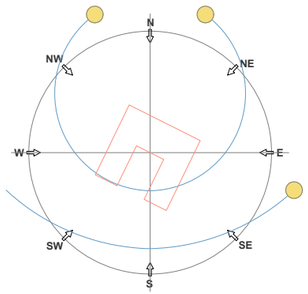
Instructor: David Benjamin

A drawing to present the different temperatures through out the project to help understand the nature of how the cooling strategies work in the structure.

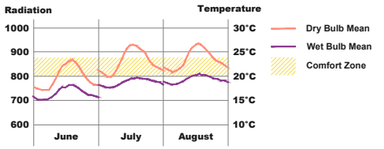
The drawing shows a range of temperatures that one experiences throughout the structure. The structures uses mainly evaporative cooling to help keep the building cool in the future in Paris where the temperature is supposed to be increased by 4 degree Celsius.

SUN PATH + IDEAL ORIENTATION

The sun is mostly overhead in the summer. It is ideal to place the building to face the north and the south over the east and the west. It needs to be off-setted so that the sun doesn't directly enter the spaces.

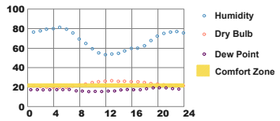


DIURNAL AVERAGES

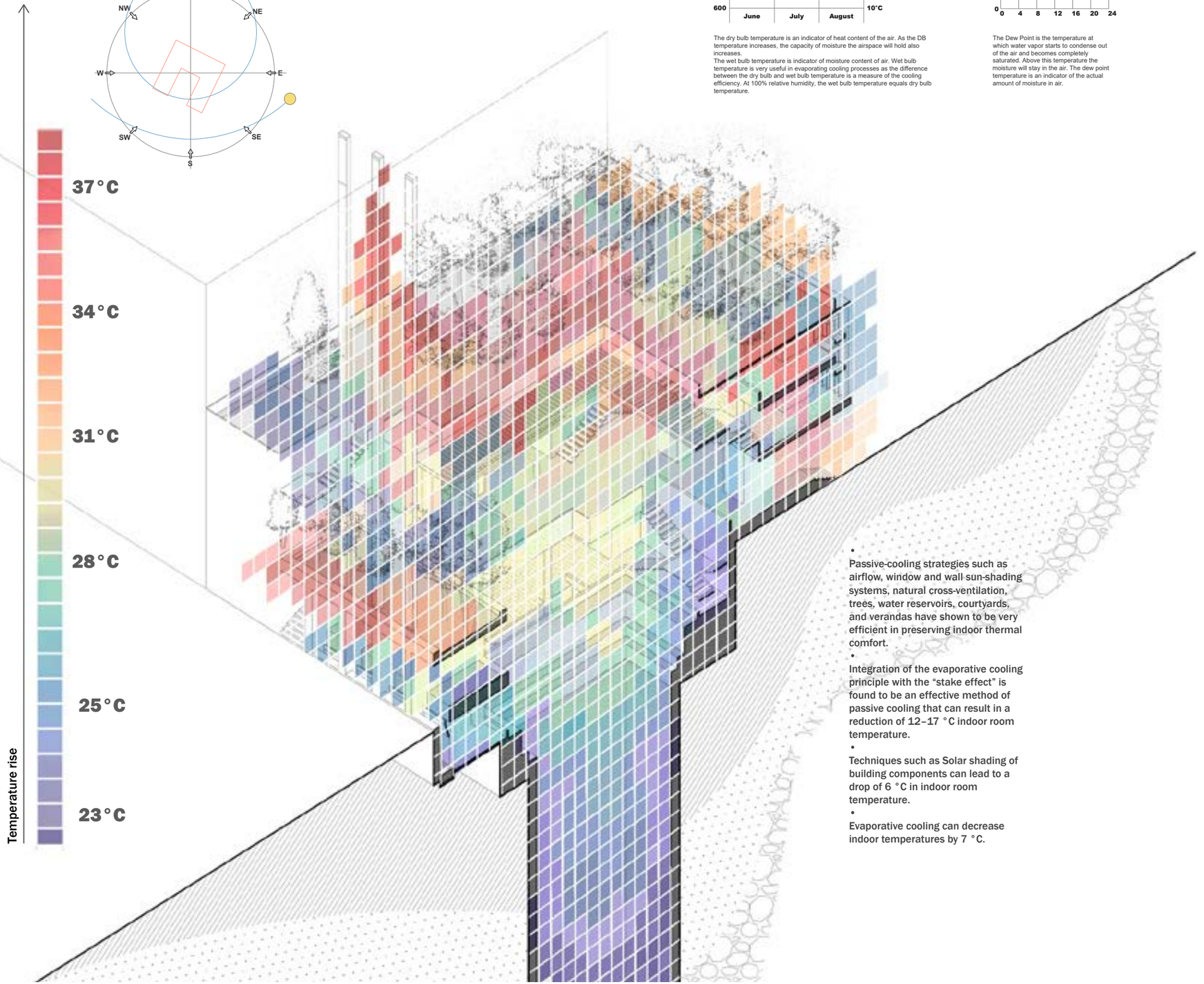


The dry bulb temperature is an indicator of heat content of the air. As the DB temperature increases, the capacity of moisture the airspace will hold also increases.
The wet bulb temperature is indicator of moisture content of air. Wet bulb temperature is very useful in evaporating cooling processes as the difference between the dry bulb and wet bulb temperature is a measure of the cooling efficiency. At 100% relative humidity, the wet bulb temperature equals dry bulb temperature.

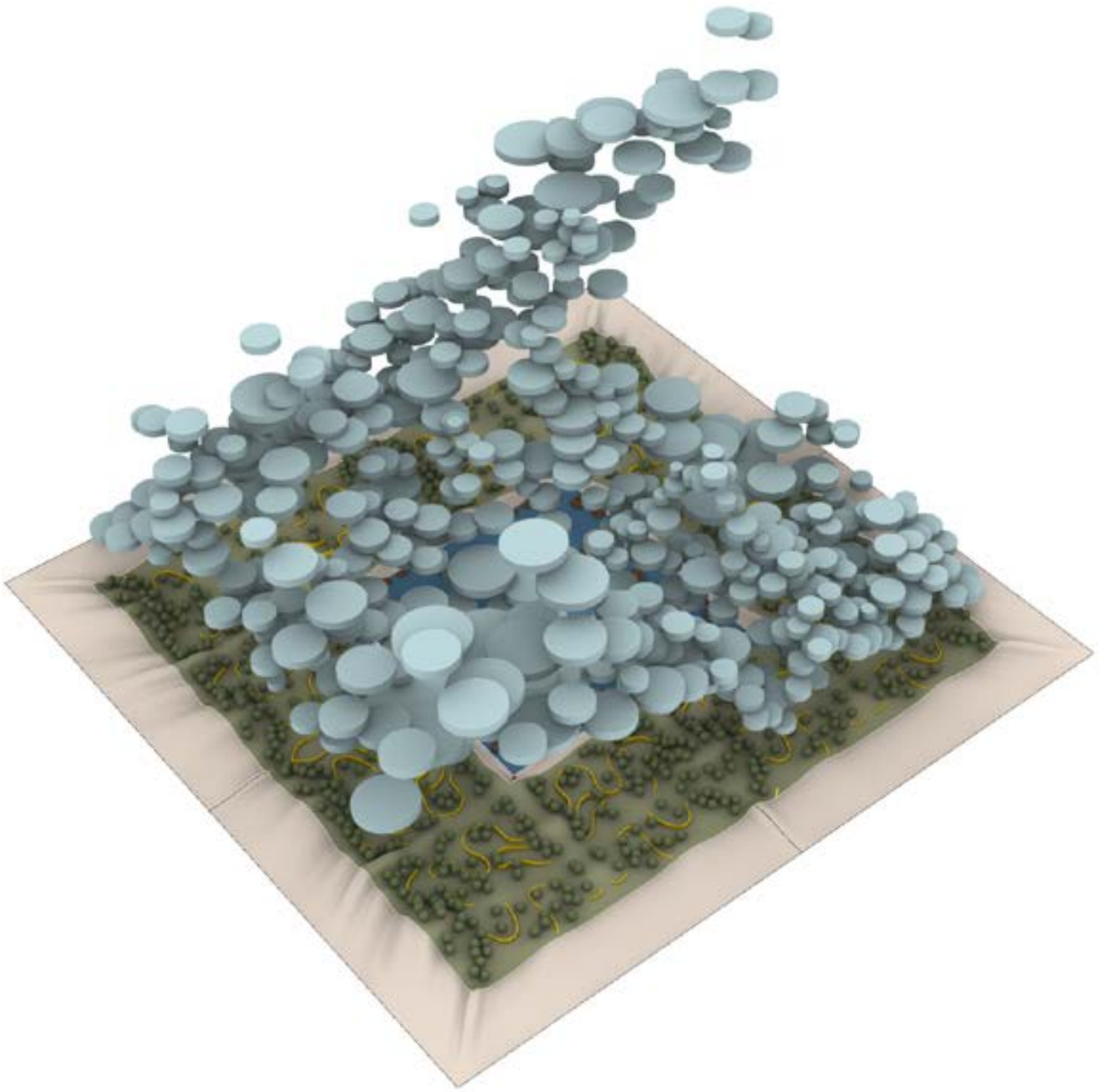
RELATIVE HUMIDITY X DRY BULB X DEW POINT
(average for June, July, August)



The Dew Point is the temperature at which water vapor starts to condense out of the air and becomes completely saturated. Above this temperature the moisture will stay in the air. The dew point temperature is an indicator of the actual amount of moisture in air.



- Passive-cooling strategies such as airflow, window and wall sun-shading systems, natural cross-ventilation, trees, water reservoirs, courtyards, and verandas have shown to be very efficient in preserving indoor thermal comfort.
- Integration of the evaporative cooling principle with the "stake effect" is found to be an effective method of passive cooling that can result in a reduction of 12–17 °C indoor room temperature.
- Techniques such as Solar shading of building components can lead to a drop of 6 °C in indoor room temperature.
- Evaporative cooling can decrease indoor temperatures by 7 °C.

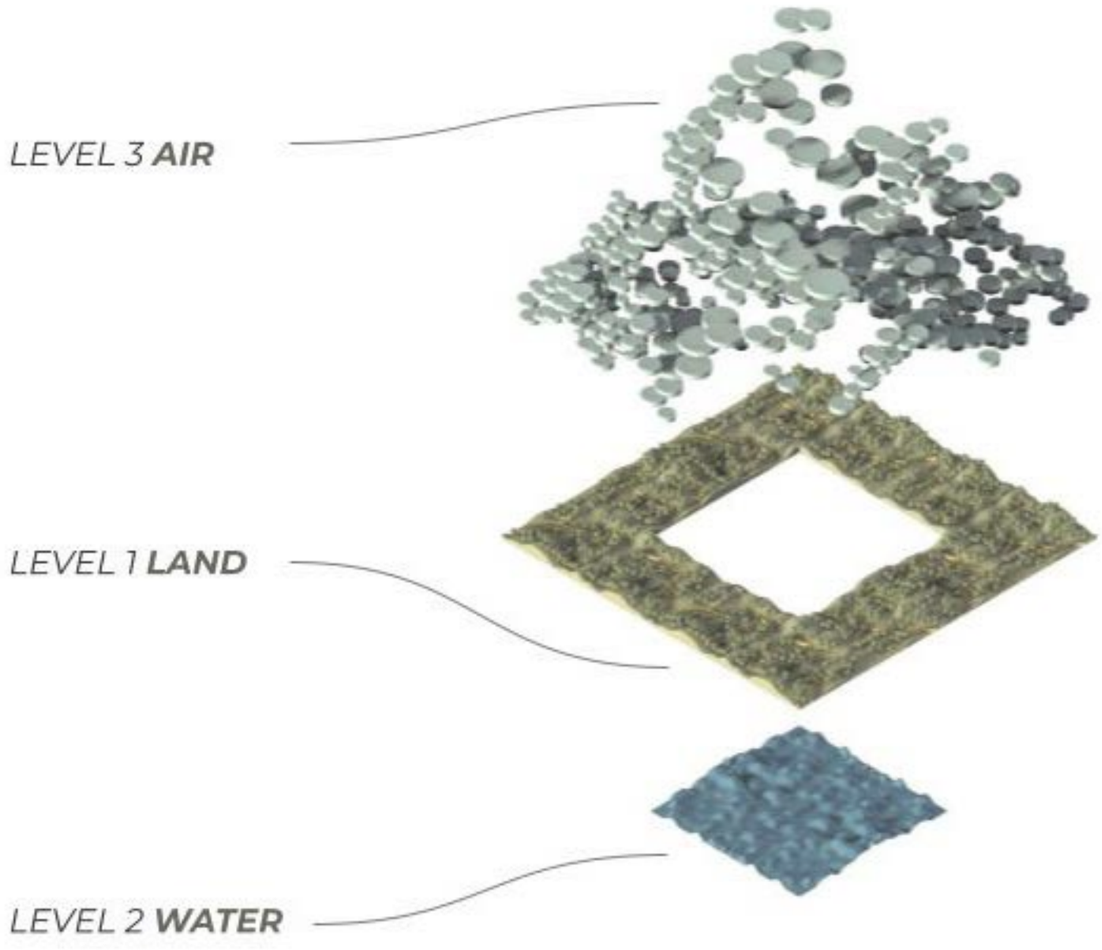


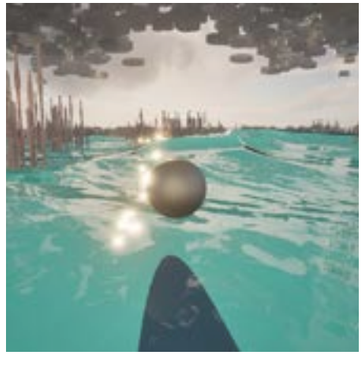
09 *Spring'25* Virtual Architecture

Instructor: Nitzan Bartov

The elective focused on creating three different environments replicating earth, water and shy. The game would involve a sphere go through all of them. The ball go through portals and hits various triggers while roaming through the portals.

Breakdown of the environments

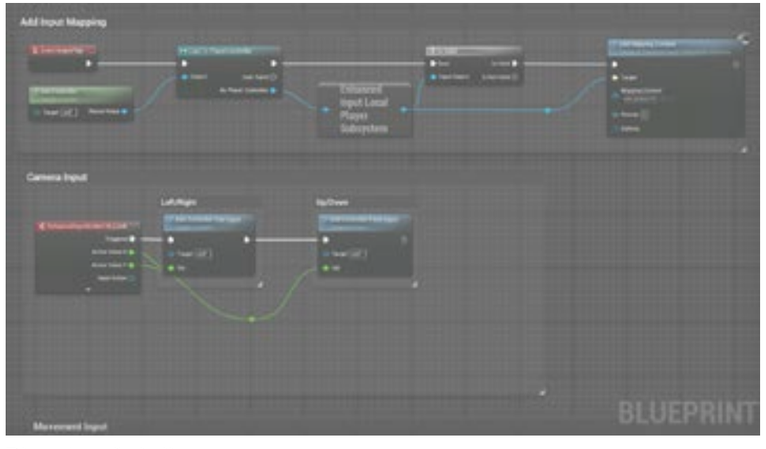




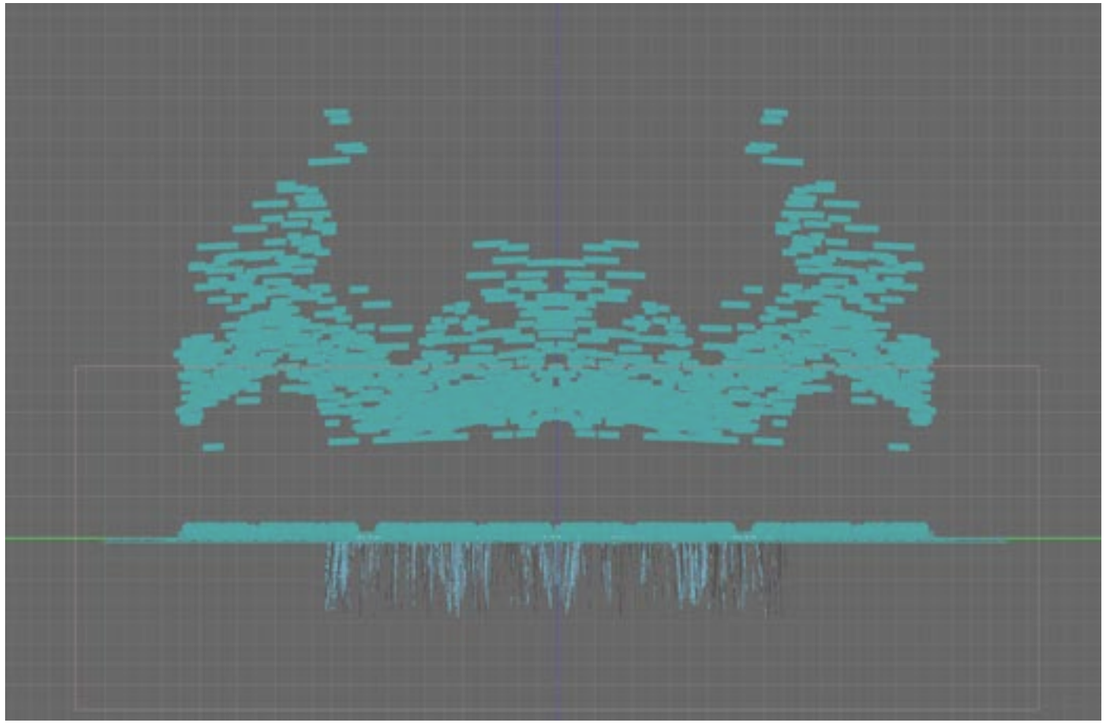
Blueprint of the portal

Blueprint of the trigger 1

Blueprint of the trigger 2



Blueprint of a ball



Section of the environment

Environment workspace

10 *Spring'25* Spatial AI

Instructor: William Martin

Our project uses Spatial AI and computer vision to solve this everyday frustration. By deploying real-time object detection models inside subway cars, we aim to accurately assess the occupancy level of each car and communicate that information visually to passengers waiting on the platform. A simple, color-coded display system—ranging from green (empty) to red (overcrowded)—will help commuters distribute themselves more efficiently across the train.
This project represents spatial intelligence to build a real-time, responsive transit environment—making the invisible visible, and the crowded navigable. Beyond commuter comfort, this system can also help transit authorities like the MTA optimize train frequency, manage congestion during peak hours, and analyze long-term commuting patterns for better city planning.

I
What is comfort?

II
How do we assess the spatial comfort level within the subway car?

III
How (and what) does the data we collect inform the passengers?

The Japanese concept of a space

- Wa (Relational Space): Comfort is shaped by how well people respect each other's personal space and social cues—when wa is present, there's a shared understanding that promotes a calm, cooperative atmosphere, even in a crowded car.

- Ba (Knowledge-Mobilizing Space): Clear signage, announcements, and visual cues enhance comfort by reducing uncertainty and helping people navigate the space easily—ba makes the subway more user-friendly and less stressful.

- Tokoro (Place as Space): The design and condition of the subway car—its cleanliness, seating layout, lighting, and even cultural markers—affect how grounded or at ease one feels in the space, making tokoro central to physical and emotional comfort.

- Ma (Negative Space): Comfort also comes from ma—the breathing room, both physical and mental. Well-designed spacing between seats, poles, and passengers, as well as quiet moments during the ride, provide necessary relief within a dense environment.

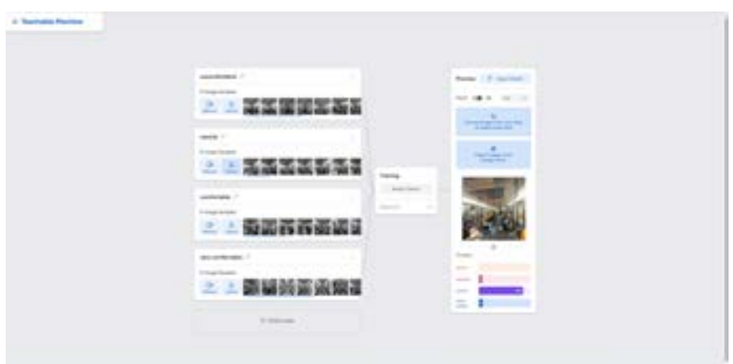
Through this concept we can understand that the space of a subway car, when being analyzed for comfort, can have several aspects that one can take into consideration. Through a series of AI methods, we have tried to detect the Ma of the space that is a subway car.

How (and what) does the data we collect inform the passengers?

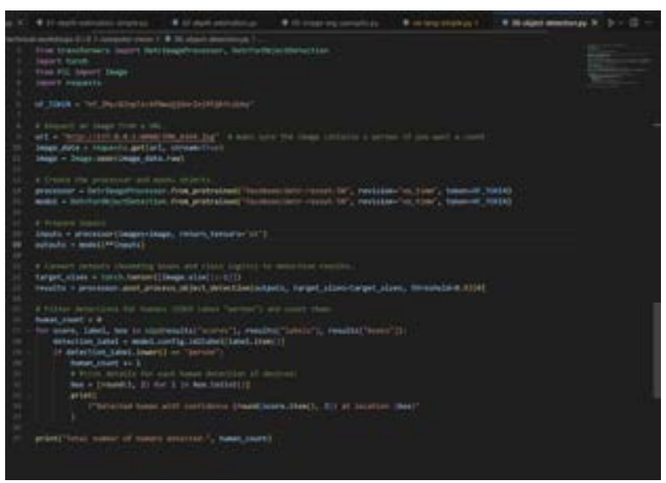
Data Set for Analysis

Testing Methods

3



Teachable Machines

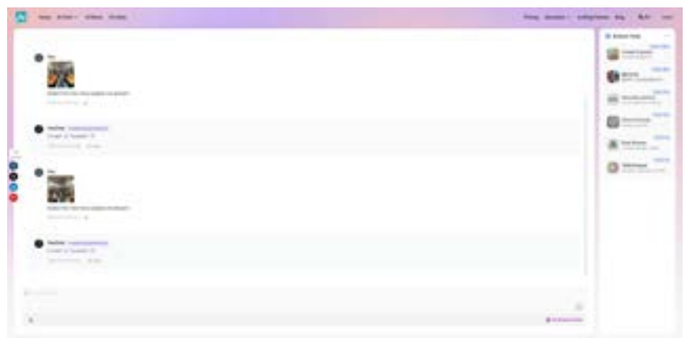


Object Detection

5

Nycle

2



YesAI

Testing models for spatial analysis

1

Model

Teachable Machine
To be able to analyse how the comfort level can be assessed via still images and be able to achieve a graphical output

Spatial Comfort

Achievement
Detects the comfort level based on how empty the space is in the 2D image

+

Human Inference
The model will tell us how the space is comfortable in relative terms and with the information fed. The graph can help decide what car to take and what one can expect upon entering. Combining this with a noise detector and a thermometer, one can access

2

Model

Object Detection
To receive an output of the number of people in the frame

Spatial Comfort

Achievement
Detects the number of people in the space

Human Inference
Enables us to understand the number of people in the car. The higher the number, the greater is the discomfort. This tool tells us only about the people and not the about of luggage they might have with it. It defines space in terms of the people it can detect.

3

Model

Nycle
Using a facial recognition to be able to to tell the number of people occupying the space

Spatial Comfort

Achievement
Only has the ability to recognise faces with doesn't help understand comfort

Human Inference
This tool fails us

4

Model

ChatGPT (Yes.AI)
To be informed how the model comprends the idea of comfort using an image as an input

Spatial Comfort

Achievement
Infers based on the understanding that it has using the information it has about comfort

Human Inference
The data received is comparative and can be used again to infer the number of people in the space. Coupled with other gadgets it might give us a better understanding of the number of people in the space.

5

Model

LiDar (scanning tool)
To be informed how the model comprends the idea of comfort using an image as an input

Spatial Comfort

Achievement
Infers based on the understanding that it has using the information it has about comfort

Human Inference
This is very interesting as it will help one analyze the volumetric. This information encompasses all masses that occupy the space, so it is a good tool to use to detect the amount of free space.

6

Model

Funkify
To be informed how the model comprends the idea of comfort by describing the scene beside the subway car

Spatial Comfort

Achievement
Infers based on the rules that it is provided with and is able to give a spatial analysis that is not comparative.

Human Inference
This is very fun way to understand the different scenarios that might occur. It is good at being able to understand the scene and give the spatial description in the form of text. The analysis is not a numeric.

The idea of spatial comfort in relationship with the subway car

Using the different methods of understanding comfort and applying that with the definition of space that we choose, we realize that the AI tools can help us draw inferences of the space and become a tool that we use in our daily commute through the NYC subway system. AI can help us predict the comfort one can expect to feel in their pending journey and become a friend to the MTA in being able to channel crowds.

Being able to recognize the Ma (Negative Space) in the cars, the passenger is able to figure their journey account for lapses and be able to plan their trip down to minutes. This application of AI, in our opinion can be deployed to increase the level of comfort in the subway.

Thank you