University of Virginia School of Architecture | MArch and MLA Thesis

THE WELLNESS CENTER

-Bridging a healthy community-

A non-degree-required thesis submitted to the Master of Architecture Program Department of Architecture

by

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Hanting Hu University of Virginia

ABSTRACT

The Wellness Center is dedicated to cultivating a health-oriented community center, designed to bolster activities that promote well-being. This research explores critical questions within healthcare design-a field at the intersection of architectural innovation and the extensive development programs for health facilities currently underway. At the heart of this study is a deceptively simple question: Can architecture significantly impact hospital effectiveness, prevent health complications, and extend community longevity? The answers, while complex, are decidedly affirmative.

The onset of the 21st century brought with it rapid advancements in medical technology, necessitating a paradigm shift in healthcare design. This new era calls for reevaluation of spatial requirements-including alterations in size, scope, and functionality. The Wellness Center represents a pioneering step towards reimagining the traditional hospital model. It introduces the concept of a hybrid facility that serves as a nexus between urbanity, mega-hospitals, and individual human needs.

whose passion has guided me on this journey; Nana Last and Leena Cho, for their encouragement and insightful perspectives; and Manuel Bailo,

Dedicated to my advisors, Schaeffer Somers,

whose support was pivotal in making my research and investigations possible.

In memory of Dr. Donald Zimmerman, who supported my journey into healthcare and architecture

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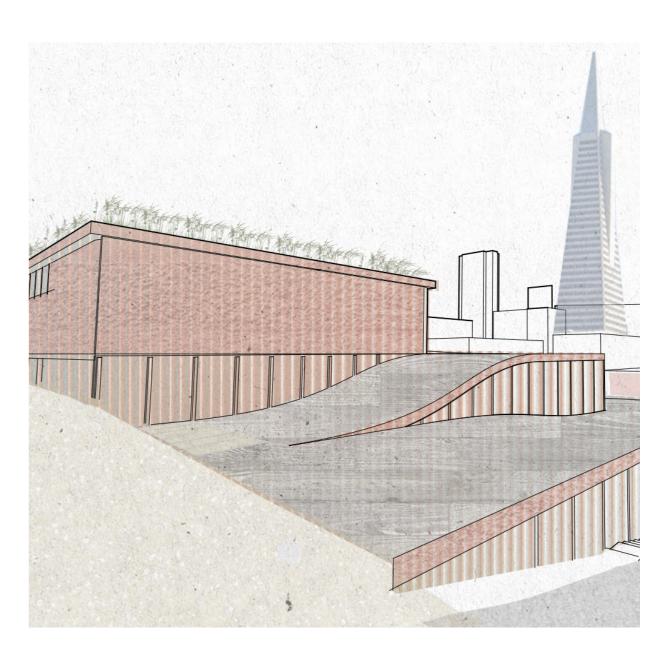
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A place of care, a social vehicle that create purposeful and ongoing exchange of resources and learning among older and younger generations.

PREFACE

Can architecture significantly impact hospital effectiveness, prevent health complications, and extend community longevity?

> The Wellness Center is committed to fostering a health-focused community hub, designed to support activities that enhance well-being. This research explored pivotal questions at the nexus of healthcare design, which marries architectural innovation with the ongoing development of health facilities. Central to this inquiry is a seemingly straightforward question: At the heart of this study is a deceptively simple question: Can architecture significantly impact hospital effectiveness, prevent health complications, and extend community longevity? The answers, while complex, are decidedly affirmative.

> Historically, the idea of the hospital as merely a medical apparatus—a sterile facility lacking in aesthetic value-has been shown to be insufficient for integrating impactful architecture into cityscapes. As Heathcote observes, the contemporary hospital often stands out as a discordant element in

urban environments. Unlike during the Renaissance or medieval times, when it was a key component of urban and spiritual life, today's hospital has become a sterile, industrial behemoth. Its immense size often seems to resist architectural refinement, presenting an impression of inflexibility when viewed as a singular, imposing structure.

The dawn of the 21st century ushered in rapid advancements in medical technology, demanding a shift in the paradigm of healthcare design. This new era necessitates a reevaluation of spatial requirements, including changes in size, scope, and functionality. The Wellness Center exemplifies a forwardthinking approach to redefining the traditional hospital framework. It introduces a hybrid facility concept that acts as a bridge between urban life, large-scale hospitals, and the individual needs of humans.

Distinctly different from traditional hospitals, the Wellness Center is crafted with a welcoming environment that aligns with the needs of the local community. It goes beyond merely recognizing to actively celebrating the human condition, paving the way for a future where sustained well-being and high quality of life are standard expectations.

ARCHITECTURE AND WELLNESS

Throughout its varied and rich history, healthcare architecture has mirrored evolving societal values: from divine reverence in ancient temples to the glorification of empirical science during the Enlightenment. It has been a tribute to deities, a testament to divine worship, and an accolade to scientific progress. Yet, despite its significance, it has rarely been a monument to humanity itself. In ancient and classical times, health facilities were central to urban life, a theme that continued through the devotional constructions of the medieval era and the civic-oriented urbanism of the Renaissance.

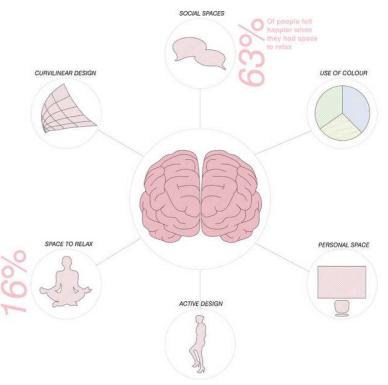
However, in the modern era, these institutions have morphed from grand edifices into utilitarian structures-functional machines for extending life, marked by stark, efficient designs that favor technical functionality over architectural beauty.

As the architecture of healthcare has evolved, its physical forms have varied widely in function, appearance, and location, either integrated into or placed on the

fringes of the urban landscape. Despite these changes, these buildings have consistently played a critical role as architectural focal points.

Unfortunately, modern designs often do not mirror their significant societal function, relegating them to the status of basic, service-oriented facilities rather than celebrated urban landmarks.

This thesis challenges existing norms by reimagining healthcare facilities as spaces that not only provide essential medical services but also enhance the urban fabric and honor the human spirit. It calls for a new paradigm



where health architecture is not only functional but also serves as a proud, integral part of community life.

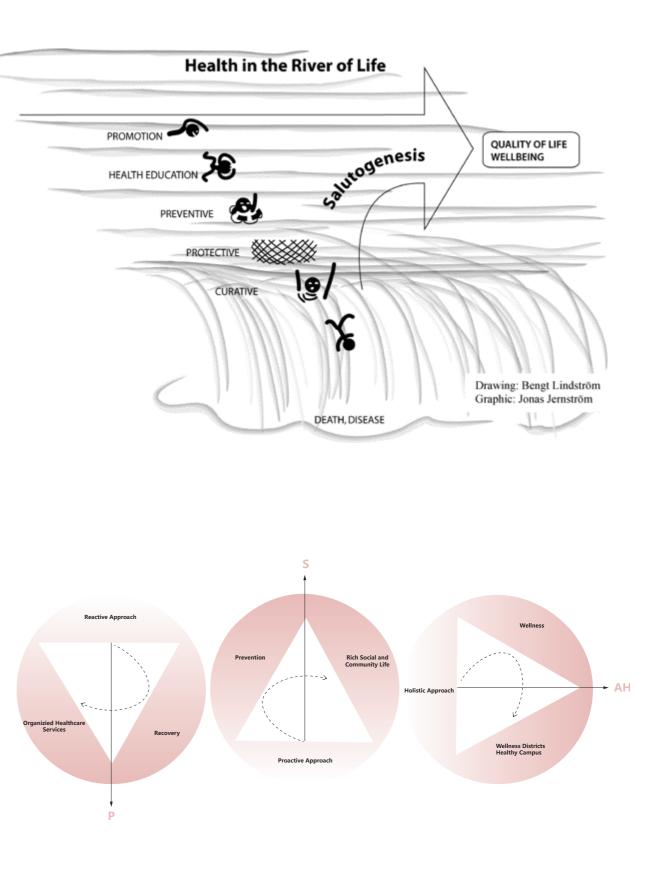
RESEARCH METHODOLGY

LOGIC MODEL:

A graphic tool that detials specific components of an intervention and the proposed short and long-term outcomes. The tool has been used to access the health outcomes of plans, politicies, and projects in urban planning through a methodology called Health Impact Assessment (HIA).

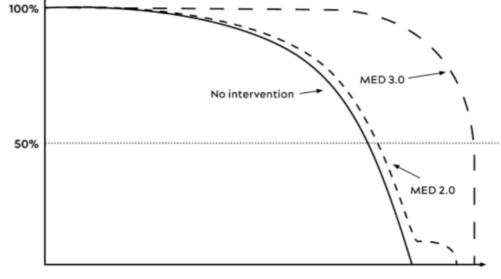
PATHGENESIS and SALUTOGENESIS:

Dr. Sudip Bhattacharya and colleagues state in their research paper "Salutogenesis: A bona fide guide towards health preservation" (2020), that the most neglected part in an individual's life is most likely their own health. People may go to the doctor, but mostly only then, when there is already something wrong, and oftentimes after a longer time of denial or pain. We may care about our health when we are diseased, but we don't think about the things that keep our bodies and minds happy and healthy. Why? Modern medicine most certainly plays a big role in this perspective.



THESIS OBJECTIVES

Healthspan



The goal of this study is to think about how can we design healthcare facilities to enable the shift in thinking that healthcare is more than preventive care and pathogenesis?

Challenging the traditional stigma of hospitals and designing a wellness and therapeutic center that supports health rather than treating illness. This project is also about reaching the community and breaking the traditional wall of the healthcare center.

3 Main Objectives:

O1 The exploration of designing healthcare architecture between interior and exterior spaces, and the consideration of human experience design within the digital invention.

O2 The use of range of drawing, modeling, advanced tools like VR headset, for representation and prototyping.

O3 The iterative development of urban and architectural typologies that explore complex hybrid programmatic relationships with healthcare facilities and public spaces.



Lifespan

TELEMEDICINE

With the invention of the X-ray, the hospital became a mandatory destination for all, rich and poor alike, ensuring its spread as a technological institution. The tragic irony of the 20th century hospital has been that the more it tries to catch up with innovation, the faster it became obsolete. Hospital suffer from an increasingly short life span.

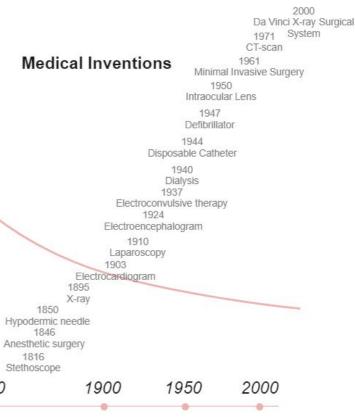
Meanwhile, we are getting older, and a shrinking proportion of society shoulders the burden of the retired and the aging. There's a structure change of the patient will be like tomorrow.

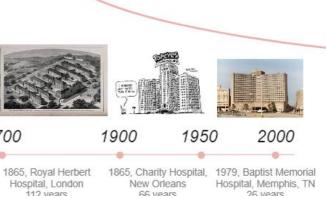
After the COVID19 global influences since 2019, a surge of medical technological inventions are bring the "care" from hospital to home. Healthcare became more accessible, the system of how the healthcare being delivered are shifting,

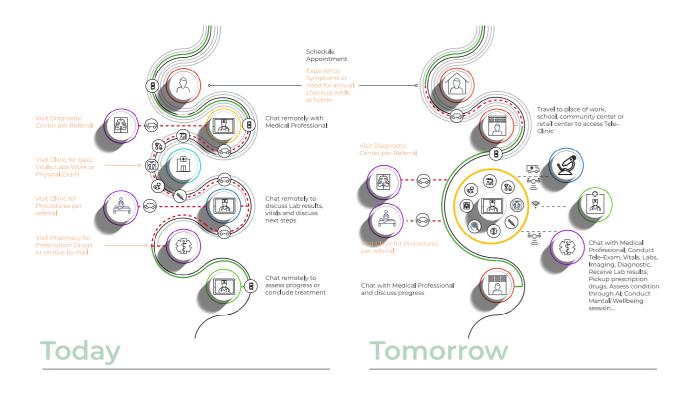
"The current physical infrastructure significantly hinders health services, highlighting a stark disconnect between medical technologies and healthcare design."

20 years 1500 1700 -0-200 years **Hospital Lifespan** 20 years 1700 1500 -0-1456 Ospedale Maggiore, Milan 486 years 1697, Vienna General

Hospital 260 years







Telemedicine has been part of the medical landscape for over 50 years, originating in the late 1960s through initiatives by NASA and the Nebraska Psychology Institute.

Despite its early inception, telemedicine faced numerous barriers that hindered widespread adoption until the onset of the global pandemic.

This crisis transformed telemedicine from a supplementary option to the primary mode of healthcare delivery, enabling patients and physicians to maintain continuity of care under unprecedented conditions.

The pandemic-induced ascendancy of telemedicine demonstrated that this model of care could become an unstoppable force in the healthcare sector. Although many providers swiftly adapted to these changes, the transition revealed that the healthcare system was largely unprepared for such a rapid and comprehensive shift.

By integrating telemedicine into wellness centers and enabling various degrees of mobility, this approach assesses the benefits and shortcomings of connected healthcare. It also offers recommendations for its future, exploring solutions to identified issues through the investigation of both existing and emerging technologies. These innovations could drive forward a new model of care and delineate the role of telemedicine within both the current and future urban contexts.

PROJECT DESCRIPTION

The Wellness Center represents a pivotal endeavor to reintegrate health architecture within the community, not merely as a site of treatment but as an active contributor to the healing process. This project aims to unravel the intricate relationship between architectural environments and health outcomes, situating The Wellness Center within a broader historical, cultural, and architectural framework.

Premised on the concept that a hospital should fundamentally be a place of care, this research focuses on the conceptualization of a groundbreaking healthcare outpatient center. This center challenges traditional hospital confines and fosters a deep connection between individuals and their environments. Moving away from the conventional view of hospitals as recovery factories, this new model proposes a welcoming space that is fully integrated into its community. It serves not only patients but also healthcare workers and local residents, irrespective of their health status. The goal of this study is to find a balance between human-centric and architectural spaces, exploring how their thoughtful integration can amplify the facility's effectiveness and community impact.

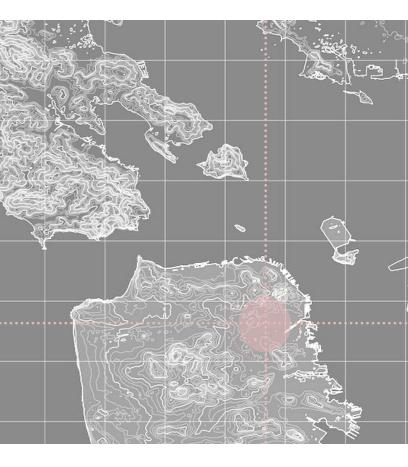
LOCATION

San Francisco has long been recognized for its robust and comprehensive healthcare system. However, as the home of the oldest Chinatown in the United States, its rich history and diverse demographic composition introduce complexities that the data alone may not fully capture.

Situated at the base of Telegraph Hill, nestled between the Coit Tower and the iconic Transamerica Pyramid, this area serves as a crossroads of commercial districts, affordable housing, the Chinatown district, and educational institutions.

San Francisco, known for its varied topography in the Bay Area, is famous for its hills and mountains. This research also delves into the interaction between the American grid system and the topography, examining how the landscape influences the layout of streets and the surrounding buildings.

In this project, we aim to explore the culture of the area, its demographic elements, and how its history has defined and shaped the region.



LOCAL COMMUNITY

In the 1850s, spurred by the allure of the California Gold Rush and the construction of the first transcontinental railroad, large numbers of Chinese immigrants from the Pearl River Delta villages in Guangdong started arriving in San Francisco. They settled in Chinatown, seeking refuge from the hostilities they faced in the West.

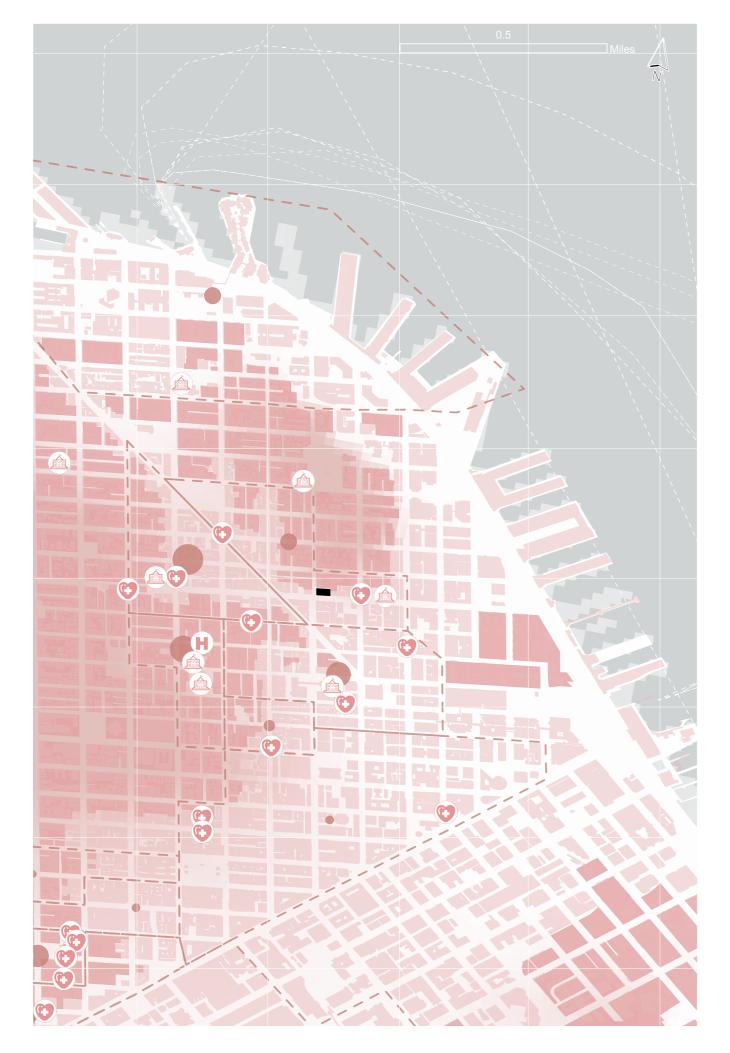
By the late 1960s, working-class emigrants from Hong Kong began arriving in significant numbers. Despite their qualifications and professional statuses in Hong Kong, many accepted low-wage jobs in Chinatown's restaurants and garment factories due to their limited English proficiency.

Faced with overcrowding and poverty, additional Chinese communities were established within San Francisco, including in the Richmond and Sunset districts—with three areas in Sunset alone-and more recently, in the Visitacion Valley neighborhood. These newer neighborhoods mainly house Chinese immigrants from Southeast Asia. Furthermore, numerous suburban Chinese communities have

developed around the San Francisco Bay Area, particularly in Silicon Valley towns like Cupertino, Fremont, and Milpitas, which have attracted many Mandarin-speaking Taiwanese Americans. Despite the growth of these suburban and outer city communities, many residents still travel to Chinatown for shopping, leading to significant traffic congestion and public transit delays, especially on weekends.



SITE OVERVIEW







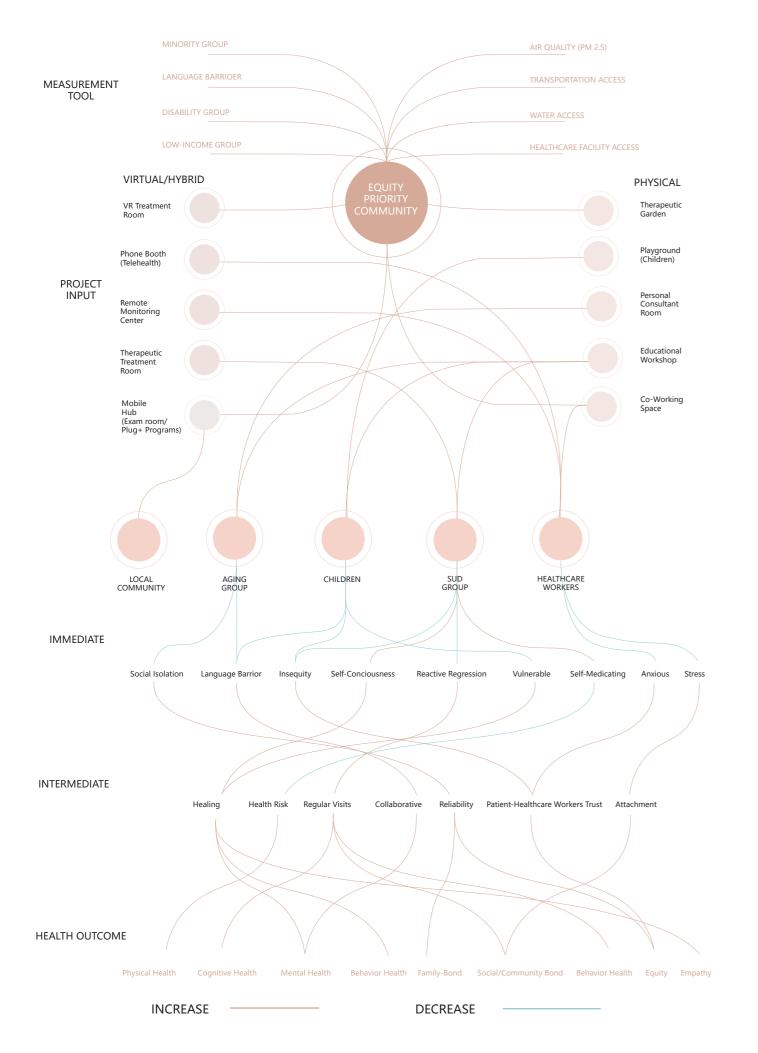
Located within the "Equity Priority Community," our site is near the Chinatown area of San Francisco, surrounded by educational and clinical infrastructures.

The site's bustling nature highlights potential transportation needs and commuting functionalities.

These maps are designed to spark a discussion on the accessibility of healthcare services, educational institutions, and green parks from the site.

CLINICS	
HOSPITALS	H
SCHOOLS	
SITE	
elders population (%)	
EQUITY PRIORITY COMMUNITY	
HOUSING DISTRICT:	
single housing	
mixed-use housing	
PUBLIC TRANSPORTATION	
PUBLIC PARKS	

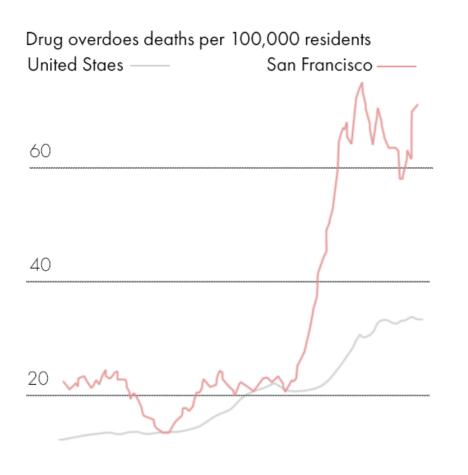
ANALYSIS



By assessing the public facilities of the Equity Priority Community in San Francisco, we use specific measurement tools to explore the dimensions that impact the studied area, particularly Chinatown. The logic model outlines the inputs that warrant examination.

Two types of inputs are under investigation: virtual/hybrid and physical. The groups studied include the local community, the elderly, children, individuals with substance use disorders (SUD), and healthcare workers.

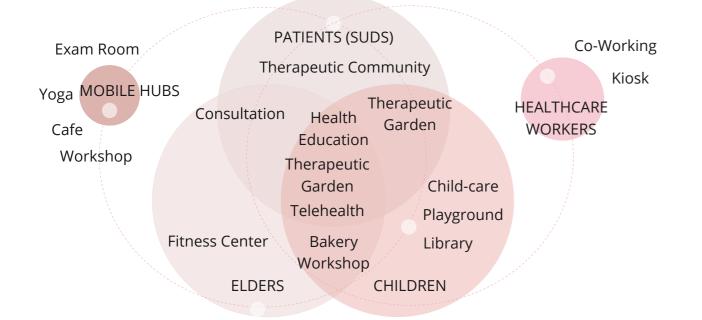
This approach anticipates varying responses to these inputs. We are analyzing the effects across different stages, including immediate, intermediate, and health outcomes, to ensure the effectiveness and reliability of the input programs.



2010	2012	2014	2016	2018	2020	2022

12-motn rolling averages. Drug death numbers for 2023 are provisional. Source: CDC WONDER By The New York Times

CDC data resources shows there's a surge of Drug overdose deaths in San Francisco in 2023 compared to the average numbers of the United States



Three key groups are investigated patients, healthcare workers, and the community-with the goal of developing components that complement each other synergistically.

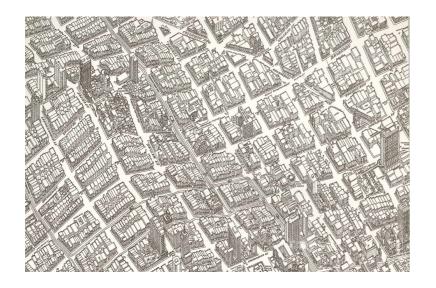
For patients, understanding the expectations, engagement, and consumerism associated with outpatient centers informs the design process, ensuring unique experiences that contribute to healing environments.

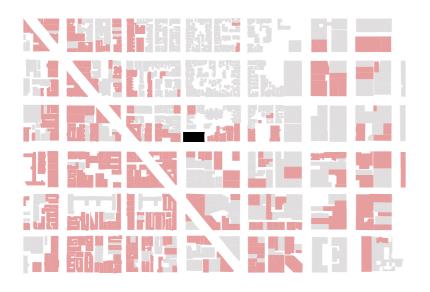
Addressing the longstanding shortages of nurses and physicians, the research emphasizes strategies for creating spaces that surpass traditional norms for healthcare workers. This includes seamless experiences, co-working spaces that support social networks and collaboration, and comfortable resting areas tailored to the working schedules of healthcare professionals. A 2018 'healthy office' study by the CBRE

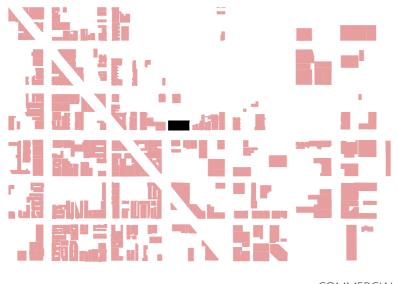
showed that when office workers were given time and space to rest, practice yoga and meditate, their productivity increased by 16%. Additionally, after taking these relaxing steps, 66% of the participants reported feeling more energized, 63% happier and 53% healthier, showing how making time for rest can actually improve output.

Considering the regional characteristics of the hospital in relation to the serving community, the study exploreshow to design spaces that integrate with local needs, promoting community well-being by not only providing post-illness treatment but also focusing on preventive holistic health measures.

PROJECT DETAILS

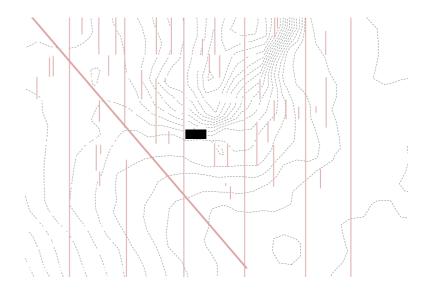


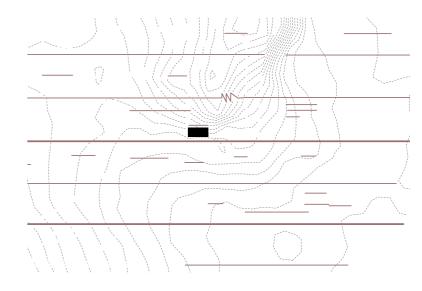


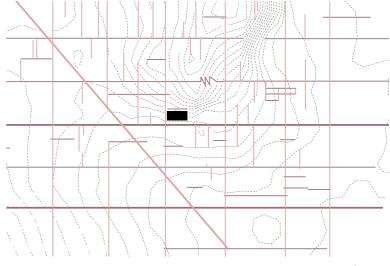


COMMERCIAL

RESIDENTIAL

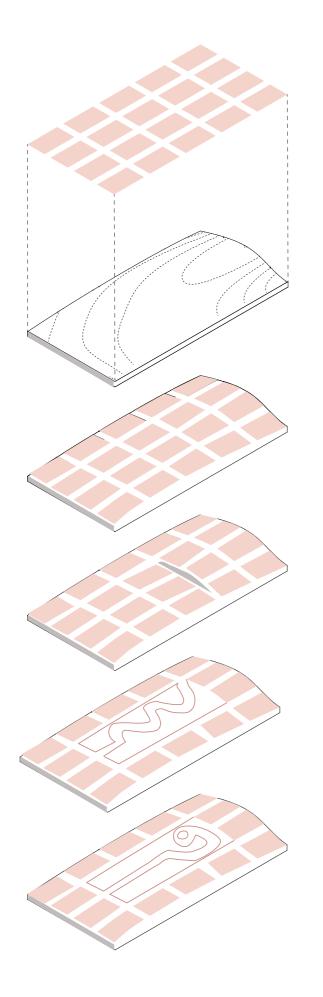








URBAN TISSUUE

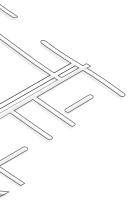


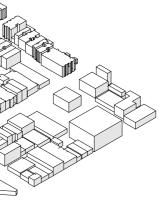
SAN FRANCISCO URABN GRID FRACTURE

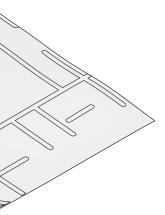
SITE CONDITION

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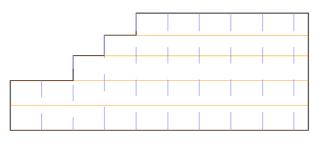




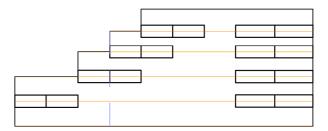




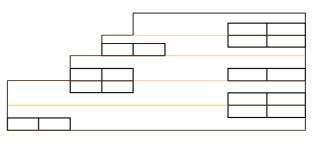
GRIDS



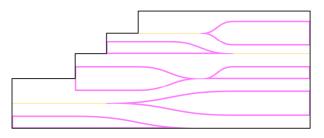
STEPS



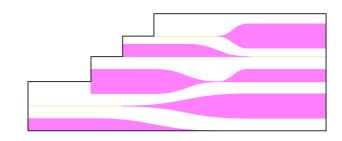
VOLUMES



MOVEMENTS



FUIDITY



TOPOGRAPHICAL MOVEMENT IN ELEVATION

OPEN VS CLOSED







SITE CONDITION

POETRY

LINES ON A POSTCARD OF LOMBARD STREET, SAN FRANCISCO

From Dick Hamby

In the colored picture of "The Crookedest Street over spill azaleas and zinnias where "World The In the curbs, and cars full of tourists zig-zag past them forgive can I , real be can't it bright so sunlight in anything, even you, staggering down the sloping switchbacks, again lost are you until hills ragged the over striding on the slippery dock or looking out through the fog, trying , you behind weaving left you land the from away to get back to the sea, 1954, when you were drunk , Street Hotel of Hero the as happy and mate bo's'n any as Honolulu. And I can remember the night we went to hear

sang and ,Sound Puget above restaurant seafood a at poet the

in the aisle despite warnings again and again by a man trip the And .didn't but ,police the call he'd said who

home sliding around curves while you shouted directions both in held you Scotch the as rich and deep as darkness in

of the earth, as mudslide, earthquake, or simply our breath words these or stars frozen the like us above disappearing in the backwash of whatever we imagined would keep us afloat.

THOMAS BRUSH

hands so it wouldn't spill. So, let's drink to leaving remembered , memories treasured anyone's and behind beach the

or invented. And here's to the last wobbly song, and the last edge soggy the off sailing goes everything when day sweet

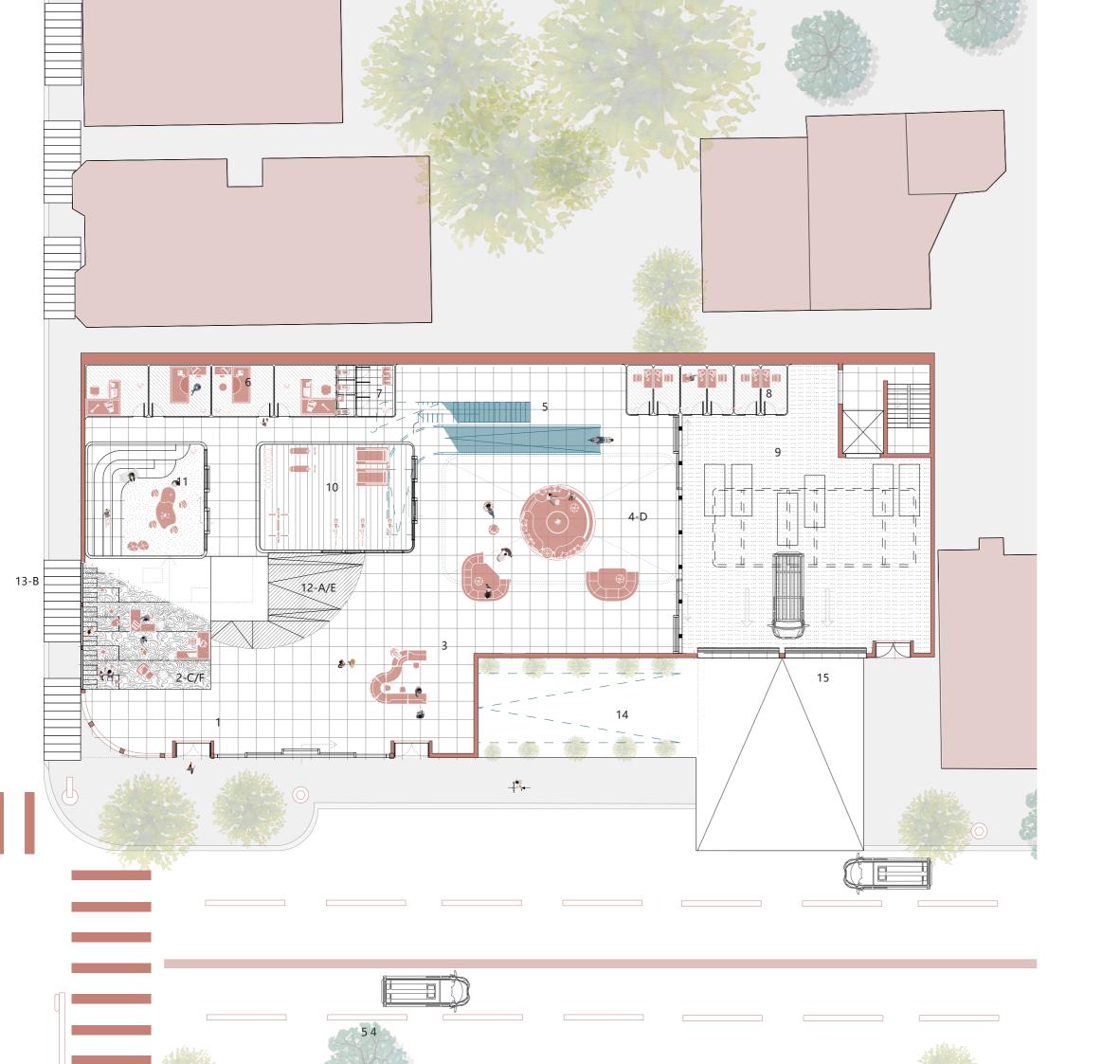


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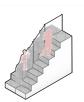


AXON VIEW from Google Earth

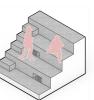




A STAIRS AND RAMP



B INSIDE-OUT STAIRS



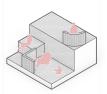
C STAIRS OF KNOWLEDGE



D CHILDREN PLAYGROUND



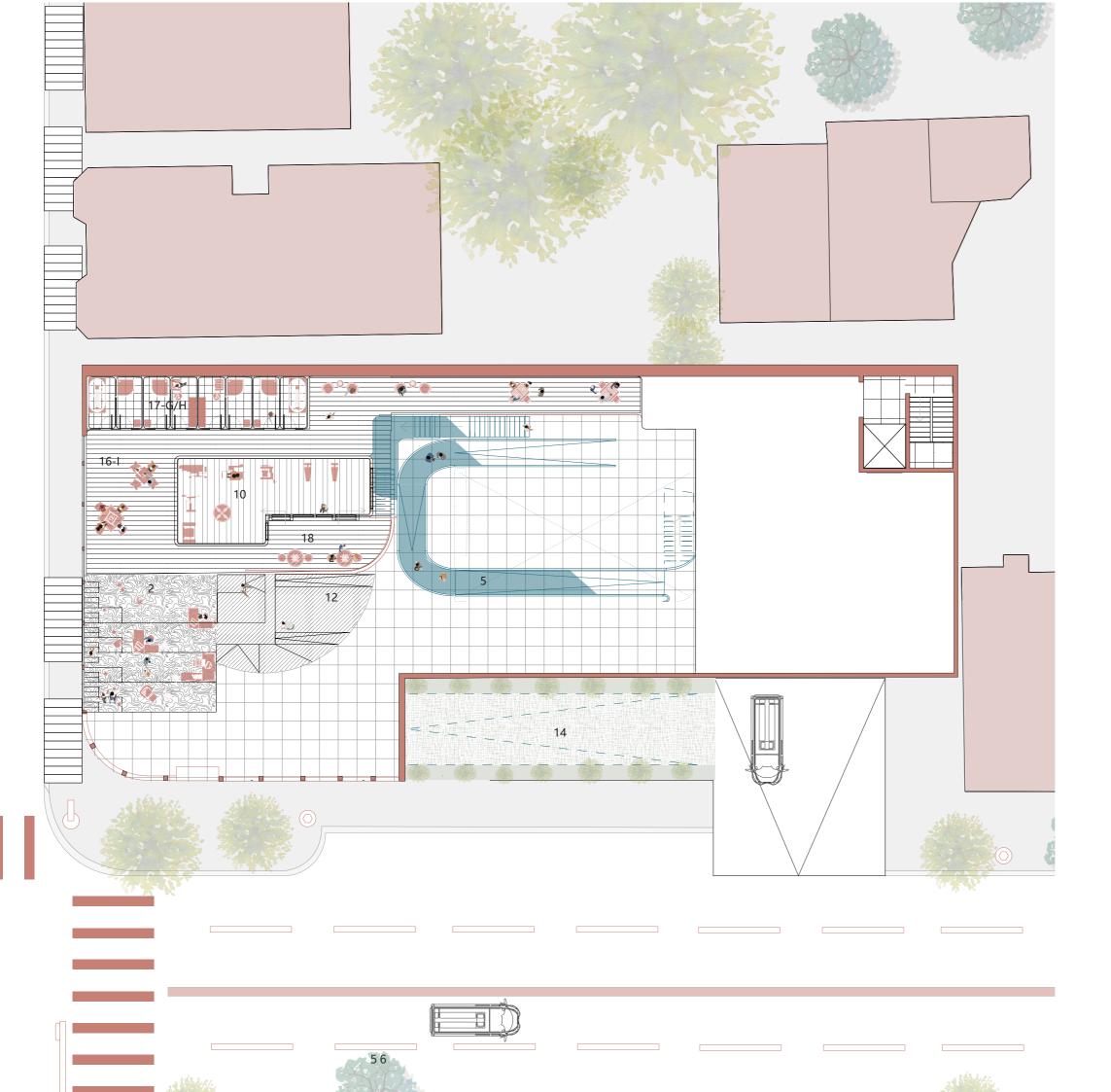
E CHILDREN CLIMBING RAMP



F SELF-STUDYING STAIRS

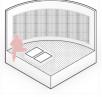
- 1. MAIN ENTRANCEC
- GRANT STARIS 2.
- 3. RECEPTION
- CHILDCARE AREA 4.
- STAIRS/RAMPS TO THE SECOND 5. FLOOR
- CONSULTANT ROOMS 6.
- RESTROOMS 7.
- 8. OFFICES
- 9. MOBILE WORKSHOP
- 10. REHABILIATATION GYM
- 11. LIBRARY
- 12. CLIMBING RAMP
- 13. EXISTING STAIRS (OUTDOOR)
- 14. ROOF TOP RAMP
- 15. ENTRANCE OF WORKSHOP







G SOMNIA-SAUNA



H E-CHESS



GRANT STARIS
STAIRS/RAMPS TO THE THIRD

FLOOR

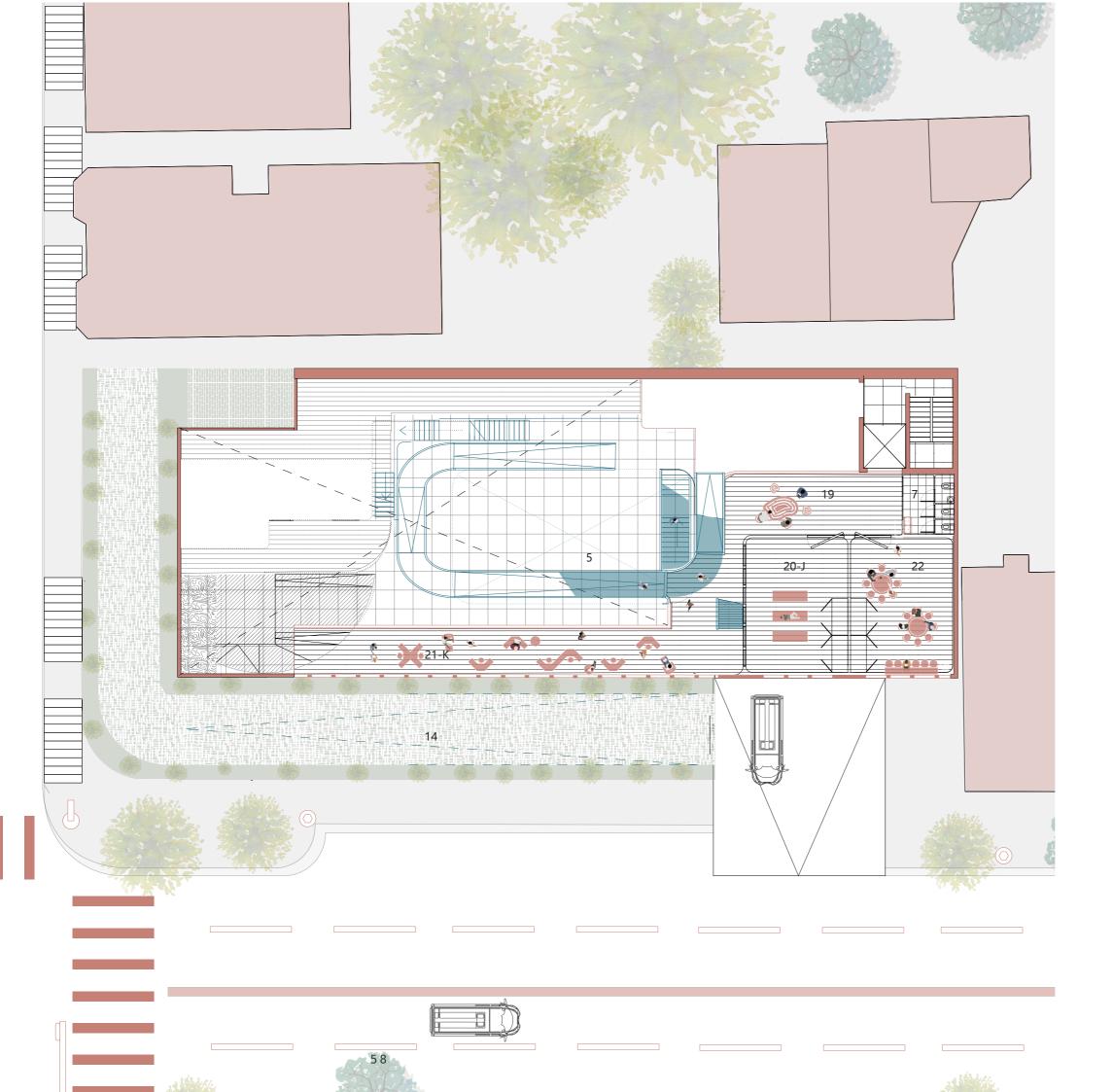
10. REHABILIATATION GYM

CLIMBING RAMP 12. EXISTING STAIRS (OUTDOOR) 14. ROOF TOP RAMP

CHESS COMPETITION
SAUNA/SHOWER THRAPY

18. CAFE





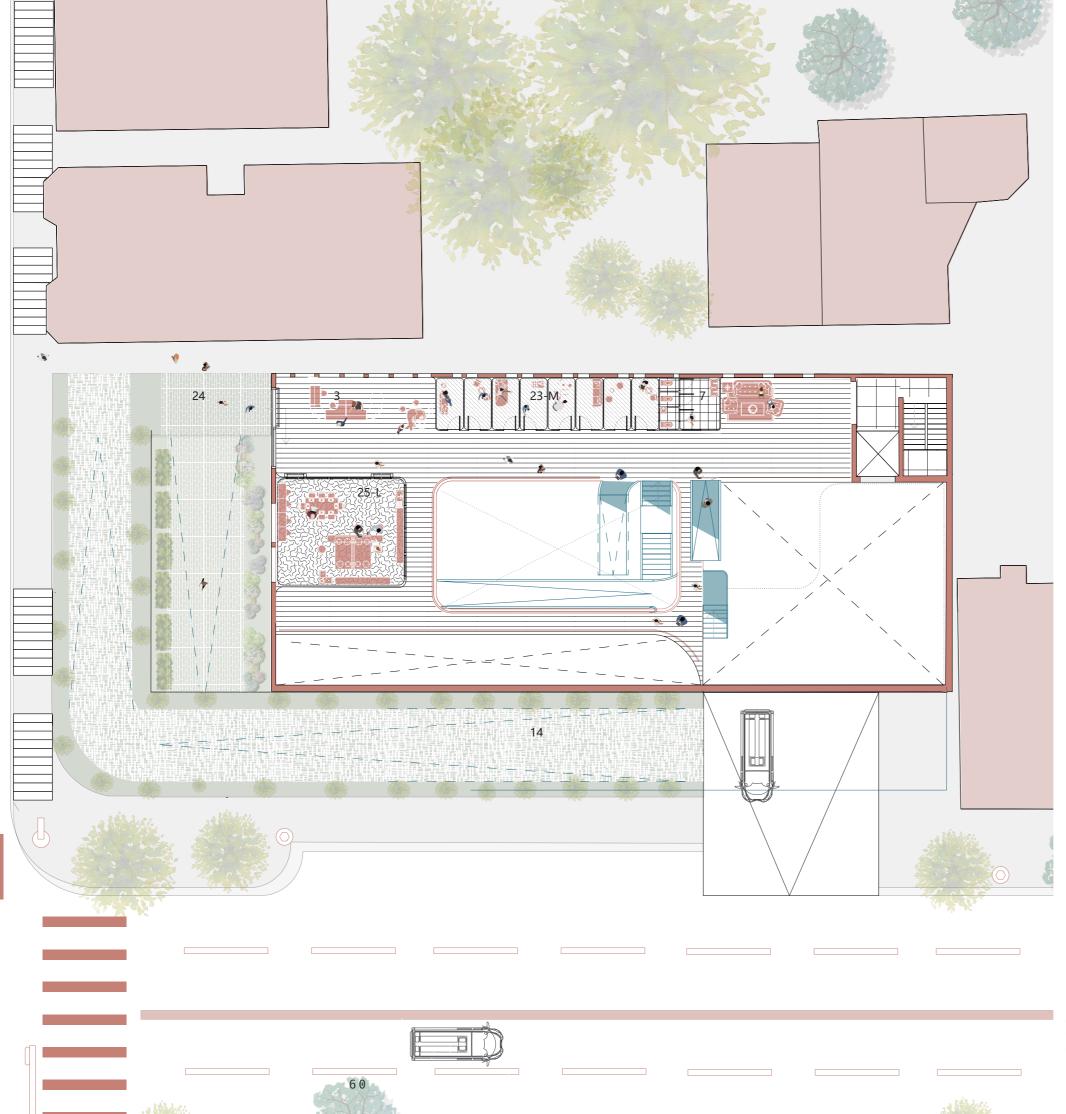


J YOGA MEDITATION IMMERSIVE VR ROOM



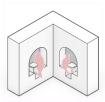
STAIRS/RAMPS TO THE THIRD FLOOR
RESTROOMS
ROOF TOP RAMP
TEA CEREMONY
MEDITATION ROOM
CO-WORKING SPACE
MEETING ROOM







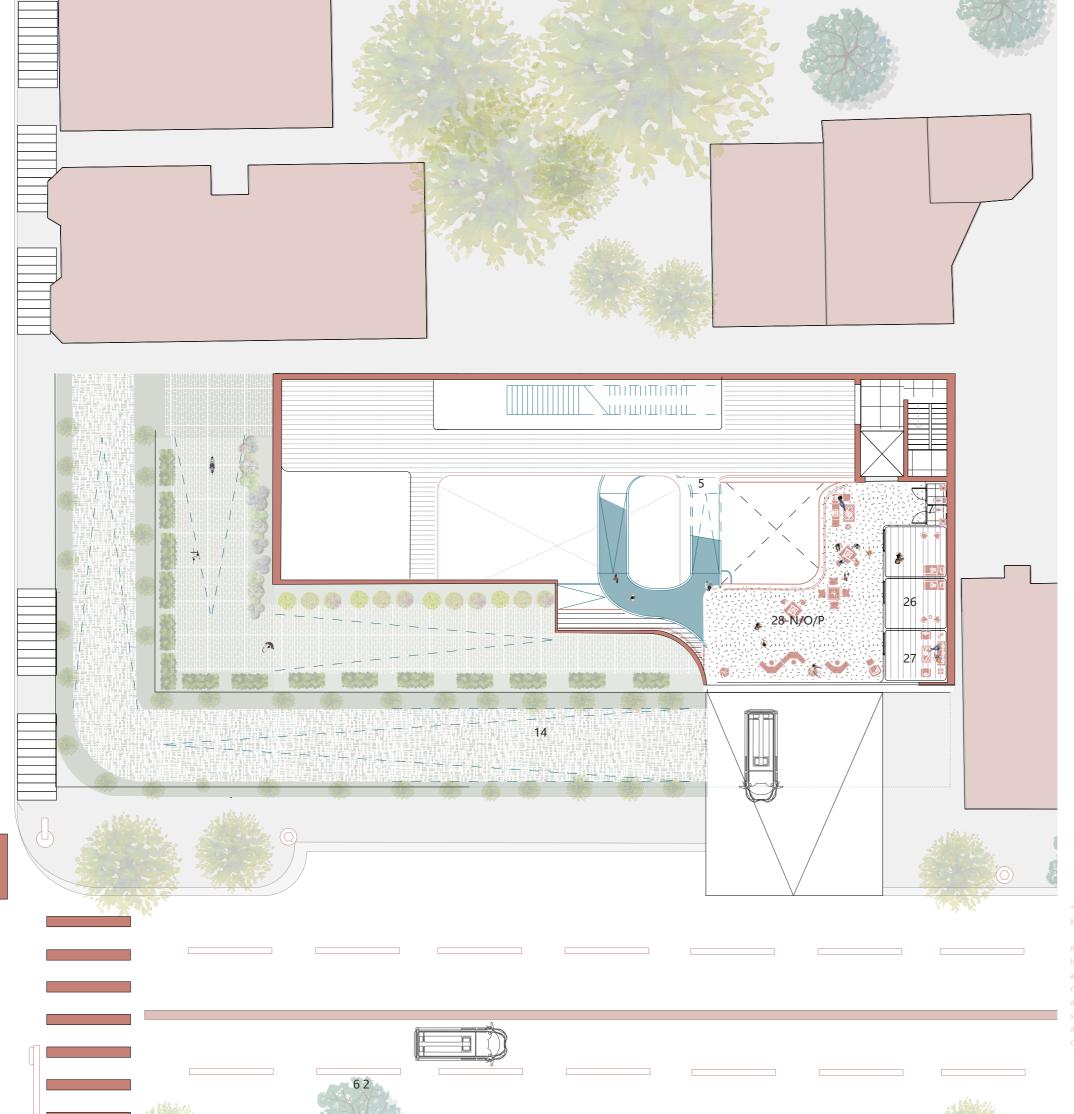
L CULINARY ROOM VIRTUAL EDUCATION



M WHISPER WALLS

 RECEPTION
STAIRS/RAMPS TO THE FORTH FLOOR 7. RESTROOMS 14. ROOF TOP RAMP 23. ADL* THERAPY SUITE 24. ENTRANCE TO THE THIRD FLOOR 25. CULINARY/BAKRY WORKSHOP





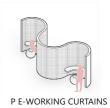
*SNOEZELEN MULTISENSORY

help reduce agitation and anxiety, but they can also engage and delight the user, stimulate reactions and encourage communication.





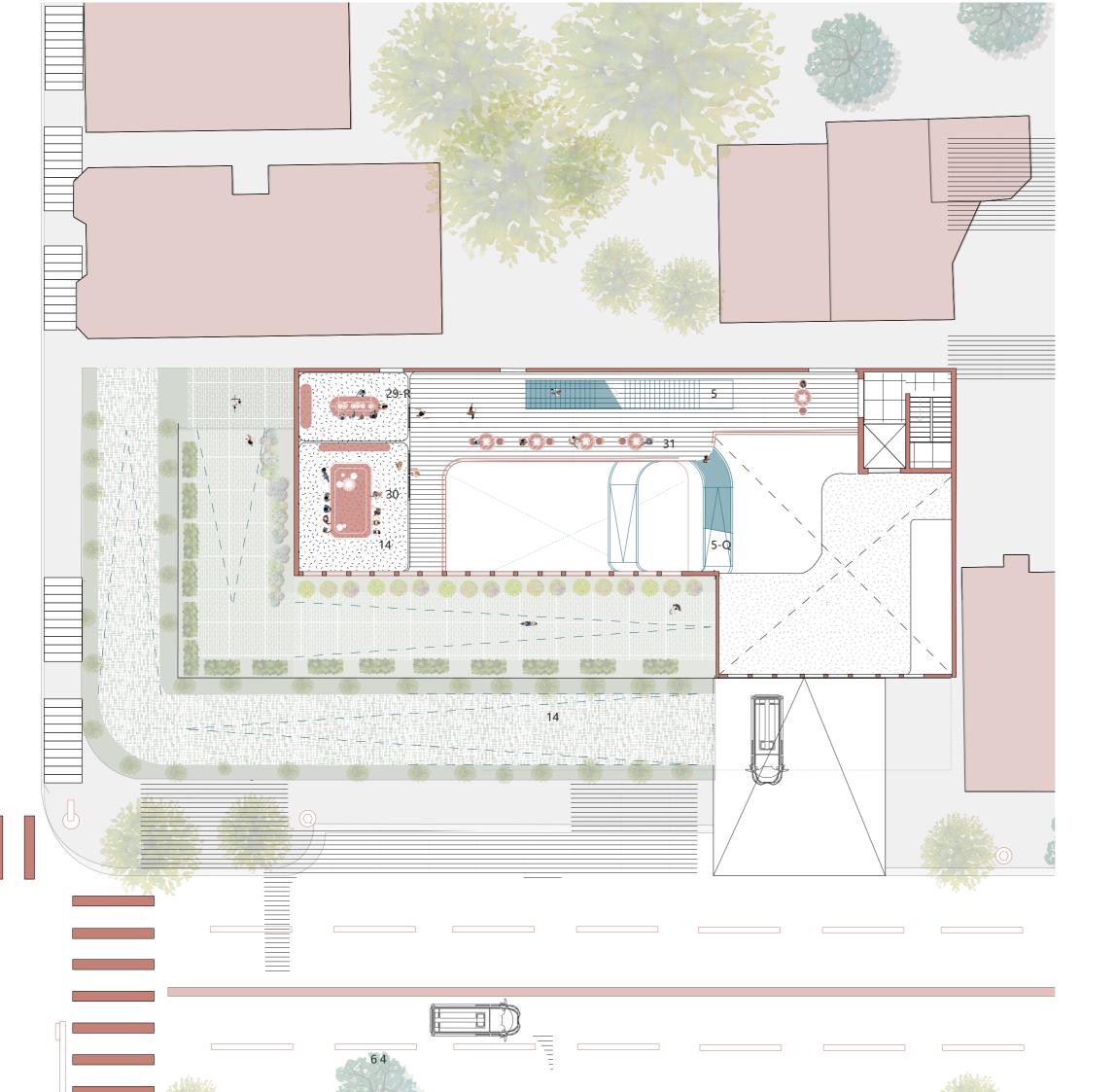
O IMMERSIVCE AUDITORIUM



 STAIRS/RAMPS TO THE FIFTH-FLOOR
RESTROOMS
ROOF TOP RAMP
SNOEZELEN MULTISENSORY ROOM*
VIRTUAL WORK STATION
CO-WORKING LONGE

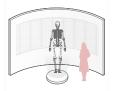
FOURTH FLOOR PLAN 1″ = 20 ′







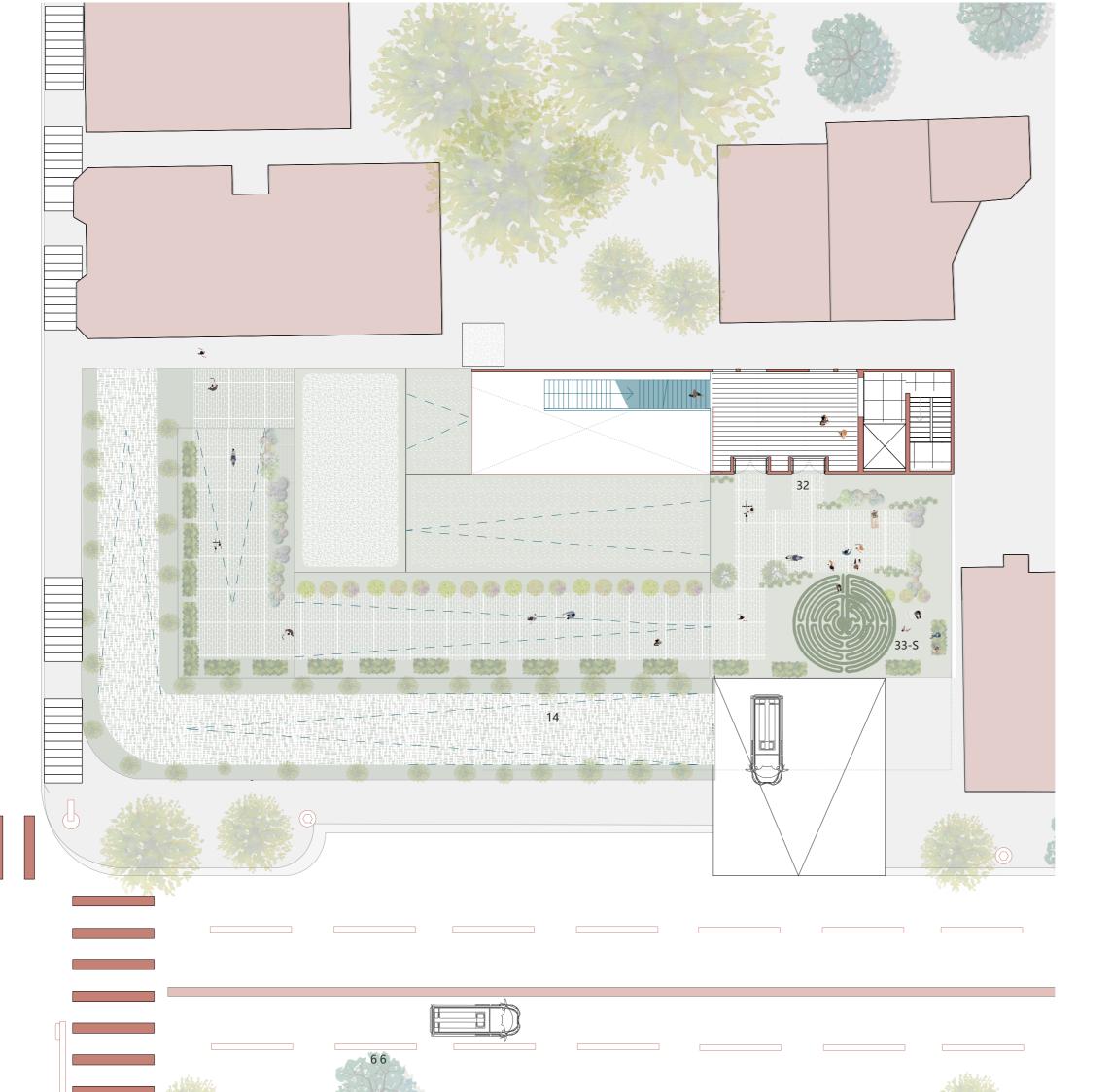
Q EDUCATIONAL RAMP



R VIRTUAL WORKING STATION

5. STAIRS/RAMPS TO THE SITH-FLOOR 14. ROOF TOP RAMP 29. MEDIUM SIZE CONFERENCE ROOM 30. LARGE SIZE MULTIPURPOSE ROOM 31. DINING AREA





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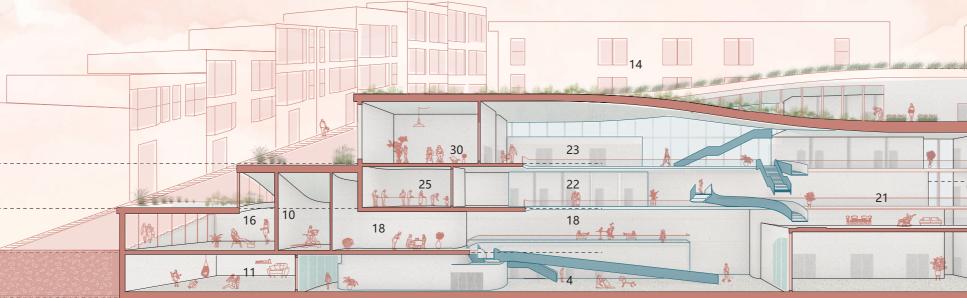


S GETAWAY HEALING GARDEN

ROOF TOP RAMP
ENTRANCE TO THE ROOF TOP
GARDEN
ZEN LABYRINTH

SIXTH FLOOR PLAN 1″ = 20′





1.MAIN ENTRANCEC 2.GRANT STARIS 3.RECEPTION 4.CHILDCARE AREA 5.STAIRS/RAMPS TO THE SECOND FLOOR 6.CONSULTANT ROOMS 7.RESTROOMS 8.OFFICES 9.MOBILE WORKSHOP **10.REHABILIATATION GYM**

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SECTION a

1″ = 20

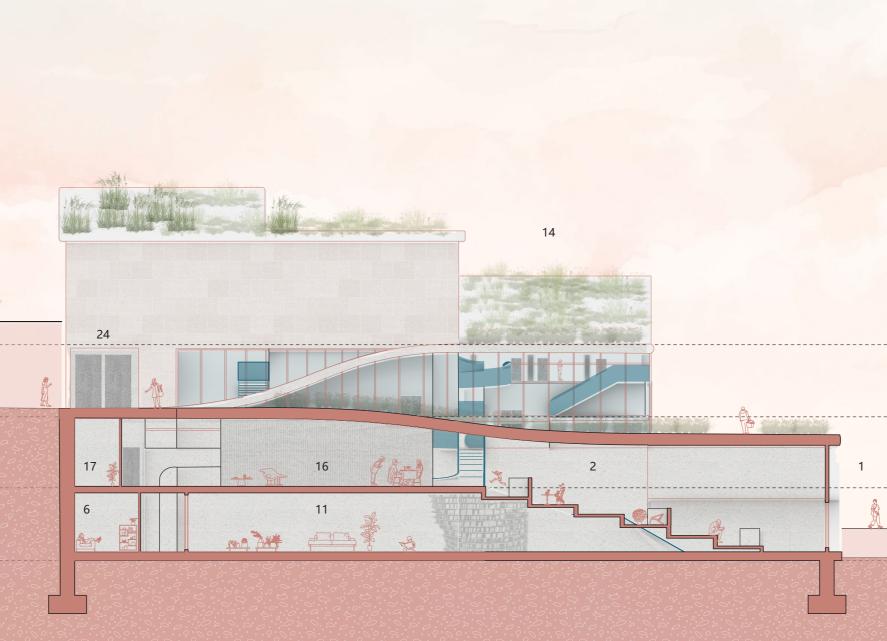
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31.DINING AREA 32.ENTRANCE TO THE ROOF TOP GARDEN 33.ZEN LABYRINTH





25

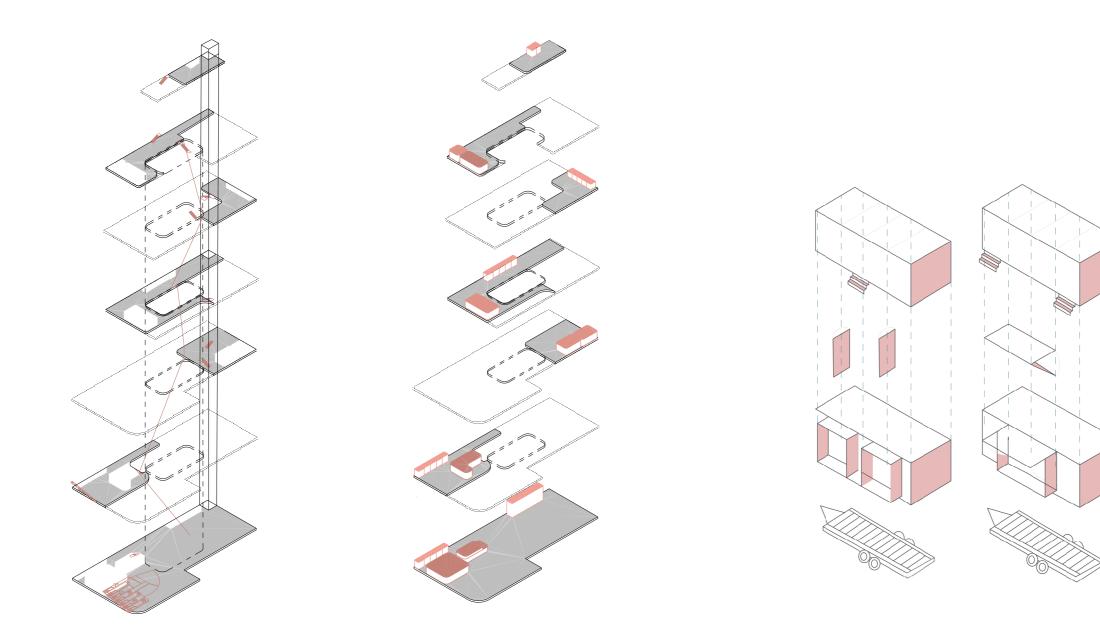
1.MAIN ENTRANCEC 2.GRANT STARIS **3.RECEPTION** 4.CHILDCARE AREA 5.STAIRS/RAMPS TO THE SECOND FLOOR 6.CONSULTANT ROOMS 7.RESTROOMS 8.OFFICES 9.MOBILE WORKSHOP 10.REHABILIATATION GYM 11.LIBRARY 12.CLIMBING RAMP 13.EXISTING STAIRS (OUTDOOR) 14.ROOF TOP RAMP 15.ENTRANCE OF WORKSHOP **16.CHESS COMPETITION** 17.SAUNA/SHOWER THRAPY 18.CAFÉ 19. TEA CEREMONY 20. MEDITATION ROOM 21.CO-WORKING SPACE 22.MEETING ROOM 23.ADL* THERAPY SUITE 24.ENTRANCE TO THE THIRD FLOOR 25.CULINARY/BAKRY WORKSHOP 26.SNOEZELEN MULTISENSORY ROOM* 27. VIRTUAL WORK STATION 28.CO-WORKING LONGE 29.MEDIUM SIZE CONFERENCE ROOM 30.LARGE SIZE MULTIPURPOSE ROOM 31.DINING AREA 32.ENTRANCE TO THE ROOF TOP GARDEN 33.ZEN LABYRINTH

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SECTION c 1" = 10 ' 1.MAIN ENTRANCEC 2.GRANT STARIS **3.RECEPTION** 4.CHILDCARE AREA 5.STAIRS/RAMPS TO THE SECOND FLOOR 6.CONSULTANT ROOMS 7.RESTROOMS 8.OFFICES 9.MOBILE WORKSHOP 10.REHABILIATATION GYM 11.LIBRARY 12.CLIMBING RAMP 13.EXISTING STAIRS (OUTDOOR) 14.ROOF TOP RAMP 15.ENTRANCE OF WORKSHOP **16.CHESS COMPETITION** 17.SAUNA/SHOWER THRAPY 18.CAFÉ 19. TEA CEREMONY 20. MEDITATION ROOM 21.CO-WORKING SPACE 22.MEETING ROOM 23.ADL* THERAPY SUITE 24.ENTRANCE TO THE THIRD FLOOR 25.CULINARY/BAKRY WORKSHOP 26.SNOEZELEN MULTISENSORY ROOM* 27. VIRTUAL WORK STATION 28.CO-WORKING LONGE 29.MEDIUM SIZE CONFERENCE ROOM 30.LARGE SIZE MULTIPURPOSE ROOM 31.DINING AREA 32.ENTRANCE TO THE ROOF TOP GARDEN 33.ZEN LABYRINTH



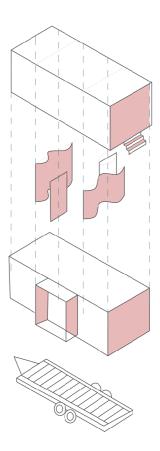
Circulations

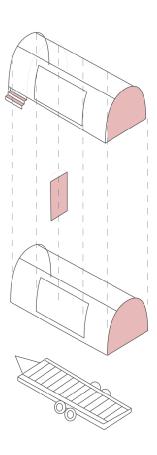
Voulmes

Full Opening

Half Opening

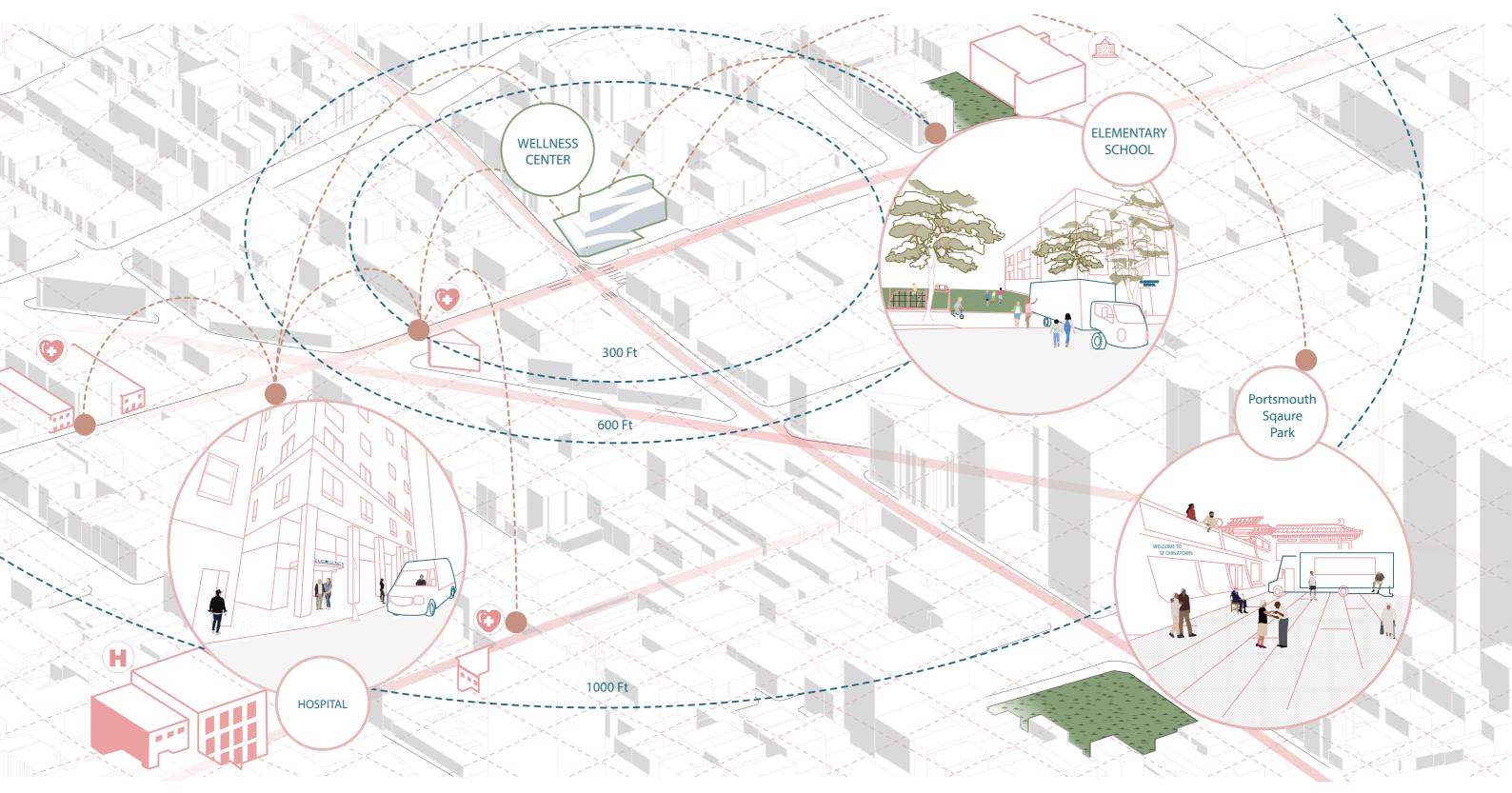
CIRCULATION AND VOLUMES OF THE BUILDING





Samll Opening

Sklylight



HEALTHY COMMUNITY WITH THE WELLNESS CENTER HUBS DISTRIBUTED INTO THE DISTRICTS: HOSPITALS, SCHOOLS, PARKS...



ANNOTATIONS

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