



COMPLEX PROJECTS

BONE HOSPITAL

Medical tourist center in the information society

SzuYin Huang

21/03/2023

Introduction

Research

Design brief

Concept

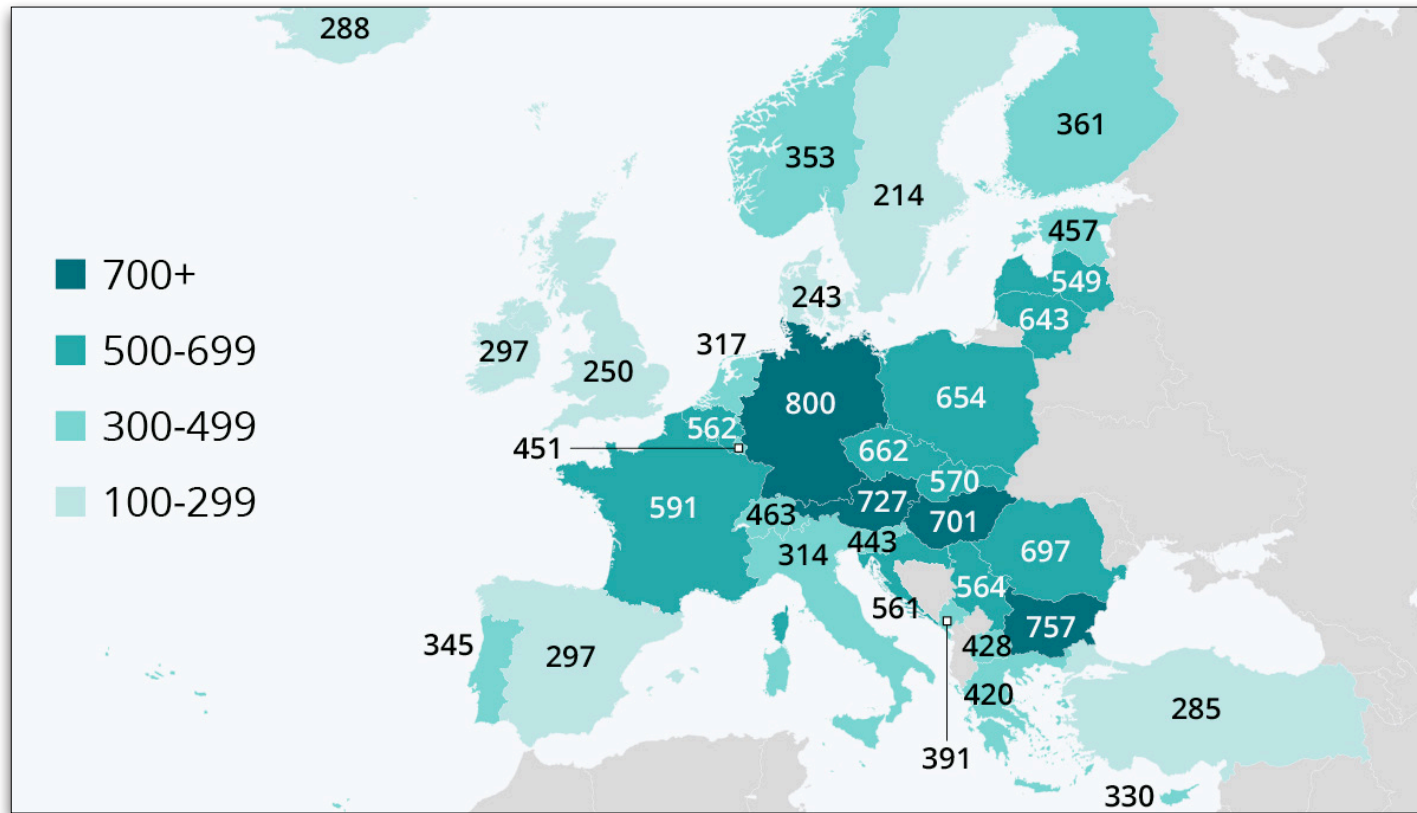
Implementation

Development

Conclusion



EUROPEAN HEALTH CENTER



European hospital bed capacity compared
Available hospital beds per 100,000 inhabitants in 2018*

Well-developed and efficient healthcare system
Public health measures, and the government commitment.

Introduction

MEDICAL TOURISM CITY



Berlin Medical Tourism Guide 1

CAPITAL OF HEALTH: PREMIUM MEDICAL SERVICES IN BERLIN

Berlin's enviable international reputation as a provider of high-end medical services builds on a long tradition. For centuries, Berlin has been a centre of medical and scientific research and can boast a dozen Nobel Laureates in these fields.

As a globally renowned location for medical research and training, Berlin's medical services are not only a magnet for patients, but also attract specialists from across the world, keen to learn more about German expertise in the health care sector at first hand.

Many hospitals, clinics and doctors' surgeries in Berlin are specifically equipped to cater to international patients and their particular needs. Their dedicated International Offices provide all-round support for inquiries and travel, arrange visa applications and work closely with the tourism sector. In many hospitals and clinics, patients and their families are provided with a personal advisor.

In this brochure, *visitBerlin*, Berlin's official tourism organisation in cooperation with the healthcare industry cluster HealthCapital, presents an initial overview of the city's medical services with a selection of hospitals, clinics and specialist surgeries especially focused on providing health care for international patients. To help you with your travel arrangements, we have also included information on some of Berlin's elegant hotels, outstanding sights and top addresses in the German capital.

visitBerlin wishes you an enjoyable stay in Berlin! Our *visitBerlin* team will be glad to answer any questions you may have. For more details, just contact our Service Center on +49 (0)30 25 00 24 81 or visit berlin-health-excellence.de.

Let Berlin take care of you!
We are happy to help – and just a call or email away!

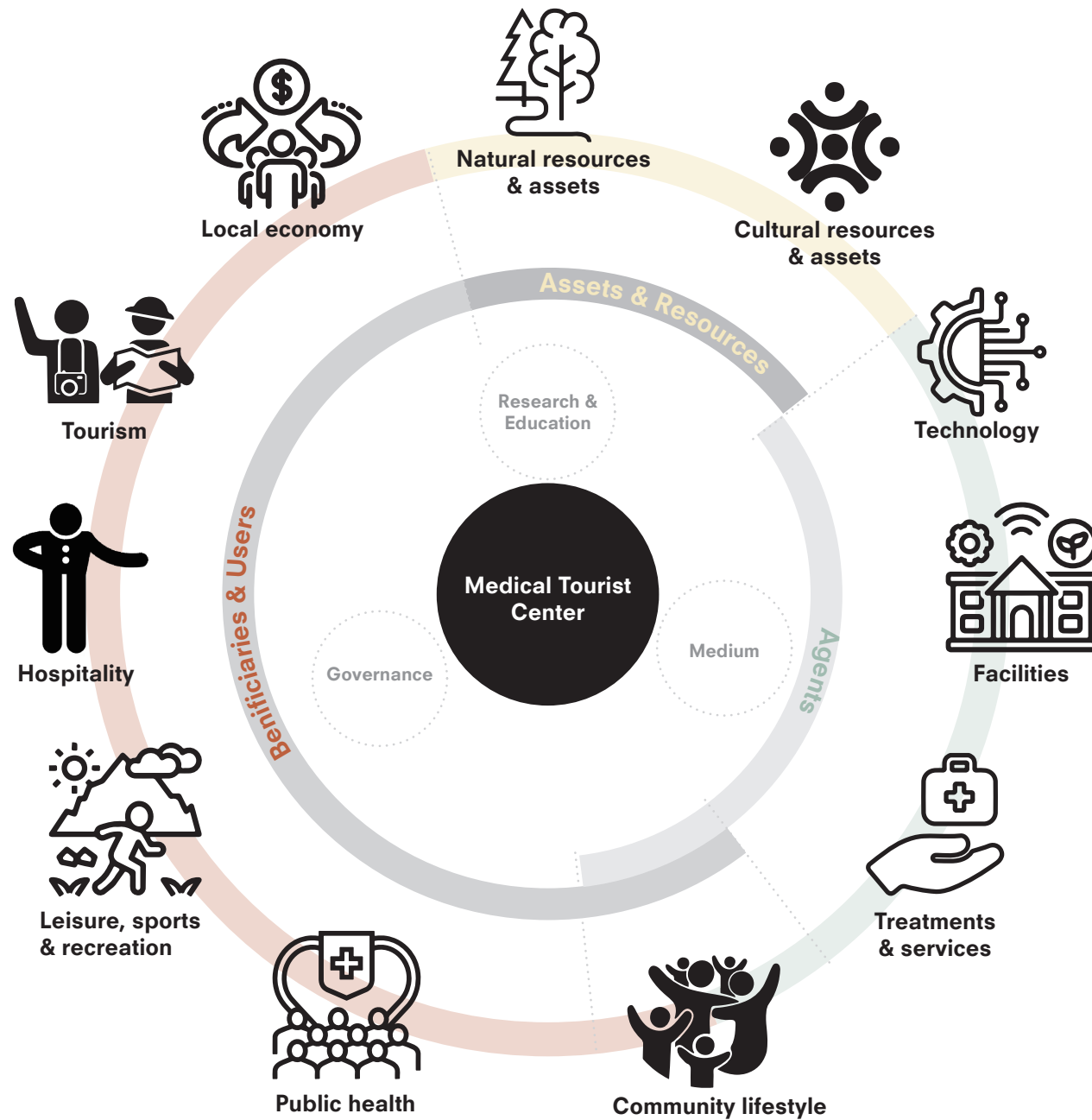
Hotline* for free Berlin advice:
Tel +49 (0)30 25 00 24 81
health@visitBerlin.de

* calls charged at standard rate

berlin-health-excellence.de
visitBerlin.com



BUSINESS MODEL



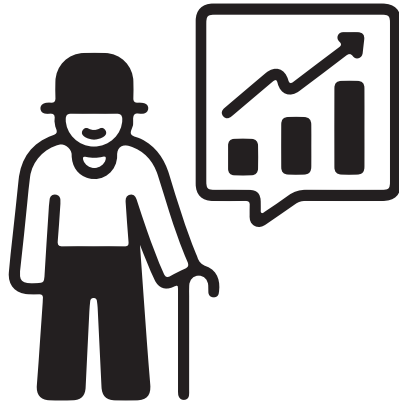
HOSPITAL AS A HEALING HOTEL



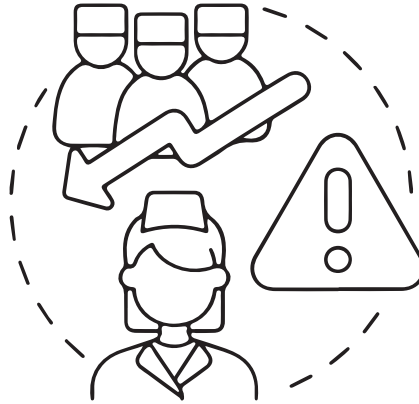
CHALLENGES

Introduction

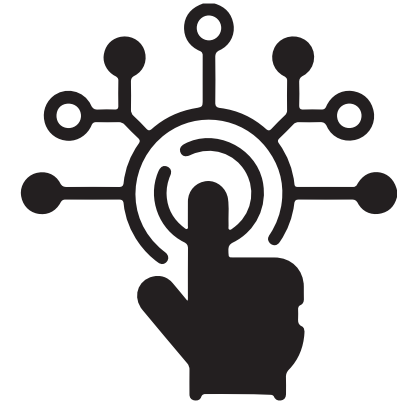
CHALLENGES



Aging population



Health worker shortages



Urgency of healthcare digitalization

RESEARCH QUESTION

**HOW CAN A MEDICAL FACILITY FACILITATE BOTH
PHYSICAL TREATMENT AND MENTAL HEALING
SIMULTANEOUSLY?**

Introduction

Research

Design brief

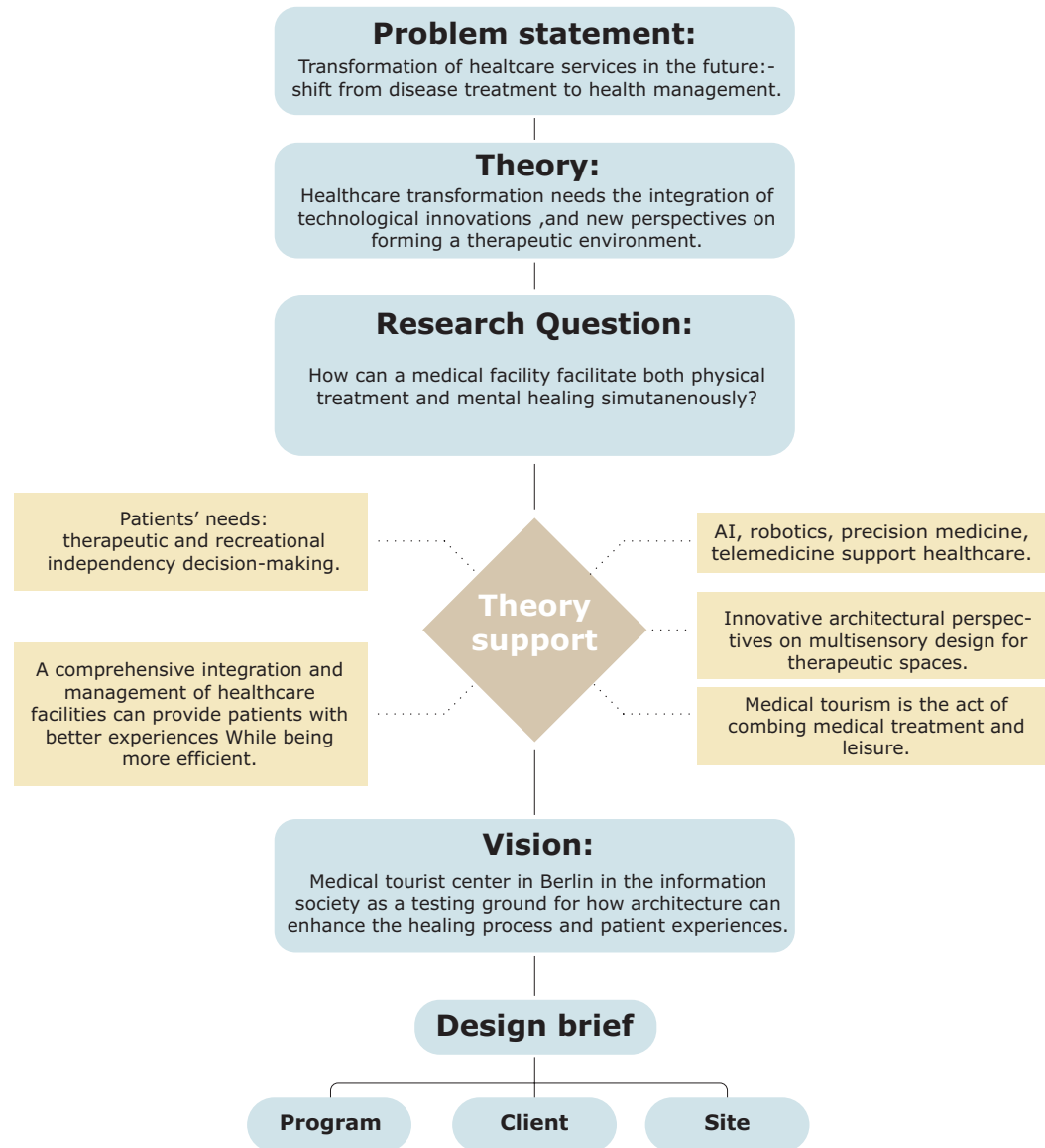
Concept

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Development

Conclusion

Research FRAMEWORK



FLOW

BODY AND BUILDING

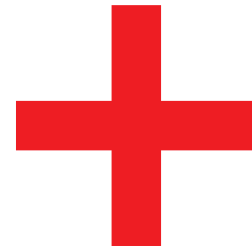
IN HOSPITAL



Body

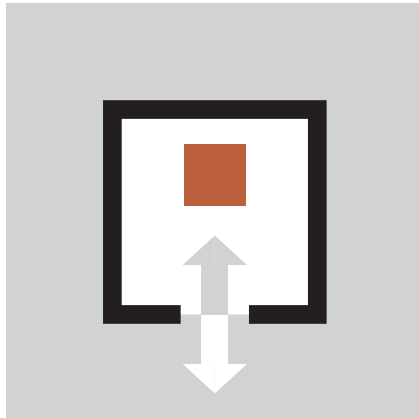


Interconnection



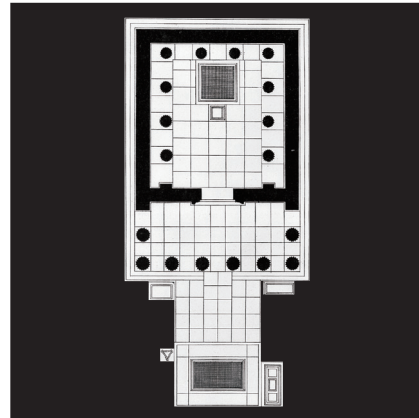
Building

Research
AGRARIAN SOCIETY



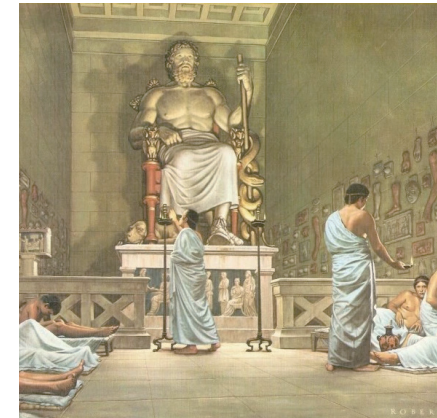
Flows

in-out



Building

Centralization
(Religion centric)

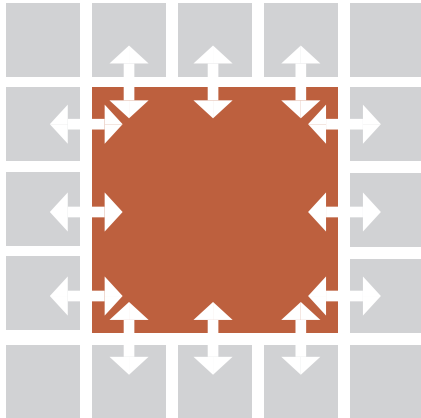


Body

human

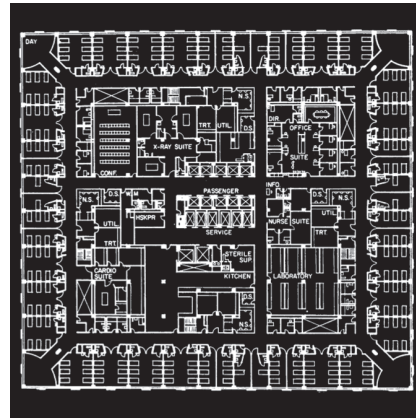
Research

INDUSTRIAL SOCIETY



Flows

rigid



Building

Centralization
(medical centric)

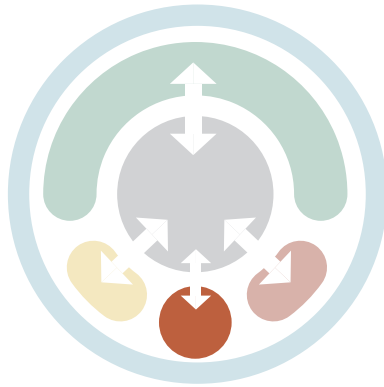


Body

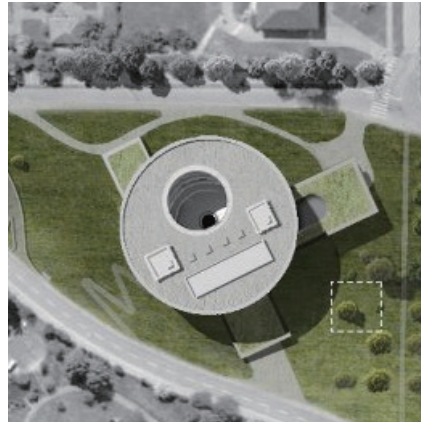
human as object

Research

INFORMATION SOCIETY



Flows
flexible



Building
healing environment



Body
human
data collector

**A HOSPITAL HAS A LIMITED LIFE SPAN, SHORTER
THAN OTHER BUILDING TYPOLOGIES, WHICH IS
USUALLY ATTRIBUTED TO THE DYNAMIC CHARACTER
OF MEDICAL TECHNOLOGY.**

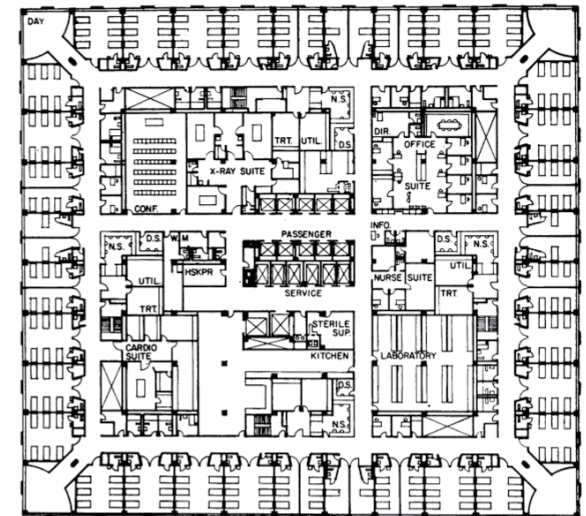
Research

CARE MODEL OF THE 1940-1950

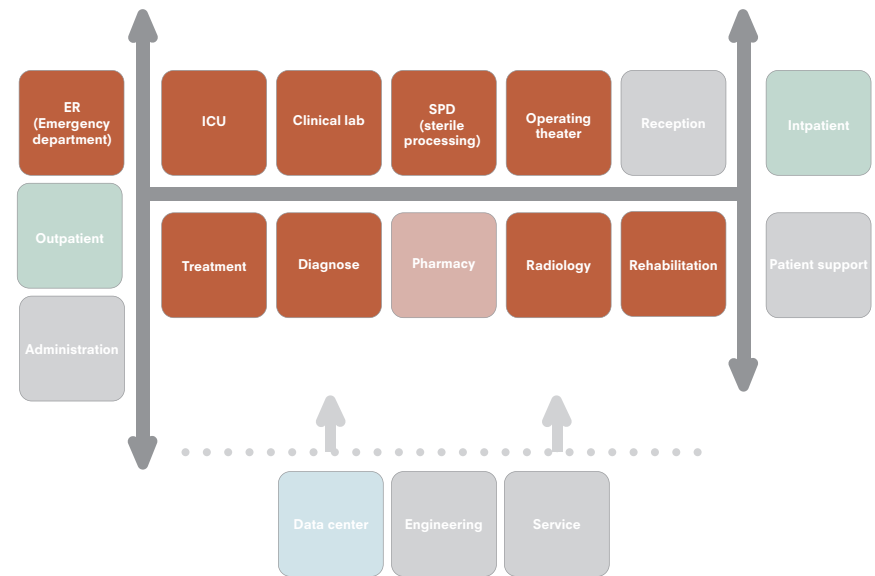
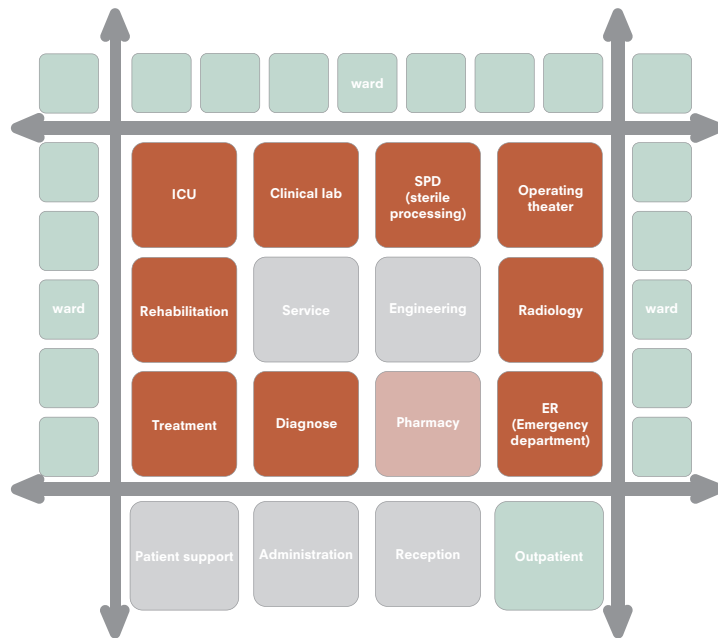


Research

BODY TREATING MACHINE



PROGRAM RELATIONSHIP





Research
VISION

**THE FUTURE CARE MODELS HAVE BEEN
DEVELOPED TO INCREASE THE FUNCTIONALITY
OF MEDICAL PROCESSES WHILE AT THE SAME
TIME BEING CENTERED AROUND THE PATIENTS.**

SUB-QUESTION 1 : HOW CAN HEALTHCARE FACILITIES BALANCE **TREATMENT** AND **LEISURE** TO ACHIEVE THE ULTIMATE MENTAL AND PHYSICAL HEALING?



SUB-QUESTION 2 : HOW CAN ARCHITECTURE ENHANCE PATIENTS' **AUTONOMY** DURING THEIR RECOVERY PROCESS?

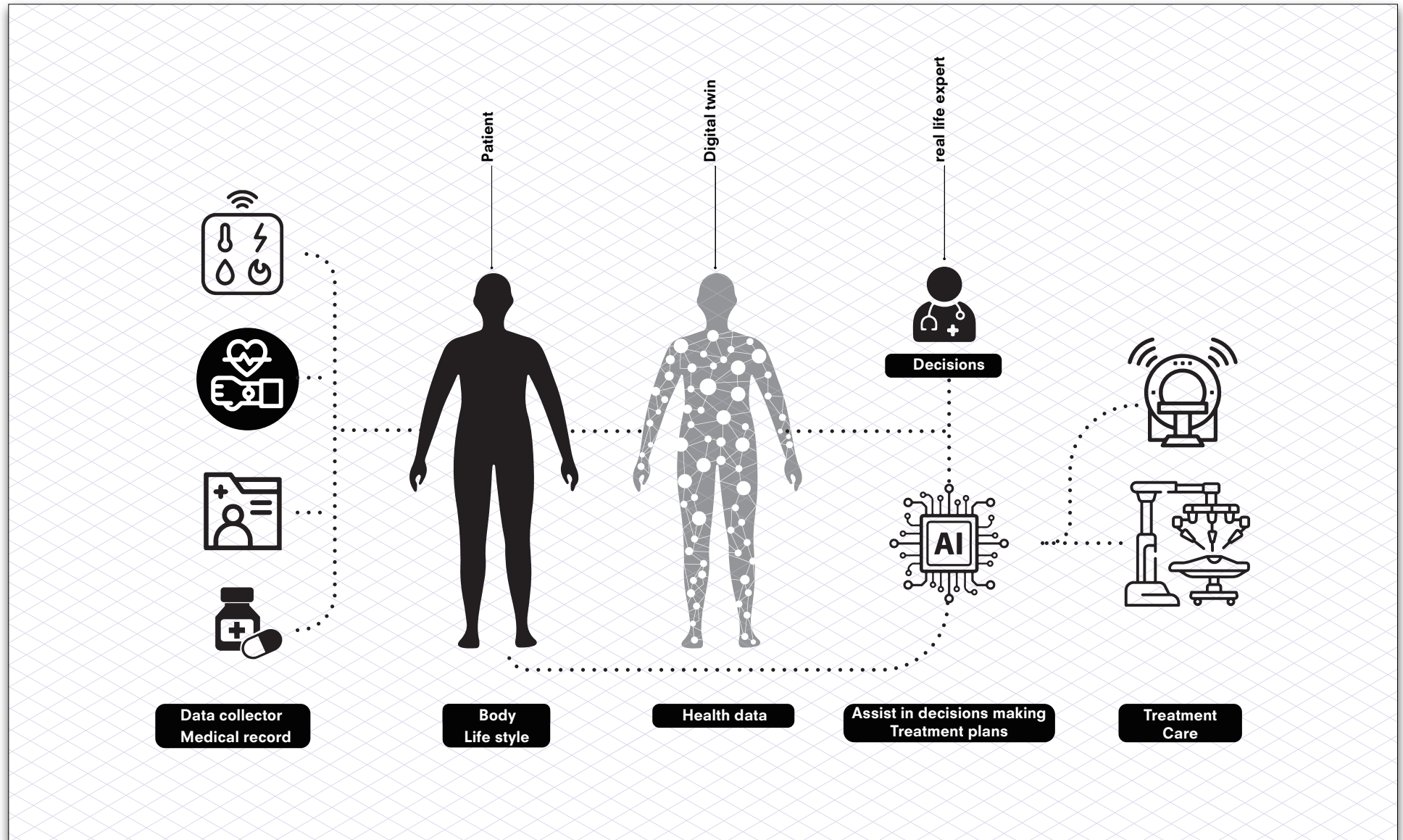


SUB-QUESTION 3 : **HOW CAN MEDICAL FACILITIES SUPPLEMENT TECHNOLOGY** **TO ACHIEVE THE MOST EFFICIENT AND QUALITY SERVICE?**



Research

DATA BASED SYSTEM





Introduction

Research

Design brief

Concept

Implementation

Development

Conclusion

Design brief

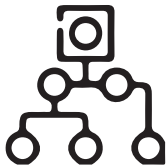
BENCHMARKING



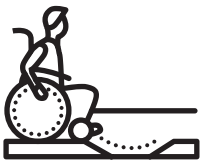
Capacity



Program



Flows



Autonomy



Therapeutic
environment

XL

University hospital

M-L

General hospital

M-L

Specialized hospital

S

Clinic



Children's Surgical Hospital
Location: Entebbe, Uganda
GFA: 9695 m²
Building stories: 2
Beds: 66



JESSA Hospital
Location: Hasselt, BE
Size: 136.000 m² hospital, 61.000 m² parking



Basal rehabilitation center
GFA 23429 m²
Gross volume 105000 qm
Usable area 15451 m²



Vals therme
GFA 3600 m²
Usable area 3022 m²



Maggie's centre Manchester
GFA 730 m²



Maggie's centre Leeds
GFA 100 m²

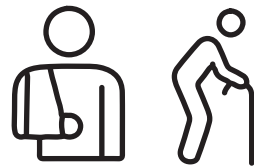
Design brief

USER GROUP

Independent



Slightly impaired



Significantly impaired

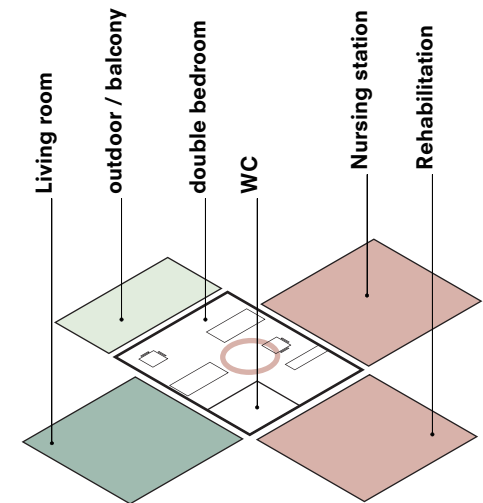
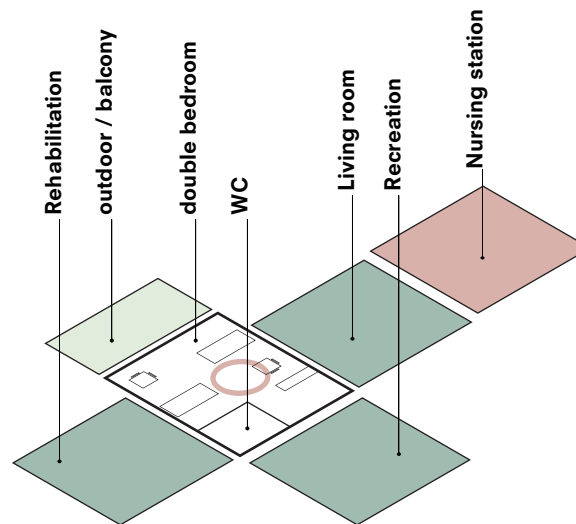
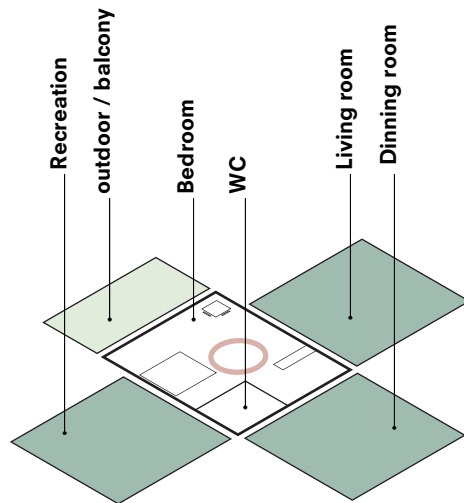


Severely impaired
Disabled



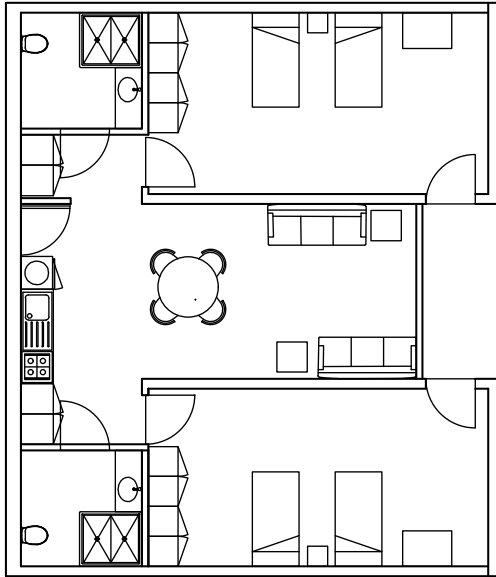
Leisure

Medical care

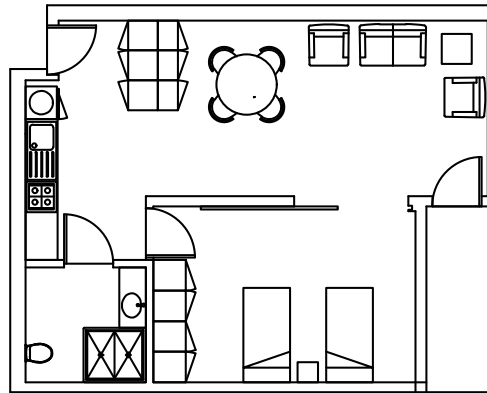


Design brief

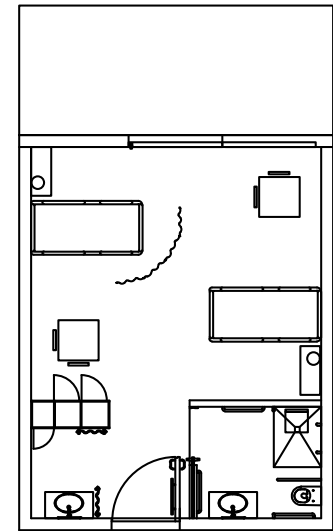
ROOM TYPOLOGIES



self-serve



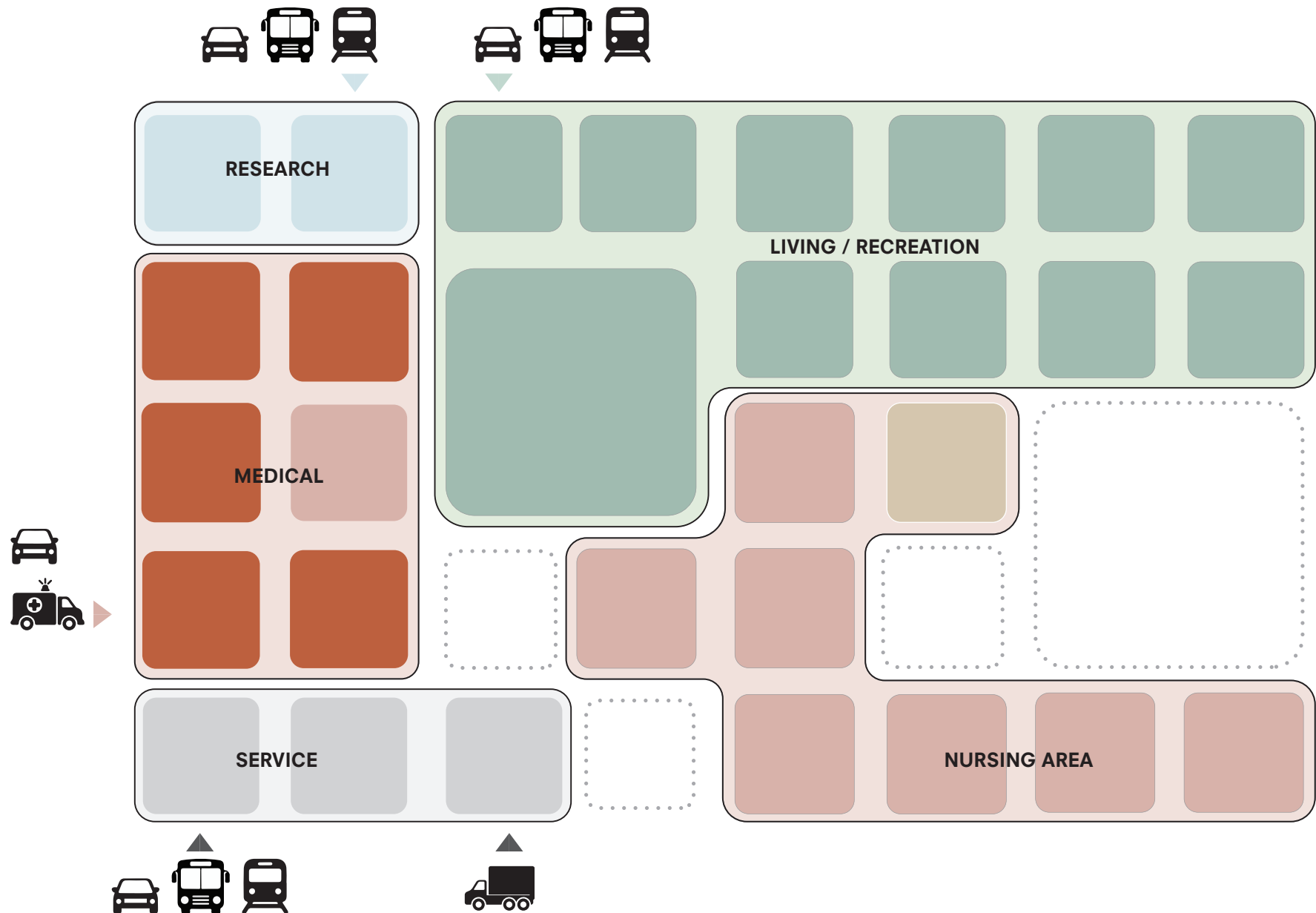
semi-disabled



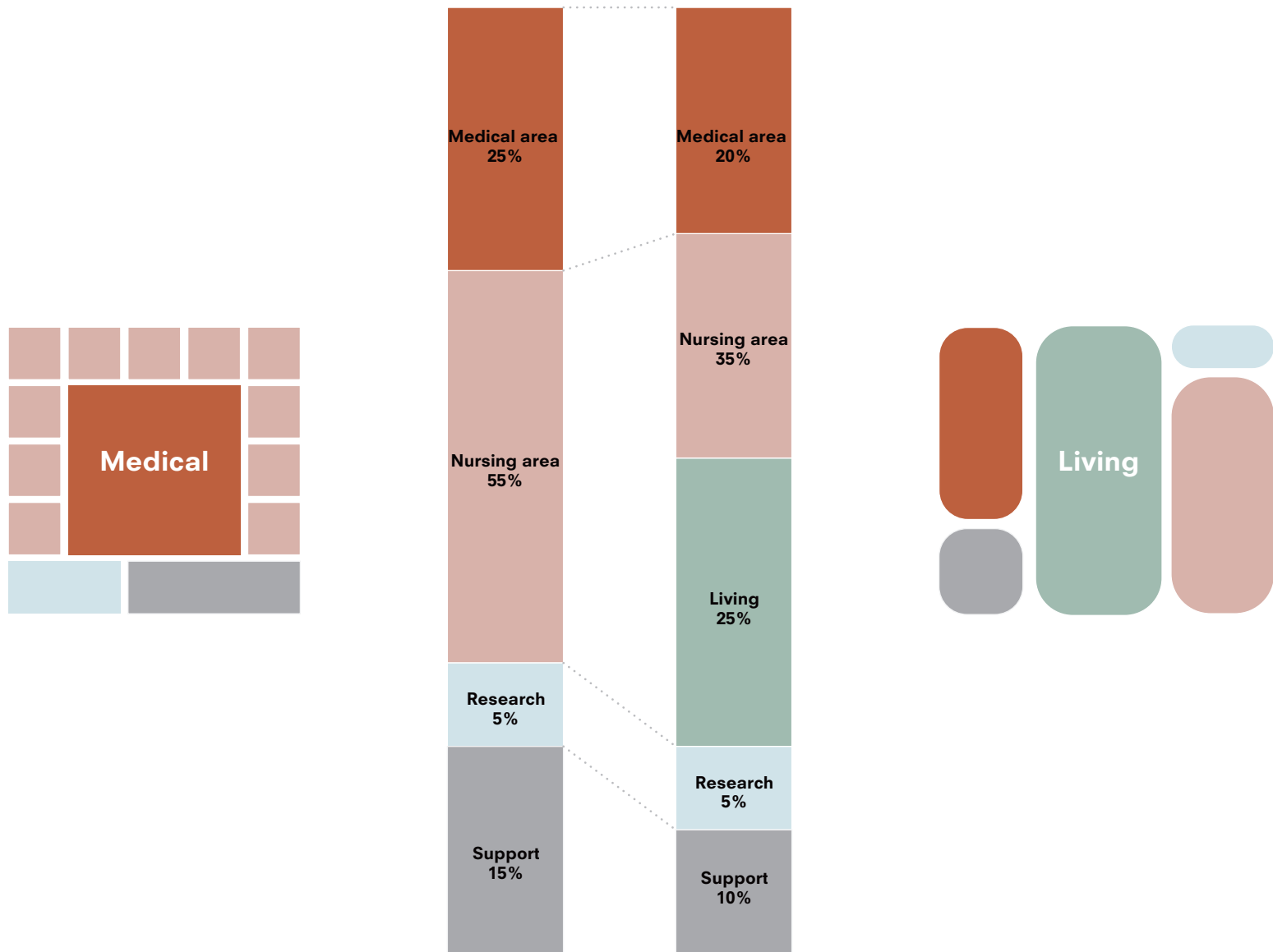
disabled

Design brief

PROGRAM ZONING

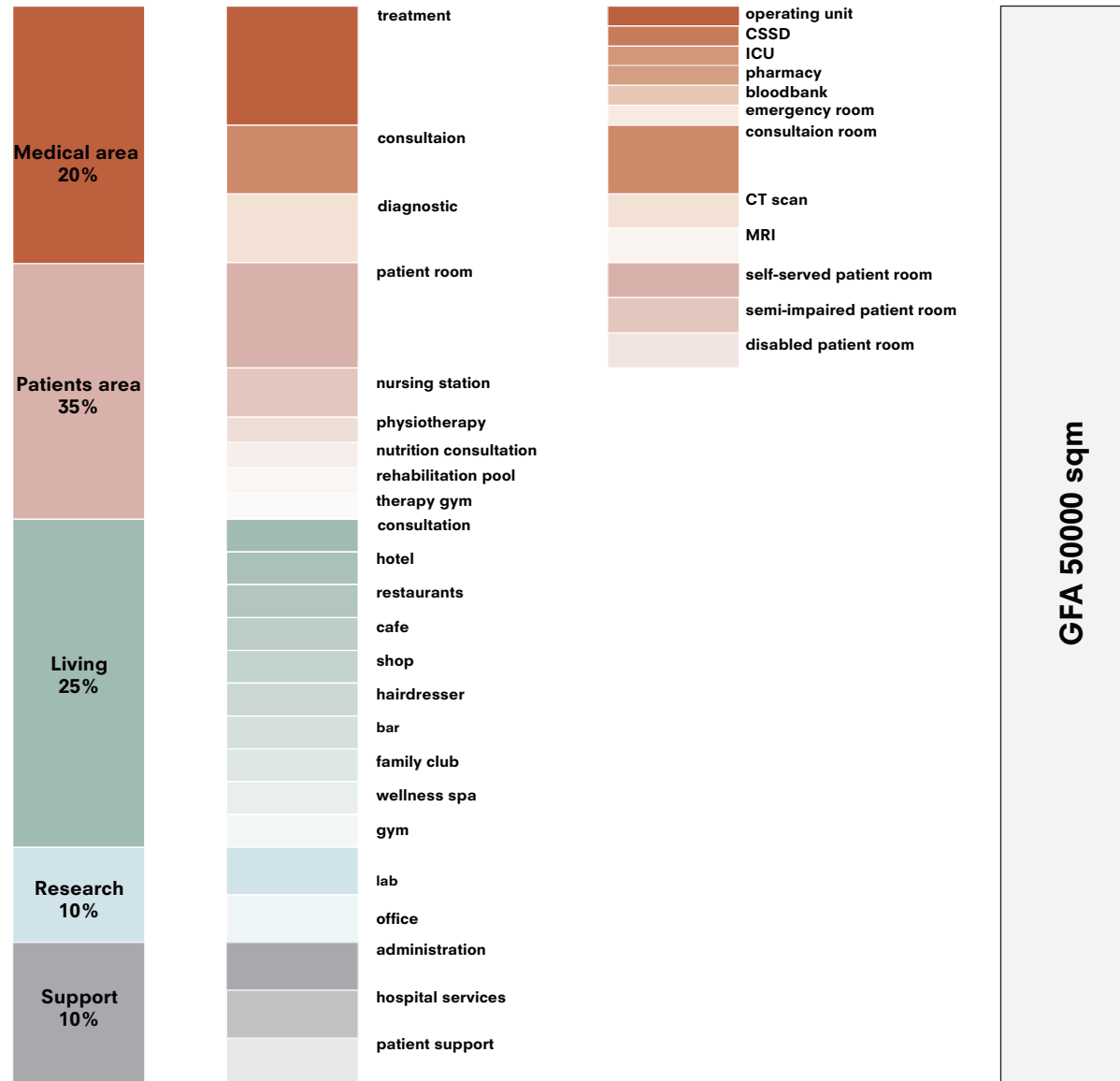


CONVENTIONAL V.S NEW HOSPITAL TYPOLOGY



Design brief

PROGRAM

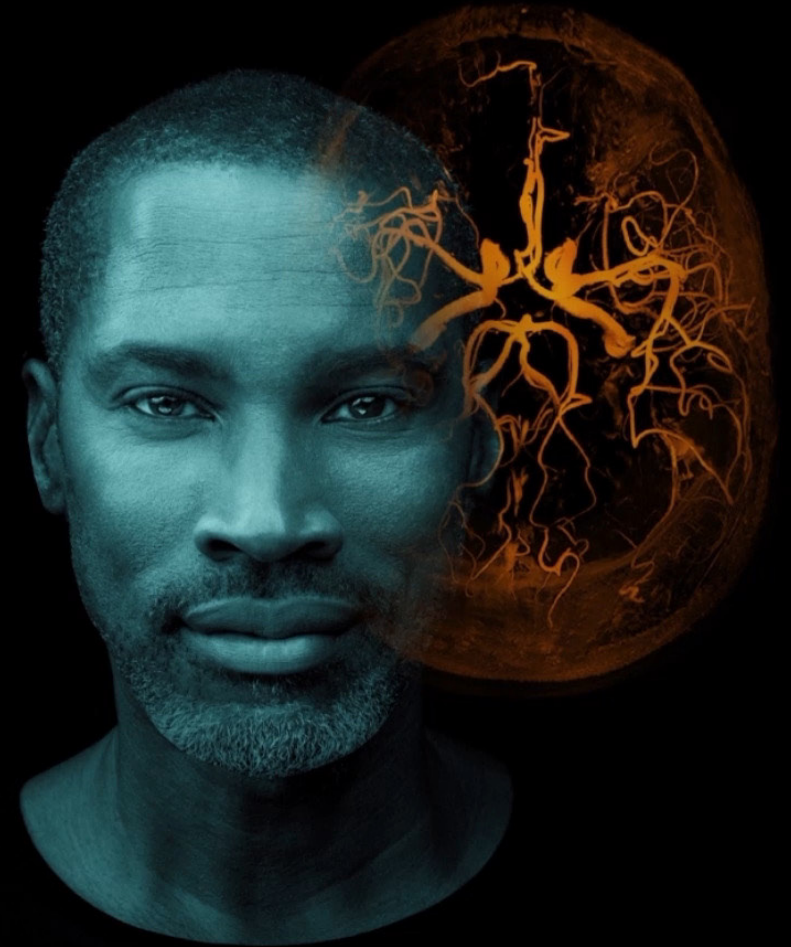
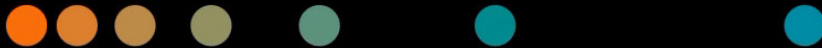


Design brief

MASSING SKETCHES



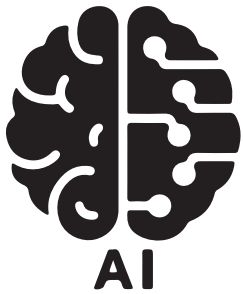
Shaping the future of healthcare



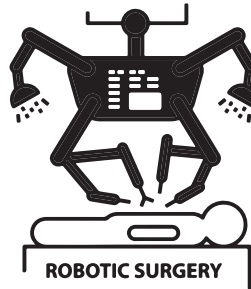
SIEMENS
Healthineers

Design brief

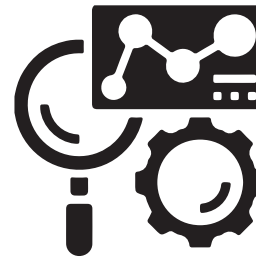
SIEMENS HEALTHINEERS



**AI Application and Technical
training**



Precision therapy



Diagnostic IT



Imaging IT

Design brief

CHARITÉ NETWORK



Clinical Center >

Deutsches Herzzentrum
der Charité (DHZC) >

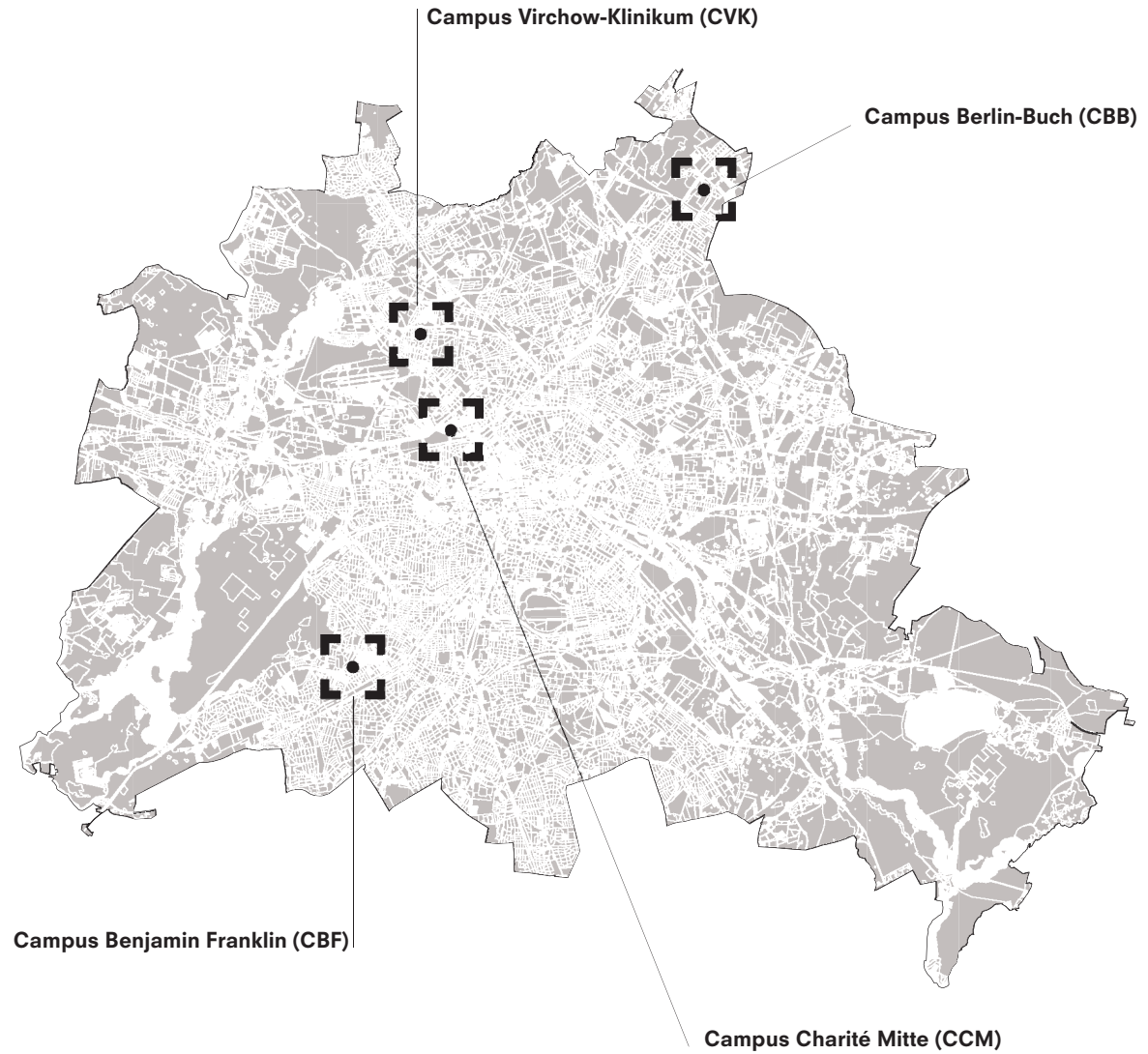
Berlin Institute of Health >

Research >

Teaching & Learning >

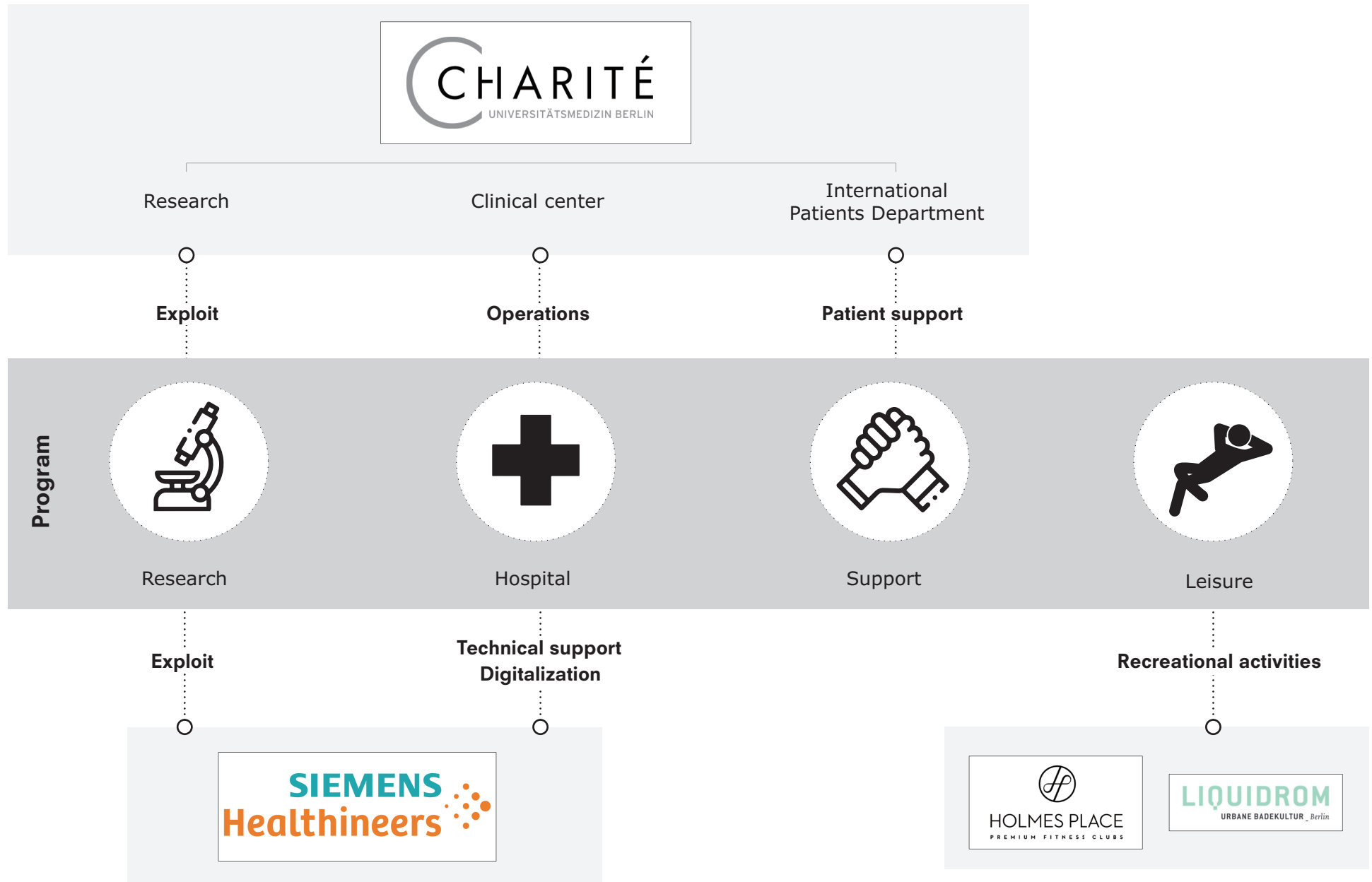
International Relations >

Charité >



Design brief

RESPOSIBILITY



Design brief

POTENTIAL SITES



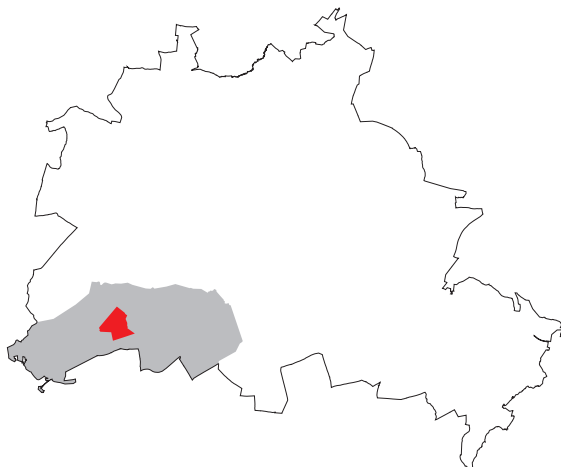
Paul-Ernst Park

area 56000 sqm

M

Steglitzzehlendorf

Schlachtensee



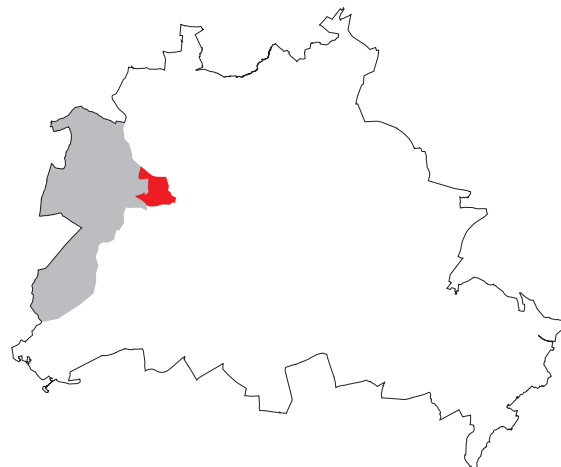
Wilhelm-von-Siemens-Park

area 160000 sqm

L

Spandau

Siemensstadt



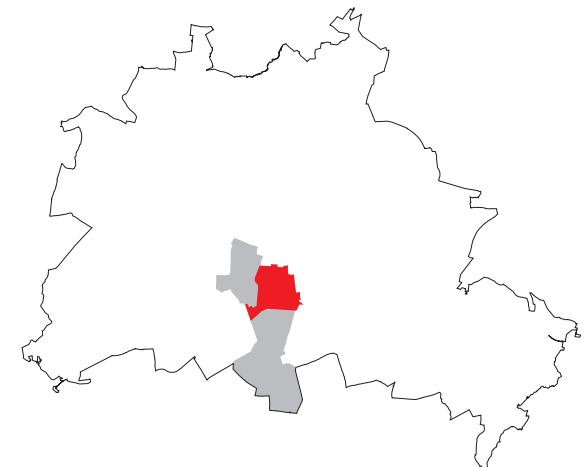
Tempelhof old terminal

area 400000 sqm

XL

Tempelhof

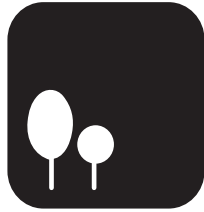
Tempelhof



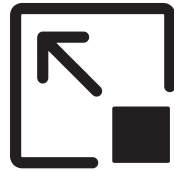
Design brief

SITES EVALUATION

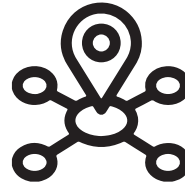
criteria



Therapeutic environment



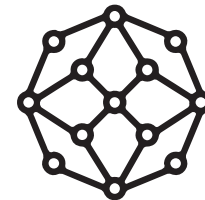
Future proof



Accessability



Reachability



Future network



City impression

Site 1
Paul-Ernst park

+

+

+

+

-

-

Site 2
Siemens park

+

+

+

+

+

+

Site 3
Tempelhof

+

+

+

+

-

+

Design brief

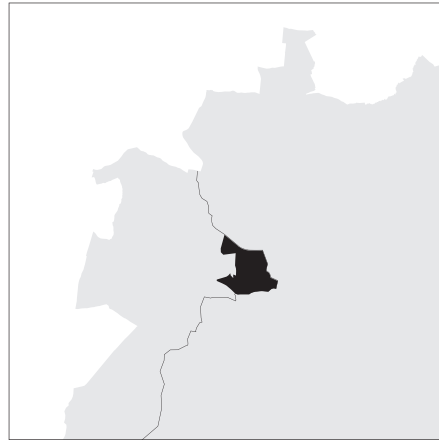
SITE-SIEMENSPARK



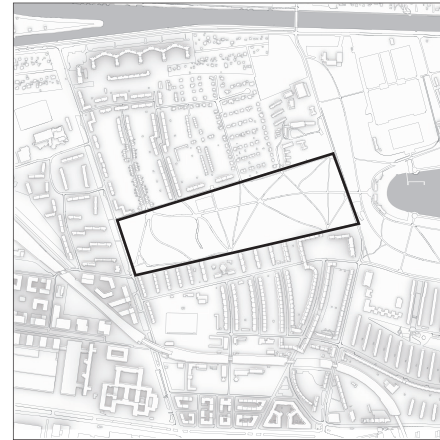
SITE



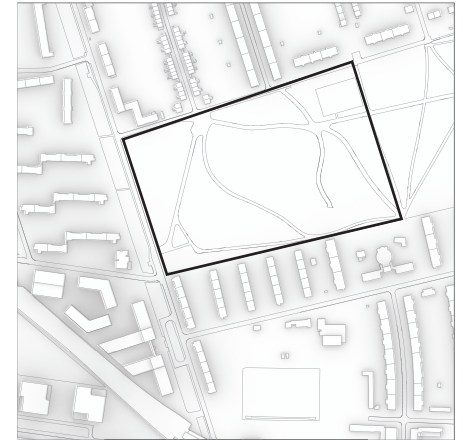
Berlin
XL



Siemensstadt
L



Siemens-Park
M



Site
S

2030 - THE NEW SIEMENSSTADT



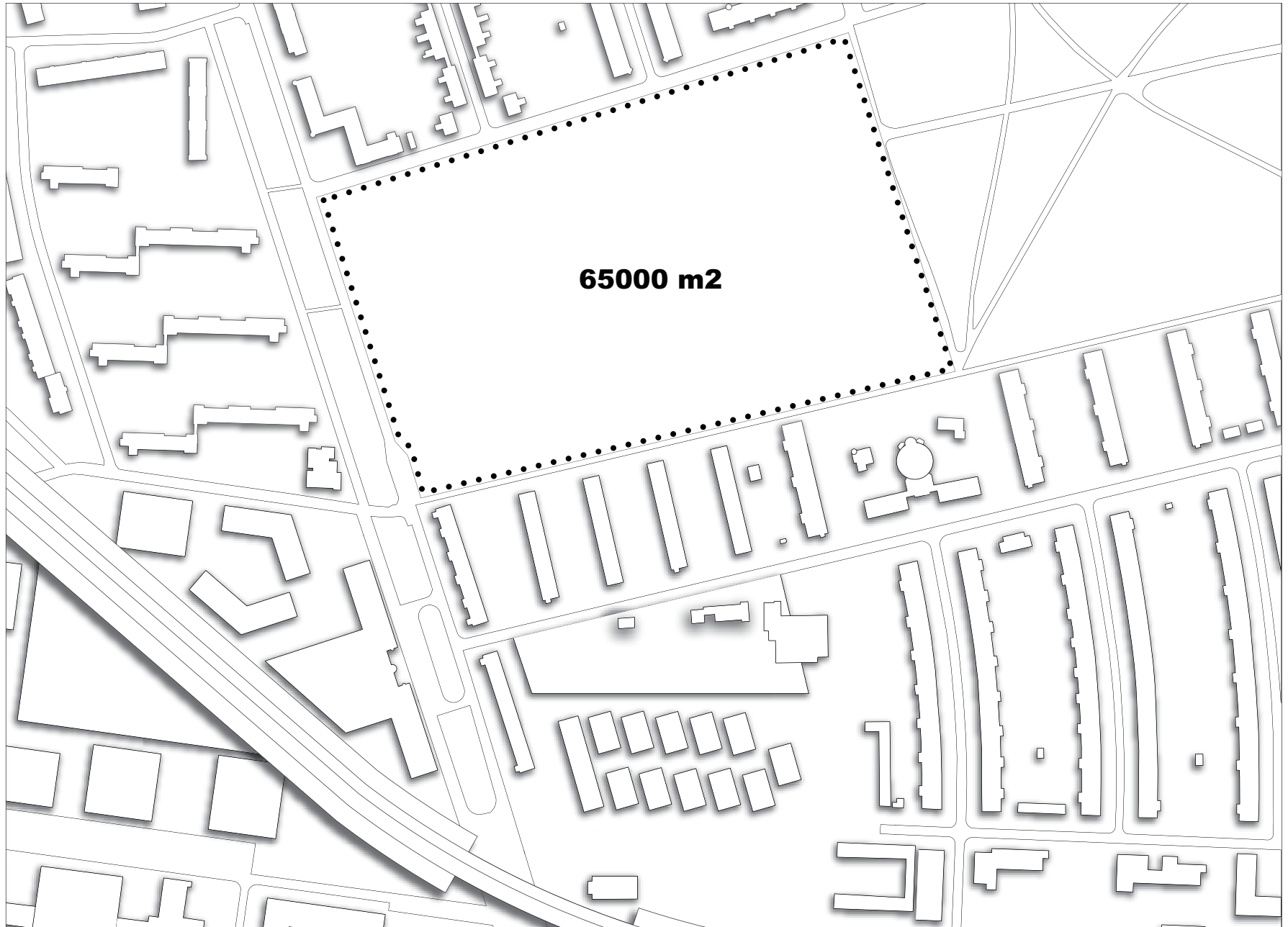
SIEMENSSTADT URBAN RENEWAL PLAN



- Office
- Mobility hub
- Research
- Production
- Conference
- Residential
- Accommodation
- Retail

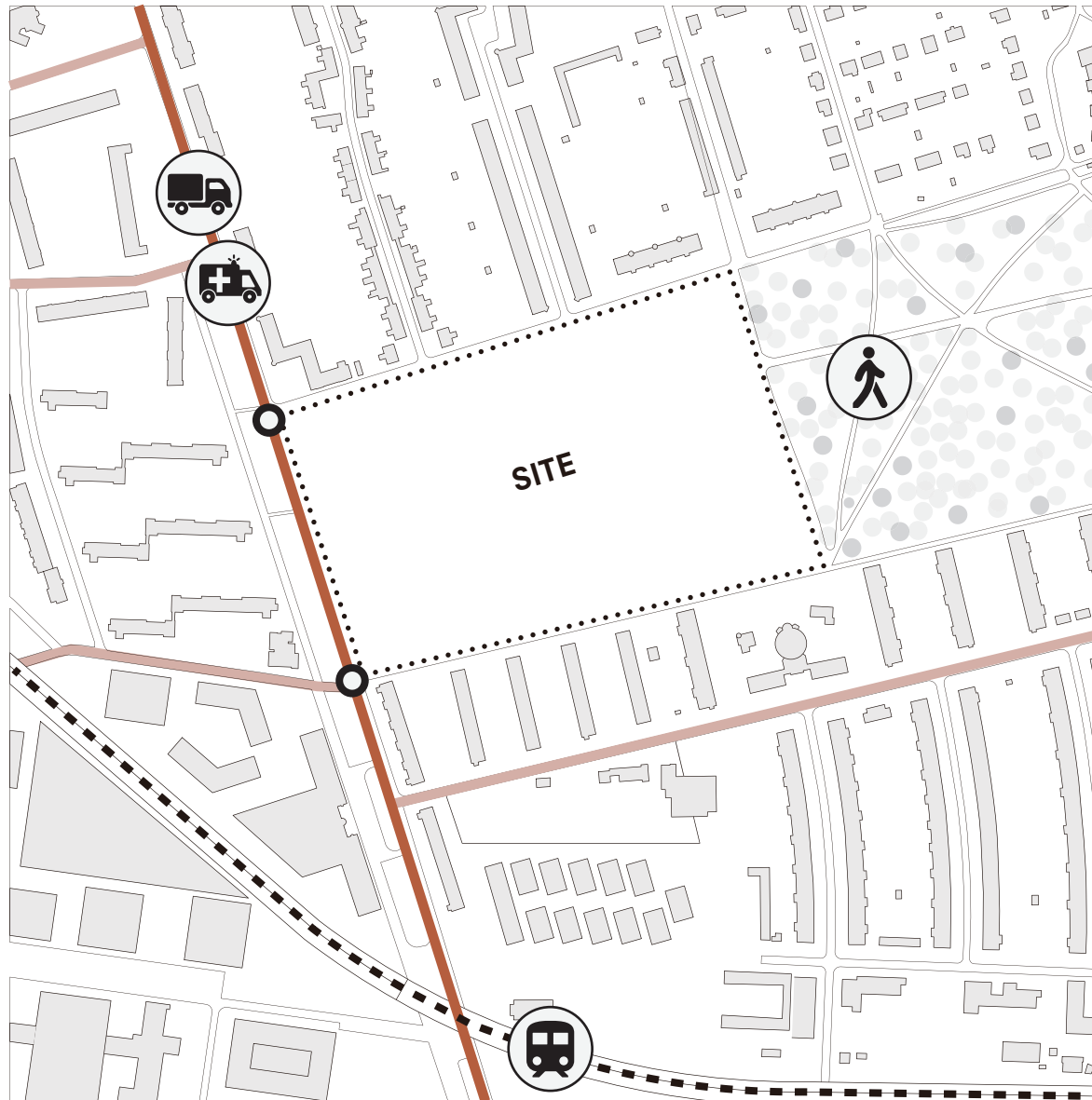
Design brief

SIMENSPARK



Design brief

URBAN TRANSPORTATION



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Implementation

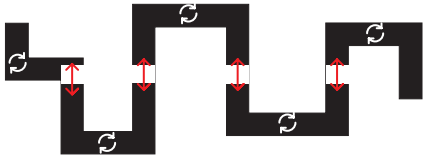
Development

Conclusion

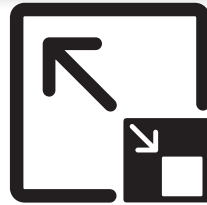
Concept

CONCEPT STRATEGY

MEDICAL TECHNOLOGY



Separate
circulation for
each department
Efficiency



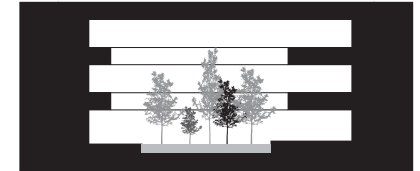
Expansion or
Reduction

Adaptability



Energy sustainability

Sustainability

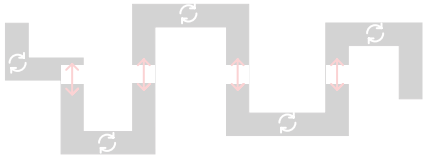


Inner courtyard as buffer
space between departments

Comfort

DESIGN DRIVERS

MEDICAL TECHNOLOGY



Separate circulation for each department
Efficiency



Expansion or Reduction

Adaptability



Energy sustainability

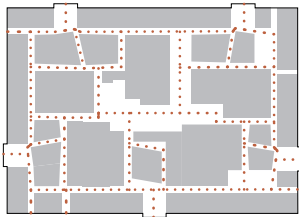
Sustainability



Inner courtyard as buffer space between departments

Comfort

LIVING & REHABILITATION



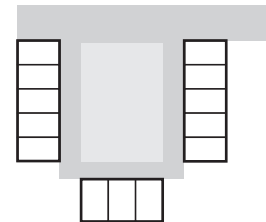
Alternative route for moving

Autonomy supportive



Inner pockets for orientation

Orientation



Each room is set around a large space

Luxurious ample



Self-served

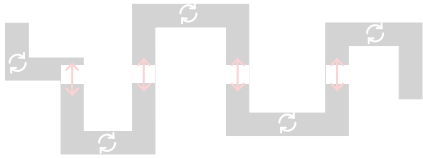
Semi-disabled

Disabled

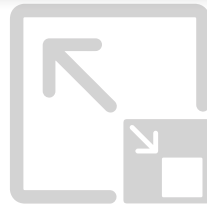
Various type of living room

DESIGN DRIVERS

MEDICAL TECHNOLOGY

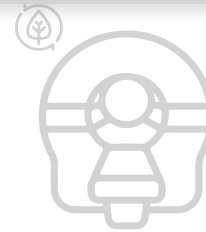


Separate circulation for each department
Efficiency



Expansion or Reduction

Adaptability



Energy sustainability

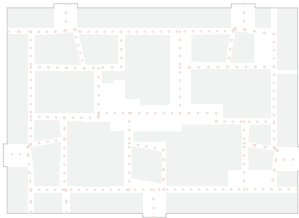
Sustainability



Inner courtyard as buffer space between departments

Comfort

LIVING & REHABILITATION



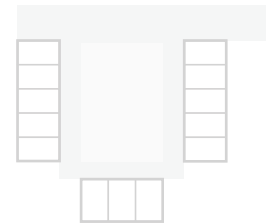
Alternative route for moving

Autonomy supportive



Inner pockets for orientation

Orientation



Each room is set around a large space

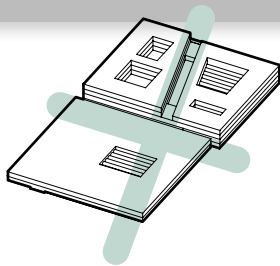
Luxurious ample



Self-served Semi-disabled Disabled

Various type of living room

URBAN INTEGRATION

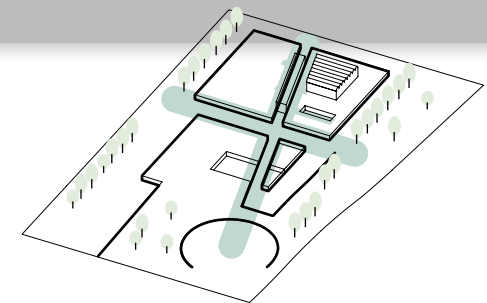


Axis connecting urban-green
Green corridor



Avoiding isolated massing that are segregated from the city

Urban intergration

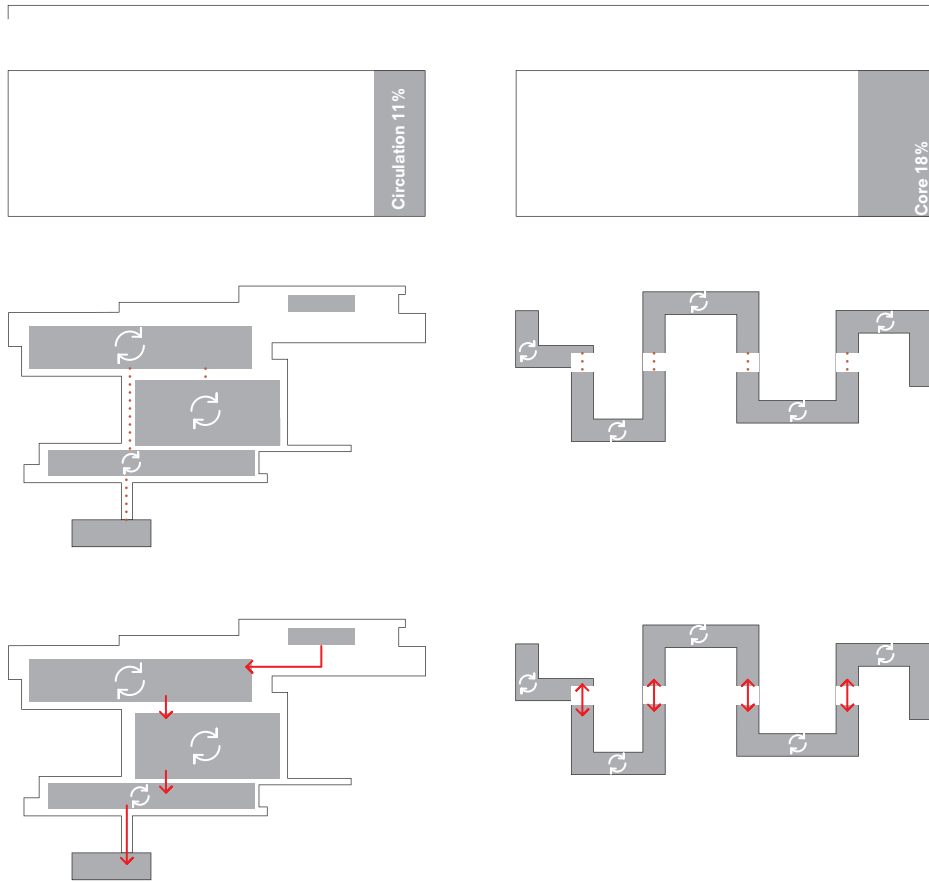


Open space along the street
Therapeutic environment for the city

Concept

CIRCULATION CONCEPT

Medical staffs circulation



- Efficiency oriented
- Fixed Sequence
- Most efficient path connect each department
- Separate circulation system within the department
- Way finding system: clear sign

Patient circulation

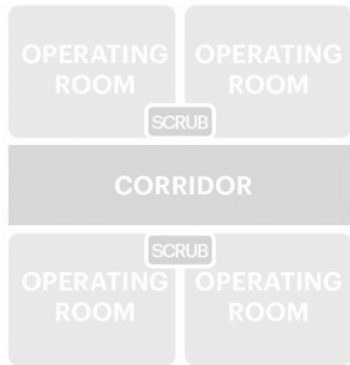


- Autonomy oriented
- Multiple ways to use the path
- Multiple alternative paths to the same destination
- Way finding system: featured Space (inner pocket)

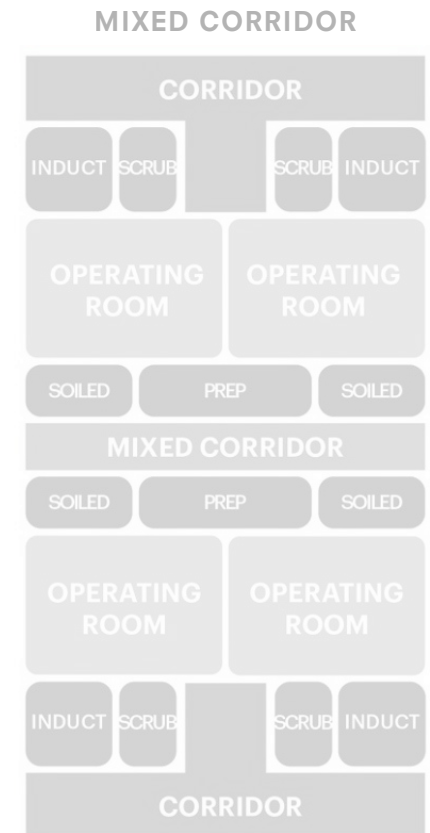
Concept

FLOW-OPERATING UNIT

SINGLE CORRIDOR MODEL



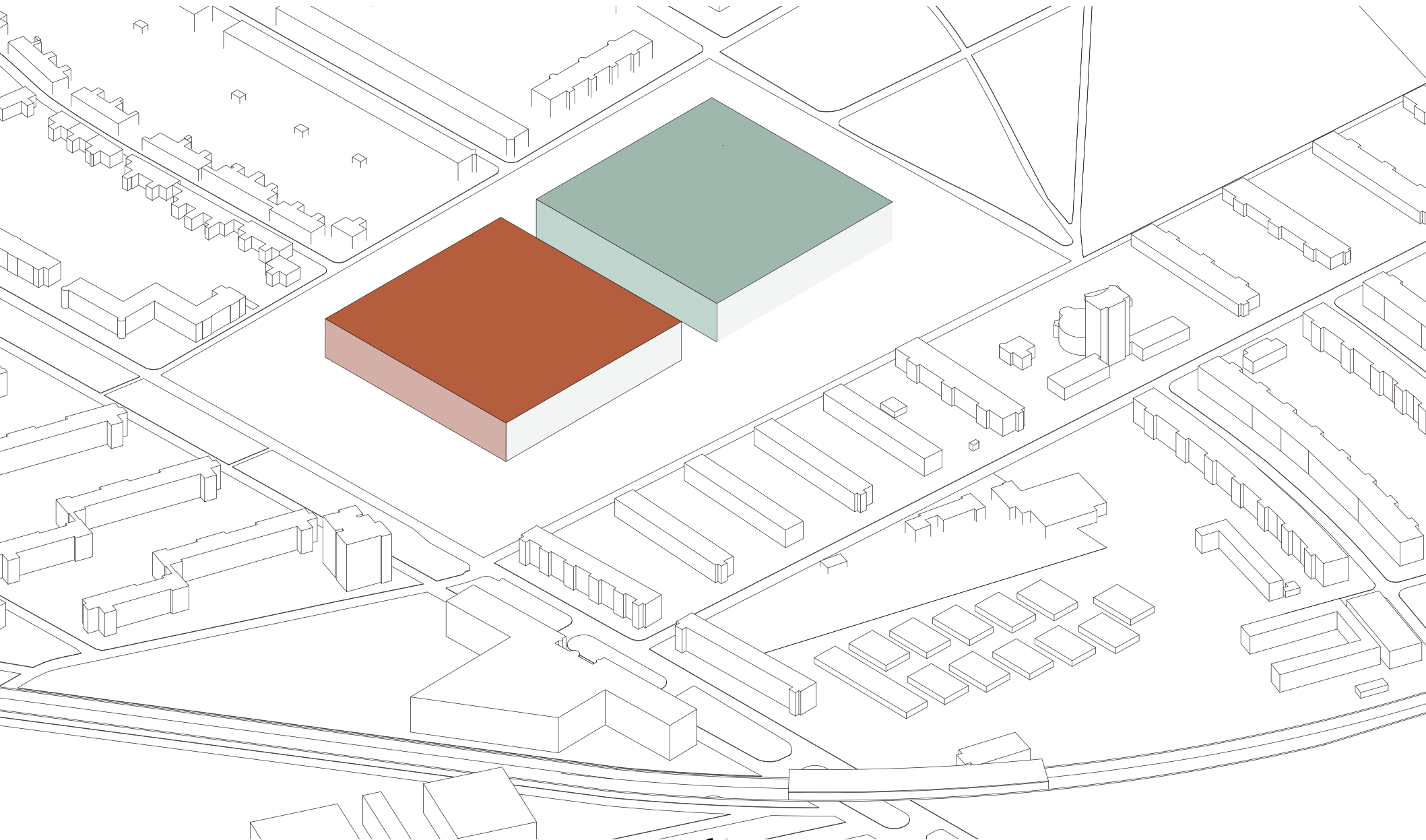
DOUBLE CORRIDOR MODEL



[HTTPS://WWW.HOSPITALMANAGEMENTASIA.COM/TECH-INNOVATION/AN-INTRODUCTION-TO-SURGERY-DEPARTMENTAL-LAYOUT-MODEL-BASED-ON-DESIGN-GUIDELINES/](https://www.hospitalmanagementasia.com/tech-innovation/an-introduction-to-surgery-departmental-layout-model-based-on-design-guidelines/)

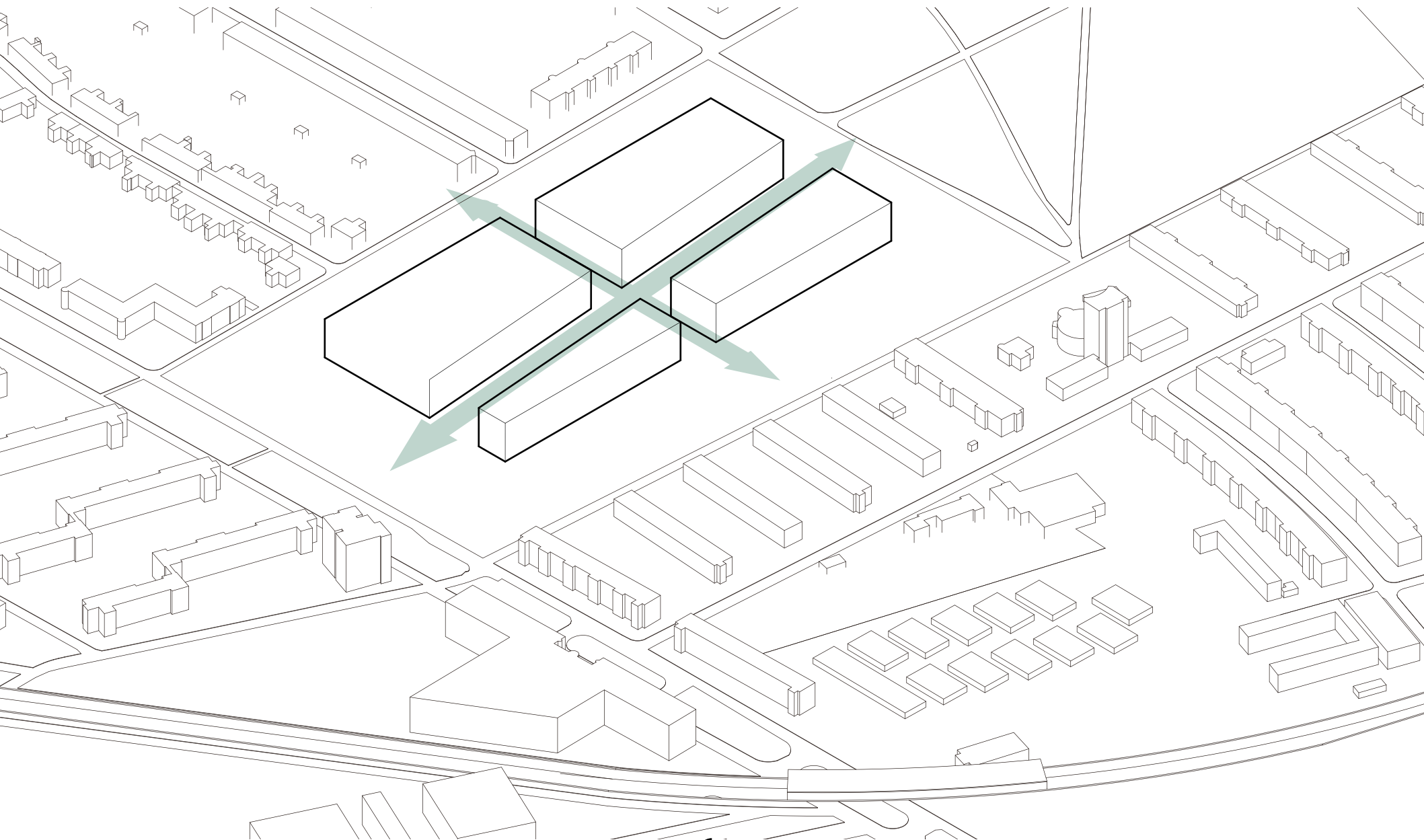
Concept

MASSING - MEDICAL TECH & LIVING



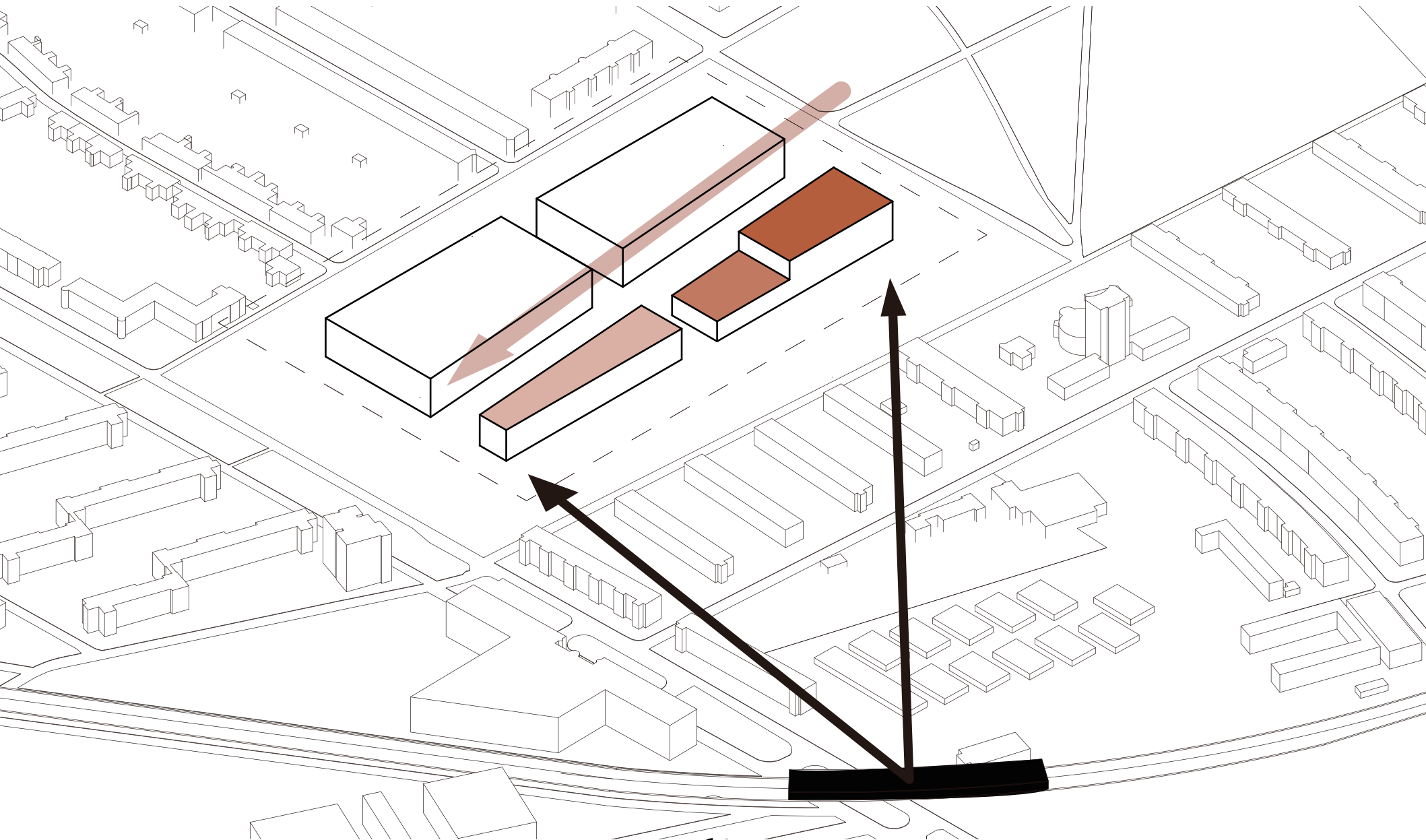
Concept

URBAN AXIS



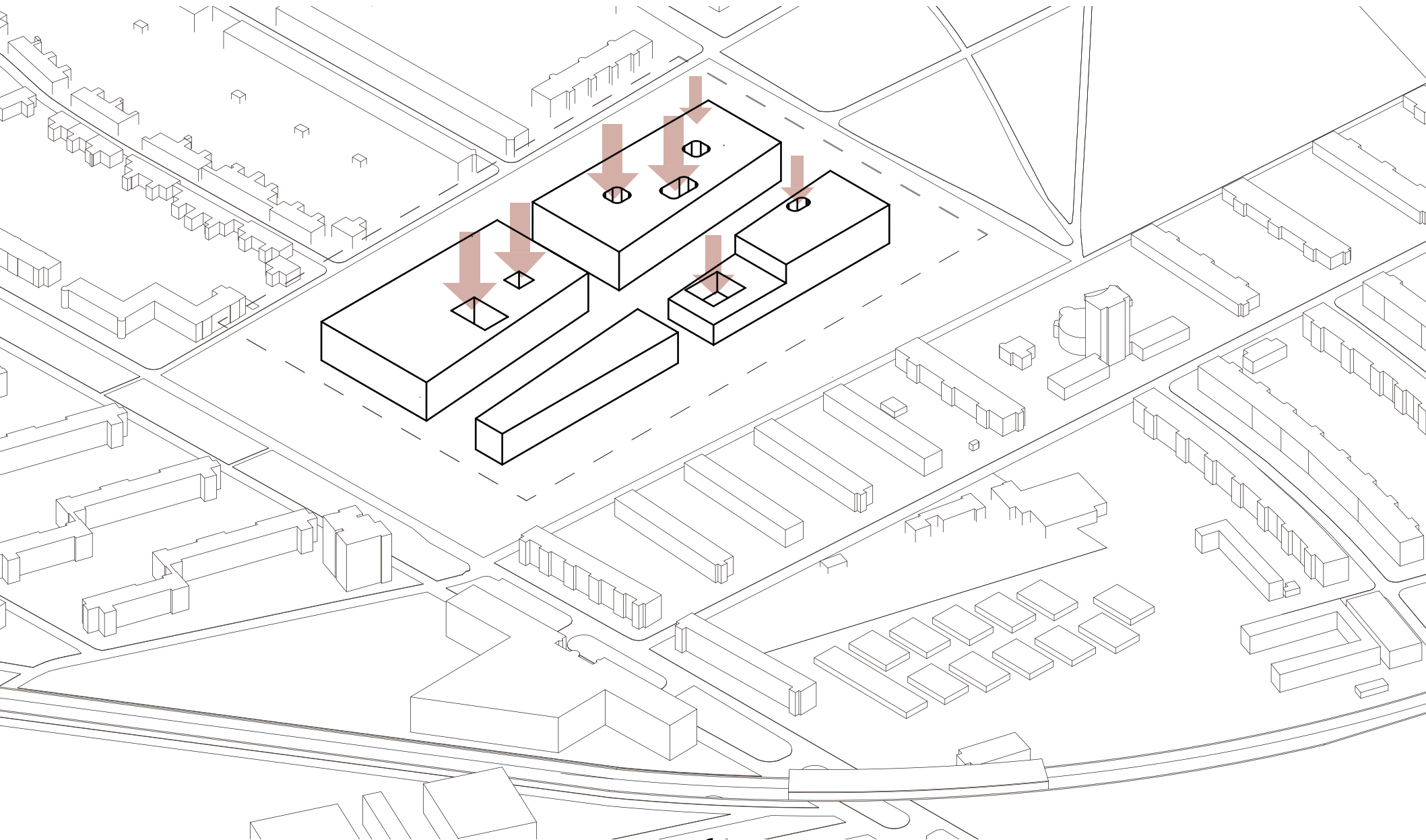
Concept

VIEW-VOLUME DECREASE BY LEVEL



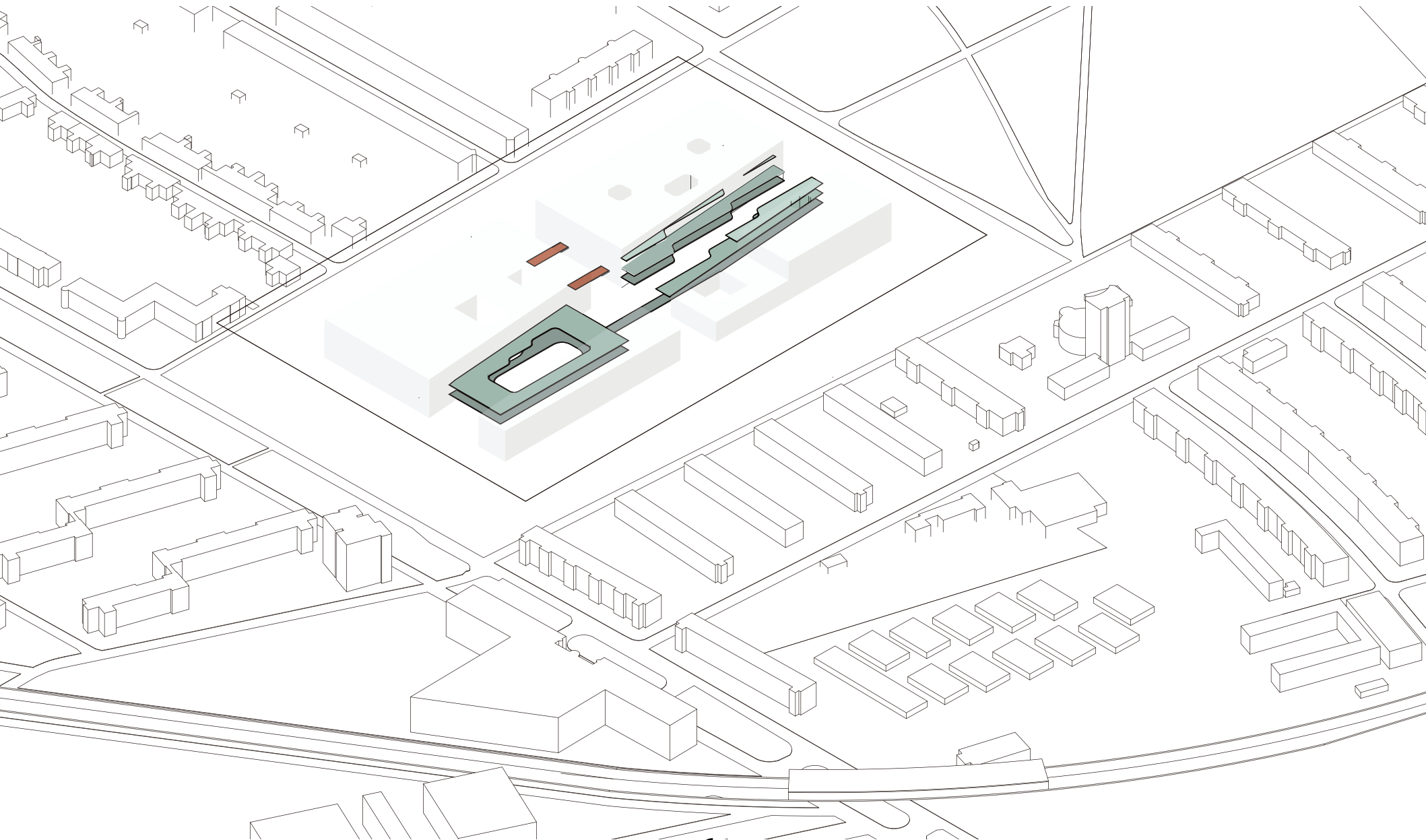
Concept

CREATE ATRIUM



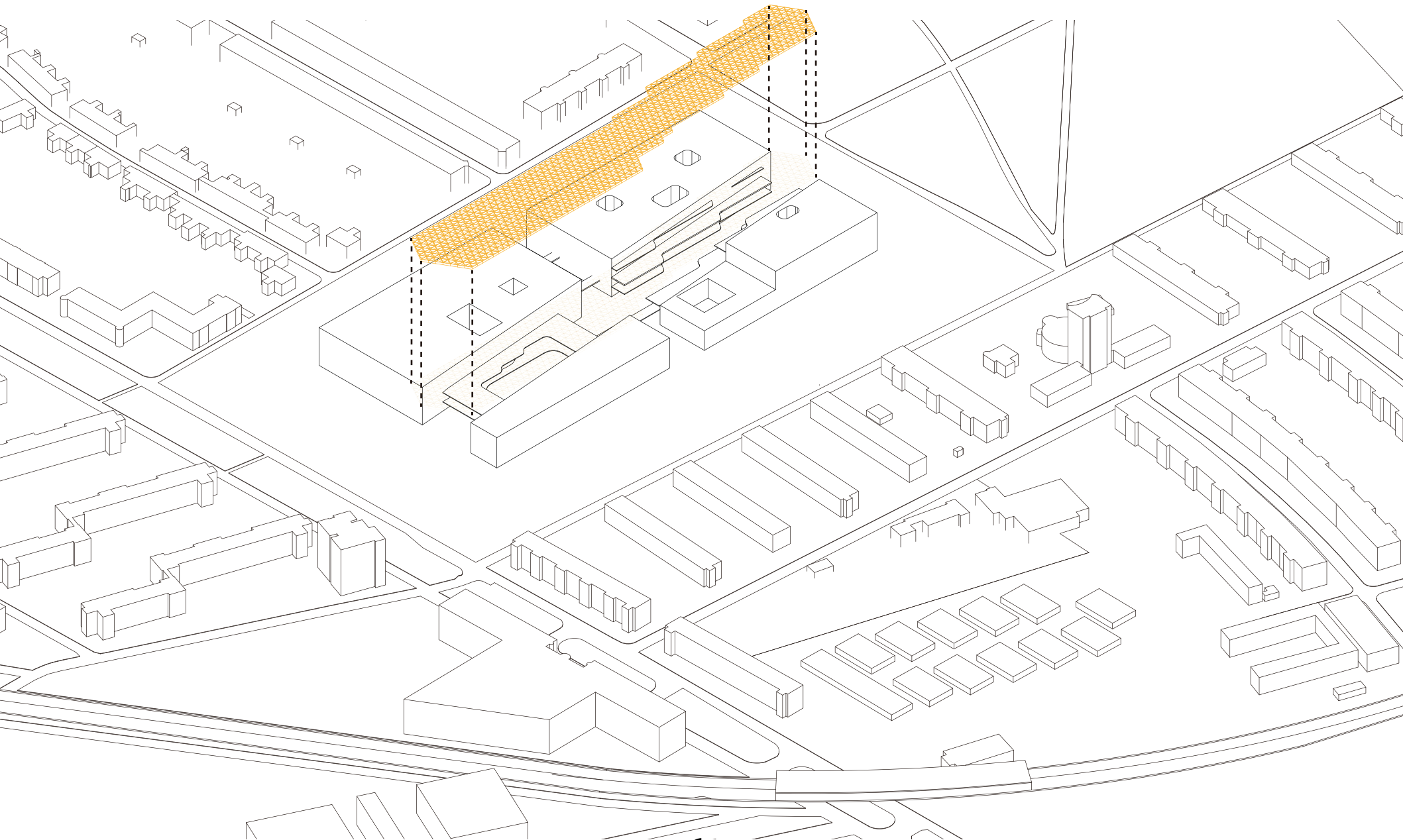
Concept

LIVING CORRIDOR



Concept

ROOF FOLLOWS AXIS



Implementation

ROOF PLAN



Introduction

Research

Design brief

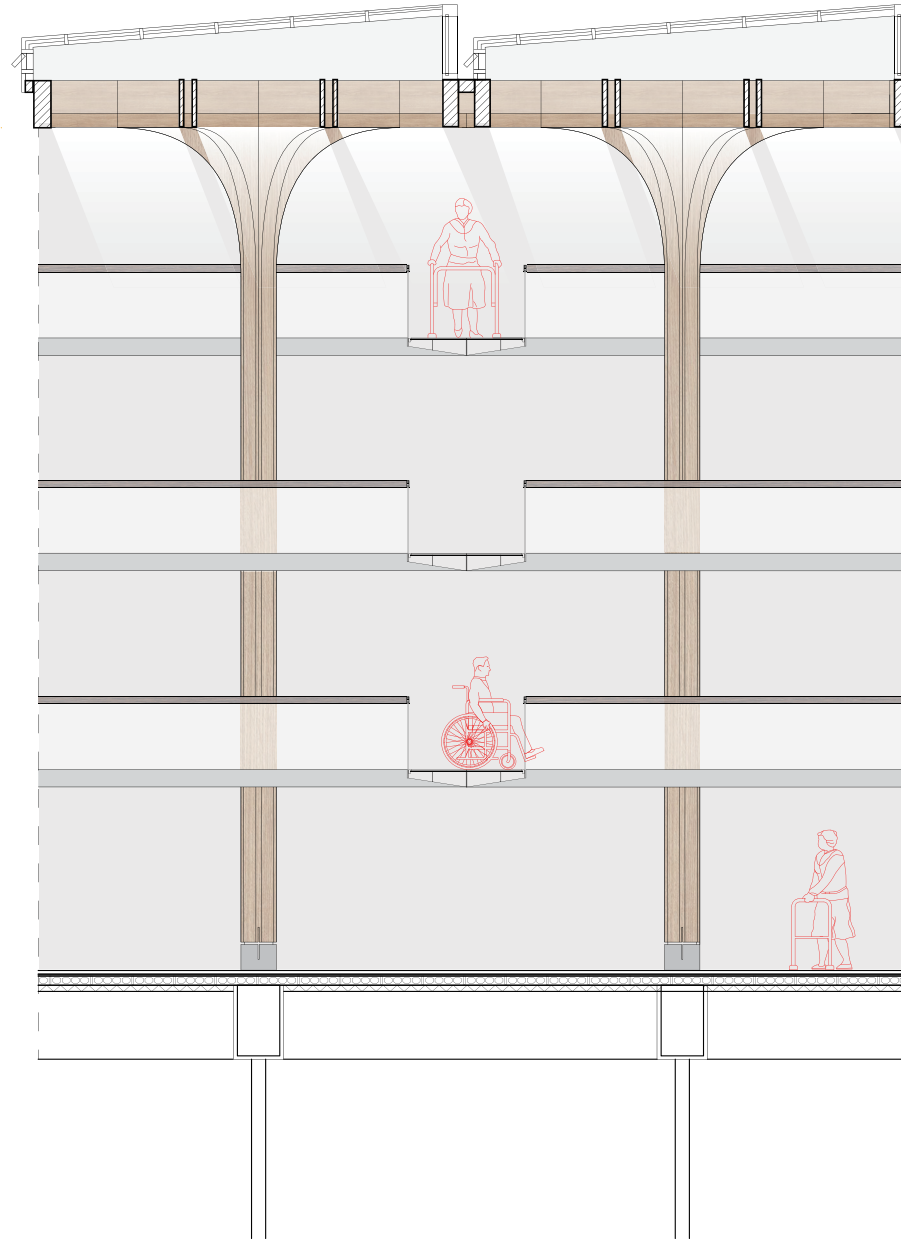
Concept

Implementation

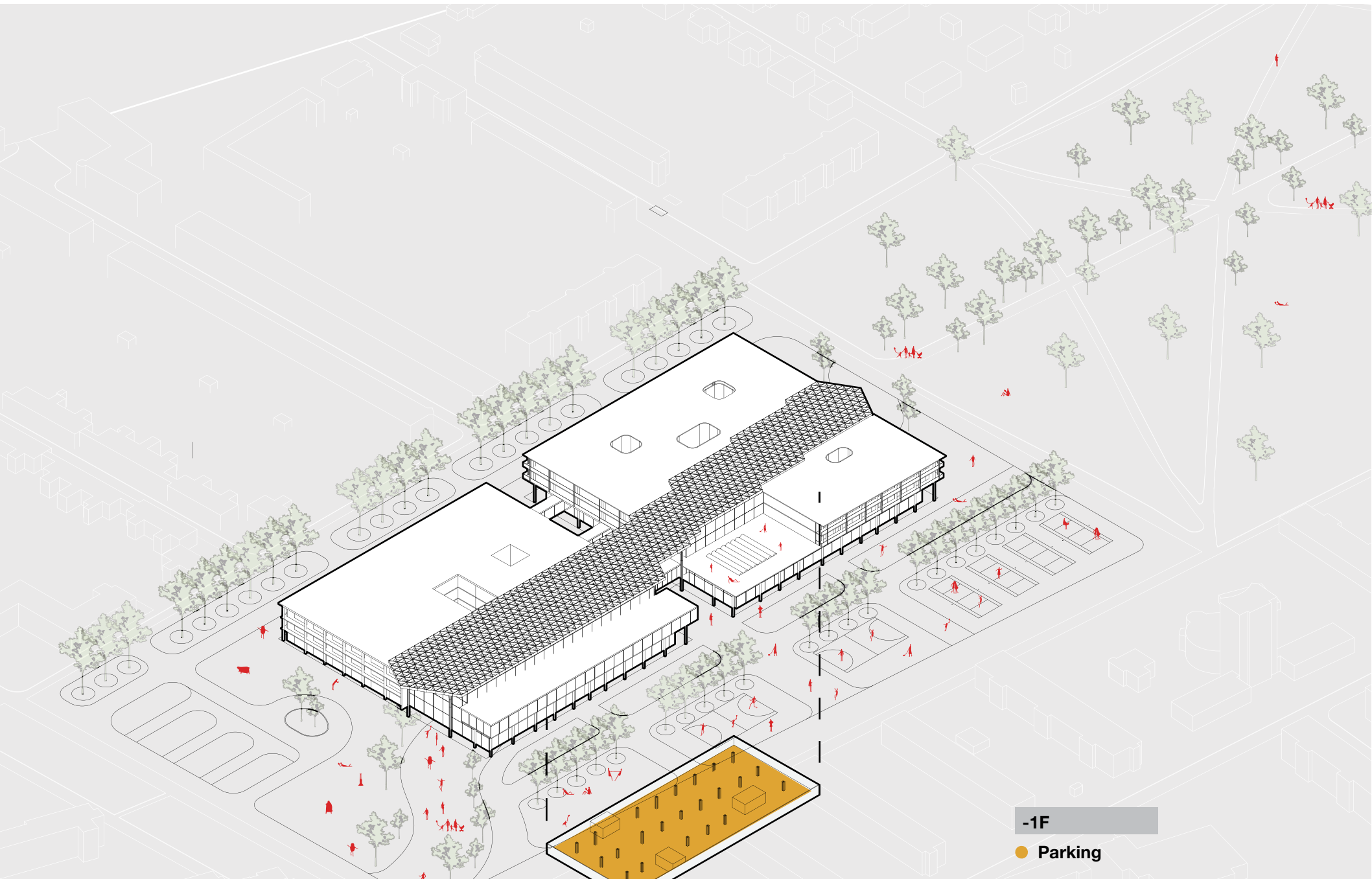
Development

Conclusion

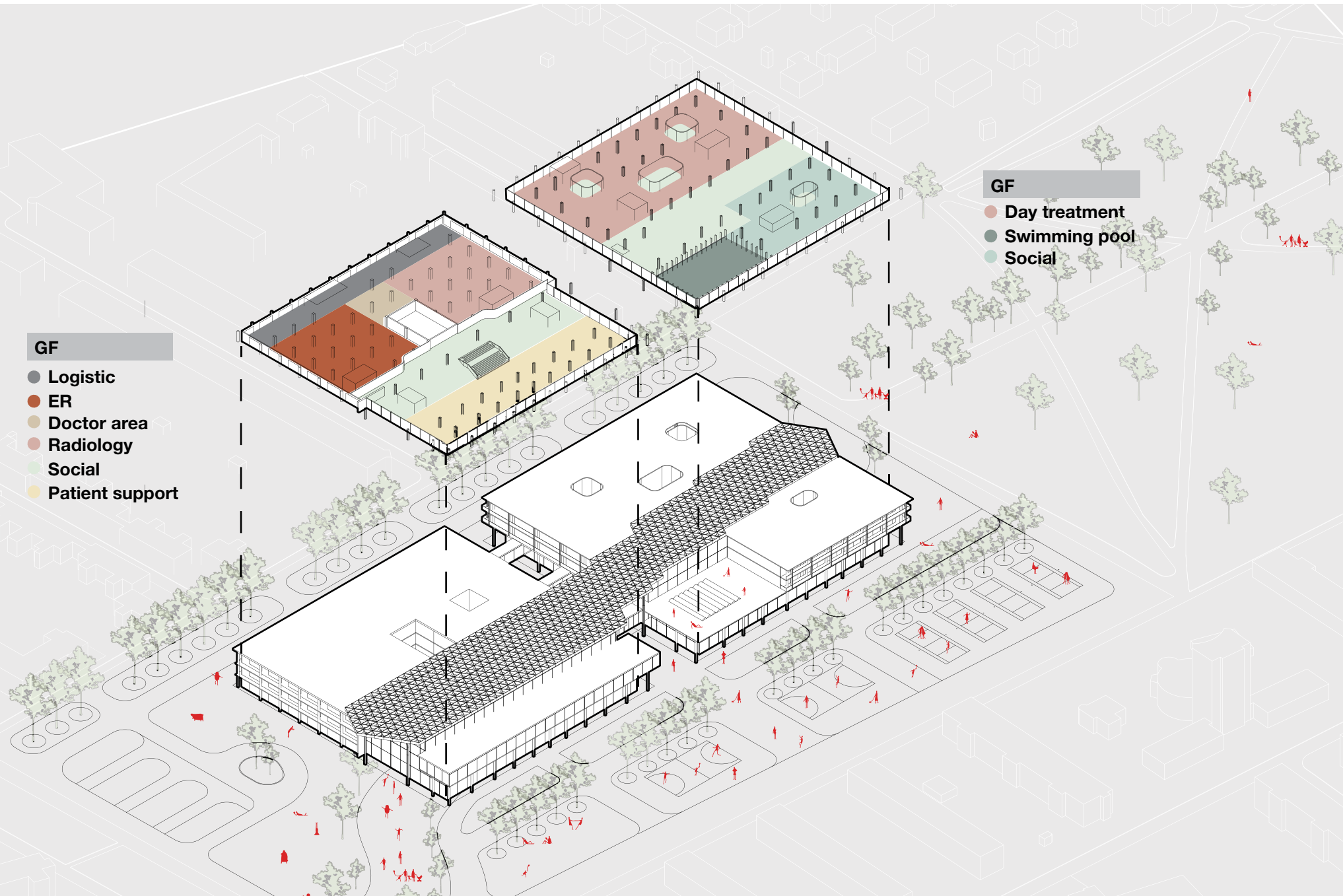
Design ROOF FRAGMENT



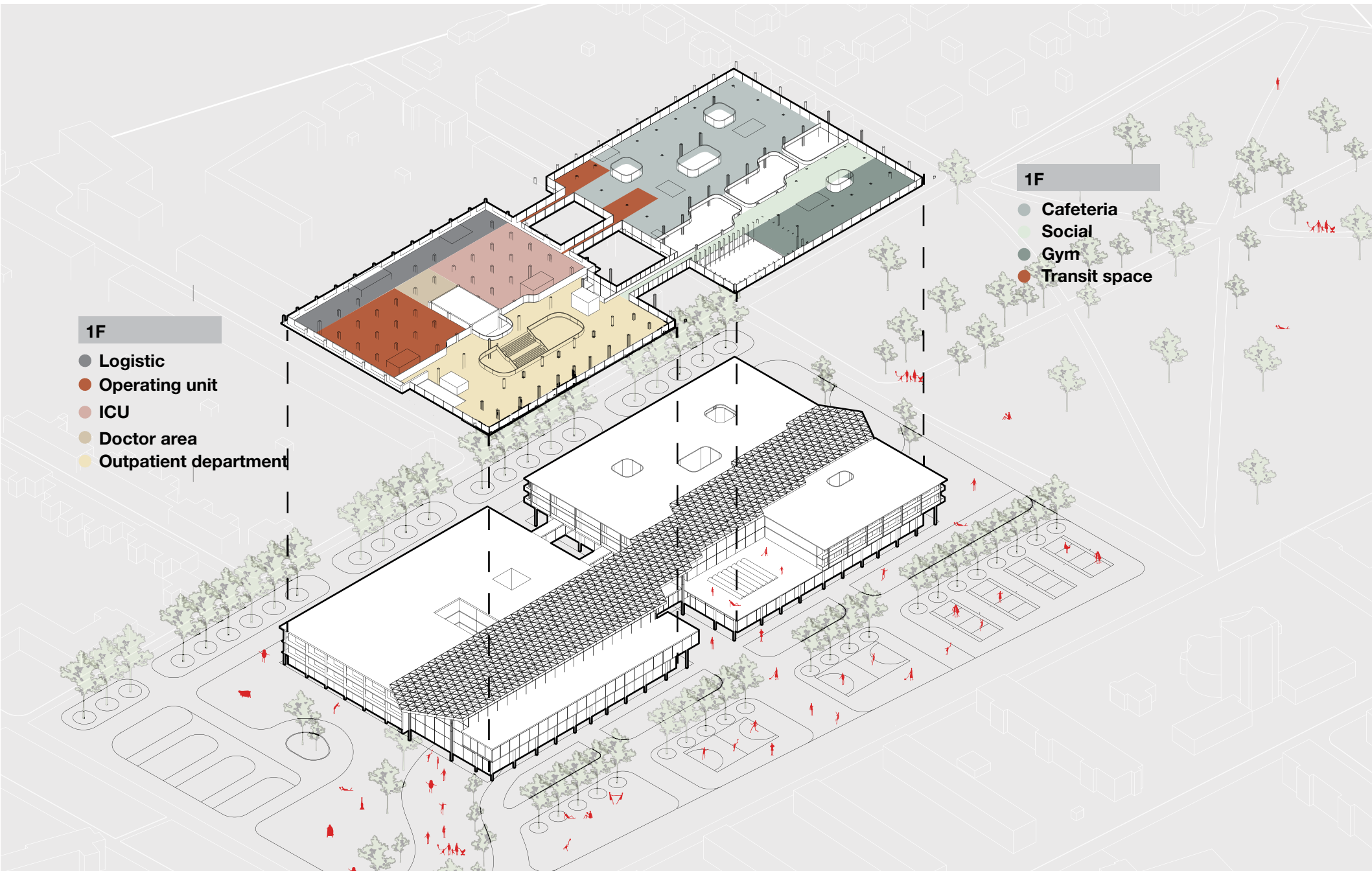
Design PROGRAMMATIC CONFIGURATION



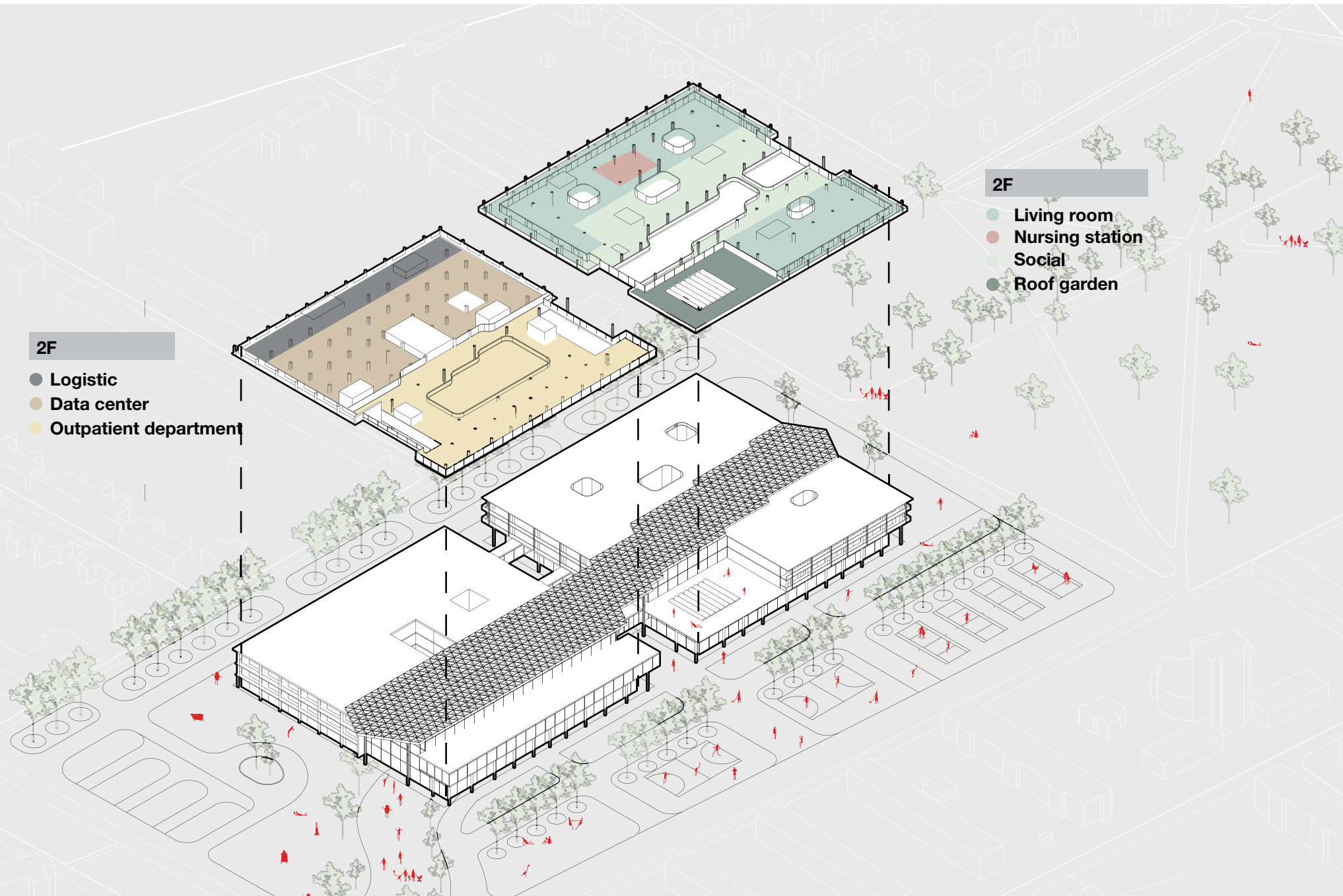
Design PROGRAMMATIC CONFIGURATION



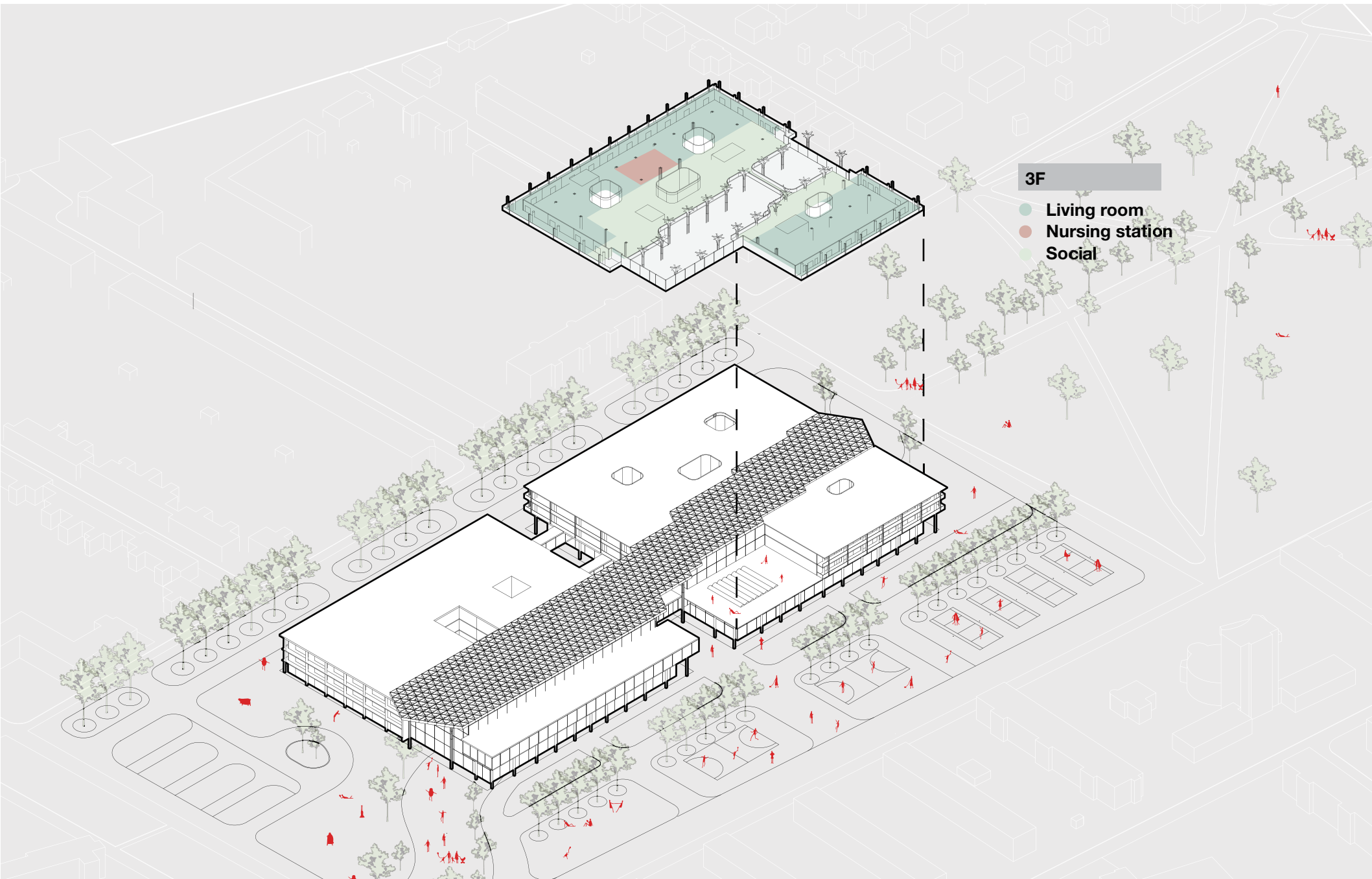
PROGRAMMATIC CONFIGURATION



Design PROGRAMMATIC CONFIGURATION



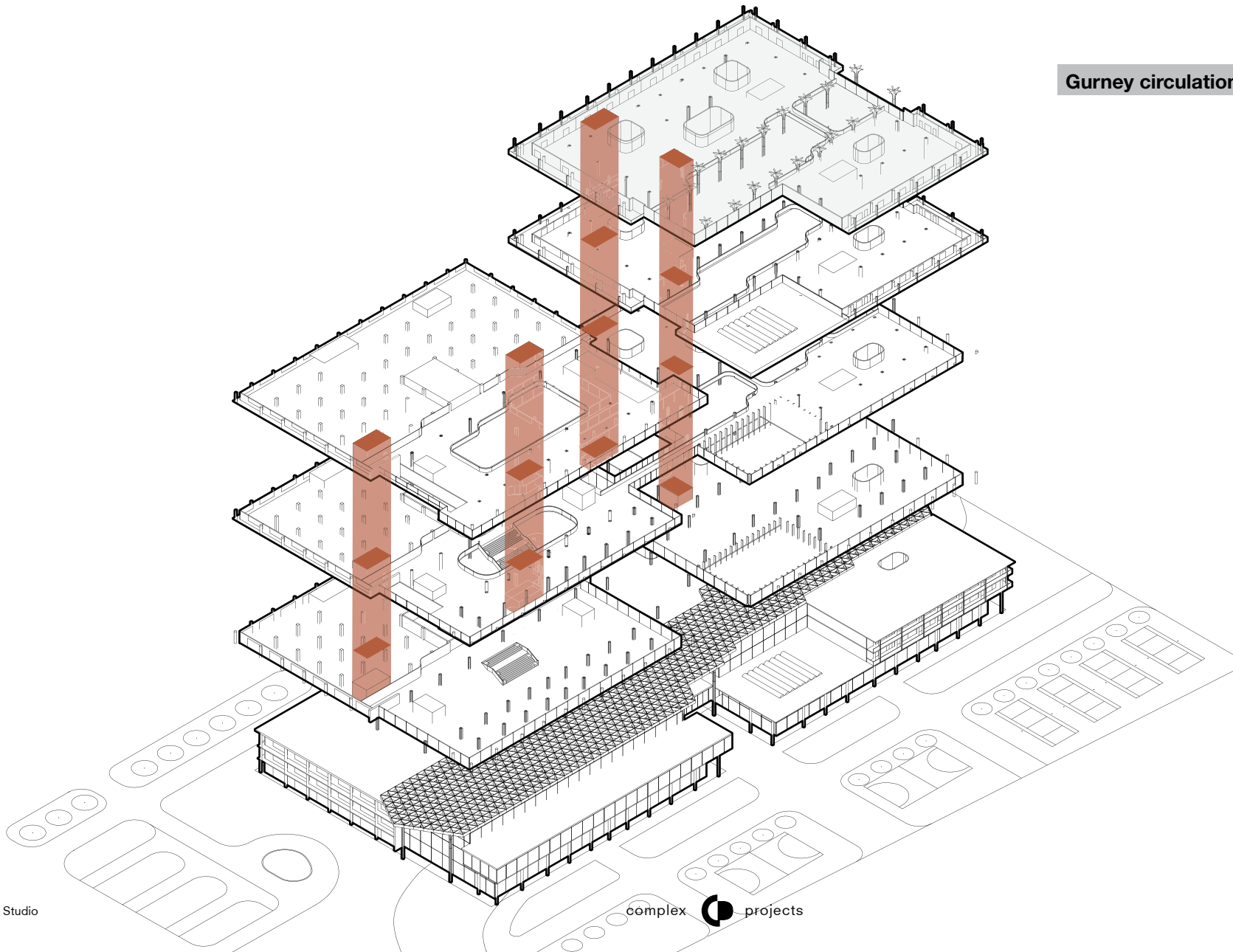
Design PROGRAMMATIC CONFIGURATION



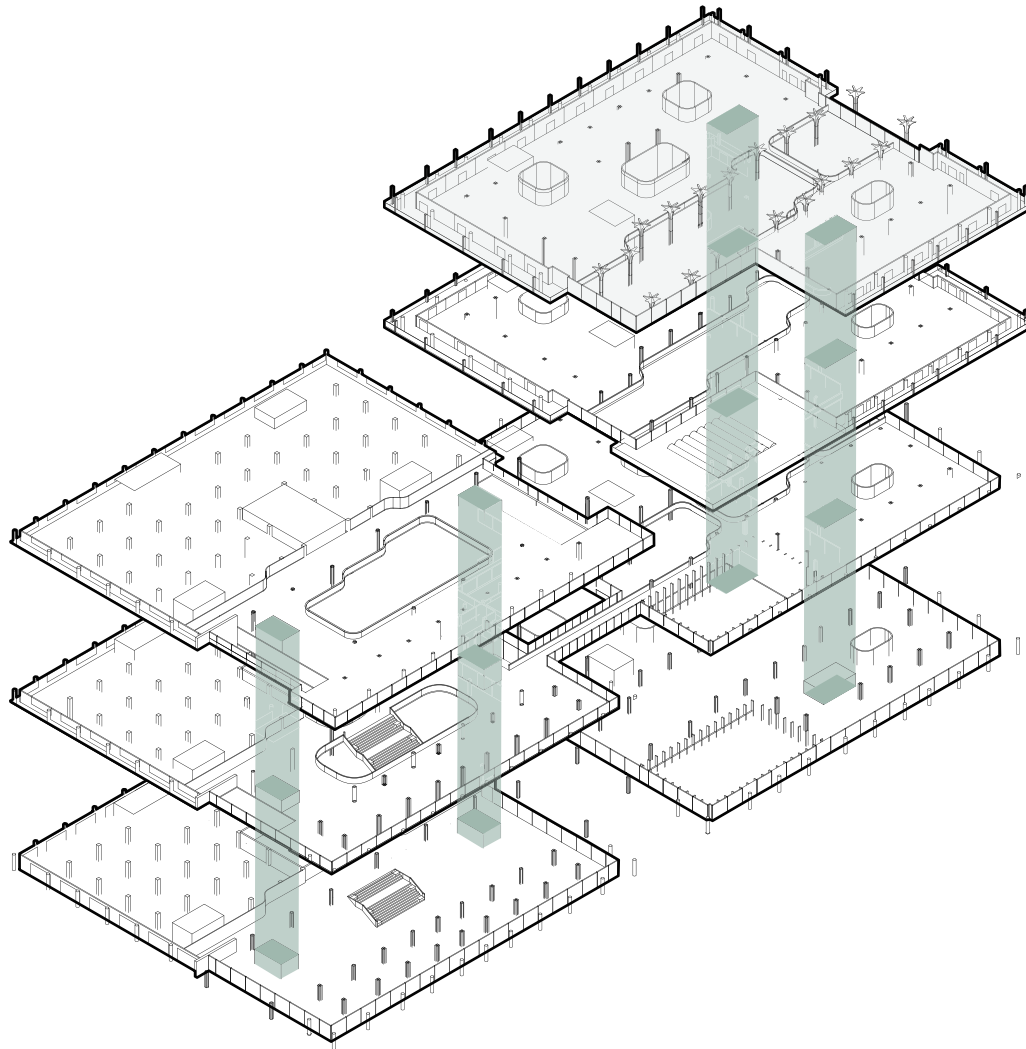
Design

VERTICAL FLOW - GURNEY

Gurney circulation



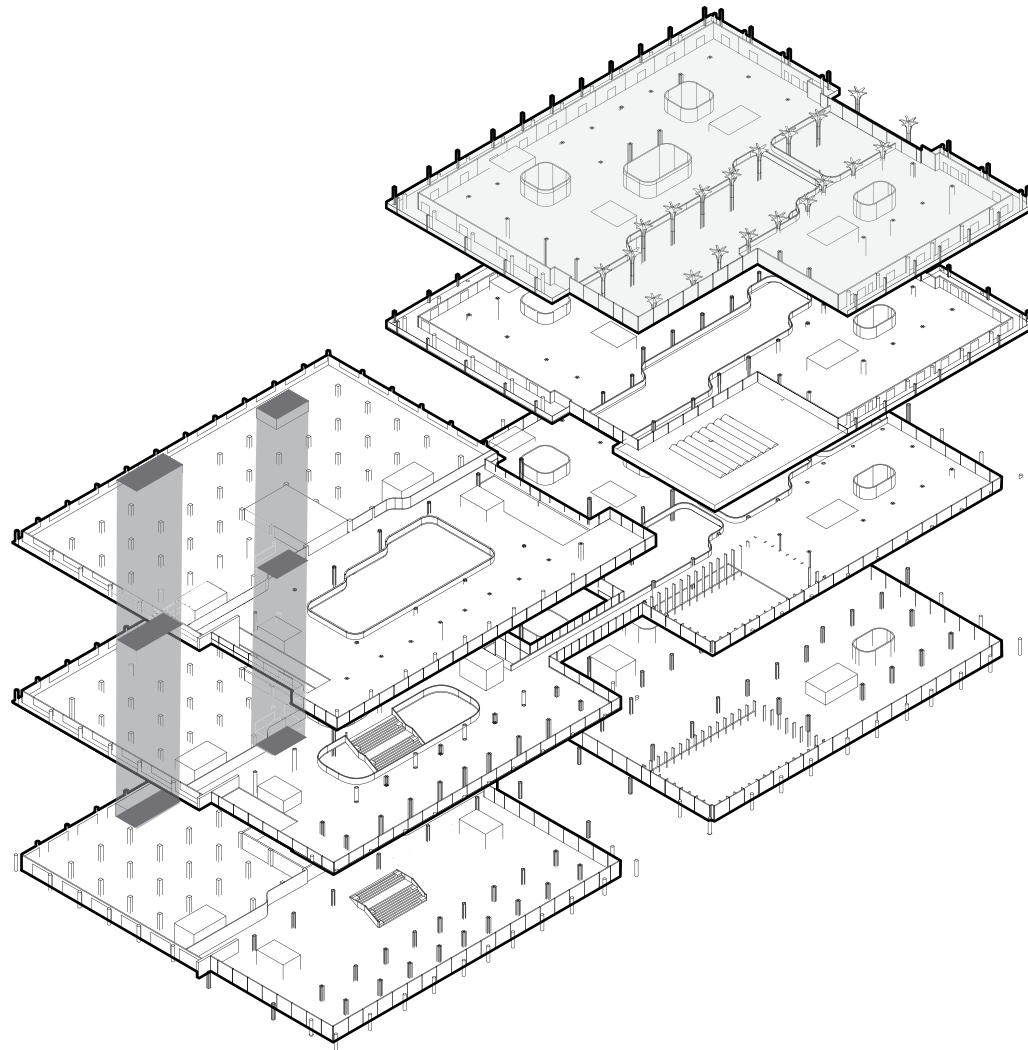
Design VERTICAL FLOW - LIVING



Patient circulation

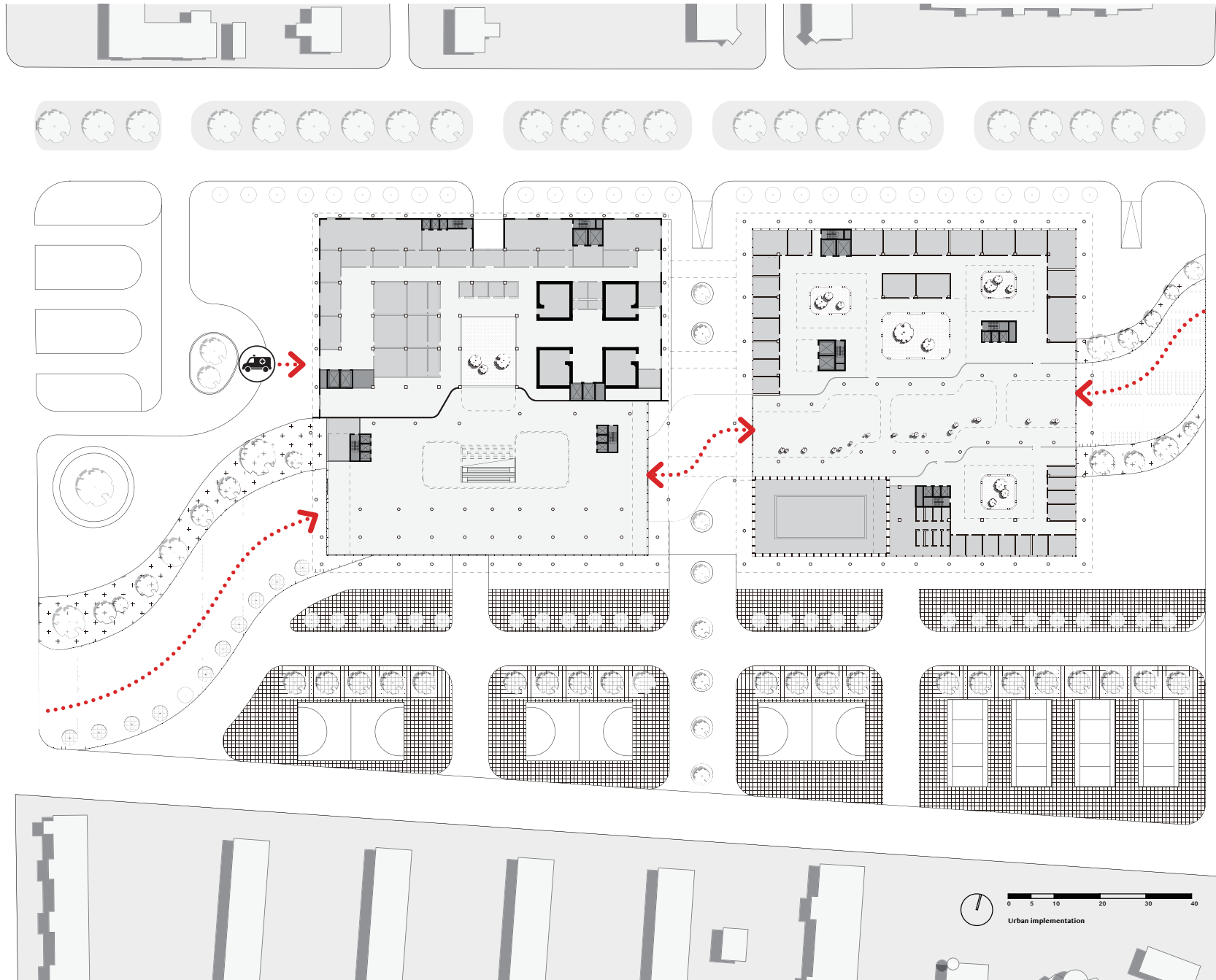
Design

VERTICAL CIRCULATION - LOGISTIC

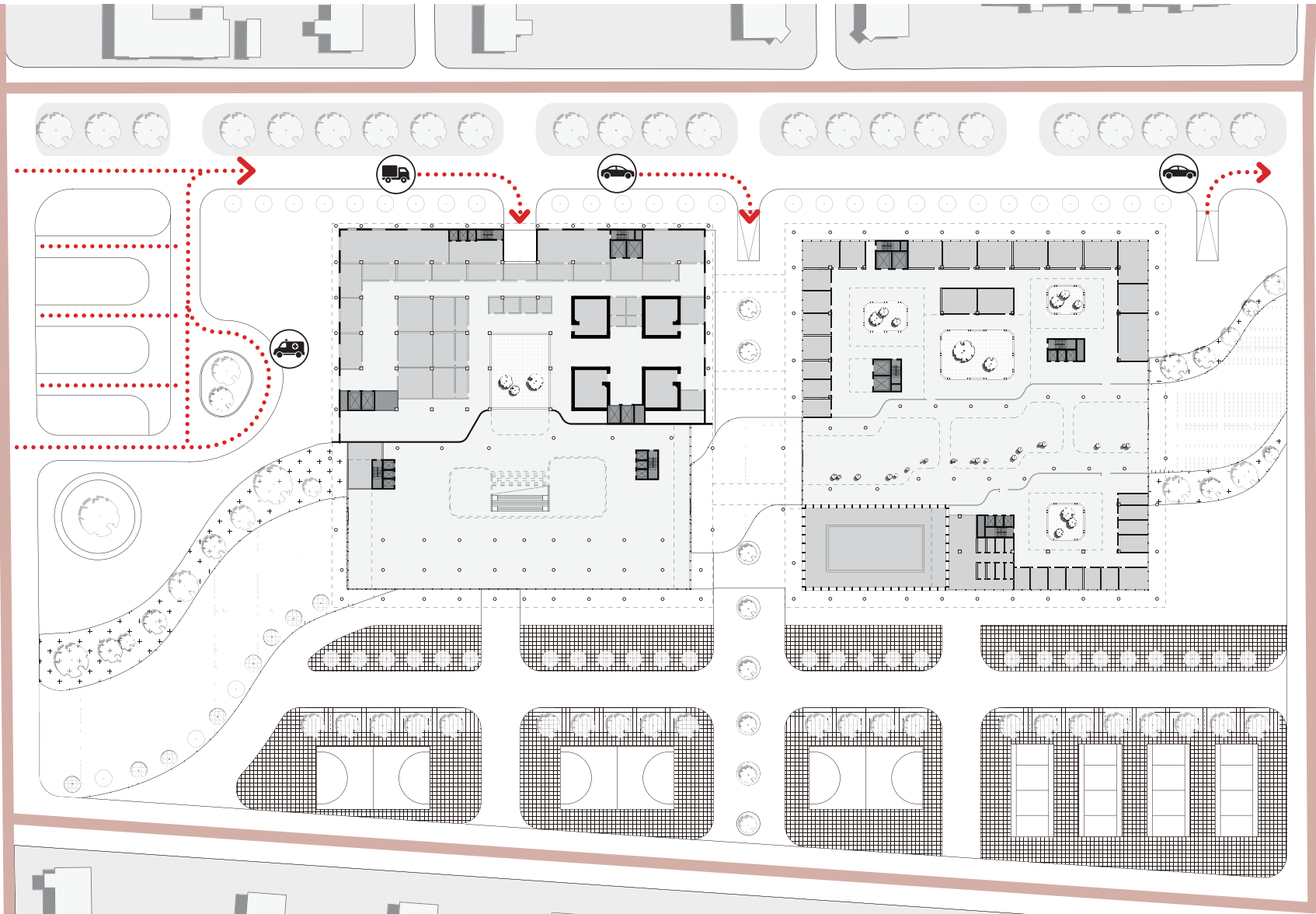


Logistic circulation

Design ENTRANCE

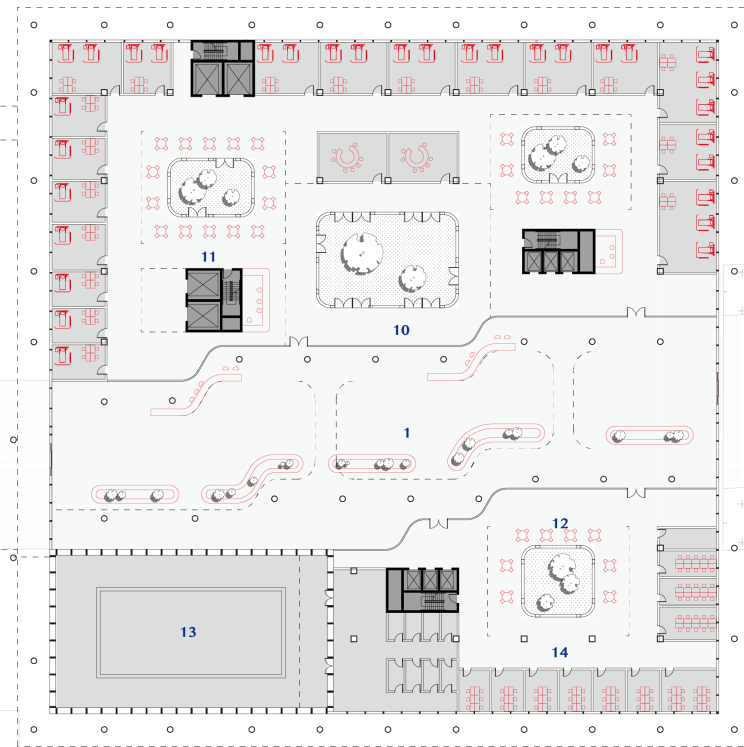
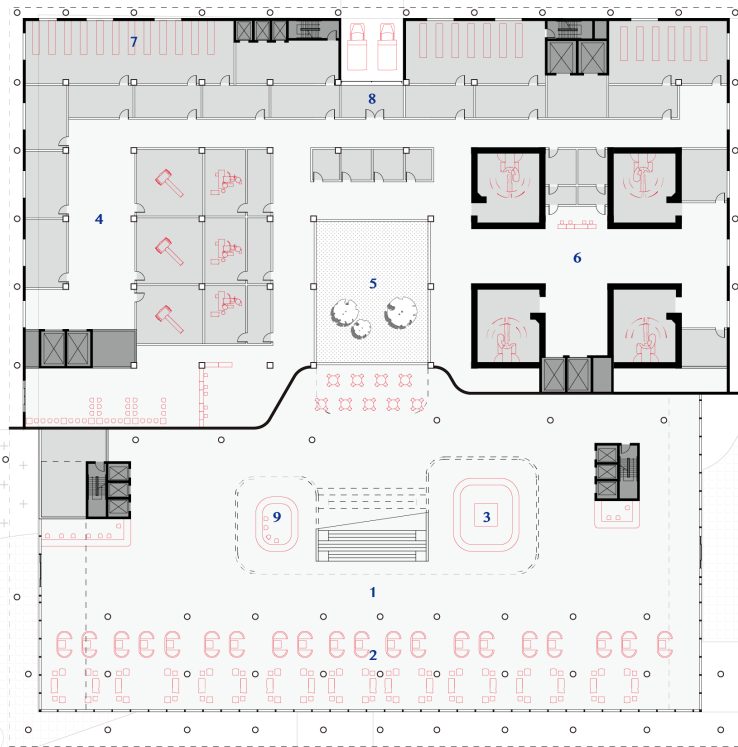


Design VEHICLE



Design

GROUND FLOOR



1. Public corridor
2. Patient support
3. Cafe
4. Emergency room
5. Atrium
6. Radiology
7. Blood bank
8. Logistic
9. Reception
10. Outpatient department
11. Waiting area
12. Social space
13. Pool
14. Consultation

0 5 10 20 30 40
Ground Floor plan

Design

MEDICAL BLOCK ENTRANCE



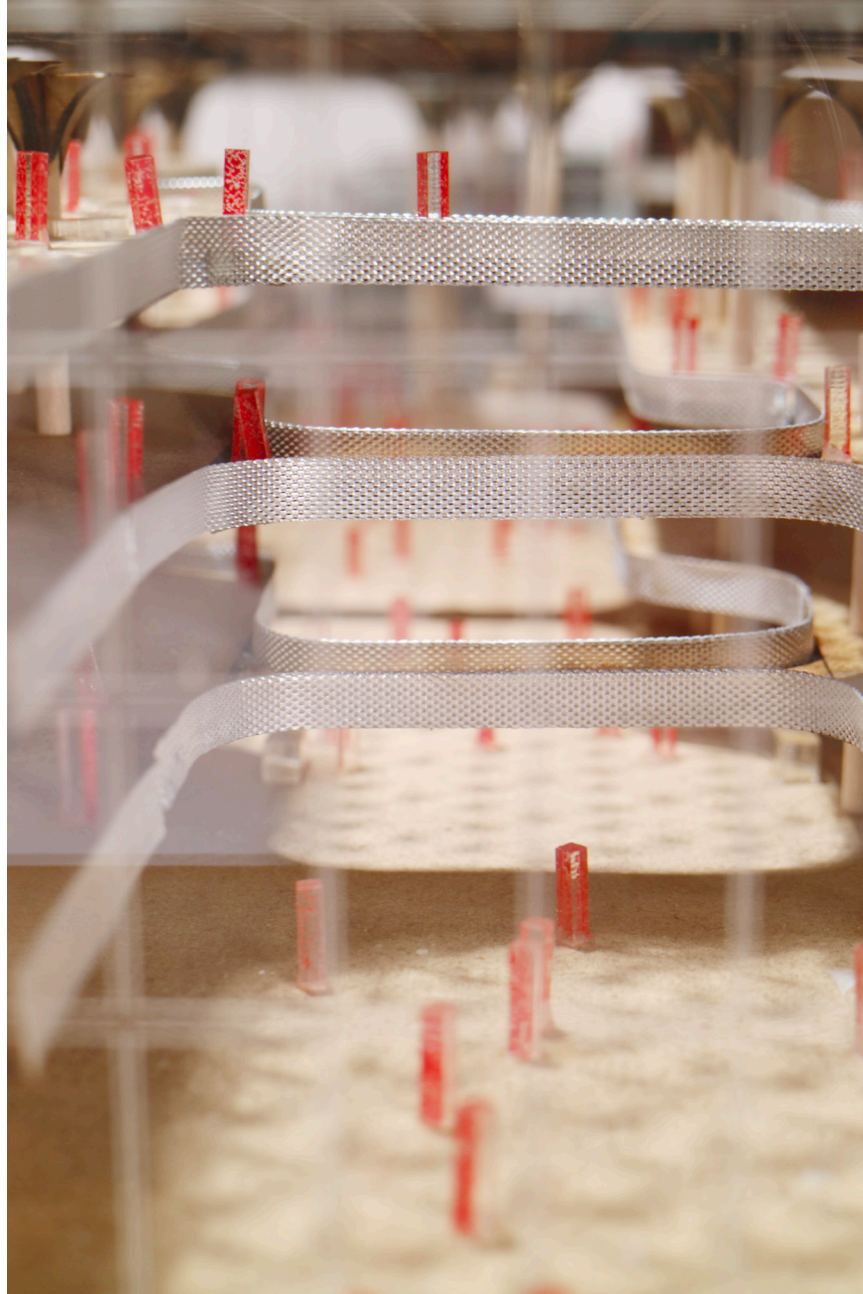
Design

LIVING BLOCK ENTRANCE-WELCOMING GESTURE



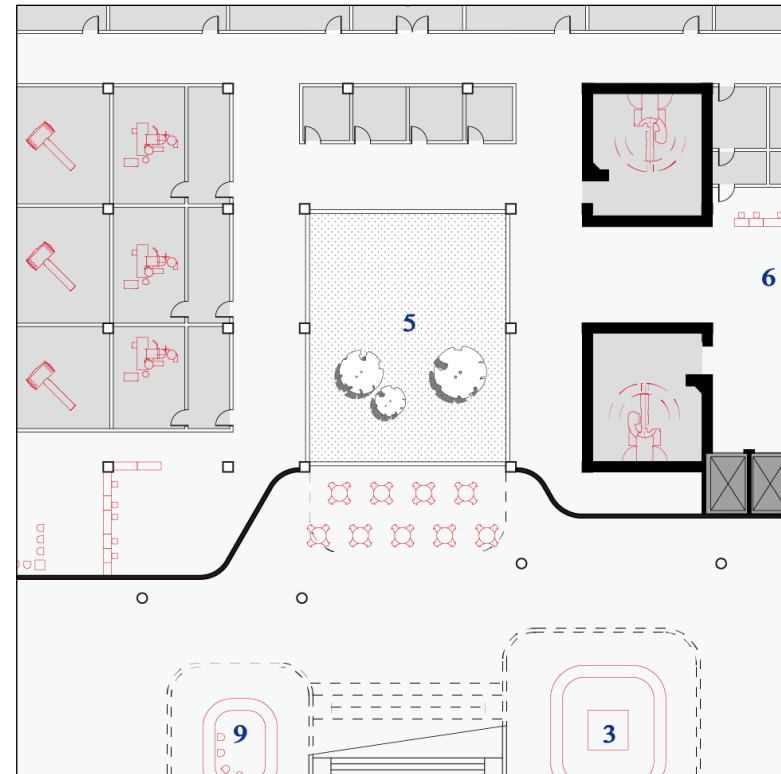
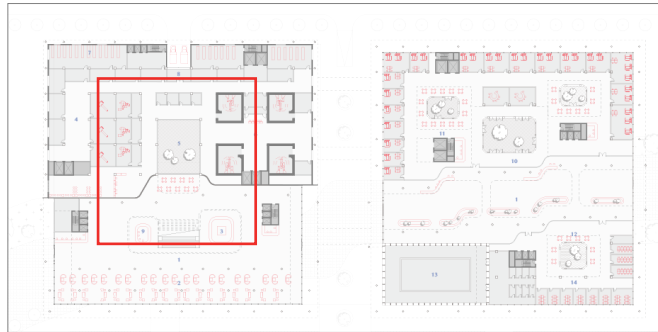
Design

PUBLIC CORRIDOR

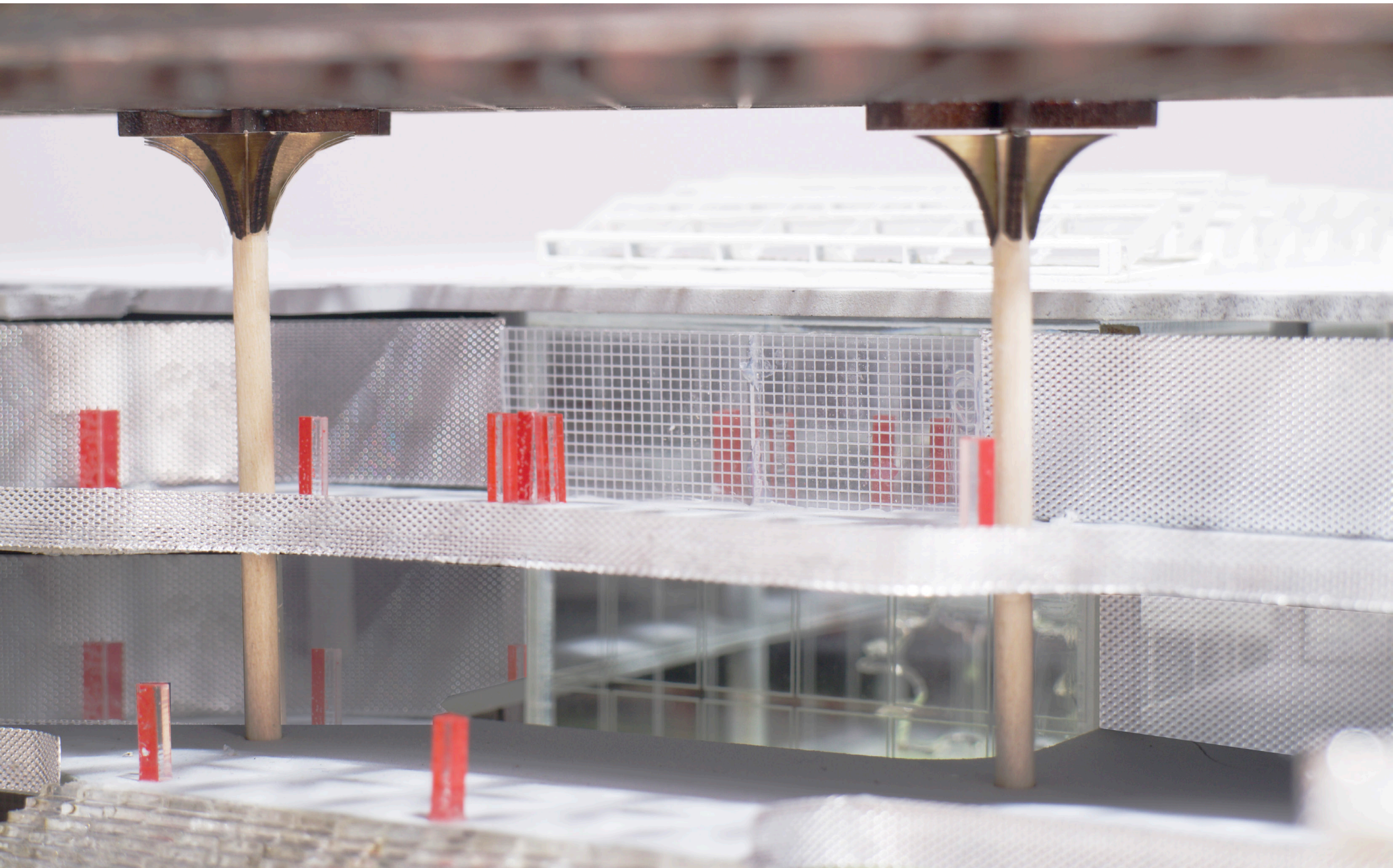


Design ATRIUM

GF

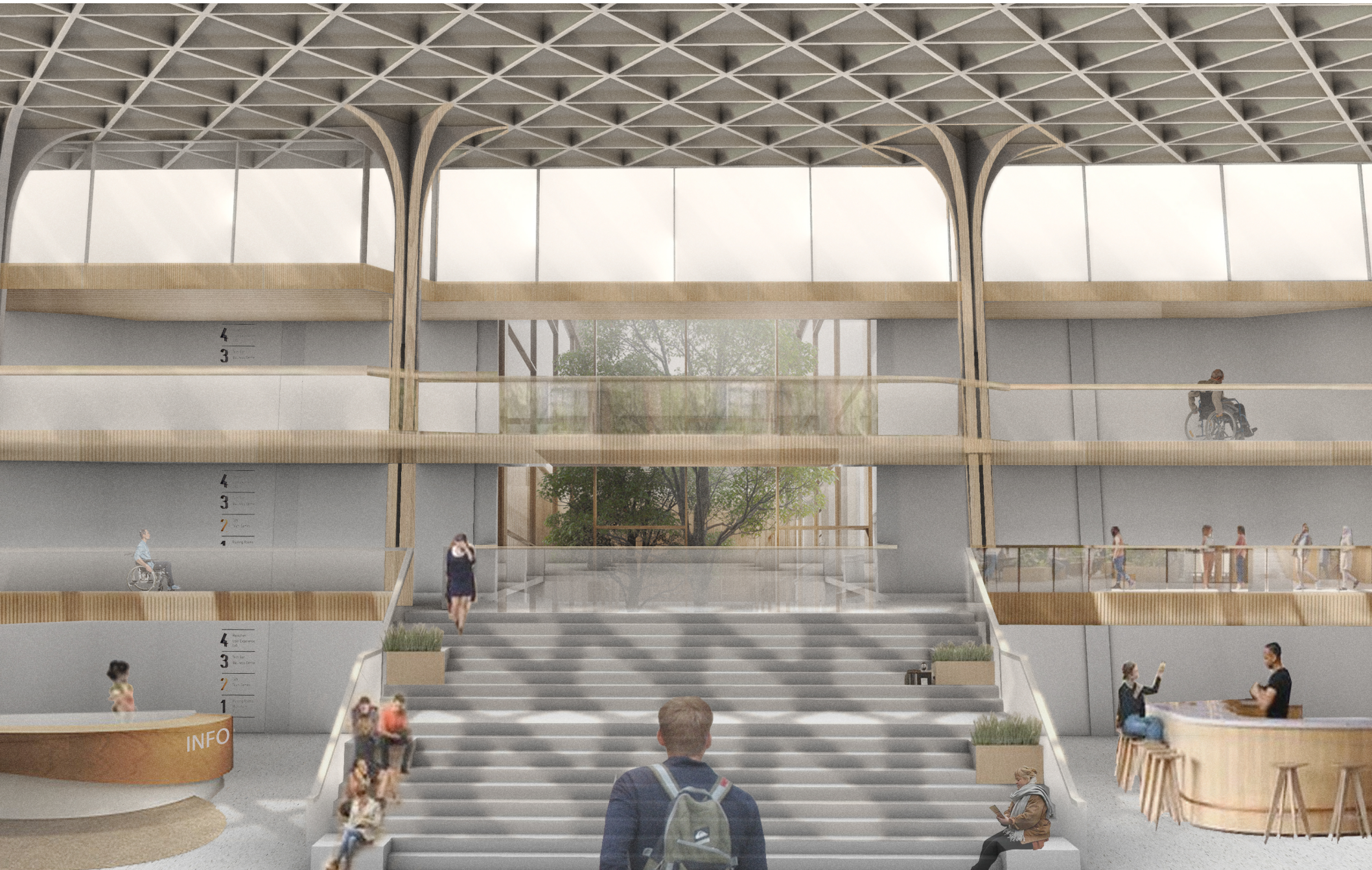


Design
ATRIUM



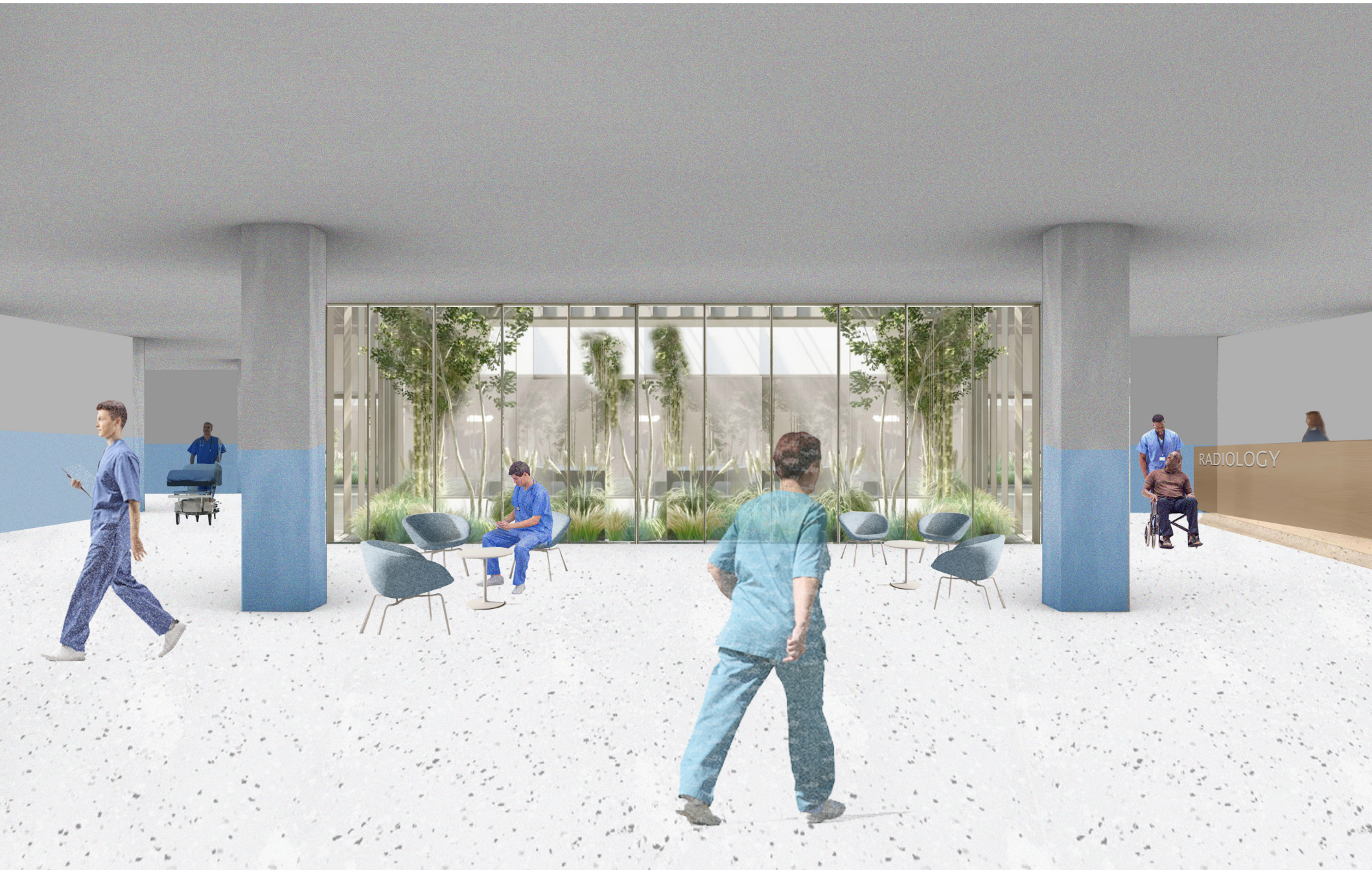
Design

ATRIUM-RECEPTION HALL SIDE



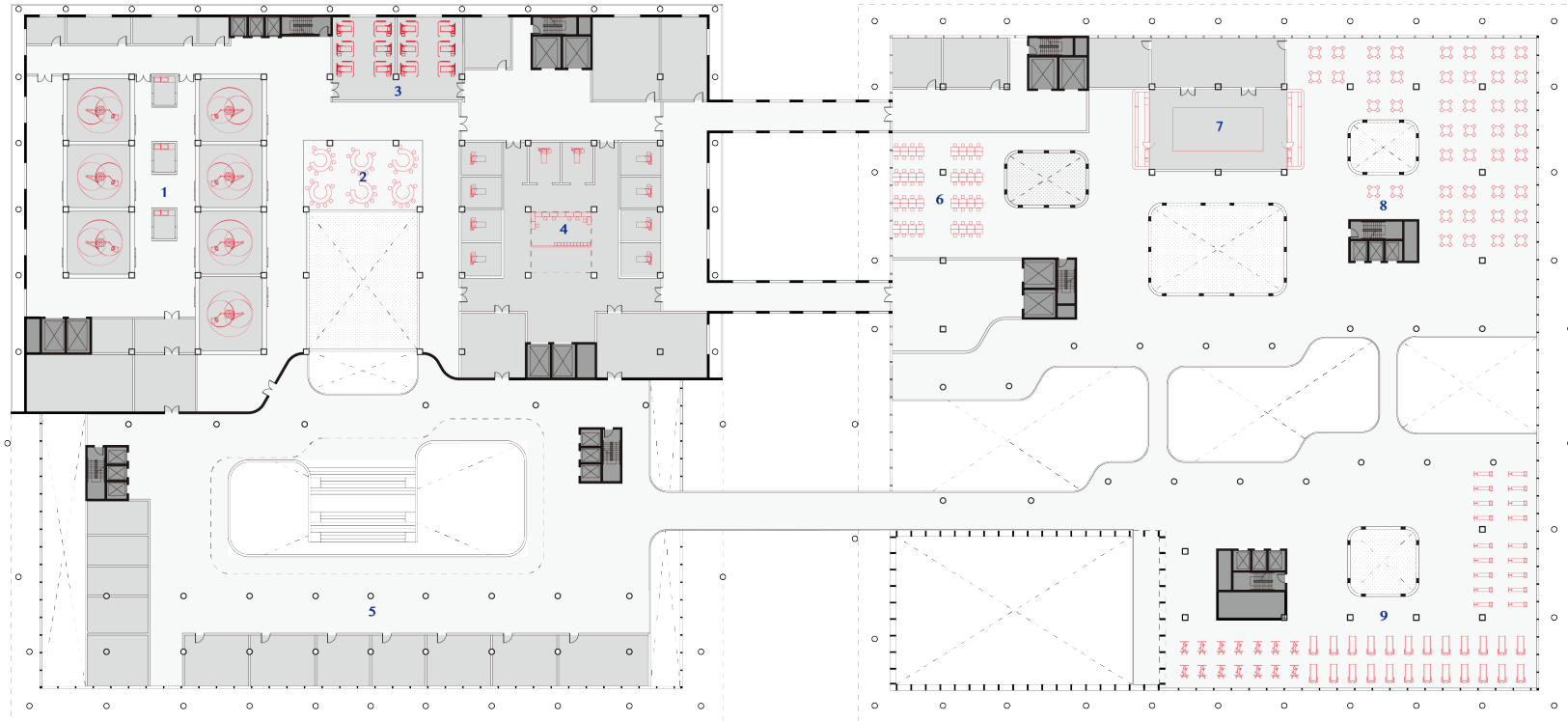
Design

ATRIUM-MEDICAL TECH SIDE

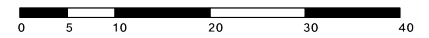


Design

1ST FLOOR



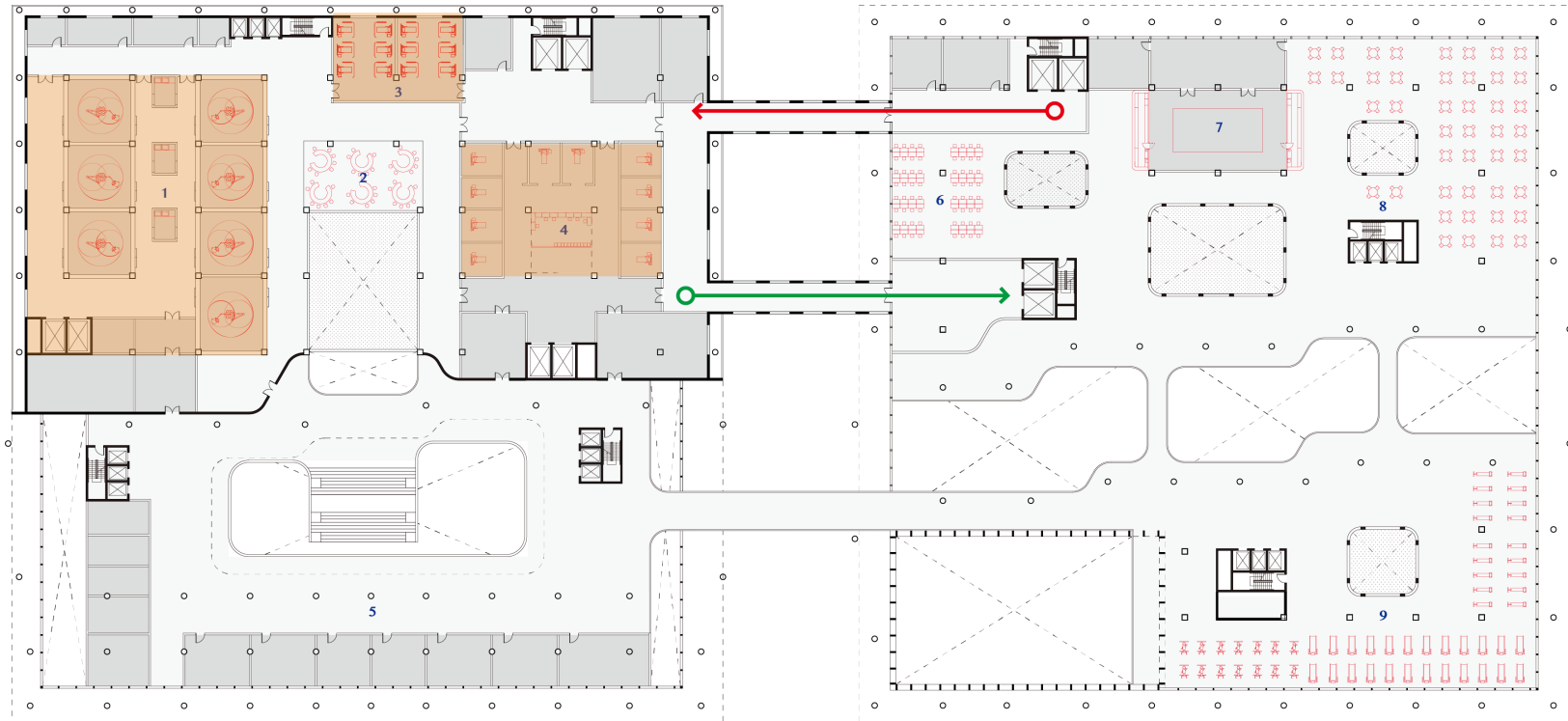
1. Operating unit
2. Doctor area
3. Recovery unit
4. ICU
5. Consultation
6. Staff cafeteria
7. Kitchen
8. Patient cafeteria
9. Gym



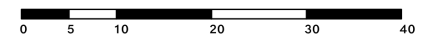
First Floor plan

Design

MEDICAL TECH



1. Operating unit
2. Doctor area
3. Recovery unit
4. ICU
5. Consultation
6. Staff cafeteria
7. Kitchen
8. Patient cafeteria
9. Gym



First Floor plan

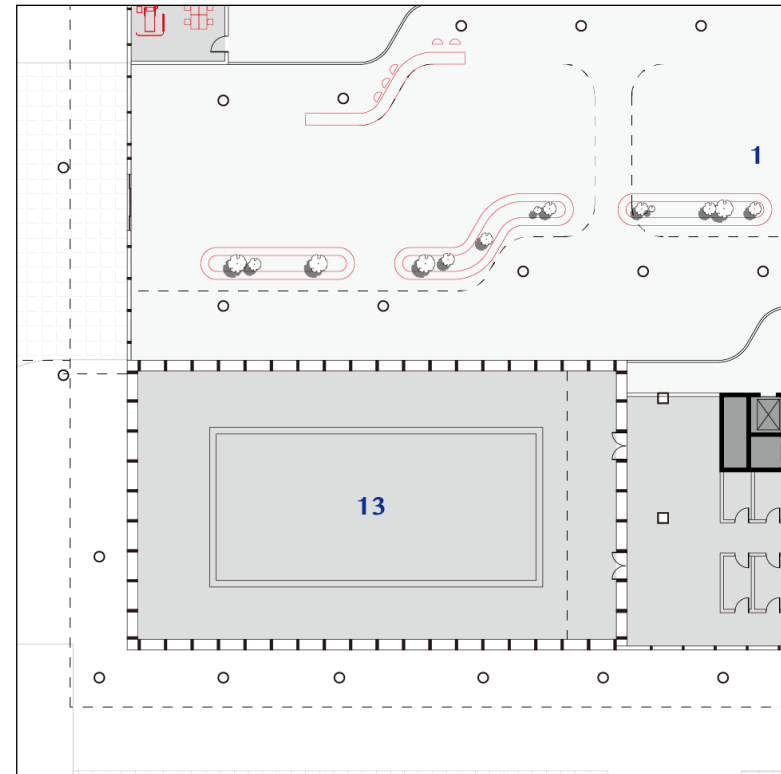
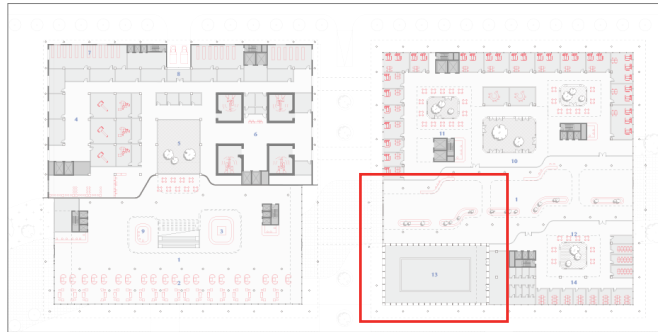
Design

MEDICAL CORRIDOR

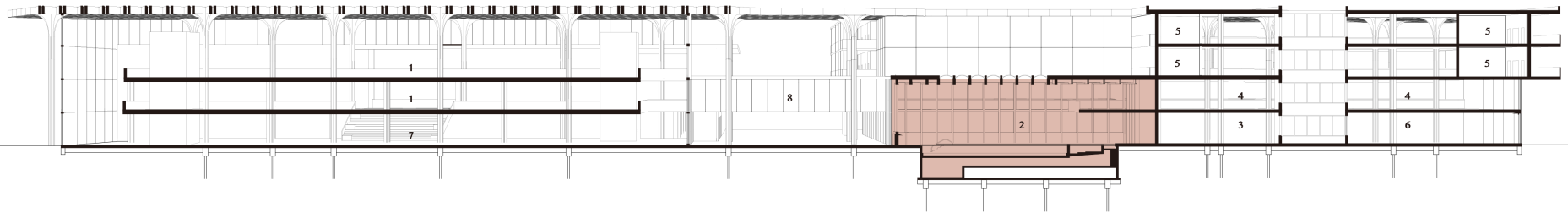


Design SWIMMING POOL

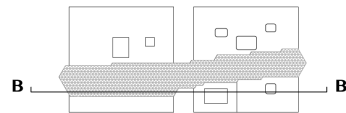
GF



Design CROSS SECTION



1. Consultation
2. Swimming pool
3. Changing room
4. Gym
5. Living room
6. Social space
7. Reception hall
8. Foot bridge



B-B' Section

SCALE 1:600

Design
SWIMMING POOL

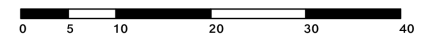


Design

2RD FLOOR



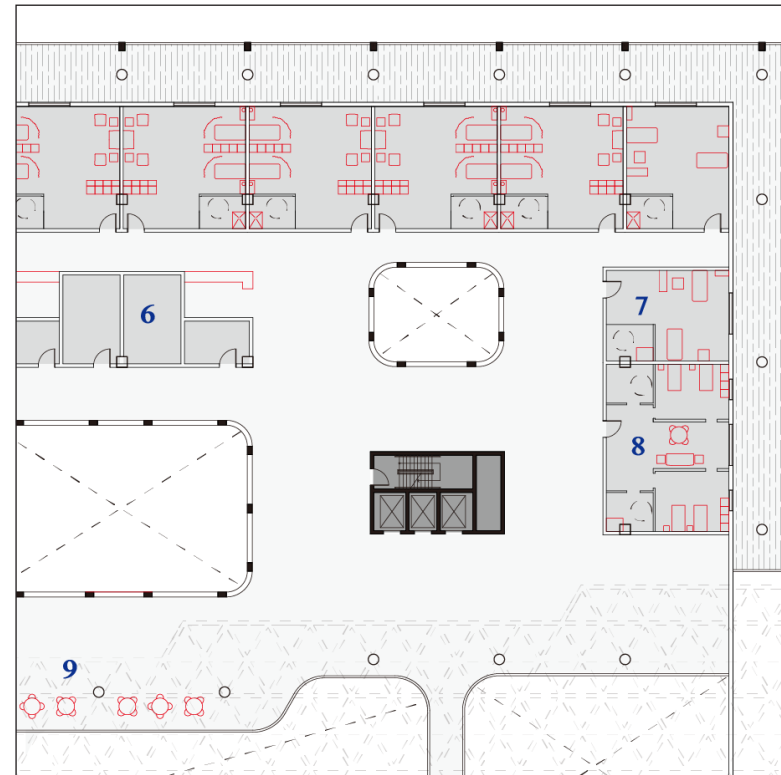
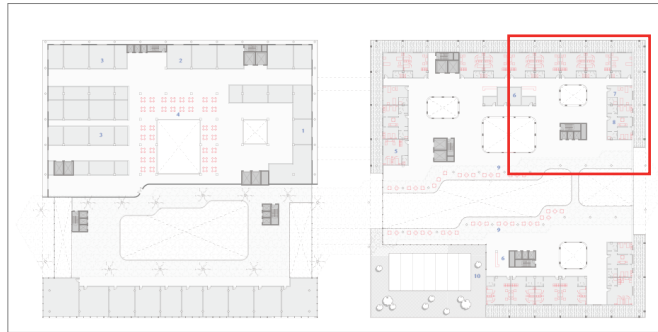
1. Data center
2. Admin office
3. Technical room
4. Staff social area
5. Semi-disabled ward
6. Nursing station
7. Disabled ward
8. Living room
9. Social space
10. Roof garden



Second Floor plan

Design **WARD**

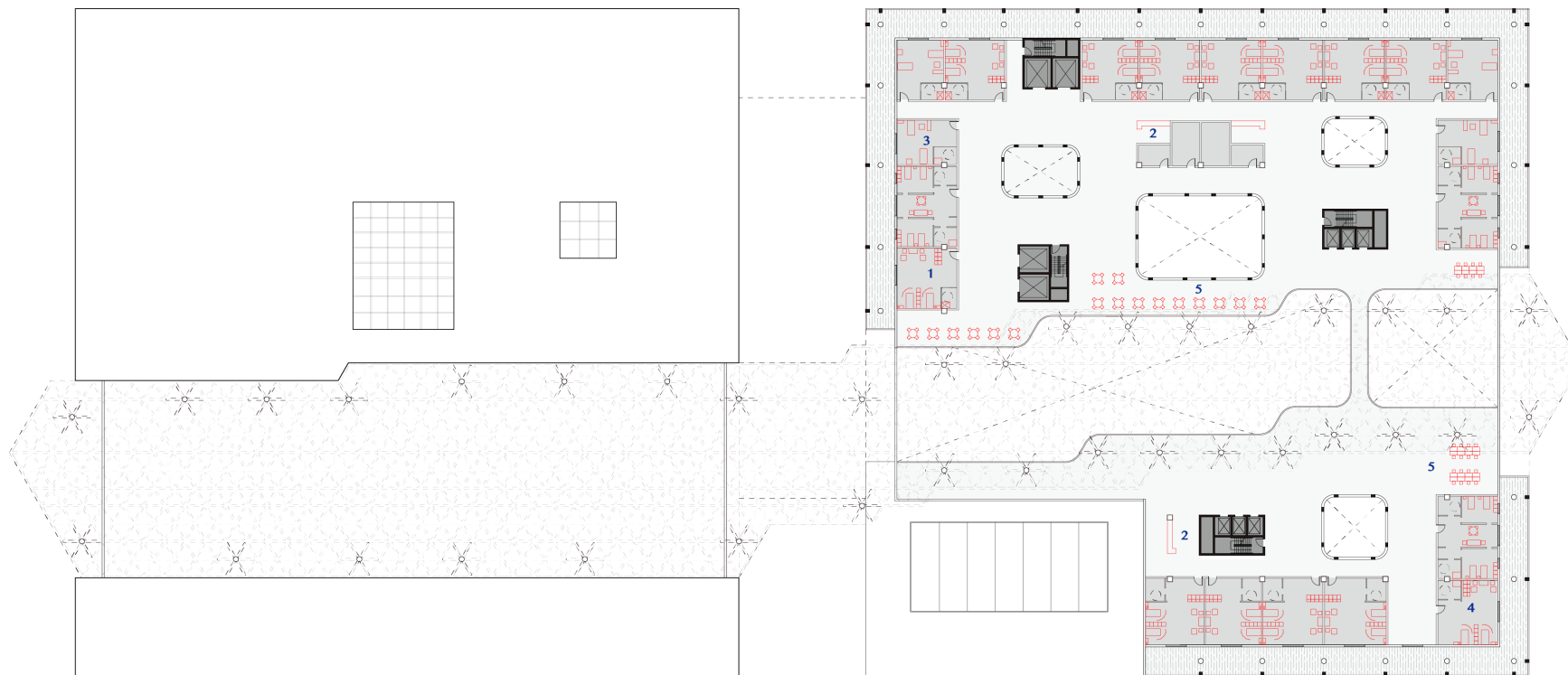
2F



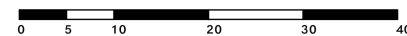


Design

3RD FLOOR



1. Semi-disabled ward
2. Nursing station
3. Disabled ward
4. Living room
5. Social space



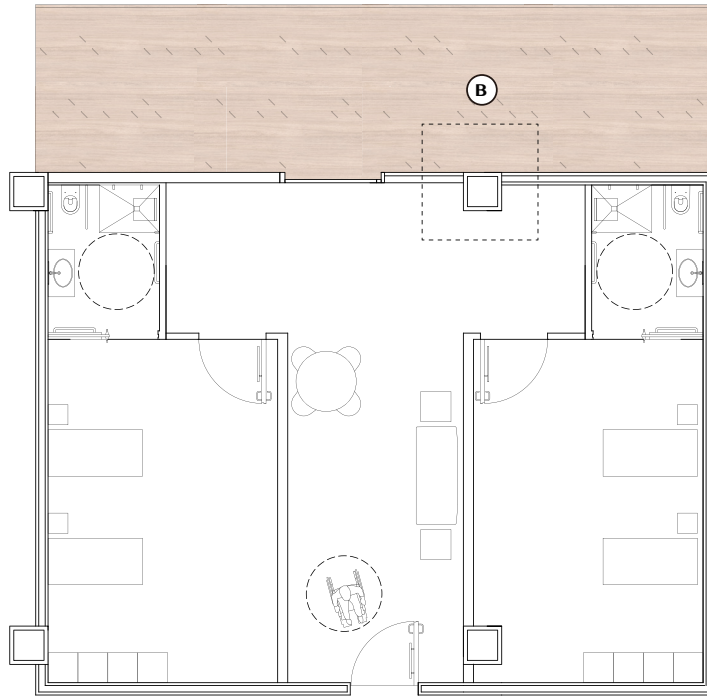
Third Floor plan

Design
SOCIAL AREA



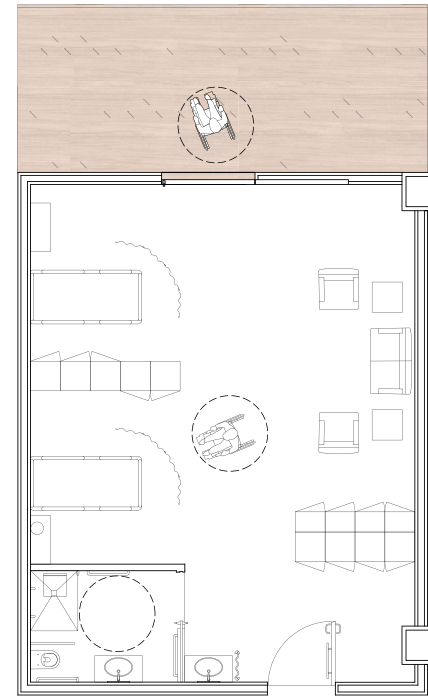
Design

LIVING ROOM



Independent living room
Interior fragment

SCALE 1:100



Disabled living room
Interior fragment

SCALE 1:100

Introduction

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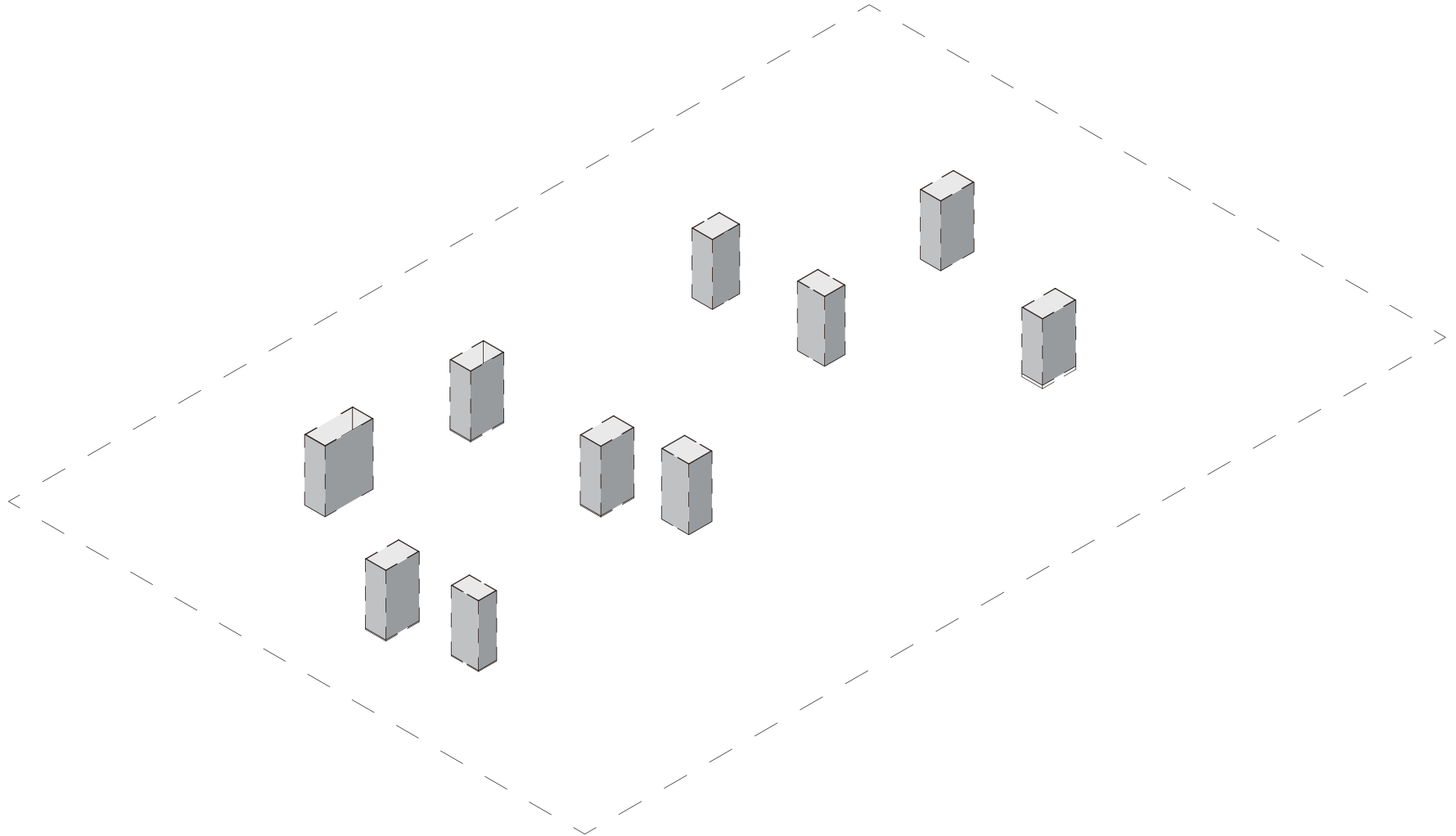
Concept

Implementation

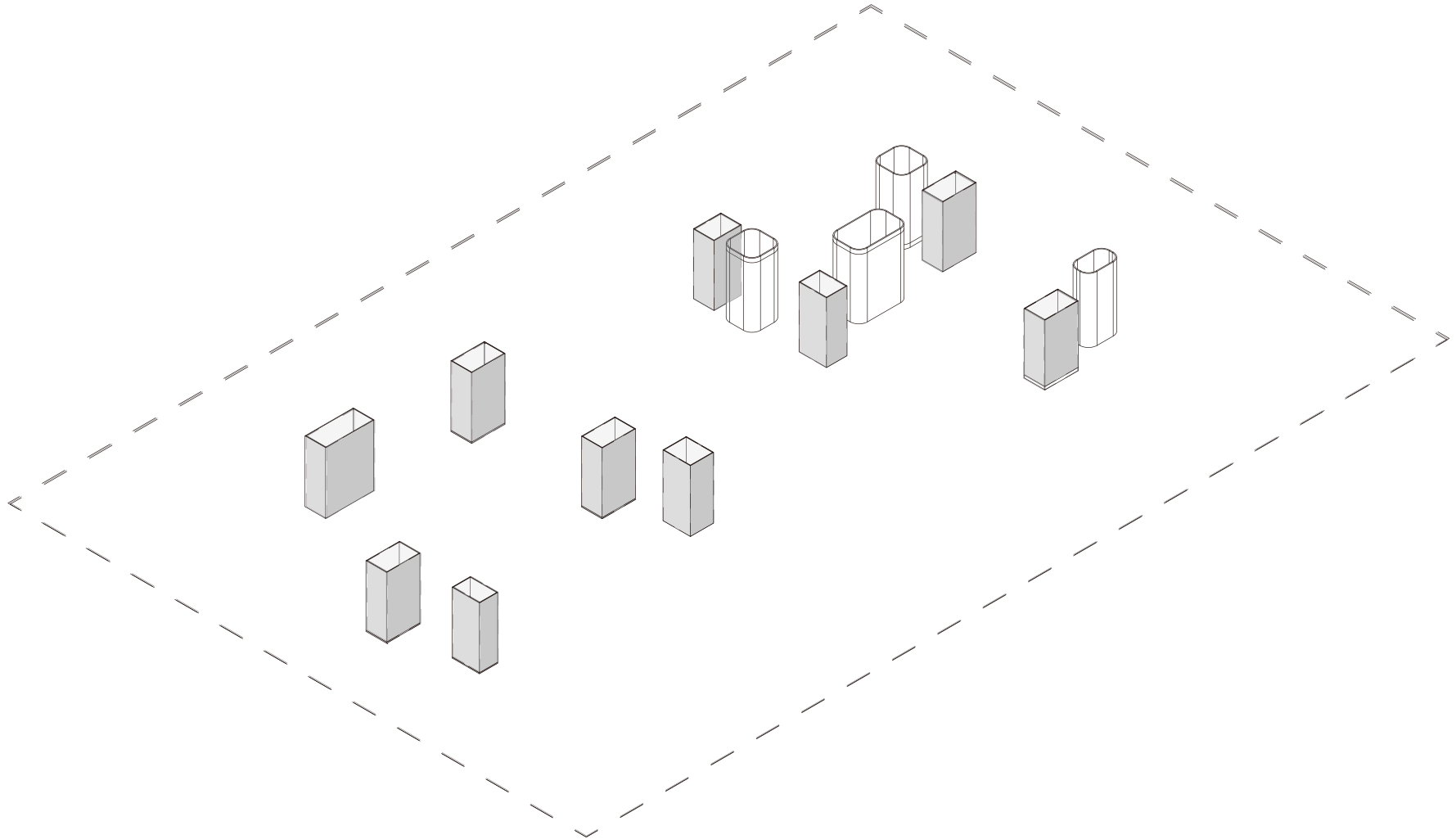
Development

Conclusion

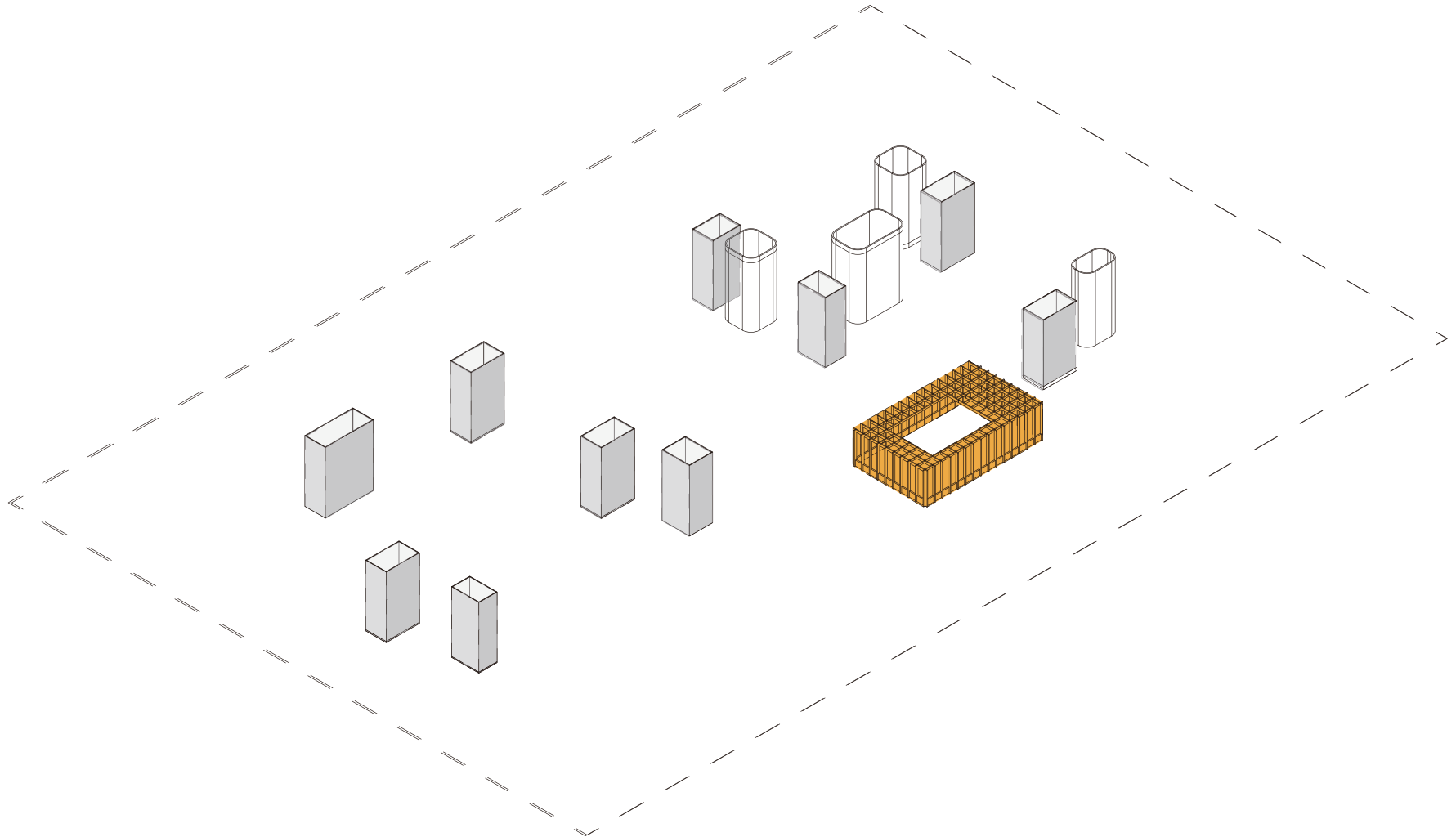
Development **STRUCTURE**



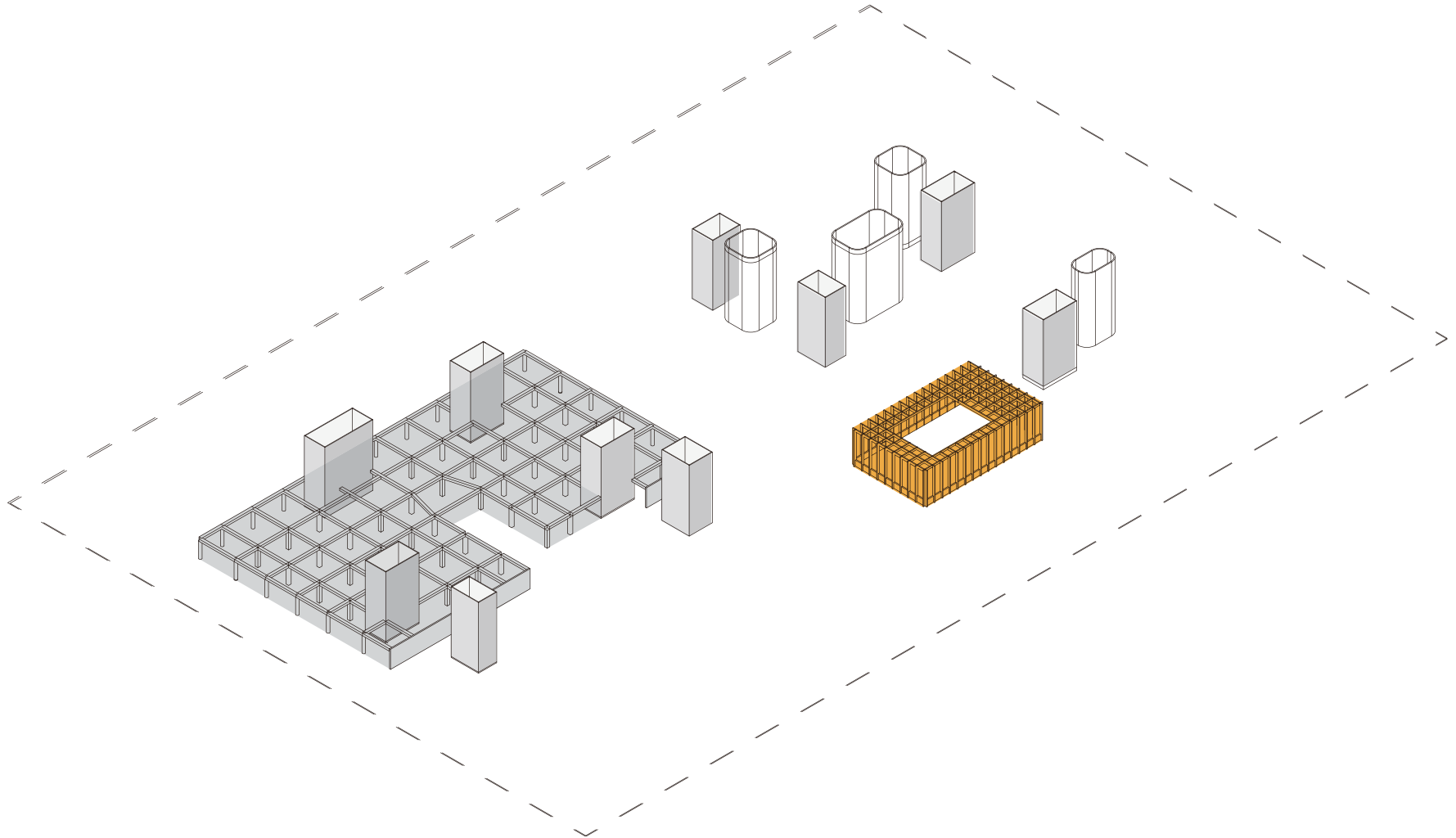
Development **STRUCTURE**



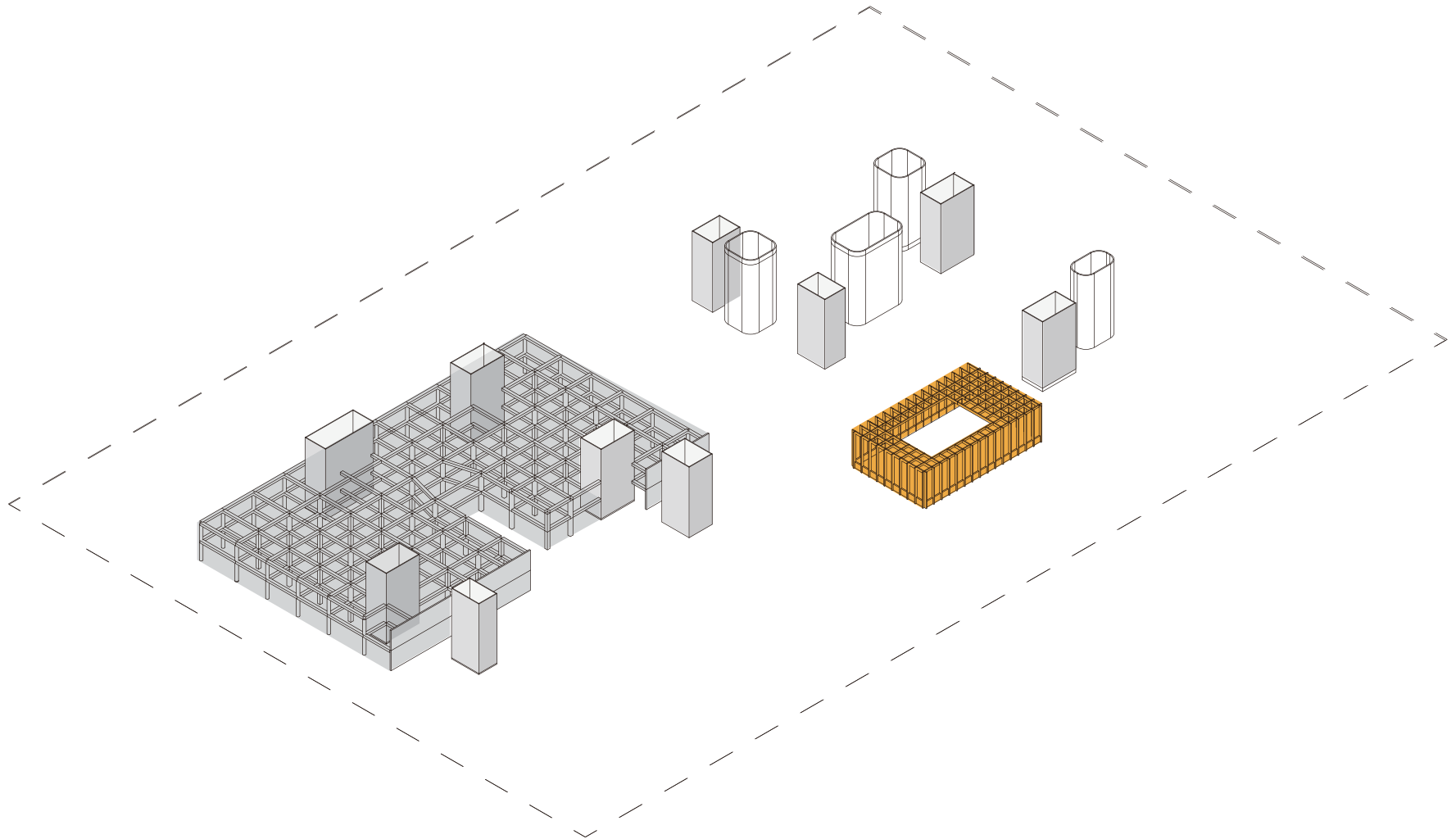
Development **STRUCTURE**



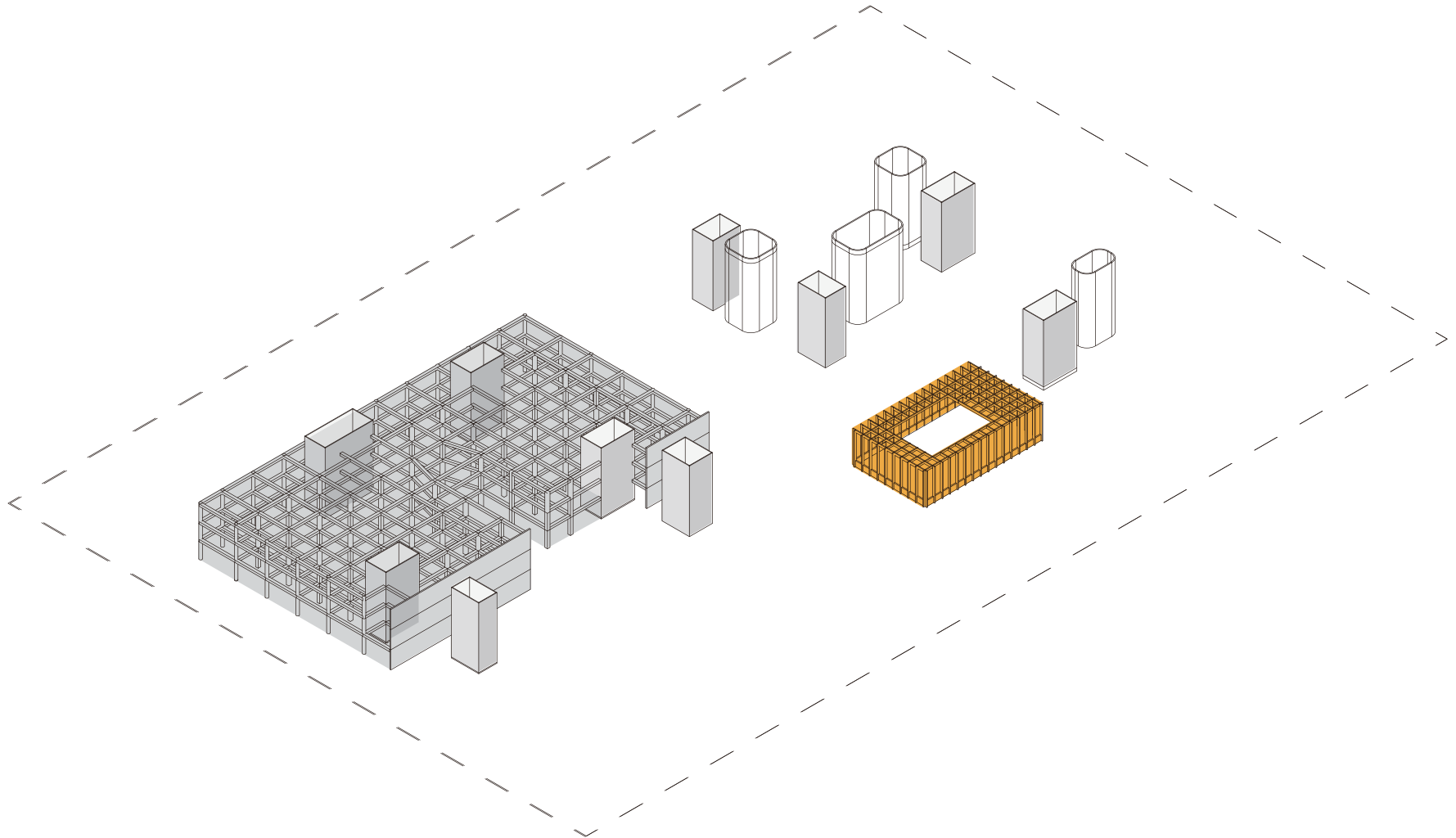
Development **STRUCTURE**



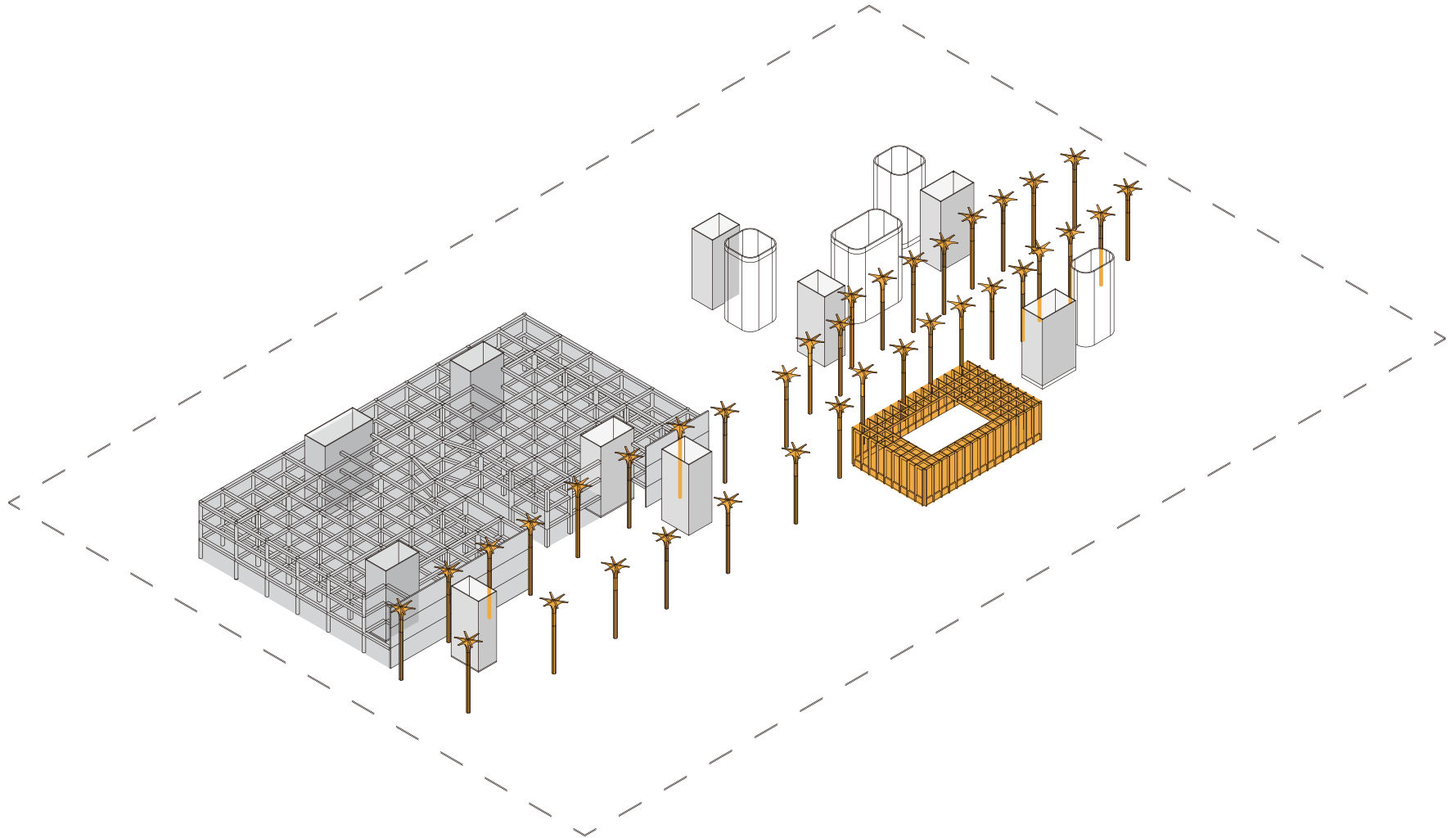
Development **STRUCTURE**



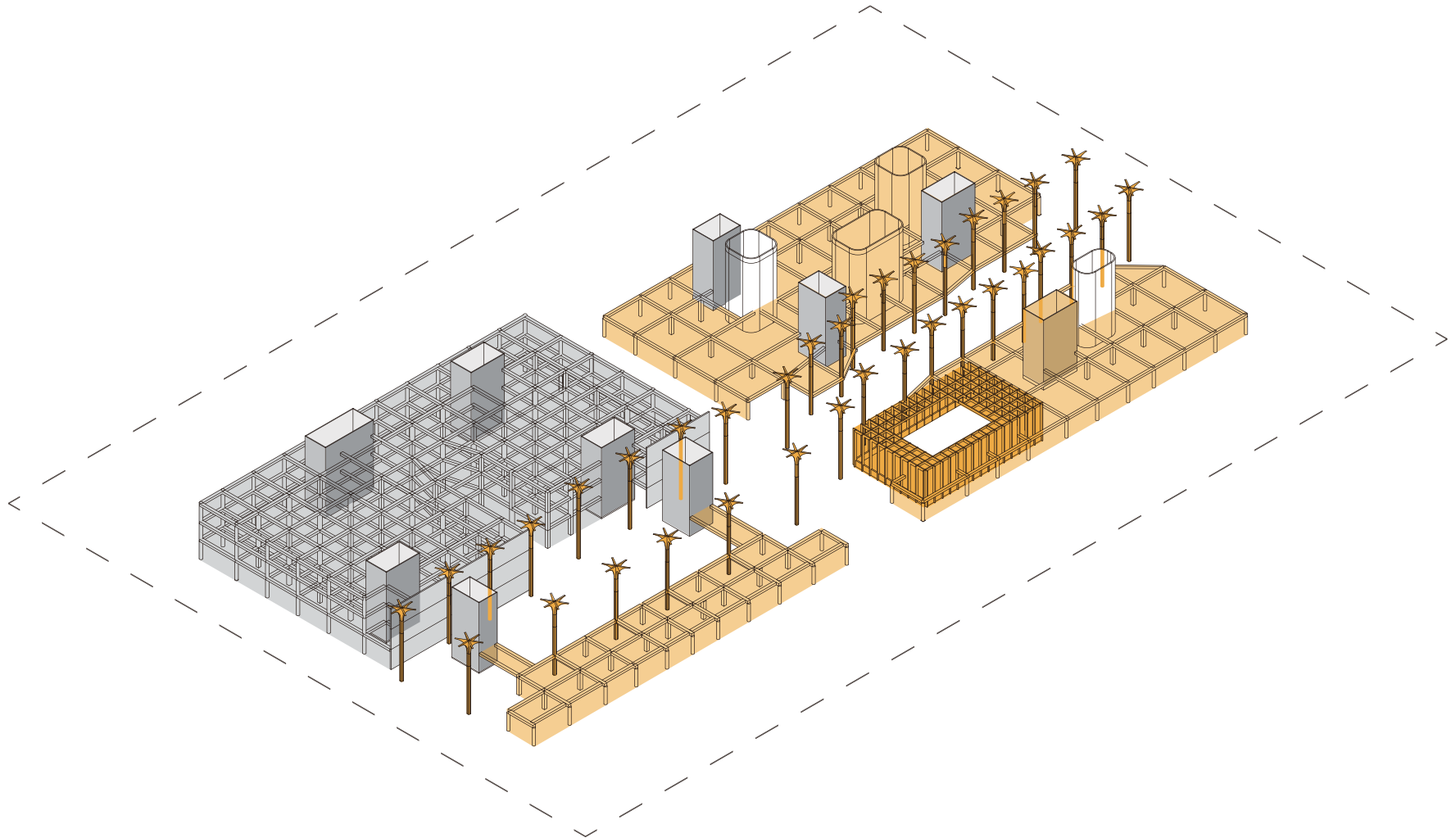
Development **STRUCTURE**



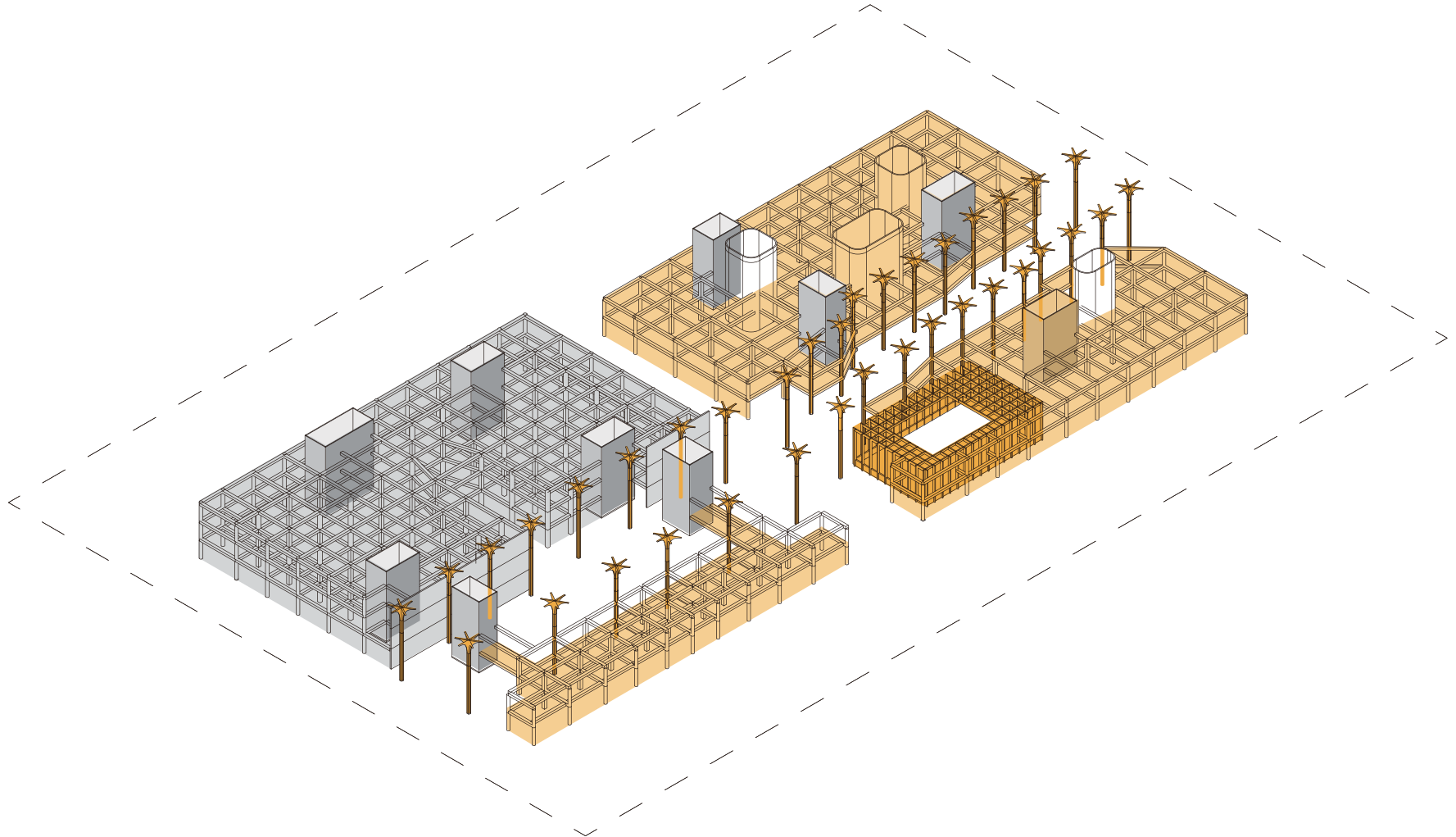
Development **STRUCTURE**



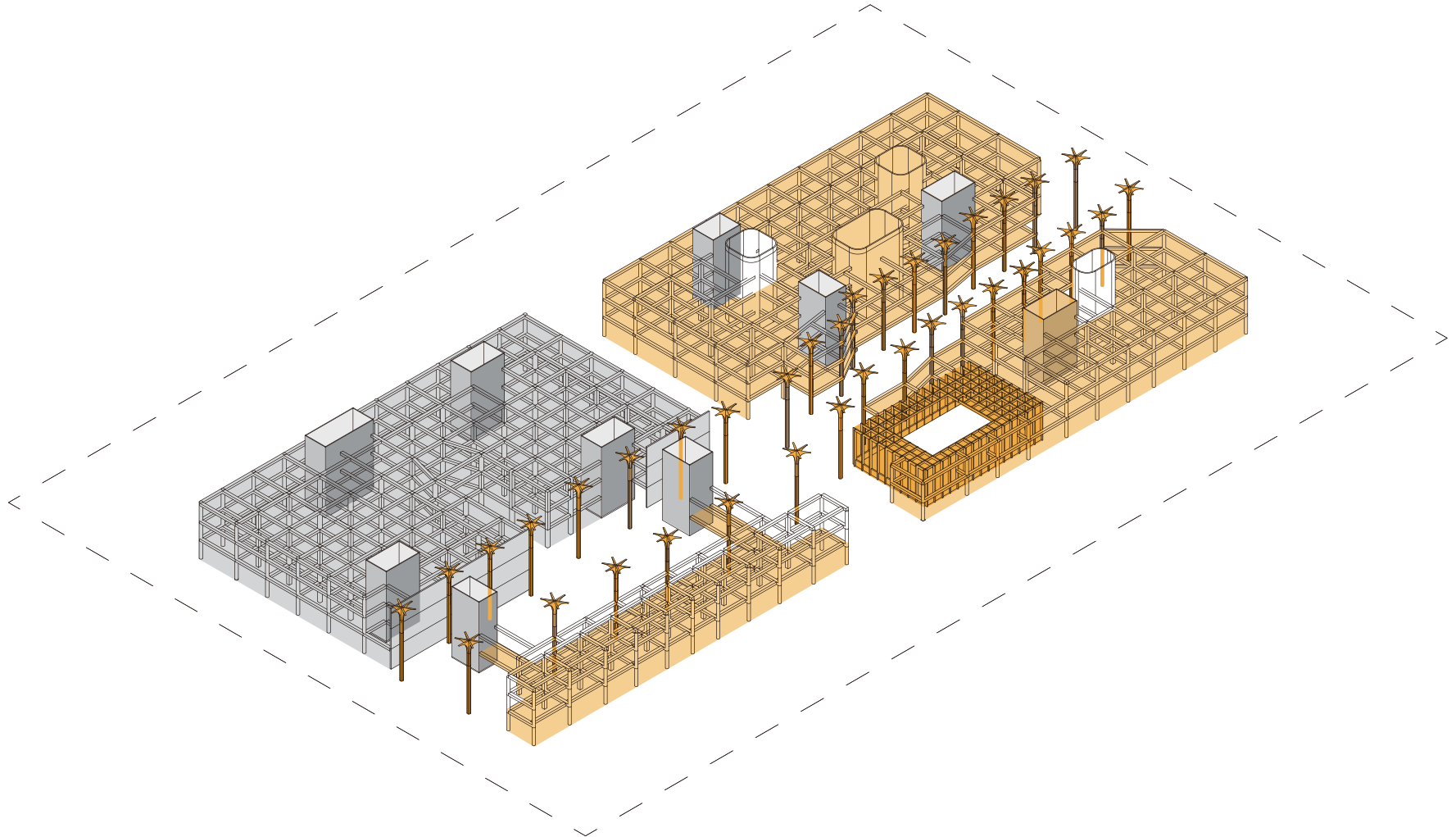
Development **STRUCTURE**



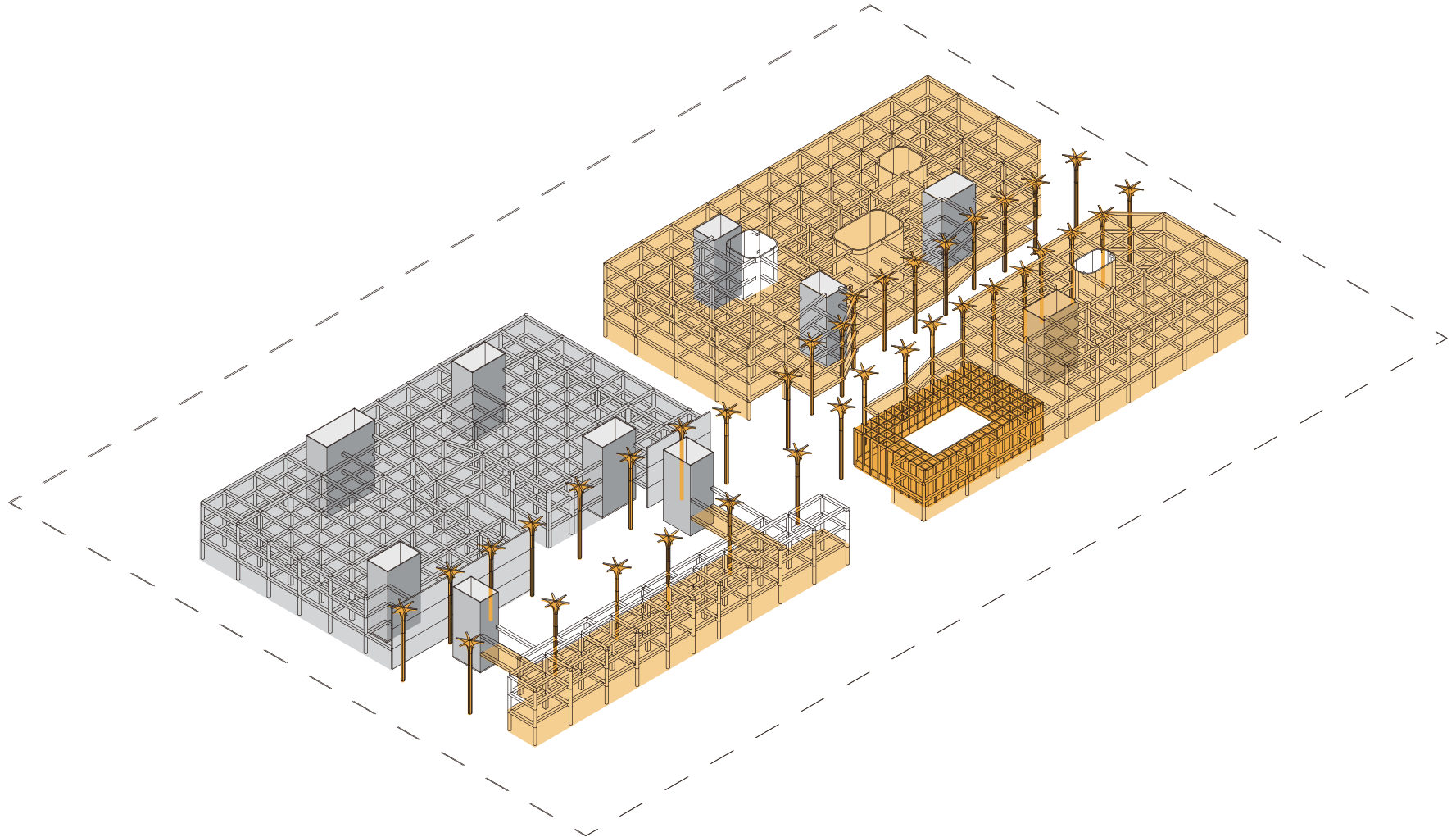
Development **STRUCTURE**



Development **STRUCTURE**

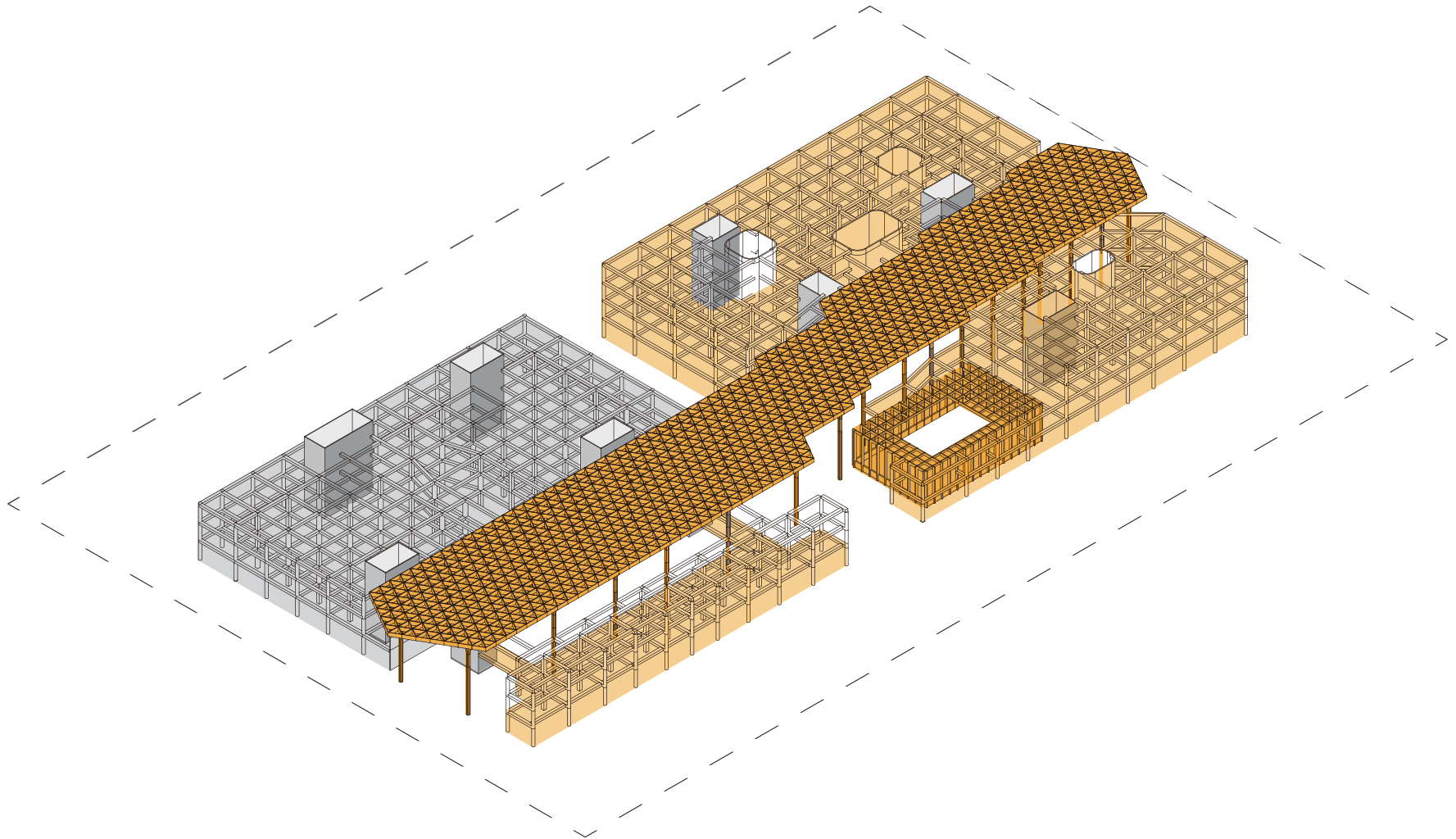


Development **STRUCTURE**



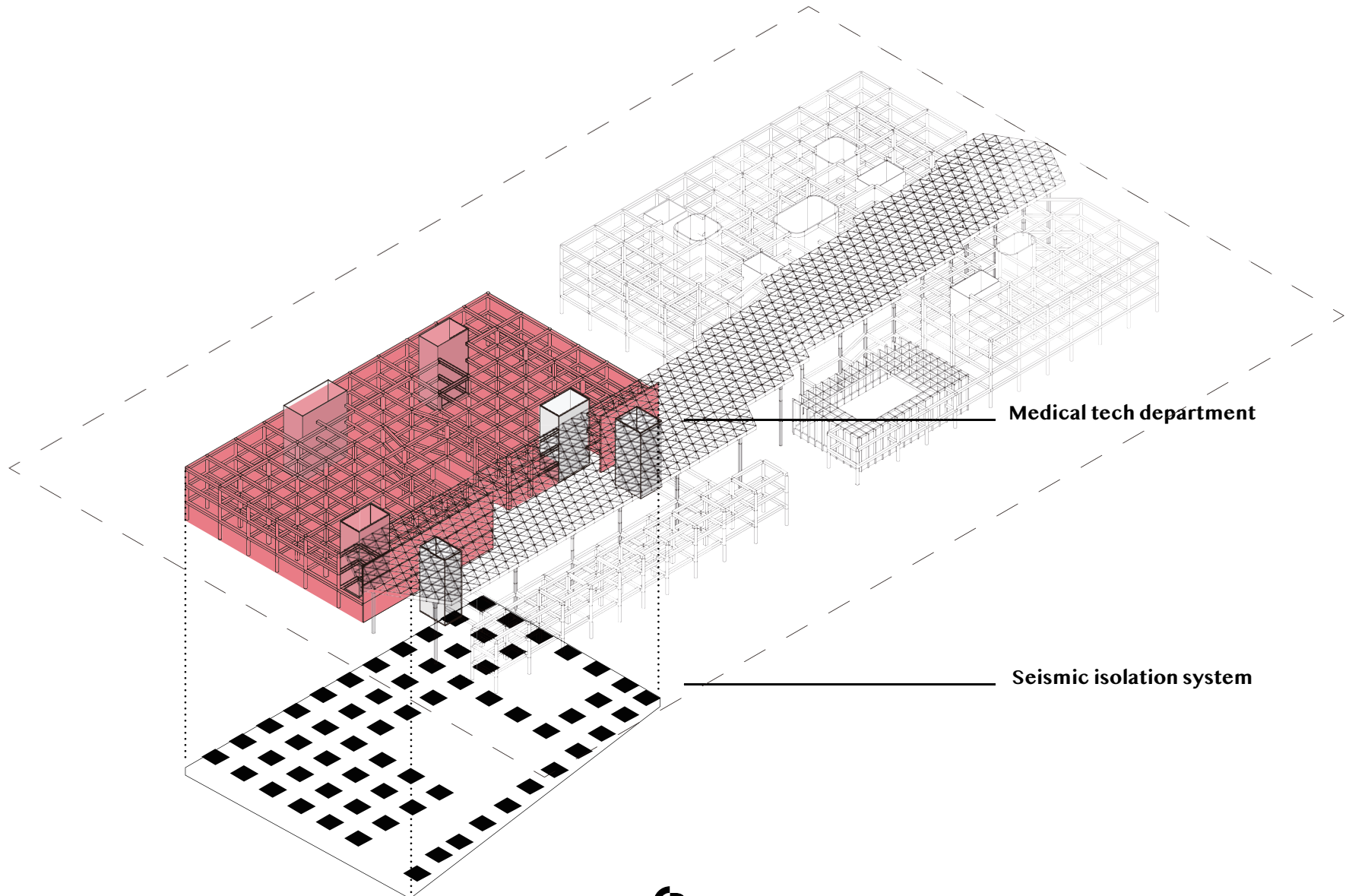
Development

HYBRID STRUCTURE

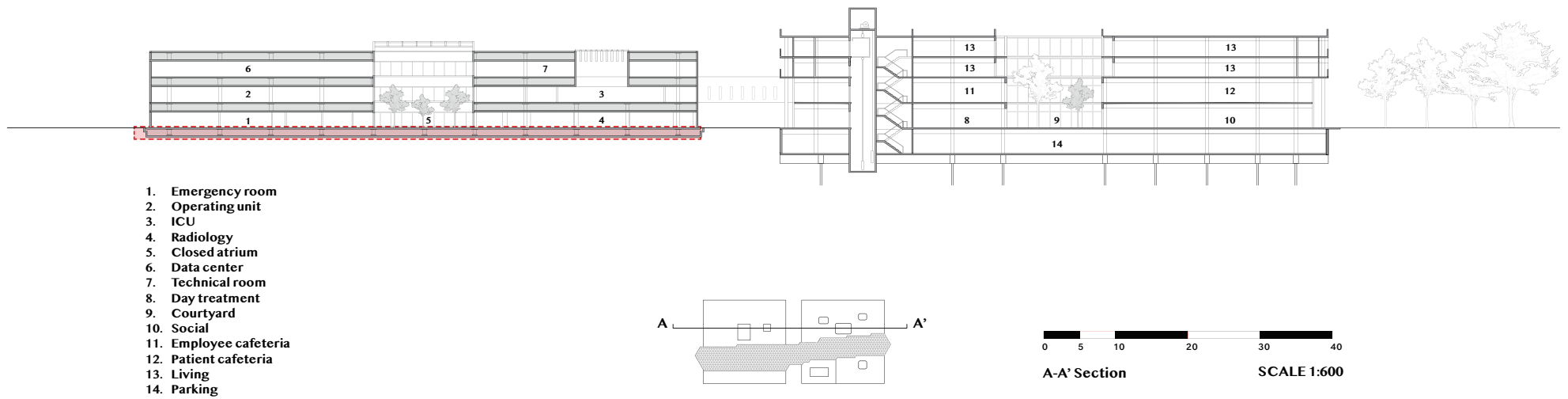


SEISMIC ISOLATION SYSTEM

Precision surgical and imaging equipment require high levels of vibration damping in buildings.
The base isolation system provides a high degree of stability to the building from surrounding traffic and construction vibration.

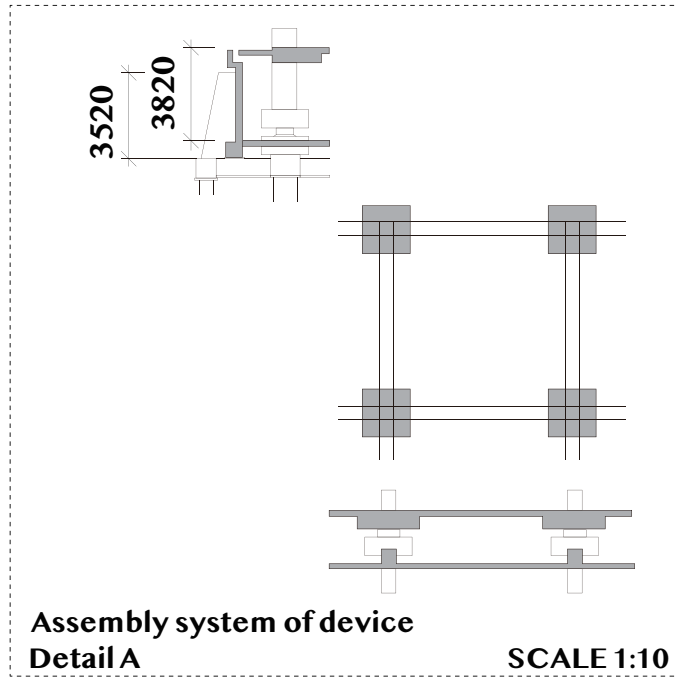


Development SEISMIC ISOLATION SYSTEM



Development

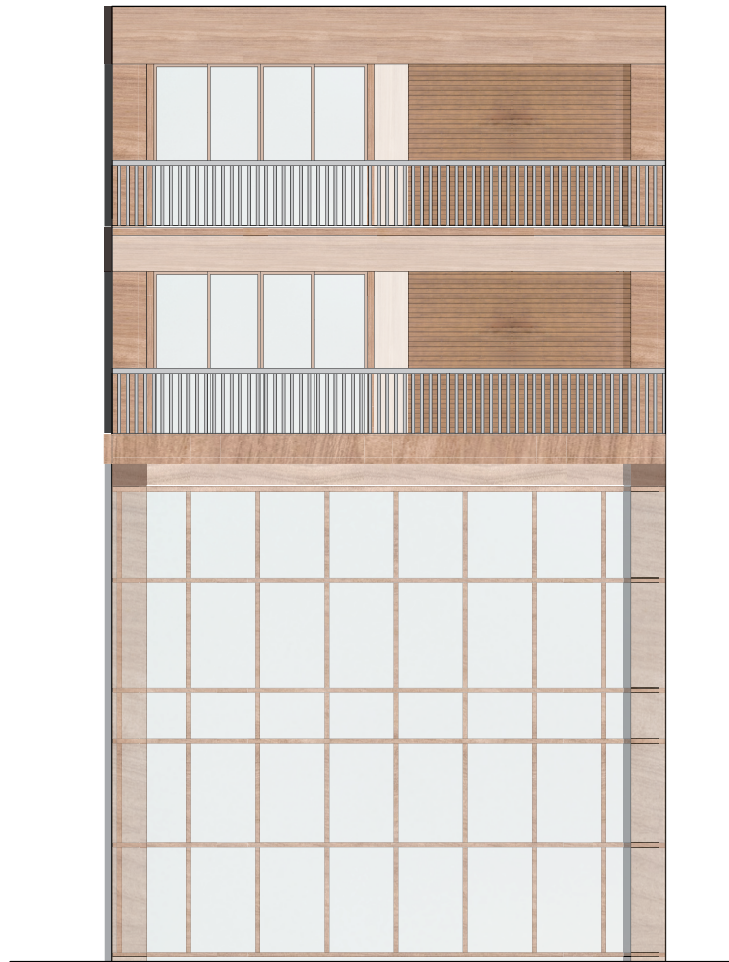
SEISMIC ISOLATION SYSTEM



The isolation supports (Concrete wedges) are intercalated in the base of the columns, above the foundations.

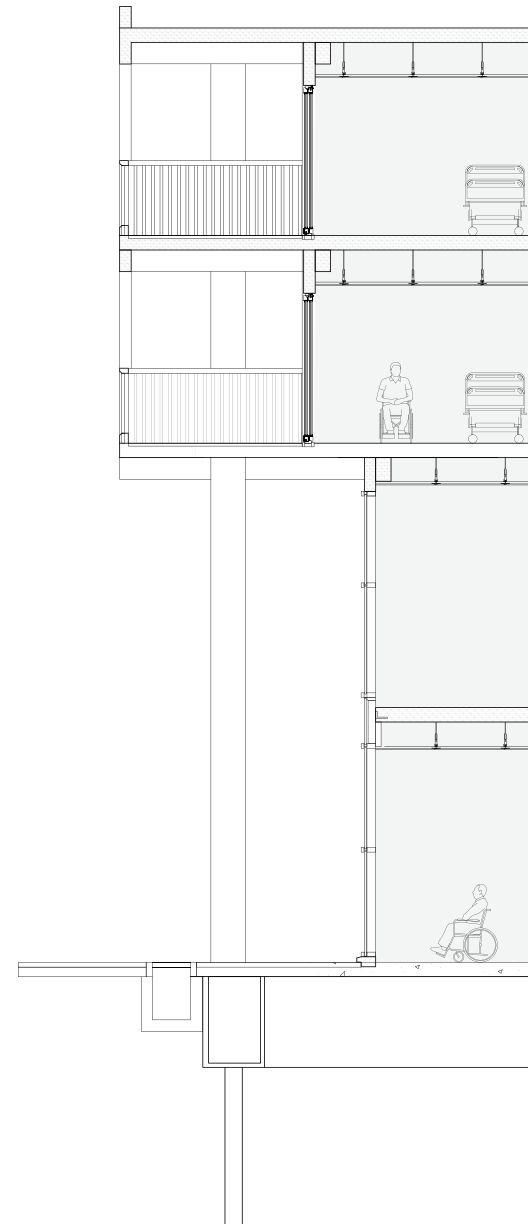
Development

ENVELOPE FRAGMENT



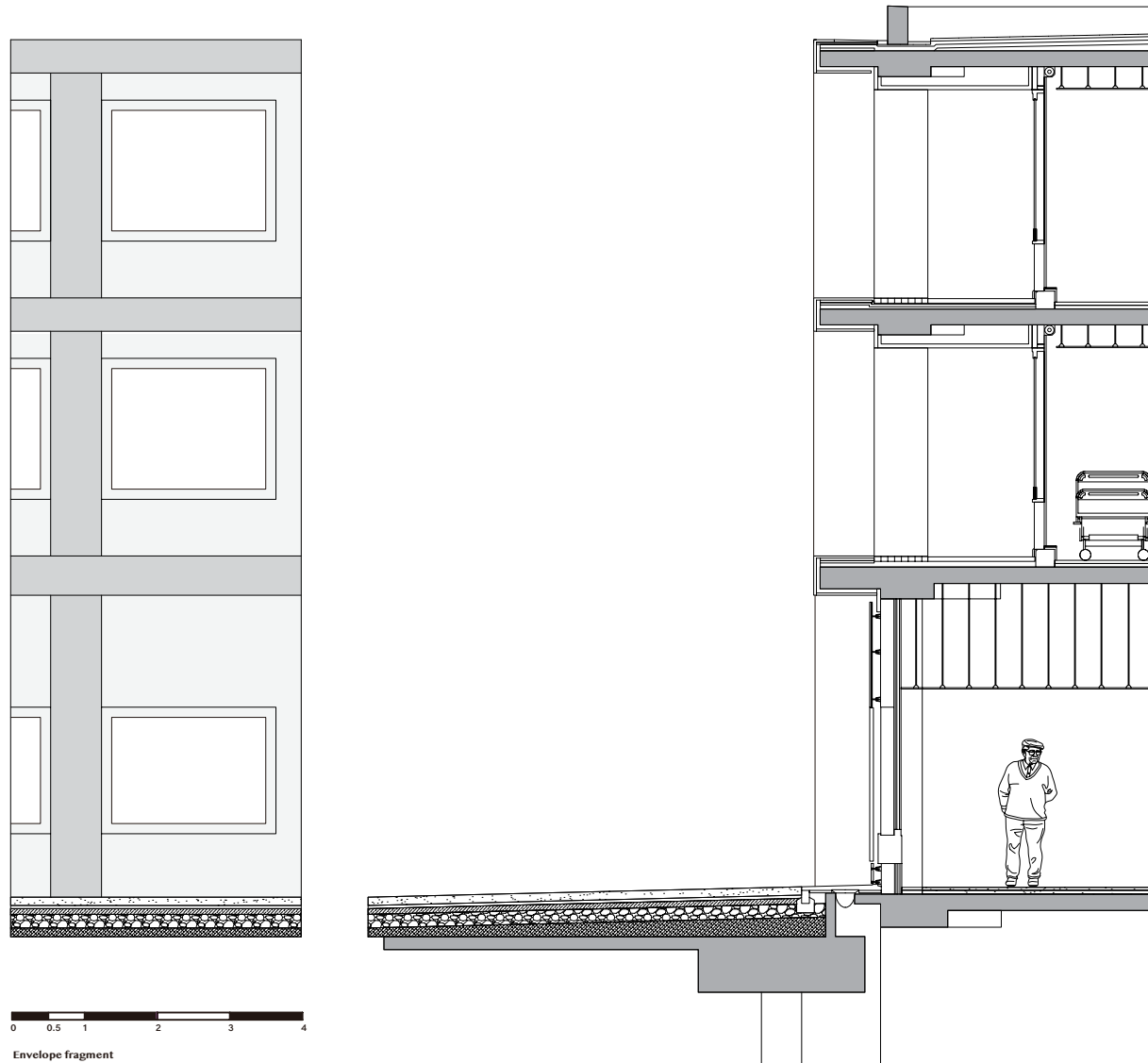
0 0.5 1 2 3 4

Envelope fragment

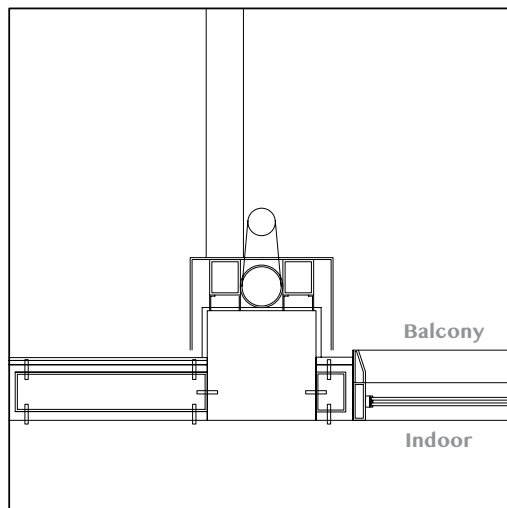


Development

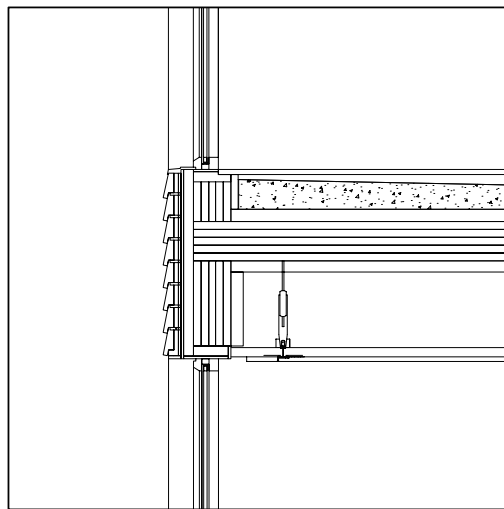
ENVELOPE FRAGMENT



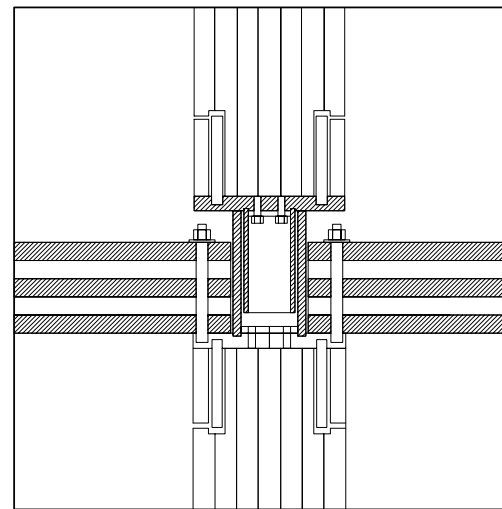
Development DETAILING



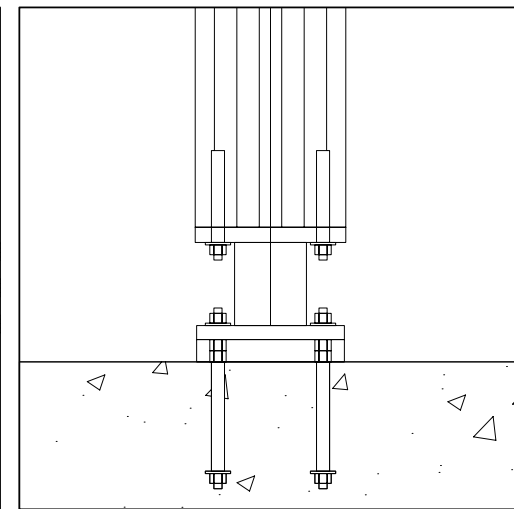
Detail B Living room to balcony threshold



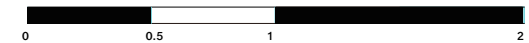
Detail C



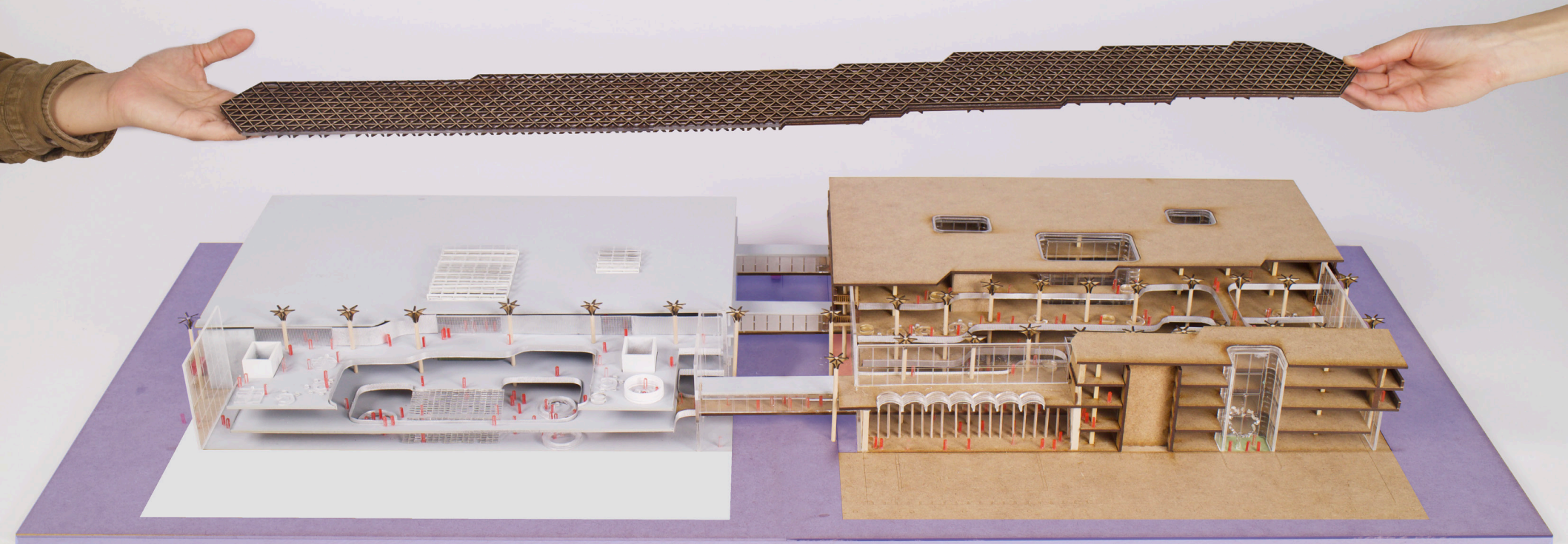
Detail D Column to CLT panel



Detail E Column to concrete slab



Development **MODEL**



Introduction

Research

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Implementation

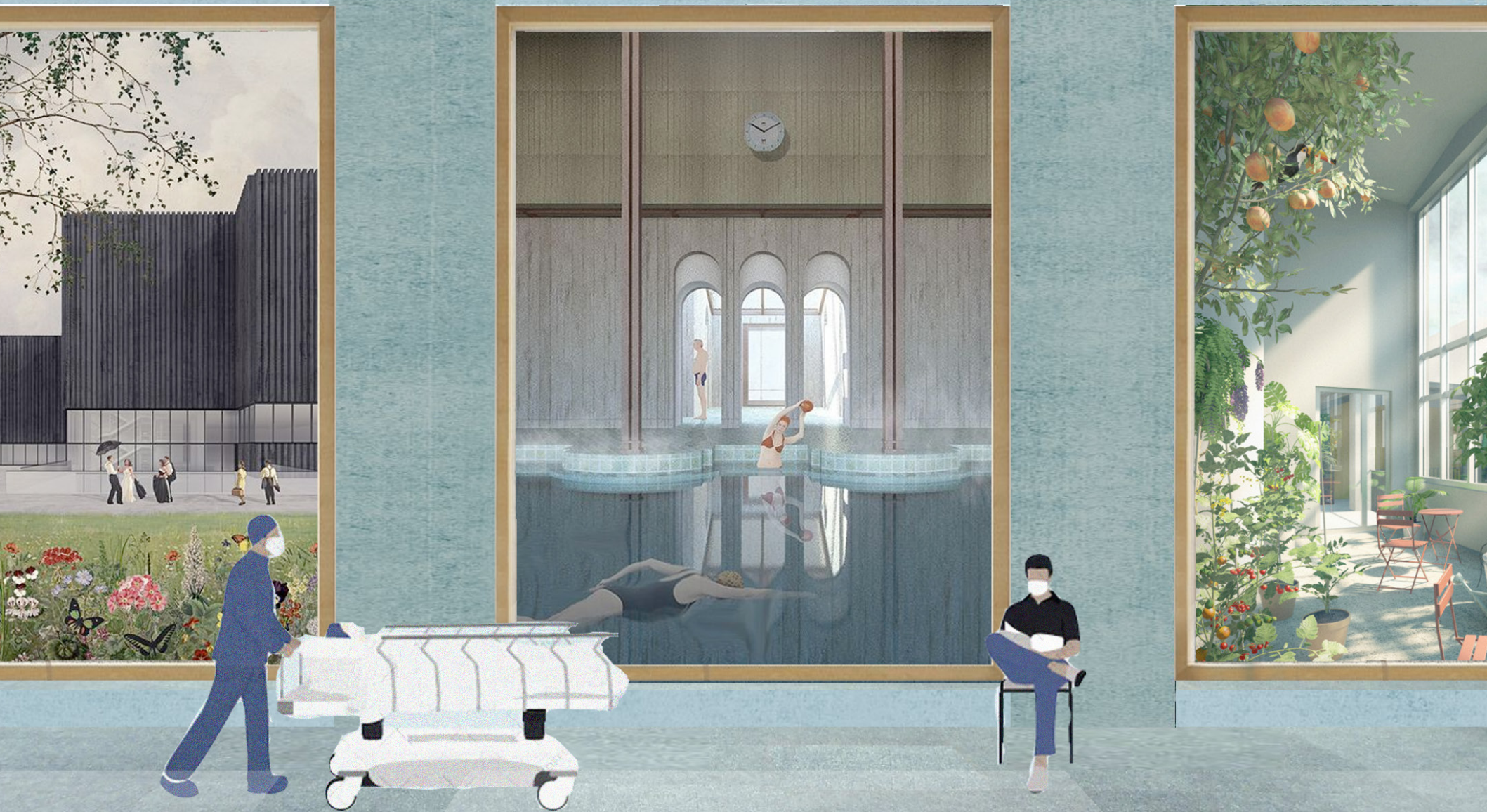
Development

Conclusion

Conclusion

BUILDING OVERVIEW





IMAGINE THE HOSPITAL OF THE FUTURE, EVOLVING FROM A MERE FACILITY FOR TREATING BODIES TO A SUPPORTIVE ENVIRONMENT DESIGNED TO ENHANCE THE HOLISTIC WELL-BEING OF ALL ITS INHABITANTS.

THANK YOU!