

# HEALTH PROMOTING *PUBLIC CENTER*:

A building for the neighborhood that raises awareness  
to work towards a health-oriented society

**18th of june 2024**

Dwelling Graduation Studio: Designing for Health and Care in an Inclusive Environment

**Presentation P5**  
Amber Gorter | 4673212

INTRODUCTION  
RESEARCH  
DESIGN BRIEF  
DESIGN CONCEPT  
DESIGN IMPLEMENTATION  
CONCLUSION



**INTRODUCTION**  
RESEARCH  
DESIGN BRIEF  
DESIGN CONCEPT  
DESIGN IMPLEMENTATION  
CONCLUSION

As we grow older,



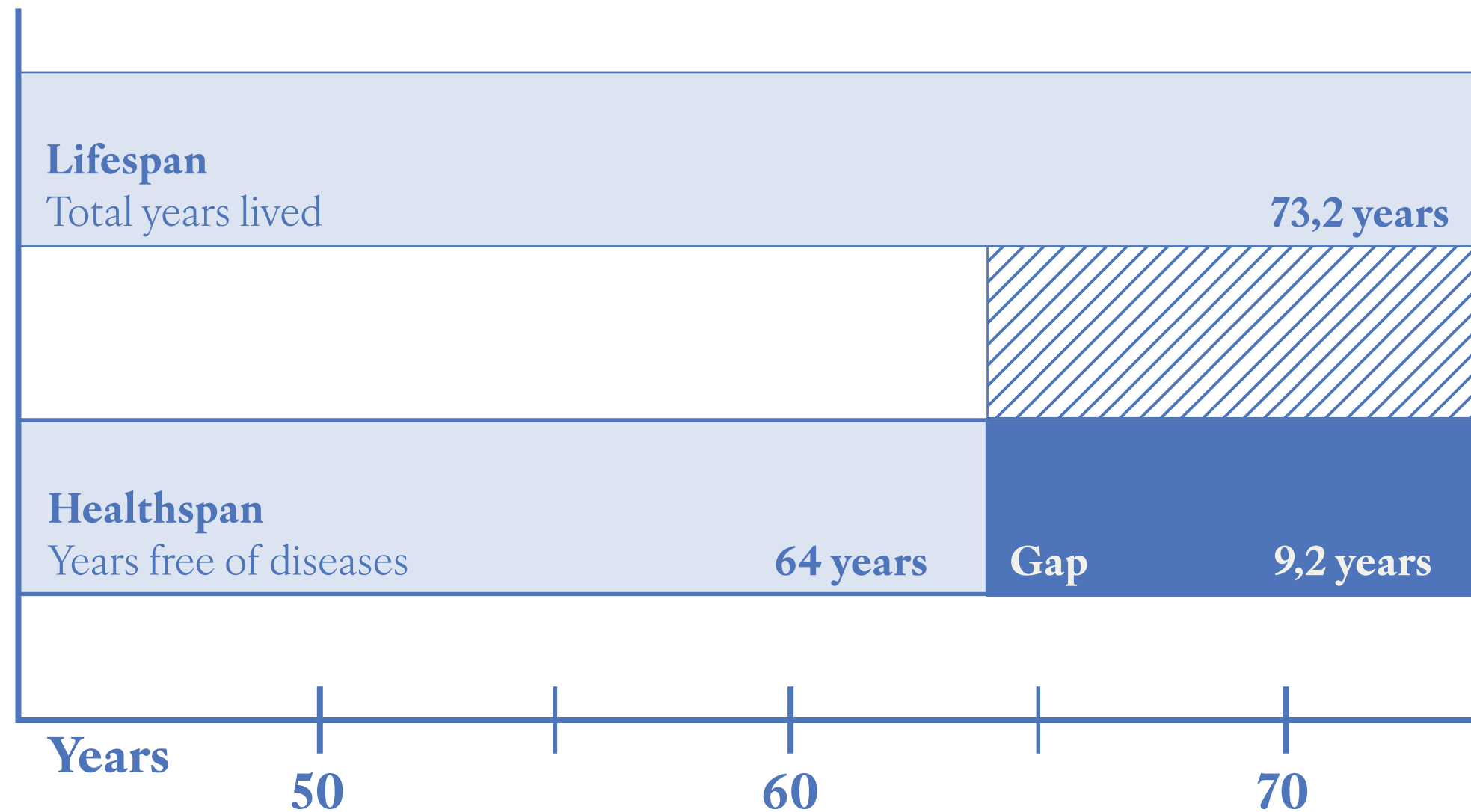
As we grow older,  
how can we live a **longer healthy life?**



INTRODUCTION  
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DESIGN BRIEF  
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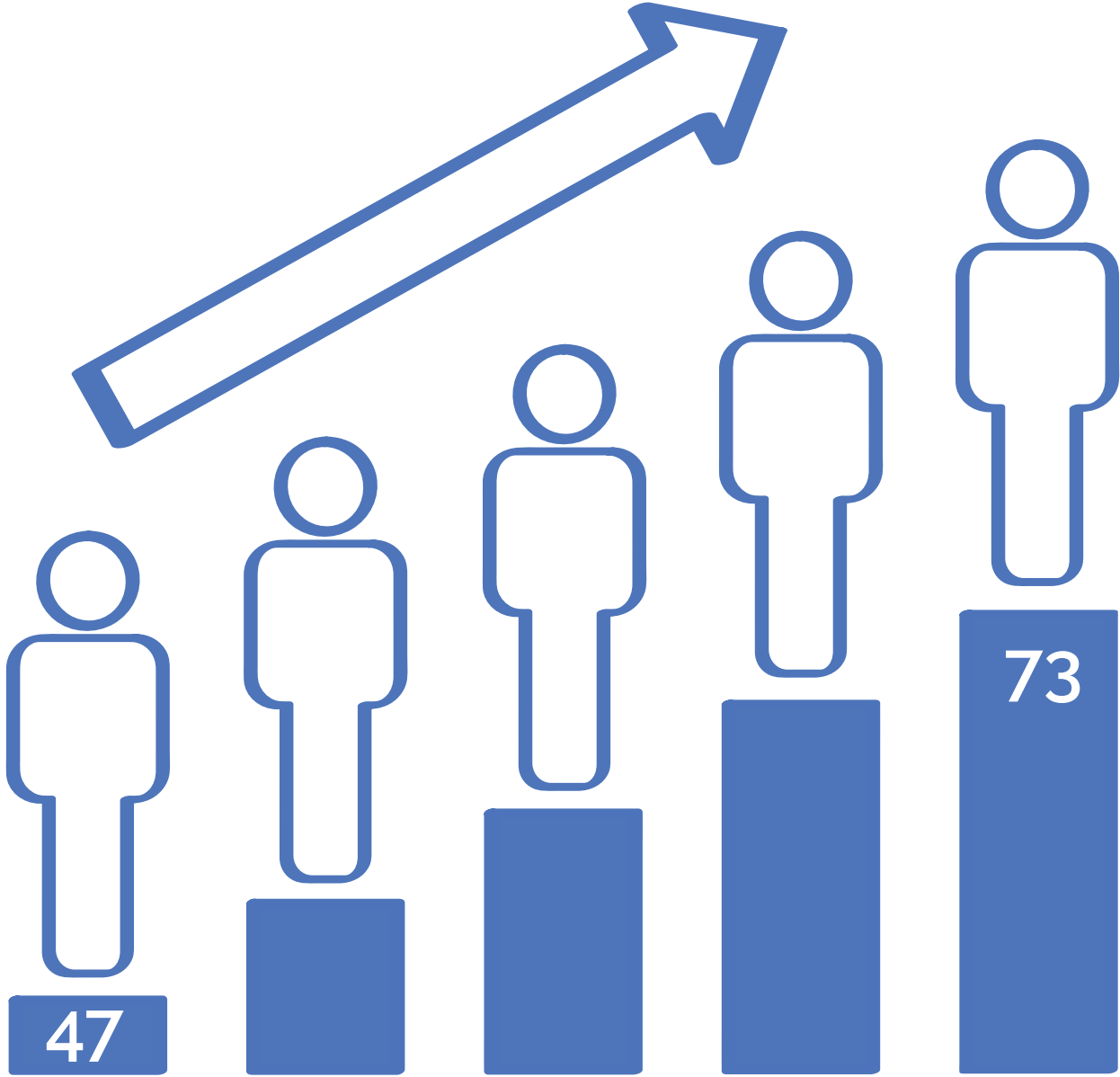
# THE GOAL

Extending people's healthspan  
and prolonging the quality of life



# PROBLEM STATEMENT

Global life expectancy is increasing



# PROBLEM STATEMENT

1/5 people diagnosed with dementia



# PROBLEM STATEMENT

Pressure on our healthcare systems

No effective pharmaceutical treatment available (yet)





# RESEARCH QUESTION

Forget about dementia?

How can **architecture and the built environment** be an instrument in developing **design guidelines** that contribute to the **prevention of dementia**?

*'There comes a point in time where  
we need to stop just pulling people  
out of the river, we need to go upstream  
and find out why they're falling in'*

*- Bishop Desmond Tutu*



# RESEARCH

## Methodology

Literature research

+

Fieldwork

Dementia prevention

Characteristics of dementia

Modifiable risk factors

Case study

Alzheimer's Village Dax by NORD Architects

Health promoting concepts

Health living environments

15-minute city concept

The Blue Zones

Dementia care facilities

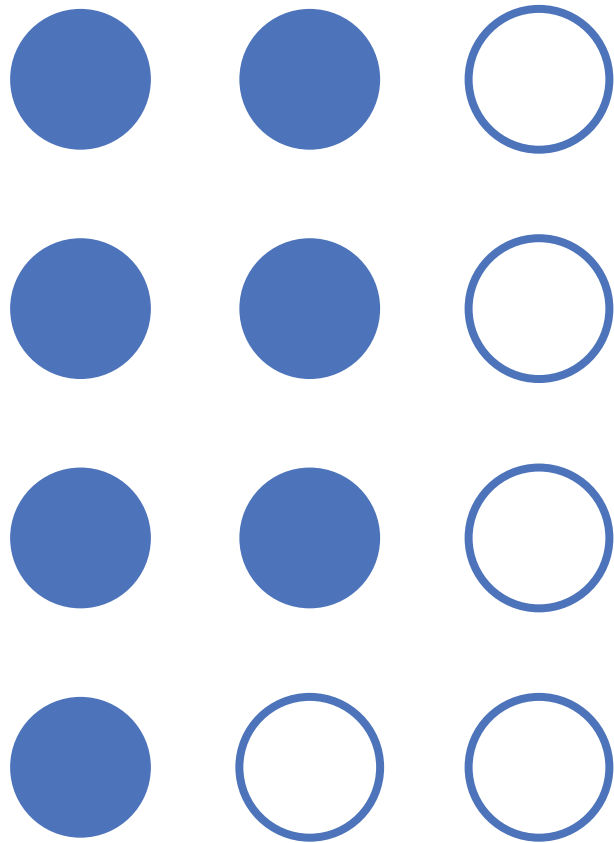
Small scale dementia care facility

Big scale dementia care facility

# RESEARCH

## Results

12 dementia risk factors



- Low education
- Hearing loss
- Traumatic brain injury
- Hypertension
- Physical inactivity
- Diabetes
- Smoking
- Social isolation
- Exposure to air pollution
- Alcohol (> 21 units/week)
- Obesity
- Depression

**40% modifiable**

Social participation & inclusion  
Recreation & well-being  
Education

Characteristics of dementia

Modifiable risk factors

Alzheimer's Village Dax  
by NORD Architects

Health living environments

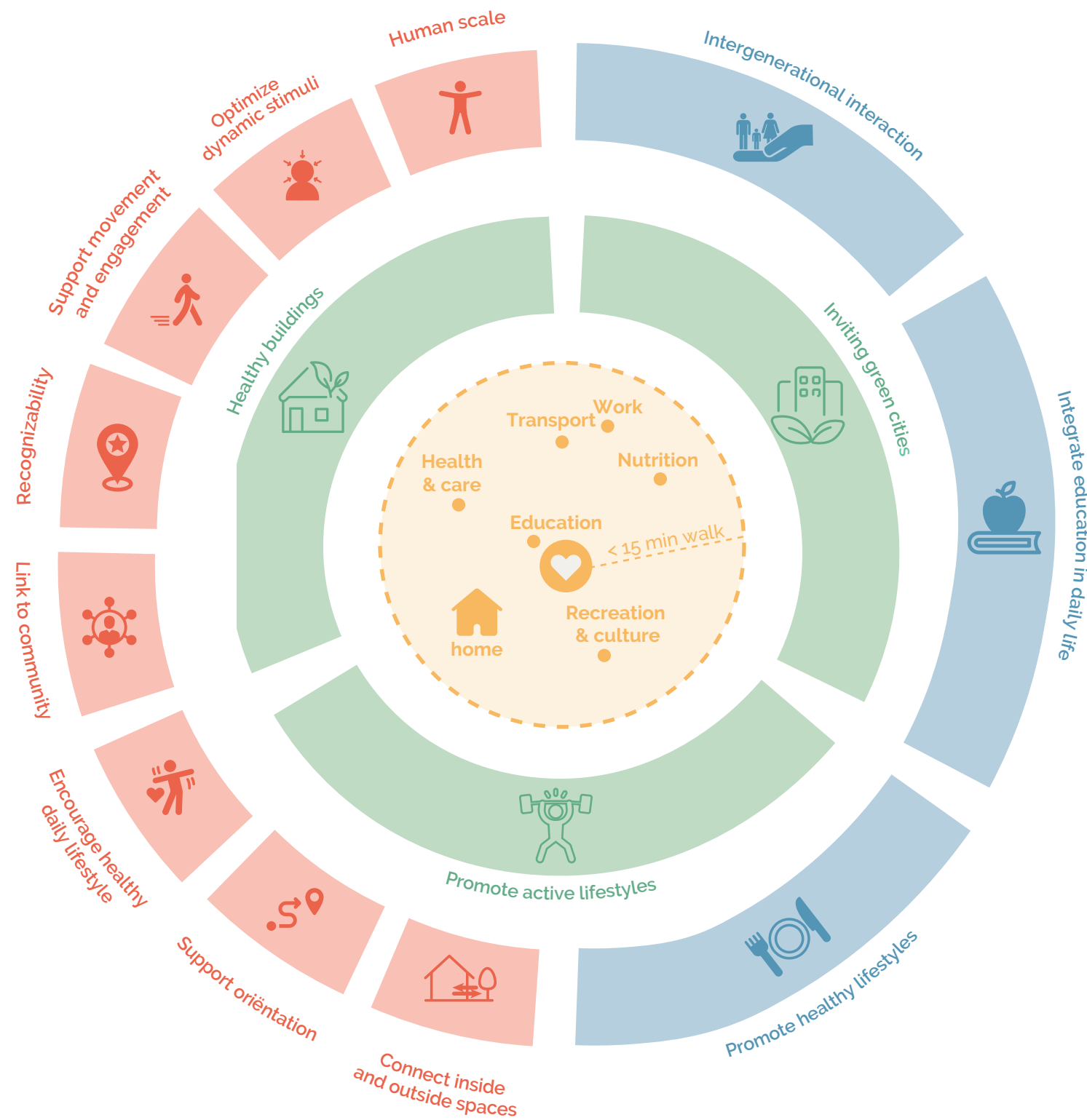
15-minute city concept

The Blue Zones

Small scale dementia care facility

Big scale dementia care facility

# RESEARCH Results



Characteristics of dementia

Modifiable risk factors

Alzheimer's Village Dax by NORD Architects

Health living environments

15-minute city concept

The Blue Zones

Small scale dementia care facility

Big scale dementia care facility

# RESEARCH QUESTION

Forget about dementia?

How can **architecture and the built environment** be an instrument in developing **design guidelines** that contribute to the **prevention of dementia**?

# RESEARCH

Conclusion

How can **architecture and the built environment** be an instrument in developing **design guidelines** that contribute to the **prevention of dementia**?



**Create healthy living environments** in order to promote healthy lifestyles to live a longer healthier life *while contributing to dementia prevention*

# RESEARCH

Design concept

*One building* for the neighborhood  
that **raises awareness** to *promote healthy living*  
to work towards a **health-oriented society**



**HEALTH PROMOTING PUBLIC CENTER**



INTRODUCTION  
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# DESIGN BRIEF

Distribute design guidelines amongs health promoting key themes

## SOCIAL PARTICIPATION & INCLUSION



LINK TO COMMUNITY



HUMAN SCALE



SUPPORT ORIËNTATION



RECOGNIZABILITY



INTERGENERATIONAL INTERACTION



AMENITIES WITHIN 15 MINUTES WALKING DISTANCE

## RECREATION & WELL-BEING



OPTIMIZE DYNAMIC STIMULI



SUPPORT MOVEMENT AND ENCOURAGEMENT



CONNECT INDOOR AND OUTDOOR SPACES



HEALTHY BUILDINGS



INVITING GREEN CITIES

## EDUCATION



ENCOURAGE HAVING HEALTHY DAILY LIFE



INTERGRATE EDUCATION IN DAILY LIFE



PROMOTE HEALTHY LIFESTYLES



PROMOTE ACTIVE LIFESTYLES

# DESIGN BRIEF

Program

## HEALTH PROMOTING PUBLIC CENTER

**SOCIAL PARTICIPATION  
& INCLUSION**

**RECREATION  
& WELL-BEING**

**EDUCATION**

# DESIGN BRIEF

## Program

### HEALTH PROMOTING PUBLIC CENTER

#### SOCIAL PARTICIPATION & INCLUSION

##### COMMUNITY CENTER

- Café
- Community kitchen
- Library
- Cooking workshop studio
- Multifunctional rooms
- Study room
- Computer room
- Service rooms

**+ - 600 m<sup>2</sup>**

#### RECREATION & WELL-BEING

##### INTERGENERATIONAL DAY CARE CENTER

- Day care facility (0-4 yrs)
  - Group rooms
  - Play room
  - Sleep room
  - Changing area
  - Office
- Day care facility (>40 yrs)
  - Group rooms
  - Art studio
  - Paint studio
  - Sleep room
  - Office
- Sport studio's
- Changing rooms
- Service rooms

**+ - 900 m<sup>2</sup>**

#### EDUCATION

##### PRIMARY SCHOOL

- Class rooms
- Learning squares
- Play room
- Arts & crafts studio
- Central plaza
- Offices teachers
- Office headmaster
- Service rooms

**+ - 1400 m<sup>2</sup>**

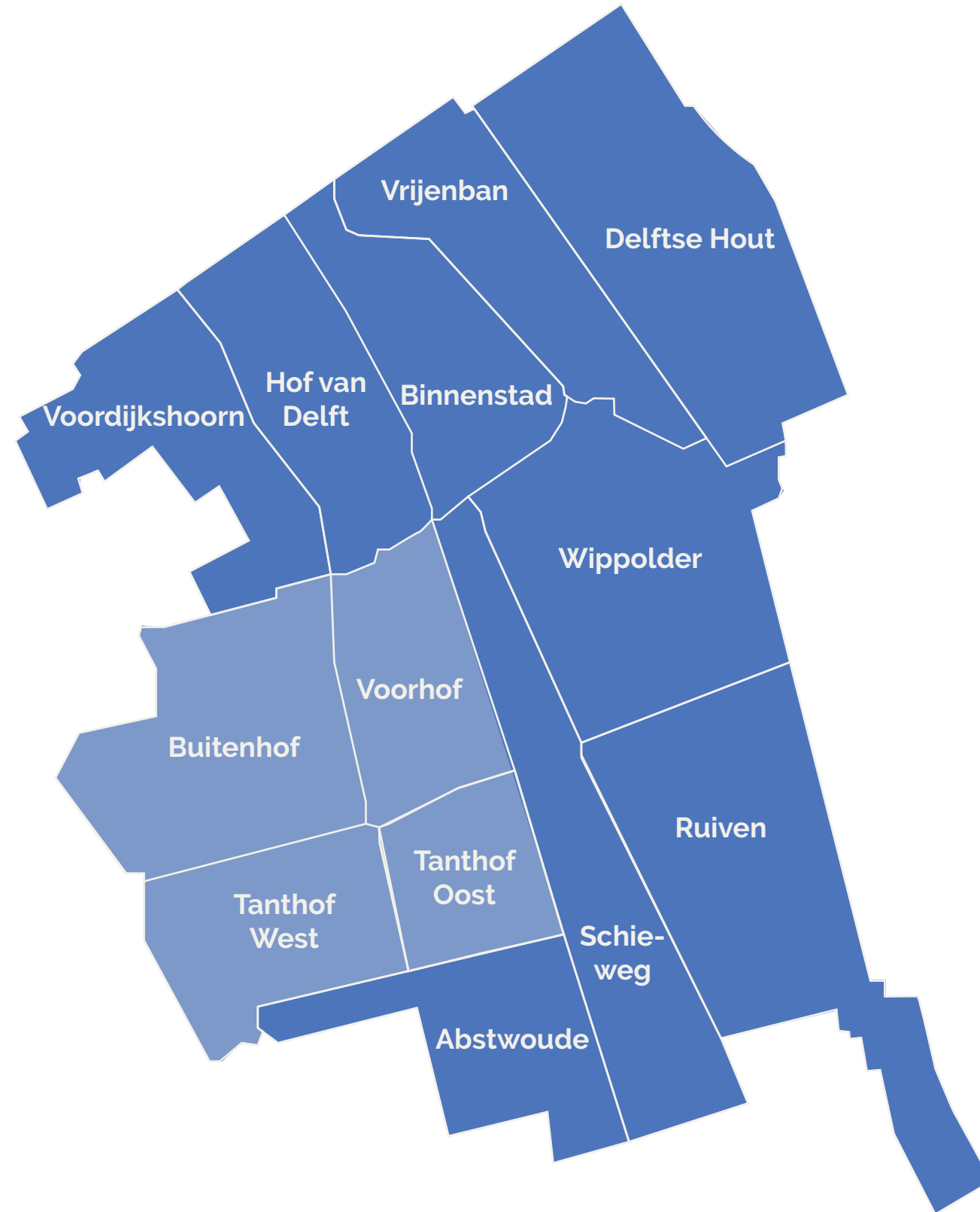
##### EXHIBITION HALL

- Entrance hall
- Exhibition space
- Seating area's
- Reception

**+ - 3500 m<sup>2</sup>**

# LOCATION

Delft

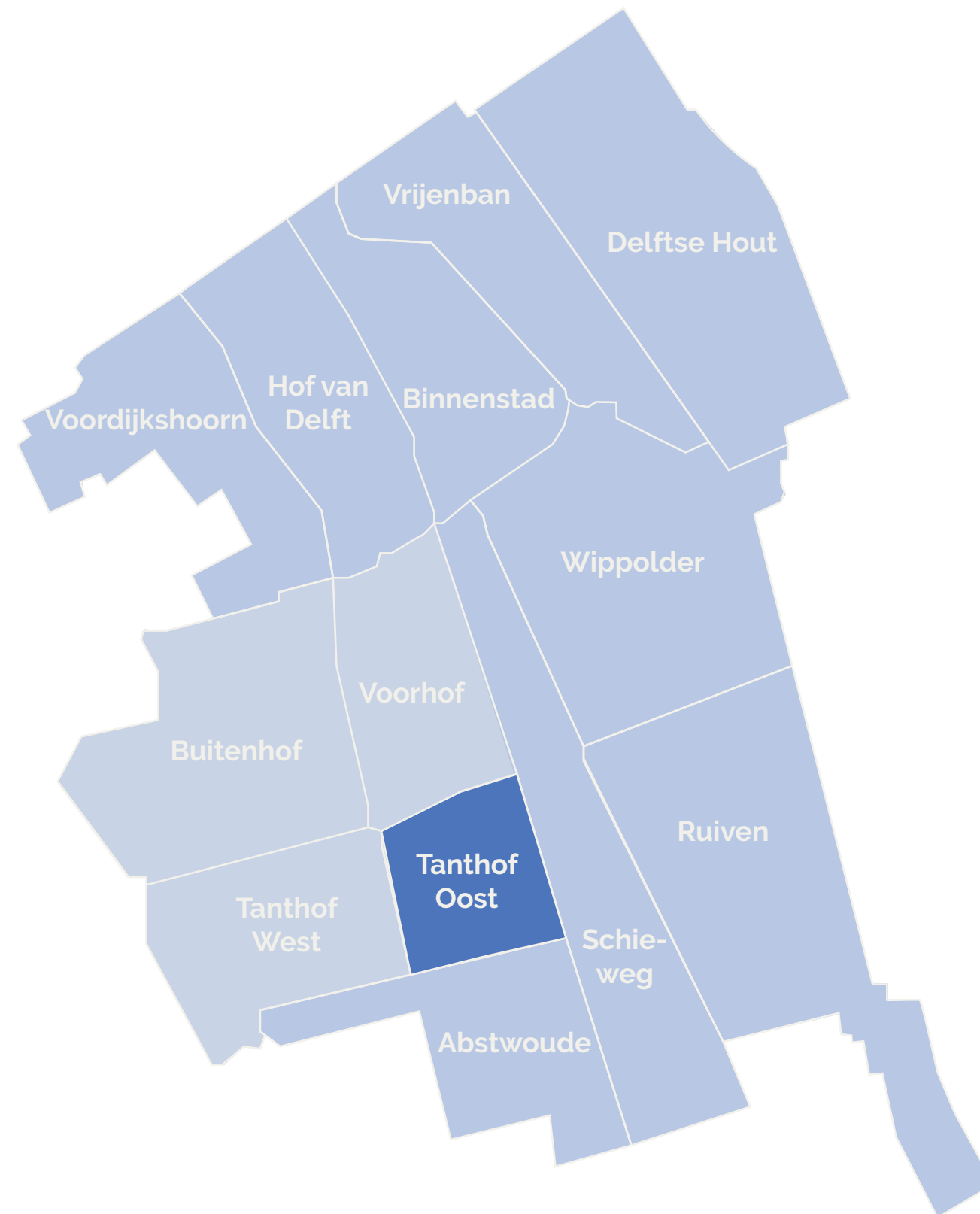


## REQUIREMENTS:

1. Existing residential area
2. Walkable neighborhood
3. Six core amenities

# LOCATION

Delft



## REQUIREMENTS:

1. Existing residential area
2. Walkable neighborhood
3. Six core amenities

# LOCATION

Tanthof Oost



Post-war neighborhood based on urban concept 'bloemkoolwijk'

# LOCATION

## Strengths



Six core amenities accessible within a 15-minute walking radius



# LOCATION

## Strengths



Connected walking routes in green arteries of the neighborhood

# LOCATION

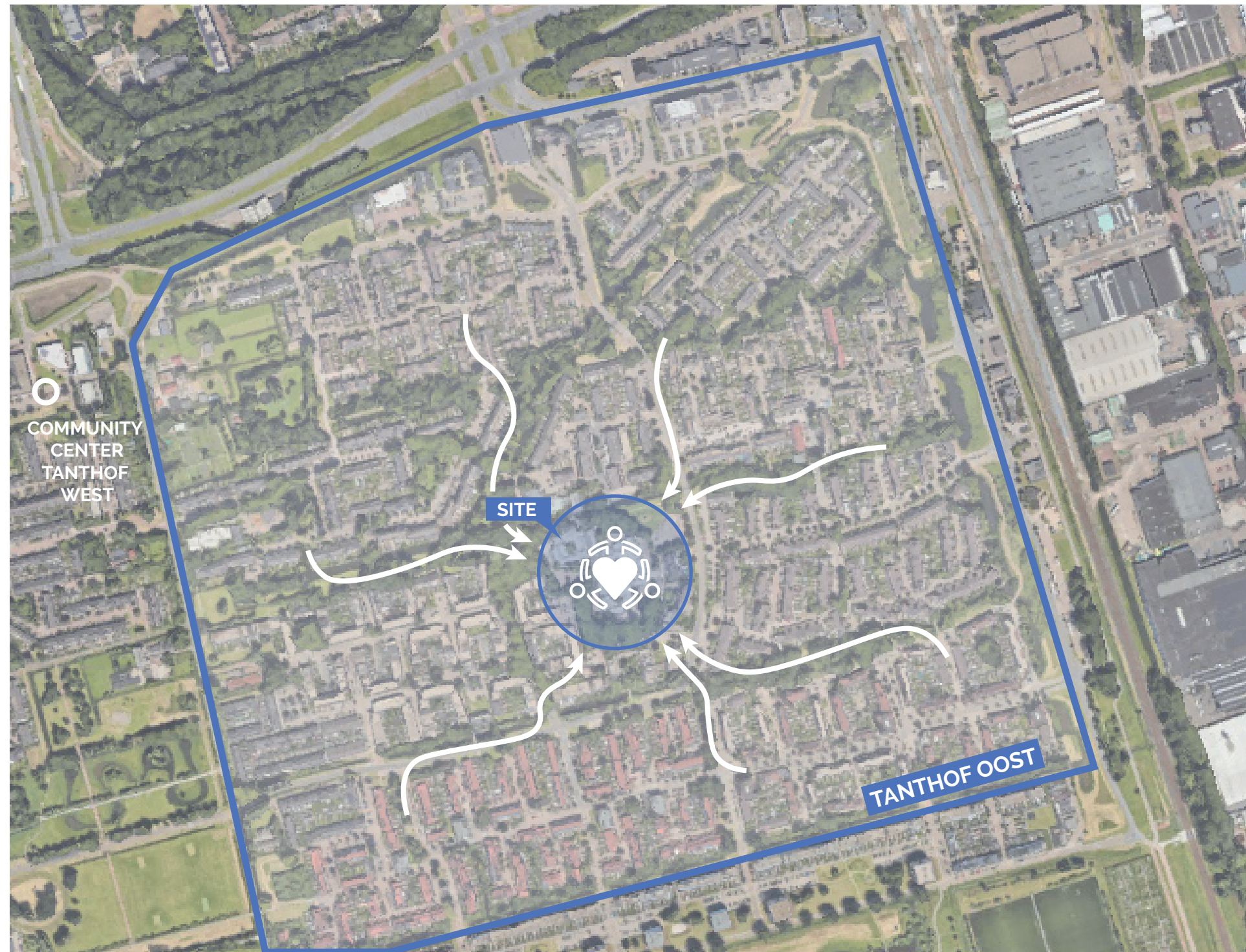
## Strengths



Well connected to the public transport options and less car traffic

# LOCATION

Opportunities

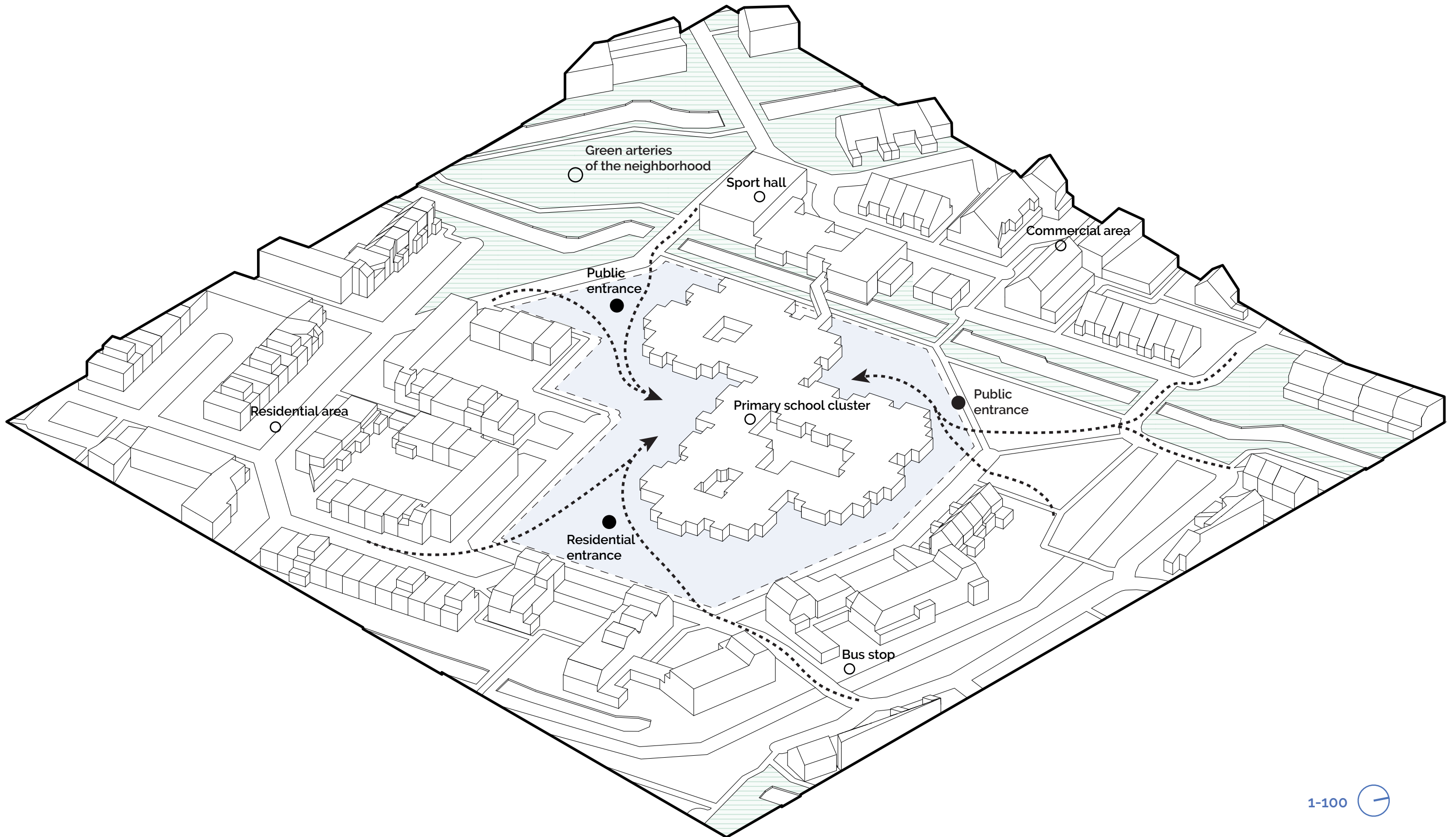


Potential to create one central place for the community to meet



# SITE

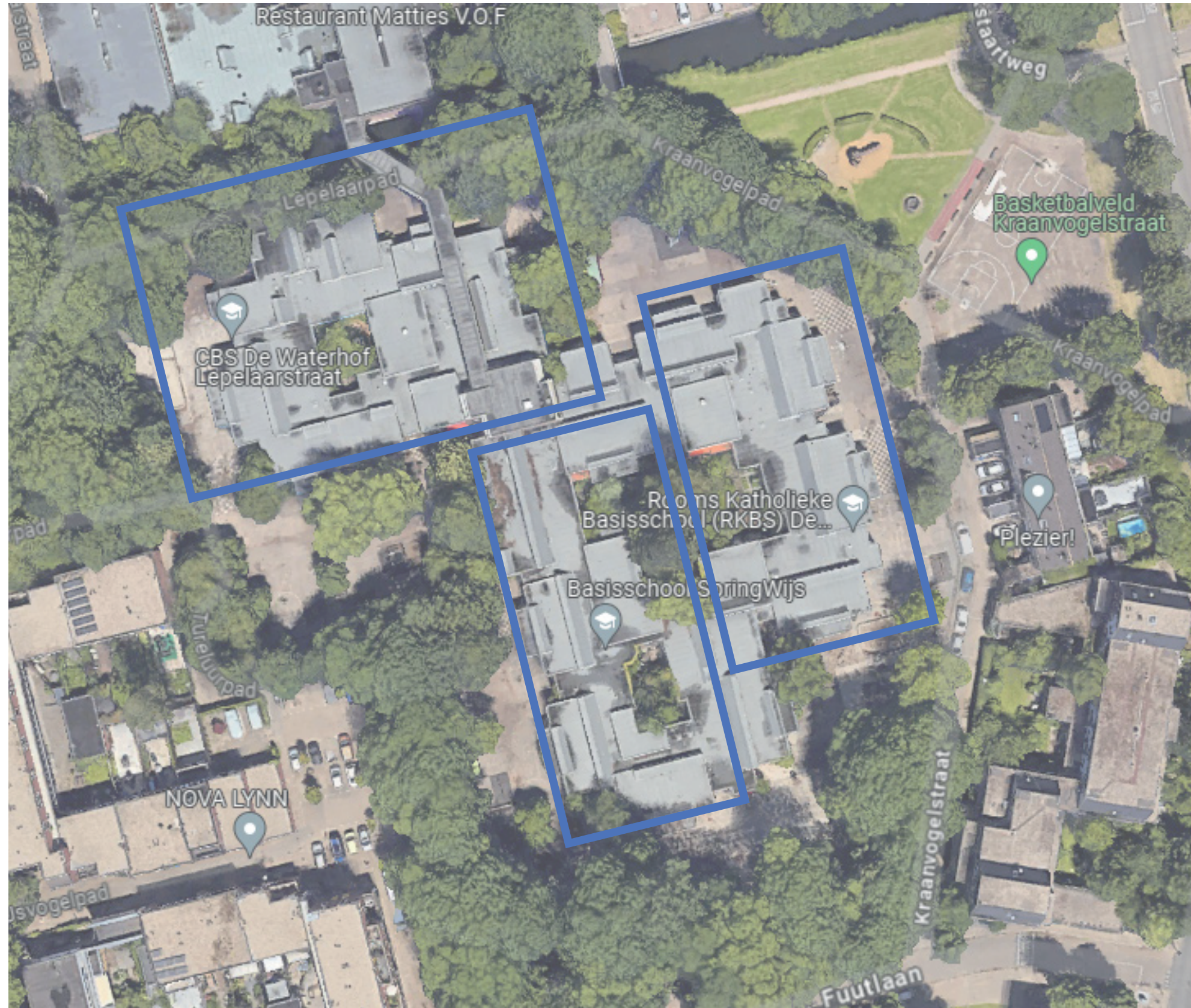
## Urban analysis





# SITE

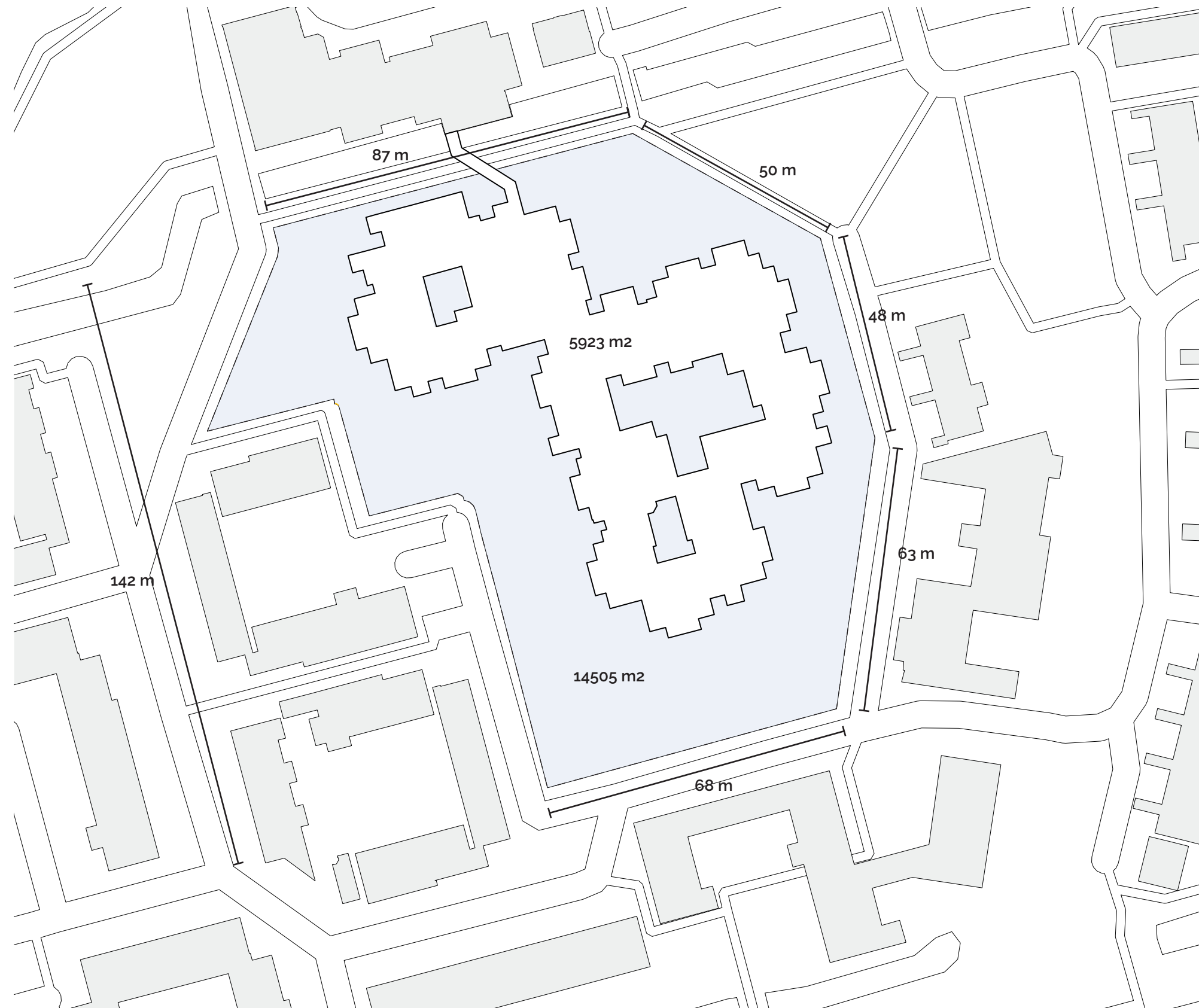
Existing primary school





# SITE

## Plot analysis



# SITE

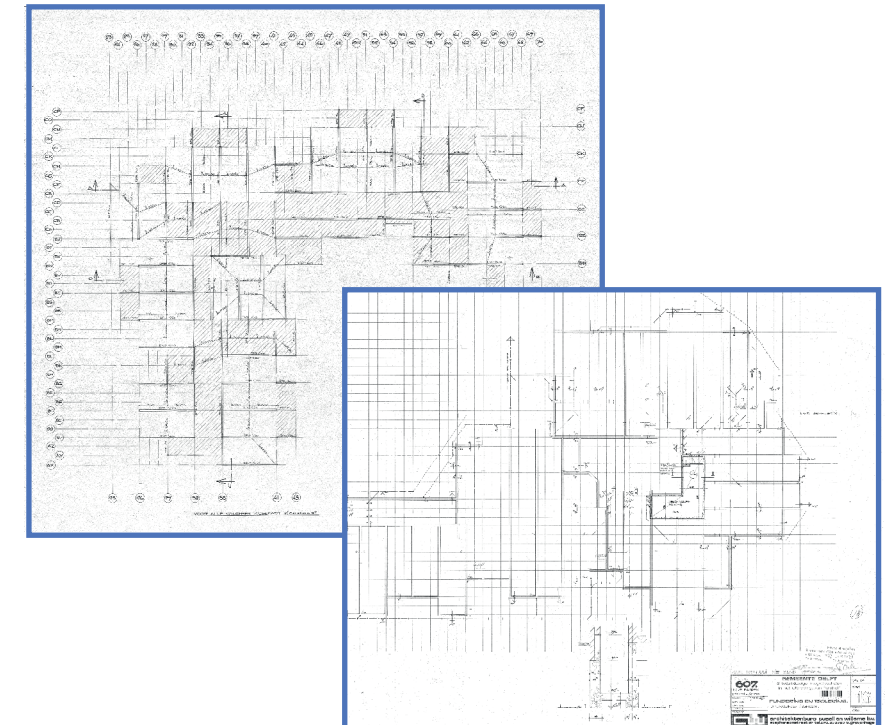
## Existing primary school



- Outdated facade



- Ineffective thermal protection



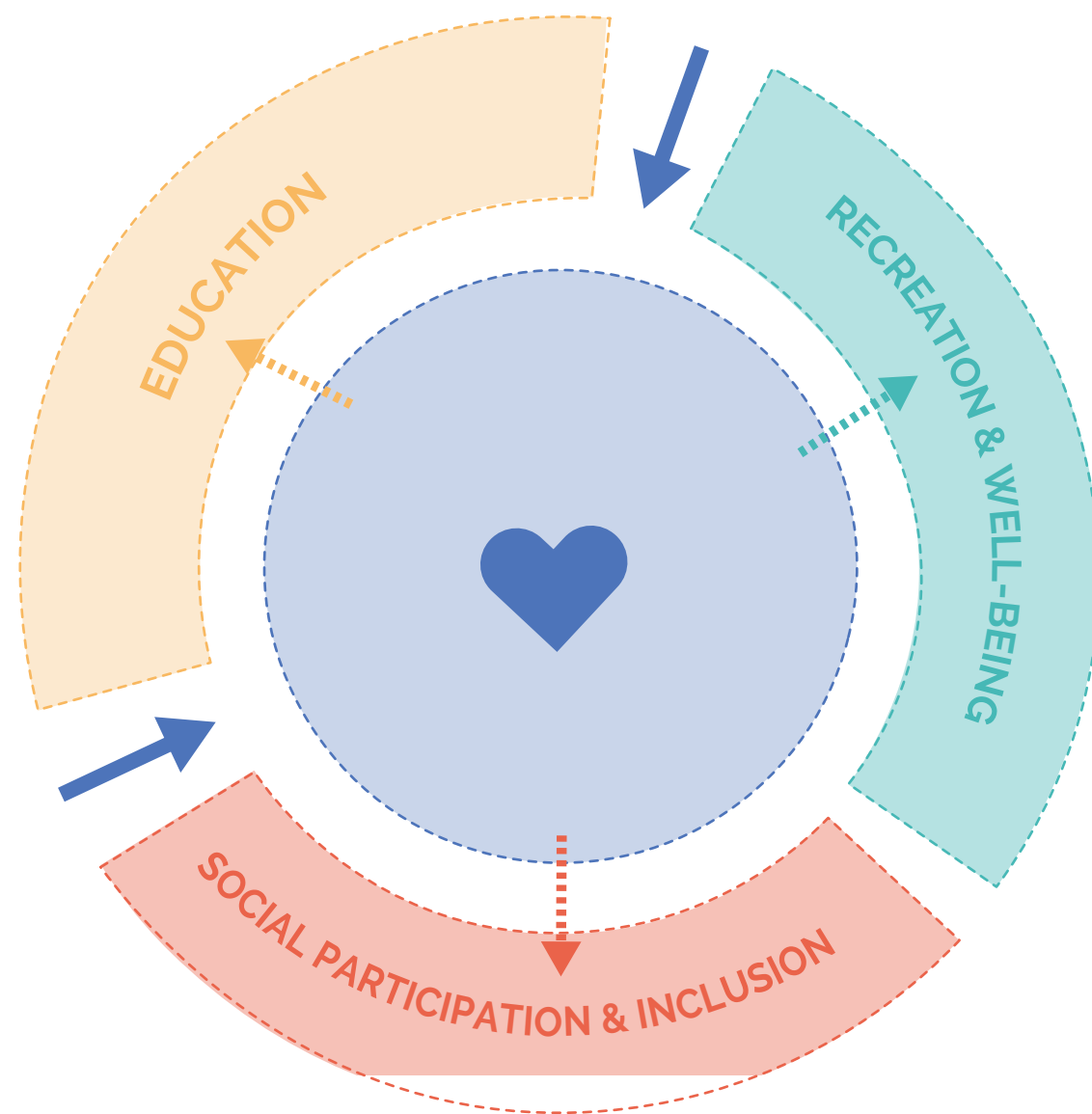
- + Well preserved concrete foundation
- + Strong steel construction

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# DESIGN CONCEPT

## Program



### HEALTH PROMOTING PUBLIC CENTER

#### EXHIBITION HALL

Entrance hall  
Exhibition space  
Seating area's  
Reception  
**+ - 3500 m<sup>2</sup>**

#### PRIMARY SCHOOL

Class rooms  
Learning squares  
Play room  
Arts & crafts studio  
Central plaza  
Offices teachers  
Office headmaster  
Service rooms  
**+ - 1400 m<sup>2</sup>**

#### INTERGENERATIONAL DAY CARE CENTER

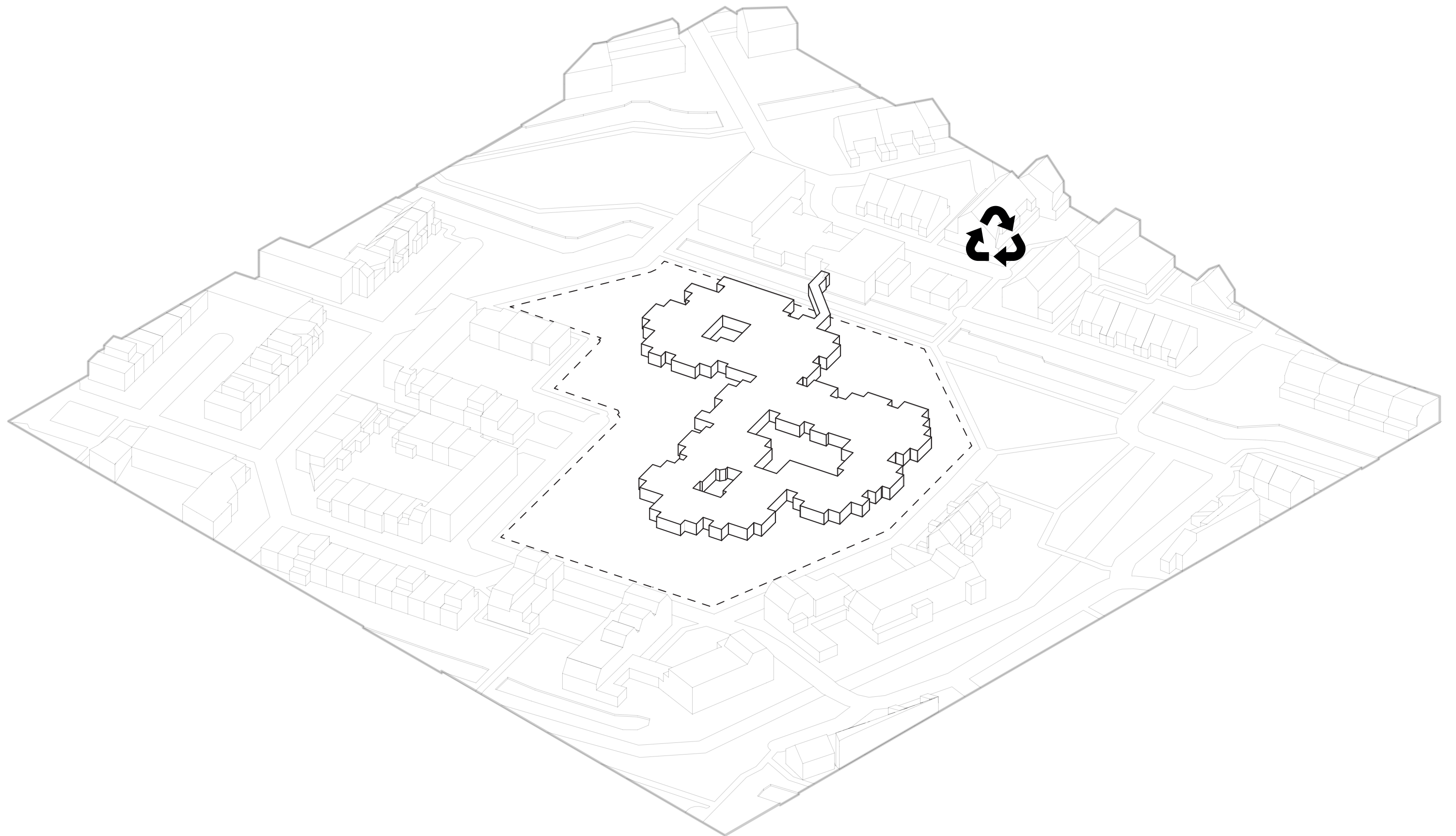
Day care facility (0-4 yrs)  
Group rooms  
Play room  
Sleep room  
Changing area  
Office  
Day care facility (>40 yrs)  
Group rooms  
Art studio  
Paint studio  
Sleep room  
Office  
Sport studio's  
Changing rooms  
Service rooms  
**+ - 900 m<sup>2</sup>**

#### COMMUNITY CENTER

Café  
Community kitchen  
Library  
Cooking workshop studio  
Multifunctional rooms  
Study room  
Computer room  
Service rooms  
**+ - 600 m<sup>2</sup>**

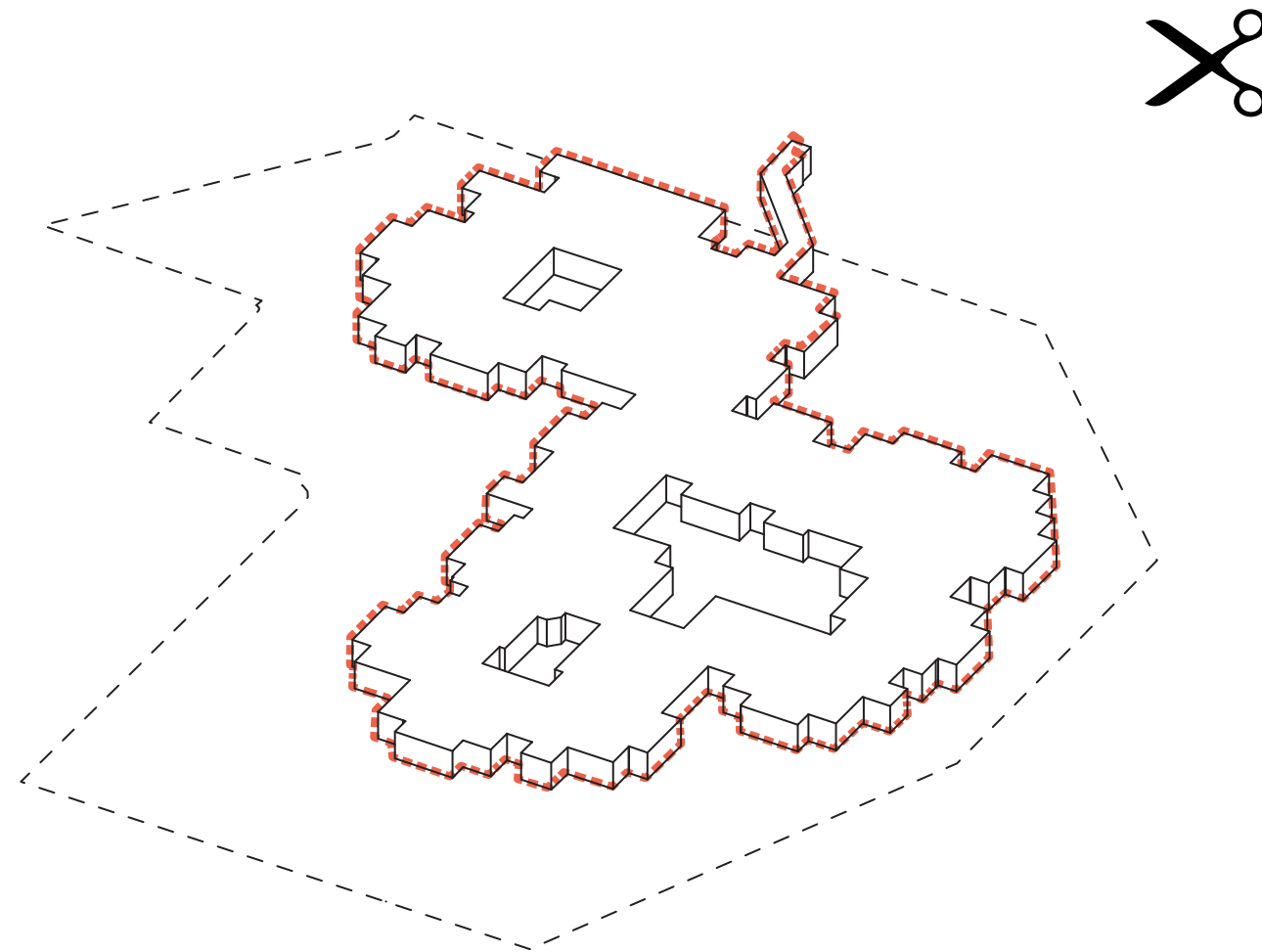
# CONCEPT

Adaptive reuse existing building



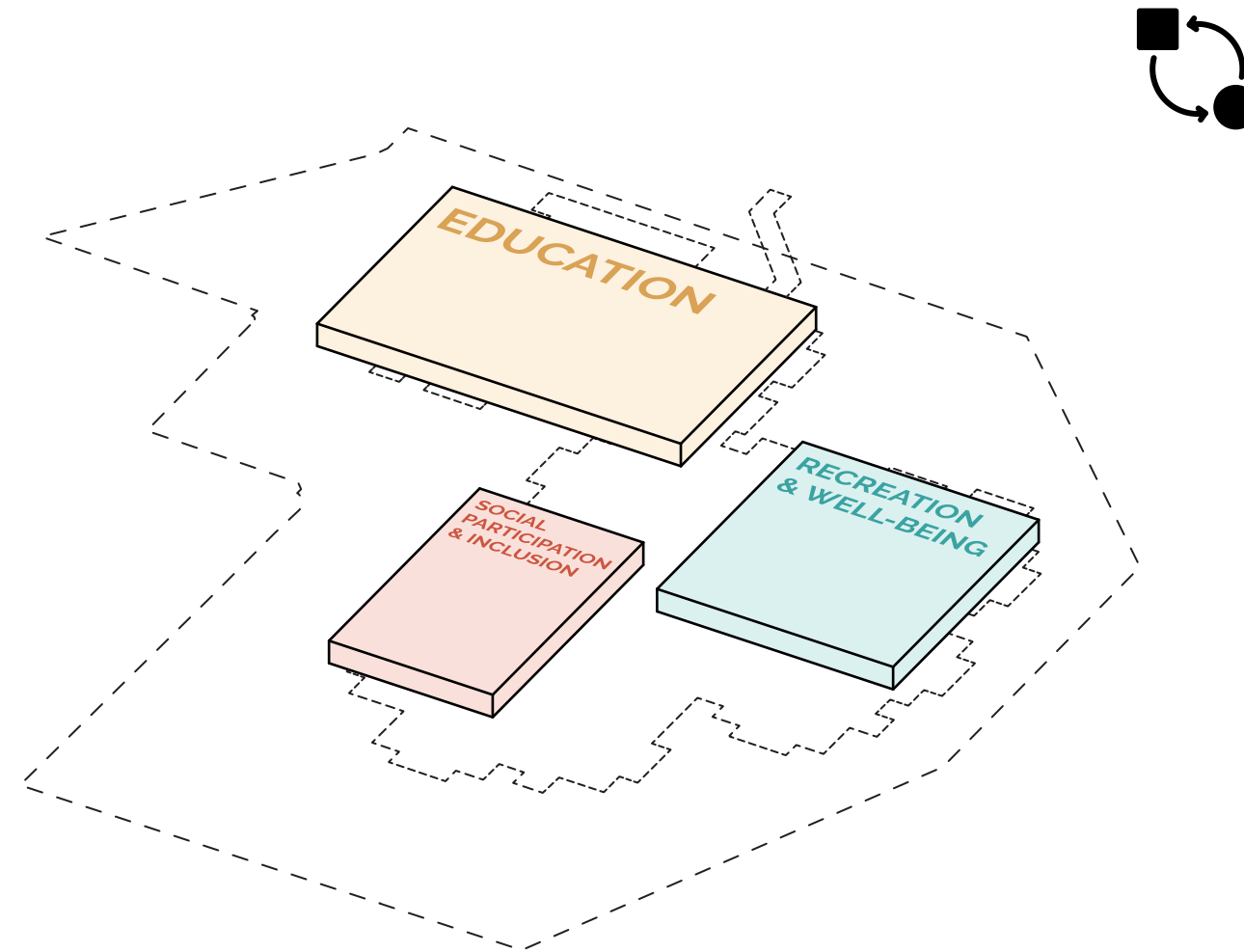
# CONCEPT

1. Remove existing facade



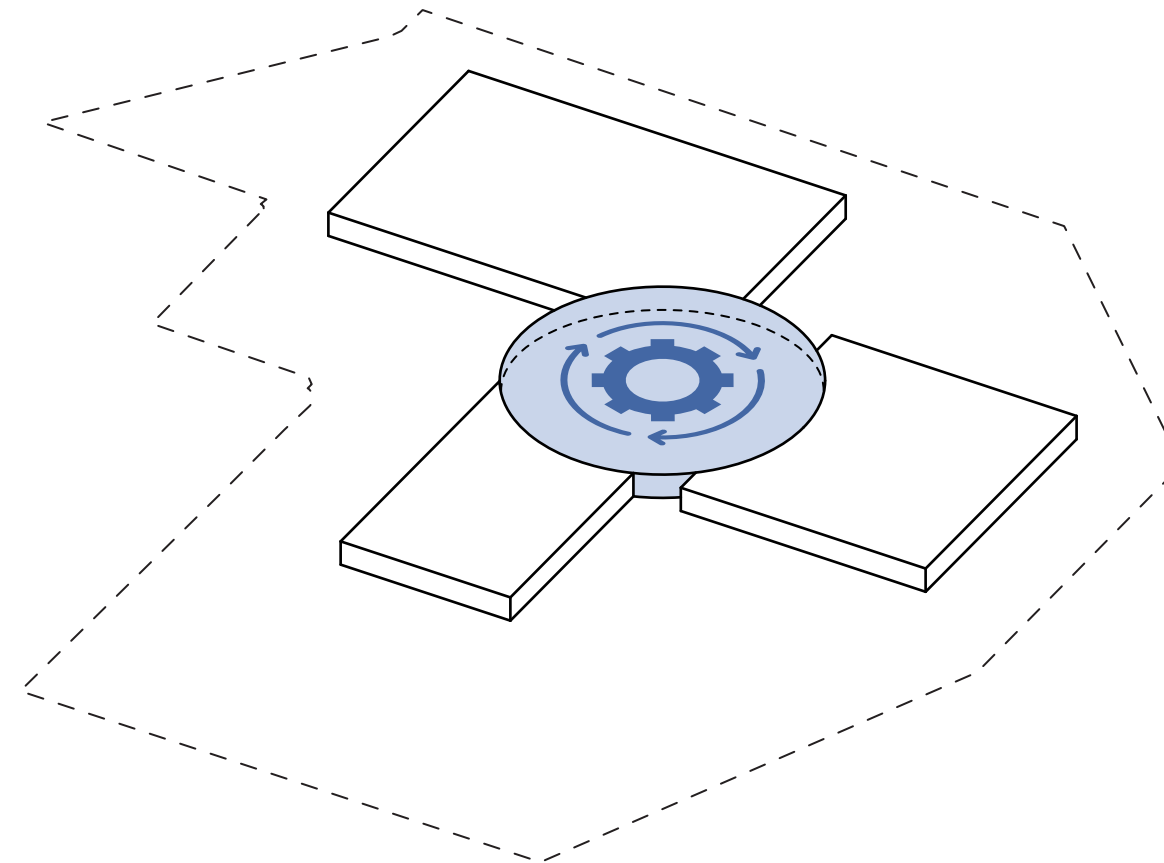
# CONCEPT

## 2. Implement new program



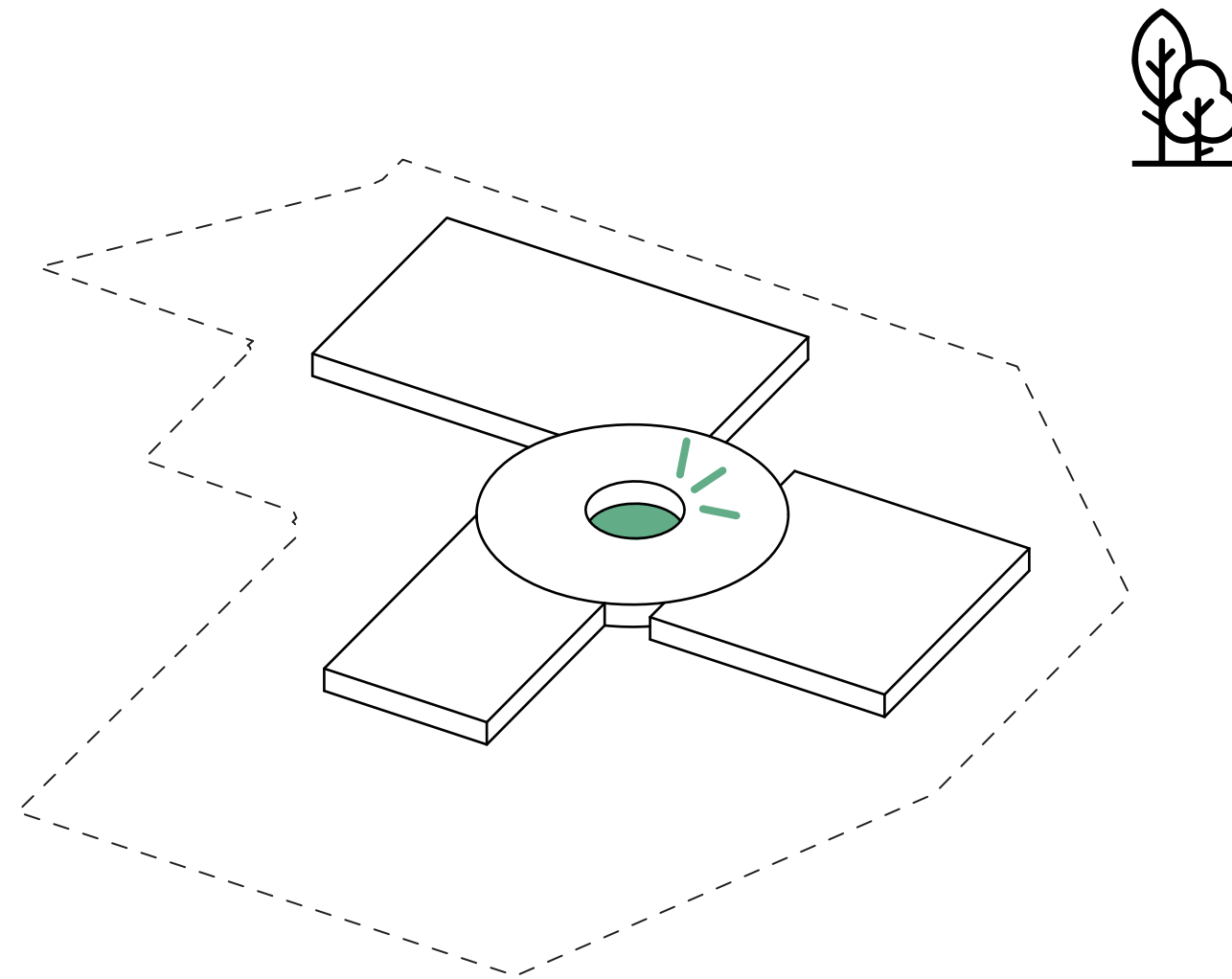
# CONCEPT

3. Add atrium as connecting element



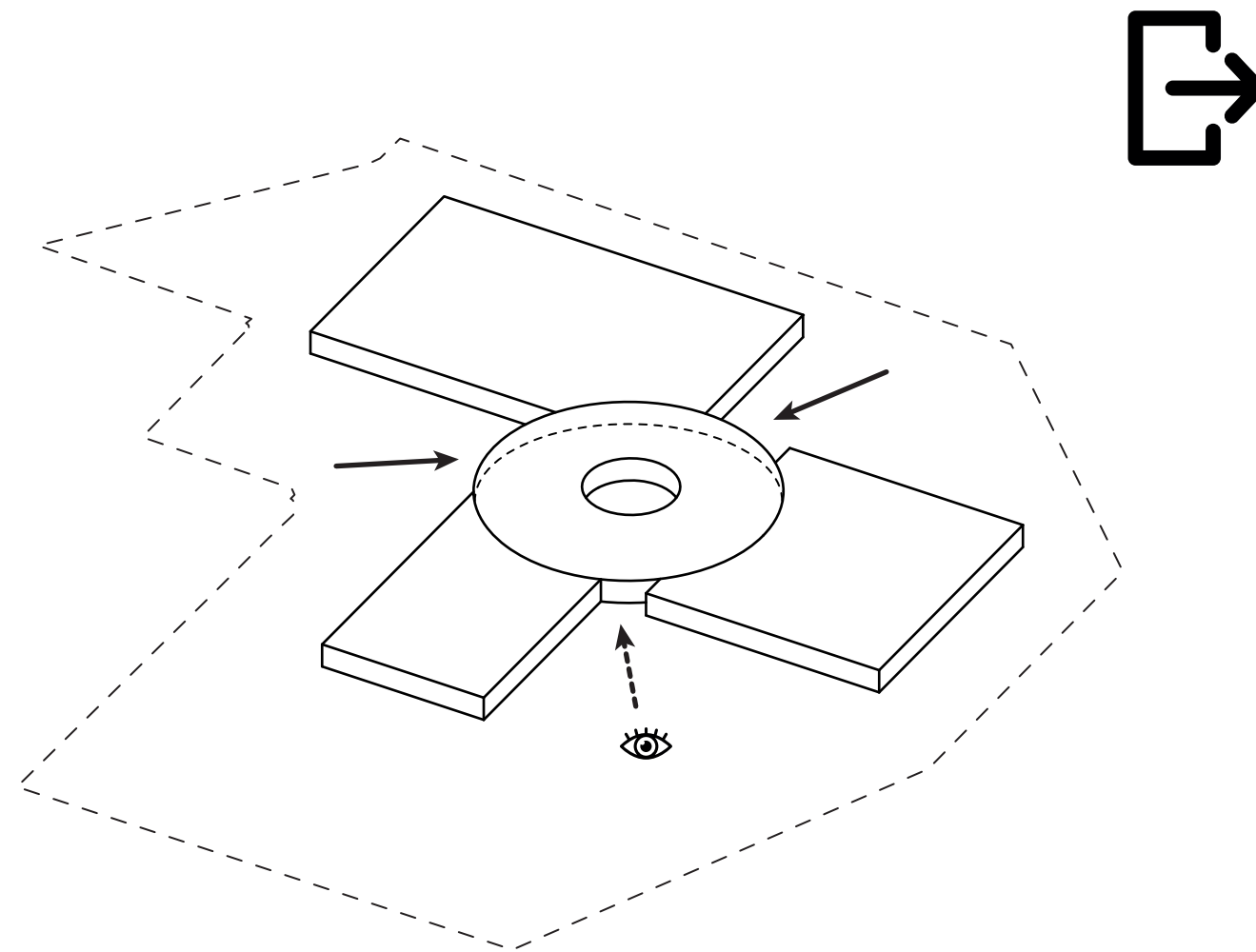
# CONCEPT

4. Add courtyard for (green) healthy building environment



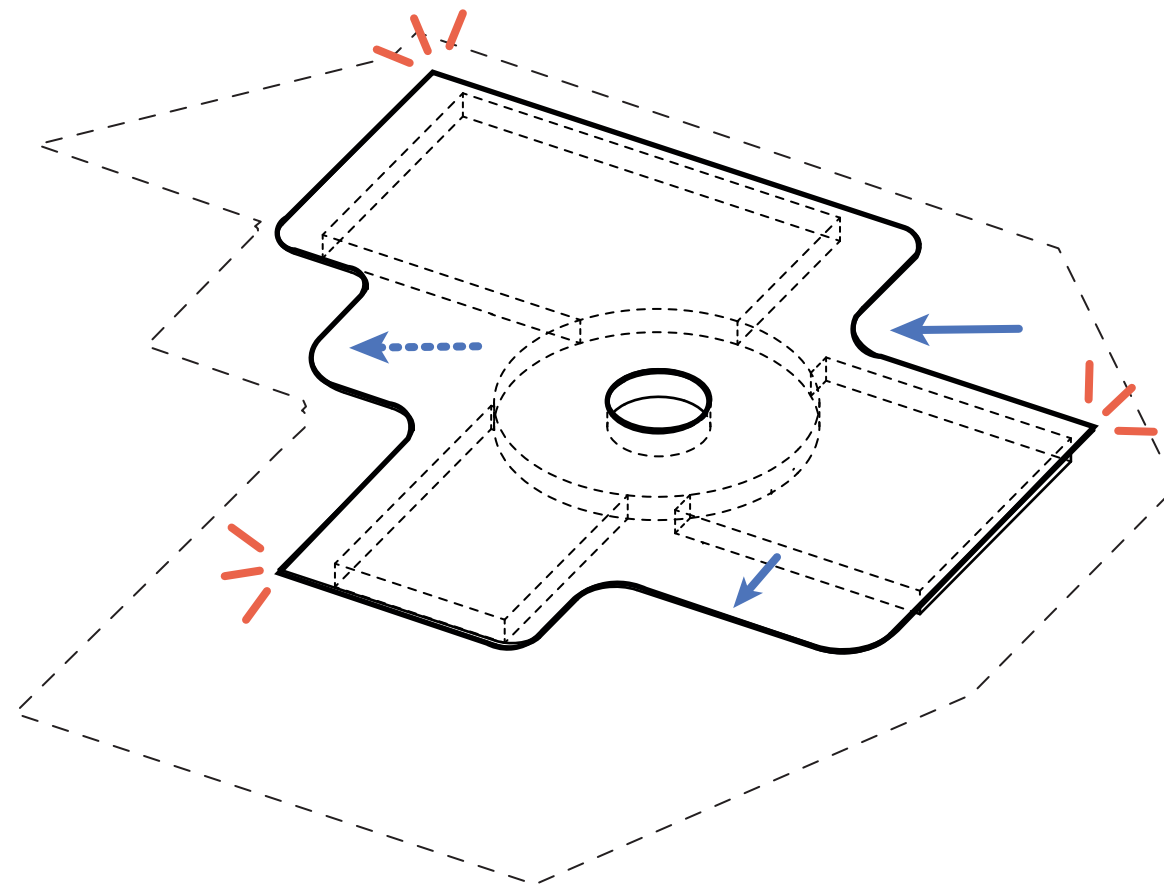
# CONCEPT

5. Preserve original entrance points to ensure recognizability



# CONCEPT

## 6. Roof in relation to context





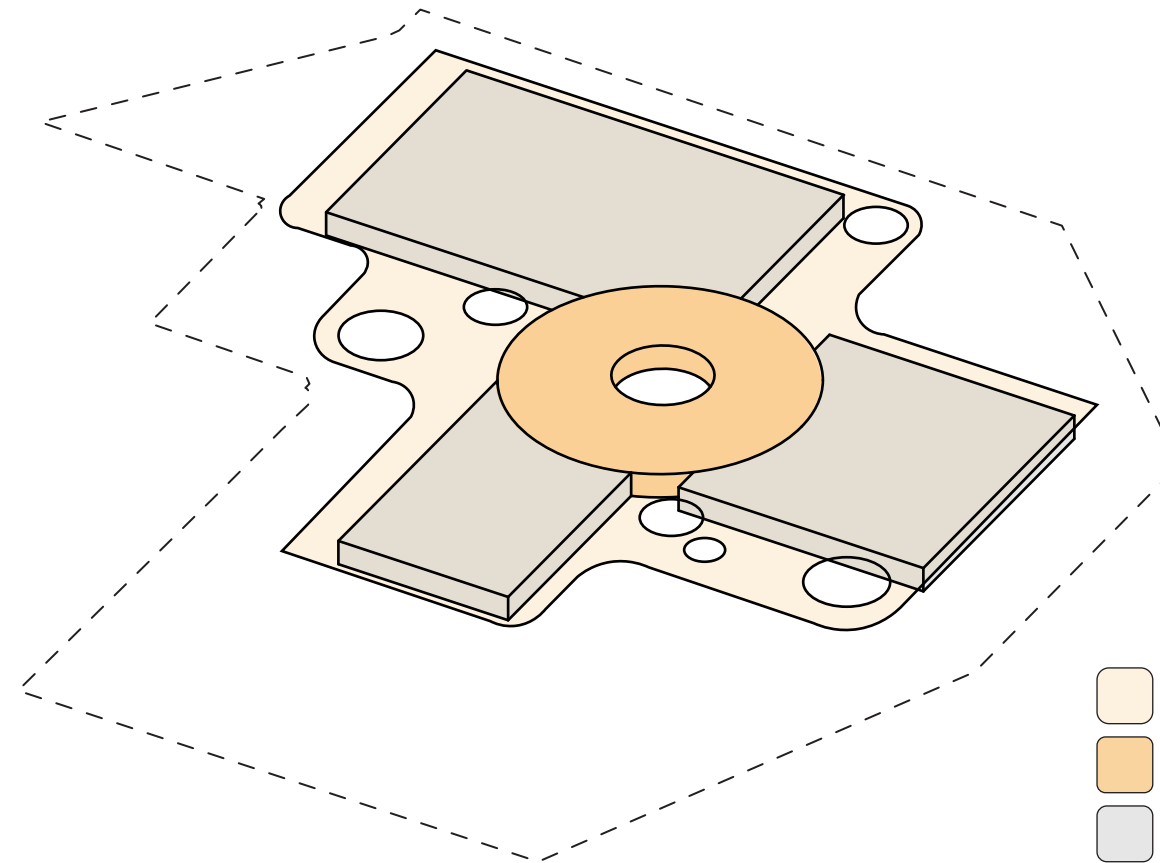
# CONCEPT




## 7. Perforated roofscape to ensure natural daylight



# CONCEPT

## Materialisation



-  **New timber roof beam construction**
-  **New timber construction | *transparent facade***
-  **Existing steel columns | *semi-transparent facade***

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# USER PERSPECTIVE

Family from the neighborhood

Day in the life

I have young onset dementia

**FATHER**  
46 years

**MOTHER**  
42 years old

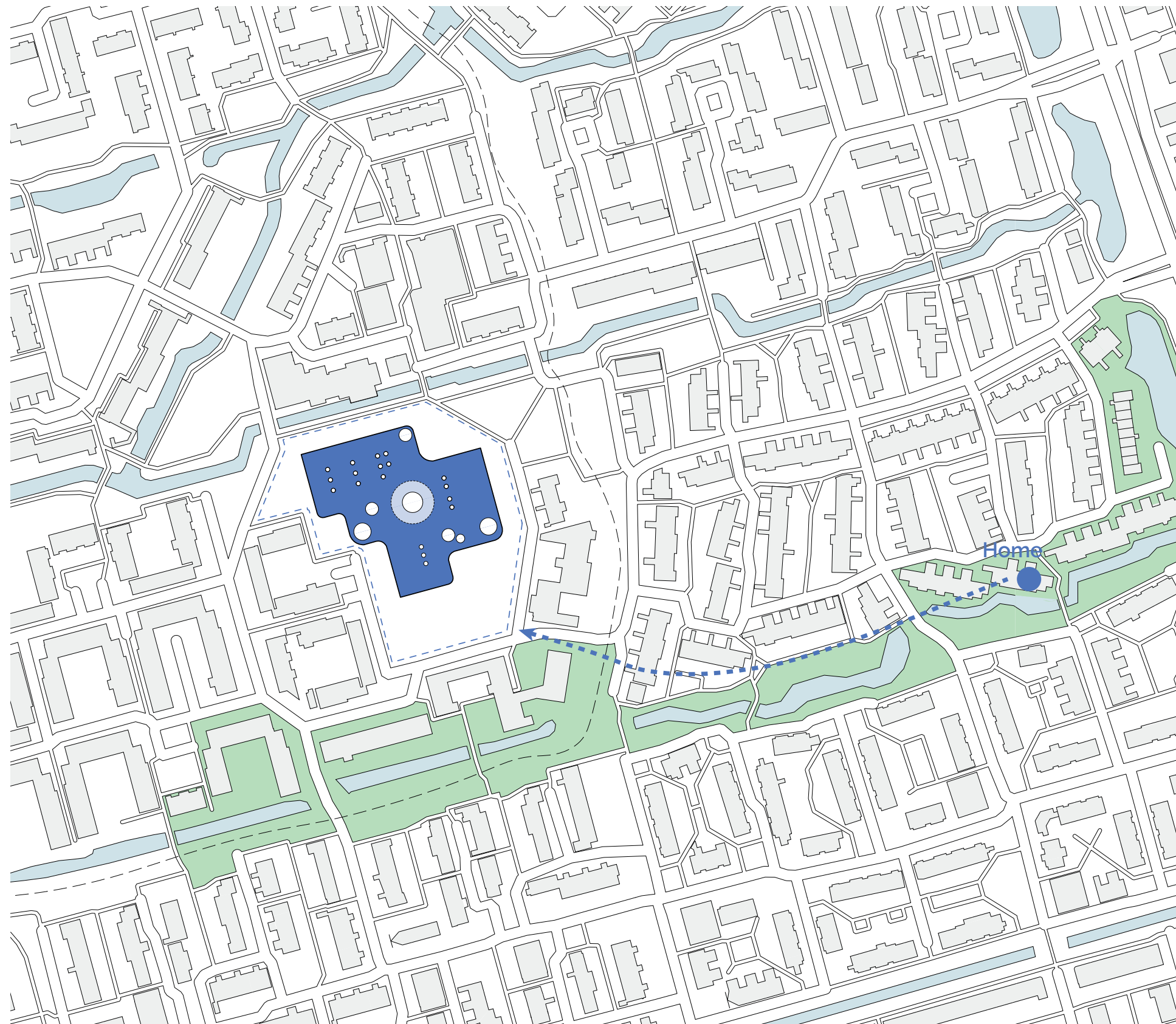
We are a family of four living in Tanthof East!

**CHILDREN**  
9 & 11 years old



# ENTRANCE

Arriving to the site from home



1-3000 



# ENTRANCE

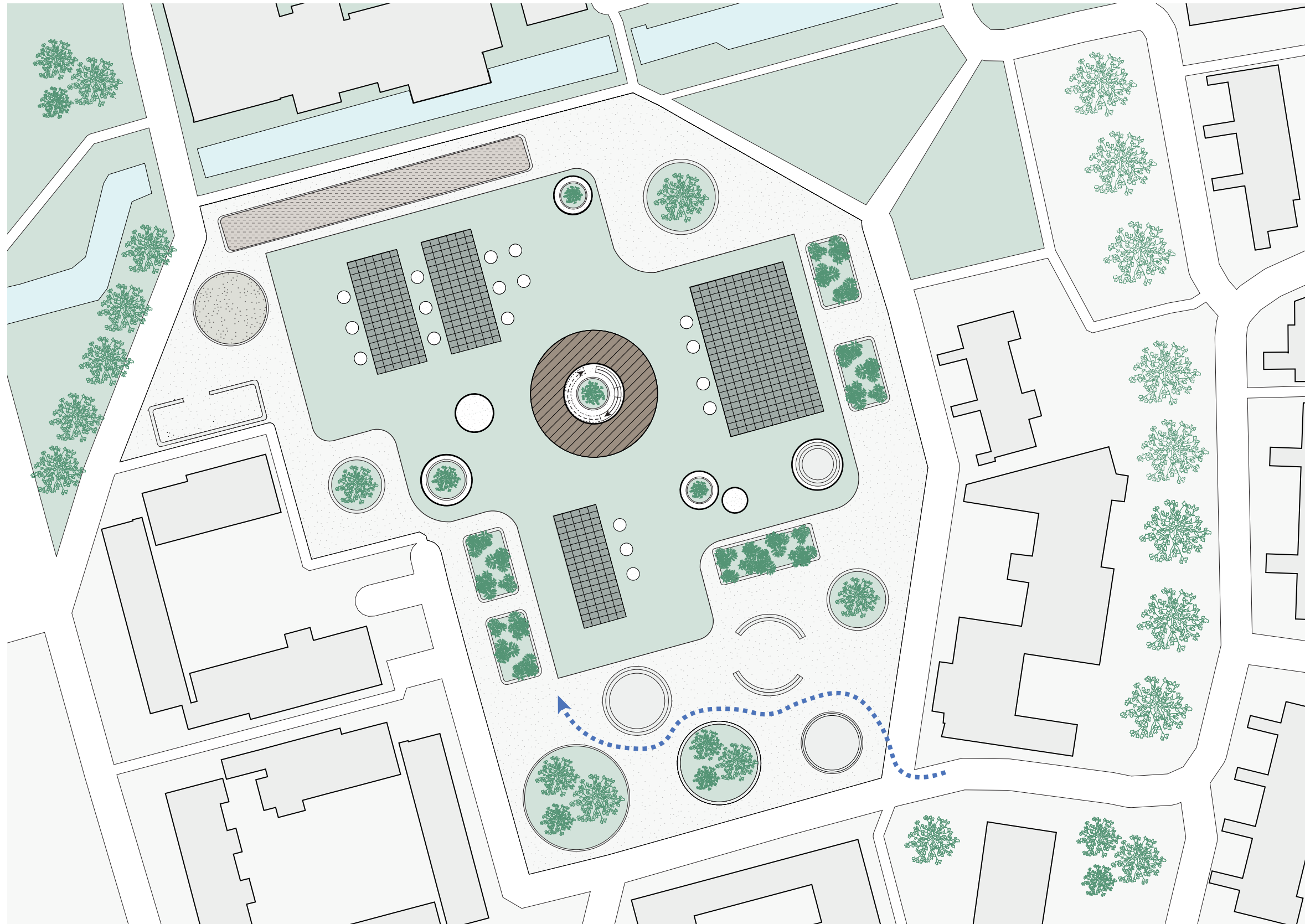
Entrance point from the neighborhood





# ENTRANCE

Arriving at the site



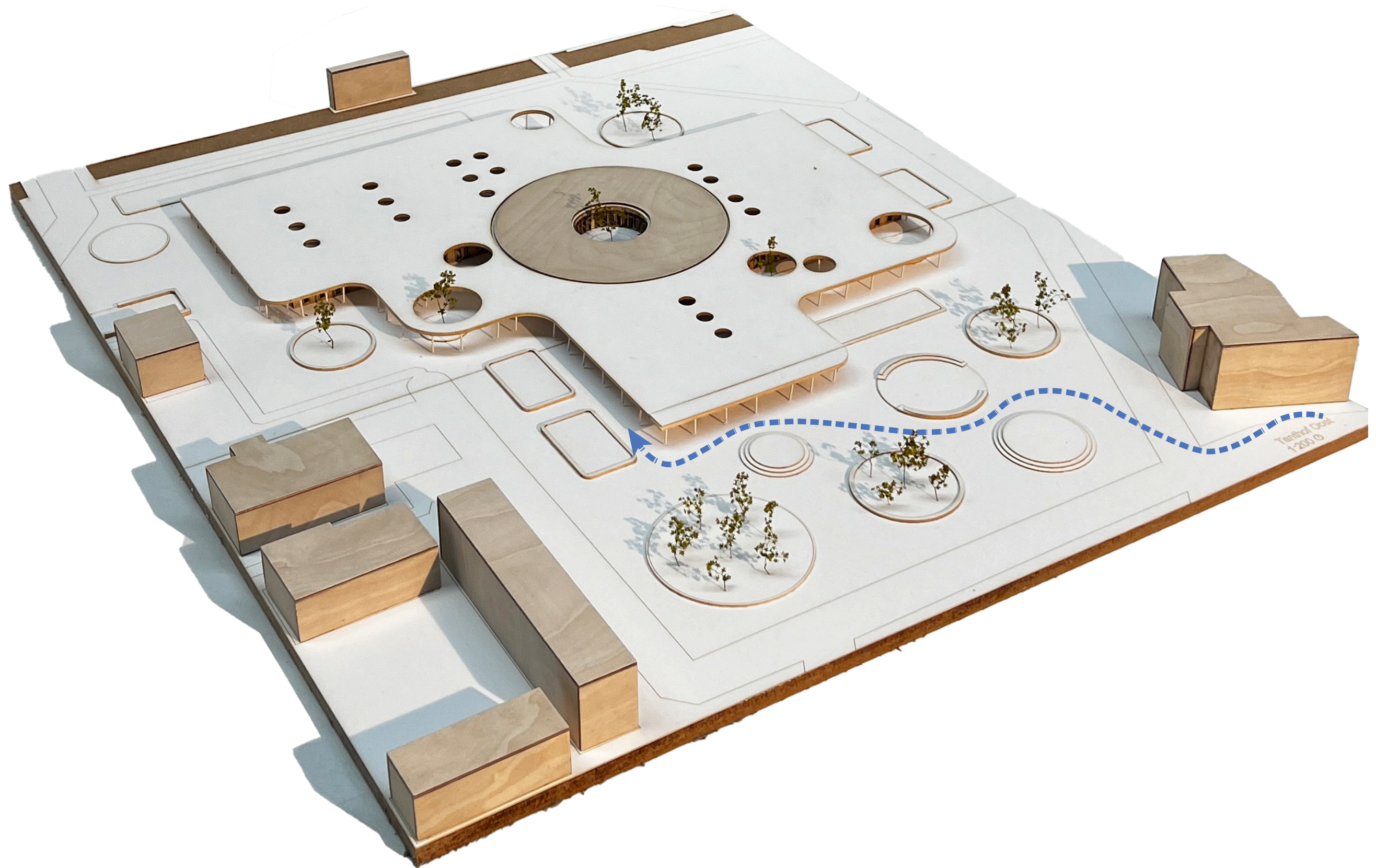
1-400





# ENTRANCE

Entering the public plaza





# ENTRANCE

Entering the public plaza





# ENTRANCE

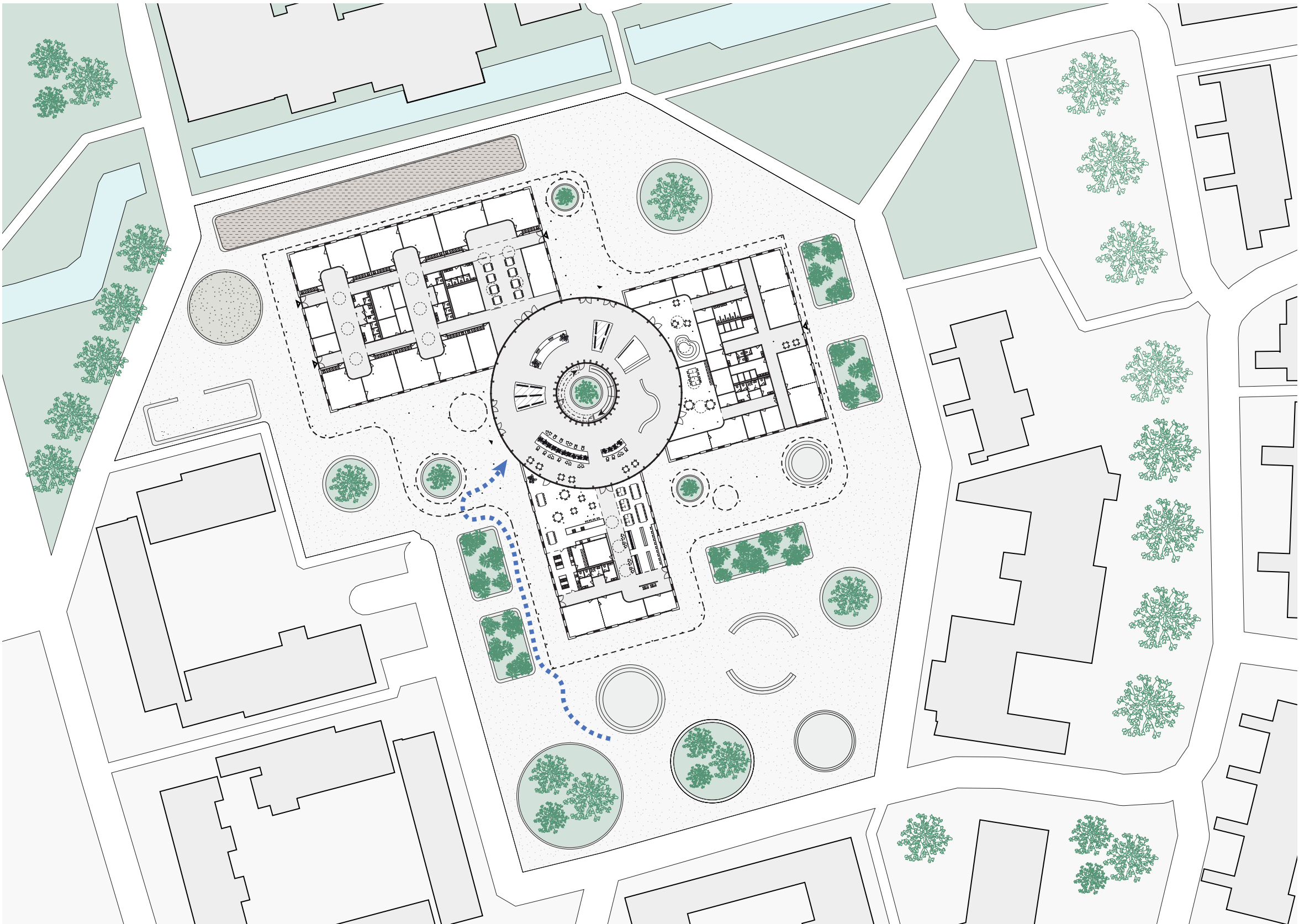
Walking through the public plaza





# ENTRANCE

Entrance from public plaza



1-400



# ENTRANCE

Underneath the canopy



# ENTRANCE

Towards the entrance





# ENTRANCE

Entering the atrium





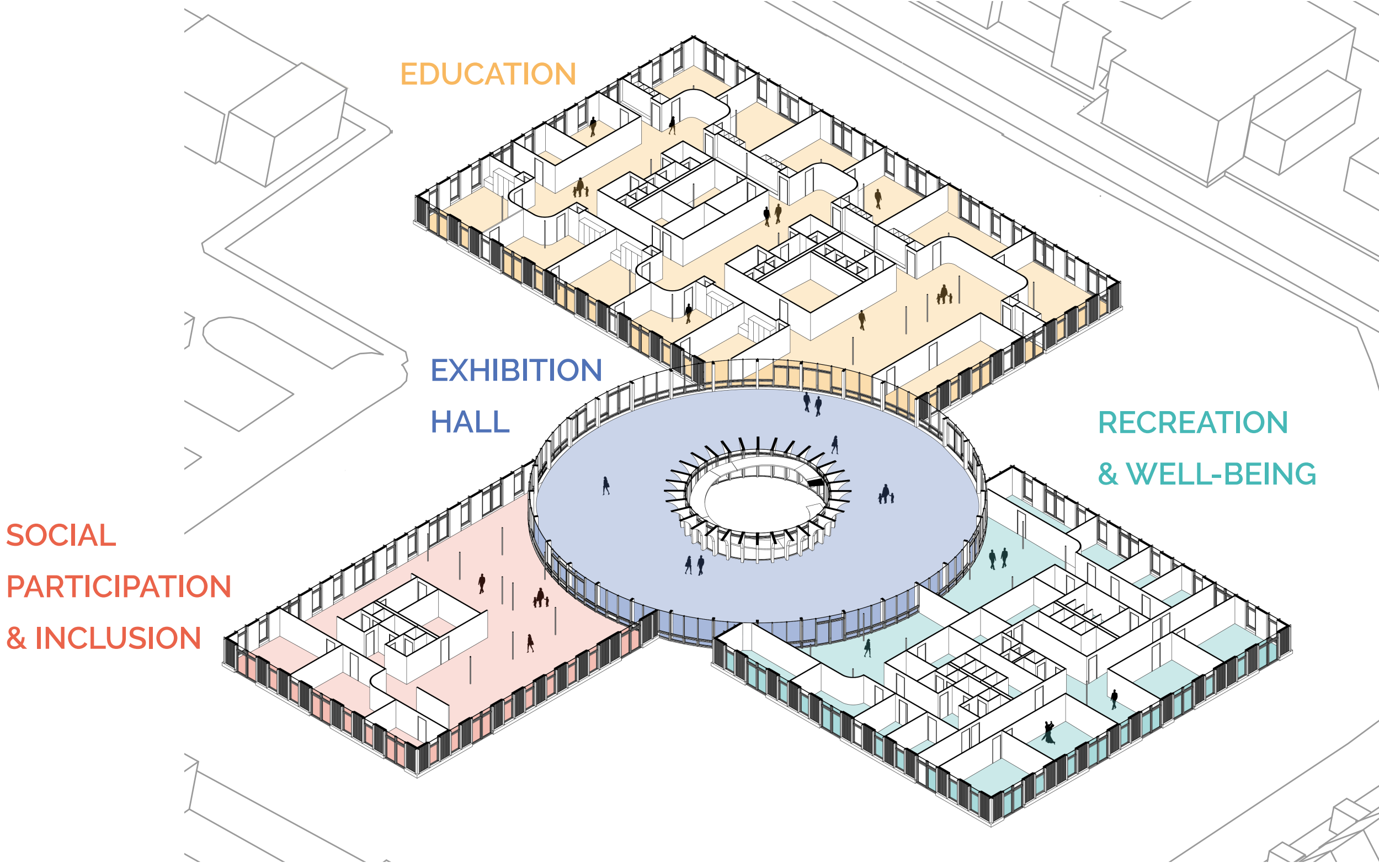
# ENTRANCE

Arriving in the atrium



# PROGRAM

Four clusters



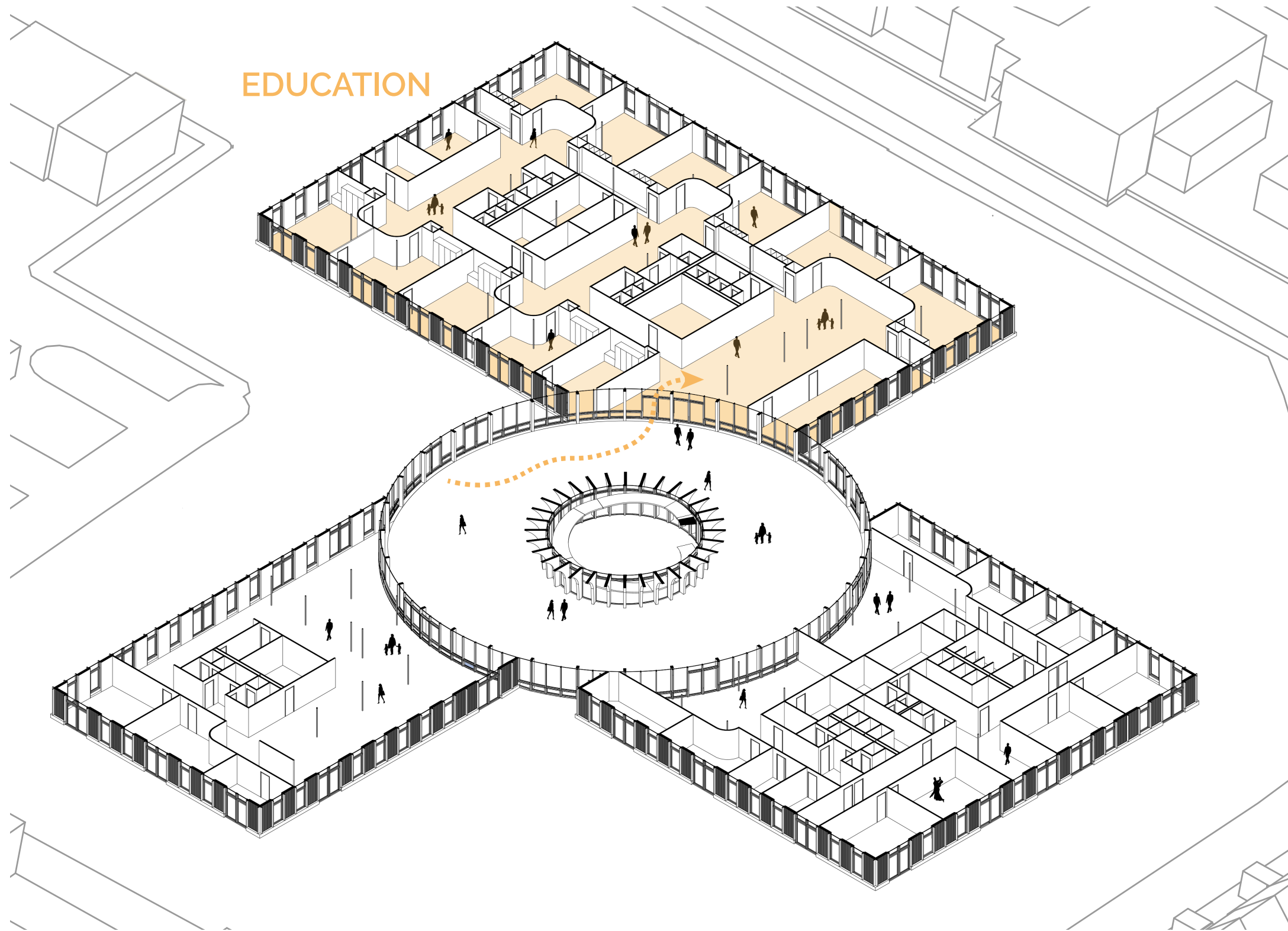
1-500





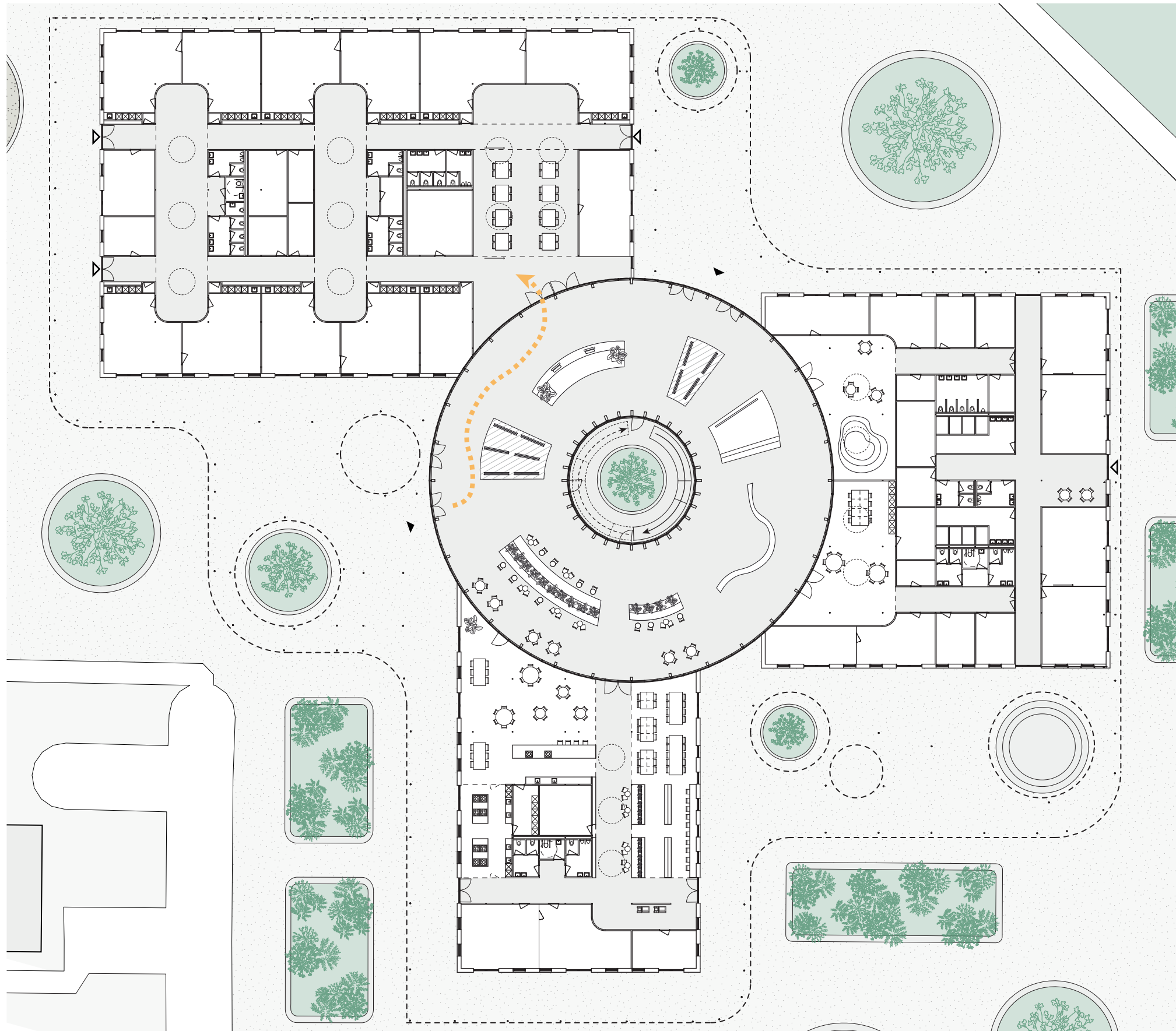
# EDUCATION

Primary school



# EDUCATION

From atrium to primary school

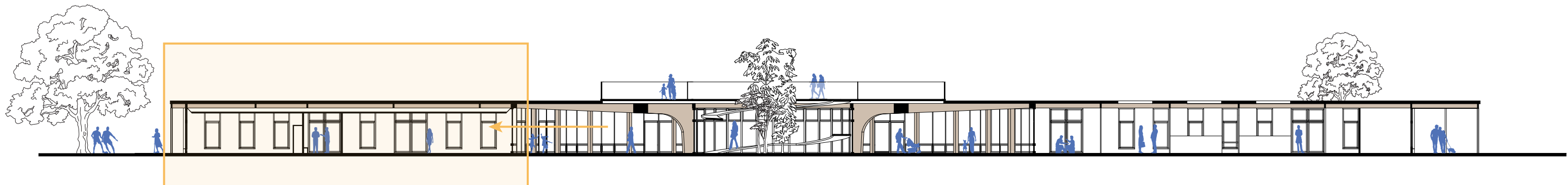
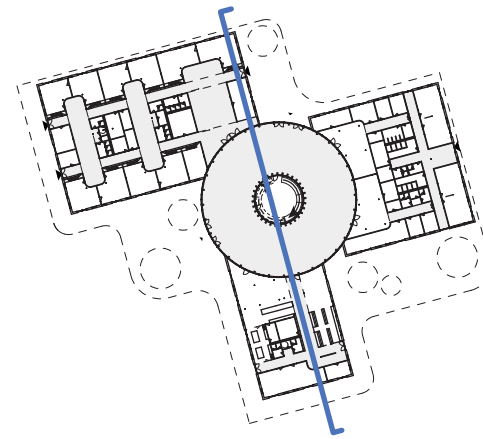


1-200



# EDUCATION

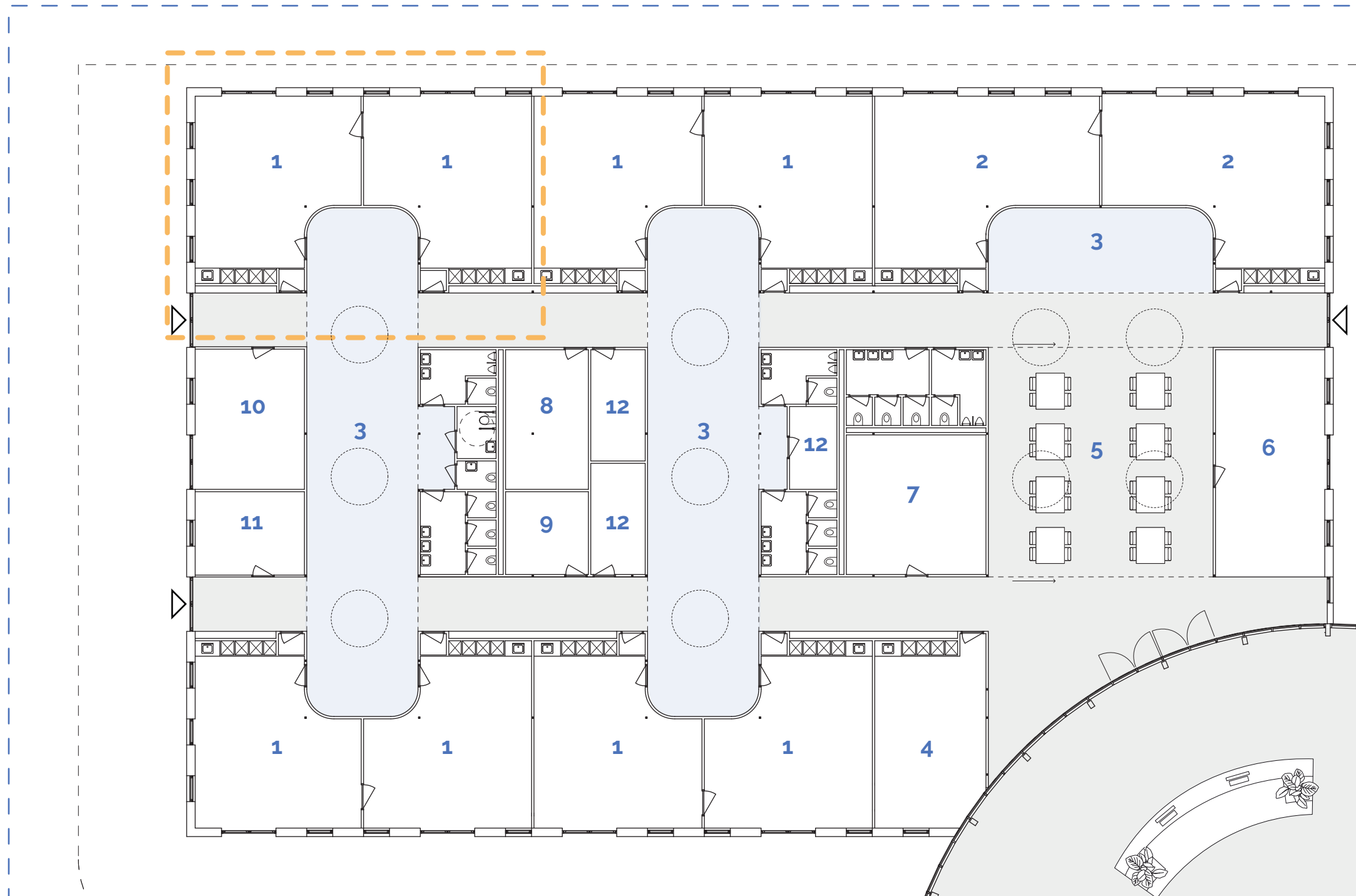
From atrium to primary school



1-200

# EDUCATION

## Functions primary school



### LEGEND

- |                           |                         |                       |
|---------------------------|-------------------------|-----------------------|
| 1. Class room (group 5-8) | 5. Central seating area | 9. Kitchen            |
| 2. Class room (group 3-4) | 6. Play room            | 10. Teacher's room    |
| 3. Learning square        | 7. Arts & craft room    | 11. Headmaster office |
| 4. Support class room     | 8. Technical room       | 12. Storage           |

 ENCOURAGE HAVING HEALTHY DAILY LIFE

 INTERGRATE EDUCATION IN DAILY LIFE

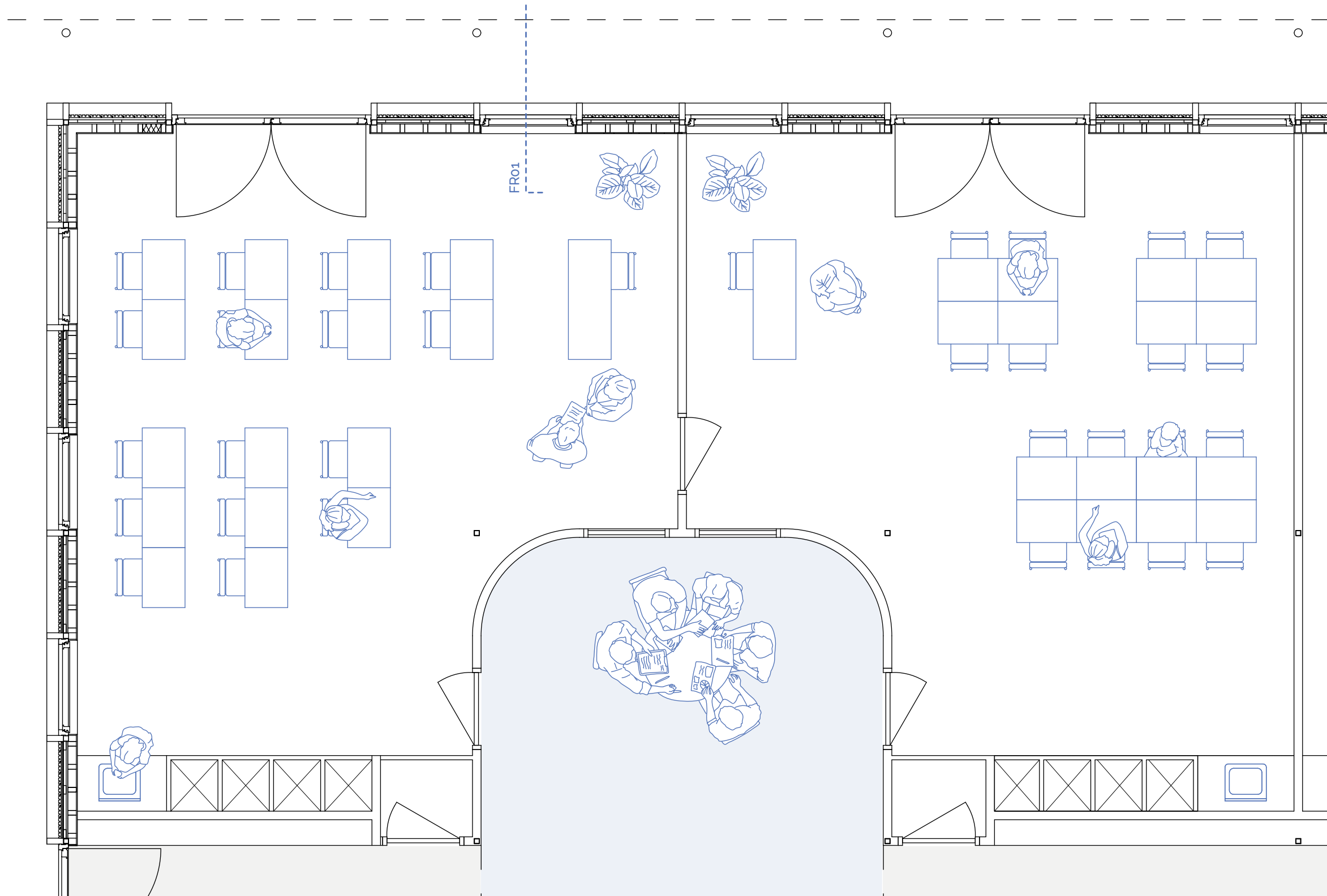
 PROMOTE HEALTHY LIFESTYLES

 PROMOTE ACTIVE LIFESTYLES

1-100 

# EDUCATION

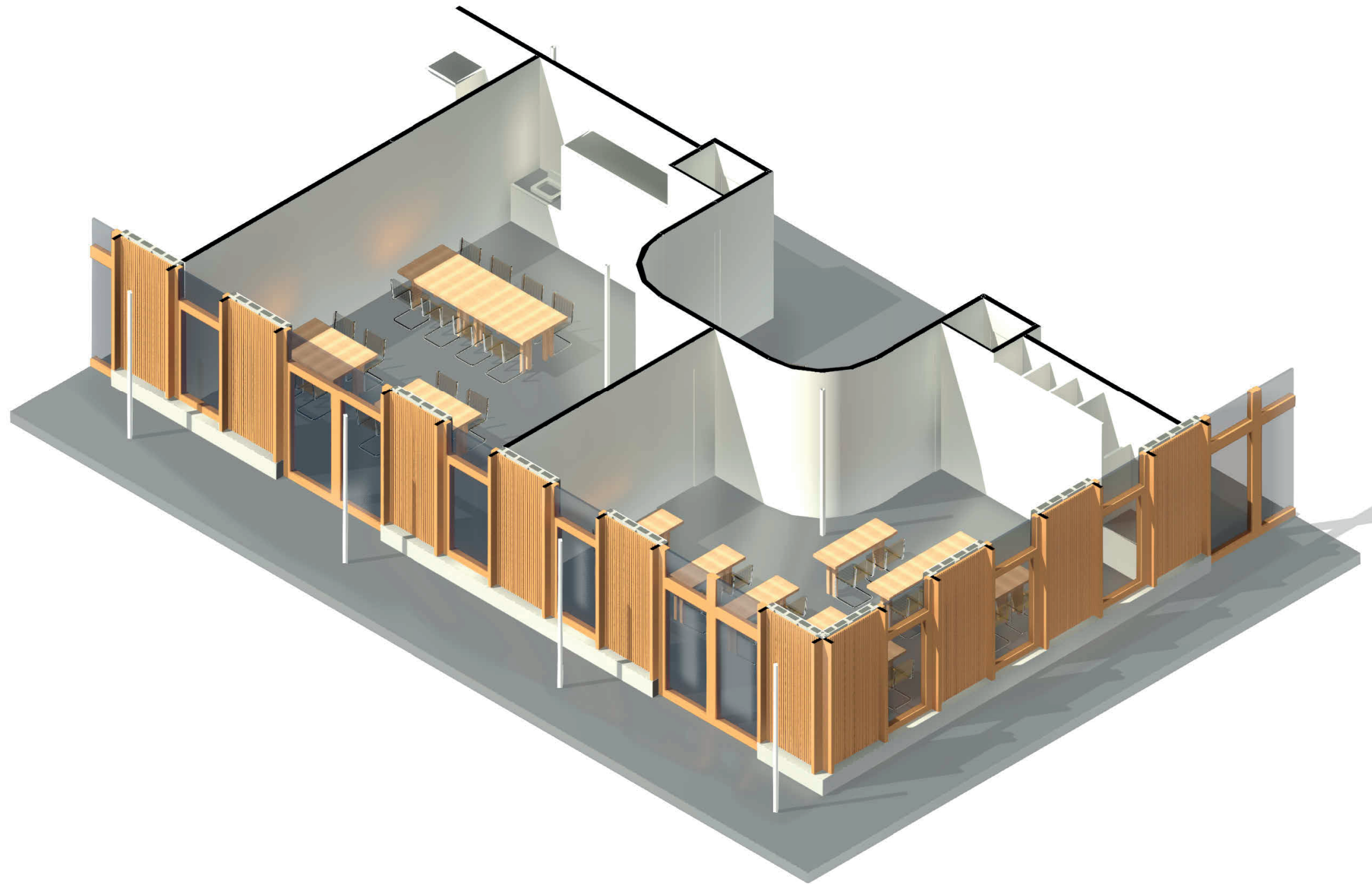
Class rooms connected to learning squares





# EDUCATION

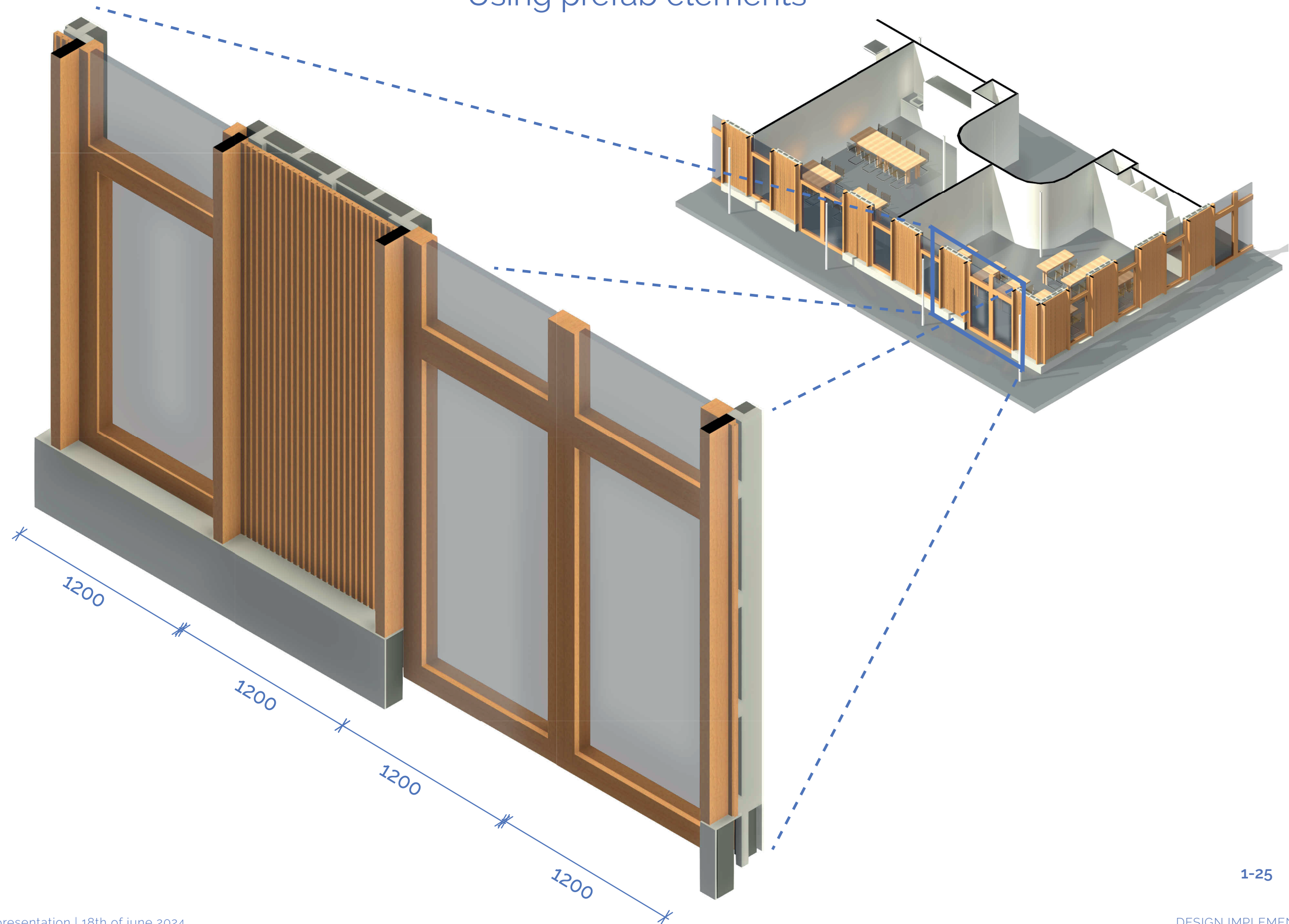
Class rooms connected to learning squares





# FACADE CONCEPT

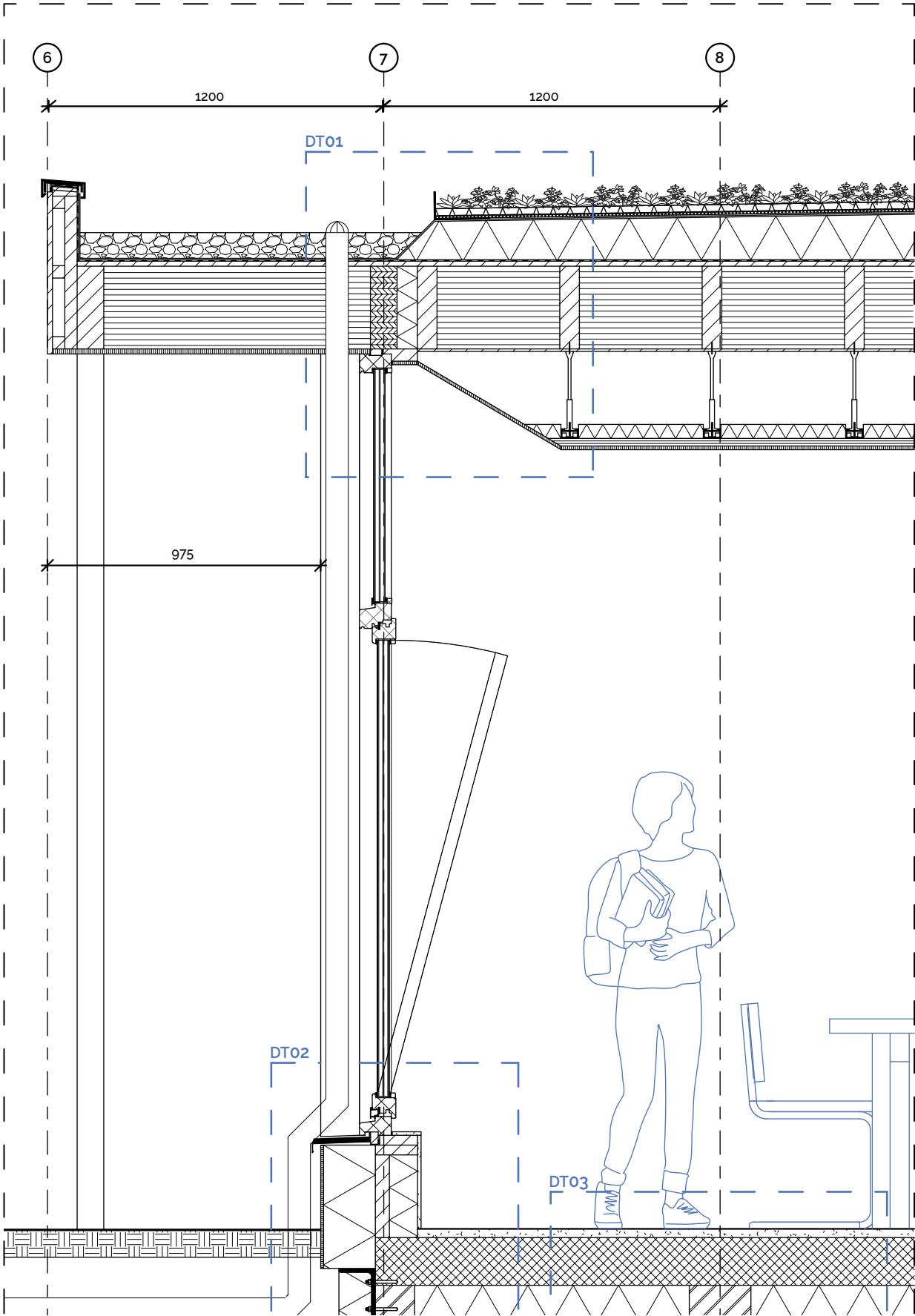
Using prefab elements

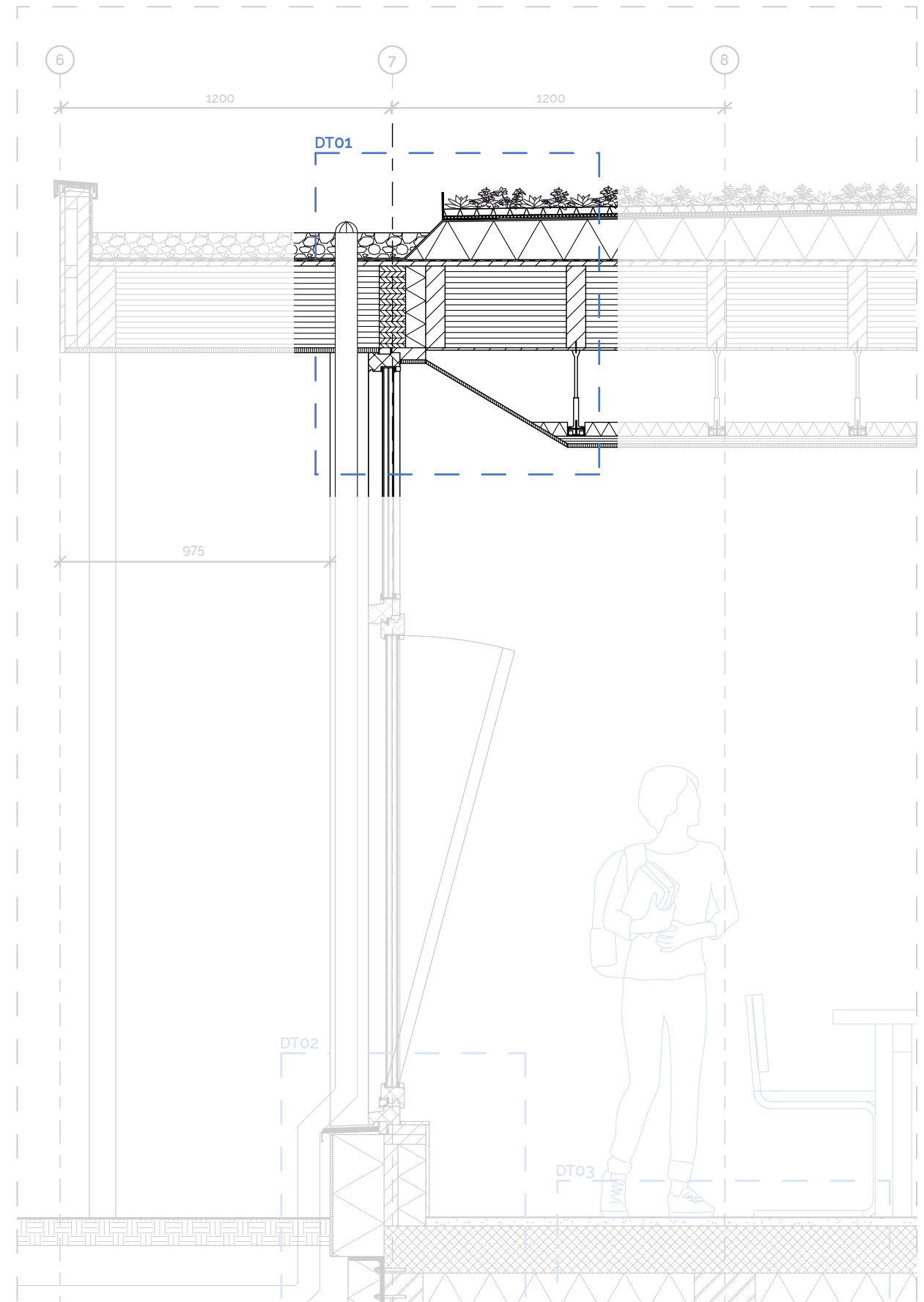
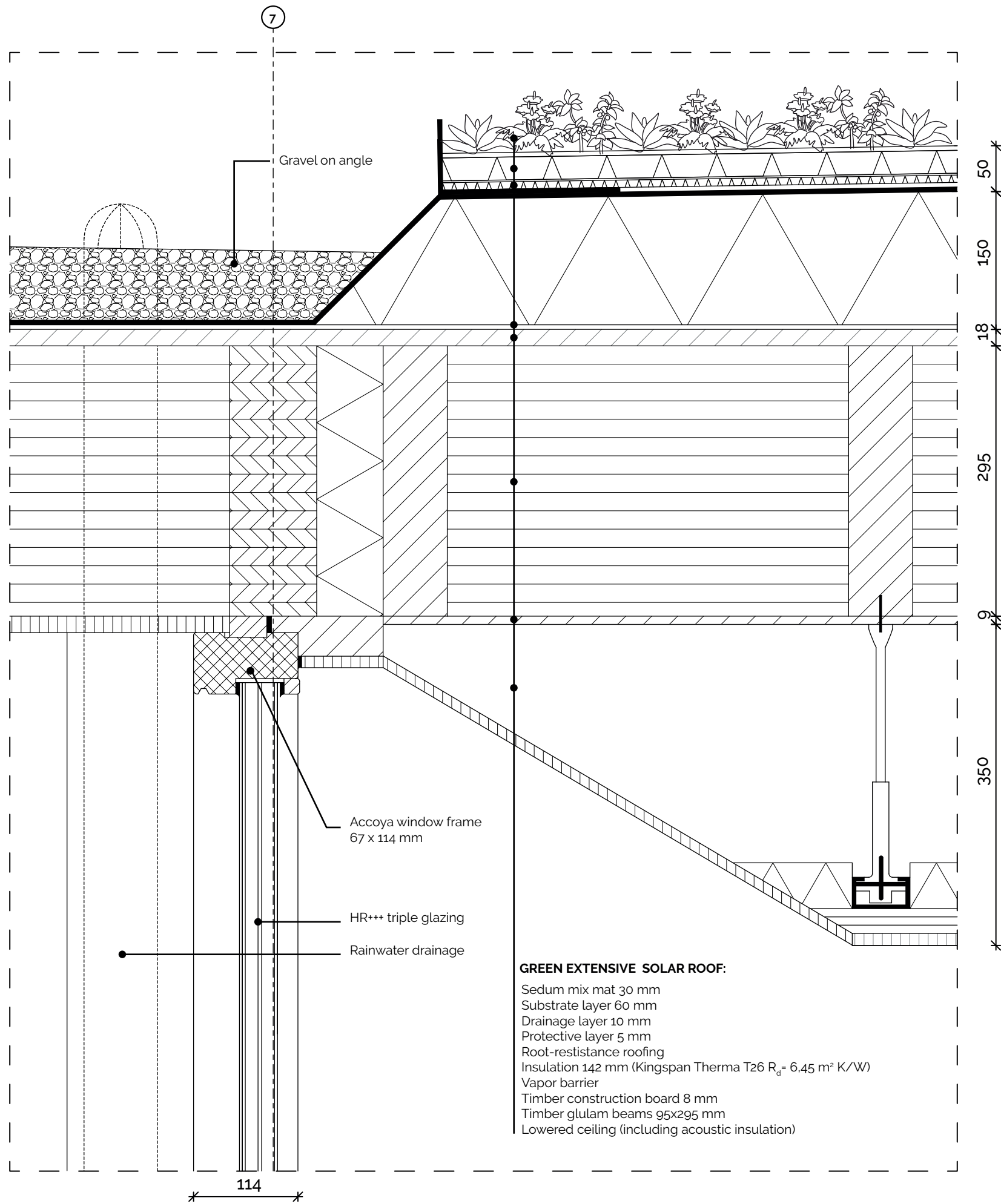




# FACADE DESIGN

## Fragment 1-20

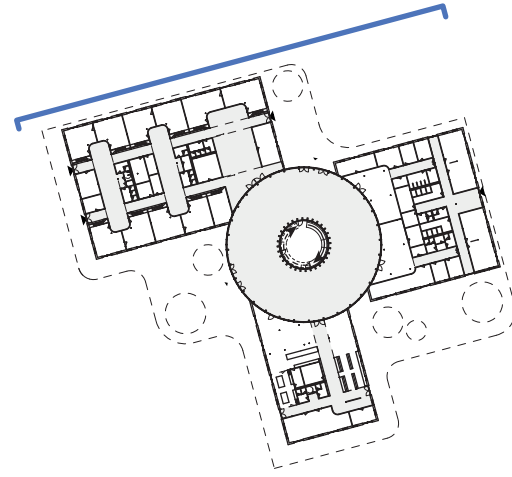






# FACADE DESIGN

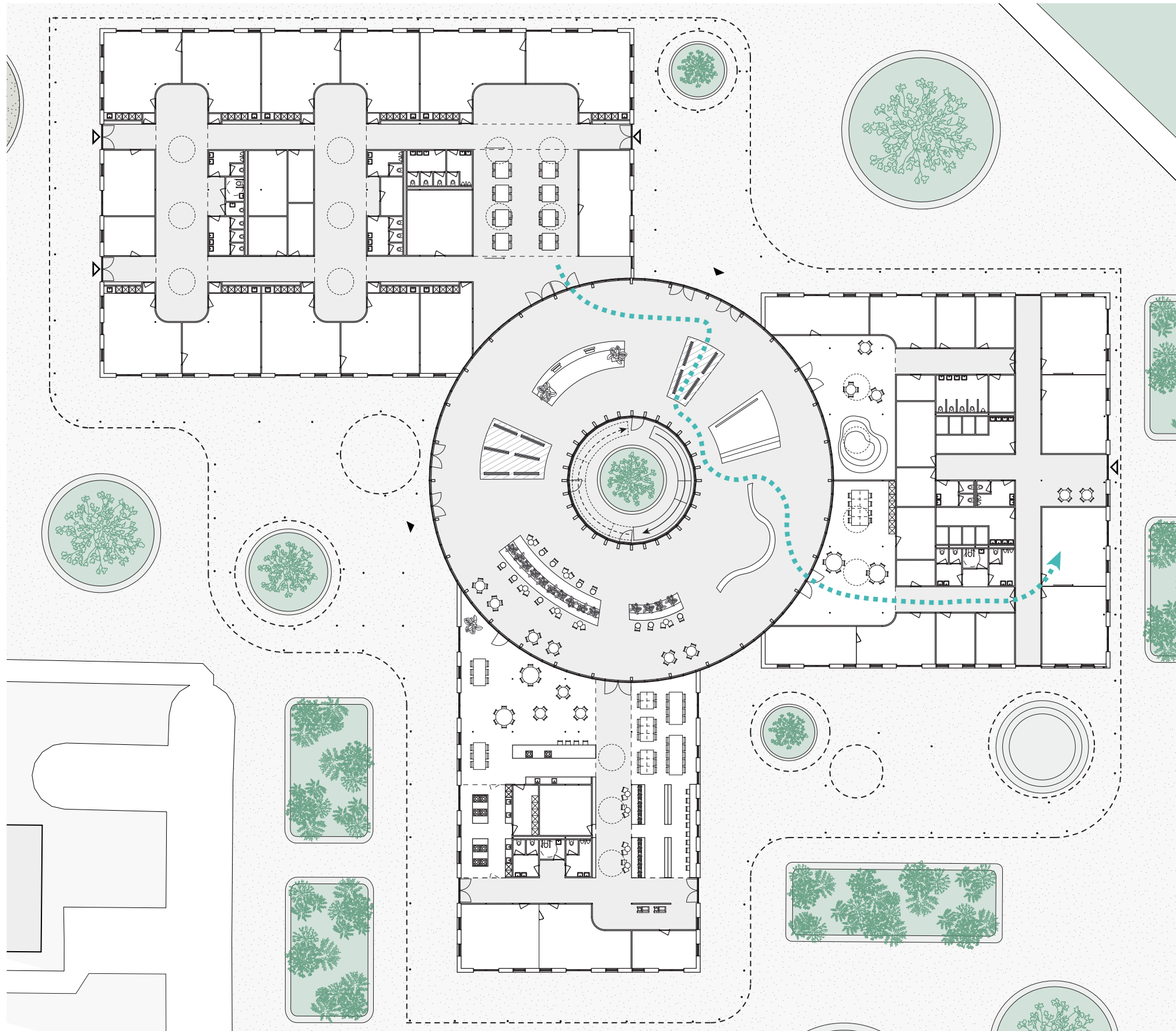
Elevation 1-200



1-200

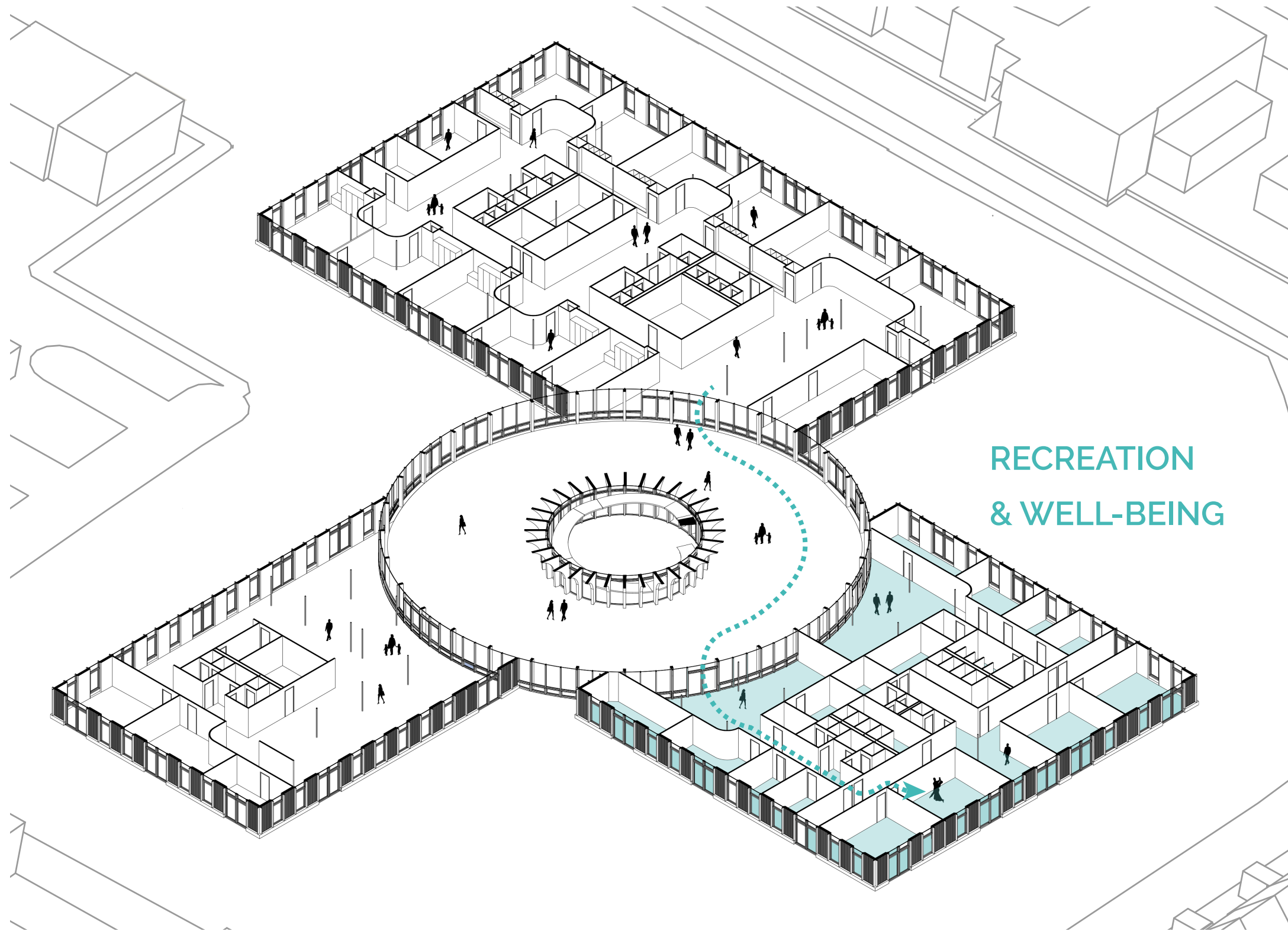
# RECREATION & WELL-BEING

From education to intergenerational day care center



# RECREATION & WELL-BEING

Intergenerational day care center



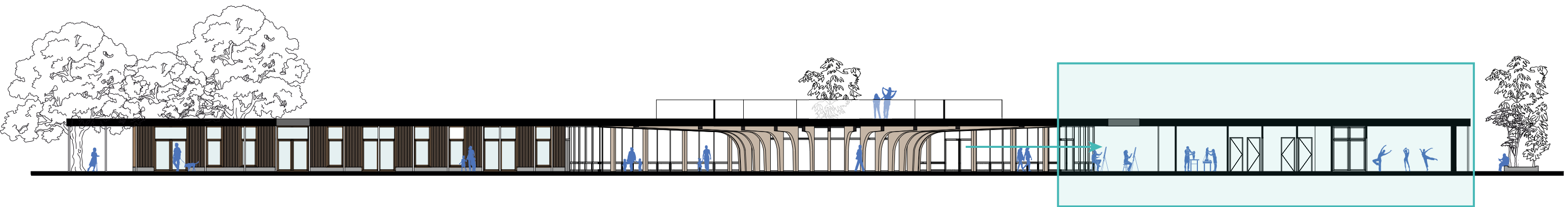
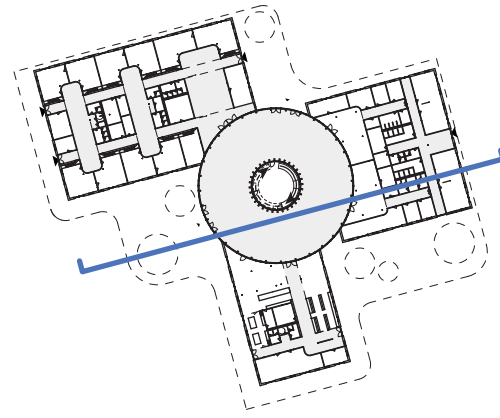
RECREATION  
& WELL-BEING

1-500



# RECREATION & WELL-BEING

From atrium to intergenerational day care center

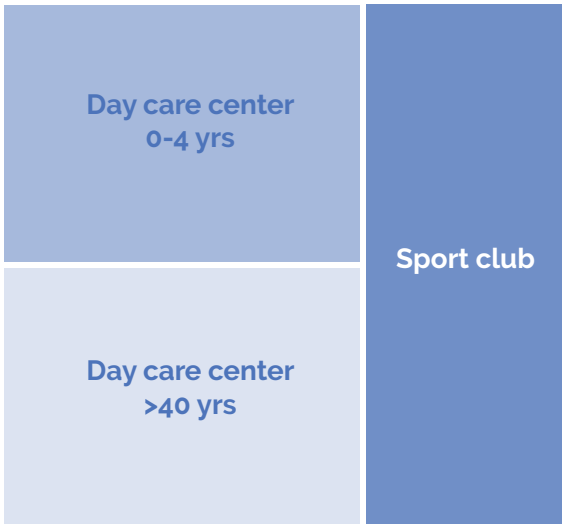
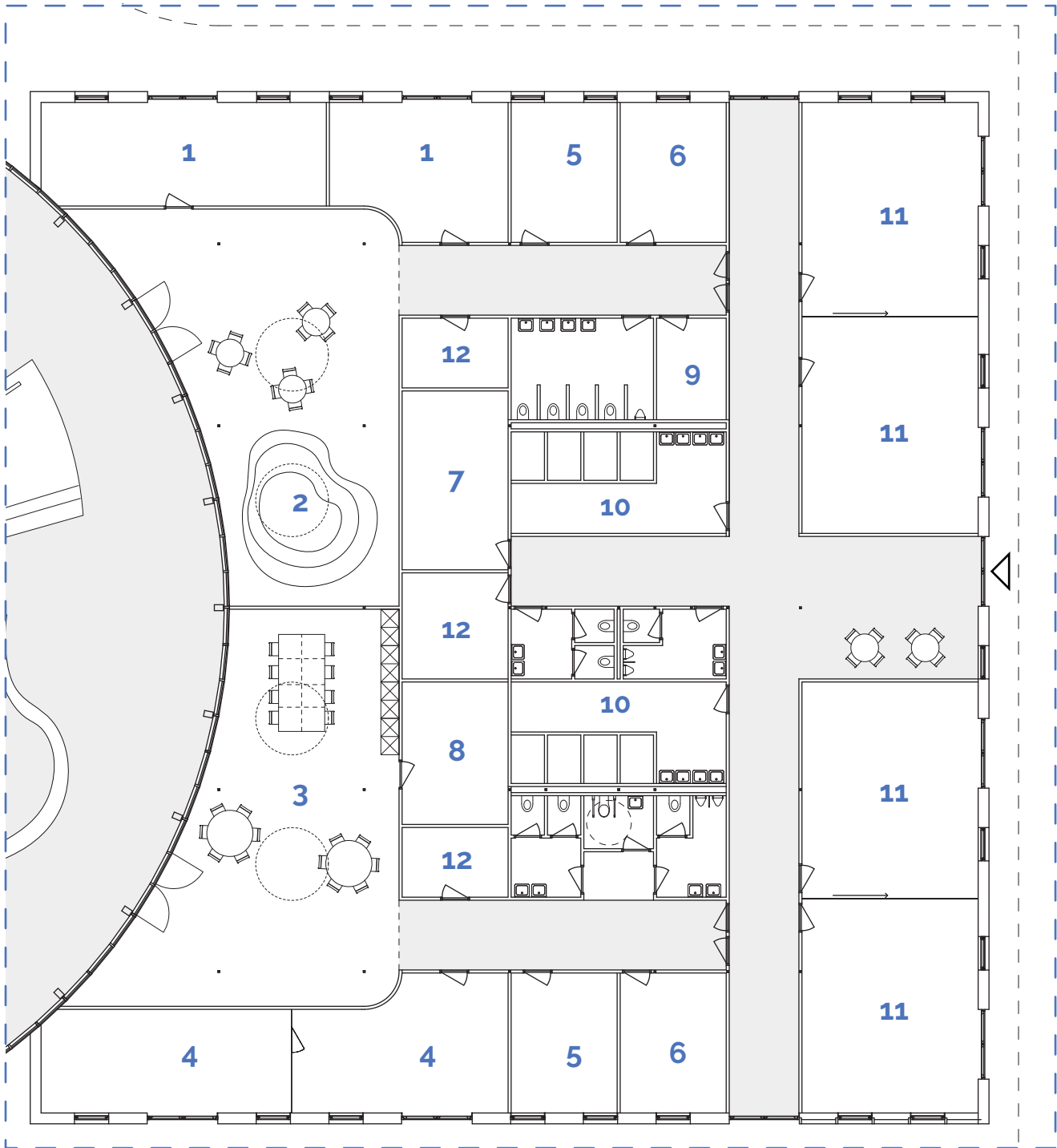


1-200



# RECREATION & WELL-BEING

Functions intergenerational day care center



### LEGEND

- |                         |                   |                            |
|-------------------------|-------------------|----------------------------|
| 1. Group room (0-4 yrs) | 5. Silent room    | 9. Changing room (0-4 yrs) |
| 2. Play area            | 6. Office         | 10. Changing room          |
| 3. Arts & crafts studio | 7. Technical room | 11. Sport studio           |
| 4. Group room (>40 yrs) | 8. Clay studio    | 12. Storage                |

-  OPTIMIZE DYNAMIC STIMULI
-  SUPPORT MOVEMENT AND ENCOURAGEMENT
-  CONNECT INDOOR AND OUTDOOR SPACES
-  HEALTHY BUILDINGS
-  INVITING GREEN CITIES

1-100 

# RECREATION & WELL-BEING

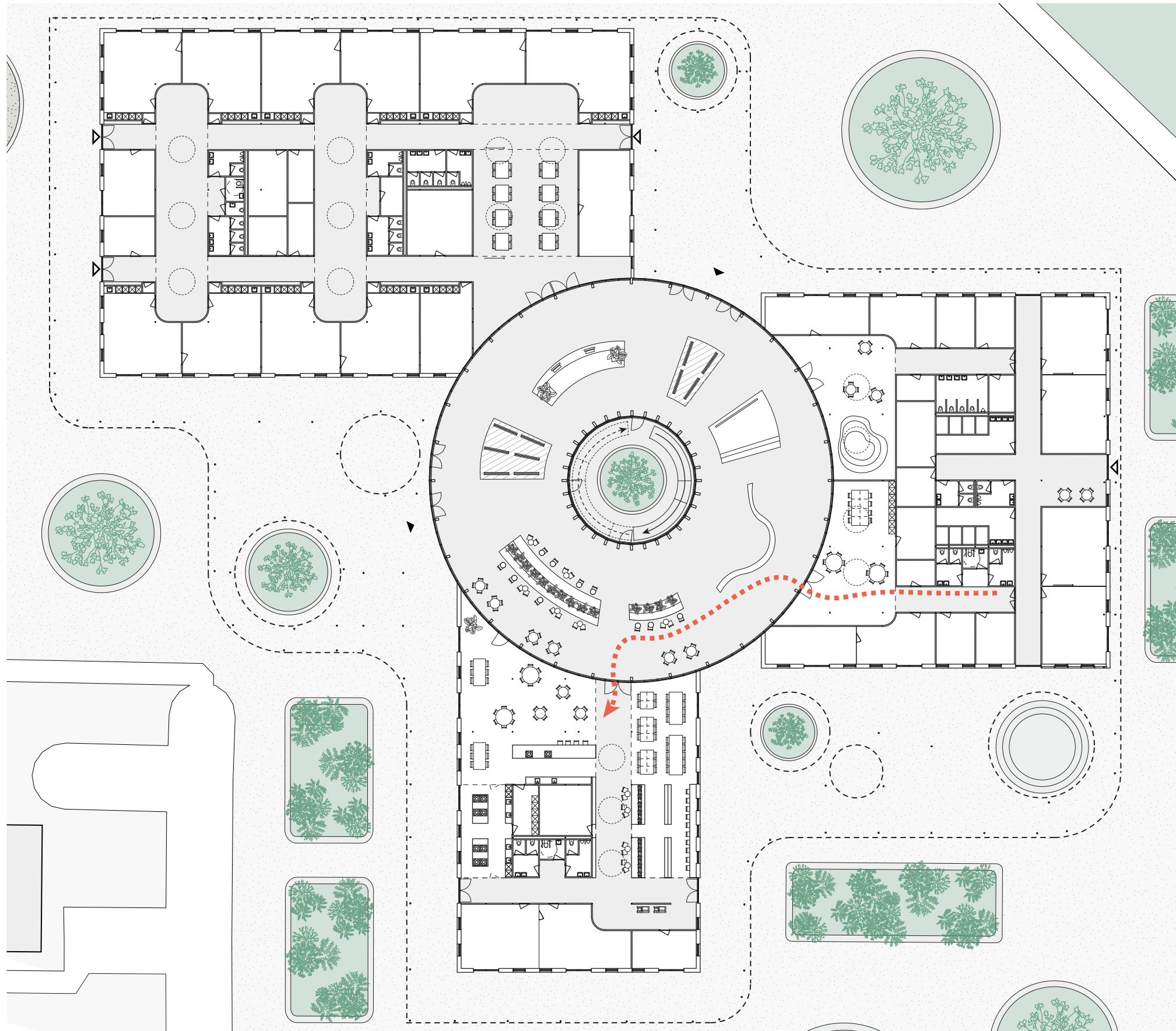
Sport facilities





# SOCIAL PARTICIPATION & INCLUSION

From intergenerational day care center to community center



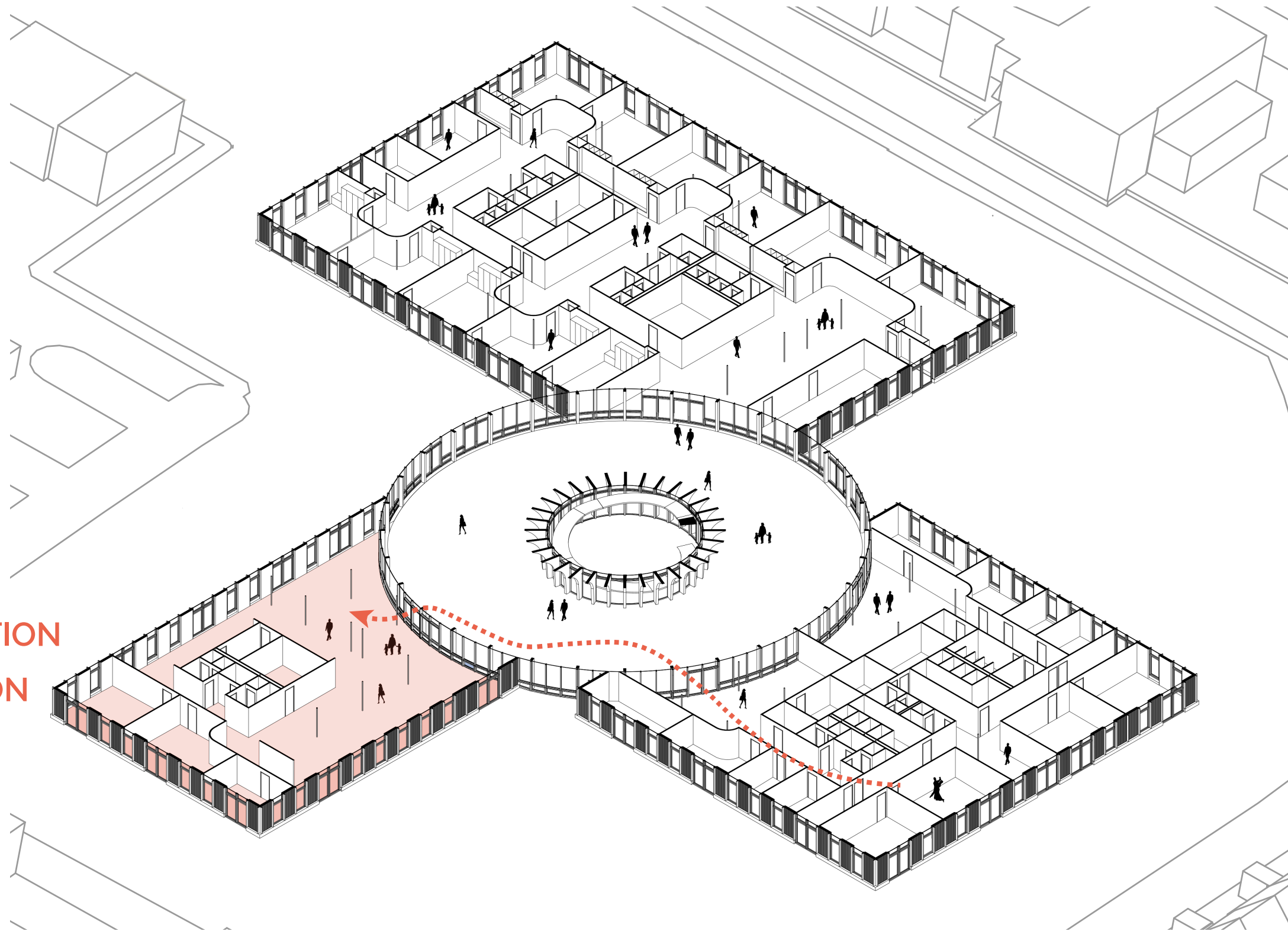
1-200



# SOCIAL PARTICIPATION & INCLUSION

Community center

SOCIAL  
PARTICIPATION  
& INCLUSION



1-500





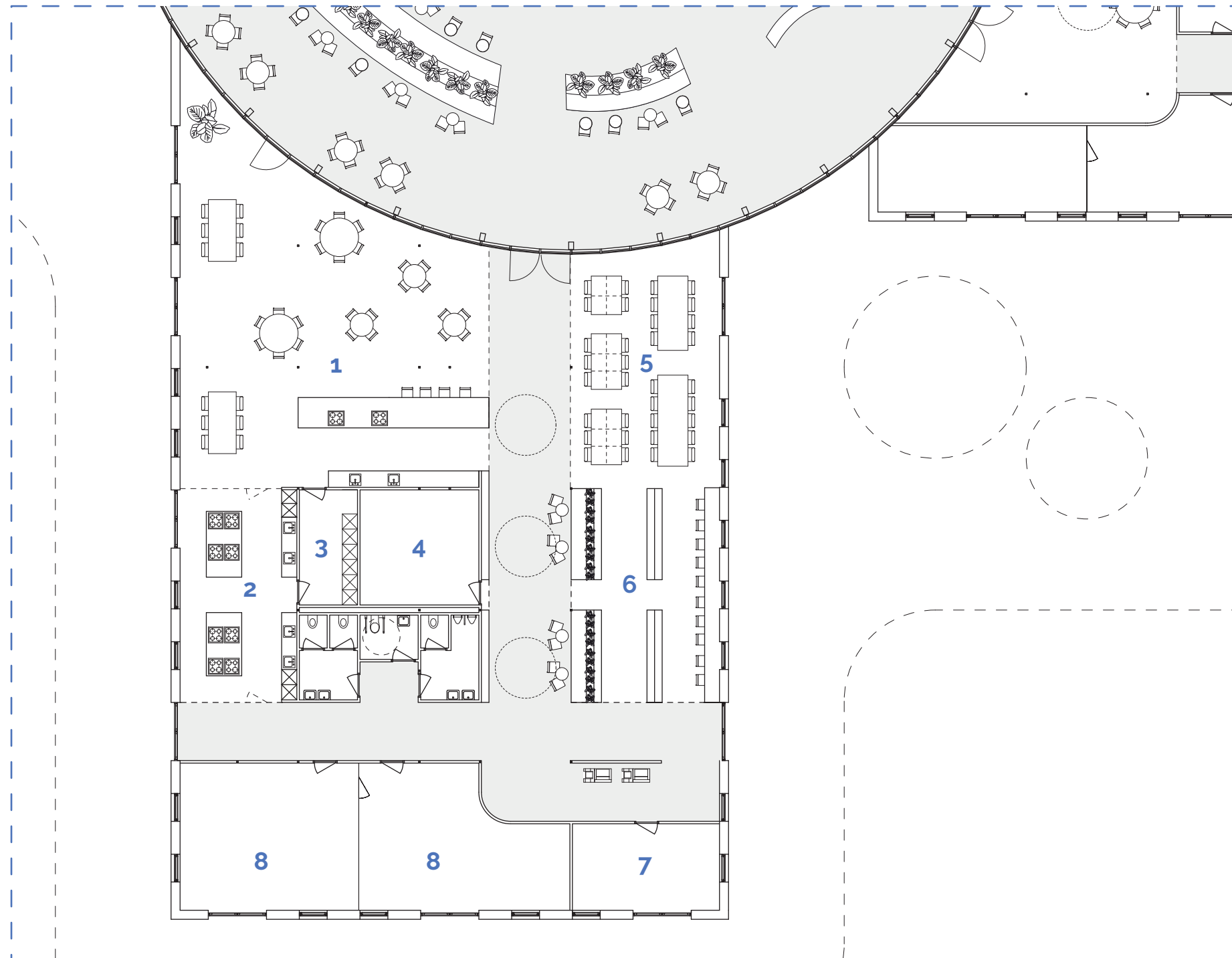
# SOCIAL PARTICIPATION & INCLUSION

Community center



# SOCIAL PARTICIPATION & INCLUSION

## Functions community center



### LEGEND

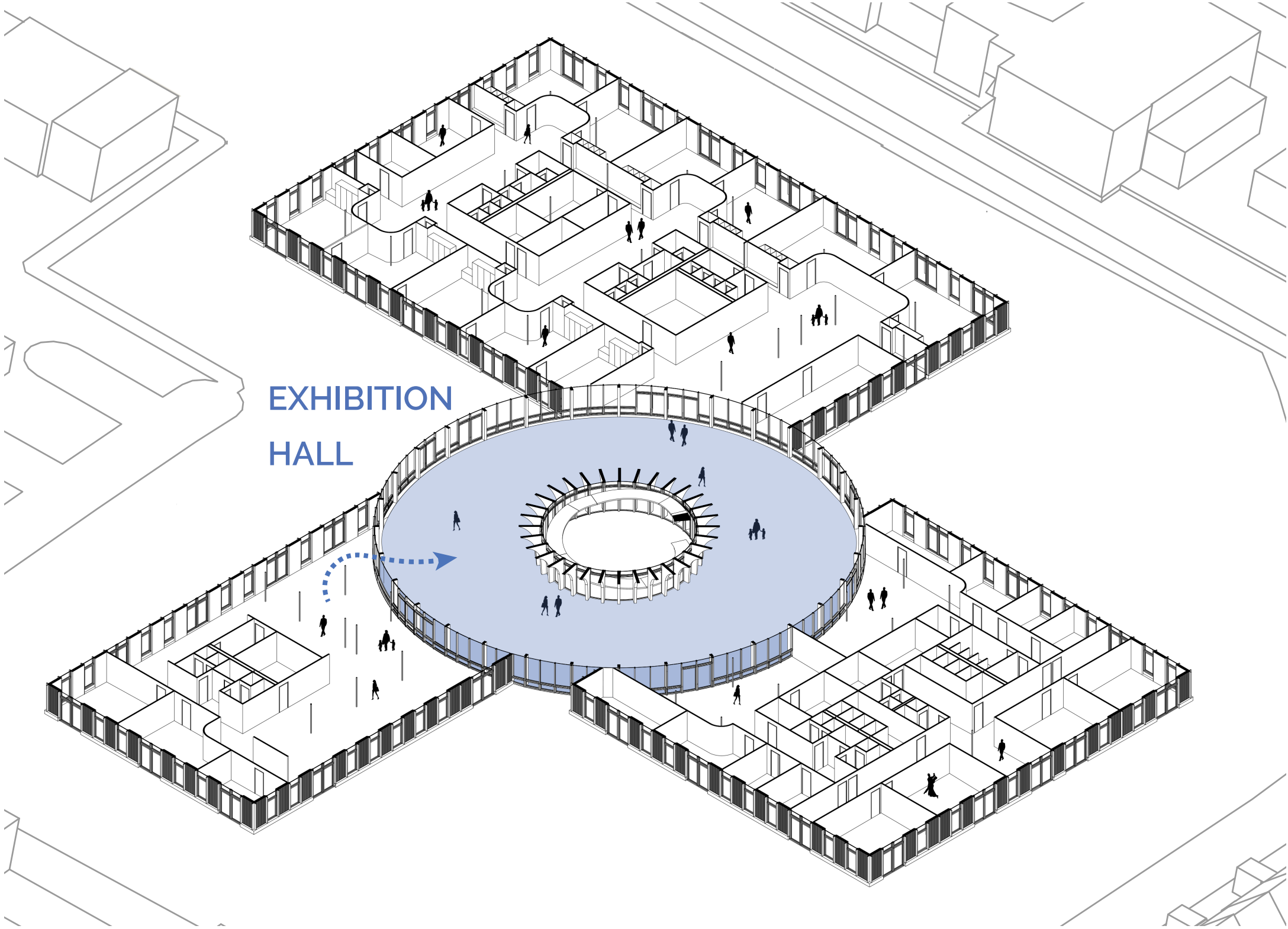
- |                             |                         |
|-----------------------------|-------------------------|
| 1. Café / community kitchen | 5. Study spaces         |
| 2. Cooking workshop studio  | 6. Library              |
| 3. Kitchen                  | 7. Study room           |
| 4. Technical room           | 8. Multifunctional room |

-  LINK TO COMMUNITY
  -  HUMAN SCALE
  -  SUPPORT ORIENTATION
  -  RECOGNIZABILITY
  -  INTERGENERATIONAL INTERACTION
  -  AMENITIES WITHIN 15 MINUTES DISTANCE
- 1-100 



# ATRIUM

Exhibition hall



EXHIBITION  
HALL

1-500



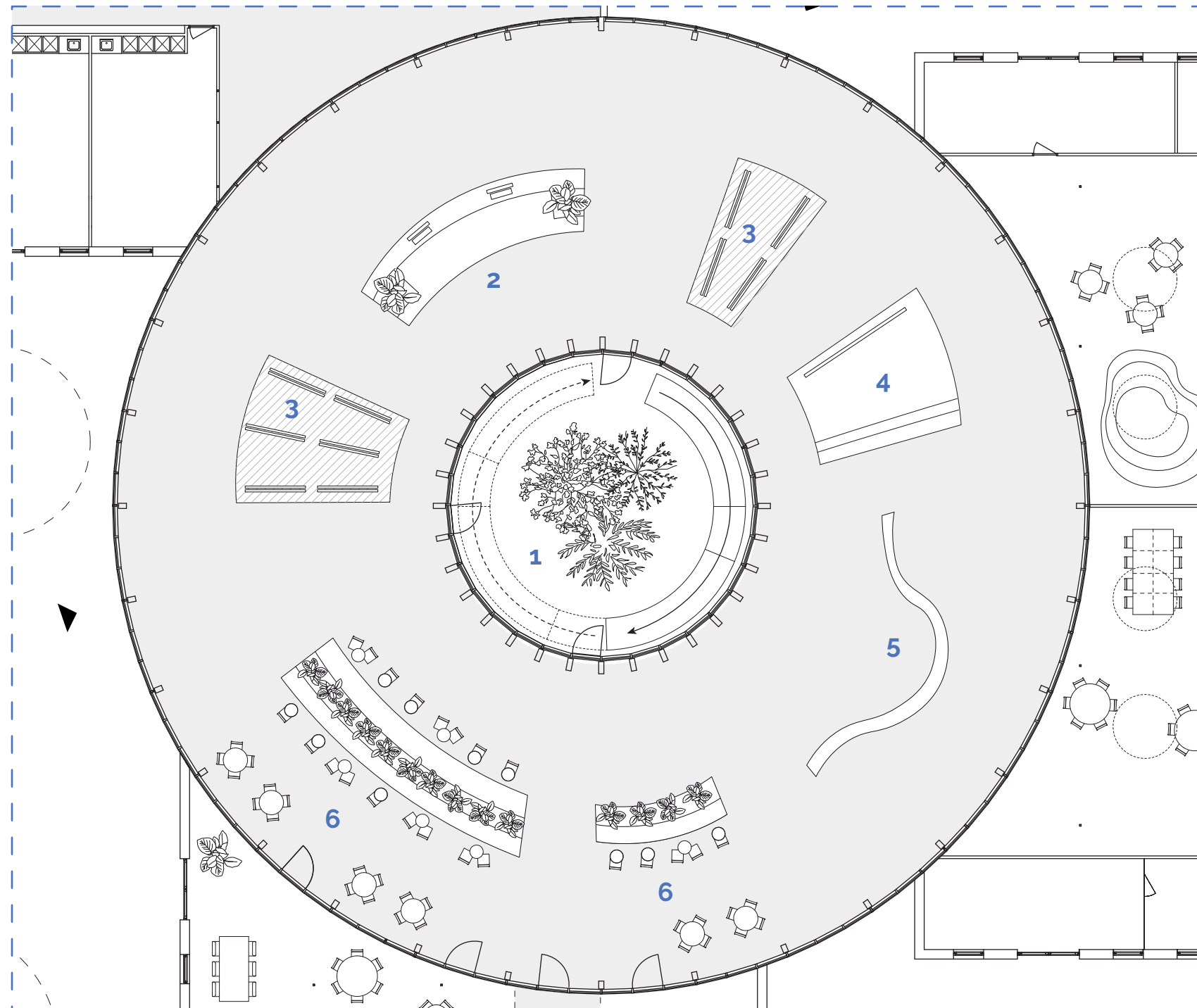
# ATRIUM

Exhibition hall



# ATRIUM

## Functions exhibition hall

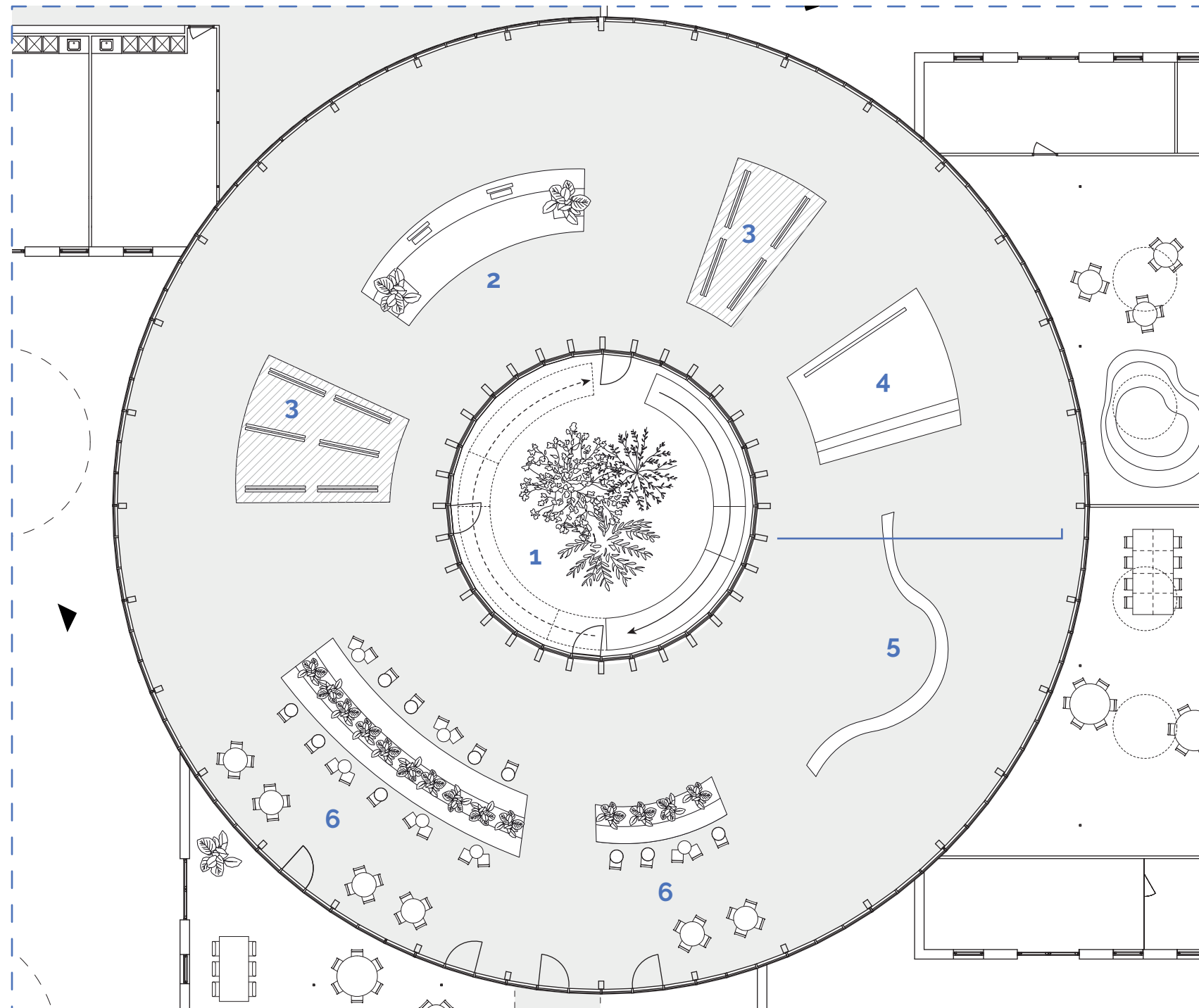


### LEGEND

- 1. Courtyard
- 2. Reception
- 3. Exhibition space
- 4. Small podium
- 5. Exhibition wall
- 6. Seating area

# ATRIUM

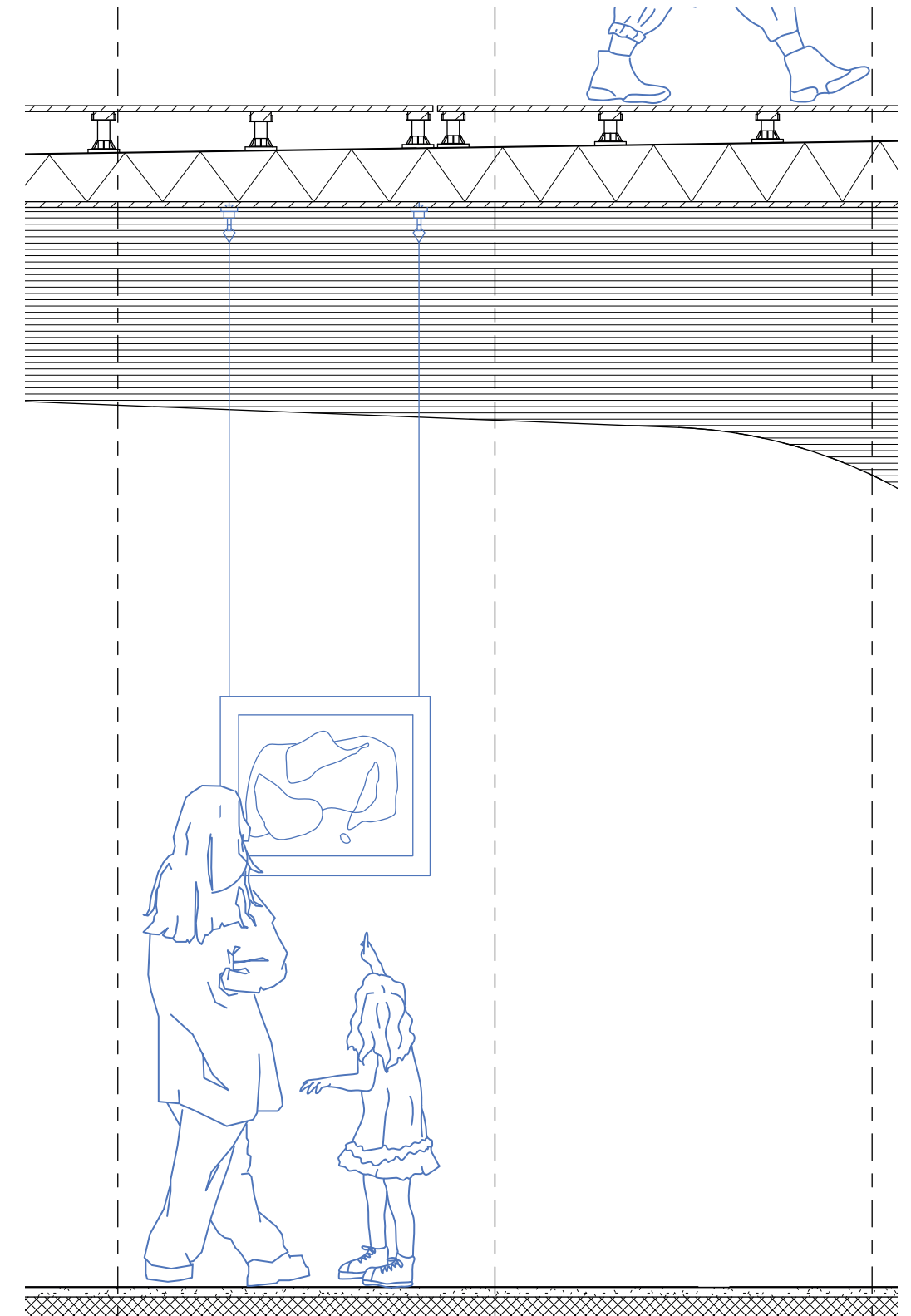
Functions exhibition hall



## LEGEND

- 1. Courtyard
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1-100

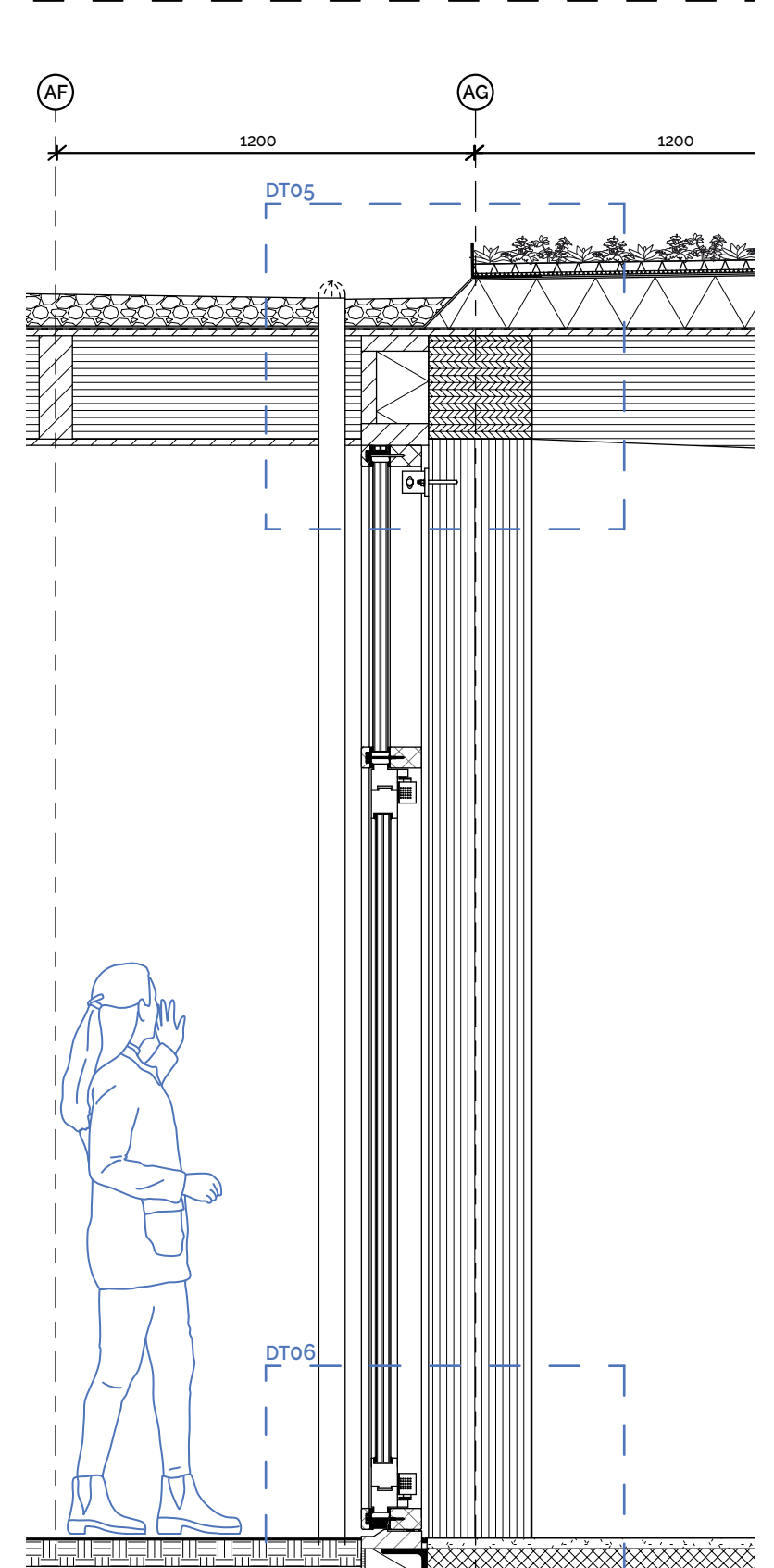
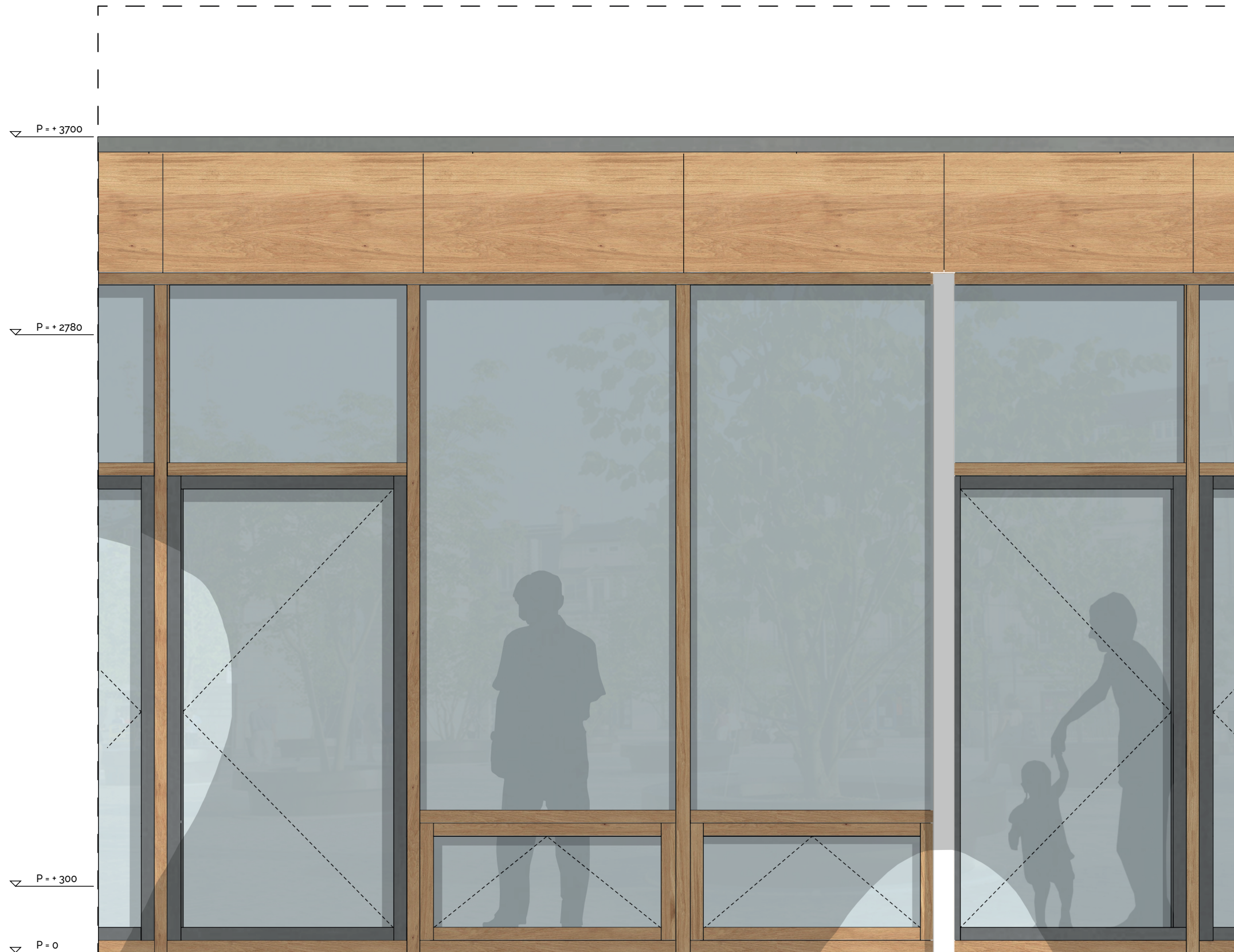


1-20



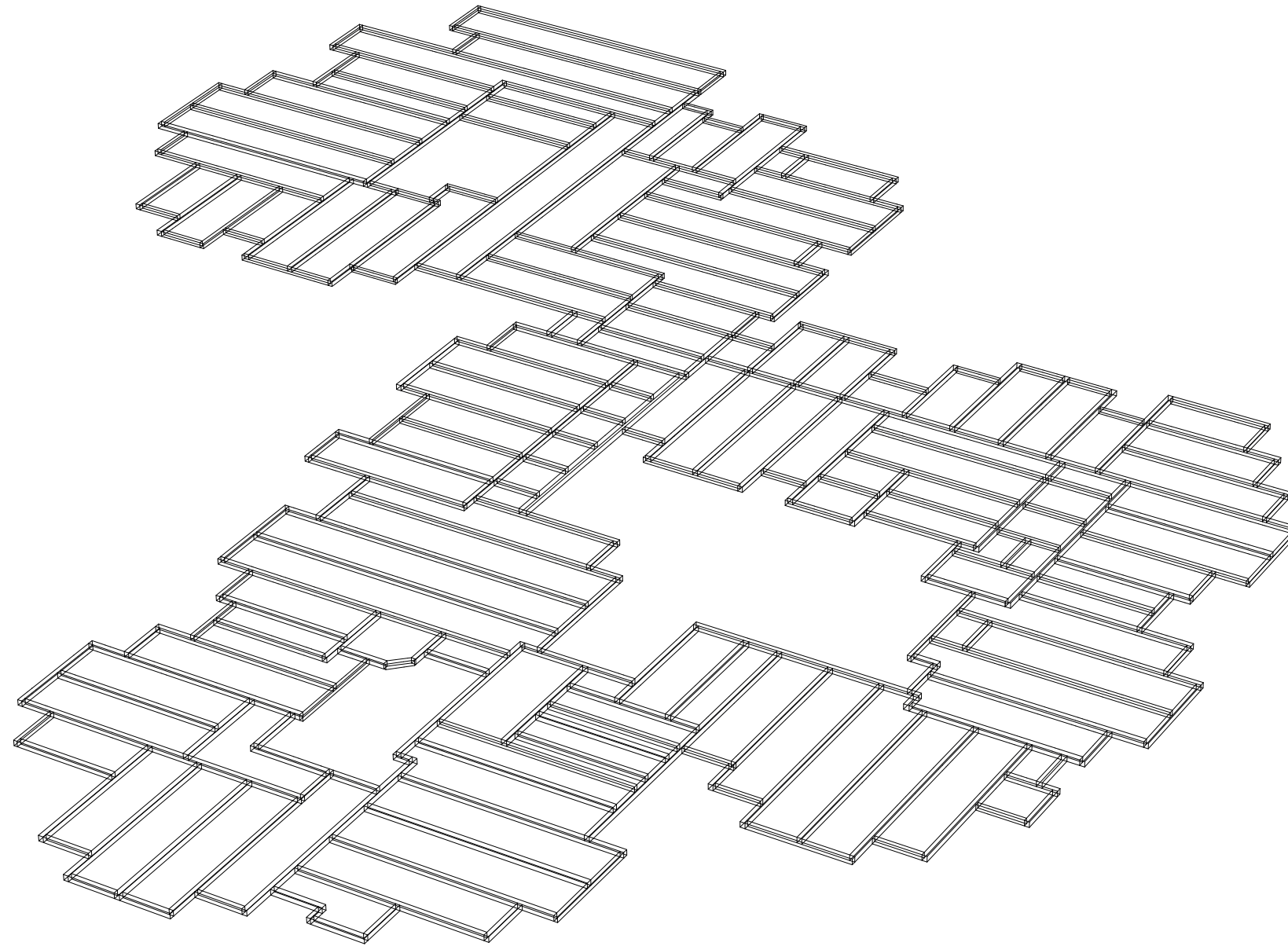
# ATRIUM

Fragment 1-20



# CONSTRUCTION

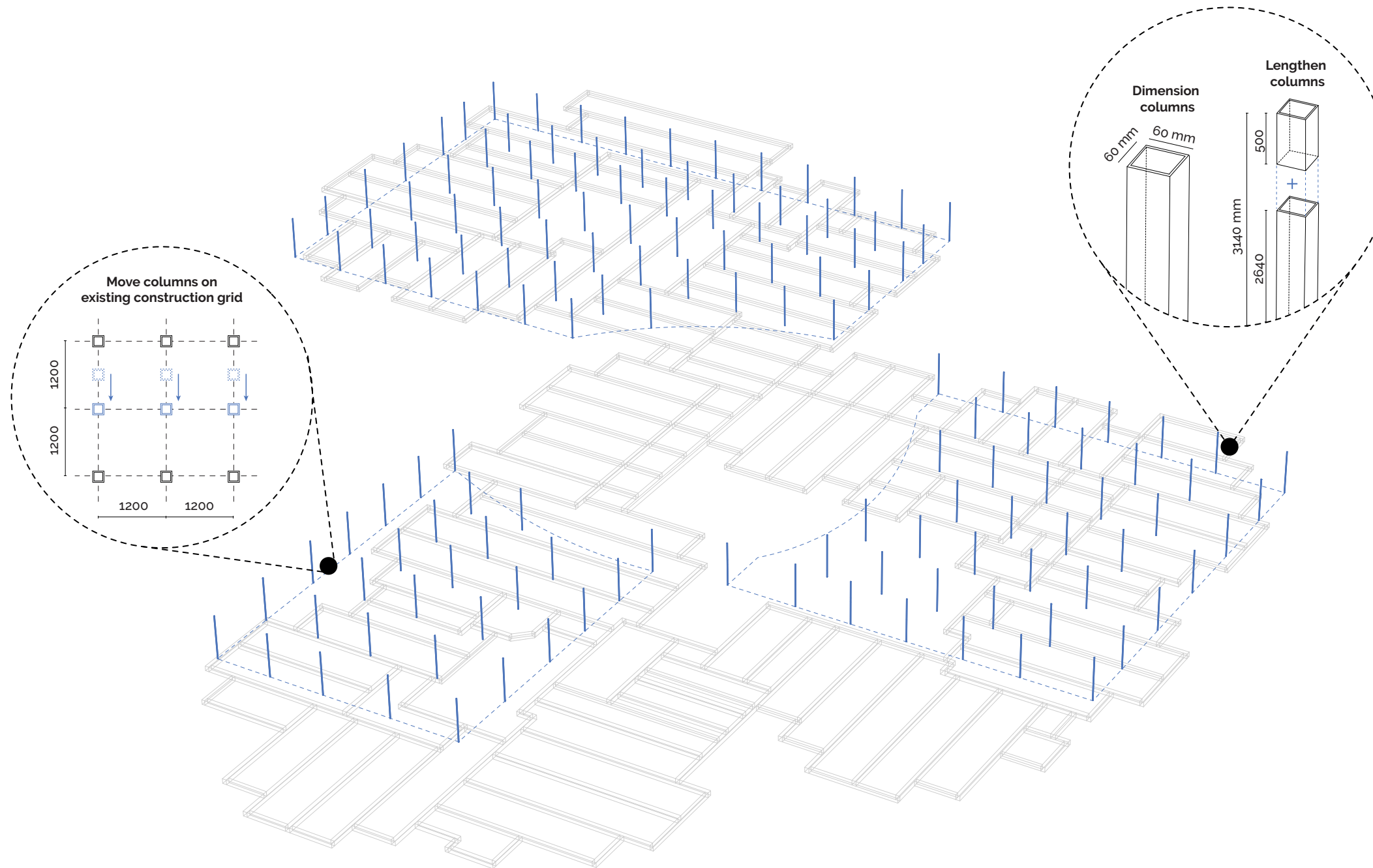
## 1. Reuse existing concrete foundation





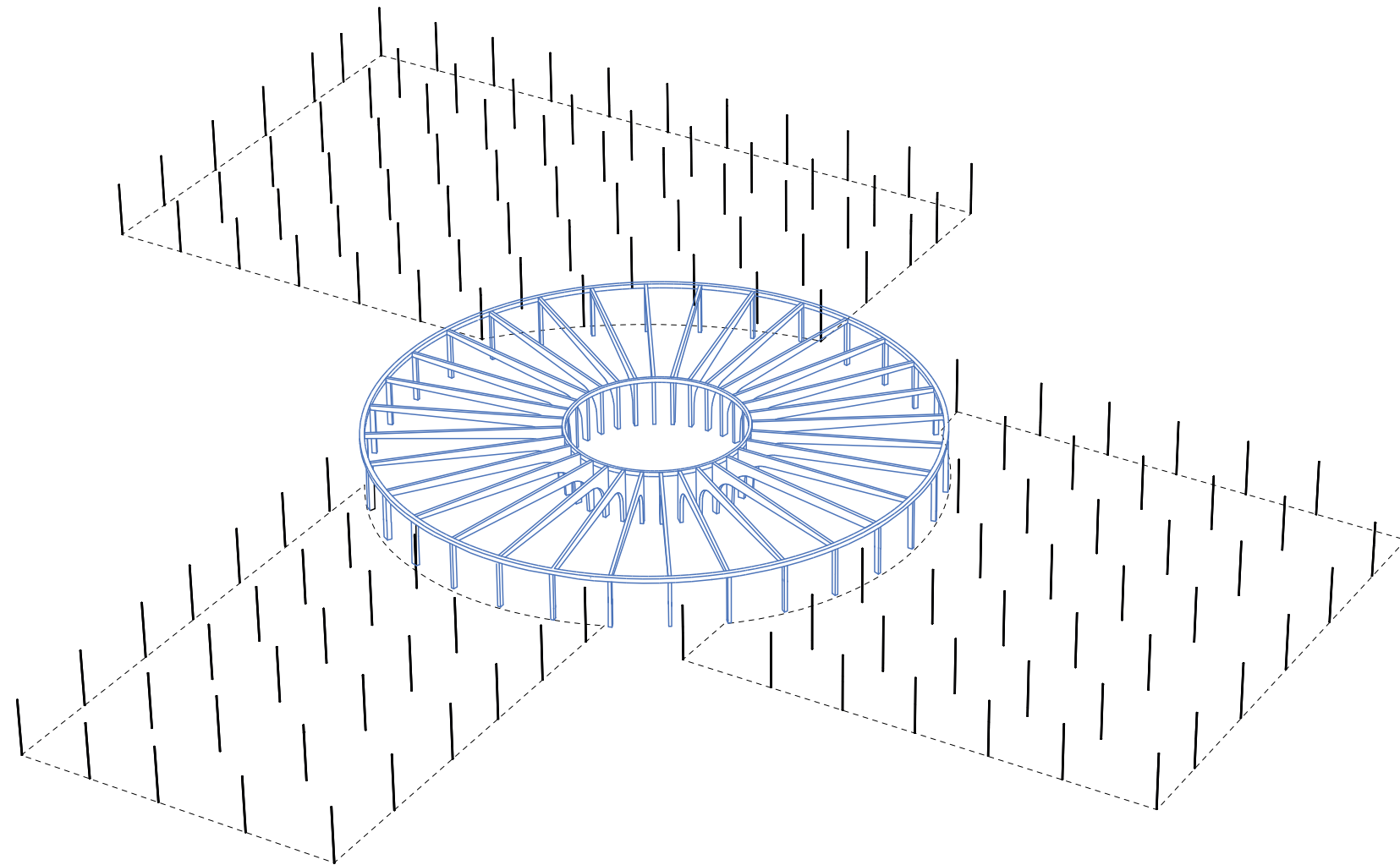
# CONSTRUCTION

## 2. Rearrange steel columns on existing grid



# CONSTRUCTION

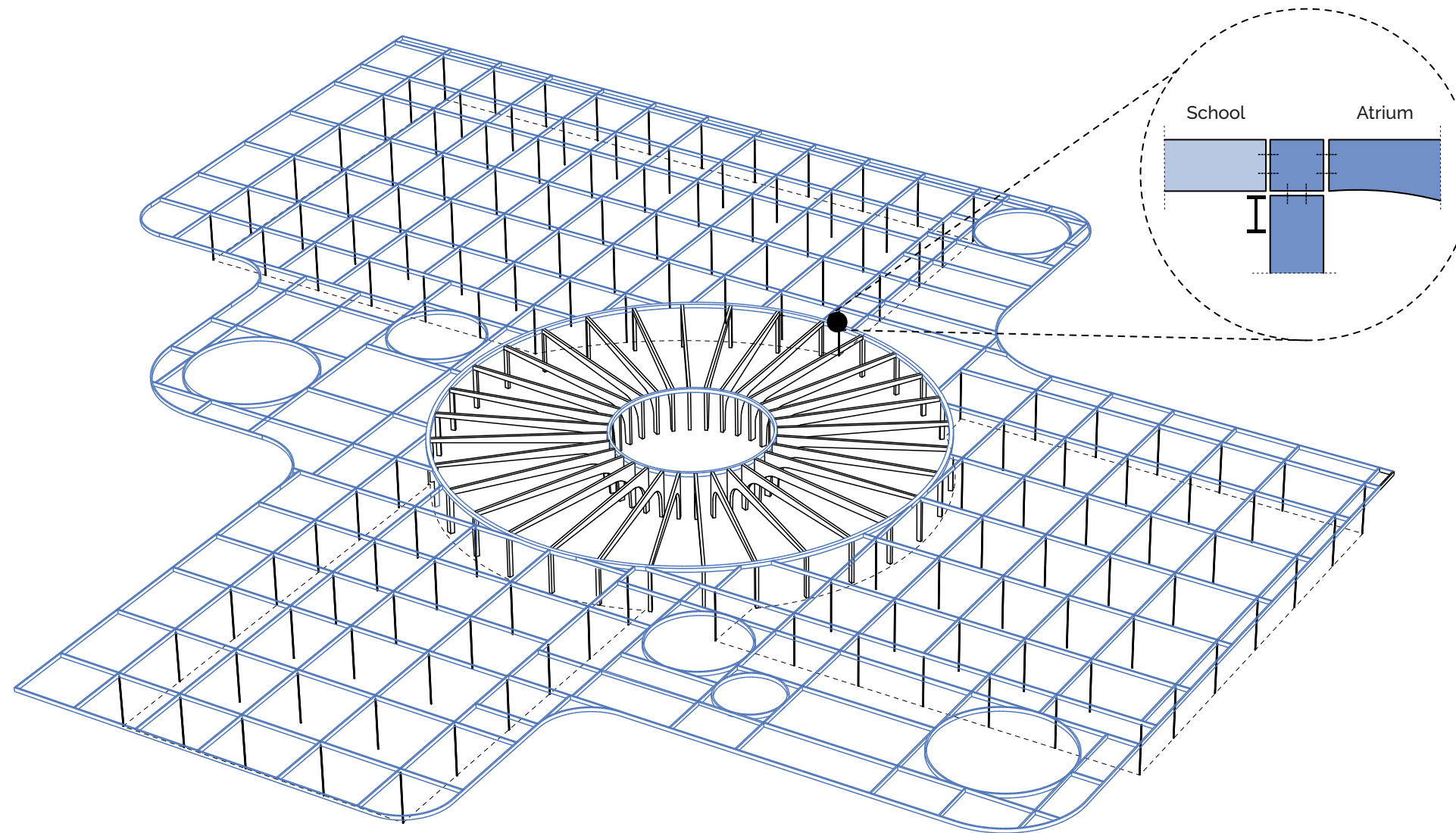
3. Add new timber glulam columns in atrium





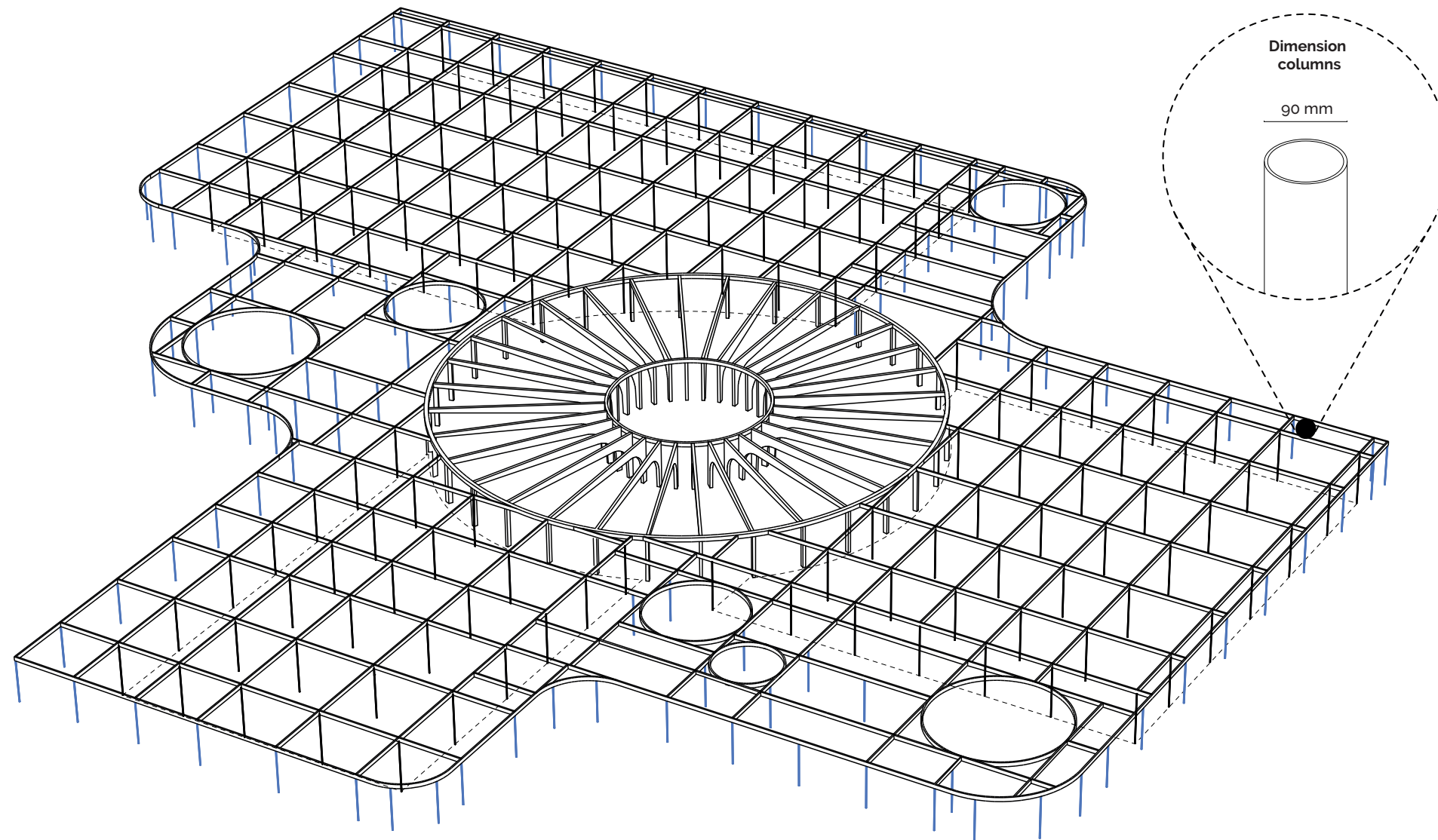
# CONSTRUCTION

## 4. Add new timber glulam roof beams



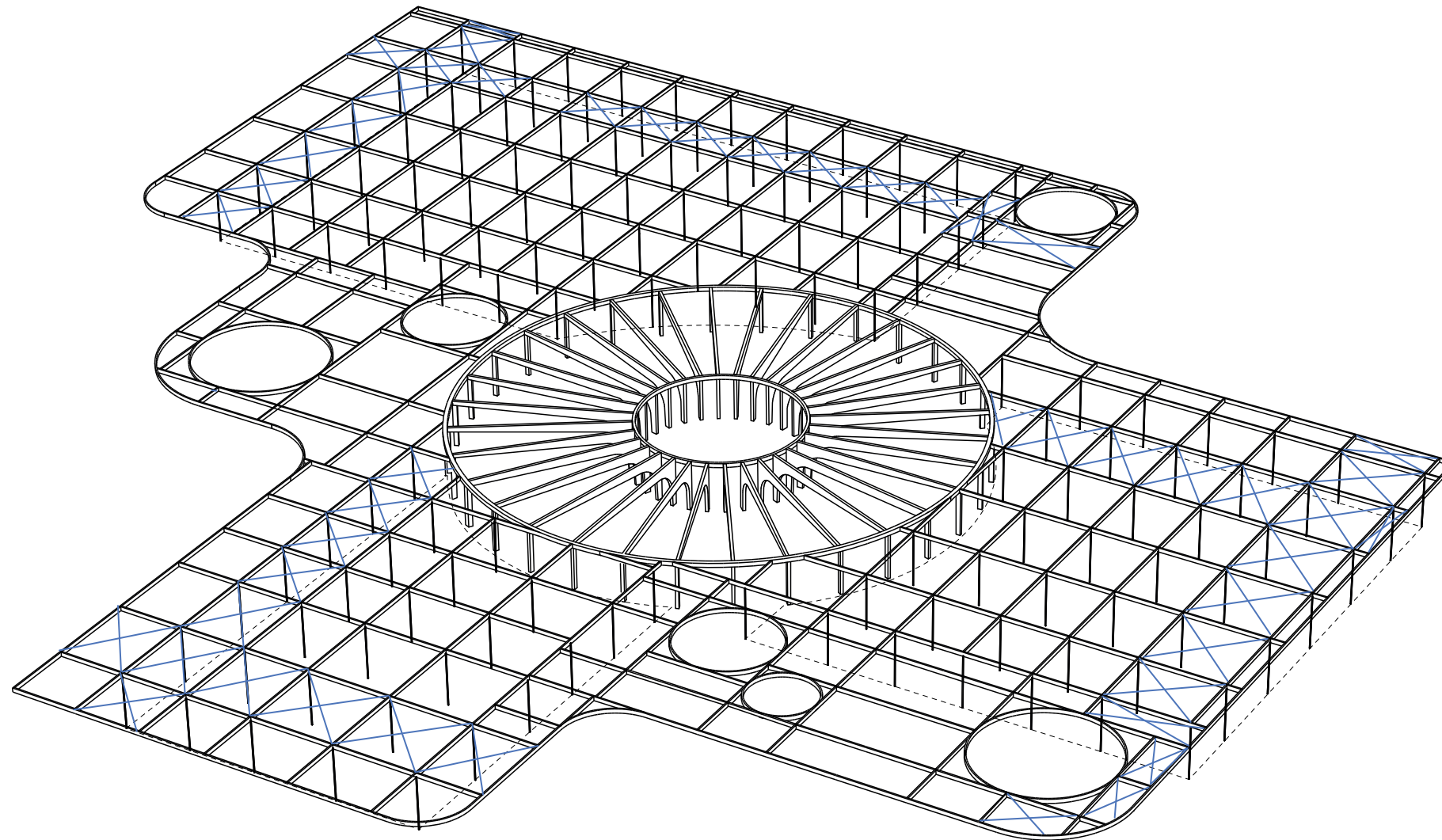
# CONSTRUCTION

5. Add new steel columns to support overhang roof



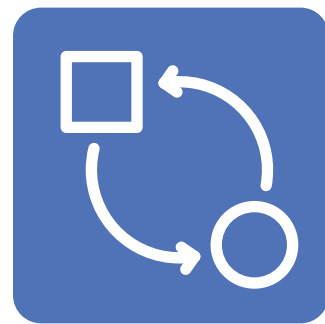
# CONSTRUCTION

## 6. Add braces for stability



# CLIMATE

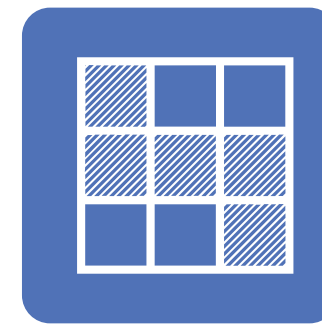
Concept



**Adaptive  
reuse**



**Sustainable  
materials**

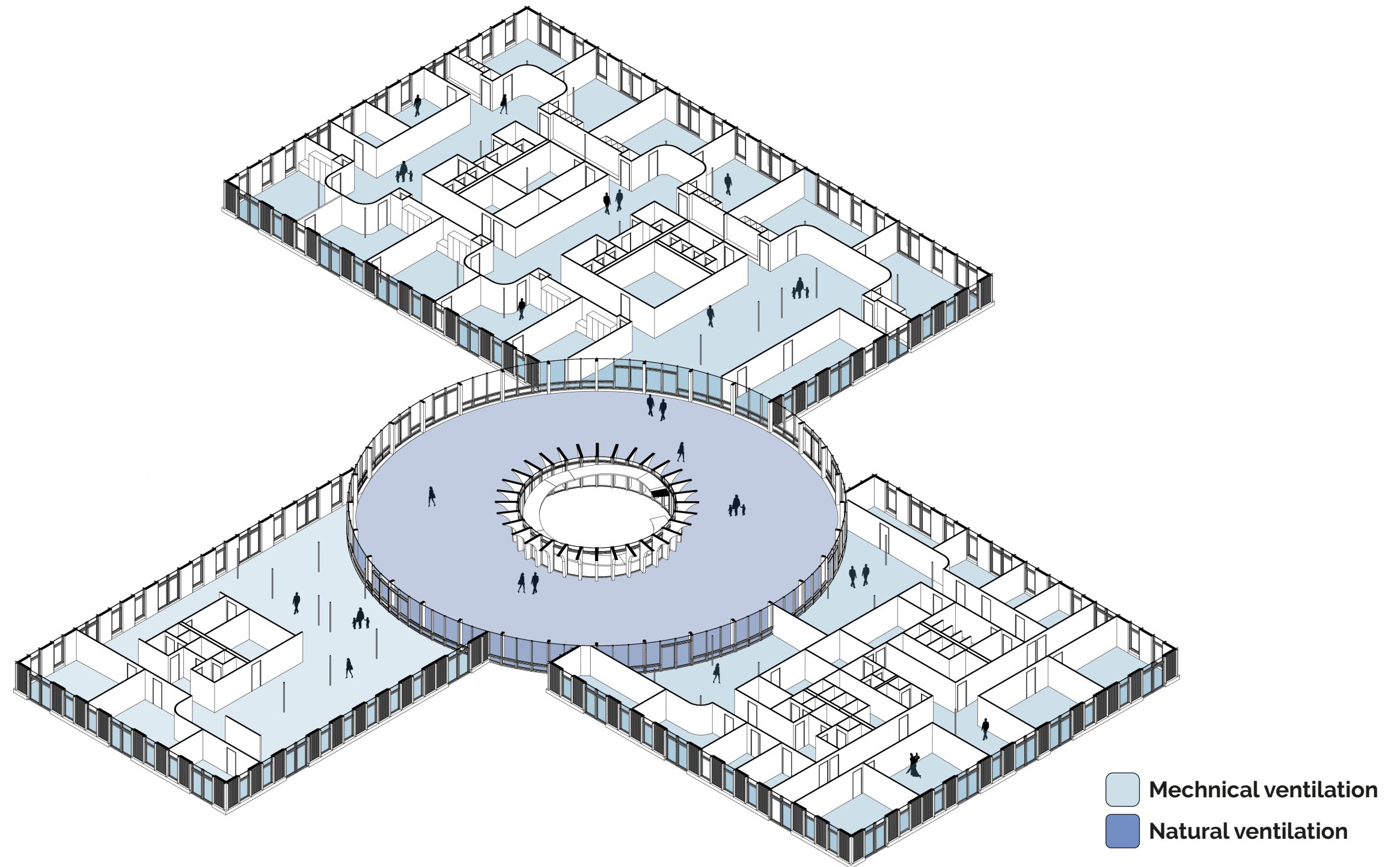


**Flexible  
usage**



# CLIMATE

## Ventilation systems

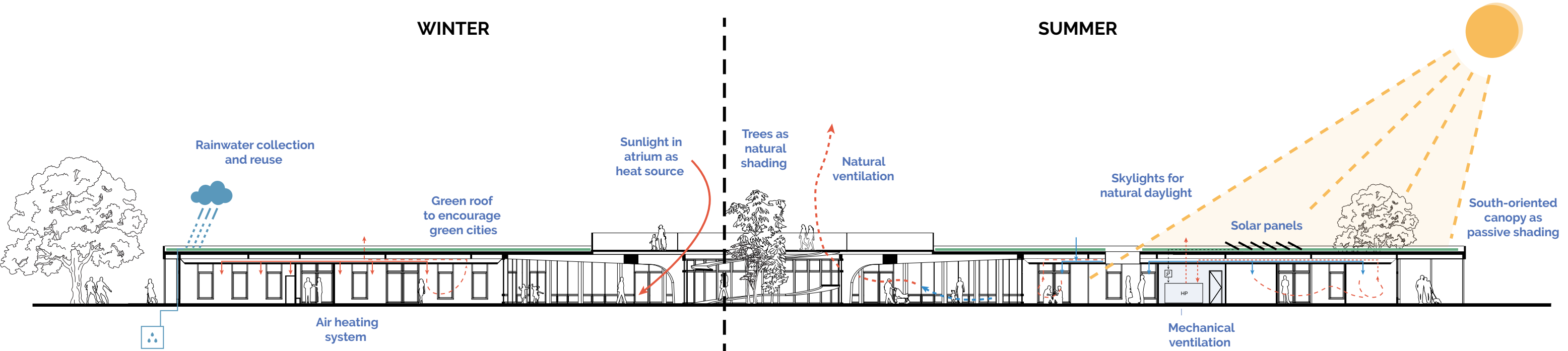


# CLIMATE

Concept section

WINTER

SUMMER



Rainwater collection and reuse

Green roof to encourage green cities

Air heating system

Sunlight in atrium as heat source

Trees as natural shading

Natural ventilation

Skylights for natural daylight

Solar panels

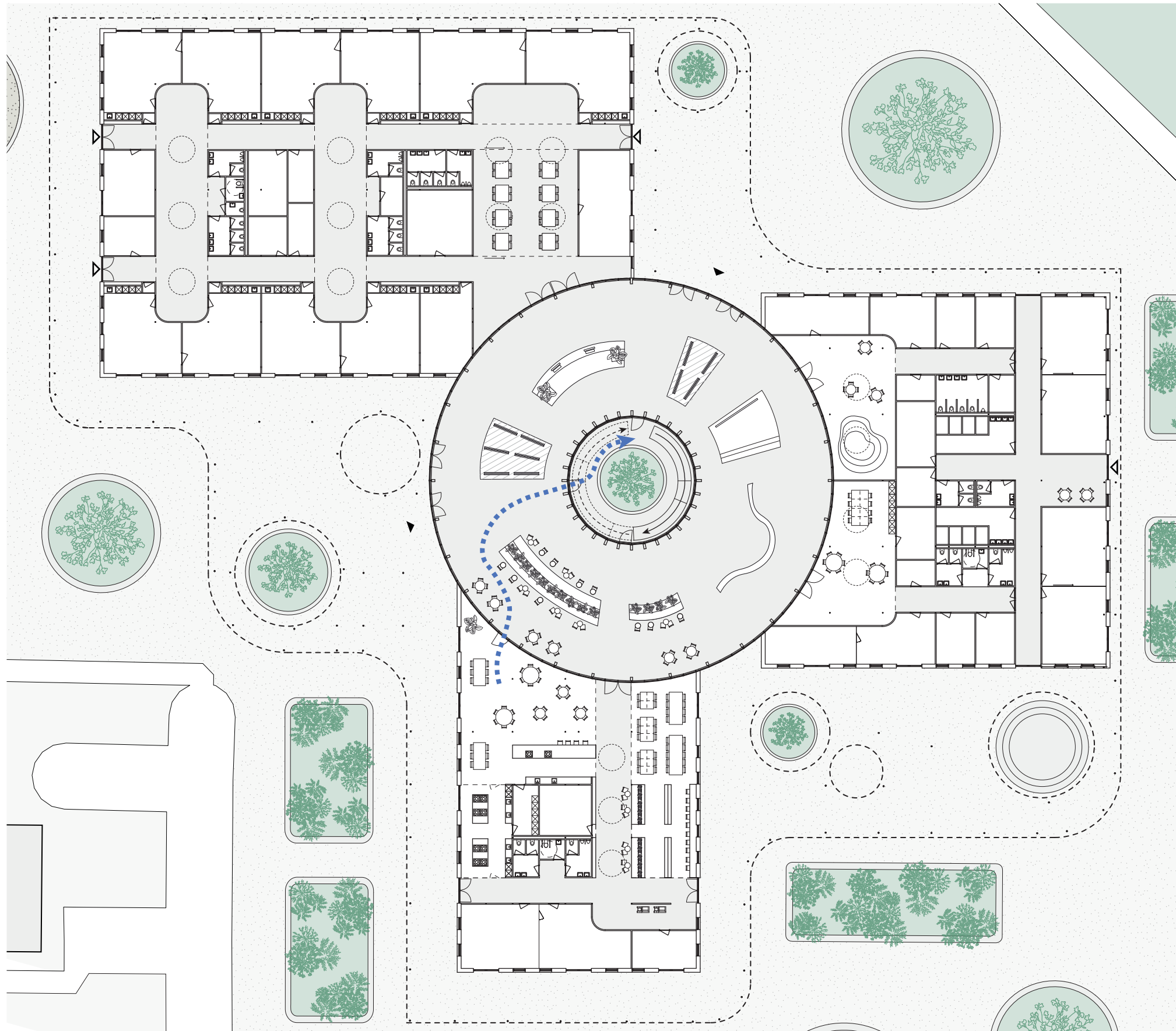
Mechanical ventilation

South-oriented canopy as passive shading

1-200

# COURTYARD

From atrium to courtyard





# COURTYARD

Section model





# COURTYARD

Section model





# COURTYARD

From courtyard to accessible rooftop terrace



INTRODUCTION  
RESEARCH  
DESIGN BRIEF  
DESIGN CONCEPT  
DESIGN IMPLEMENTATION  
CONCLUSION



As we grow older,  
How can we live a **longer healthy life?**



As we grow older,  
~~how can~~ We can live a **longer healthy life!**



# THANK YOU!

