

# UN-IMPAIRED STUDY

AN INCLUSIVE STUDY ON THE STUDY NEEDS OF STUDENTS AT THE TU DELFT



# T A B L E O F C O N T E N T S

## **BACKGROUND**

NEUROTYPICAL  
RELEVANCE  
KNOWLEDGE GAP

## **RESEARCH**

RESEARCH QUESTION  
METHOD  
RESULTS  
ARCHITECTS' HANDBOOK

## **DESIGN**

GUIDING THEME  
CONCEPT  
LOCATION  
PROGRAM  
BUILDING LAYOUT  
BUILDING FRAGMENT  
FACADE  
DETAILS

## **REFLECTION**

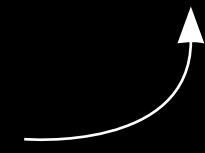
# BACKGROUND



# NEUROTYPICAL OR NOT

NEUROTYPICAL - INDIVIDUALS OF TYPICAL DEVELOPMENTAL, INTELLECTUAL, AND COGNITIVE ABILITIES

NEURODIVERSE - NOT THAT





# RELEVANCE

EVER-ACCELERATING SOCIETY

MORE AND MORE BURNOUTS

LOTS OF STUDENTS WITH (MENTAL) DISABILITIES AT THE TU DELFT  
9% OF STUDENTS REGISTERED IN STUDIELINK WITH A DISABILITY  
ESTIMATED 30% (APPROXIMATELY 7.500 STUDENTS)

POLICY DOCUMENT TU DELFT STUDY IMPAIRMENT 2020-2022  
VIEW ON STUDYSPACE FACILITIES IS MISSING

“WE SHAPE OUR BUILDINGS, THEREAFTER THEY SHAPE US”  
- WINSTON CHURCHILL



# KNOWLEDGE GAP

WHEN THERE IS RESEARCH REGARDING ENVIRONMENTAL SURROUNDINGS FOR NEURODIVERSE PEOPLE  
IT IS FOR CHILDREN WITH AUTISM SPECTRUM DISORDER

# RESEARCH



# RESEARCH QUESTION

**IN WHAT WAY CAN THE NEEDS AND WISHES OF NEURODIVERSE STUDENTS BE COMBINED WITH THE NEEDS AND WISHES OF NEUROTYPICAL STUDENTS TO CREATE AN INCLUSIVE STUDY FACILITY FOR THE TU DELFT?**

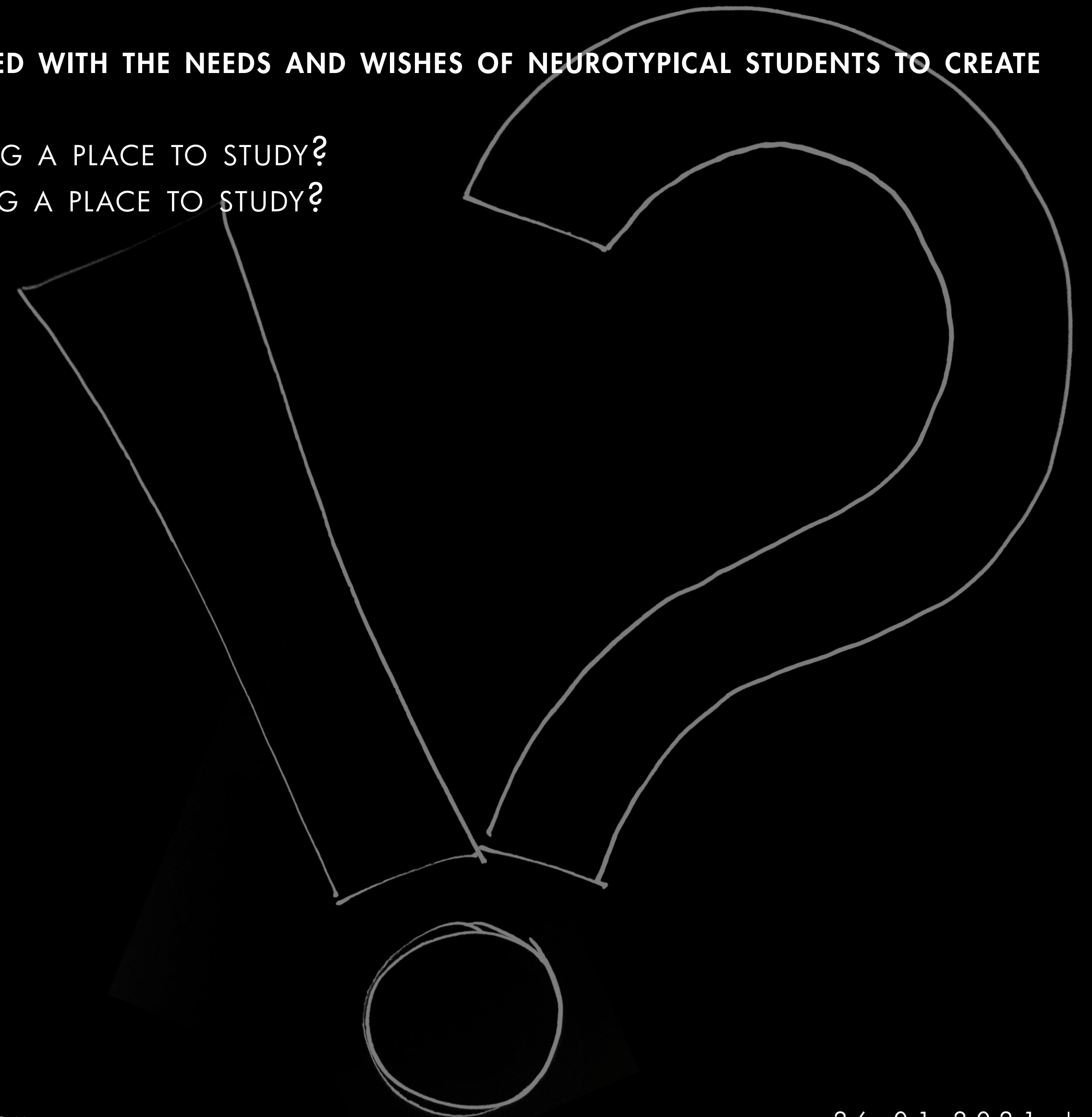
WHAT ARE THE NEEDS AND WISHES OF NEURODIVERSE STUDENTS REGARDING A PLACE TO STUDY?

WHAT ARE THE NEEDS AND WISHES OF NEUROTYPICAL STUDENTS REGARDING A PLACE TO STUDY?

*HOW DO THESE NEEDS AND WISHES OVERLAP?*

WHAT SHOULD BE AVOIDED?

WHAT SHOULD BE IMPLEMENTED?





# METHOD

SEMI-STRUCTURED (ONLINE) INTERVIEWS WITH STUDENTS REGARDING THEIR NEEDS AND WISHES FOR STUDY SPACES AT THE TU DELFT



**RACHEL**

FEMALE, 22  
BSc APPLIED PHYSICS  
NON-NEUROTYPICAL  
PROCESSING SPEED  
LIMITATION



**MARK**

MALE, 27  
MSc COMPUTER SCIENCES AND  
MSc SCIENCE EDUCATION AND  
COMMUNICATION  
NON-NEUROTYPICAL  
AUTISM SPECTRUM  
DISORDER, ADHD  
AND HIGHLY GIFTED



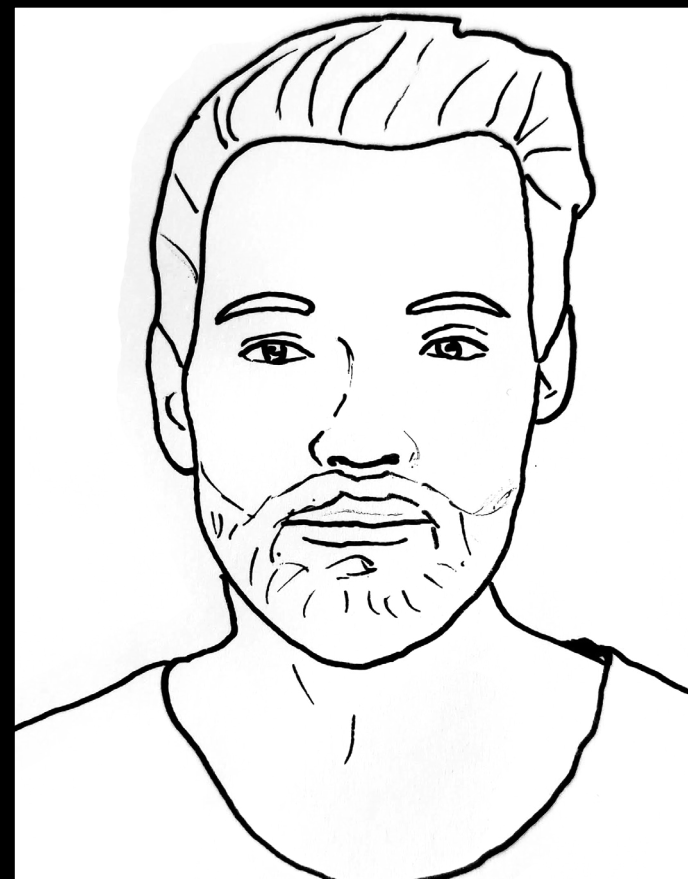
**EMMA**

FEMALE, 25  
MSc ARCHITECTURE,  
URBANISM AND  
BUILDING SCIENCES  
TRACK: URBANISM  
NON-NEUROTYPICAL  
AUTISM SPECTRUM  
DISORDER



**STEVEN**

MALE, 20  
BSc APPLIED PHYSICS  
NEUROTYPICAL



**JORT**

MALE, 21  
MSc MECHANICAL  
ENGINEERING  
TRACK: MULTI-  
MACHINE  
ENGINEERING  
NEUROTYPICAL



**TUGBA**

FEMALE, 26  
MSc STRATEGIC  
PRODUCT DESIGN  
NEUROTYPICAL

# RESULTS

## NEURODIVERSE STUDENTS WISHES

## NEUROTYPICAL STUDENTS WISHES



# RESULTS

## NEURODIVERSE STUDENTS WISHES

## NEUROTYPICAL STUDENTS WISHES

SMALL

HIGH

OVERVIEW OF THE SPACE

NARROW

SECTIONED LARGER SPACE

CLOSE TO AMENITIES

WITHOUT PEOPLE WALKING BY

LIGHT

SILENT

LIGHT COLOURS

SILENT

SLIGHT BACKGROUND NOISE

SLIGHT BACKGROUND NOISE

LARGE DESKS

FAR FROM THE HEART OF THE CAMPUS

**JUST PEOPLE STUDYING**  
AT LEAST A CERTAIN AMOUNT OF PEOPLE

AT THE HEART OF THE CAMPUS

NOT ADJACENT TO A ROAD

OVERVIEW OF THE BUILDING

VIEW ON WATER AND TREES

CONTROL OVER THE SPACE

STUDY ATMOSPHERE

# RESULTS

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## NEUROTYPICAL STUDENTS WISHES

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# RESULTS

## NEURODIVERSE STUDENTS WISHES

## NEUROTYPICAL STUDENTS WISHES



# RESULTS

## NEURODIVERSE STUDENTS NEEDS

## NEUROTYPICAL STUDENTS WISHES

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HIGH

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# ARCHITECTS' HANDBOOK

## CITY SCALE

NOT ADJACENT TO A ROAD

NOT AT THE HEART OF THE CAMPUS

QUIET SURROUNDINGS

VIEW ON WATER AND TREES

RESTORATIVE ENVIRONMENTS:

BEING AWAY  
FASCINATION  
EXTENT  
COMPATIBILITY

## BUILDING SCALE

OVERVIEW OF THE BUILDING  
CLEAR AND LEGIBLE FLOORPLAN

WITHOUT PEOPLE WALKING BY

NATURAL LIGHT

STURDY CONSTRUCTION

## ROOM SCALE

OVERVIEW OF THE SPACE  
SMALL SPACES  
SECTIONED LARGER SPACES

CONTROL OVER THE SPACE  
LIGHT  
WINDOWS  
SUNSHADES  
SOUND

SOFT MATERIALS  
TO REDUCE NOISE

CALM COLOURS

MOVEABLE FURNITURE  
DIFFERENT LAYOUTS

# DESIGN





# GUIDING THEME

## DIRECTED ATTENTION FACILITATION & ATTENTION RESTORATIVE ENVIRONMENT

FOCUS ON IMPULSE CONTROL  
THROUGH THE RESULTS FROM THE RESEARCH

RESTORATIVE ENVIRONMENTS:  
BEING AWAY  
FASCINATION  
EXTENT  
COMPATIBILITY  
(KAPLAN, 1995)





# CONCEPT

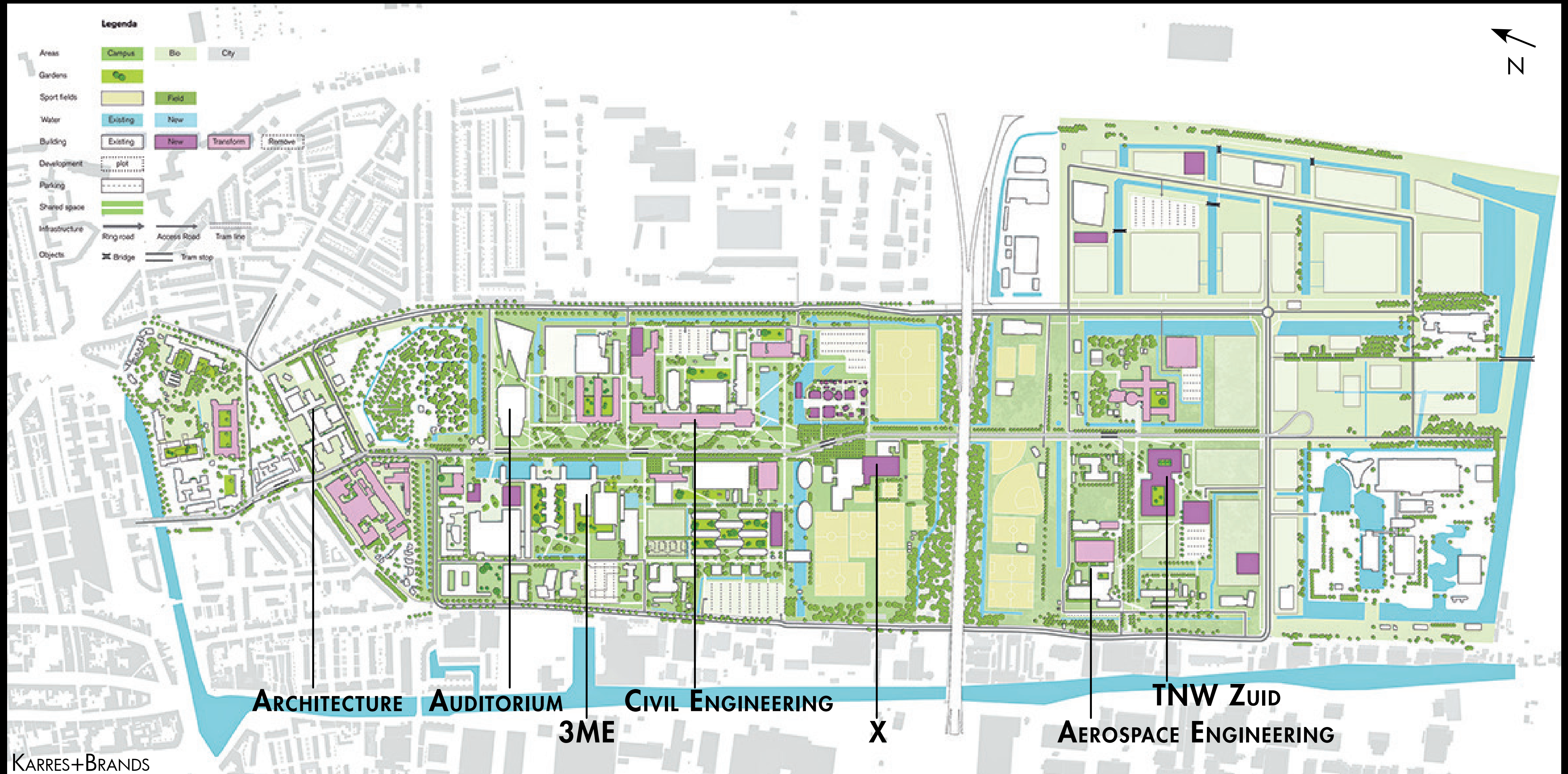
BOXES FOR STUDYING

IN-BETWEEN-SPACE FOR RESTORING





# LOCATION

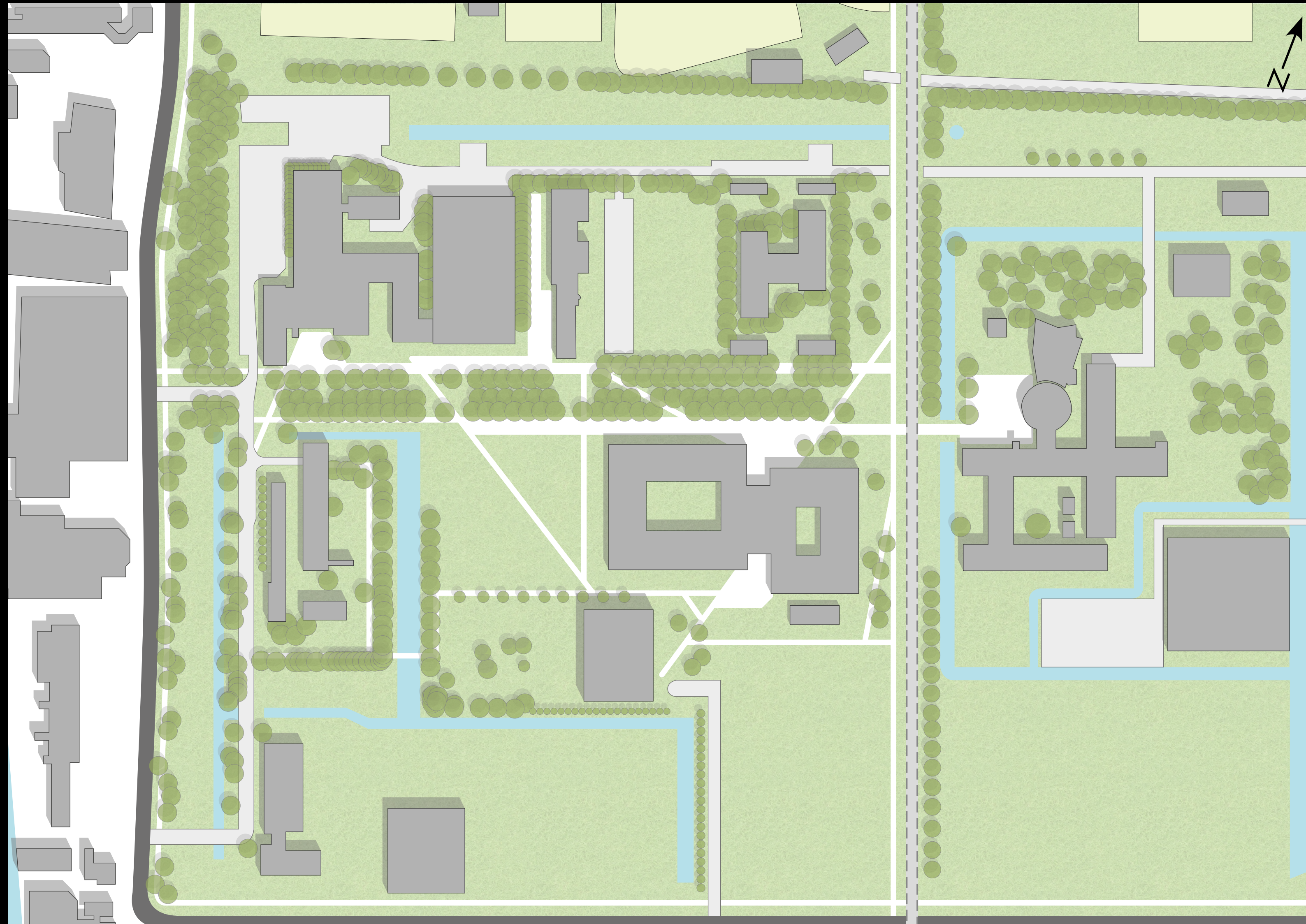


# LOCATION



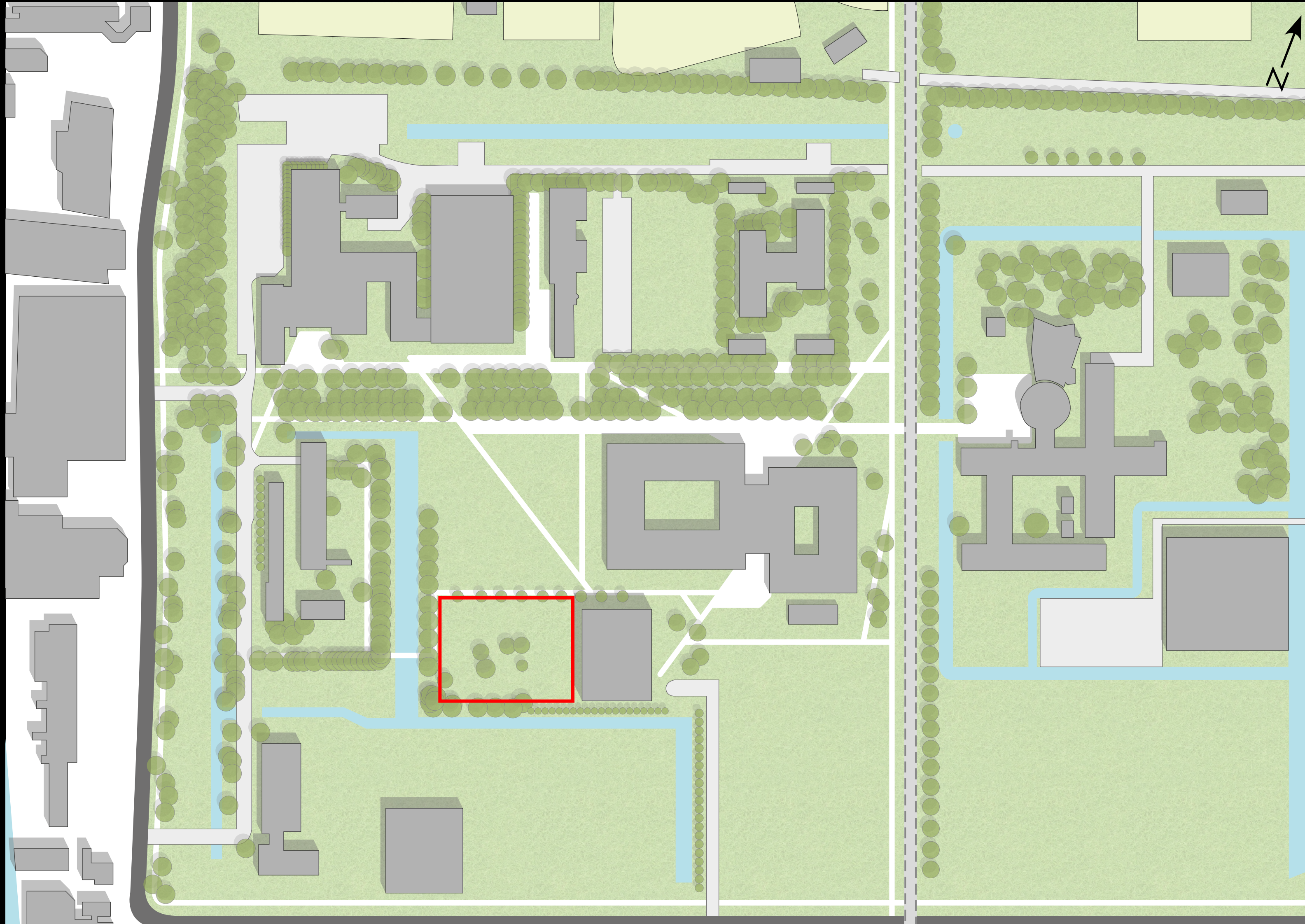


# LOCATION



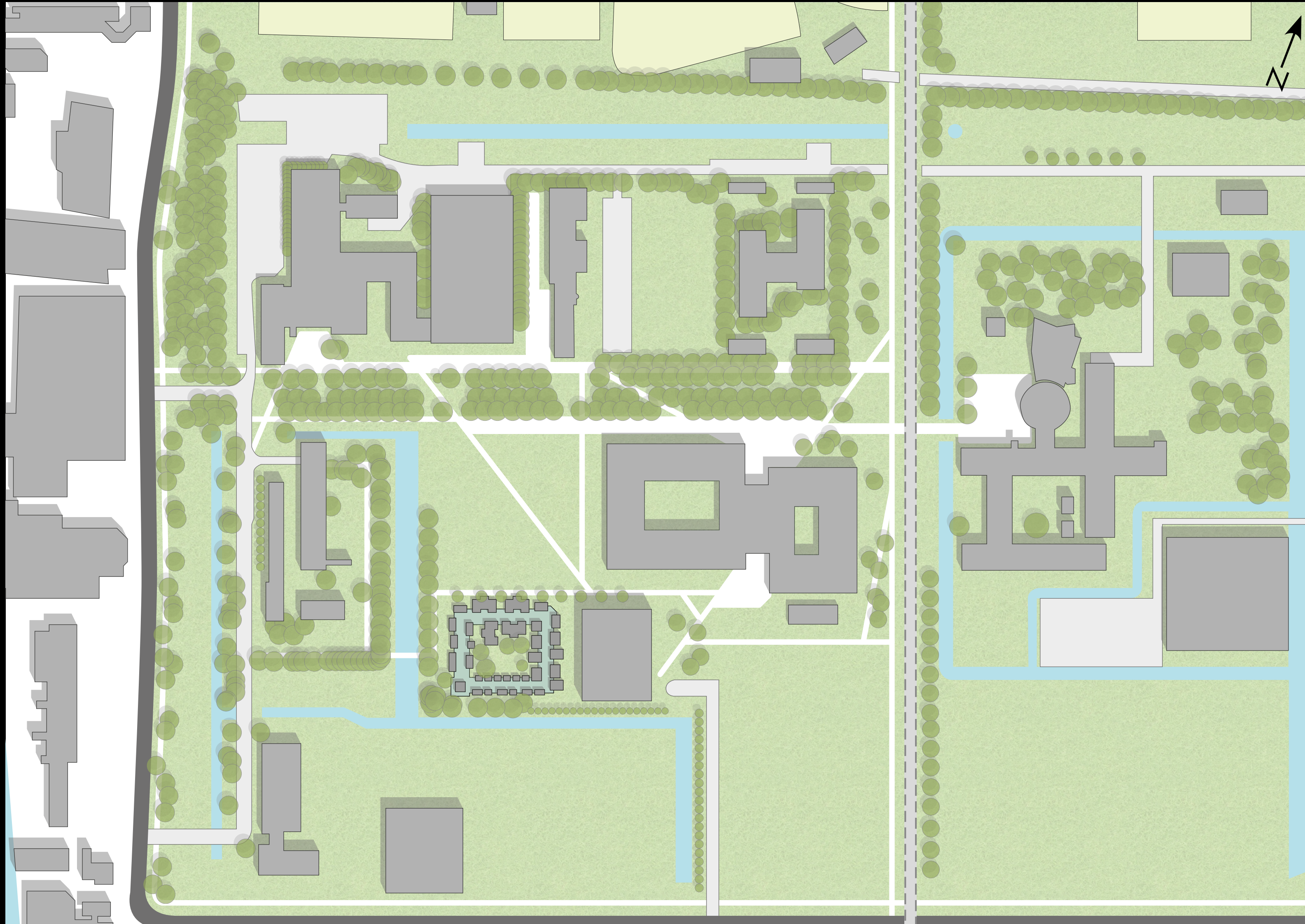


# LOCATION



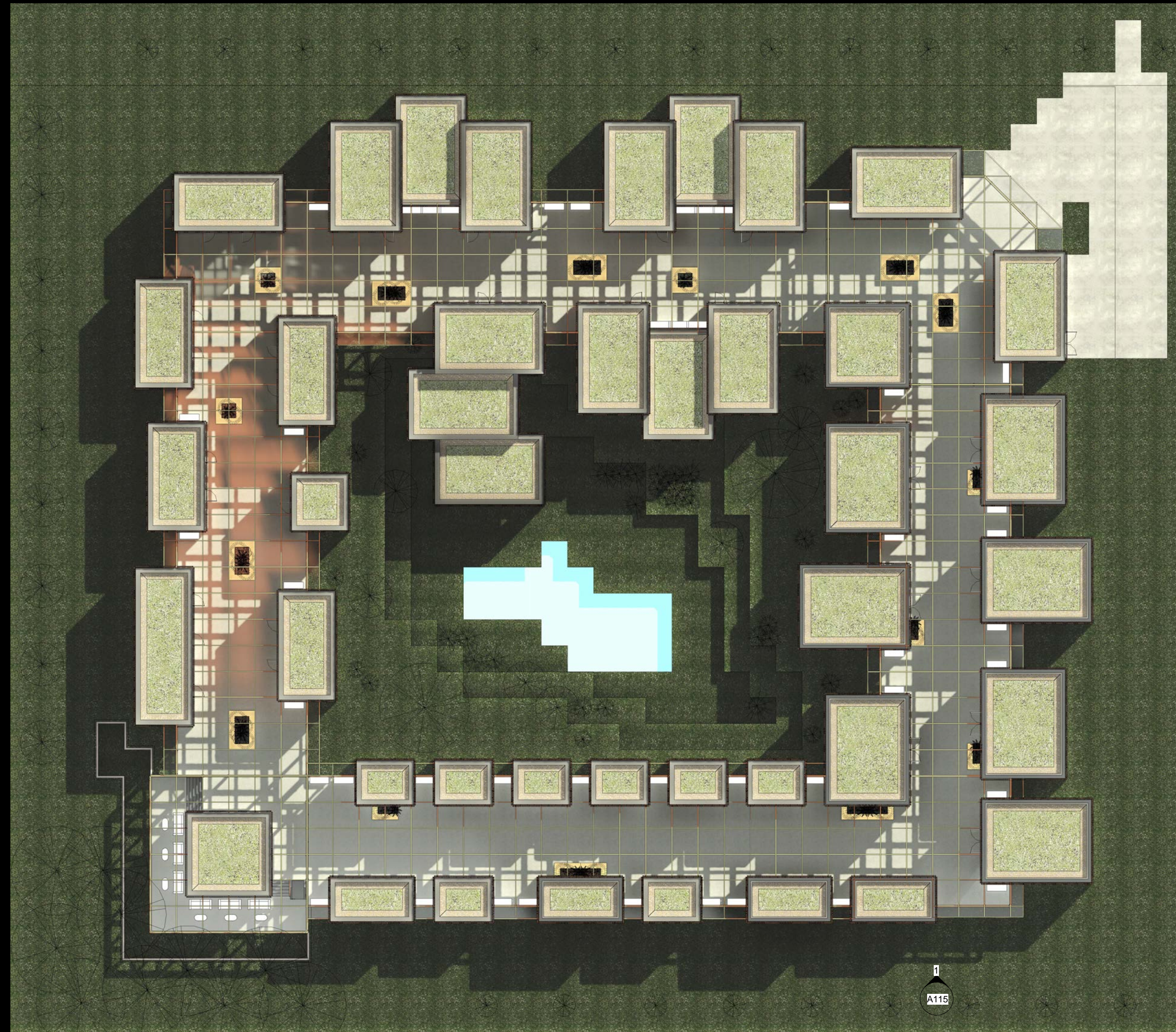


# LOCATION





# TOP VIEW





# PROGRAM

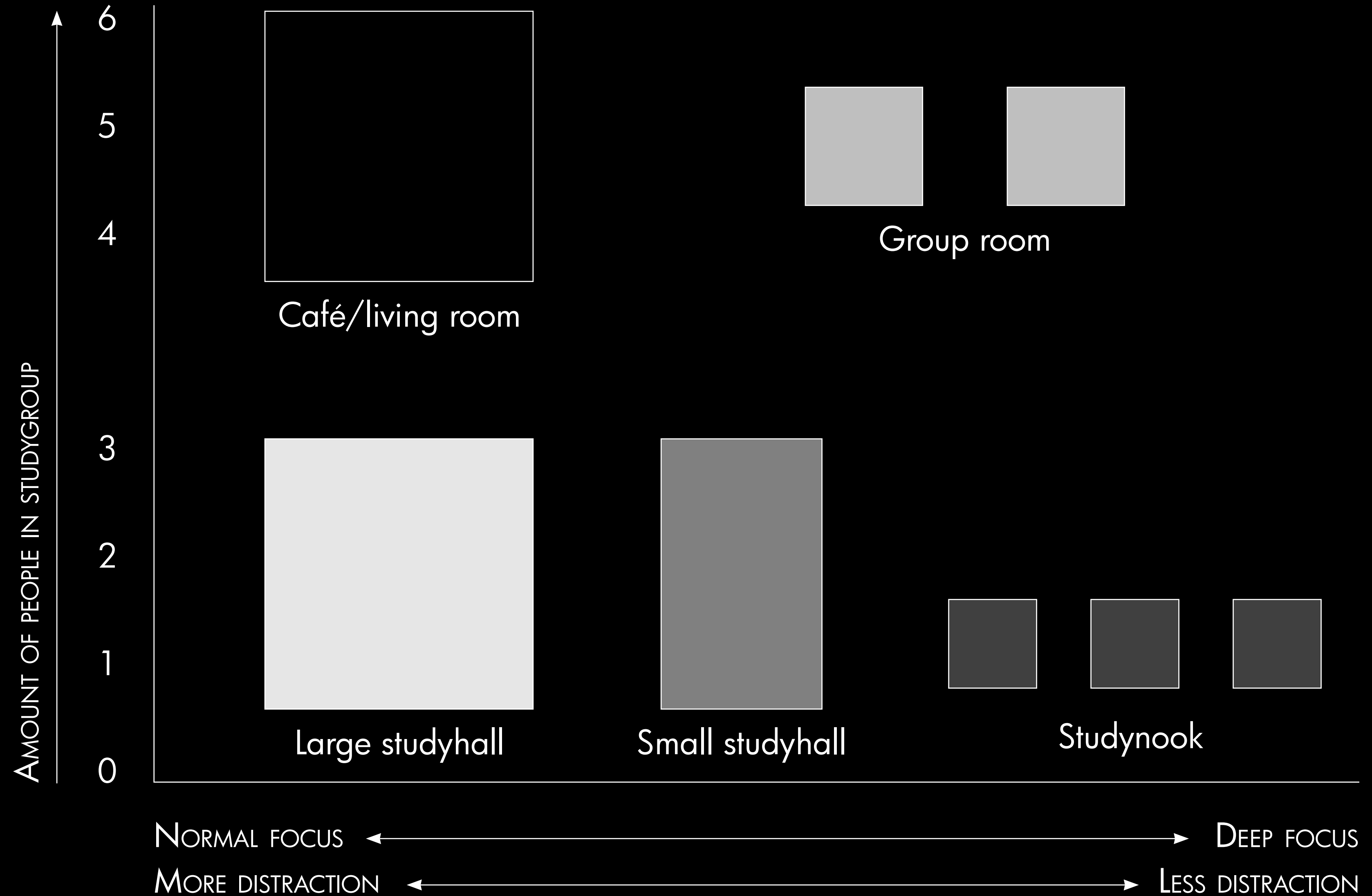
## FOUR MAIN TYPES OF STUDYSPACES

- LARGE STUDYHALL
- SMALL STUDYHALL
- GROUP ROOM
- STUDYNOOK

COURTYARD

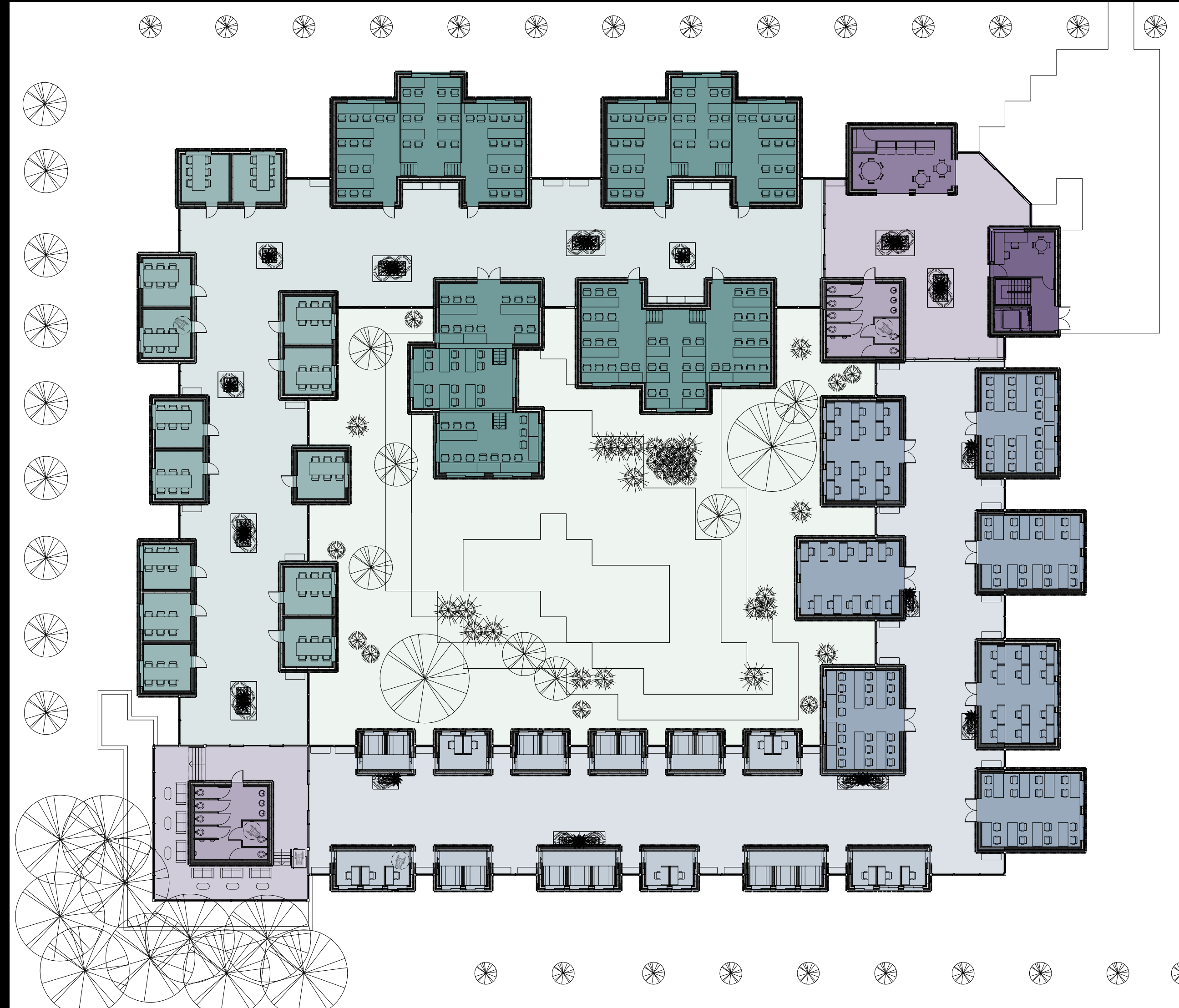
CAFÉ  
LIVING ROOM

IN-BETWEEN-SPACE





# BUILDING LAYOUT

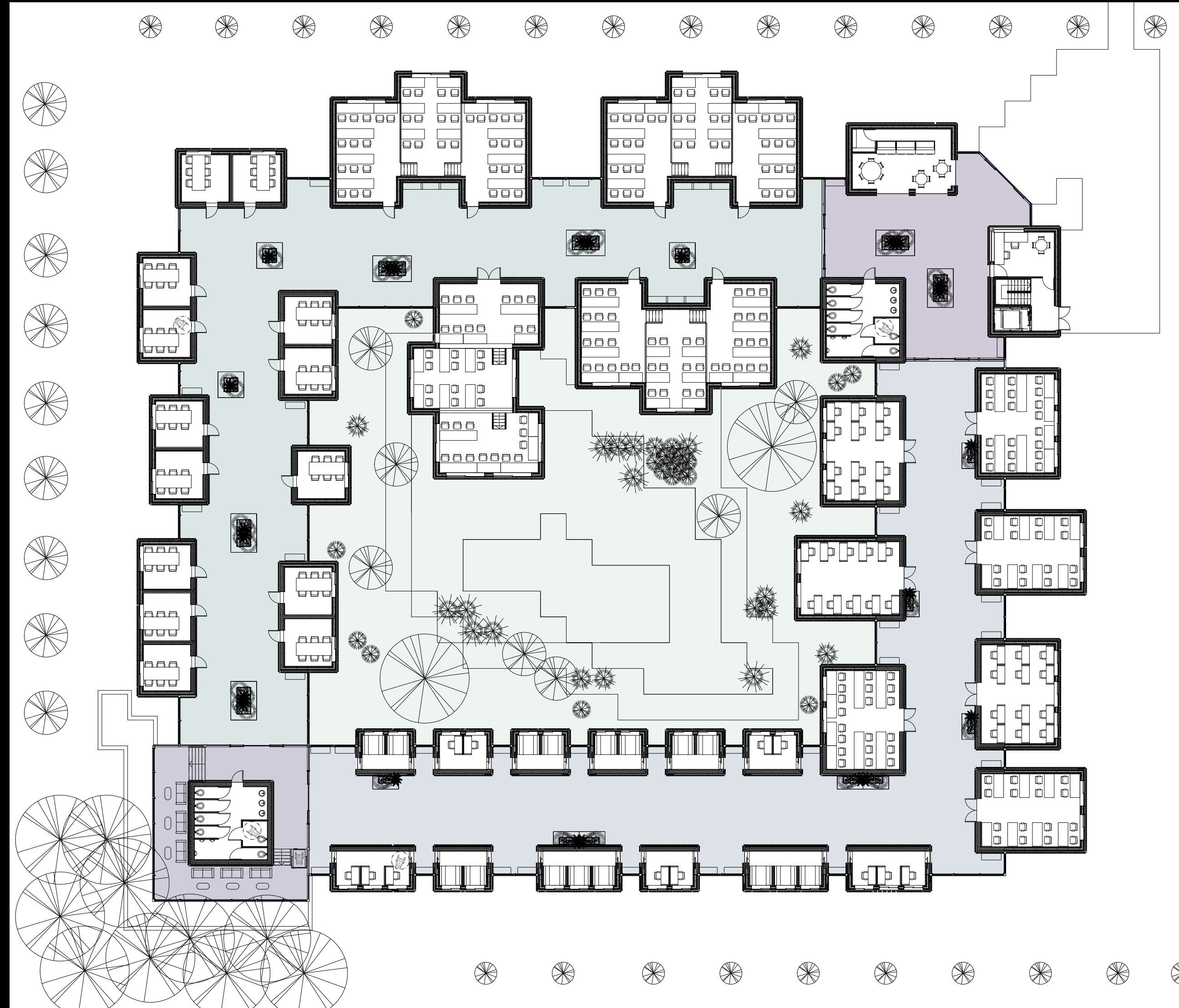


- Entrance
- Reception
- Café
- Bathroom
- North-West hallway
- Large studyhalls
- Group rooms
- South-East hallway
- Small studyhalls
- Studynooks
- Lounge
- Bathroom
- Courtyard



# BUILDING LAYOUT

MONASTERY TYPE  
CLEAR LAYOUT  
COURTYARD VIEW



- Entrance
- Reception
- Café
- Bathroom
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# BUILDING LAYOUT - COURTYARD





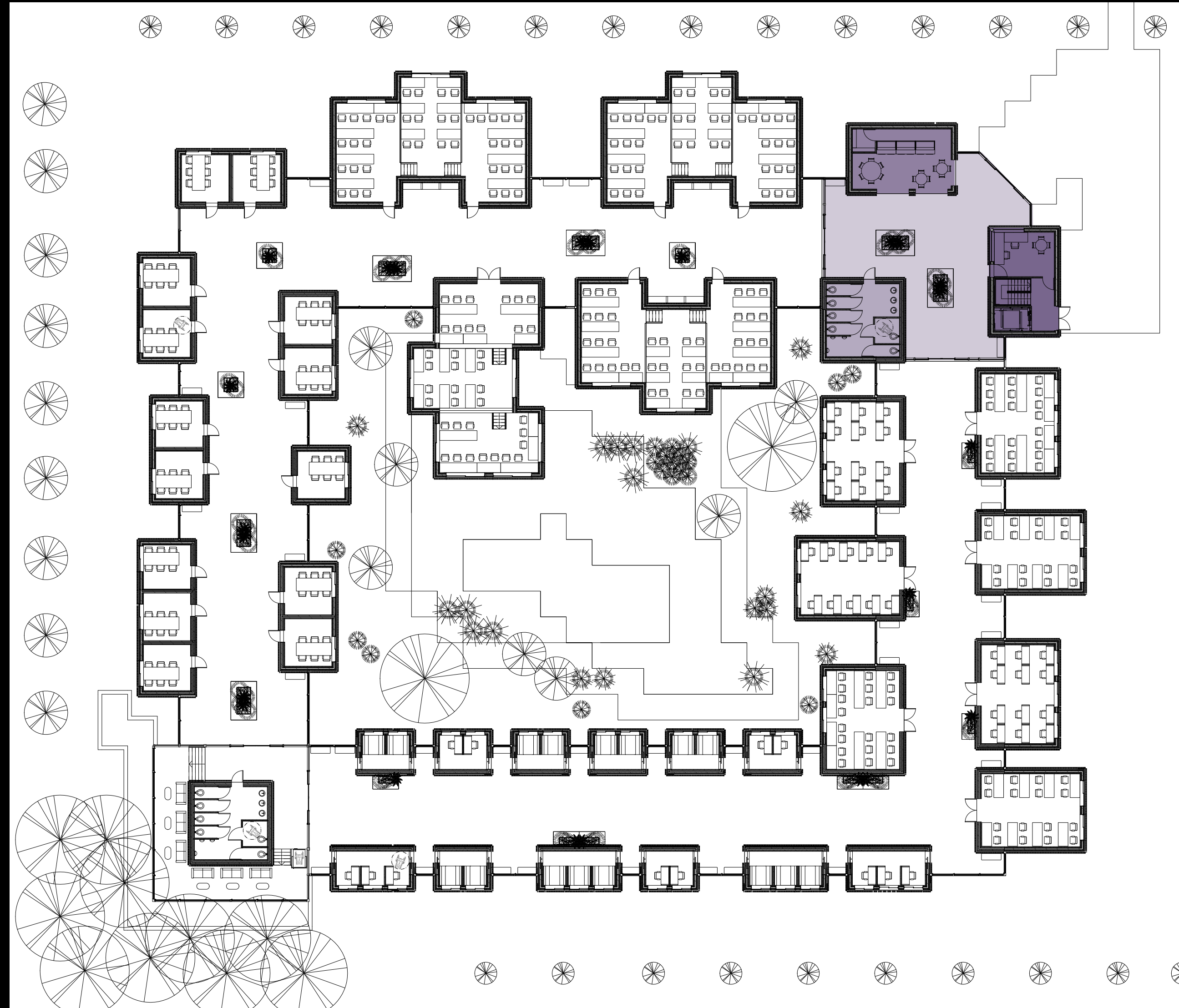
# BUILDING LAYOUT - COURTYARD





# BUILDING LAYOUT

ENTRANCE  
RECEPTION  
CAFÉ  
BATHROOMS

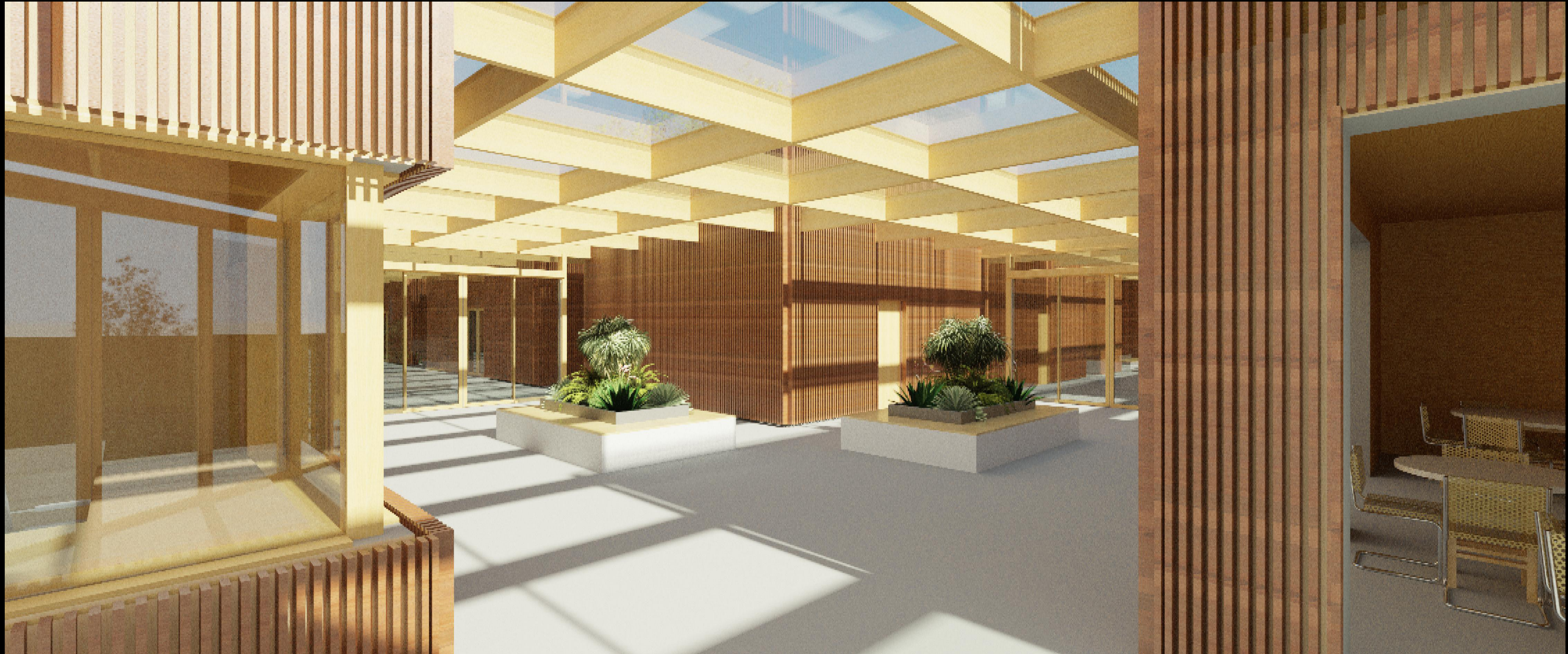


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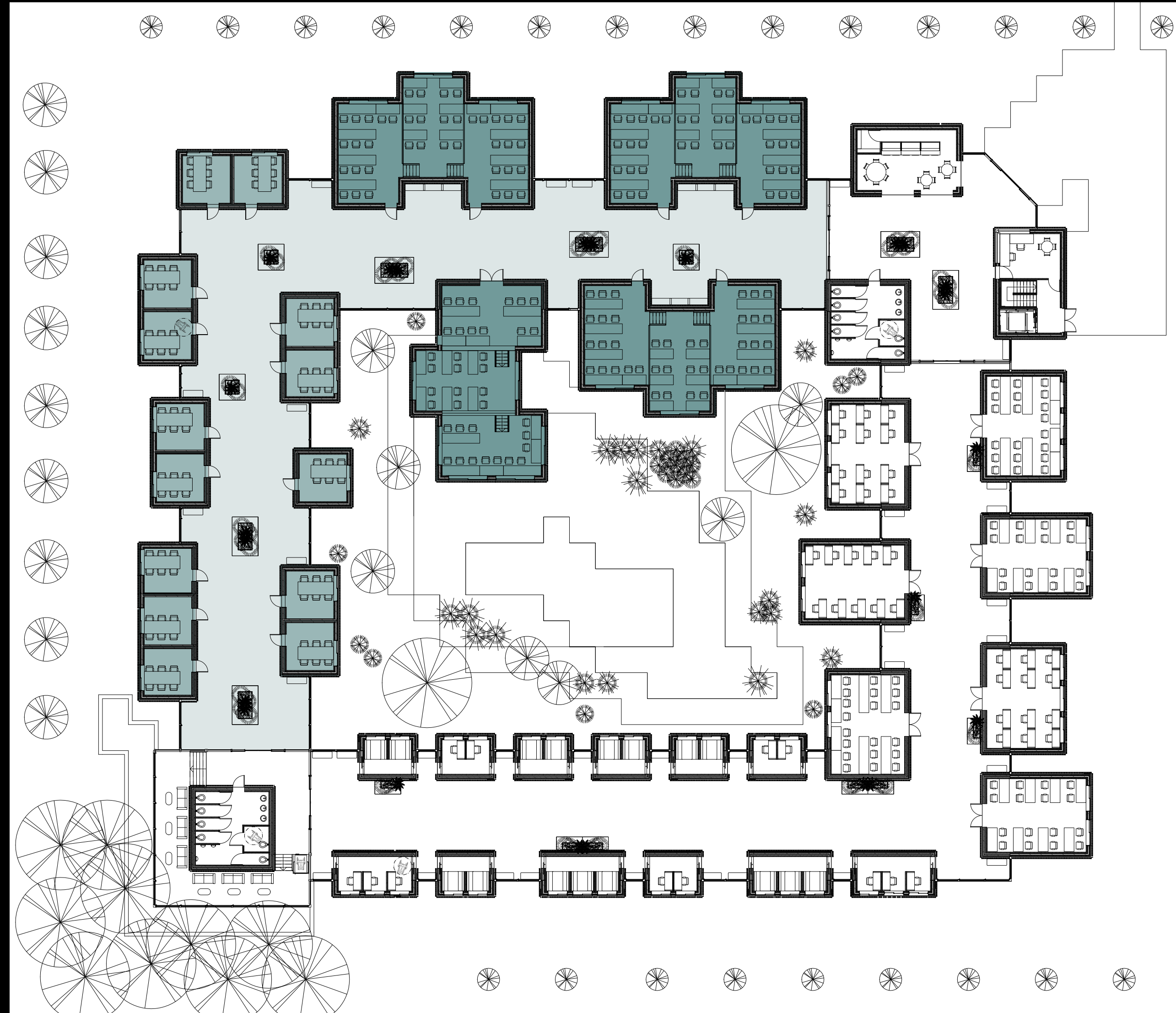
# BUILDING LAYOUT - ENTRANCE





# BUILDING LAYOUT

NORTH-WEST HALLWAY  
LARGE, SUBDIVIDED STUDYHALLS  
GROUP ROOMS

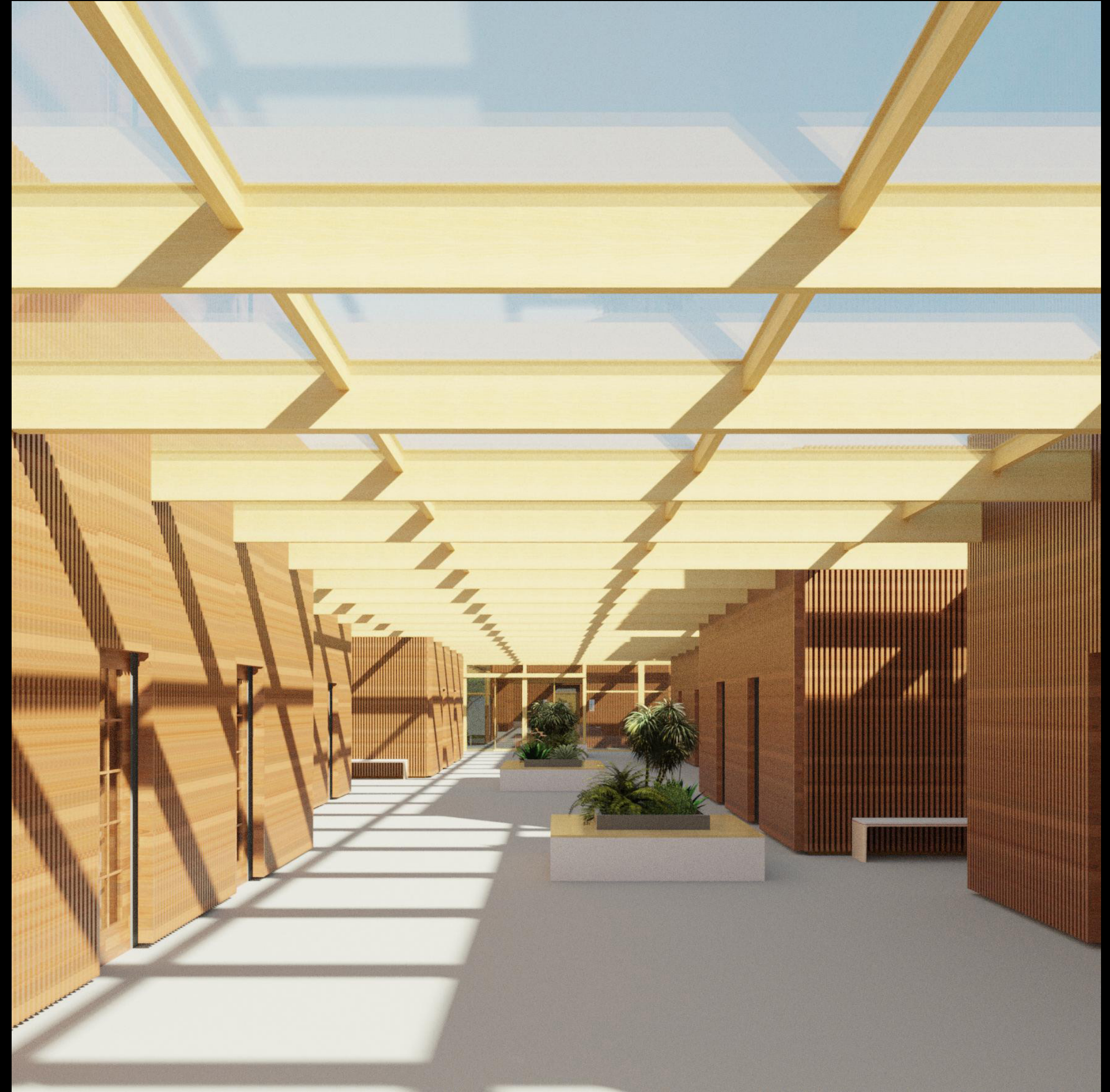


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# BUILDING LAYOUT - NORTH-WEST HALLWAY





# BUILDING LAYOUT - LARGE STUDYHALL





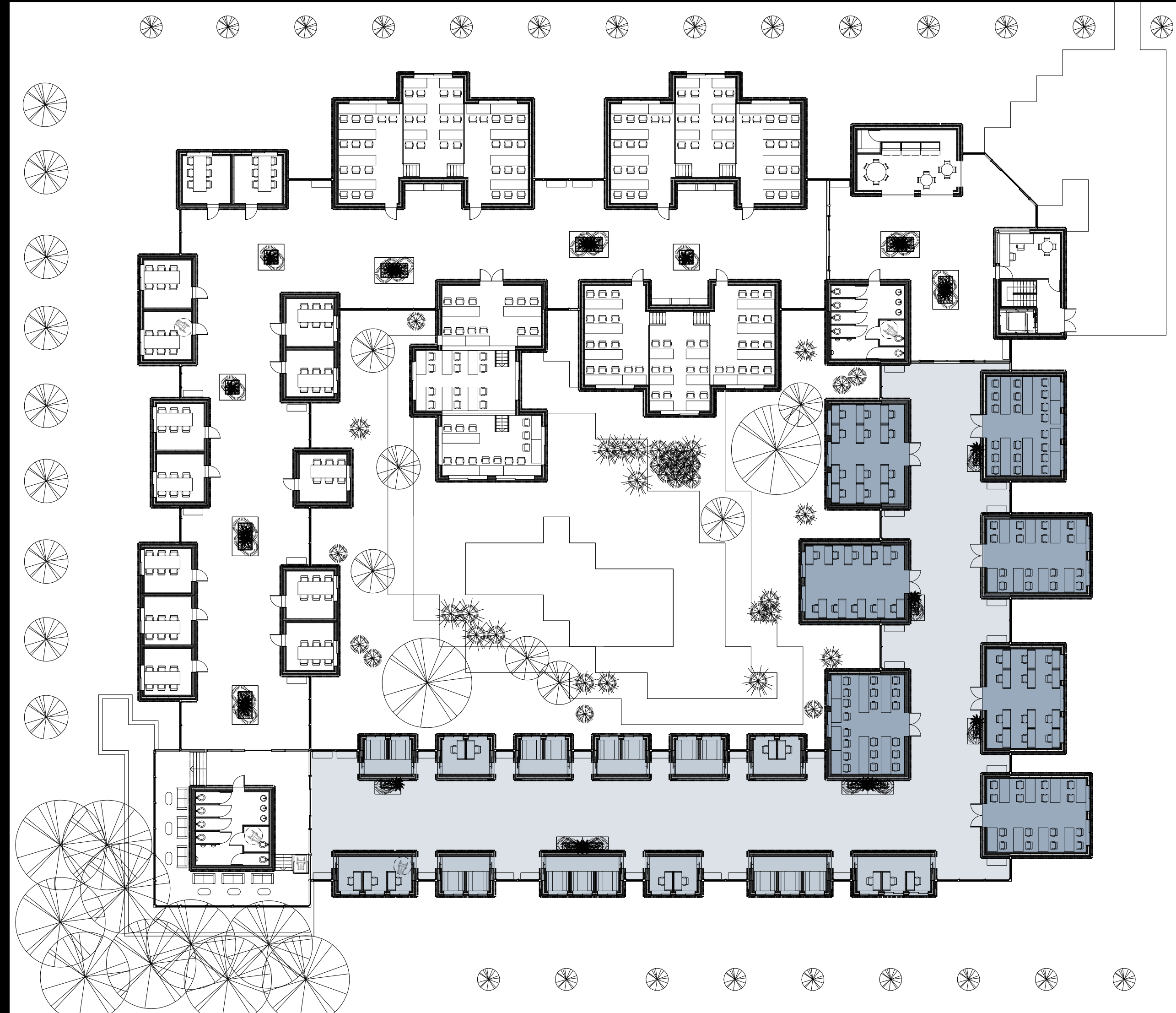
# BUILDING LAYOUT - GROUP ROOM





# BUILDING LAYOUT

SOUTH-EAST HALLWAY  
SMALLER STUDYHALLS  
STUDYNOOKS



- Entrance
- Reception
- Café
- Bathroom
- North-West hallway
- Large studyhalls
- Group rooms
- South-East hallway
- Small studyhalls
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# BUILDING LAYOUT - SOUTH-EAST HALLWAY





# BUILDING LAYOUT - SMALL STUDYHALL





# BUILDING LAYOUT - SMALL STUDYHALL





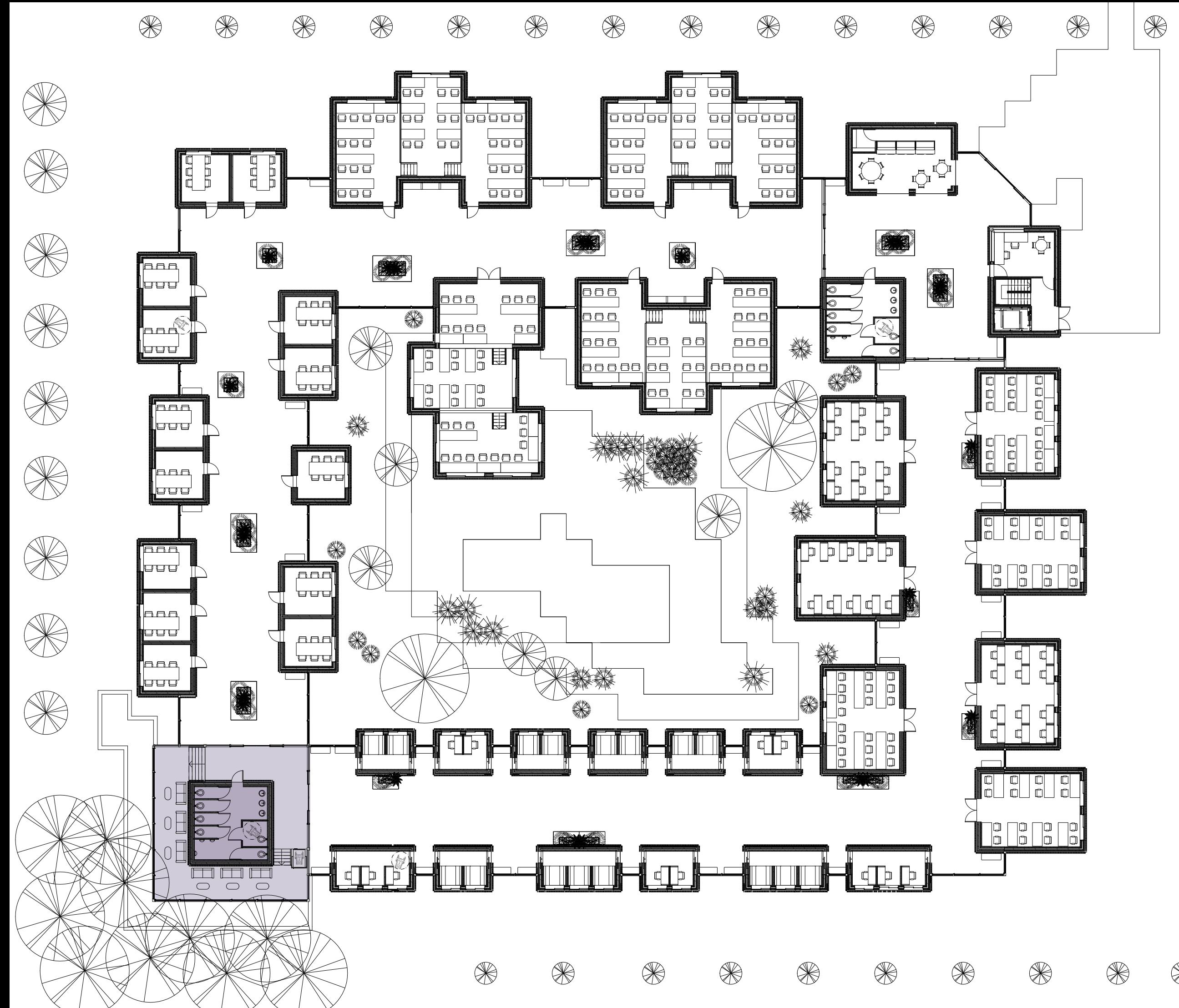
# BUILDING LAYOUT - STUDYNOOKS





# BUILDING LAYOUT

LOUNGE

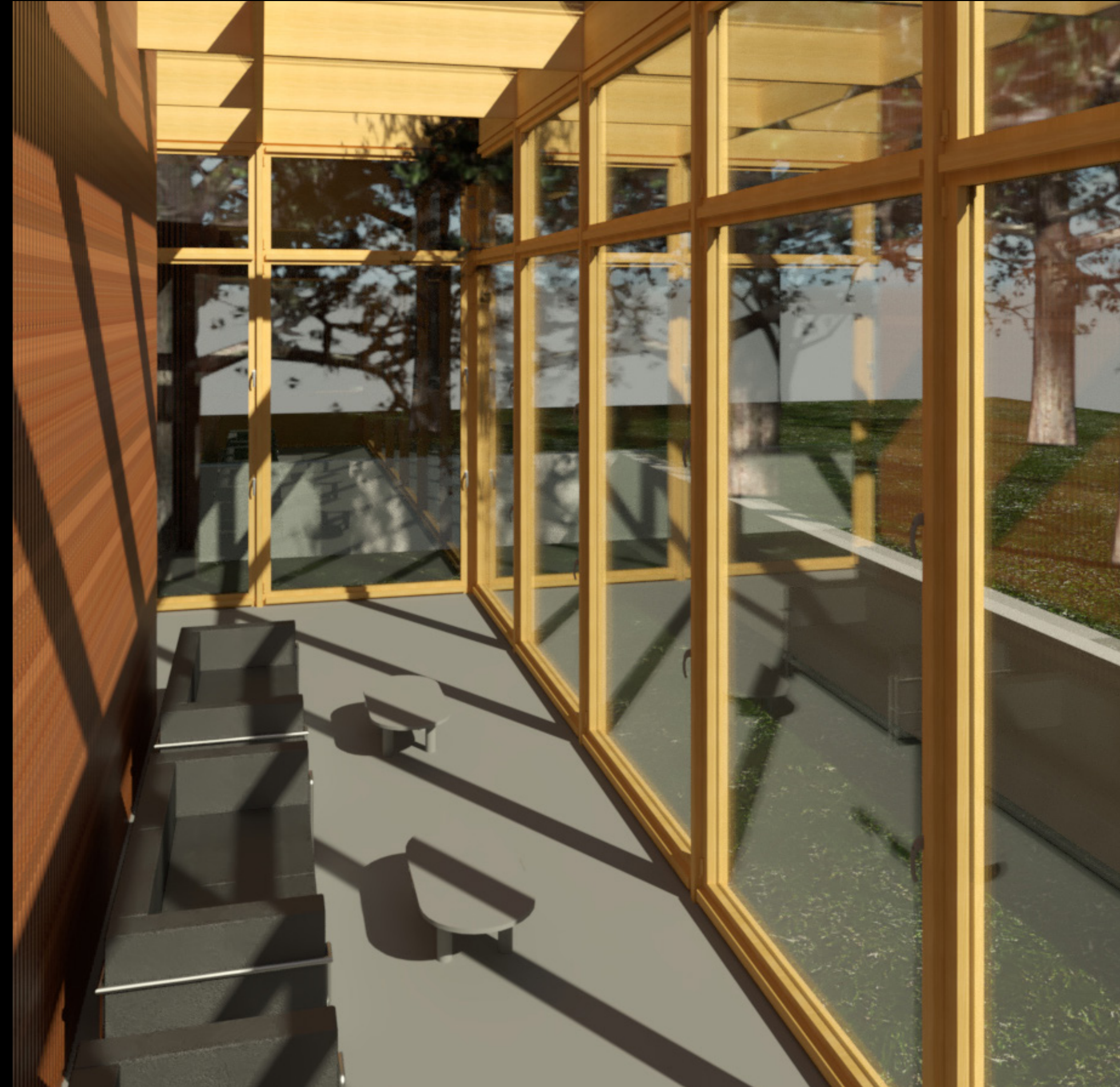


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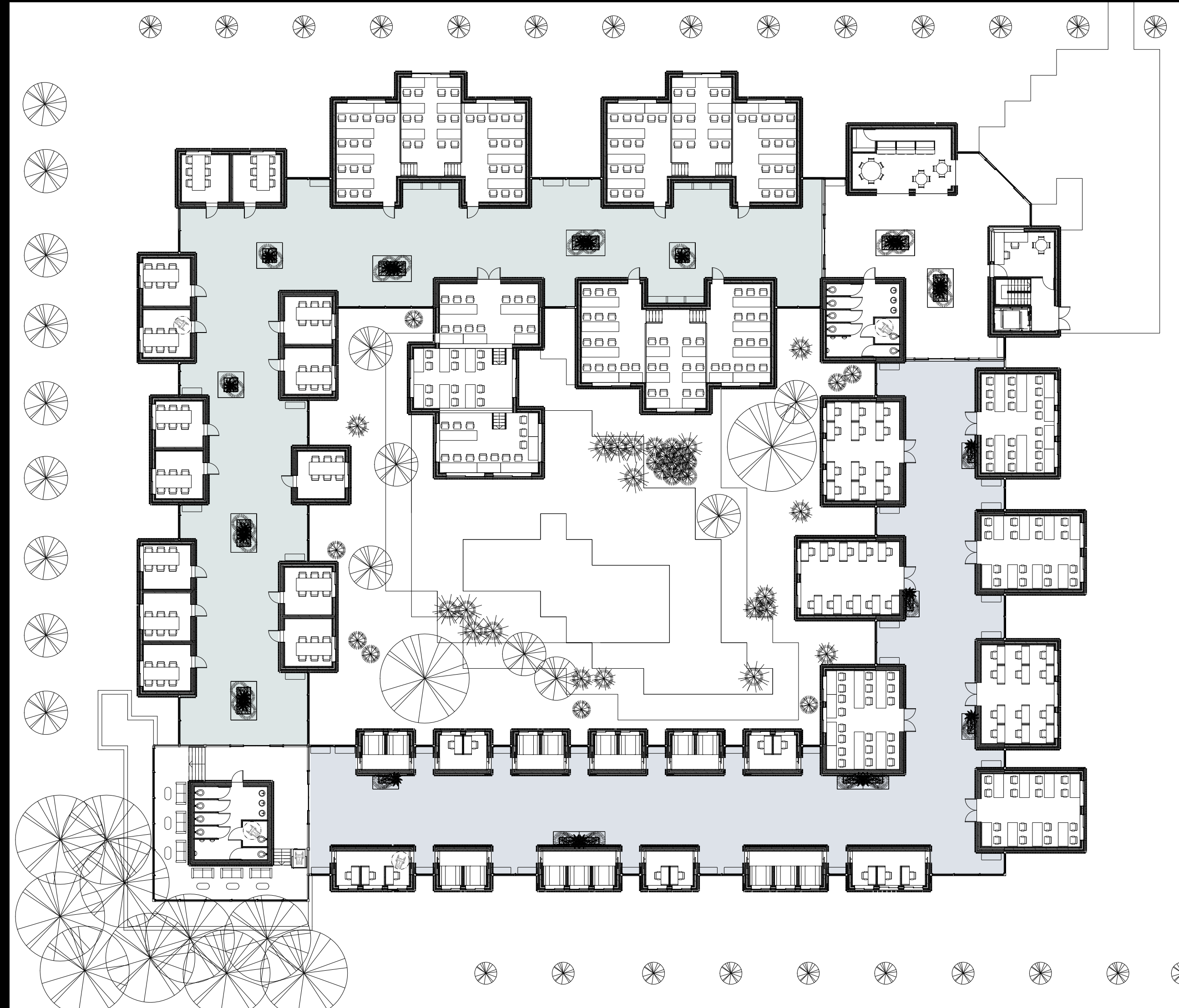
# BUILDING LAYOUT - LOUNGE





# BUILDING LAYOUT

## IN-BETWEEN-SPACES



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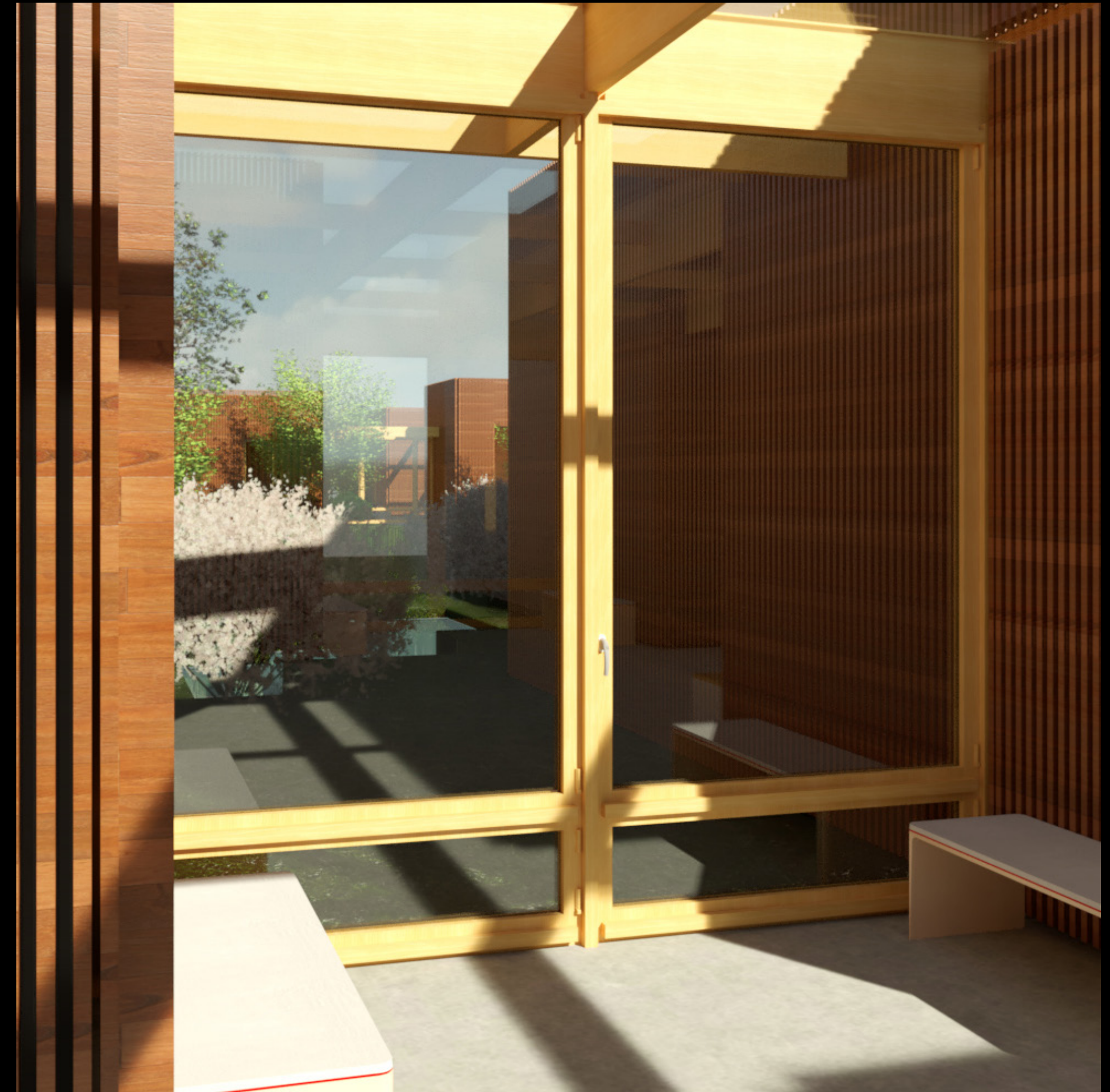


# BUILDING LAYOUT - IN-BETWEEN-SPACES





# BUILDING LAYOUT - IN-BETWEEN-SPACES



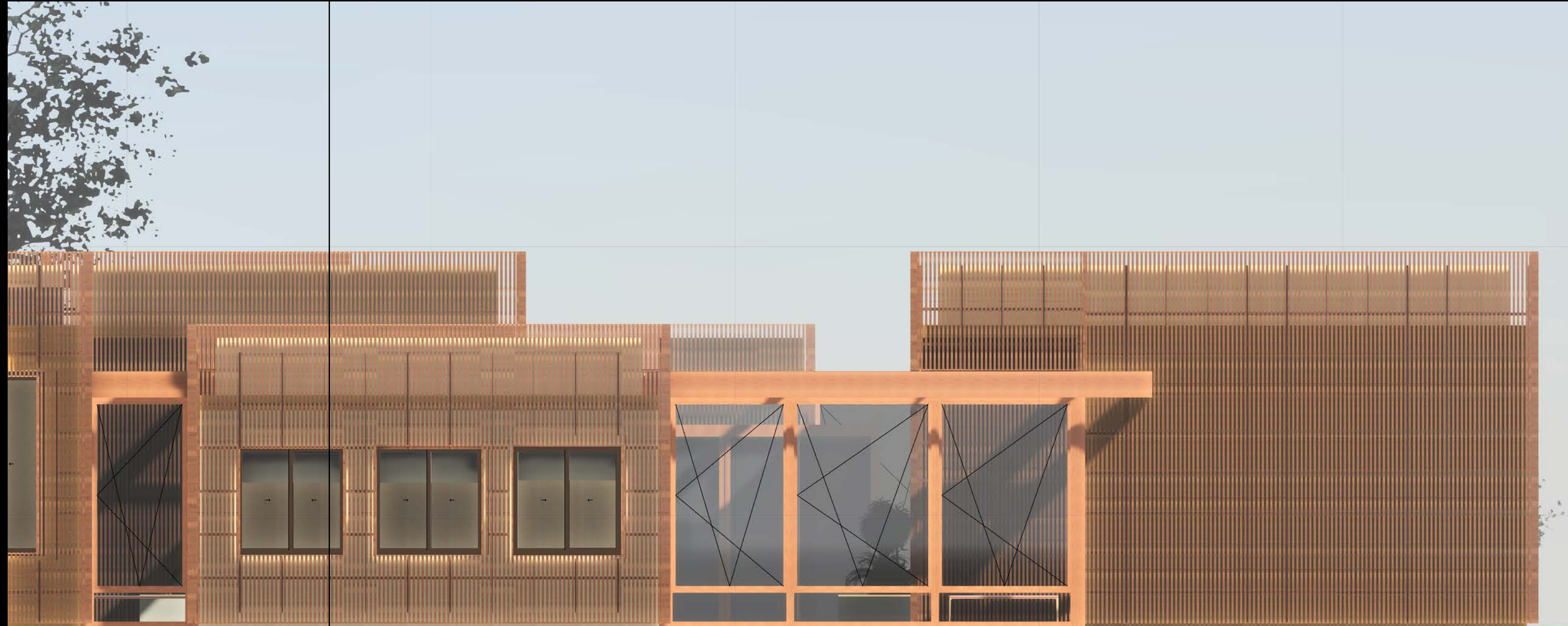


# BUILDING FRAGMENT - SOUTH-EAST CORNER



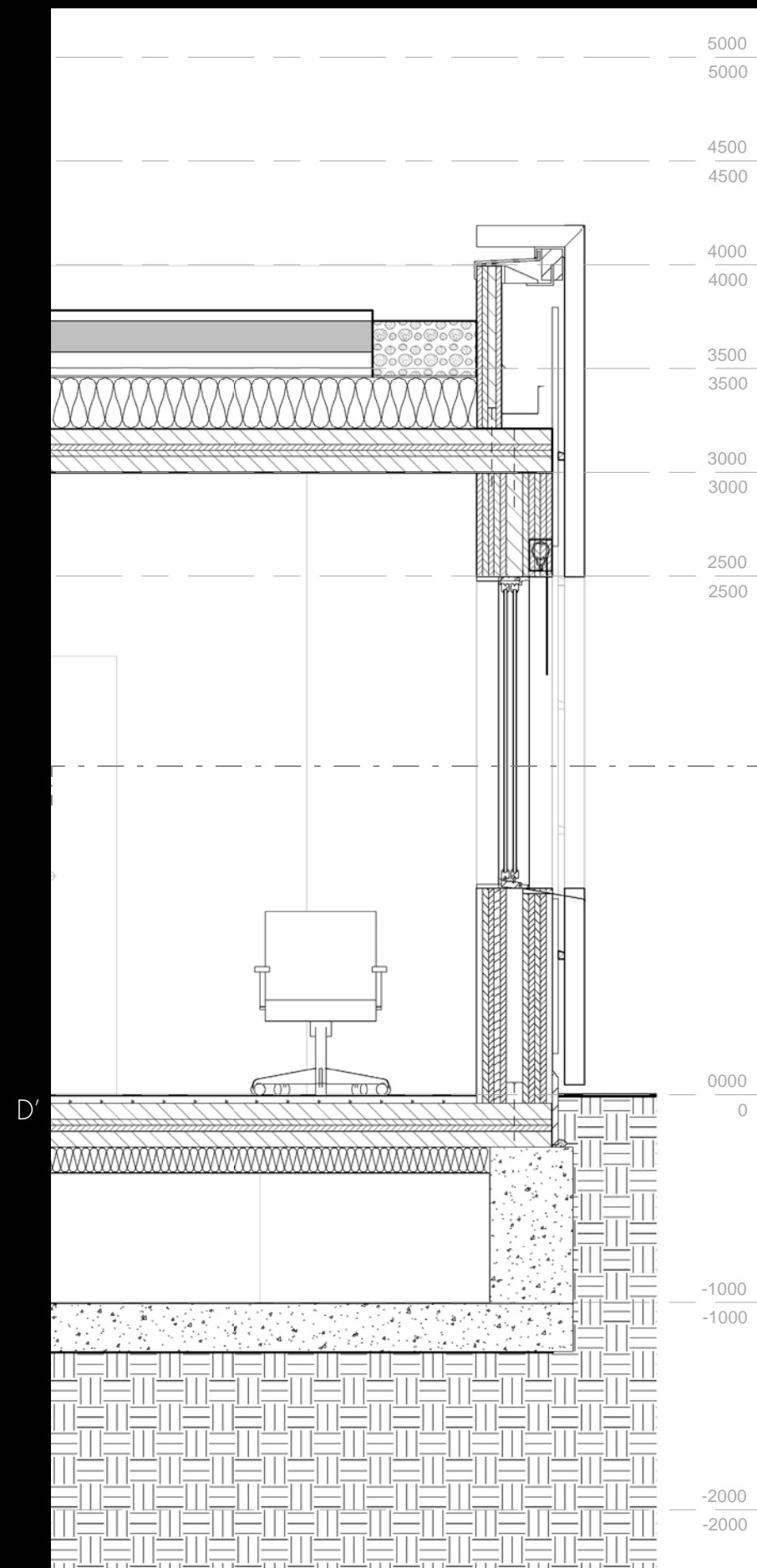


# BUILDING FRAGMENT - SOUTH-EAST CORNER





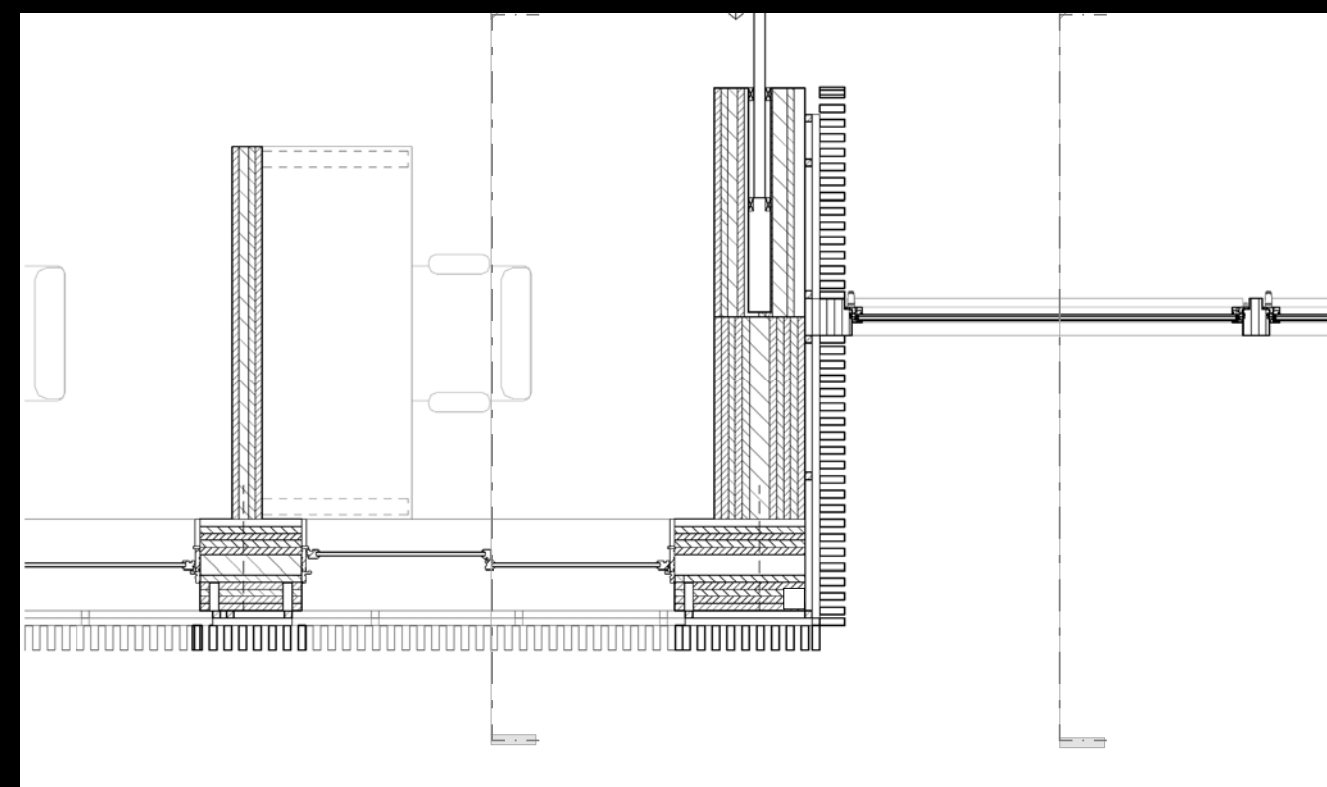
# FACADE FRAGMENT



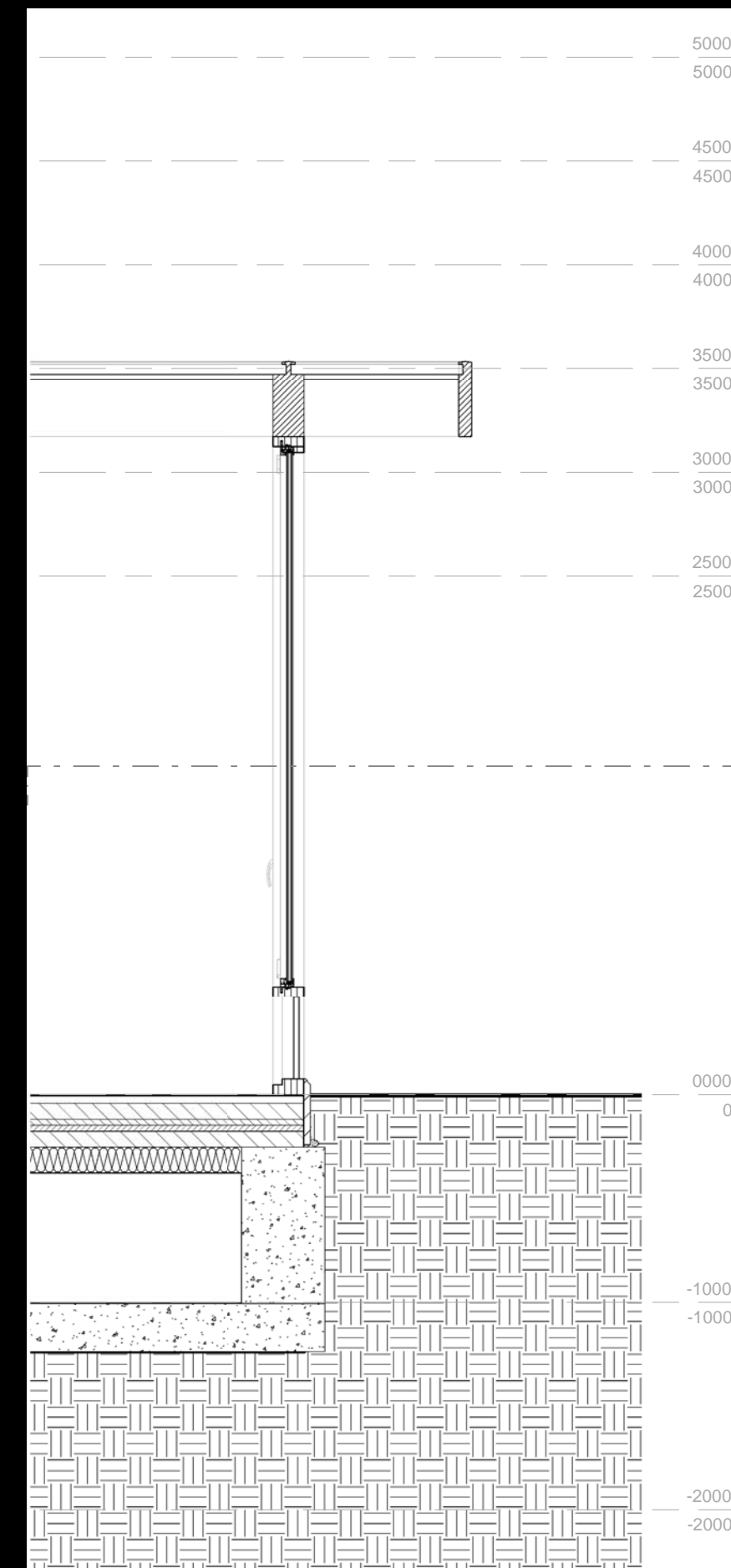
BOX SECTION



ELEVATION



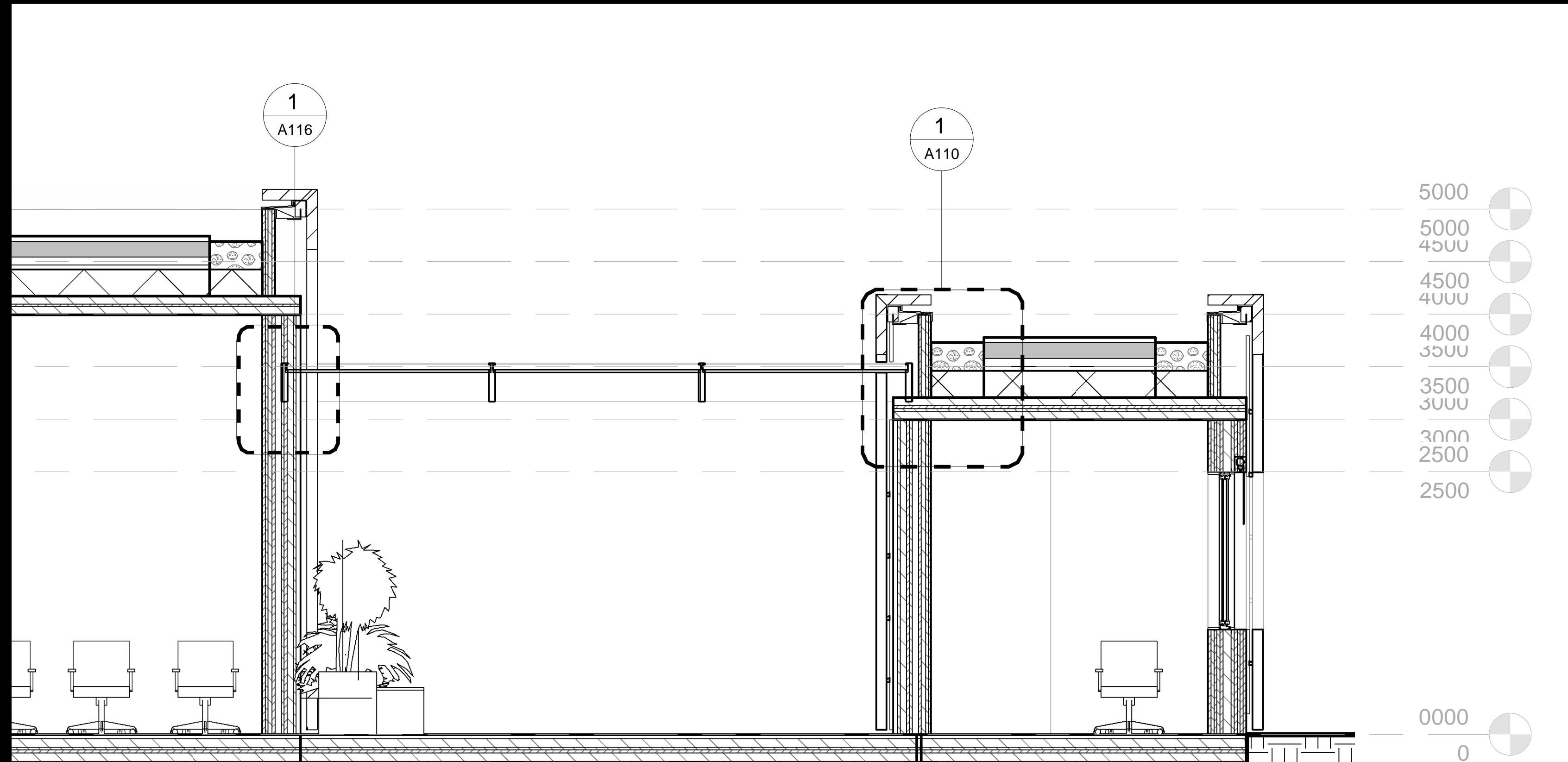
HORIZONTAL SECTION



CURTAIN WALL SECTION



# DETAIL LOCATION





# WALL-CURTAIN ROOF EDGE DETAIL

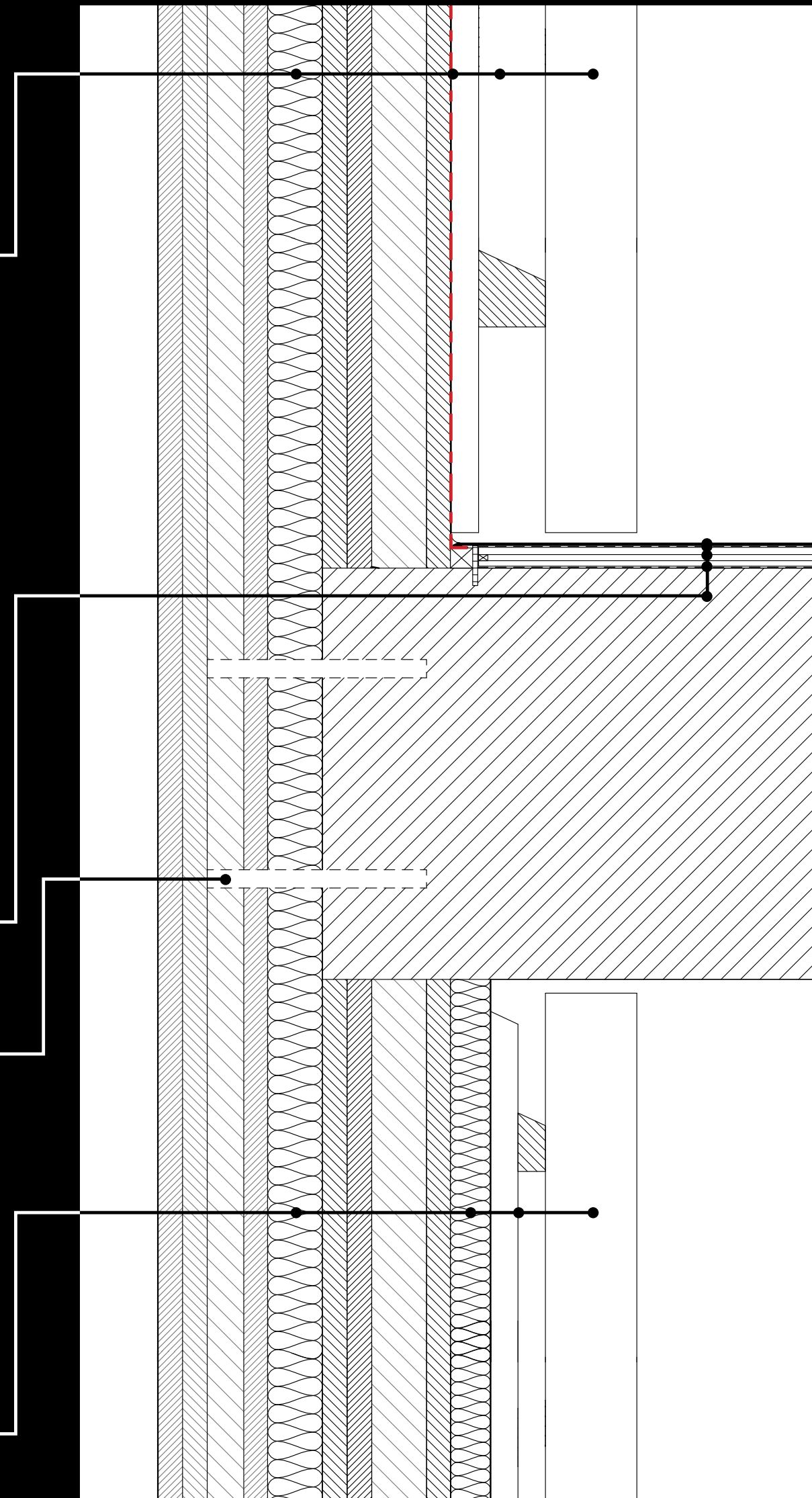
OAK CLADDING 30x100MM  
BATTENS AND COUNTER-BATTENS  
60MM  
WATER SEAL  
THOMA HOLZ100-W32-SOUND

STABALUX H CURTAIN-WALL-ROOF  
ATTACHED TO BEAM

STABALUX H CLICK-PROFILE  
RUBBER STRIP  
DOUBLE GLAZING 8MM/6MM 2%  
SLANT  
RUBBER STRIP  
WOODEN BEAM 450MM

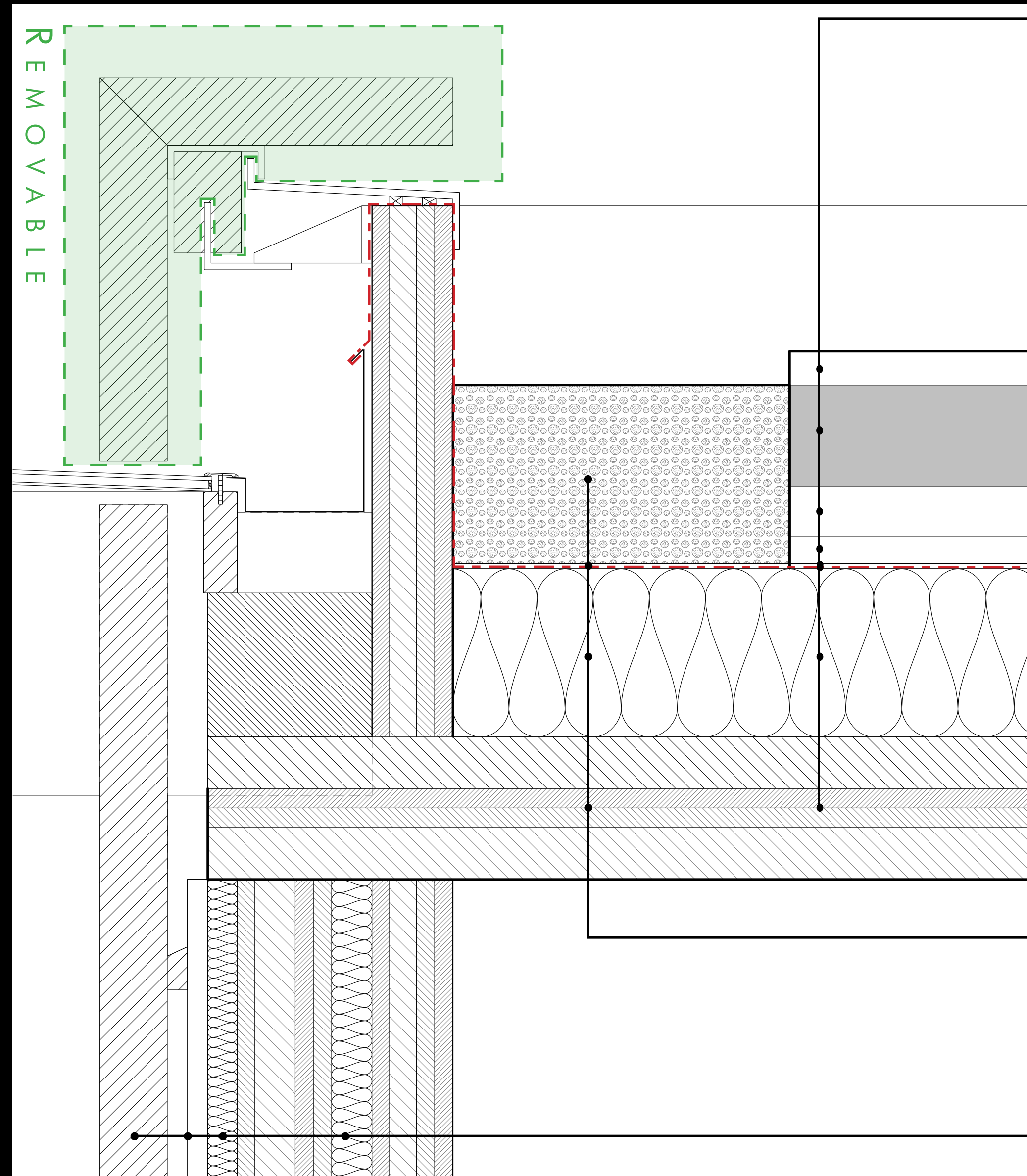
WOODEN DOWELS 10x300MM

OAK CLADDING 30x100MM  
BATTENS AND COUNTER-BATTENS  
60MM  
GIK ACOUSTICS SPOT PANEL  
44MM  
THOMA HOLZ100-W32-SOUND





# INSIDE ROOF-EDGE DETAIL



GREENERY (GRASSES AND HERBS)  
>50MM  
SUBSTRATE 150MM  
WATER RETENTION LAYER 75MM  
DRAINAGE WITH INTEGRATED FILTER  
40MM  
GLIDE LAYER  
WATER SEAL  
THERMAL INSULATION, ISOVLAS IN GRADIENT 300-250MM  
VAPOUR BARRIER  
THOMA HOLZ100-DE21 212MM

GRAVEL 500MM WIDE  
WATER SEAL  
THERMAL INSULATION, ISOVLAS IN GRADIENT 300-250MM  
VAPOUR BARRIER  
THOMA HOLZ100-DE21 212MM

OAK CLADDING 30x100MM  
BATTENS AND COUNTER-BATTENS 60MM  
GIK ACOUSTICS SPOT PANEL 44MM  
THOMA HOLZ100-W32-SOUND



# REFLECTION





# REFLECTION

RESEARCHED WHAT I WANTED TO RESEARCH

THE RESEARCH WENT WELL

TU DELFT IS NOW LOOKING INTO IT TOO

GOT NOMINATED FOR THE ECIO FRANK AWARD 2020

THE DESIGN COULD HAVE USED MORE REITERATIONS

DID IT IN A YEAR

GOT ENGAGED

HAD COVID

MY IMMEDIATE FAMILY GOT COVID

GOT A JOB

MOVED TO DENMARK



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AN INCLUSIVE STUDY ON THE STUDY NEEDS OF STUDENTS AT THE TU DELFT

