



final presentation

ARCHITECTURE & CHILDBIRTH

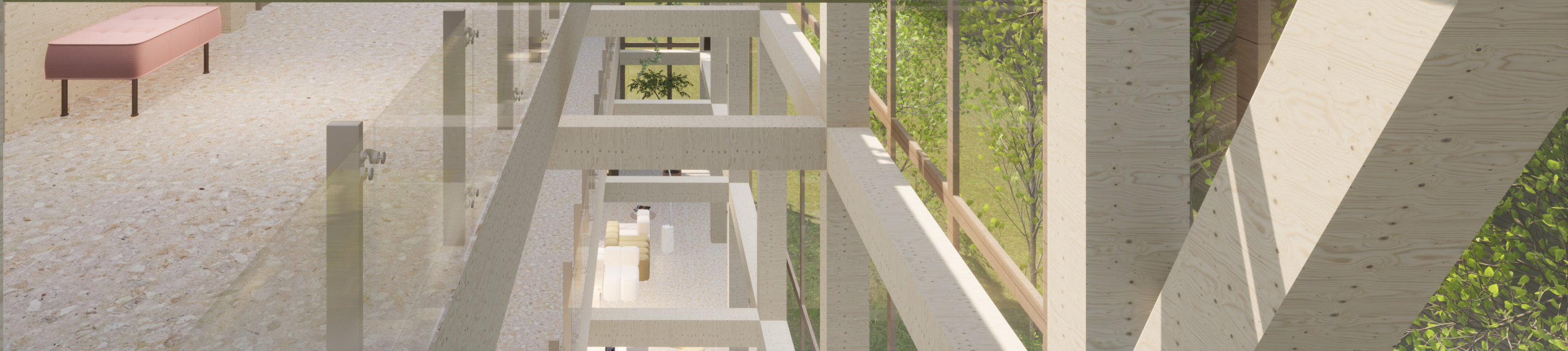
The positive influence of
architecture on women during
labor, delivery, recovery and
postpartum

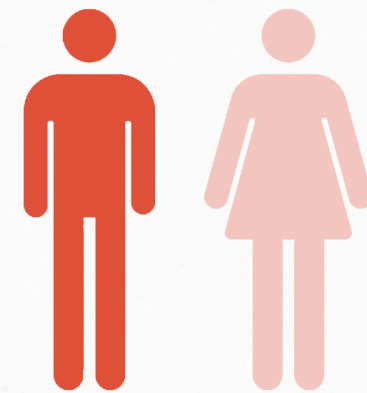
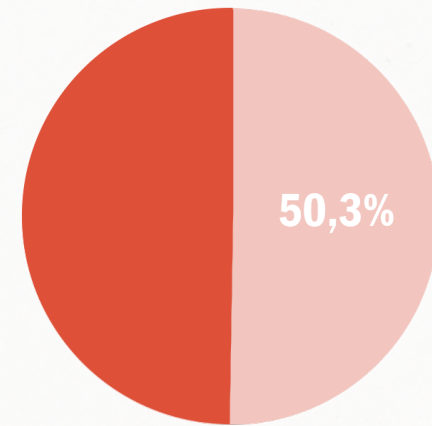
Rachelle de
Geus

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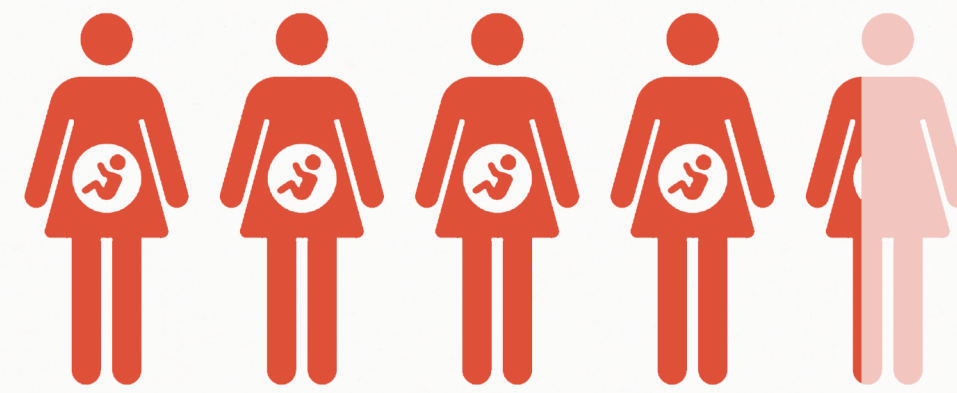
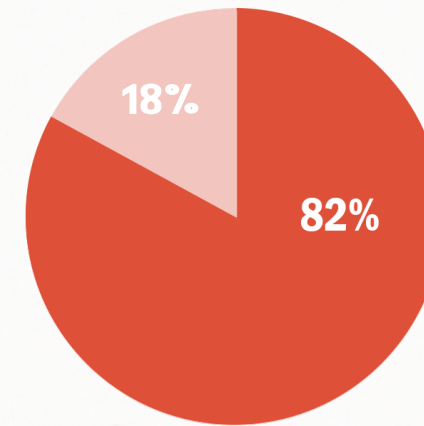
Graduation
studio:
Designing for
health and
care

INTRODUCTION





17,59 million inhabitants
in the Netherlands



18% of the women
remain childless

postpartum depression

impaired mother-child attachment

prolonged labor

increased fear of childbirth

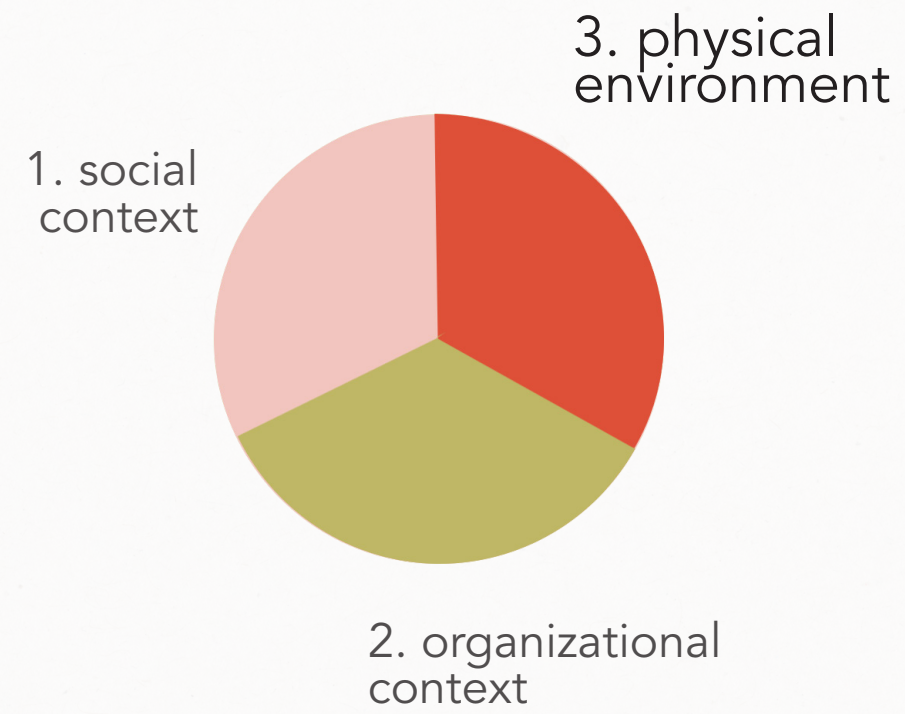
increased need for sedatives during labor

stress

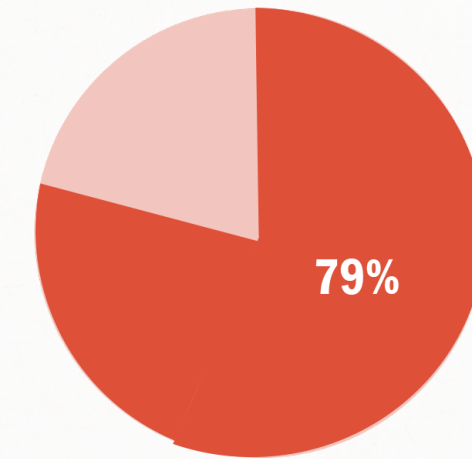
anxiety

PTSD symptoms





home-birth



birth center
or hospital

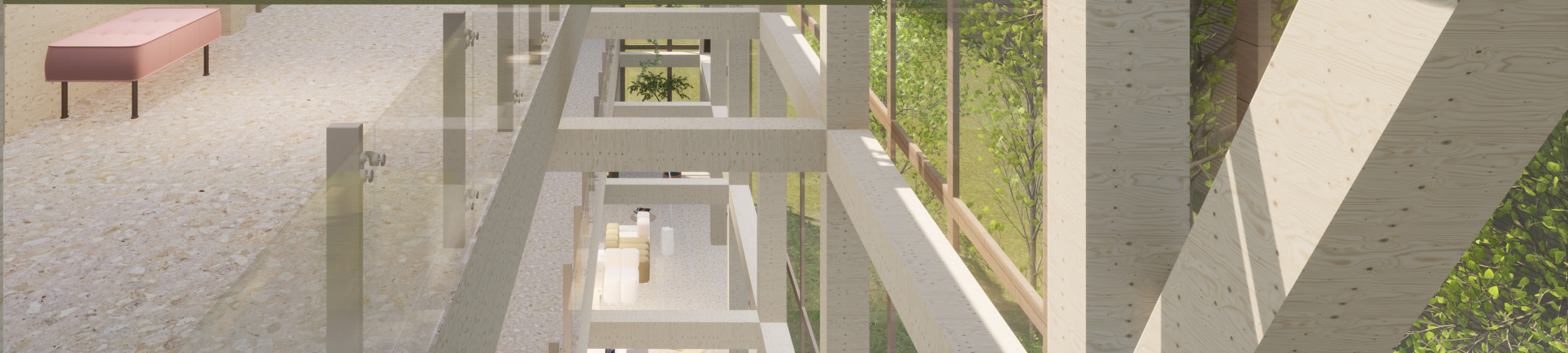






The goal is to form **architectural design principles and a design** that contributes to a **positive experience** and an **improvement in health & well-being** for **women in a maternal healthcare facility**.

RESEARCH



What kind of **architectural environment** could contribute to a **positive experience, improving health & well-being**, for **women during the stage of LDRP*** in a **maternal healthcare facility**?

** labor, delivery, recovery, and postpartum*





1

RESEARCHING THE (ENVIRONMENTAL) NEEDS OF THE TARGET GROUP

LITERATURE STUDY

During childbirth, women are in need of:

Emotional support
Involvement of partner
Physical comfort



1

RESEARCHING THE
(ENVIRONMENTAL) NEEDS
OF THE TARGET GROUP

LITERATURE STUDY

These needs can be acquired through
six design principles:

**(GUIDING FOCUS OF
THE) PHYSICAL BIRTH
ENVIRONMENT**

1

**VISUAL AND
AUDITORY STIMULI**

2

**INTERIOR, FURNITURE,
AND EQUIPMENT**

3

PRIVACY

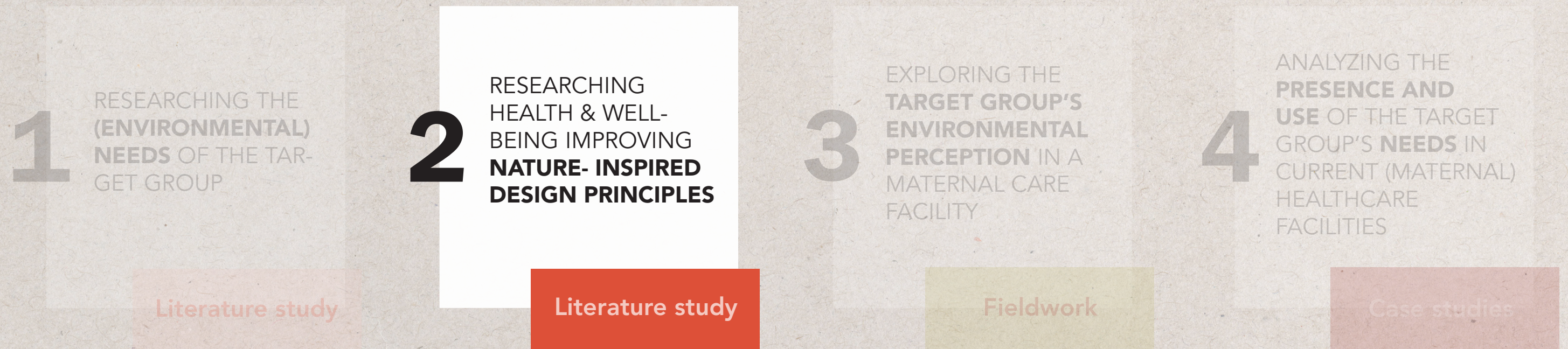
4

LIGHT

5

**NATURE-(INSPIRED)
ELEMENTS**

6



2

RESEARCHING **HEALTH & WELL-BEING**
IMPROVING **NATURE- INSPIRED**
DESIGN PRINCIPLES

LITERATURE STUDY

biophilic design

a design philosophy that seeks to create buildings and spaces
that connect people with nature

2

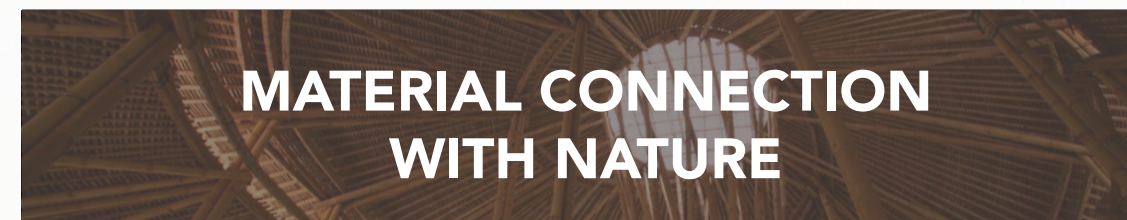
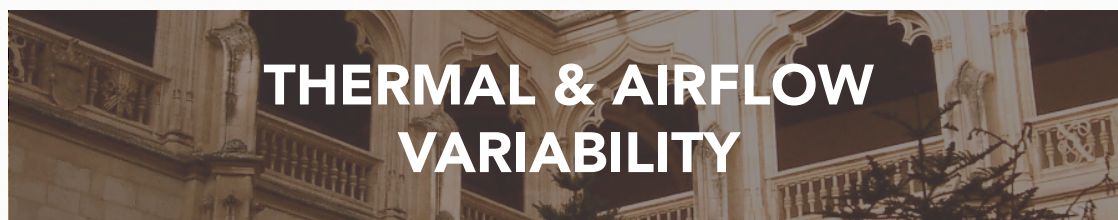
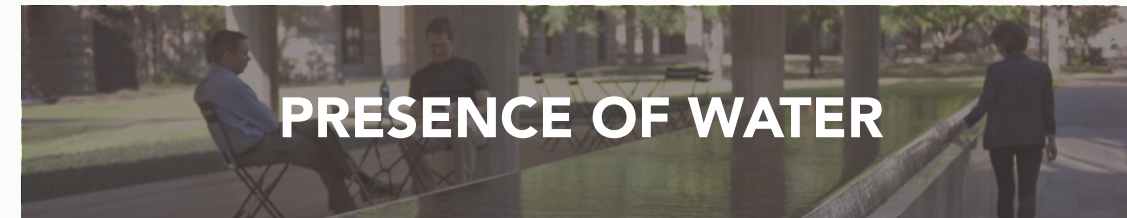
RESEARCHING **HEALTH & WELL-BEING**
IMPROVING **NATURE- INSPIRED**
DESIGN PRINCIPLES

LITERATURE STUDY

Women's need for:

Stress reduction
Improvement in emotion, mood & preference

Can be acquired through 6 patterns of biophilic design:





3

EXPLORING THE TARGET GROUP'S ENVIRONMENTAL PERCEPTION IN A MATERNAL CARE FACILITY

FIELDWORK (INTERVIEWS)

I couldn't have a nice walk around freely, but that didn't feel comfortable

outside the hospital felt too public

I HAVE MY OWN ROOM AND BATHROOM, WHICH GIVES ME COMFORT AND PRIVACY

HOSPITAL BIRTH medical indication → bed rest in hospital until I can go into labor

I MISS COLOUR AND PLANTS

I am staying here for a longer period of time, and I therefore really miss a communal space where I can sit and relax besides my own room

The room and space around me feels very sterile, especially for birth I would like it to be more home-like

THE ROOM FEELS VERY SMALL
I moved around some furniture to create more space for myself

for the women (they don't always have this at home), this is one of the reasons why they come here

A BIRTH CENTER HAS TO HAVE A DIFFERENT APPEARANCE THAN A HOSPITAL

BIRTH CENTER STAFF
the birth center has an efficient layout. We like that there is a proper bed for the partners to sleep in

Women who transfer from the hospital to the birth center experience a very home-like feeling

Women who transfer from home to this birth center experience the home-like environment as disappointing

State of living/reading, cultural background and level of education impacts women's choice of where to give birth

It's good thing that the hospital is close by in case something goes wrong. But it is important to stay supported so we don't have any complications

I didn't mind changing rooms (I wasn't making care) because it was changing

I wanted to make sure some food, since there were no more, clearly or in the room

BIRTH CENTER my own initiative

I come here to give birth and get maternity care because I couldn't give birth at home because of my living situation

I wouldn't feel comfortable giving birth in a white and "medical" room. (I think this room is comfortable while I sit at work and the current state of the "women" I needed)

I prefer the room to be home-like, but it has to be clean and safe

THE HOSPITAL FEELS TOO MEDICAL TO GIVE BIRTH AT

NATURE IS SO IMPORTANT FOR PEOPLE, UNFORTUNATELY THIS IS MISSING HERE

There was no space in the room/ no additional lounge to receive multiple visitors, nor was there a room for (my) other children to be/ play in

IT WAS NICE TO HAVE A LOOK OUTSIDE

I am moderately comfortable with the space. I gave birth here 10 years ago and it still looks the same

IT IS OUTDATED AND TOO SMALL

I WAS NOT AWARE OF THE SPACE DURING BIRTH

HOSPITAL BIRTH medical indication

There was little space for my partner to stay. He could sleep on the foldable chair/bed, but this was not comfortable for more than one night

WHEE WHEE

more use of nature would be nice

The combination of a home-like environment and a clinical look is ok, although I would prefer it to be more home-like

I HAD TO CHANGE ROOMS WHICH I DISLIKED

I switched from a room for labor to a maternity care room, which took me some time to feel comfortable again

Good identification options AND THE ABILITY TO SEE IT WOULD BE A GOOD ADVICE

I was not aware of my birth environment during labor, but I was before and after

Satisfied

GAVE BIRTH AT THE HOSPITAL HAVE A SAFE AND SECURE FEELING

especially if something would go wrong. I would have been in an urgent

I DIDN'T HAVE TO CHANGE ROOMS
I found the feeling to really have my own space

enough privacy

I DID NOT LEAVE MY ROOM, BUT IF I WOULD NEED TO STAY LONGER I WOULD HAVE TO HAVE A WALK AROUND AND GO OUTSIDE

The photowallpaper made the room less clinical, as well as for the "women" floors

Women who stay here for a short period of time rather stay in their own "bubble", women who have to stay longer prefer to do things outside of their rooms

a lot of women aren't even allowed to give birth at home, due to their living situation

HOSPITAL STAFF maternity ward

We like the photowallpaper and wooden floors. Medical care is not or barely visible because it is behind curtains

everybody always closes their room doors

THERE IS NO LOUNGE THE ONLY PLACE WHERE PEOPLE CAN SIT IS THE SHARED WAITING ROOM

home birth doesn't exist in other Western countries

ONE-PERSON ROOMS ONLY

easy accessible nurse station in the middle of the hallway

I think a combination of a clinical- and home-like look would be best

I didn't look forward to leave the hospital and go to the birth center, but once I was here I wished I came sooner

HOSPITAL'S BIRTH CENTER medical indication in hospital and maternity care here (birth center)

A HOME-LIKE LOOK MAKES YOU FEEL COMFORTABLE QUICKER

If I had the choice I would choose to give birth at home. I love the space there. Being in close to a hospital gives a safe feeling though.

I MISS ELEMENTS OF NATURE LIKE A BIG PAINTING TO LOOK AT

The room was big enough for me and my partner, and to receive visitors

I DON'T HAVE TO CHANGE ROOMS IN THE BIRTH CENTER, I'M GLAD I DIDN'T HAVE TO

I don't like to look at this white wall every



4

ANALYZING THE **PRESENCE AND USE** OF
THE TARGET GROUP'S NEEDS IN CURRENT
(MATERNAL) HEALTHCARE FACILITIES

CASE STUDIES

**Ikazia Hospita, Rotterdam***Mother & Child Center***Erasmus MC, Rotterdam***Birth Center Sophia***EKH Children Hospital, Thailand**

(GUIDING FOCUS OF THE)
PHYSICAL BIRTH
ENVIRONMENT

1

Home-like
environment

Amply spaced and
flexible room

Space for partner

Windows

Restrict changing
between rooms
and/or have
multi-purpose rooms

Facilities that provide
a place to lounge,
receive visitors
and/or children, and
buy & prepare food

Space to have a
(secluded) walk
around in- or outside

Nearby or
integrated in the
hospital

VISUAL AND
AUDITORY STIMULI

2

Snoezelen/ inspired
audial and visual
scenery on walls
providing positive
distractions

INTERIOR, FURNITURE,
AND EQUIPMENT

3

Nordic contemporary
style furniture
resembling private
home environment

Television

Traditional hospital
labor bed covered or
placed less visibly

Necessary- and
medical equipment
covered or placed
less visibly

Relaxation area with
sofa bed, chairs, and
coffee table

(Sofa) bed for
partner

Bathtub

Soft colors and
curved interior &
furniture

PRIVACY

4

Single occupancy
rooms, including a
private bathroom

Curtains or screens to
cover the windows

LIGHT

5

Overhead light off
unless needed for
assessment purposes

Dimly lit scenario
projections controlled
by woman and her
partner

Dimmed light in
relaxation area her
partner

NATURE-(INSPIRED)
ELEMENTS

6

Visual connection
with nature

Non-visual
connection with
nature

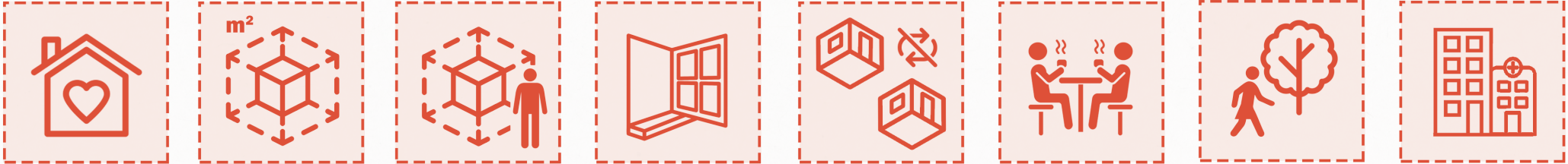
Thermal & airflow
variability

Presence of water

Material connection
with nature

(GUIDING FOCUS OF THE
PHYSICAL BIRTH
ENVIRONMENT

1



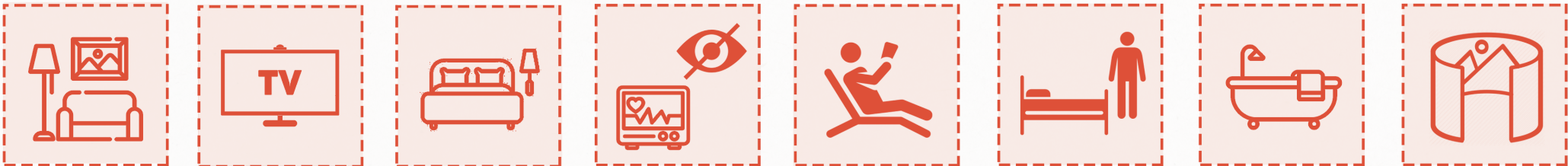
VISUAL AND
AUDITORY STIMULI

2



INTERIOR, FURNITURE,
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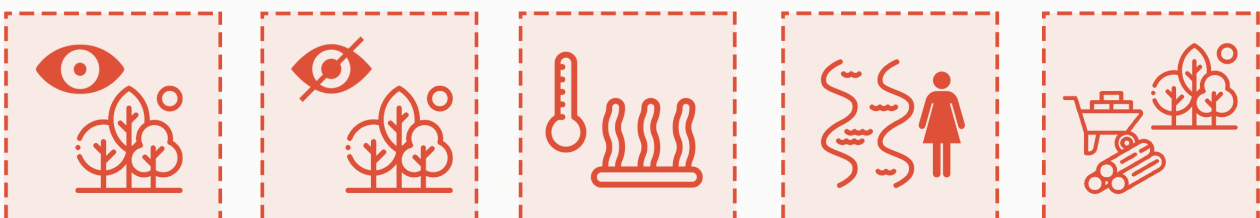
LIGHT

5



NATURE-(INSPIRED)
ELEMENTS

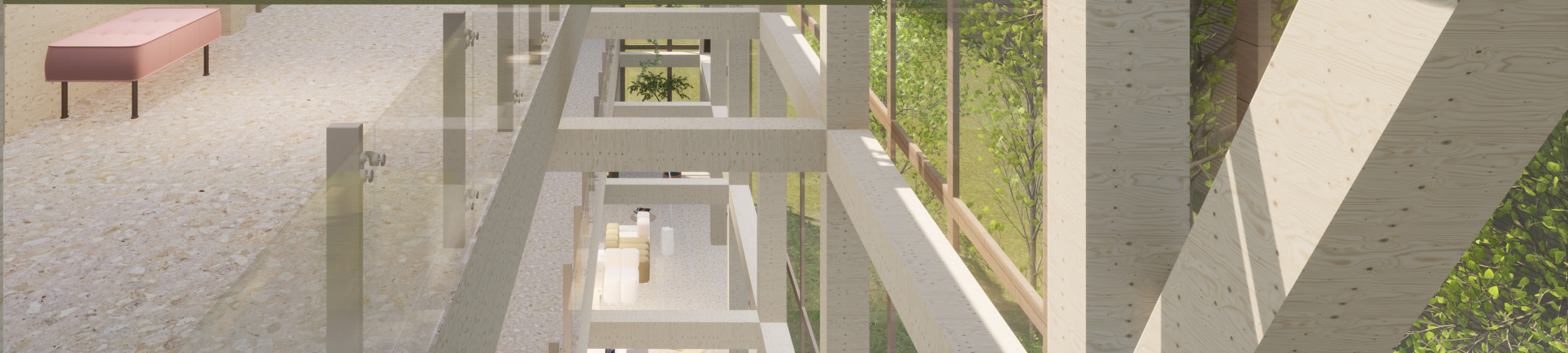
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“These design principles provide design guidelines proving to contribute to a positive experience, improving health & well-being, for women during the stage of LDRP in a maternal healthcare facility.”

LOCATION

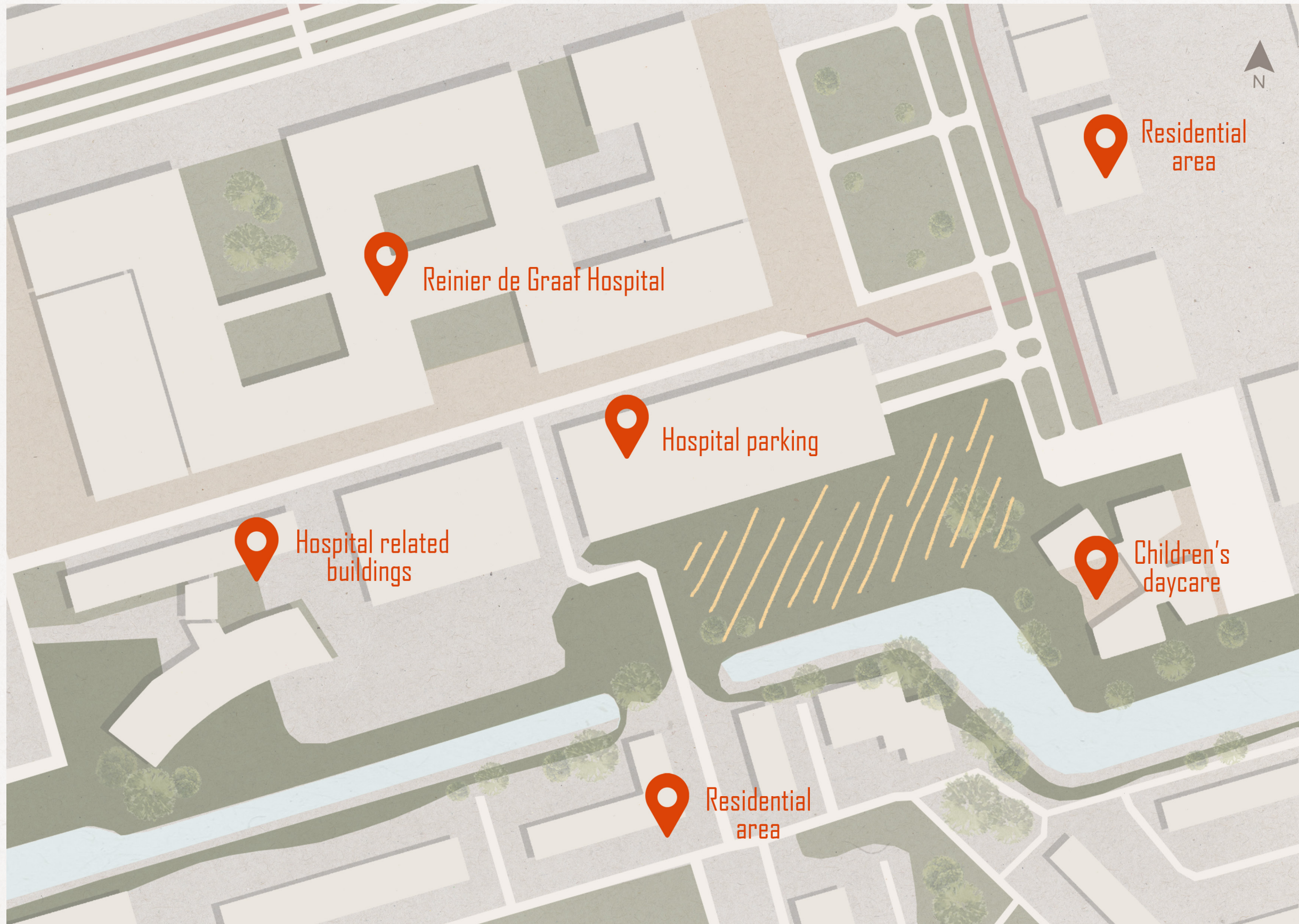


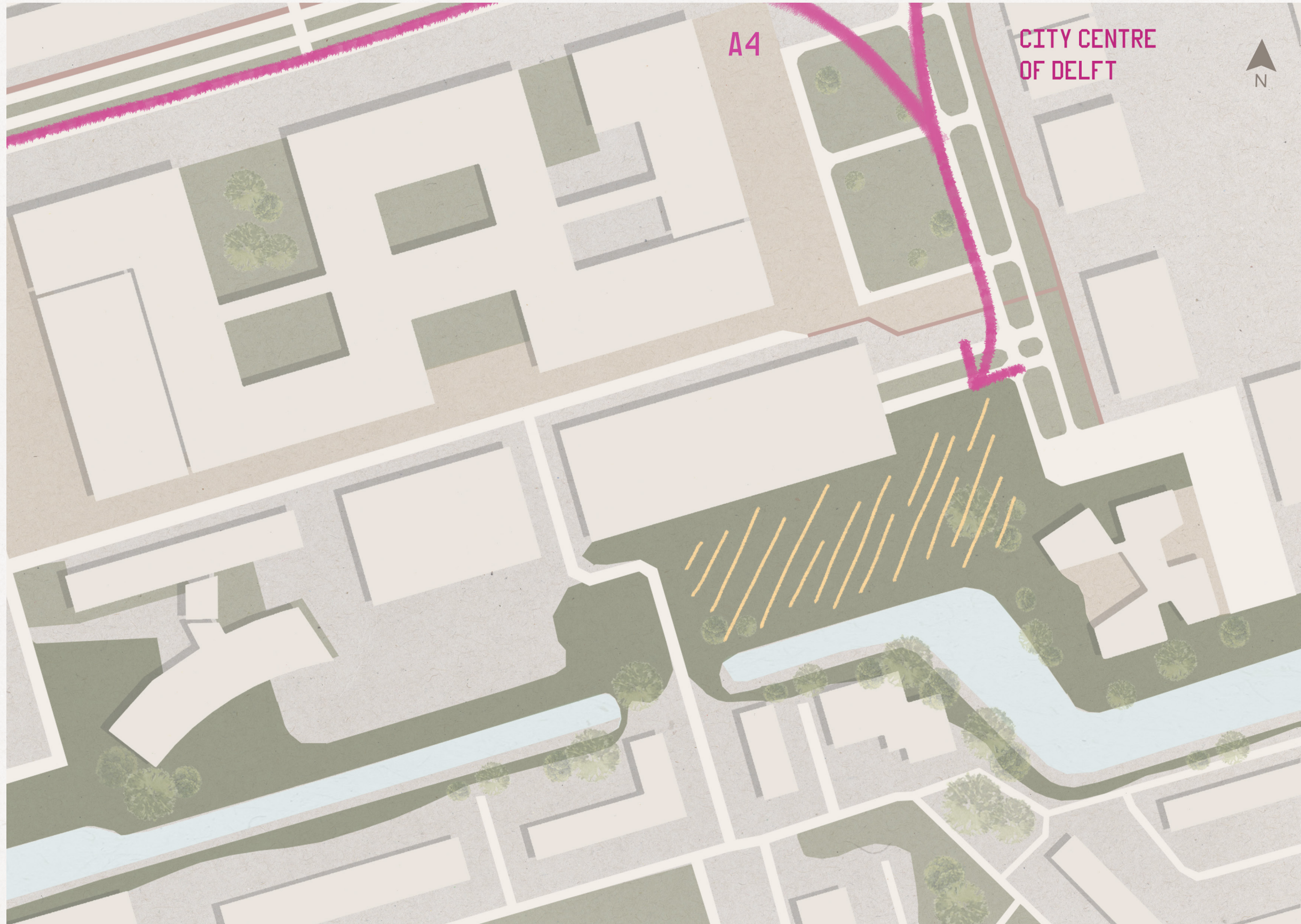


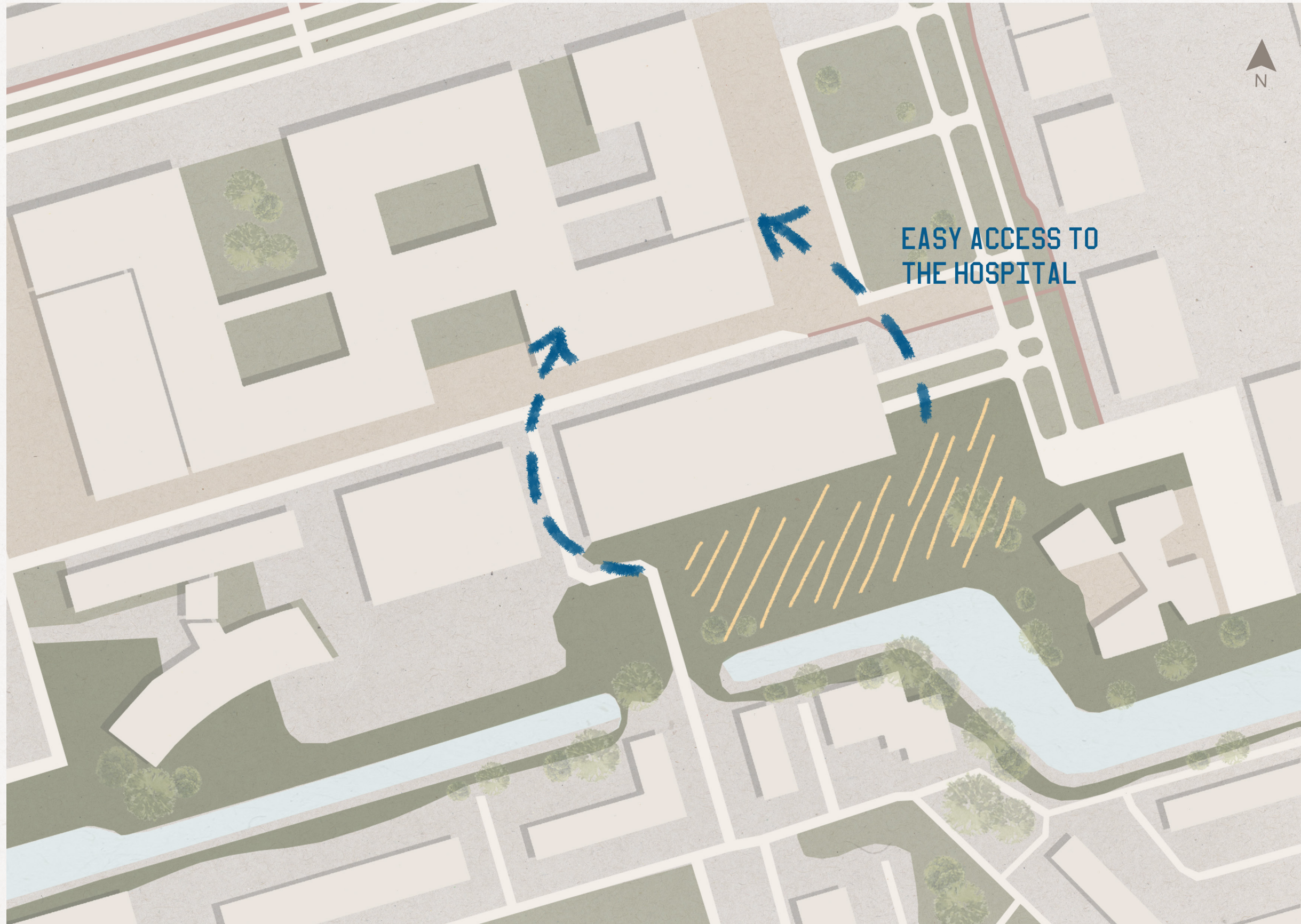
**Delft,
Buitenhof**

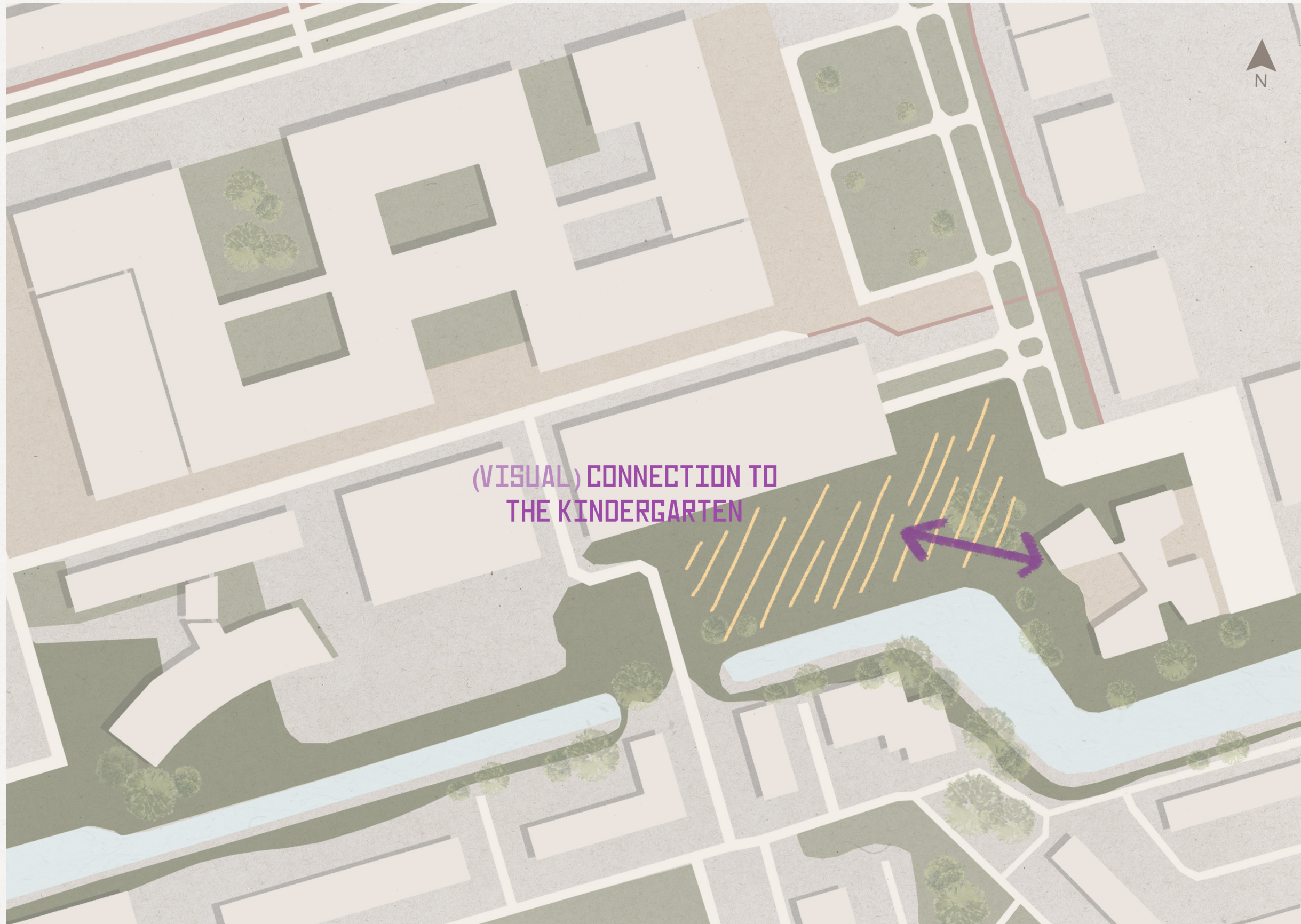


+/- 3000m²





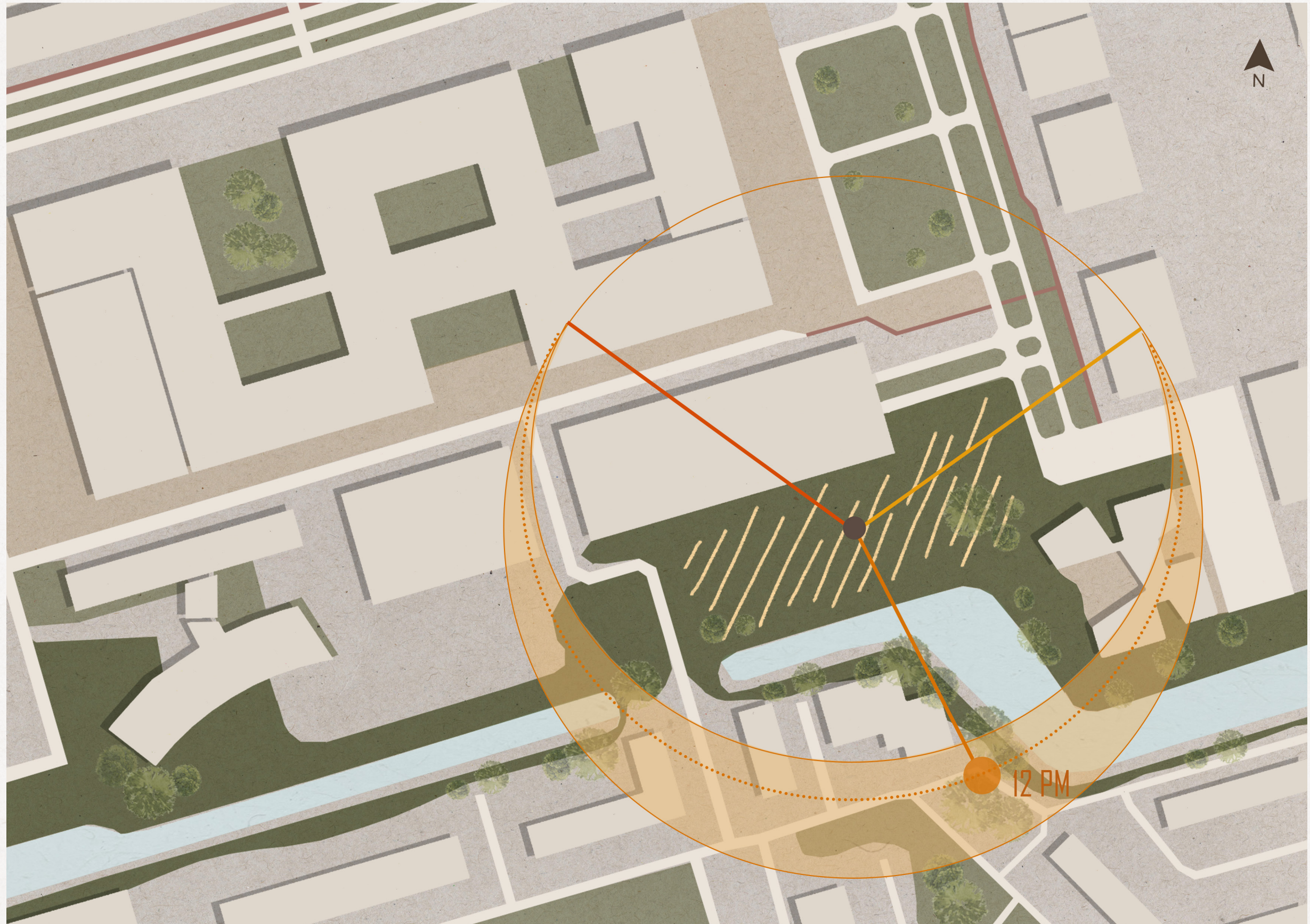












The image is a composite architectural rendering. The background features a complex wooden structure with light-colored, vertically-grained beams and panels. A large, solid green rectangular wall is positioned in the center. Below this wall, a red tufted bench sits on a light-colored stone floor. To the right, a glass railing with wooden handrails overlooks a courtyard with a yellow sofa and a small table. The overall scene is bright and modern, with natural light filtering through the wooden frame.

DESIGN

Maternity Center

Delft, The Netherlands



Birth center

- Including:
- Delivery rooms
 - Maternity care rooms

Midwifery practices

- Including:
- Examination rooms

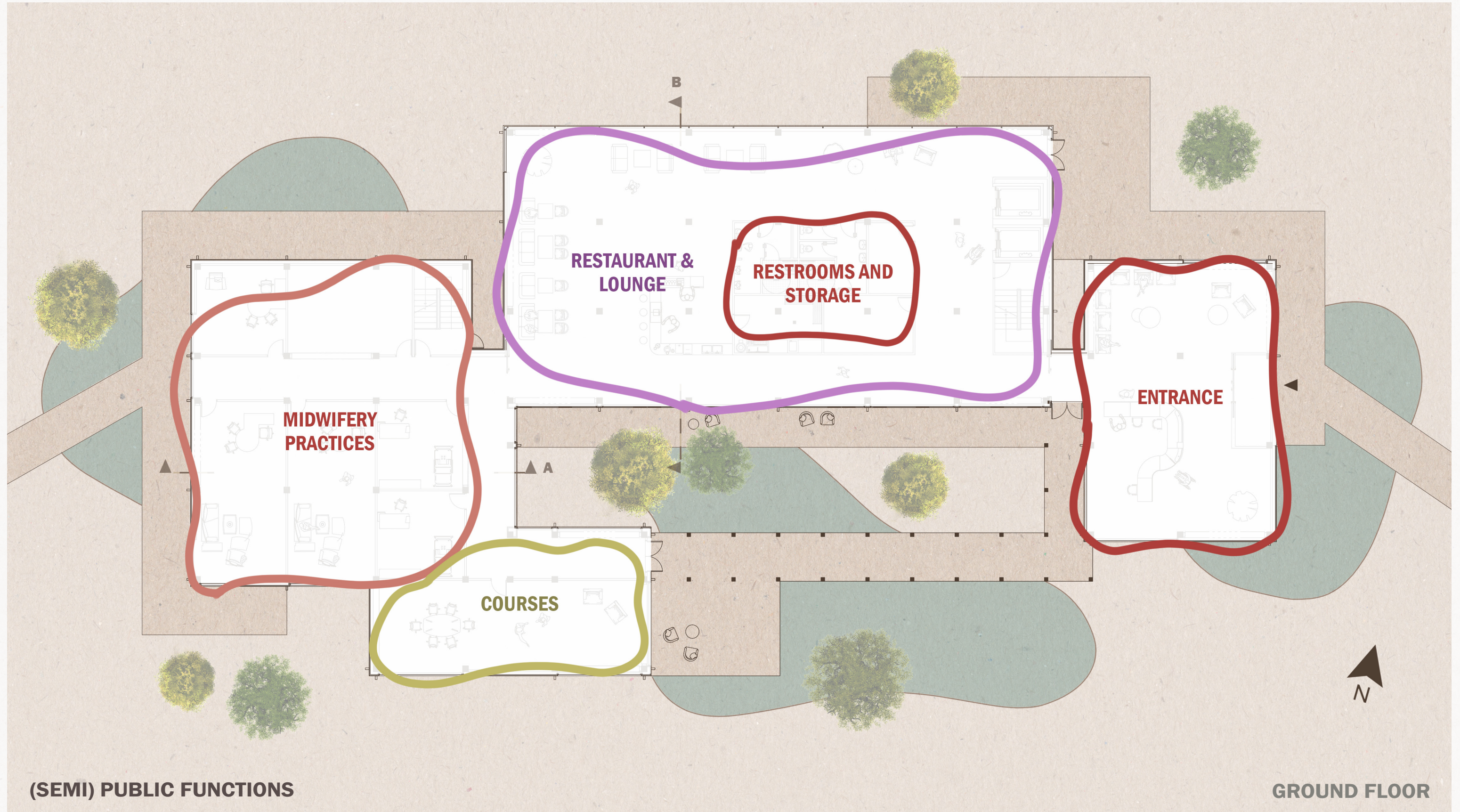
Work spaces for all involved staff

Lounge and restaurant

Other

- Including:
- Waiting rooms
 - Storage
 - Restrooms
 - Installations

Room(s) for courses

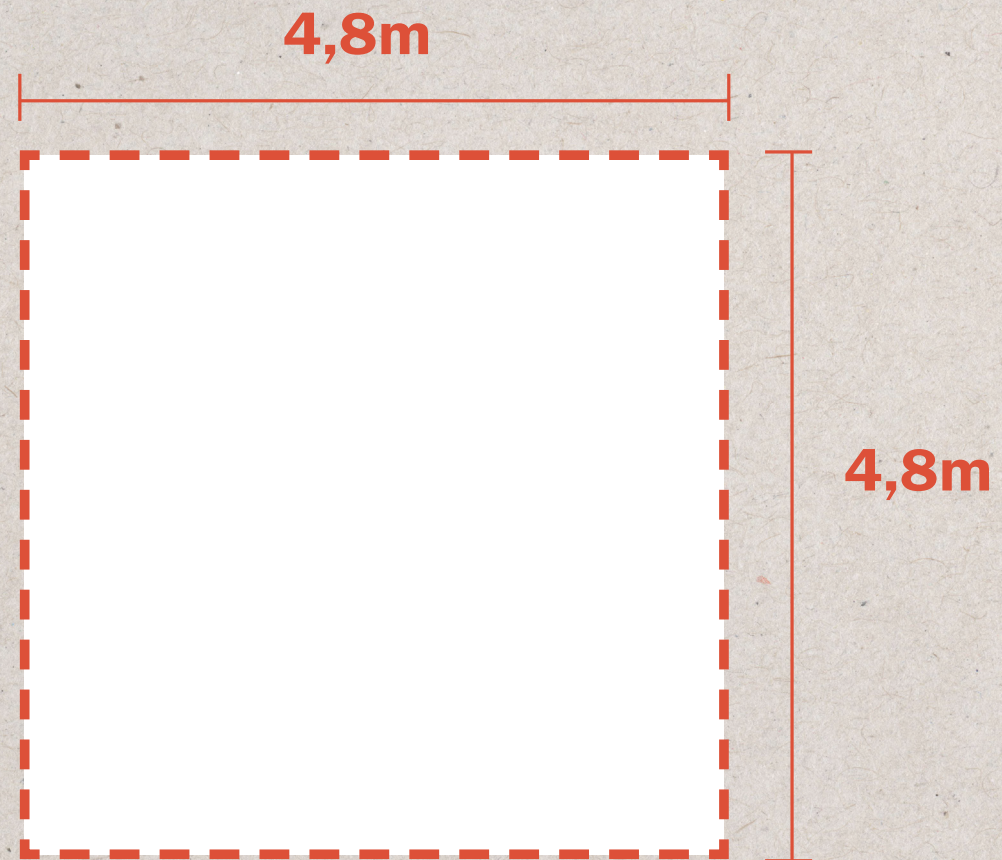


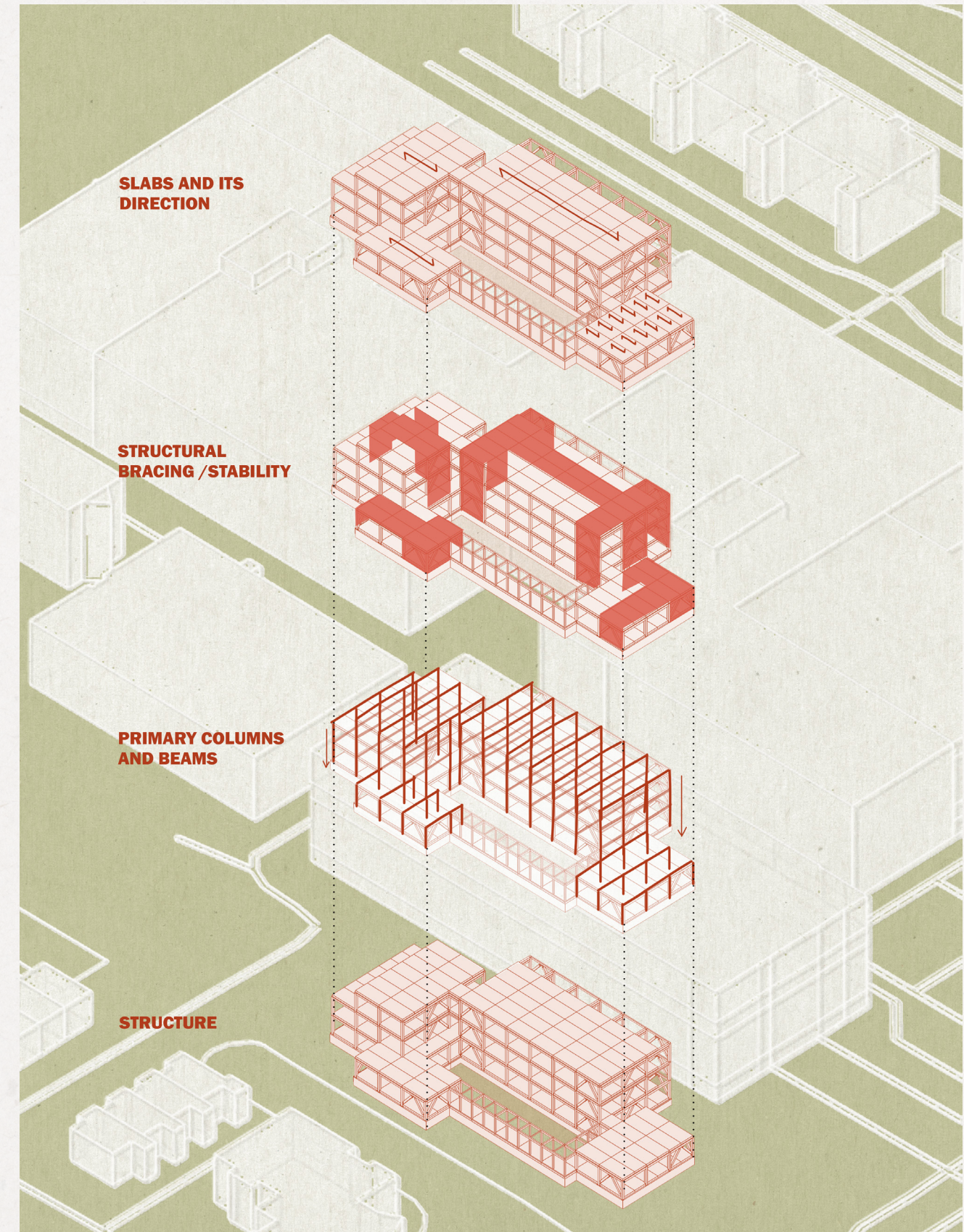
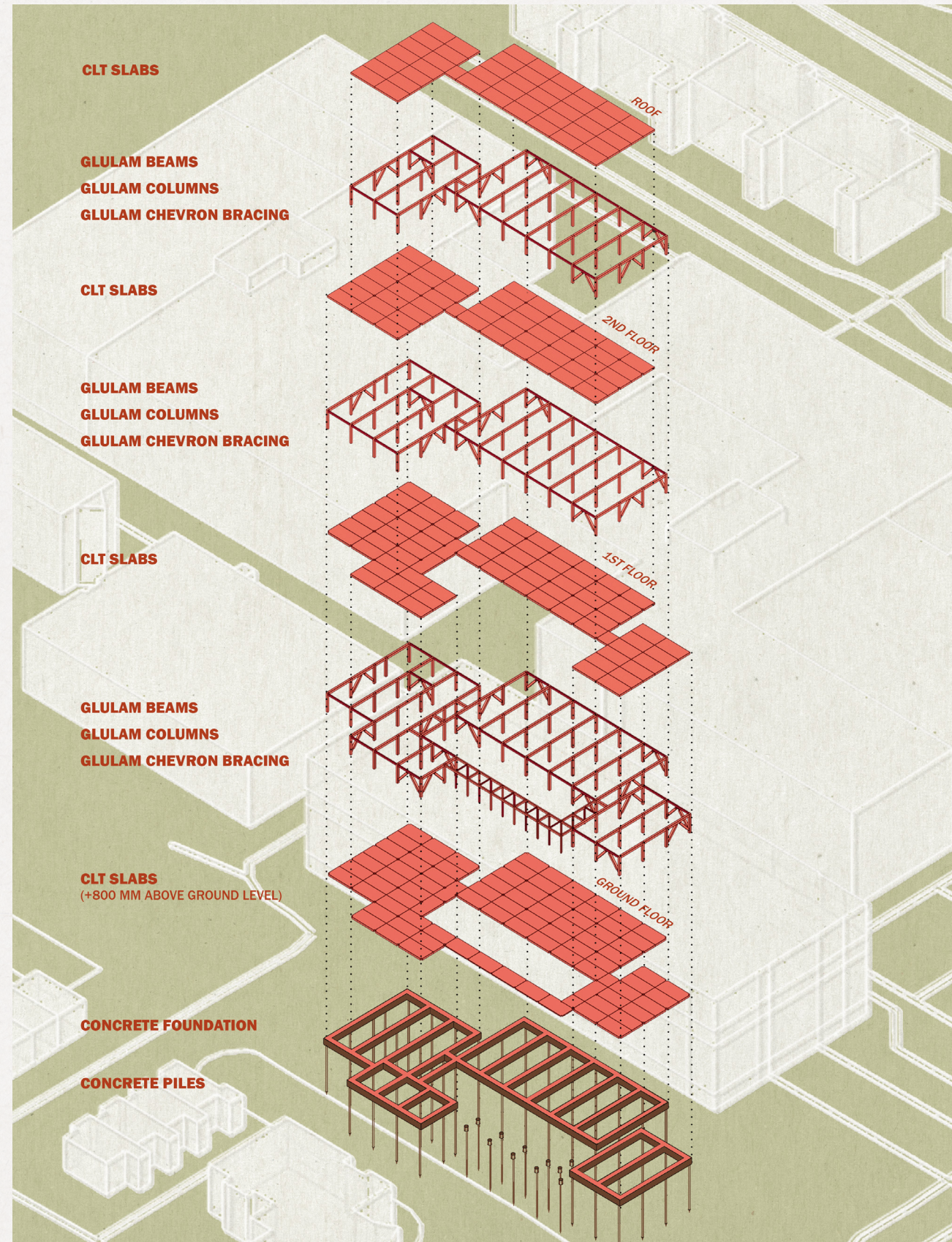


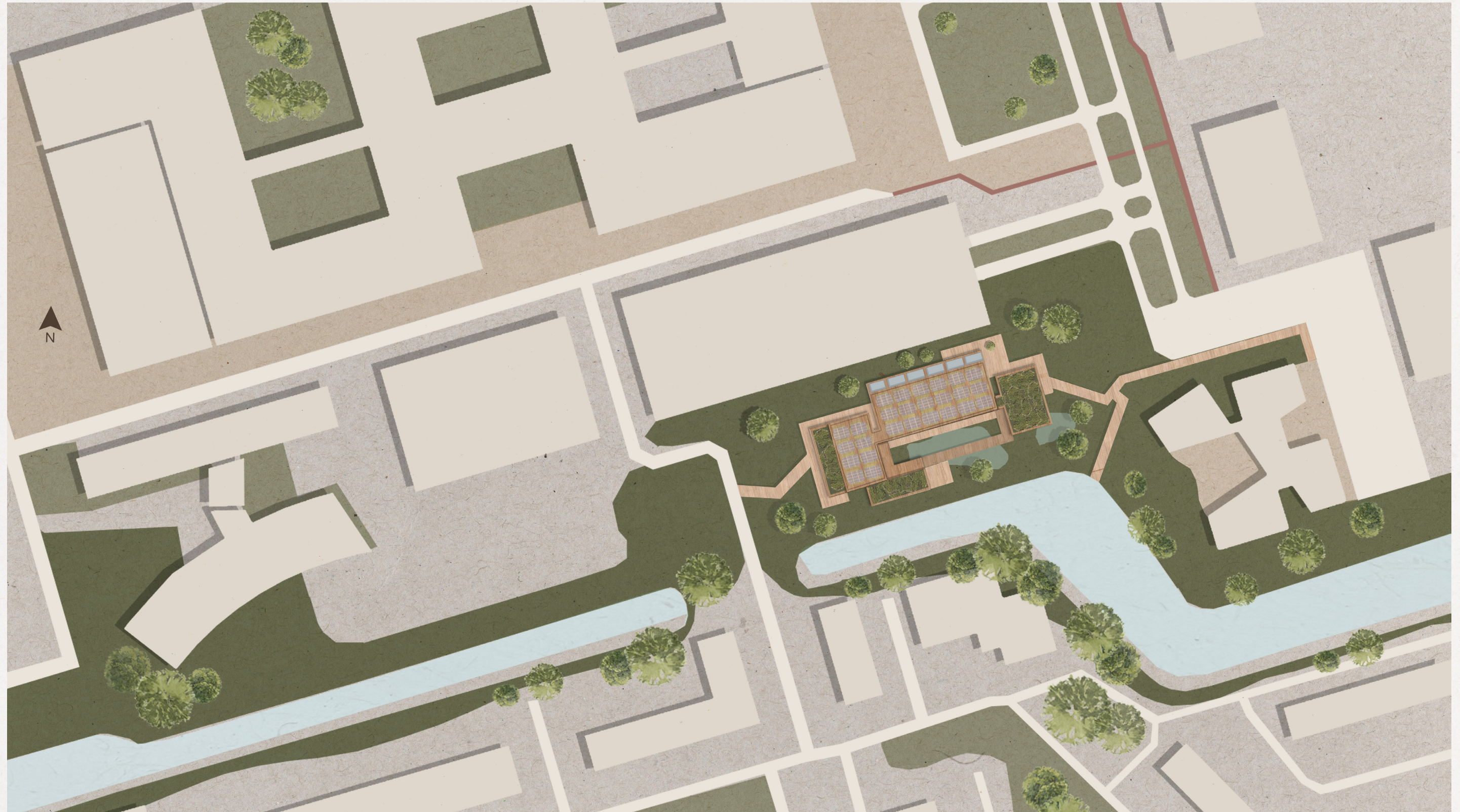
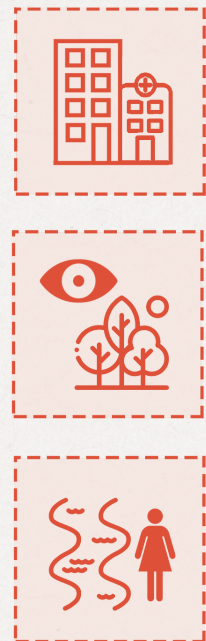


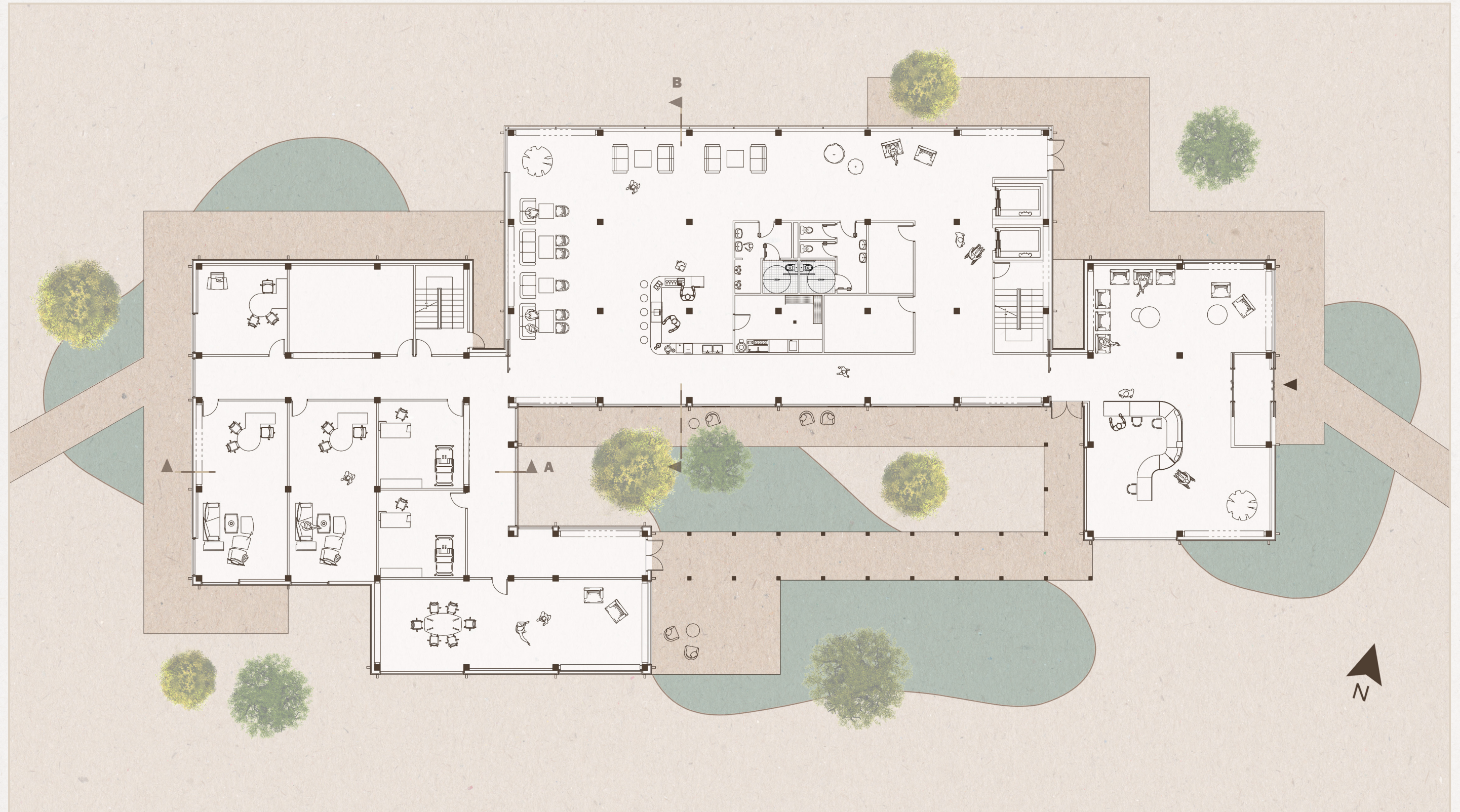
PRIVATE FUNCTIONS

SECOND FLOOR



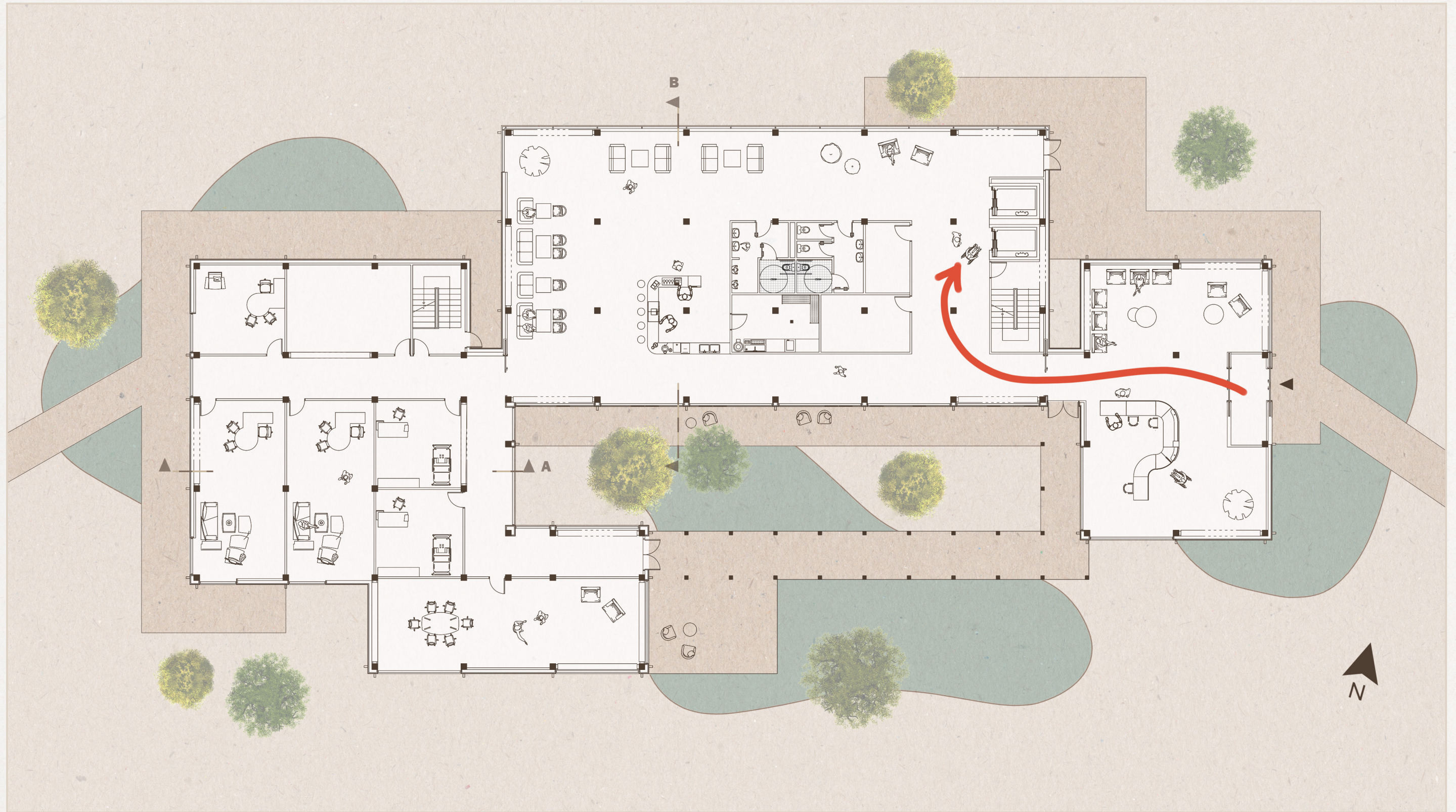
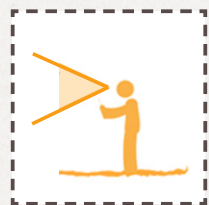






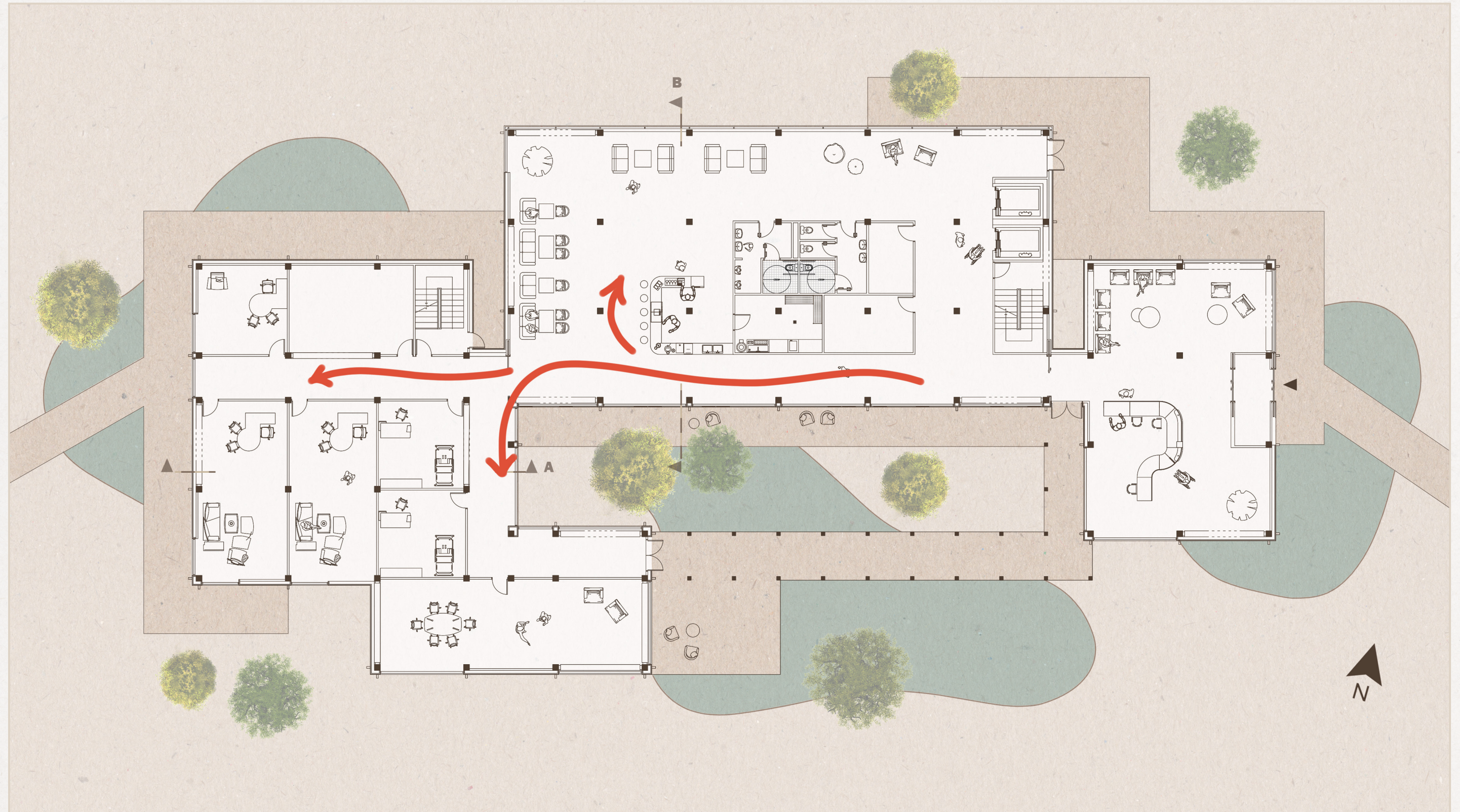
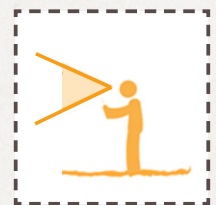
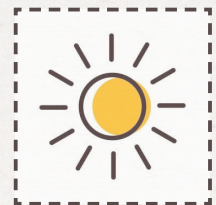
GROUND FLOOR





GROUND FLOOR



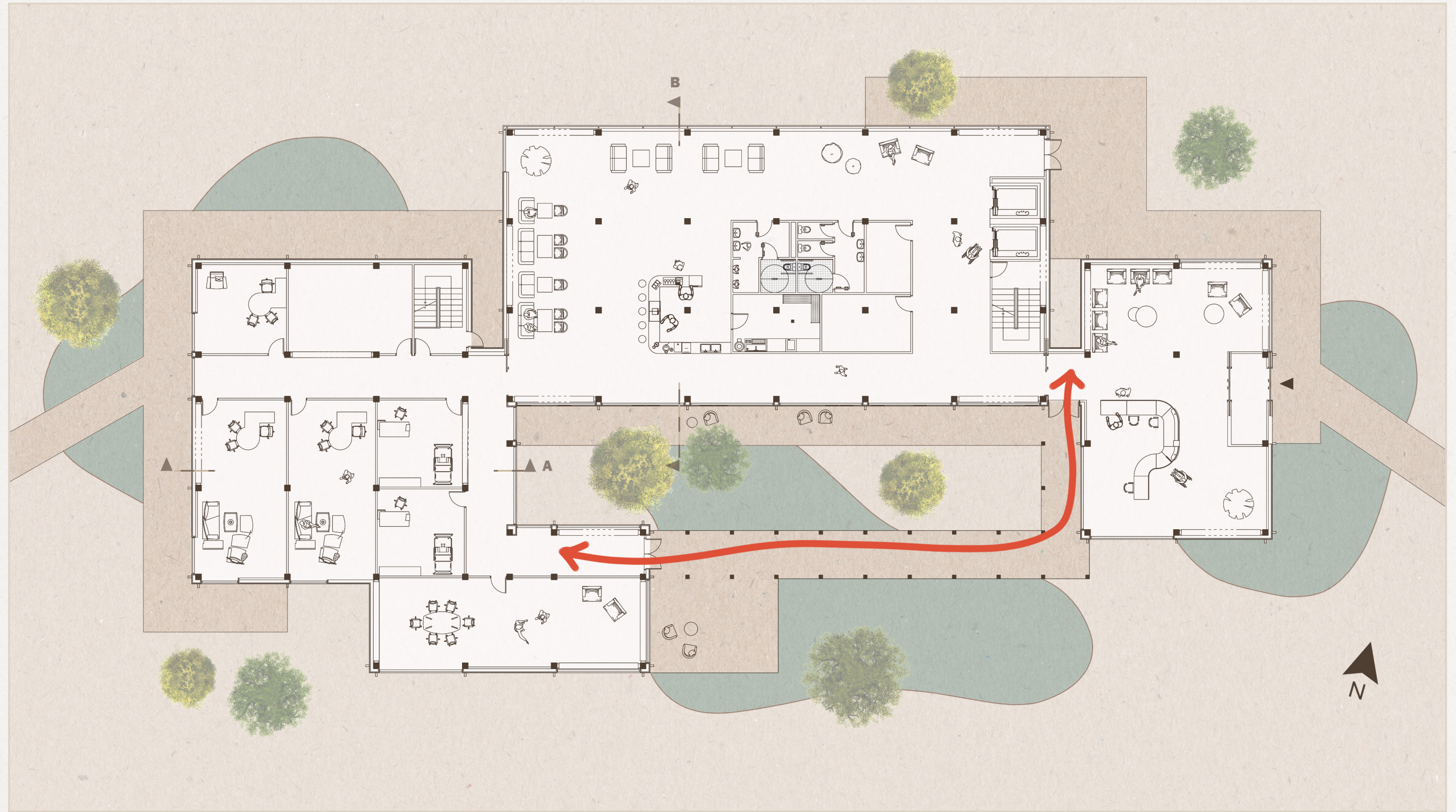
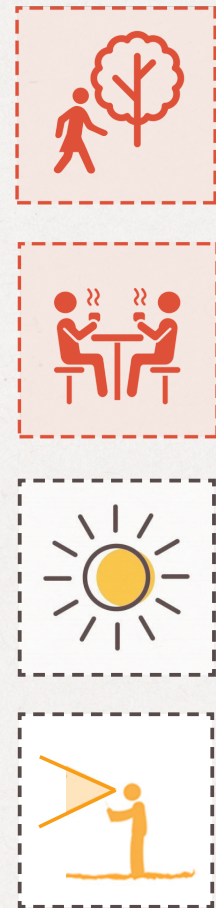


GROUND FLOOR









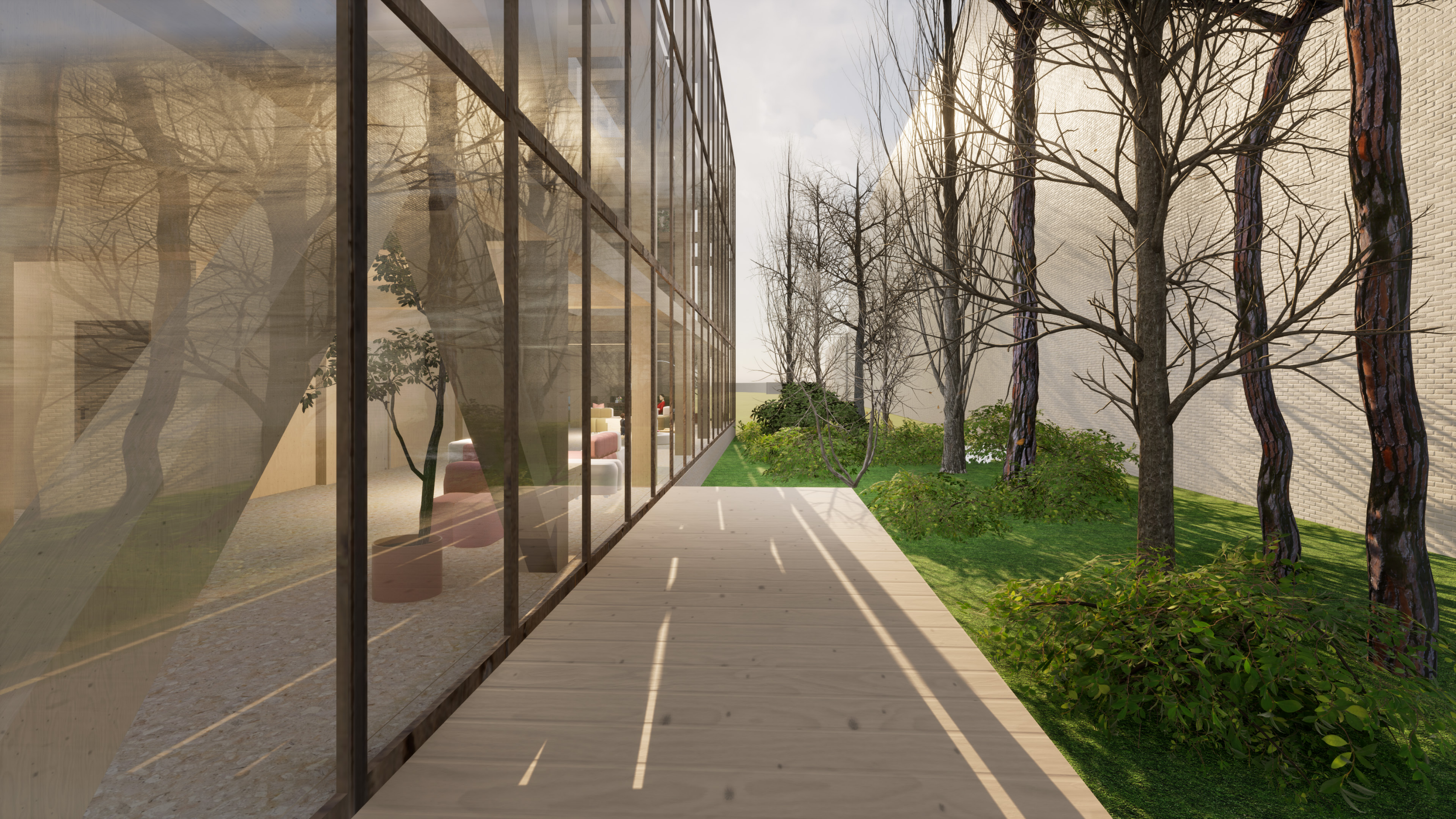
GROUND FLOOR

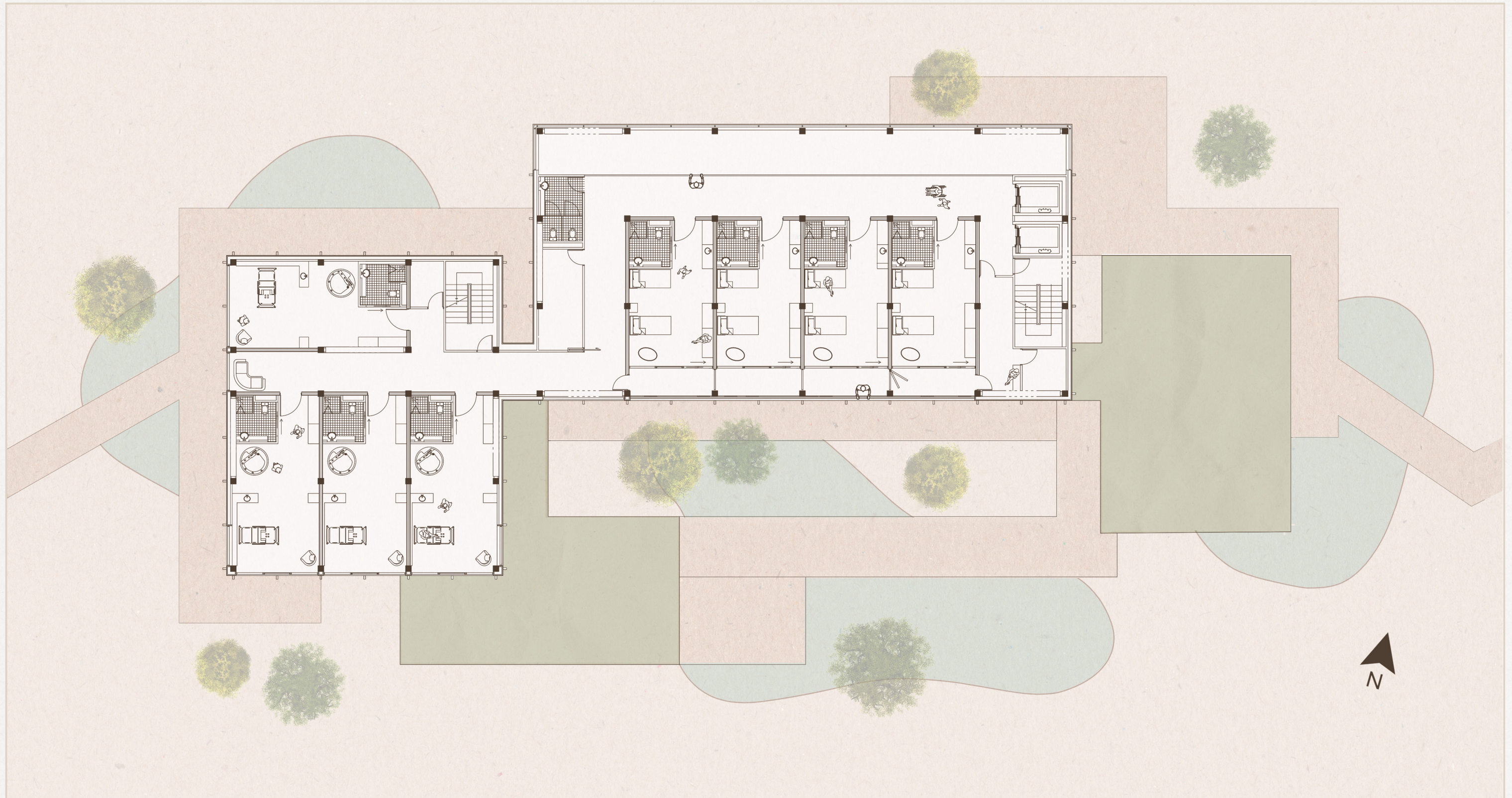




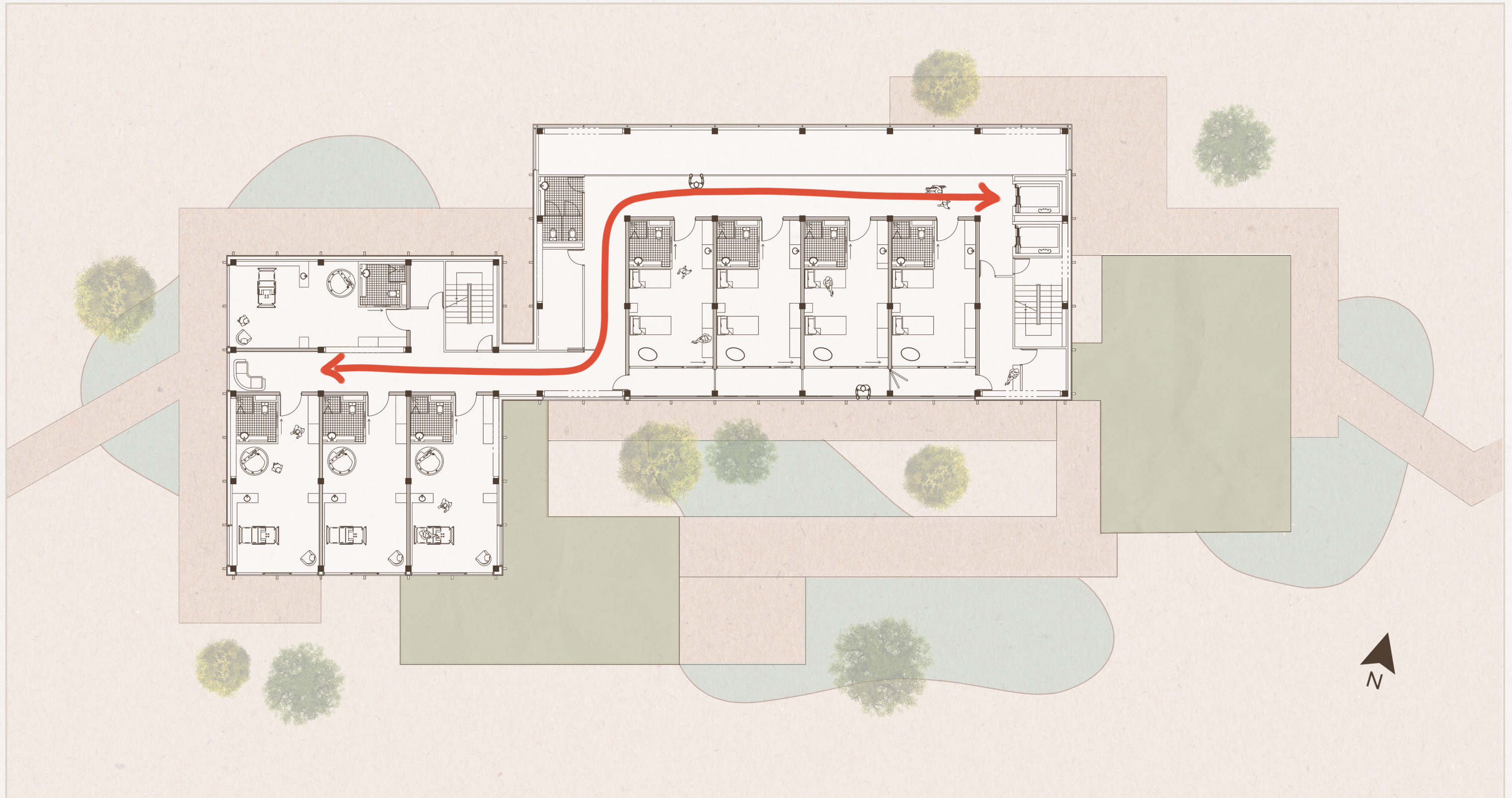




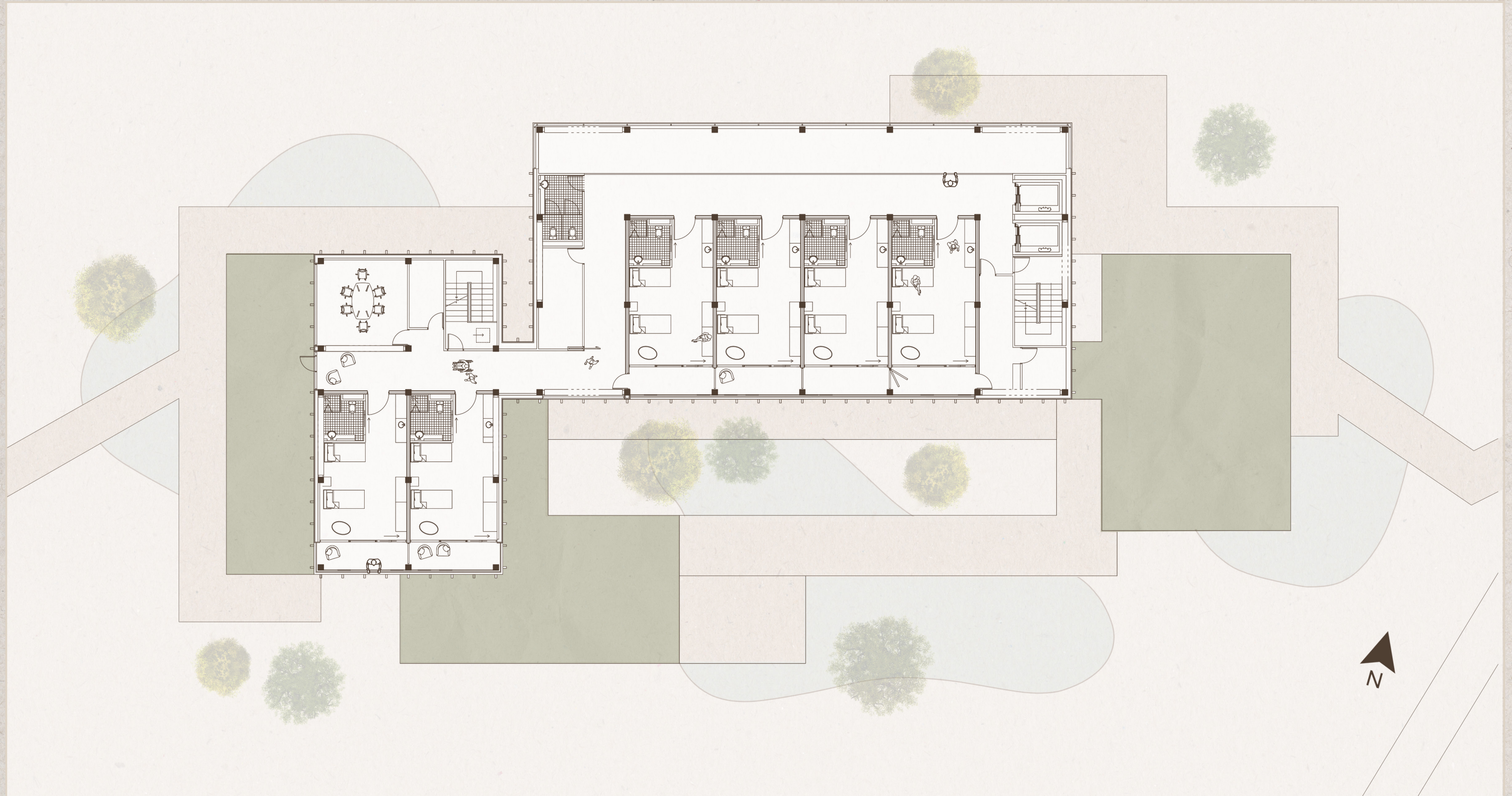




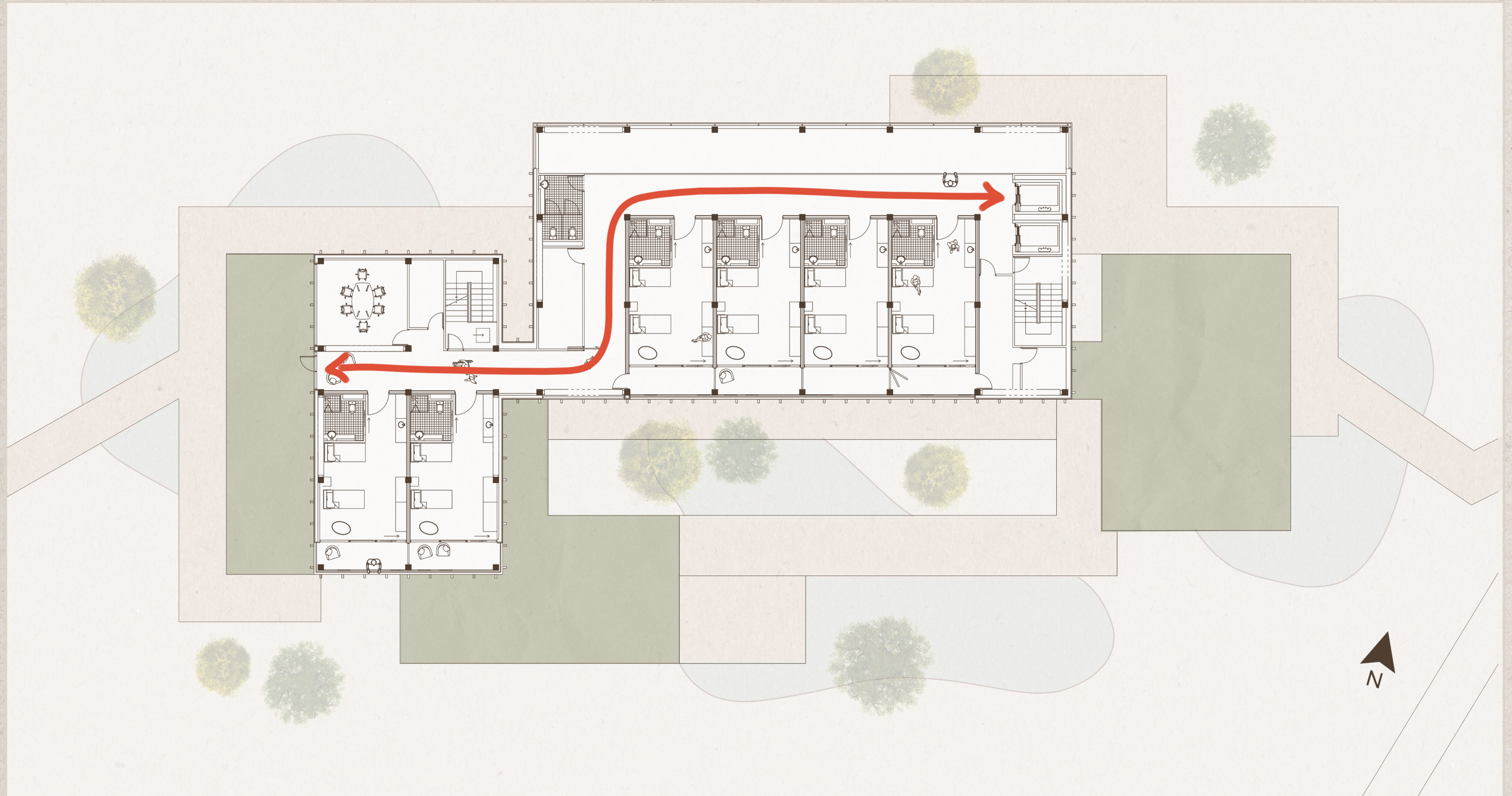
FIRST FLOOR

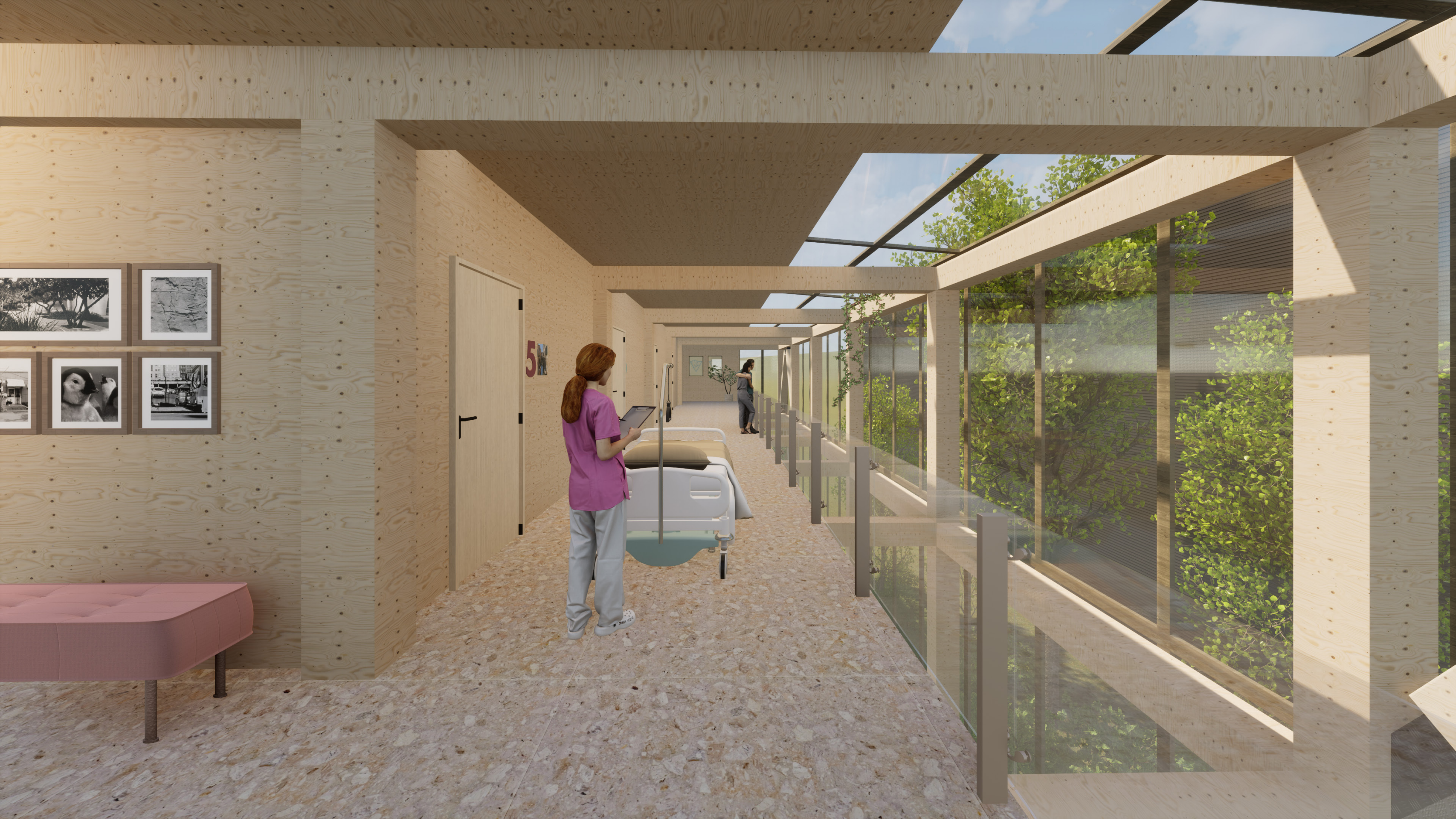


FIRST FLOOR



SECOND FLOOR



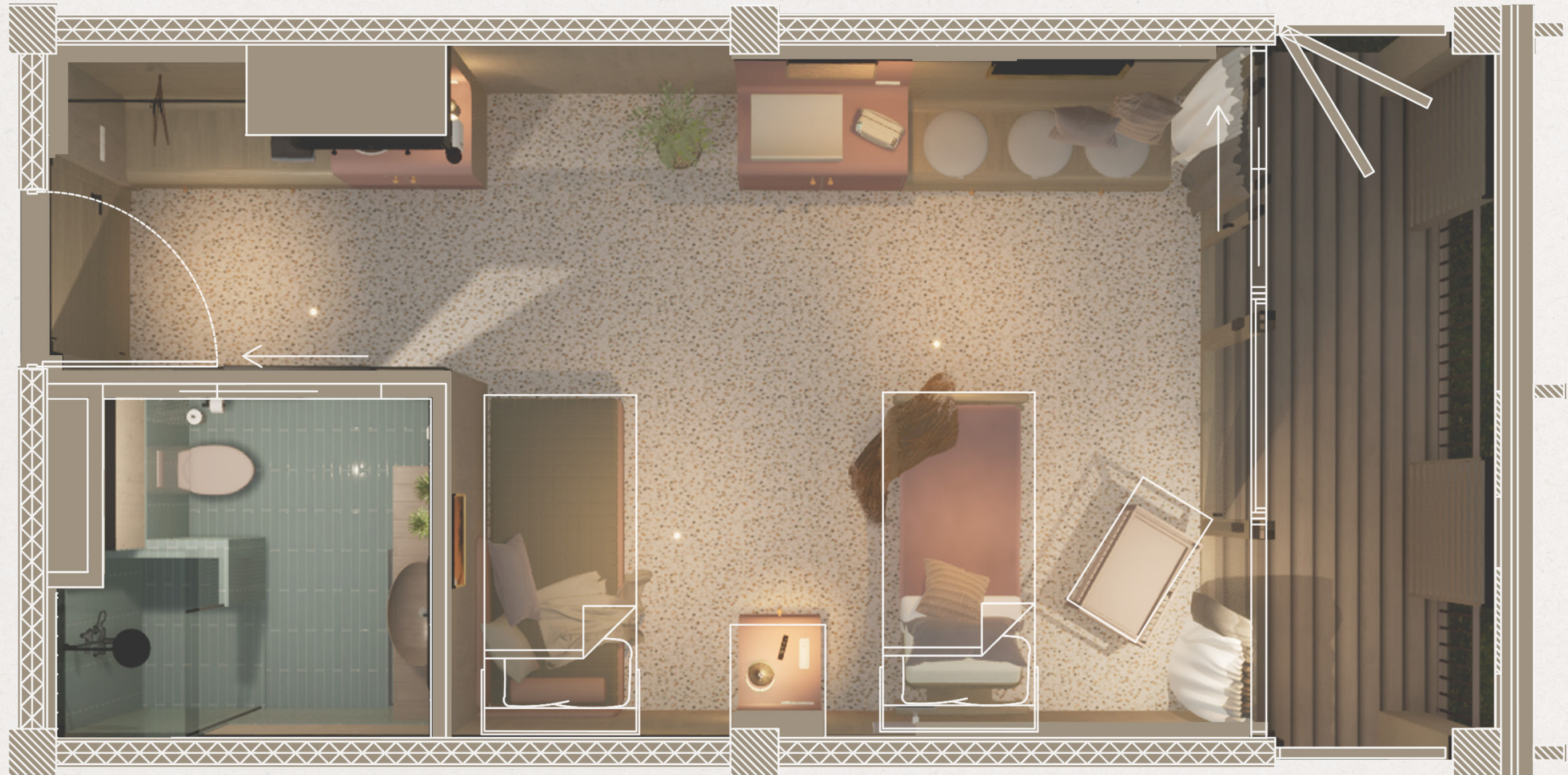




4X BIRTH SUITE 45m²





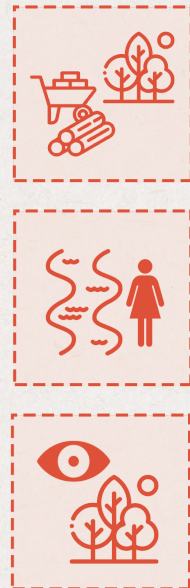


10X MATERNITY SUITE 37m²









SOUTH FACADE



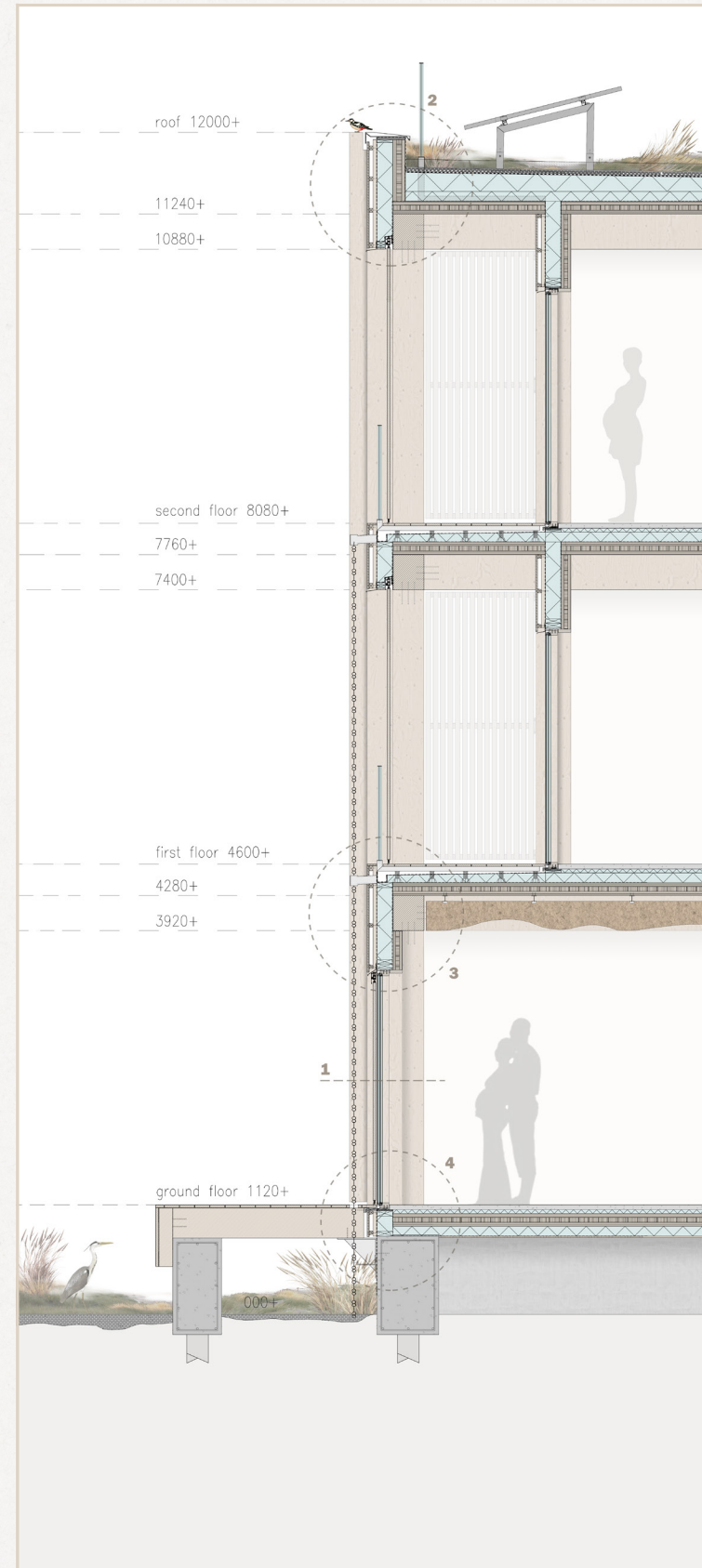
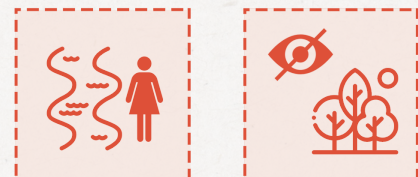
SECTION A



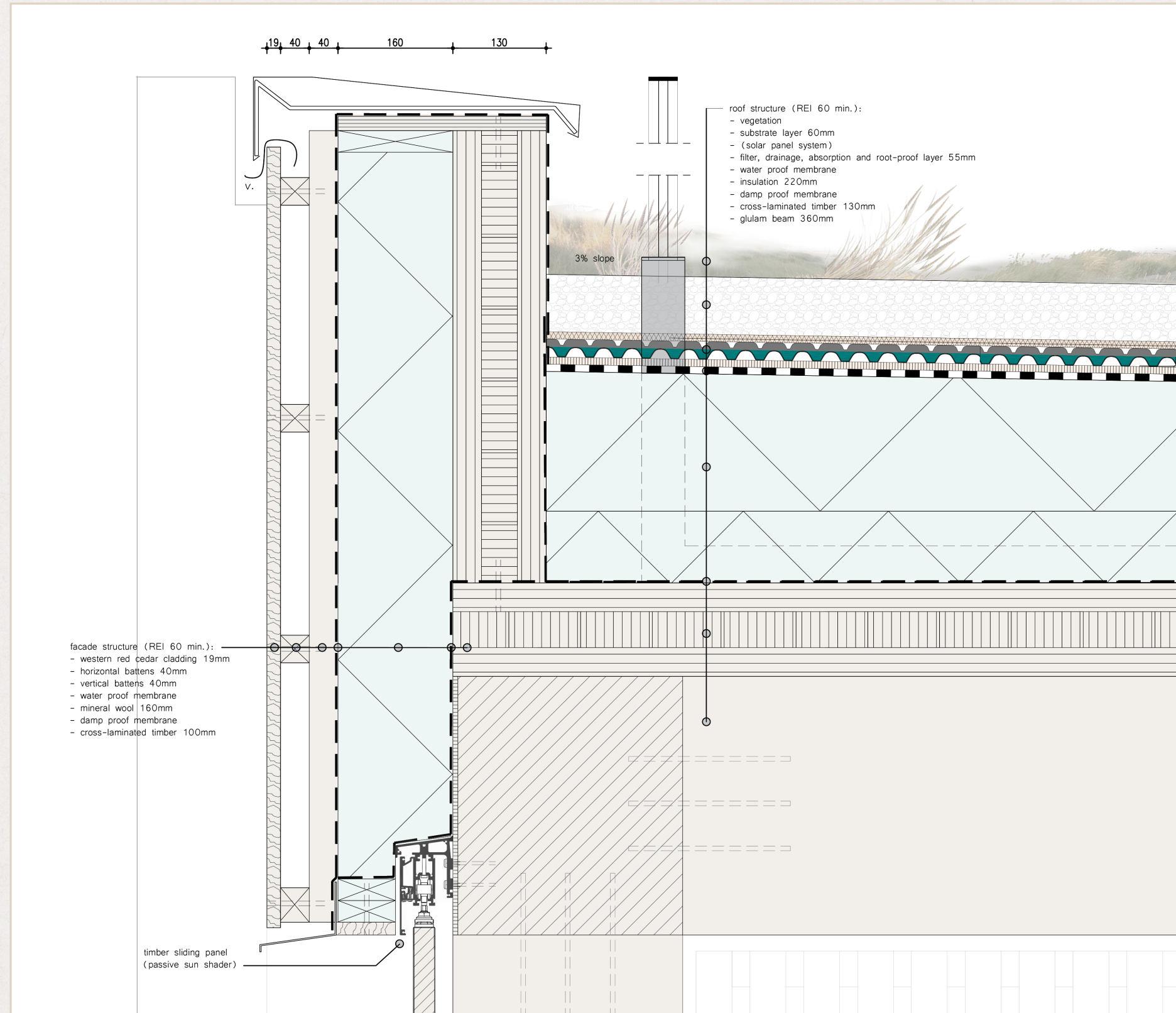
EAST FACADE



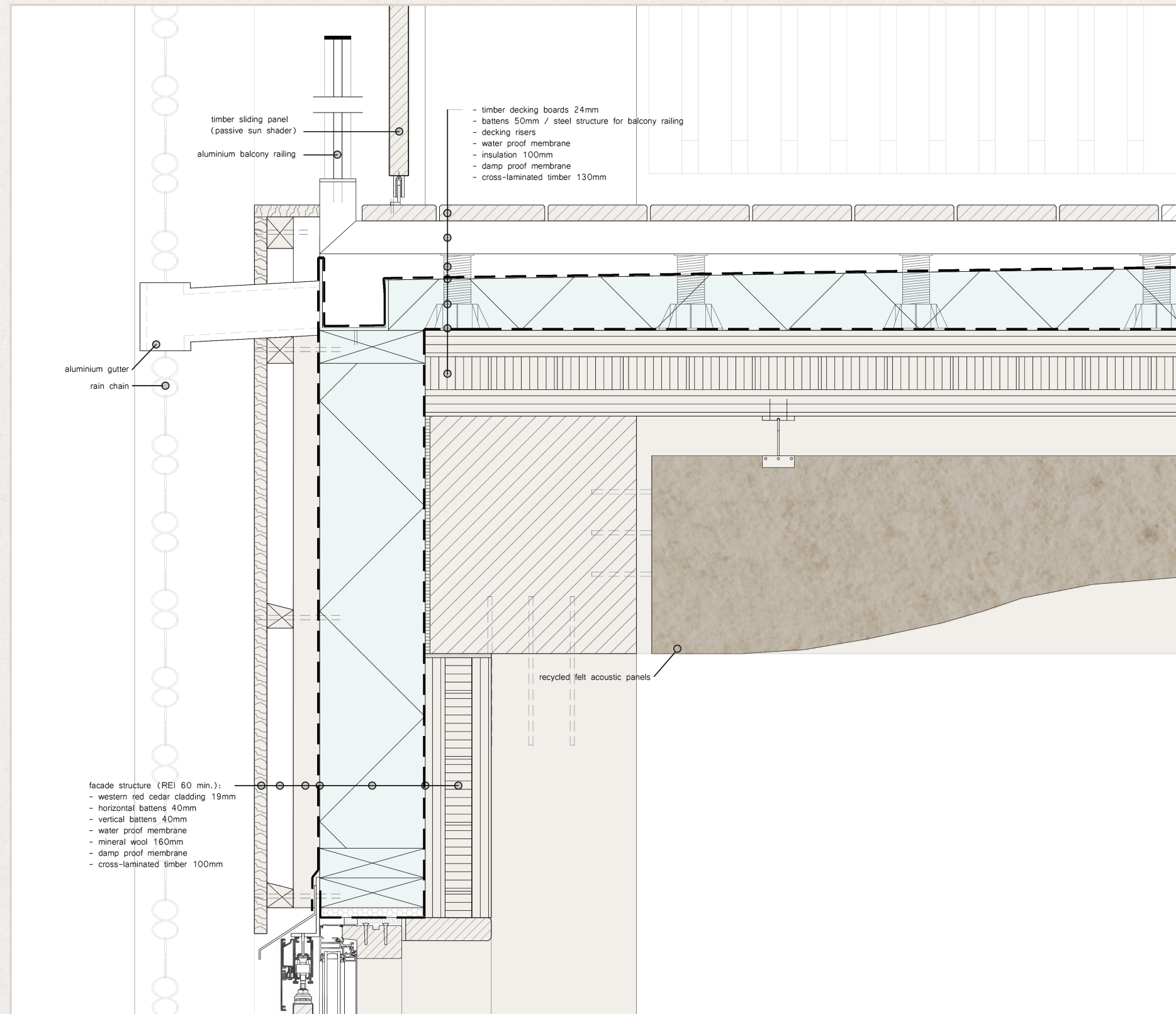
SECTION B



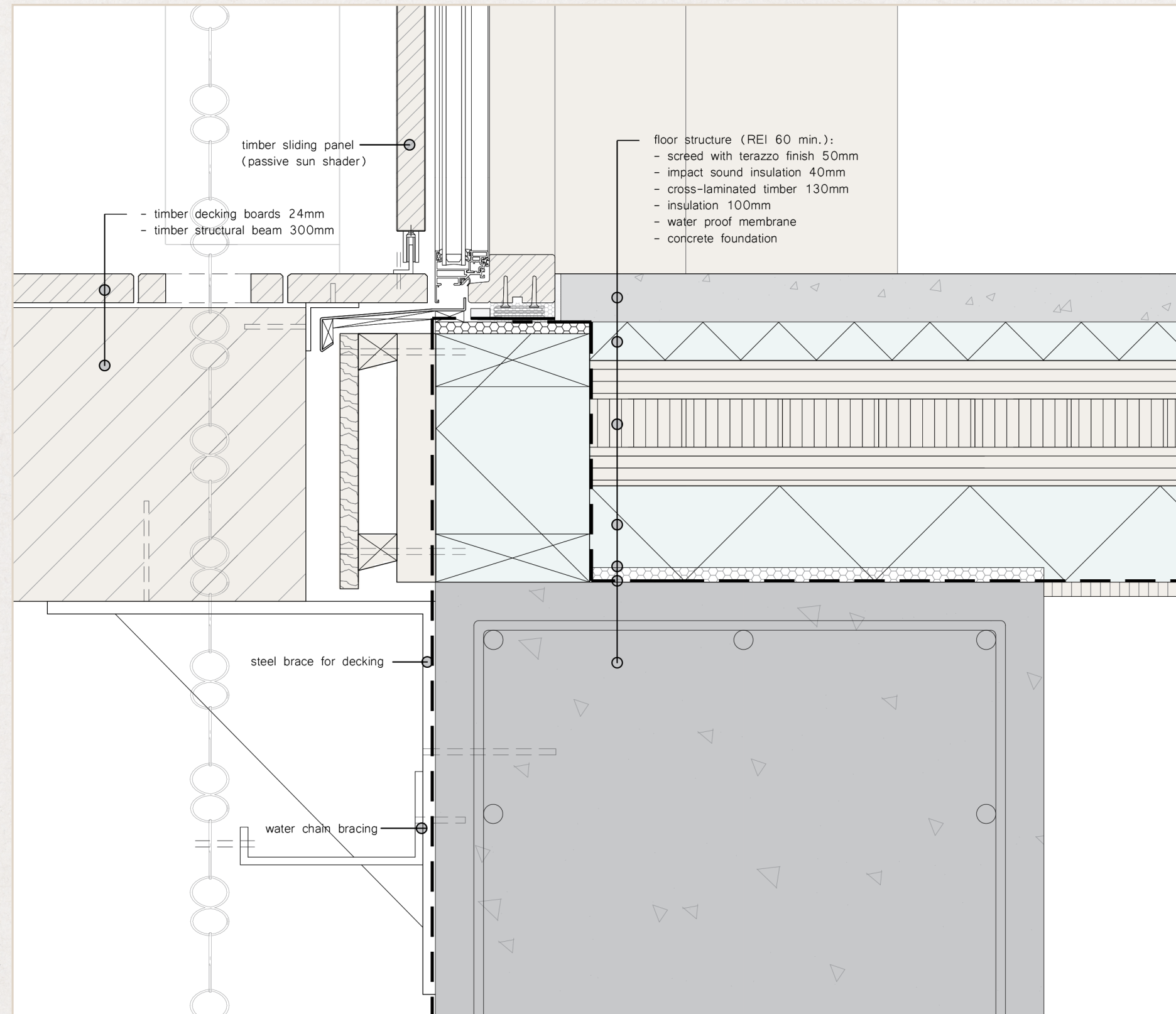
FRAGMENTS



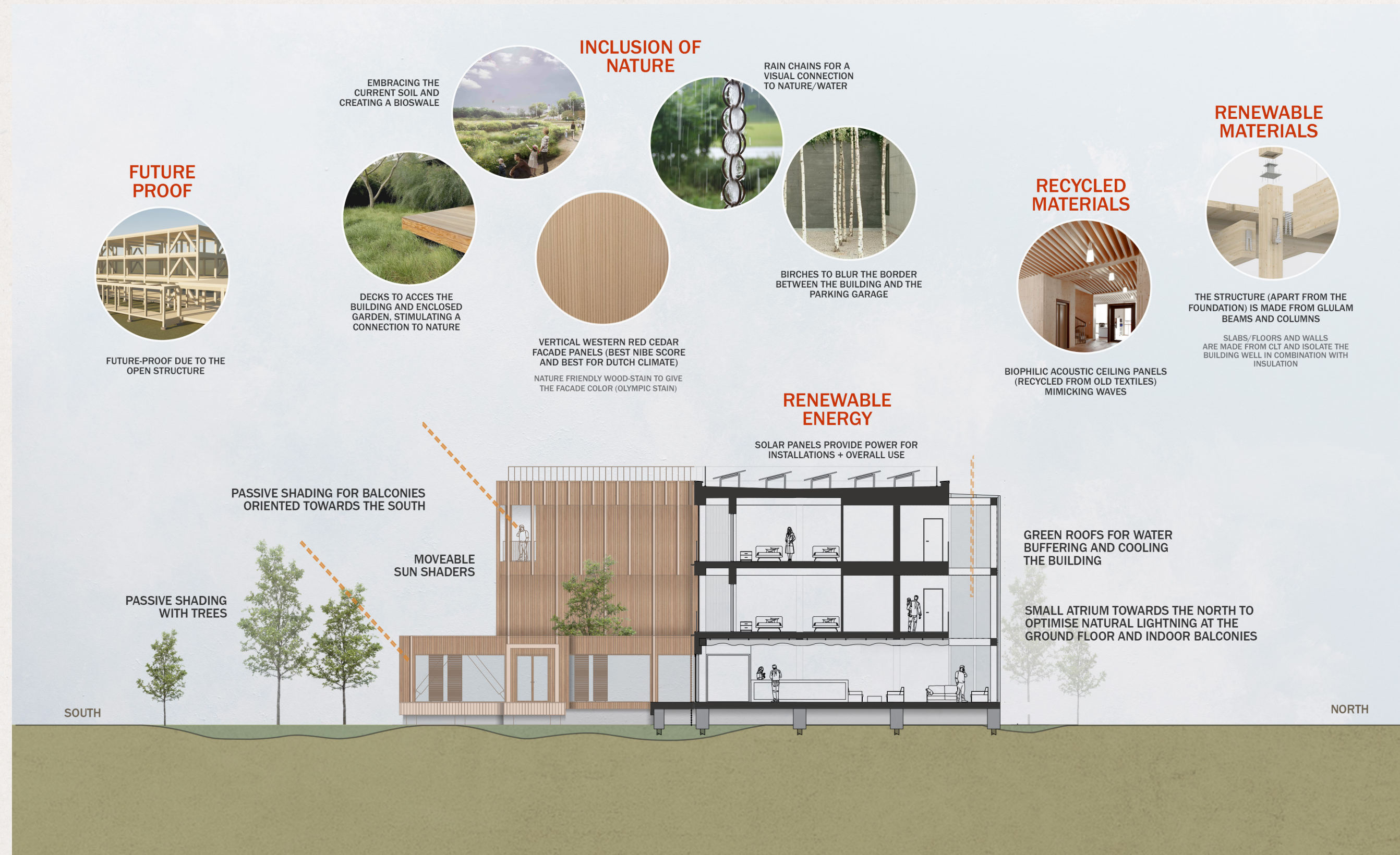
DETAIL 1

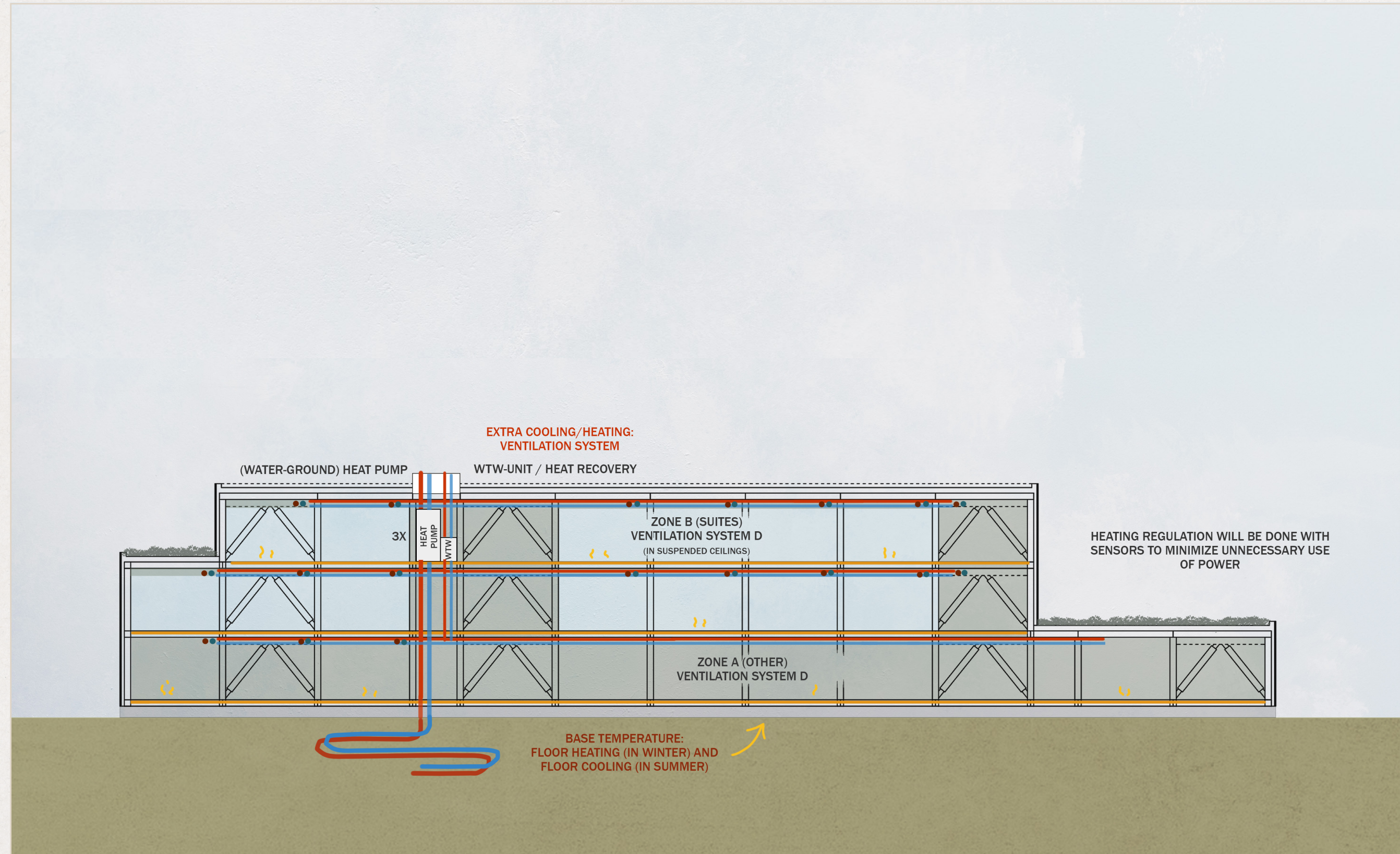


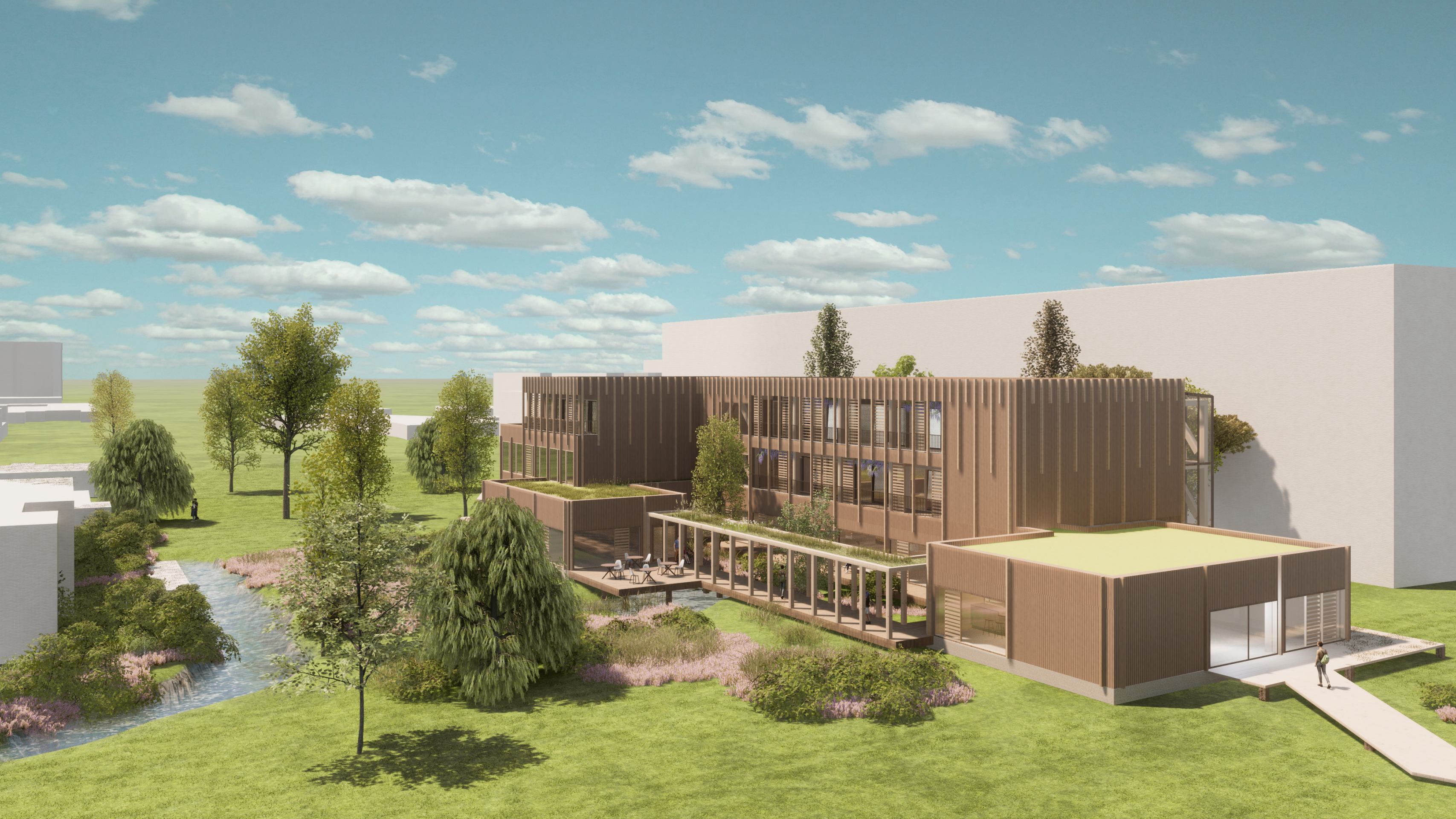
DETAIL 2



DETAIL 3















**THANK YOU
FOR LISTENING!**