HEMBRUG
THE NATURAL SIDE OF HEMBRUG

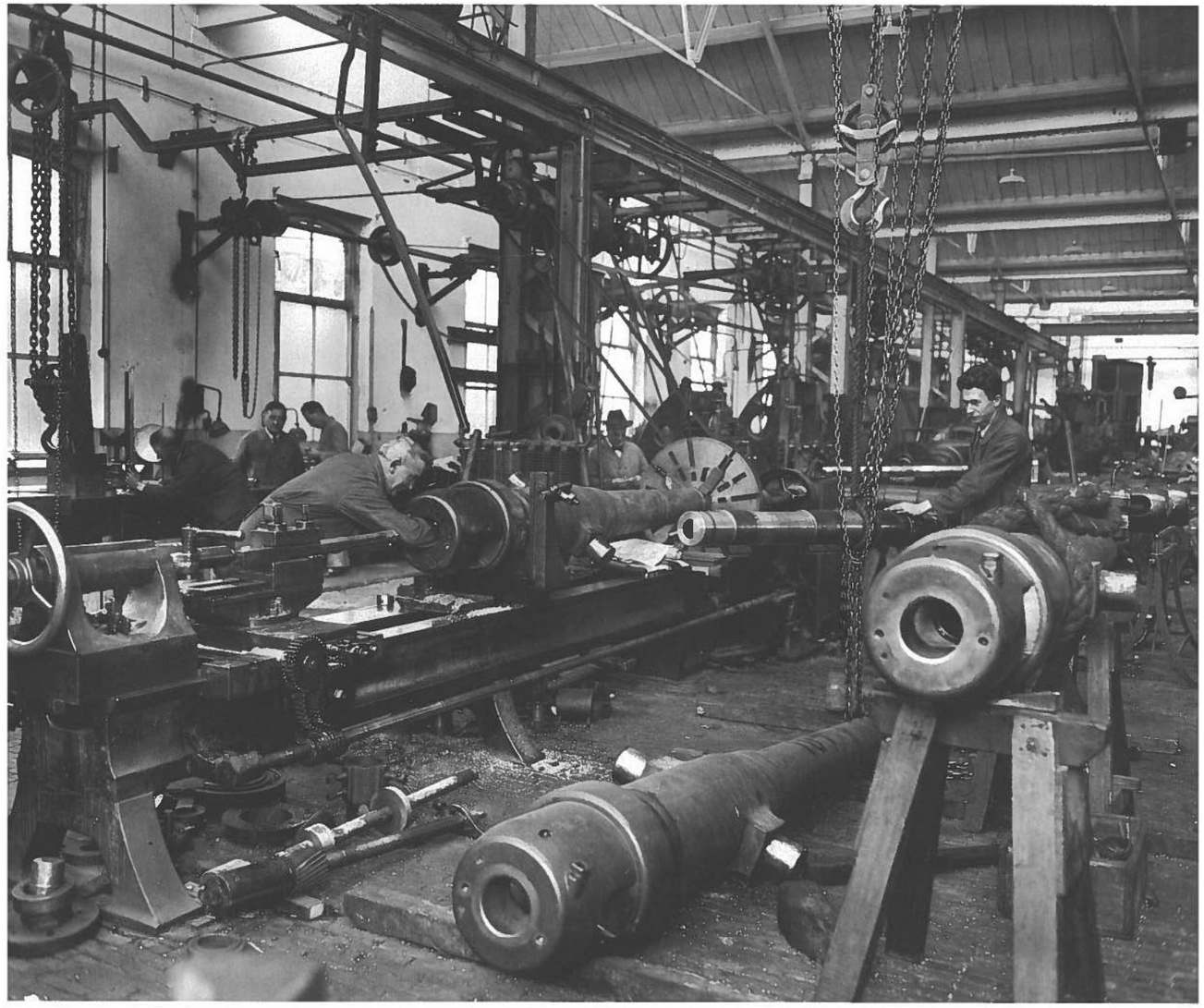
JAN-WILLEM SPEK
P5 - HERITAGE & ARCHITECTURE - TU DELFT
30-01-2020

1. HEMBRUG AND ITS HISTORY

2. A NEW PROGRAM

3. REDESIGN

HEMBRUG NOWADAYS

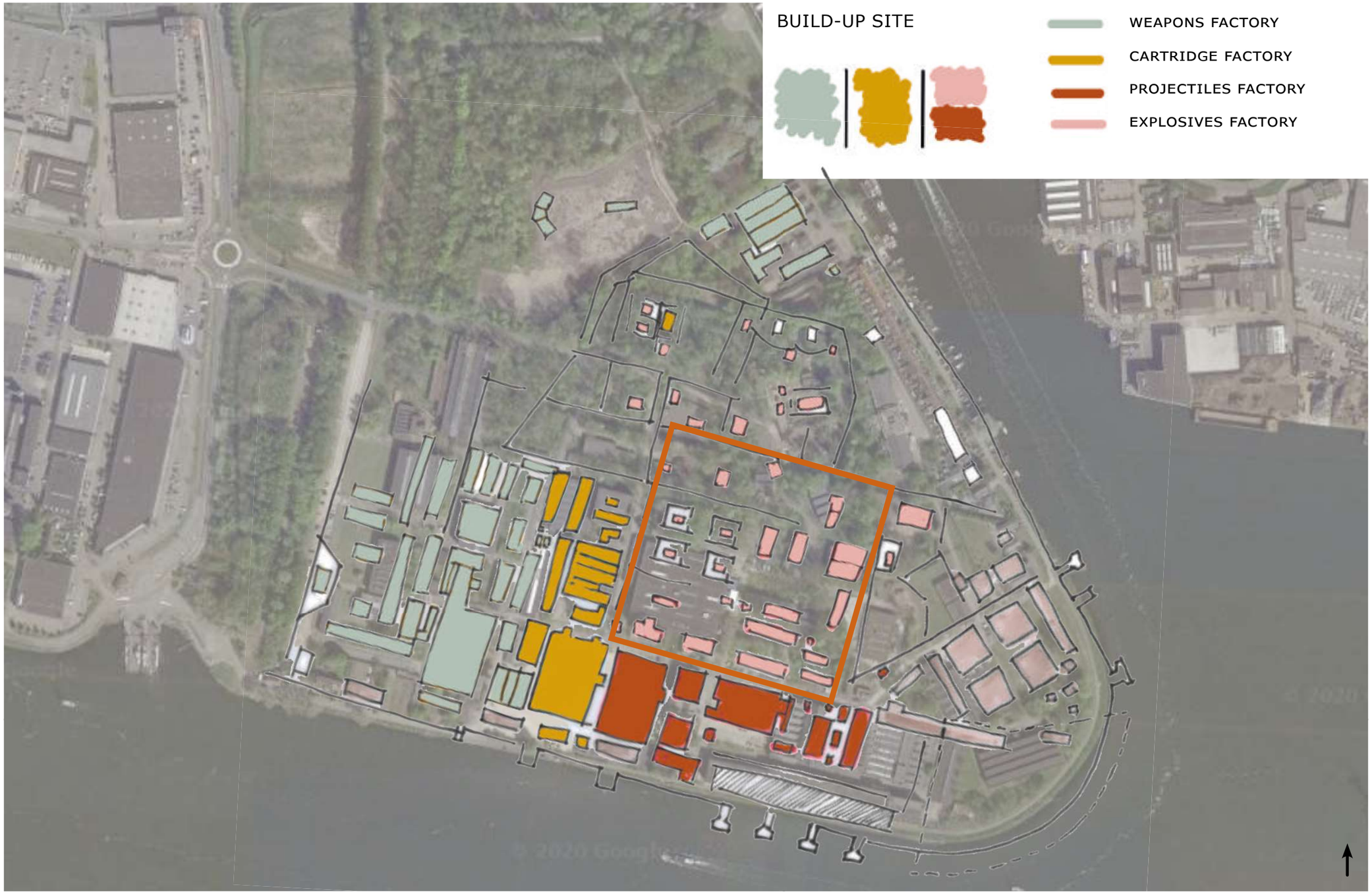


LOCATION HEMBRUG

STELLING VAN AMSTERDAM

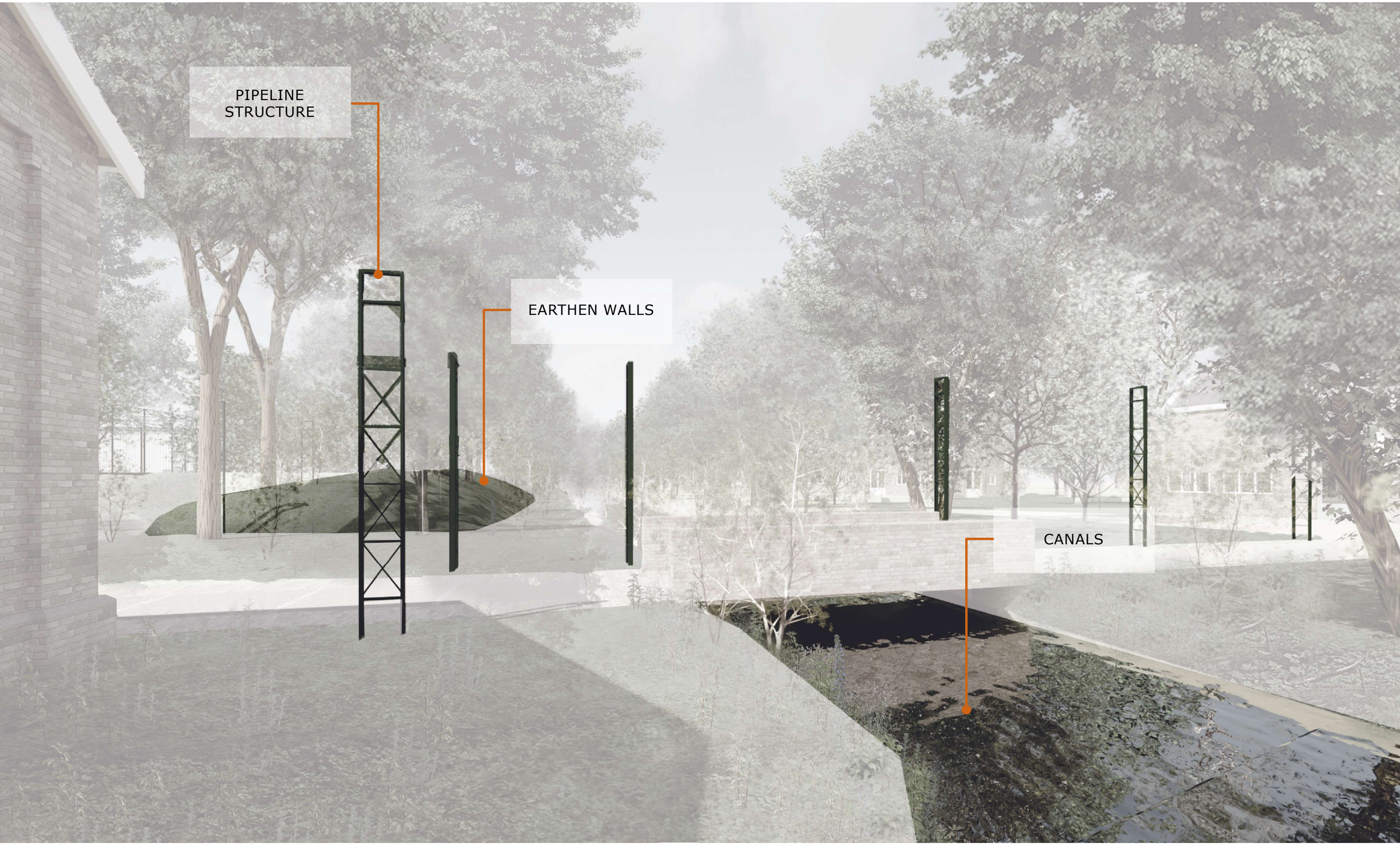
SITE OF HEMBRUG

HISTORIC FUNCTIONS



CHARACTERISTIC ELEMENTS

CHARACTERISTIC ELEMENTS



CHARACTERISTIC ELEMENTS

CHARACTERISTIC ELEMENTS

CHARACTERISTIC ELEMENTS

CHARACTERISTIC ELEMENTS

BUILDING CHARACTERISTICS

FARM BUILDINGS - 1901


EXTERIOR


INTERIOR

SHELL ROOF BUILDINGS - 1950's


EXTERIOR


INTERIOR

CHARACTERISTIC ATMOSPHERE

1. HEMBRUG AND ITS HISTORY

2. A NEW PROGRAM

3. REDESIGN

“ENHANCE WHAT IS THERE”

EXISTING IS LEADING

MINIMAL INTERVENTION STRATEGY

MINIMAL IMPACT INTERVENTION STRATEGY

MINIMAL IMPACT INTERVENTION STRATEGY

- SITE
- HERITAGE BUILDINGS
- SUSTAINABILITY

SUSTAINABILITY

REDUCE → INTERVENTIONS

REUSE → MATERIALS

NEW → SUSTAINABLE MATERIALS

EXISTING SITE

NEW PROGRAM


HOTEL ROOM
SPA
RESTAURANT OR BREAKFAST
GALLERY
STUDIO
PARKING
MEETING ROOM
FACILIATORY
scale 1:500

NEW PROGRAM

ARIVING ON SITE

HOTEL ROOMS

LEISURE AND NATURE

scale 1:500

BUILDINGS

MULTIFUNCTIONAL STUDIO

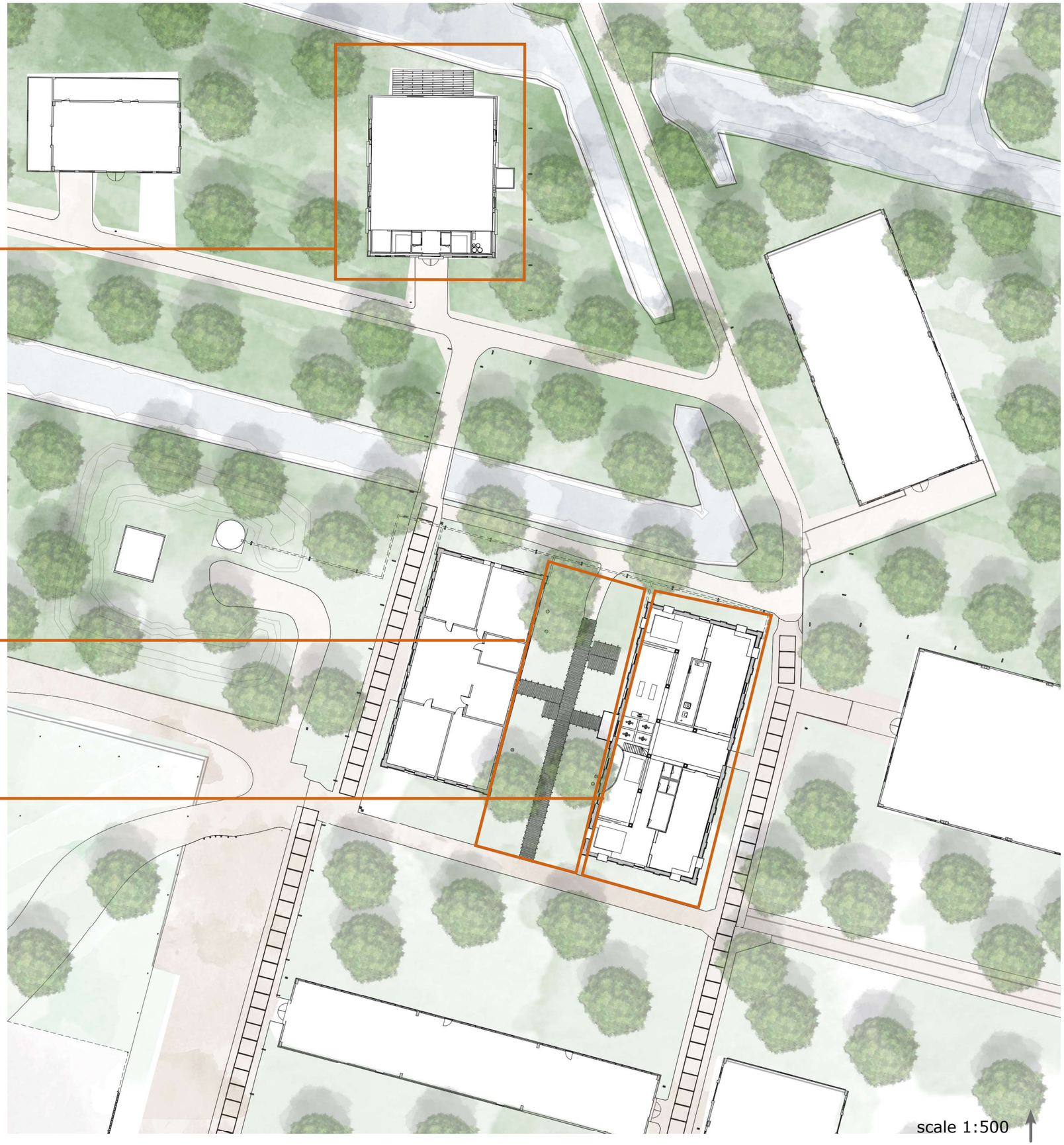
MUSIC, DANCE, YOGA

COURTYARD

ENTRANCE, OUTDOOR LOUNGE AREA

MAIN HOTEL BUILDING

9 ROOMS, LOBBY, BREAKFAST AREA



1. HEMBRUG AND ITS HISTORY

2. A NEW PROGRAM

3. REDESIGN

ENTRANCE

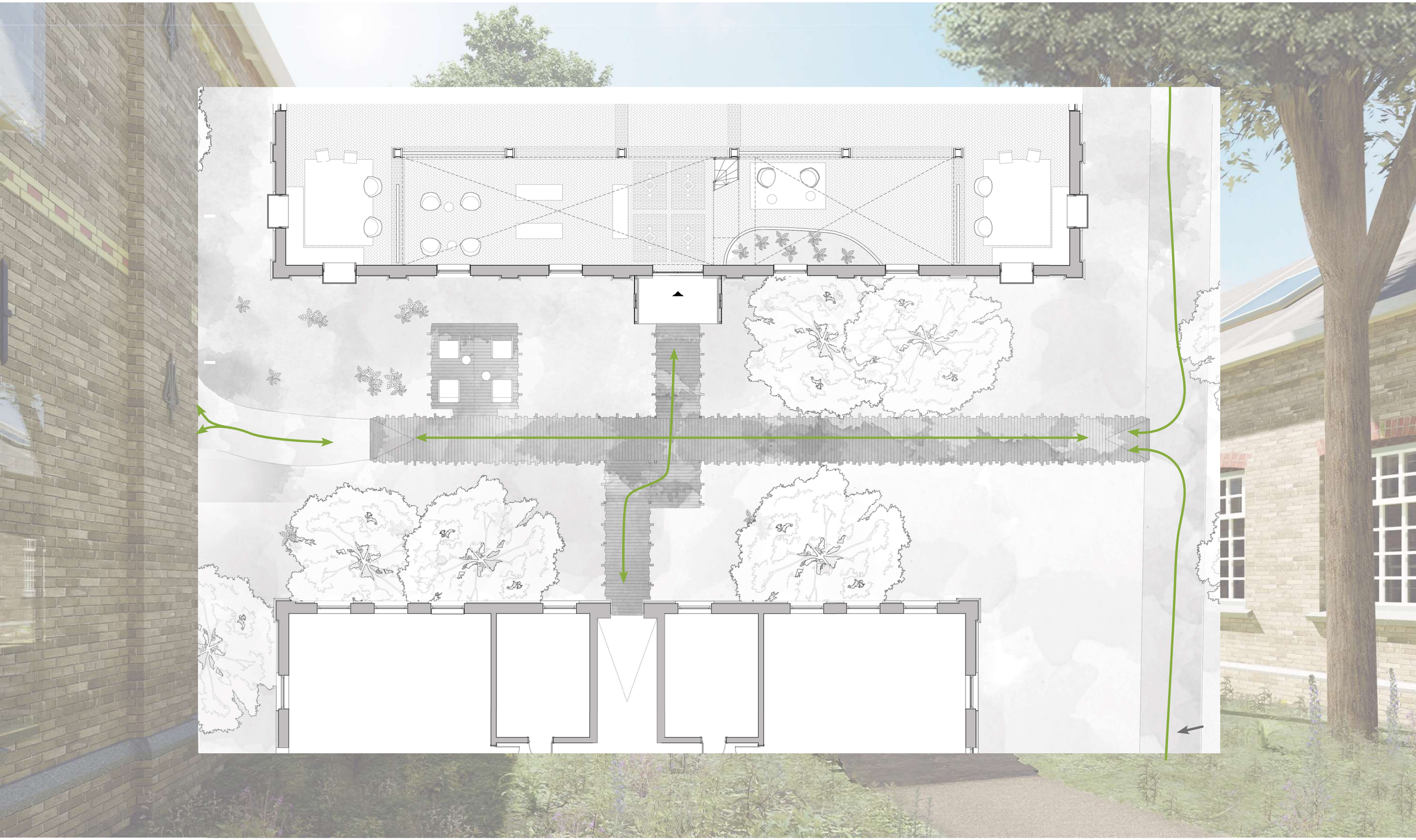

STUDIO – SPA

COURTYARD EXISTING SITUATION

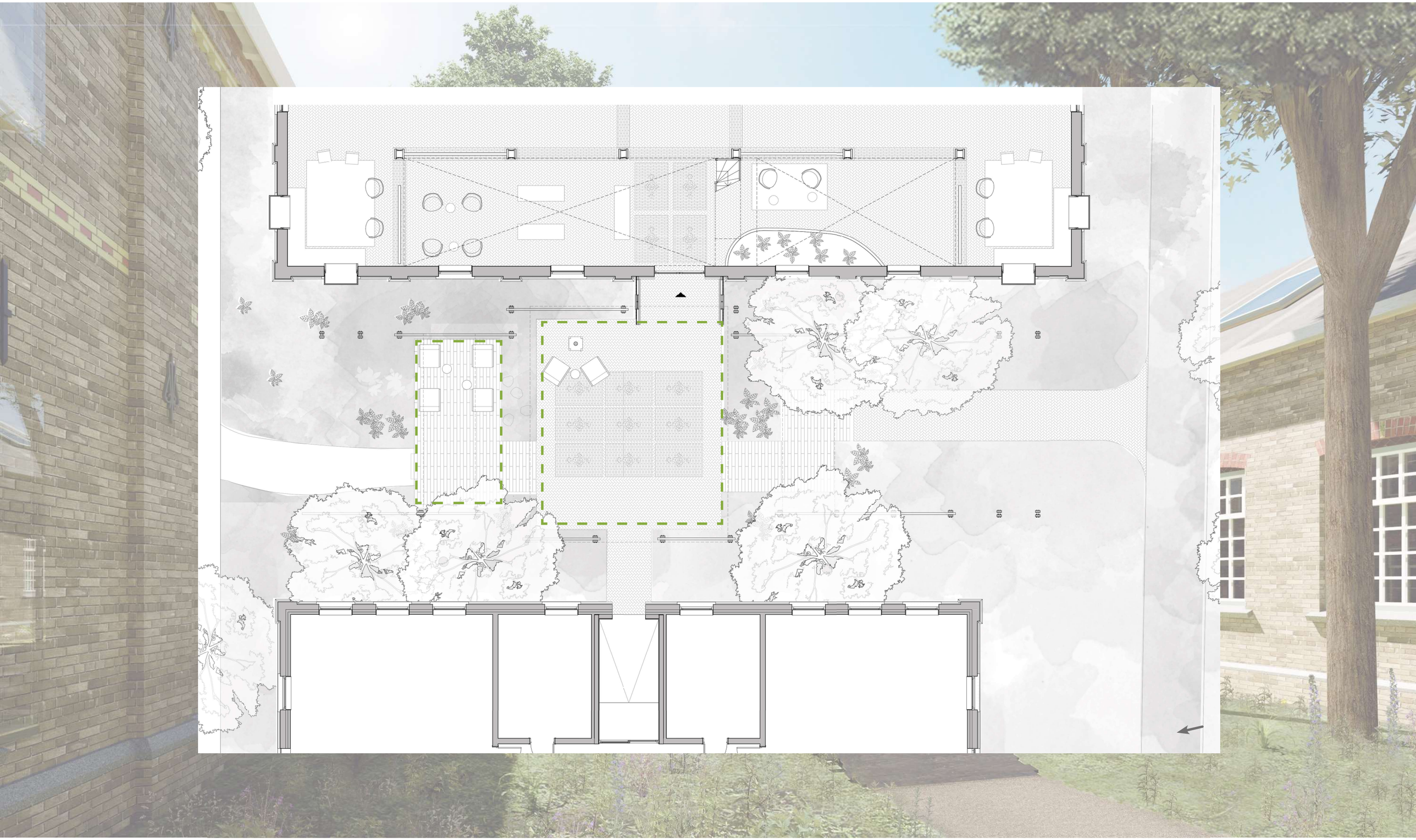
COURTYARD

COURTYARD

COURTYARD FLOORPLAN



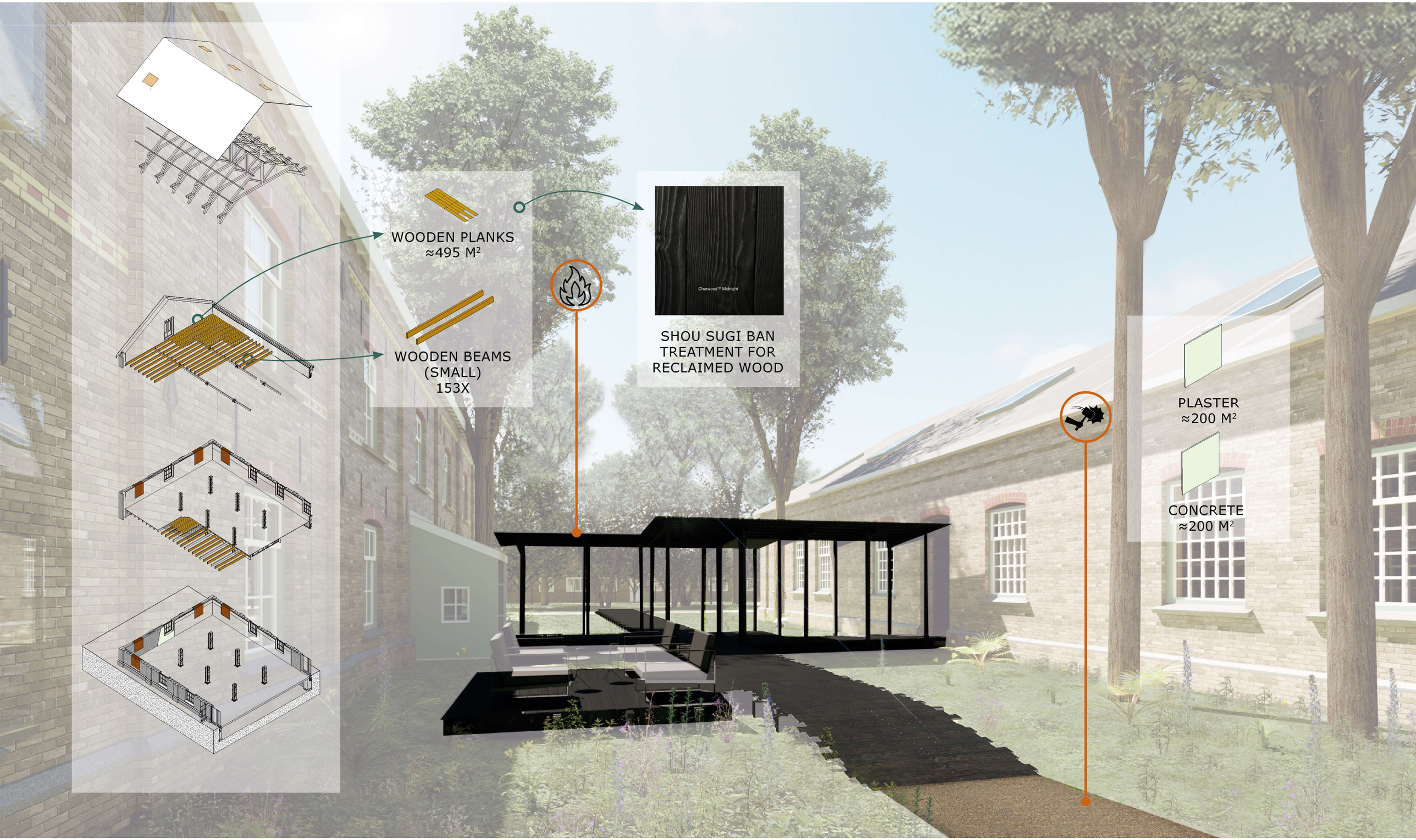
COURTYARD VARIANT 2 - FLOORPLAN



COURTYARD VARIANT 2

COURTYARD

COURTYARD MATERIAL REUSE



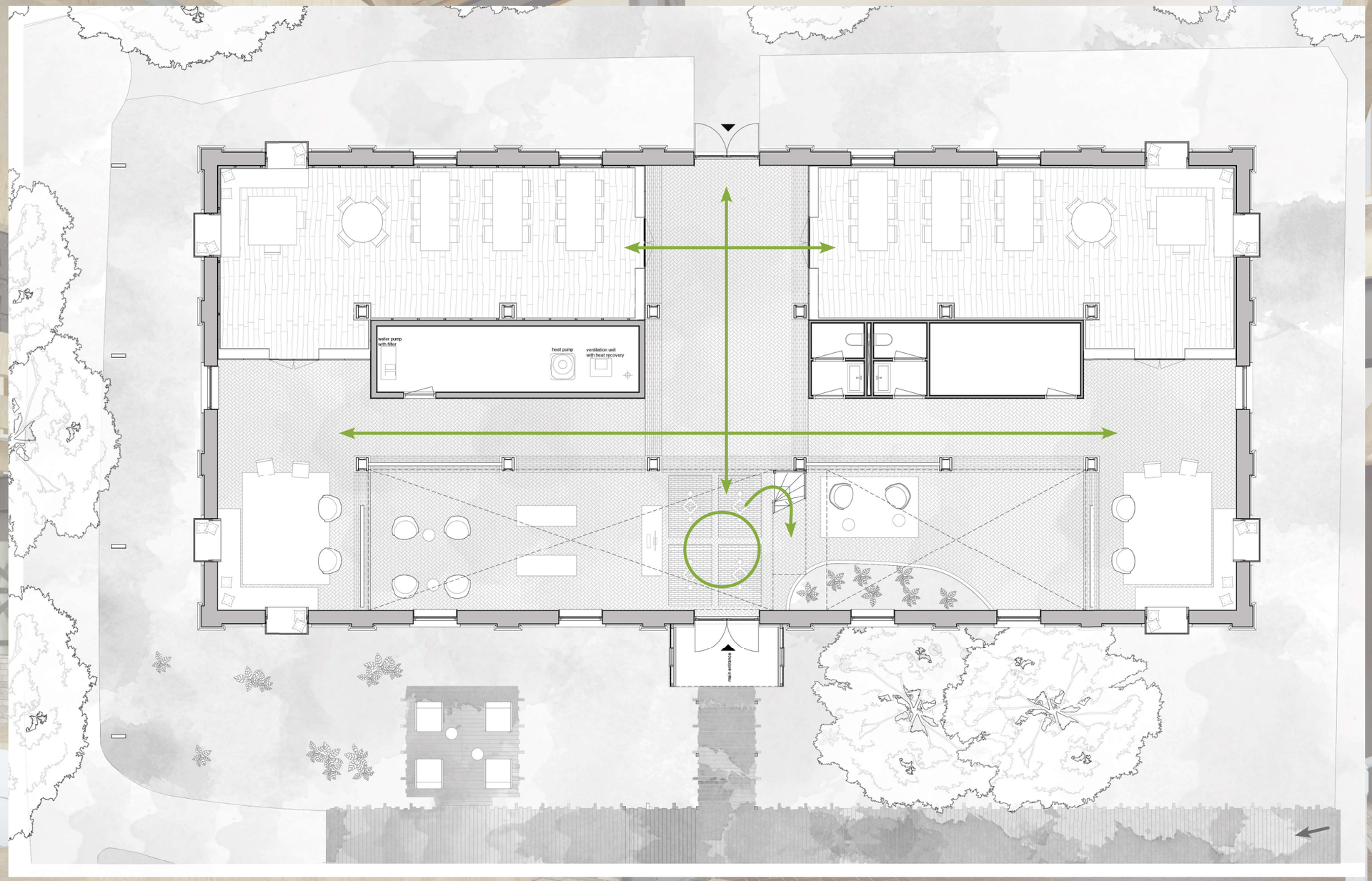
COURTYARD

MAIN HOTEL BUILDING EXISTING SITUATION

MAIN HOTEL BUILDING

MAIN HOTEL BUILDING

MAIN HOTEL BUILDING FLOORPLAN - GROUND FLOOR



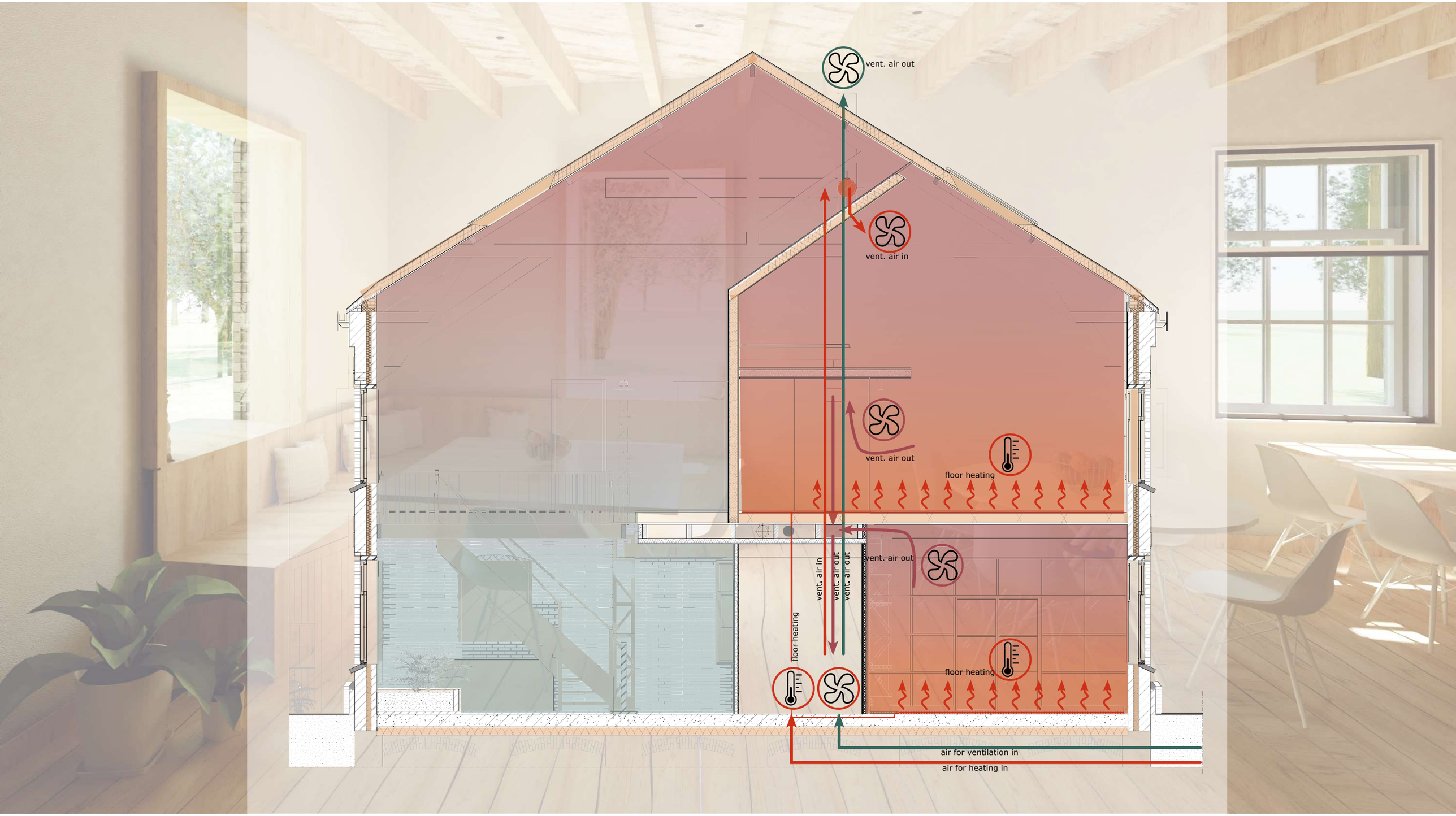
MAIN HOTEL BUILDING SECTION


WOODEN ROOF TRUSSES
CAST-IRON STRUCTURE
REUSED BRICKWORK

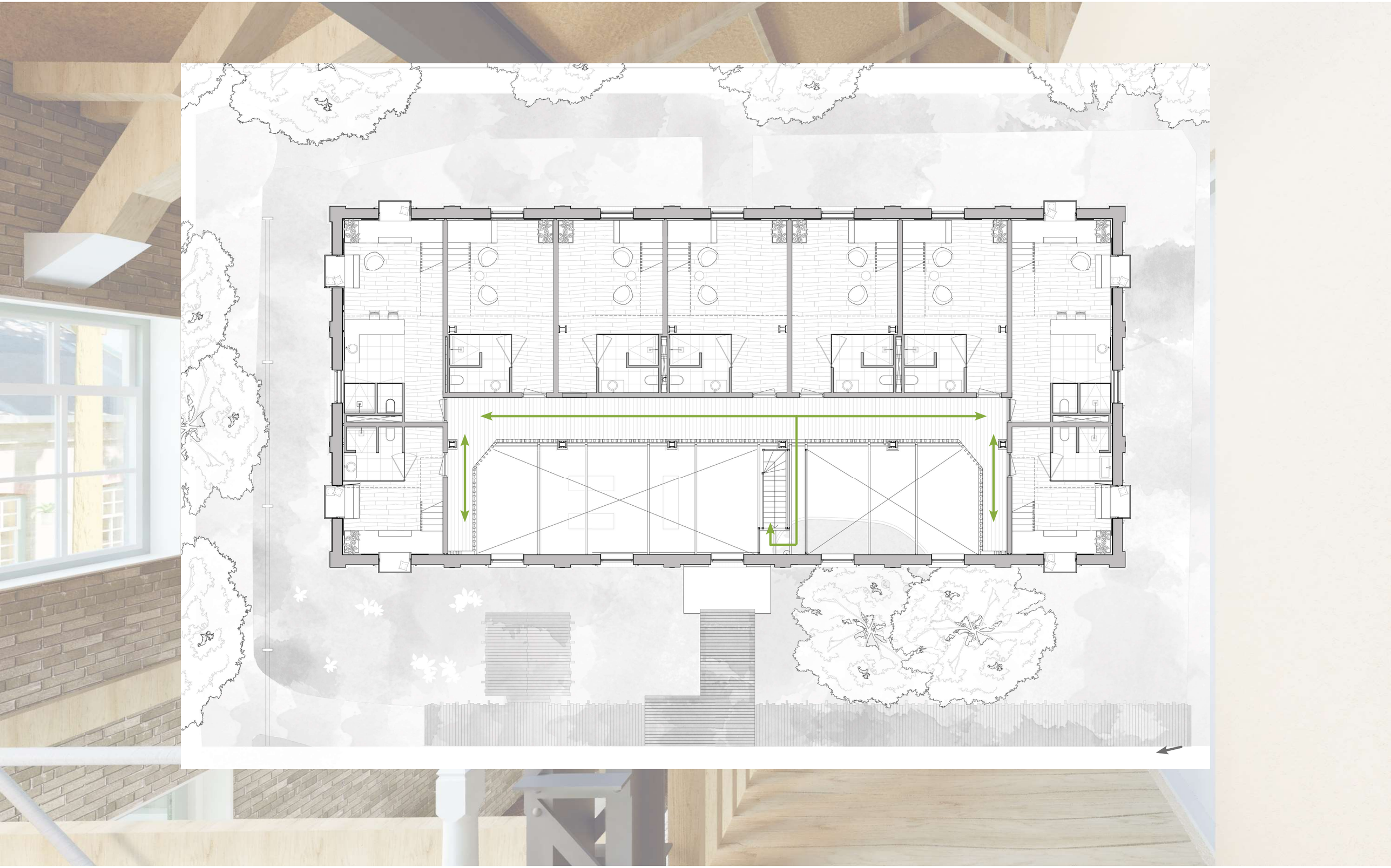

CLAYTEC STRAW
PLASTER
MULTIPLEX OAK
VENEER, FSC®


MULTIPLEX OAK
VENEER, FSC®
BOLEFLOOR OAK
FLOORING, FSC®

MAIN HOTEL BUILDING CLIMATE SYSTEM



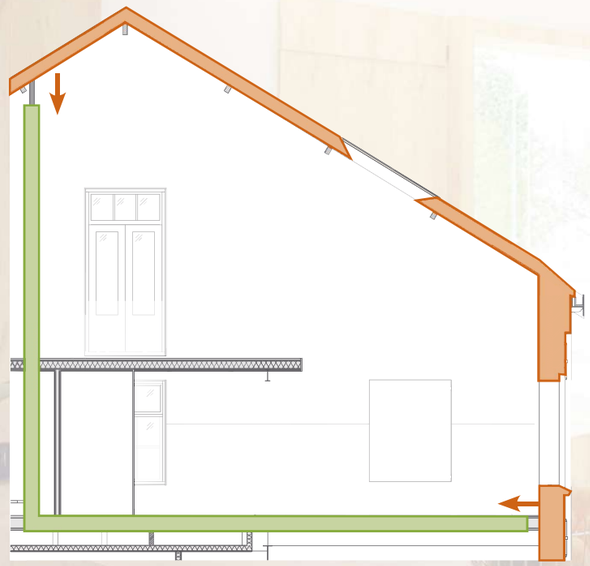
MAIN HOTEL BUILDING FLOORPLAN - FIRST FLOOR



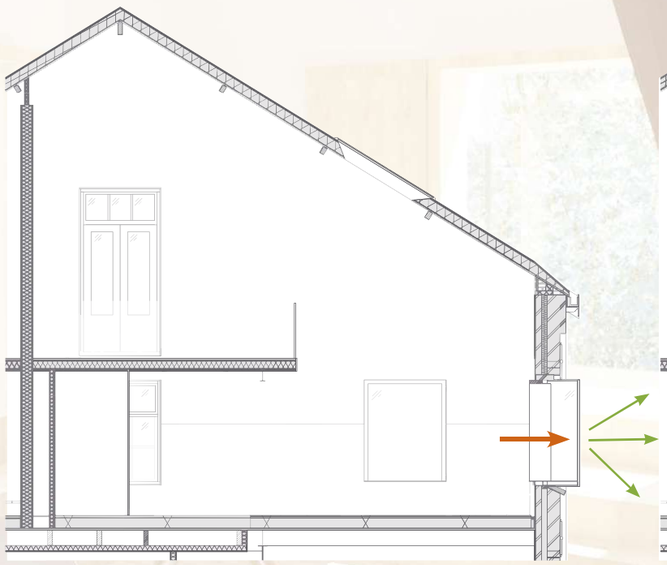
MAIN HOTEL BUILDING

HOTELROOM - FLOORPLAN AND SECTION

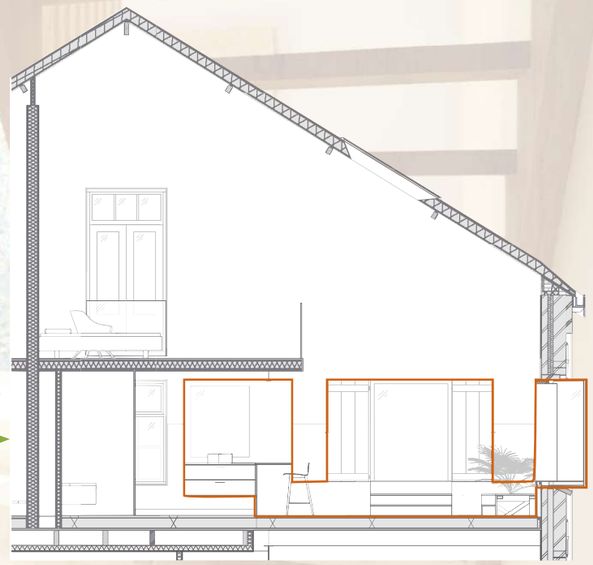
OPEN UP
MORE SPACE & LIGHT



DISCONNECT
DISTINCTION BETWEEN OLD & NEW

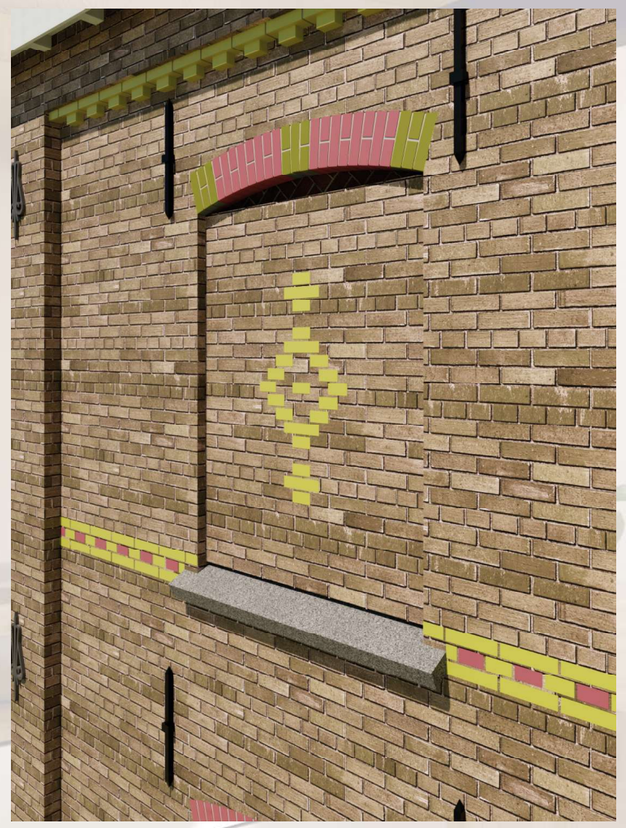


CONNECT TO OUTDOOR
BETTER CONNECTION TO ENVIRONMENT



FURNITURE
NEW BAY WINDOW AS ELEMENT OF NEW FURNITURE

EXISTING SITUATION



REMOVE BRICKWORK

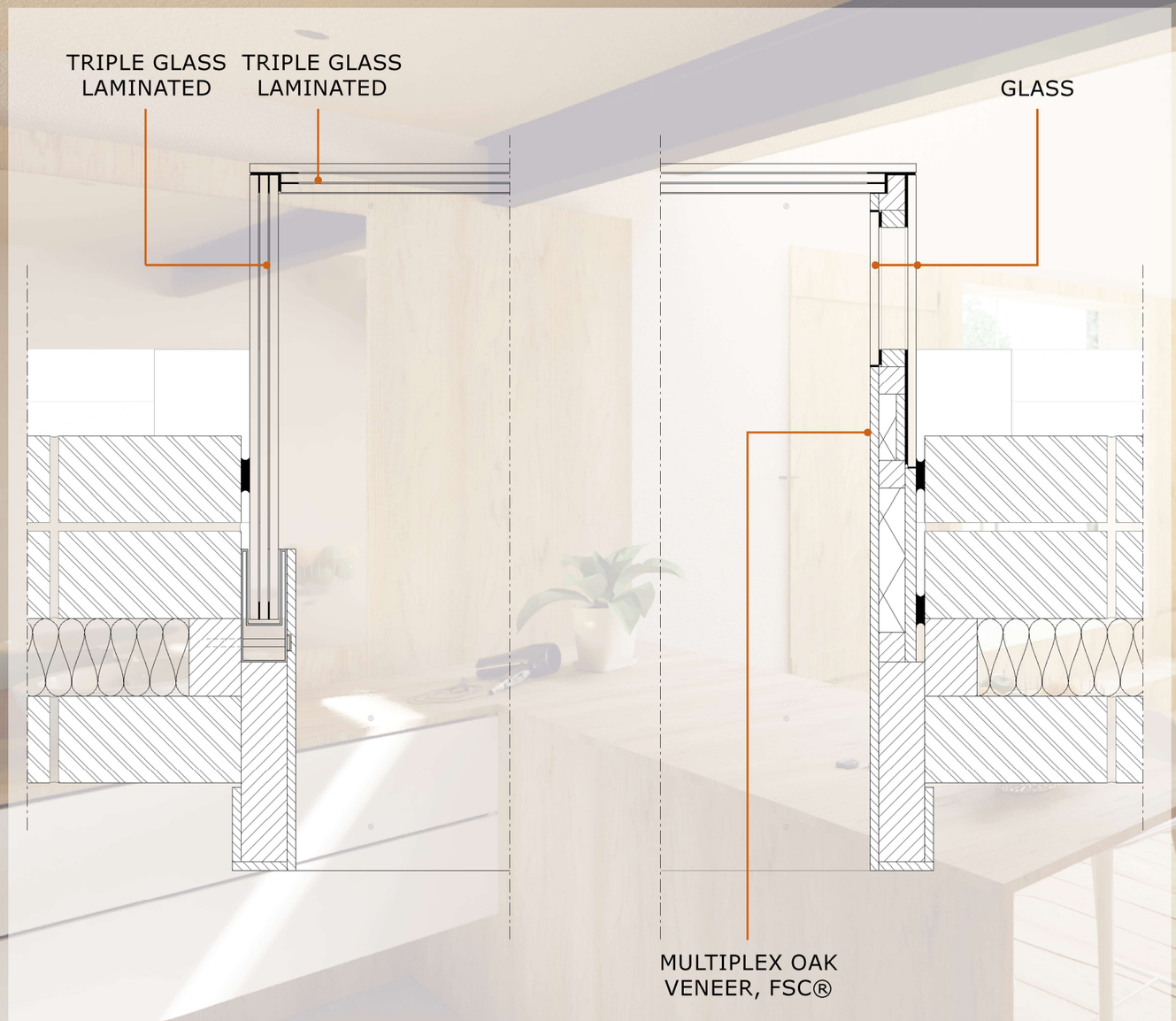
NEW BAYWINDOW

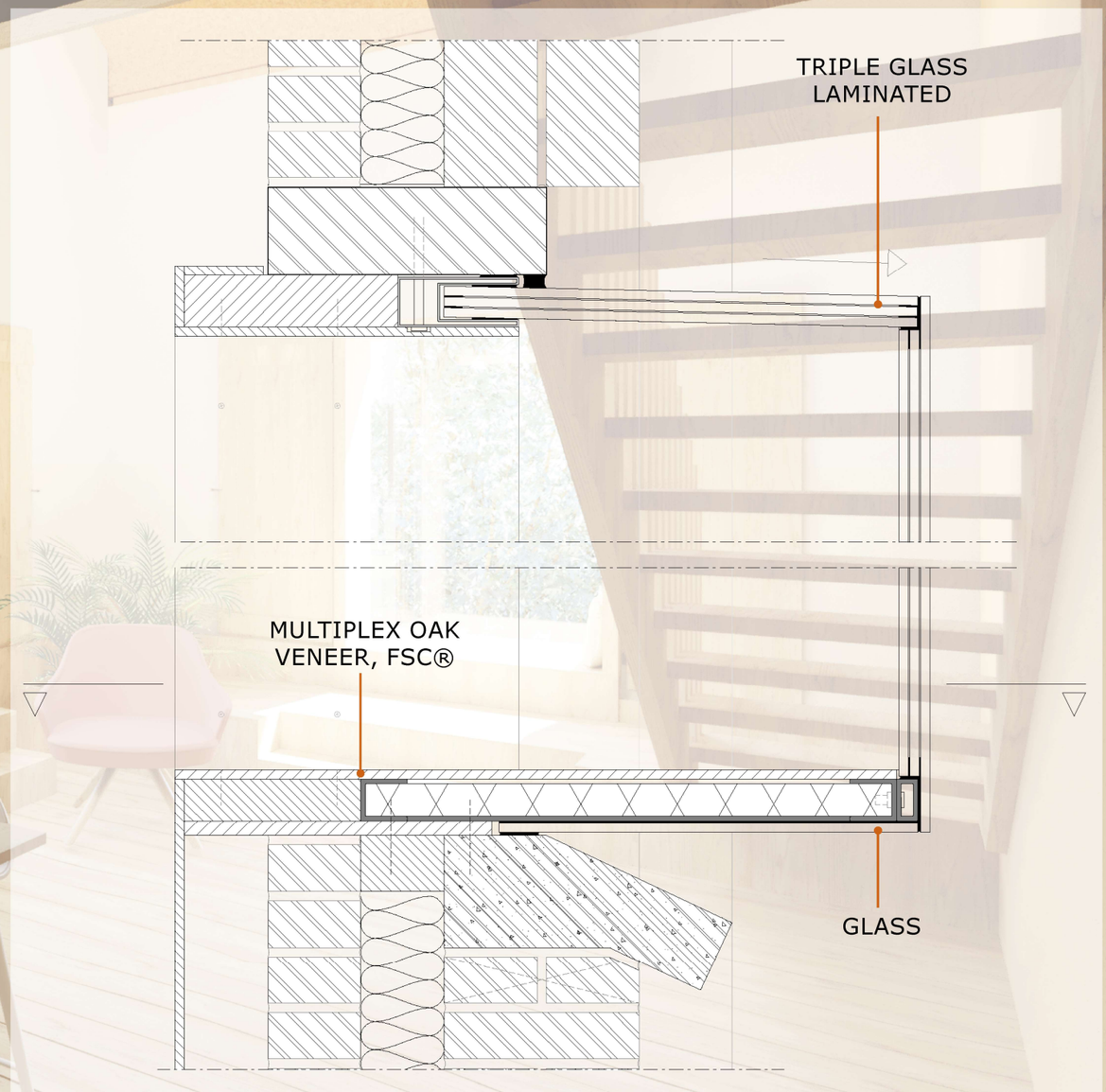
VARIANT 1
GLASS EXTERIOR

VARIANT 2
WOODEN EXTERIOR

MAIN HOTEL BUILDING

HOTELROOM - BAYWINDOW





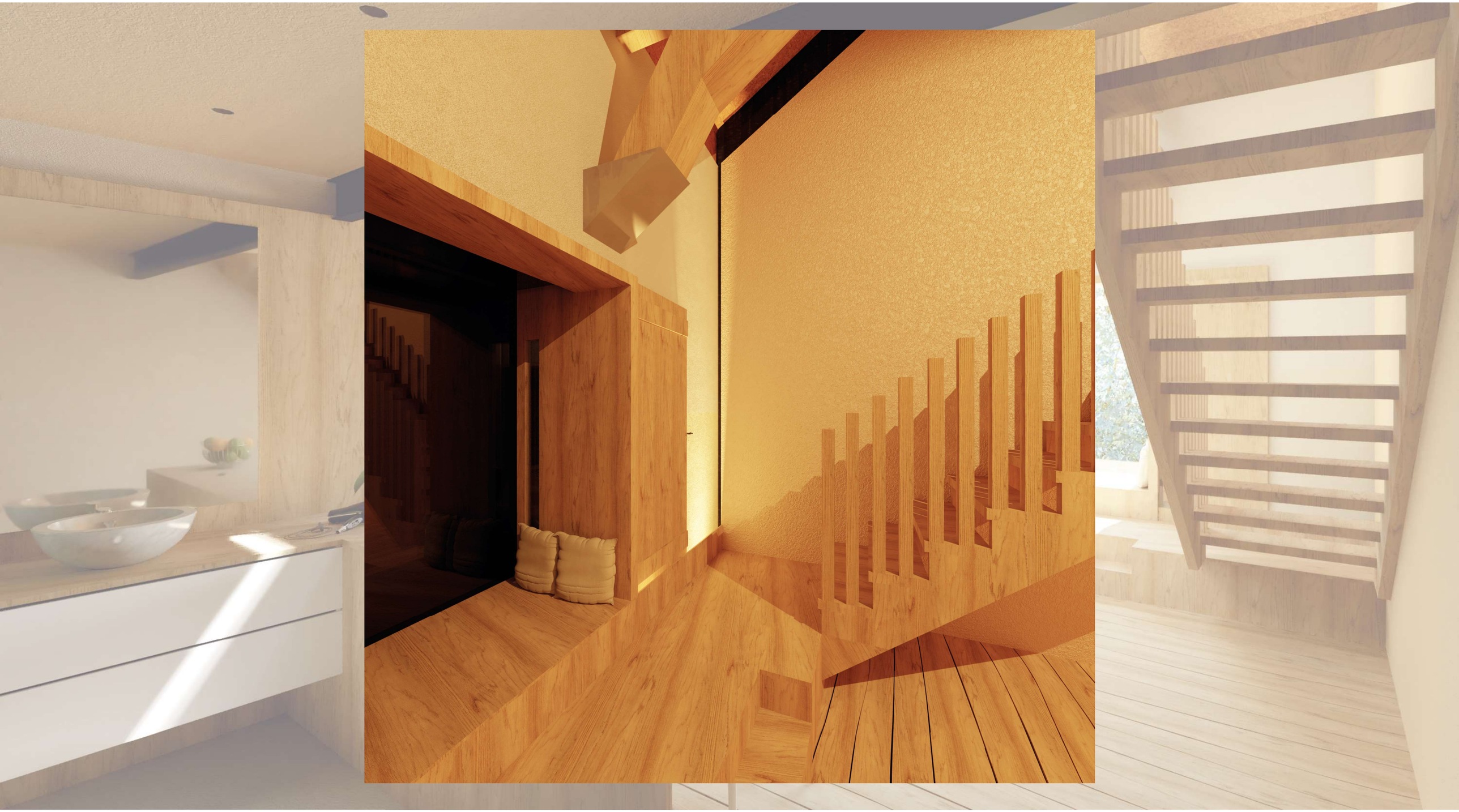
HOTELROOM - BAYWINDOW

HOTELROOM - BAYWINDOW

HOTELROOM - BAYWINDOW

HOTELROOM - BAYWINDOW

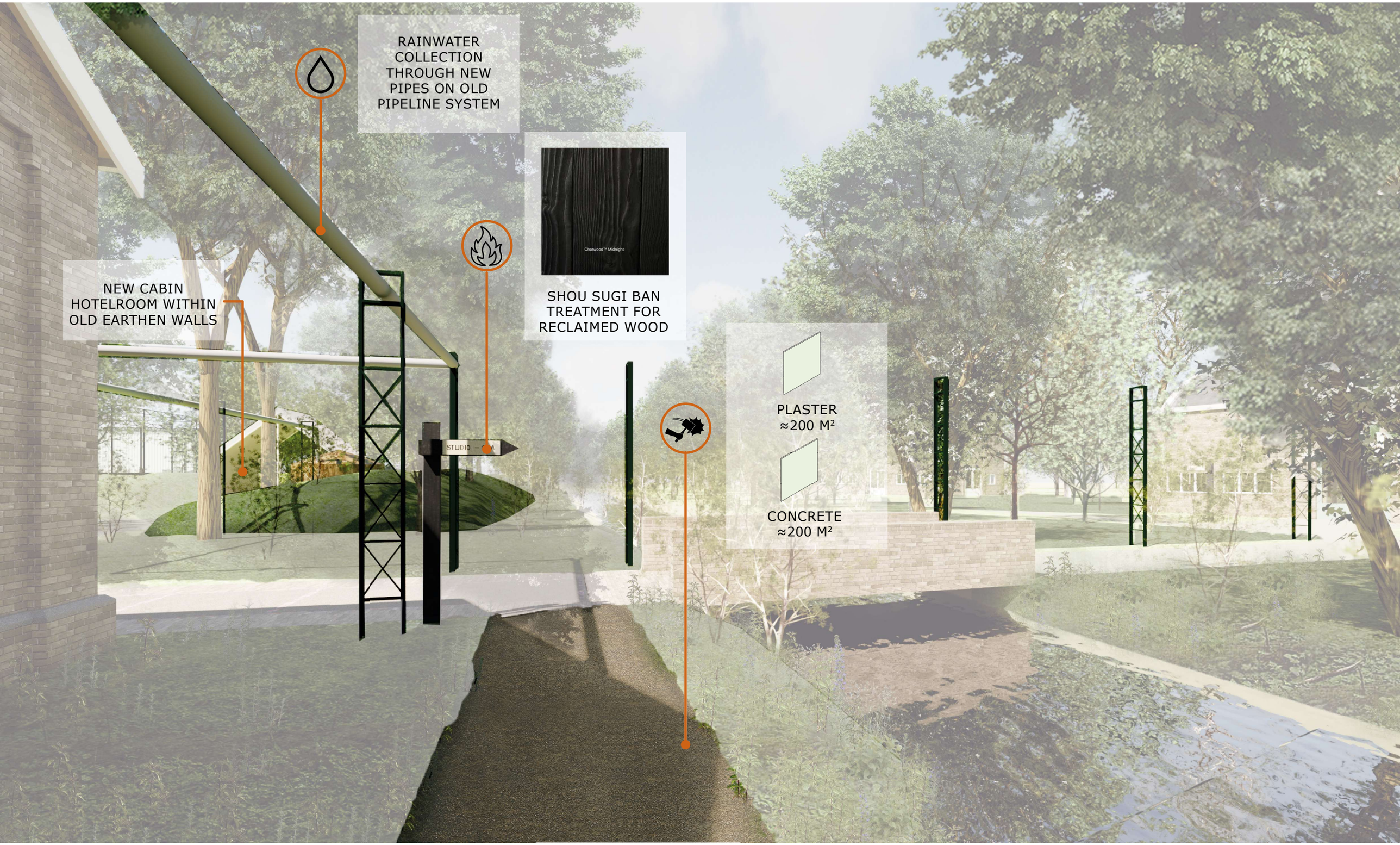
HOTELROOM - BAYWINDOW



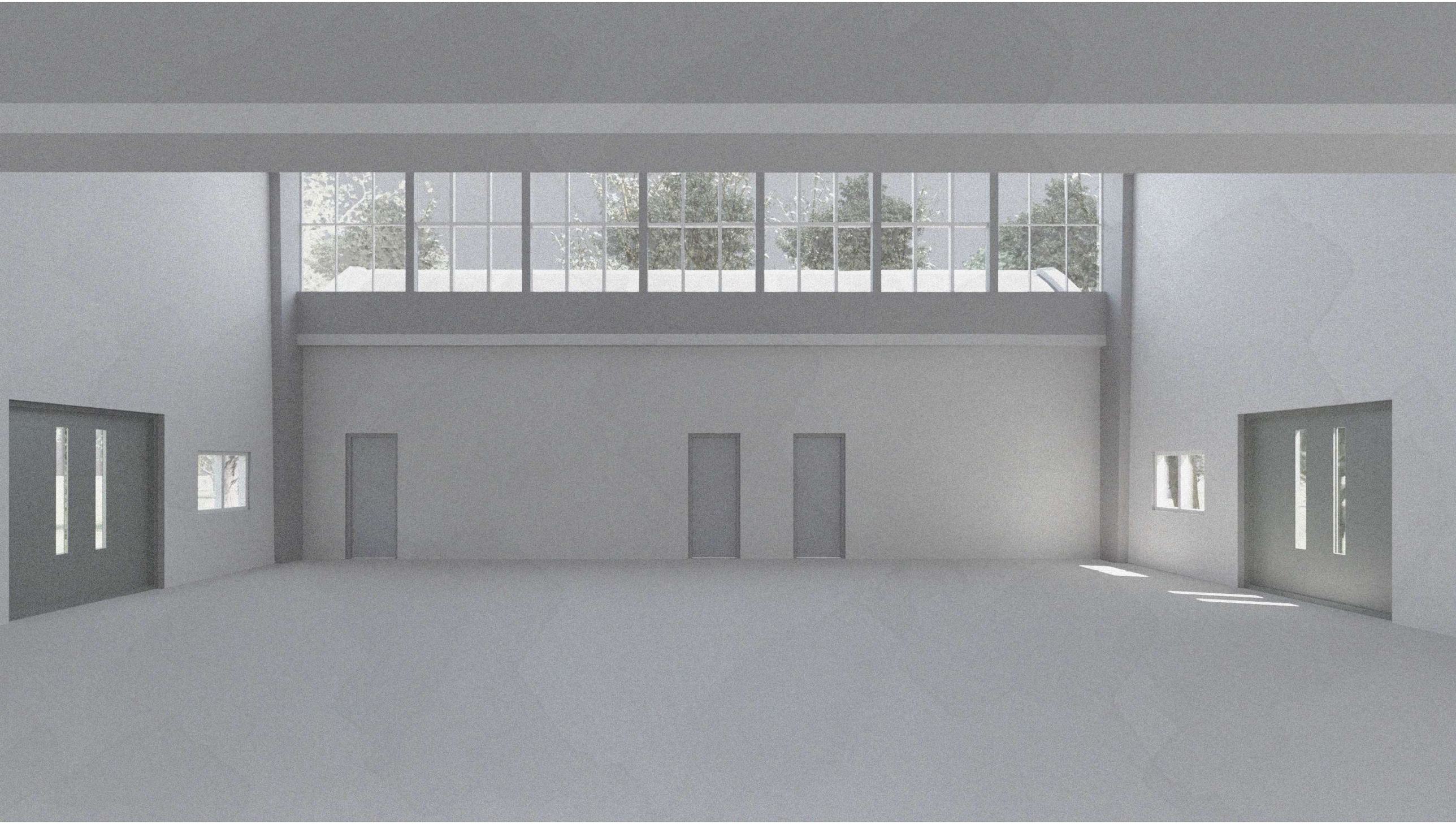
COURTYARD

OUTDOORS EXISTING SITUATION

OUTDOORS


RAINWATER COLLECTION THROUGH NEW PIPES ON OLD PIPELINE SYSTEM
NEW CABIN HOTELROOM WITHIN OLD EARTHEN WALLS
Charwood™ Midnight
SHOU SUGI BAN TREATMENT FOR RECLAIMED WOOD
PLASTER ≈200 M²
CONCRETE ≈200 M²
STUDIO

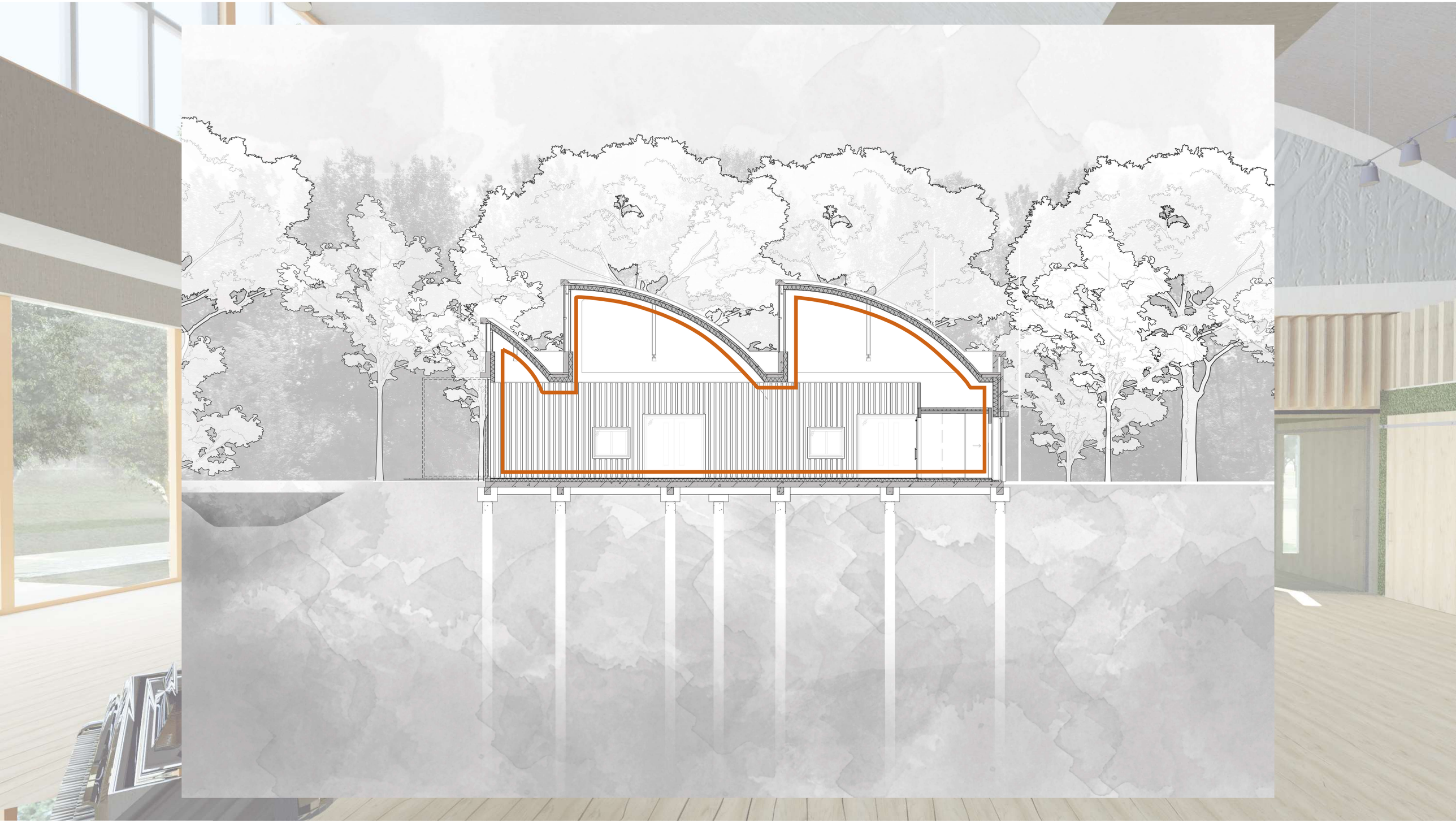

SPA



STUDIO FLOORPLAN - GROUND FLOOR

STUDIO SECTION

STUDIO SECTION



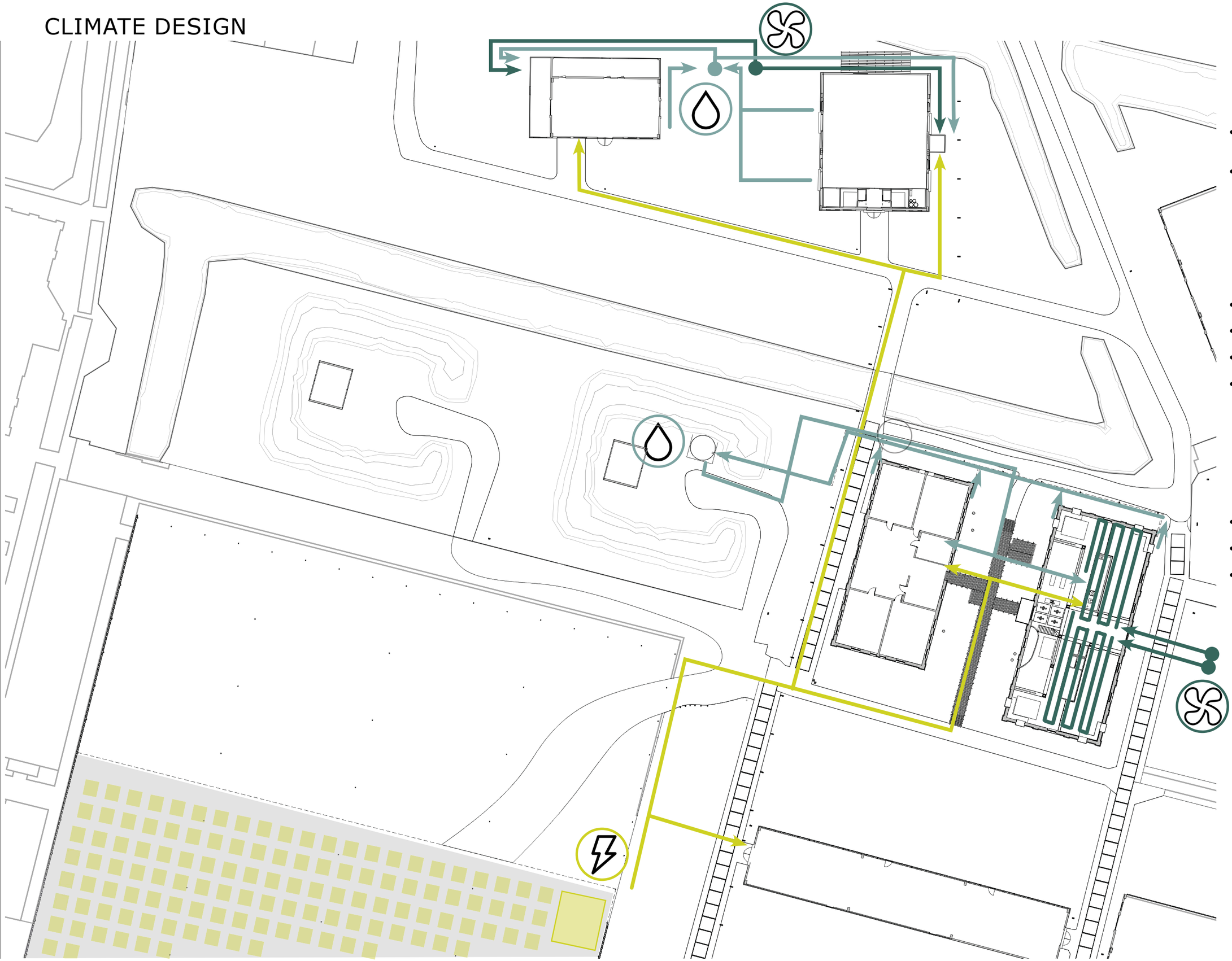

PEAT SOUND ABSORBING PANELS
MOSS SOUND ABSORBING PANELS
WOODEN BEAMS 137X
BOLEFLOOR OAK FLOORING, FSC®


WOODEN
ROTATABLE
REFLECTORS
PEAT SOUND AB-
SORBING PANEL
ACOUSTIC
PLASTER
MOSS SOUND
ABSORBING
PANELS

OVERVIEW


THANK YOU

CLIMATE DESIGN



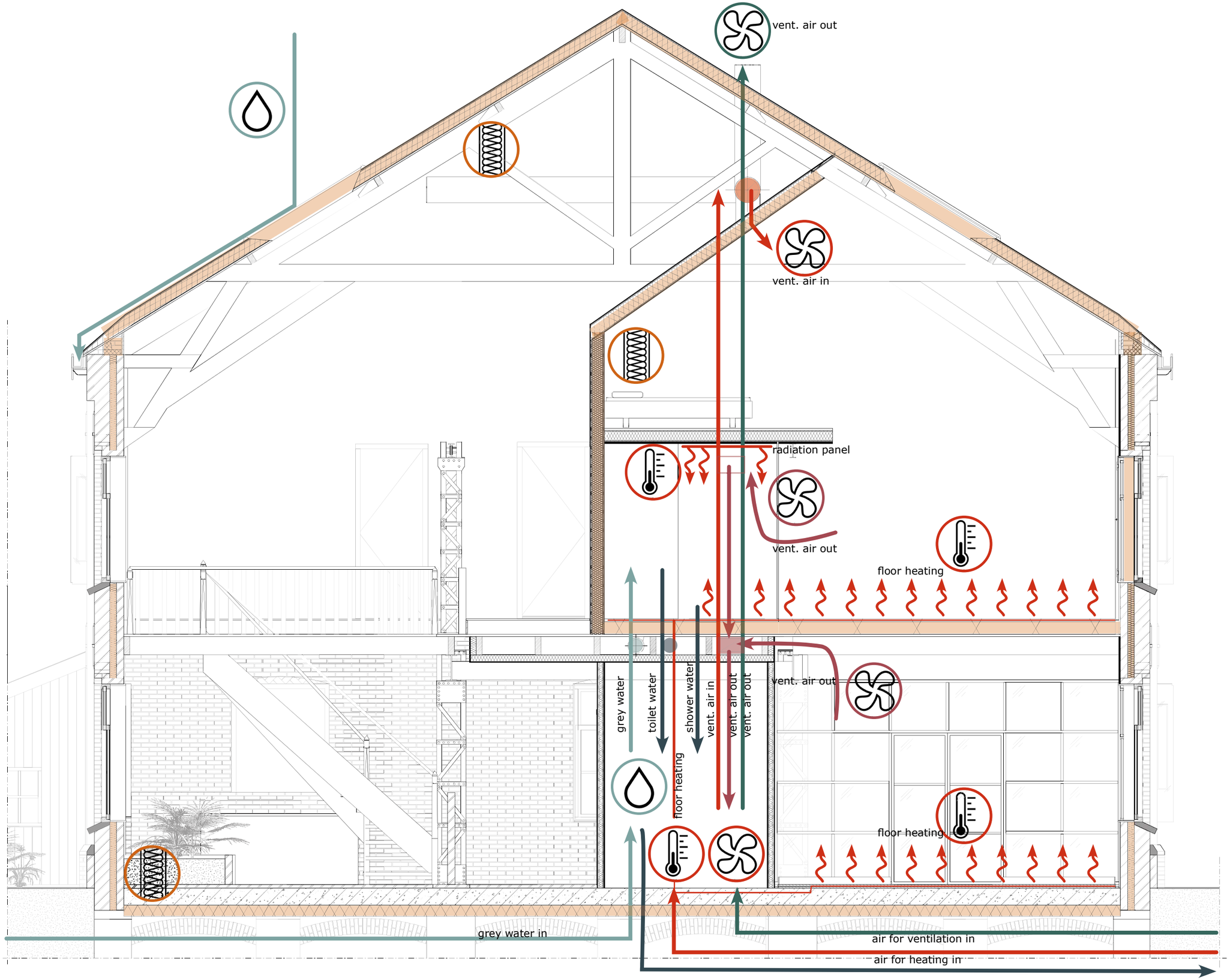
- underground suction for pre-heating / pre-cooling ventilation air
- underground suction for pre-heating air for heat pump

- rainwater from roof collected in existing gutter
- through pipes on old pipelines to storage tank
- pumped underground towards machine room
- used as grey water in toilets and irrigation for plants (interior)

- PV solar cells on large box building
- suplemented with electricity from net
- own storage & buffer in reused car batteries storage

- rainwater from roof collected in existing gutter
- through pipes on old pipelines to storage tank
- pumped underground to machine room
- used as grey water in toilets and irrigation for plants (interior)

CLIMATE DESIGN



- underground suction for pre-heating / pre-cooling
- extra heated w. heat outlet air through heatexchanger
- mechanical ventilation in
- mechanical suction out, through wet rooms
- through heatexchanger
- dirty air out through roof

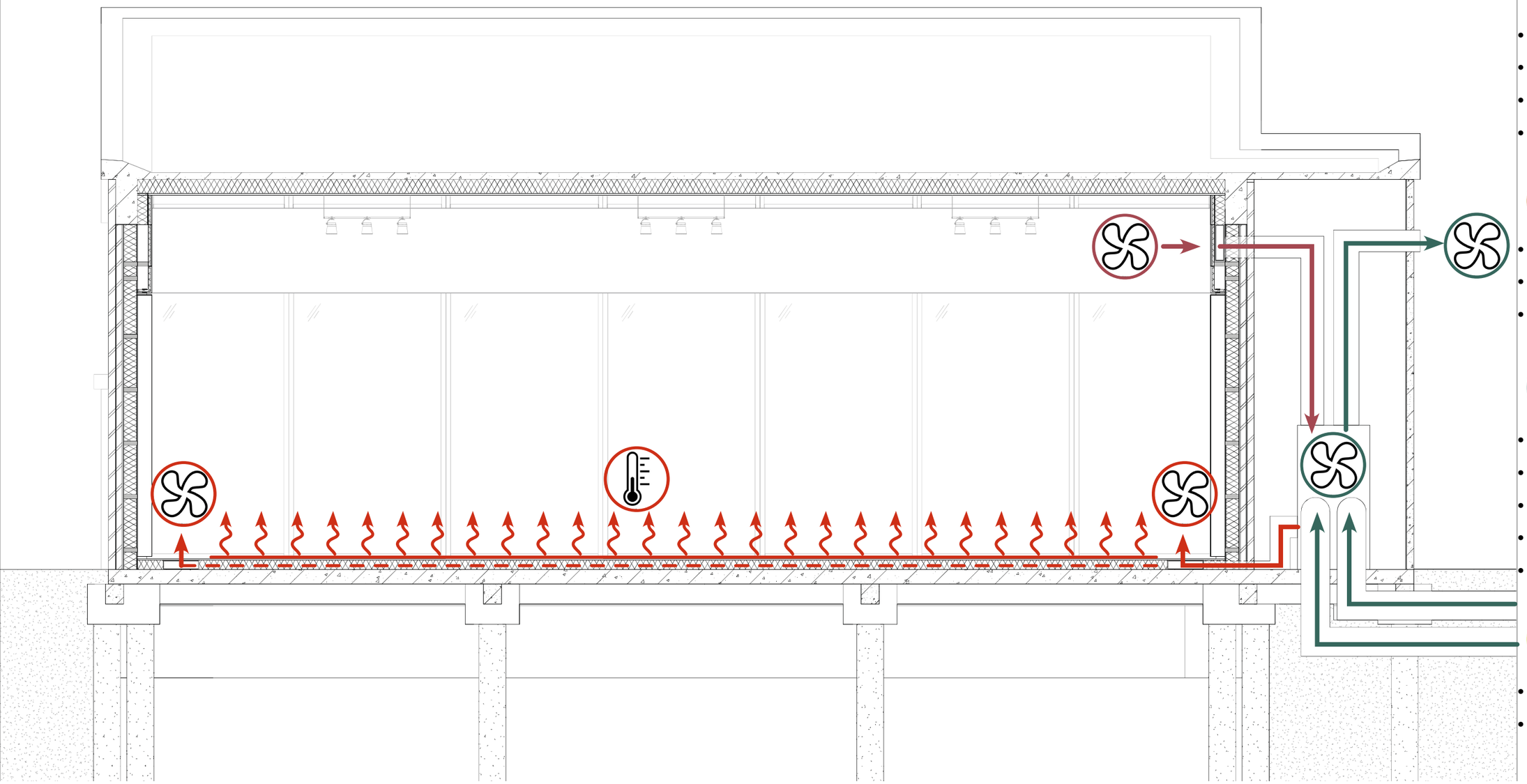
- underground suction for pre-heating / pre-cooling air for air-water heat pump system
- extra heated (or optionally cooled), electricity used
- heating through low-temp floor heating
- optional cooling through floor in summer
- heat/cold recaptured through ventilation system
- additional radiation pannel in bathroom for quick response
- shower heatexchanger, vertical pipe exchanger

- insulation existing cavity with EPS pearls
- insulation ground floor underneath with cellulose
- insulation roof outside with cellulose
- extra insulation hotelrooms with cellulose

- rainwater from roof collected in existing gutter
- through pipes on old pipelines to storage tank
- pumped underground towards machine room
- used as grey water in toilets and irrigation for plants

- PV solar cells on large box building
- suplemented with electricity from net
- own storage & buffer in reused car batteries storage

CLIMATE DESIGN



- underground suction for pre-heating / pre-cooling
- extra heated w. heat outlet air through heatexchanger
- mechanical ventilation in
- mechanical suction out,
- through heatexchanger
- dirty air out through side

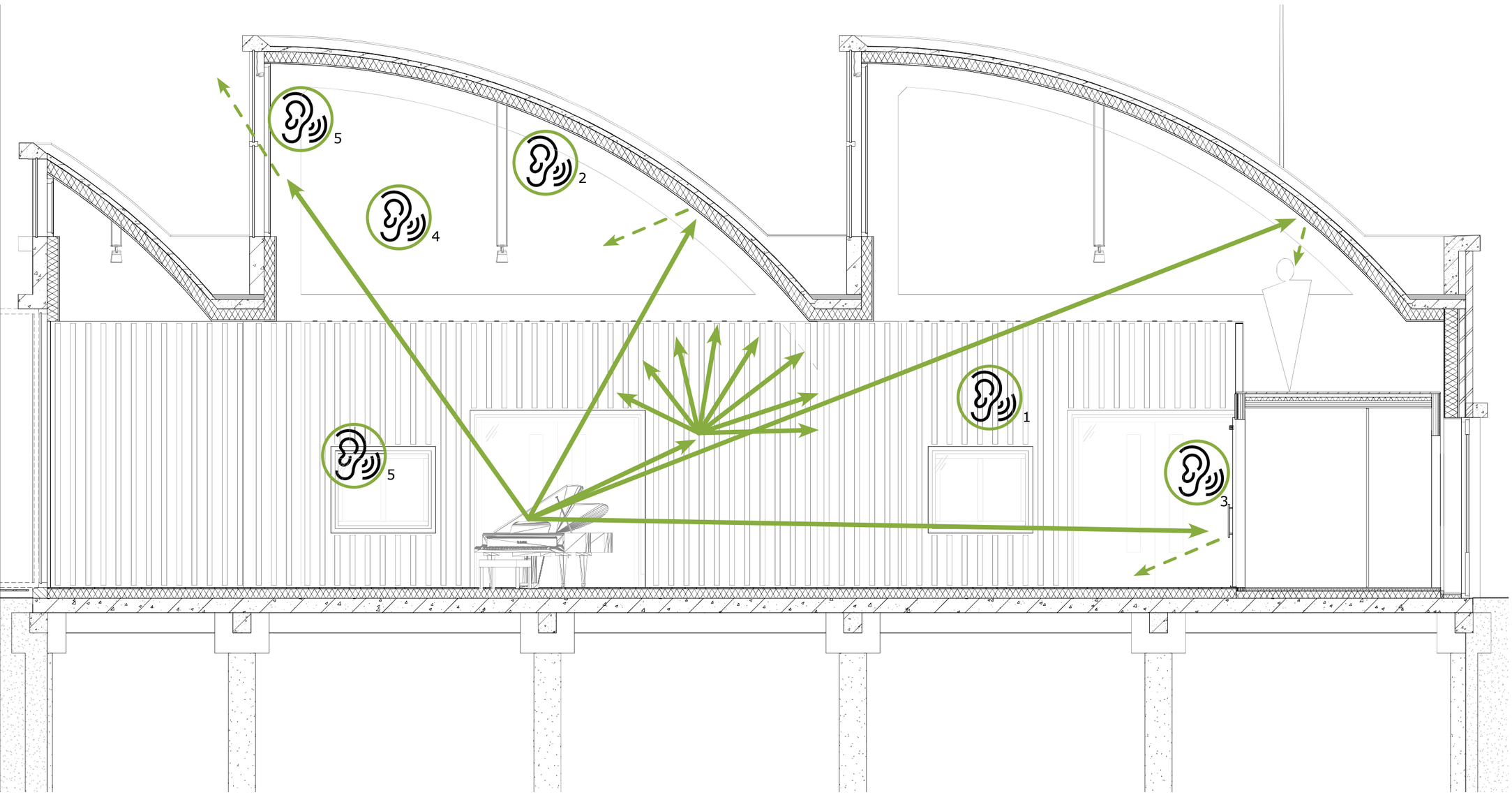
- underground suction for pre-heating / pre-cooling air for air-water heat pump system
- extra heated (or optionally cooled), electricity used
- heating through low-temp floor heating
- optional cooling through floor in summer
- heat/cold recaptured through ventilation system

- insulation ground floor underneath with cellulose
- insulation roof inside with cellulose panels
- insulation walls on inside with cellulose

- rainwater from roof collected in existing gutter
- through existing rainpipes to open gutter
- towards watertank in the ground
- pumped underground towards to machine room
- used as grey water in toilets

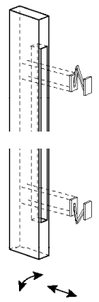
- PV solar cells on large box building
- suplemented with electricity from net

ACOUSTIC DESIGN



1. lattices of reused wooden beams for creating more reflective surfaces
2. acoustic plaster for sound-absorption on roof shells
3. acoustic moss panels for absorption
4. acoustic peat panels for sound absorption
5. secondary glass covers in front of existing doors and windows for acoustic insulation towards outside

sound reflectors



wooden rotatable reflectors

sound absorbers

peat acoustic panels

moss acoustic panels

acoustic plaster