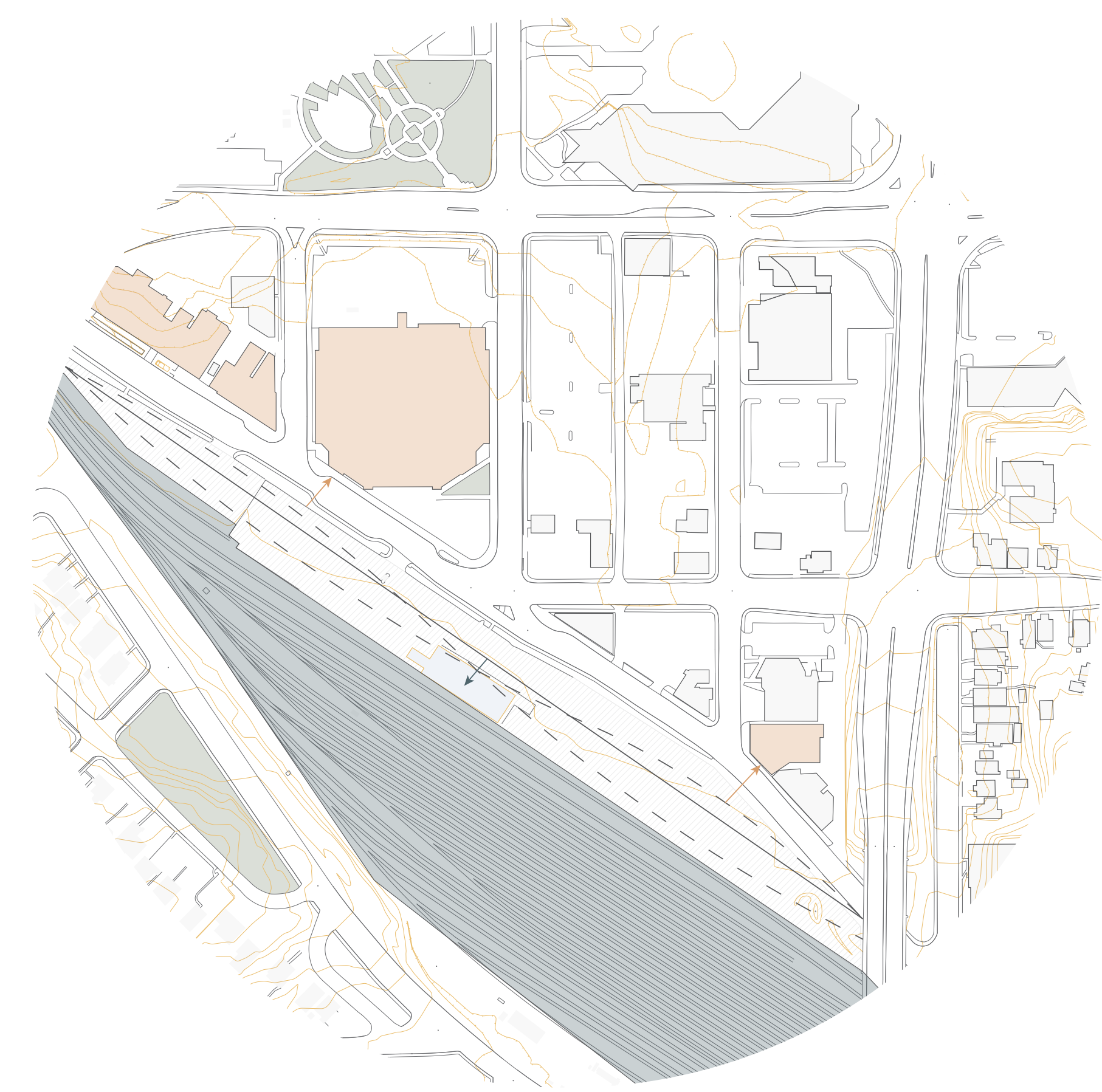
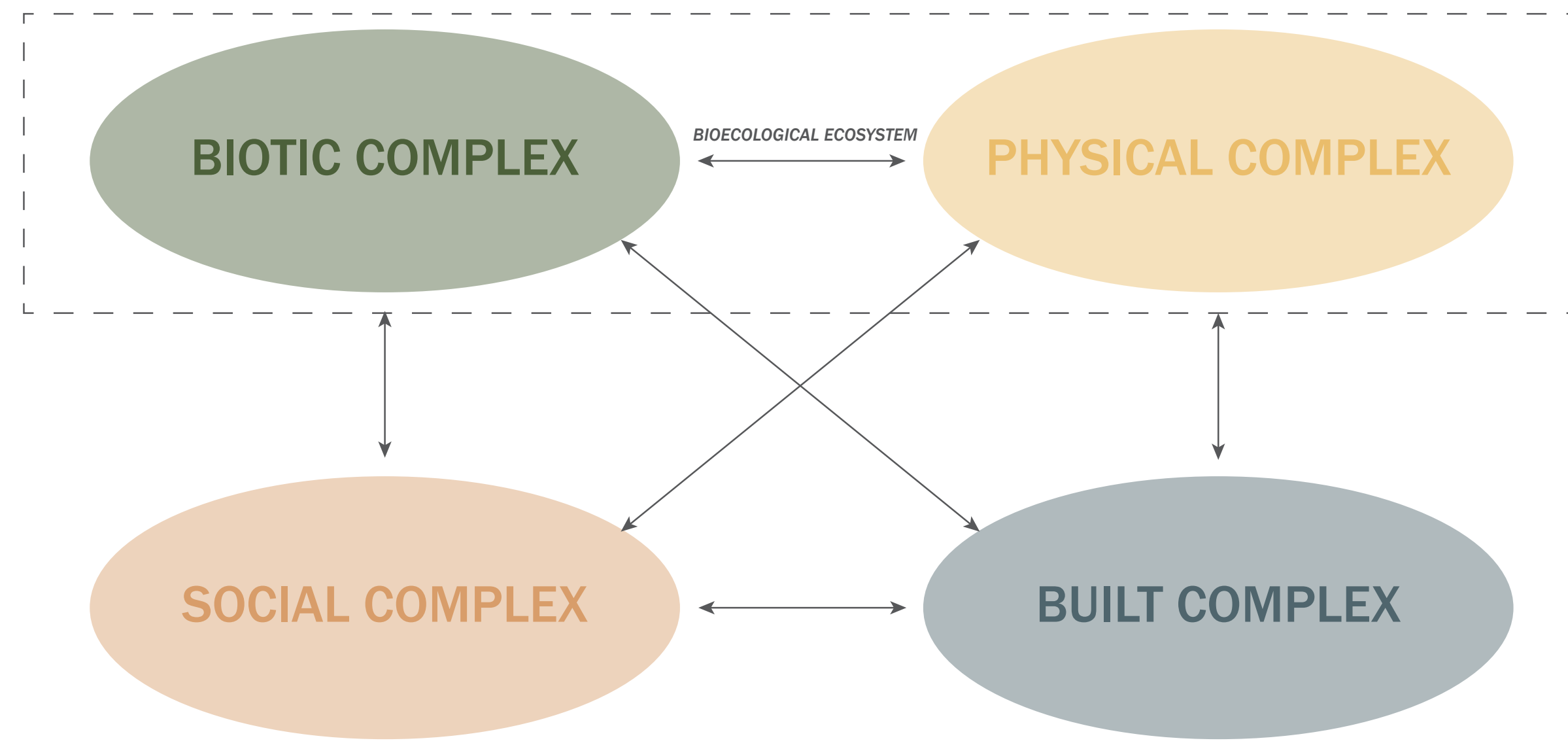


THE GREENHOUSE EFFECT

LIVINGSTON BOYD // JOSEPHINE LI



- BIOTIC COMPLEX
- BUILT COMPLEX
- SOCIAL COMPLEX
- PHYSICAL COMPLEX

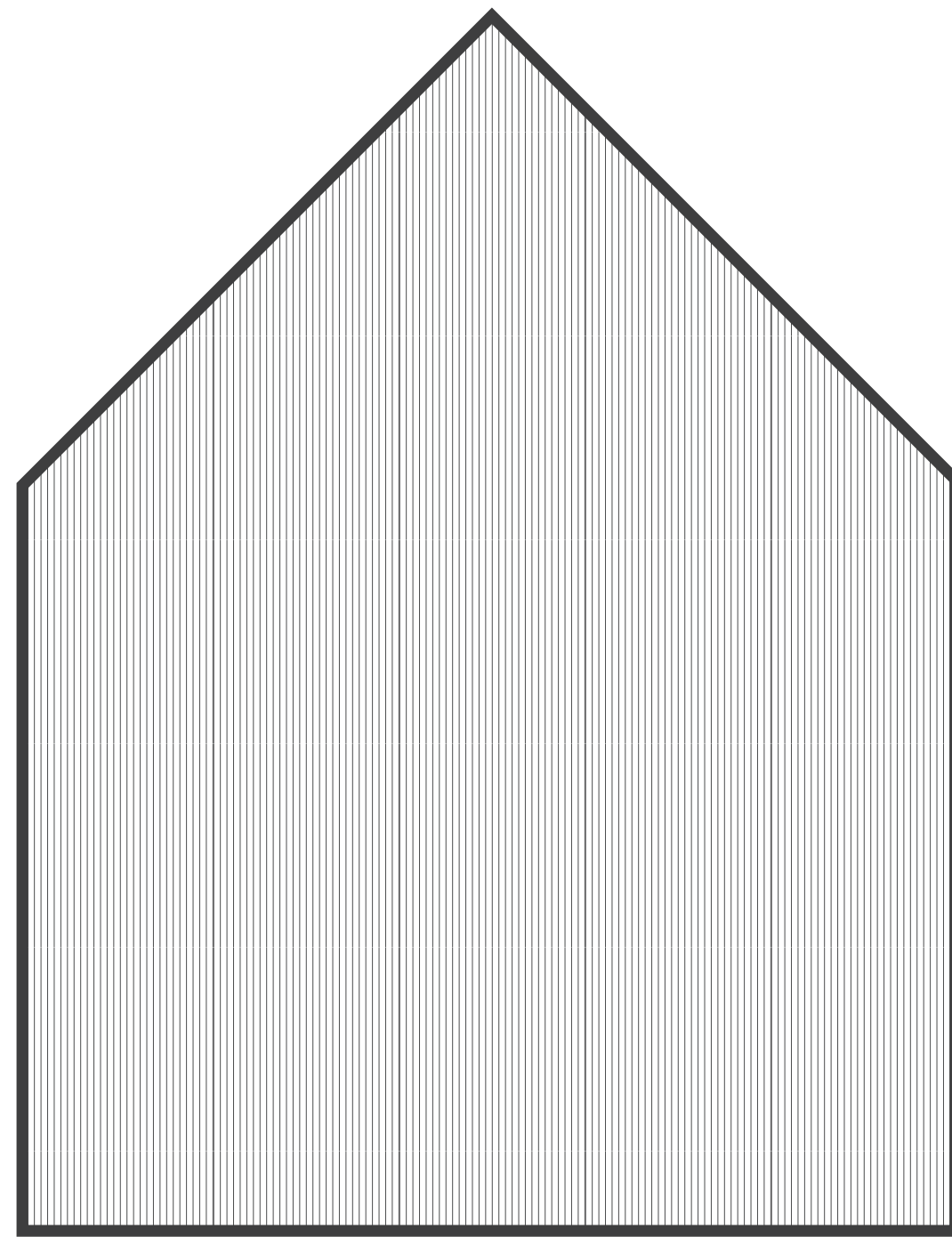
SITE ANALYSIS

THE GREENHOUSE EFFECT
 LIVINGSTON BOYD // JOSEPHINE LI
 16 / 12 / 2019

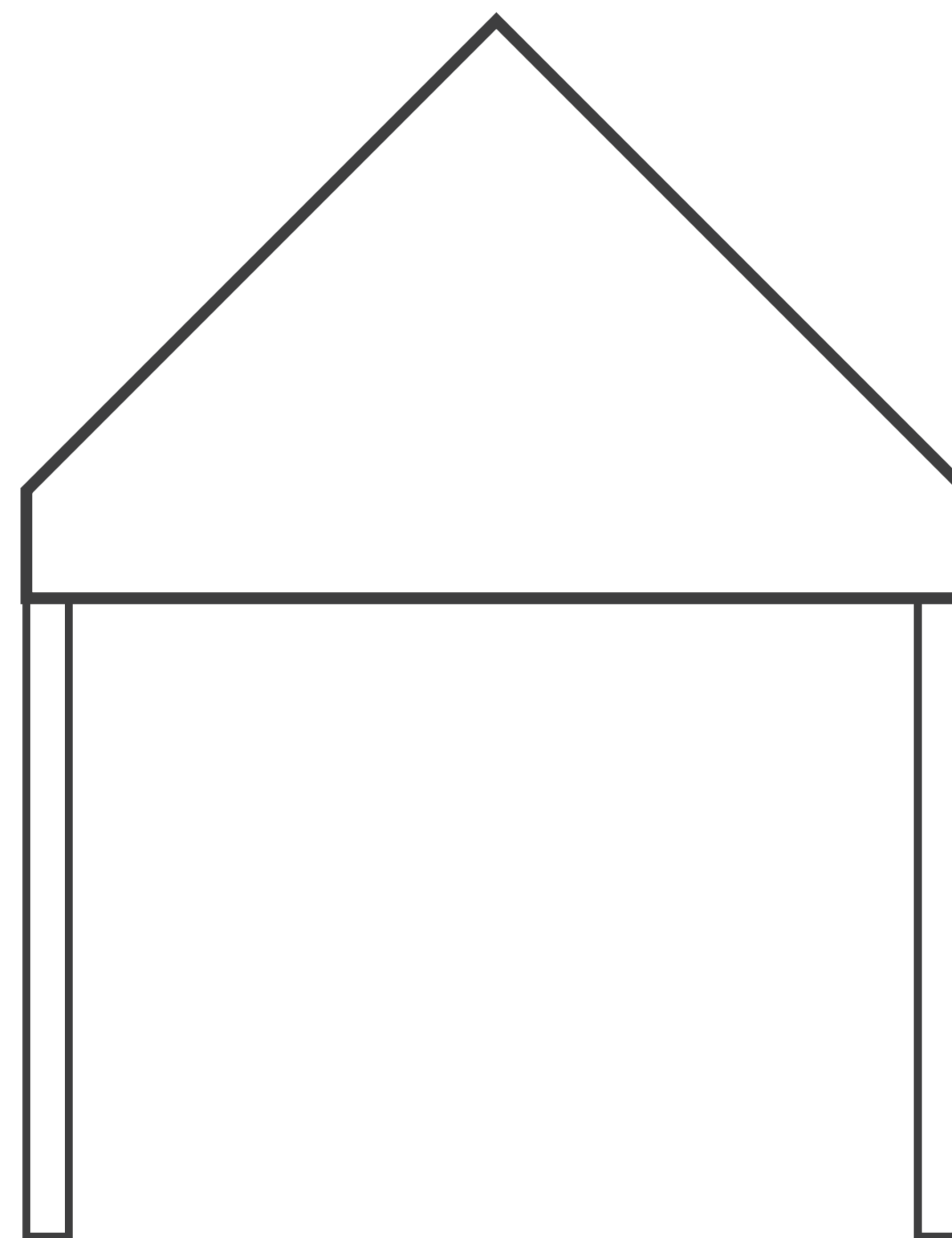
downtown sudbury's urban development caused a divide in demographics and a lack of public greenspace. Urban development can be broken down into four complexes that need to interact in order for holistic human and urban ecosystems. Through the intervention of biotic, physical, social and built complexes, onto our site while also emphasizing on those already present, a balanced urban ecosystem can be achieved. this can be done through the integration of urban agriculture, dedicated communal spaces, and closing the divide caused by the train tracks.

THESIS

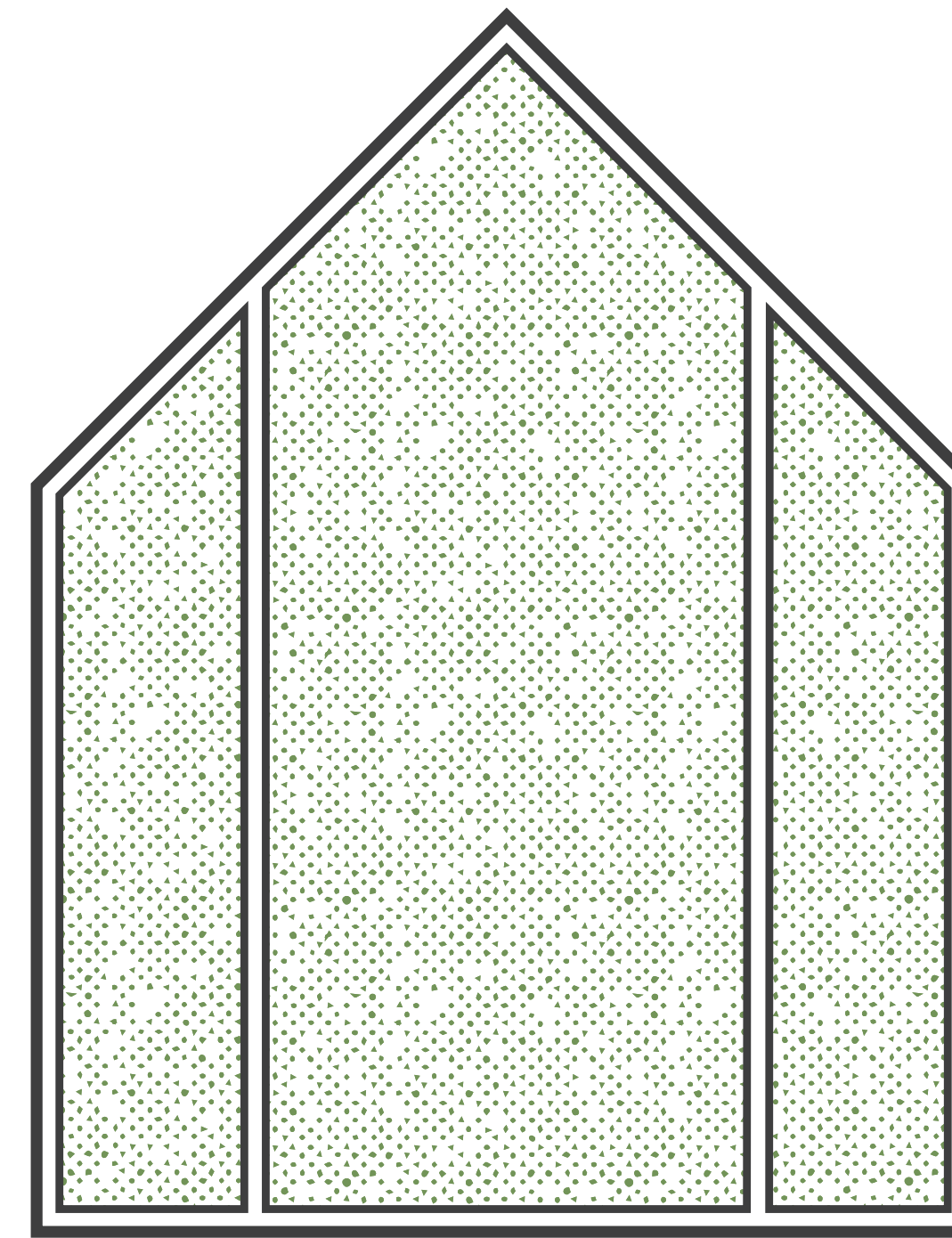
THE GREENHOUSE EFFECT
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RESIDENTIAL



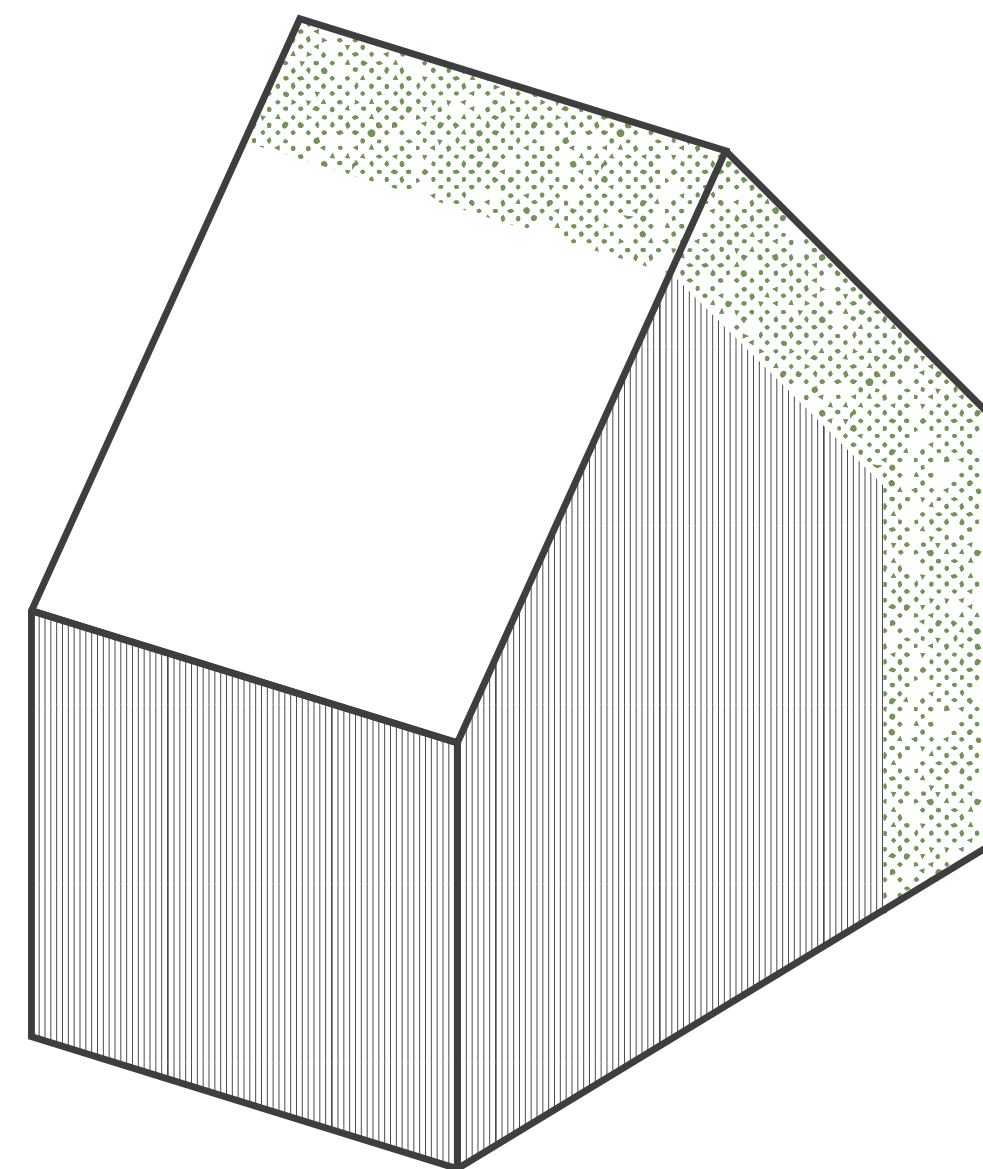
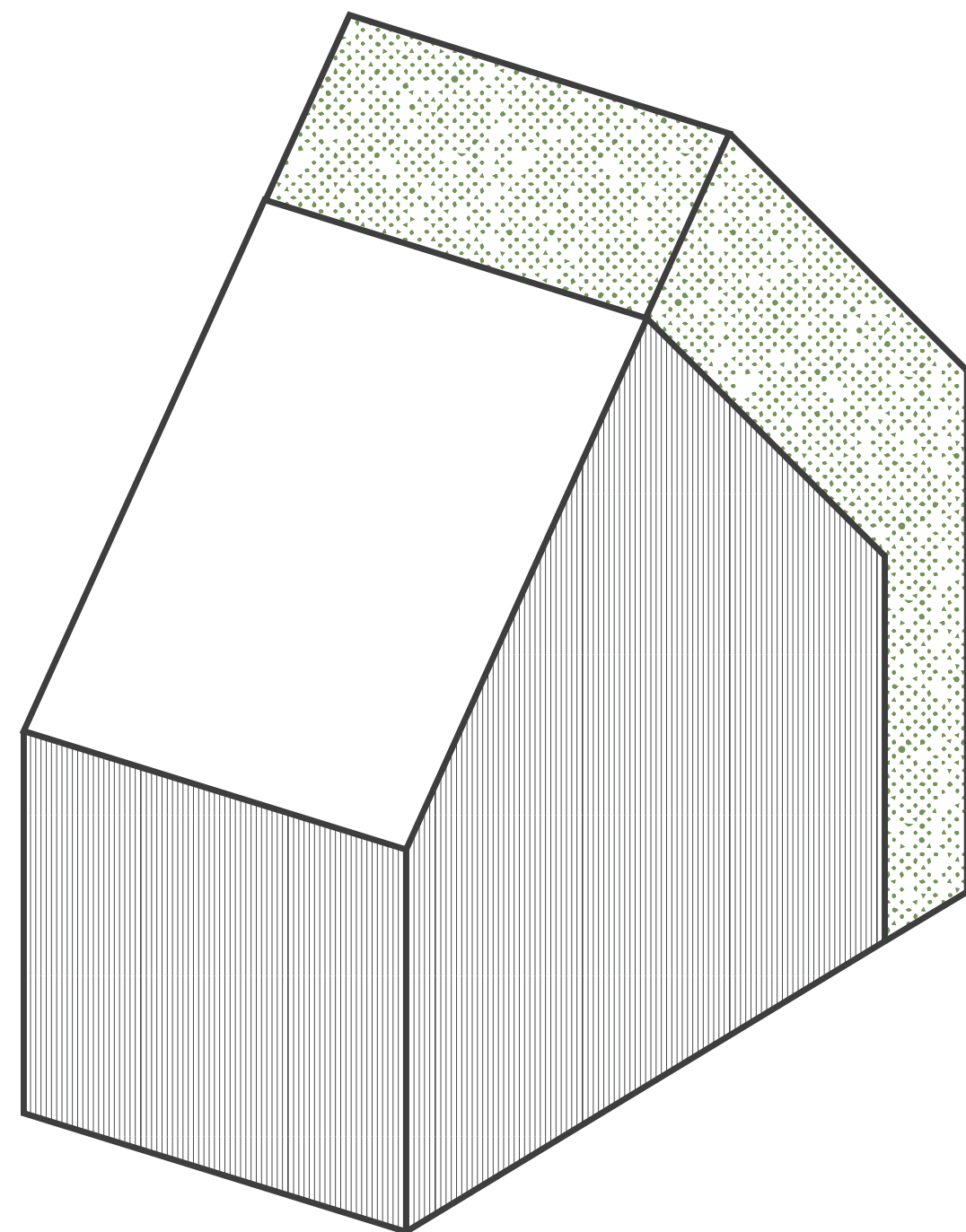
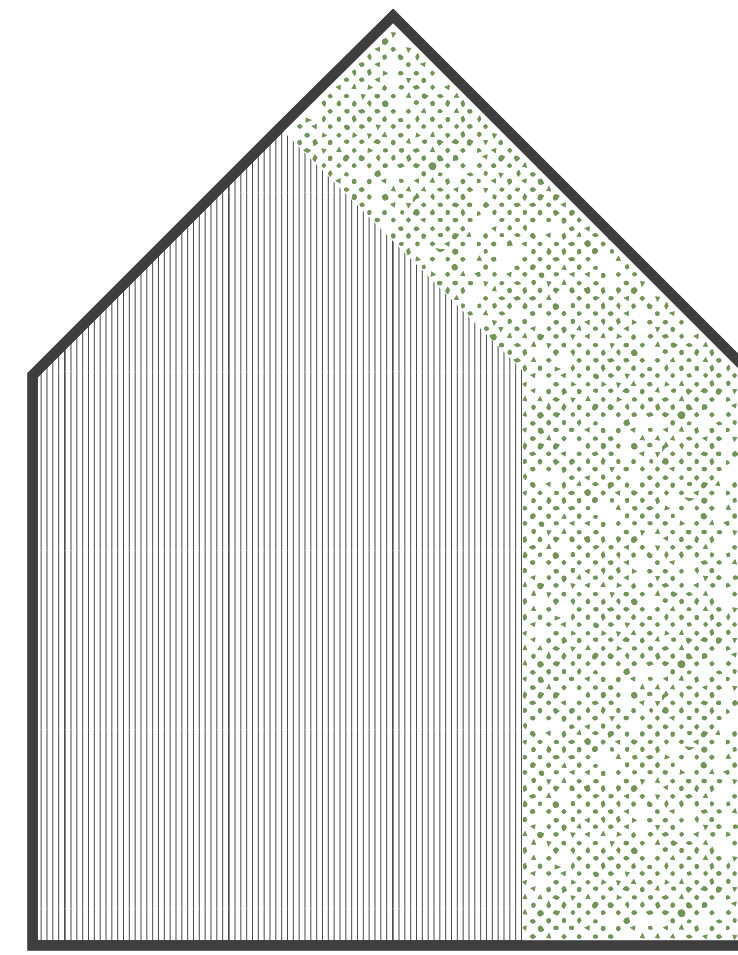
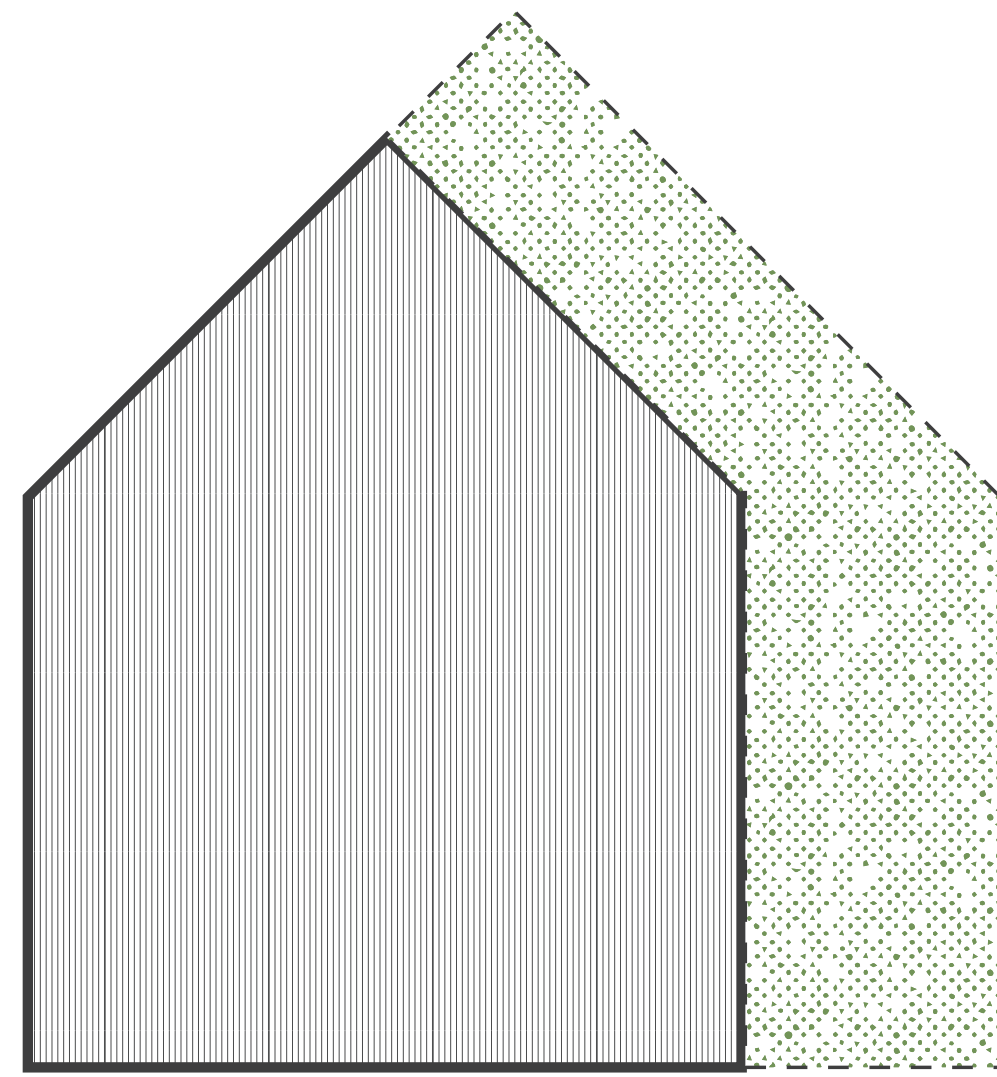
MARKET



GREENHOUSE

PROGRAM AND TYPOLOGY

THE GREENHOUSE EFFECT
LIVINGSTON BOYD // JOSEPHINE LI
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EXTENTISON

IMMERSIVE

HOW TO MAKE A GREENHOUSE AN EXTENTISON OF LIVING

social / built

opening up the pedestrian tunnel to increase tunnel exposure, comfort, and create another access point for residents across the track

social / built

buildings framing CPR building to allow market to bleed into the landscape

social / built / biotic

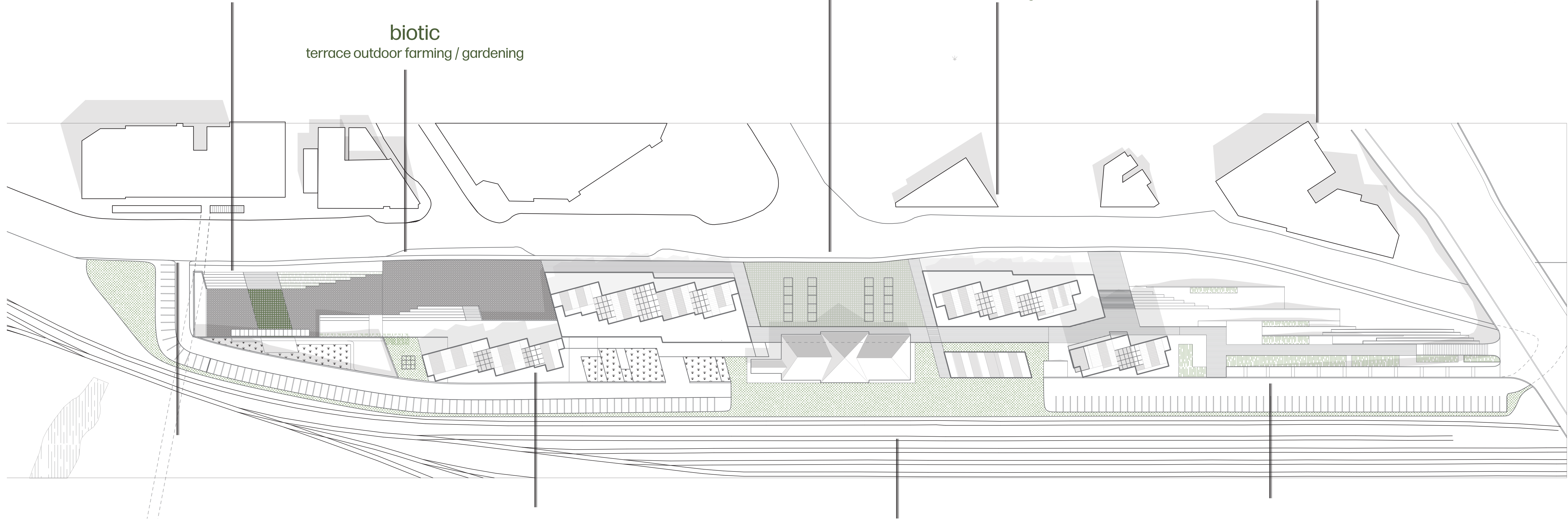
public space adjacent to existing social spaces: Samaritan centre

biotic

terrace outdoor farming / gardening

biotic

vertical and horizontal greenhouses



social / built / biotic

path pulling towards existing social complexes and through greenhouse interventions

physical

building orientations to face direct south for maximum layout

physical

berming to for sound mitigation from the tracks

social / built

berming up to the bridge of nations to open up the pedestrian entrance to the site and creating an access point for residents across the tracks

SITE PLAN

THE GREENHOUSE EFFECT
LIVINGSTON BOYD // JOSEPHINE LI
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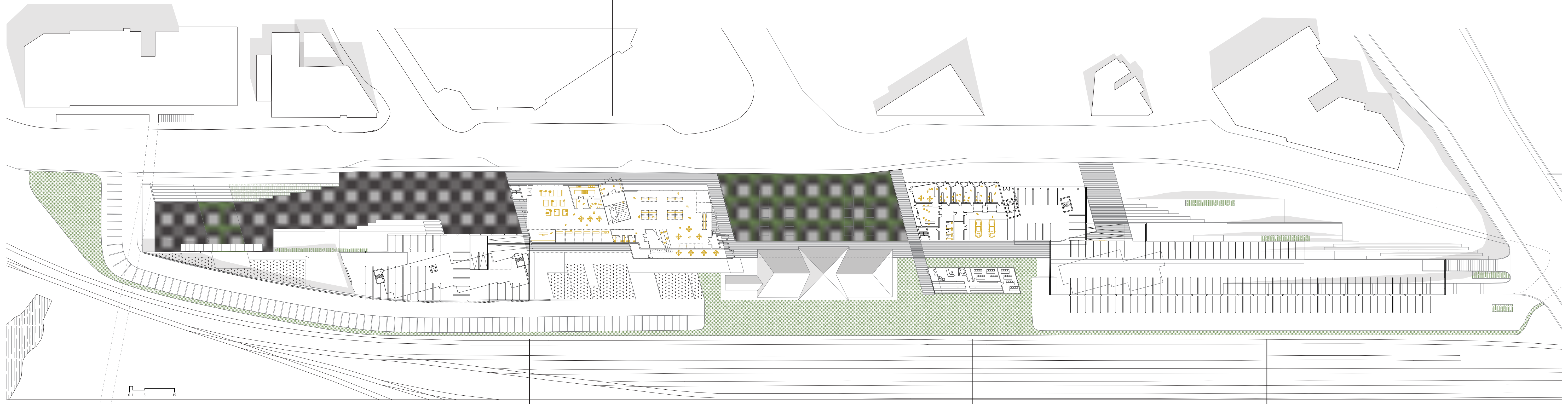
- RIBBON TERRACING ALLOWS FOR SHALLOW SKATEBOARDING AND TOBAGOING HILLS
- RIBBON TERRACING TO ADD ELEVATIONS AND SEATING TO THE SITE
- STAIRS DOWN FROM THE BON
- DESIGNATED CROP BEDS FOR OUTDOOR GROWING
- RAMPING UP TO THE BRIDGE OF NATIONS
- SURFACE PARKING

CONCENTRATED URBAN DEVELOPMENT SITE PLAN

THE GREENHOUSE EFFECT
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MAIN MARKET WITH SEASONAL + PERMANENT STALLS

SECOND MARKET WITH PERMANENT STORE FRONTS



UNDER BERM PARKING

EDUCATION GREENHOUSE

UNDER BERM PARKING

GROUND FLOOR PLANS WITH SITE CONTEXT

THE GREENHOUSE EFFECT
LIVINGSTON BOYD // JOSEPHINE LI
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MARITIME YOUTH HOUSE // BIG



DE HVIDE DRONNINGER // NORRØN



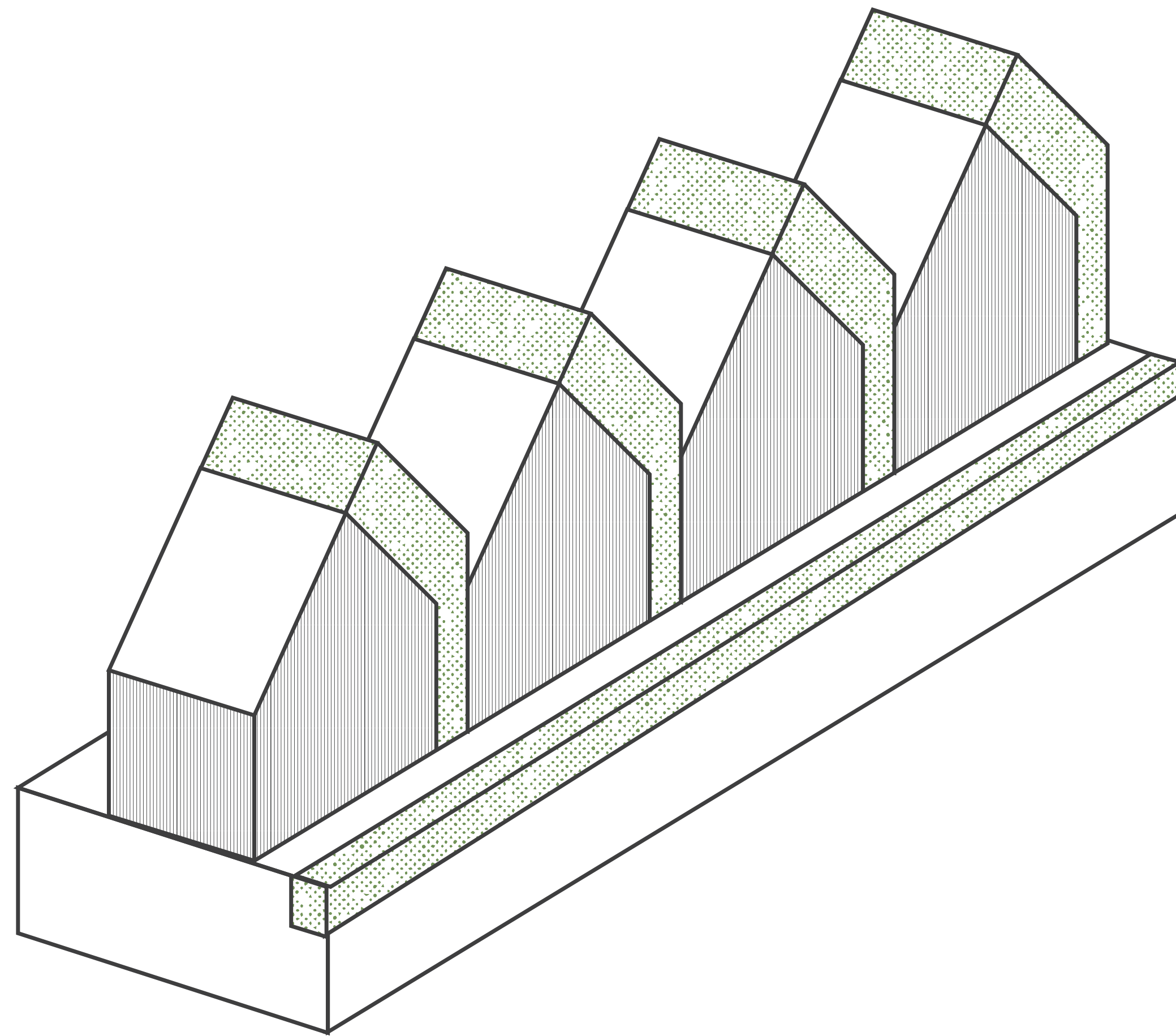
YOKOHAMA AIRPORT // FOREIGN OFFICE ARCHITECTS (FOA)



PRECEDENTS FOR URBAN DESIGN INTENTIONS

THE GREENHOUSE EFFECT
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RELATIONSHIP BETWEEN ALL THREE PROGRAMS
TO PROMOTE A HOLISTIC URBAN ECOSYSTEM



————— CONSTANT GREENHOUSE CORES

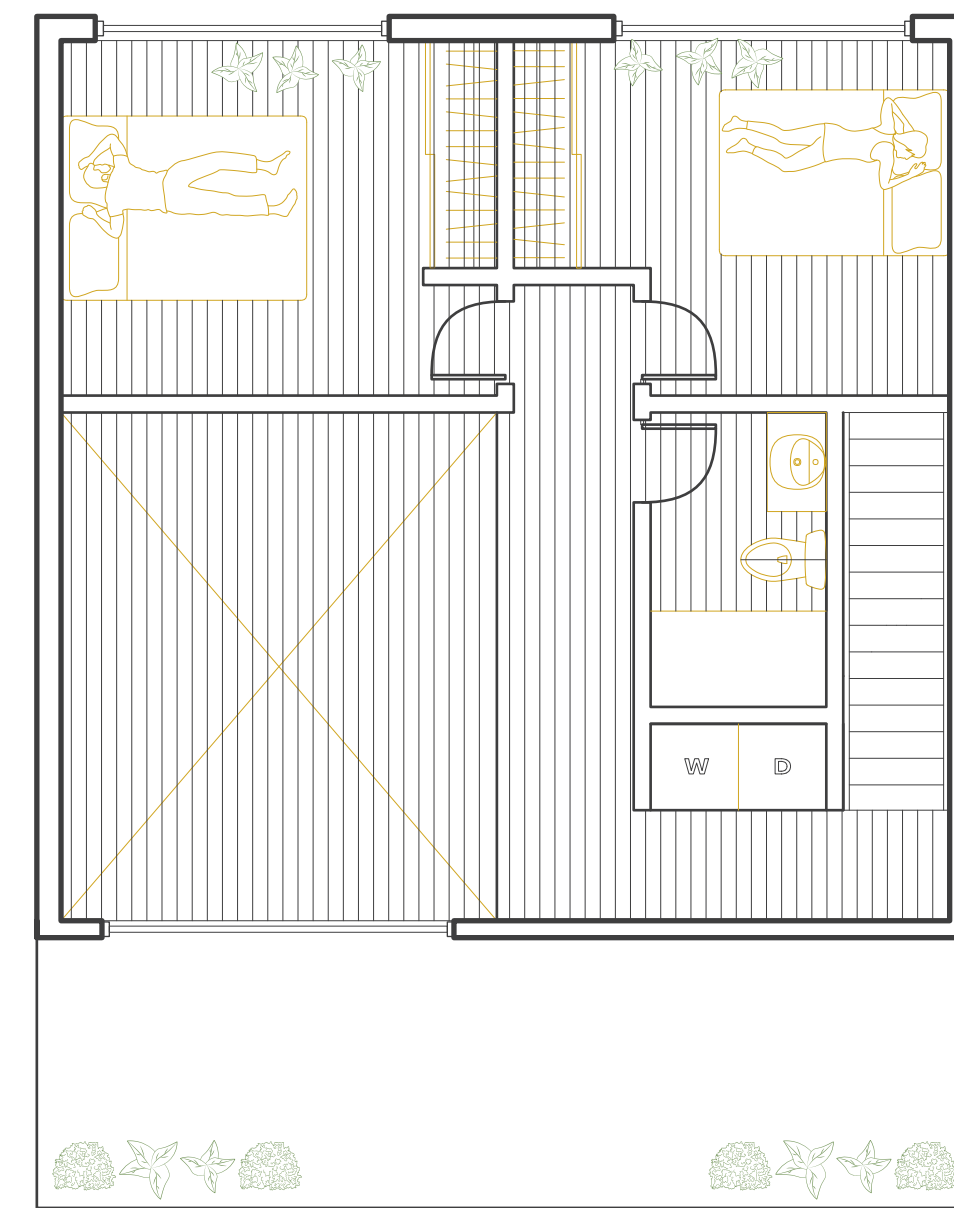
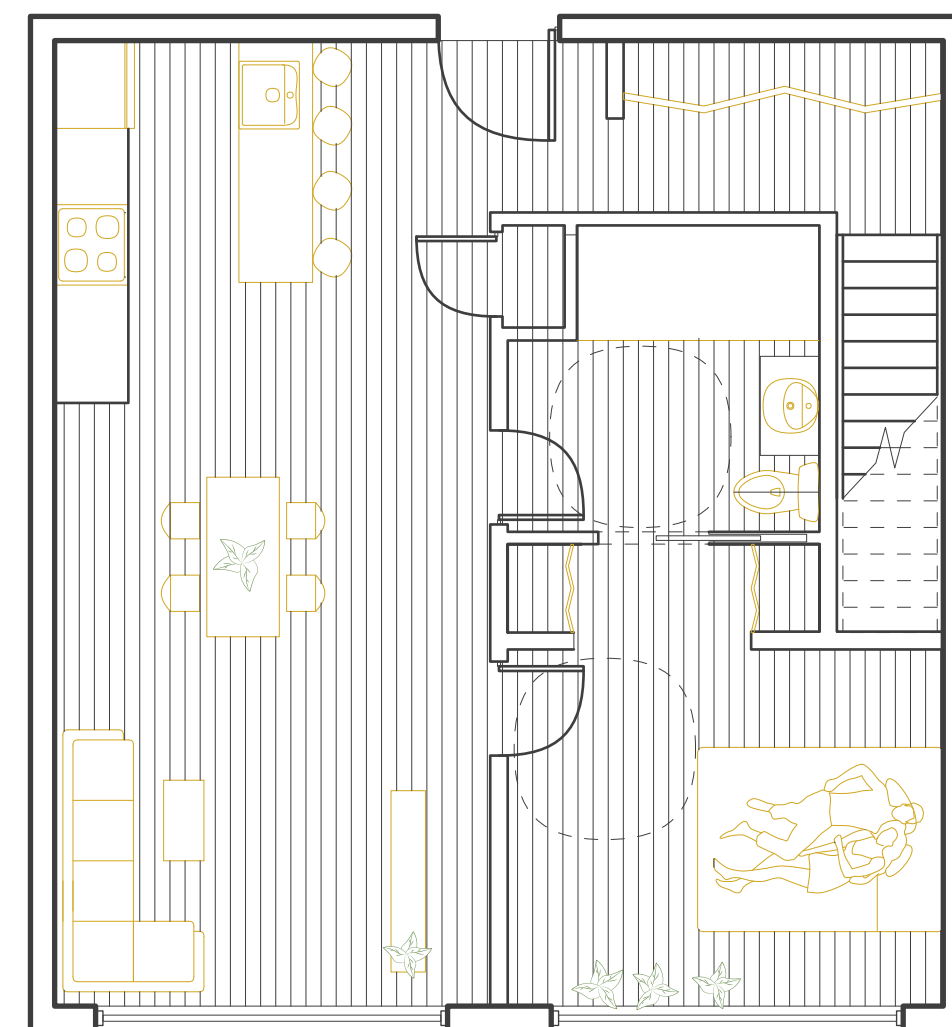
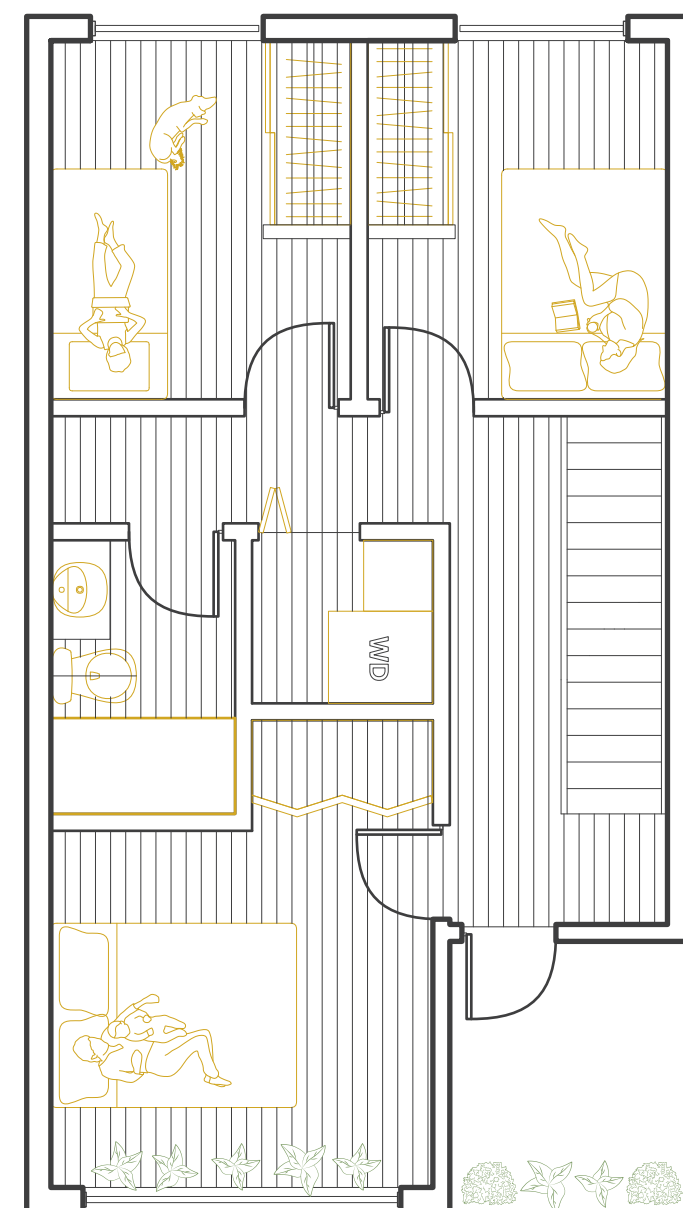
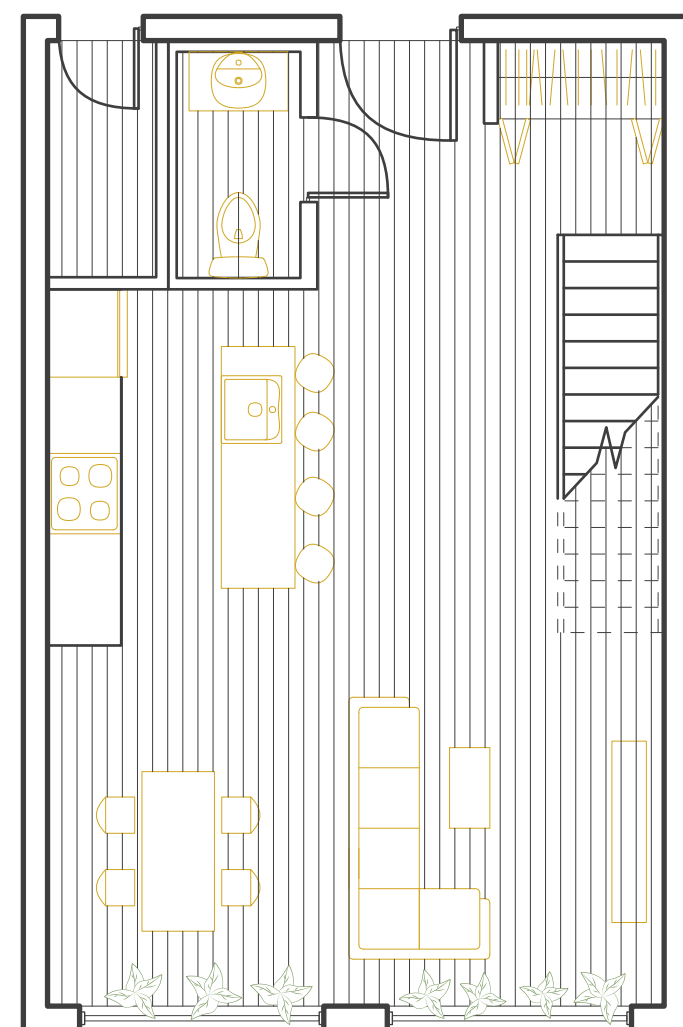
————— SLICES THROUGH RESIDENTIAL BLOCK

————— GREENHOUSE RELATIONSHIP TO MARKET

SPATIAL RELATIONSHIP DIAGRAM

THE GREENHOUSE EFFECT
LIVINGSTON BOYD // JOSEPHINE LI
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3 BEDROOMS



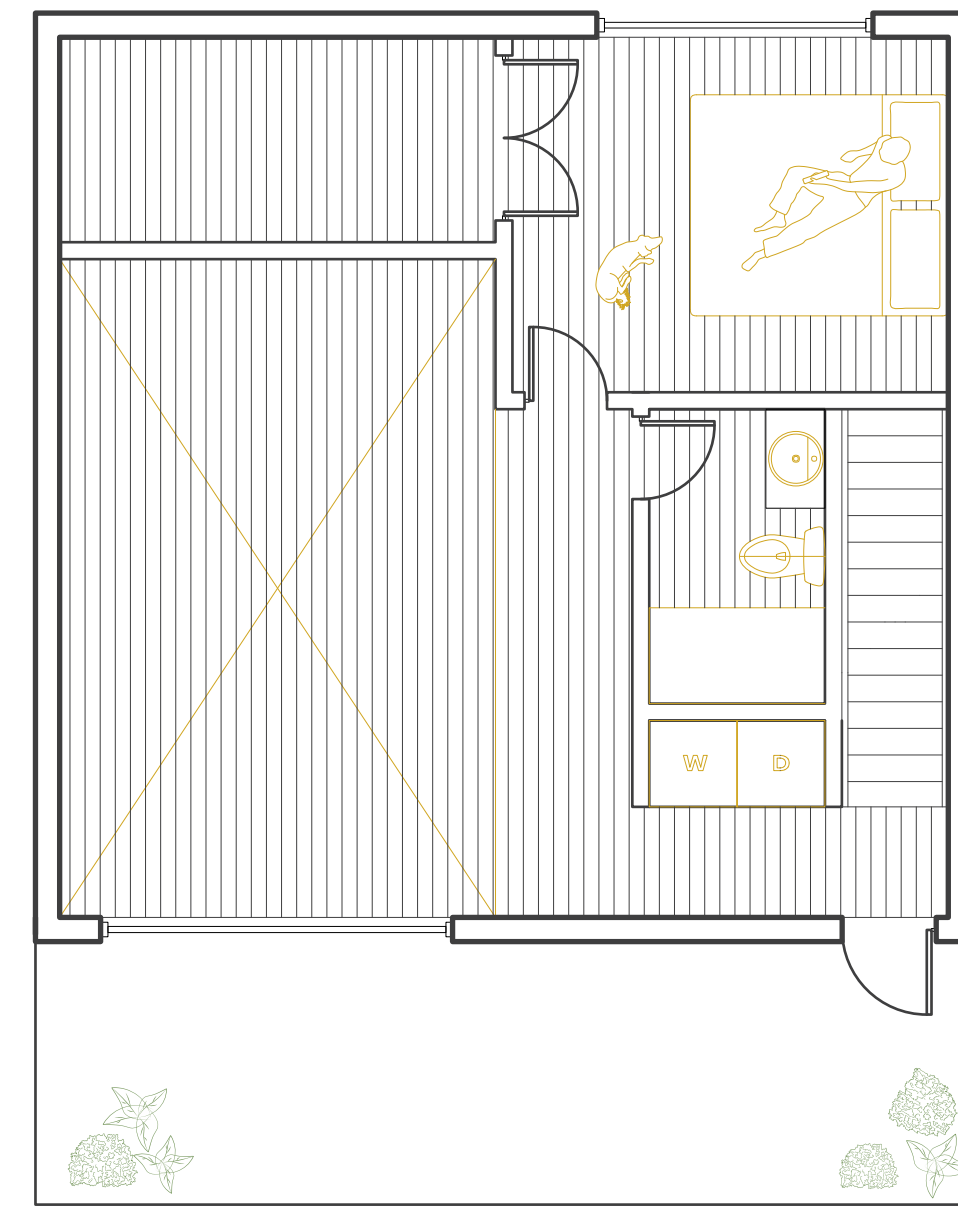
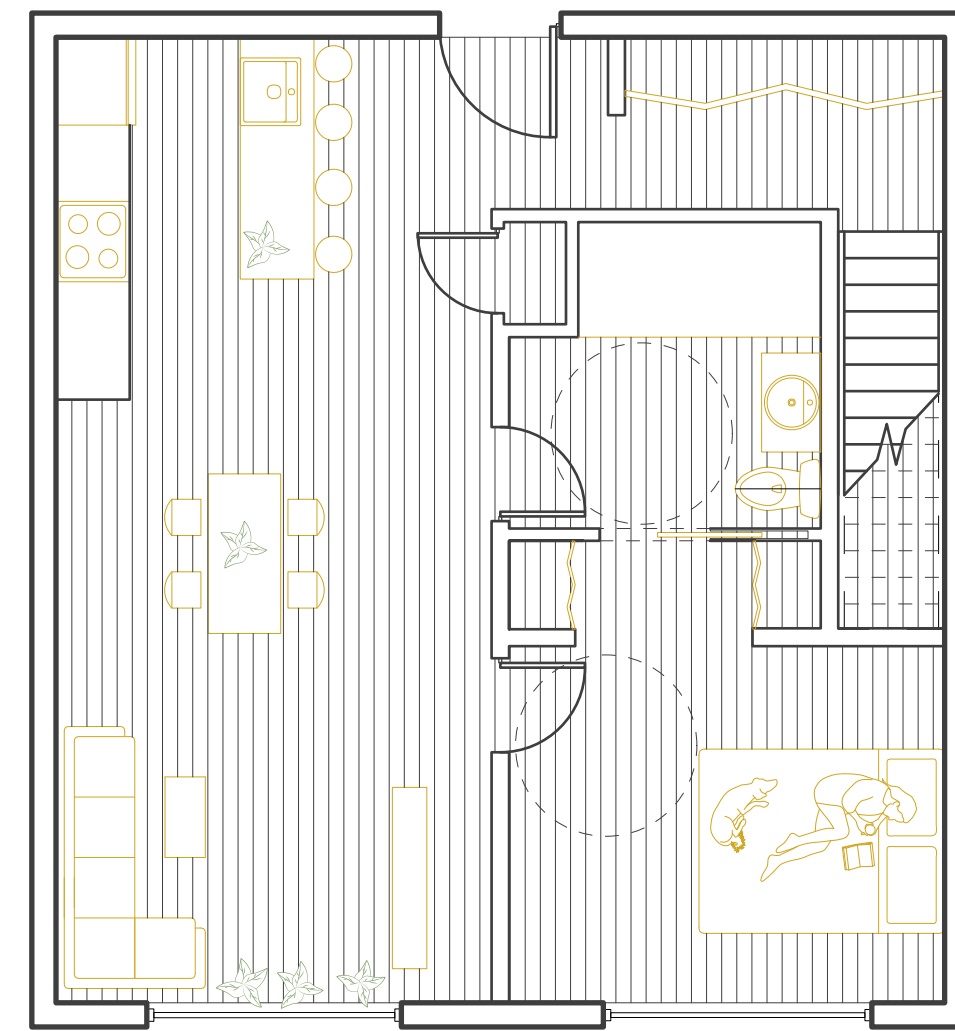
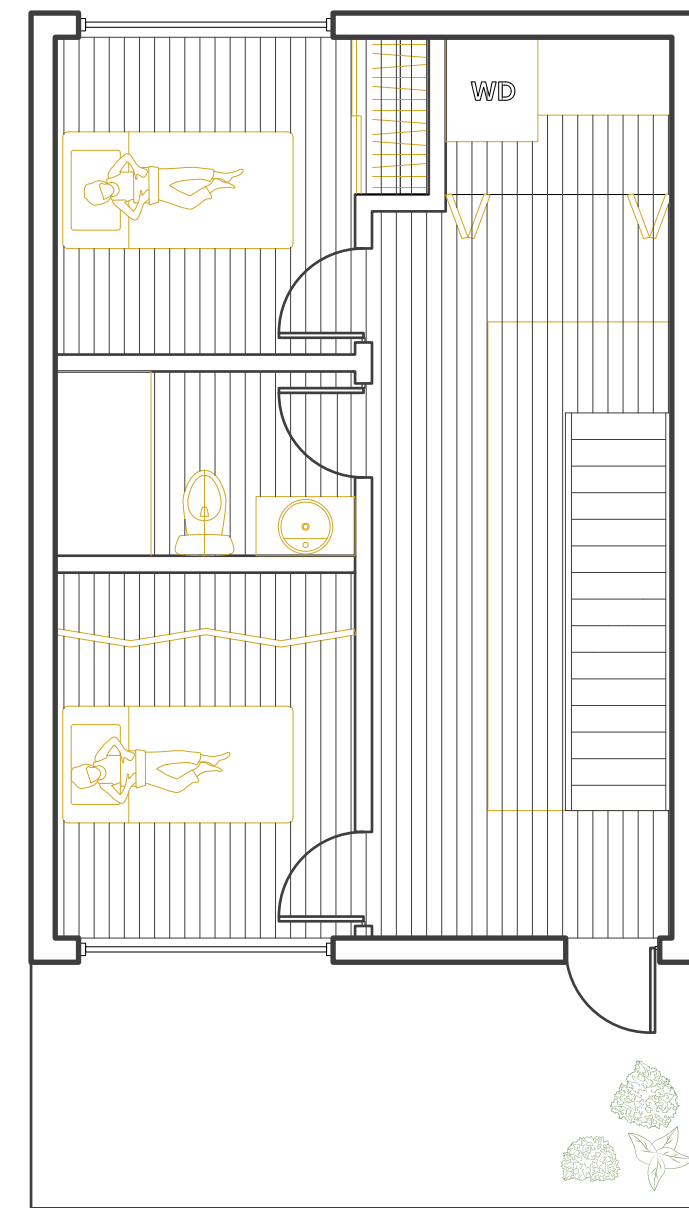
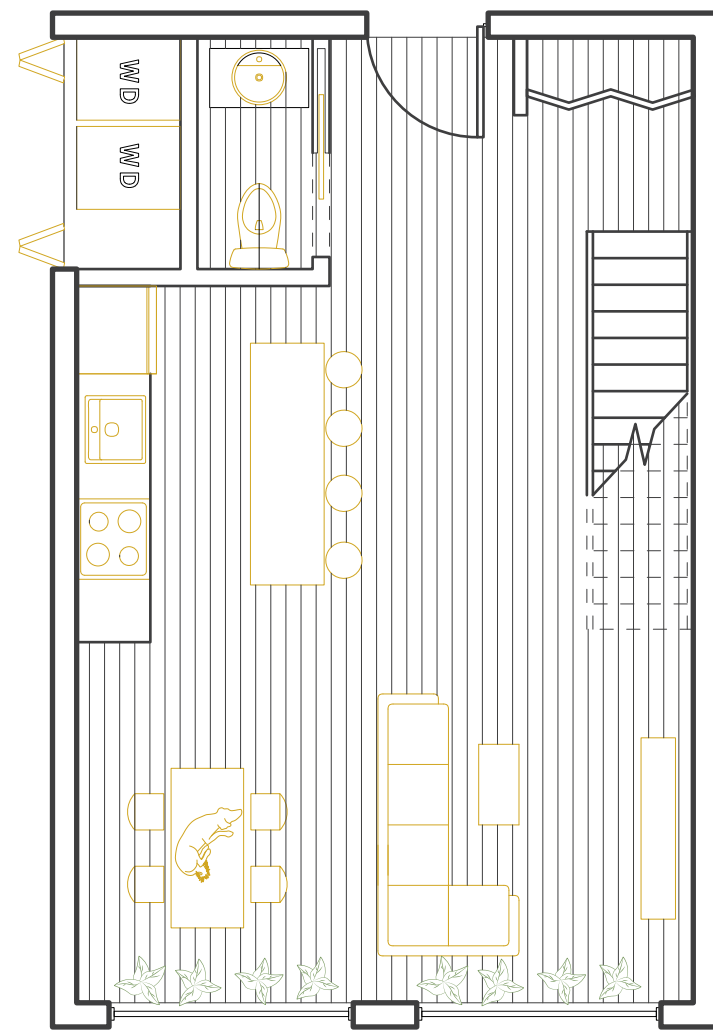
3A

3B (BF)

INDIVIDUAL UNIT PLANS

THE GREENHOUSE EFFECT
LIVINGSTON BOYD // JOSEPHINE LI
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2 BEDROOMS



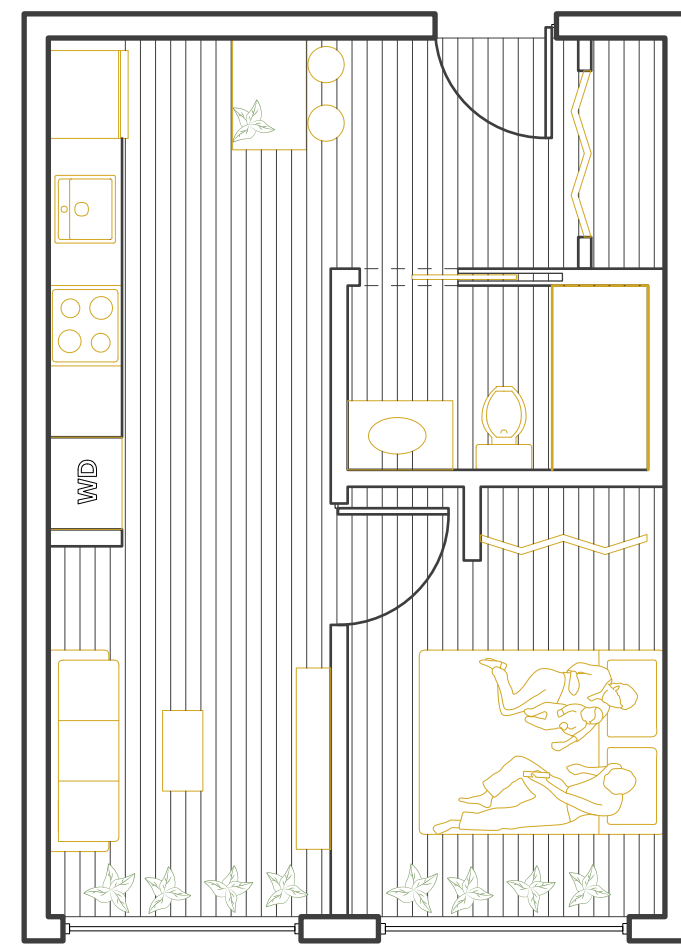
2A

2B (BF)

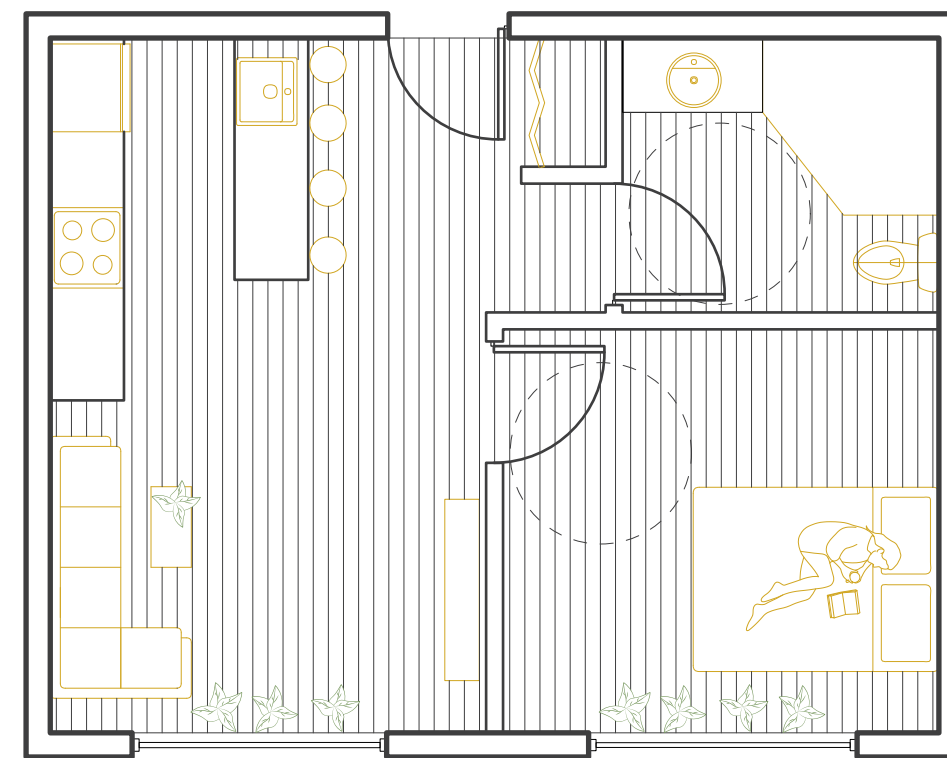
INDIVIDUAL UNIT PLANS

THE GREENHOUSE EFFECT
LIVINGSTON BOYD // JOSEPHINE LI
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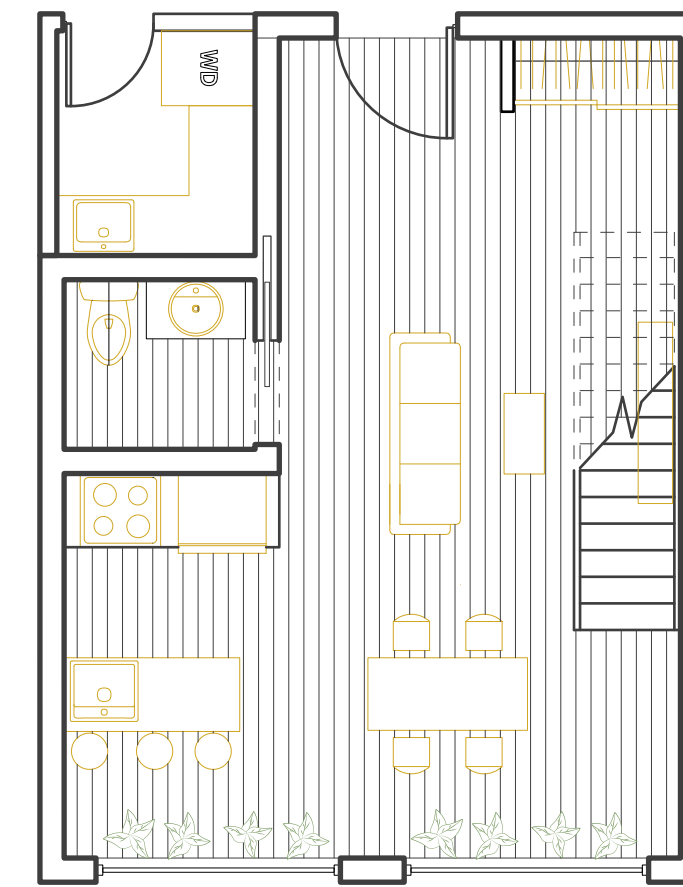
I BEDROOMS



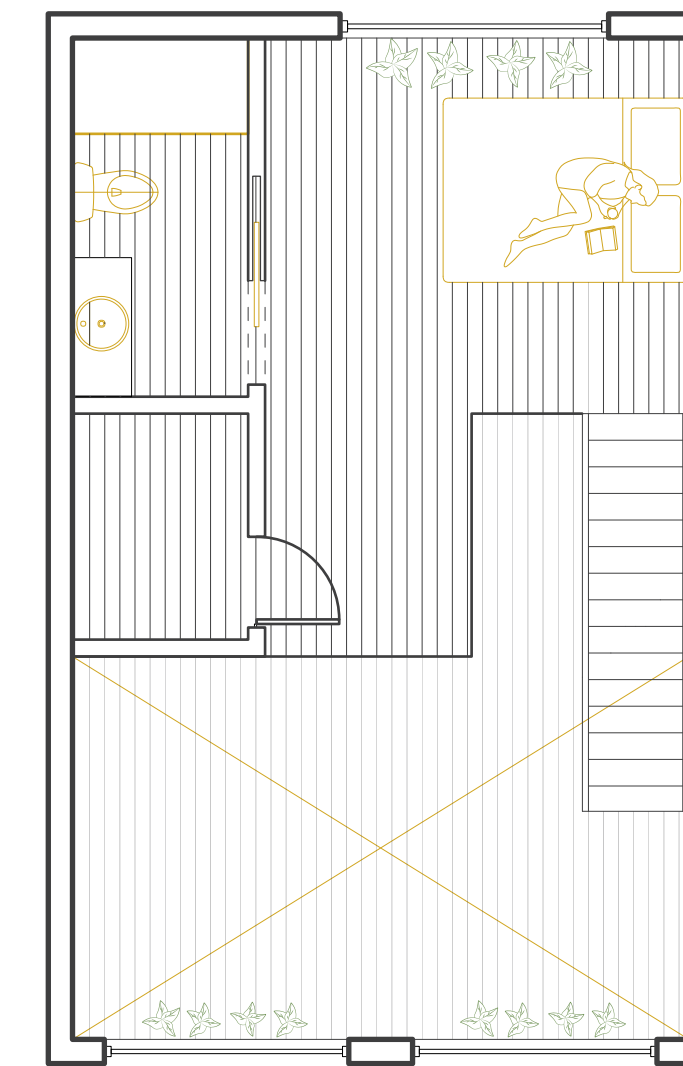
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IB (BF)



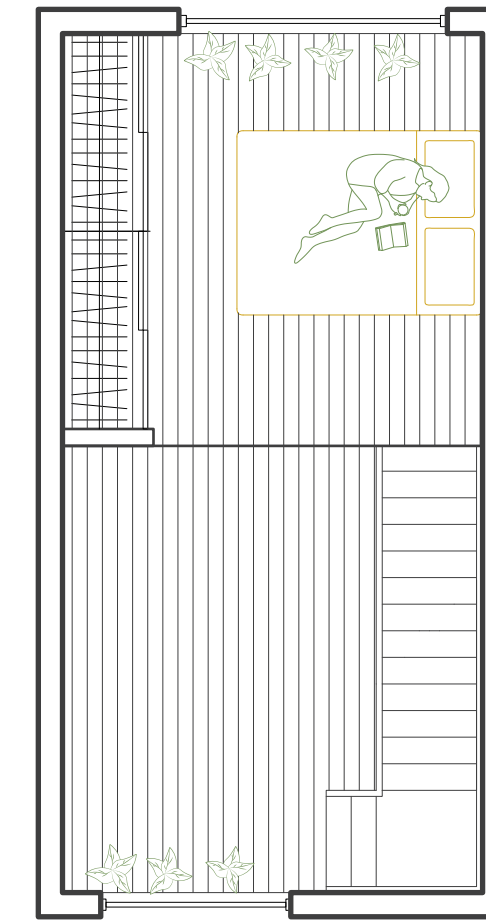
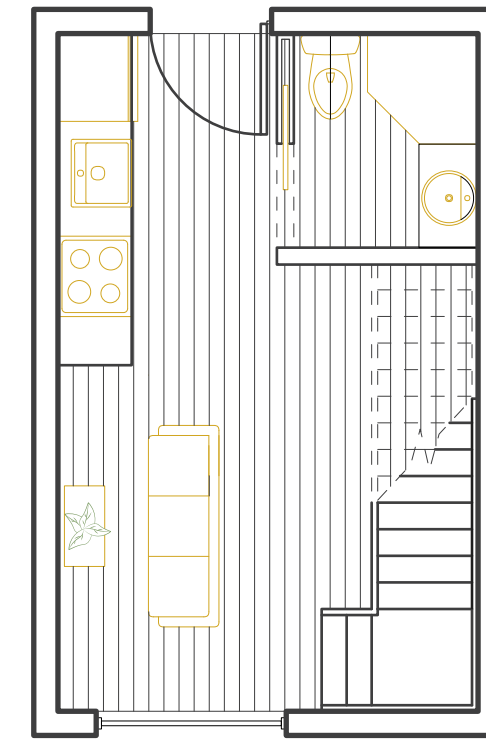
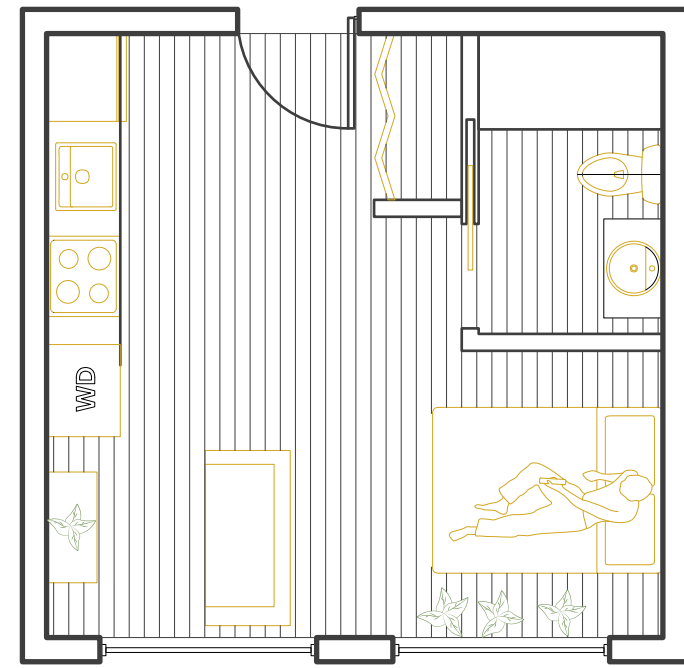
IC



INDIVIDUAL UNIT PLANS

THE GREENHOUSE EFFECT
LIVINGSTON BOYD // JOSEPHINE LI
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STUDIO



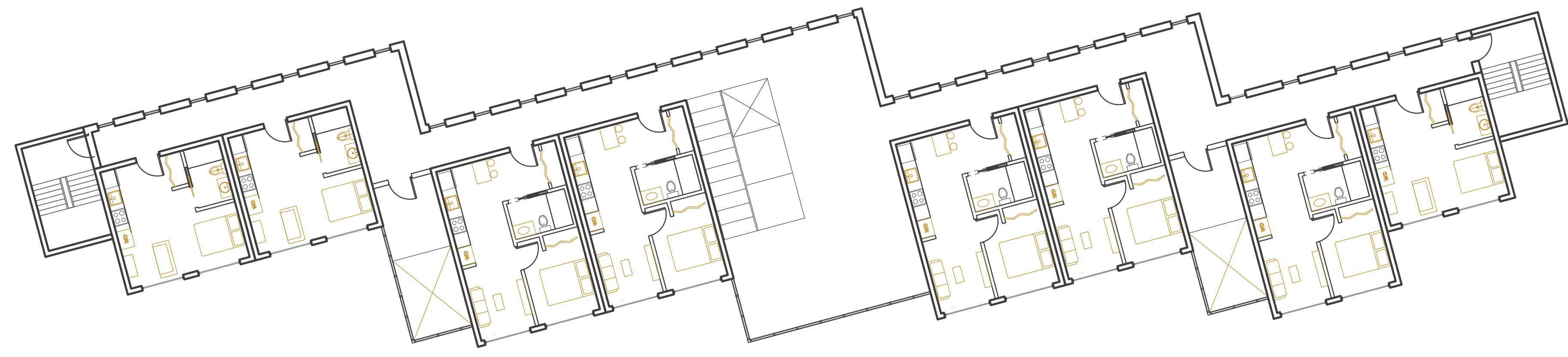
STUDIO A

STUDIO B

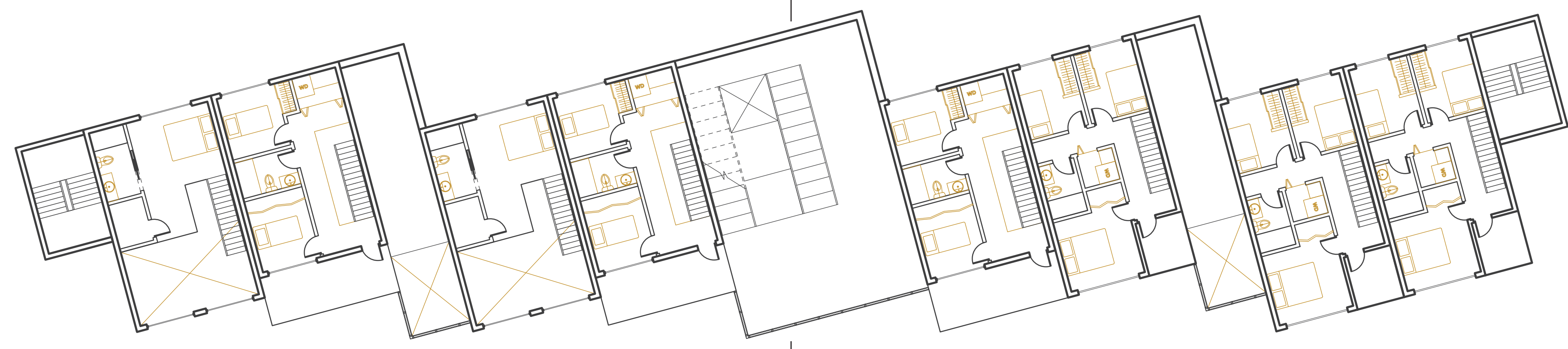
STUDIO C

INDIVIDUAL UNIT PLANS

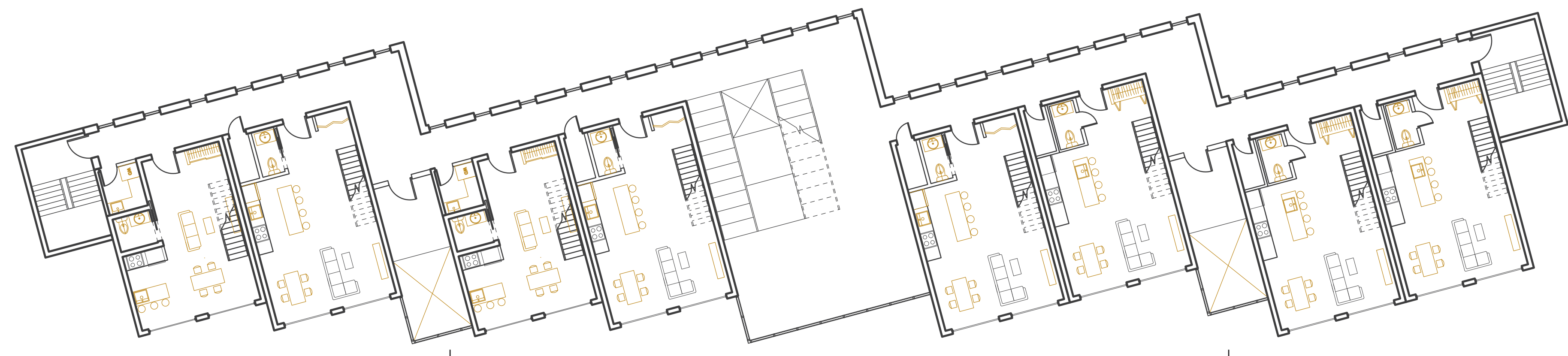
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RESIDENTIAL BLOCK LEVEL 3



RESIDENTIAL BLOCK LEVEL 2 (SECOND FLOOR OF UNITS)



RESIDENTIAL BLOCK LEVEL 1

CIRCULATION CORRIDOR ON EVERY OTHER FLOOR

MAIN GREENHOUSE CORE CIRCULATION

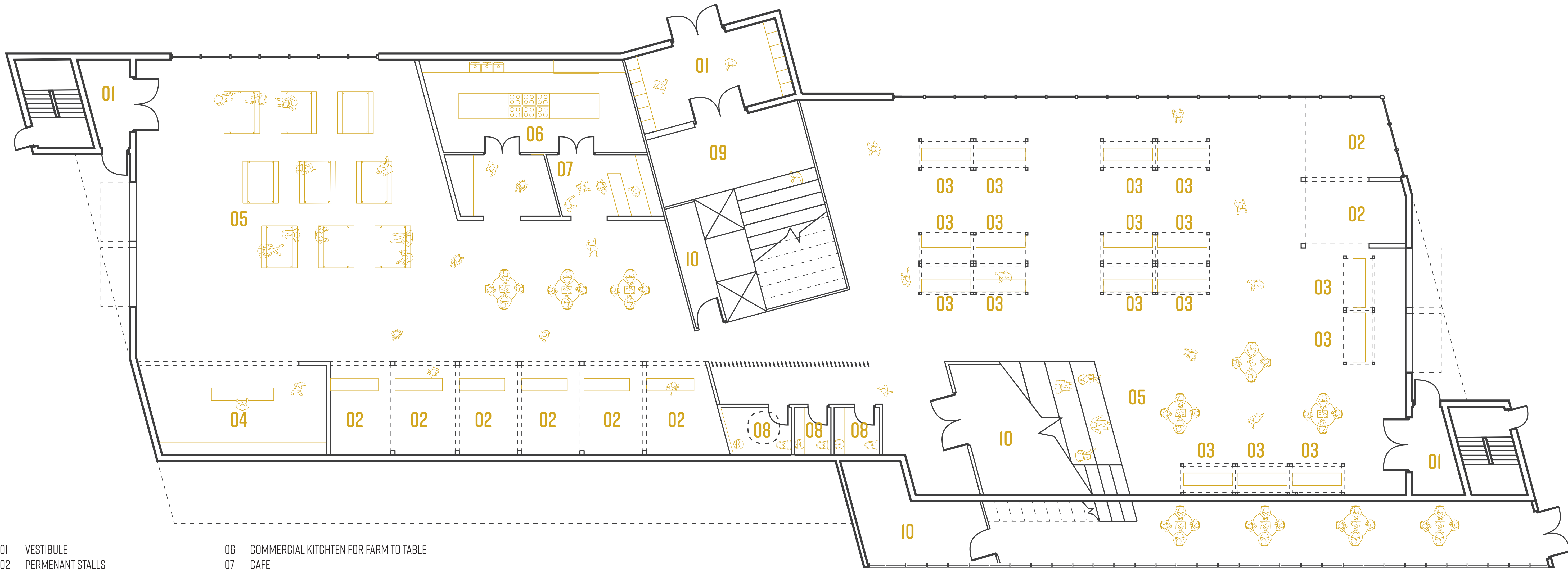
SPACE USED FOR COMMUNAL GARDENING ON EACH FLOOR

ACCESSIBLE VERTICAL GREENHOUSES FOR INSTITUTIONAL GROWING

NUMBER OF BEDS: 25

RESIDENTIAL ON TOP OF MARKET 01

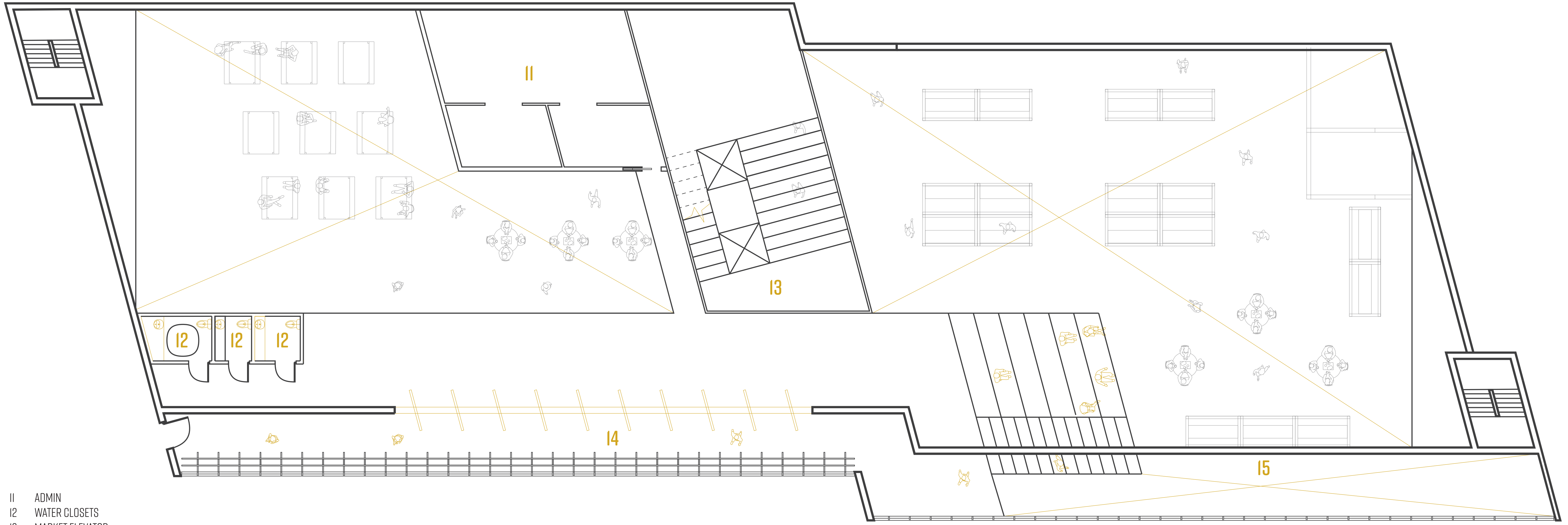
THE GREENHOUSE EFFECT
LIVINGSTON BOYD // JOSEPHINE LI
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- 01 VESTIBULE
- 02 PERMENANT STALLS
- 03 SEASONAL STALLS
- 04 INFORMATION BOOTH/SEED EXCHANGE
- 05 GATHERING AREA
- 06 COMMERCIAL KITCHTEN FOR FARM TO TABLE
- 07 CAFE
- 08 WATER CLOSETS
- 09 RESIDENTIAL LOBBY / MAILROOM
- 10 STORAGE

MARKET 01 PLAN GROUND LEVEL

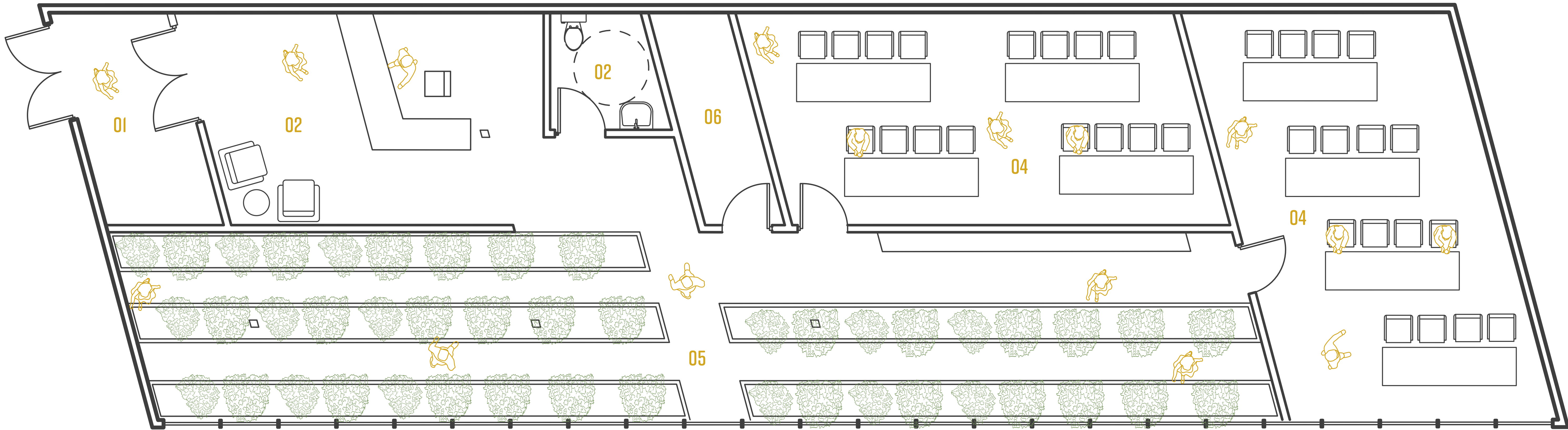
THE GREENHOUSE EFFECT
 LIVINGSTON BOYD // JOSEPHINE LI
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- 11 ADMIN
- 12 WATER CLOSETS
- 13 MARKET ELEVATOR
- 14 GREENHOUSE CORRIDOR
- 15 GATHERING AREA

MARKET 01 PLAN MEZZANINE LEVEL

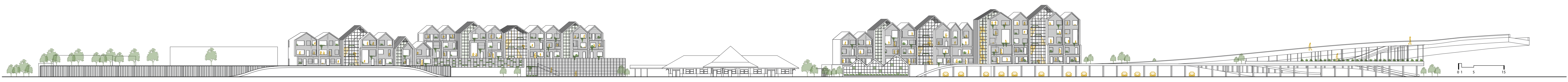
THE GREENHOUSE EFFECT
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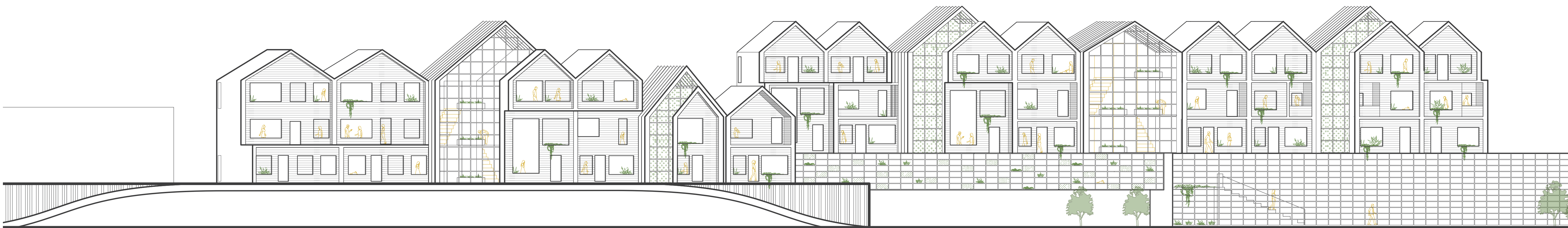
- 01 VESTIBULE
- 02 LOBBY
- 03 WATER CLOSETS
- 04 CLASSROOMS
- 05 GROWING AREA
- 06 STORAGE

EDUCATION GREENHOUSE PLAN

THE GREENHOUSE EFFECT
 LIVINGSTON BOYD // JOSEPHINE LI
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SOUTH SITE ELEVATION

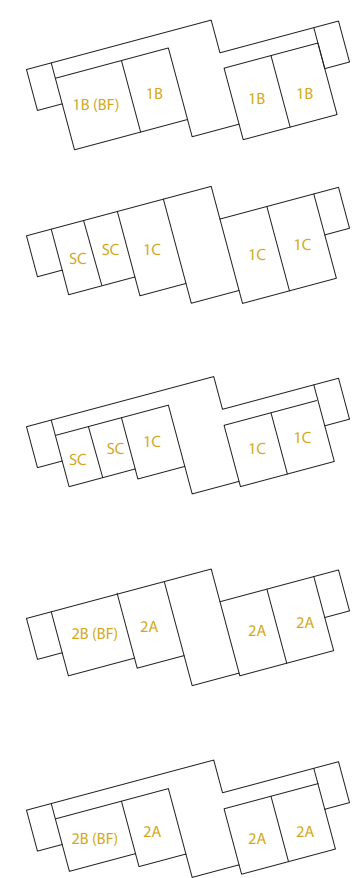


SOUTH SITE ELEVATION

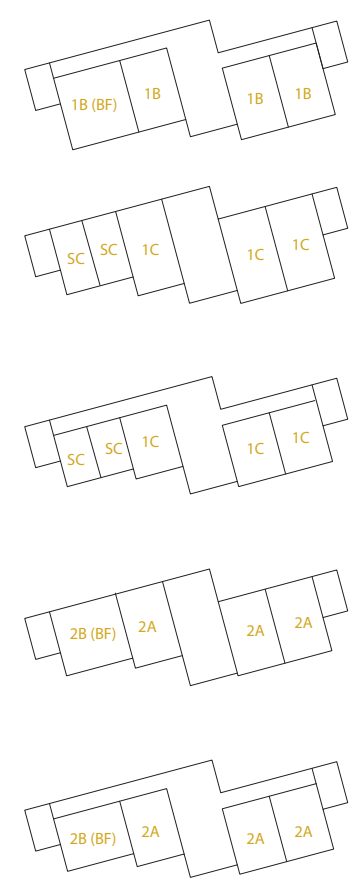
RESIDENTIAL BLOCK 01+02// MARKET + GREENHOUSE



NUMBER OF BEDS: 14



NUMBER OF BEDS: 16



NUMBER OF BEDS: 21

SOUTH SITE ELEVATION

RESIDENTIAL BLOCK 03+04// MARKET 02 + GREENHOUSE EDUCATION HUB

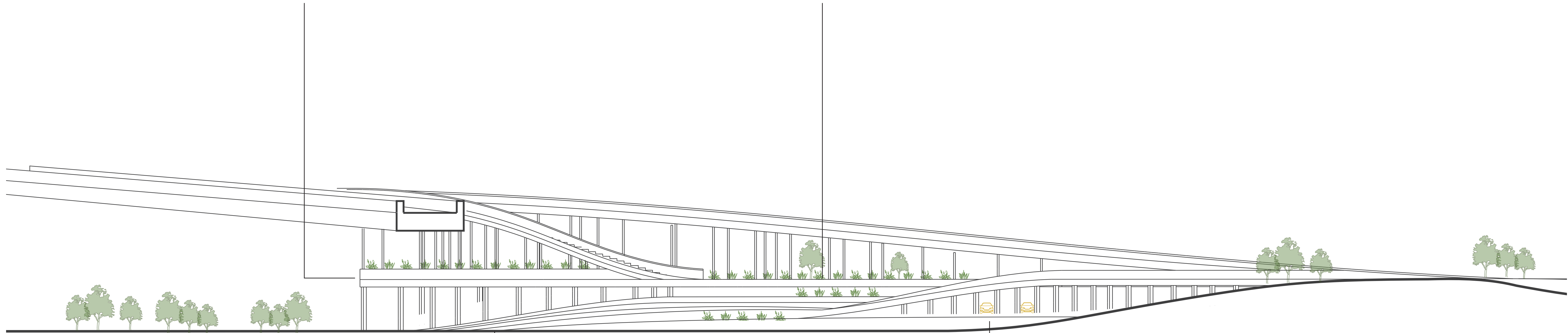


NORTH SITE SECTION

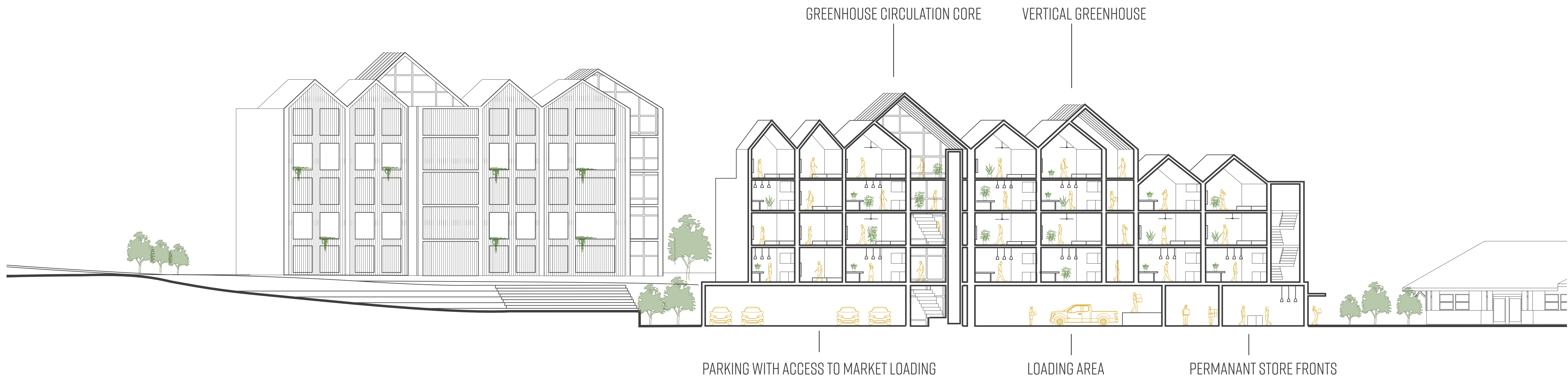
HEAVILY CONCENTRATED GROWING AREA UNDER BRIDGE
// RECEIEVES OPTIMAL SOUTH SUN

STEPPING NOTION TO CARRY OUT RESIDENTIAL
EXCUETION THROUGHOUT THE SITE

EXPOSED PARKING UNDER BERM FOR NATURAL VENTILATION



NORTH SITE SECTION
RAMP BRIDGING UP TO THE BRIDGE OF NATIONS



NORTH SITE SECTION

RESIDENTIAL BLOCK ON MARKET 02 + PARKING



GREENHOUSE CIRCULATION CORE
+ COMMUNAL GARDEN AREA

LOADS CARRYING FROM
RESIDENTIAL TO PARKING

NORTH SITE SECTION
RESIDENTIAL BLOCK ON MARKET OI
+ UNDERGROUND PARKING



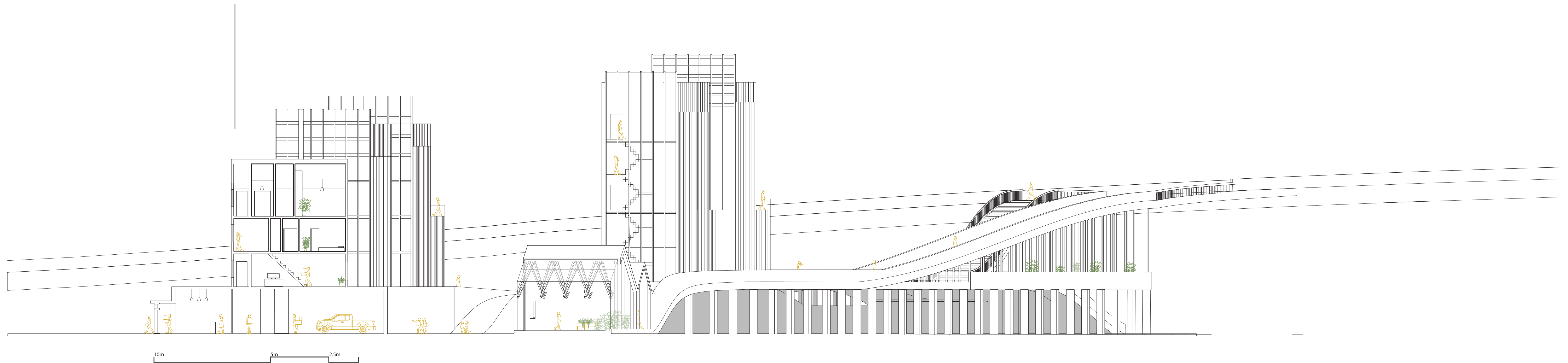
EXPOSED UNDER BERM PARKING FOR NATURAL VENTILATION

LANDSCAPE DIPPING BACK DOWN TO OPEN ANOTHER ACCESS
ACCESS POINT - PEDESTRIAN TUNNEL

OPENING UP TO A PUBLIC SQUARE THAT IS IN DIRECT
RELATION TO THE SHOPS ON ELGIN

NORTH SITE SECTION
RESIDENTIAL BLOCK + OPENING UP
TUNNEL

CIRCULATION CORRIDOR ON EVERY OTHER FLOOR TO
ACCOMMODATE MAX RESIDENTIAL WINDOW AREAS + CROSS
VENTILATION



EDUCATION GREENHOUSE FOR LOCALS TO GO LEARN ABOUT
AND HOW TO GARDEN

EXPOSED UNDER BERM PARKING FOR NATURAL VENTILATION

EAST - WEST SECTION



EXTERIOR PERSPECTIVE - RESIDENTIAL + MARKET + GREENHOUSE

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INTERIOR MARKET SPACE

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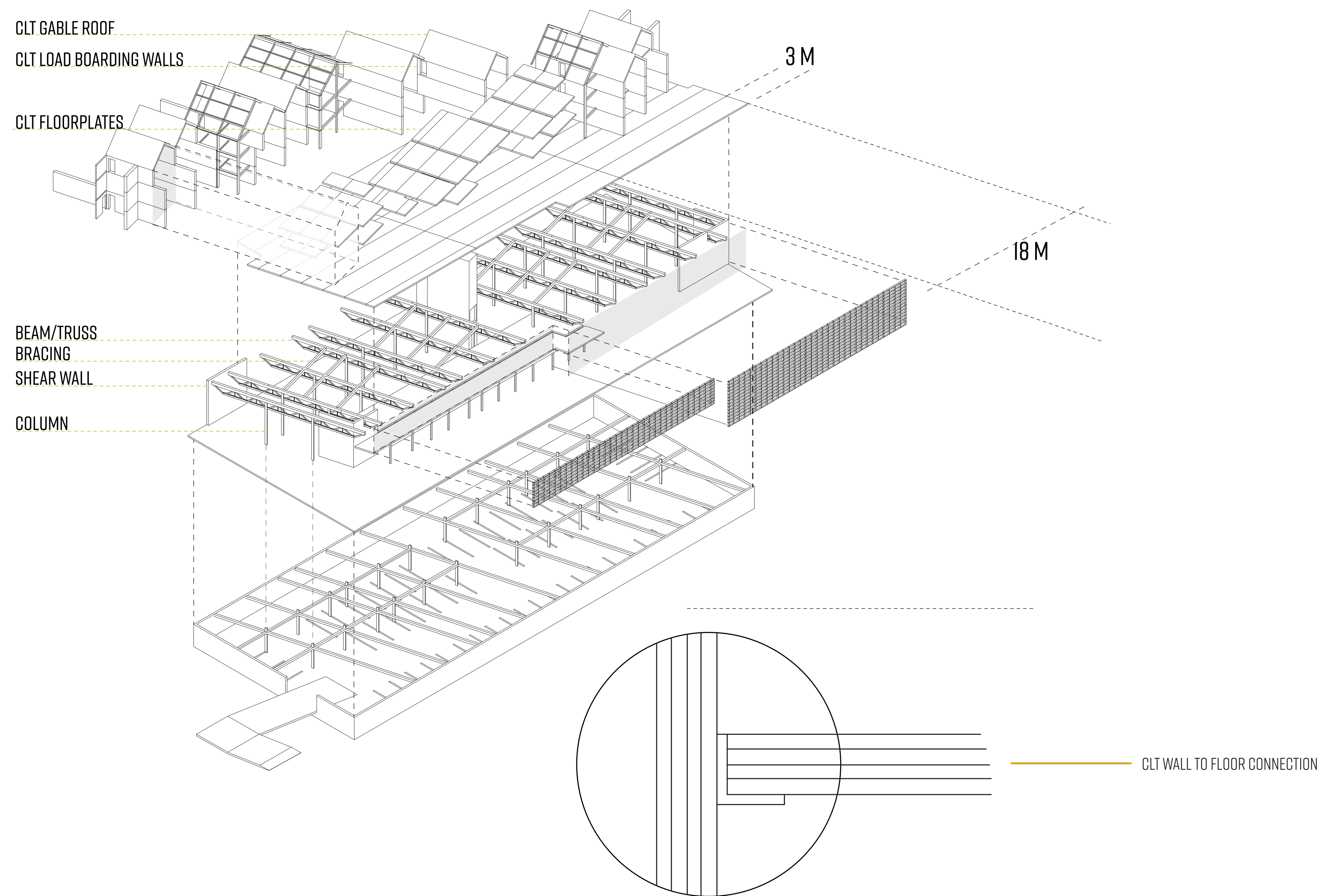
GREENHOUSE CORRIDOR

THE GREENHOUSE EFFECT
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16 / 12 / 2019



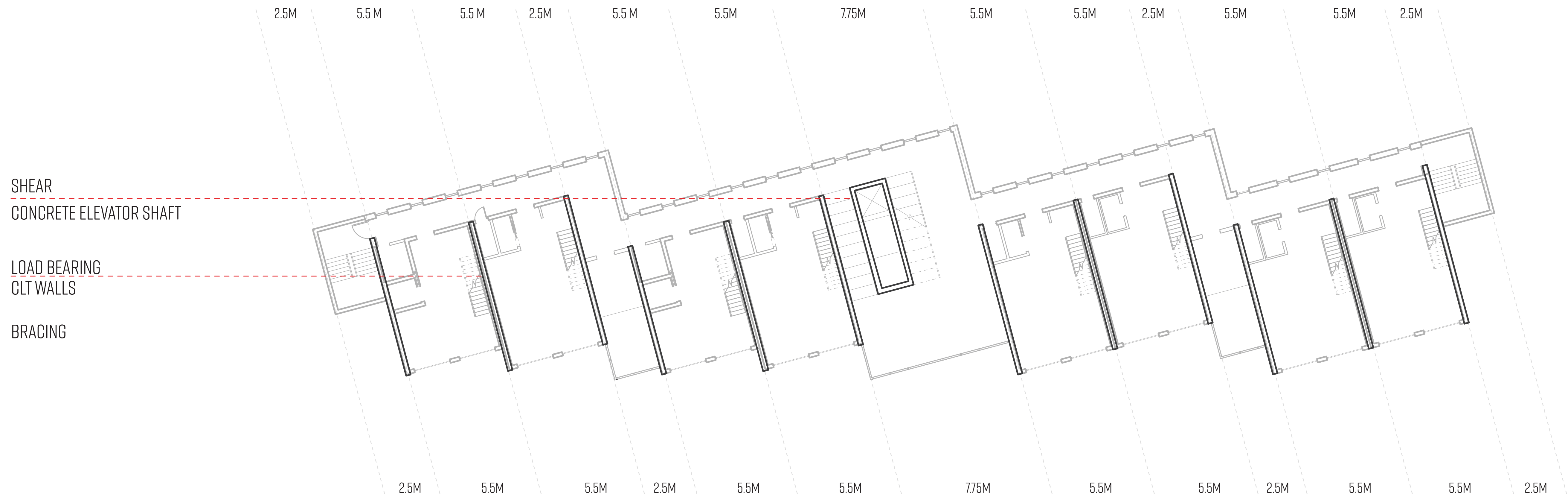
RESIDENTIAL UNIT

*THE GREENHOUSE EFFECT
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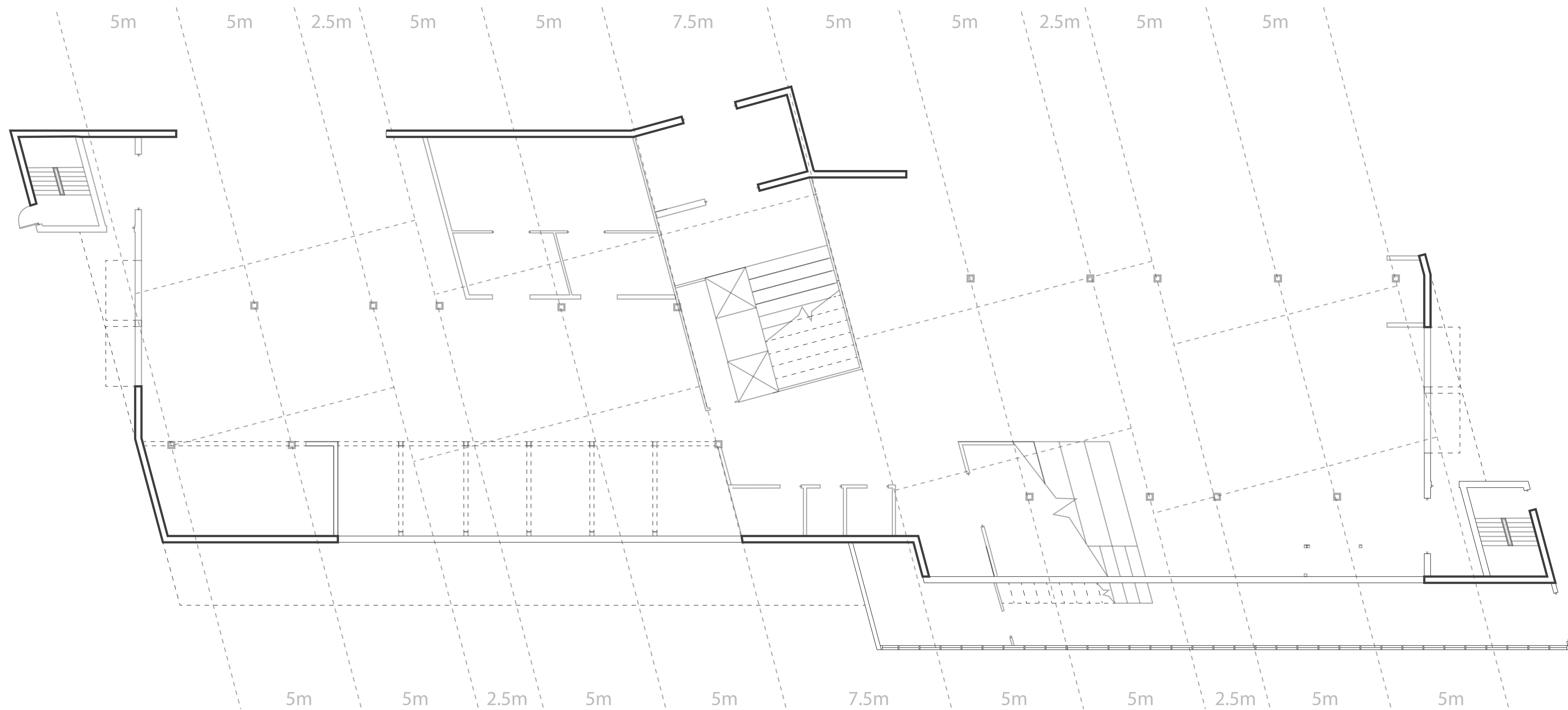
STRUCTURAL AXO

THE GREENHOUSE EFFECT
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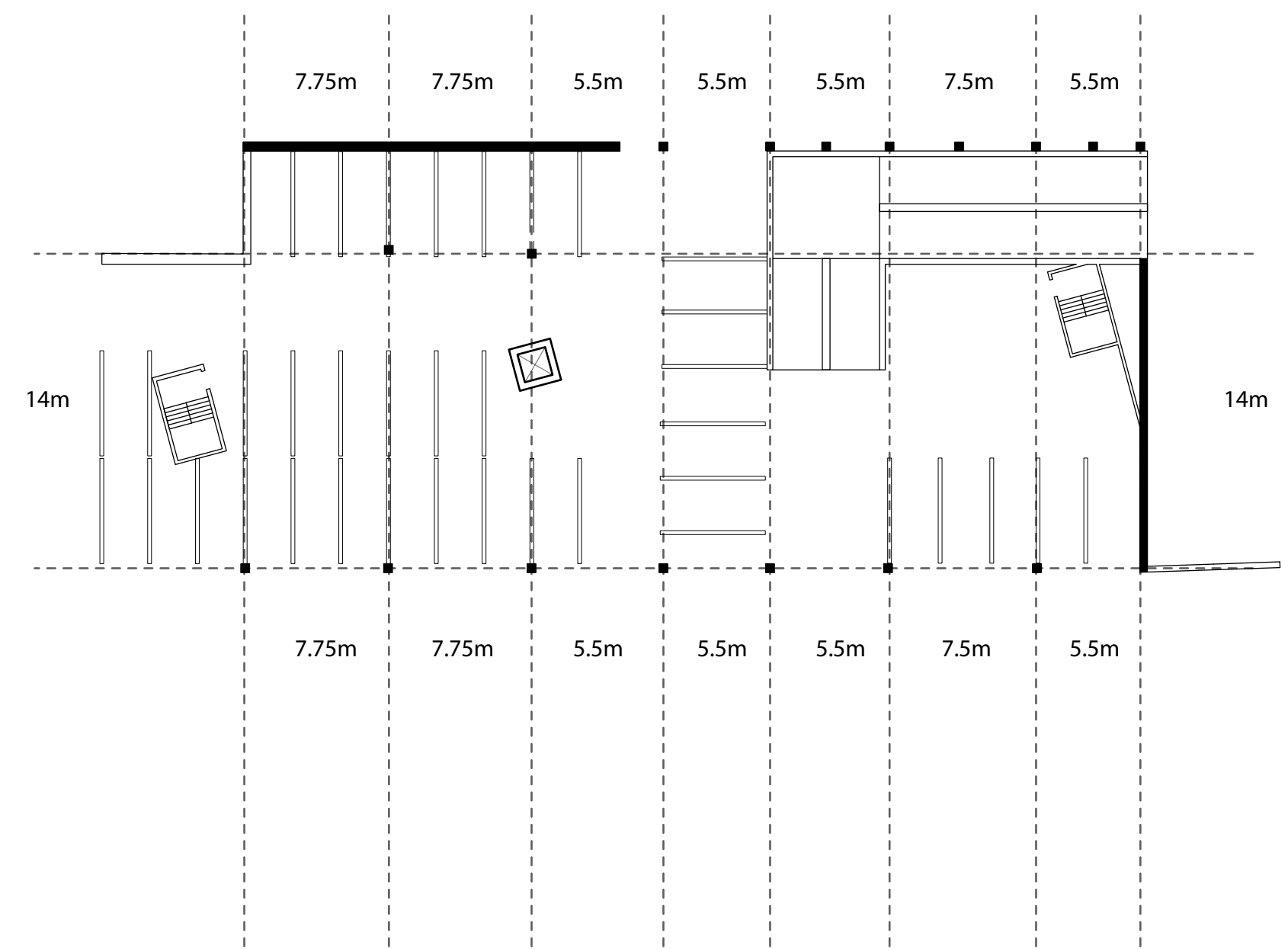
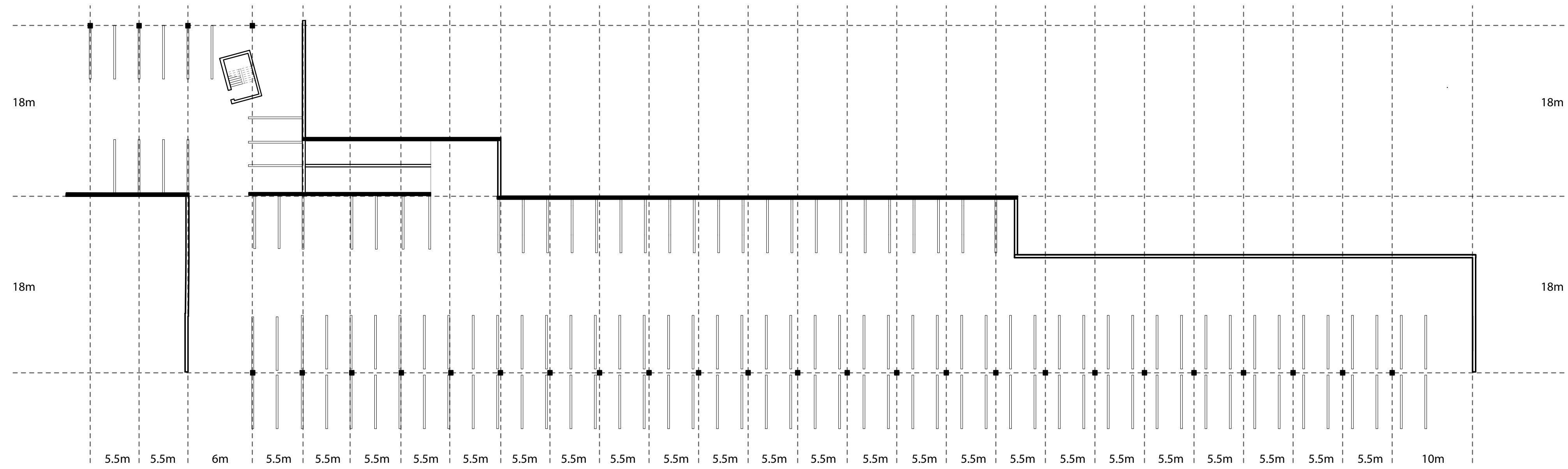
RESIDENTIAL STRUCTURAL PLAN

THE GREENHOUSE EFFECT
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16 / 12 / 2019



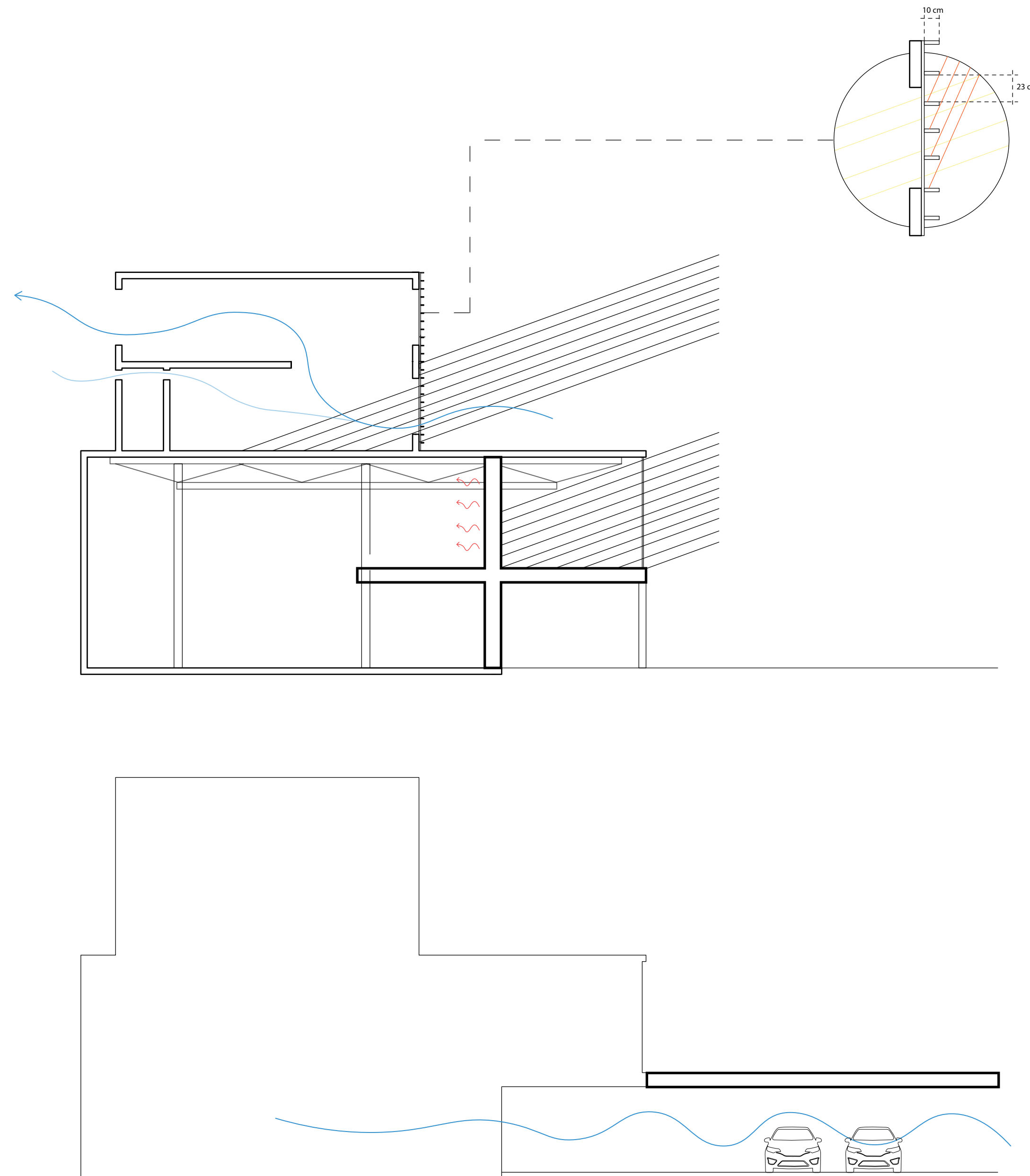
MARKET STRUCTUAL PLAN

THE GREENHOUSE EFFECT
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UNDER BERM STRUCTURAL PLAN

THE GREENHOUSE EFFECT
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SUMMER SUN SHADING / WINTER SUN RECEPTION

TAKING THE SUMMER SUN ANGLES OF APPROXIMATELY 65 DEGREES, A LENGTH AND DISTRIBUTION OF HORIZONTAL SHADING LOUVRES COULD BE DETERMINED TO MINIMIZE SOLAR GAINS IN THE SUMMER WHILE ALLOWING WINTER SUN FAR INTO THE UNIT

MAXIMISED SOUTH SUN EXPOSURE

PERMITTED BY THIS UNIQUE SITE, THE DESIGN TAKES ADVANTAGE OF THE OPPORTUNITY FOR SOUTHERN GLAZING FOR EVERY RESIDENTIAL UNIT IN THE BUILDING

CROSS VENTILATION

WITH CIRCULATION ONLY ON EVERY OTHER FLOOR, NORTHERN OPERABLE WINDOWS CAN BE AFFORDED TO EACH LOFT UNIT, ALLOWING SUMMER BREEZES TO PASS INTO AND OUT OF THE UNIT TO ACHIEVE CROSS VENTILATION.

OPEN ON THE SOUTH AND NORTH ENDS, CROSS VENTILATION IS ALSO ACHIEVED THROUGH THE UNDER-BERM PARKING GARAGES THROUGHOUT THE SITE

THERMAL MASS FOR PASSIVE HEATING

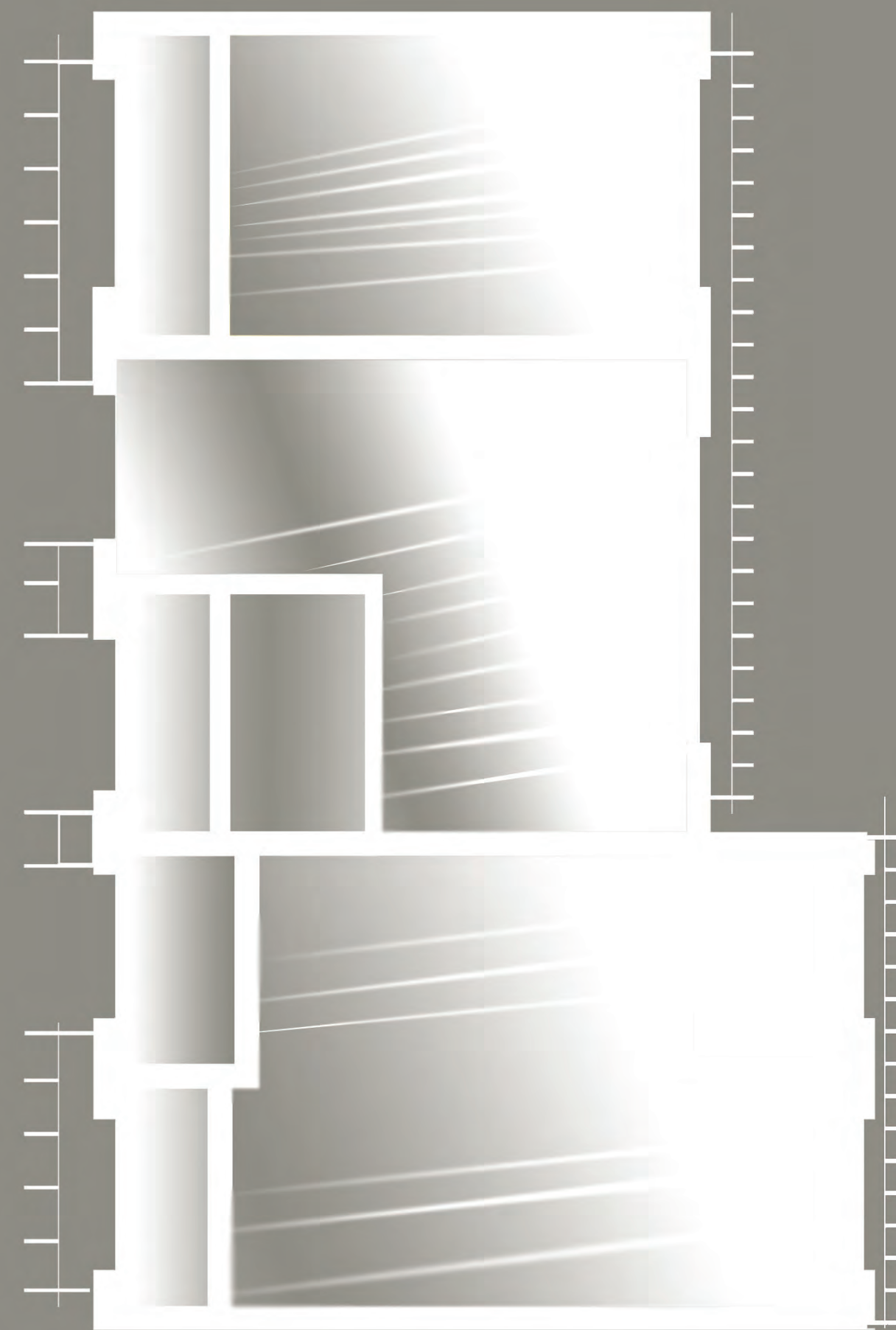
THE CONCRETE FLOOR AND NORTHERN WALL WILL ACT TO RETAIN ALL THE HEAT COMING THROUGH THE SOUTHERN GLAZING AND DISTRIBUTE IT INTO THE MARKET ON THE OTHER SIDE

PASSIVE SECTION

THE GREENHOUSE EFFECT
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FULL NORTH EXPOSURE

LANGUAGE OF DOUBLE FACADE
CARRIED OVER WITH LESS DENSITY

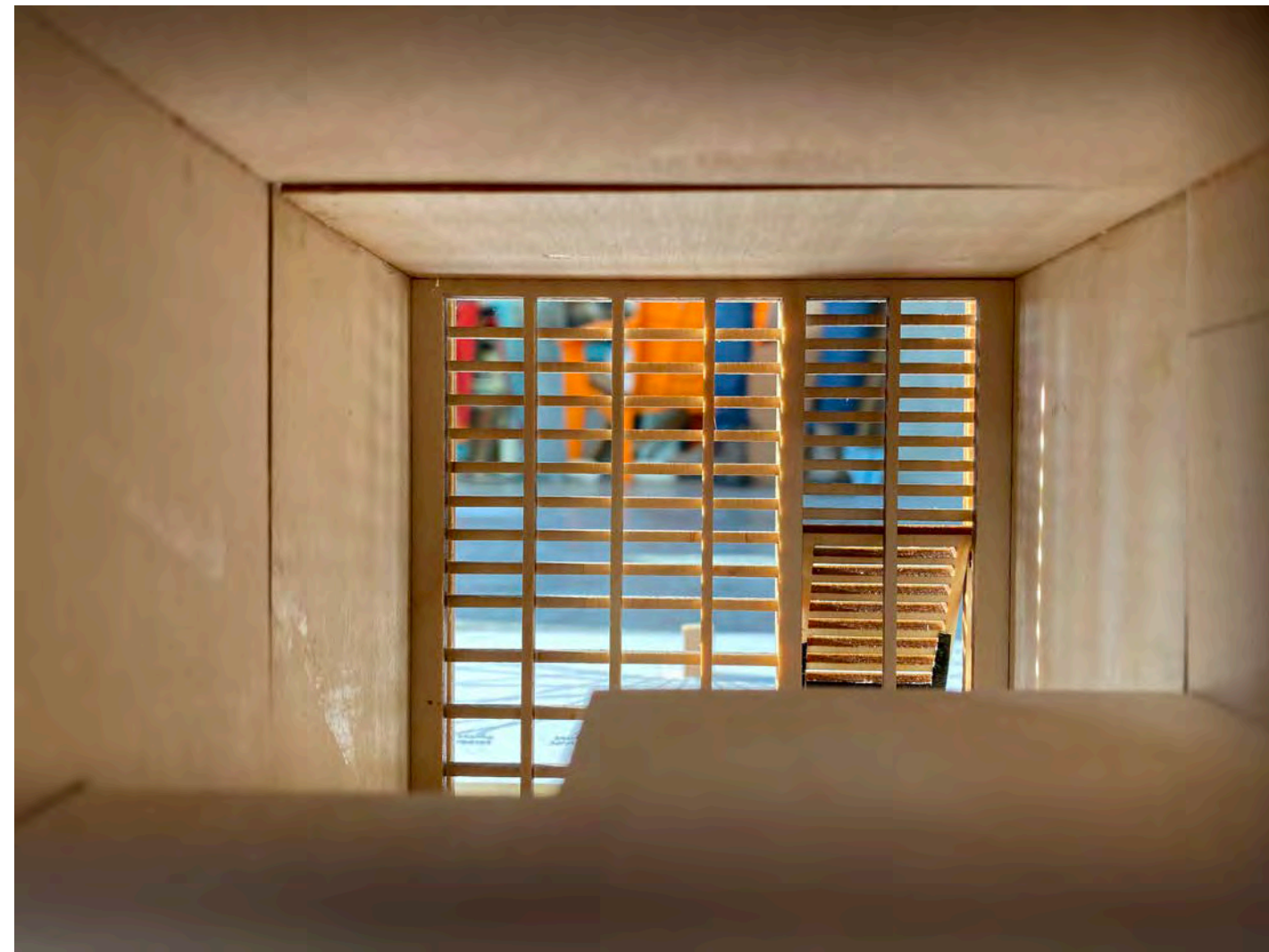


FULL SOUTH EXPOSURE

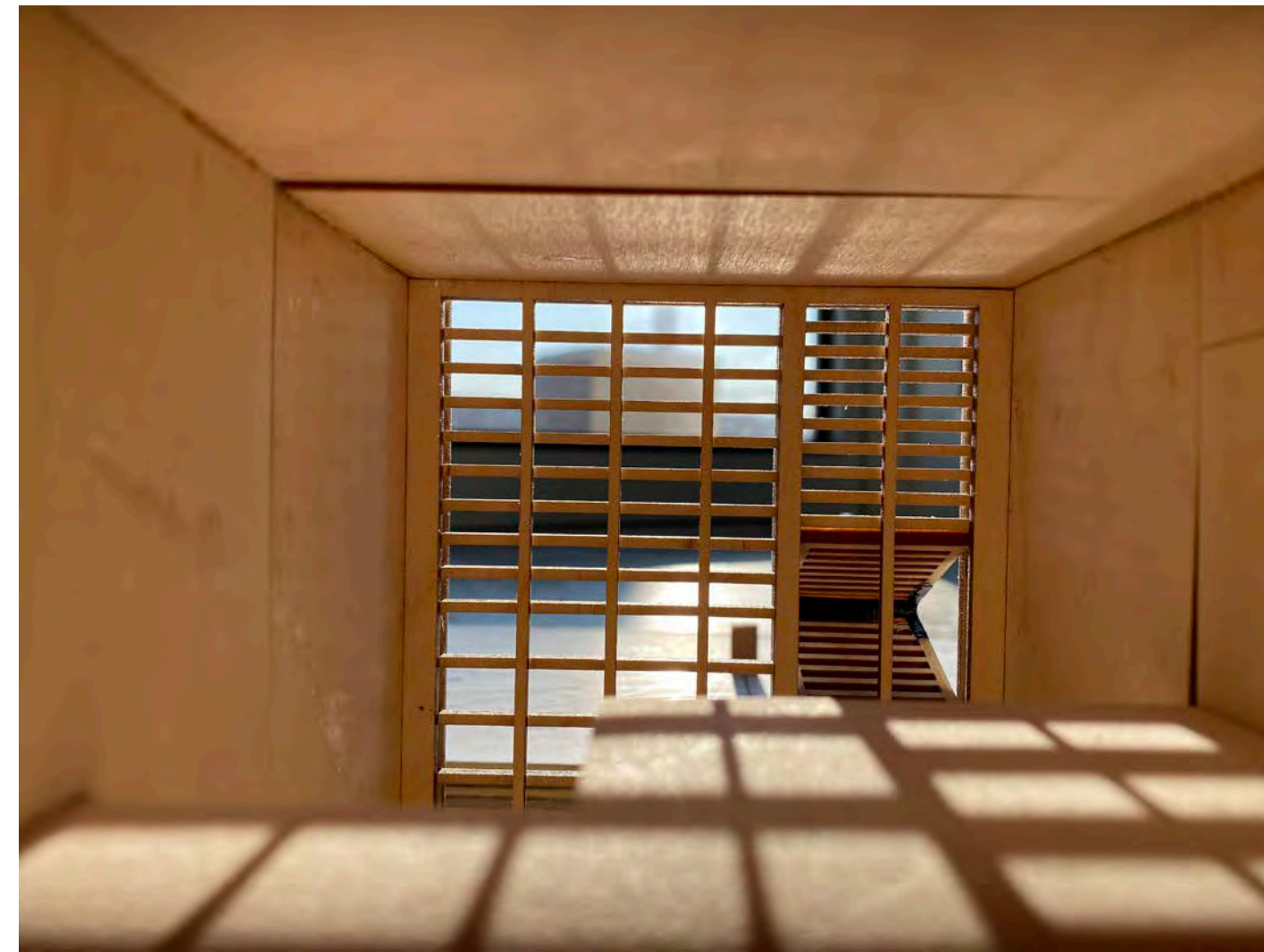
DOUBLE FACADE TO AID IN SHADING

DIAGRAMS OF ONE INTERIOR SPACE FOR DAYLIGHTING

VIEW FROM NORTH



7:00

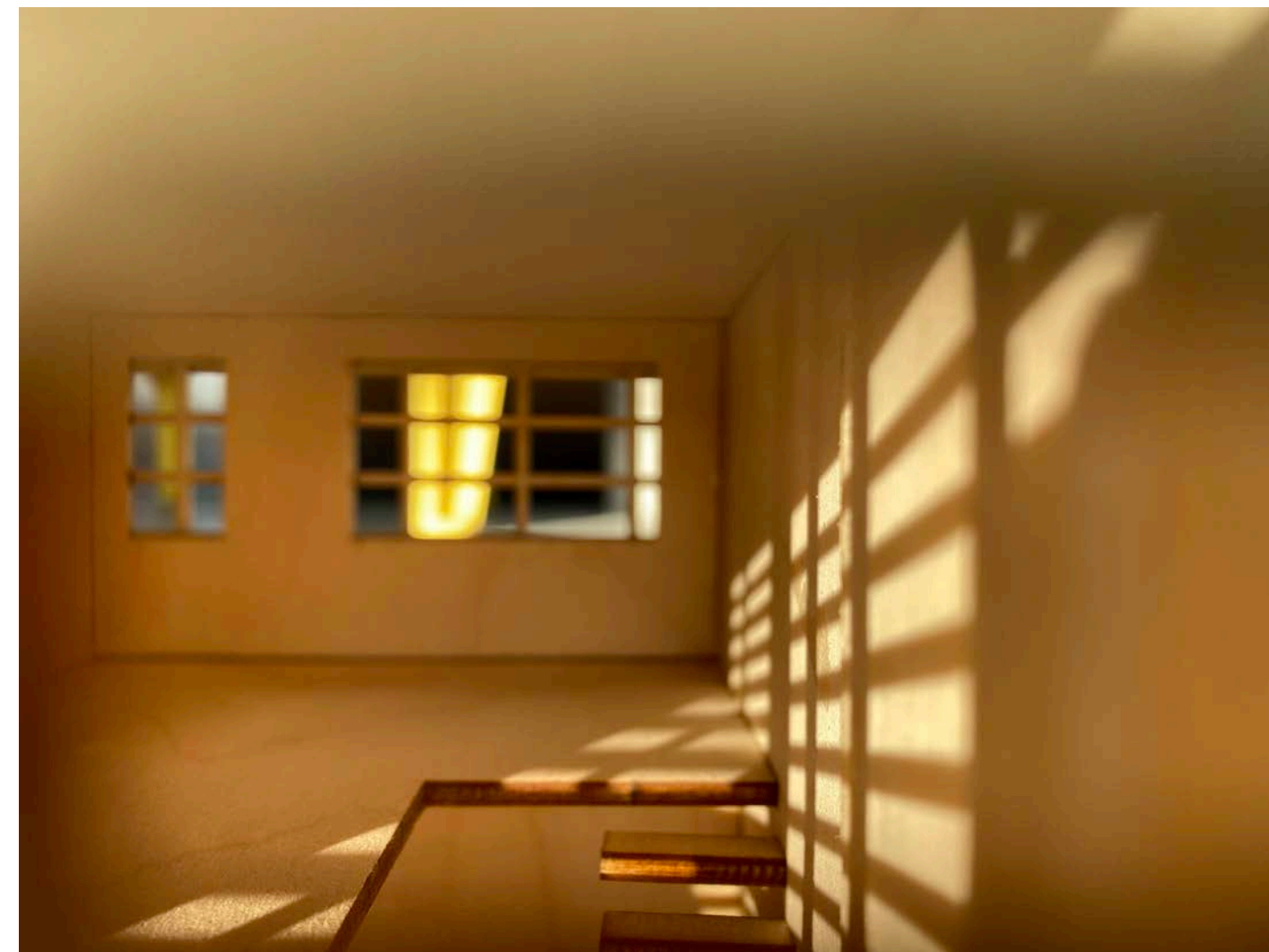


12:00



16:00

VIEW FROM SOUTH



PHOTOS DAYLIGHTING STUDY MODELS

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16 / 12 / 2019

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