

# CLIMATE FOLLOWS FUNCTION

A NATURALLY AIR-CONDITIONED ELDERLY COMMUNITY IN HEERLEN





# BABY BOOMING: 1946-1955



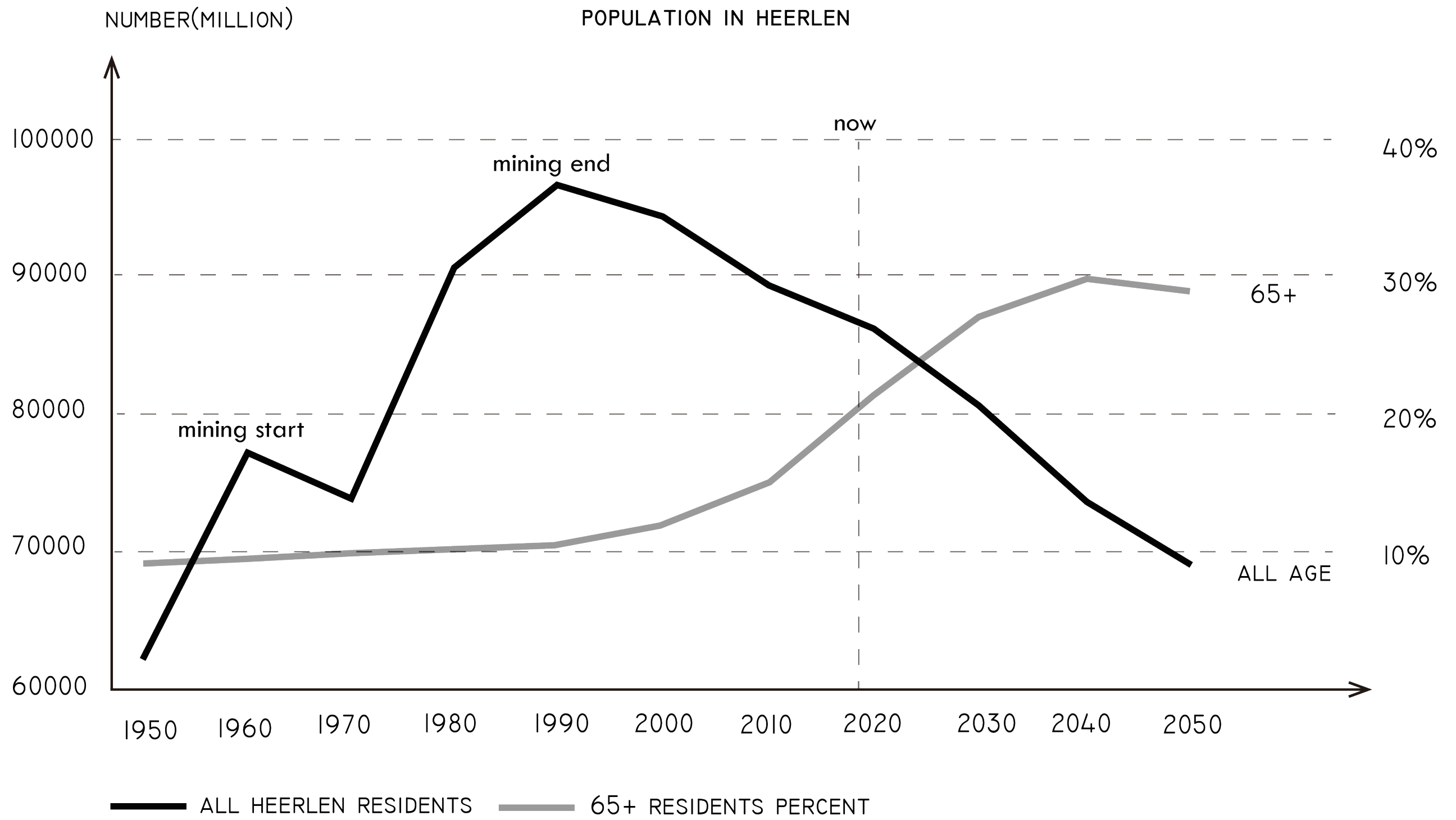


# GETTING OLD: AN INEVITABLE FUTURE





# ELDERLY HOUSING: AN INCREASING CONCERN

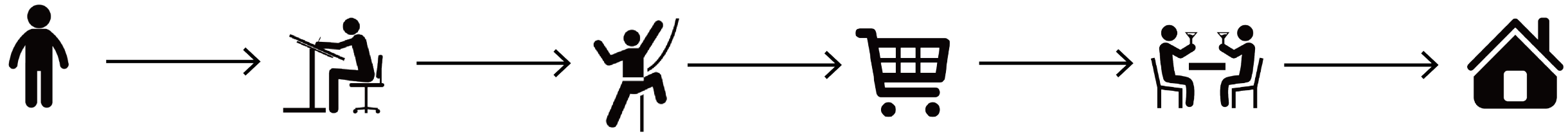


SOURCE: CBS

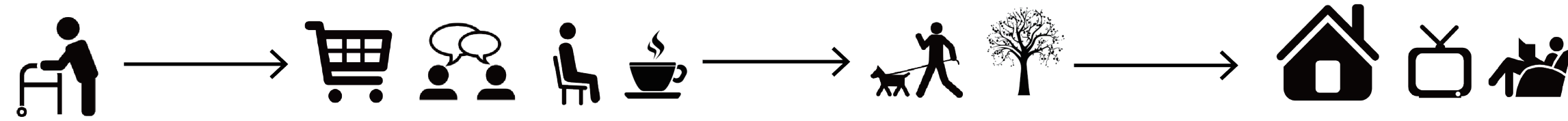


# DIFFERENCE IN LIFE STYLE

YOUNG MAN: SEPERATE DESTINATIONS



ELDERLY: INTEGRATED DESTINATIONS





# PHYSICALLY VULNERABLE TO OUTDOOR CLIMATE



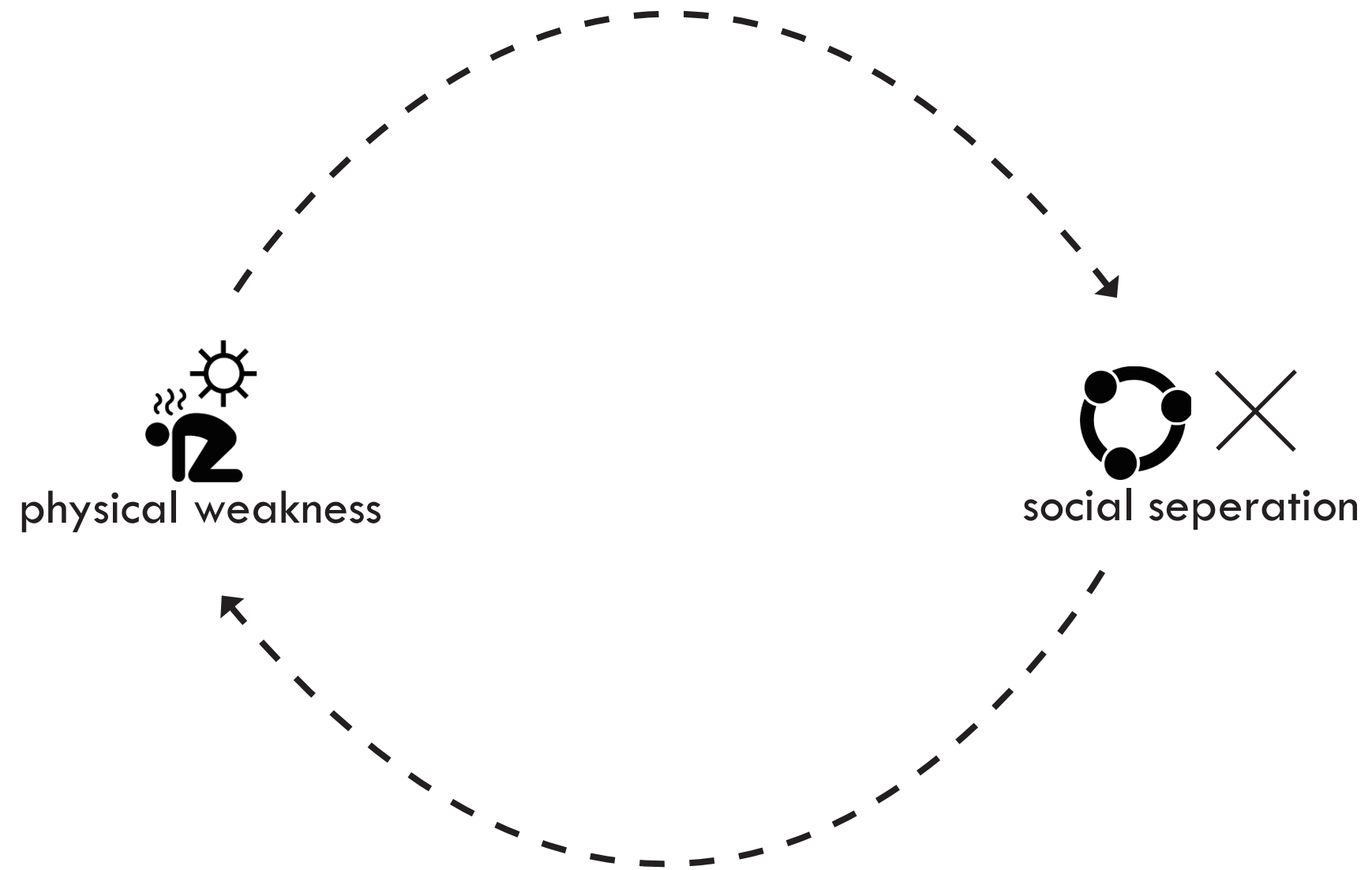


# SOCIALLY SEPERATED

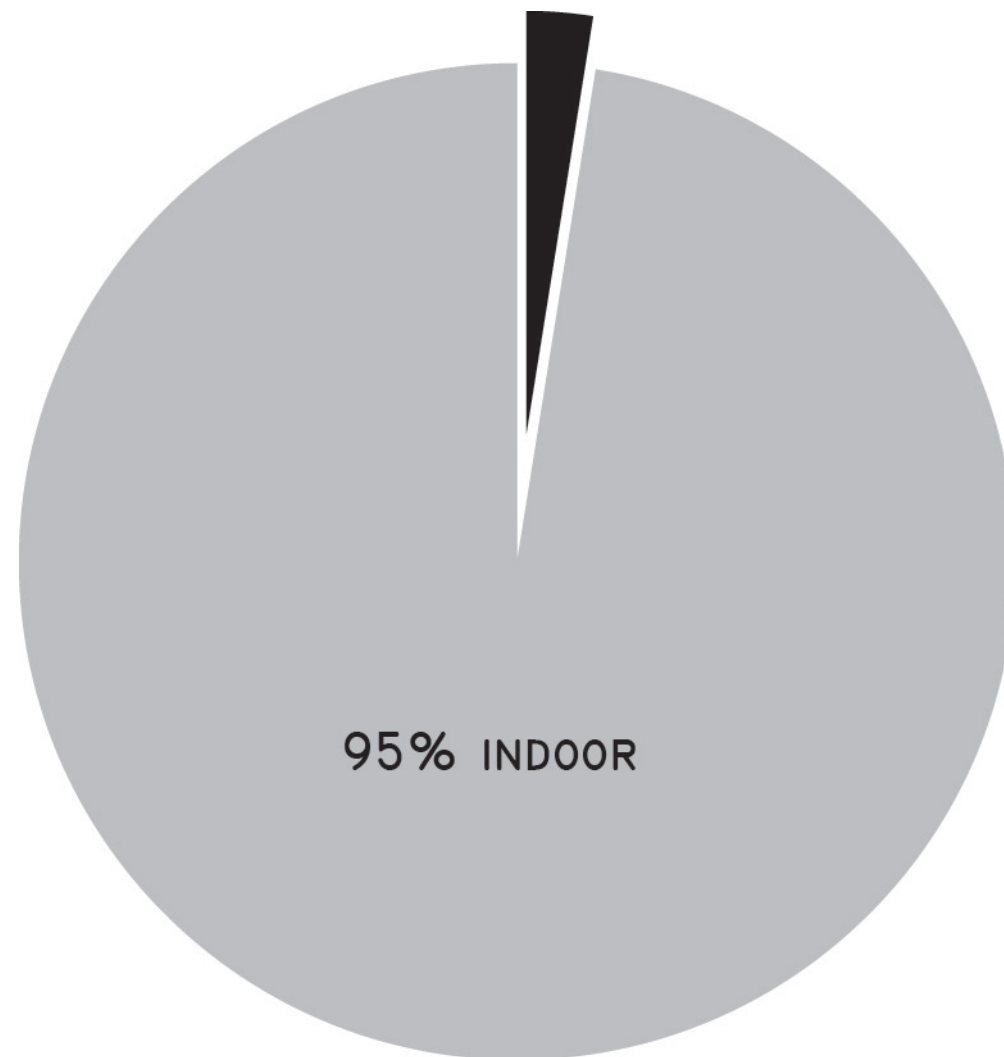




# VICIOUS CIRCLE



## RESULT: LONG TIME SPENT INDOOR



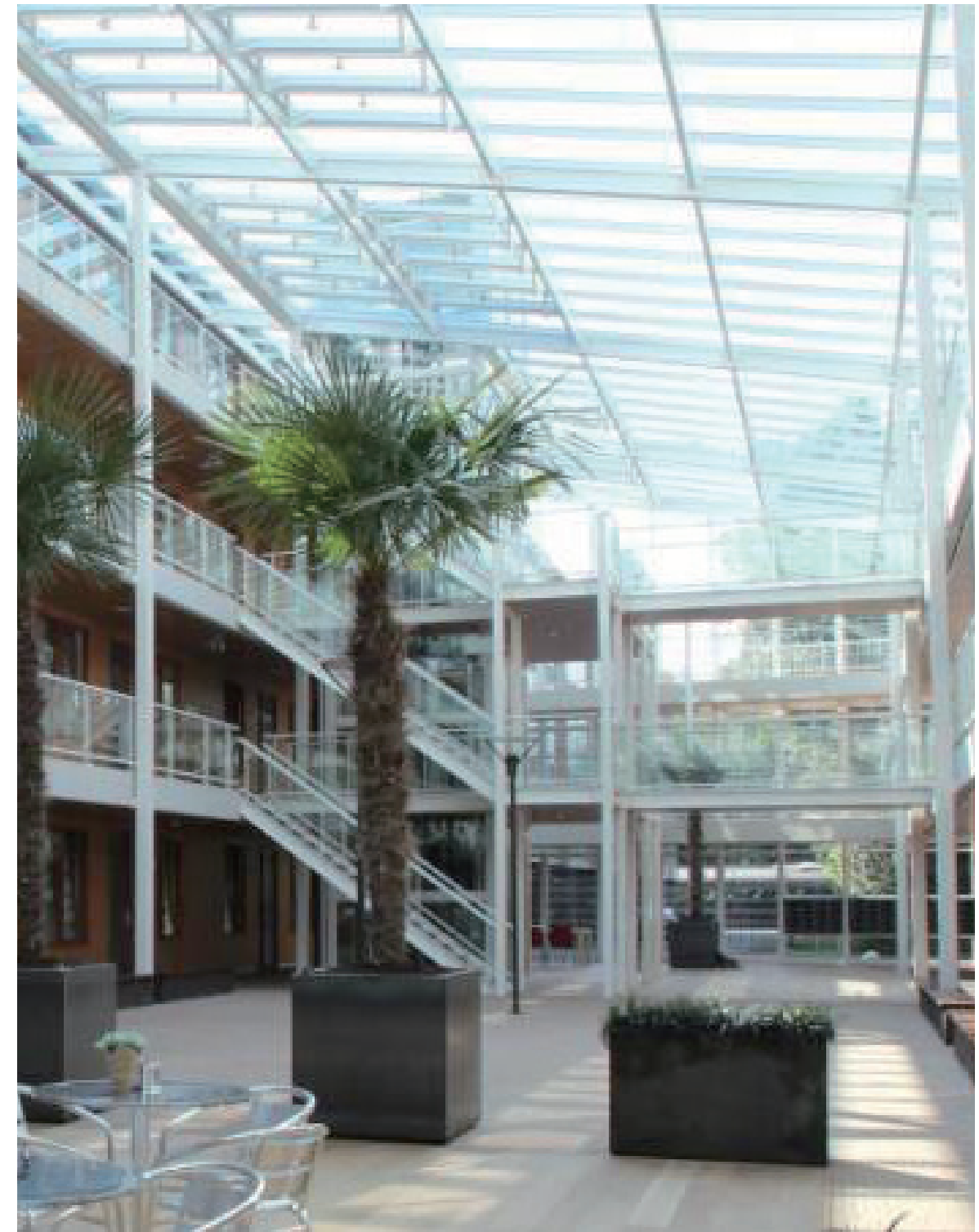
In average, elderly people spend 95% of their time indoors.



# UNSATISFYING INDOOR CLIMATE



Enclosed rooms



Climate-vulnerable atrium

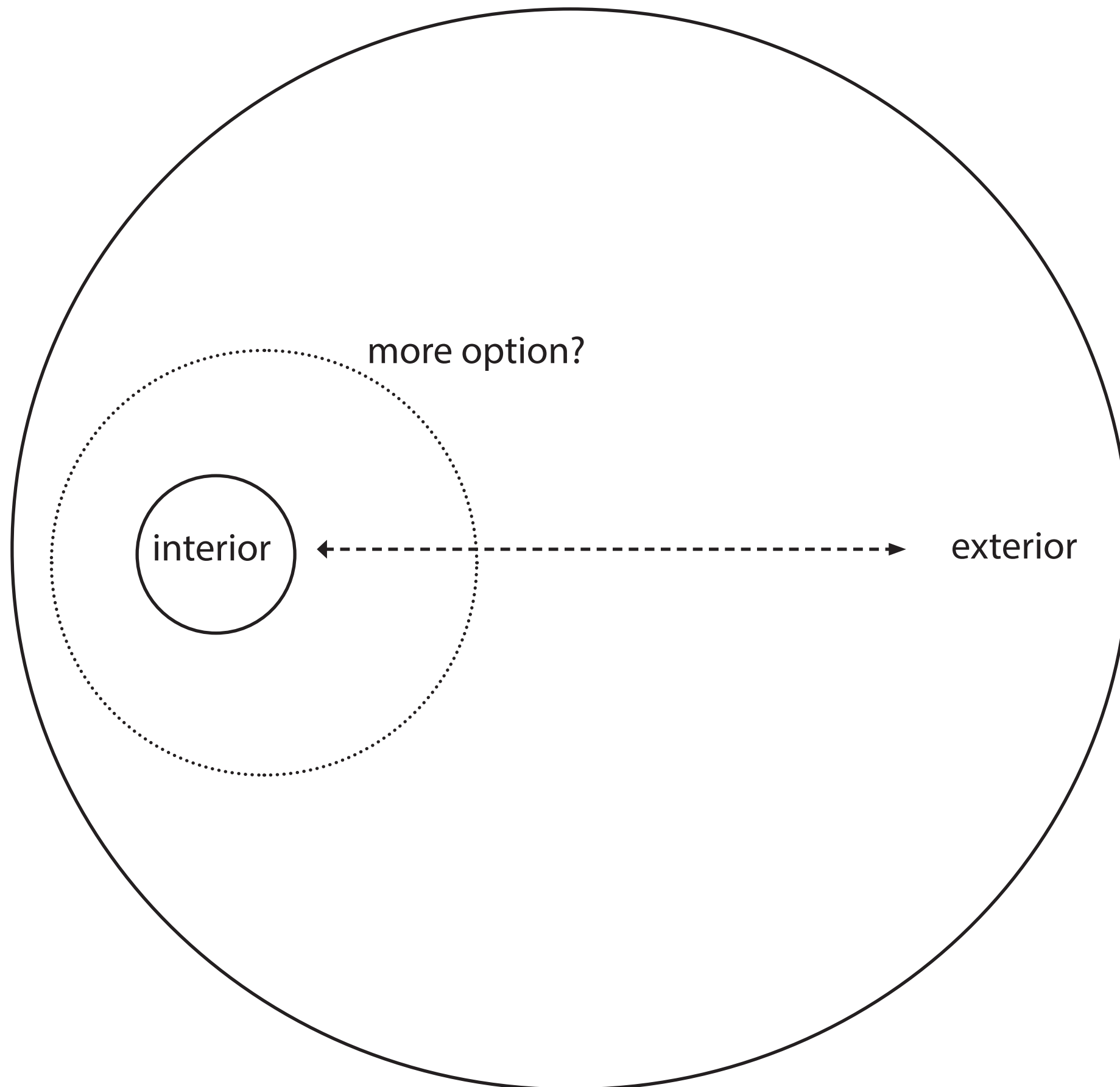


# DUTCH CLIMATE





# FASCINATION: A SMALL WORLD WITH NATURAL CLIMATE

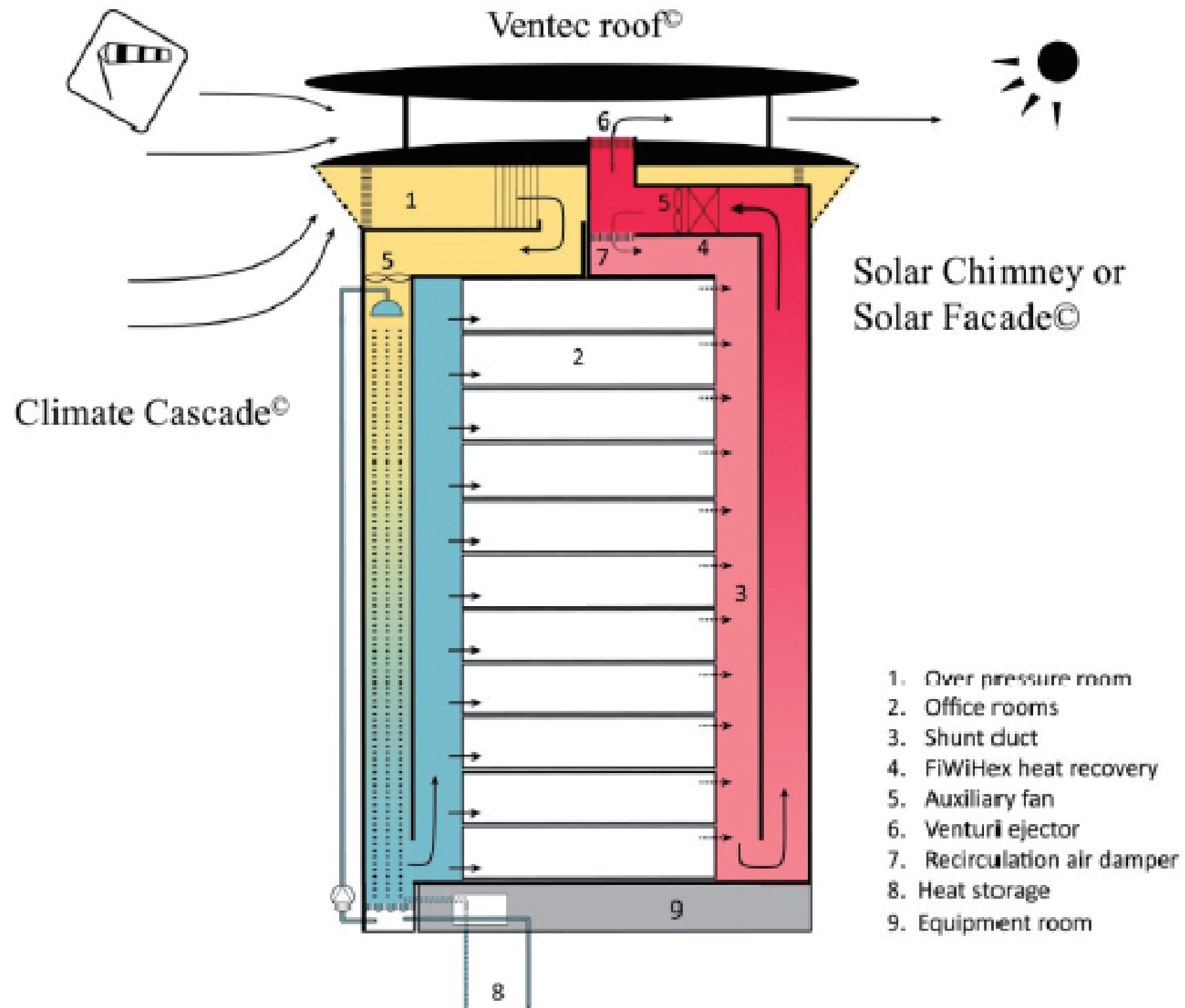


# PRECEDENT OF "SMALL WORLD"

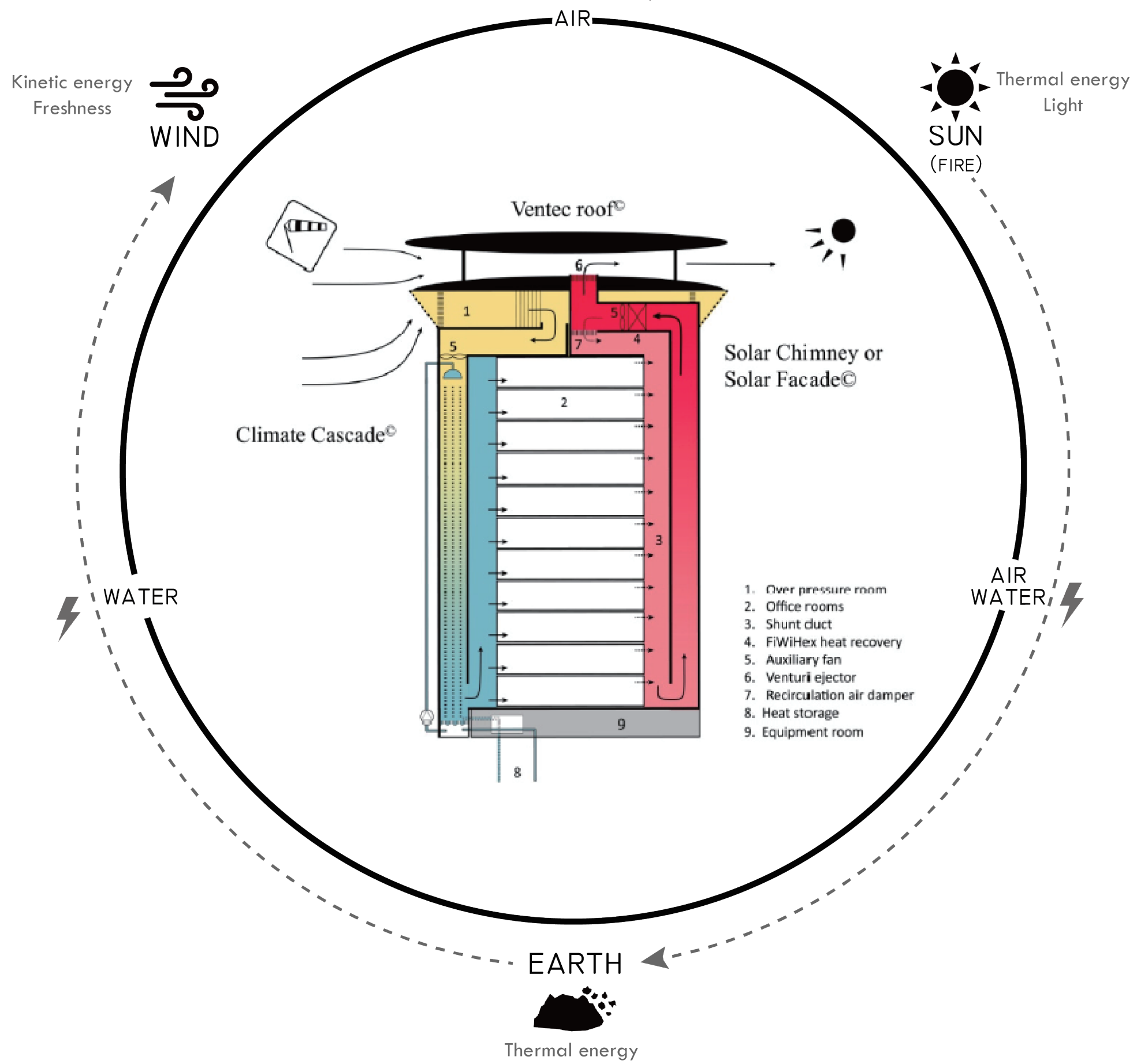




# NATURAL AIR-CONDITIONING SYSTEM: EARTH WIND & FIRE

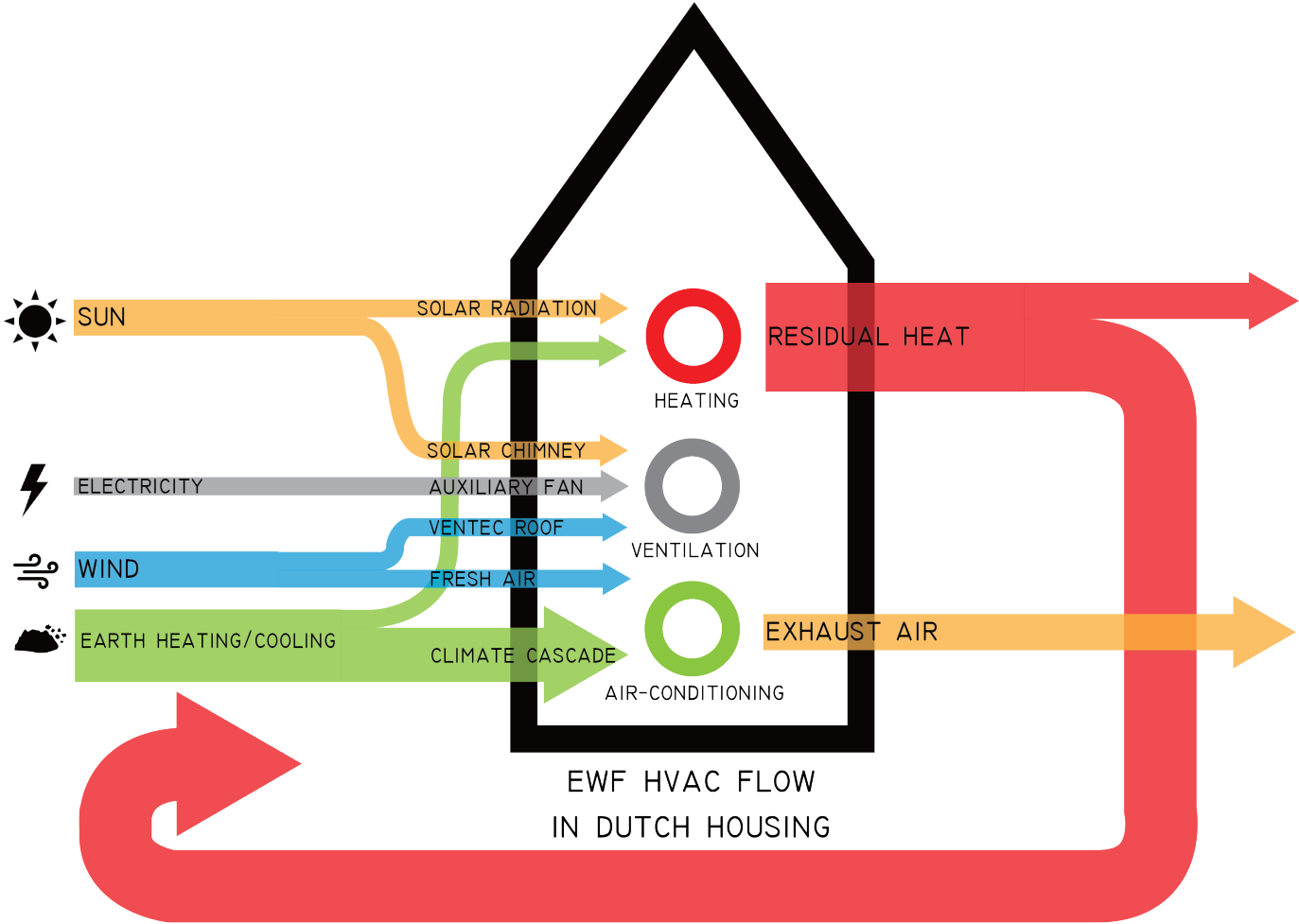
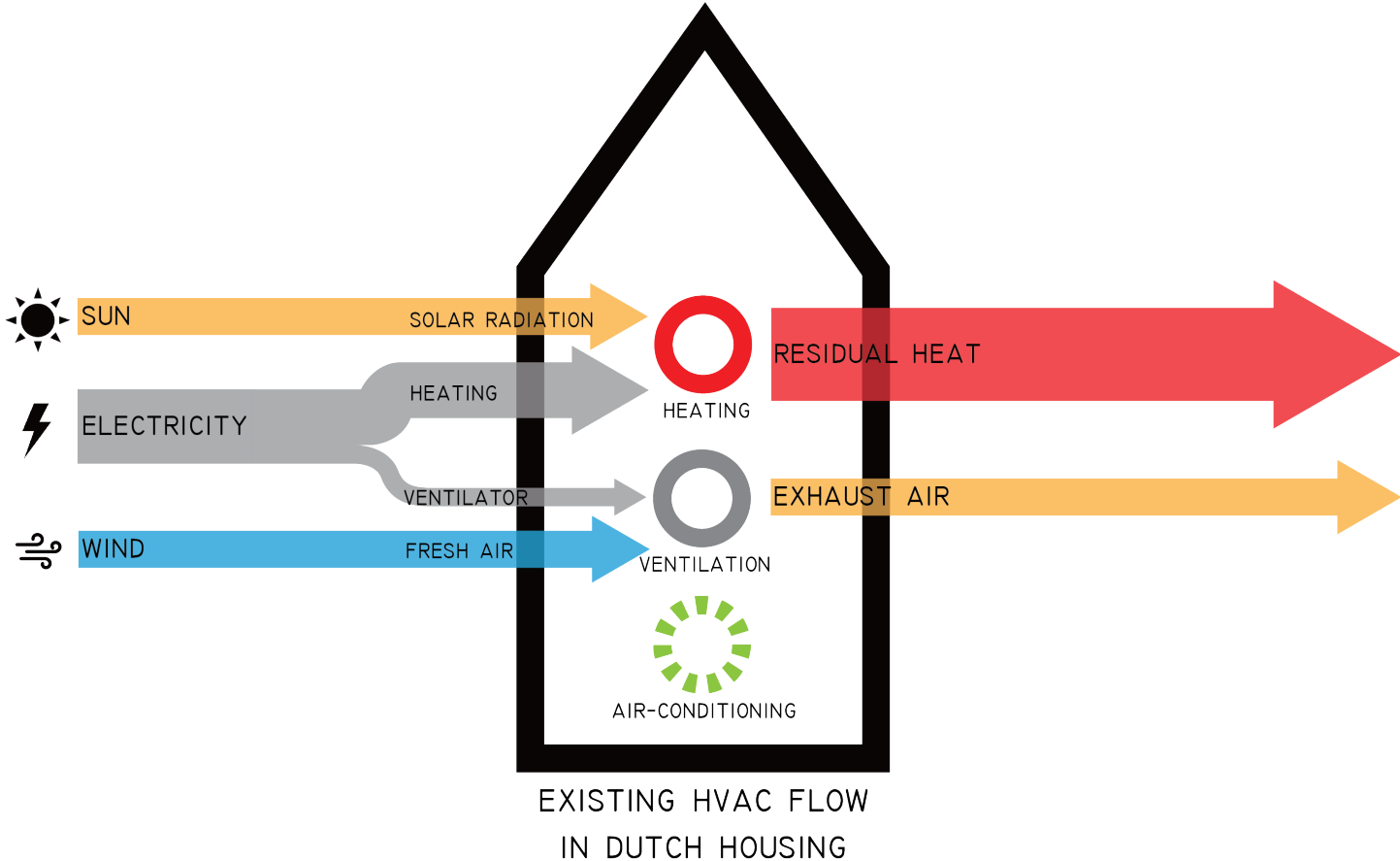


# 3 ENERGY SOURCE, 2 MEDIA

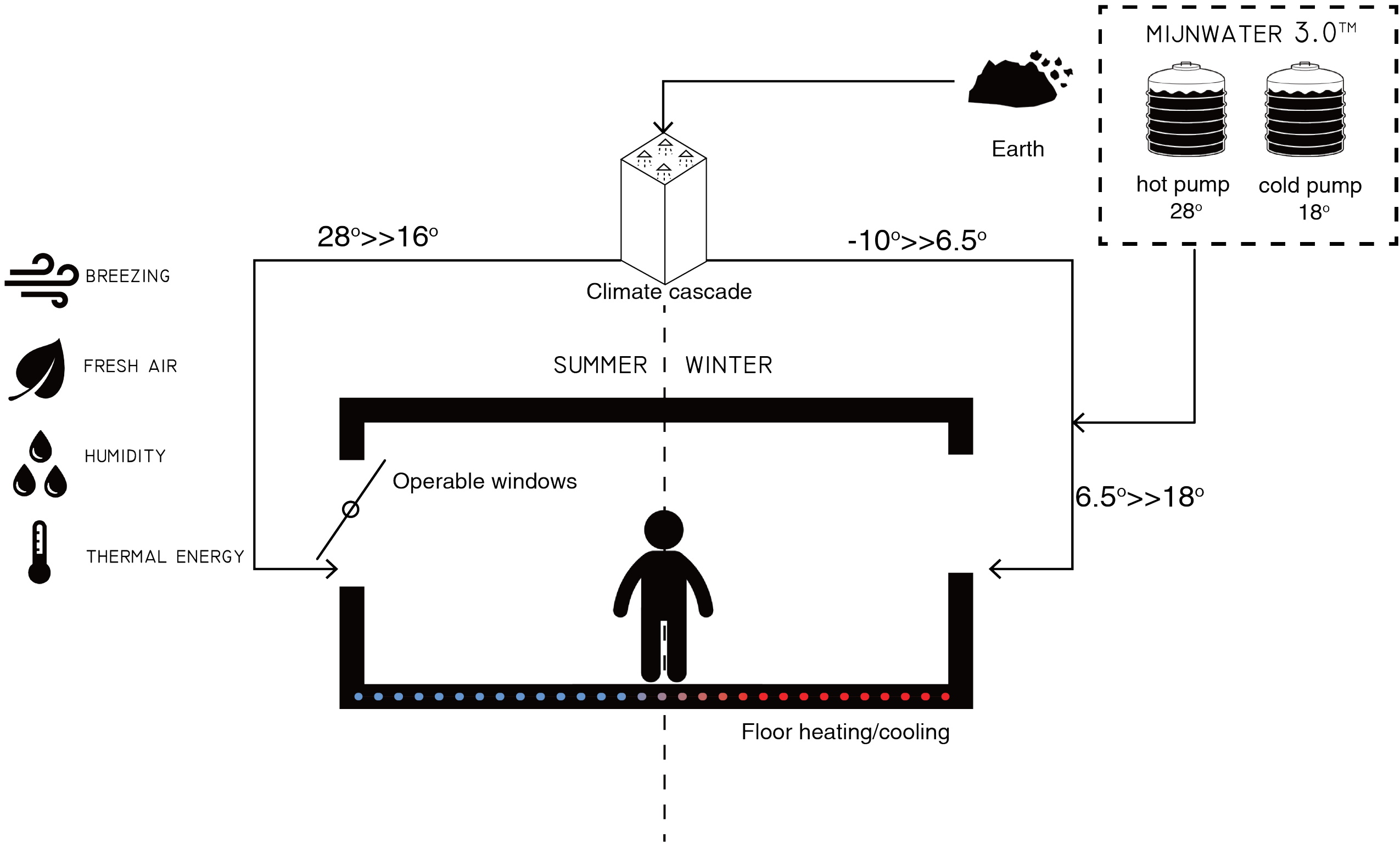




# EWF FLOW: MORE NATURAL ENERGY UTILIZED

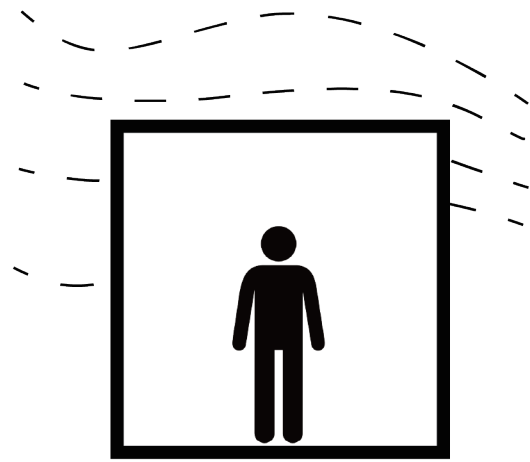


# OPTIMAL THERMAL COMFORT

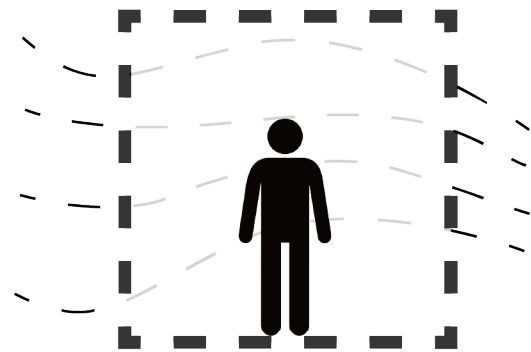




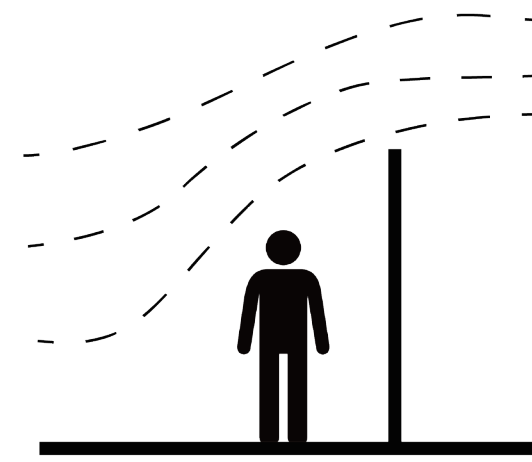
# ACCESS TO NATURE



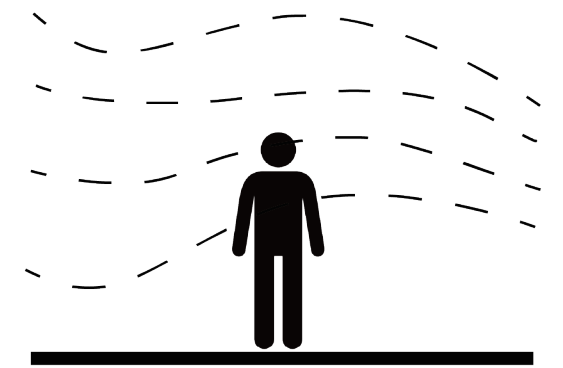
1. CLOSED



2. CONTROLLED

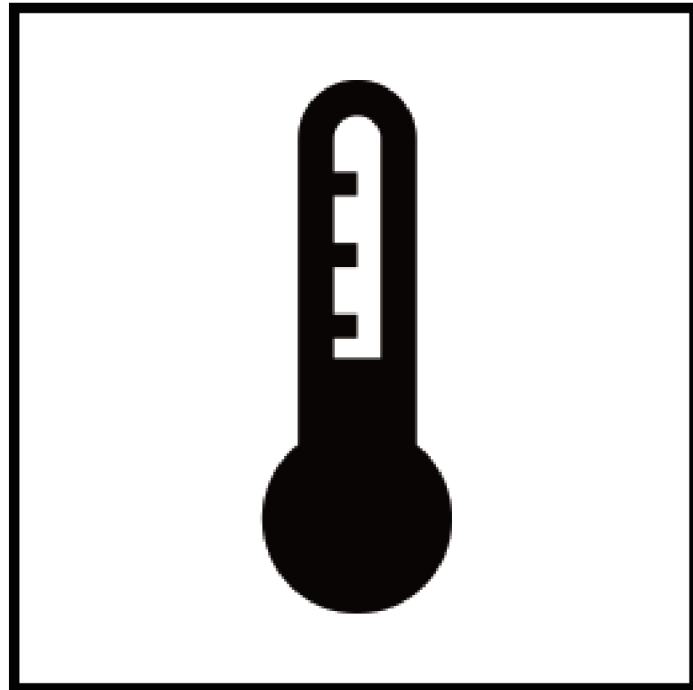


3. SHELTERED

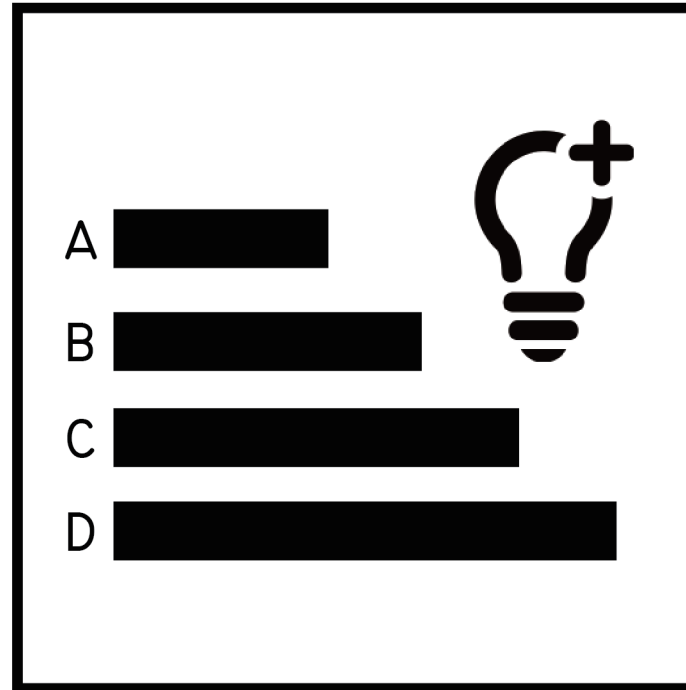


4. OPEN

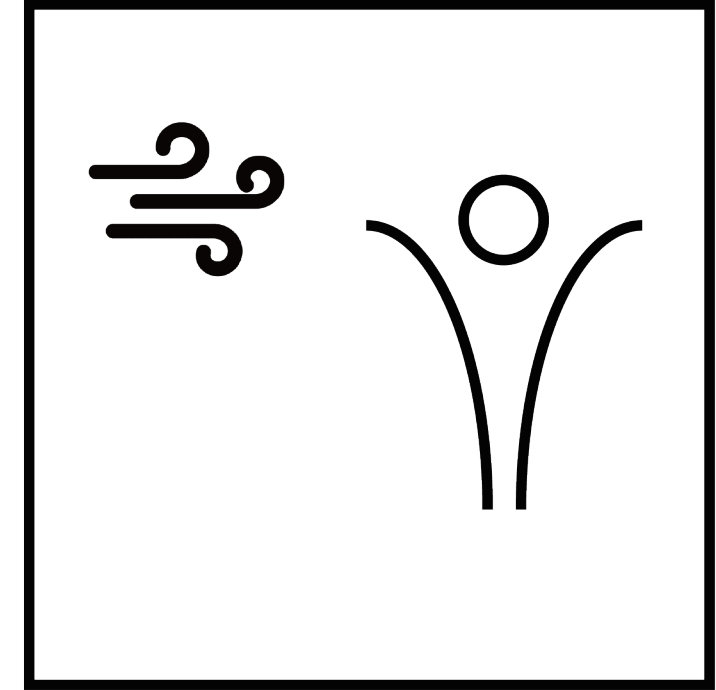
# ADVANTAGES OF EWF



THERMAL COMFORT



ENERGY EFFICIENCY



NATURAL PLEASURE



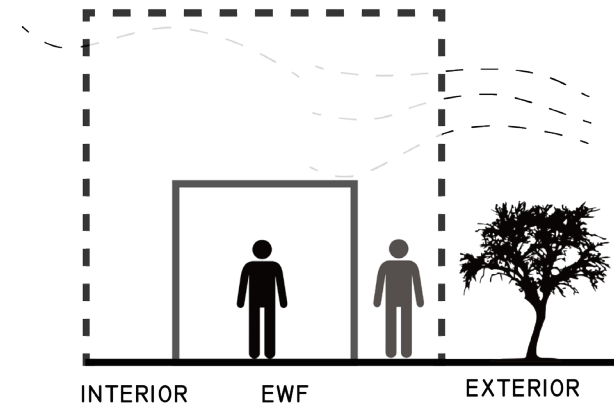
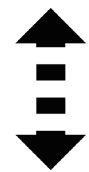
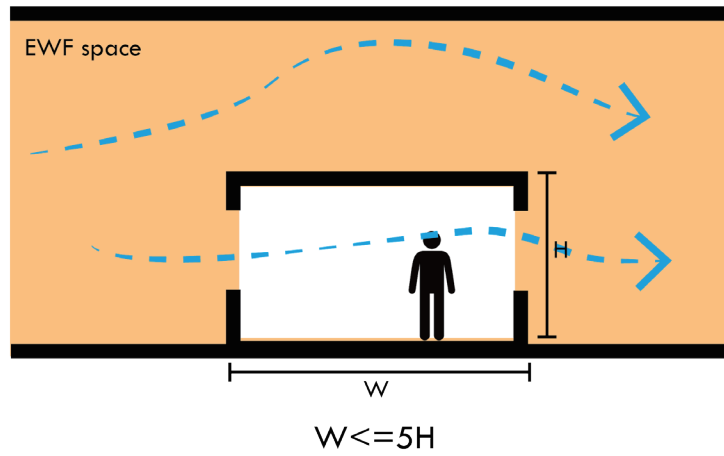
## RESEARCH QUESTION

How to support **social interactions** in elderly housing in the Netherlands, by creating richer climate hierchies with EWF system?

Key words: thermal comfort, social interaction, natural pleasure.

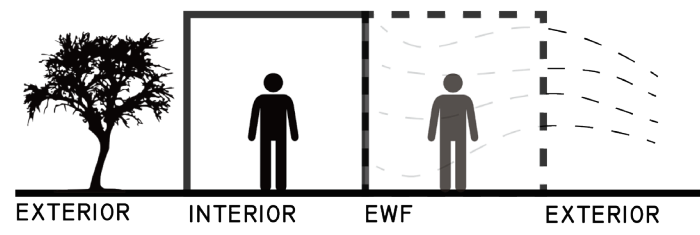
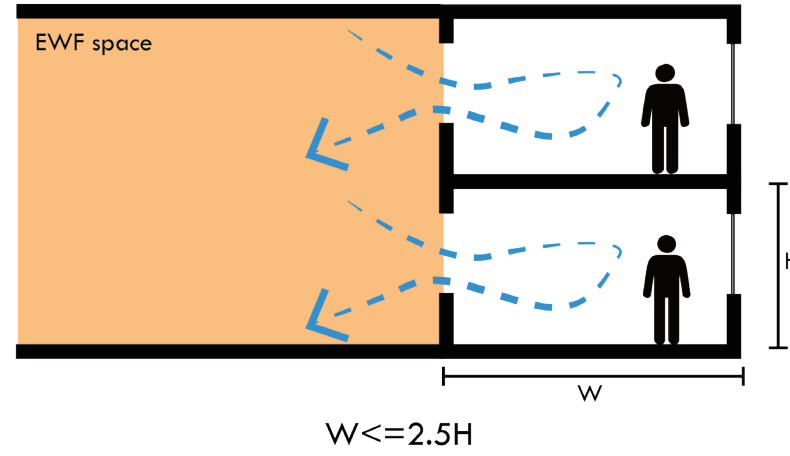
# CONCLUSION: 3 TYPES OF EWF SPATIAL ORGANIZATION

1. CROSS VENTILATION



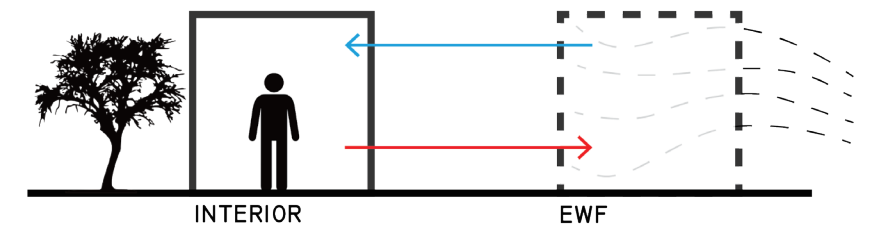
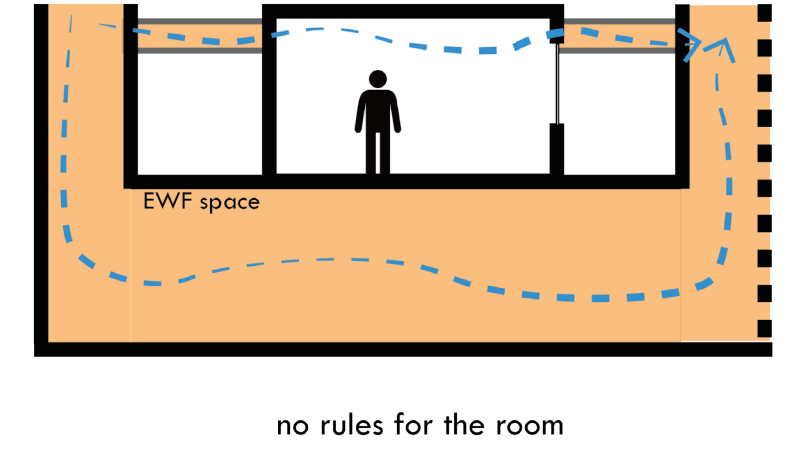
A. HOUSING IN THE EWF SPACE

2. SINGLE-SIDED VENTILATION



B. HOUSING NEXT TO EWF SPACE

3. DUCT SYSTEM



C. HOUSING DISCONNECTED FROM EWF SPACE

EXPERIENCE

+

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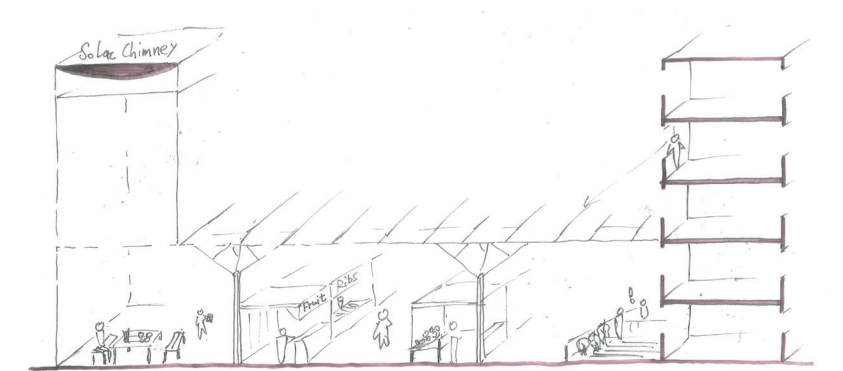
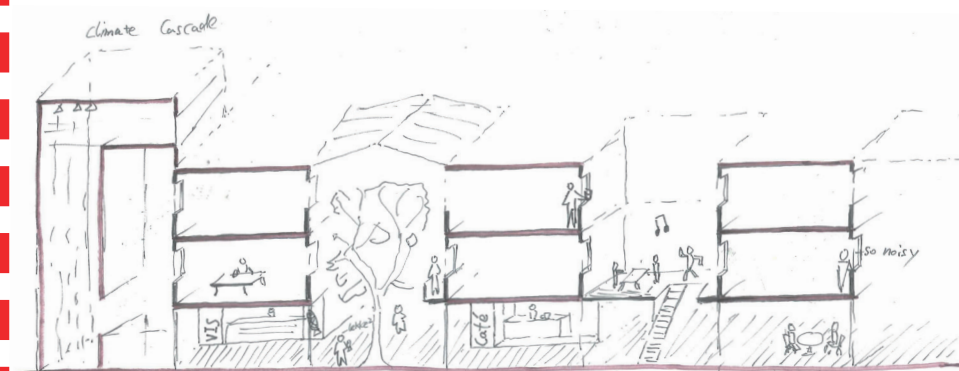
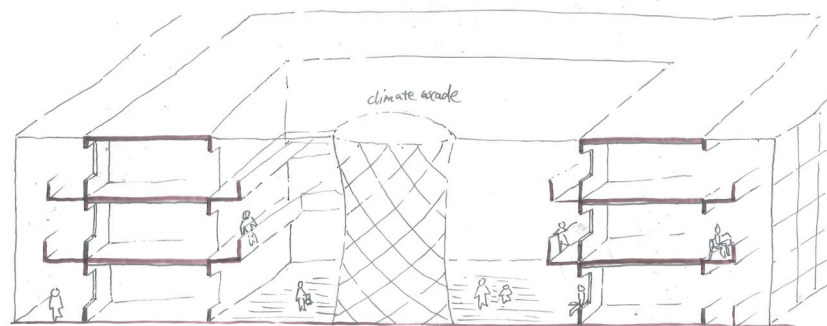
-

FLEXIBILITY

+

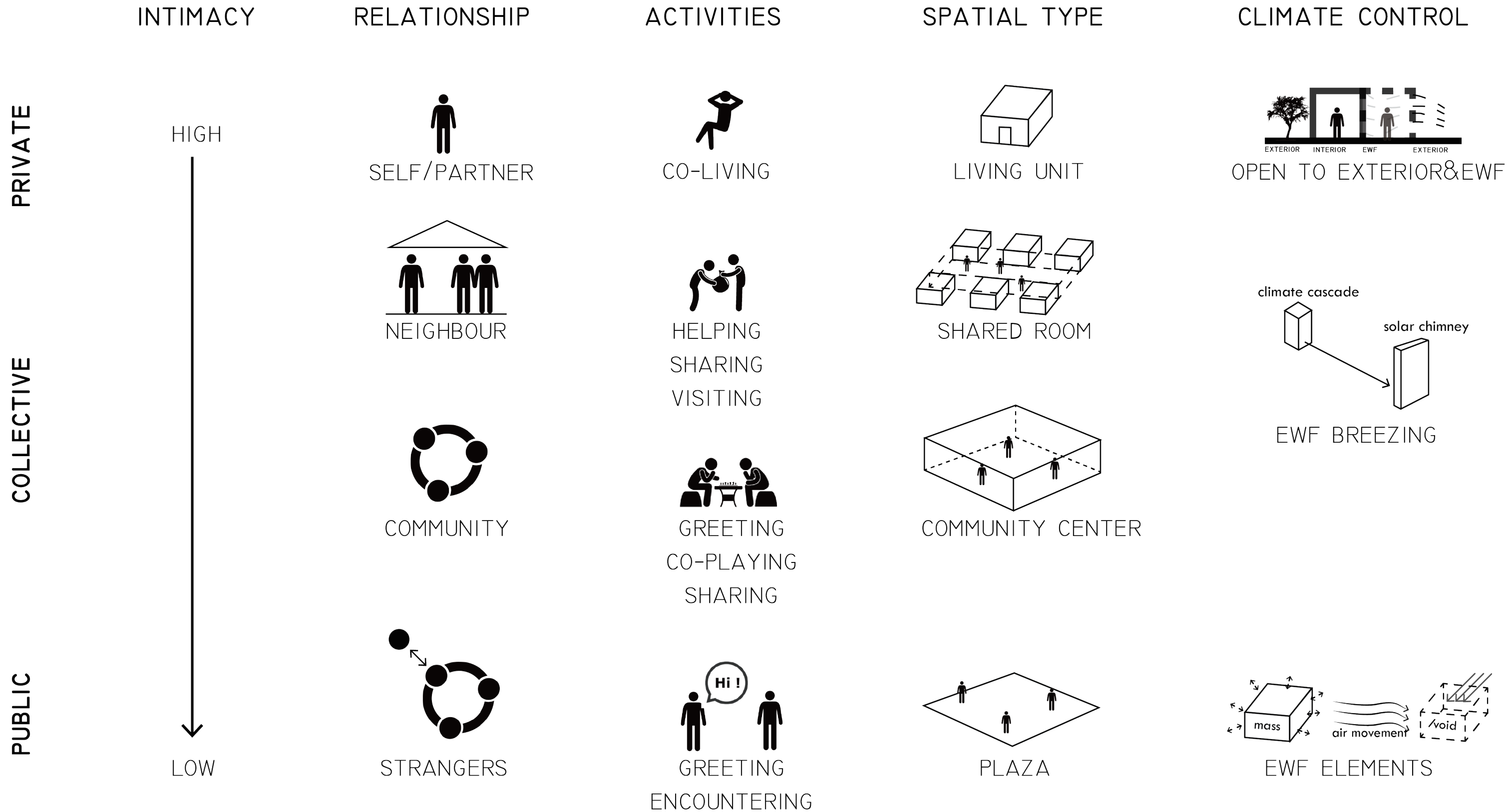
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# STRATEGY: CLIMATE HIERARCHY FOLLOWS SOCIAL HIERACHY

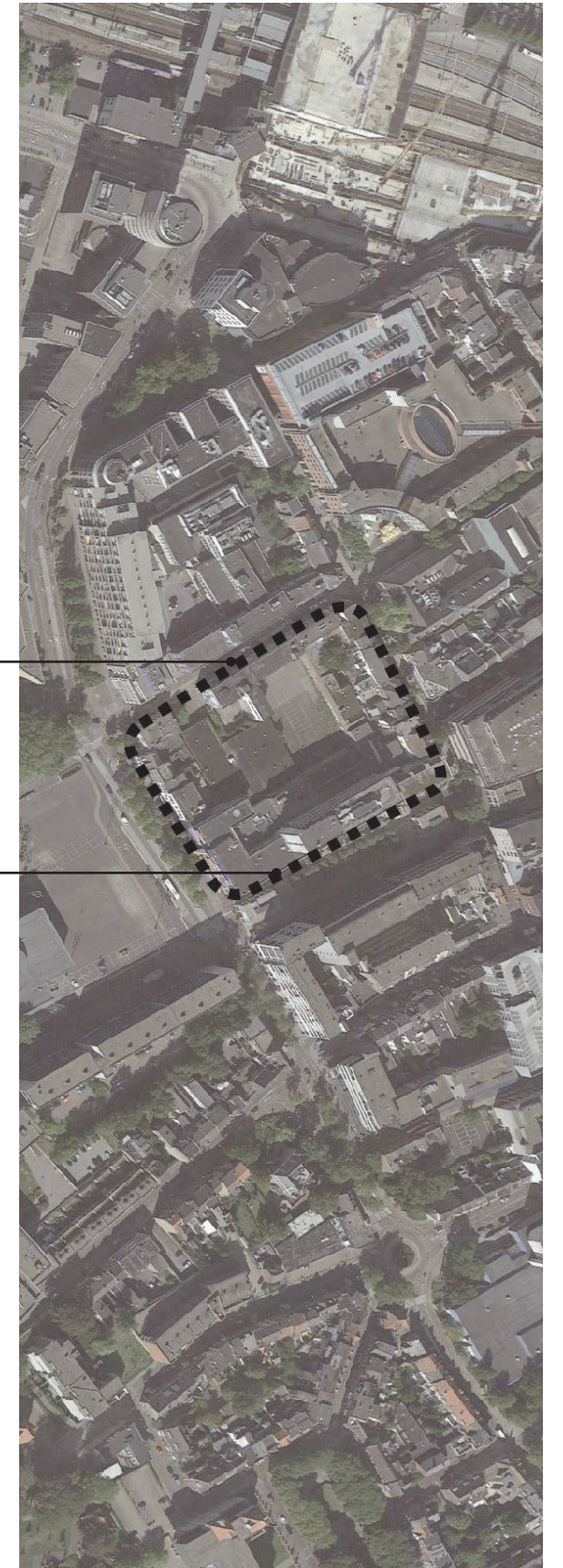


# SITE: HEERLEN, LIMBURG



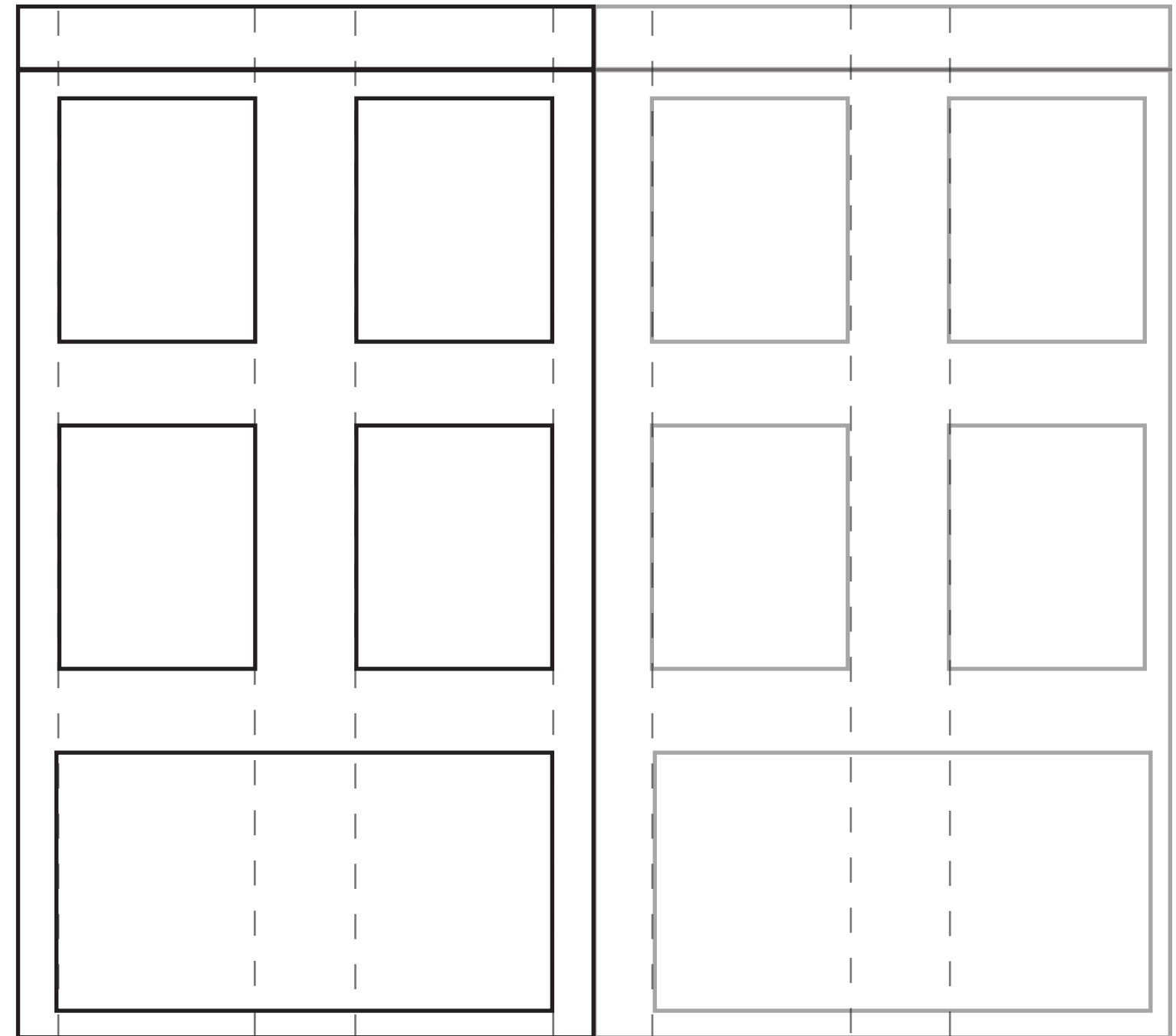


# SEPRERATED COMMUNITY

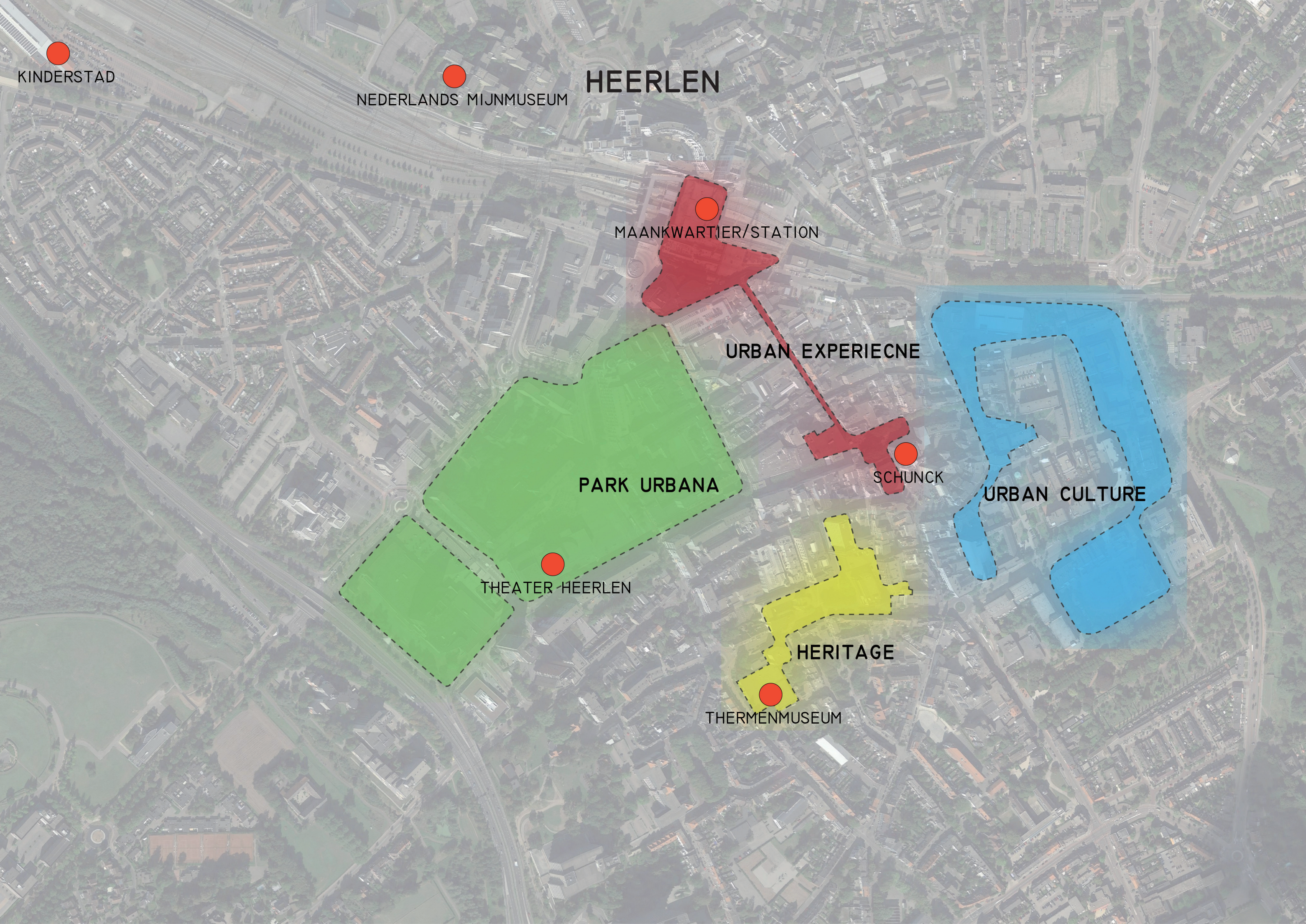




# A PROVEN TYPOLOGY







KINDERSTAD

NEDERLANDS MIJNMUSEUM

HEERLEN

MAANKWARTIER/STATION

URBAN EXPERIECNE

SCHUNCK

PARK URBANA

URBAN CULTURE

THEATER HEERLEN

HERITAGE

THERMÉN MUSEUM



KINDERSTAD

NEDERLANDS MIJNMUSEUM

# CONNECTIONS

MAANKWARTIER/STATION

URBAN EXPERIECNE

PARK URBANA

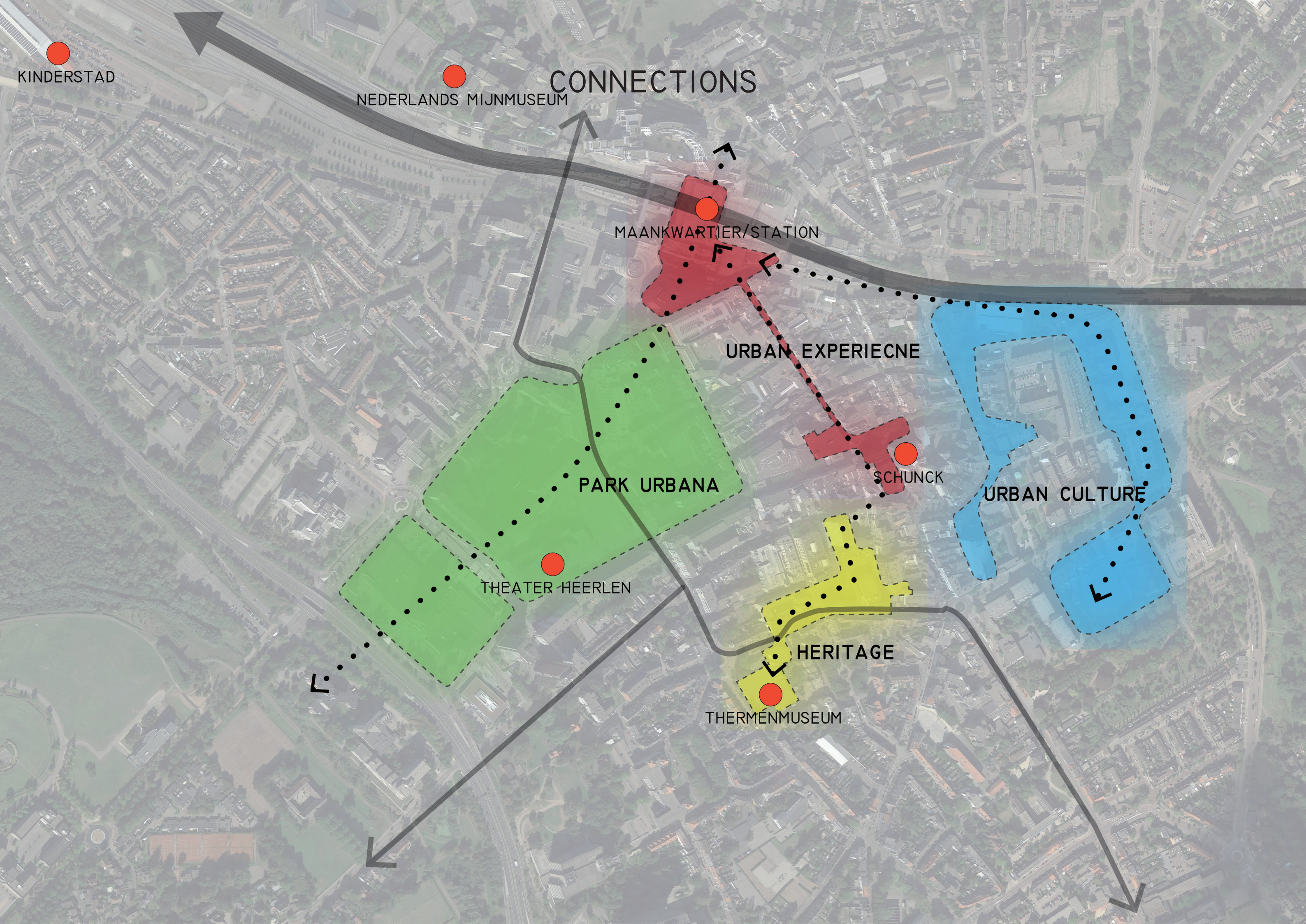
SCHUNCK

URBAN CULTURE

THEATER HEERLEN

HERITAGE

THERMÉN MUSEUM





# LOCATION



TRAIN STATION

SHOPPING CENTER

SCHUNCK

500M

THEATER

SHOPPING CENTER

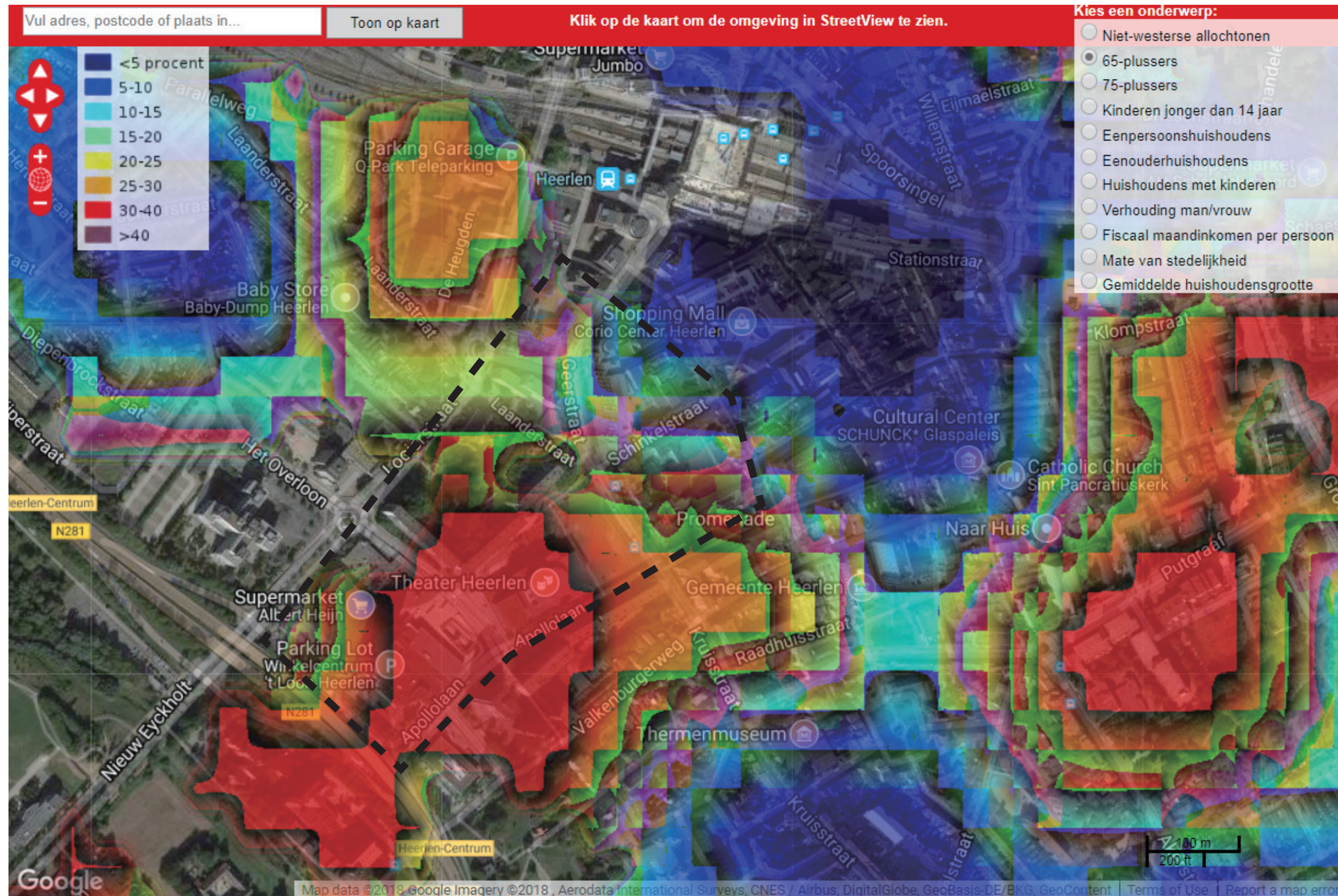
GENERAL PRACTITIONER

CARE CENTER

- supermarket
- bank
- greenery
- mailbox
- GP
- public transport
- culture facility



# HIGH DENSITY OF ELDERLY RESIDENTS



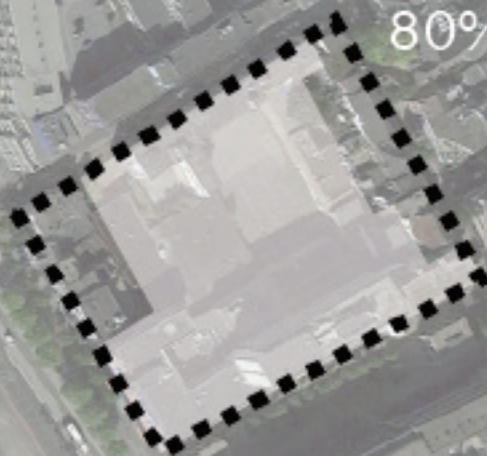


# URBAN PARK





UNUSED BUILDINGS ON SITE



80% unused



# ICONIC BUILDING & PLAZA



ACTIVITY PLAZA

THEATER

BOULEVARD

ACTIVITY PLAZA

SOFUNCK



# HIGH CULTURE & MASS CULTURE





# POOR QUALITY IN COMMUNAL SPACE





# TEDIOUS PUBLIC PLAZA



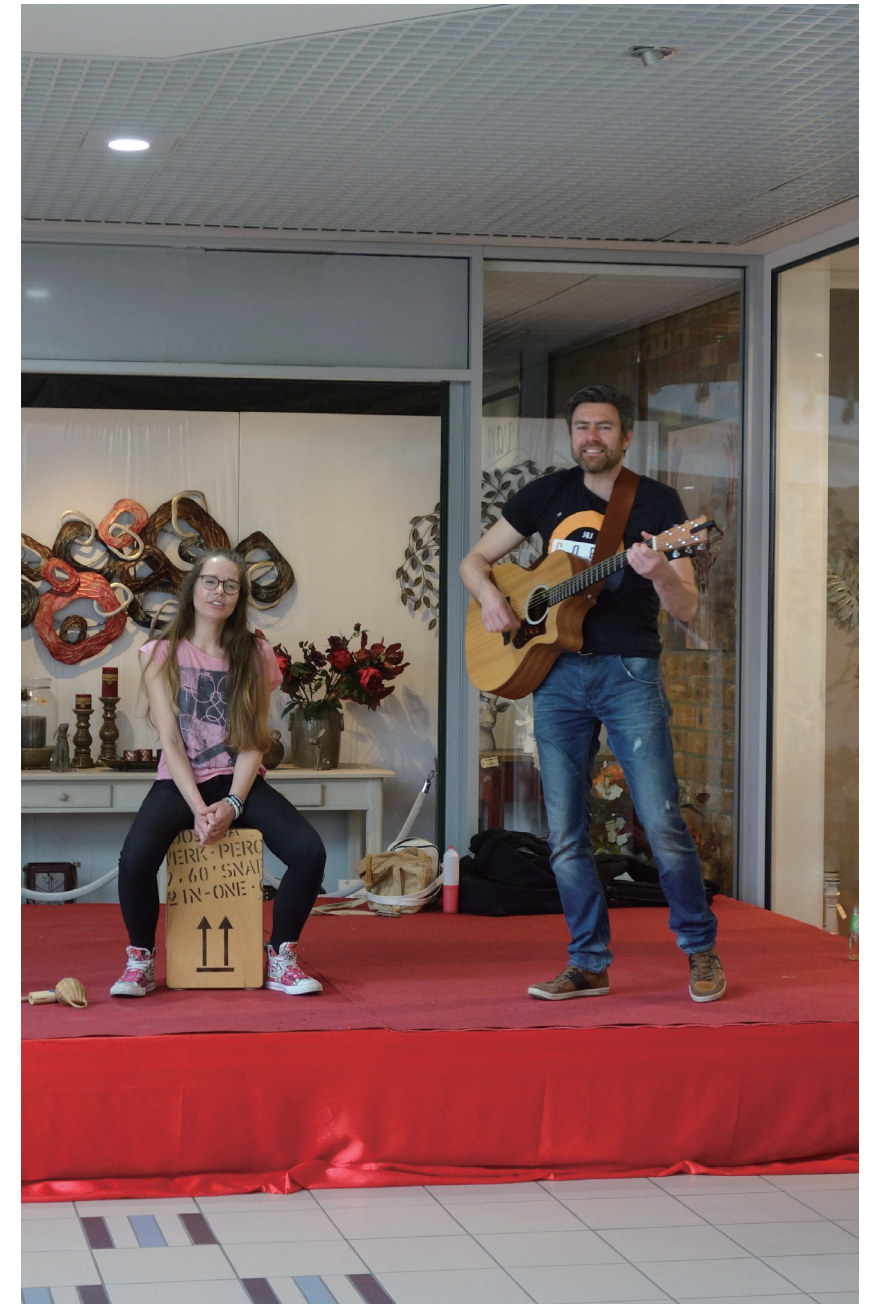


# LACK OF COMMUNAL SPACE FOR PERFORMANCE



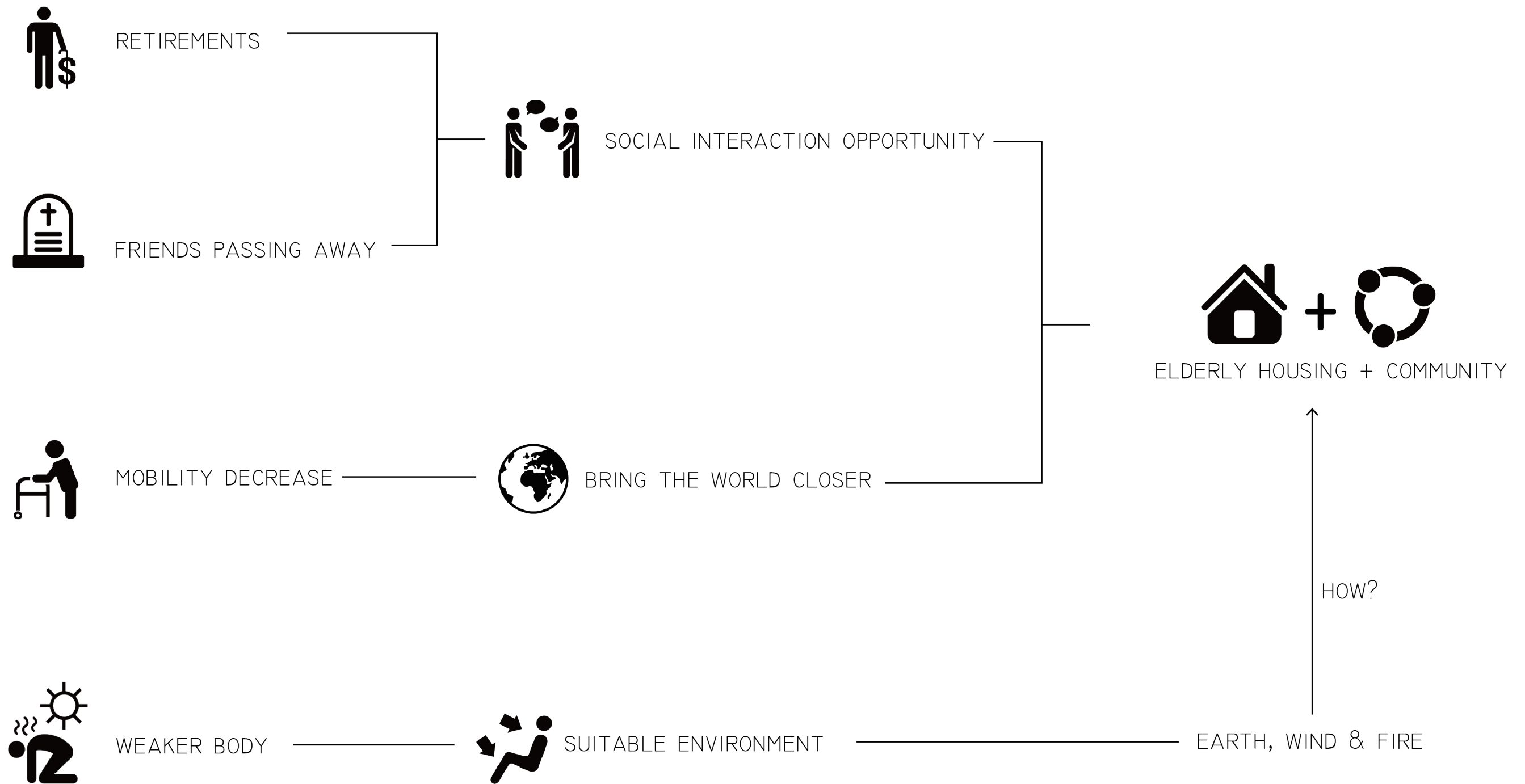


# HOW TO COMBINE THE NEEDS TOGETHER?





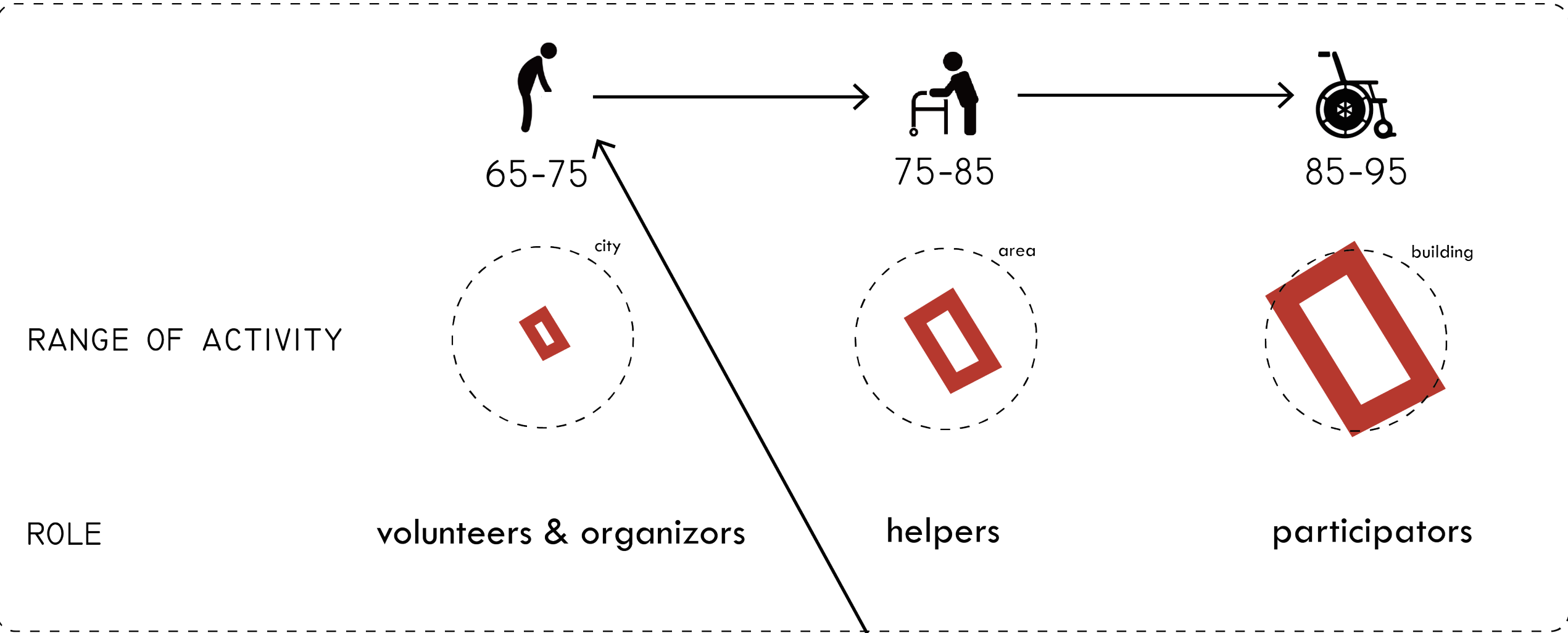
# AN INFORMAL SOCIAL PLACE TO ENCOUNTER



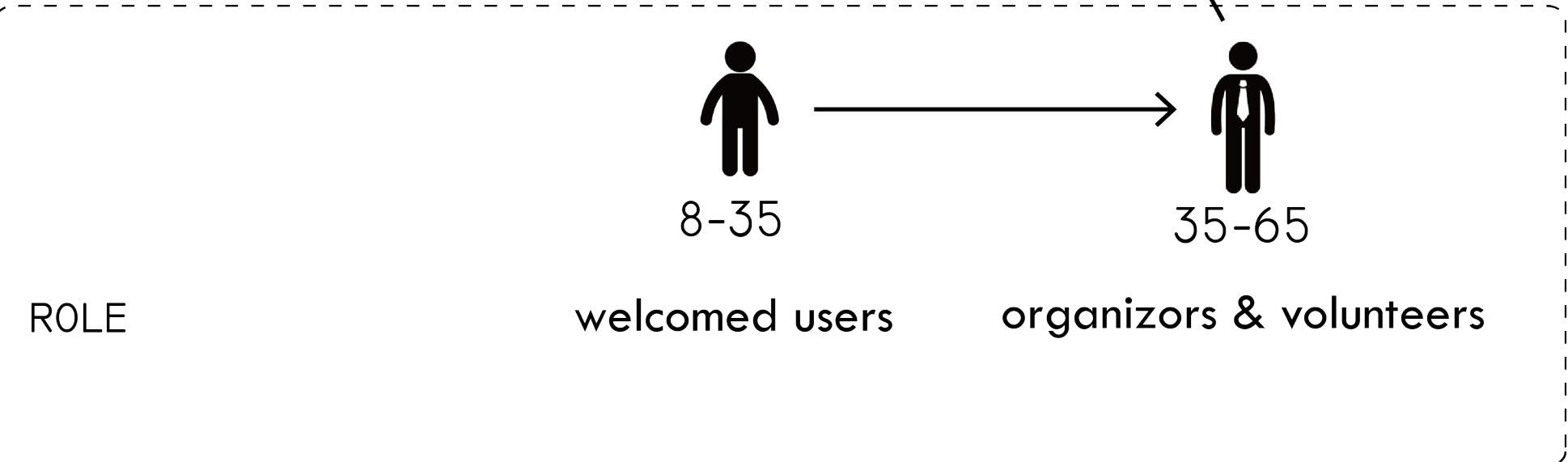


# PARTICIPATION FOR ALL AGES

## BUILDING

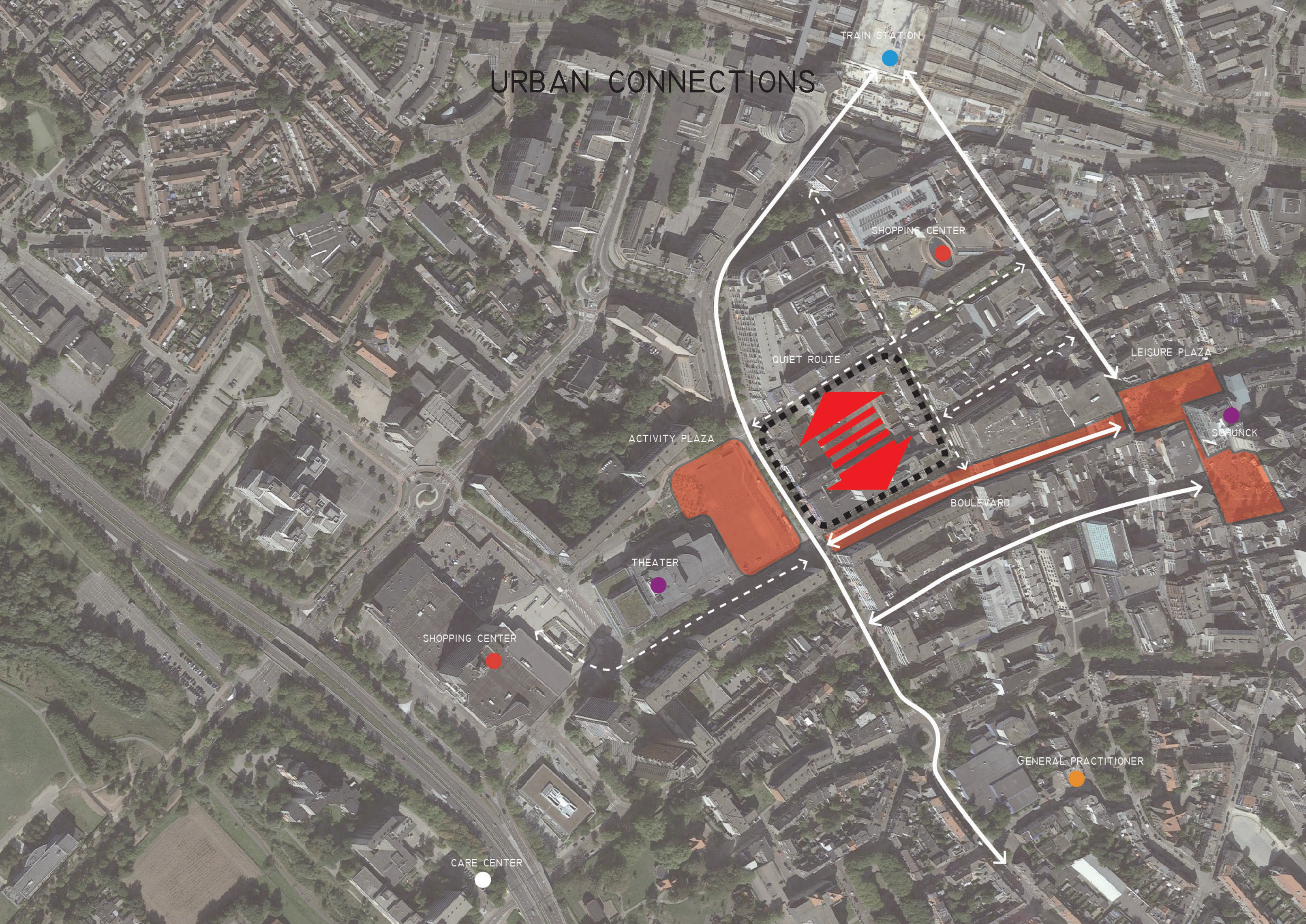


## COMMUNITY





# URBAN CONNECTIONS



TRAIN STATION

SHOPPING CENTER

LEISURE PLAZA

SCHUNCK

BOULEVARD

GENERAL PRACTITIONER

ACTIVITY PLAZA

QUIET ROUTE

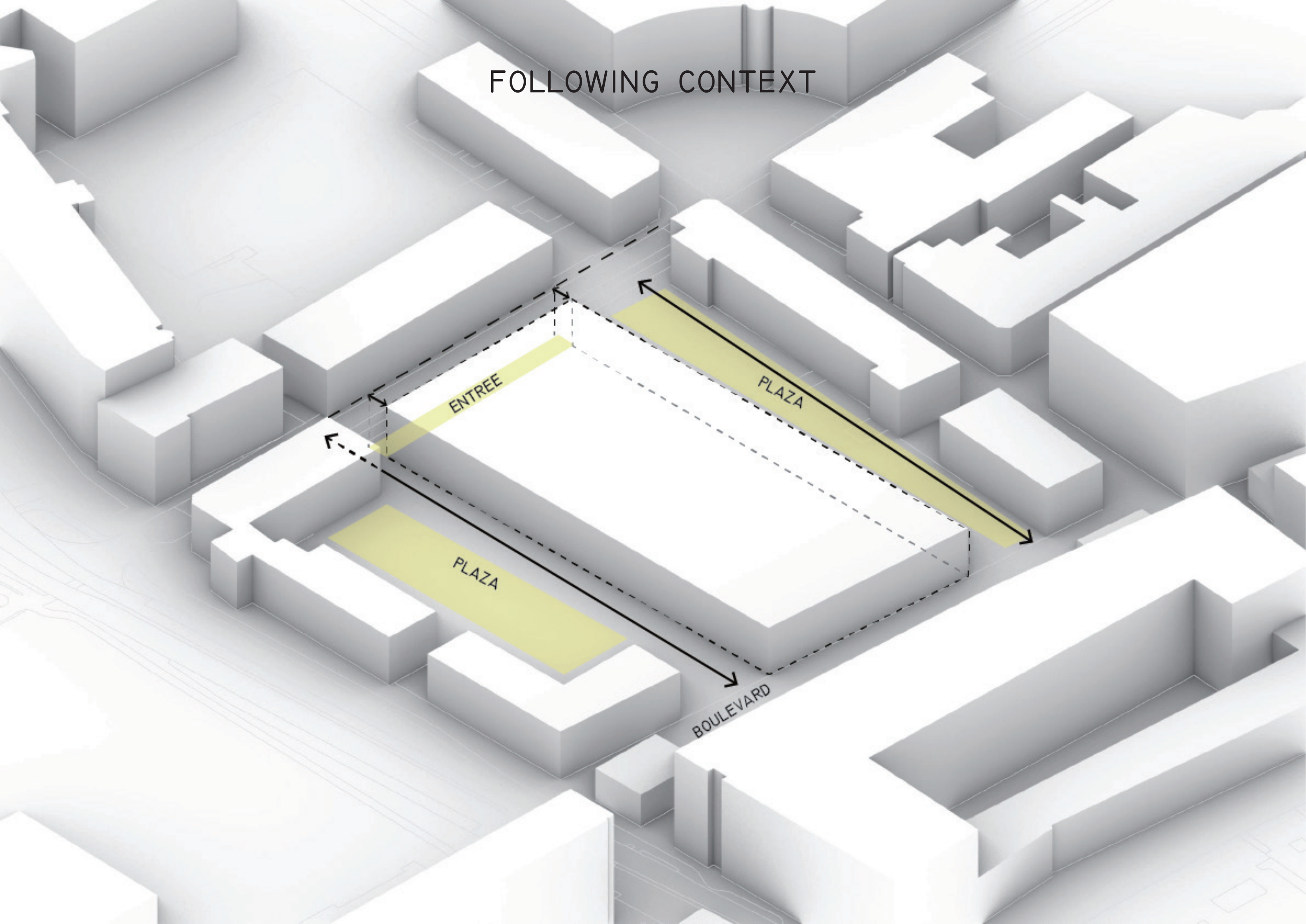
THEATER

SHOPPING CENTER

CARE CENTER

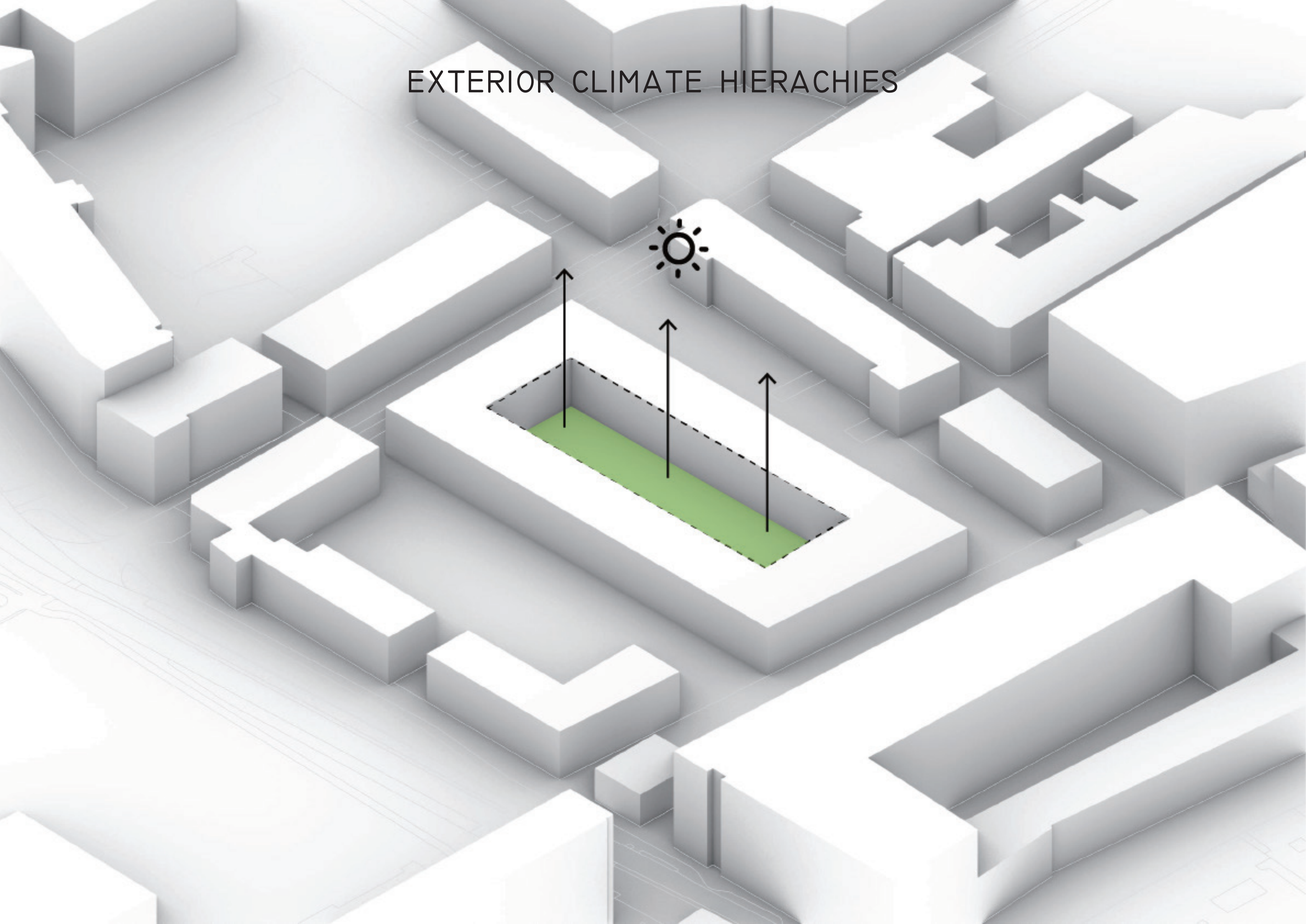


FOLLOWING CONTEXT



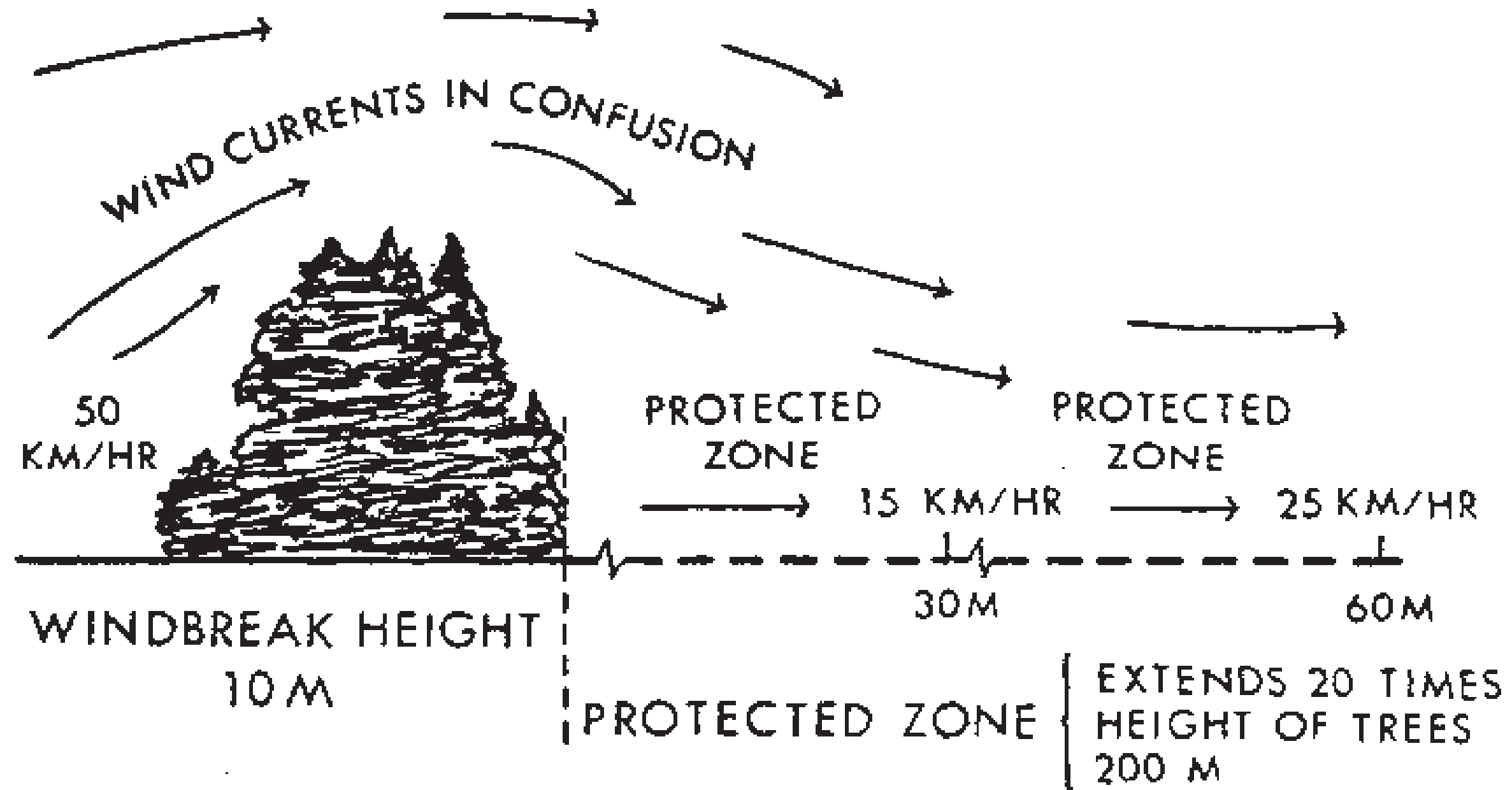


# EXTERIOR CLIMATE HIERARCHIES



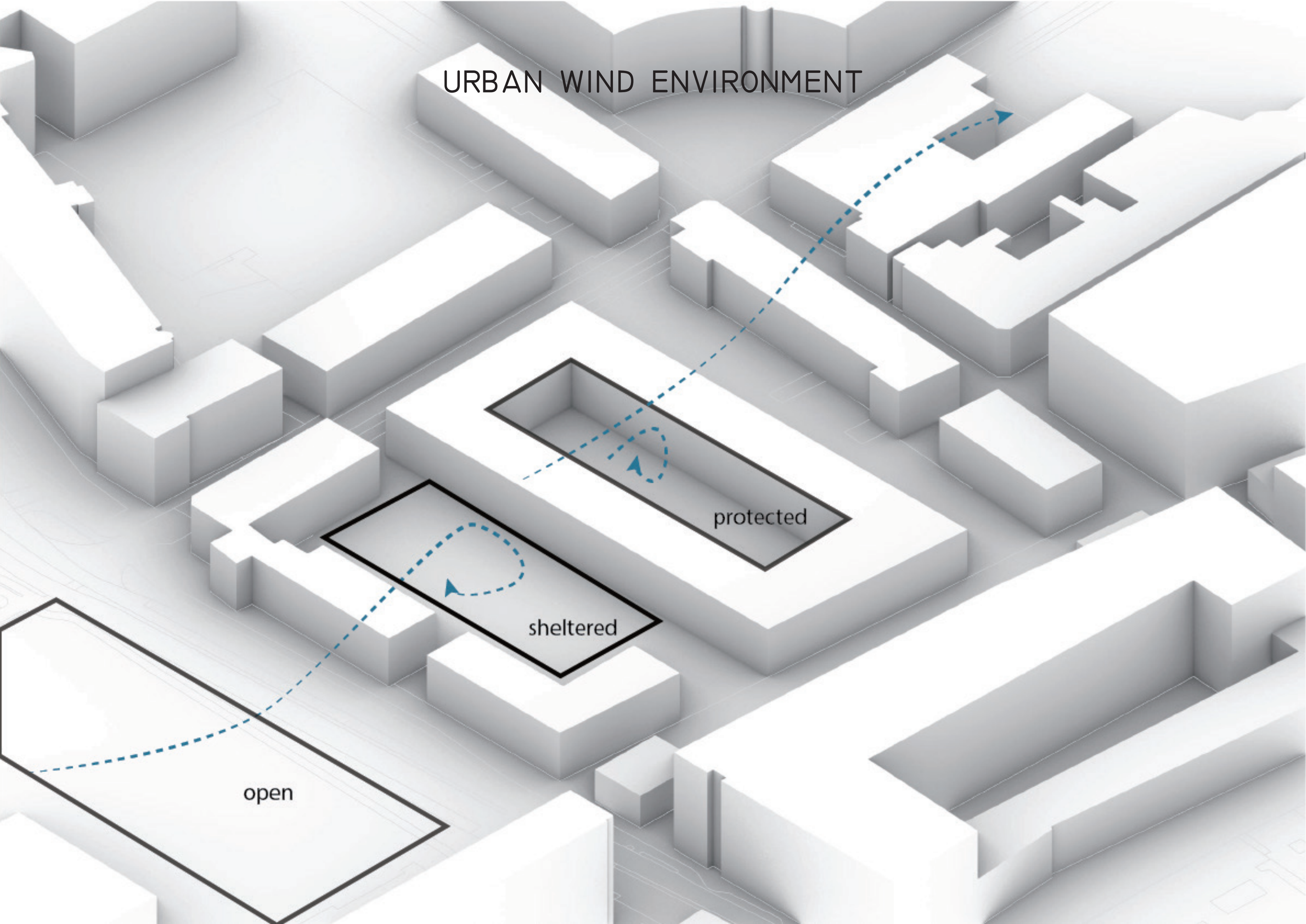


# CLIMATE BARRIER





# URBAN WIND ENVIRONMENT



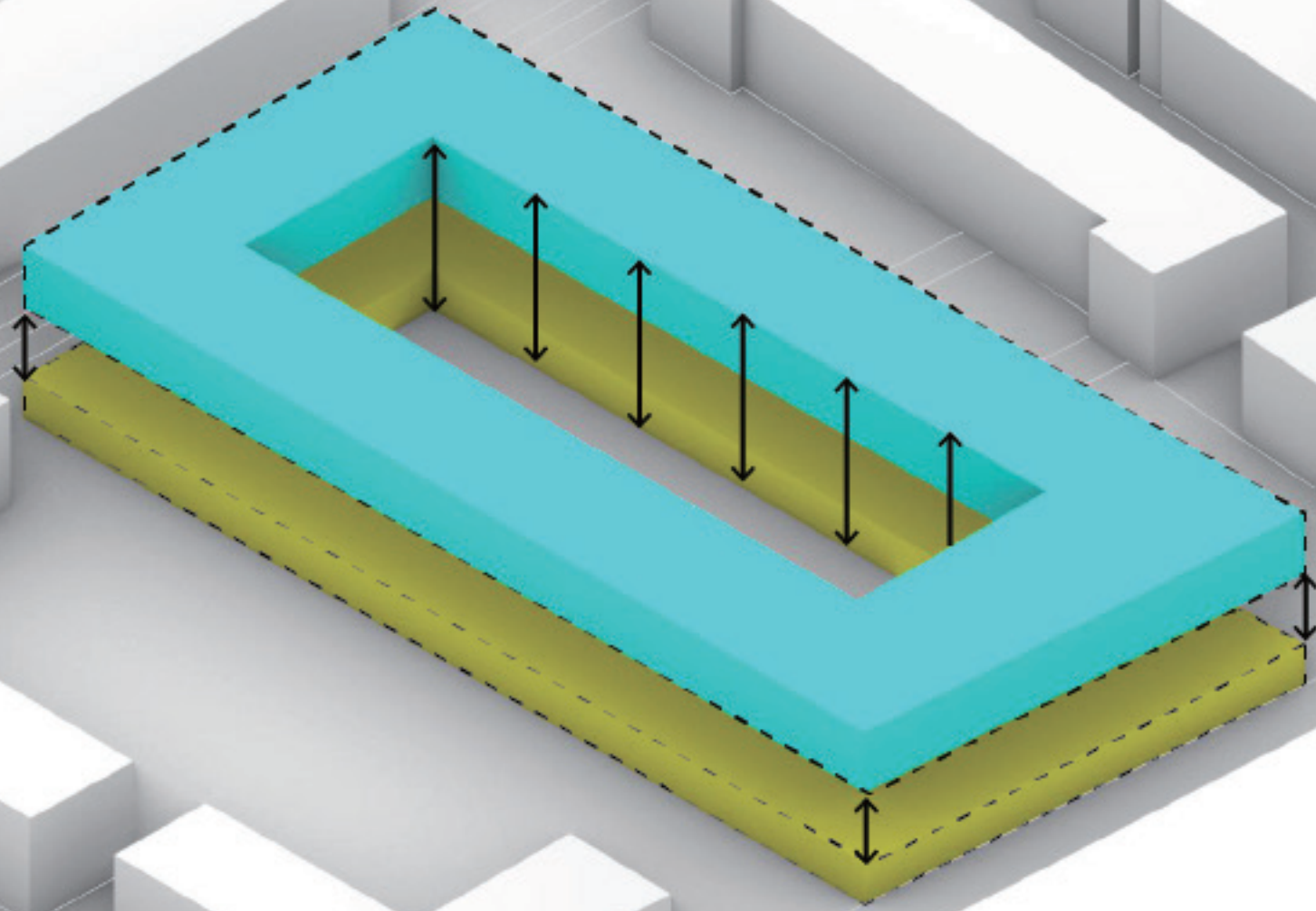
protected

sheltered

open



# LIFTING -- INTERIOR HIERACHY

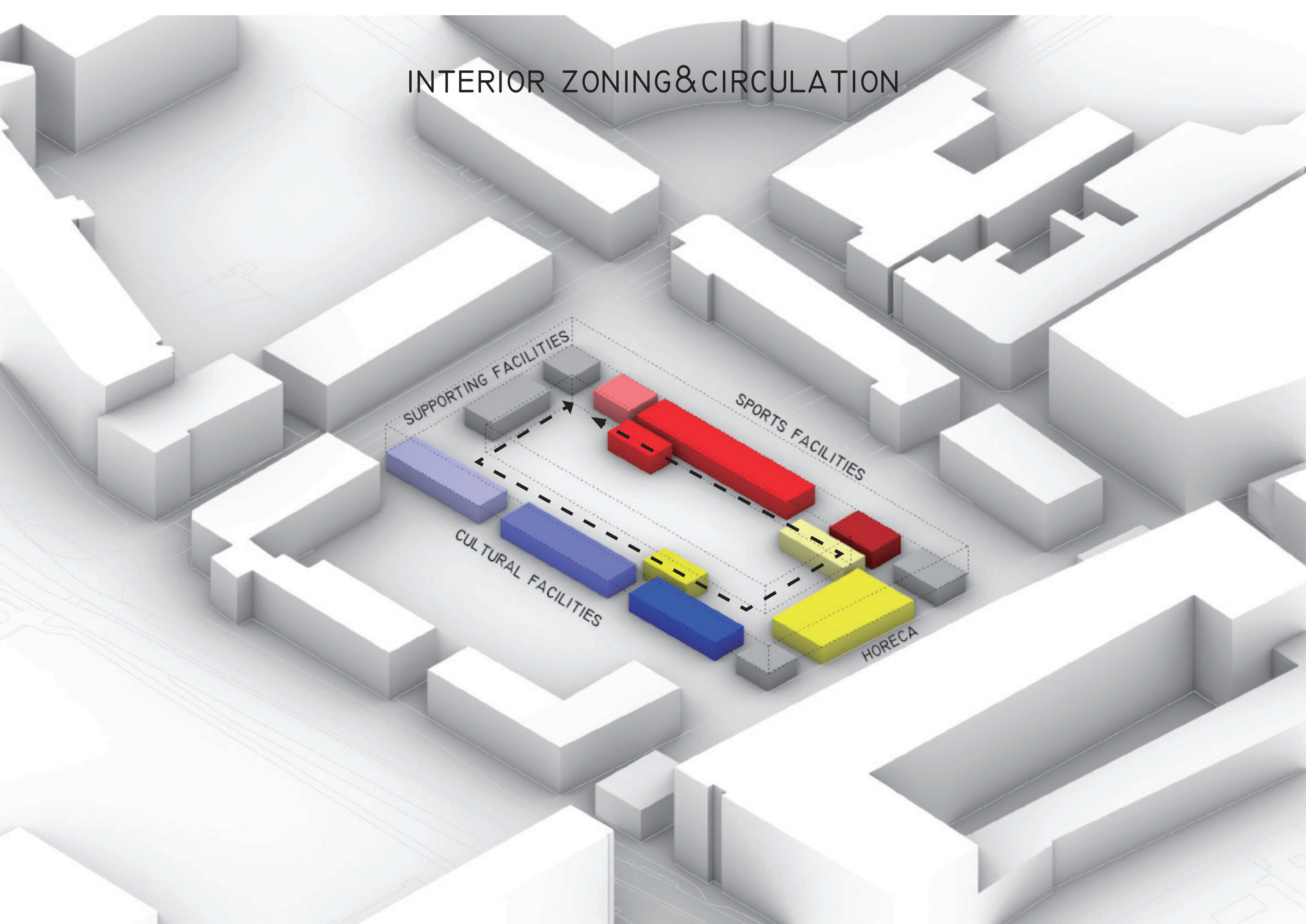


ELDERLY HOUSING

COMMUNITY CENTER

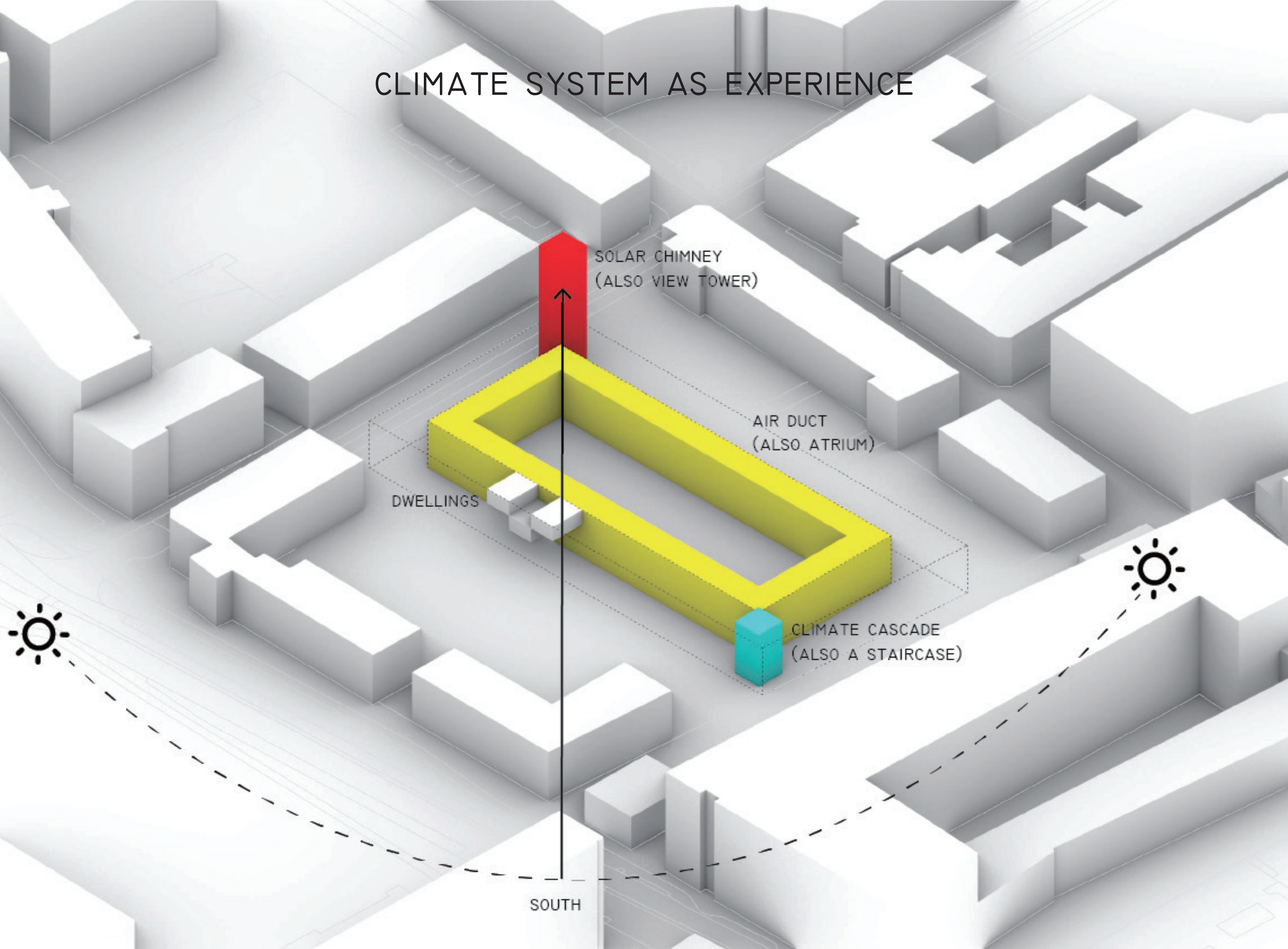


# INTERIOR ZONING & CIRCULATION





# CLIMATE SYSTEM AS EXPERIENCE



SOLAR CHIMNEY  
(ALSO VIEW TOWER)

AIR DUCT  
(ALSO ATRIUM)

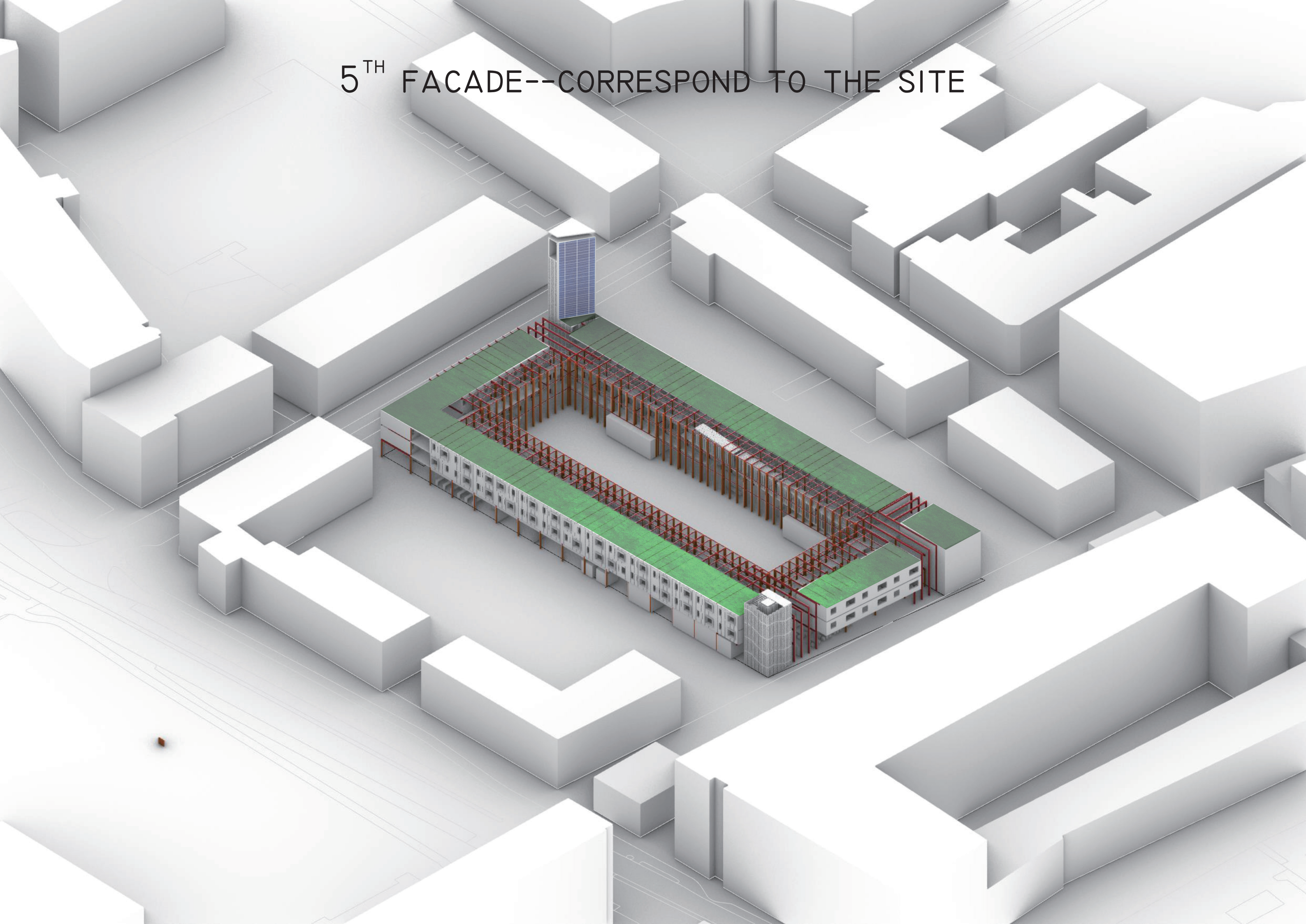
DWELLINGS

CLIMATE CASCADE  
(ALSO A STAIRCASE)

SOUTH

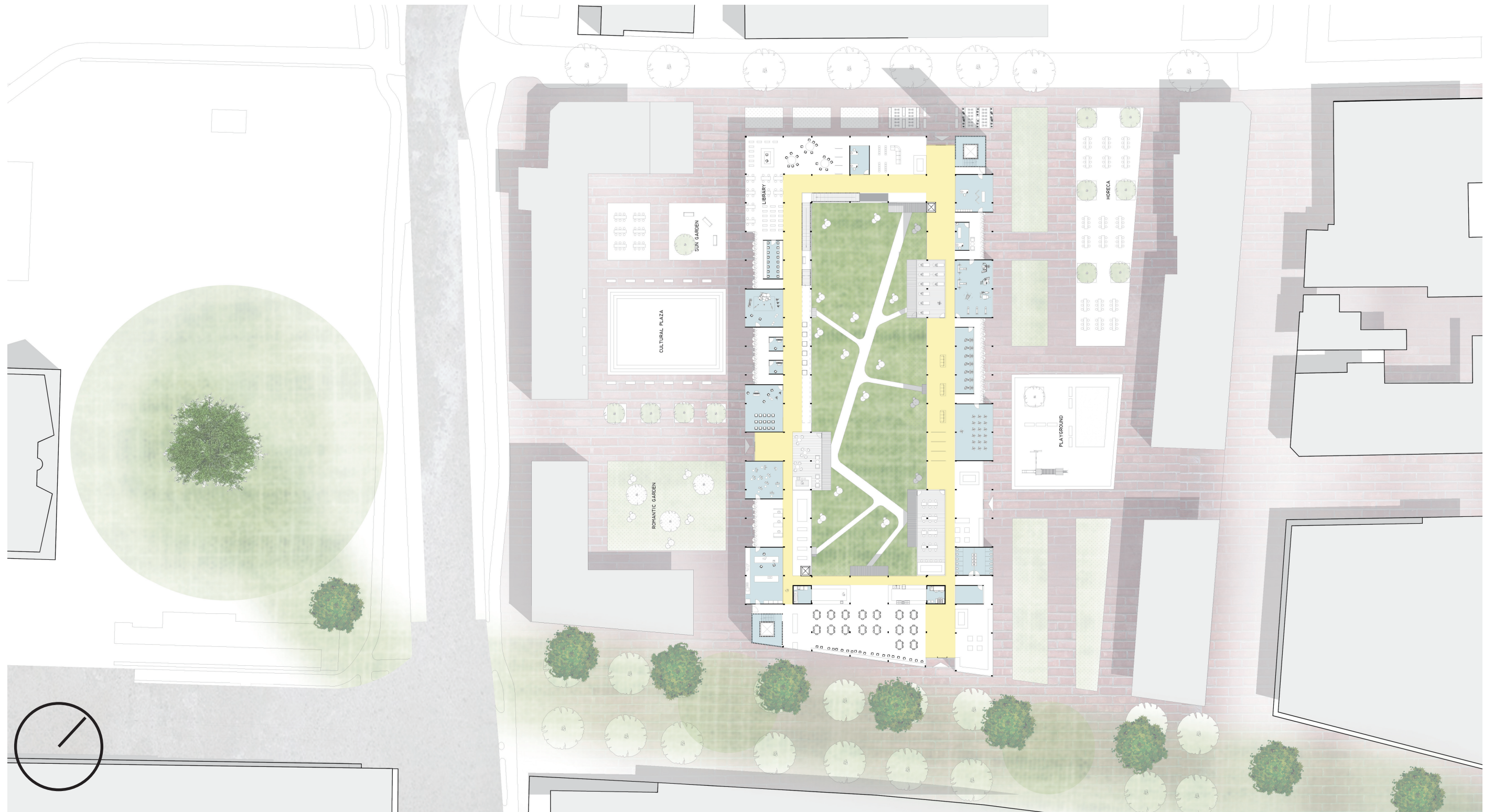


5<sup>TH</sup> FACADE--CORRESPOND TO THE SITE





# NATURRE AS NEW IDENTITY



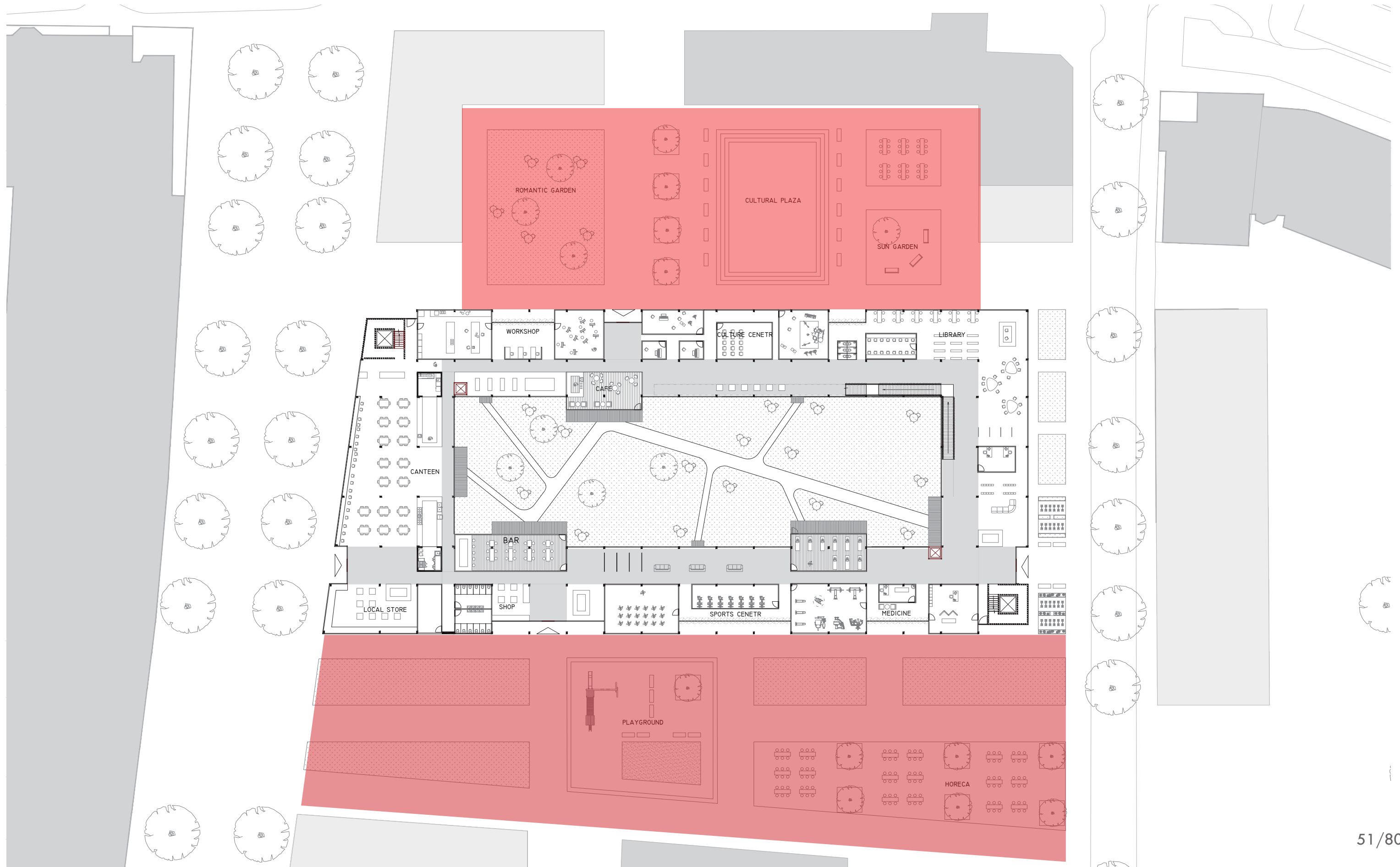


# URBAN SITUATION-NEW SHADED





# HIERACHY I : PUBLIC PLAZA--WIND SHELTERED



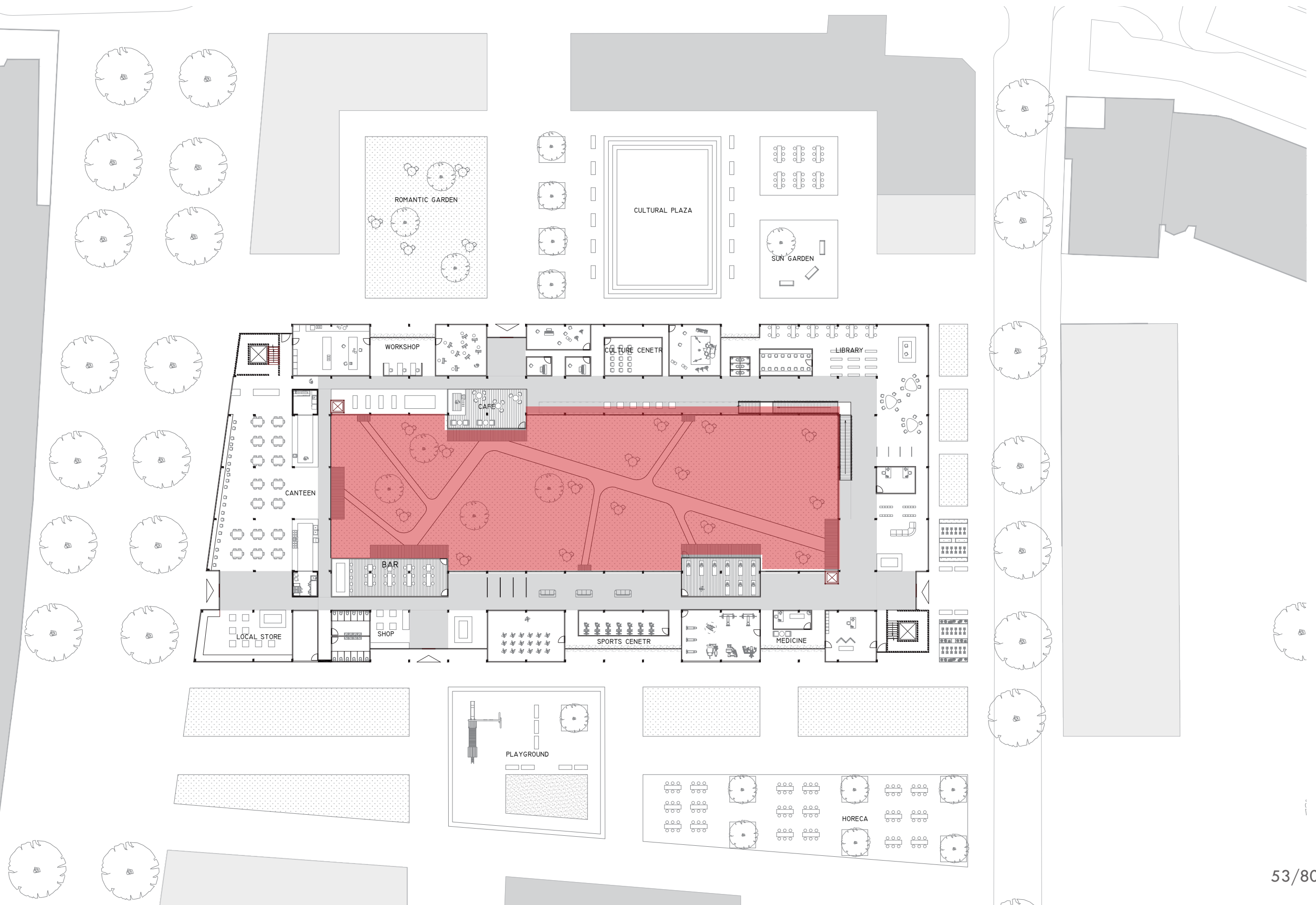


# PERSPECTIVE PLAZA- WIND SHADED



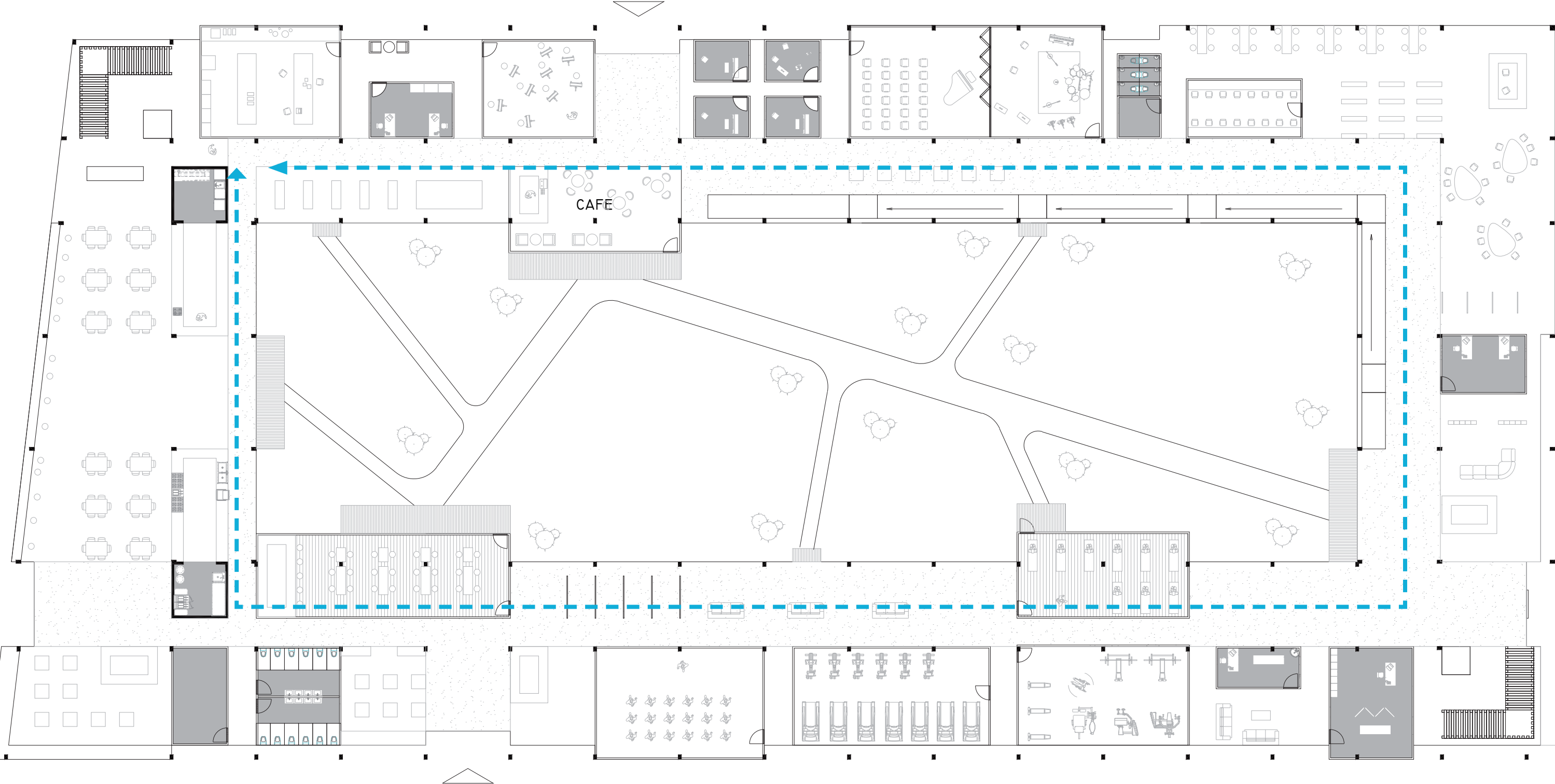


# HIERACHY 1.5 : COMMUNAL GARDEN--WIND SHELTERED





# GROUND FLOOR PLAN





# CONNECTING

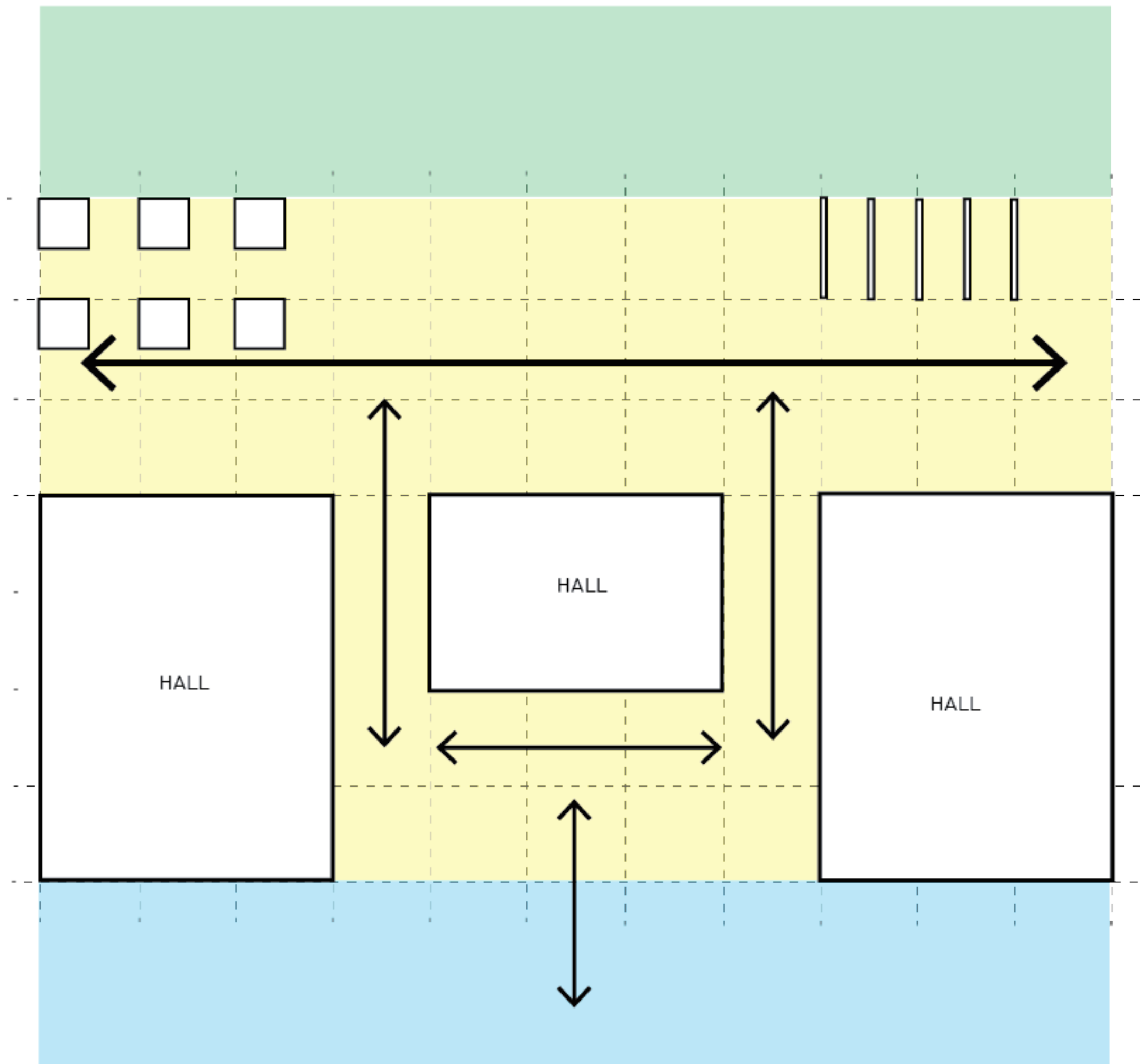
COURTYARD

LIGHT

INNER STREET

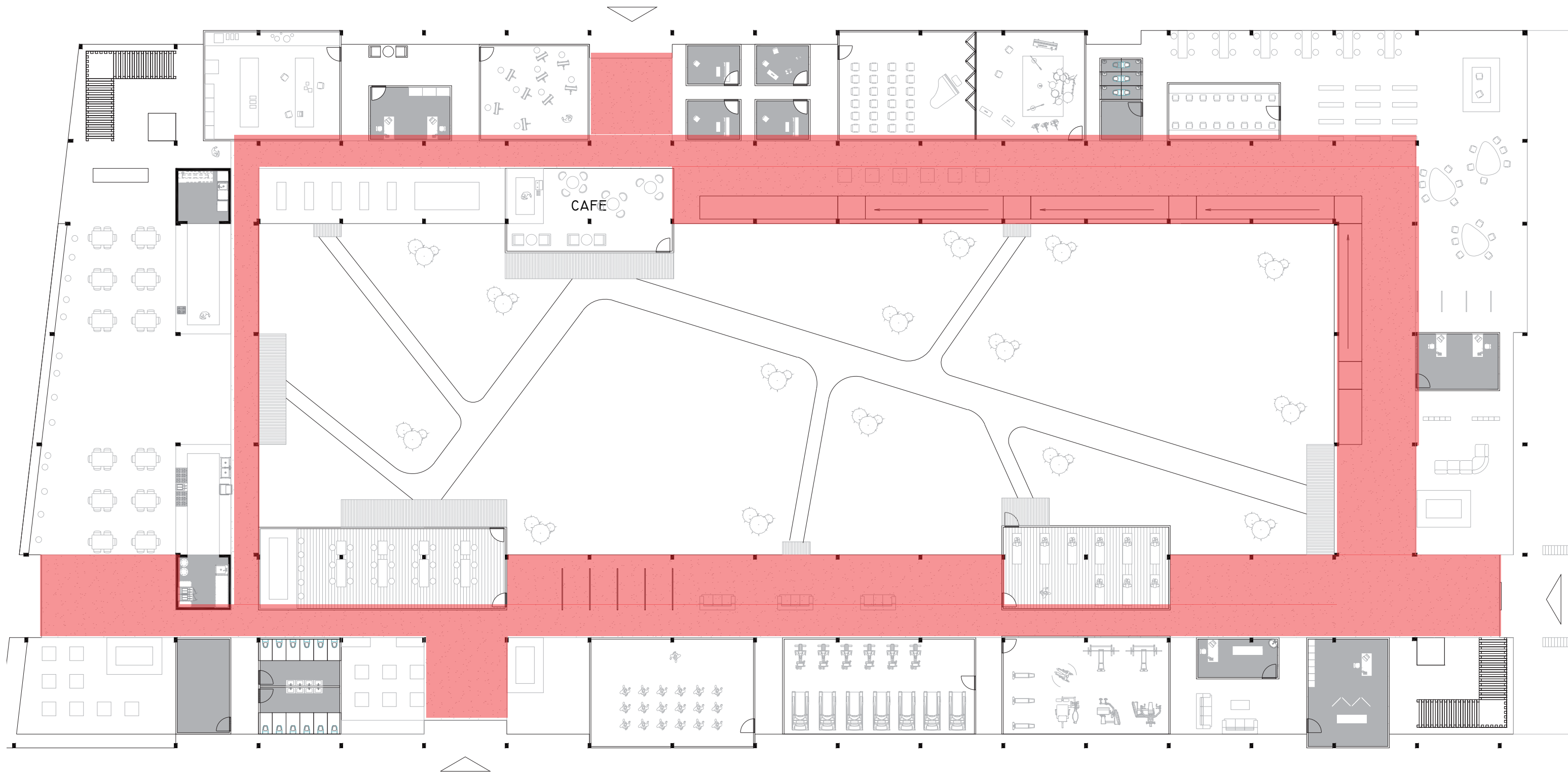
MASSIVE

PLAZA





# HIERACHY 2: INDOOR STREET WITH EWF



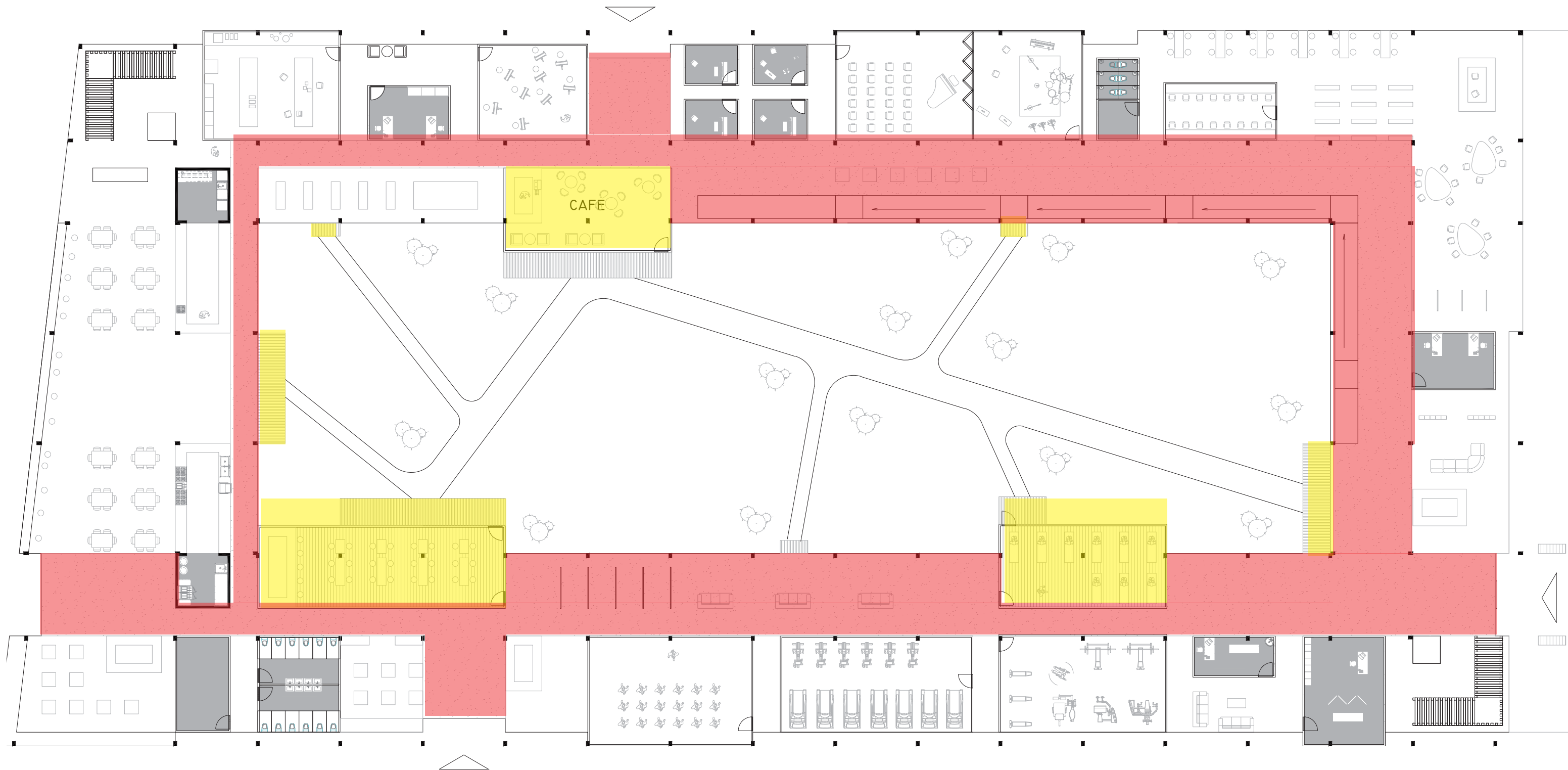


# INNER STREET





# INTERACTIONS INSIDE&OUT



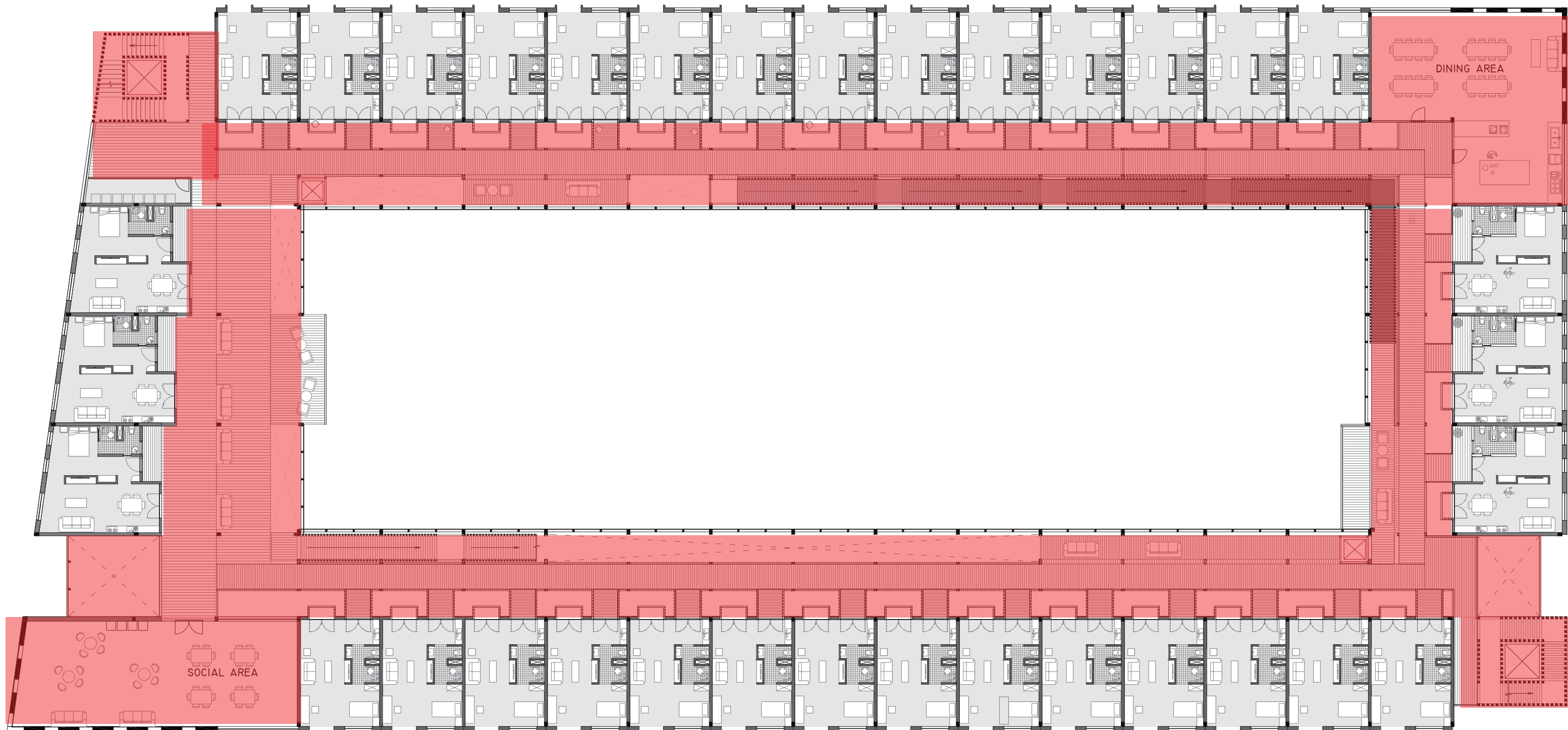


# PERSPECTIVE: INSIDE OUT&CLIMATE



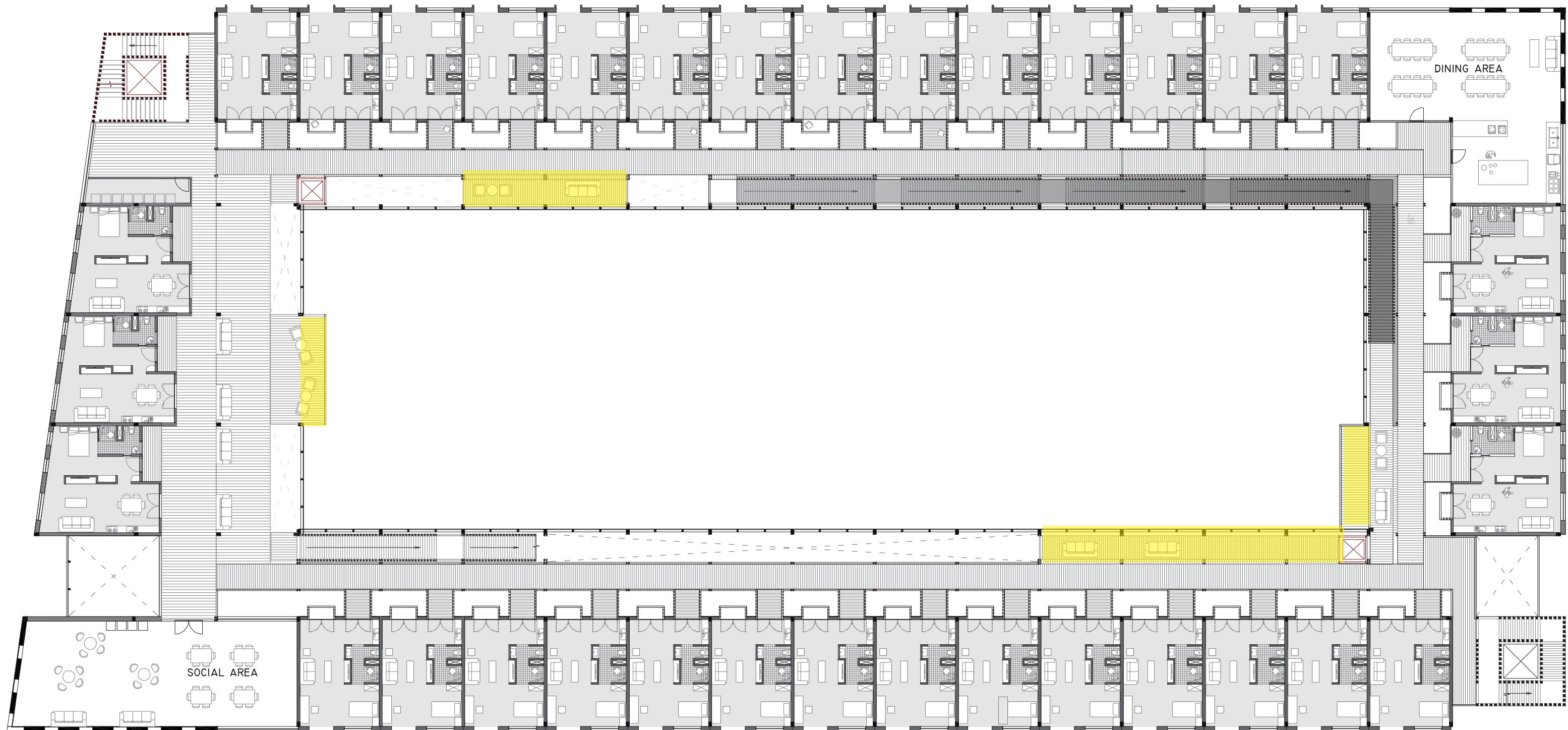


# HIERCHY 2.5: COLLECTIVE SPACE WITH EWF





# HIERCHY 2.5: COLLECTIVE SPACE WITH EWF



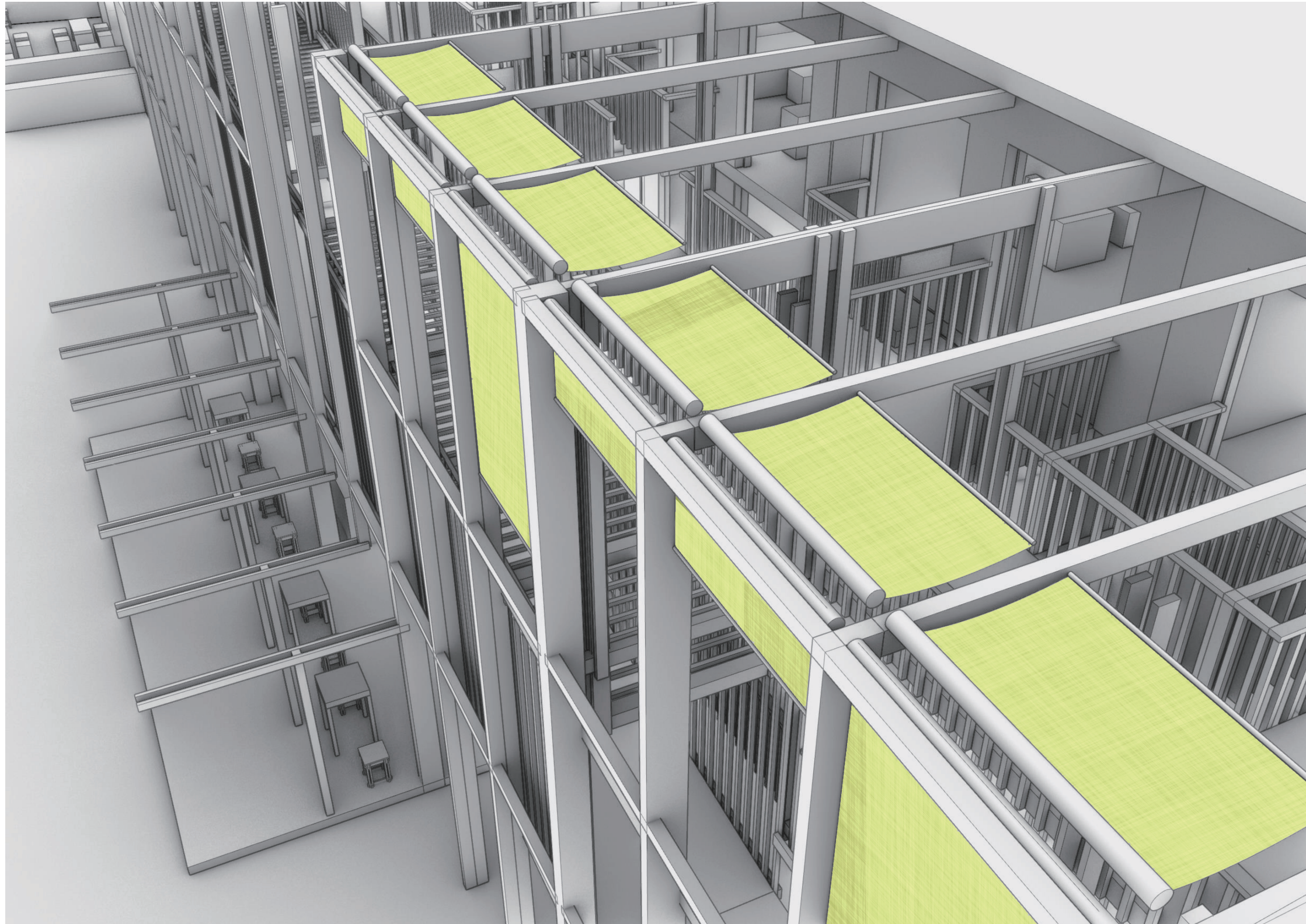


# PERCEPTION: BREEZING CORRIDOR



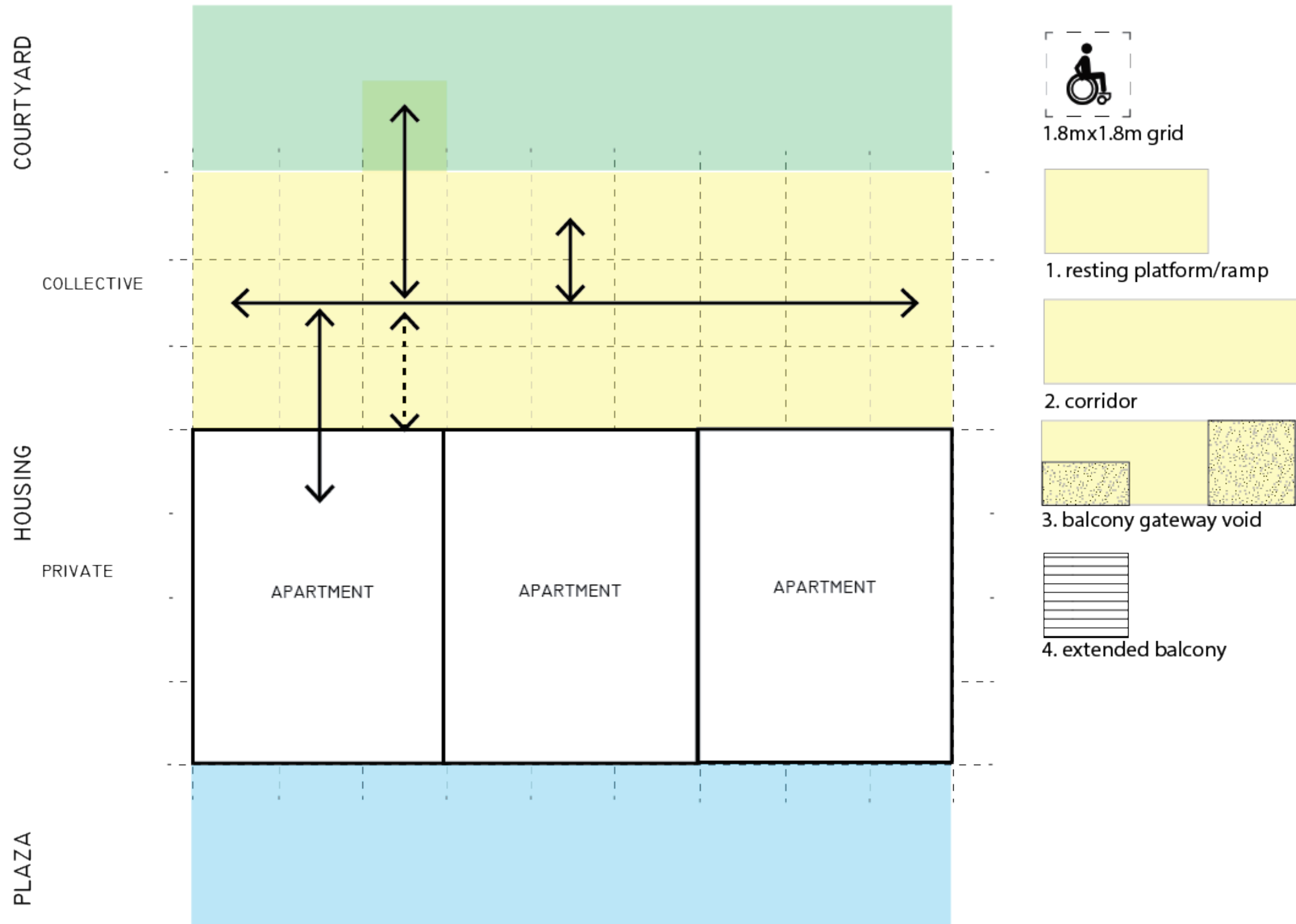


# GROUP-CONTROLLED FABRIC SHADING



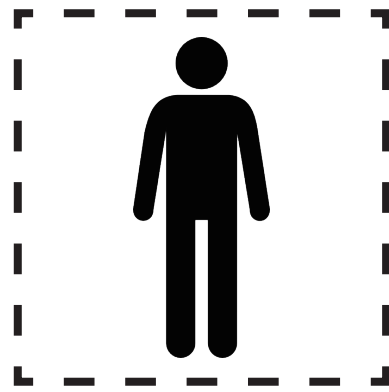


# HIERACHY 3: INTERIOR SPACE WITH SELF-CONTROLLED EWF





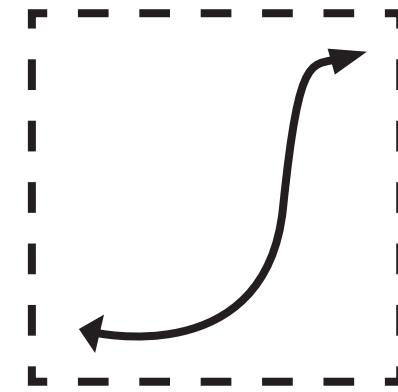
# LIVING UNIT STRATEGY



mainly single users



economical



free space

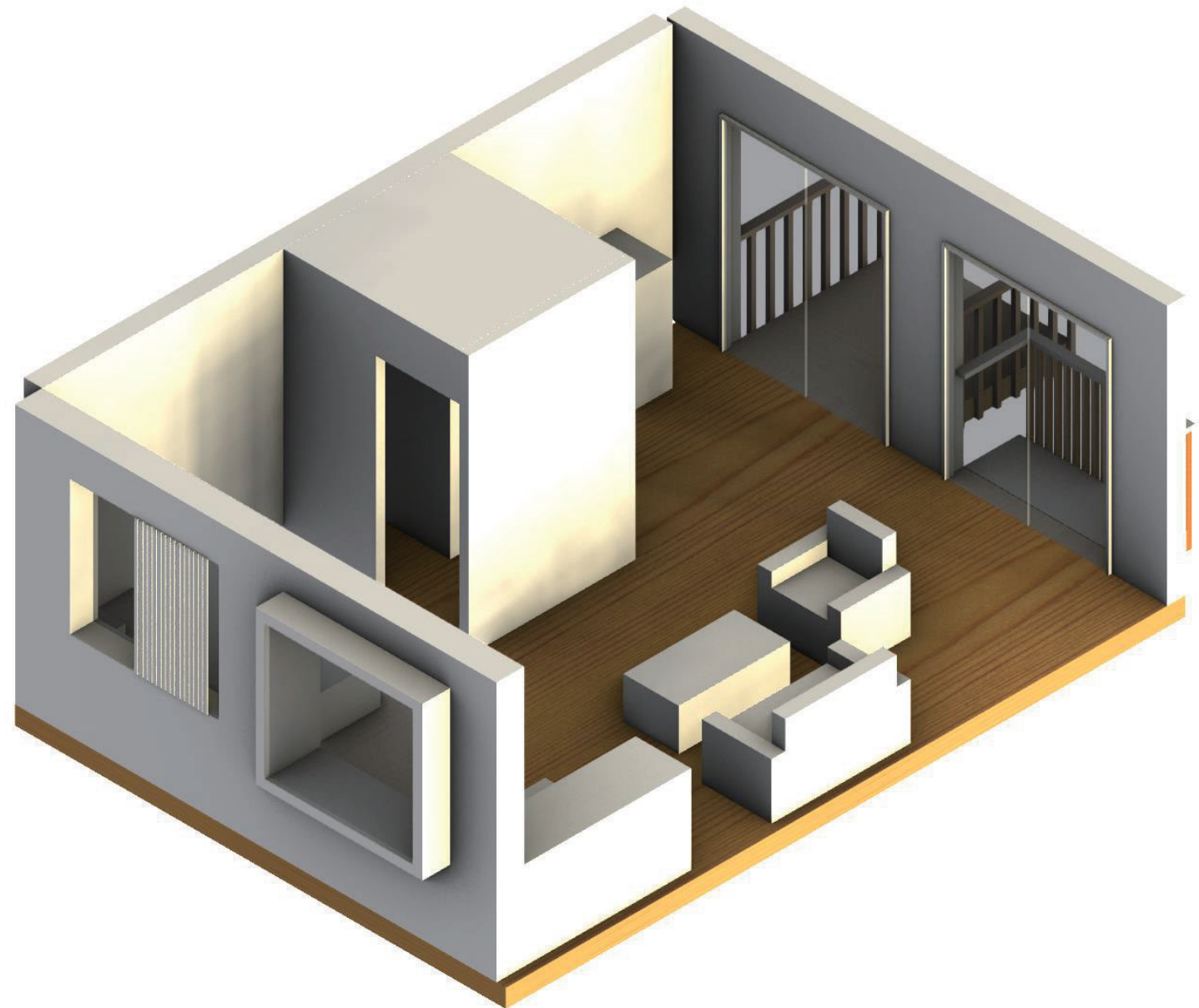
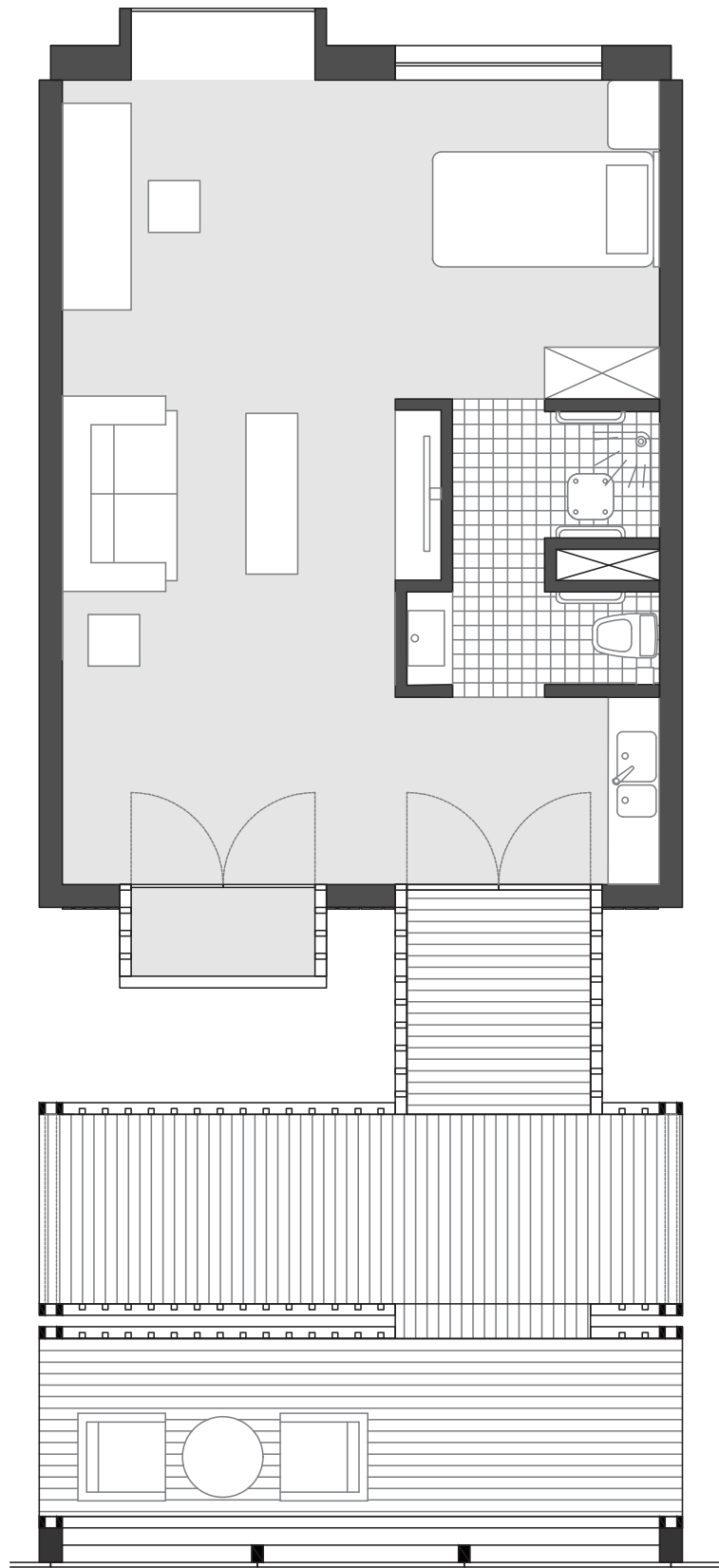


# DWELLING A

STUDIO

Area: 38.8m<sup>2</sup>

Possible dweller: single



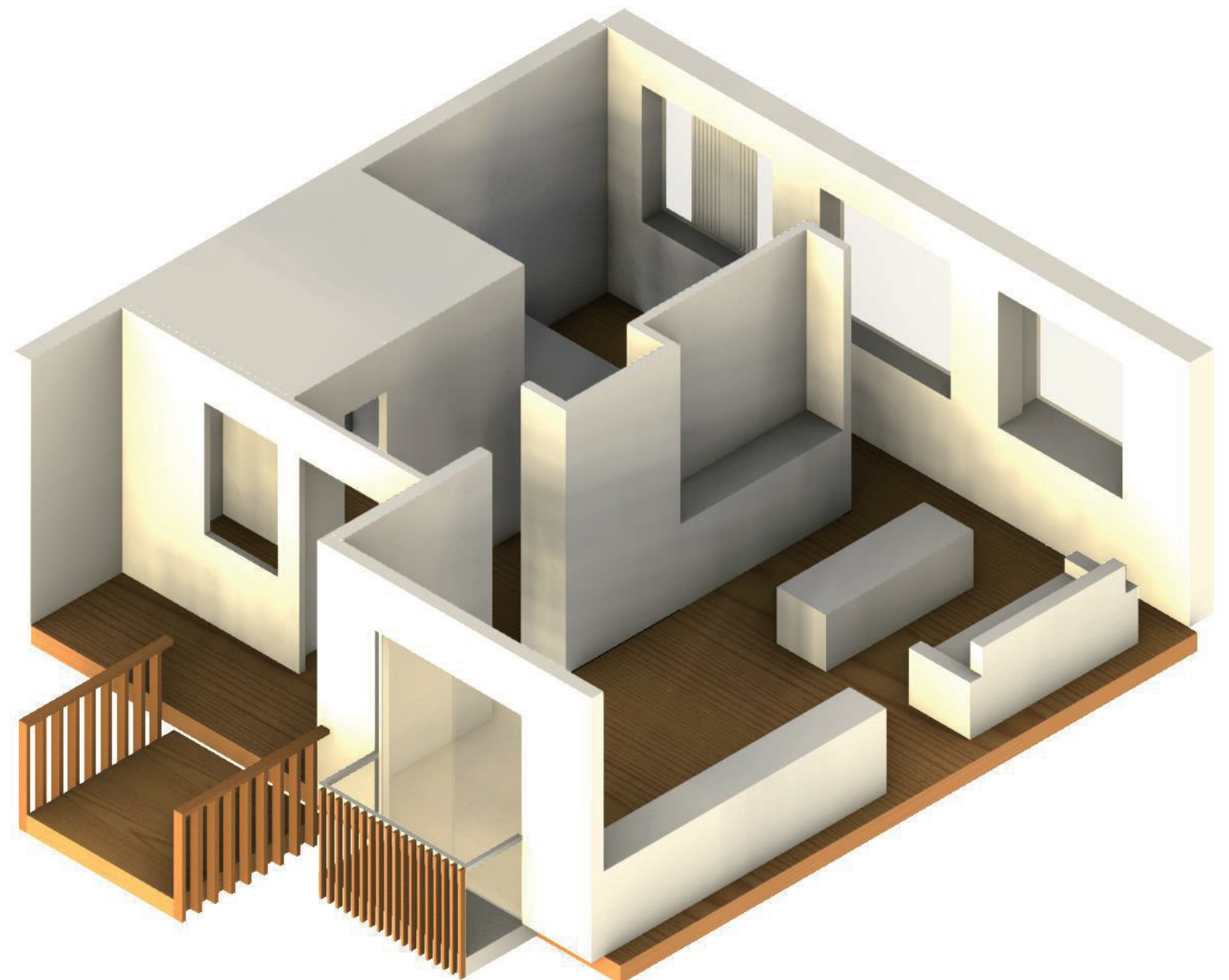
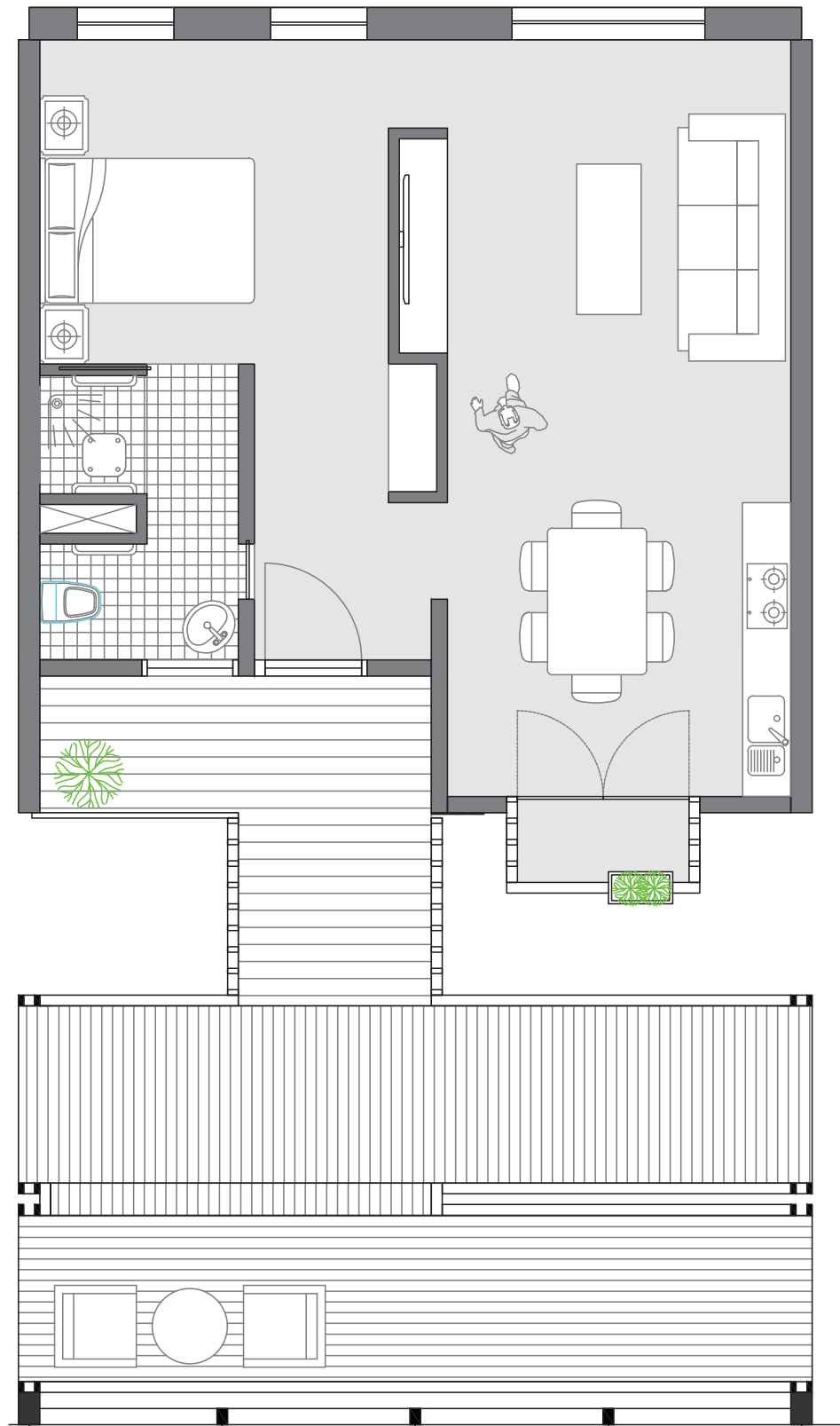


# DWELLING B

STUDIO+

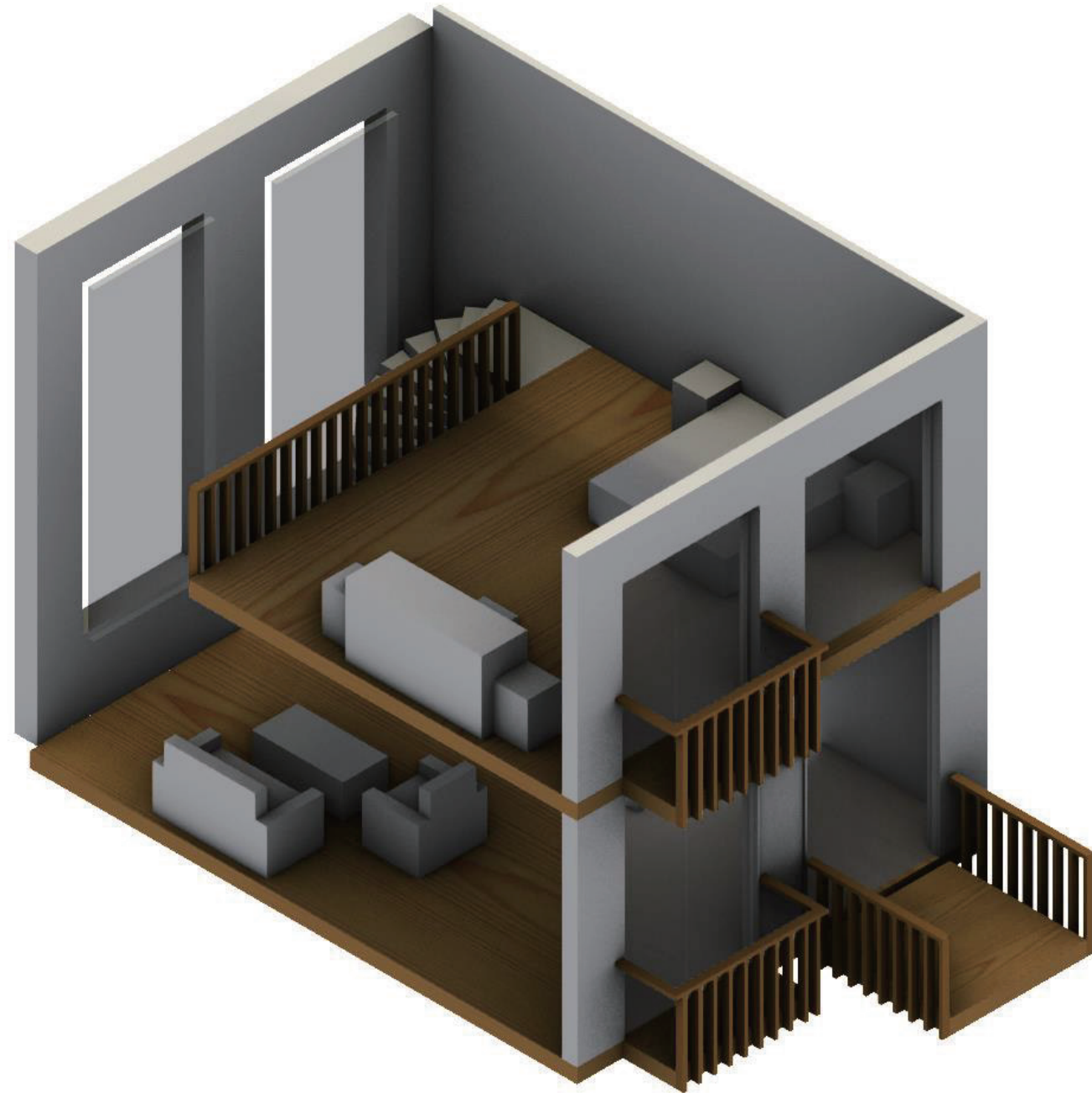
Area: 55.4m<sup>2</sup>

Possible dweller: single, couple





# DWELLING C



LOFT

Area: 67,8m<sup>2</sup>

Possible dweller: couple, single



# FREE SPACE IN INTERIOR



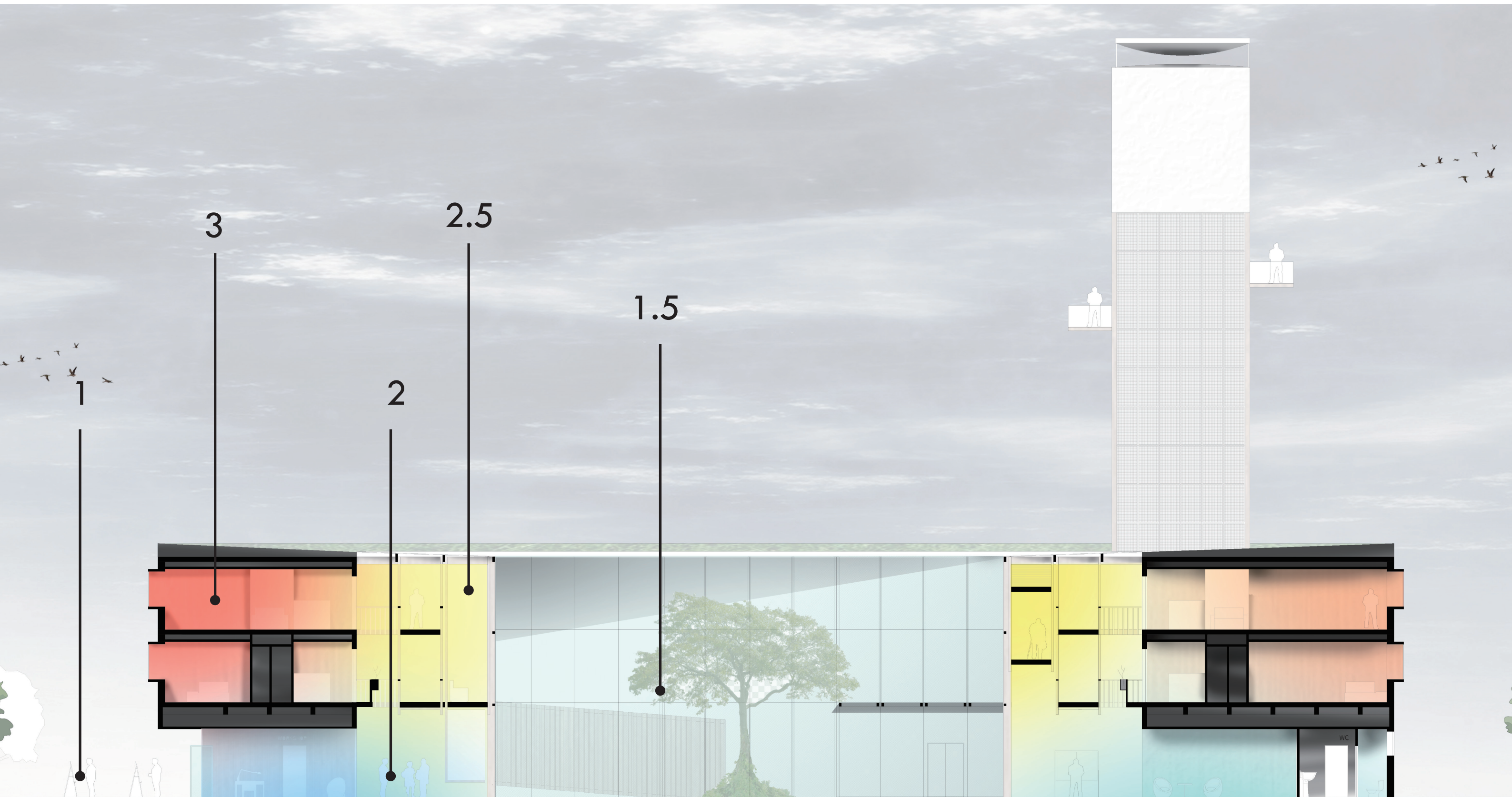


# SHADING BY THE USER





# 5 LEVELS OF HIERACHY





# INNER&EXTERIOR FACADE





# MATERIAL CHOOSING

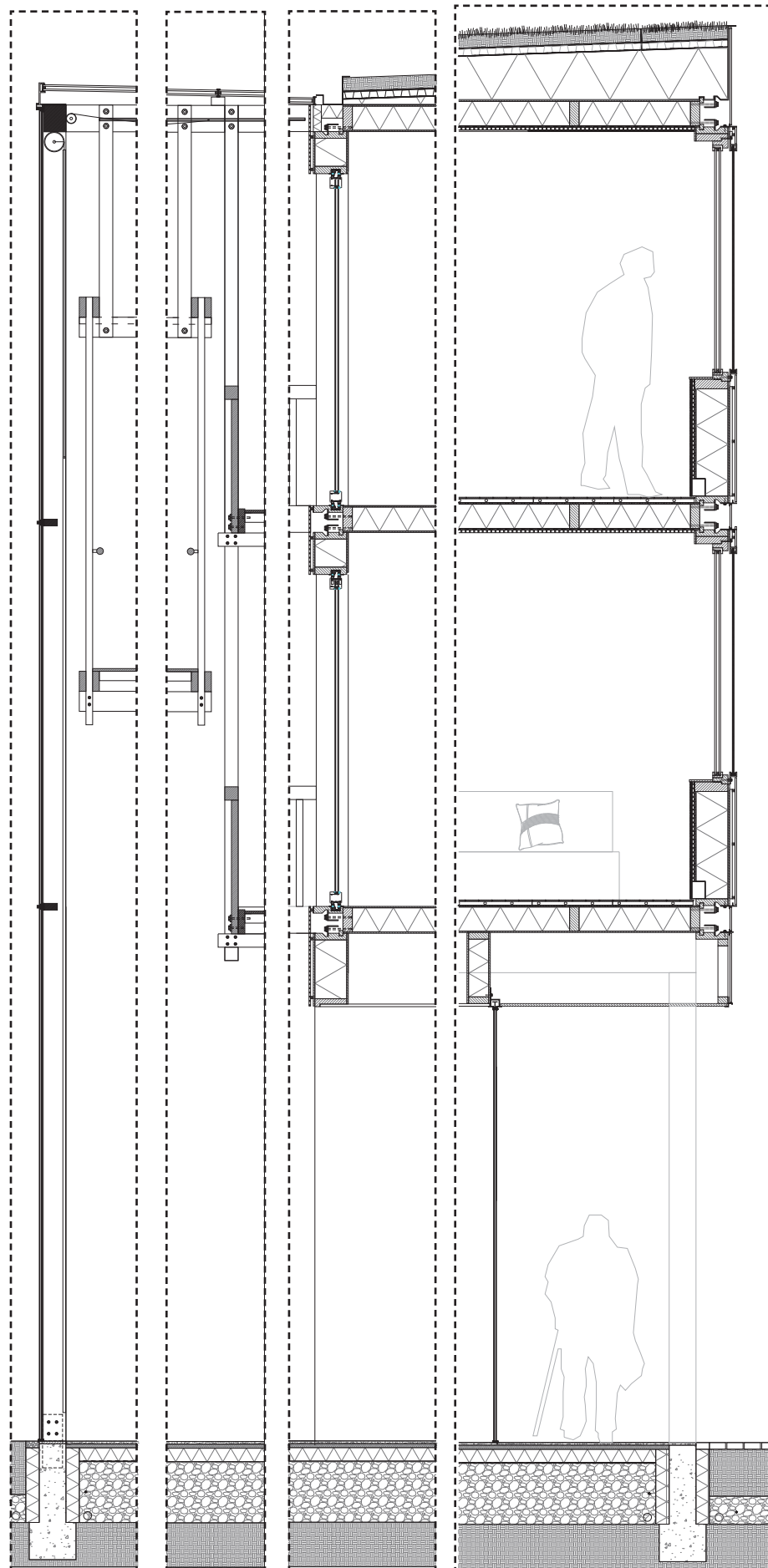


brick+concrete

wood(oak+esen)+glass

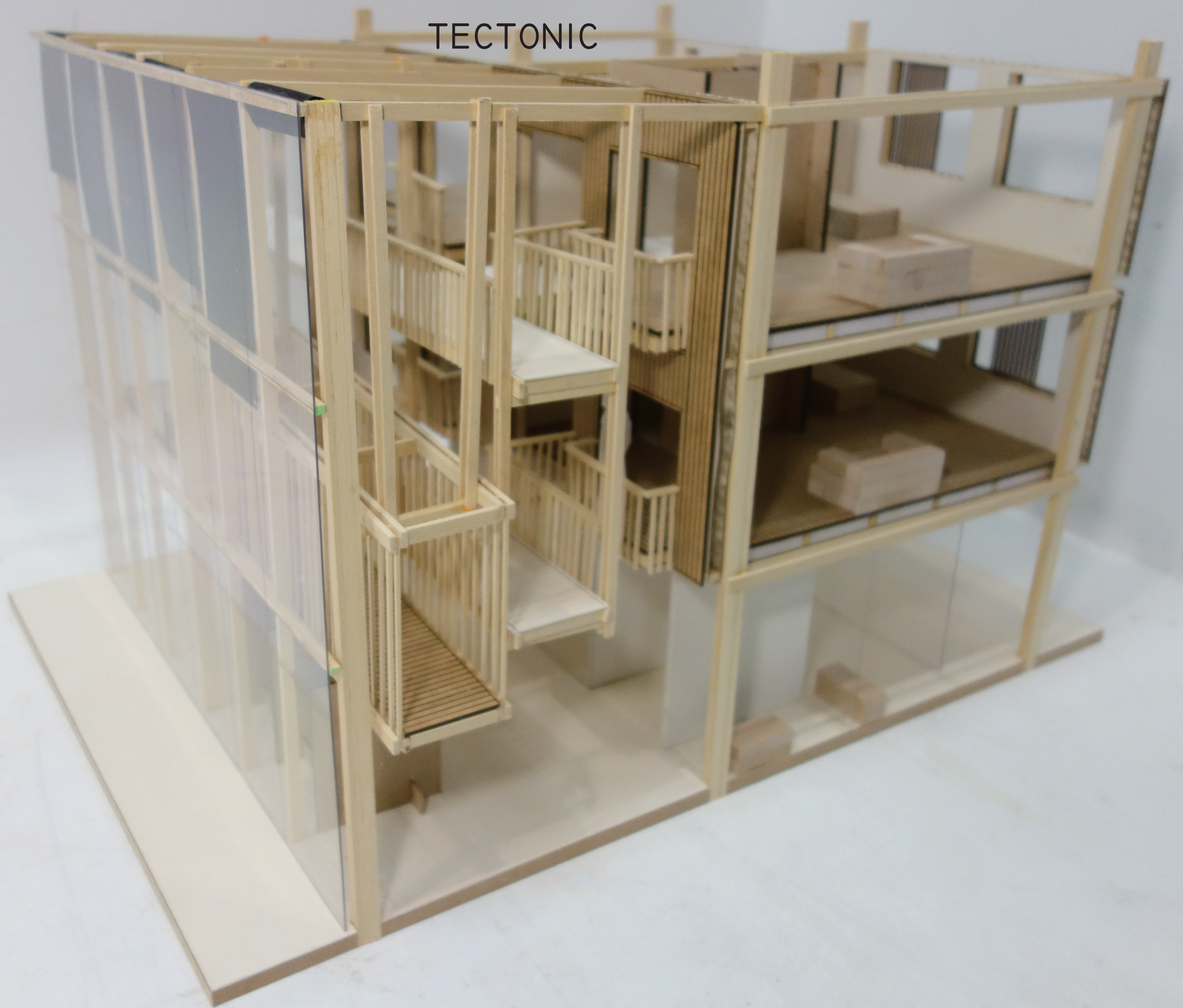


# FACADE





TECTONIC





# CONTRAST QUALITY ON THE "STREET"



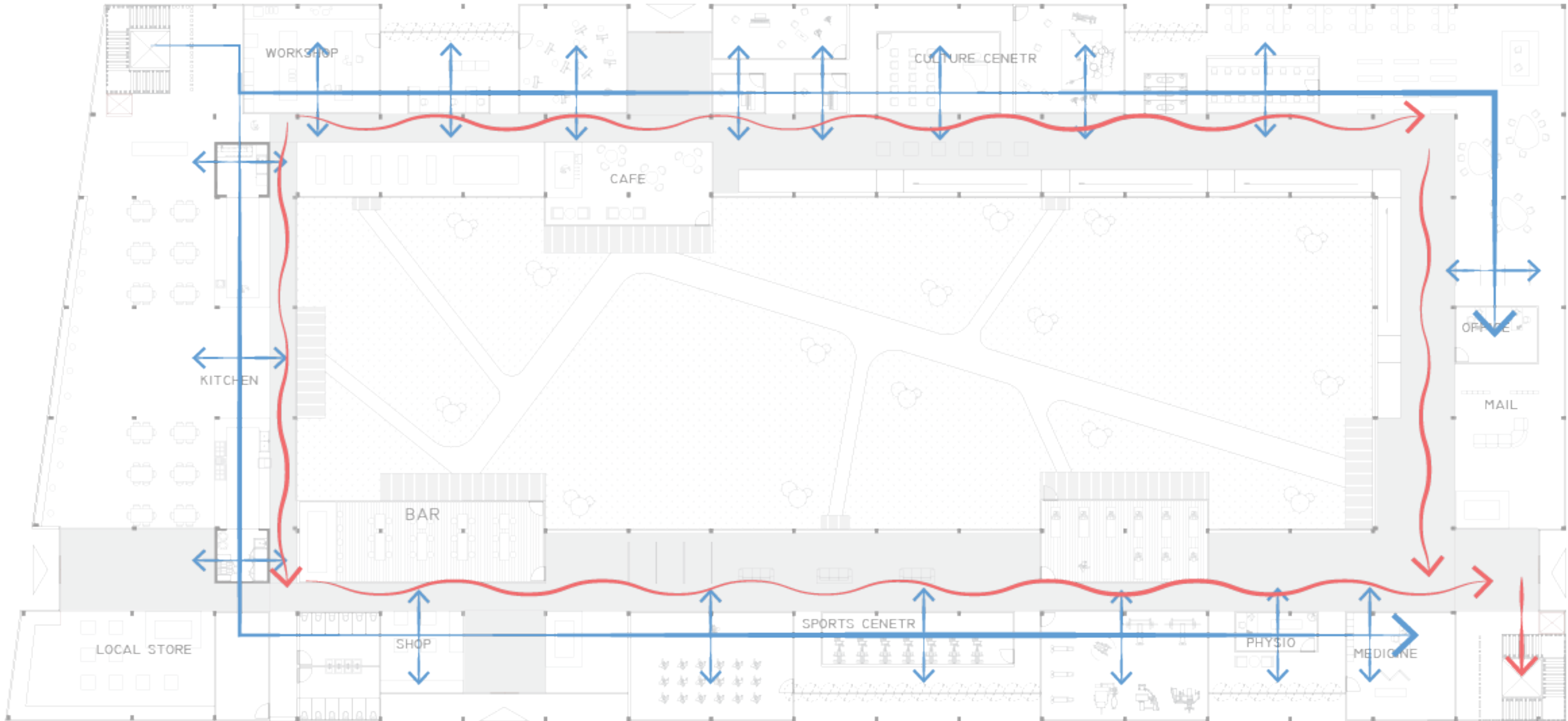


# WOOD RAMP





# CLIMATE SYSTEM PLAN





# CLIMATE SYSTEM - SUMMER

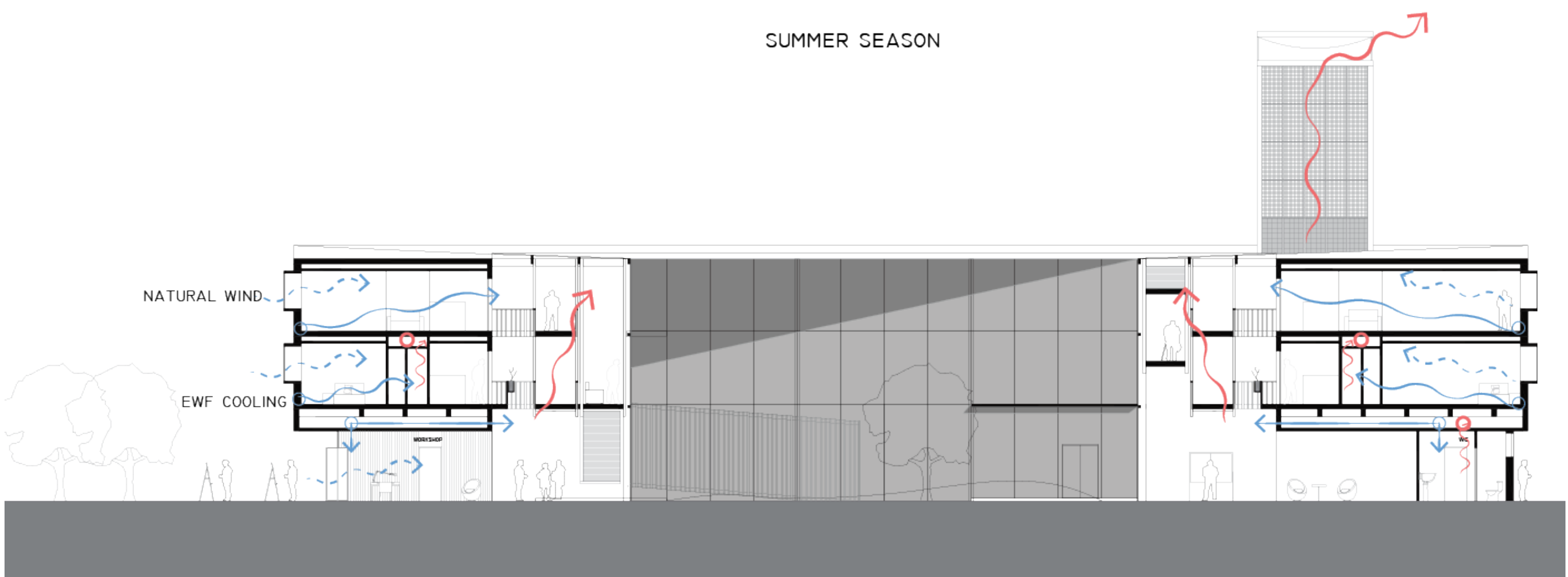
SUMMER SEASON

SOLAR CHIMNEY

NATURAL WIND

EWF COOLING

WORKSHOP





## CONCLUSIONS

How to support **social interactions** in elderly housing in IBA Parkstad, by means of appropriate climate design?

- Climate condition determines possible social interactions.
- More climate hierarchies, more choices for the body and the mind.
- Personal climate control contributes to richer climate experience.



# QUESTIONS?

