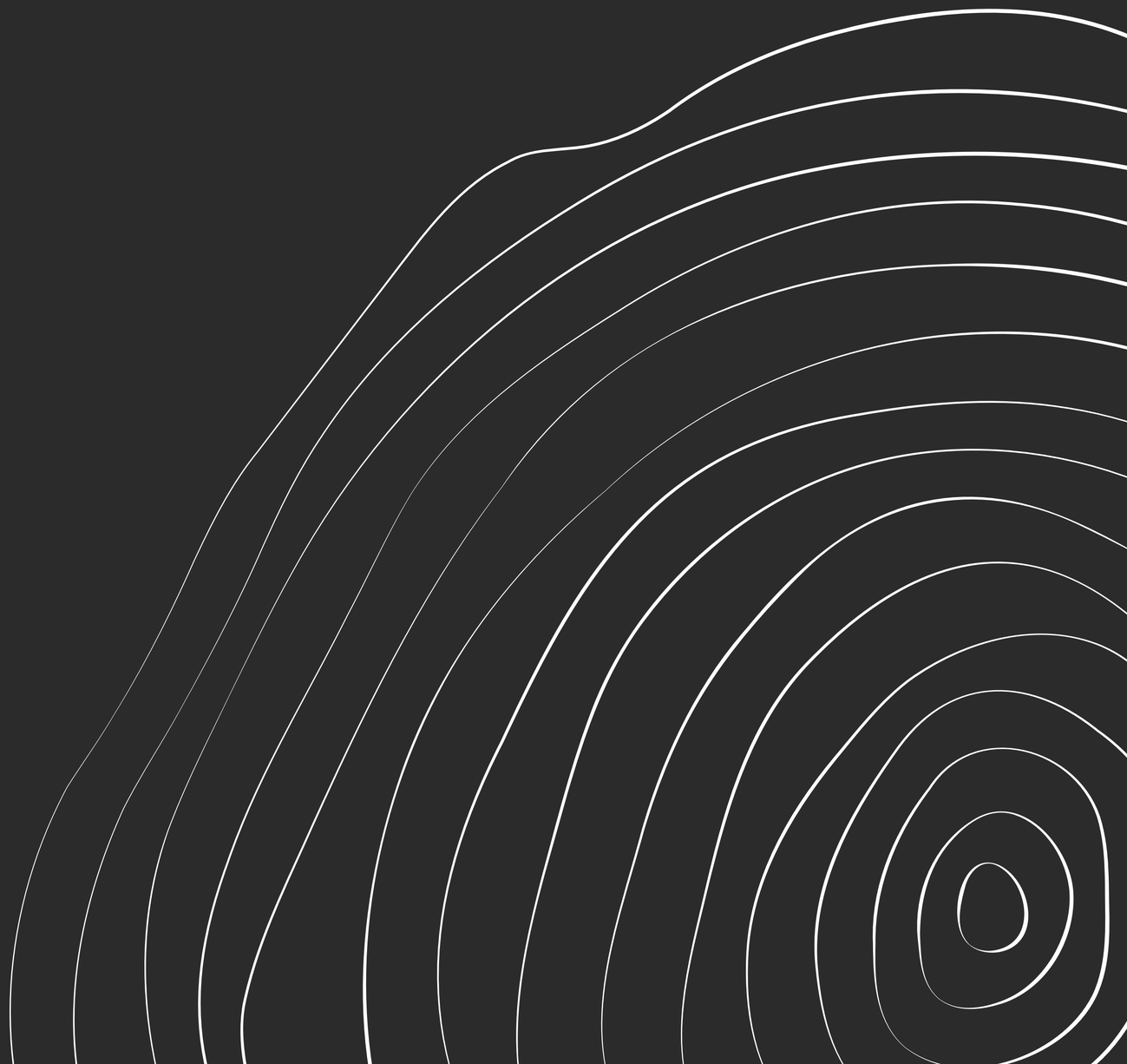
Advanced Housing

P5 - Jens Klappe

Regenerative Housing



'The periphery is like the cambium of a tree,
the only living layer that thereby etermines
the shape of iets growth.'

FLORIS ALKEMADE - 2016

Content

Problem statement

Problem Statement

Regenerative Design

Climate change

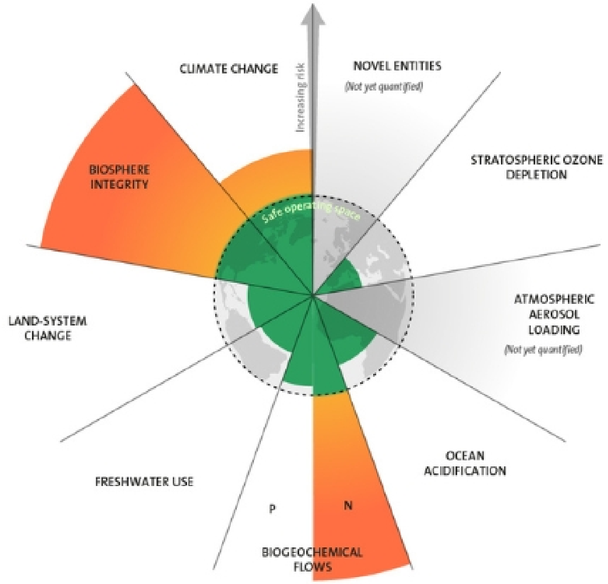
Housing Crisis

Lack of Space

Problem Statement

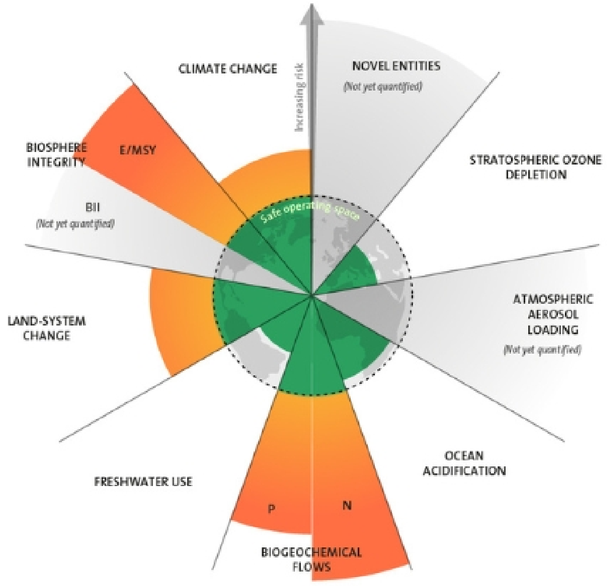
Climate Change

2009



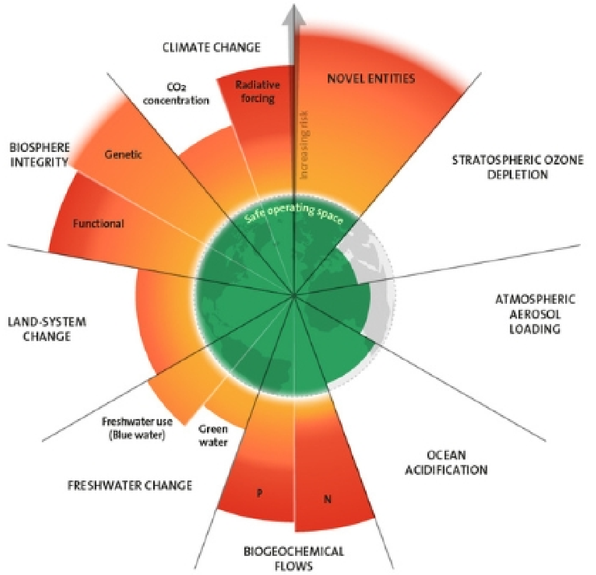
7 boundaries assessed,
3 crossed

2015



7 boundaries assessed,
4 crossed

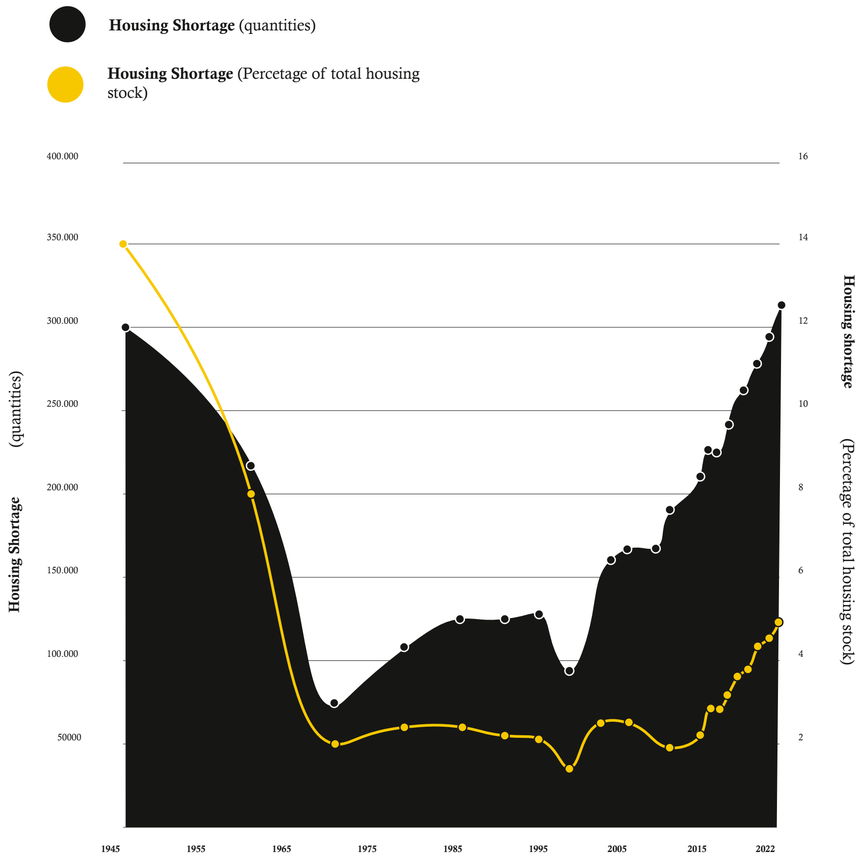
2023

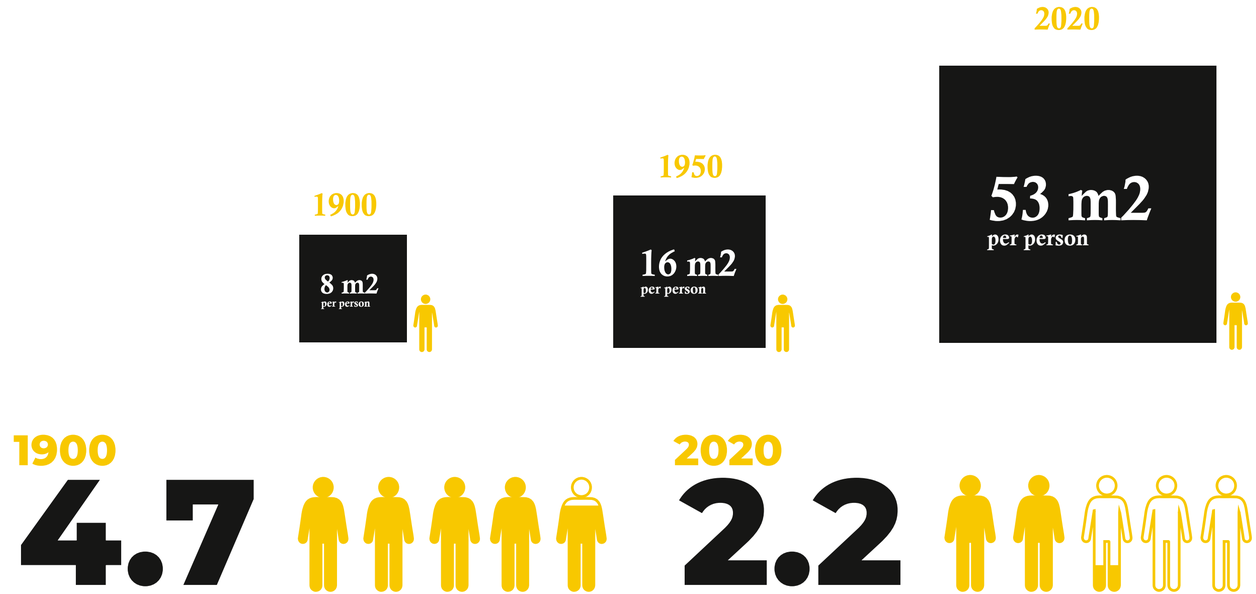


9 boundaries assessed,
6 crossed

Problem Statement

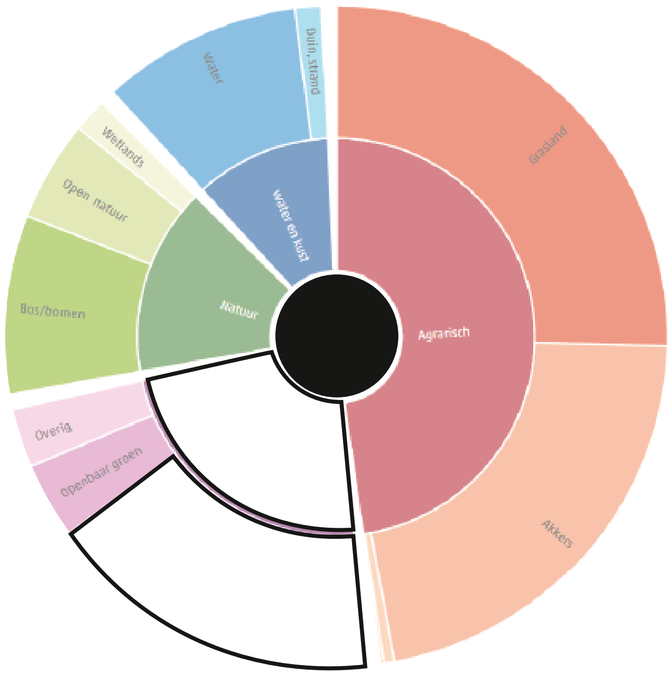
Housing Crisis





Problem Statement

Lack of Space



Problem statement

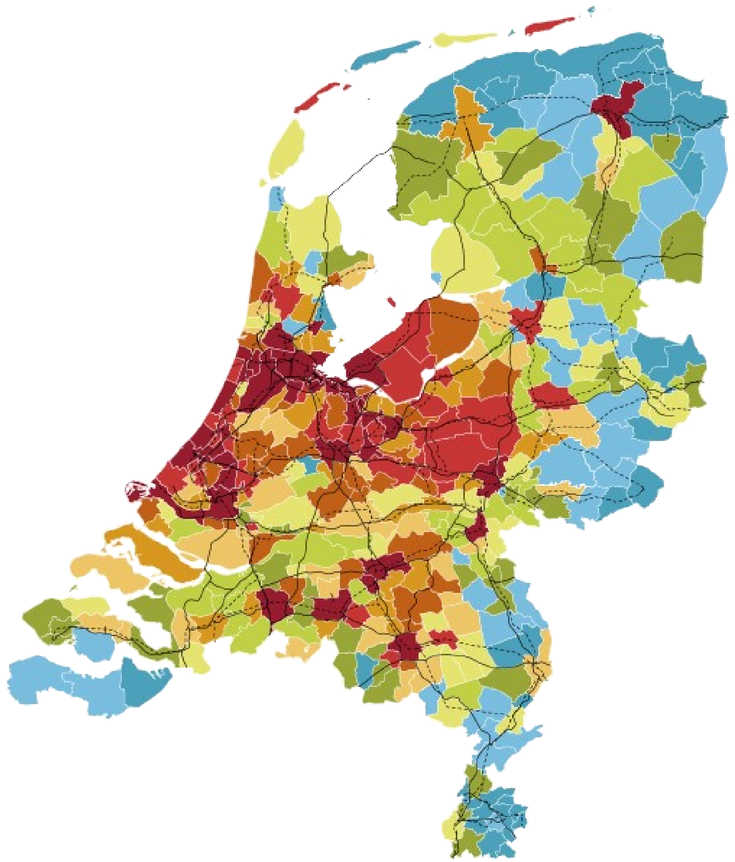
Climate Change

Housing Crisis

Lack of Space

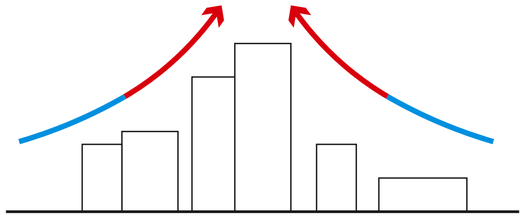
Problem statement

Urbanization



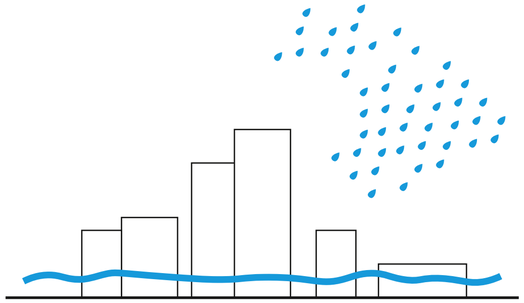
Problem statement

Climate crisis



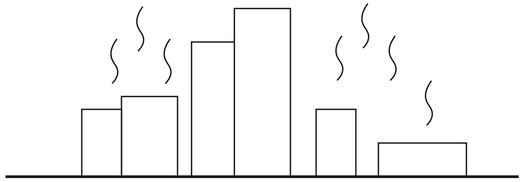
Heat Island Effect

Urban areas experience higher temperatures due to dense construction, reduced vegetation, and heat-absorbing materials like asphalt and concrete. This exacerbates heat stress, impacting vulnerable populations and biodiversity (IPCC, 2023).



Waterlogging and Floods

Changing precipitation patterns and urban densification increase waterlogging and flood risks, overwhelming drainage systems and damaging ecosystems (European Parliament, 2020; IPCC, 2023).

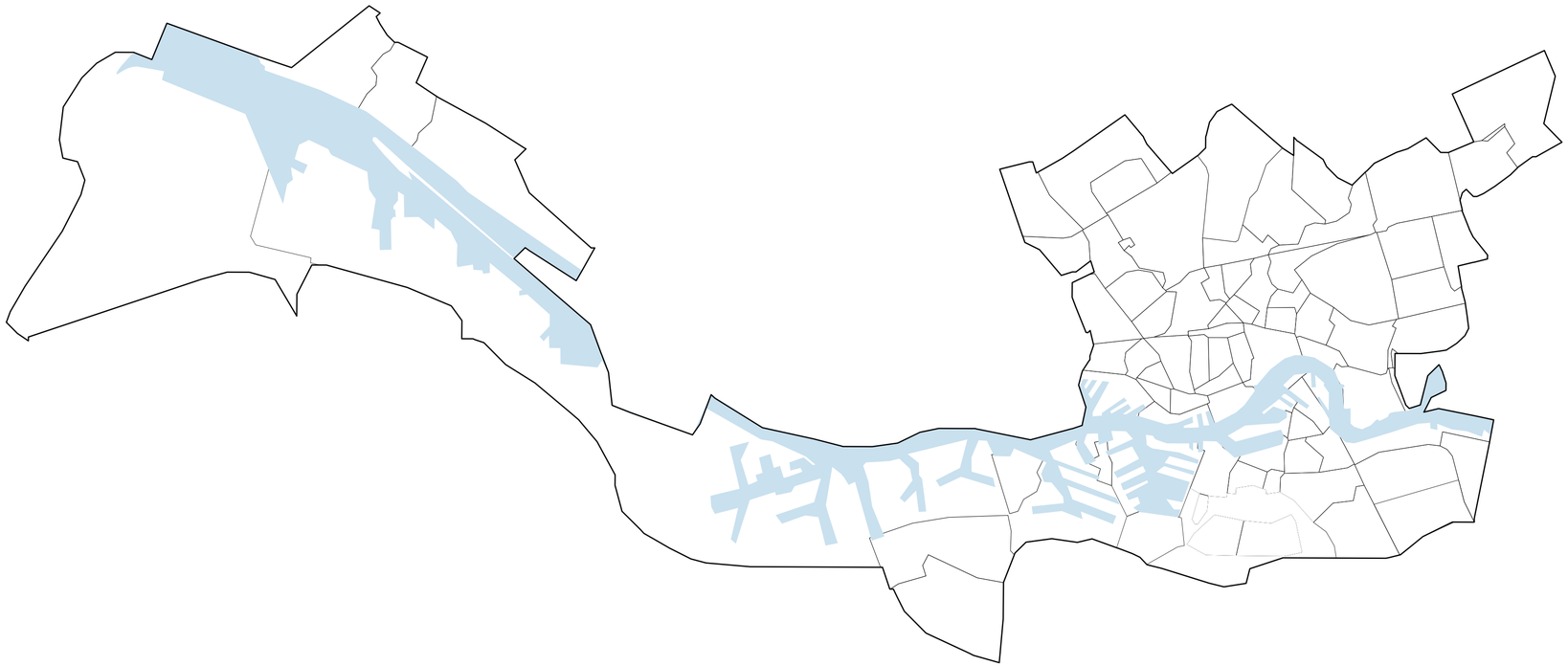


Air Polution

Climate change intensifies droughts by reducing rainfall and increasing evaporation rates, causing water scarcity for both human use and ecosystems (KNMI, 2024; IPCC, 2023).

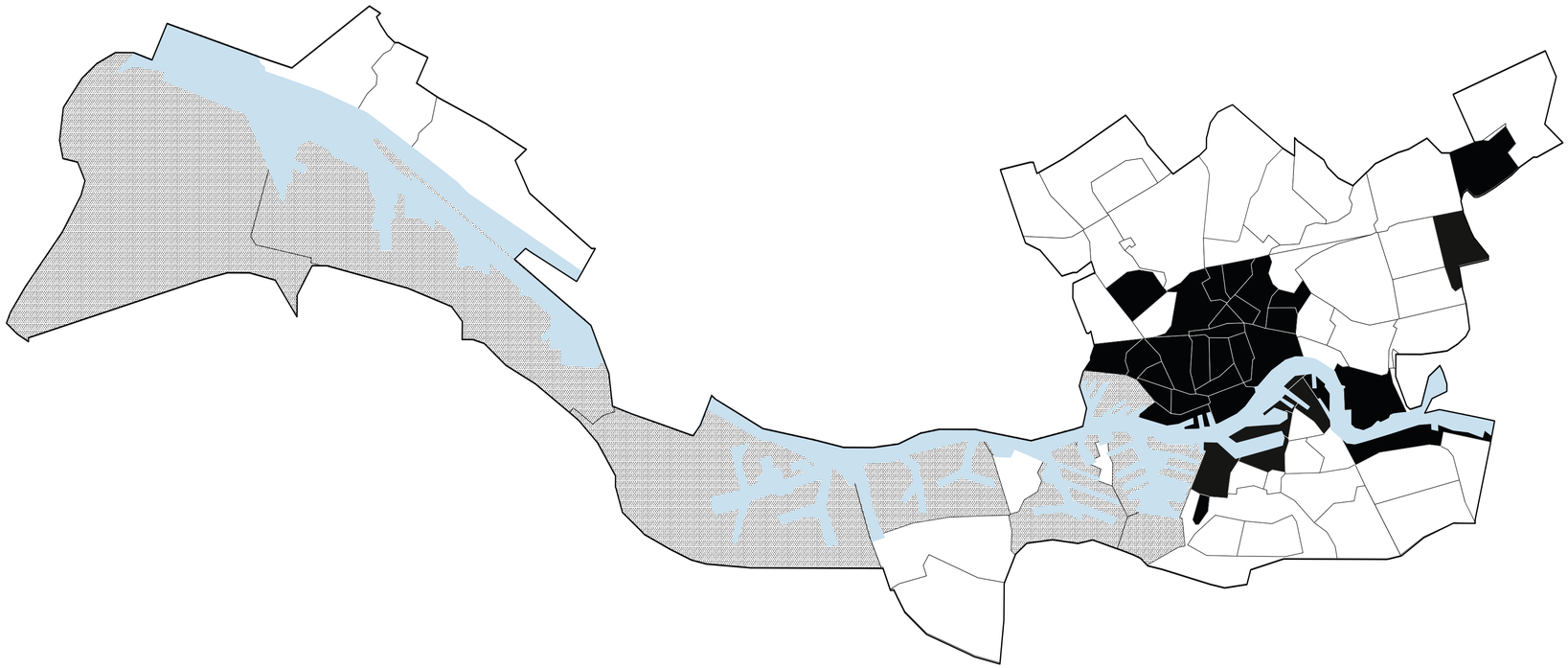
Problem statement

Groot IJsselmonde



Problem statement

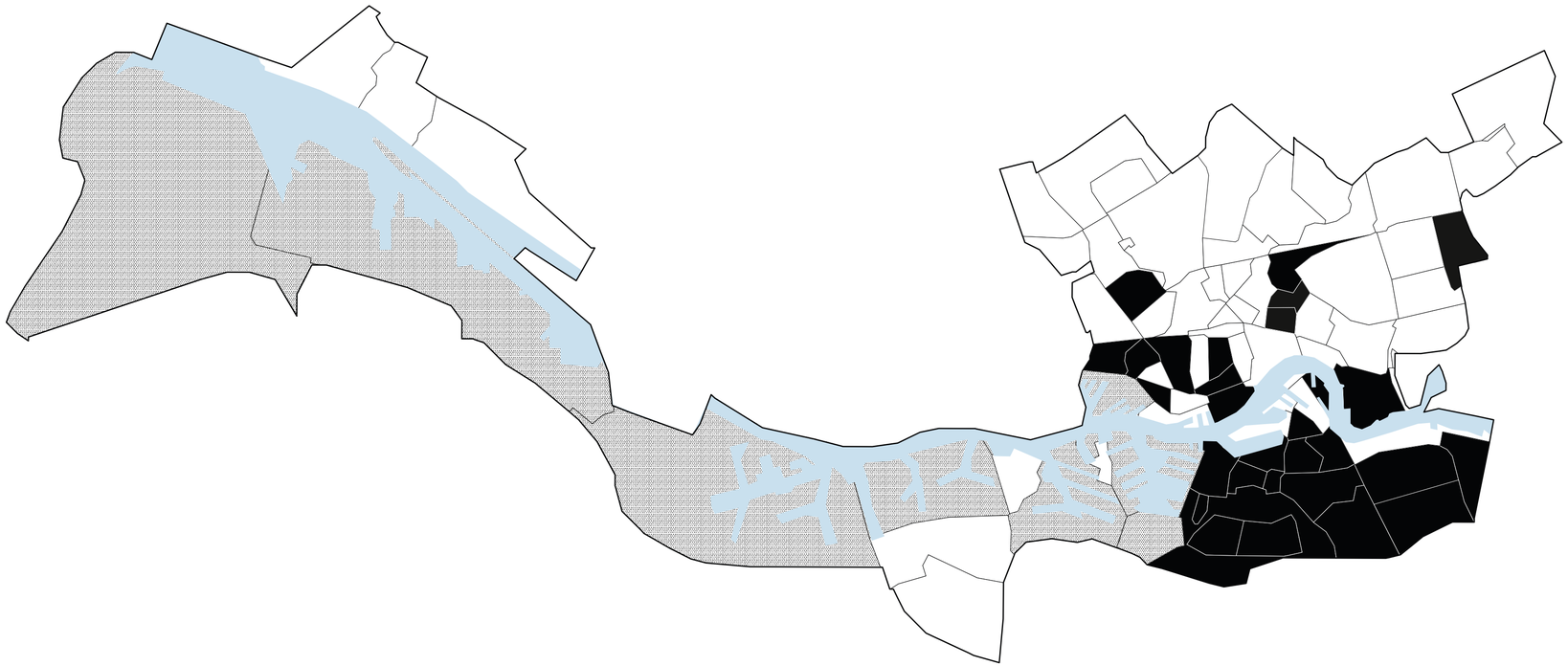
Groot IJsselmonde



Above average (leefbarometer)

Problem statement

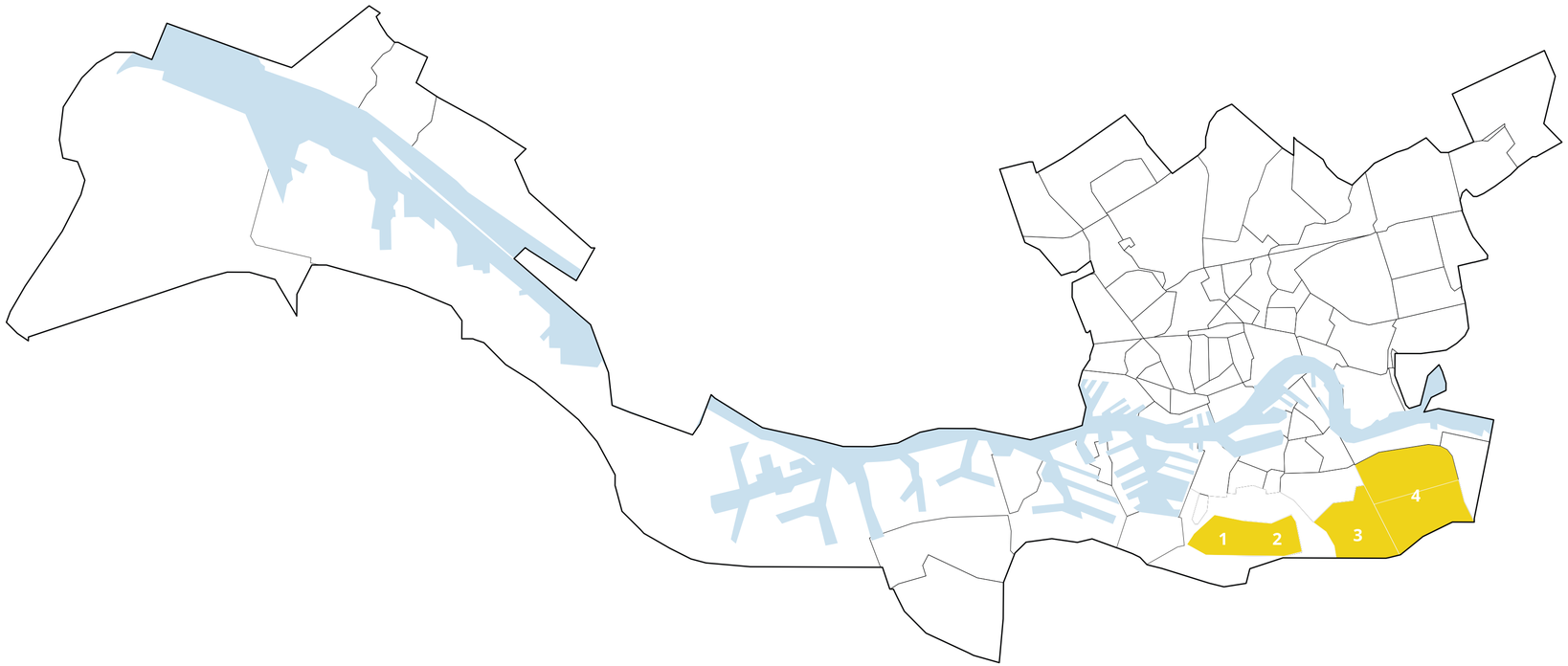
Groot IJsselmonde

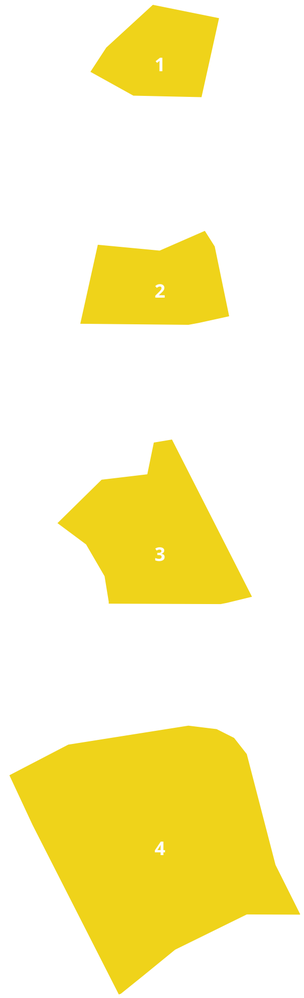


Above average greenery

Problem statement

Groot IJsselmonde





Problem statement

Postwar Neighborhoods

1898

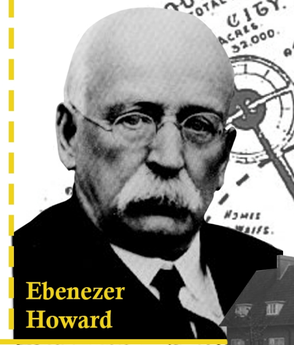
1910s

1940

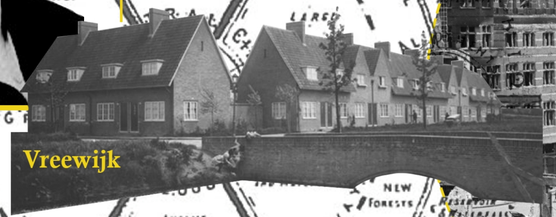
300.000
HOUSING SHORTAGE

1950s

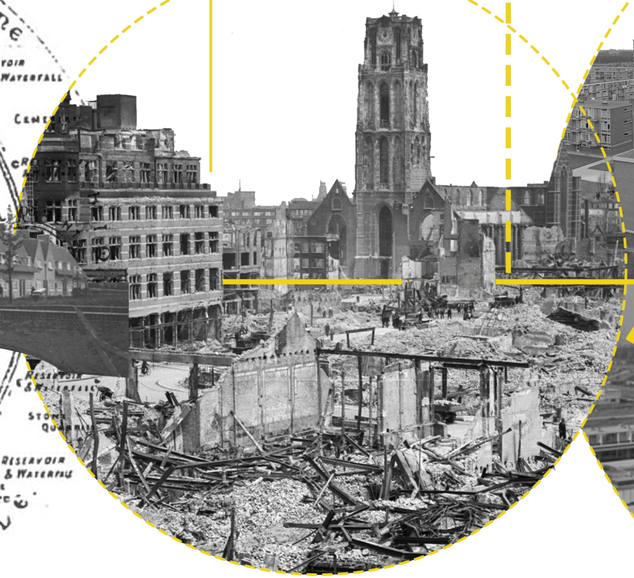
1960s



Ebenezer Howard



Vreewijk

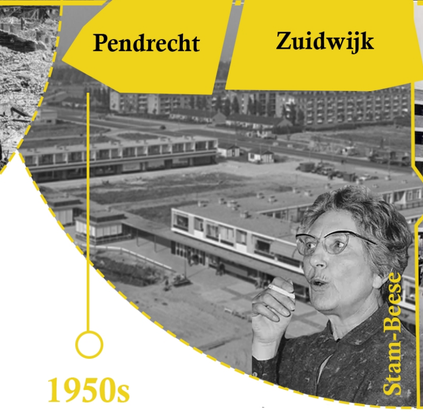


van Tijen

Lombardijen

Pendrecht

Zuidwijk



Stam-Beese

1950s

1960s

Problem statement

Groot IJsselmonde

Wijkgedachte

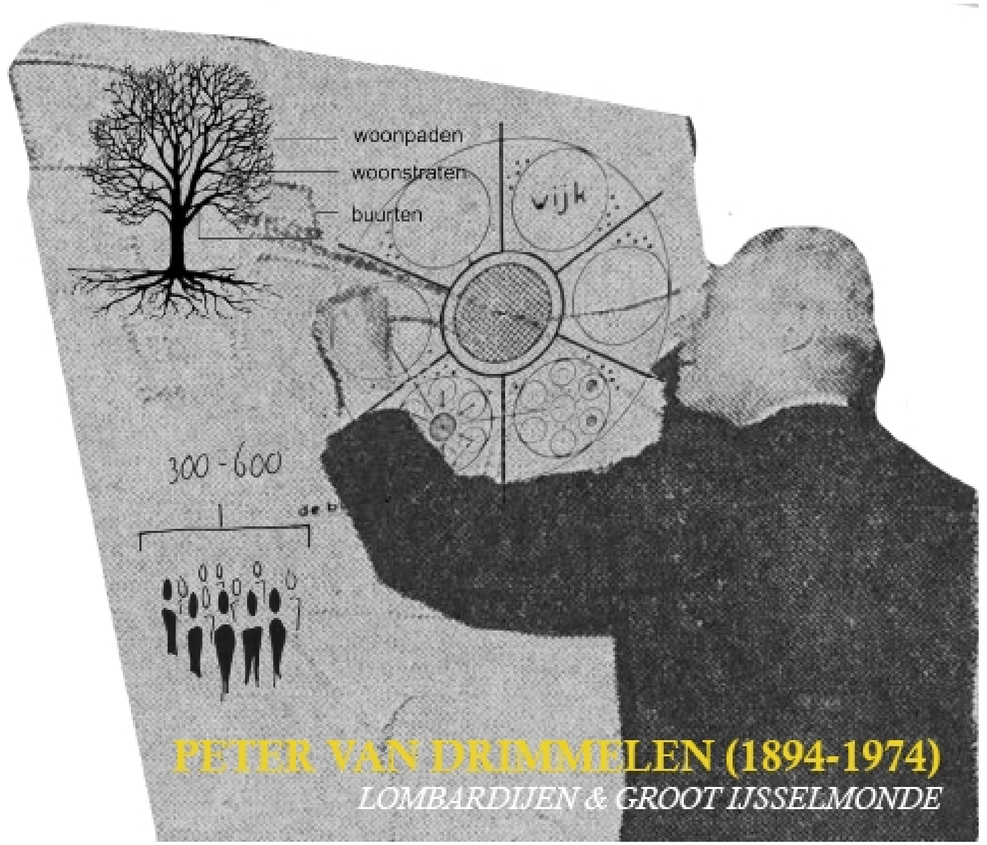
The ‘wijk’ (district) must be able to function as an independent unit.

Mirrored Stamps

The dwelling units (Stamps) are always mirrored in relation to each other, making the boundaries seem to blur.

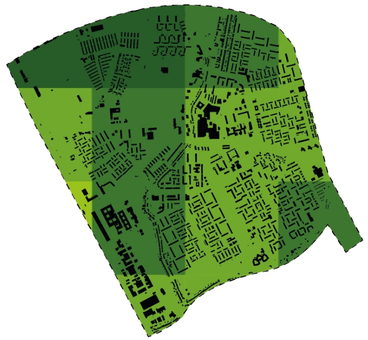
Residential Units

Different types of household in a 'Residential Unit' with a common courtyard garden.

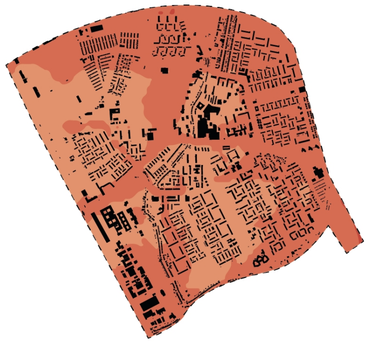


Problem statement

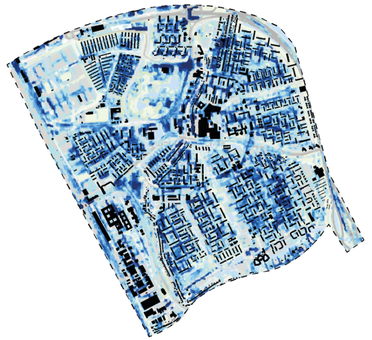
Groot IJsselmonde



BIODIVERSITY

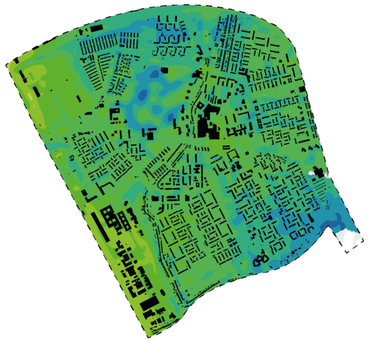


AIR POLUTION



FLOODING

SOUND POLUTION



COOLERY BY GREEN

QUALITY OF LIFE

Problem statement

Groot IJsselmonde

Monoculture in the neighborhood

Groot-IJsselmonde is dominated by a monoculture in housing and green spaces, limiting social and ecological resilience. Uniform post-war apartment blocks fail to accommodate diverse user groups, hindering social diversity and adaptability. Similarly, green spaces prioritize recreation over ecological value, offering minimal support for biodiversity or ecosystem services like pollination and water retention. This monotony leaves urban wildlife, such as house sparrows and bats, without sufficient food, shelter, or nesting sites. Introducing varied housing options and ecologically rich green spaces with native vegetation can break this monoculture, fostering biodiversity, social inclusivity, and a more resilient urban environment.

Regenerative Design

Regenerative Design

Research Question

Wich regenerative design principles for the renovation and densification of a post-war building contribute to the densification of biodiversity within the ecologies of the urban fabric?

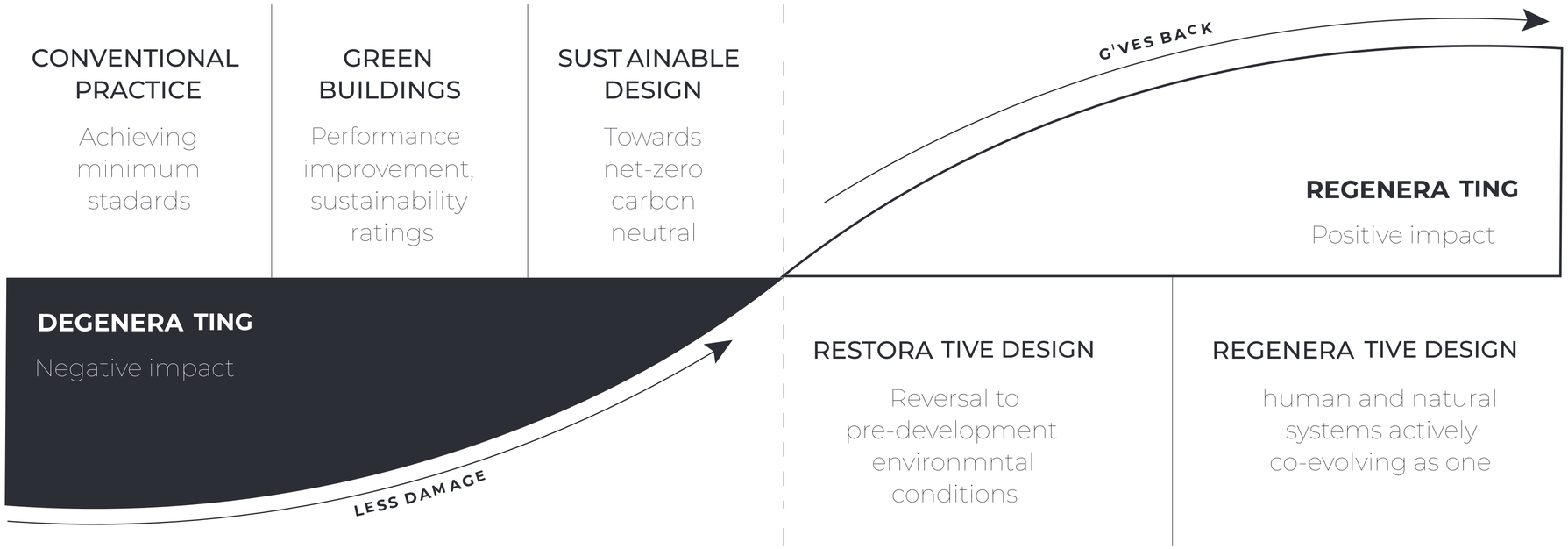
Personal Interest & Motivation

Design Brief

Problem Statement

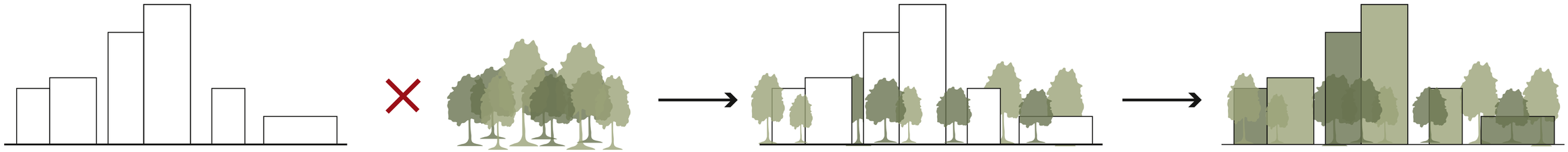
Regenerative Design

Regenerative Design



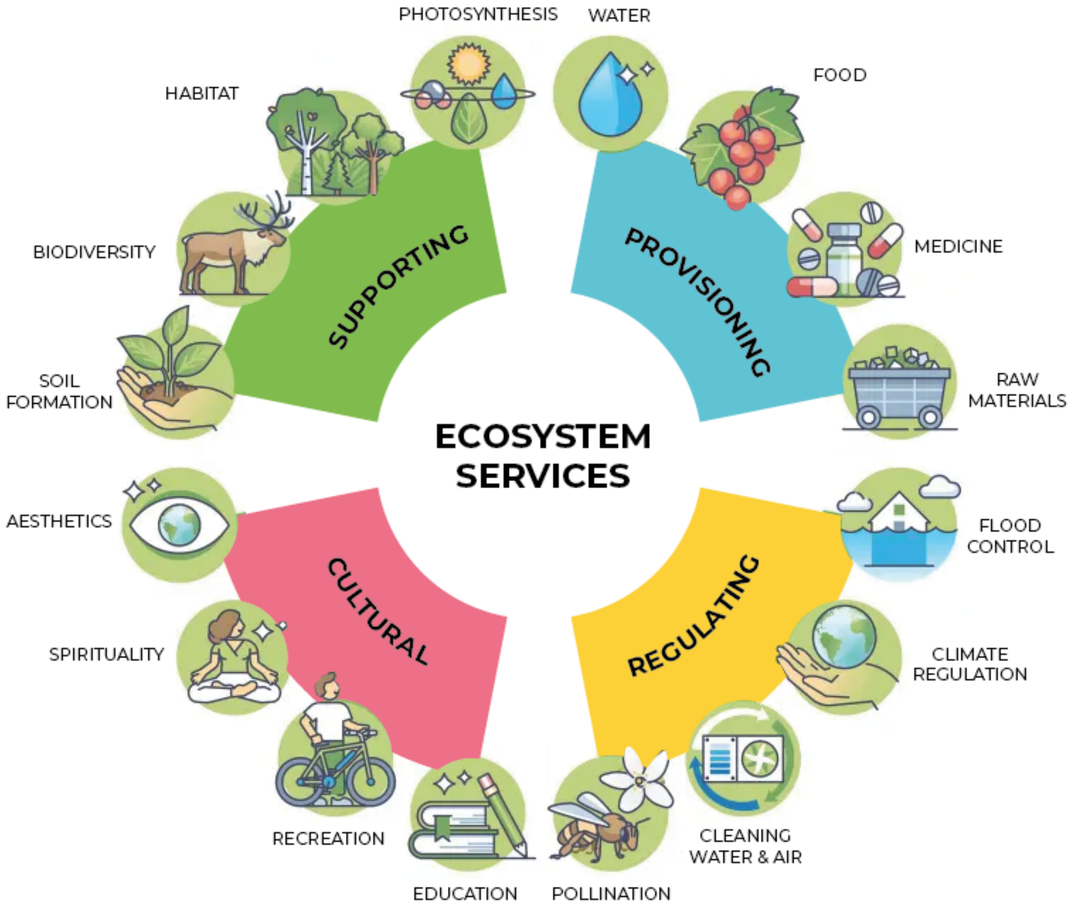
Regenerative Design

Theoretical framework



Regenerative Design

Ecosystem Services

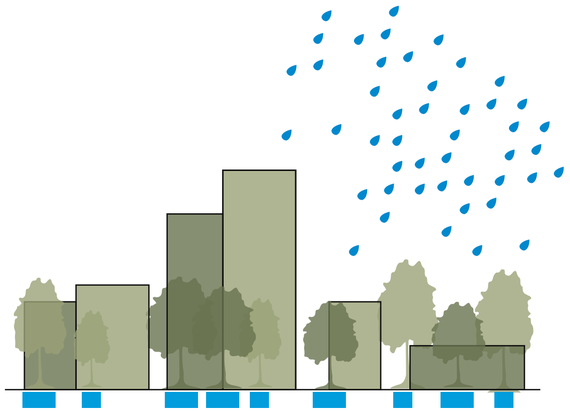


Regenerative Design

Ecosystem Services

Reduced Heat Stress

Green spaces lower urban temperatures by providing shade and cooling through evapotranspiration. This reduces heat stress and improves physical resilience, especially for vulnerable populations (IPCC, 2023; European Parliament, 2020).



Water Management

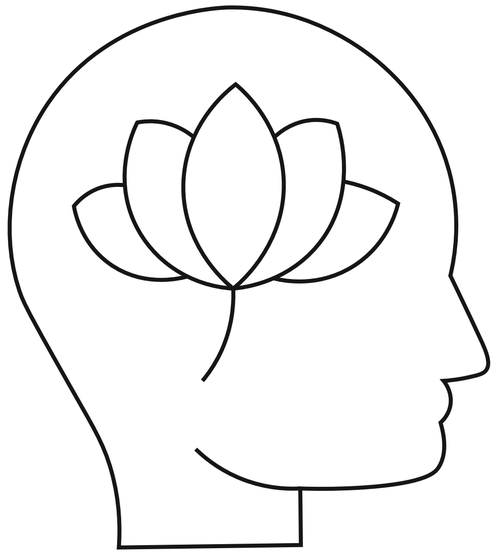
Green spaces improve water resilience by absorbing rainfall and reducing surface runoff. Features like permeable surfaces, rain gardens, and green roofs help mitigate flooding and waterlogging in urban areas (European Parliament, 2020; IPCC, 2023).

Improved Air Quality

Vegetation filters pollutants and improves air quality, directly benefiting respiratory and cardiovascular health. Trees and green facades play a vital role in urban environments (Vink et al., 2023).

Regenerative Design

Ecosystem Services



Stress Reduction

Green spaces provide a calming environment that reduces stress and improves mental health. Studies show that even brief exposure to nature can lower stress hormones and enhance well-being (European Commission, 2020).

Cognitive Restoration

Nature helps restore mental focus and creativity by reducing cognitive fatigue. This is explained by the "attention restoration theory," where green environments improve concentration and productivity (Vink et al., 2023)..

Social Cohesion

Public green spaces, such as parks and gardens, foster social interaction and a sense of community, benefiting mental resilience through emotional support and social connections (Convention on Biological Diversity, 2021). For example, these spaces provide opportunities for **lonely elderly** individuals to engage with others, reducing isolation and enhancing their well-being.

Cognitive Restoration

Urban green spaces play a vital role in shaping **childre**n's environmental values and fostering climate awareness. Early exposure to nature encourages emotional connections, teaching children to appreciate biodiversity and ecosystems. Green environments also promote exploration, creativity, and learning, nurturing future generations committed to sustainability and the preservation of the planet (Kals et al., 1999).

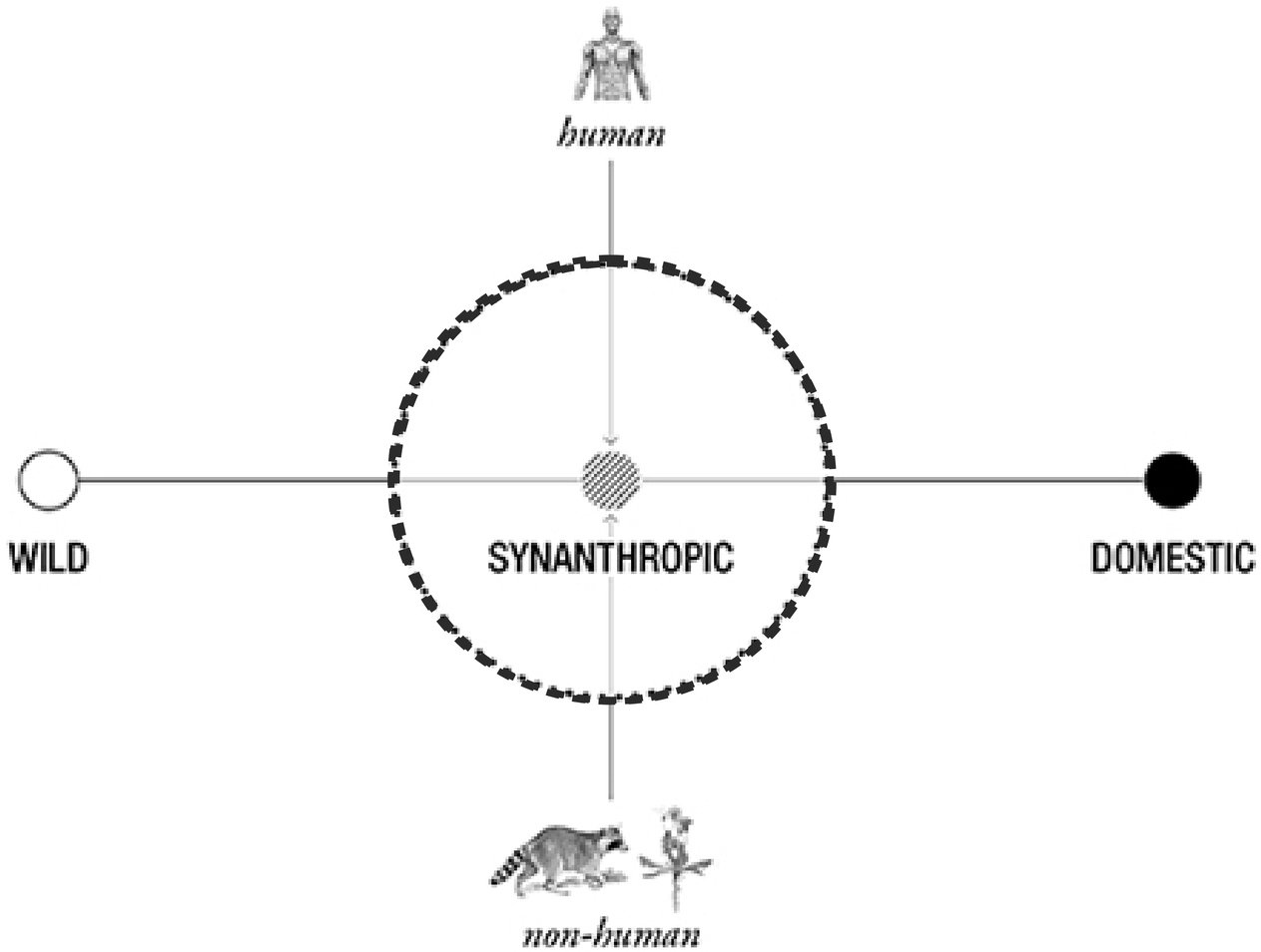
Urban Ecology

Urban Ecology

Different Ecosystems

Urban Ecology

Synantrhopic



Urban Ecology

Animals in the City

The Hill

Supports insects and songbirds like house sparrows. Features include tall greenery (3-4m), sandbathing spots, and water sources. Designed for active users (e.g., gardeners), fostering human-animal symbiosis. Nesting areas (3-10m high) integrate into natural materials like brick to enhance biodiversity.

The Garden

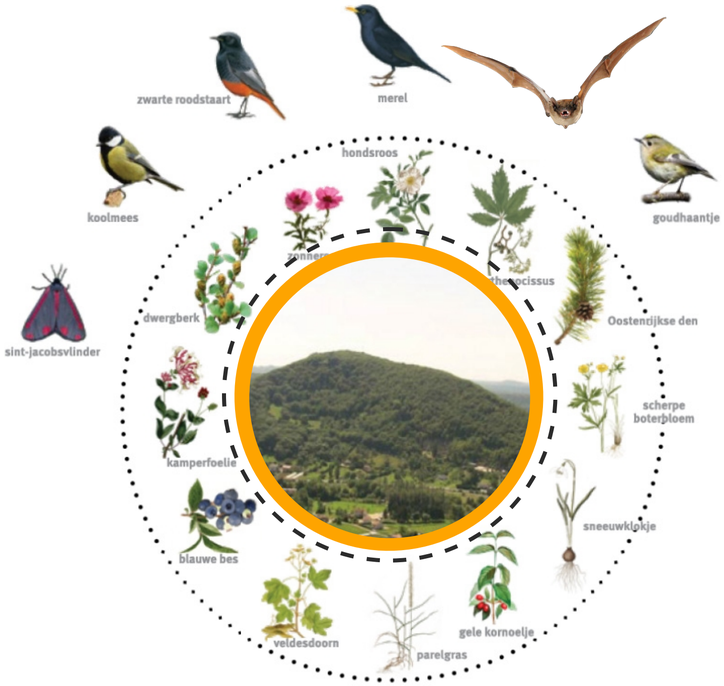
Home to hedgehogs, amphibians, and small mammals. Includes sloped terrains with dense shrubs and layered vegetation. Focuses on passive human interaction, such as walking paths. Transition zones connect with garden and rock biotopes, ensuring ecological continuity.

The Rock

Mimics urban density for species like bats and urban-adapted birds. Features include crevices, vertical greenery, and nesting spots in high structures. Designed for minimal human interaction, offering species-specific habitats while connecting green corridors for ecological mobility.

Urban Ecology

Animals in the City

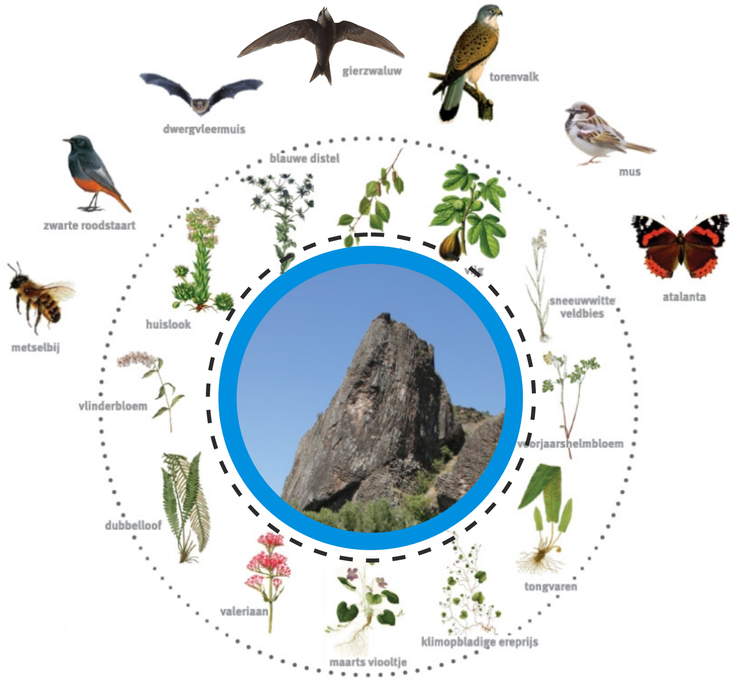


The Hill

Insects like bees and butterflies thrive here, alongside songbirds such as house sparrows, which rely on nearby greenery, water, and sandbathing spots for feeding, nesting, and daily activities.

The Garden

Hedgehogs, amphibians, and small mammals inhabit this biotope, benefiting from dense shrubs, layered vegetation, and sloped terrains that provide shelter, food, and connectivity to other habitats.

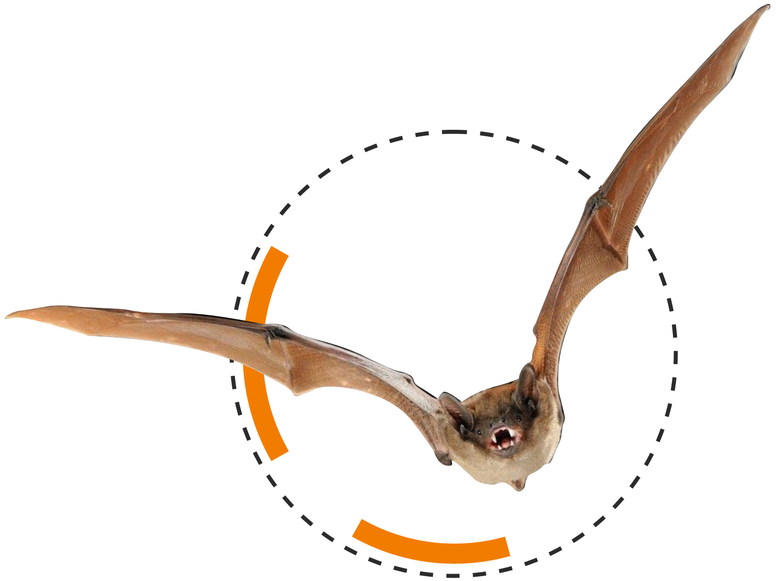


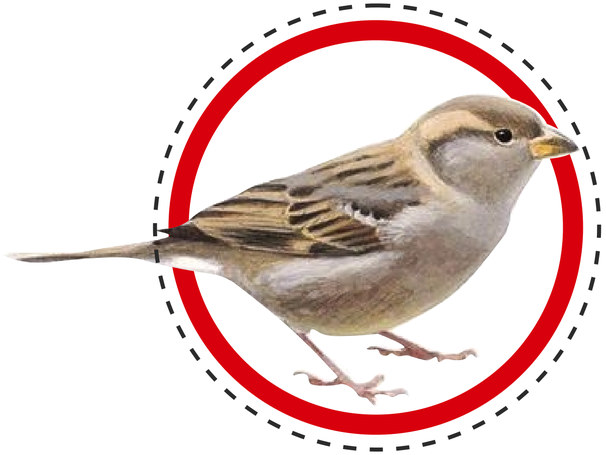
The Rock

Wat voor soort dierenUrban-adapted birds and bats, such as the common pipistrelle, live here. They utilize high structures, crevices, and vertical greenery for nesting, roosting, and safe passage through dense urban environments.

Urban Ecology

Animals in the City





Common pipistrelle

The common pipistrelle uses urban crevices for roosting and hunts flying insects at night, relying on green corridors for navigation and safe movement. . (BI12)

House sparrow

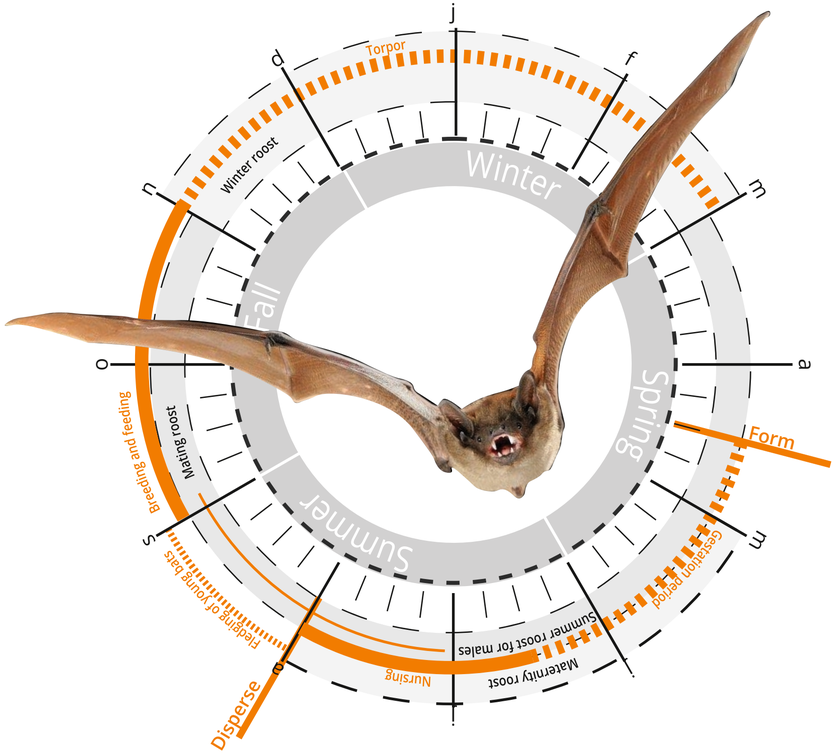
The house sparrow nests near human structures and feeds on seeds, insects, and food scraps. It thrives in green areas with water and sandbathing opportunities. (BI12)

Swift

The swift nests in building crevices and spends most of its time in flight, feeding on airborne insects and migrating between Europe and Africa annually. (BI12)

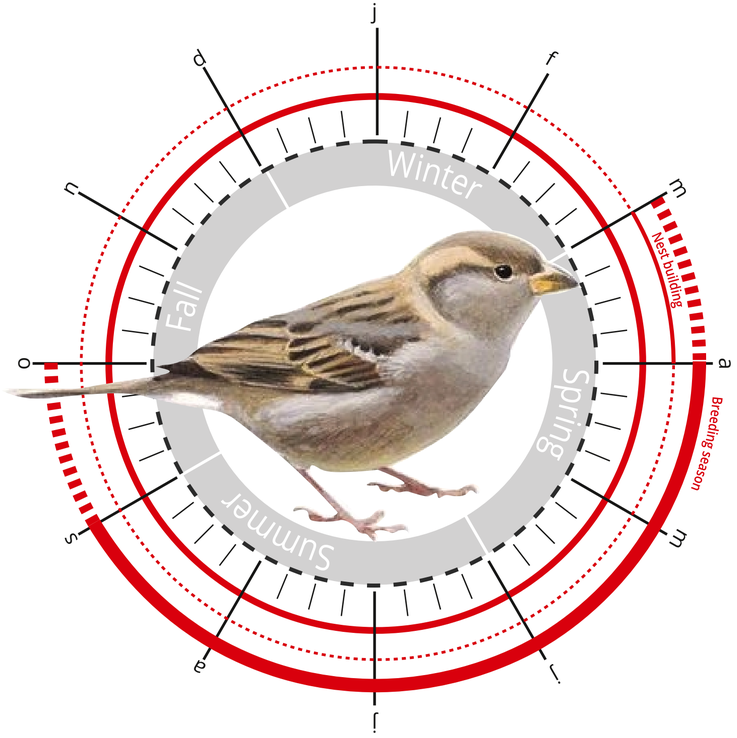
Urban Ecology

Yearly Patterns



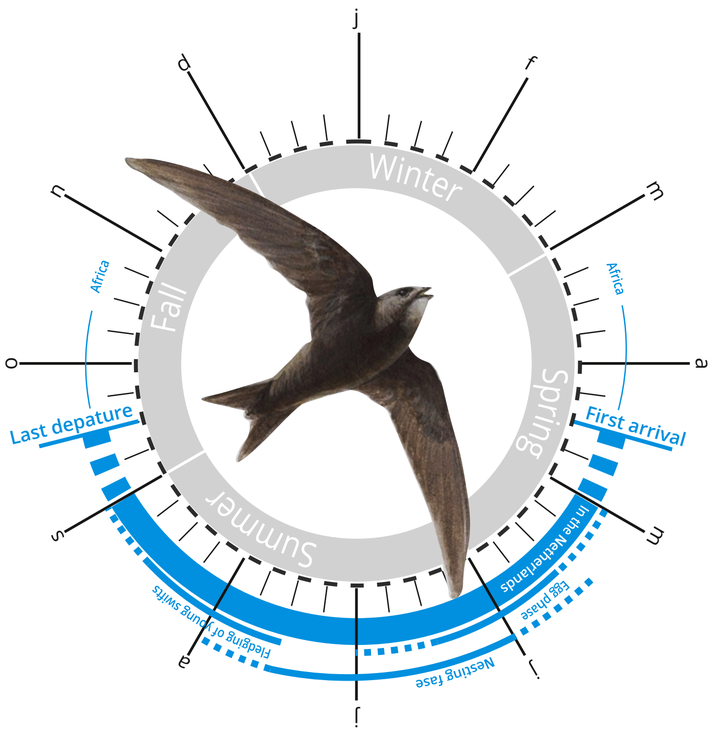
Common Pipistrelle

A resident species, active from spring to autumn. Hibernates in crevices during winter and returns to urban roosts in spring to breed and forage. (BI12)



House Sparrow

A resident bird present year-round. Breeds in spring and summer near human habitats and adapts to urban environments for food and shelter. (BI12)



Swift

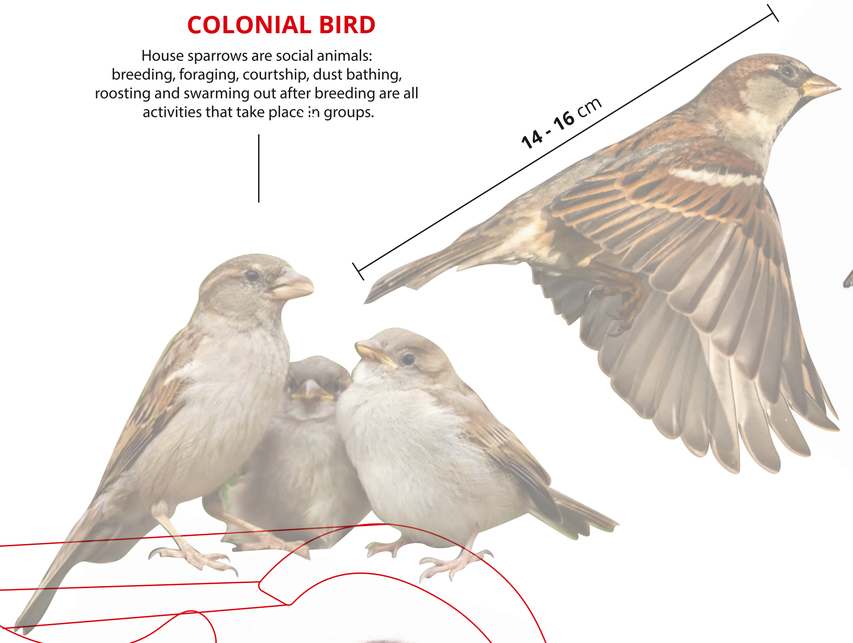
A summer bird, arriving in Europe in May to breed. Stays for 3-4 months, raising young, then migrates to Africa by late summer. (BI12)

HOUSE SPARROW
Passer domesticus

Lifespan 3-4 years
weight *30,2 gram*

COLONIAL BIRD

House sparrows are social animals: breeding, foraging, courtship, dust bathing, roosting and swarming out after breeding are all activities that take place in groups.

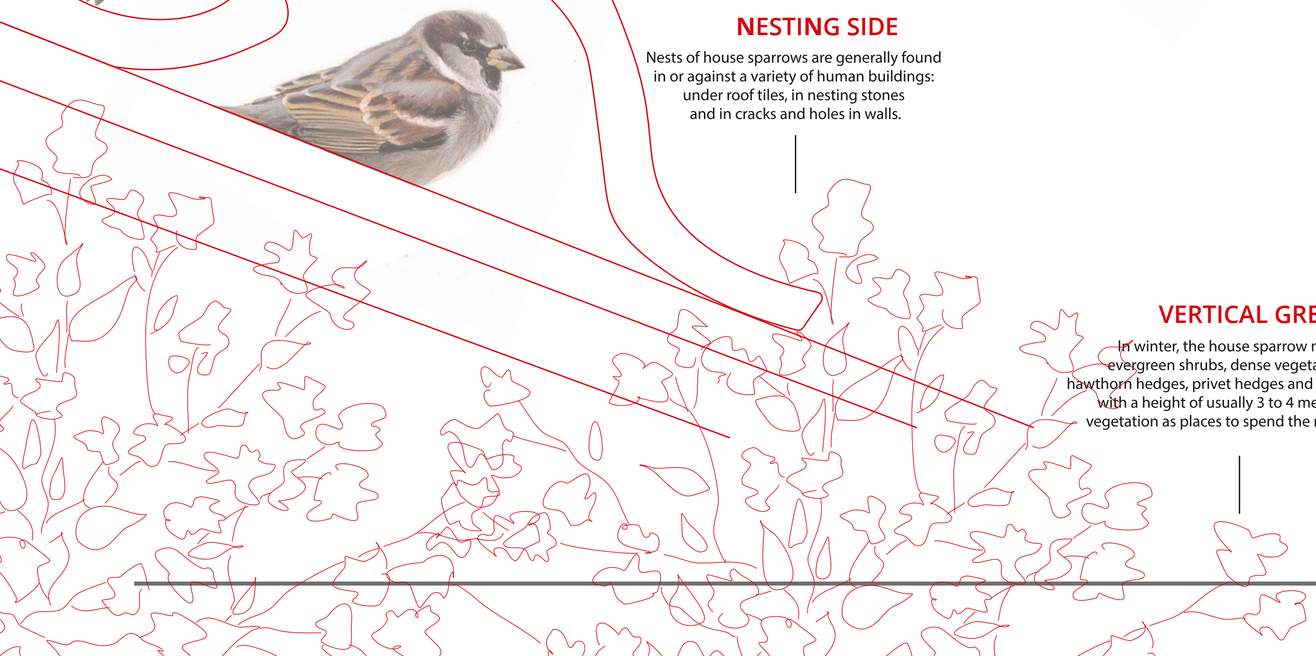


EATING

For its food, the house sparrow relies heavily on what humans offer it, intentionally or unintentionally.

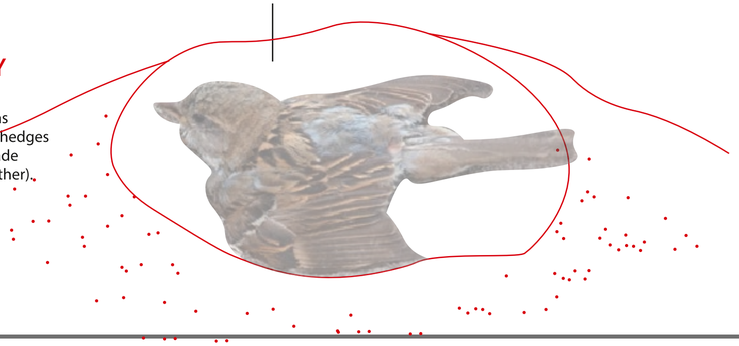
NESTING SIDE

Nests of house sparrows are generally found in or against a variety of human buildings: under roof tiles, in nesting stones and in cracks and holes in walls.



BATHING

The house sparrow needs places for dust bathing and drinking water



VERTICAL GREENERY

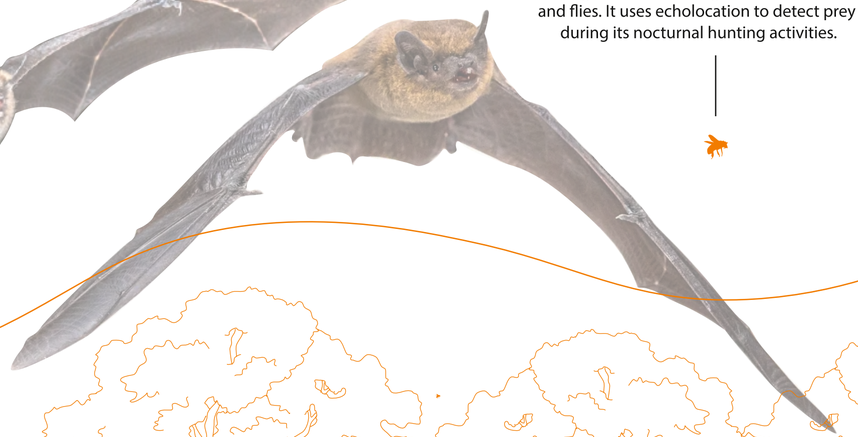
In winter, the house sparrow mainly uses evergreen shrubs, dense vegetation such as hawthorn hedges, privet hedges and hornbeam hedges with a height of usually 3 to 4 meters or facade vegetation as places to spend the night (together).

COMMON PIPISTRELLE BAT

Pipistrelle pipistrellus

Lifespan 4 years
weight *3,5 - 8 gram*

Wingspan **14 - 16** cm



2,5+ cm

ROOSTING SITES

Pipistrelle bats use various roosts throughout the year, including summer, winter, and maternity roosts. For roosts in cavity walls, spaces must be at least 2.5 cm wide.

EATING

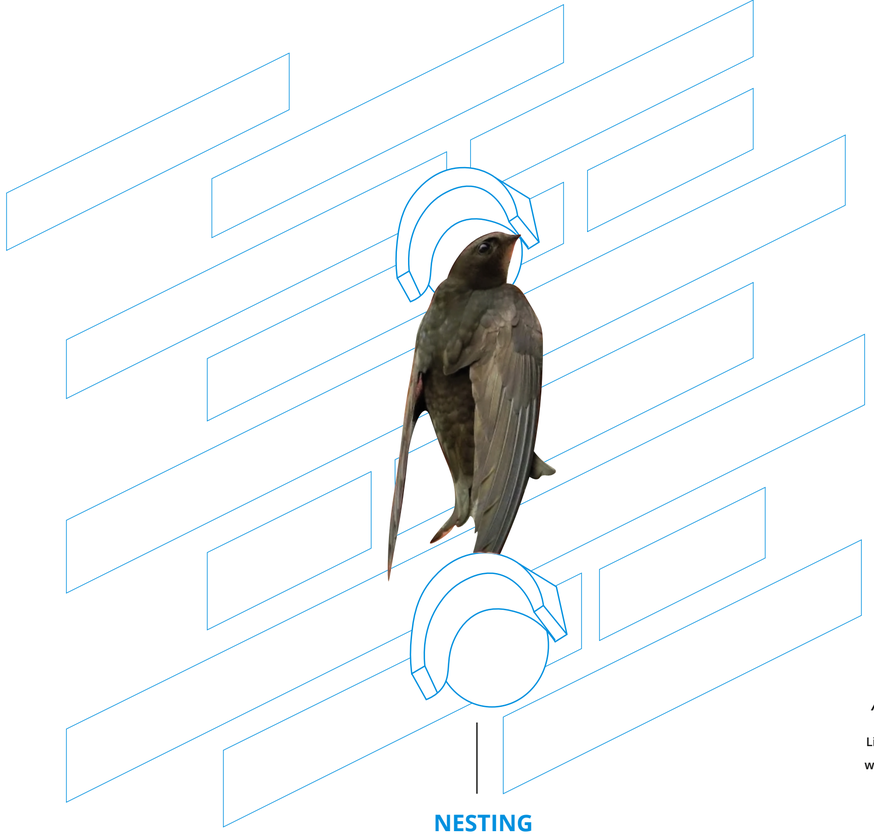
The common pipistrelle bat primarily feeds on flying insects, including moths, mosquitoes, and flies. It uses echolocation to detect prey during its nocturnal hunting activities.

NOCTURNAL ANIMALS

Pipistrelle bats are nocturnal, emerging at dusk to hunt. Their night activity reduces competition with diurnal species and takes advantage of abundant nocturnal insect prey.

LINEAR GREEN

Linear green structures, such as tree rows or hedgerows, are essential for pipistrelles. They use these corridors to navigate and forage, often flying just above these features.

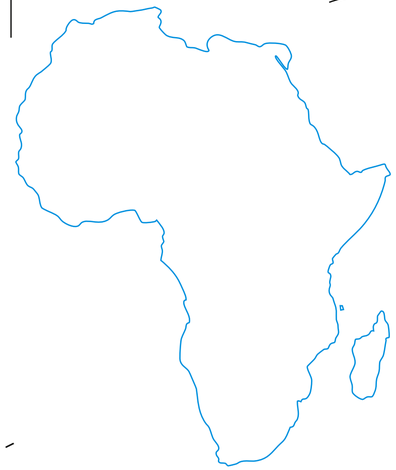


NESTING

Swifts nest in small crevices, often in urban environments like under roof tiles or within building gaps. They are highly loyal to their nesting sites, returning to the same spot each year.

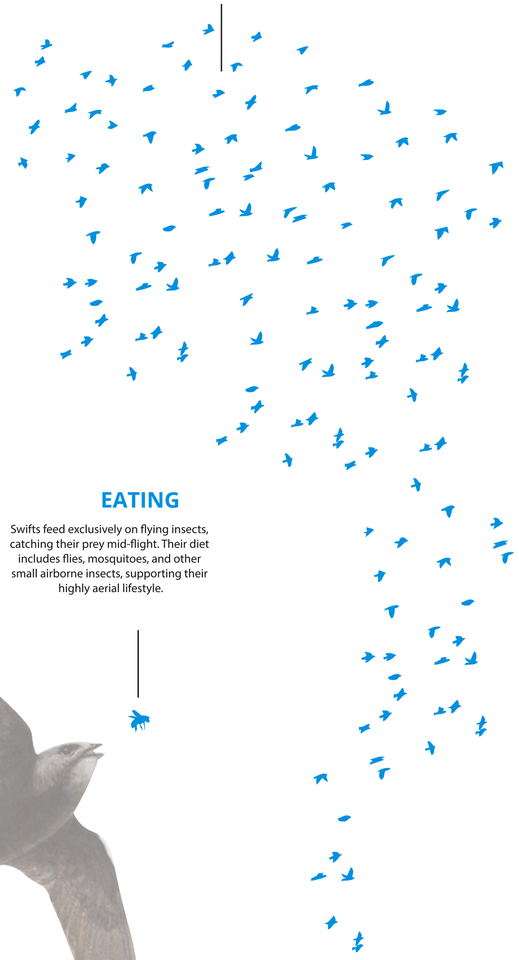
SUMMER BIRD

The swift is a summer bird, arriving in the Netherlands to breed. They stay from May to August before migrating to Africa for the winter.



(SEMI)COLONIAL BIRD

Swifts are semi-colonial birds, often seen flying in large, synchronized flocks. These swirling groups, known as "screaming parties," are most common during summer evenings.



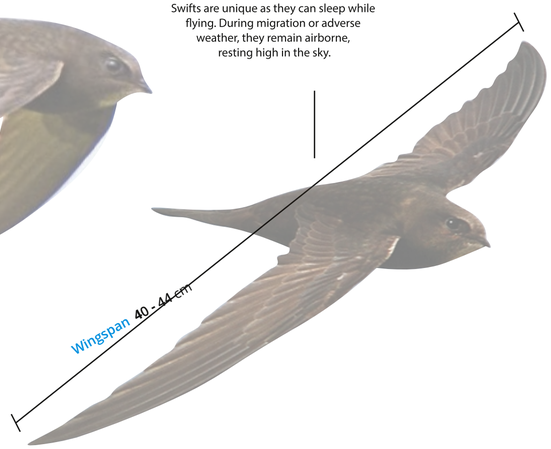
SWIFT
Apus apus

Lifespan 7 years

weight *38 - 42 gram*

SLEEPING

Swifts are unique as they can sleep while flying. During migration or adverse weather, they remain airborne, resting high in the sky.



EATING

Swifts feed exclusively on flying insects, catching their prey mid-flight. Their diet includes flies, mosquitoes, and other small airborne insects, supporting their highly aerial lifestyle.

Urban Ecology

People in Urban Nature

Peace Seekers

Residents and visitors use green spaces passively by enjoying the scenery, relaxing, or walking, gaining mental and emotional benefits without directly altering or engaging with the environment.

Active Users

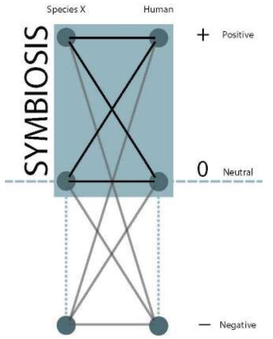
Gardeners and outdoor enthusiasts actively engage with green spaces for cultivation, exercise, or maintenance, benefiting from direct interaction with nature and contributing to its upkeep and productivity.

Connection Seekers

Families, children, and groups use green spaces for recreation, such as picnicking, playing, or socializing. These activities make greenery a backdrop for social connection and leisure.

Urban Ecology

Symbiose



high productivity

low productivity

MUTUALISM

Relationship which benefits both partners, a form of symbiosis between two different species, a "biological barter"

bee *pollinates* *flower*

COMMENSALISM

One organism benefits from a given relationship without affecting harm on the other, implies a neutrality in the supporting organism however a slightly parasitic affect is often discovered

raccoon *eats trash of* *human*

PARASITISM

Non-mutual relationship in which the parasite benefits at the expense of the host inflicting minor harm by reducing the biological fitness, "one eats at the table of another"

bacteria *feeds on* *human*

ANTAGONISM

One organism benefits at the expense of another typically inflicting substantial harm enough to terminate the life of the other organism; includes predation, the consumption and absorption of a prey's tissue

spider *kills+consumes* *fly*

AMENSALISM

An imbalanced and unproductive relationship where one organism affects harm onto another without independent gain

human *cutting* *grass*

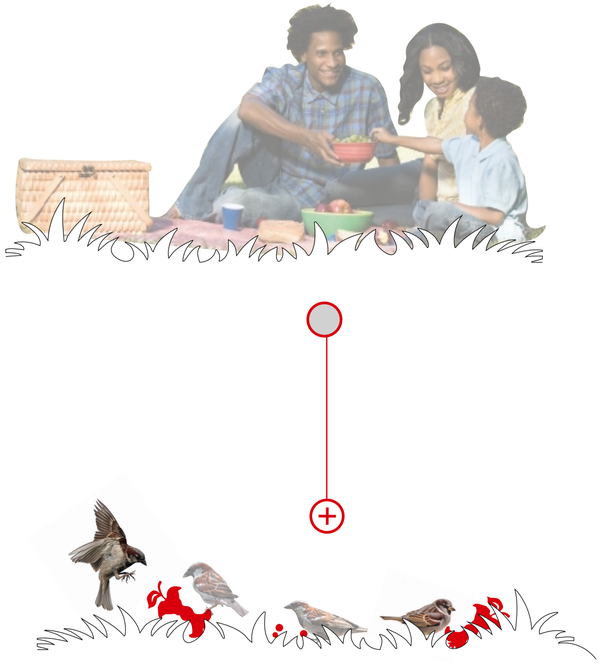
COMPETITION

A mutually detrimental relationship initiated by limits in shared resources which affects both organisms, results in decline of fitness in the weaker organism due to dominance by the stronger

rabbit *resource* *human*

Urban Ecology

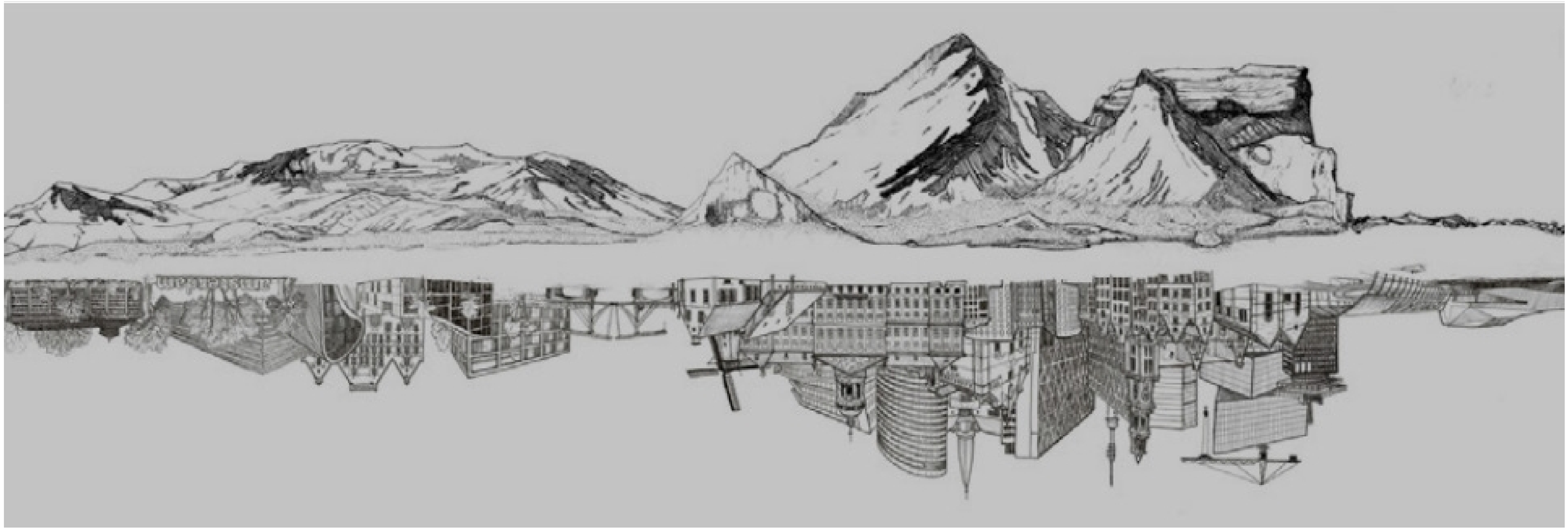
Encounters



Urban Ecology

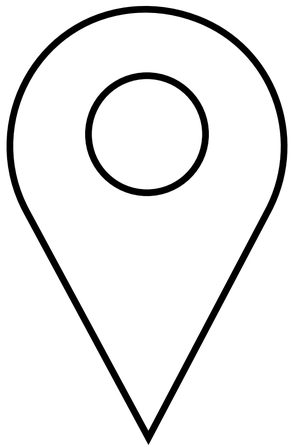
Urban Ecology

Design Sategies



Urban Ecology

Design Sategies

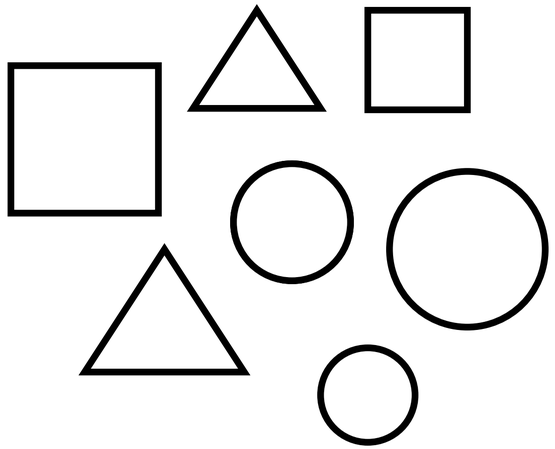


Location-based

Base interventions on the specific animals you aim to assist.

Urban Ecology

Design Sategies

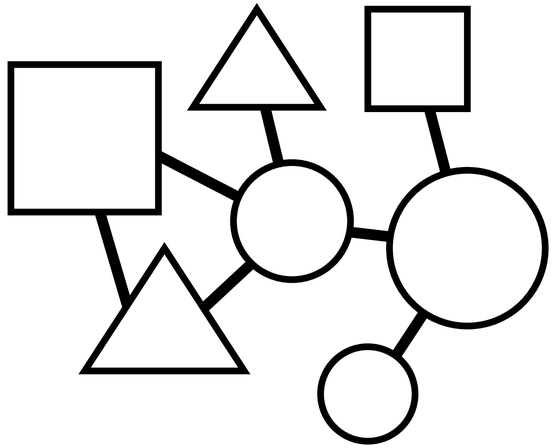


Variation

Variation in scale, Porosity, Height, Sun/Shade, and
Much More: Embracing Diversity in Design

Urban Ecology

Design Sategies

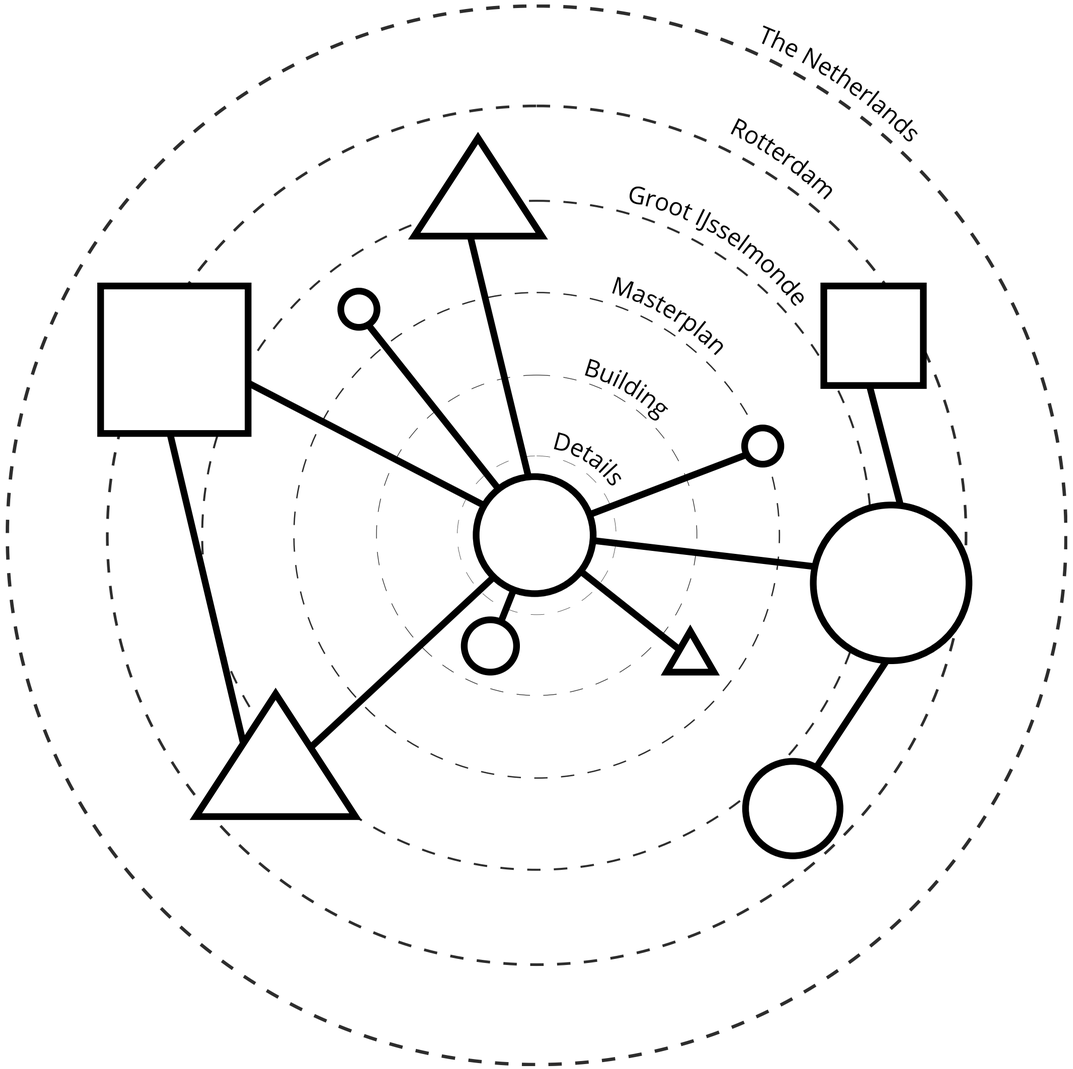


Connection(?)

Connection or the Lack Thereof: The Impact of Connectivity Across Various Areas, Elevations, and Scales

Urban Ecology

Design Sategies



Making Urban Nature

Making Urban Nature

The Netherlands

Making Urban Nature

The Netherlands

Making Urban Nature

Groot IJsselmonde

Making Urban Nature

Groot IJsselmonde

'Wijkgedachte'

Peter van Drimmelen’s "wijkgedachte" shaped Groot-IJsselmonde as a self-sufficient urban neighborhood. His design emphasized functional zoning, with separate areas for living, working, and recreation, connected by green spaces and infrastructure. Central to the concept was creating a balanced community with accessible amenities and a clear structure.

Making Urban Nature

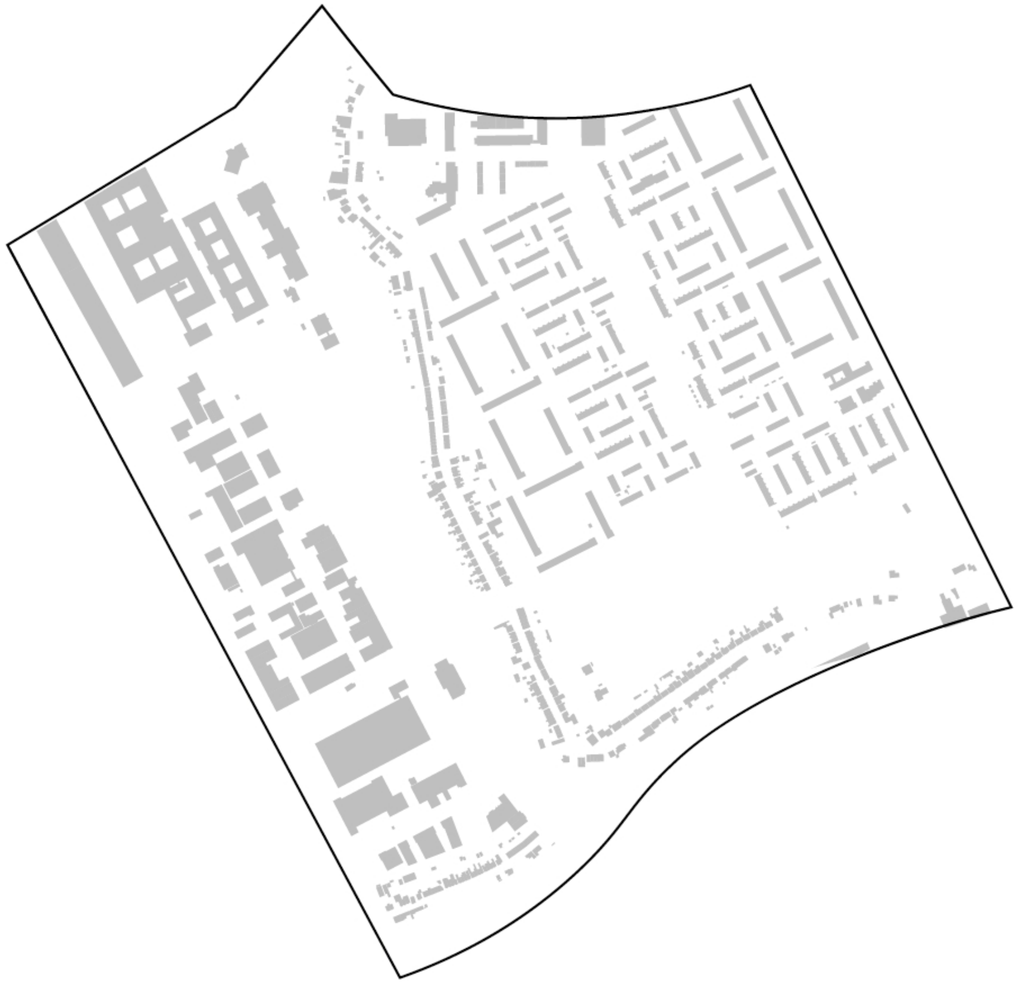
Groot IJsselmonde

'Green Fingers'

The green structures in great ijsselmonde enter the area from the edge in some places as 'green fingers'. These 'green fingers' also run from the park in the centre to the surrounding neighbourhoods. The green structures almost all run parallel to the infrastructure that differentiates the various neighbourhoods, creating line-shaped greenery, which is beneficial to some species.

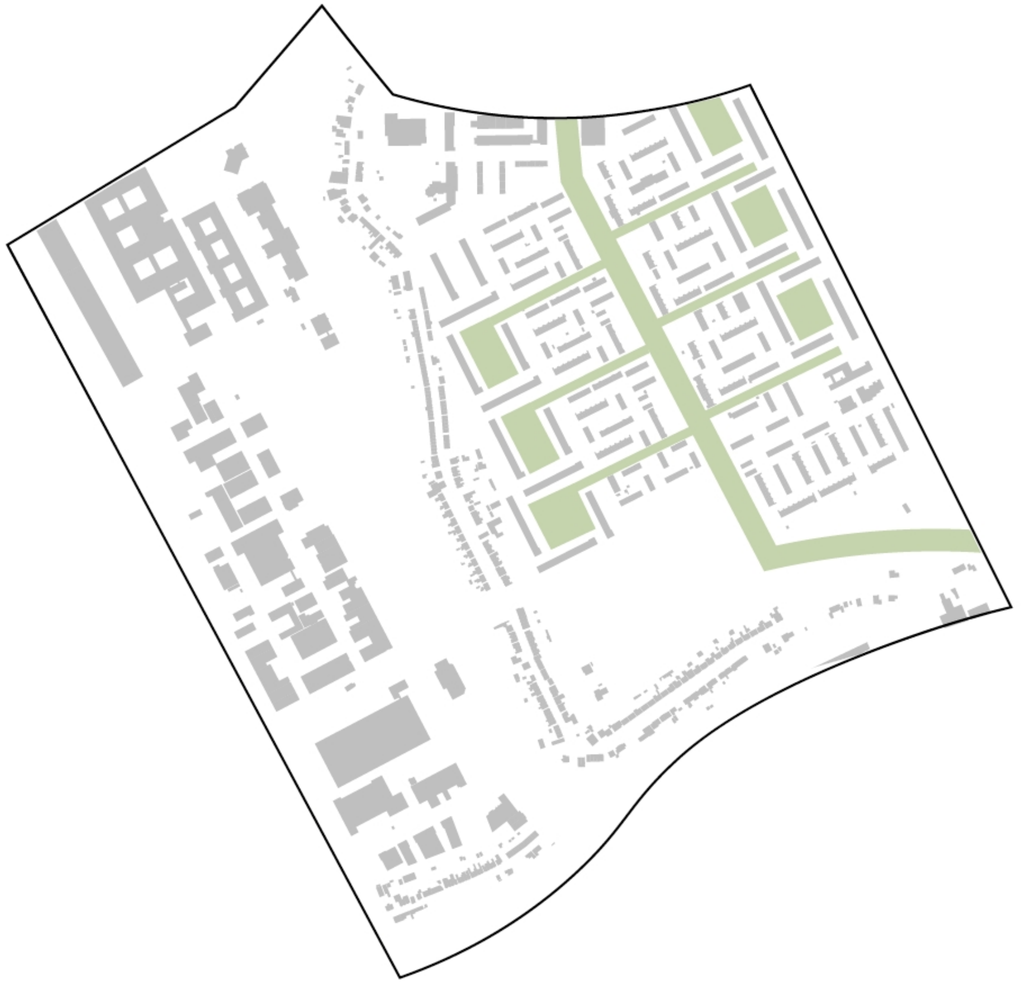
Making Urban Nature

Groot IJsselmonde



Making Urban Nature

Groot IJsselmonde

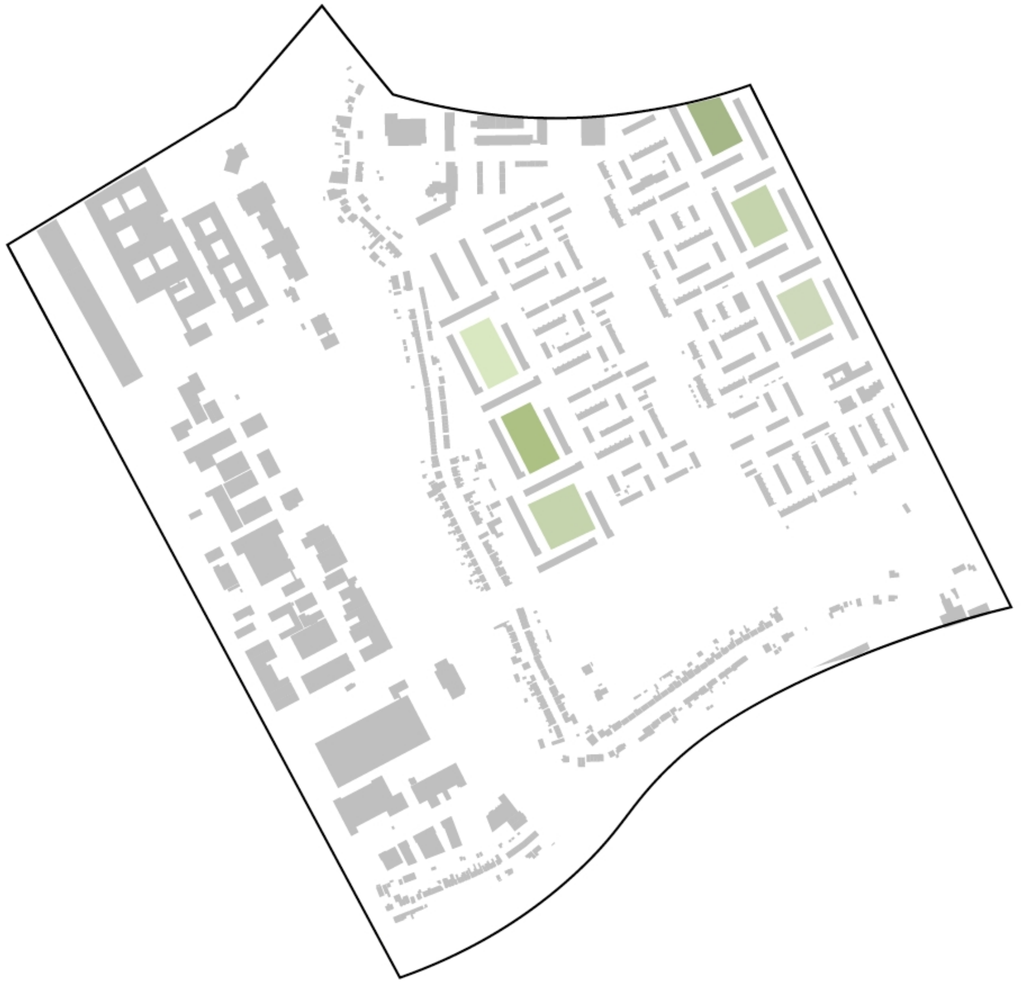


'Green Fingers'

The green structures in Groot-IJsselmonde extend like veins through the neighborhood, connecting courtyards, streets, and parks. These branching networks integrate greenery into the urban fabric, providing ecological corridors and accessible green spaces for residents and wildlife.

Making Urban Nature

Groot IJsselmonde

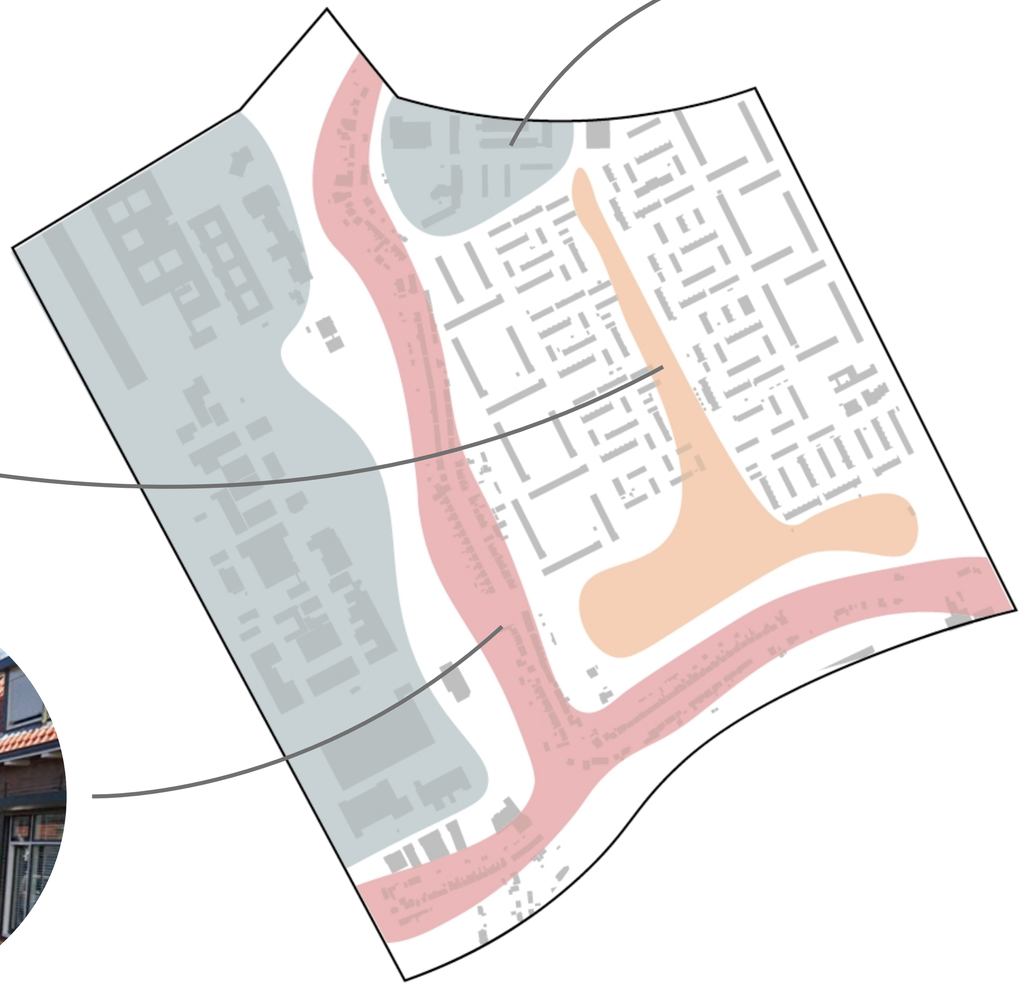


'Greenery Concept'

Peter van Drimmelen’s "wijkgedachte" emphasized inner courtyards designed for all age groups, featuring playgrounds for young children and football fields for older youth to promote interaction and community. Over time, many of these age-inclusive spaces have disappeared, reducing their ability to serve diverse social needs.

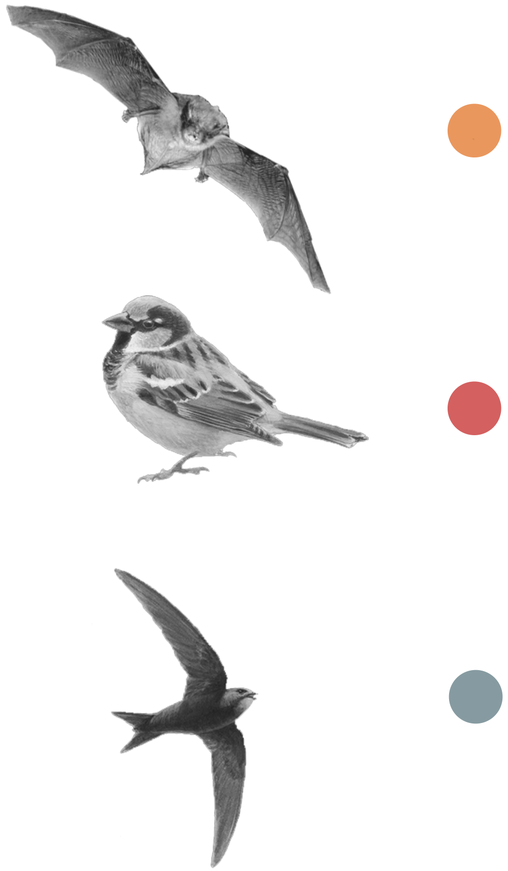
Making Urban Nature

Groot IJsselmonde



Making Urban Nature

Groot IJsselmonde



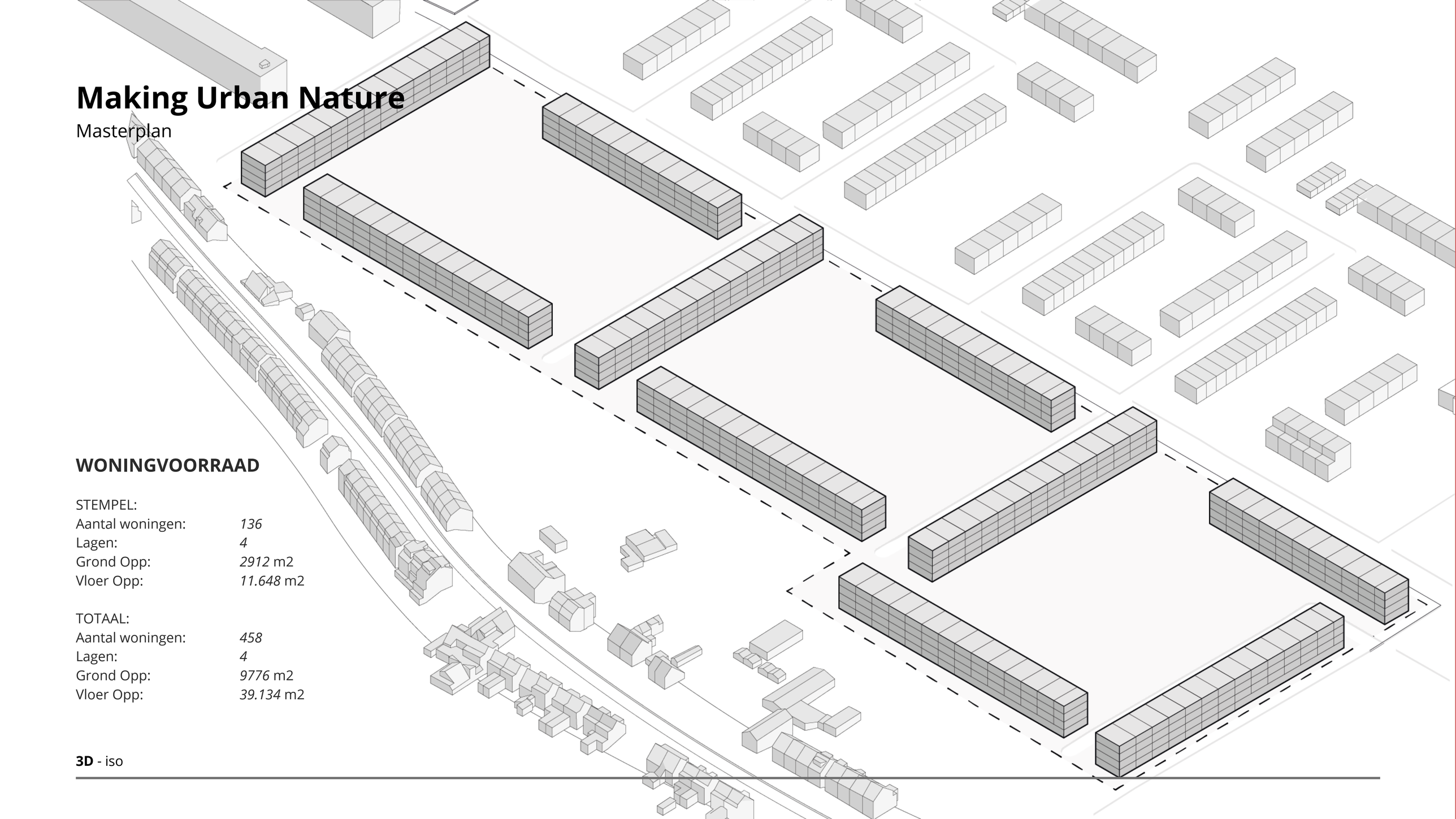
Observations 2023 (waarneming.nl)

Making Urban Nature

Masterplan

Making Urban Nature

Masterplan



WONINGVOORRAAD

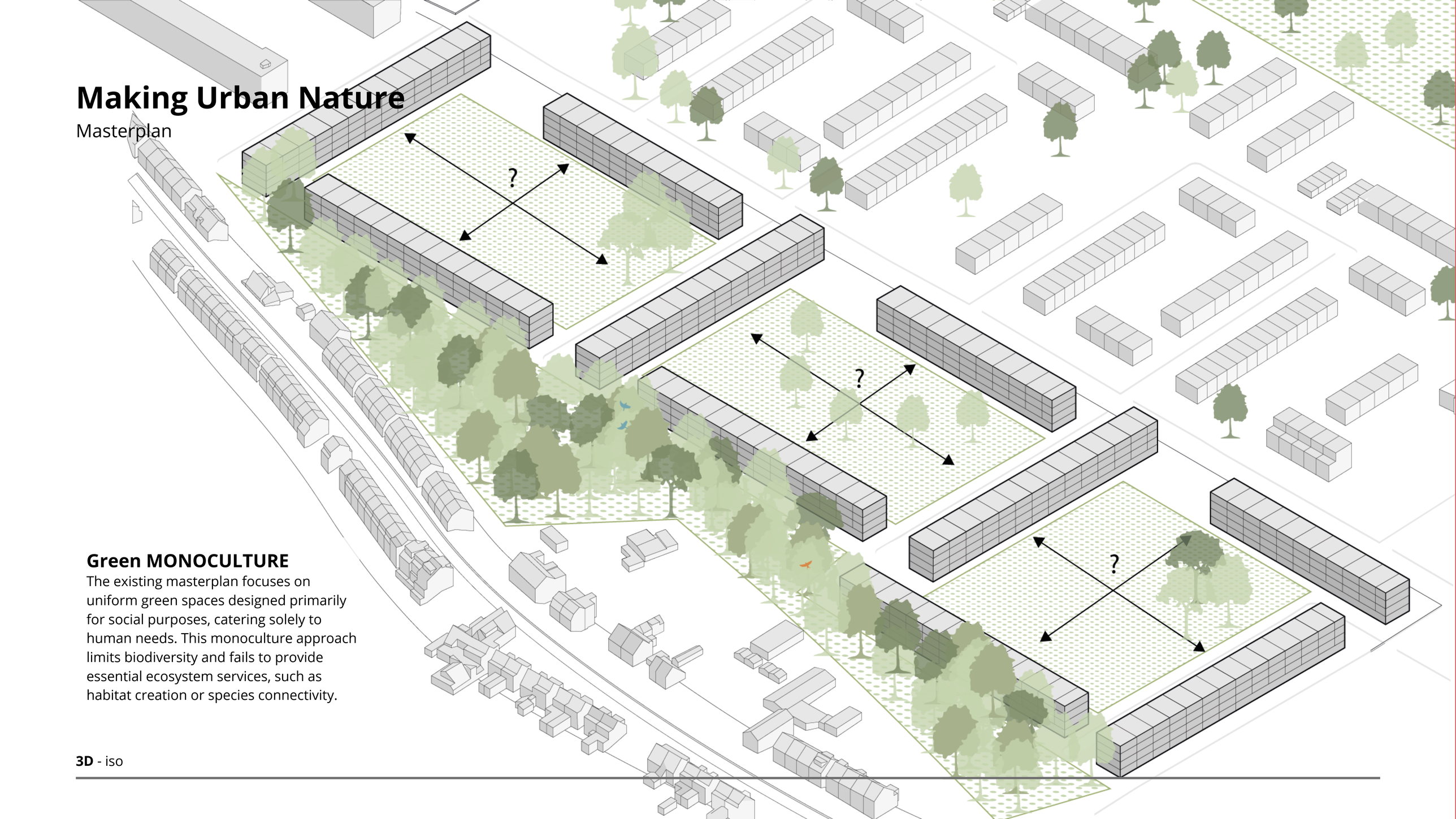
STEMPEL:
Aantal woningen: *136*
Lagen: *4*
Grond Opp: *2912* m2
Vloer Opp: *11.648* m2

TOTAAL:
Aantal woningen: *458*
Lagen: *4*
Grond Opp: *9776* m2
Vloer Opp: *39.134* m2

3D - iso

Making Urban Nature

Masterplan

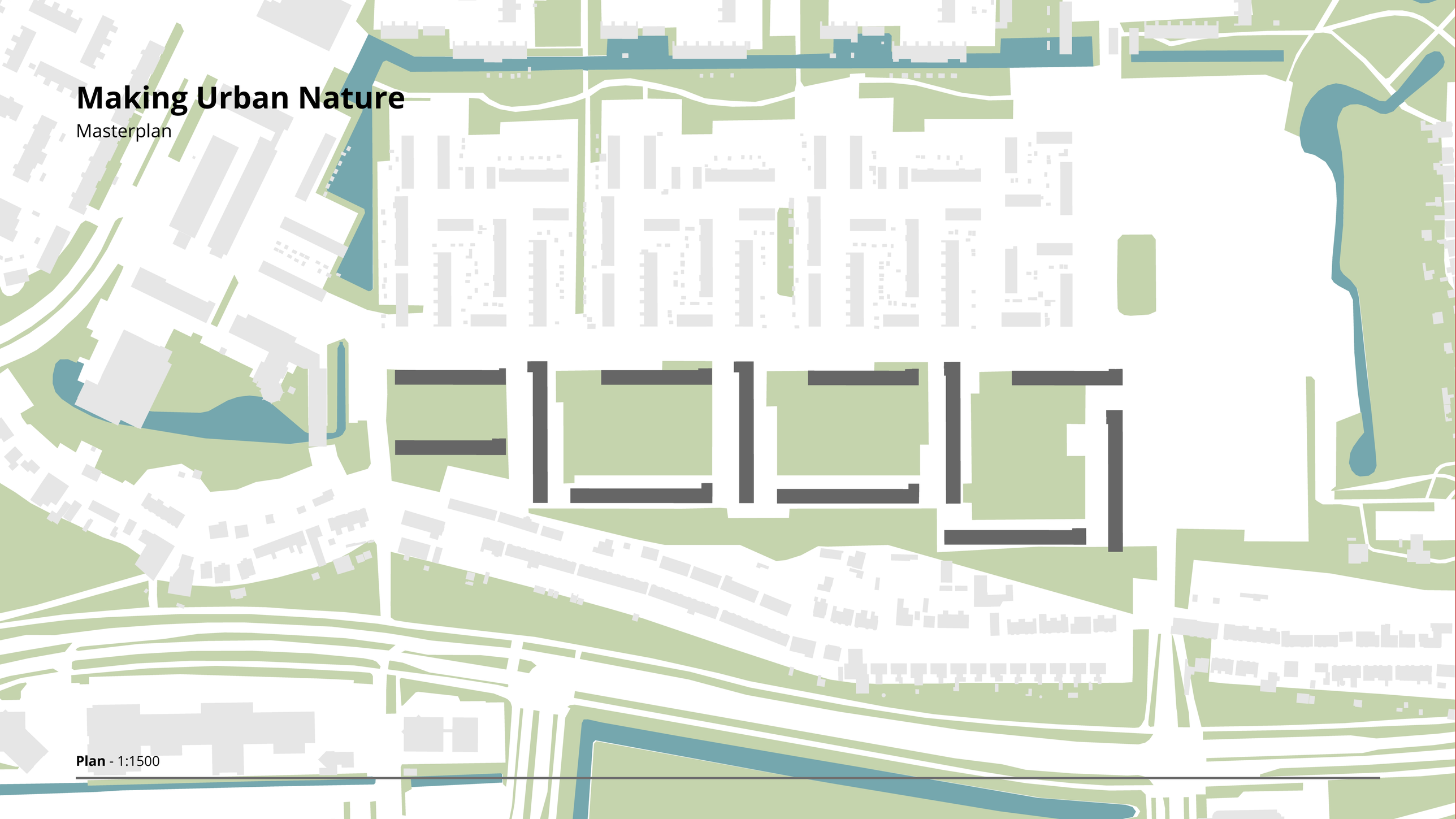


Green MONOCULTURE

The existing masterplan focuses on uniform green spaces designed primarily for social purposes, catering solely to human needs. This monoculture approach limits biodiversity and fails to provide essential ecosystem services, such as habitat creation or species connectivity.

Making Urban Nature

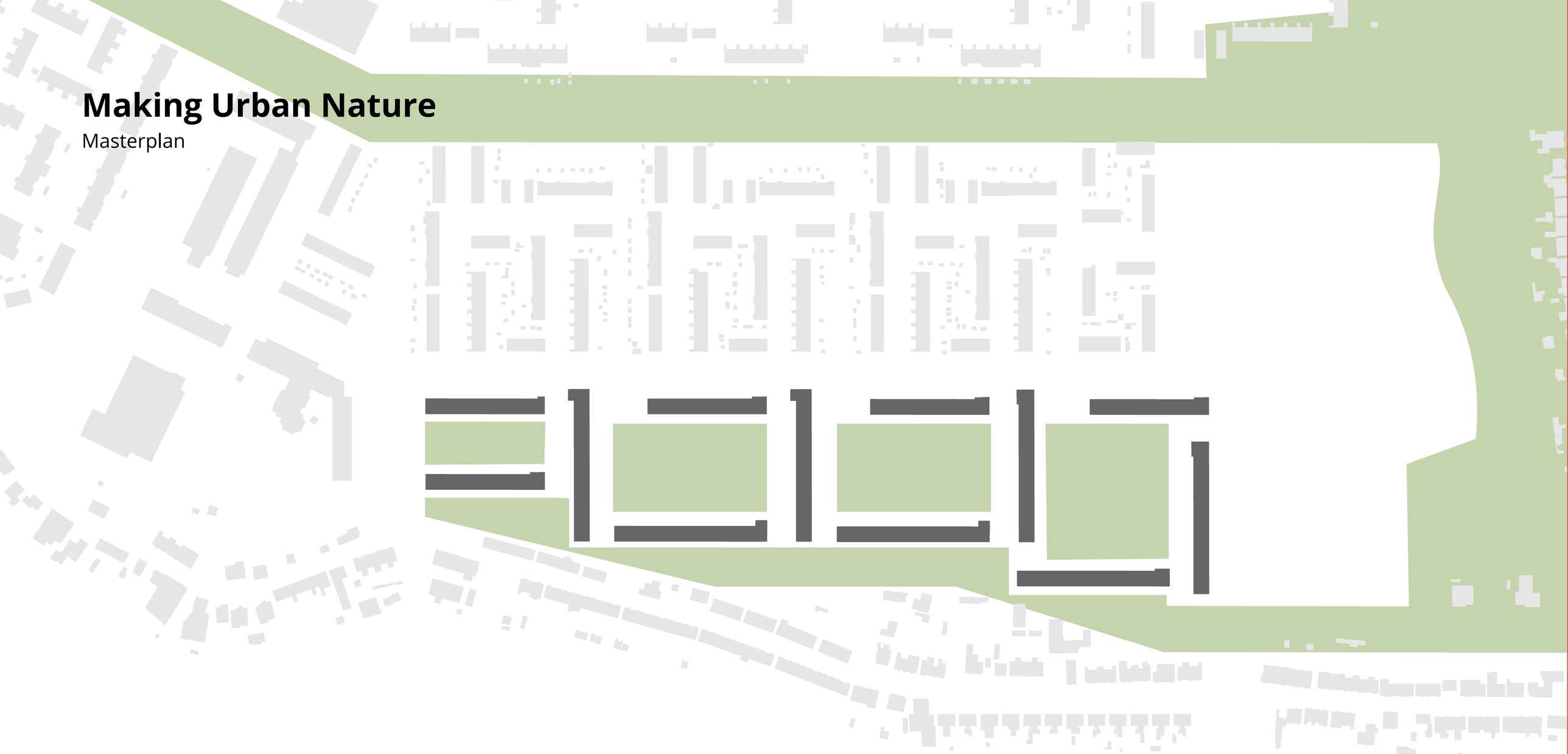
Masterplan



Plan - 1:1500

Making Urban Nature

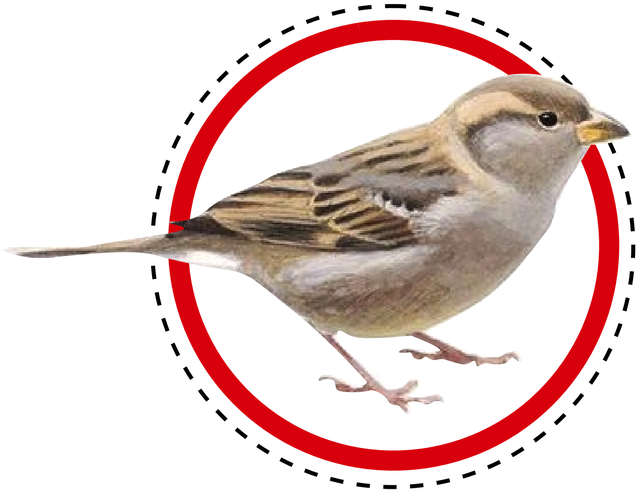
Masterplan



Plan - 1:1500

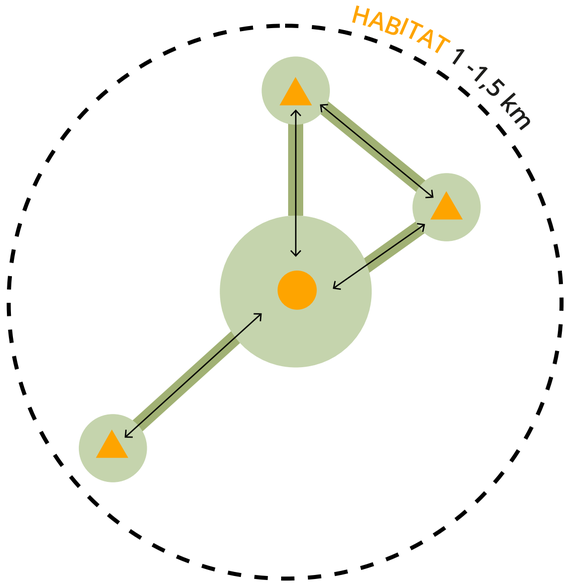
Making Urban Nature

Masterplan



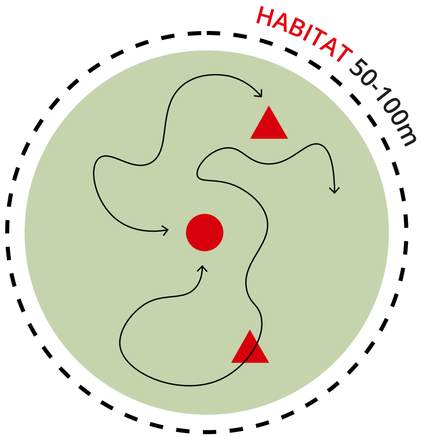
Making Urban Nature

Masterplan



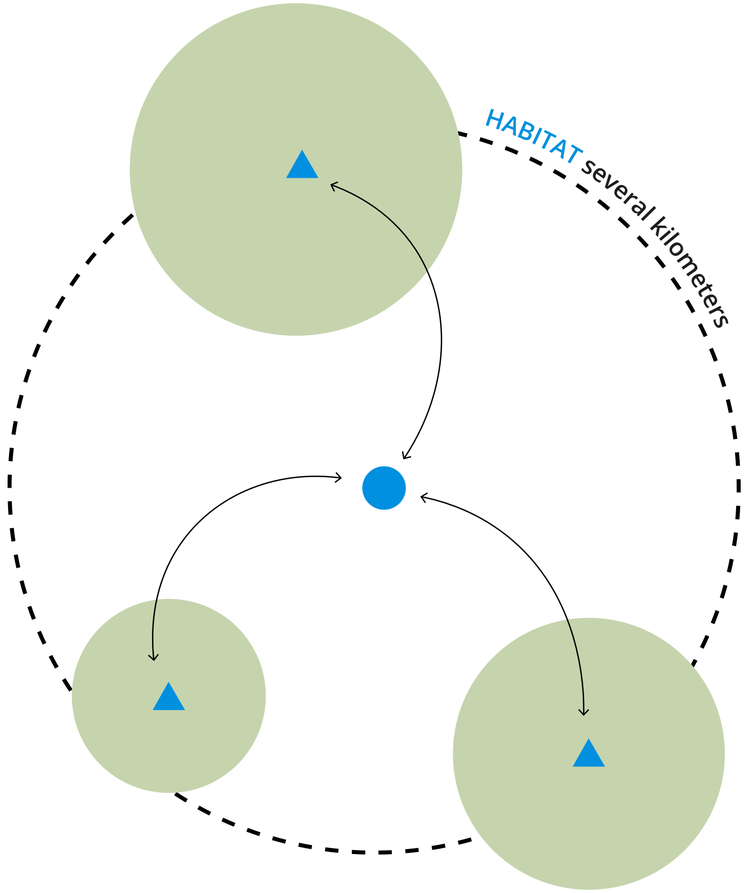
Common Pippistrelle

Linear green structures, like tree rows, support bats by providing sheltered pathways for foraging and migration. These urban corridors connect habitats, ensuring species movement and biodiversity within cities.



House sparrow

A masterplan can support house sparrows by ensuring food, water, and sandbathing spots are within 100 meters of nesting sites. This proximity creates a self-sustaining, localized ecological network.



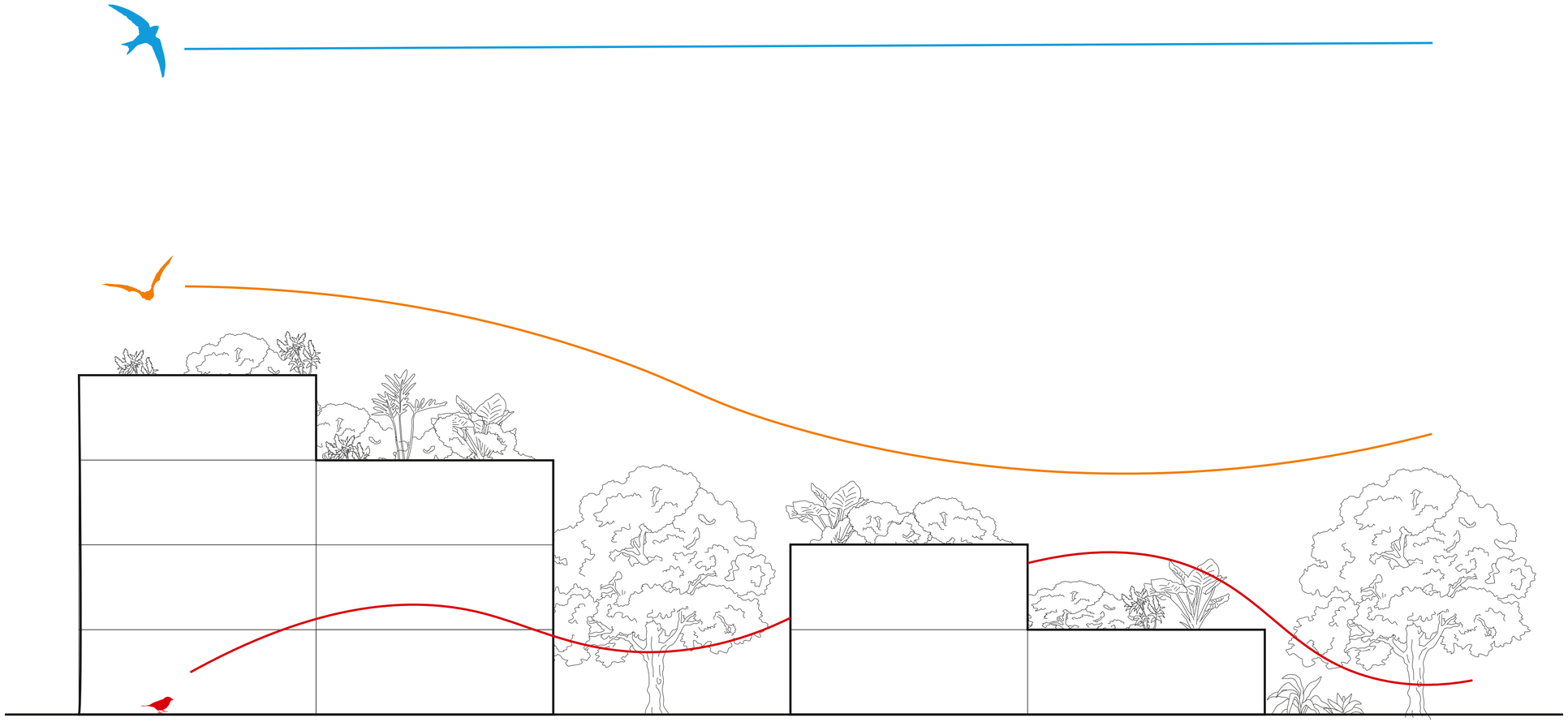
Swift

Buildings with suitable nesting sites, like crevices for swifts (Apus apus), act as stepping stones in ecological networks. They connect fragmented habitats, supporting swift migration and breeding on a national scale.

Making Urban Nature

Masterplan

Plan - 1:1500



Connections

Humans

Peace Seekers

This target group seeks urban nature to unwind. mainly green structures with few stimuli (light and noise) creeping through an area. (Veer & Van Middelkoop, 2002). Urban nature is the backdrop of the activity in this case.

Active Users

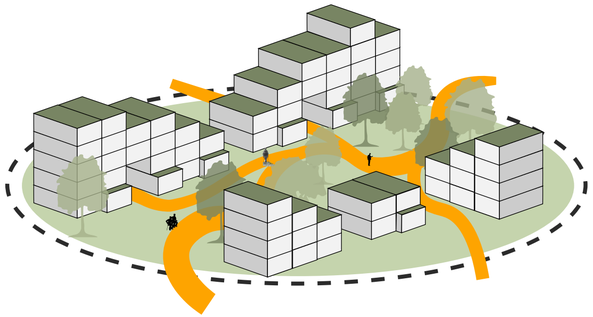
Uses urban nature actively, think of gardening in a large private garden or having a vegetable garden, shared or not. (Veer & Van Middelkoop, 2002).

Connection Seekers

The urban nature that the conenction seeker wants is a lot broader, it involves places where people can meet to have a picnic, sit on a terrace for a while or do other activities. (Veer & Van Middelkoop, 2002). Urban nature is the backdrop of the activity in this case

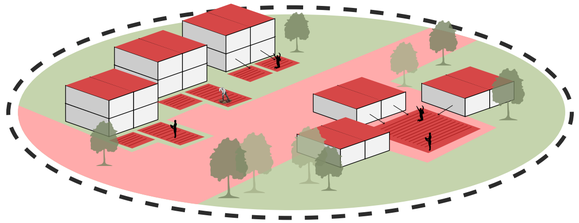
Connections

Humans



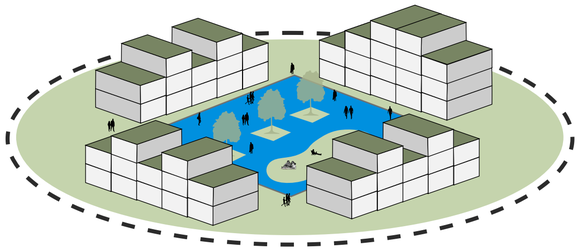
Winding Paths

Winding paths full of greenery throughout the planning area, the paths will be linked together to create a large recreational area with a diverse green structure.



(shared) Vegatable Garden

Kitchen gardens, shared or not, provide an opportunity for people in the city to provide themselves with vegetables. The gardens are scattered throughout the plan area and adjacent to the houses for a strong connection between home and garden.

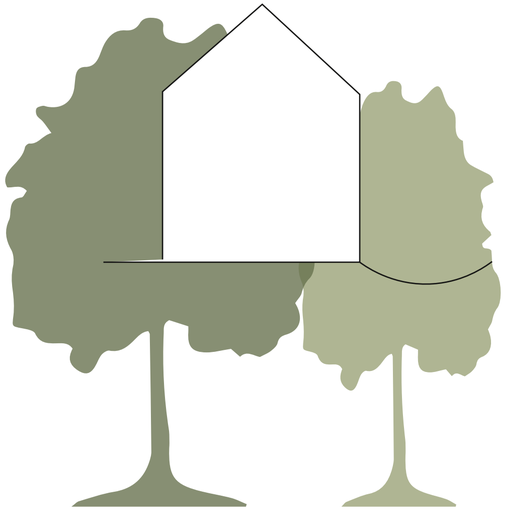


Green Squares

Large, green, open places where people can meet. The places are centrally located in the different stamps and function as meeting places of the surrounding houses.

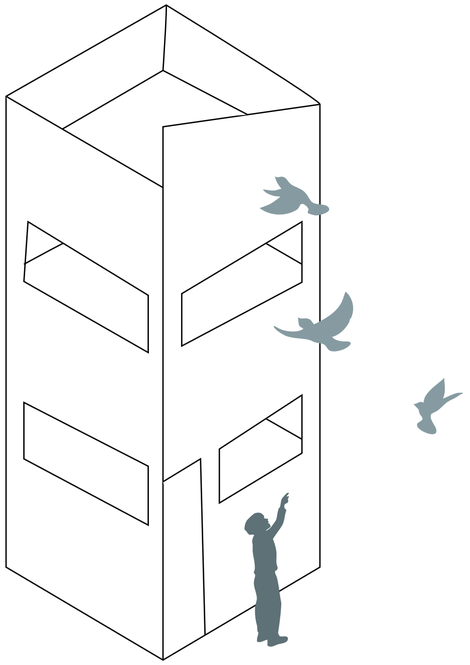
Connections

Humans



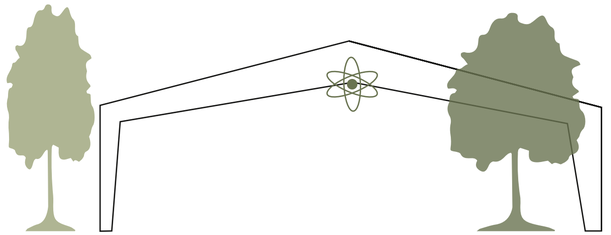
Playground with Treehouses

To A nature-inspired playground is central to the design, featuring treehouses, climbing structures, and shaded areas. By blending play with greenery, it encourages physical activity and imaginative exploration for children, while reinforcing the connection between urban life and natural elements.



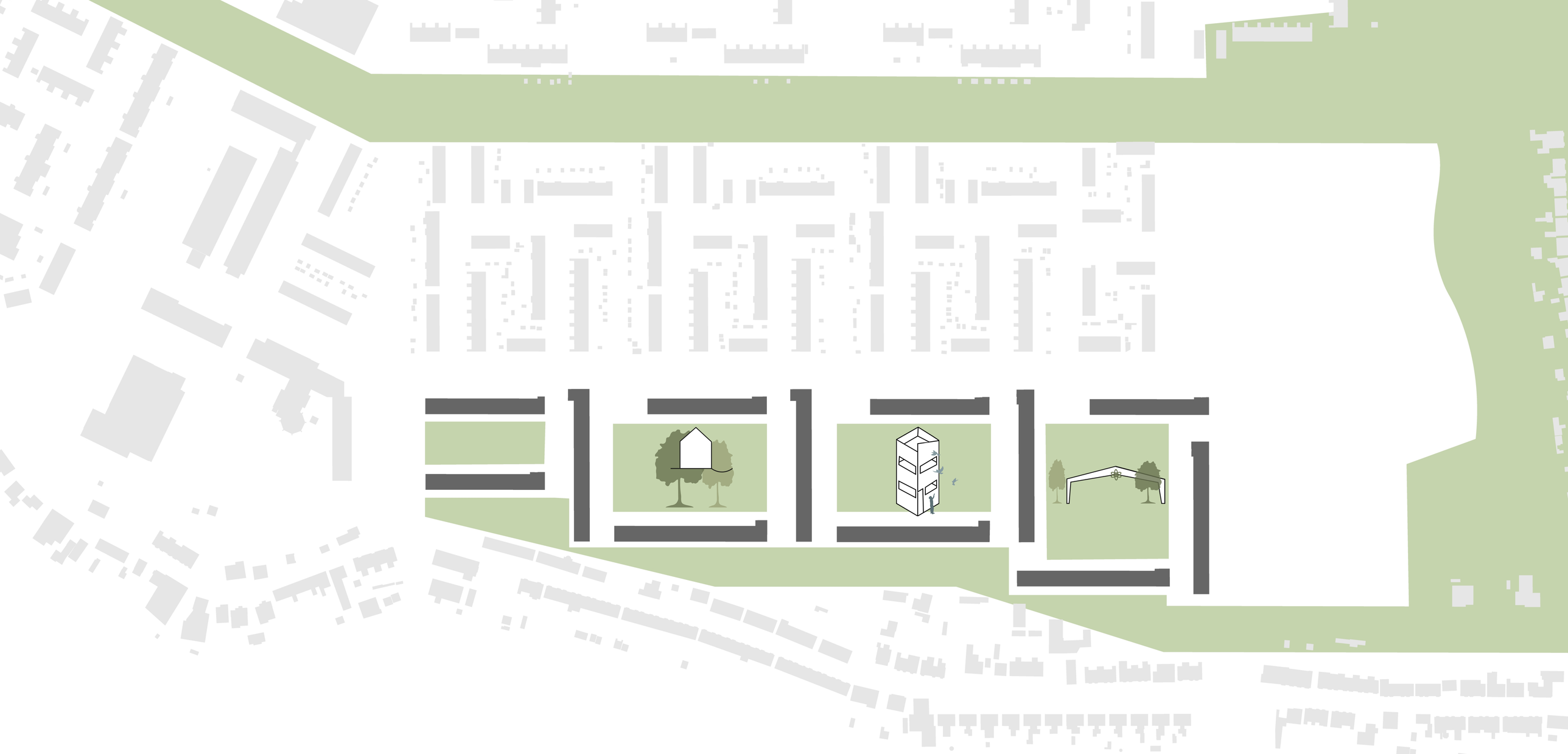
Bird Observation Tower

To restore the branching green structures in Groot-IJsselmonde, my design includes a bird observation tower within the inner courtyards. This structure provides both an educational experience and a habitat for local bird species, fostering awareness of urban biodiversity among residents and creating a peaceful space for reflection.



Educational Nature Lab

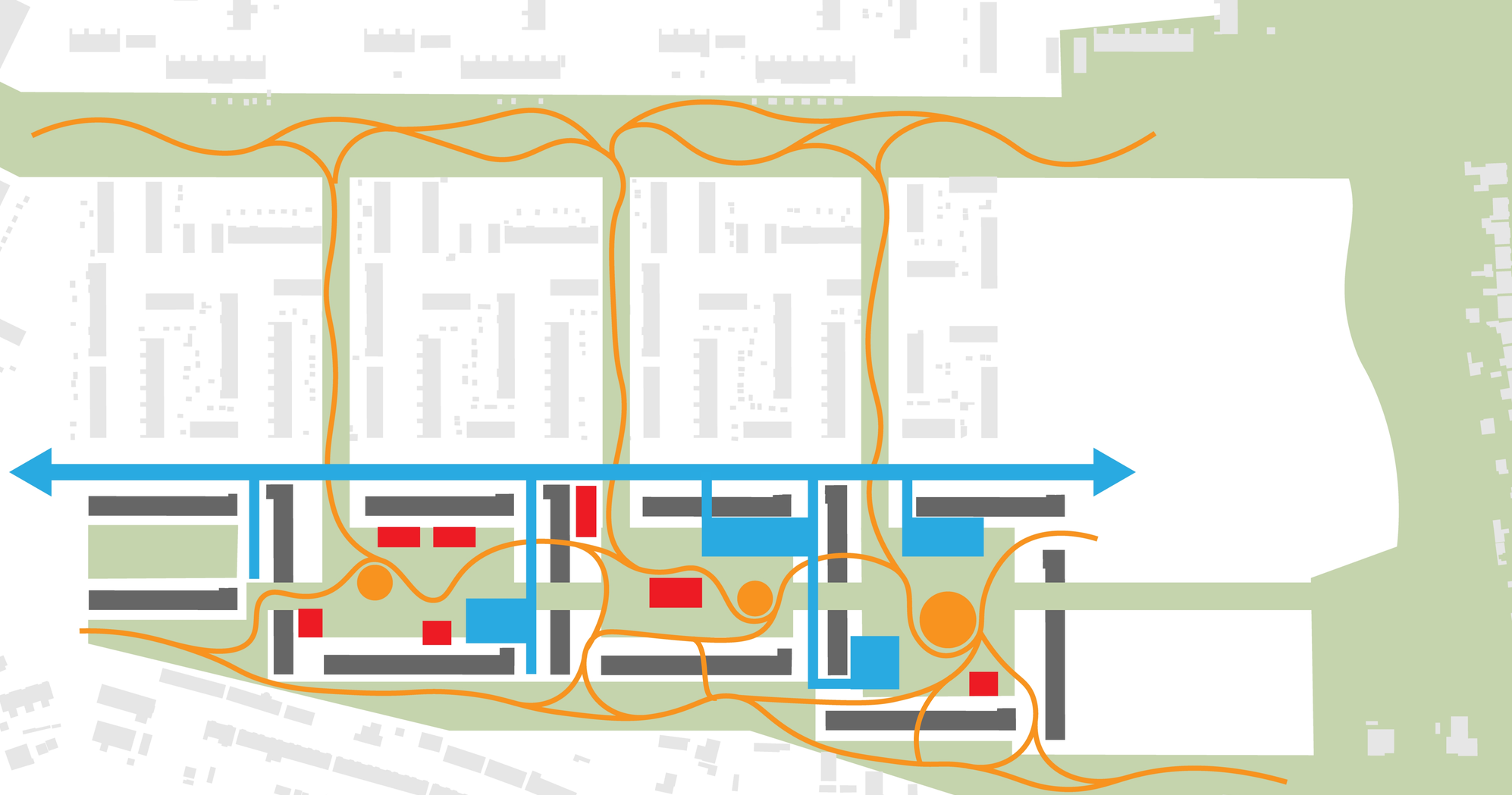
To promote learning within the courtyards, an outdoor nature lab will feature interactive elements like insect hotels, mini gardens, and composting areas. These facilities teach residents, especially children, about ecology and sustainability, turning the courtyard into a hub of environmental education and community engagement.



Plan - 1:1500

Masterplan

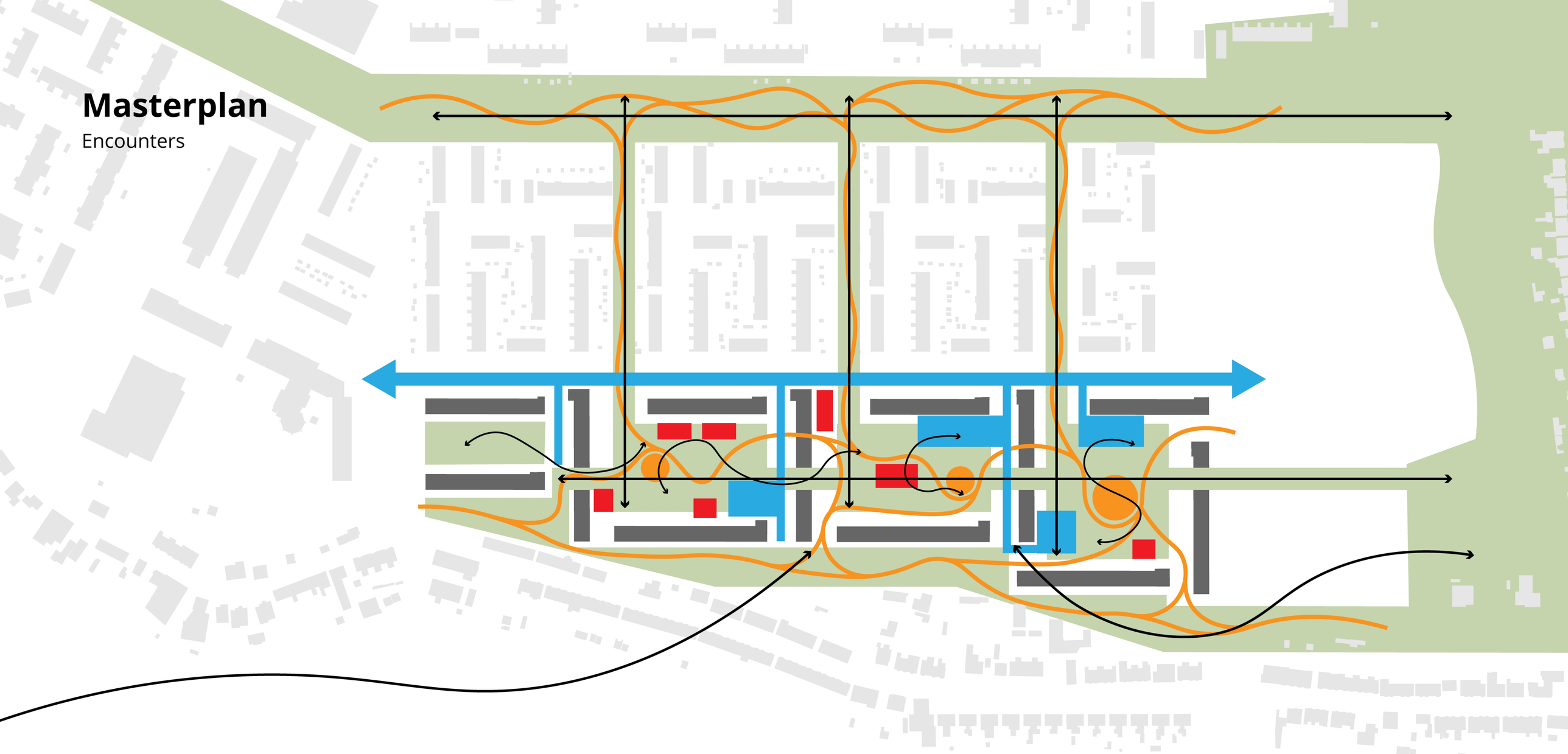
People in urban nature



Plan - 1:1500

Masterplan

Encounters



Plan - 1:1500

Masterplan

Encounters

- Bats

Can benefit from calming areas with low light and noise pollution

- Hedgehog

Cause of death number one for hedgehogs are traffic casualties, this happens where their patterns cross.

+ House sparrow

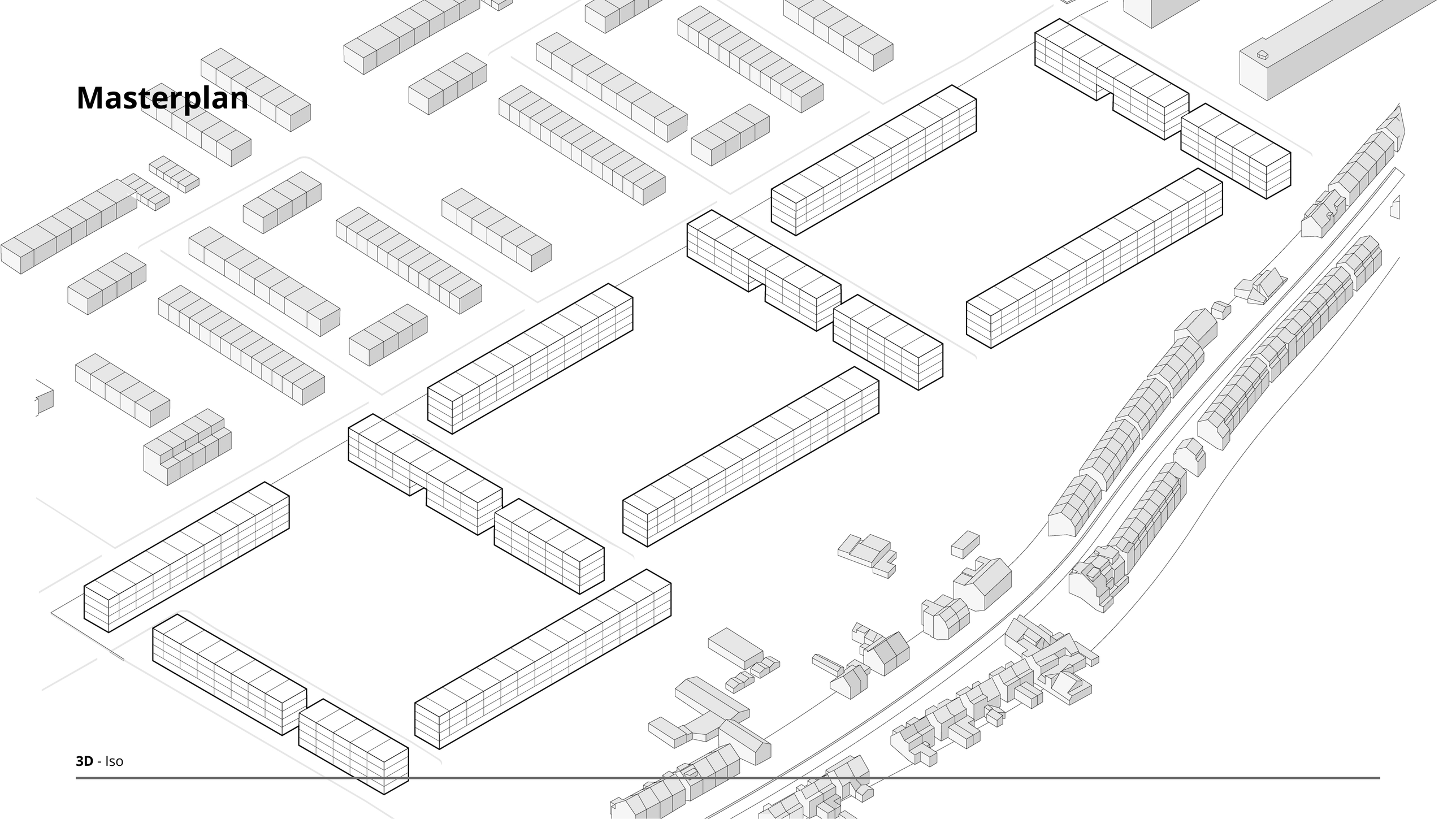
Can benefit from people's food scraps tha they consciously or unconsciously leave behind

+ Insects

Insects can be beneficial for pollination in gardens, by creating flower-rich gardens you attract more insects.

Plan - 1:1500

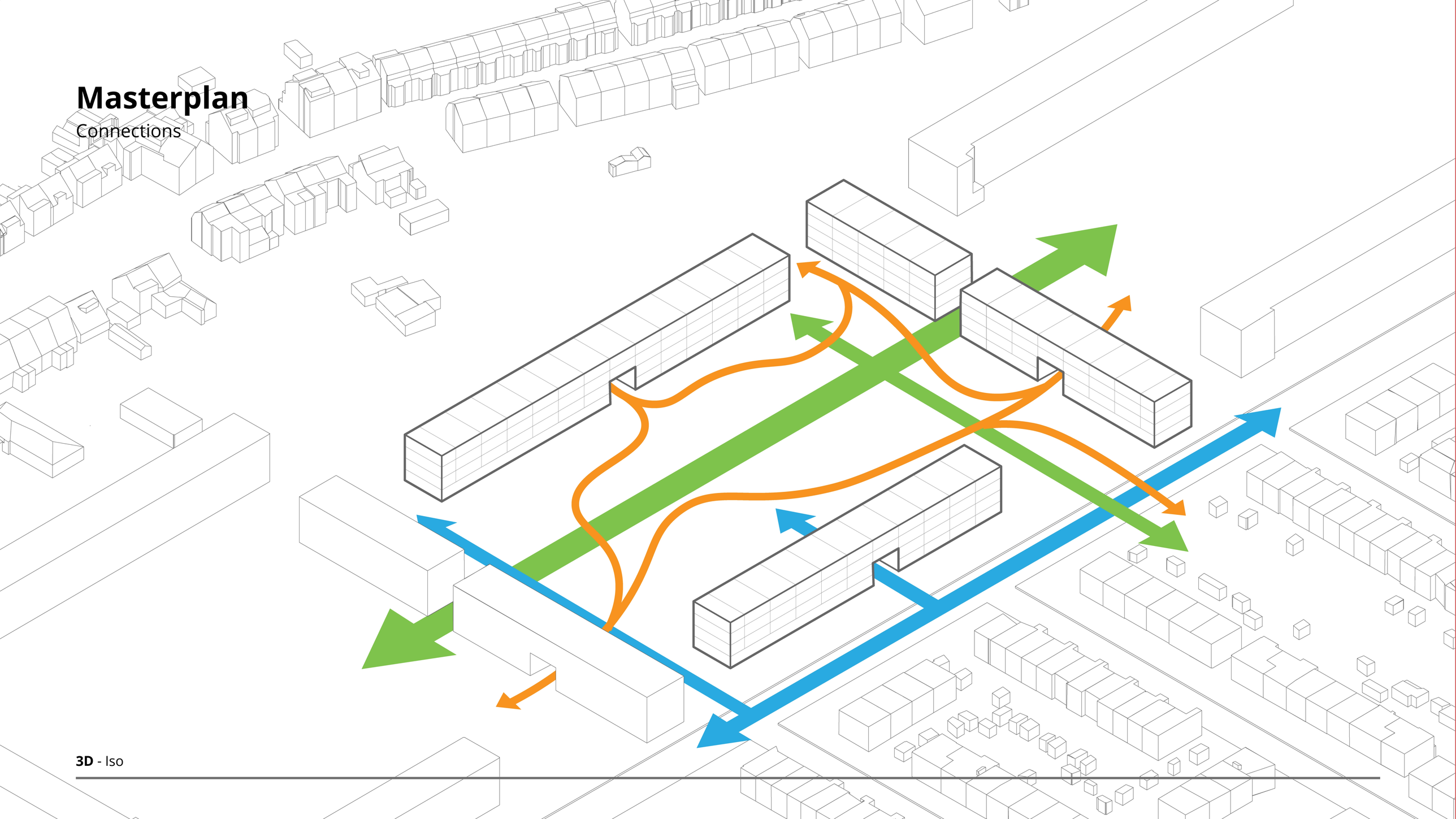
Masterplan



3D - Iso

Masterplan

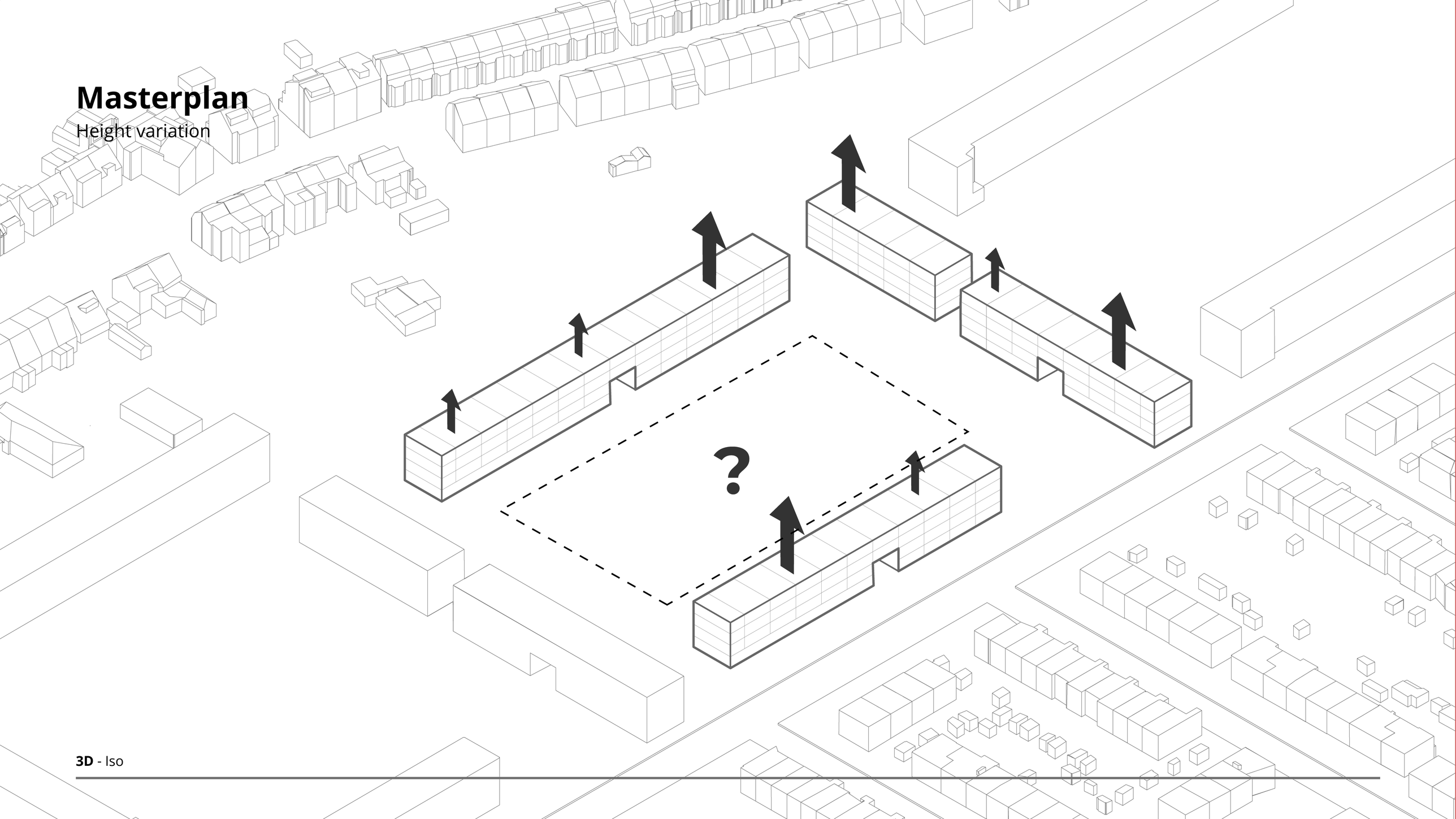
Connections



3D - Iso

Masterplan

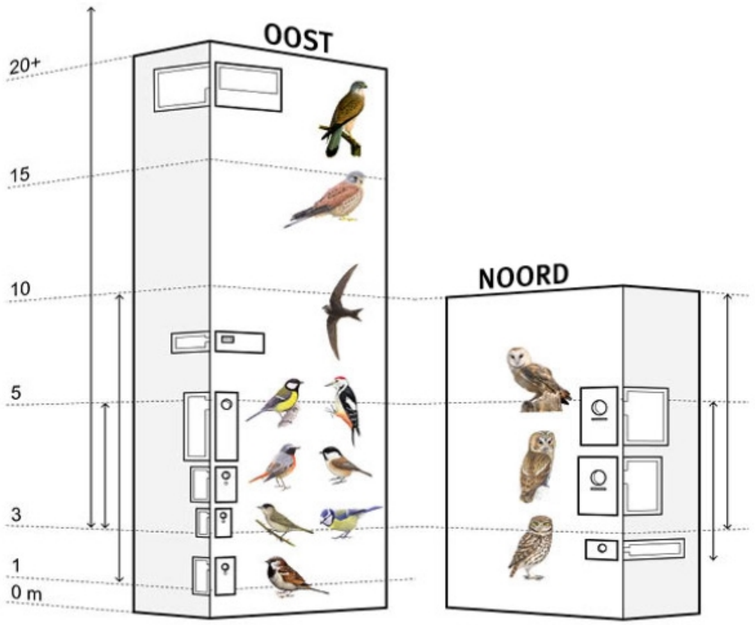
Height variation

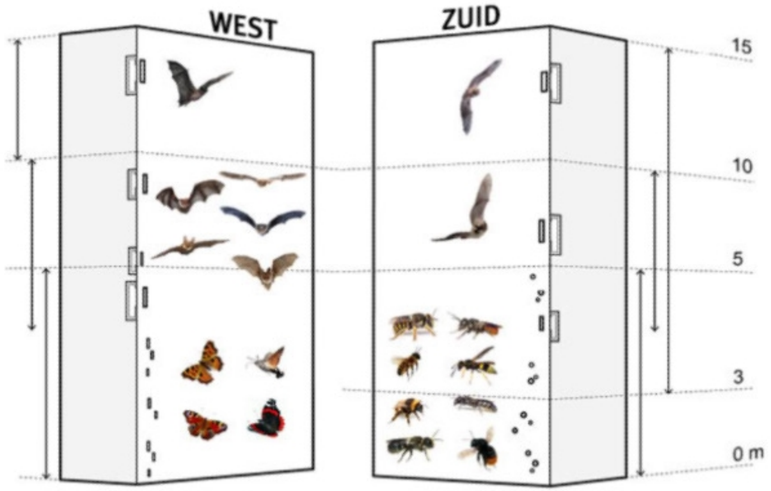


3D - Iso

Variation

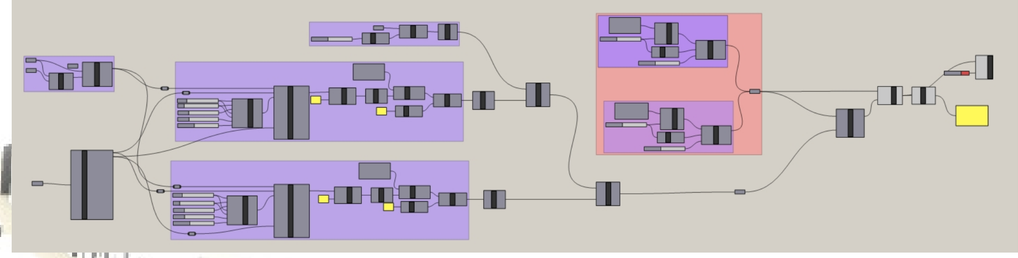
Heights





Masterplan

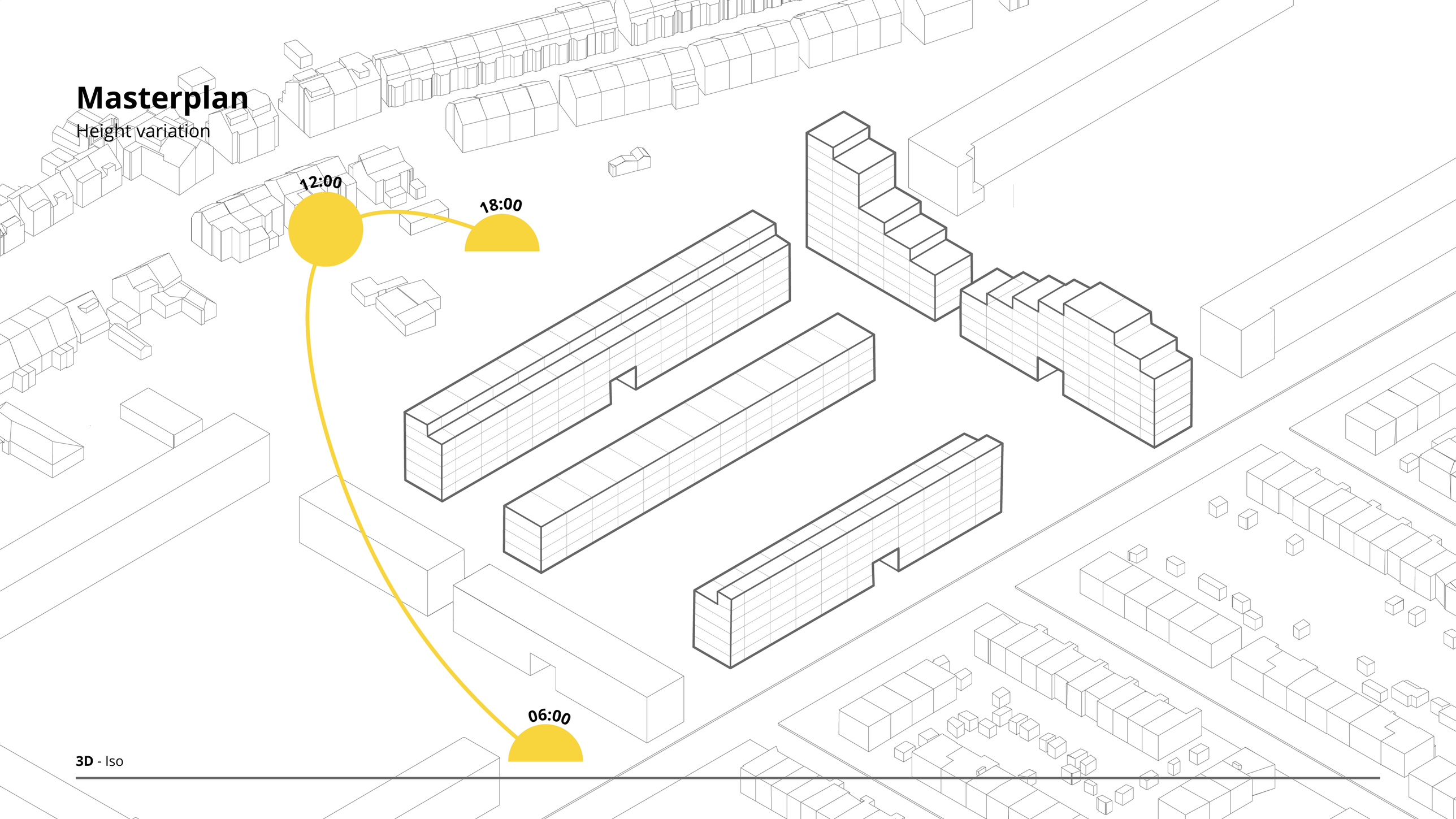
Landscaping



3D - Iso

Masterplan

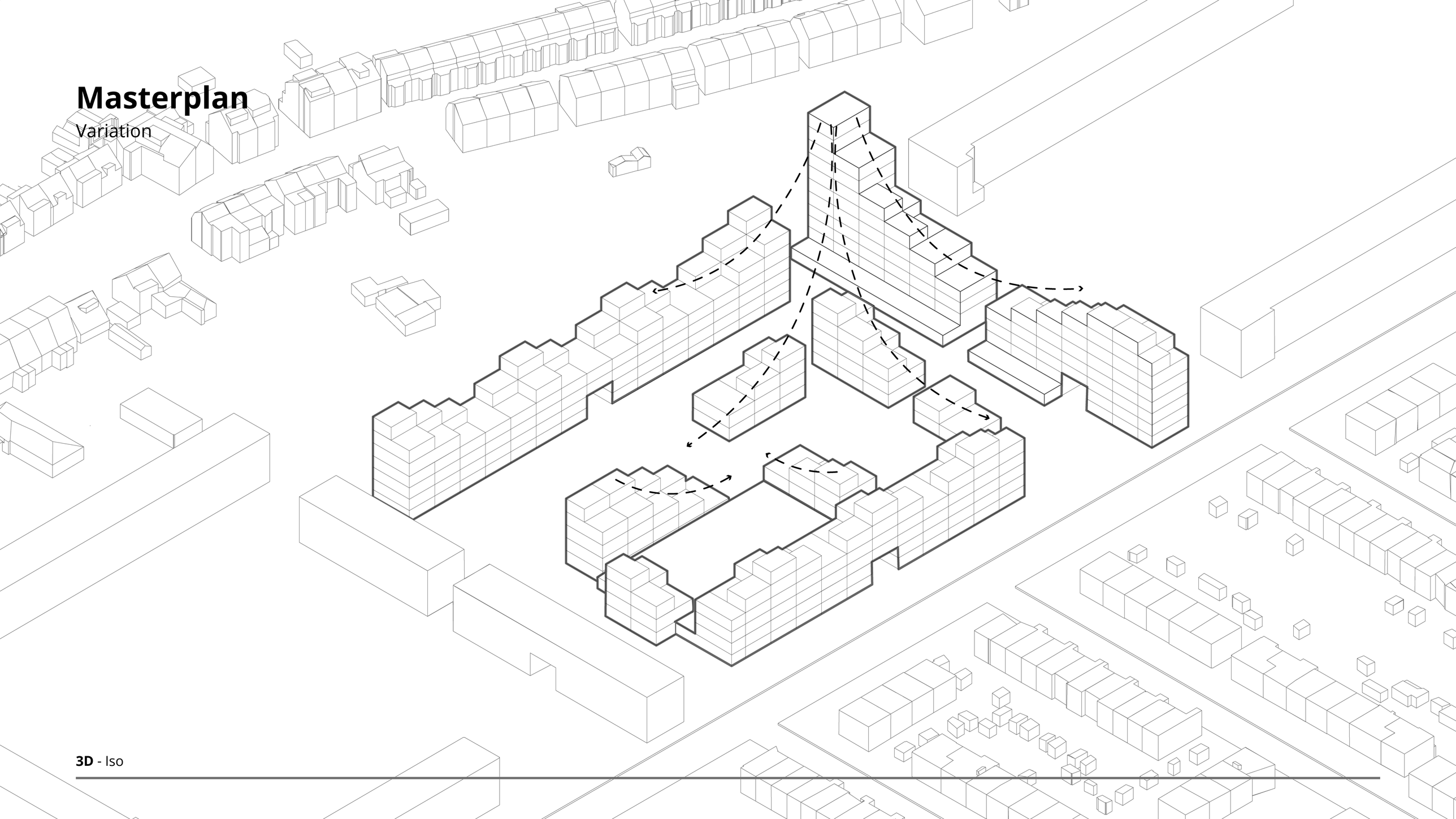
Height variation



3D - Iso

Masterplan

Variation



3D - Iso

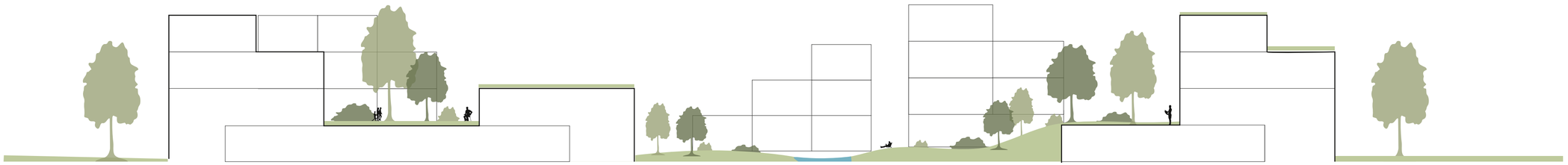
Masterplan

Final

3D - Iso

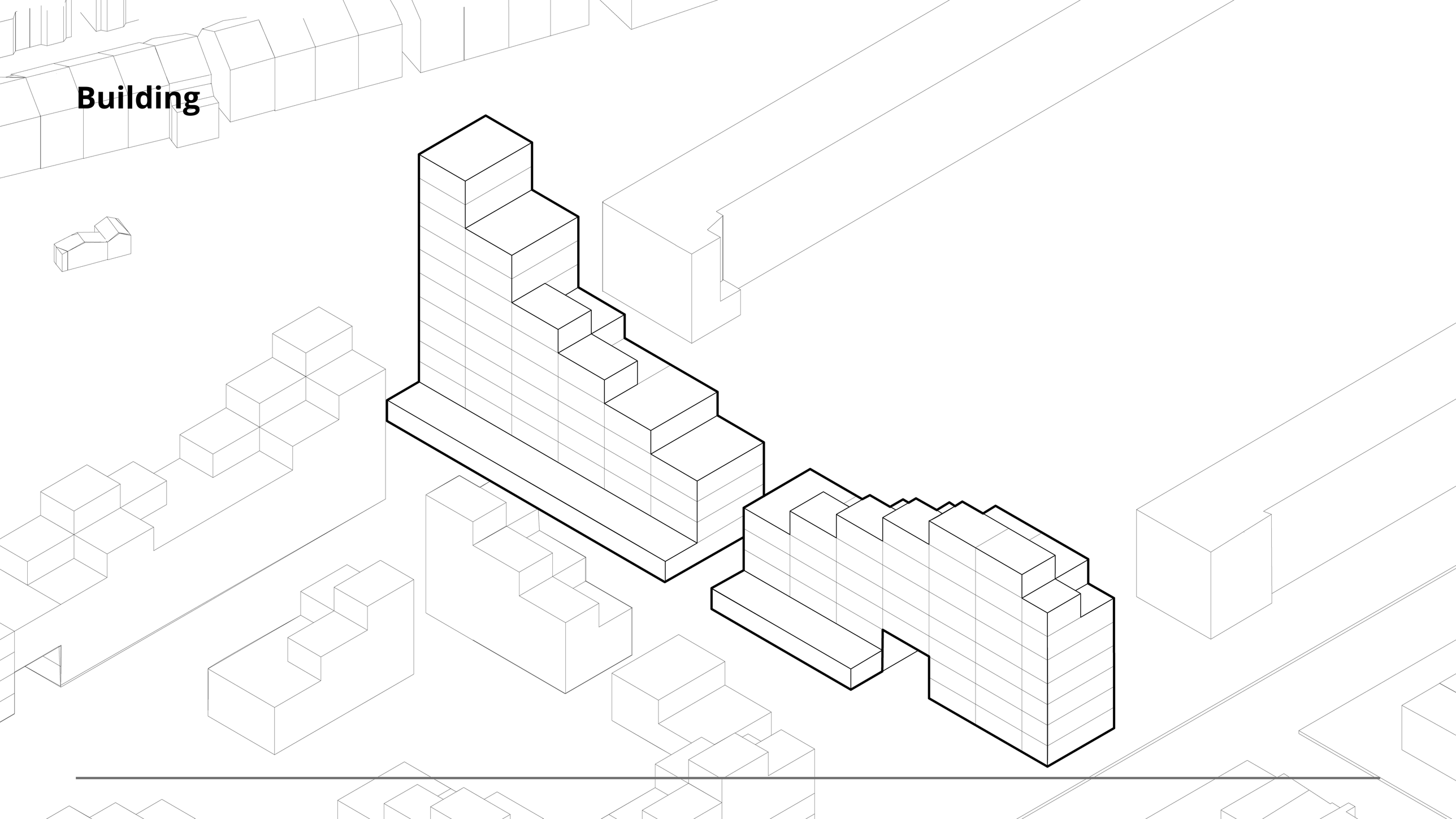
Masterplan

Final



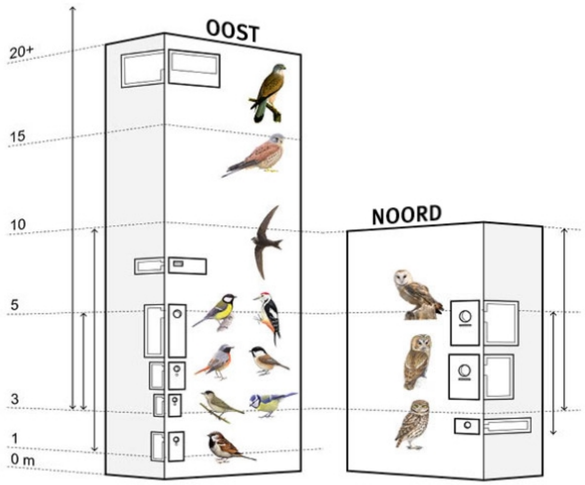
Section

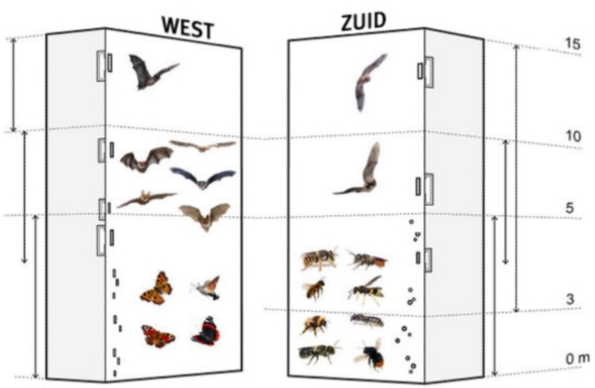
Building

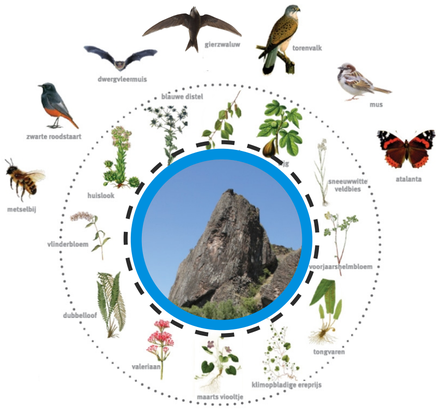


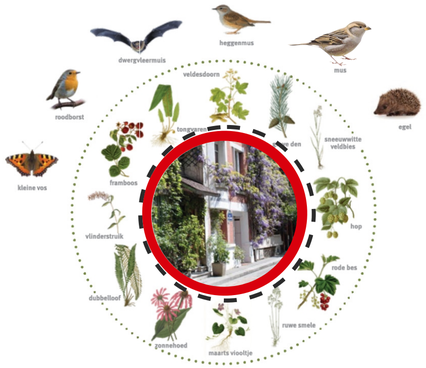
Location based

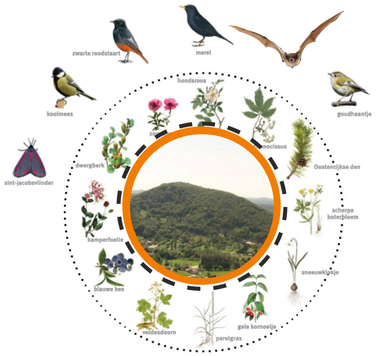
Heights





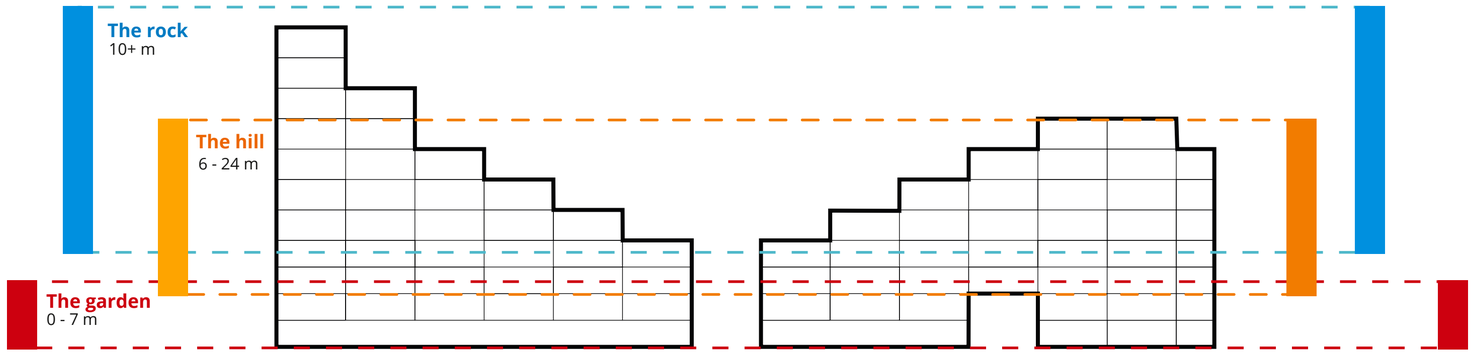






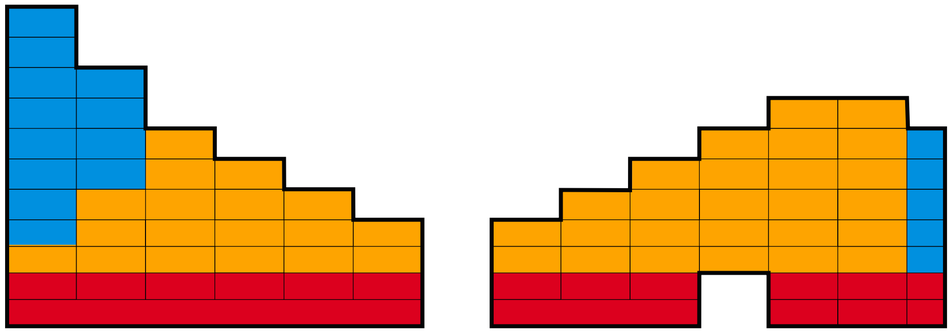
Building

Heights



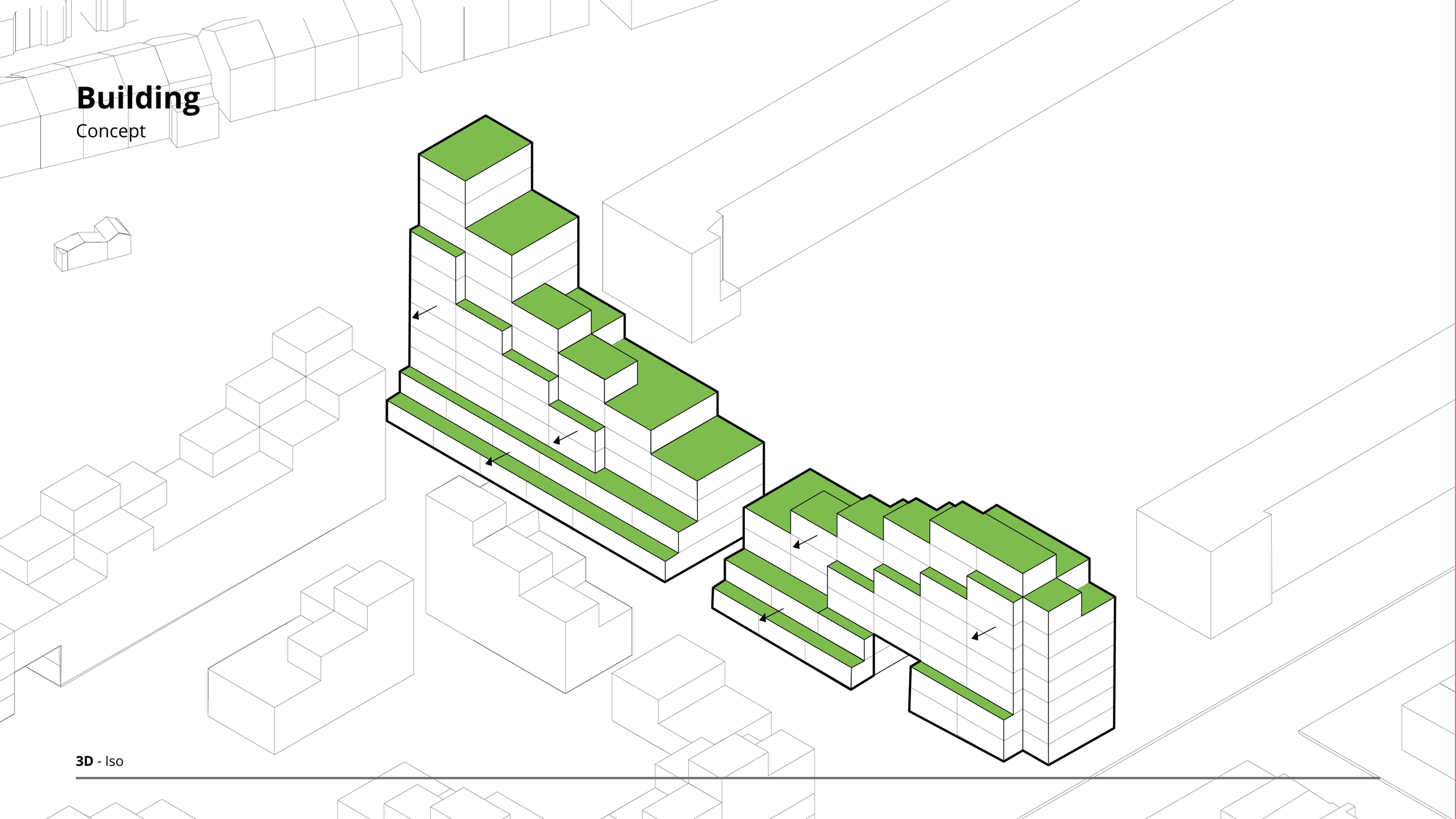
Variation

Porosity



Building

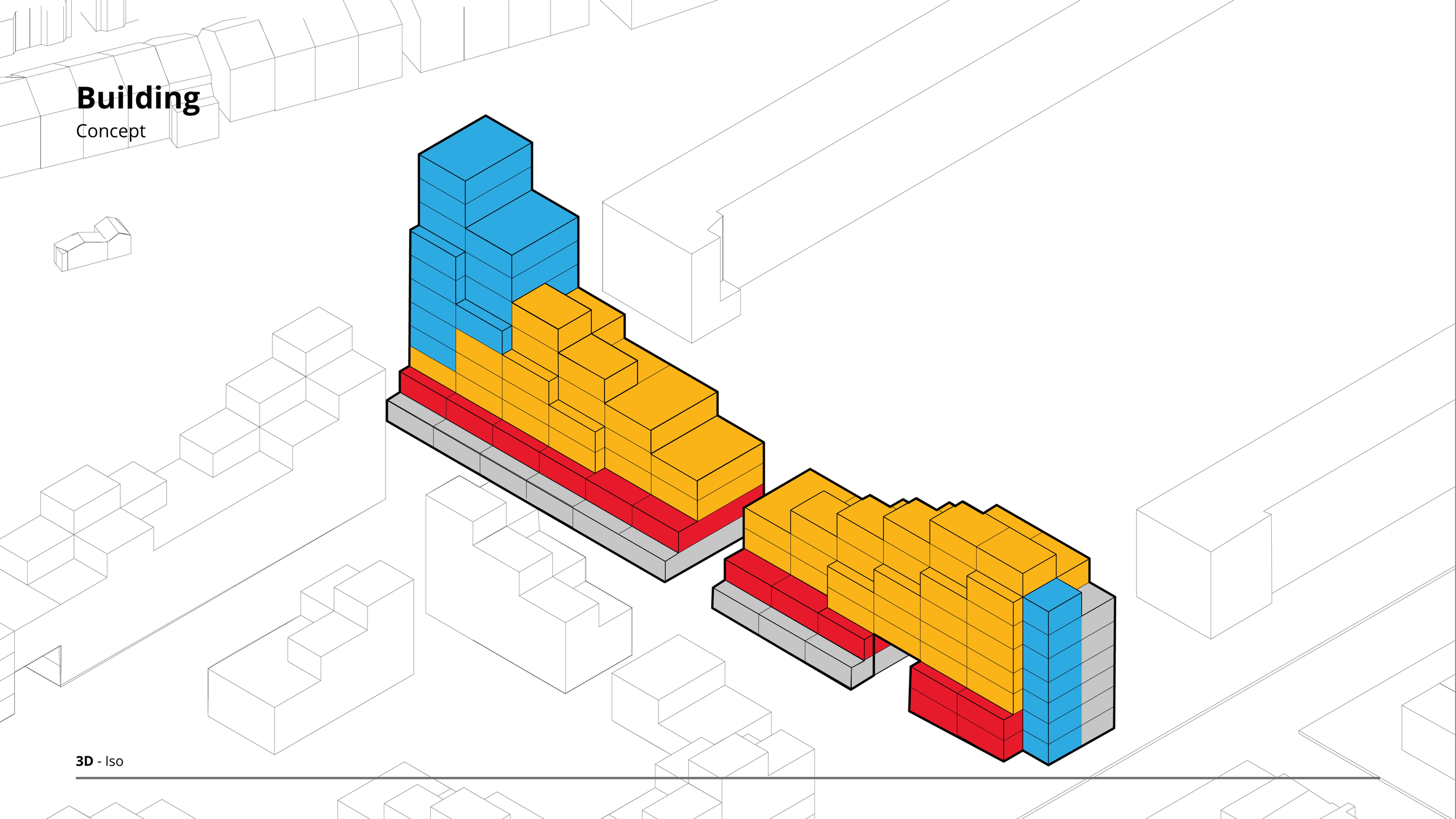
Concept



3D - Iso

Building

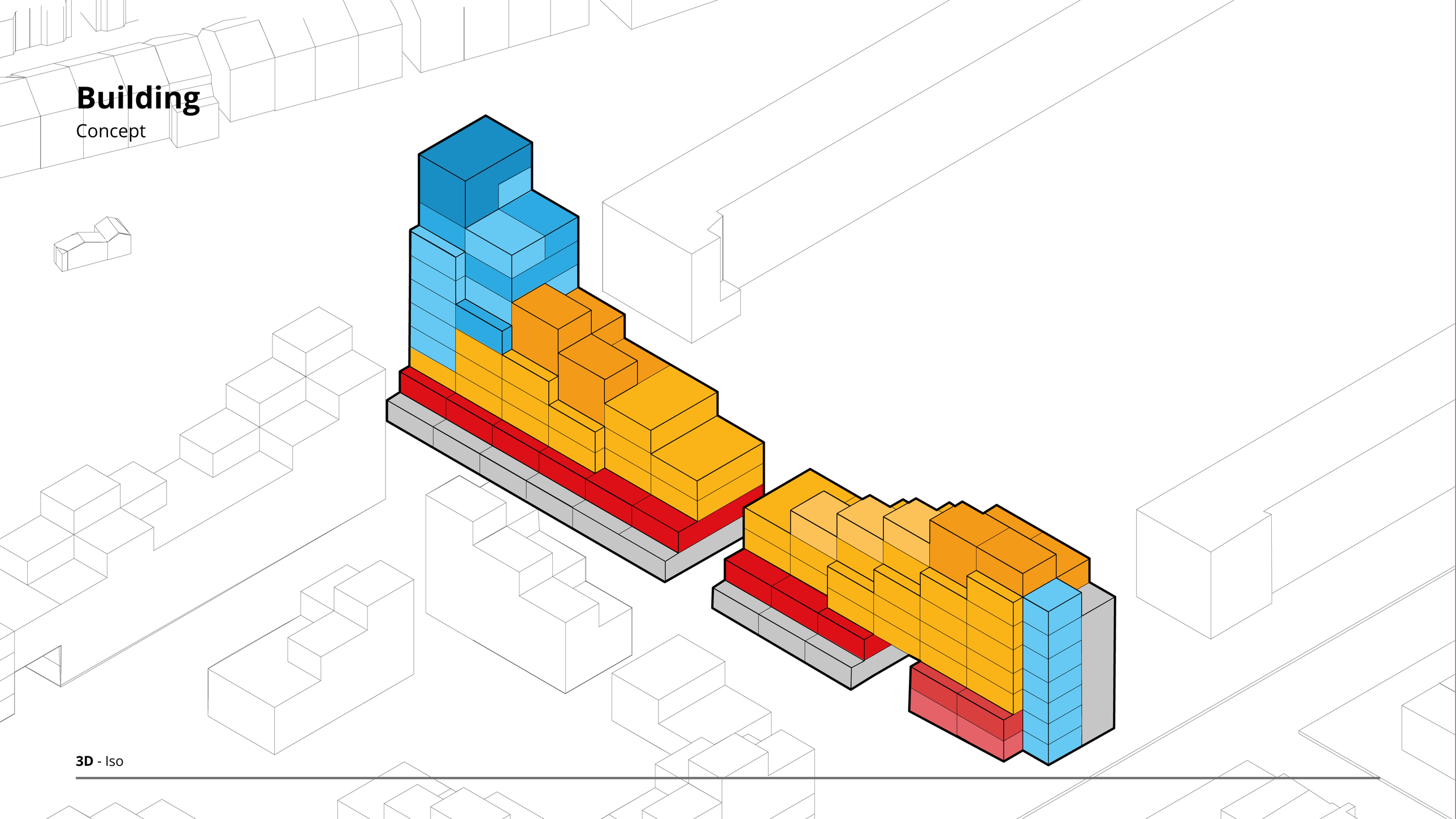
Concept



3D - Iso

Building

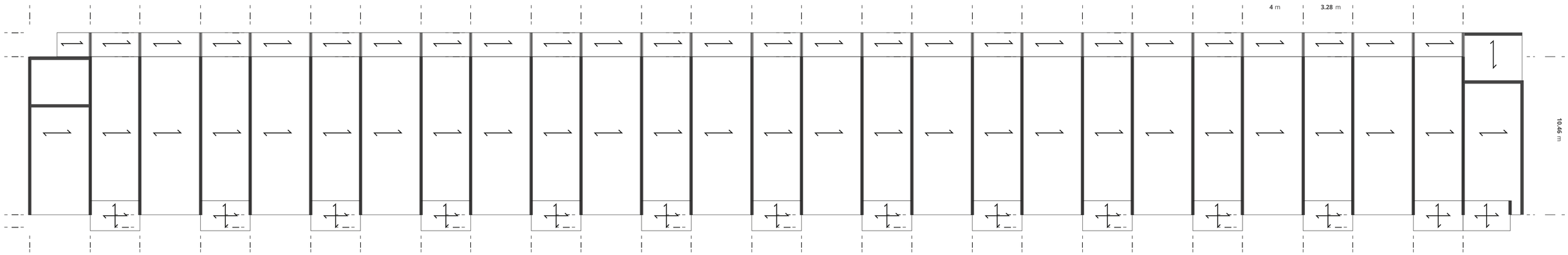
Concept



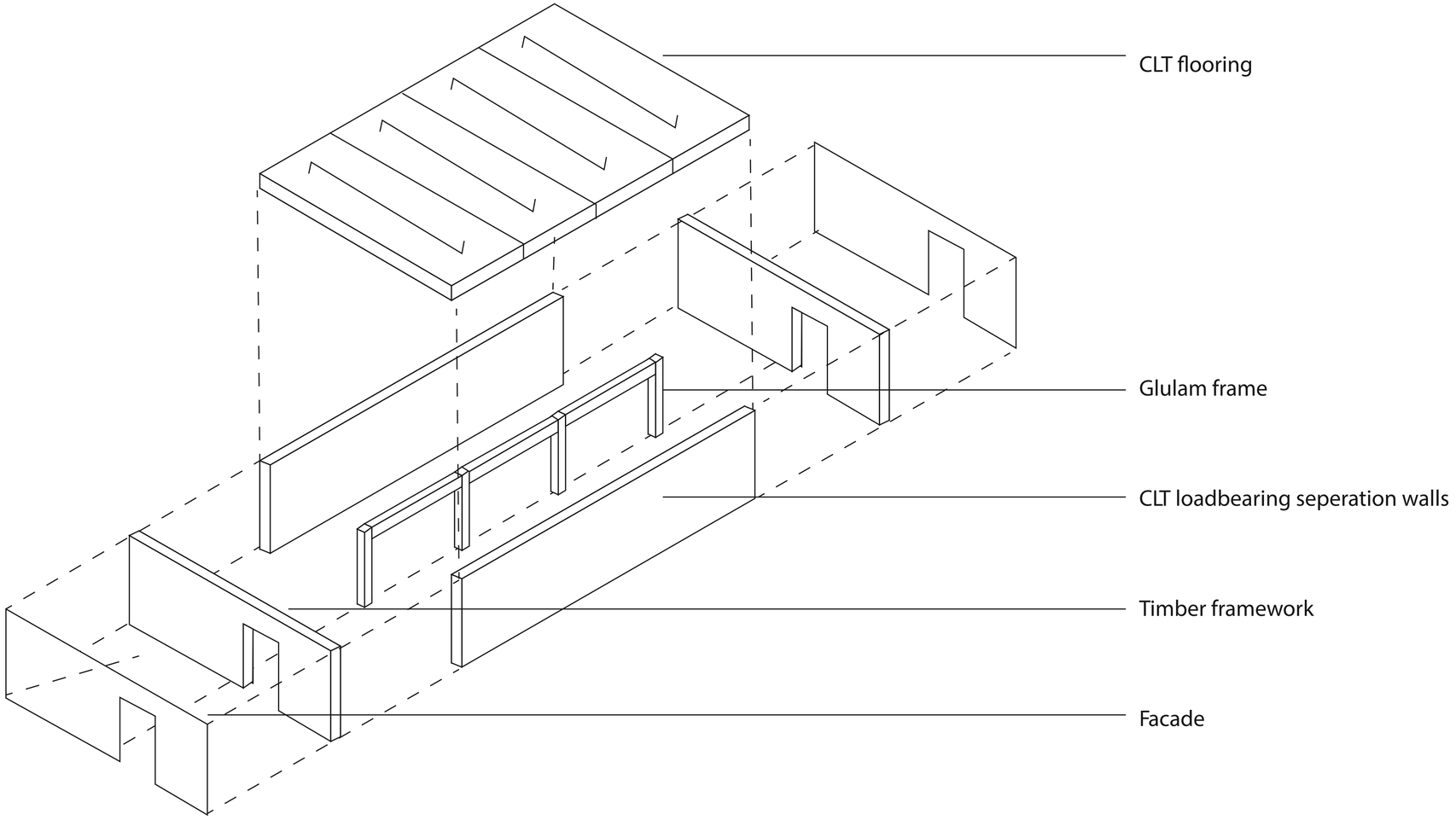
3D - Iso

Construction

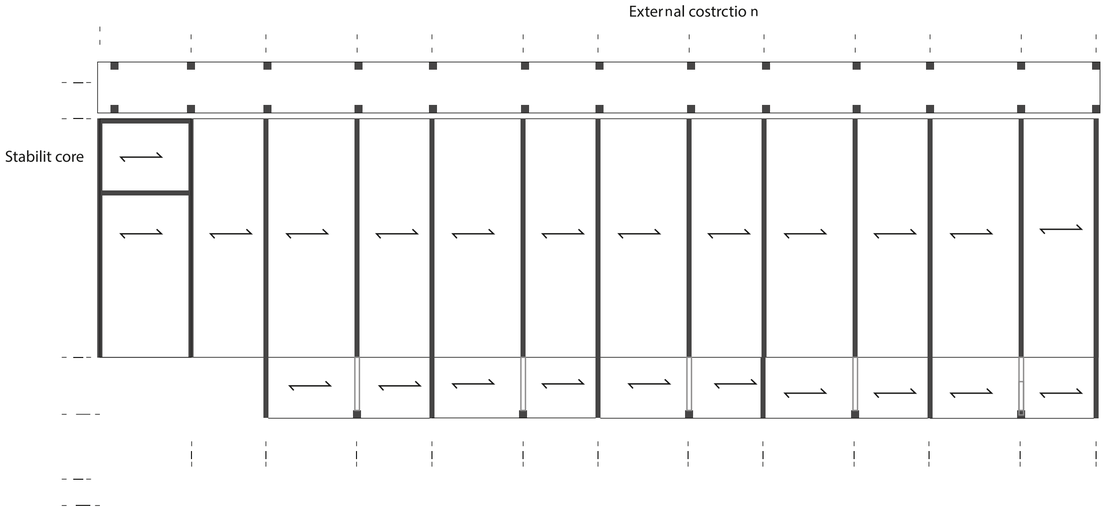
Existing builing

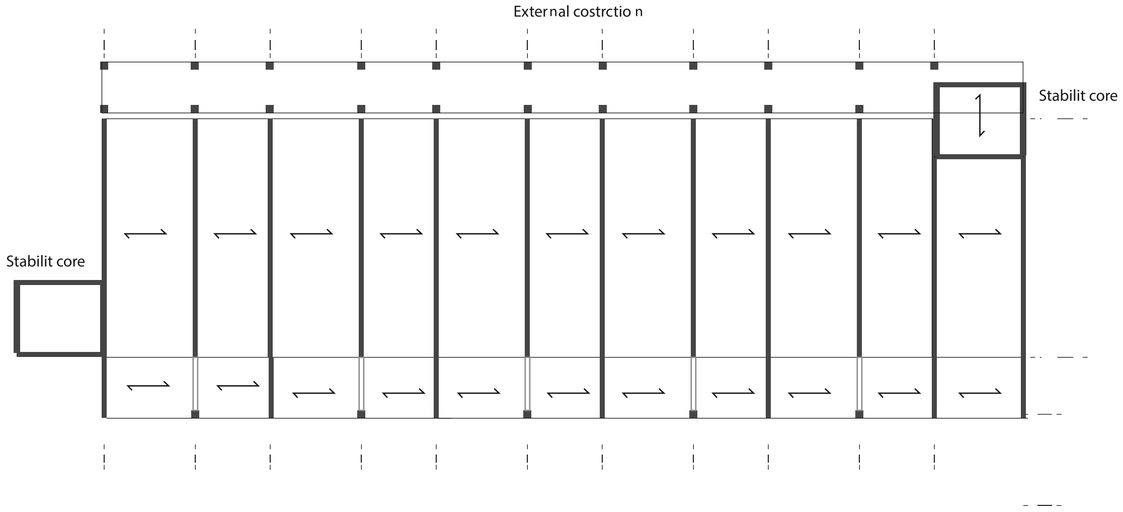


Construction

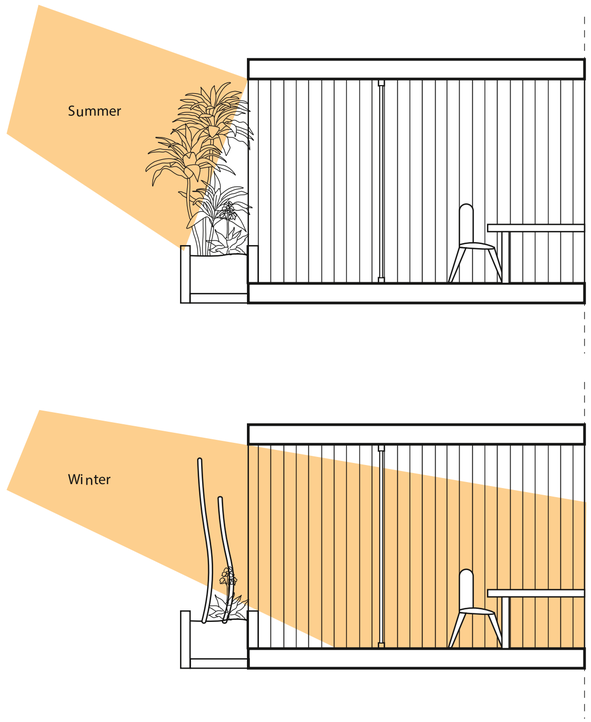


Construction



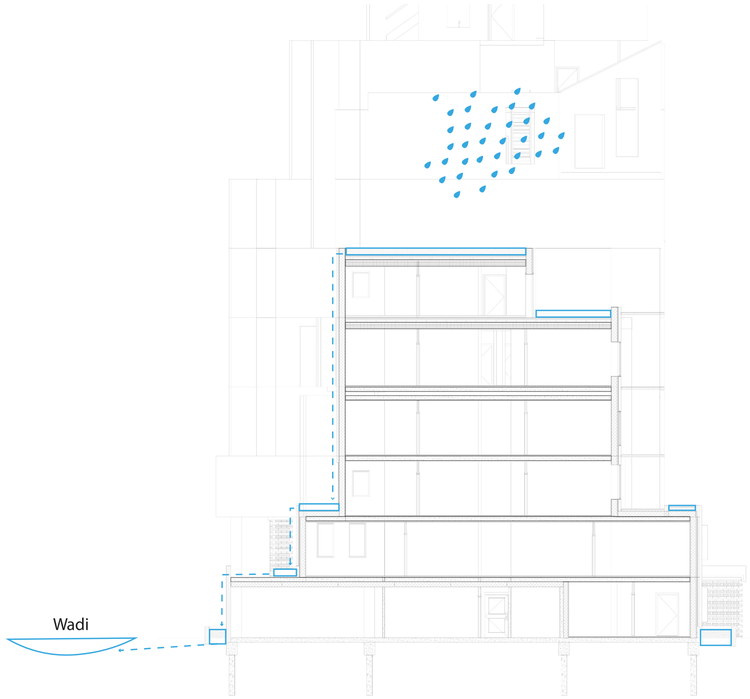


Ecosystem services



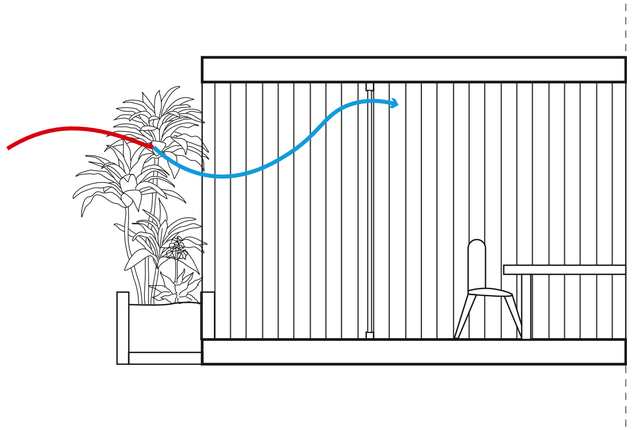
Shading & cooling

Green façades and trees block sunlight during summer when vegetation is dense, reducing heat absorption by buildings and lowering indoor temperatures. This natural shading minimizes energy consumption for cooling, enhancing climate resilience (IPCC, 2023).



Water retention

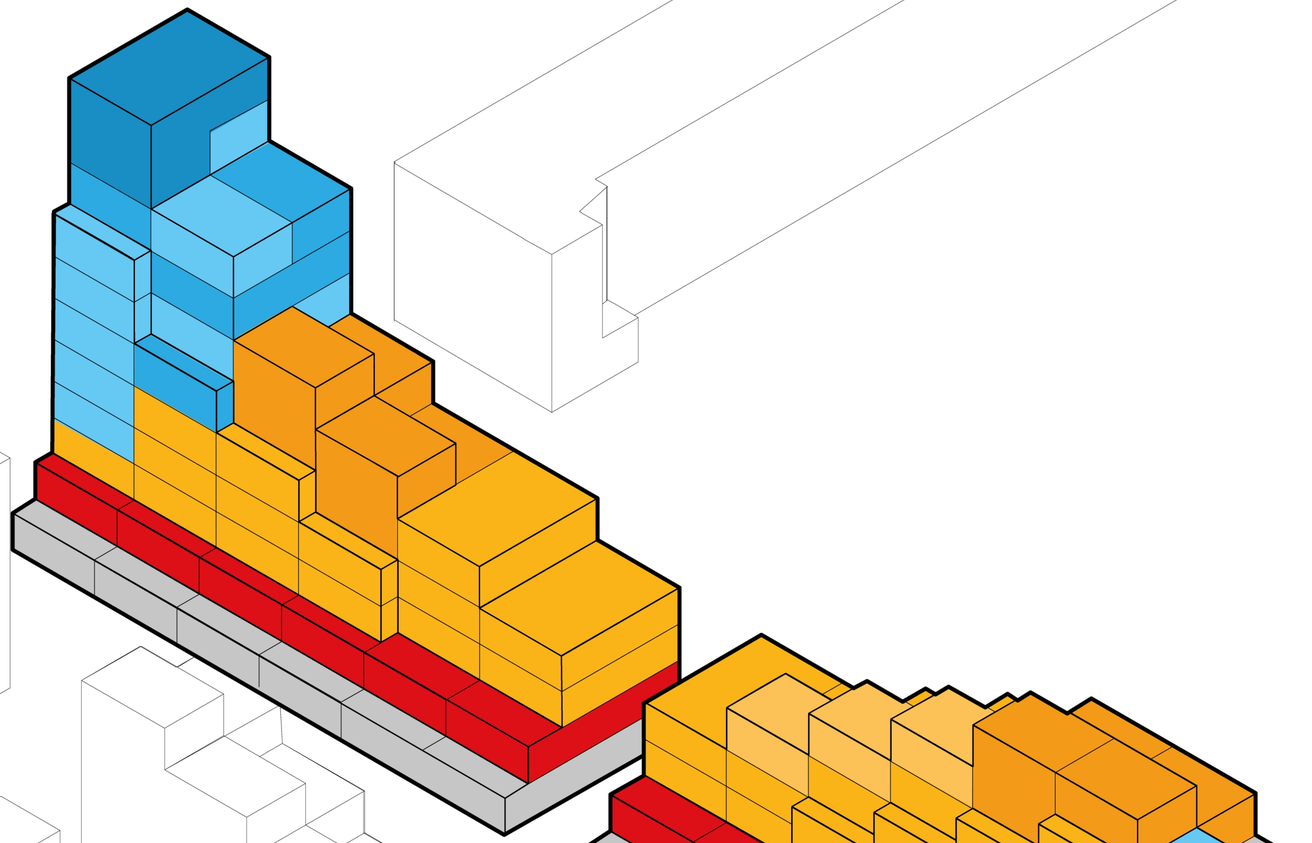
Green roofs and rain gardens absorb rainfall, storing water during heavy precipitation. This reduces runoff, preventing floods and drought by retaining moisture for reuse in drier periods (European Parliament, 2020).

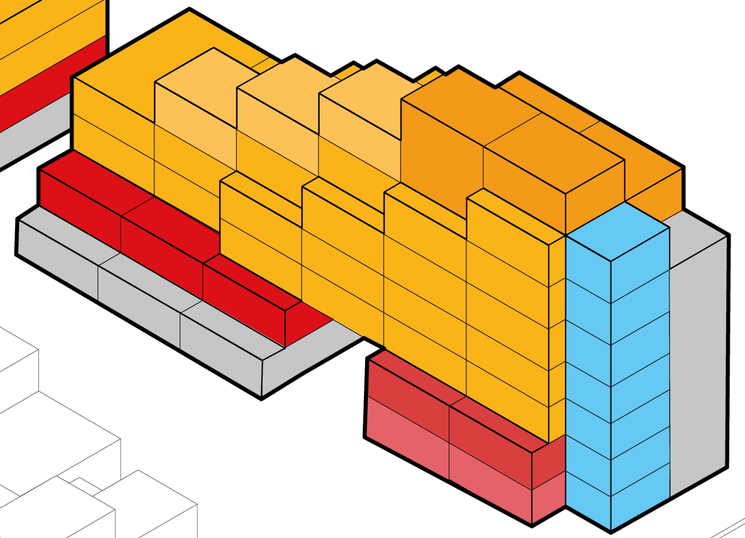


Air Cooling and Purification

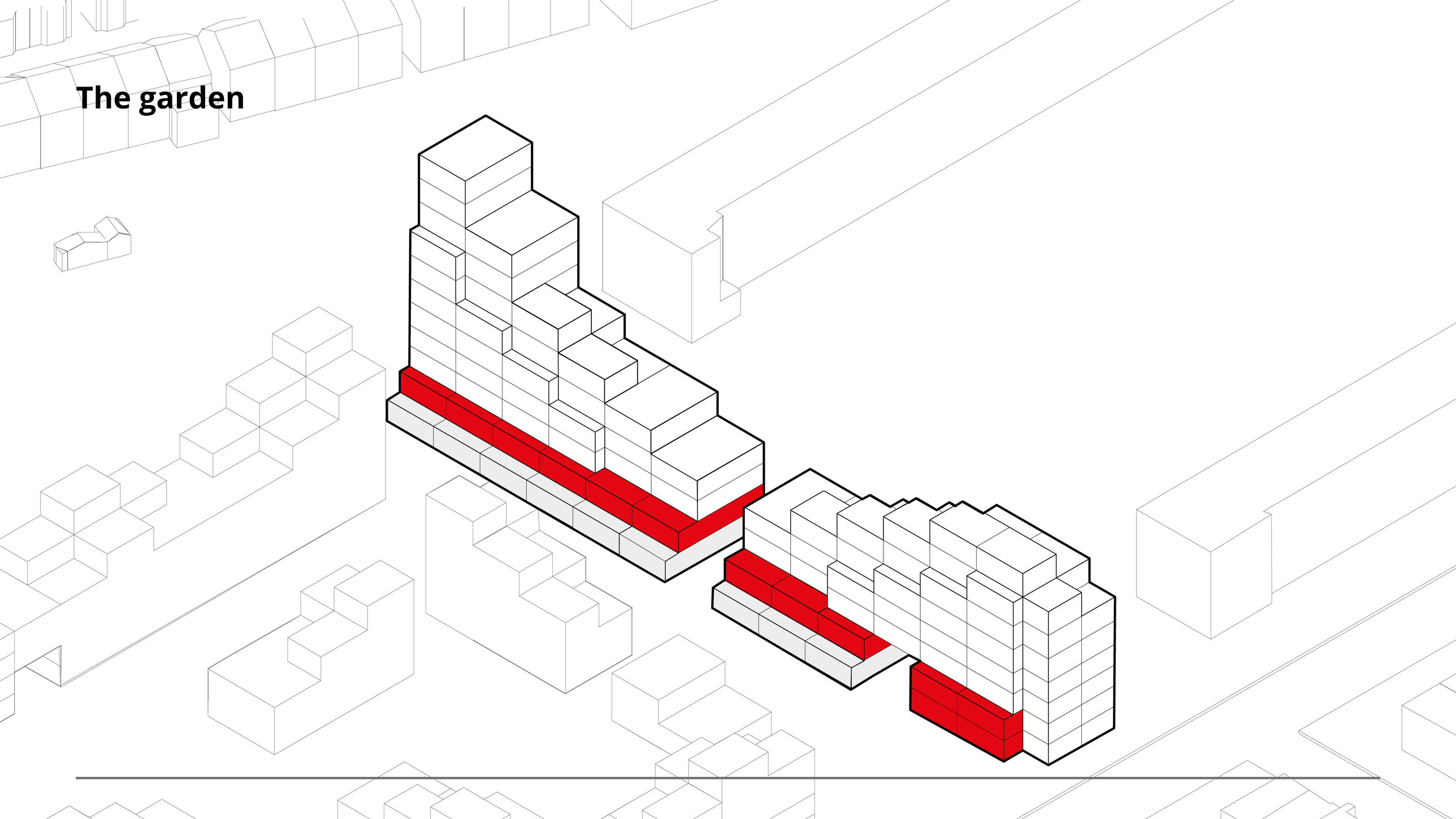
Vegetation cools the air through evapotranspiration, reducing the urban heat island effect. Additionally, plants filter pollutants, improving air quality and contributing to healthier urban environments (Vink et al., 2023).

The garden



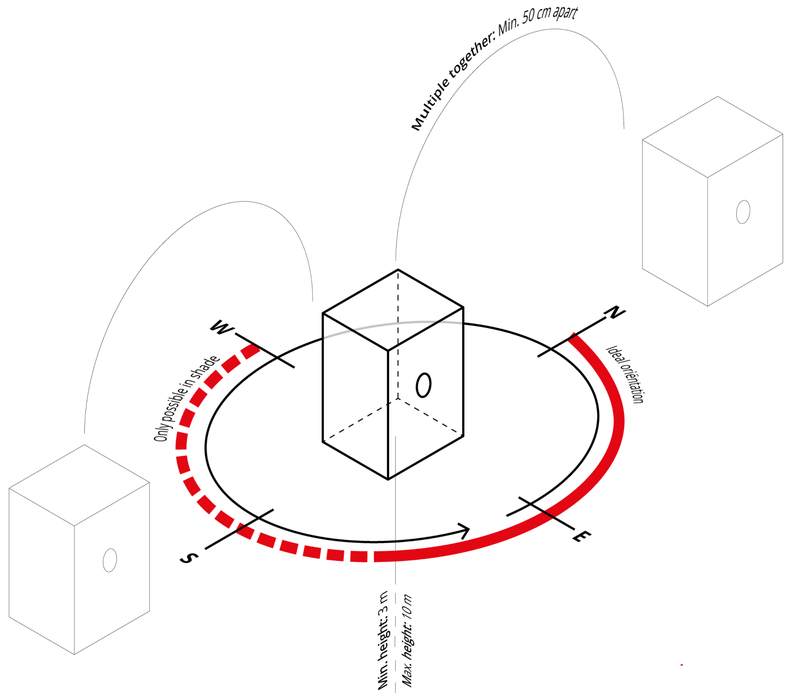


The garden



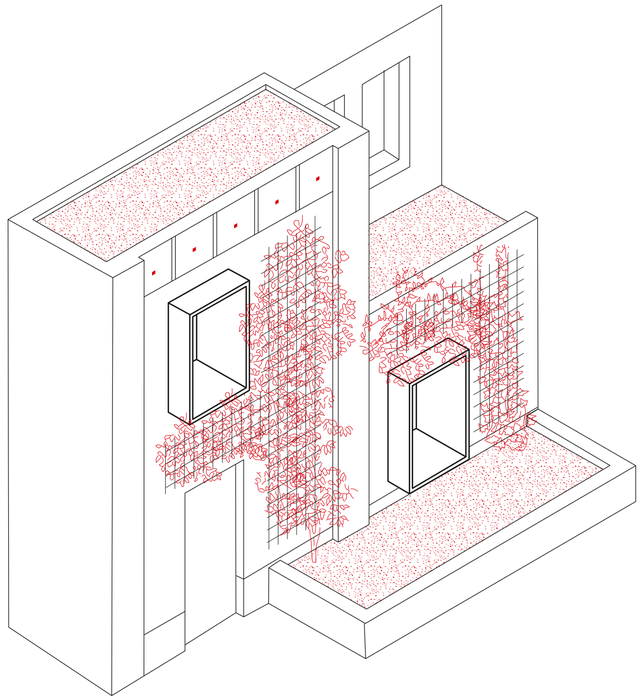
The garden

Design principles



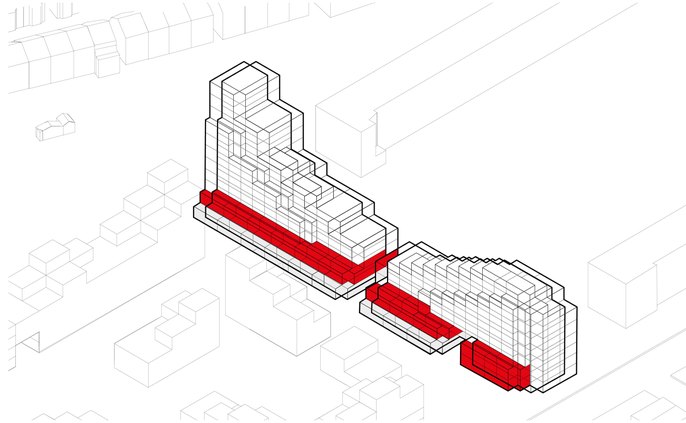
House Sparrow

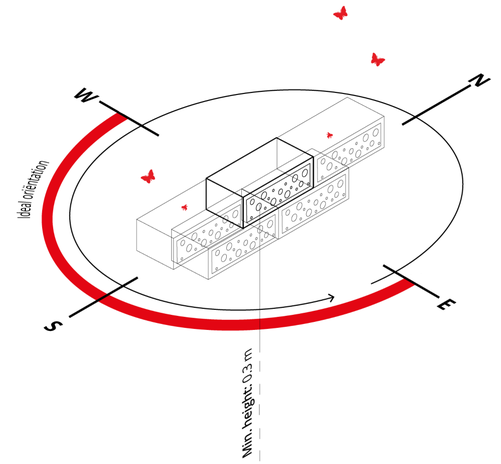
Winding paths full of greenery throughout the planning area, the paths will be linked together to create a large recreational area with a diverse green structure.



Greenery

In winter, the house sparrow mainly uses evergreen shrubs, dense vegetation with a height of usually 3 to 4 meters or facade vegetation as places to spend the night (together). (BIJ12)

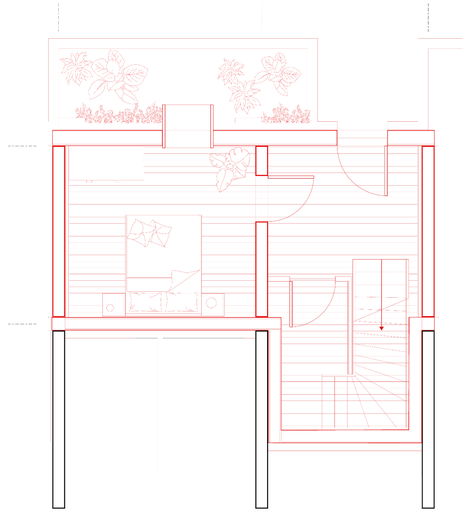




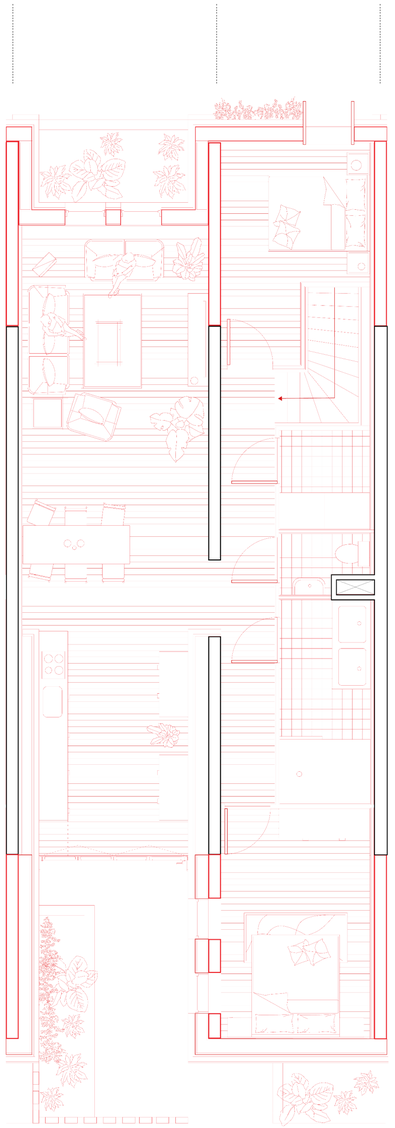
Insects

Large, green, open places where people can meet. The places are centrally located in the different stamps and function as meeting places of the surrounding houses.

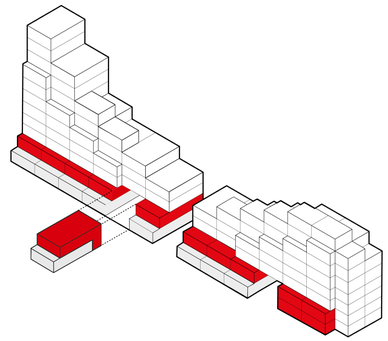
The garden



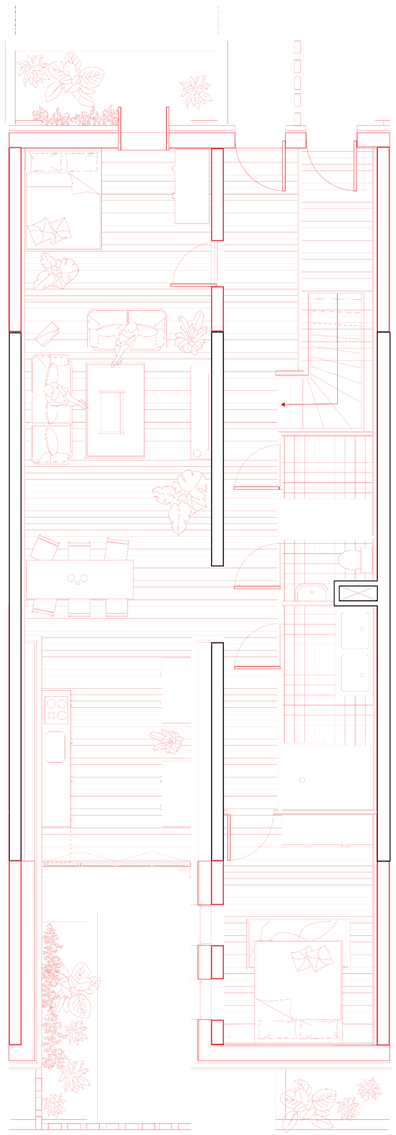
Ground floor

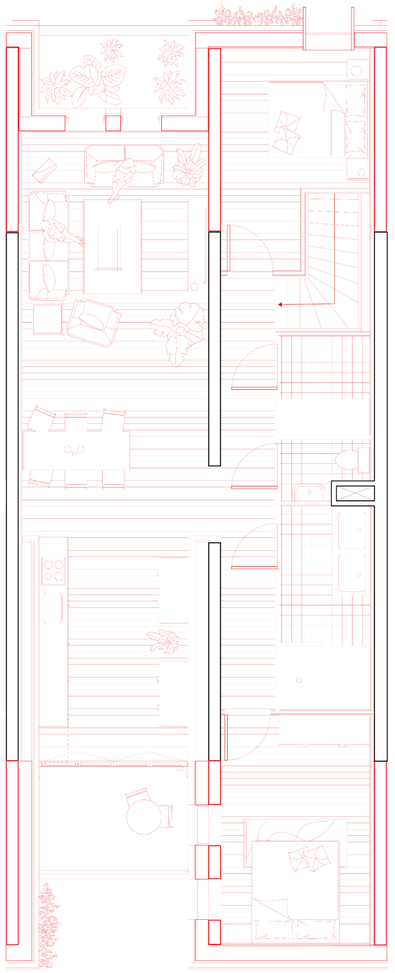


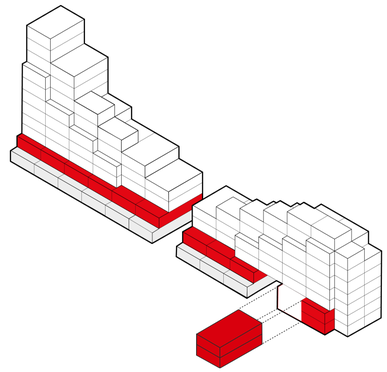
1st floor



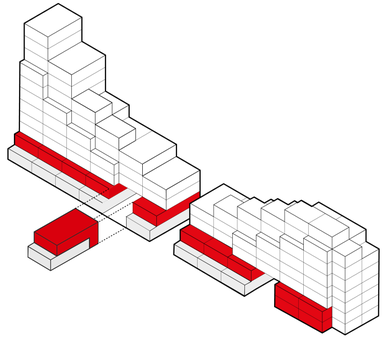
The garden

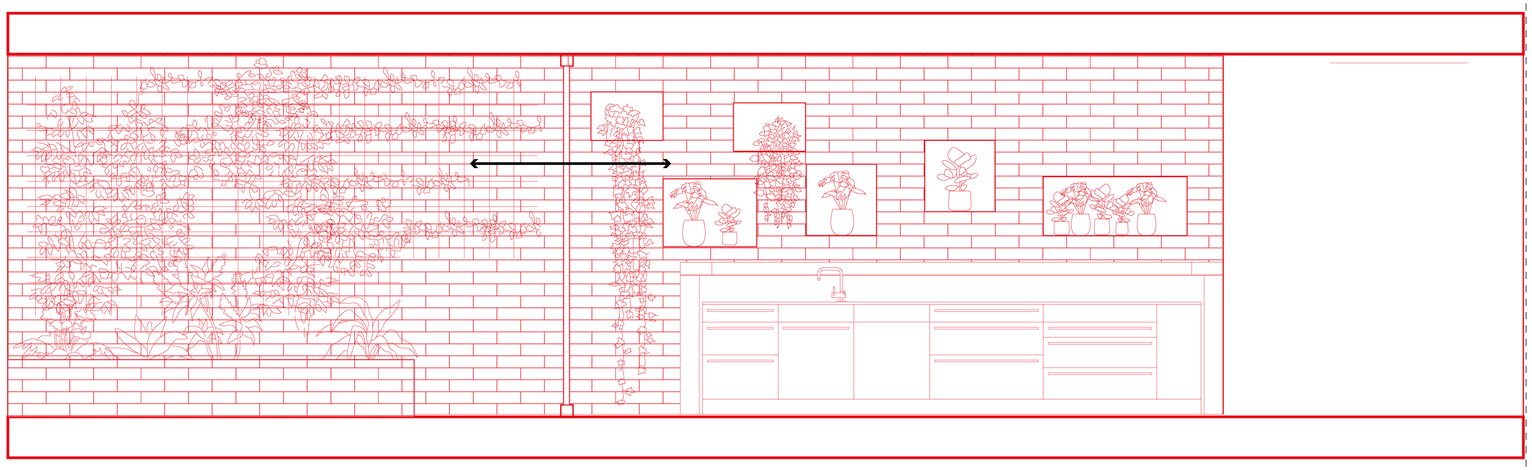






The garden

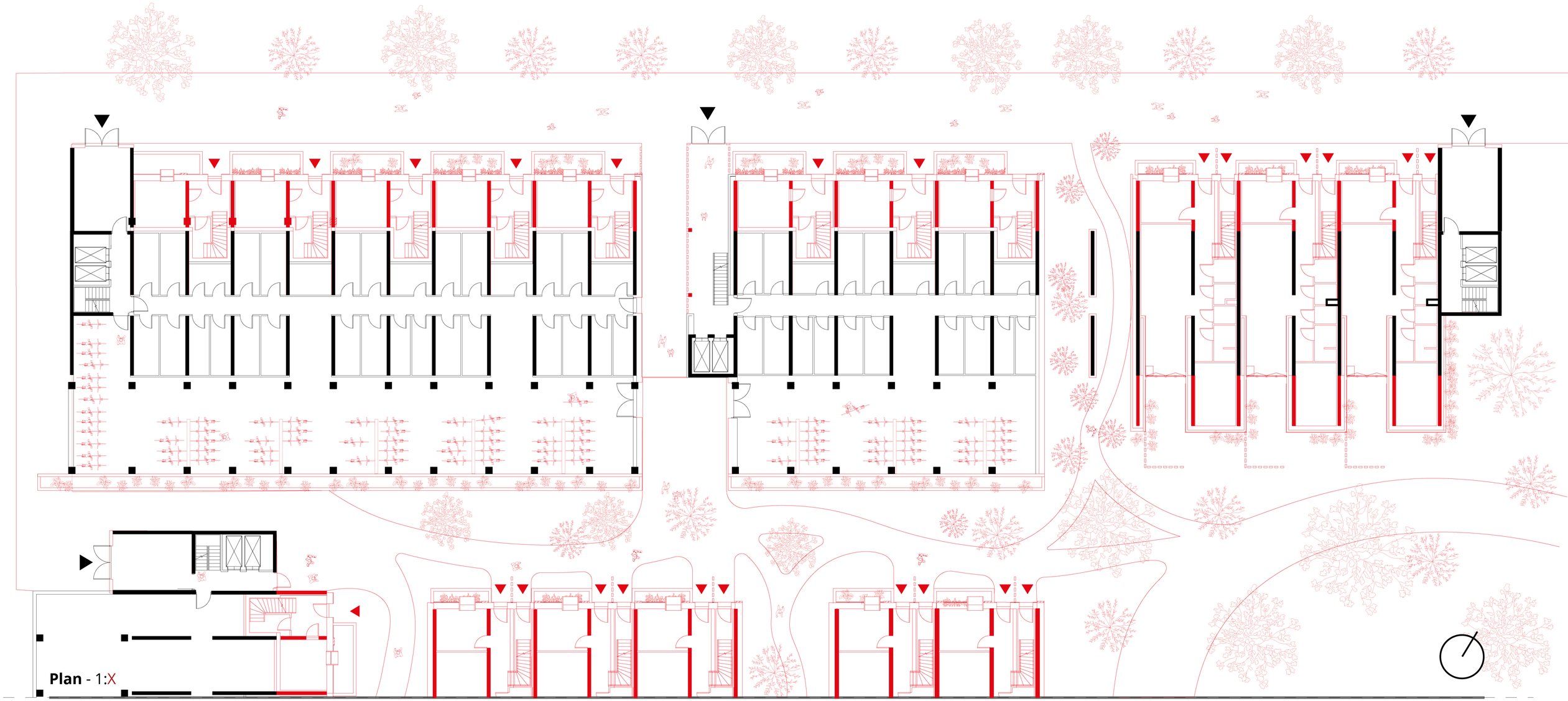




Plan - 1:X

The garden

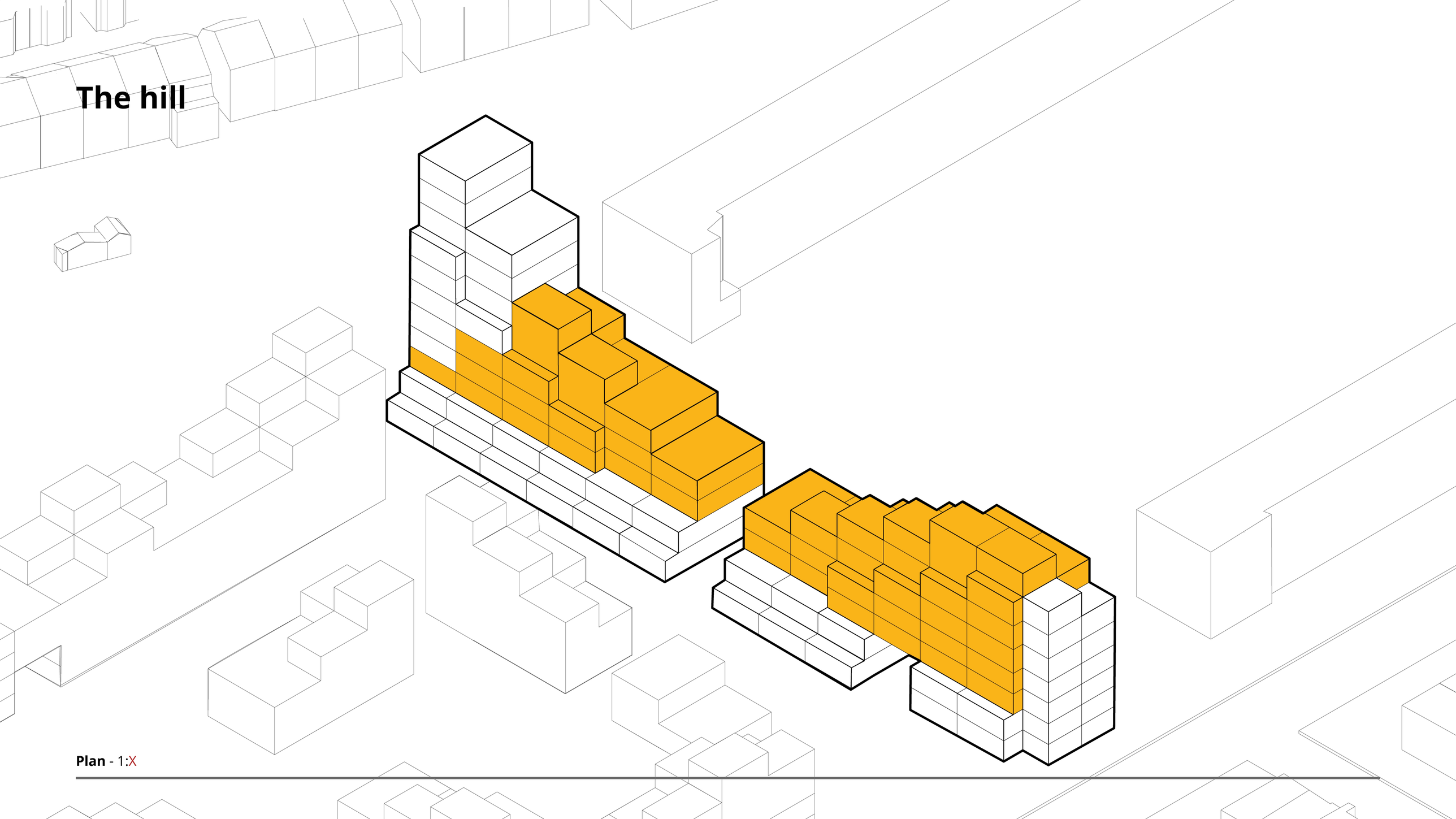
Ground floor



Plan - 1:X

The garden

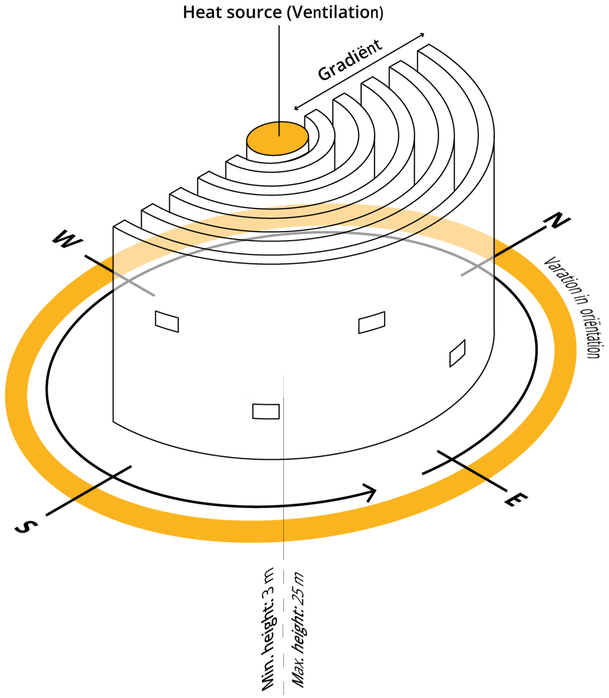
The hill

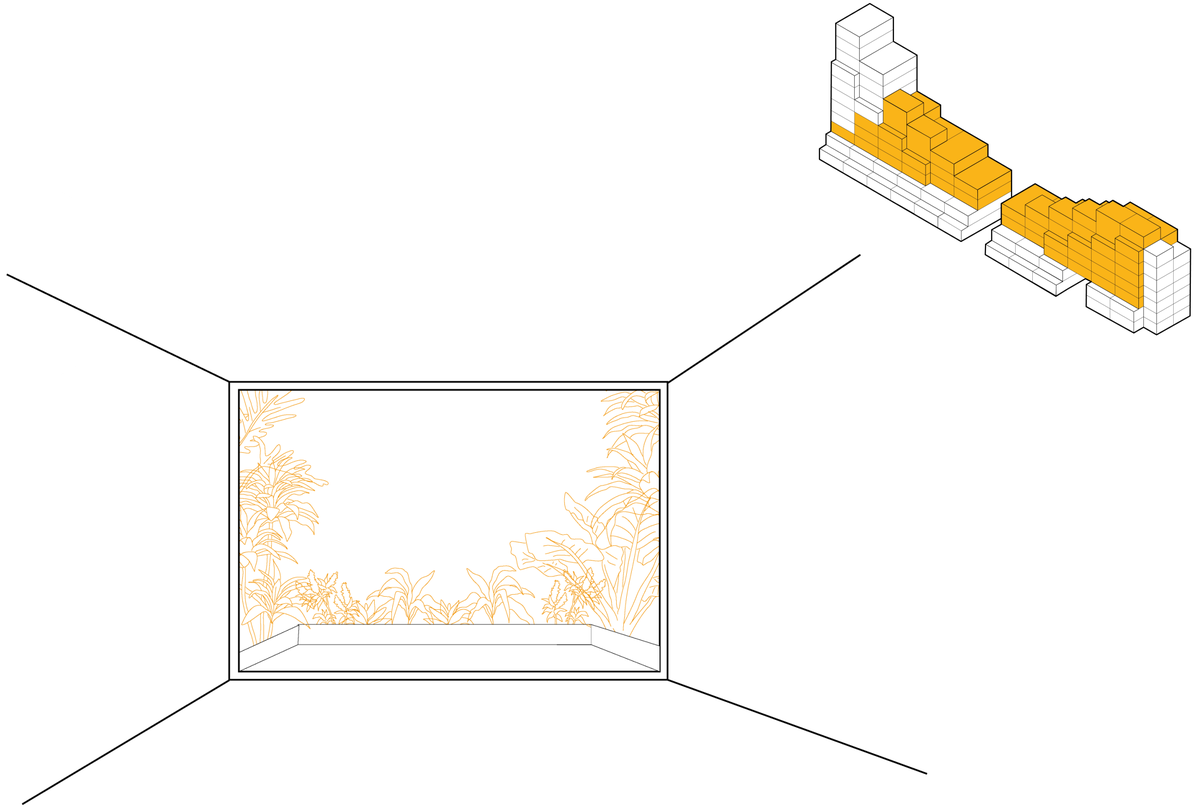


Plan - 1:X

The hill

Design principles





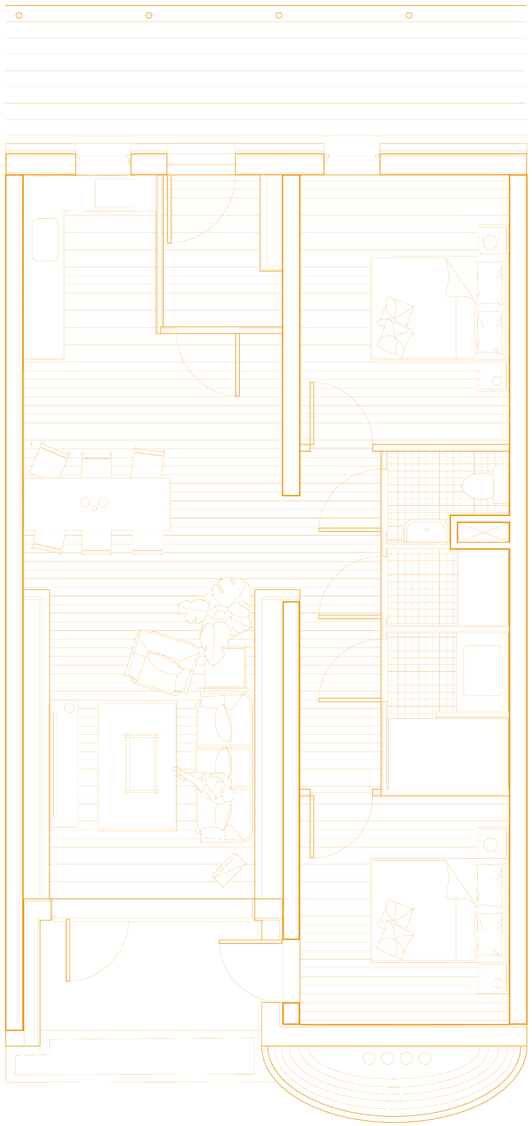
Common pipistrelle

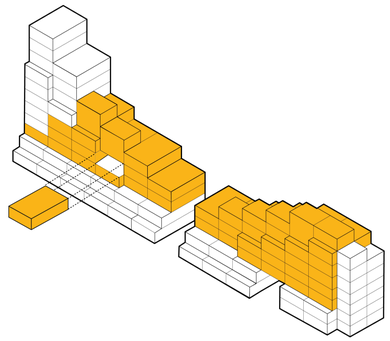
Winding paths full of greenery throughout the planning area, the paths will be linked together to create a large recreational area with a diverse green structure.

Frame greenery

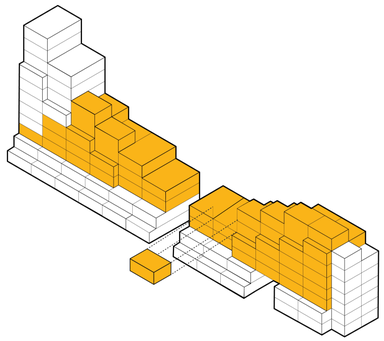
In winter, the house sparrow mainly uses evergreen shrubs, dense vegetation with a height of usually 3 to 4 meters or facade vegetation as places to spend the night (together). (BIJ12)

The hill

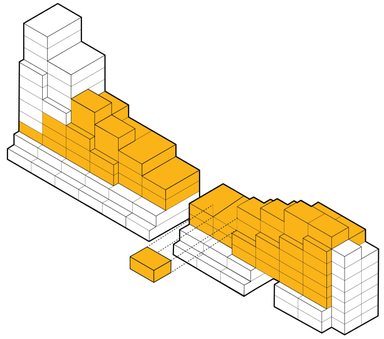


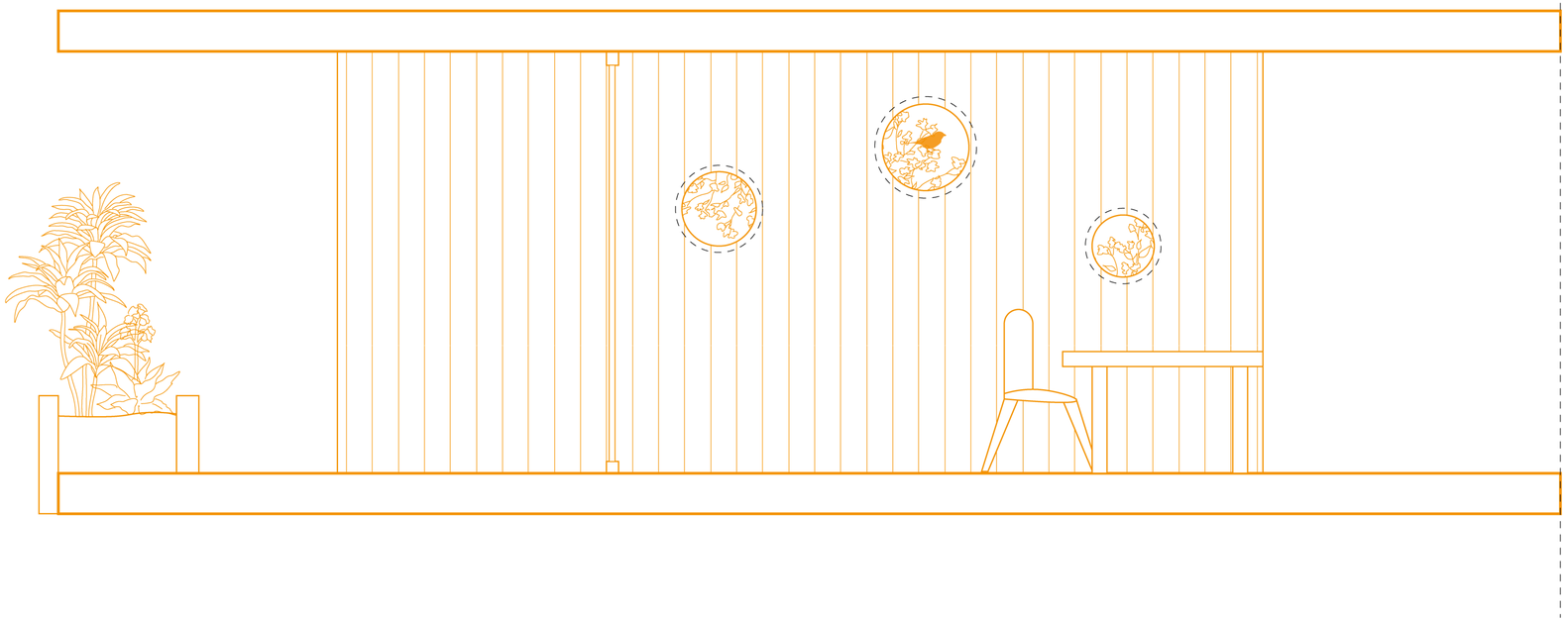


The hill



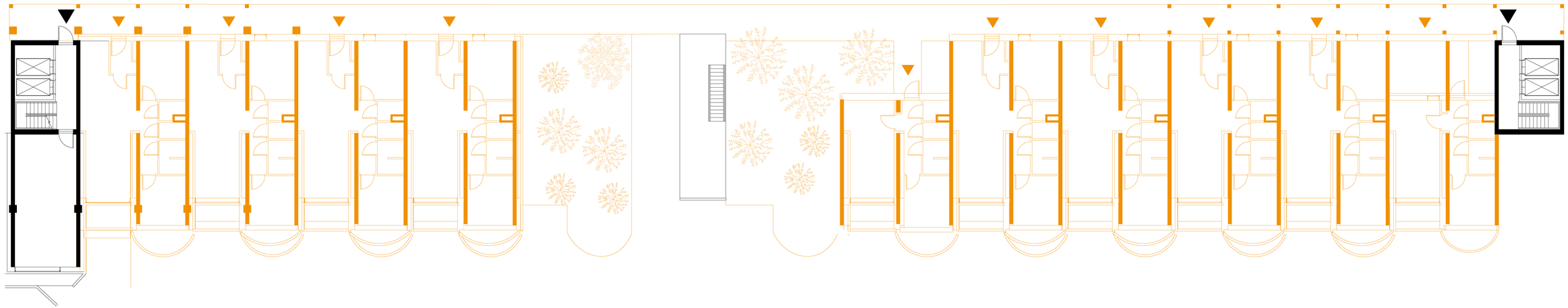
The hill

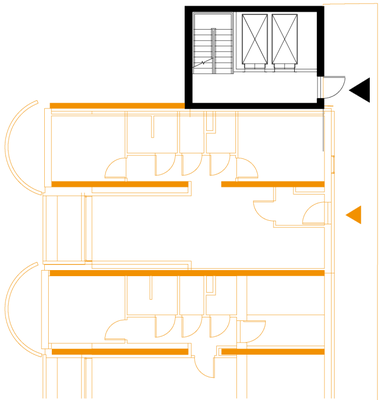


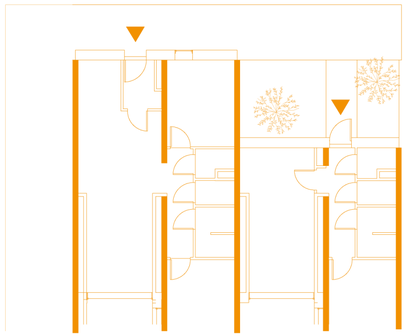


The hill

4th floor

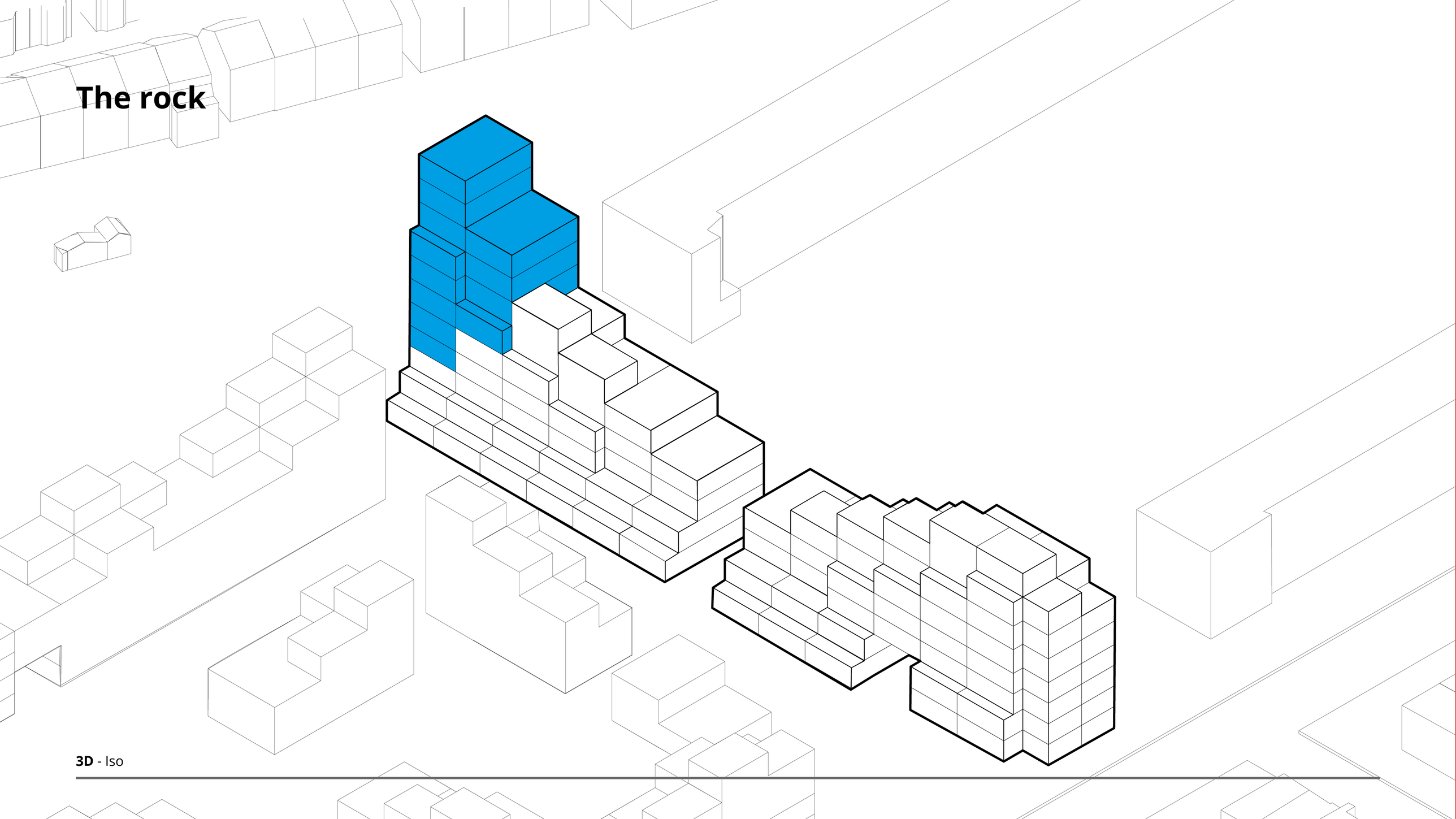






The hill

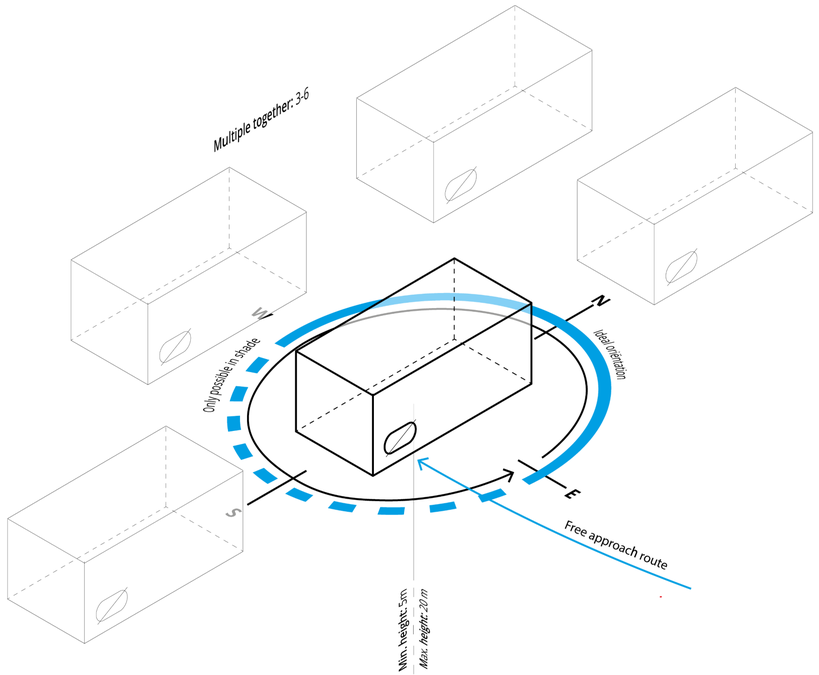
The rock



3D - Iso

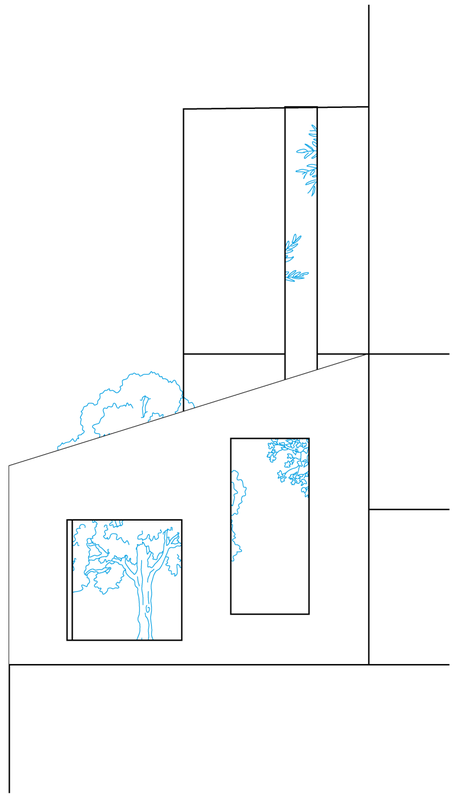
The rock

Design principles



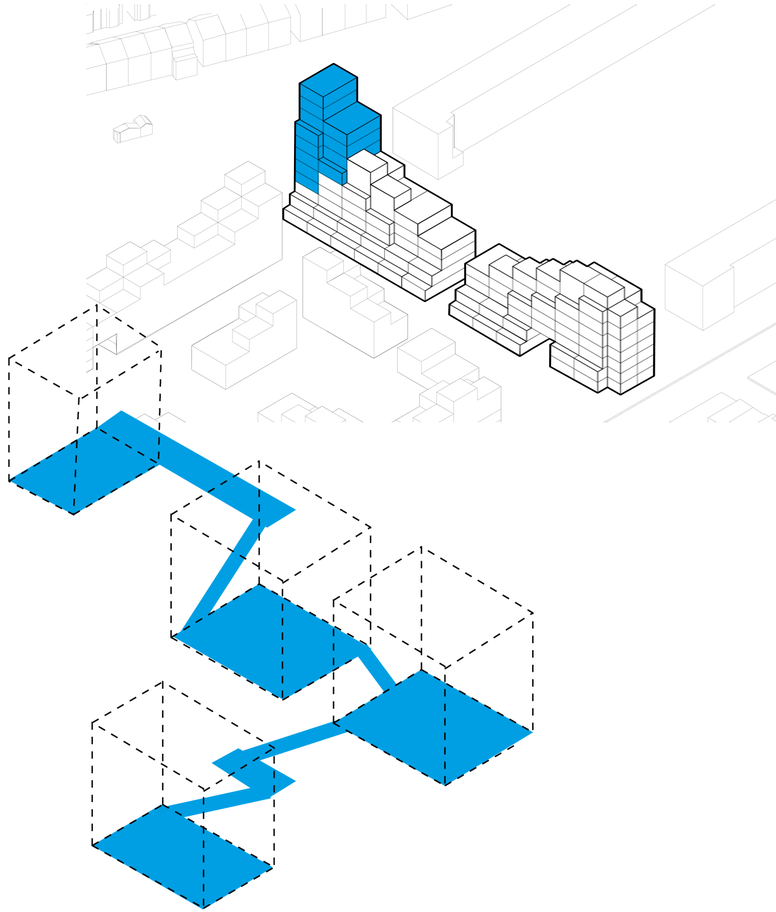
Swift

Winding paths full of greenery throughout the planning area, the paths will be linked together to create a large recreational area with a diverse green structure.



Cracks

In winter, the house sparrow mainly uses evergreen shrubs, dense vegetation with a height of usually 3 to 4 meters or facade vegetation as places to spend the night (together). (BIJ12)

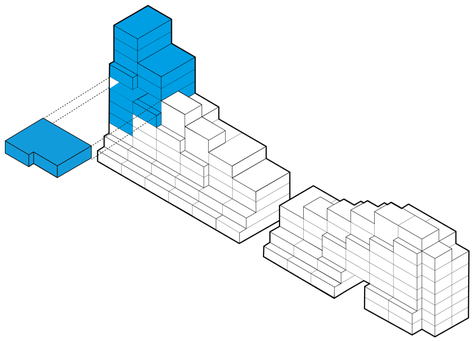


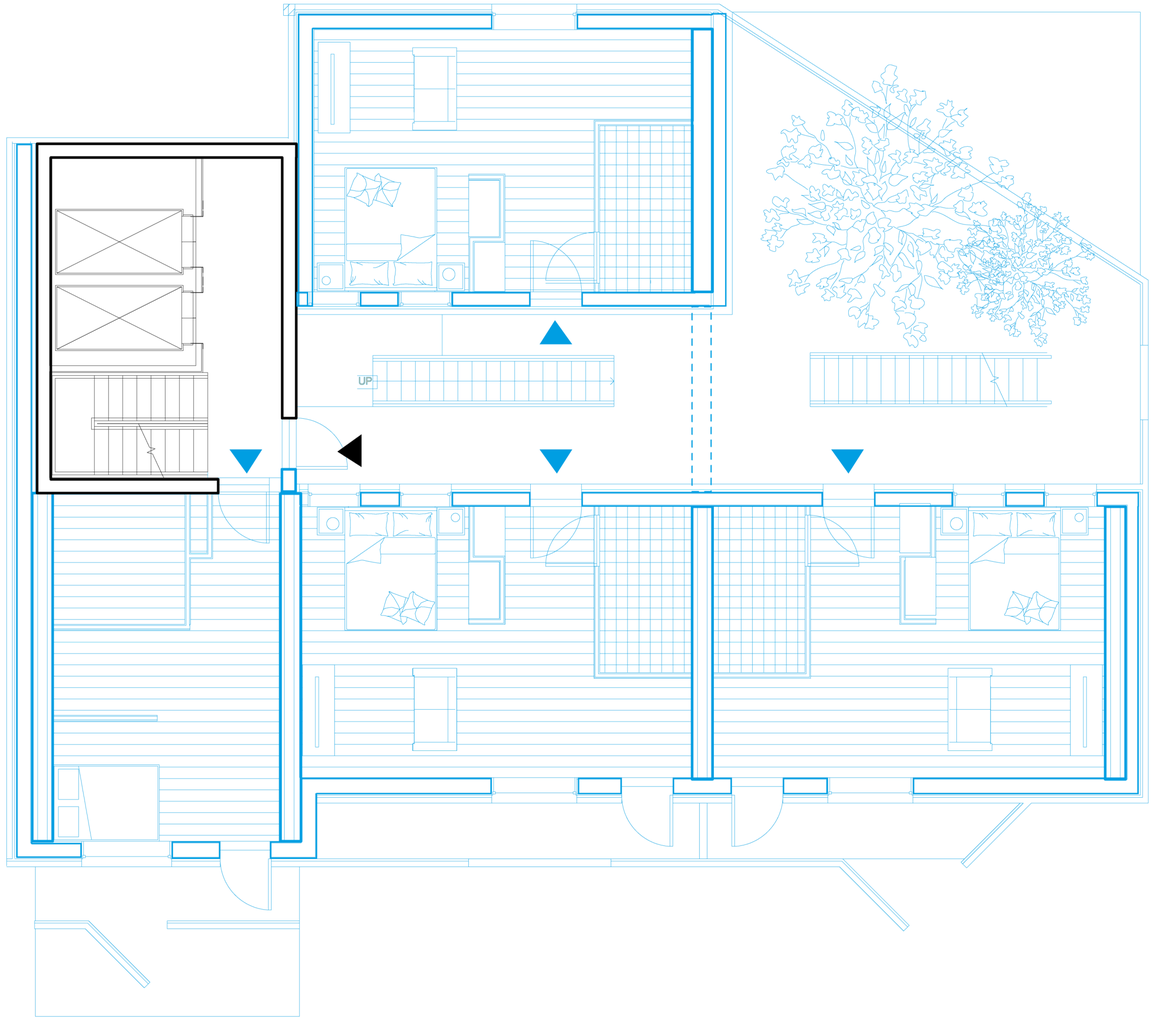
Conection

Large, green, open places where people can meet. The places are centrally located in the different stamps and function as meeting places of the surrounding houses.

The rock

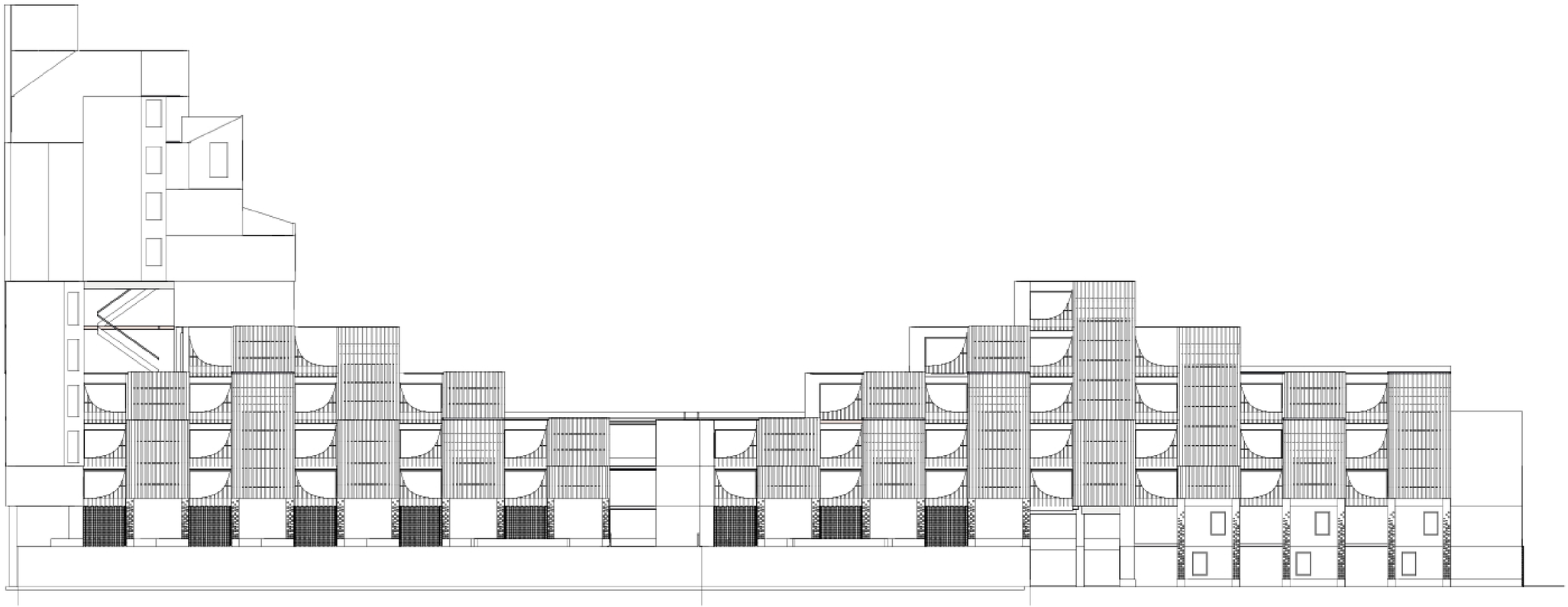
7th floor



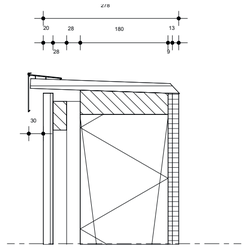


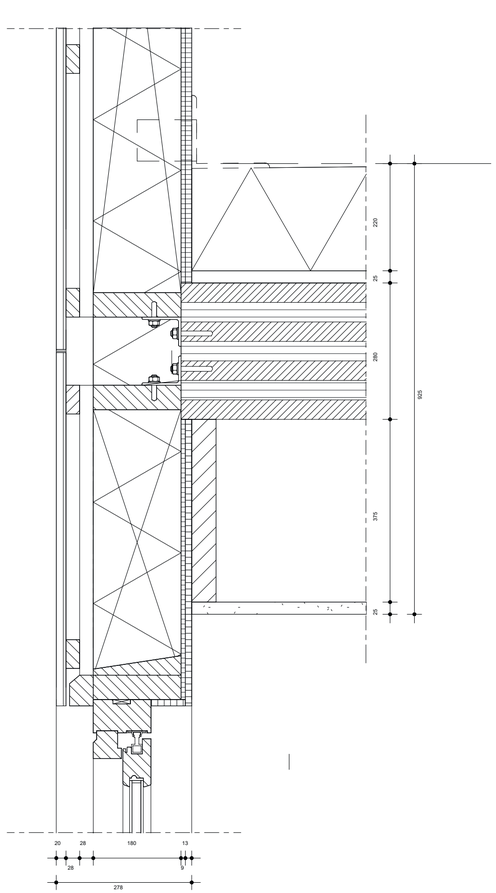
Plan - 1:X

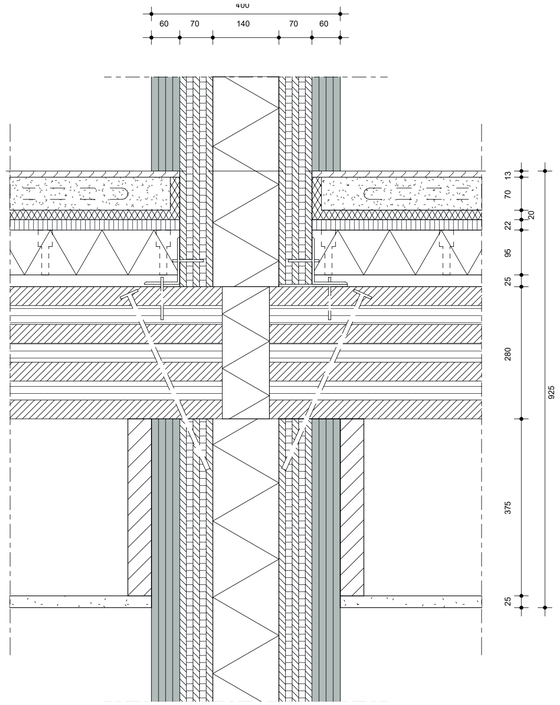
Elevation



In detail


278
20
28
180
13
28
9
30

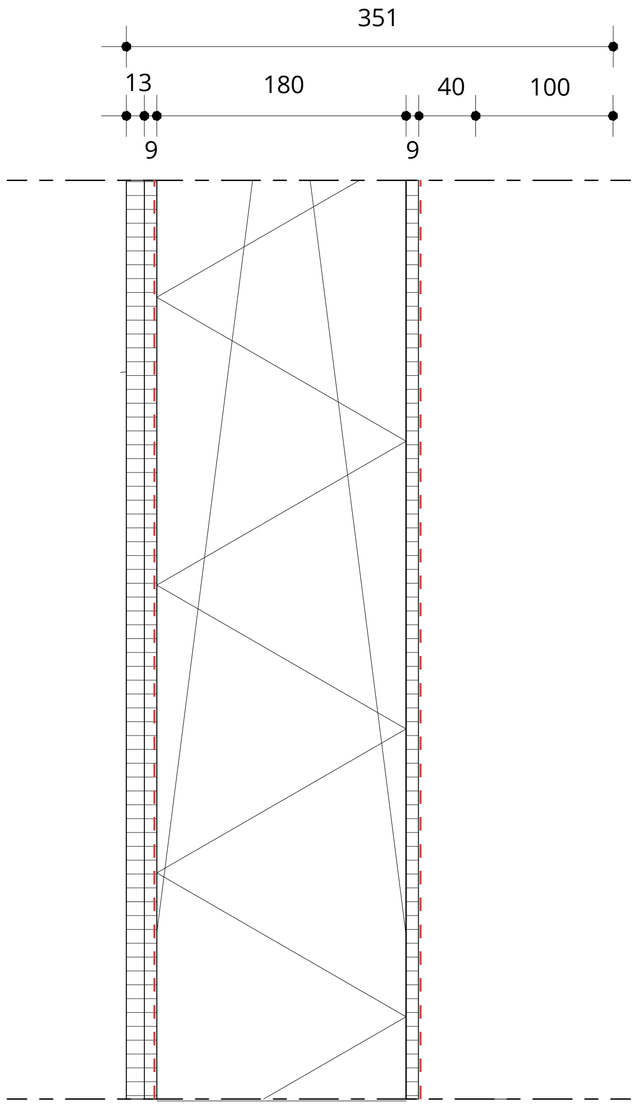

220
25
280
925
375
25
20
28
180
13
28
9
278


400
60
70
140
70
60
13
70
22
95
25
280
375
25
20
925

Facade

Basic

TIMBER FRAME CONSTRUCTION LIGHT CLADDING
20 mm wooden cladding
28x45 mm horizontal framework
28x45 mm vertical framework
vapour-permeable film
180 mm icynene insulation foam
50x180 mm h.t.h. 600 mm wooden studs
vapor barrier film
9 mm fibreboard
13 mm plasterboard

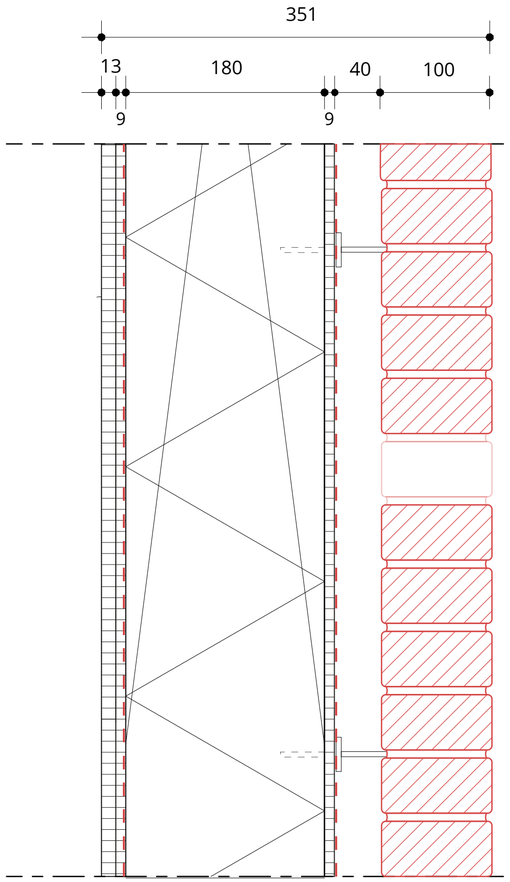


Facade

The garden

TIMBER FRAME CONSTRUCTION MASONRY

100 mm masonry
40 mm air space - accessible to bats
vapour-permeable film
180 mm icynene insulation foam
50x180 mm h.t.h. 600 mm wooden studs
vapor barrier film
9 mm fibreboard
13 mm plasterboard

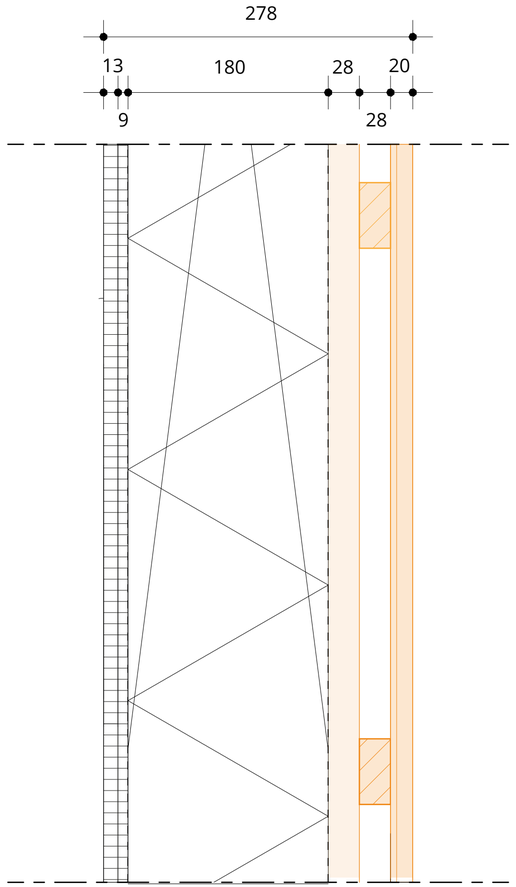


Facade

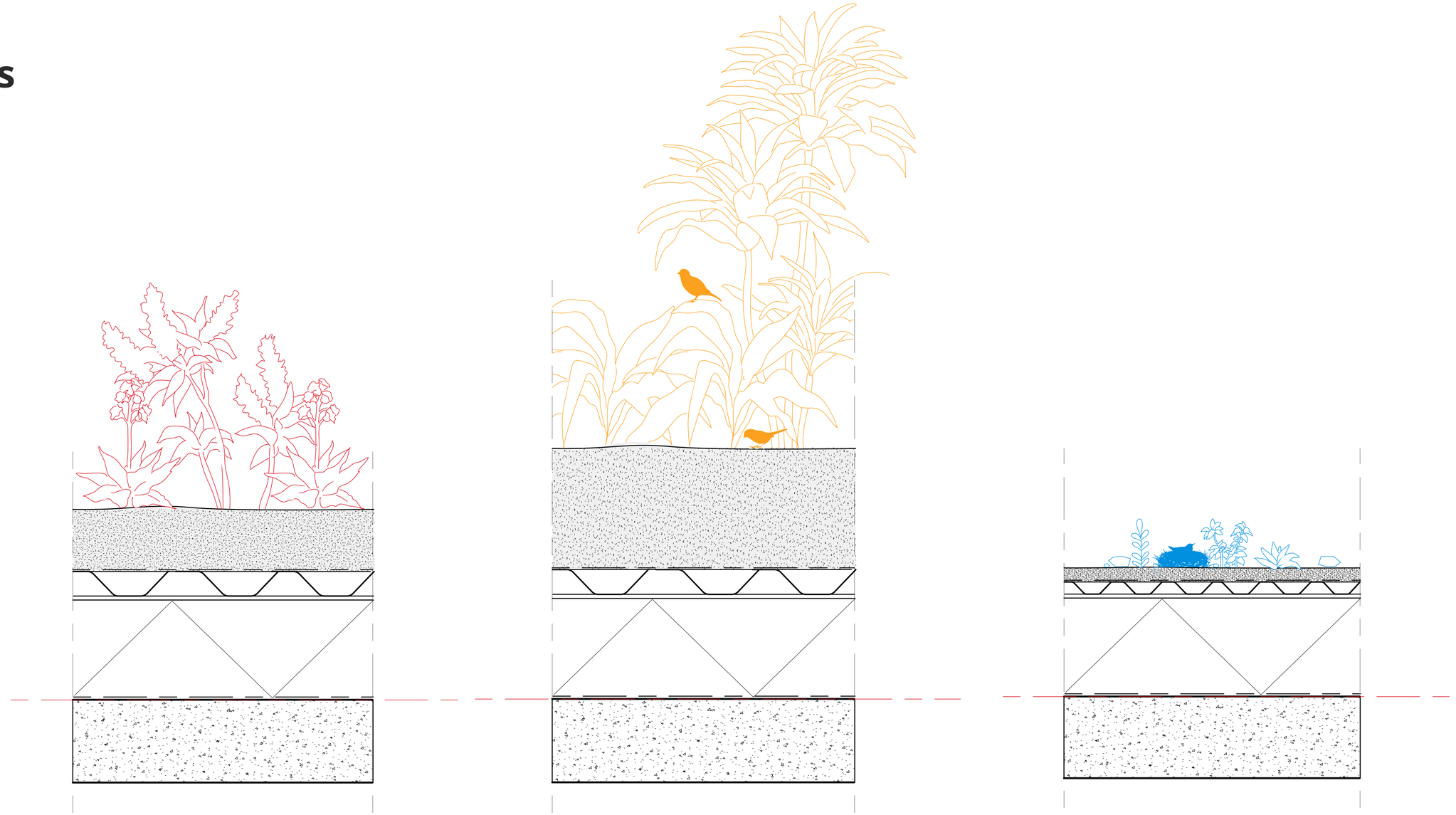
The Hill

TIMBER FRAME CONSTRUCTION LIGHT CLADDING

20 mm wooden cladding
28x45 mm horizontal framework
28x45 mm vertical framework
vapour-permeable film
180 mm icynene insulation foam
50x180 mm h.t.h. 600 mm wooden studs
vapor barrier film
9 mm fibreboard
13 mm plasterboard

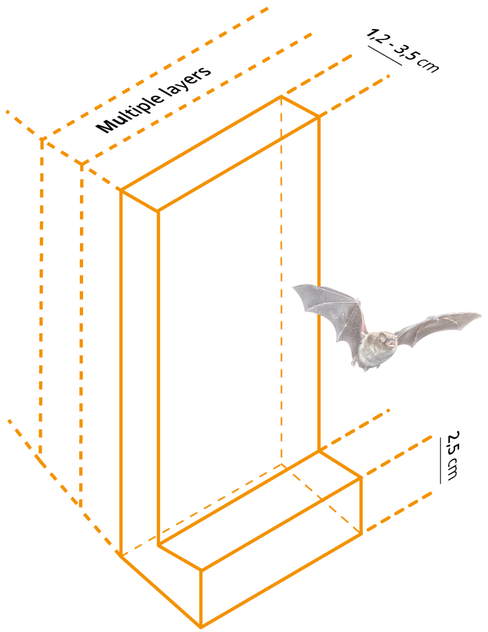


Roofs

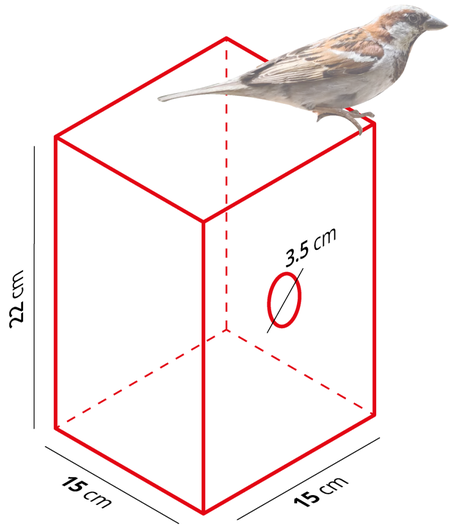


In detail

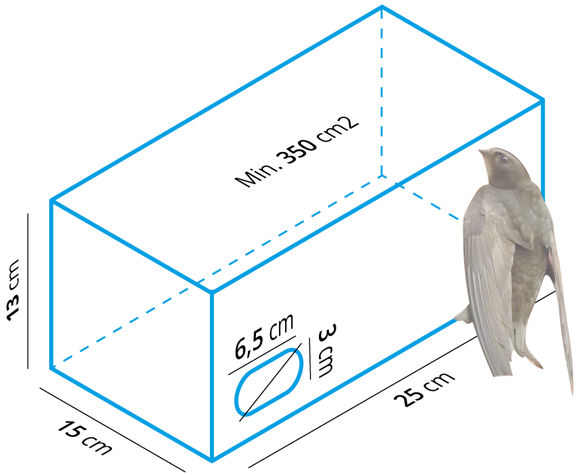
Nature inclusive



Common Pipistrelle

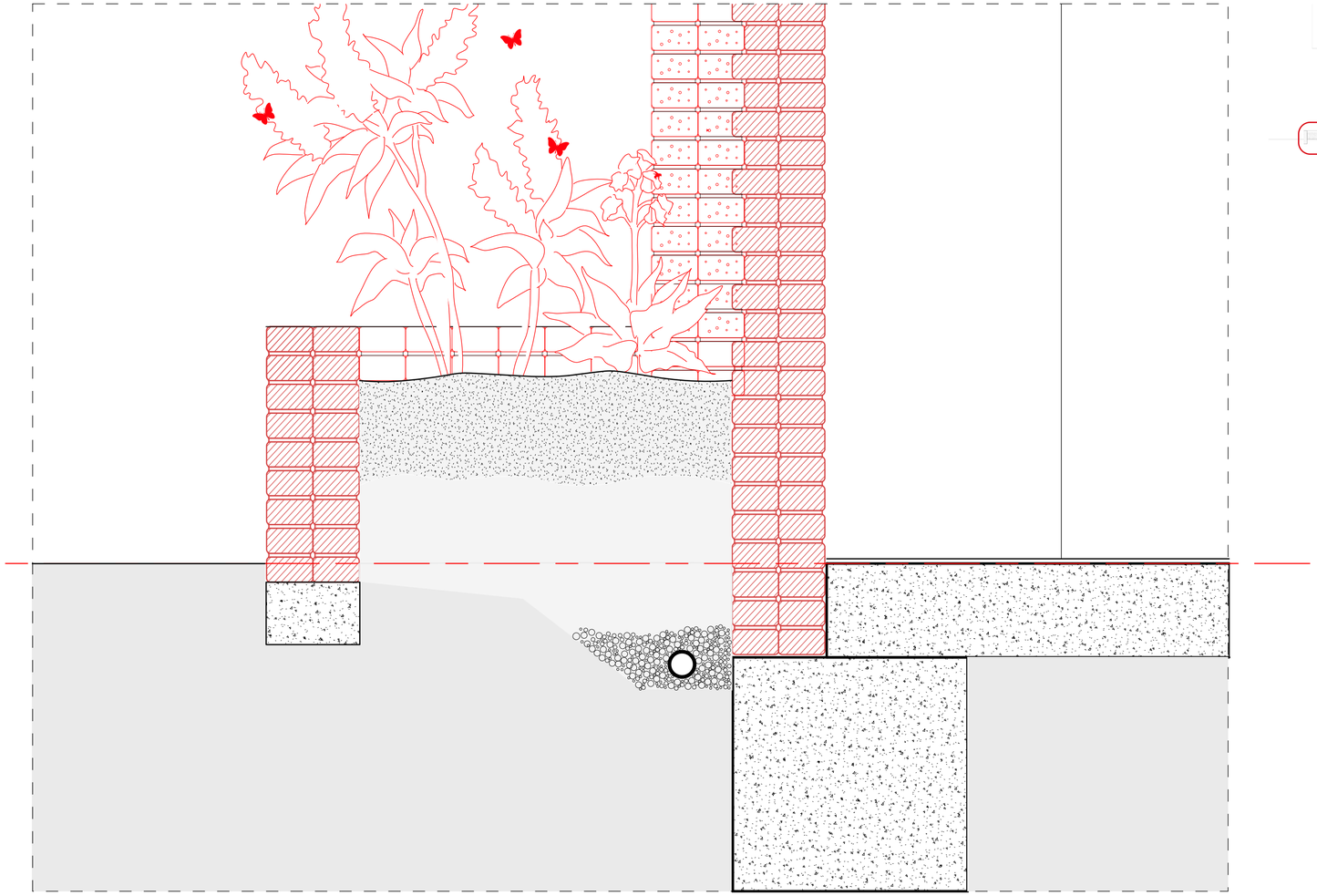


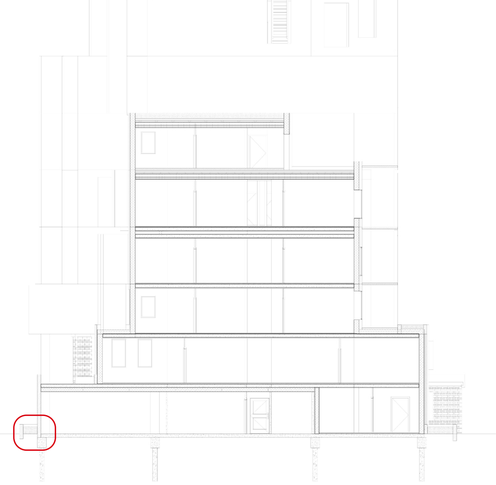
House Sparrow



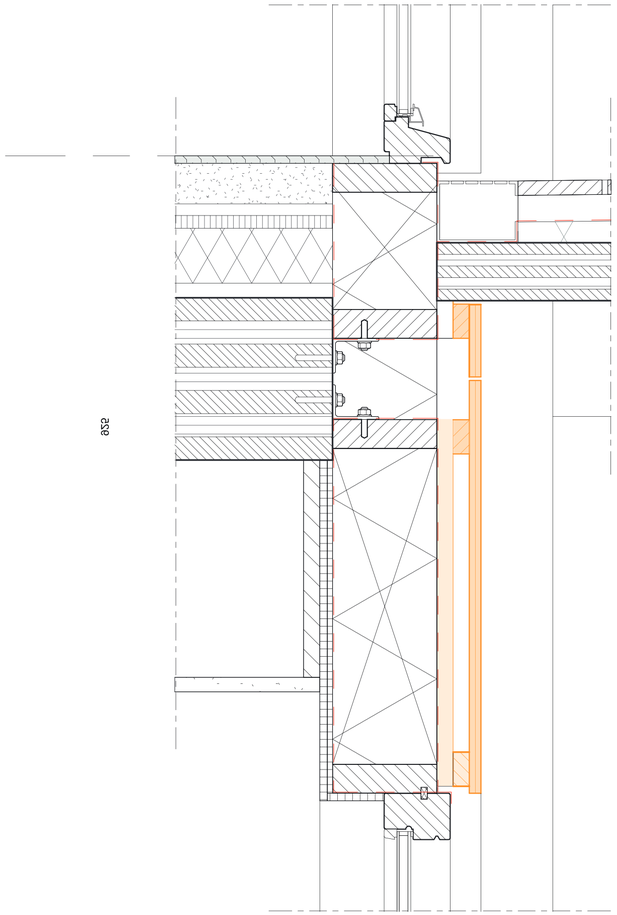
Swift

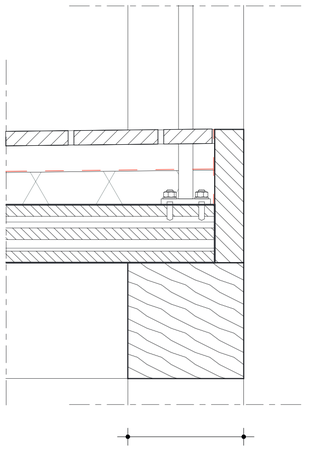
In detail

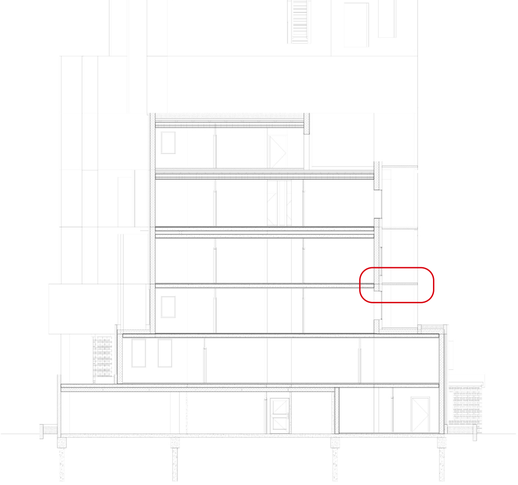




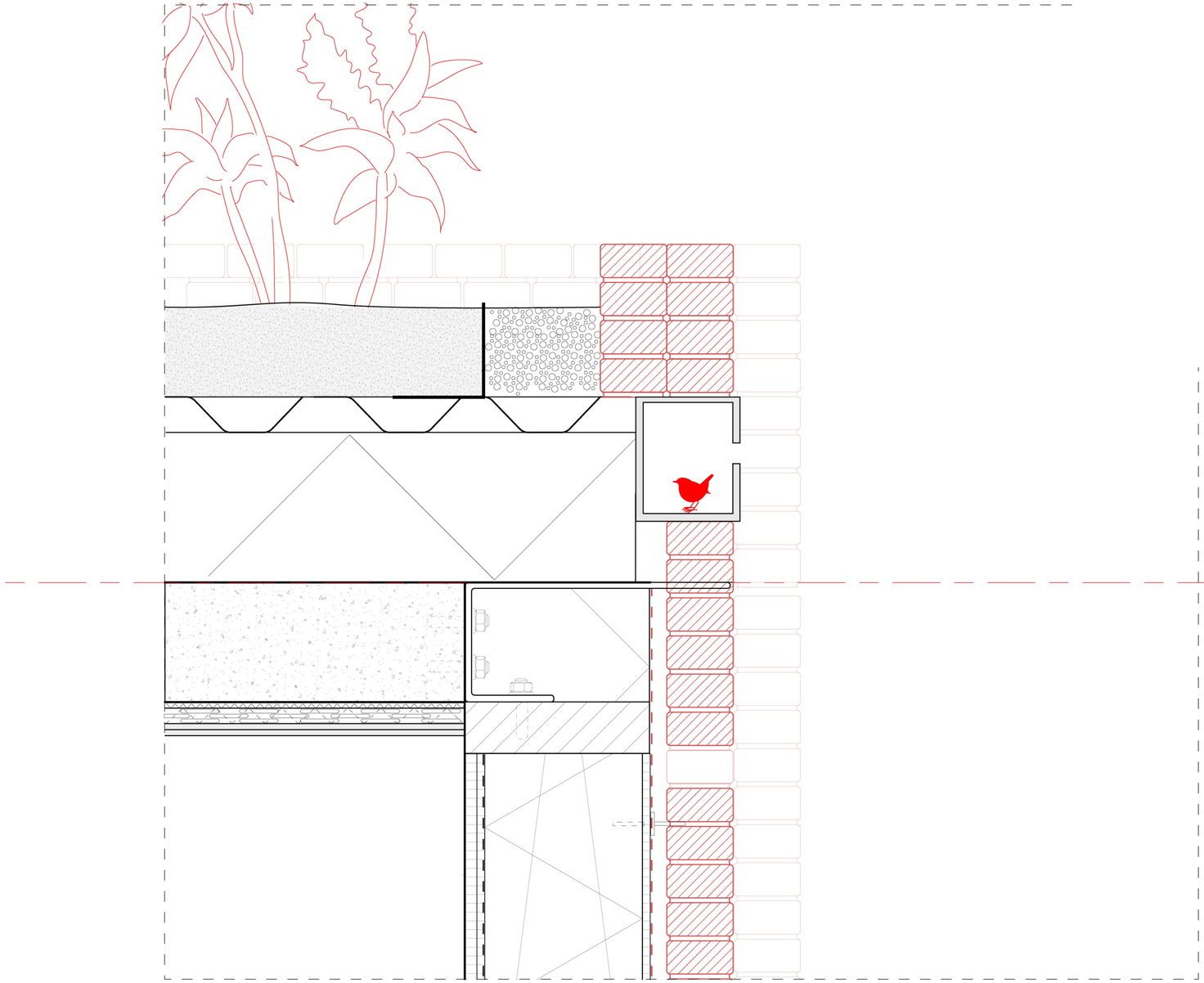
In detail

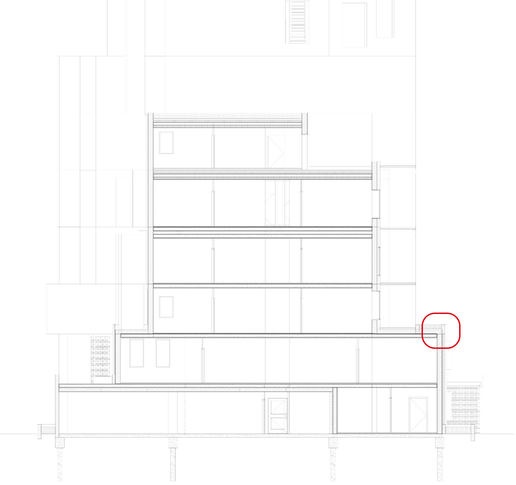






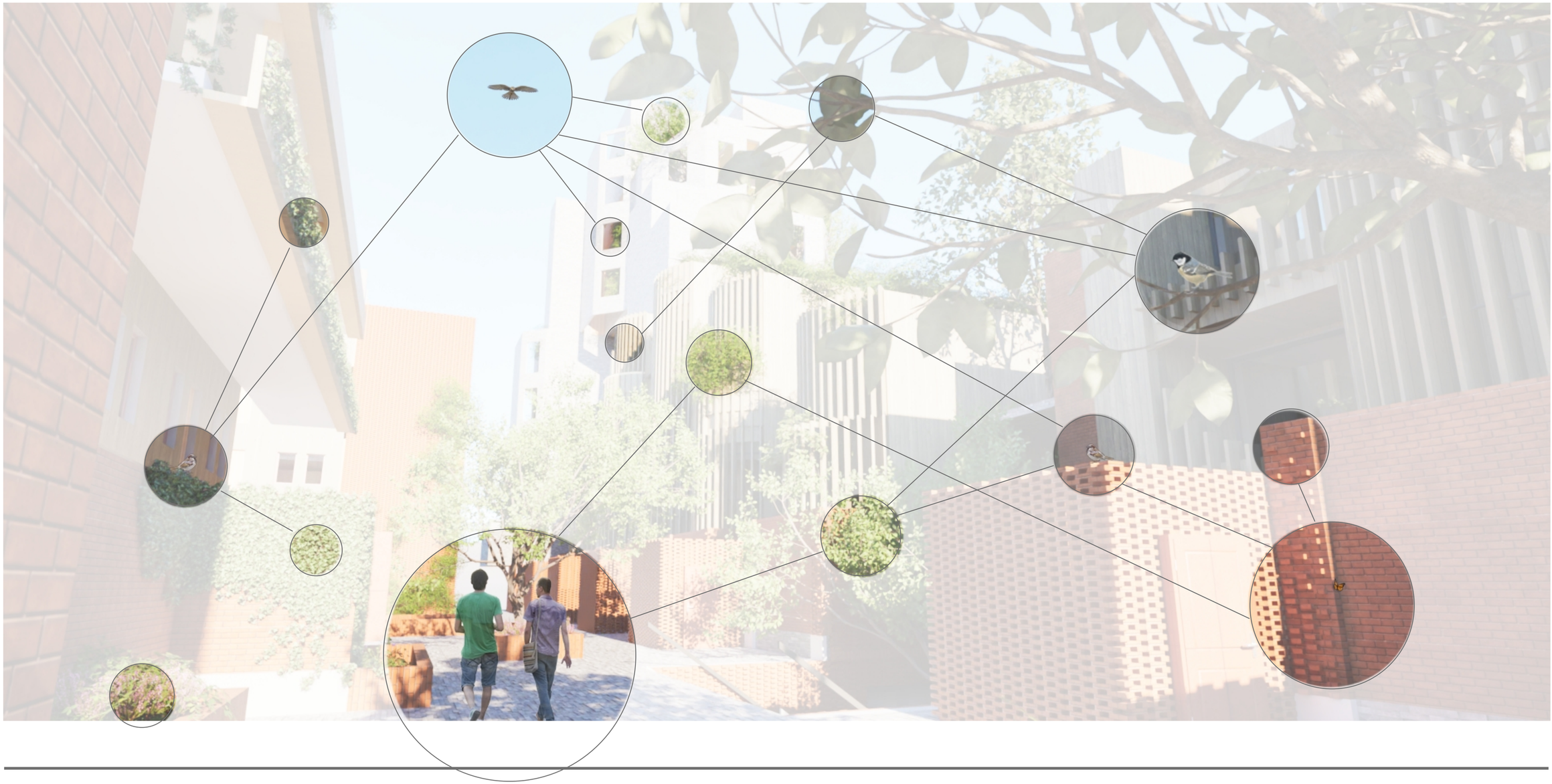
In detail





Habitats

Habitats



Habitats

Habitats