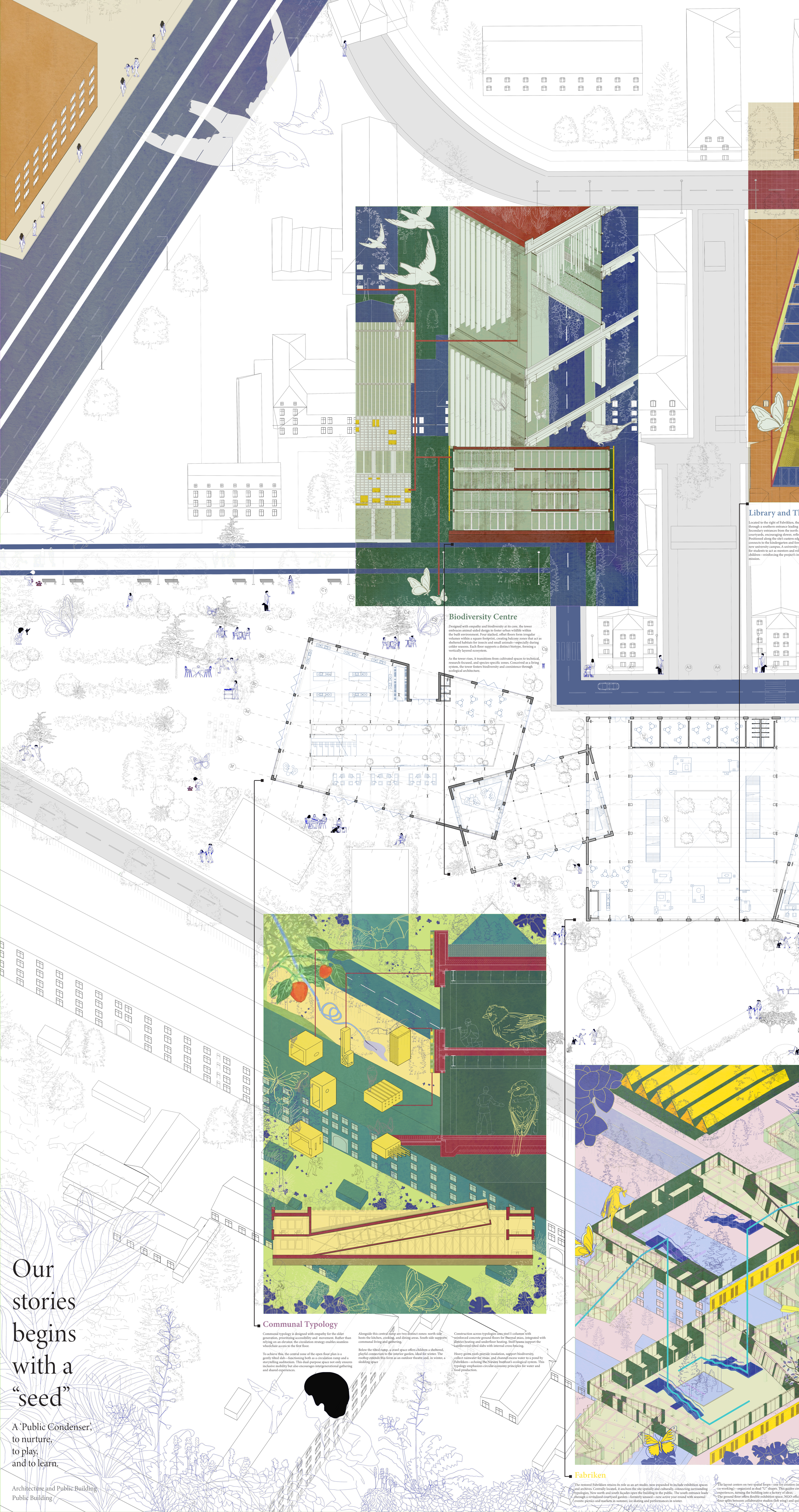

Biodiversity Centre

Designed with empathy and biodiversity at its core, the tower embraces animal-aided design to foster urban wildlife within the built environment. Four stacked, offset floors form irregular volumes within a square footprint, creating balcony zones that act as sheltered habitats for insects and small animals—especially during colder seasons. Each floor supports a distinct biotype, forming a vertically layered ecosystem.

As the tower rises, it transitions from cultivated spaces to technical, research-focused, and species-specific zones. Conceived as a living system, the tower fosters biodiversity and coexistence through ecological architecture.

Library and Th

Located to the right of Fabrikken, the
through a southern entrance leading
Secondary entrances from the north
courtyards, encouraging slower, refle
Positioned along the site's eastern edg
connects to the kindergarten and fore
new university campus. A university
for students to act as mentors and rol
children—reinforcing the project's in
mission.

Communal Typology

Communal typology is designed with empathy for the older generation, prioritizing accessibility and movement. Rather than relying on an elevator, the circulation strategy enables seamless wheelchair access to the first floor.

To achieve this, the central zone of the open floor plan is a gently tilted slab—functioning both as a circulation ramp and a storytelling auditorium. This dual-purpose space not only ensures inclusive mobility but also encourages intergenerational gathering and shared experiences.

Alongside this central ramp are two distinct zones: north side hosts the kitchen, cooking, and dining areas. South side supports communal living and gathering.

Below the tilted ramp, a crawl space offers children a sheltered, playful connection to the interior garden, ideal for winter. The rooftop extends this form as an outdoor theatre and, in winter, a sledding space

Construction across typologies uses steel I-columns with reinforced concrete ground floors for thermal mass, integrated with district heating and underfloor heating. Steel beams support the cantilevered tilted slabs with internal cross-bracing.

Heavy green roofs provide insulation, support biodiversity, collect rainwater for reuse, and channel excess water to a pond by Fabrikken—echoing the Nieuwe Instituut's ecological system. This typology emphasizes circular economy principles for water and food production.

Fabriken

The restored Fabrikken retains its role as an art studio, now expanded to include exhibition spaces and archives. Centrally located, it anchors the site spatially and culturally, connecting surrounding typologies. New north and south façades open the building to the public. The south entrance leads through a revitalized courtyard garden—formerly unused—now active year-round with seasonal events: picnics and markets in summer, ice skating and performances in winter.

The layout centers on two spatial loops—one for creation (a
co-working)—organized as dual "U" shapes. This guides cir
experiences, turning the building into a factory of ideas.
The ground floor offers flexible exhibition space. NGO offic
floor splits between collaborative studios (left wing) and qu

Our stories begins with a "seed"

A 'Public Condenser',
to nurture,
to play,
and to learn.

Architecture and Public Building
Public Building

The design encourages exploration and curiosity, balancing activity with stillness. For both children and adults, it offers layers of visual openness and quiet privacy.
Guided by Henri Lefebvre, the layout supports adults' desire for visual proximity to children while maintaining compromise and calm. Foucault's concept of visibility as control informs the subtle integration of supervision—seeing without intrusion, observing without disruption.

What if void and circulation became program, and program became void? Traditional hallways are dissolved. Instead, library spaces act as connective tissue—continuous, inhabitable, and layered. Enclosed rooms—co-working spaces, media rooms, theatres—become "voids" within this flowing structure. Glass walls ensure visibility, while bookshelves create soft thresholds, blurring the lines between reading, learning, and gathering. The result is a hybrid spatial experience where movement becomes use

Workshop

Located to the right of Fabrikken, the Hård Material Workshop activates the once-neglected east courtyard as a productive outdoor extension—where users can test biodiversity prototypes like birdhouses or insect habitats directly in nature. More than a workspace, the workshop becomes a civic platform for ecological learning. University students, ecologists, and craftspeople co-create and mentor, turning the building into a live site of education and role modeling.

This inspired a hybrid typology:
What if the workshop was also a museum?
Work zones are placed at the core, ringed by viewing corridors. The process becomes exhibition—production and observation dissolve into one.

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“Ghetto” Lack hard and soft power

Sundholm, located on the urban periphery of Copenhagen, is home to marginalized populations. Shaped by shifting welfare policies, it is often labeled a “parallel society”—a contested space at odds with the city’s global image as the “happiest” place on earth.

Drawing on Joseph Nye’s Power and Independence, Sundholm lacks:
- Hard Power – Basic needs such as housing, education, healthcare
- Soft Power – Cultural narrative, image, and community identity

To rebuild, we must:
- Reinforce Hard Power – through access to jobs, education, and infrastructure
- Cultivate Soft Power – by reshaping the social story and fostering communal dignity

Main Research Question:
How can we design an inclusive public condenser that not only enriches biodiversity and fosters social cohesion but also reshapes Sundholm’s identity as a space for growth, learning, and ecological stewardship?

Three-Phased Research Strategy: Designing a Home, a Nest
The Public Condenser becomes the spatial and symbolic tool to catalyze this transformation.
It merges:
1. Education – Learning through play and spatial exploration
2. Health and Wellbeing – Healing through access to nature
3. Ecological Work – Job creation through biodiversity stewardship

The vision is a sanctuary—a space of lifelong learning, cross-species care, and shared growth.

The Vision- The seed

The design brief called for a public condenser—a space that concentrates and amplifies public life. In this research, the public condenser is envisioned as more than a place of gathering. It becomes a catalyst for lifelong learning, rooted in both social and ecological dimensions.

At its core is the concept of the “seed”—a symbolic and spatial starting point.
- Ecologically, the seed sow’s biodiversity, creating a cradle where human and more-than-human lives intertwine.
- Socially, it bridges divides, nurturing kinship across generations and communities.

Imagining Sundholm with sustainability vision weaves together three essential strands—economic, environmental, and social resilience. Environmental sustainability herecentres on strengthening ties to nature, safeguarding climate health, and fostering human well-being; social sustainability honours cultural vibrancy, education, and interpersonal connectivity; economic sustainability involves prudent resource management, job creation, and long-term investments for future growth.

To realize this vision, I propose a multi-layered intervention: an urban-scale socio-ecological corridor, a public condenser, and a prototypical design. At the urban scale, the “Learning Field” would form a connective thread linking Sundholm to the University and Amager Nature, carefully balancing urban growth with ecological sensitivity. This corridor aspires to amplify the restorative powers of nature for three primary groups: nurturing spaces for children’s growth, therapeutic environments for parents facing mental health challenges, and dynamic settings where university students serve as mentors and role models.

Architecture- XS, S, M, L

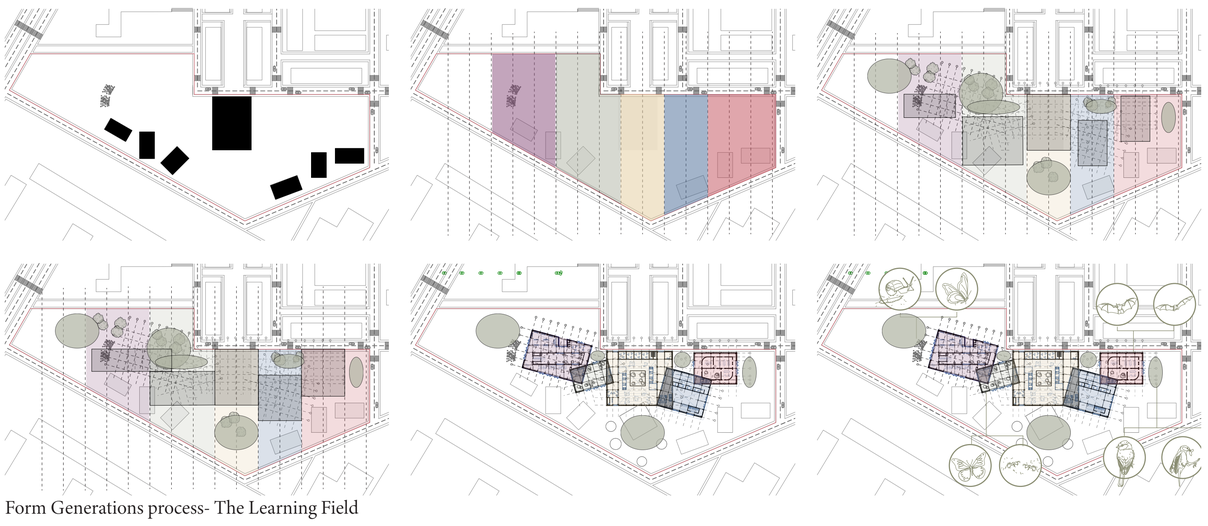
Architecture as Catalyst: Interventions Across Scales (XS, S, M, L)- Multiplicity in design, each designed to serve different communities and needs

XS: Prototype implementation in Nesting and Non-Human Sanctuary
At the smallest scale, the project fosters human–nature interdependence by creating sanctuaries for non-human life. Ethical micro-farms (guano, feather, worm, insect) and façade-integrated “nests” support urban biodiversity, addressing often-overlooked ecosystems and promoting coexistence within the built environment.

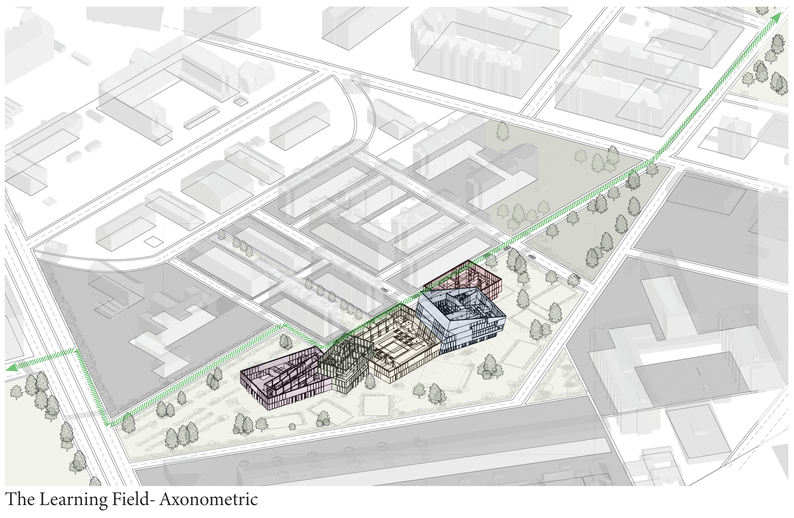
S: Inbetween- Spaces for Reflection and Isolation
For those facing mental health challenges, architecture can heal or harm. This project offers small, quiet spaces for reflection and recovery—designed not as isolating enclosures, but as supportive environments for self-care and mental well-being.

M: Public Typologies for Education, Creativity, and Healing
At the mid-scale, The Public Condenser provides communal typologies for learning, creativity, and cultural exchange. Children engage in play-based education, guided by university student mentors through storytelling, art, and therapeutic activities. These intergenerational interactions support both mental health and intellectual growth. Outdoor areas for sports and recreation further reconnect users with nature and one another.

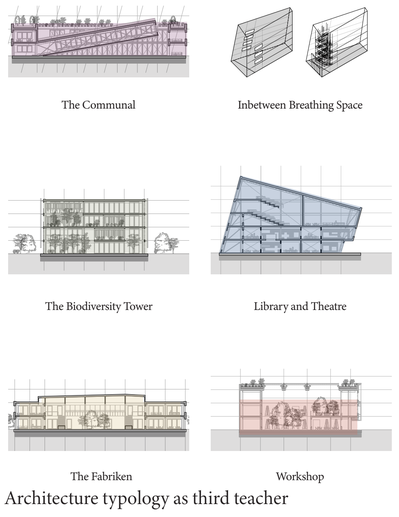
L: The Learning Field
At the largest scale, the project envisions The Green Mile Garden—a continuous green corridor linking Ørestad Fælled, the University, and Sundholm. This urban thread fosters movement, interaction, and unity, bridging marginalized areas with the wider city. It weaves ecological and human elements into a shared landscape of connection and renewal.



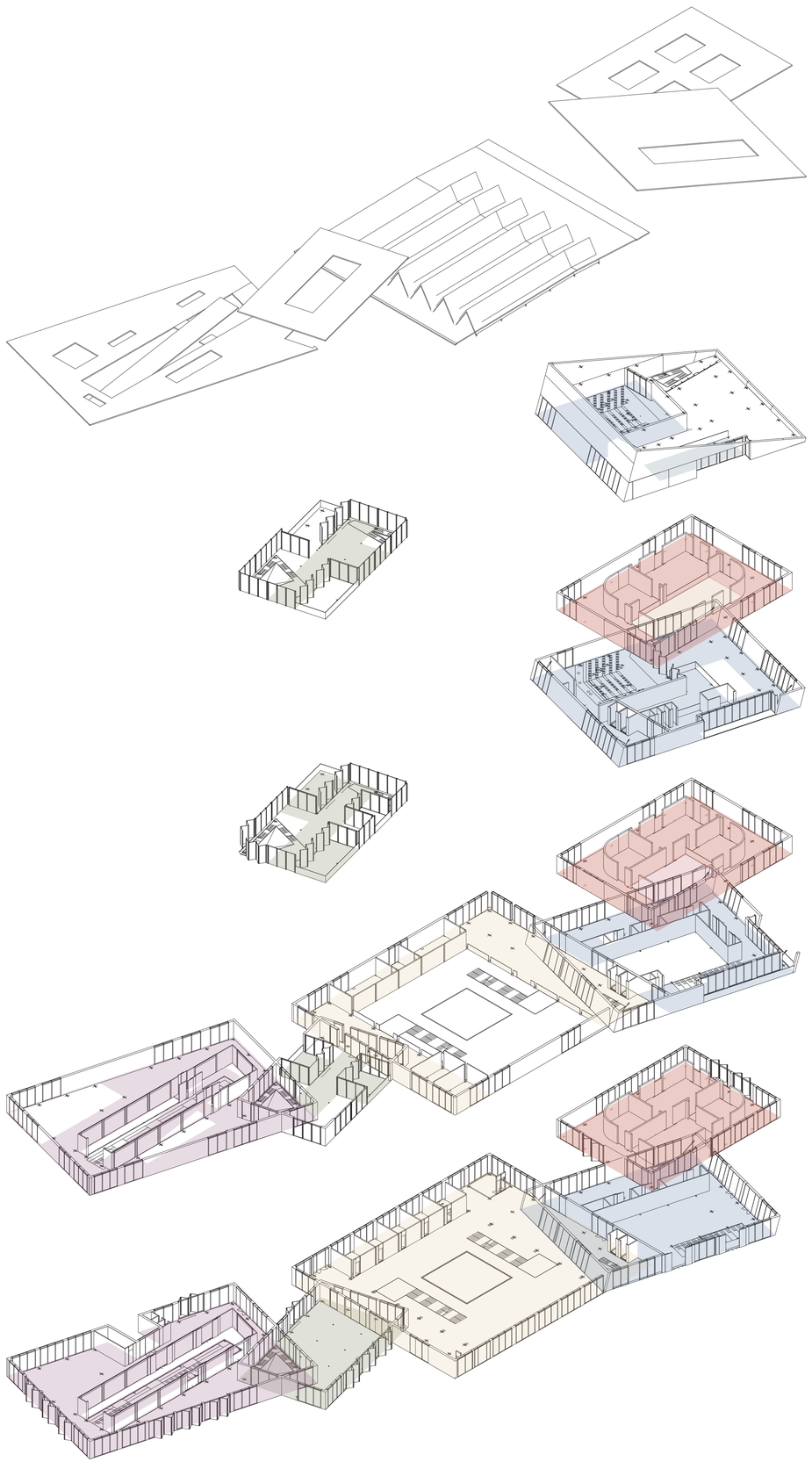
Form Generations process- The Learning Field



The Learning Field- Axonometric



Architecture typology as third teacher



Exploded Axonometric programmes

Workshops

Ground floor:
2. Urban Biodiversty and making lab
“Build your own bee hotels, butterfly boxes, birdhouses using reclaimed wood.”
3. Central courtyard
4. Seed exchange corner and habitat map of local neighbourhood biodiversity.

First floor:
2. Microbial and Material Lab
“Explore the hidden worlds of fungi, bacteria and bio-based materials - mycelium molding workshops

Second floor:
2. The Bio- Art Studio
“A contemplation, sensory floor where biodiversity meets storytelling, performance and plant dyes”

Ground = macro (visible nature, habitats)
1st = micro (unseen life, systems)
2nd = cultural (human-nature relationships)

Library and Theatre

Ground and first floor:
1. Library
2. Staircase auditorium
3. Toilet
4. Co-working rooms

Second and third floor:
1. Theatre
2. Library
3. Co-working rooms
4. Bar
5. Media rooms
6. Balcony for biodiversity watching

The Fabriken

Ground floor:
1. art studios
2.offices
3. central couortyard
4. artist exhibition
5. cafe

First floor:
1. recreational spaces
2. learning zones
3. historical archive

Biodiversity Greenhouse

Ground and first floor:
1. Centaral interior Garden/ welcome education zone
2. Deciduous Trees
3. Cold Greenhouse controlled environment for leafy greens
5. Balcony - Alpine Plants for biodiversity.

Second and third floor:
1. Warm greenhouse, tropical zone
1. Butterfly habitat with plants for nectar, larvae, and shelter

The Communal

Ground floor:
1. community garden
2. cleaning zone
3. community kitchen
4. living room
5. storytelling zone
6. interior garden
7. toilet/ service room

First floor:
1. communal dinning
2. living room
3. toilet / service room

Rooftop :
1. Roof Garden
2. Theatre in garden

Our Stories begins with a *‘Seed’*

A ‘Public Condenser’, a place to nurture, play and learn

Architecture and Public Building
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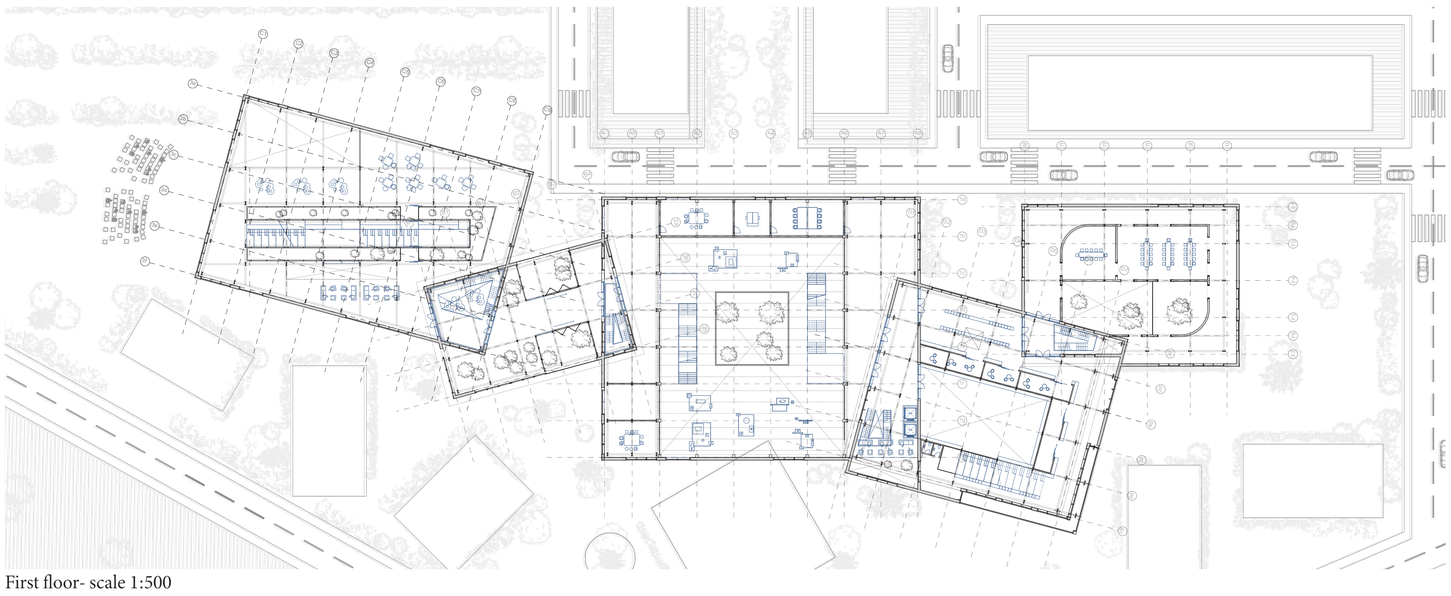
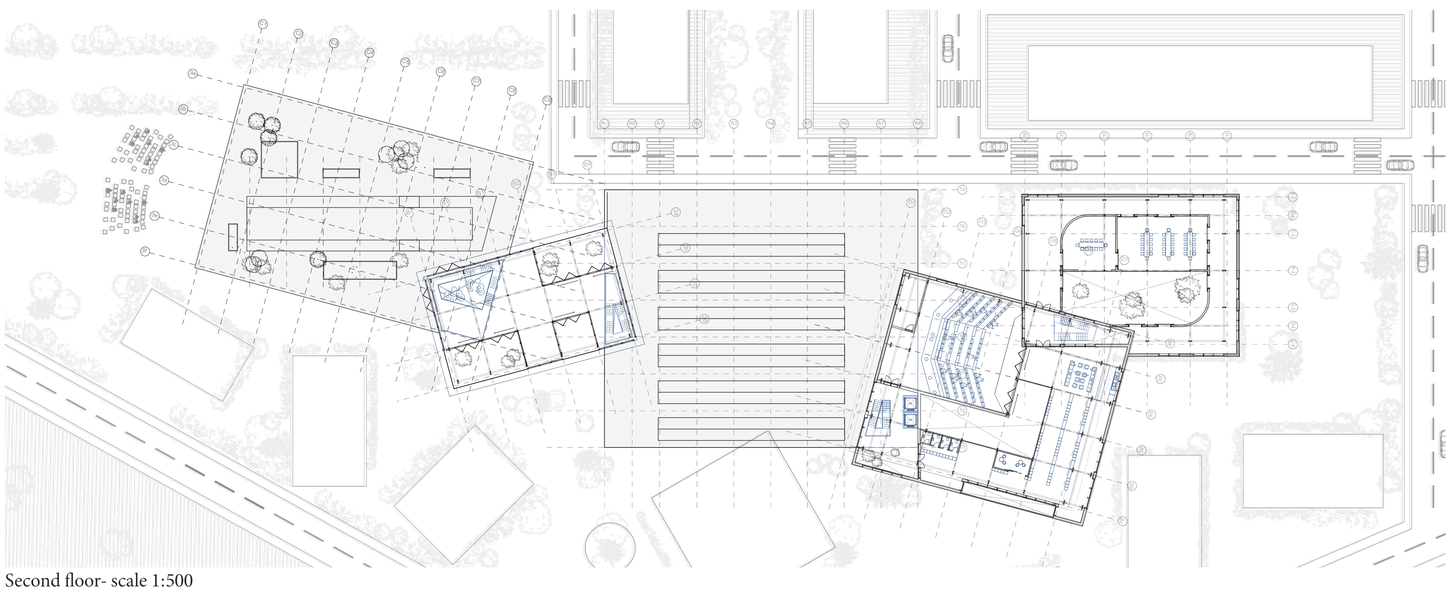
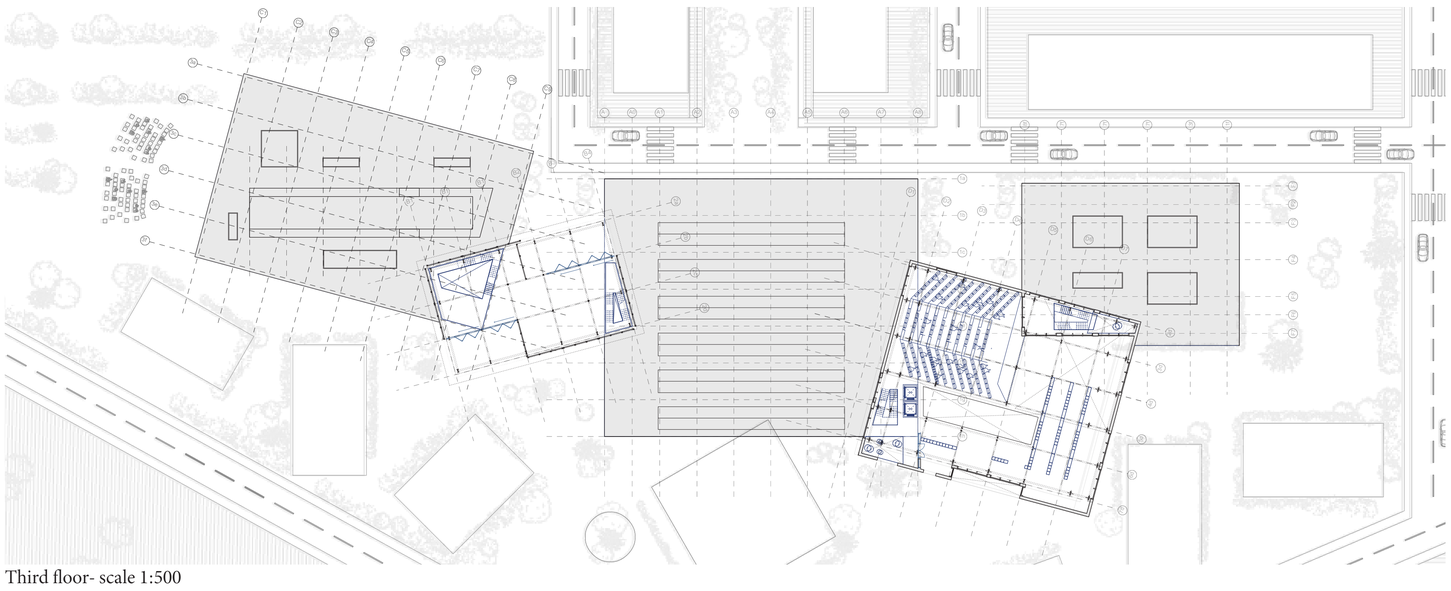
Site Groundfloor- scale 1:300



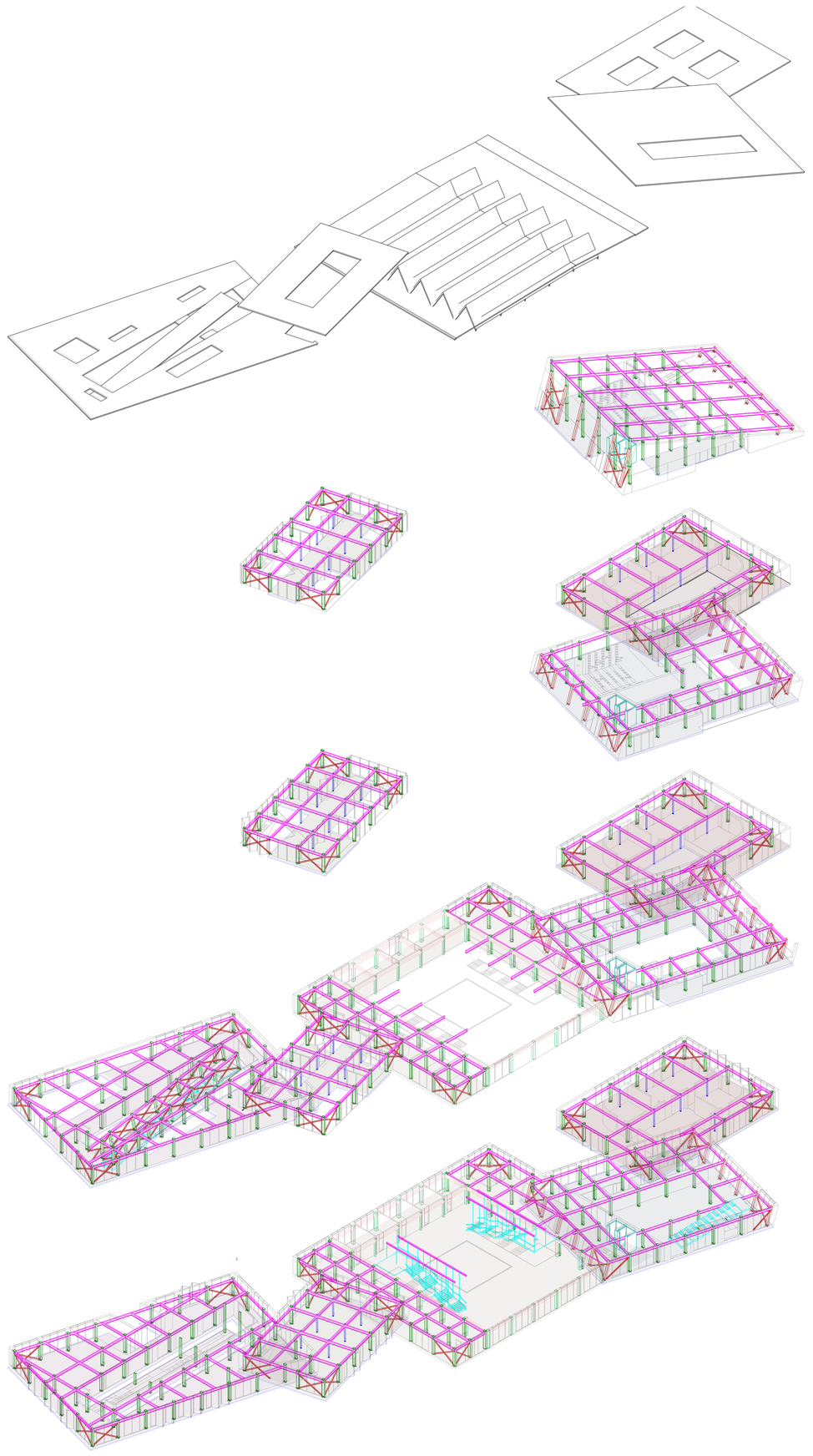
First floor- scale 1:500



Second floor- scale 1:500



Third floor- scale 1:500



Exploded Structural Axonometric- Construction process

Architecture and Public Building
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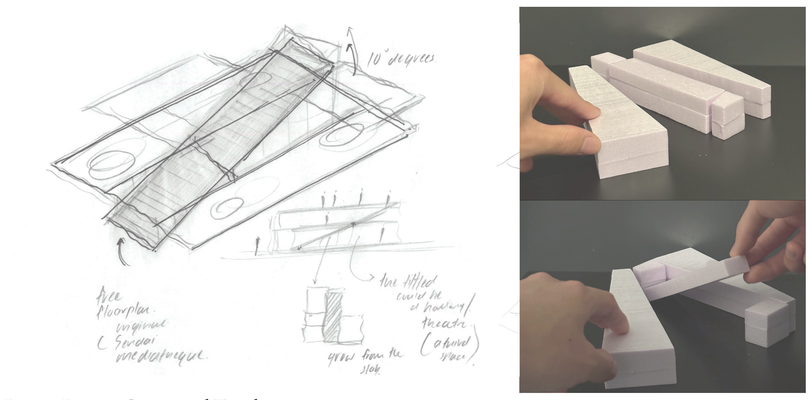
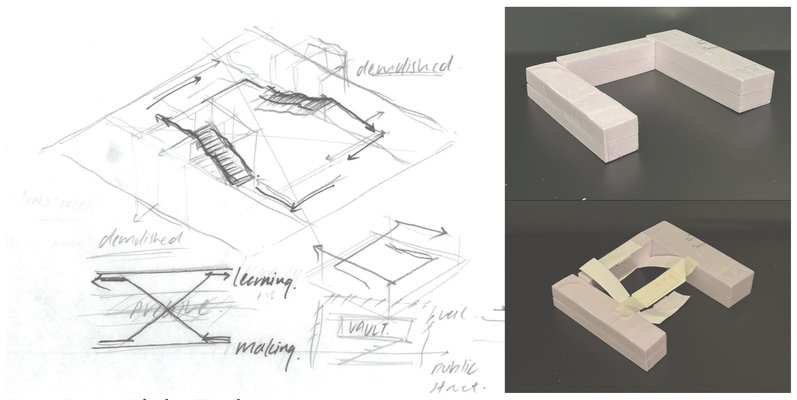
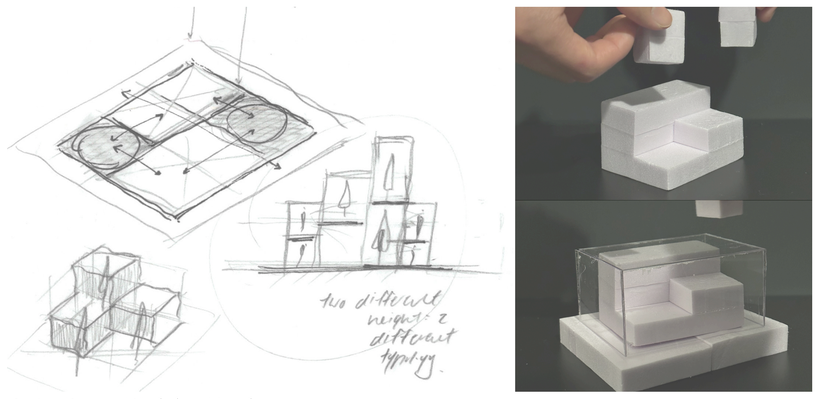


Design Process Communal Typology



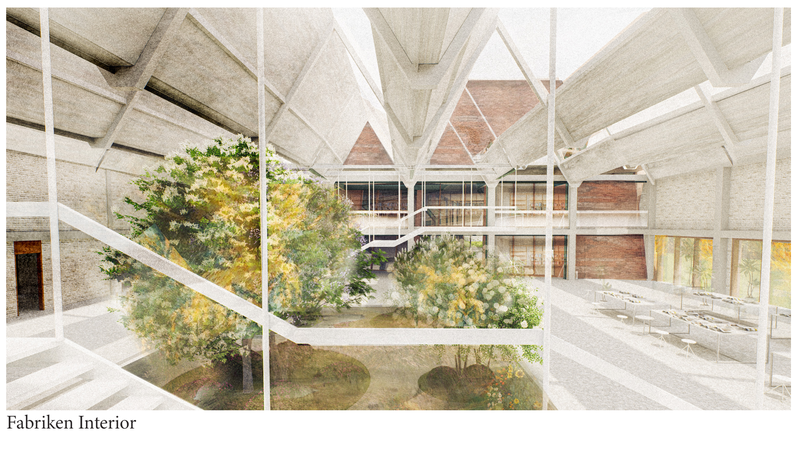
Design Process Fabriken Typology



Design Process Workshop Typology



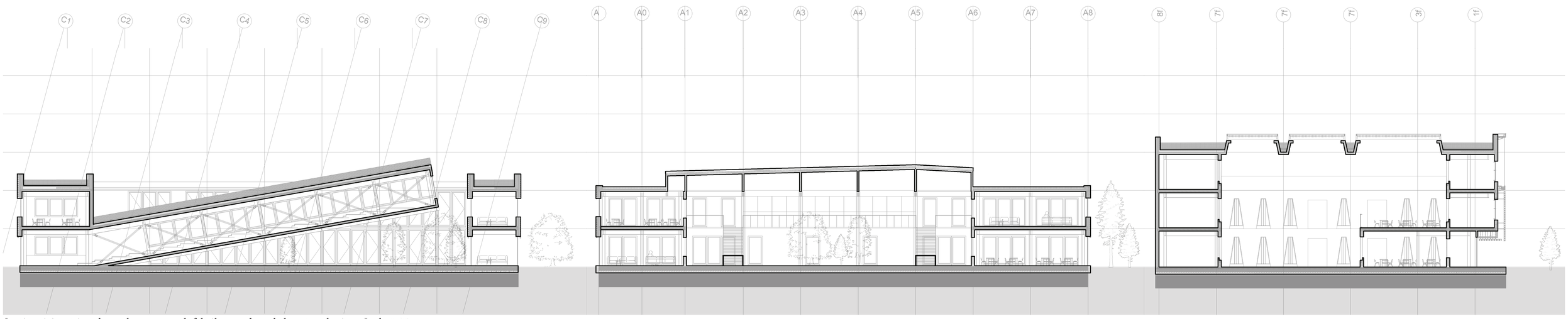
Communal tilted core



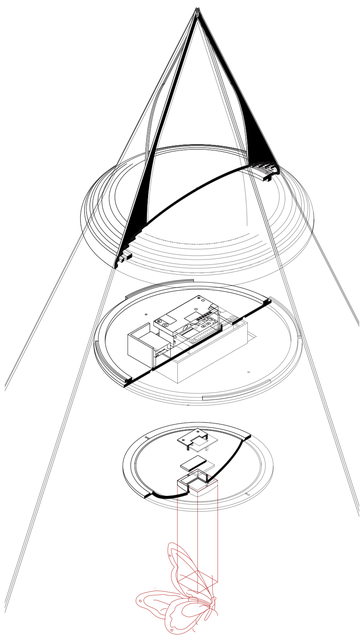
Fabriken Interior



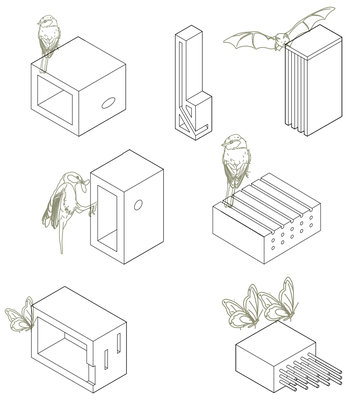
Workshop exterior



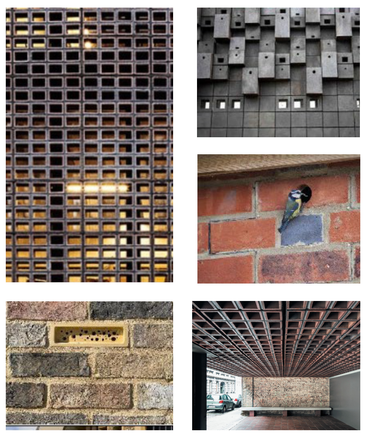
Section AA cutting through communal, fabriken and workshop typologies - Scale 1:20



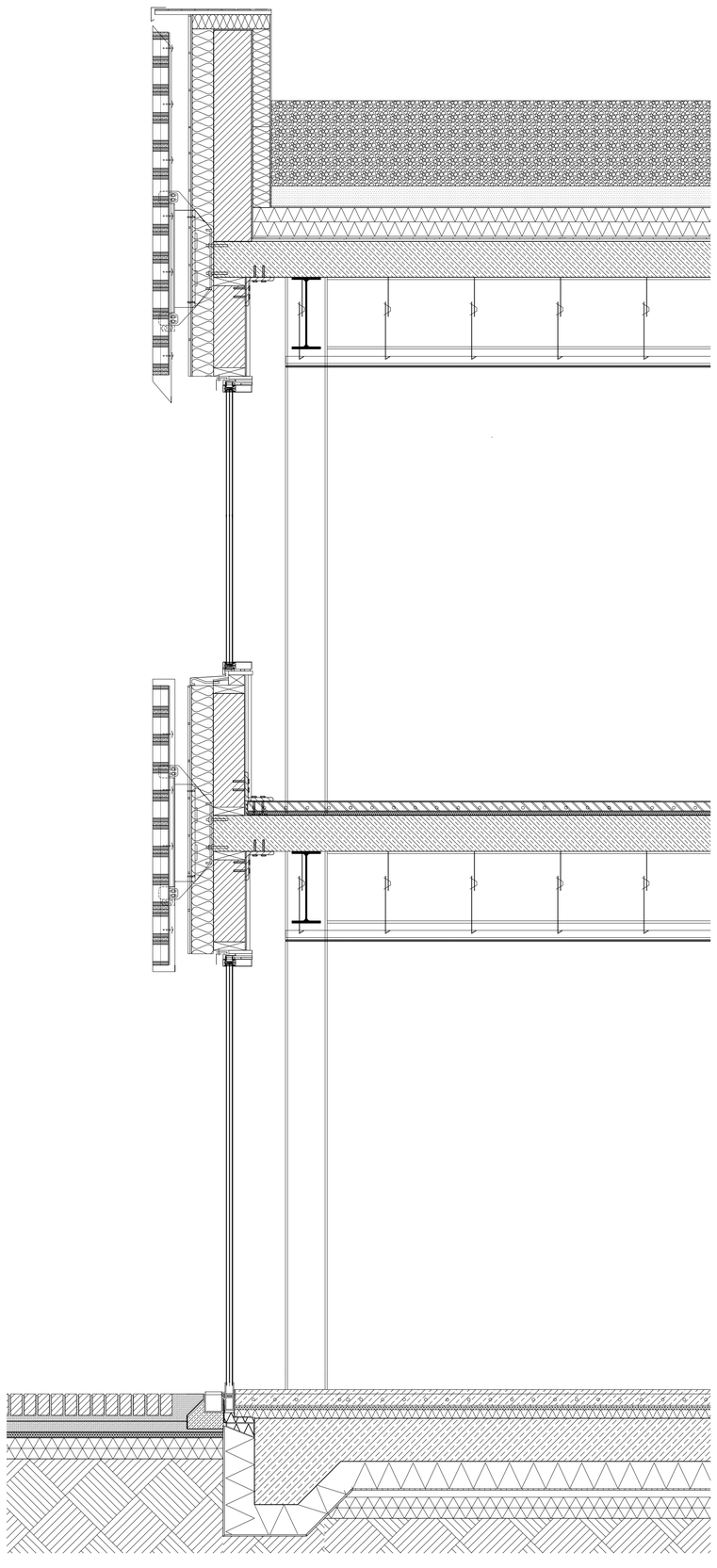
Biodiversity AI tracker



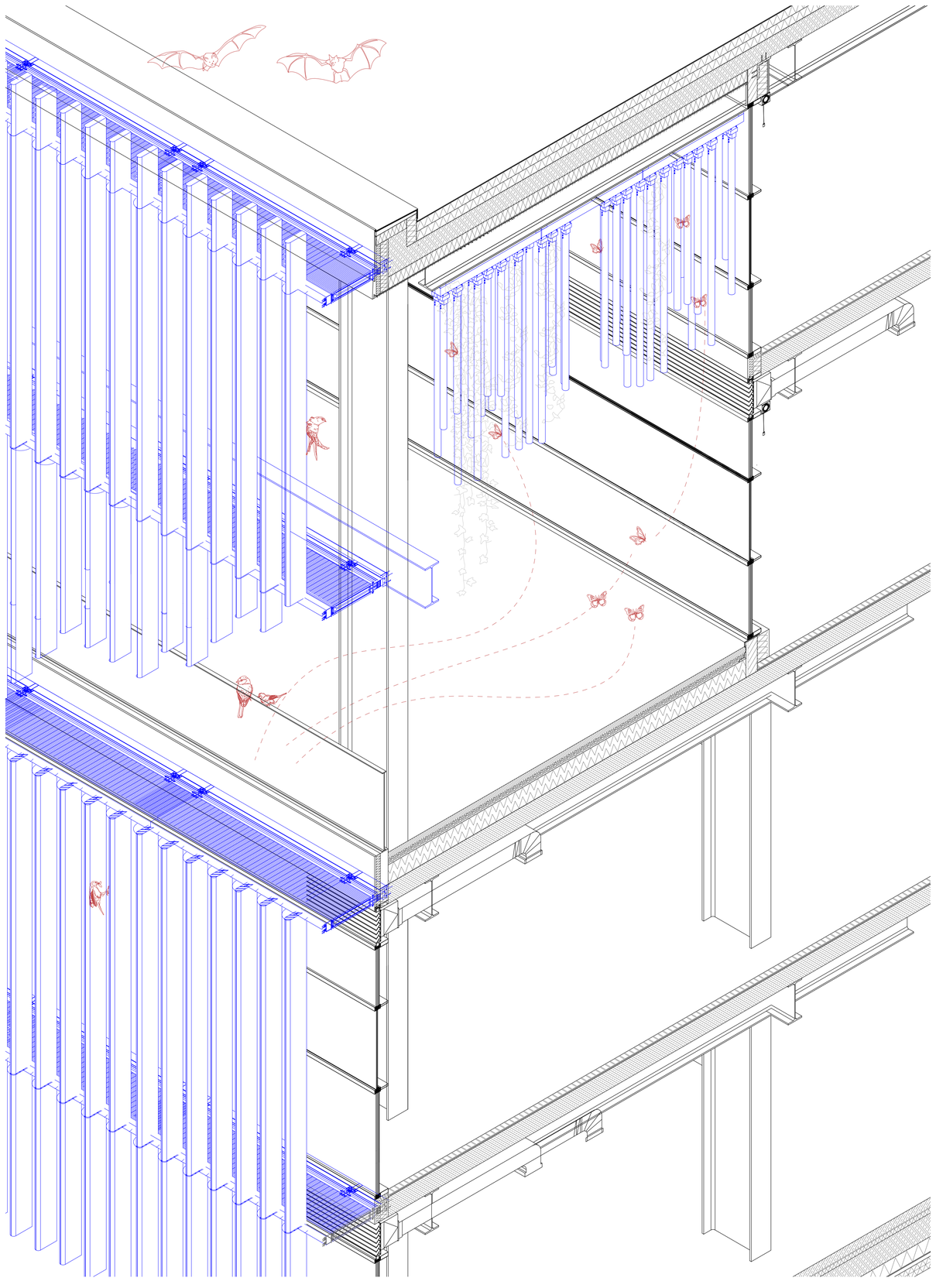
Nonhuman Habitats
desiging for potential



Materiality Palette



Biodiversity Brick Panel- Communal Typology- Scale 1:20



Animal Aided Design Axonometric- Biodiversity Tower - Scale 1:20

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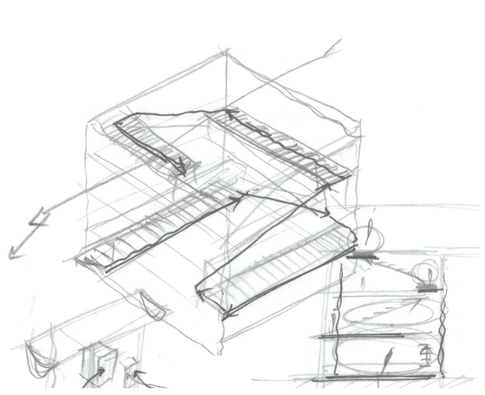
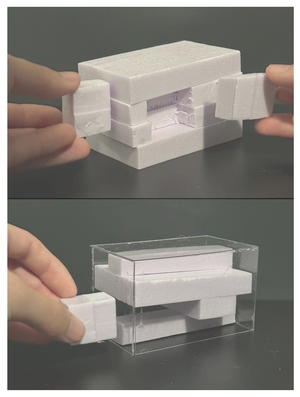
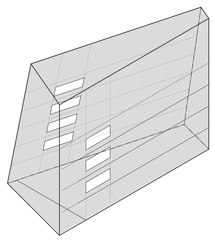
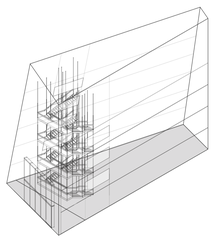


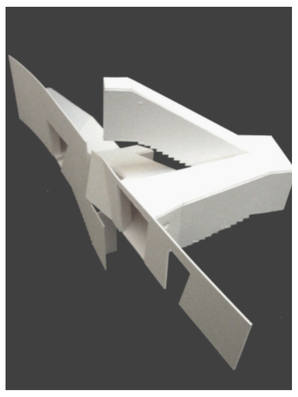


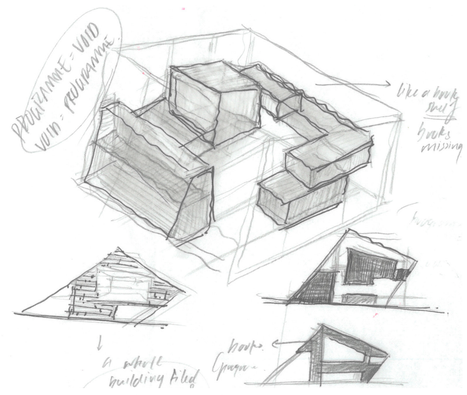
Design Process Biodiversity Typology

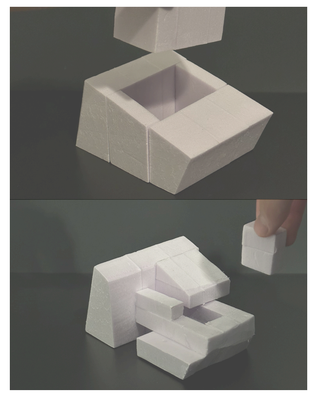




Design Process Staircase Overlap



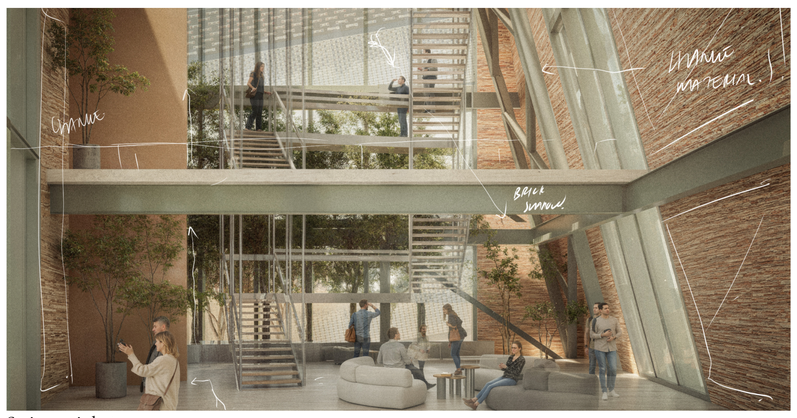




Design Process Library Typology



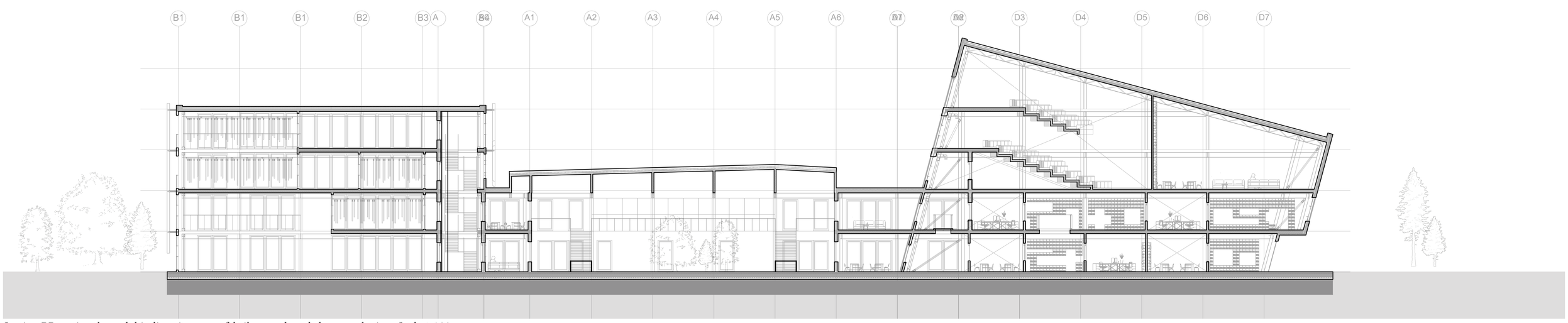
Biodiversity animal aided design



Staircase inbetween zone

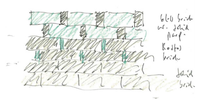


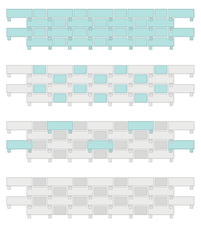
Library interior

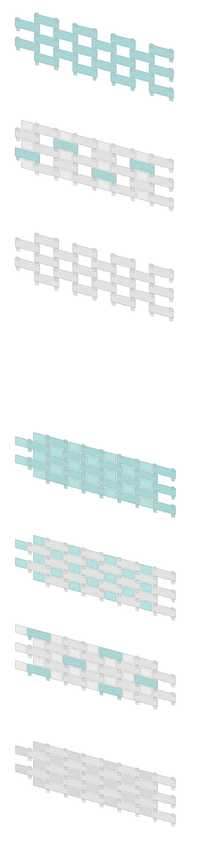


Section BB cutting through biodiversity tower, fabriken, and workshop typologies - Scale 1:200

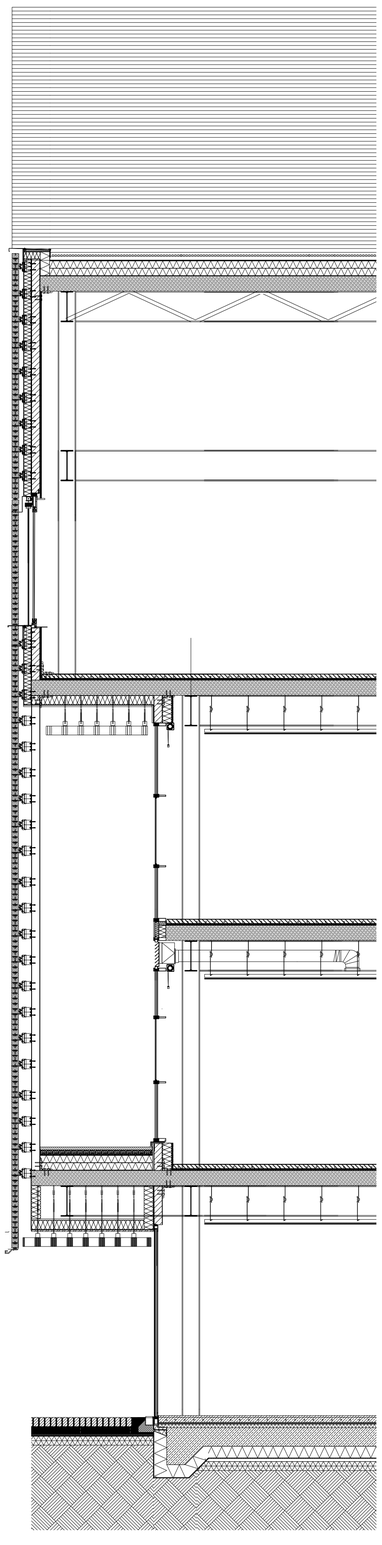




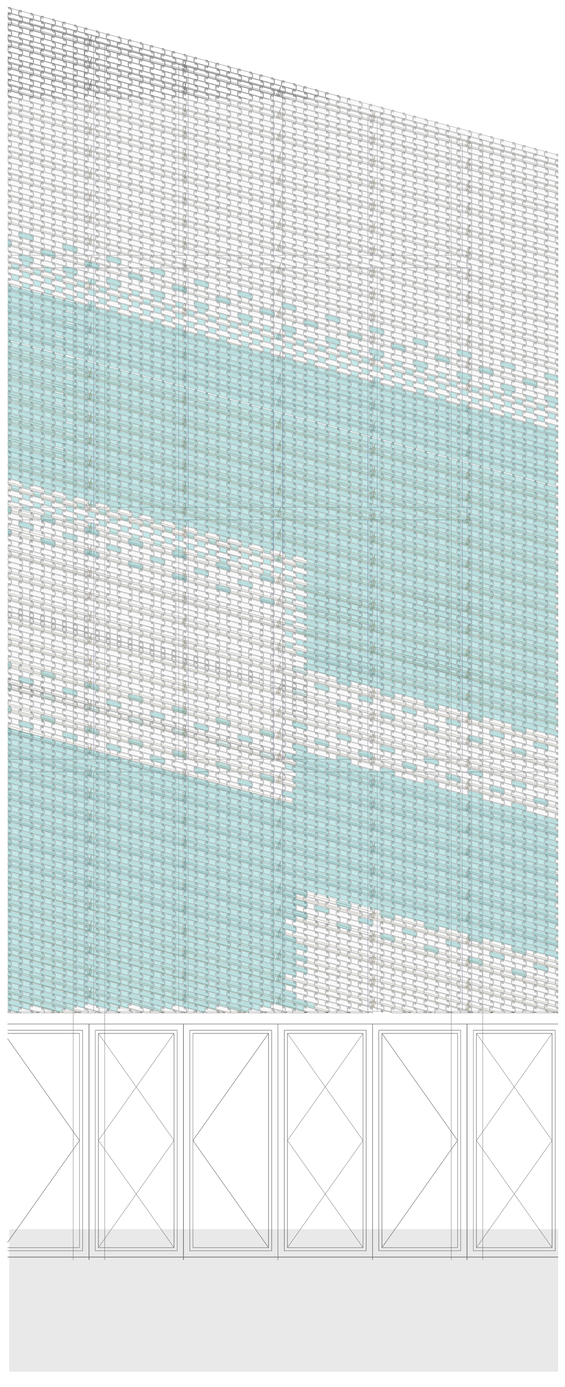




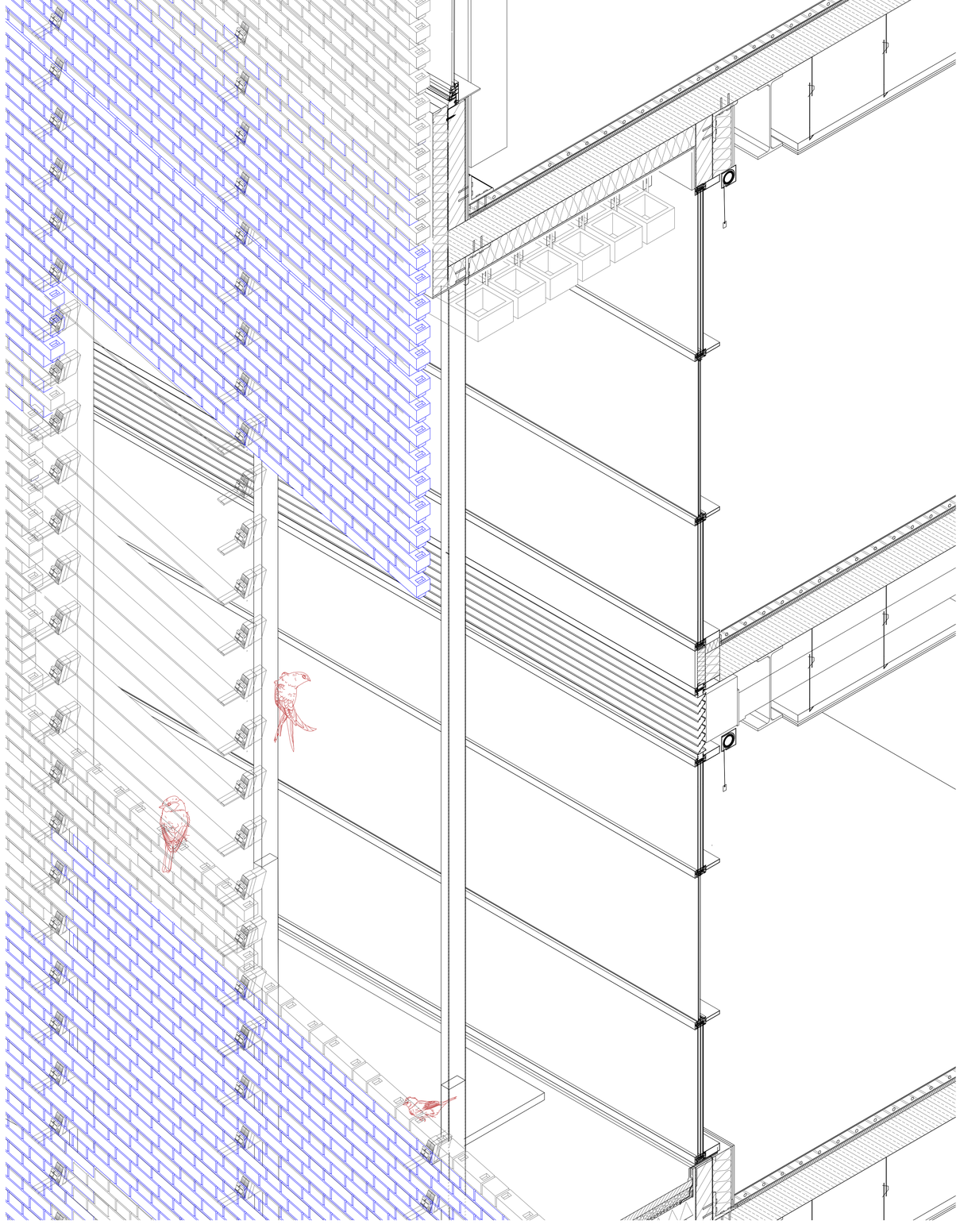
Interlocking Bricks



Section- Library Typology- Scale 1:50



Elevation- Library Typology- Scale 1:50



Library Typology Axonometric- Scale 1:20

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Architecture and Public Building
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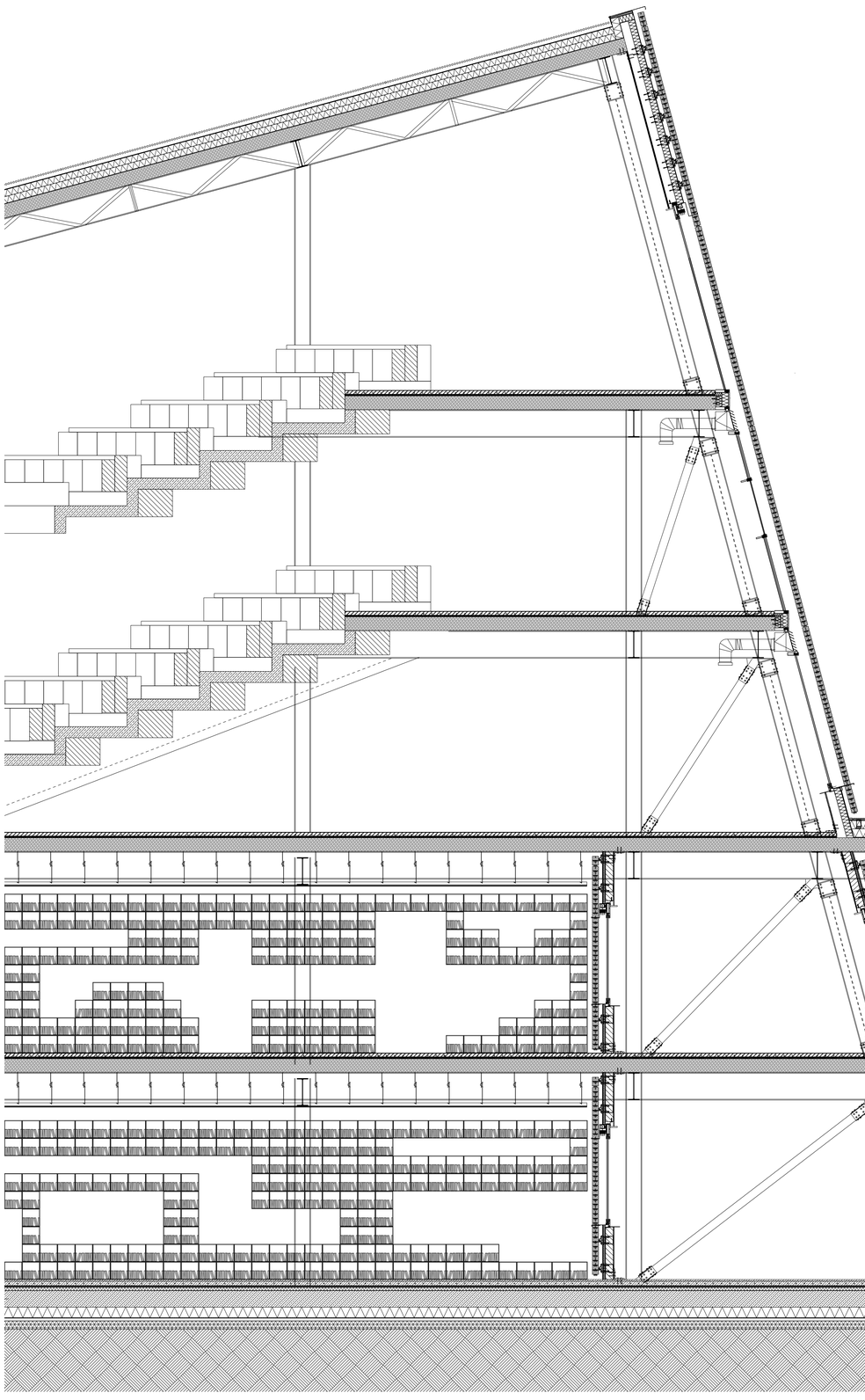
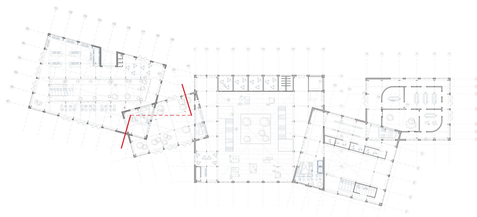
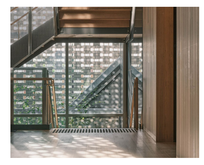


Junction AA- through Library and Fabriken Typology- Scale 1:50









Roof Construction:(Top to bottom)
1. Gravel ballast (50 mm)
2. Geotextile filter membrane
3. Root-resistant waterproofing membrane
4. 120 mm PIR insulation
5. Bituminous vapor control layer
6. Tapered insulation to falls (min. 1:80)
7. 250 mm reinforced concrete composite slab
8. Fireproof-coated steel primary beam
9. Fireproof-coated secondary steel beam
10. Steel cross bracing
11. Suspended ceiling system
12. Double 12.5 mm fire-rated plasterboard
13.3 00 mm service zone

Facade Construction: (Exterior to Interior)
1. 230 × 110 × 76 mm Masonry Bricks / Glass Bricks (I = 800–1500 mm)
2. Stainless Steel Clasps / Wall Ties (brick-to-structure fixing)
3. 80 mm Ventilated Cavity (rainscreen zone for ventilation)
4. Breather Membrane (weather-resistant barrier over insulation)
5. 120 mm Non-Combustible Mineral Wool Insulation (façade-rated insulation)
6. 150 mm Steel Stud Framing @ 500 mm Centres
7. Acoustic/Mineral Wool Infill Between Studs
8. 10 mm Exterior-Grade Board Sheathing (Cement Board)
9. Air and Vapor Control Membrane (AVCL) (taped and sealed)
10. Service Zone (25–50 mm Battens) (optional, for accommodating services)
11. 2 × 12.5 mm Fire-Rated Gypsum Board

Window:
Double laminated insulating glass unit (IGU):
2 × 8 mm laminated float safety glass + 16 mm air cavity + 12 mm float glass
Low-E coating on inner pane
Thermally broken aluminium frame
Perimeter air seal and insulated cavity closers around frame

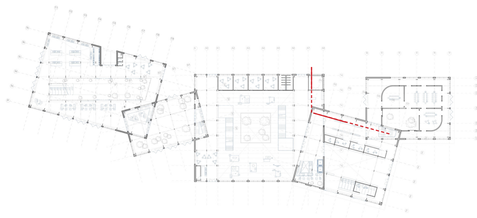
Mid floor construction: (Top to bottom)
1. 60 mm Anhydrite Screed with Underfloor Heating System on PE Foil
2. 20 mm EPS Thermal Insulation
3. 25 mm Acoustic or Thermal Insulation
4. 250 mm Reinforced Concrete Structural Floor Slab
5. Fireproof-Coated Steel Beam (integrated with or supporting slab)
6. 600 mm Suspended Ceiling System
7. Inflow Vents (Fresh Air) / Perimeter Plenum Between Suspended Ceiling

Junction Interior wall (out to in)

1. 230/110/76 Masonry Bricks / 230/110/76 Glass Bricks (I = 800–1500 mm)
2. 50 mm Cavity
3. Stainless Steel Clasps
4. Back Ventilation
5. 9 mm Fibre Cement Panel
6. 50 mm Insulation
7. 150 mm Steel Stud Framing @ 500 mm Centers
8. 10 mm Board Sheathing with Air & Vapor Barrier Membrane
9. Acoustic Insulation (between steel studs)
10. Firestopping (around penetrations and joints)
11. Sealing Tapes for Air-tightness (around joints and seams)

Ground Floor (Exterior) Construction (Top to Bottom)
1. 250/115/65 mm Clinker Blocks Laid on Edge
2. 50 mm Sand Binding Layer (for stability and leveling)
3. 150 mm Hardfill (compacted sub-base material for load-bearing
4. 150 mm Exterior Drainage Channel (sloped at 2° away from building for water runoff)
5. 300 mm In-Situ Concrete Slab (structural floor slab)
6. Reinforcement @ 300 mm Centers, 25 mm Cover (reinforcing steel mesh or bars)
7. Damp Proof Membrane (DPM) (underlay for moisture control)

Detail Annotation







Green Roof Construction:(Top to bottom)
1. Vegetation Layer (shrubs, small trees, and perennials)
2. 500 mm Soil Substrate (supporting plant growth)
3. 2 mm Filter Fabric (prevents soil migration into drainage layers)
4. 100 mm Gravel Drainage Layer (ensures proper drainage and prevents waterlogging)
5. Root Barrier (optional, placed above the waterproofing membrane to protect it from plant roots)
6. 6 mm Waterproofing Membrane (EPDM) (prevents water infiltration into the underlying structure)
7. 150 mm Thermal Insulation (XPS Extruded Polystyrene) (provides thermal insulation to the building)
8. Vapor Barrier (prevents moisture migration into the building structure)
9. 250 mm Reinforced Concrete Slab (structural support for the green roof)
10. Drip Irrigation System (optional, for maintaining plant health in the green roof)

Junction Interior wall (out to in)
1. 230/110/76 Masonry Bricks / 230/110/76 Glass Bricks (I = 800–1500 mm)
2. 50 mm Cavity
3. Stainless Steel Clasps
4. Back Ventilation
5. 9 mm Fibre Cement Panel
6. 50 mm Insulation
7. 150 mm Steel Stud Framing @ 500 mm Centers
8. 10 mm Board Sheathing with Air & Vapor Barrier Membrane
9. Acoustic Insulation (between steel studs)
10. Firestopping (around penetrations and joints)
11. Sealing Tapes for Air-tightness (around joints and seams)

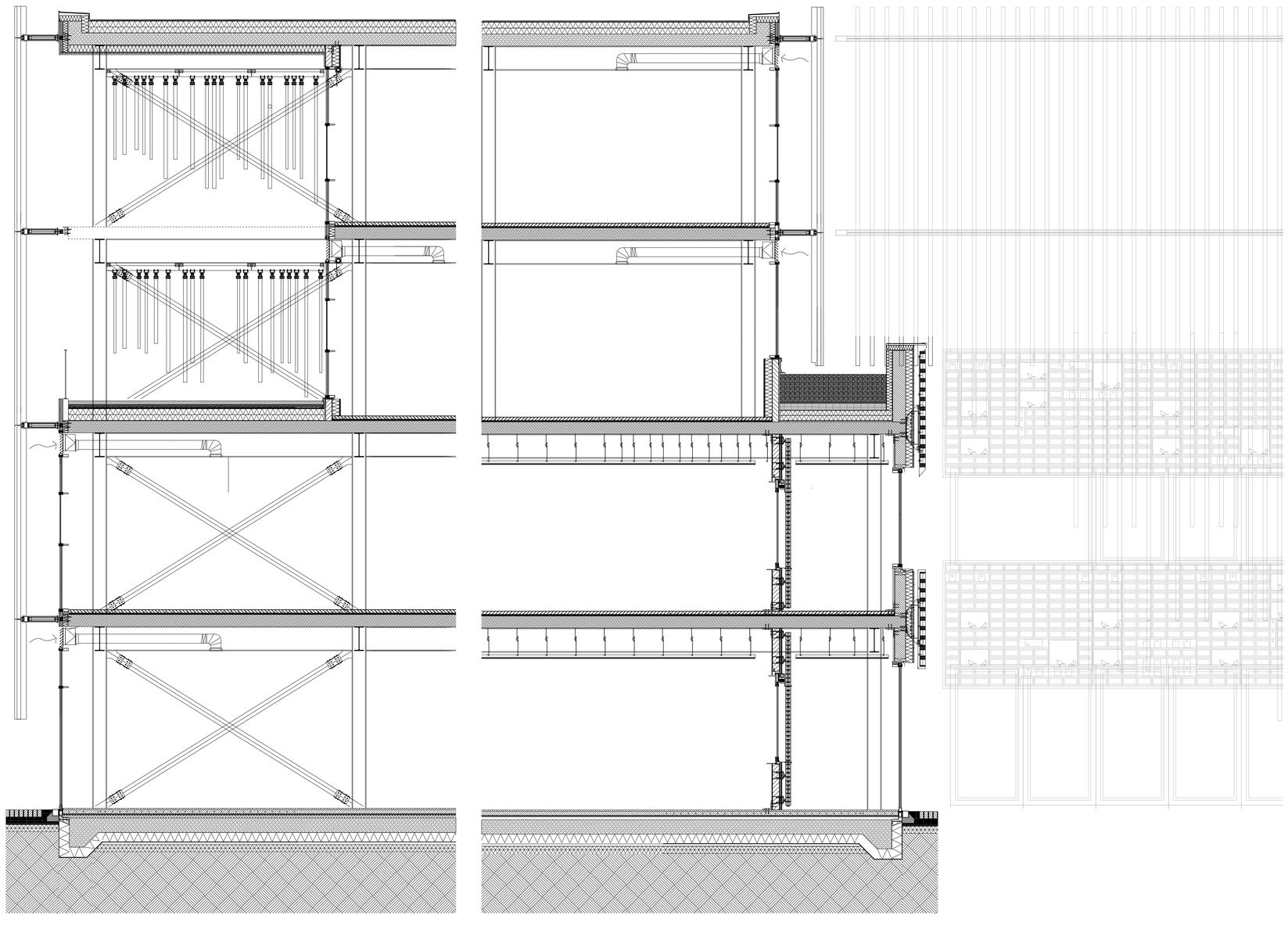
Biodiversity Pannel system (exterior to interior)
1. 240/115/170 mm Open Clinker Blocks with 30 mm Reinforced Joints
2. 25/75/4 mm Stainless-Steel Angles fixed to reinforced concrete with stainless-steel brackets
3. 15 mm Ceramic Tiles (250/65 mm) with tile adhesive
4. 70 mm Screed Separating Layer
5. 30 mm XPS Insulation
6. 200 mm Reinforced Concrete Floor with Ribs (470 mm deep)
7. 120 mm Mineral-Wool Insulation Mortar Layer
8. Vapor Barrier
9. Drainage Layer
10. Back Ventilation Cavity

Mid floor construction: (Top to bottom)
1. 60 mm Anhydrite Screed with Underfloor Heating System on PE Foil
2. 20 mm EPS Thermal Insulation
3. 25 mm Acoustic or Thermal Insulation
4. 250 mm Reinforced Concrete Structural Floor Slab
5. Fireproof-Coated Steel Beam (integrated with or supporting the slab)
6. 600 mm Suspended Ceiling System
7. Inflow Vents (Fresh Air) / Perimeter Plenum Between Suspended Ceiling

Groundfloor finish (interior) (Top to Bottom)
1. 30+80 mm Reinforced Hardened Concrete with Underfloor Heating PE Foil
2. Vapor Barrier
3. Soundproofing Matting
4. 60 mm PUR Thermal Insulation
5. 300 mm Reinforced Concrete
6. 150-190 mm Rigid Wool Thermal Insulation
7. Edge Insulation Around Perimeter
8. Expansion Joints

Ground Floor (Exterior) Construction (Top to Bottom)
1. 250/115/65 mm Clinker Blocks Laid on Edge
2. 50 mm Sand Binding Layer (for stability and leveling)
3. 150 mm Hardfill (compacted sub-base material for load-bearing
4. 150 mm Exterior Drainage Channel (sloped at 2° away from building for water runoff)
5. 300 mm In-Situ Concrete Slab (structural floor slab)
6. Reinforcement @ 300 mm Centers, 25 mm Cover (reinforcing steel mesh or bars)
7. Damp Proof Membrane (DPM) (underlay for moisture control)

Detail Annotation



Junction BB- through Biodiversity tower and Communal Typology - Scale 1:50



Communal





Communal



Vertical Ecology



Fabriken

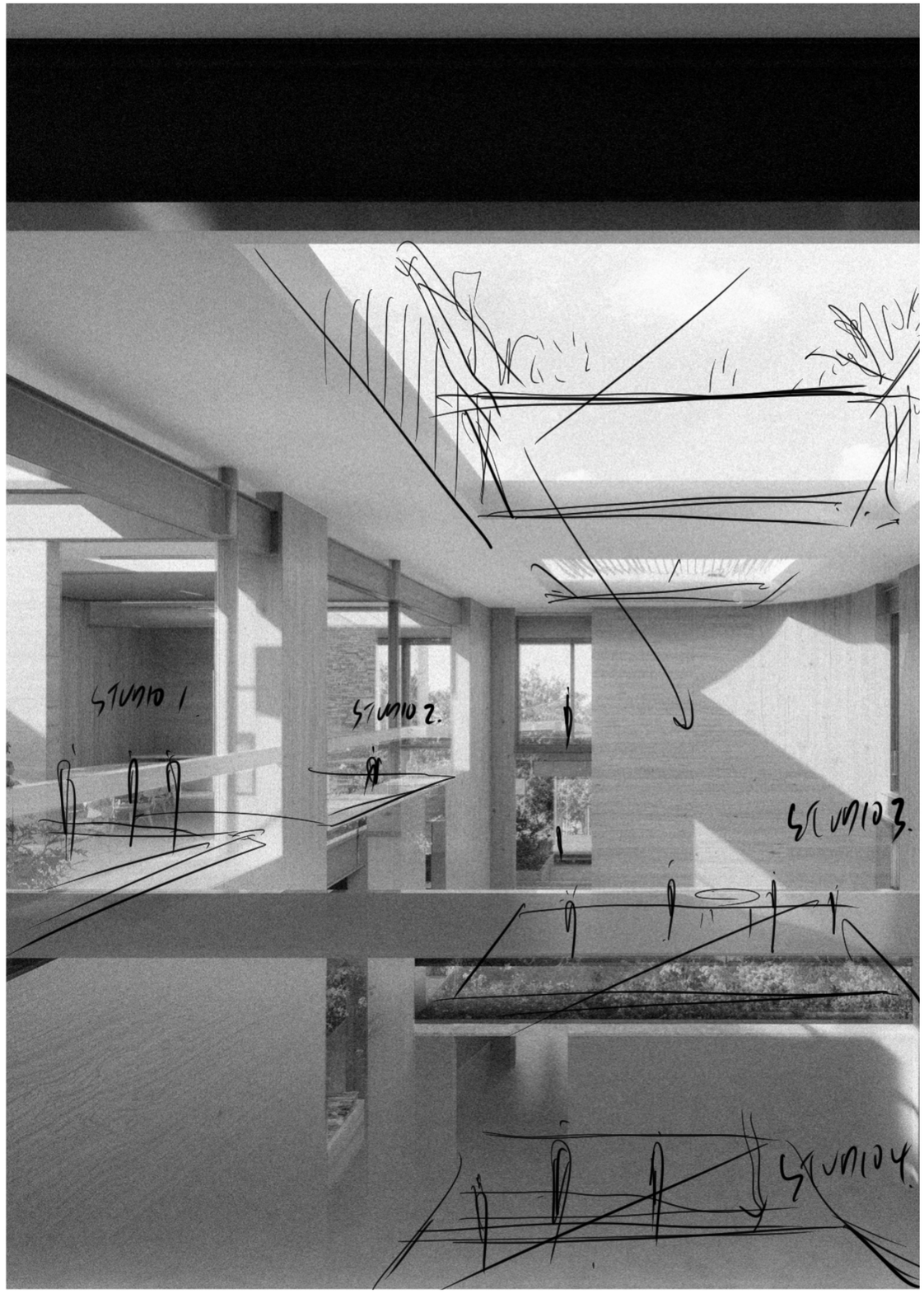


Library and Theatre





Workshop





Workshop