



GRADUATION REPORT

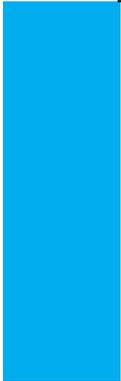
MUSICAL BINCKCROSS

Shing Yat Tam Samuel



Graduation Plan

Master of Science Architecture, Urbanism & Building Sciences



Graduation Plan: All tracks

Submit your Graduation Plan to the Board of Examiners (Examencommissie-BK@tudelft.nl), Mentors and Delegate of the Board of Examiners one week before P2 at the latest.

The graduation plan consists of at least the following data/segments:

Personal information	
Name	Tam Shing Yat (Samuel)
Student number	5235928

Studio		
Name / Theme	Music Marvel	
Main mentor	Stefan Witteman	Architecture
Second mentor	Piero Medici	Building Technology
Argumentation of choice of the studio	<p>Having learnt the piano for almost two decades, I am always intrigued by the similarities between architecture and music regarding their compositional structure, together with the sensual experiences that they can offer. As music has shifted away from being a high culture and become increasingly popularized, I believe it is also time for architects to rethink how music venues can engage with the public differently in contemporary context. The studio therefore provides a valuable opportunity for me to delve into questions which are relevant to both my profession and my personal interest.</p>	

Graduation project	
Title of the graduation project	The Musical Promenade
Goal	
Location:	Binckhorst, the Netherlands
The posed problem,	<p>The diverse interior functions of Binckhorst's industrial architecture are often kept out of public sight by the building envelopes, giving rise to a uniform streetscape. Besides, sensorial elements or points of interests found along the strip are so fragmented and poorly structured that they fail to enrich urban experience. This suggests the need of a perceptual approach to renew visitors' impression of Binckhorst by means of introducing a processional</p>

	sequence of multi-sensory encounters that are specific to the site.
research questions and	<ol style="list-style-type: none"> 1. How does our movement in space liberate architecture from its static image? 2. What fosters the changes of perceptions of a building? 3. How do sounds function as integral space makers? 4. How may compositional and notational practices in music and films inform the design of the urban path? 5. How should the pathway engage with existing features of the site that are increasingly overwhelmed by the ongoing real estate development?
design assignment in which these result.	<ol style="list-style-type: none"> 1. Creating four animated passages through a building that is open enough to reveal its internal activity to the urban context 2. Extracting and translating choreographic techniques from music and film-making to dramatize spatial experiences 3. Reinforcing not only visual but also acoustic qualities of architecture 4. Defining the atmosphere of each segment of the journey 5. Accentuating the presence of two historical monuments at both sides of Binckhorstlaan

Process
Method description
<p>Analogization</p> <p>Each musical piece is characterized by a particular form and its phrasal organization, which create variations, tension and release. The technique of structural sequencing in music can be compared to and inform the arrangement of programs or curation of successive scenes in architecture.</p>

Notation

In light of the inherent difficulty to express lines of motion in architecture with conventional plan and sections, a notation system is developed to conceptualize the sensory adventure and communicate the trajectories of the four main users of the building, namely the public, student artists, concertgoers and performers. Each layer has its own distinct atmospheric, programmatic, sound and spatial sequence which may be linear or form into a loop. Featuring hard cuts and soft transitions, they are expected to draw on the attributes of cinematic construction.

Cataloguing

To identify design opportunities for the pathway and the facilitate the structuring of senses, I am producing a catalogue of visual landmarks and environmental sounds near the chosen building ground. Two parallel street elevations, which are in fact photomontages of all existing buildings and future residential blocks on both sides of Binckhorstlaan, will also be made to reflect on the homogeneity of the industrial landscape and evaluate the impact of the music venue on Binckhorst's skyline.

Case Study

I will be focusing on architectural projects which have experimented with the idea of extending the public route in the music building, instead of treating it as a black box that completely conceals the dynamism of musical production. In the meantime, I will look into architectural precedents that make use of notational diagrams to explore the movement of people in space.

Literature and general practical preference

1. Appleyard, Donald. "Motion, Sequence and the City." In *The Nature and Art of Motion*, edited by Gyorgy Kepes. New York: George Braziller, 1965.
2. Buck, David Nicholas. *A Musicology for Landscape*. New York: Routledge, 2017.
3. Cain, Rebecca, Paul Jennings and John Poxon. "The Development and Application of the Emotional Dimensions of a Soundscape," *Applied Acoustics* 74 no. 2 (2013).
4. "Casa Da Musica.," *El Croquis* no. 134 (2007).
5. Clarke, Joseph. *Echo's Chambers: Architecture and the Idea of Acoustic Space*. Pittsburgh: University of Pittsburgh Press, 2021.
6. Handel, Stephen. *Perceptual Coherence: Hearing and Seeing*. New York; Oxford: Oxford University Press, 2006.
7. Jormakka, Kari. *Flying Dutchmen: Motion in Architecture*. Basel: Birkhäuser, 2002).
8. Karandinou, Anastasia. *No Matter: Theories and Practices of the Ephemeral in Architecture*. Burlington: Ashgate Publishing Company, 2013.
9. Kleine, Holger. *The Drama of Space: Spatial Sequences and Compositions in Architecture*. Basel: Birkhäuser, 2017.
10. Locke, John. *An Essay Concerning Human Understanding Book II: Ideas*, edited by Jonathan Bennett.
11. Mavash, Kourosh. "Site + Sound: Space." In *Essays on the Intersection of Music and Architecture*, edited by Mikesch Muecke and Miriam Zach. Ames: Culicidae Architectural Press, 2007.
12. McLuhan, Marshall. "Visual and Acoustic Space." In *Audio Culture: Readings in Modern Music*, edited by Christopher Cox and Daniel Warner. New York; London: Bloomsbury Publishing Incorporation, 2017.
13. Rasmussen, Steen Eiler. *Experiencing Architecture*. London: Chapman and Hall Limited, 1959.
14. Terlouw, Erik. "Gemonteerde Ruimte," *OASE* no. 18, 36-49 (2013).
15. Thiel, Philip. "A Sequence - Experience Notation: For Architectural and Urban Spaces," *Town Planning Review* 32 no. 1 (1961).
16. Thiel, Philip. *People, Paths and Purposes: Notations for a Participatory Envirotecture*. Seattle and London: University of Washington Press, 1997.
17. Tschumi, Bernard. *The Manhattan Transcripts*. New York: Academy Editions, 1994.
18. Tschumi, Bernard. *Bernard Tschumi: Architecture: Concept & Notation*. Edited by Migayrou Frédéric. Paris: Editions Du Centre Pompidou, 2014.
19. Venturi, Robert. *Complexity and Contradiction in Architecture*. London: Architectural Press, 1977.
20. Venturi, Robert, Dennis Scott Brown and Steven Izenour. *Leaning from Las Vegas: The Forgotten Symbolism of Architecture Form*. Cambridge, Massachusetts; London: The MIT Press, 1977.
21. Veugen, Chrit. "Het Geluid van de Architectuur," *OASE* no. 18, 50-51 (2013).

Reflection

1. What is the relation between your graduation (project) topic, the studio topic (if applicable), your master track (A,U,BT,LA,MBE), and your master programme (MSc AUBS)?

The outcome of my graduation topic will be a building which addresses the topical and theoretical concerns about a specific architectural type dedicated to music making. It also involves the proposition of an urban strategy that reacts to the current transformation of Binckhorst from an industrial area to a new residential suburb, which echoes with the goal of the master track to "develop creative and innovative building projects that use design as a means to deal with the technical, social and spatial challenges encountered in the built environment."

2. What is the relevance of your graduation work in the larger social, professional and scientific framework?

First, I am reaffirming the role of spatial movement in altering one's perception of architecture and the city. Through the creation of multiple pathways, the music venue is no longer bound by its inanimate built form and can be experienced to its full extent from different perspectives. With the incorporation of external sensory stimuli, a more active dialogue with the site can also be achieved, which enables visitors to discover its hidden heterogeneity.

Secondly, I am reinstating hearing as a fundamental constituent of an architectural experience, calling for better coordination rather than isolation of human senses. This signifies a break from the visually exclusive cultural practice and expands the sensory realm of architecture.

Last but not least, I am using music and cinematography as an analogical model to conceive and represent the circulation of the music venue, which establishes a bridge between architecture and other art domains.

Time Planning

19/1/2022 - 10/2/2022:

Finalizing the massing
Revising design position based on comments

10/2/2022 - 28/3/2022:

Carrying on with structure and façade development
Applying material concepts to individual spaces
Studying the atmospheric changes with 1:100 test models
Formulating sustainability strategies
Addressing acoustic and other mechanical requirements
Landscape design

28/3/2022 - 12/5/2022:

Detail design (joints, railing, fenestrations)
Interior design (layout of each room, furniture expression)

12/5/2022 - 13/6/2022:

Updating 1:500 physical site model
Constructing 1:200 presentation model of the building
Producing rendered perspectives for the designed atmospheres
Representing the latest spatial sequences with notation
Completing all plan, sectional drawings
Creating money shots for the project

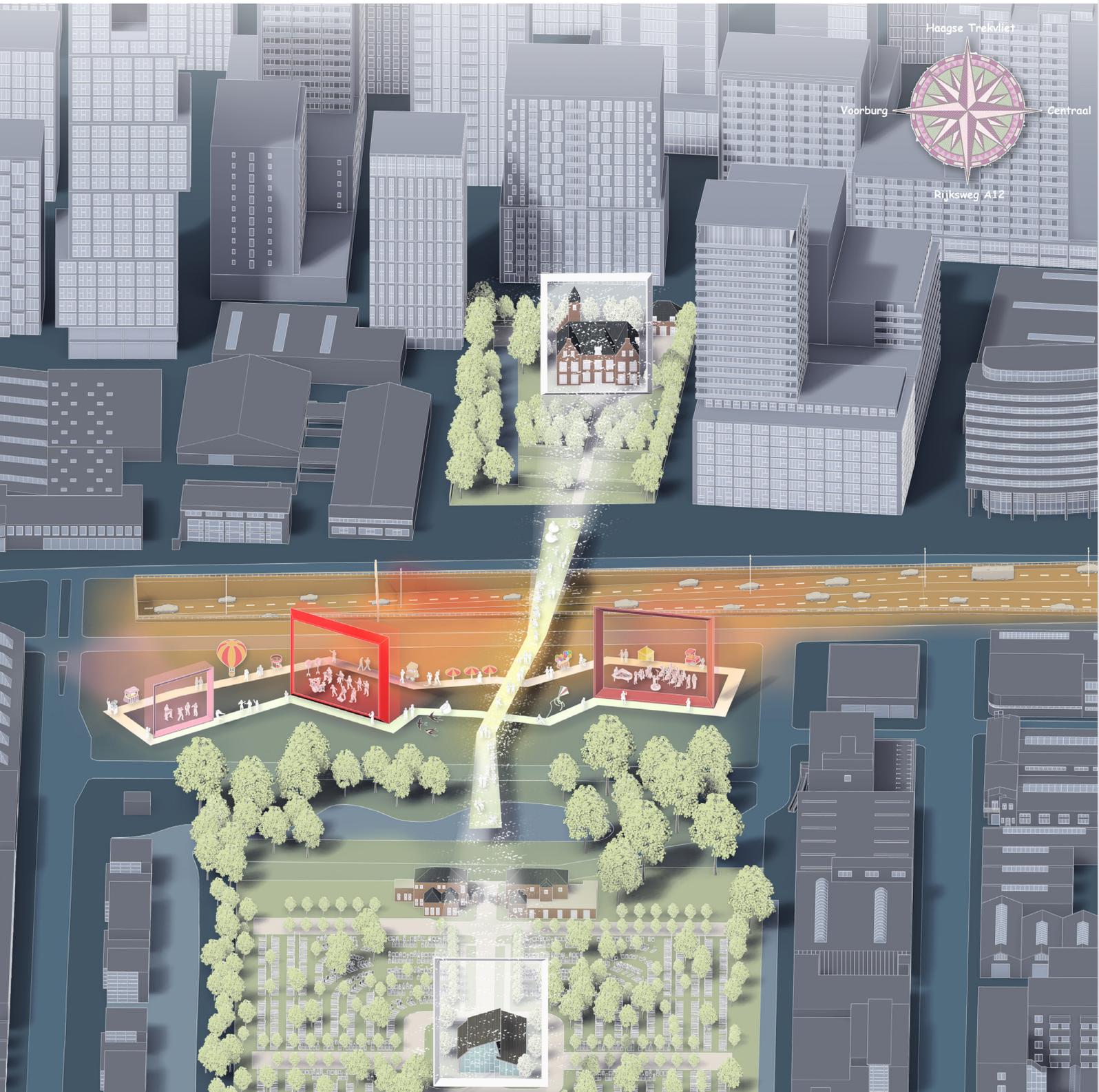


B1. DESIGN MANIFESTO

MUSICAL BINCKCROSS



Rearticulating the Disarticulated



Architecture is about the excavation and release of potentialities hidden in a site or programme.
With respect to Binckhorst, it is about unravelling or enriching its psychologically interpreted colours.
For nothing is in the intellect that was not first in the senses.



B2. THEORY RESEARCH

MUSICAL BINCKCROSS



PROJECT ABSTRACT

Following the problematization of the architectural type and the built environment in P1, I hereby propose a perceptual approach which challenges the static impression of present-day concert halls and the stereotype of Binckhorst as a mere transitory zone. Built upon John Locke's empiricist philosophy¹, my individual theory research acknowledges the role of sensation in shaping our knowledge of matters and concludes that one's movement in space can bring about variations in the perception of any buildings. Throughout the course of being exposed to a succession of spaces, our senses are activated, thereby enabling us to experience architecture and its urban setting quite differently.

Considering the above principle, the project intends to create a processional sequence for each main user of the music venue. The routes, which have to be open enough to reveal the animated passage of people and the interior functions, will comprise multi-sensory encounters that extend beyond the main spaces for the musical events and are specific to the site. By multi-sensory, I am referring to the engagement with not only the visual but also the aural qualities of architecture. For one of the missions to be achieved is to question the domination of the "observer eye" in the discipline and exploit the long-neglected effects of sounds on spatial ambiances.

EMPATHY

FEEL...

dangerous to cross the streets
uncertain about the imminent changes
inconvenient to find a stopover place

THINK...

anonymity of local residents and businesses
archipelago with difficult access
benefits of bringing music to Binckhorst

DO...

preserve the charm of the past
remove hostile boundaries
regenerate existing industries

PERSONA

I LIKE...

the mix of urban characters and secret event pockets found inside
the warehouses

I WISH...

to slow down the pace of the traffic-oriented district with vibrant
anchor points that will catch people's attention

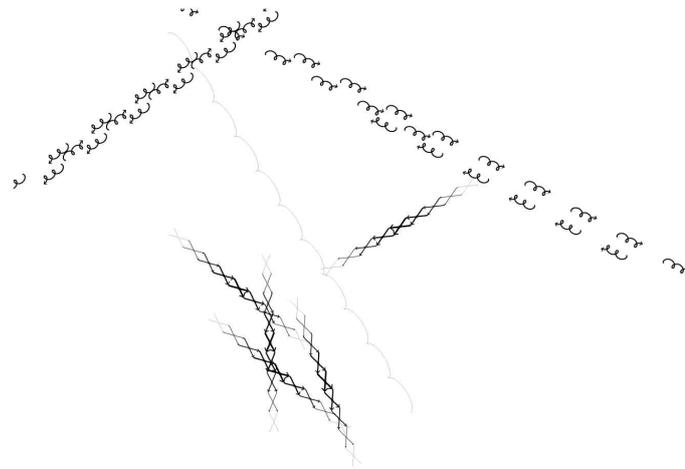
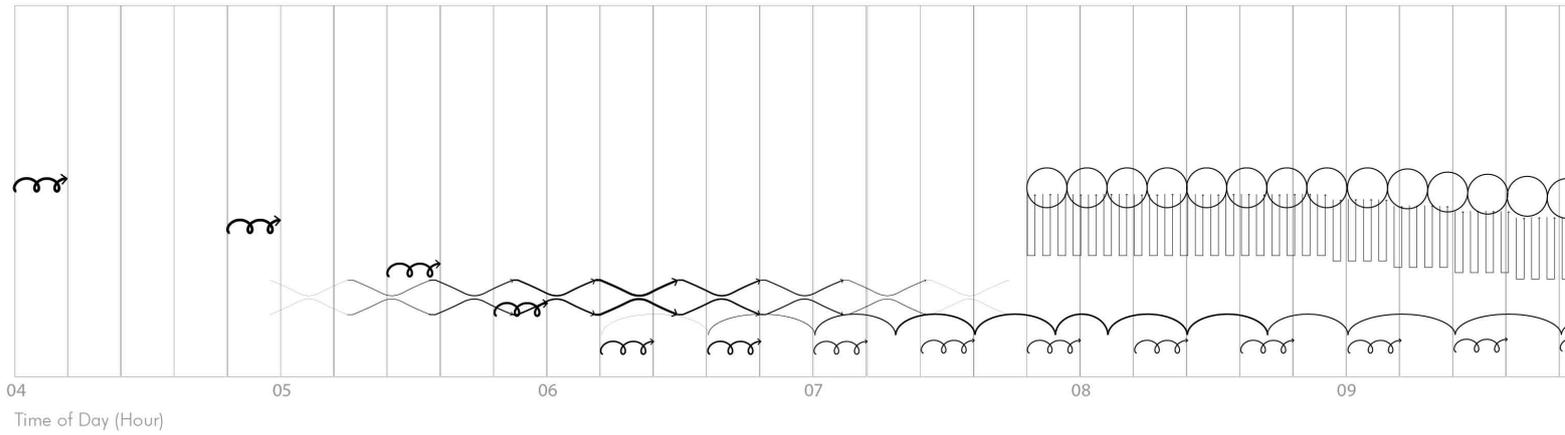
I WONDER...

if the remaining diversity of Binckhorst will be kept in the future
plans and escape further homogenization

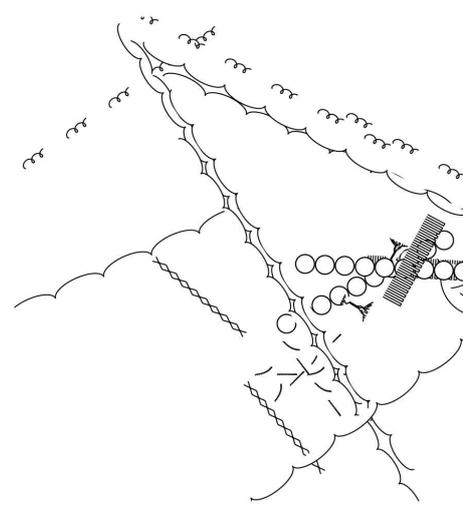
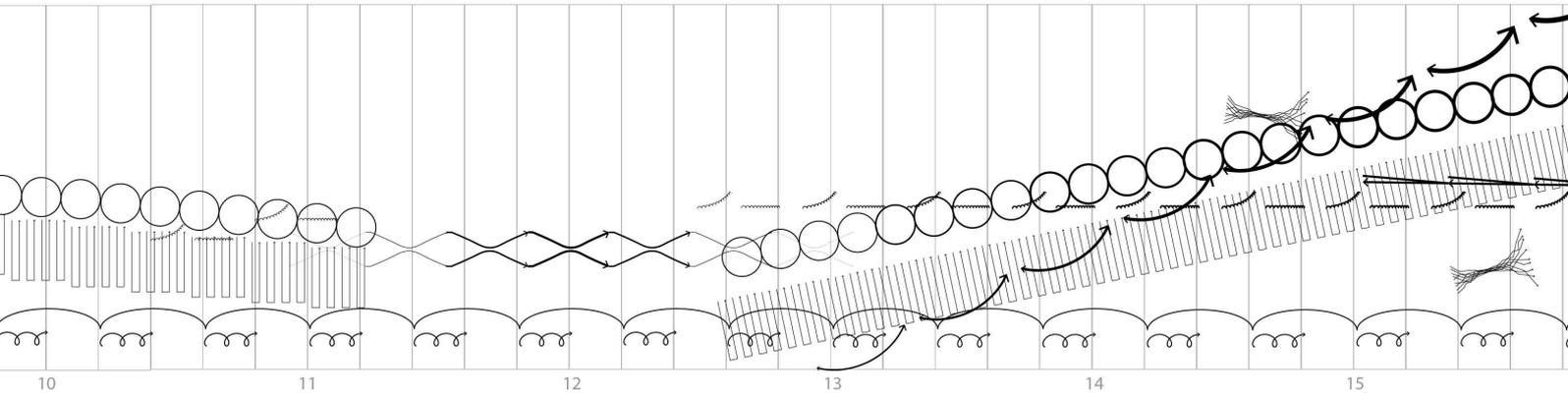
WHAT IF...

musicians and residents were to determine how the public spaces
of Binckhorst will look like in the future?

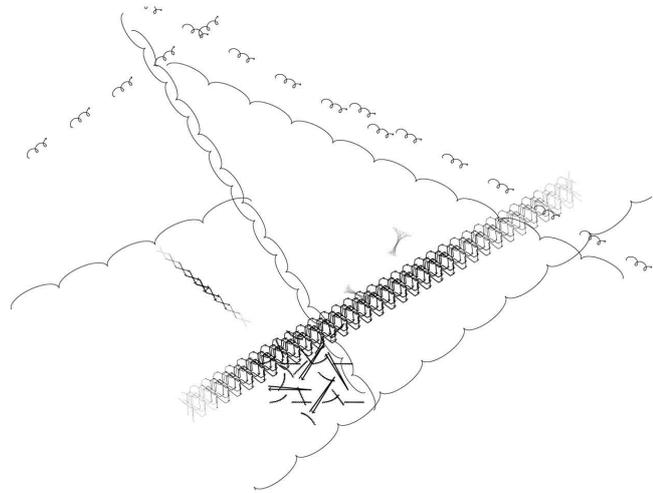
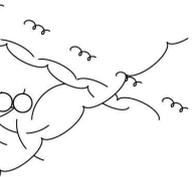
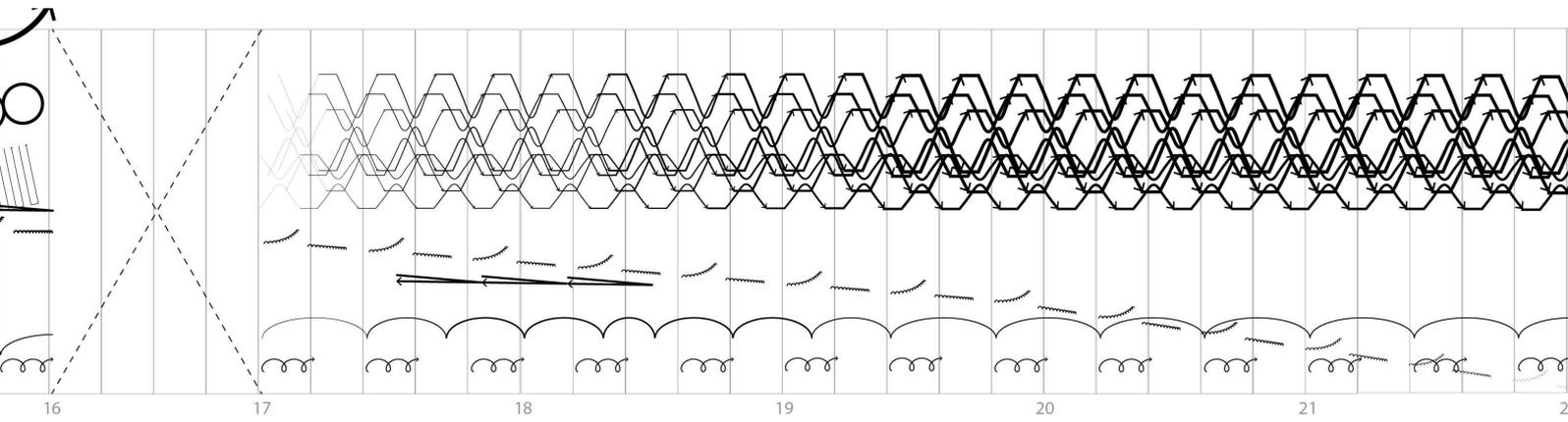
SITE NOTATION

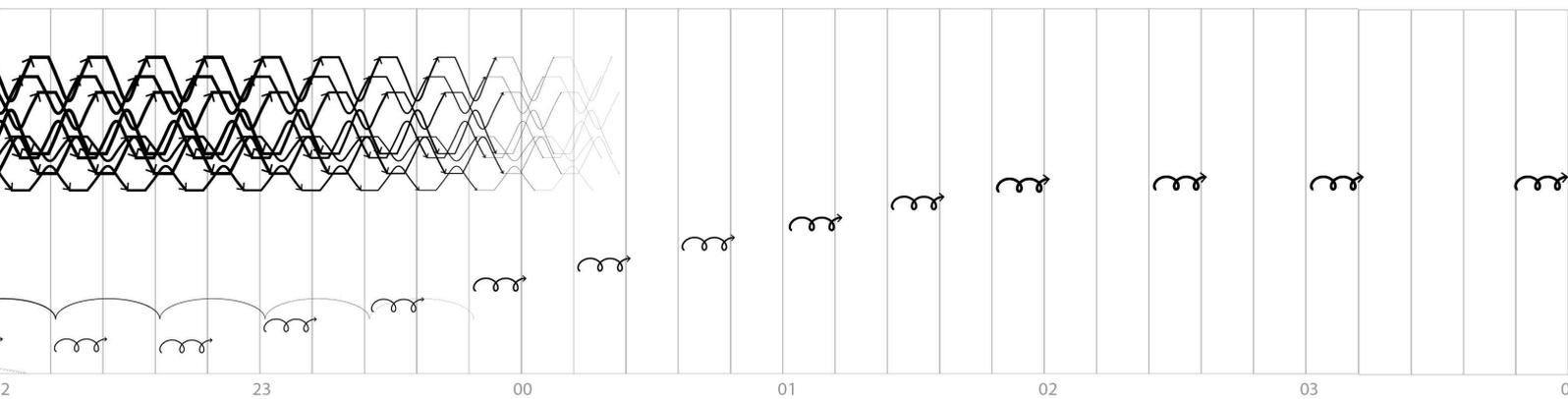


A collective effort has been made in P1 to come up with a spatio-temporal notation for the soundscape of Binckhorst, upon which I am building my personal iteration.



SITE NOTATION

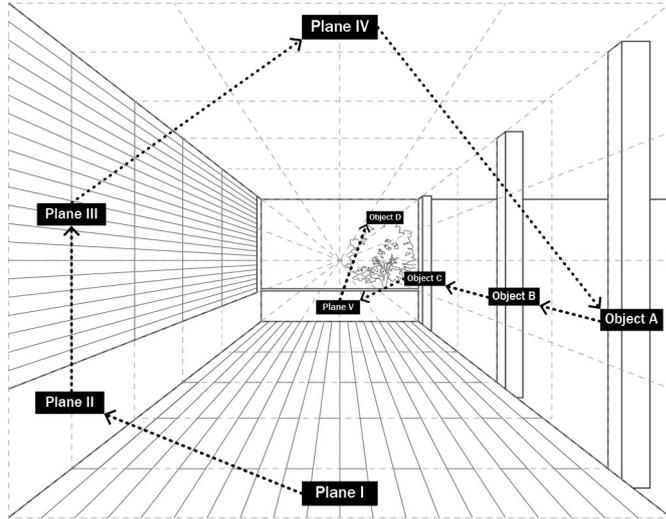




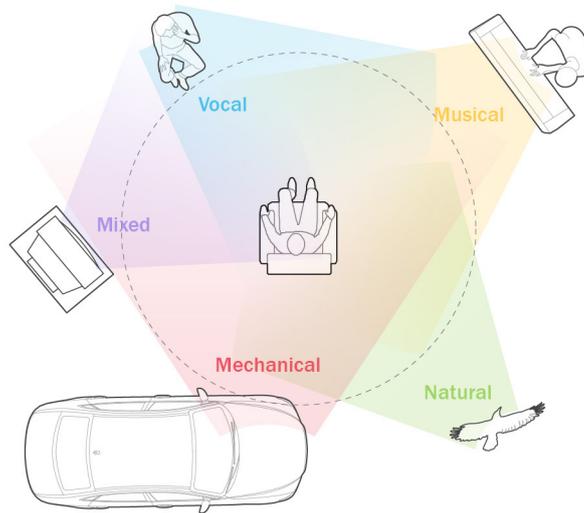
Aiming to harness its heterogeneous character by documenting the wide range of sounds at play in twenty-four-hour cycle, it spells out the utilizable acoustic ingredients in the vicinity and forms the basis for the design of my music venue, which is positioning itself as part of the site's vibrant whole. Since the architectural path in question is meant to set out from and culminate within Binckhorst, a reaction to or interaction with its sensory signals is inevitable.

SENSORY MODALITIES

In order to integrate vision and audition into architecture, it might be useful to review the intrinsic difference in mechanisms for construing light and sound. Visual space, or architectural space in normal practice, is produced by the contextualization of material objects and surfaces² from a distance. Emerging as independent entities, they can only occupy one place at a time and are arranged in accordance with imaginary straight lines converging into a vanishing point. In other words, viewing itself is bound to a step by step, monochronic logic of linearity³. Elements without definite outlines or planes are naturally excluded by the visual perspective⁴. Unlike the world of the reflected light, acoustic space features sounds that can come from all directions at the same time, conjuring an immersive sphere that centers the listener. Due to the simultaneity and omnipresence of audio projection, more attention is given to the instantaneous happenings⁵ instead of solid bodies, especially when the sound sources are not directly visible. Moreover, the application of layering in visual space is often limited to either the three-dimensional stacking of geometries on top of each other or the interlacement of screens for dressing or spatial division purposes as in the Primitive Hut of Gottfried Semper. In contrast, sounds in acoustic space can be overlapped or interwoven to a greater extent on account of their transparency. Upon mixing, more dominant ones will usually mask their obscure counterparts without completely occluding them. Thus, it takes much greater effort for an untrained ear to distinguish between the individual members within an ensemble.



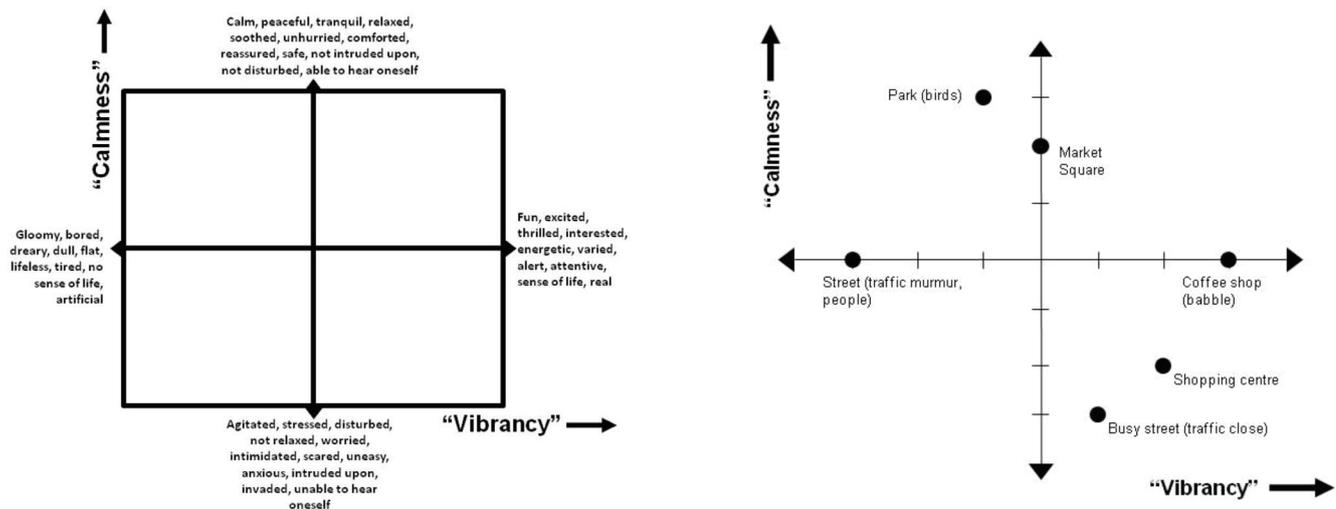
Concept of Seeing



Concept of Hearing

SOUND AND SPACE

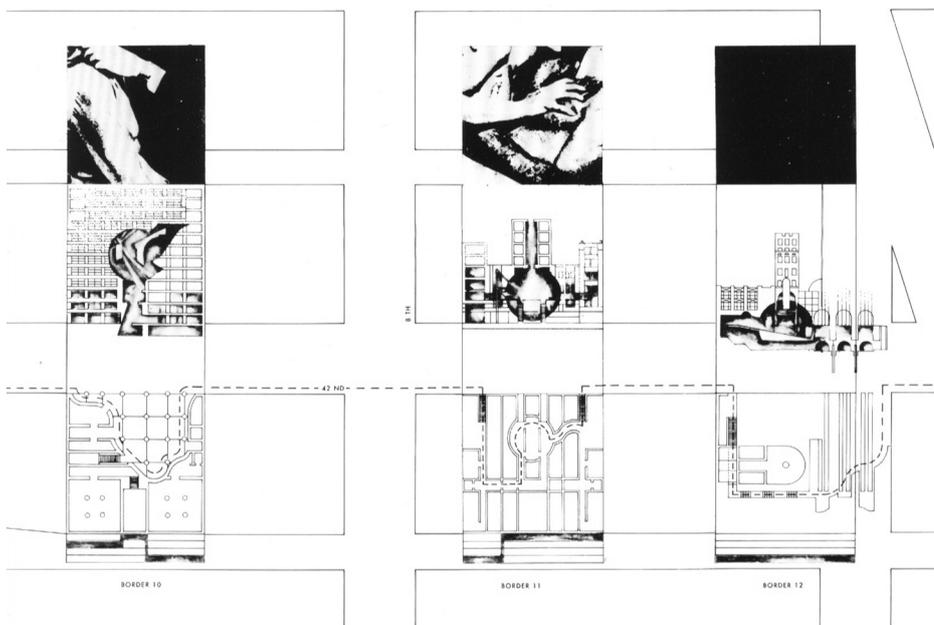
The contrasting modalities of seeing and hearing things makes me wonder how far can architecture embody the multi-layered complexity⁶ evident in acoustic space. I am also curious whether it is possible to extract, cut up, fragment or displace environmental sounds along a temporal axis such that they are made compatible with optical space composed of disjunct matter. As opposed to diving into the technicalities of sensory processing of audio-visual inputs by our biological faculties or computation of decibel levels, the quest entails an inquiry into the sonic attributes of space and focuses largely on the qualitative aspects of different sound types in relation to their culturally learned semantics. For many empirical studies⁷ have shown that the urban soundscape plays a part in enhancing or suppressing atmospheres of space. This does not mean that the effects of acoustics on our spatial perception can be reduced into simplistic classifications. Instead, it formulates a rule of thumb that may aid architects in composing with different sound types.



"The Development and Application of the Emotional Dimensions of a Soundscape, Rebecca Cain, Paul Jennings and John Poxon

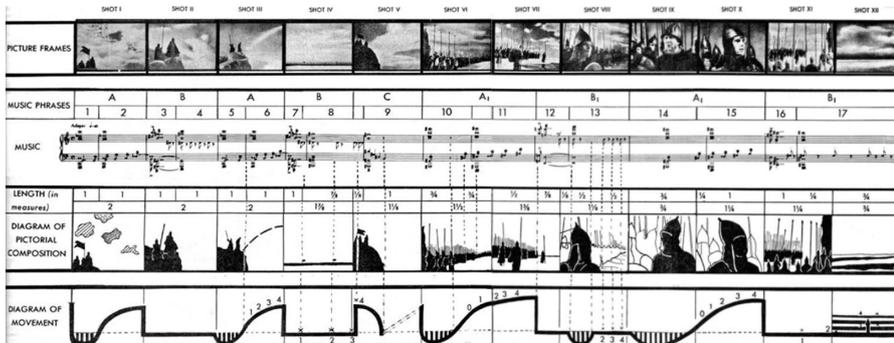
REPRESENTATION METHOD

Conventional plan and sectional studies are far from capable of relaying information about the lines of motion in a building. This suggests a need to instrumentalize a notation system which can serve to conceptualize and communicate the spatial journeys of the music venue. To develop my own method of work, I scrutinized musical scores, film scripts and preceding attempts by architects to notate space on a temporal axis, one of which being Bernard Tschumi's Manhattan Transcripts. It thematizes events, space and movement of a person⁸ to construct a narrative of downtown New York. The sonic dimension of architecture, however, is again omitted. As a reaction to the canonical example, my "architecture score" will feature an acoustic layer, apart from delineating the change in atmospheres, flow of programmes and characteristics of space along the paths.

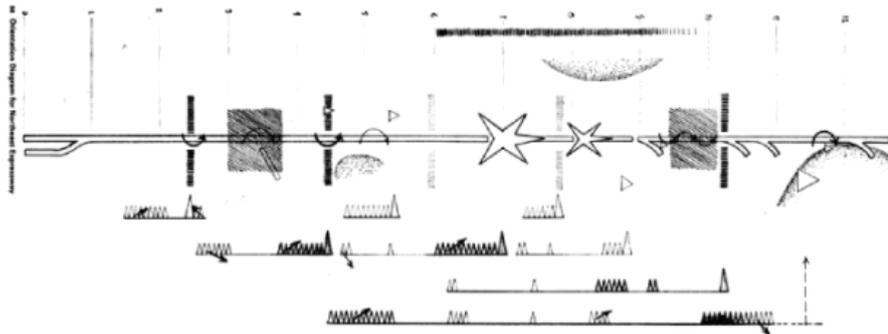


MT 2, Bernard Tschumi (1981)

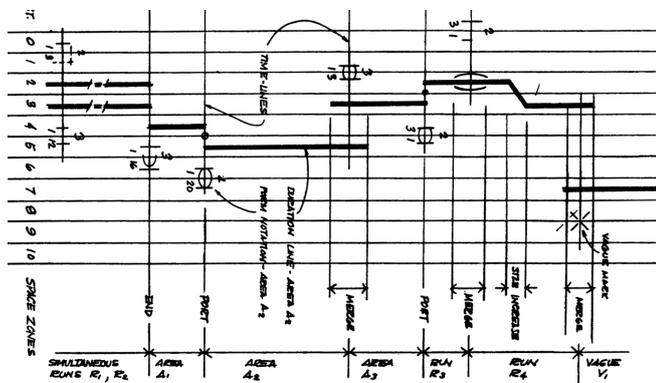
REPRESENTATION METHOD



Visual rendition of Audiovisual Correspondences, Sergei Eisenstein (1938)



Orientation Diagram for Northeast Expressway, Kevin Lynch (1960)



Experience Notation: For Architectural and Urban Spaces, Philip Thiel (1961)

ATMOSPHERIC BUILDING



Blue
Place of transit
Violence
Cold



Green
Relationship
Trust
Peace



Red
Threat
Passion
Anger
Temptation



White
Pure
Intimate

Scenes from *The Cook, the Thief, His Wife and Her Lover* by Peter Greenway (1989)

BIBLIOGRAPHY

- ¹ Locke, John. *An Essay Concerning Human Understanding Book II: Ideas*, edited by Jonathan Bennett.
- ² Thiel, Philip. "A Sequence - Experience Notation: For Architectural and Urban Spaces," *Town Planning Review* 32 no. 1 (1961).
- ³ McLuhan, Marshall. "Visual and Acoustic Space." In *Audio Culture: Readings in Modern Music*, edited by Christopher Cox and Daniel Warner. New York; London: Bloomsbury Publishing Incorporation, 2017.
- ⁴ Buck, David Nicholas. *A Musicology for Landscape*. New York: Routledge, 2017.
- ⁵ Handel, Stephen. *Perceptual Coherence: Hearing and Seeing*. New York; Oxford: Oxford University Press, 2006.
- ⁶ Karandinou, Anastasia. *No Matter: Theories and Practices of the Ephemeral in Architecture*. Burlington: Ashgate Publishing Company, 2013.
- ⁷ Cain, Rebecca, Paul Jennings and John Poxon. "The Development and Application of the Emotional Dimensions of a Soundscape," *Applied Acoustics* 74 no. 2 (2013).
- ⁸ Tschumi, Bernard. *The Manhattan Transcripts*. New York: Academy Editions, 1994.



C. DESIGN BRIEF

MUSICAL BINCKCROSS



120

School Capacity: Small

300

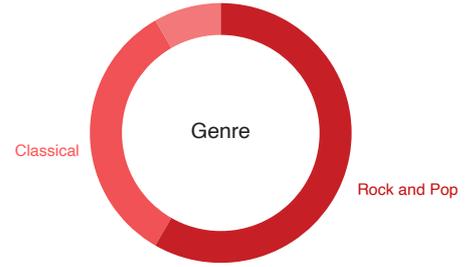
Classical Auditorium Capacity: Small

600

Rock and Pop Hall Capacity: Small

100

Jazz Club Capacity: Extra Small



Classification	Count	Nett (m ²)	Tarra (m ²)	Gross (m ²)	Percentage
Public					
Office	1	57	3	60	1%
Cafe	1	60	-	60	1%
Food Corner	1	72	3	75	1%
Shop	2	31	4	35	0.5%
Gallery	1	64	6	70	1%
Young Artists					
Practice Room	11	160	30	190	3%
Composition Room	16	94	16	110	2%
Recording Studio	5	153	22	175	3%
Classroom	4	188	12	200	3%
Library	1	160	10	170	3%
Concertgoers					
Cloak Room	2	15	20	35	0.5%
Lounge	2	120	15	135	2%
Jazz Club	1	110	30	140	2%
Rock and Pop Hall	1	260	30	290	4%
Classical Auditorium	1	480	50	530	8%
Performing Artists					
Bar	3	80	10	90	1%
Rehearsal Room	8	140	40	180	3%
Changing Room	6	390	40	430	7%
General					
Restroom	10	220	30	250	4%
Mechanical	-	-	260	260	4%
Circulation	-	-	3000	3000	46%
Total	-	2854	3631	6505	100%



D. PROCESS DOCUMENTATION

MUSICAL BINCKCROSS

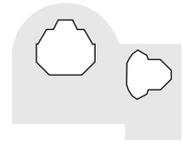


TYPOLOGICAL RESEARCH

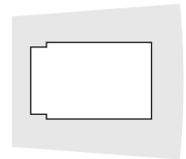
According to German poet Goethe, architecture is frozen music. The same can also be said for concert halls, an architectural type designed to host musical performances which are instead fluid. Unlike music, they are fixed to a particular location and constantly constitutes a "petrified reality"¹.

Early concert halls have been dubbed "the black box" in view of their generic geometry and highly enclosed nature. Contemporary buildings for music, on the other hand, are generally more iconic when it comes to their built forms. Nonetheless, as noticed from the P1 case study, a majority of them continue to appear as one homogeneous block and tend to keep the happenings inside out of public sight, which further adds to the perceived "stacticness" pervading music venues of today.

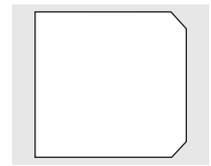
Subsequently, is there a way for us to "defrost" the architectural type and better reflect the fluidity of music in concert halls? While it sounds difficult to fully liberate architecture from its physicality, the spatial experience of a building is always meant to be dynamic.



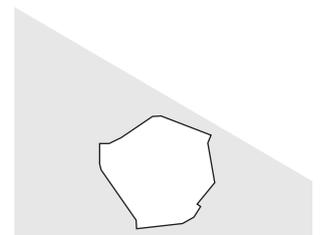
Philharmonie de Paris



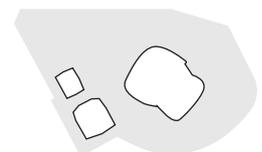
Royal Festival Hall



Ziggo Dome



Elbphilharmonie Hamburg



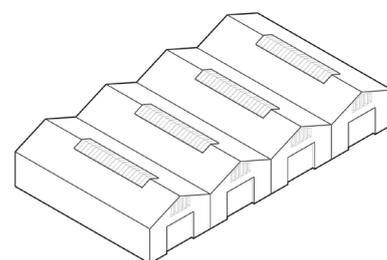
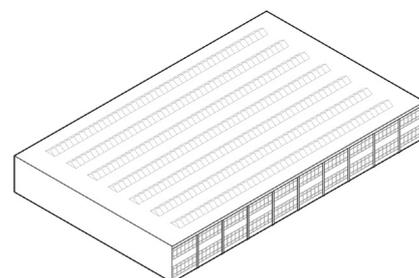
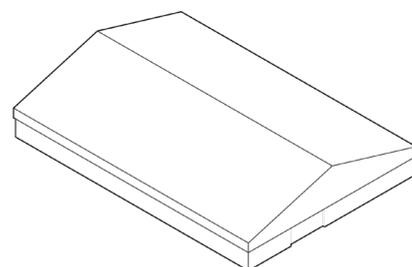
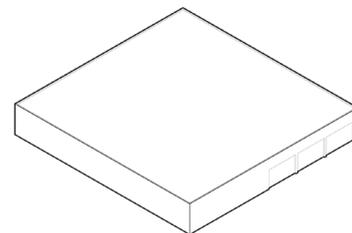
Barbican Centre

DELINEATION RESEARCH

When I visited Binckhorst for the first time, the idea of “passing by” came to my mind. Other than the continuous rows of industrial architecture, there seemed to be very few points of interest along Binckhorstlaan. The warehouses, manufacturing plants and car repair workshops bear a great resemblance to concert halls in the sense that they all embrace the condition of horizontal lobotomy, under which “less and less surface represented more and more internal activity.”² The interior functions in flux are camouflaged by the monolithic, impenetrable building envelopes, which give rise to a uniform streetscape.

As I wandered through the strip with the technique of *dérive* in mind, two “disarticulated” sights, namely the Binckhorst Castle and Saint Barbara Cemetery, drew my attention. They emanate a different character than the rest of the industrial landscape but often remain unnoticed. I also remember hearing machines rumbling, vehicles swooshing, birds chirping and people chattering, which hint at the heterogeneity of Binckhorst.

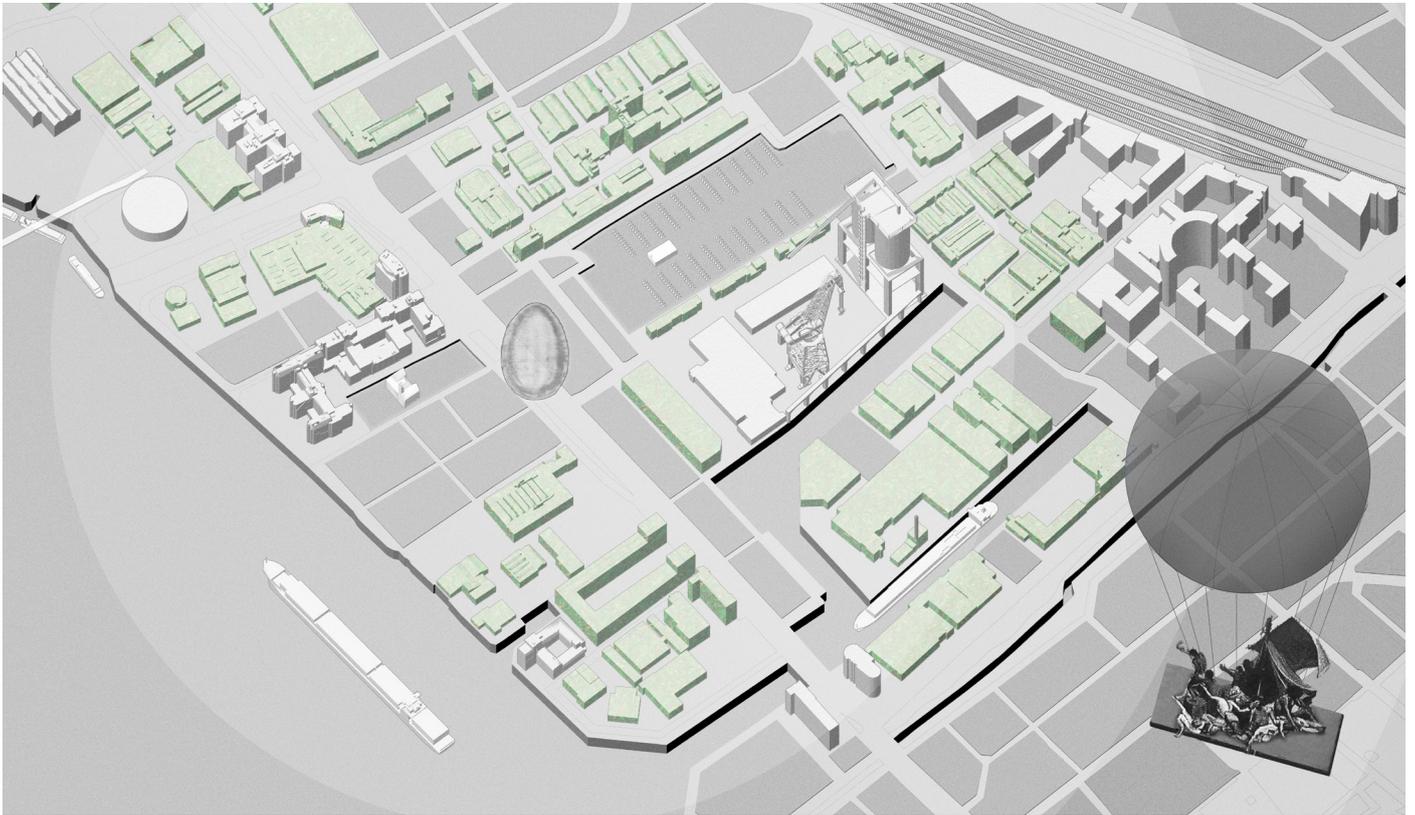
Here comes the question. Is it possible to augment and restructure the above sensorial anchors, which are at the moment subsumed and scattered across the main road, to reverse the monotony of Binckhorst?



Industrial Types in Binckhorst

DELINEATION RESEARCH

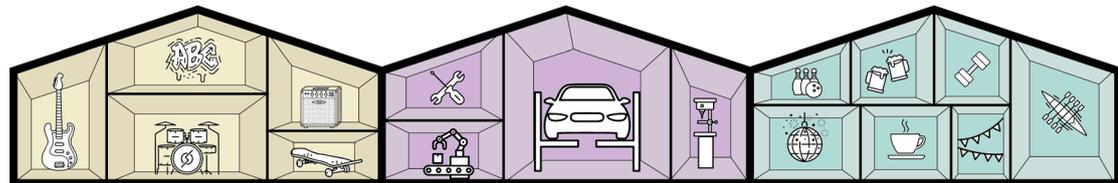
Genericness



Creative

Automobile

Leisure



Camouflaged

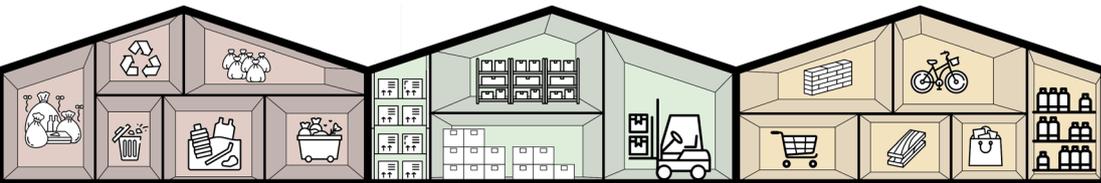
Disarticulation



Trash

Logistics

Retail



Heterogeneity

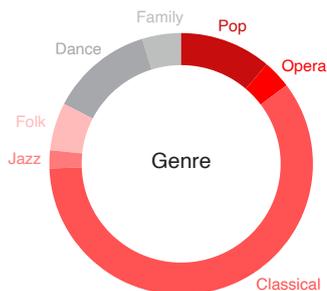
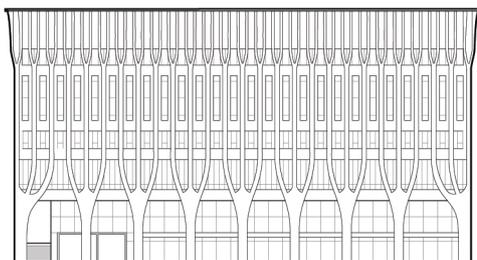
PROGRAMME RESEARCH

At the moment the Central Innovation District of den Haag is served by three major music venues, namely Amare, Koninklijk Conservatorium and Theater aan het Spui. As discovered in the P1 collective research, they are largely at the service of classical music. Only professional musicians, large institutions or academics have access to the facilities. My project therefore strives to complement its regional counterparts by introducing a music complex aimed at amateurs and small bands, who can use the building for performance and educational purposes. Other musical genres, such as jazz, rock and pop, will form part of the programme to avoid the complete monopoly of a single niche.



Music Venues within the Central Innovation District, den Haag

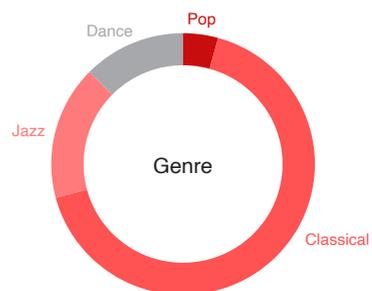
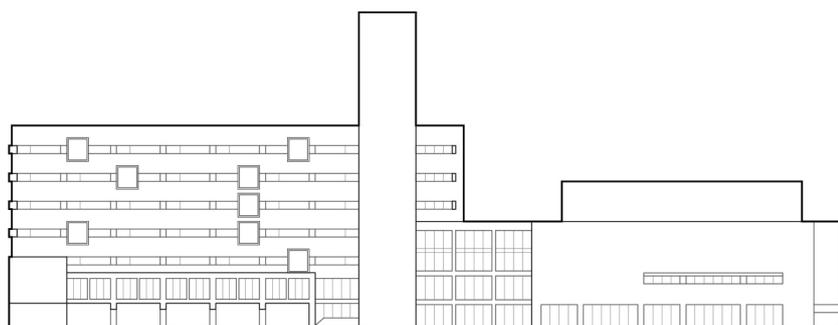
Amare



6600

Capacity: Large

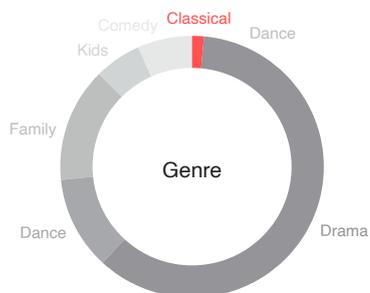
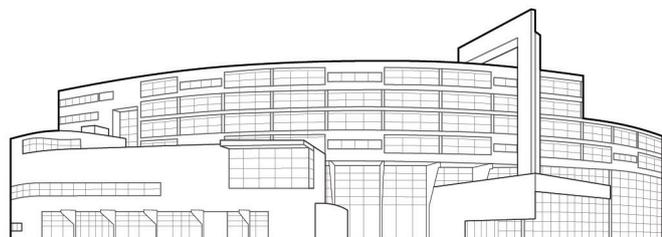
Koninklijk Conservatorium



1000

Capacity: Medium

Theater aan het Spui



530

Capacity: Small

SITE RESEARCH

A vacant plot at the heart of Binckhorstlaan has been selected as the building ground for the music venue. Apart from its proximity to the Binckhorst Castle and Saint Barbara Cemetery which the project aims to reframe, it is a strategic location receiving traffic from the entrance of the Boogie Woogie Tunnel, otherwise known as the primary point of arrival for people heading to the Central Innovation District. In other words, anything that lands there is expected to cast a direct impact on the image of Binckhorst and the city of den Haag.

With quiet green spaces at the back and vehicles sweeping past incessantly in the front, the site exhibits what is coined by Robert Venturi as the “complexity and contradiction”³ in architecture. Such dualistic reality opens up the chance of building up and resolving tension, as well as cultivating richness in experience.

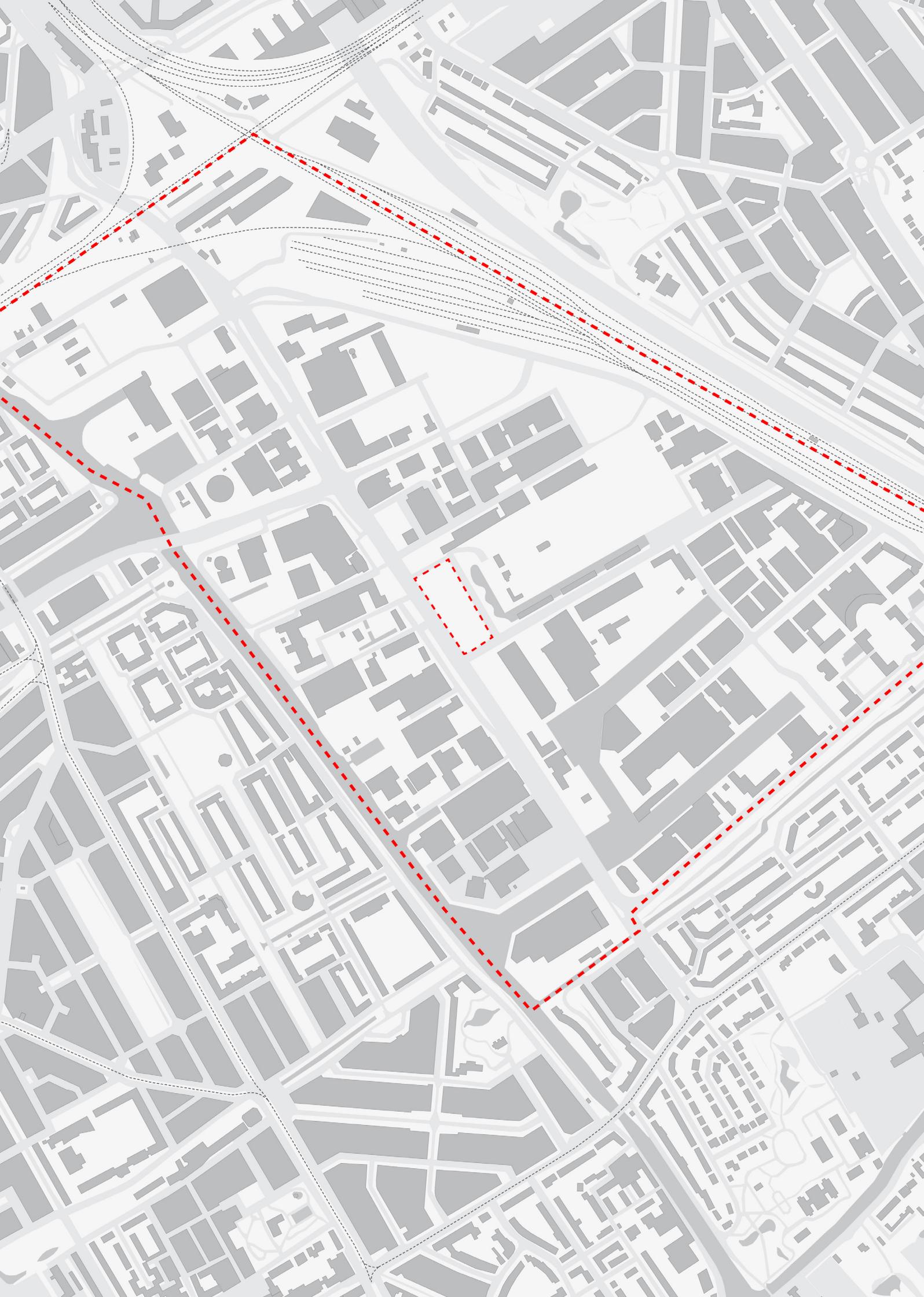
Meanwhile, the immediate vicinity has been subject to an active process of superimposition over the last decades. The seventies saw the overshadowing of classical manors and natural features of the agricultural times by the expansive industrial fabrics. In the coming years, large-scale real estate development will form a new layer on the post-war legacy, giving rise to even more imposing residential towers that are set to further outsize the pre-modern remnants in question.

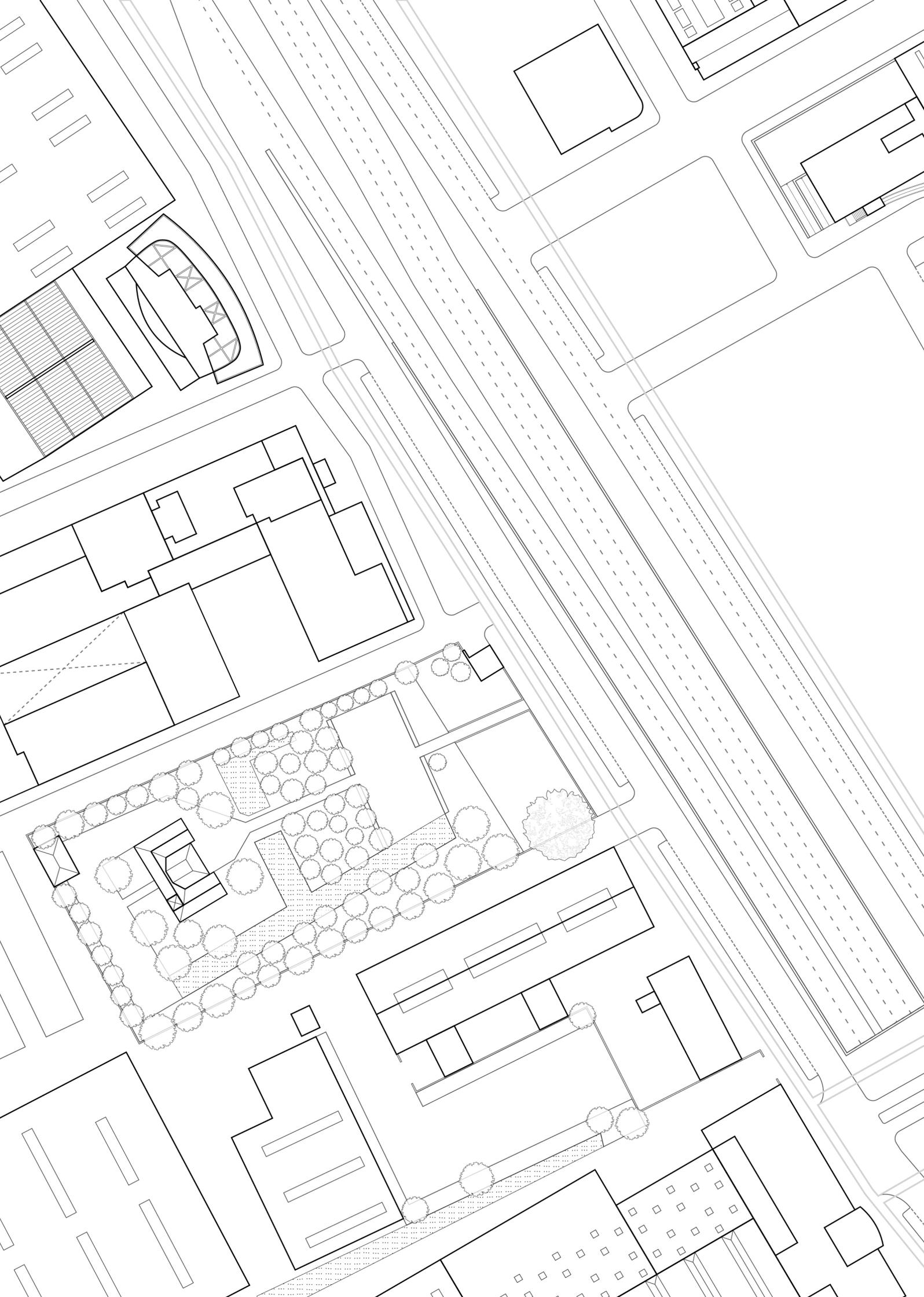


Binckhorst Castle



Saint Barbara Cemetery

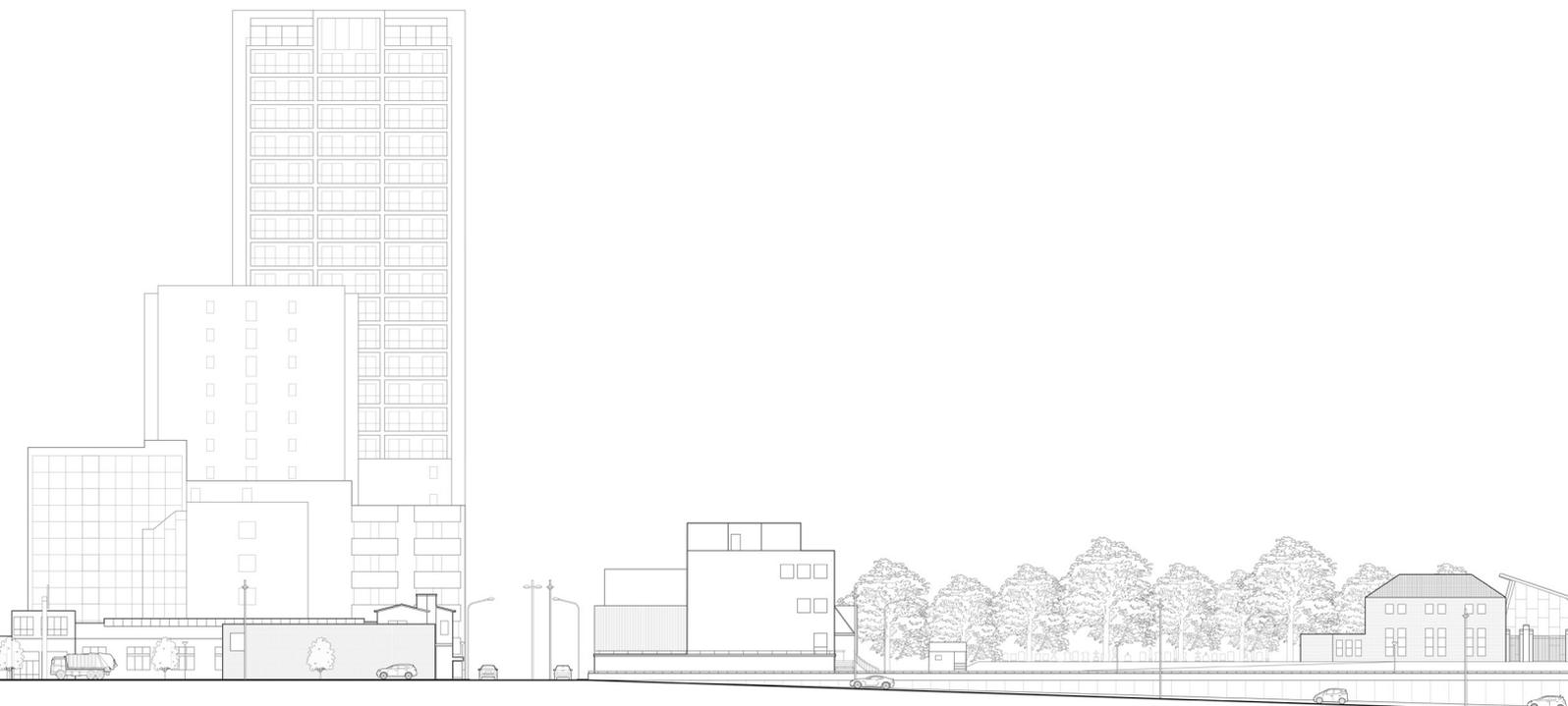
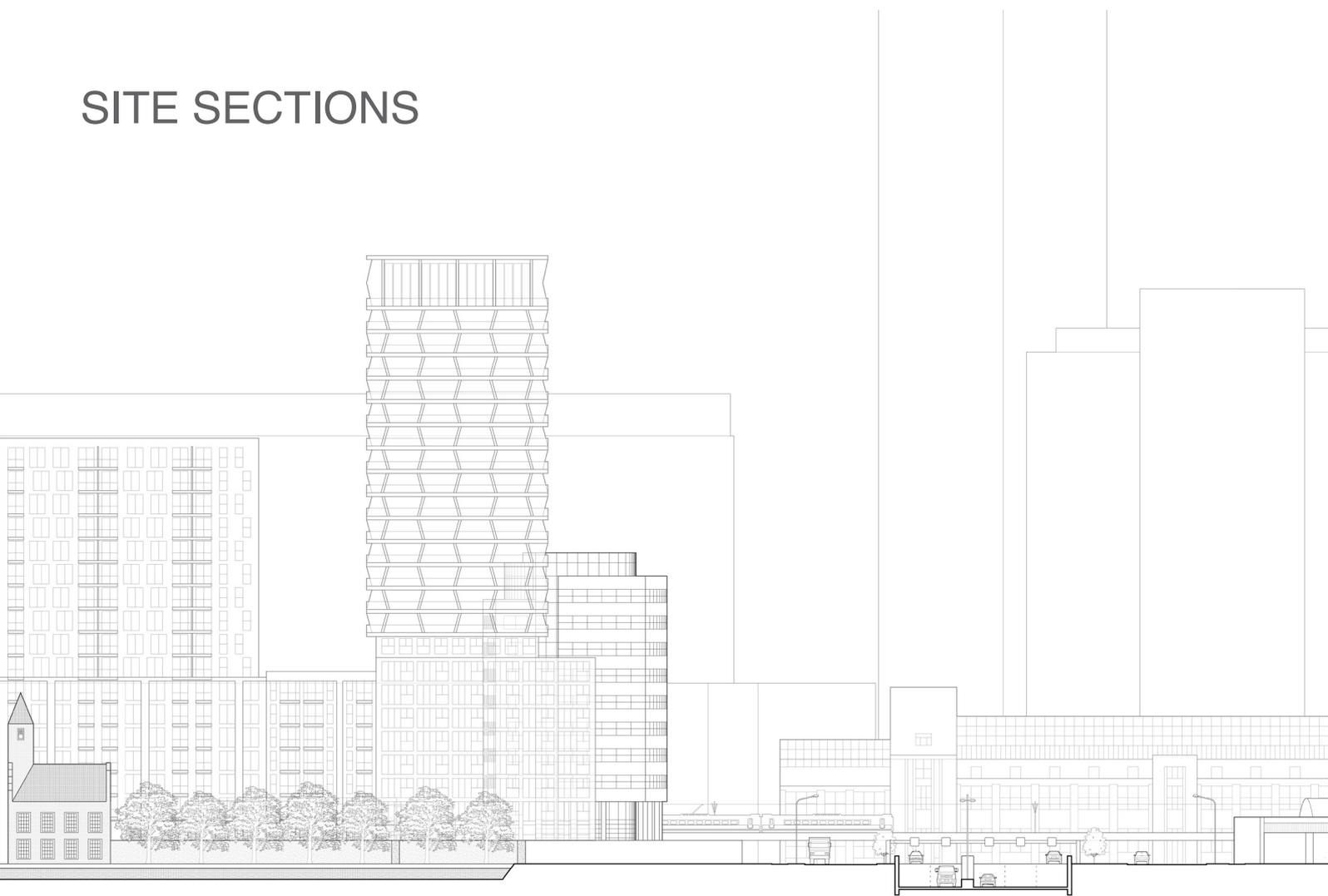




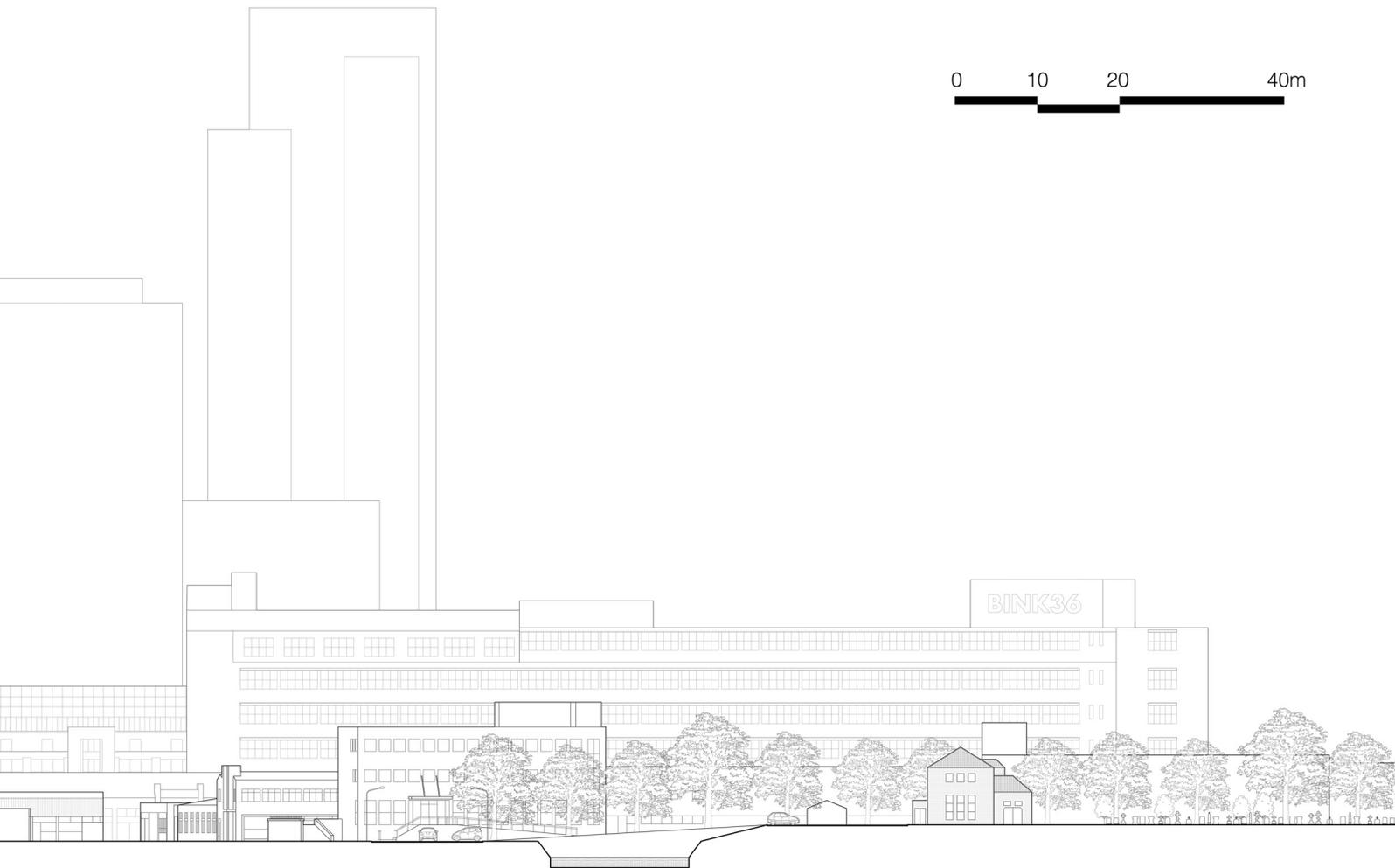


0 15 30 60m

SITE SECTIONS



0 10 20 40m



ELEVATIONAL PHOTOMONTAGE

South-West



North-East





ELEVATIONAL PHOTOMONTAGE



South-East



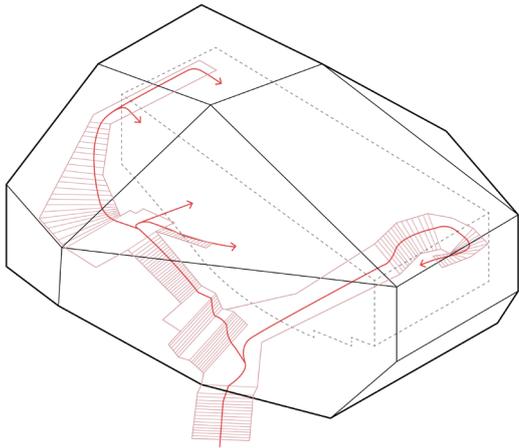
North-West



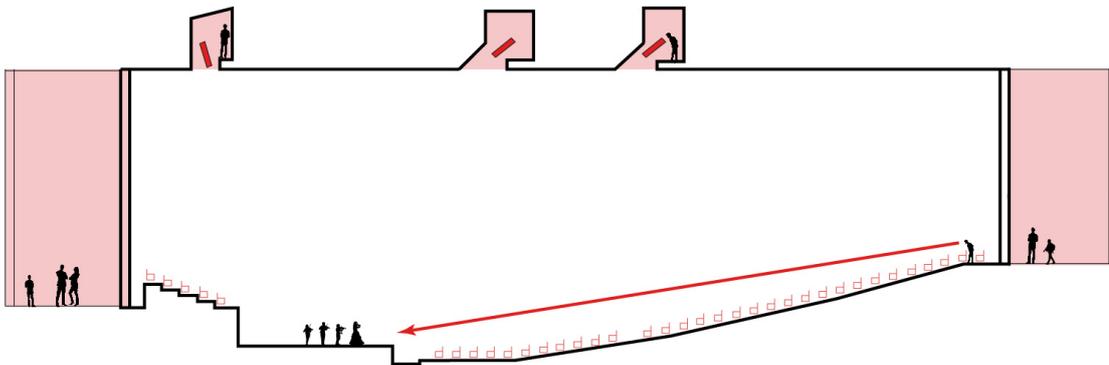
CASE STUDIES

CASA DA MUSICA

Despite presenting itself as a solitary mass, Rem Koolhaas' project in Porto fully embraces the idea of an "architectural adventure"⁴. A public route, which begins at the skatepark on ground level and proceeds all the way to the rooftop patio, is deployed to connect the public functions and residual spaces. On the other hand, the Grand Auditorium enjoys a strong visual connection with the rest of the building and the city. People standing outside can always catch a glimpse of the stage through the transparent glass.



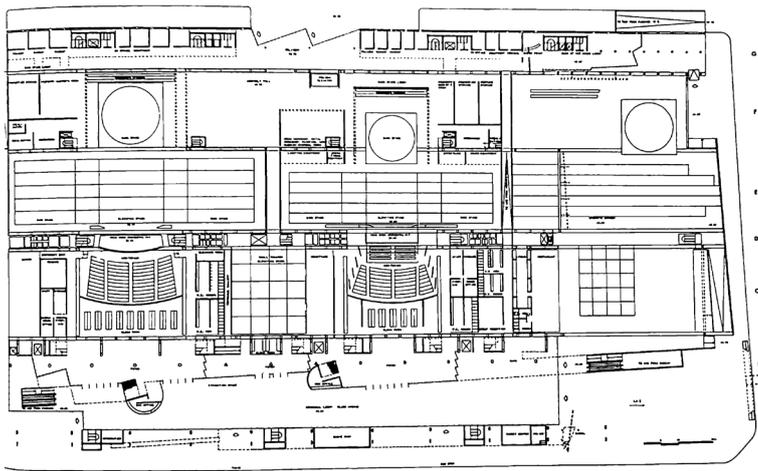
Uninterrupted Publicness



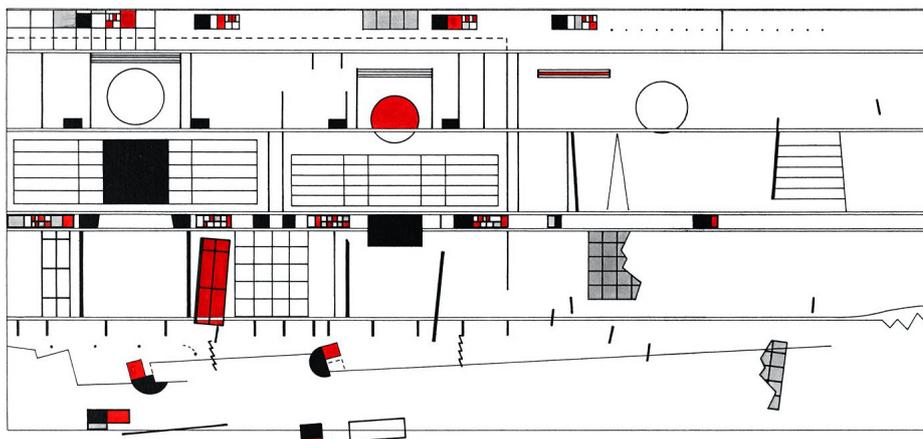
Openness

TOKYO OPERA HOUSE

Bernard Tschumi's competition entry for the Tokyo Opera House has demonstrated the possibility of using notational diagrams to programme a building. The outcome was a series of independent, juxtaposed strips with particular themes, including front-of-house areas, performance spaces, front stages, back stages and back-of-house areas⁵. It also leads to further questions regarding their relationships. Can the splices intersect with one another? What if they are not laid side by side but stacked vertically?



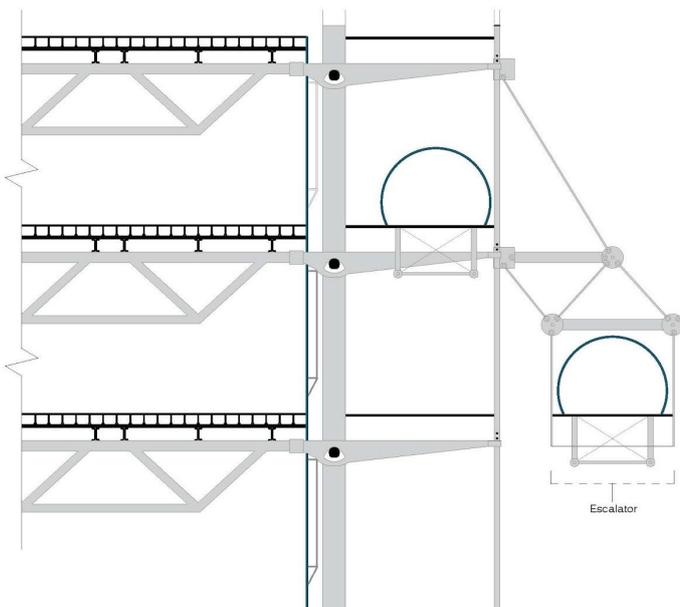
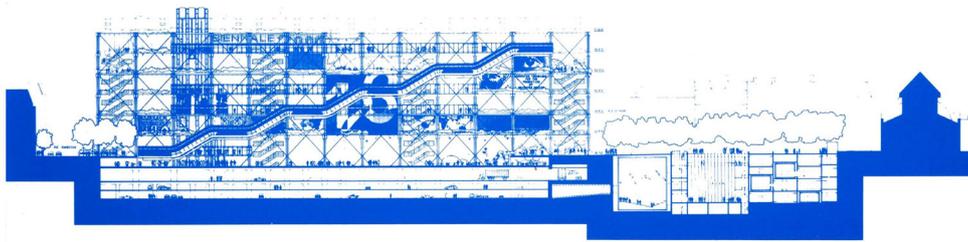
Spatial Layout



Notation

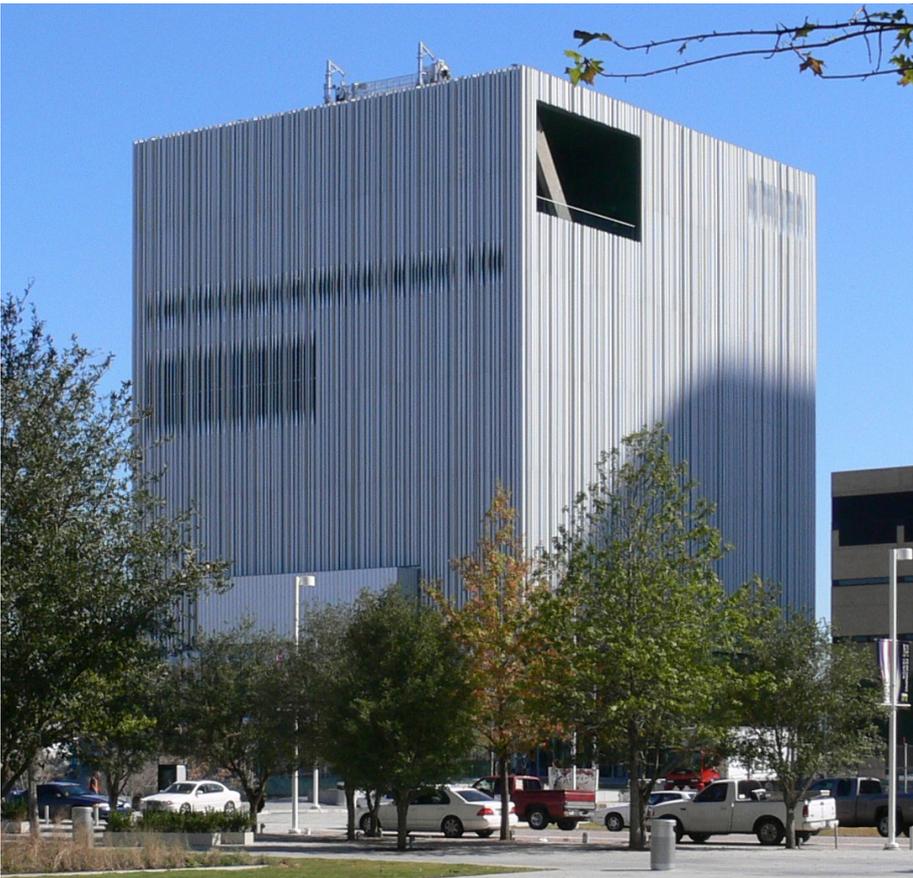
CENTRE POMPIDOU

The vertical circulation is completely visible from the street level due to the placement of escalators outside the building. This special treatment concerning the flipped movement of people creates multiple cantilevered steel tubes which are attached to the primary steel construction.



DEE AND CHARLES WYLY THEATRE

The most relevant aspect of the project that has been studied is its aluminum tubular facade, which resembles a closed curtain. The extrusions vary in diameter and taper whenever they pass by fenestrations to maintain transparency. It demonstrates how the sense of verticality could be achieved without necessarily succumbing to a repetitive pattern lacking visual interest.



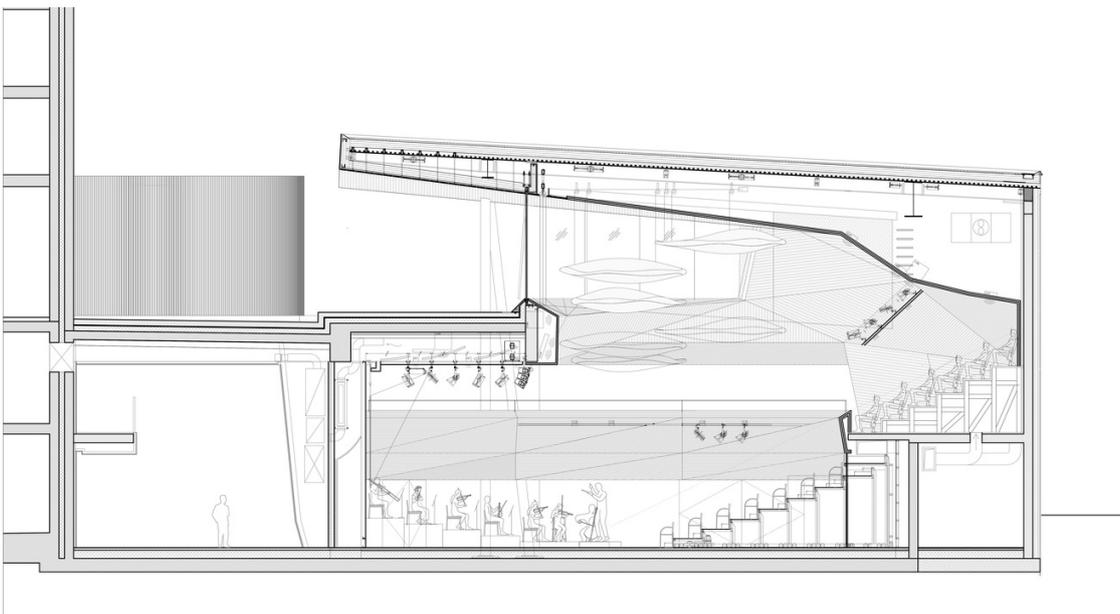
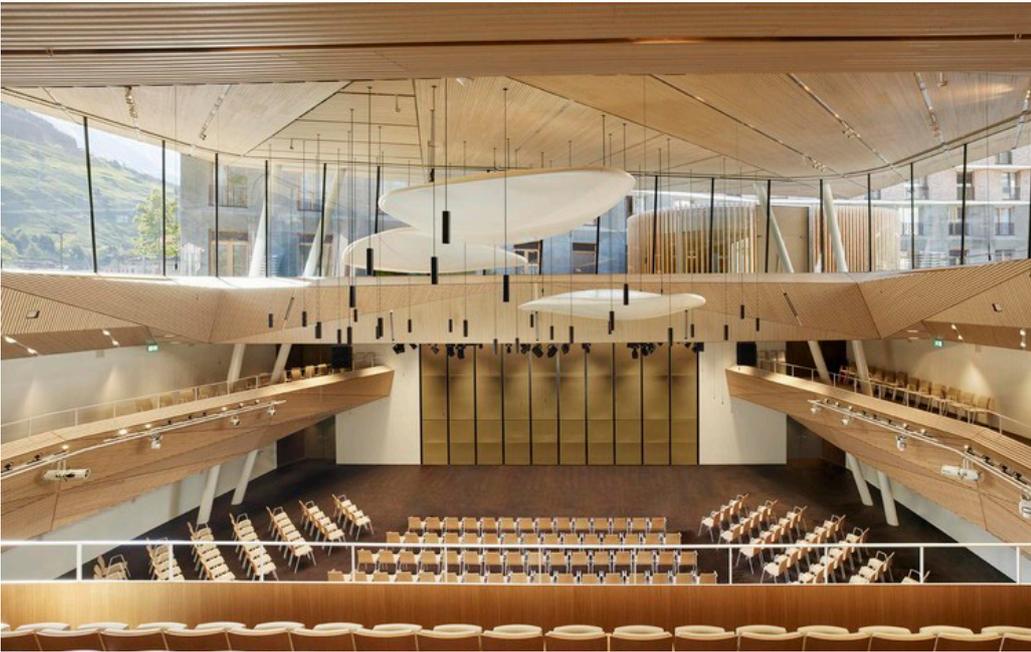
NATIONAL KAOSIUNG CENTRE FOR THE ARTS

The building consists of open amphitheaters which descend gradually from the roof to the ground level. They are nested in a curved, organic canopy which allows for the flowing of free spaces and public gathering underneath. Such large span is made possible by a 3D space truss system clad by a thin steel skin.



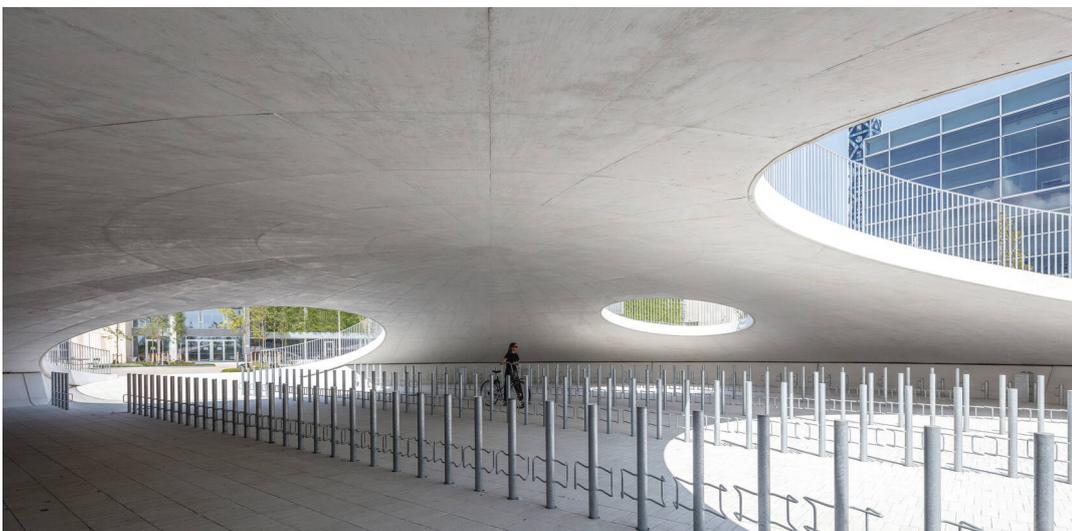
ANDERMATT CONCERT HALL

The concert hall has clerestory windows on three sides which welcome the downpour of natural light into the performing space. It shows that with due acoustic treatment, contemporary music venues do not have to be a black box. A balanced deployment of transparent glazing at certain locations is feasible.



KAREN BLIXENS PLADS

The undulating shell structure spanning above the bicycle parking suggests that it is possible to turn a service area into a playful, expressive and decent space. The presence of atriums contributes to the interplay of light and shadow, as well as fostering unexpected visual interaction between pedestrians walking on the artificial landscape and bikers standing at the carpeted zone.



PHYSICAL MODEL

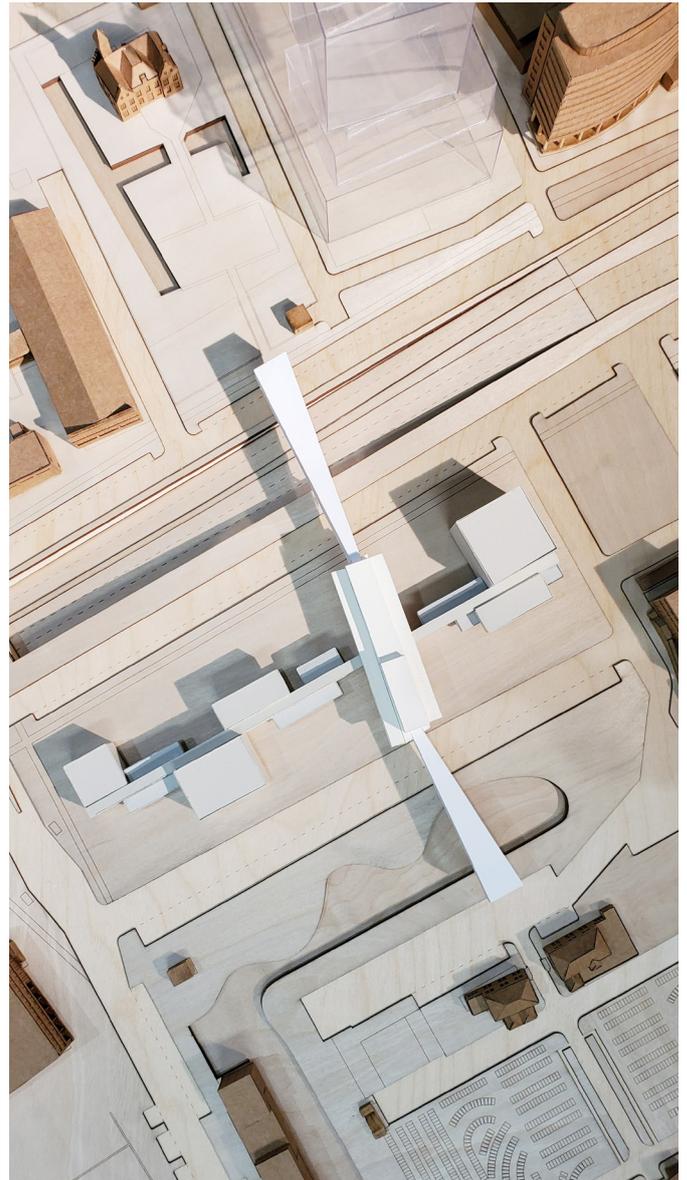
Scale: 1:500

Size: 740 mm x 430 mm x 150 mm

Material: Plywood, Medium-sized Density Fibreboard, Paperboard, Acrylic, Plastic



Test Design 1
Top



Test Design 2
Top



Test Design 3
Top



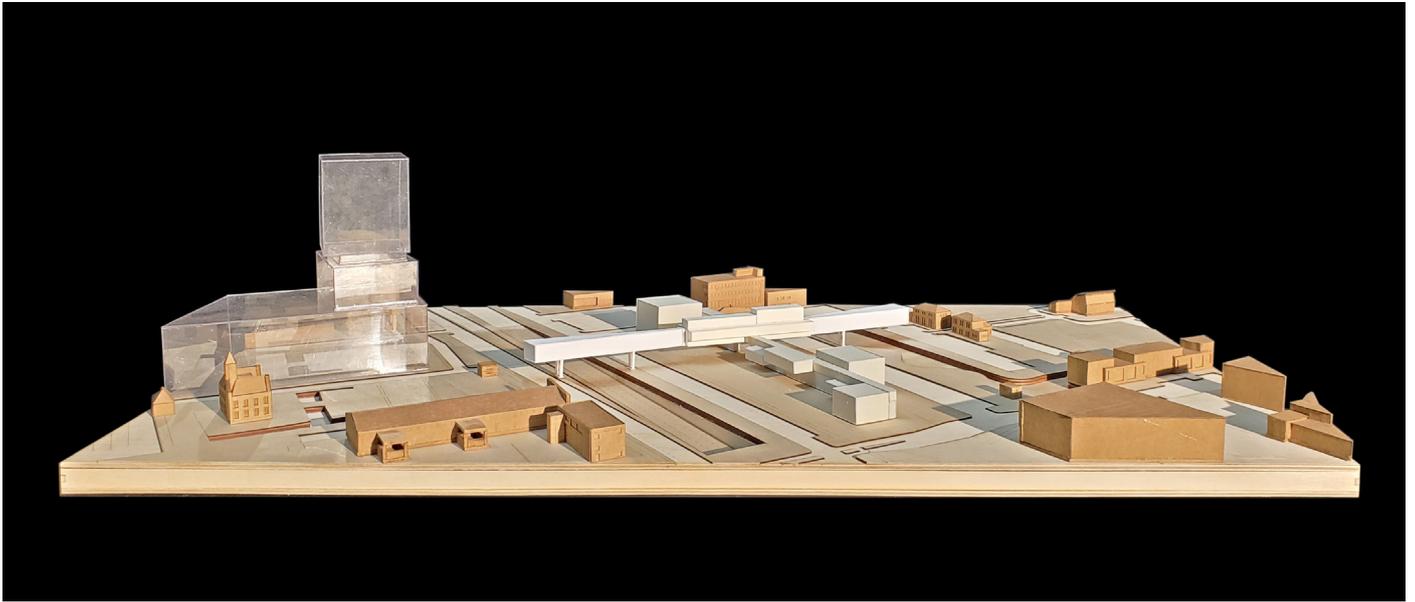
Schematic Design
Top



Test Design 1
South-bound



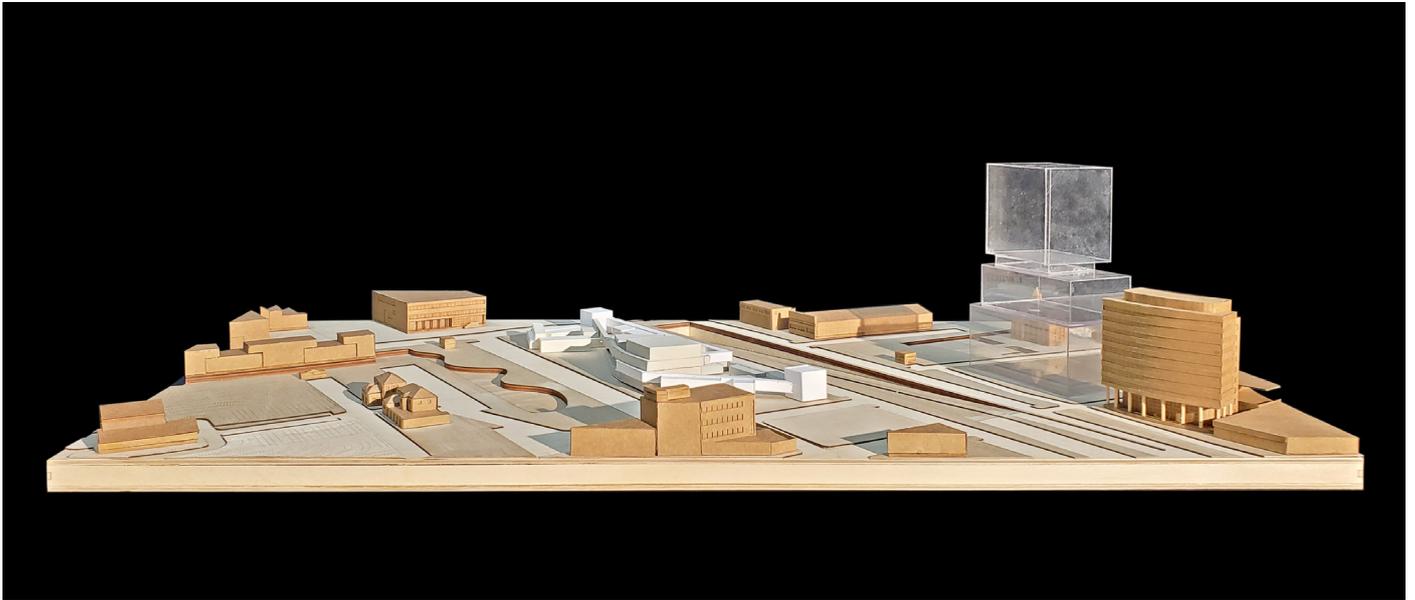
Test Design 2
South-bound



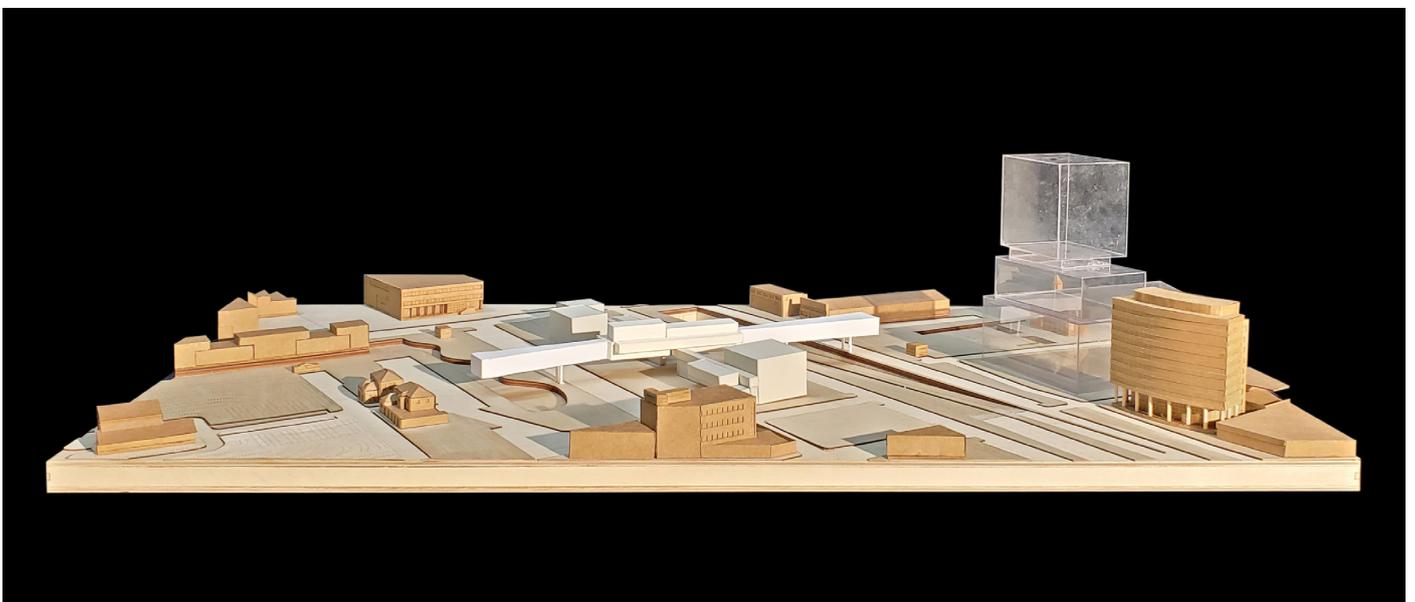
Test Design 3
South-bound



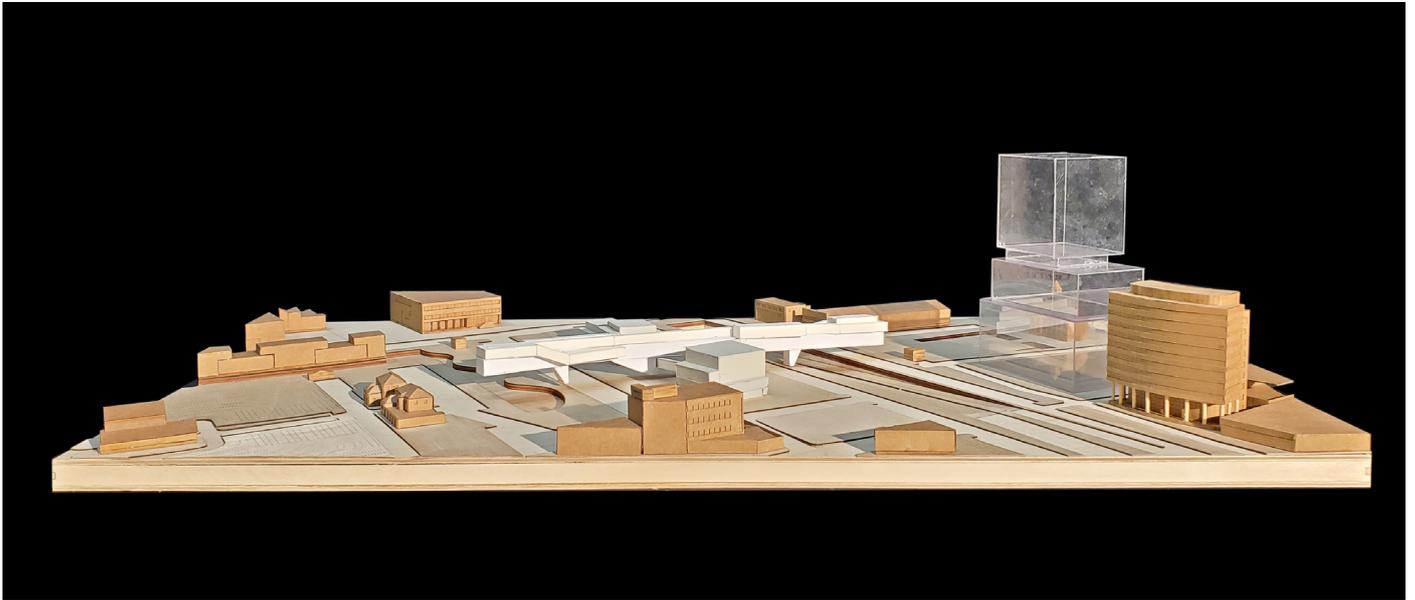
Schematic Design
South-bound



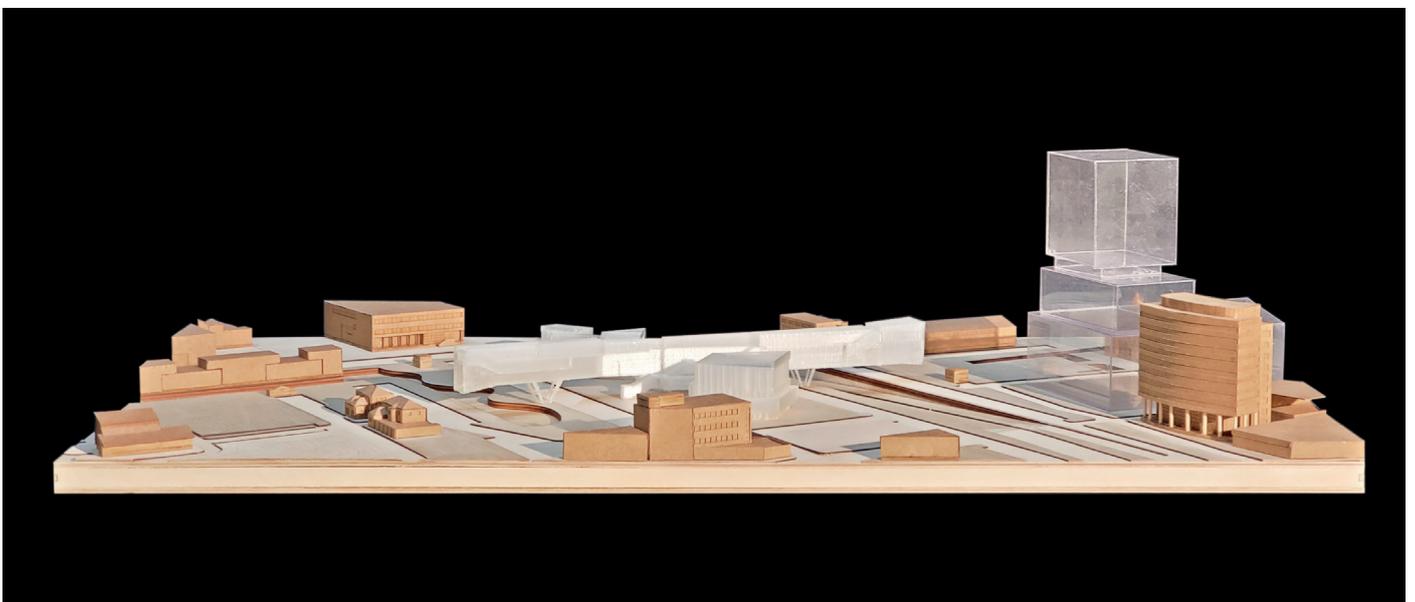
Test Design 1
North-bound



Test Design 2
North-bound



Test Design 3
North-bound



Schematic Design
North-bound



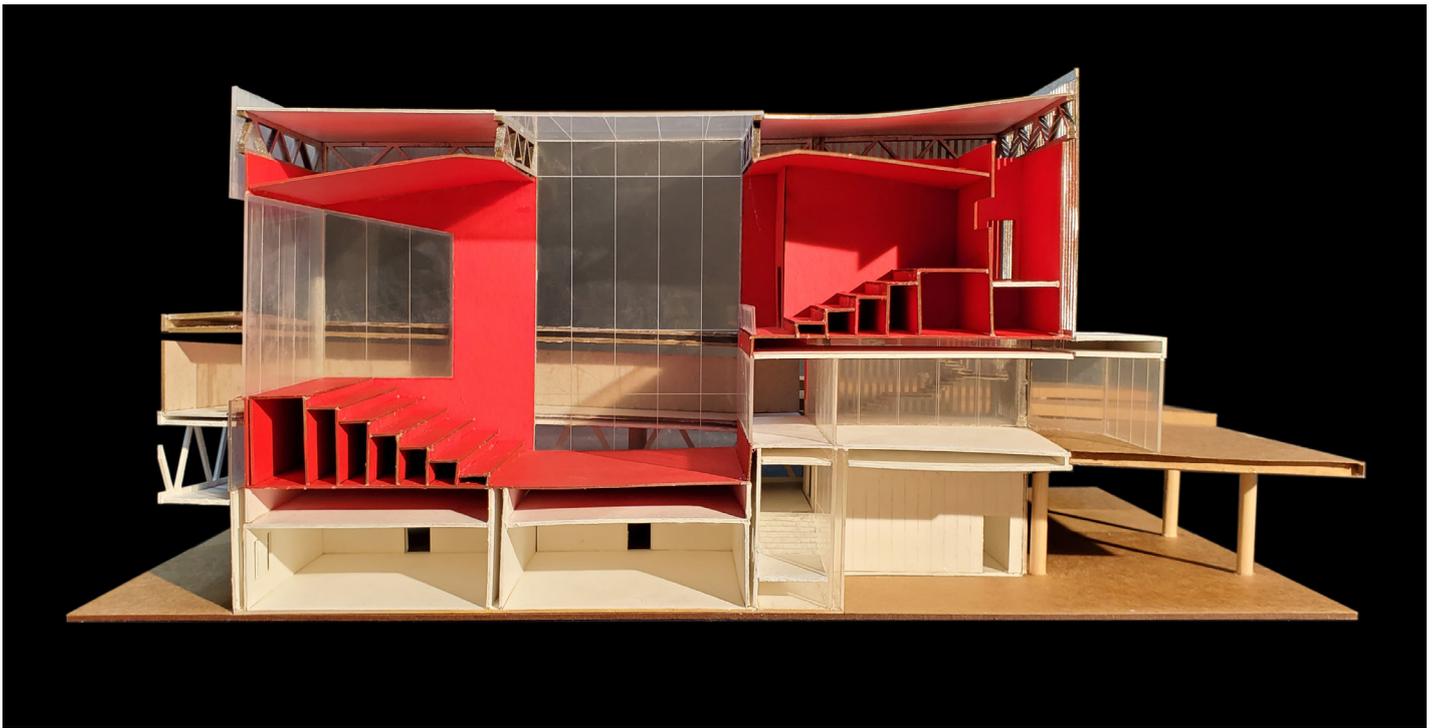
Massing P3
West-bound



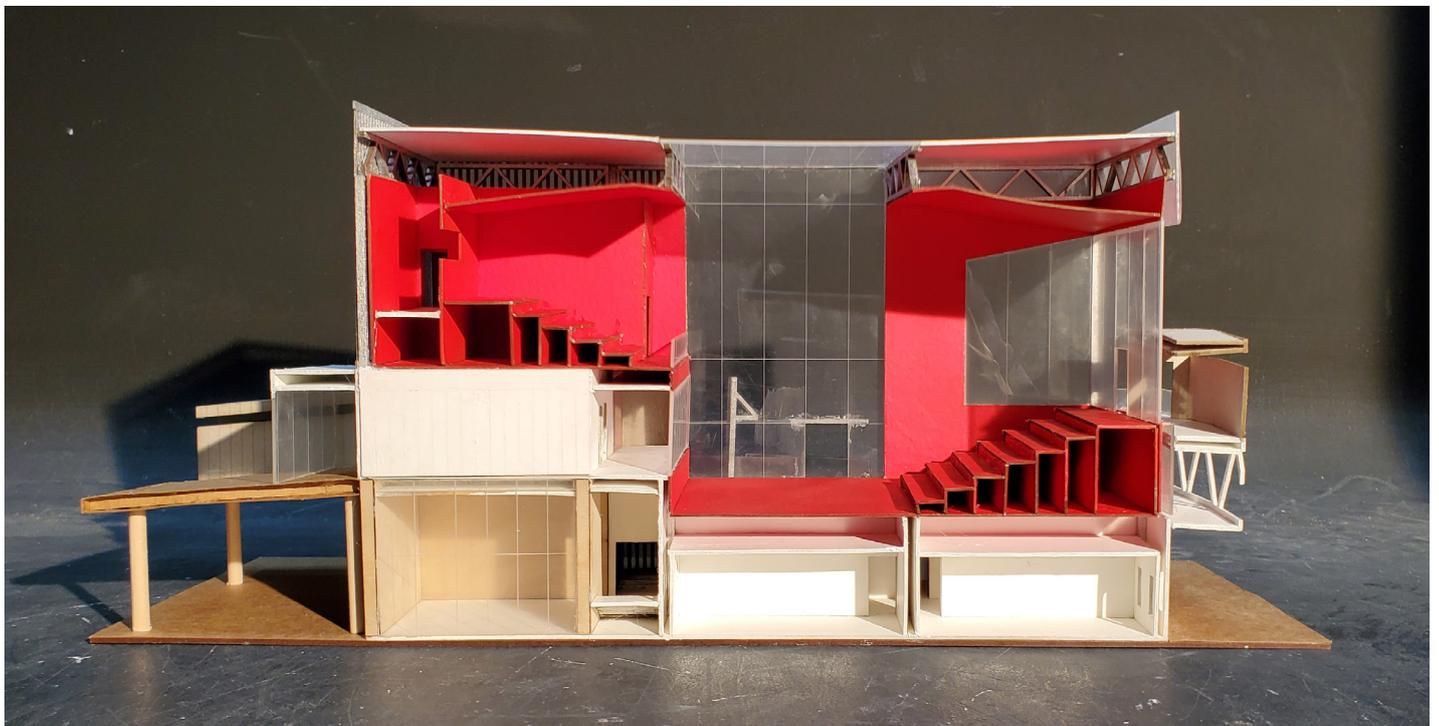
Massing P3
East-bound



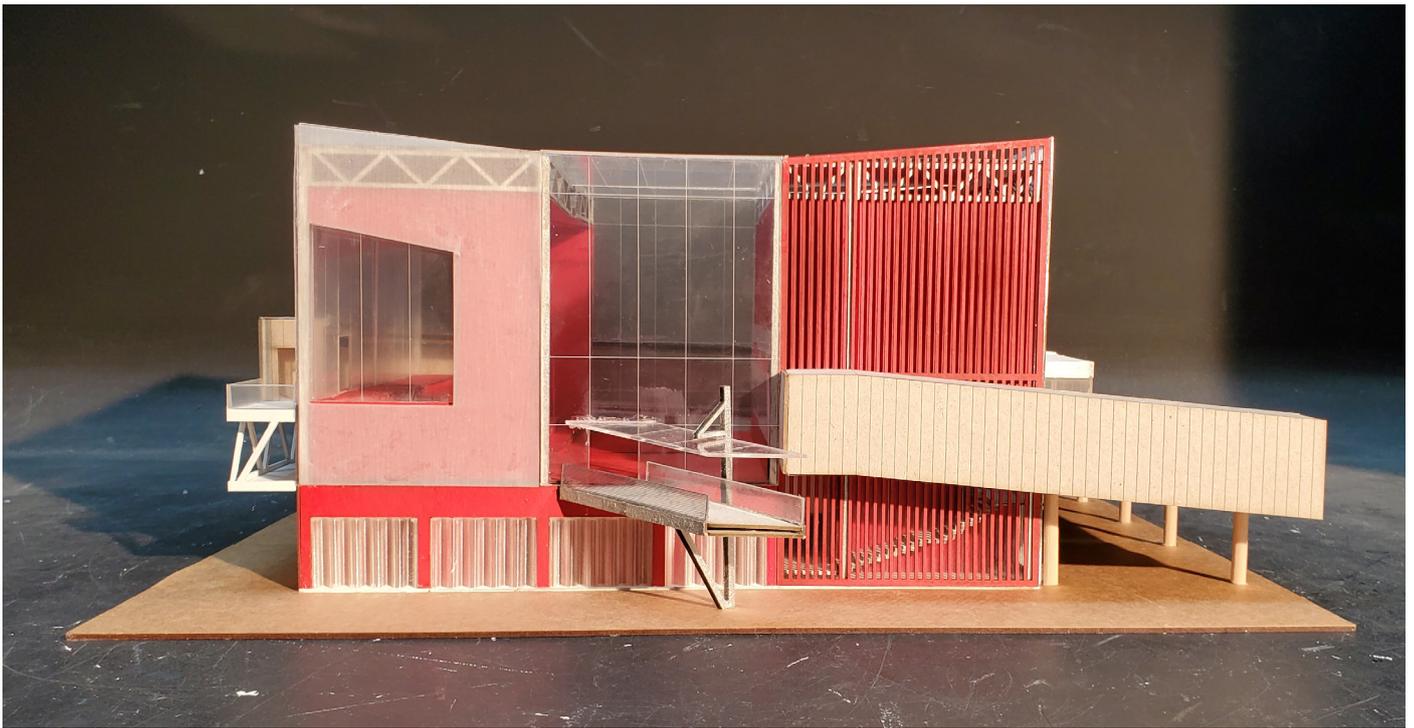
Massing P3 Top View



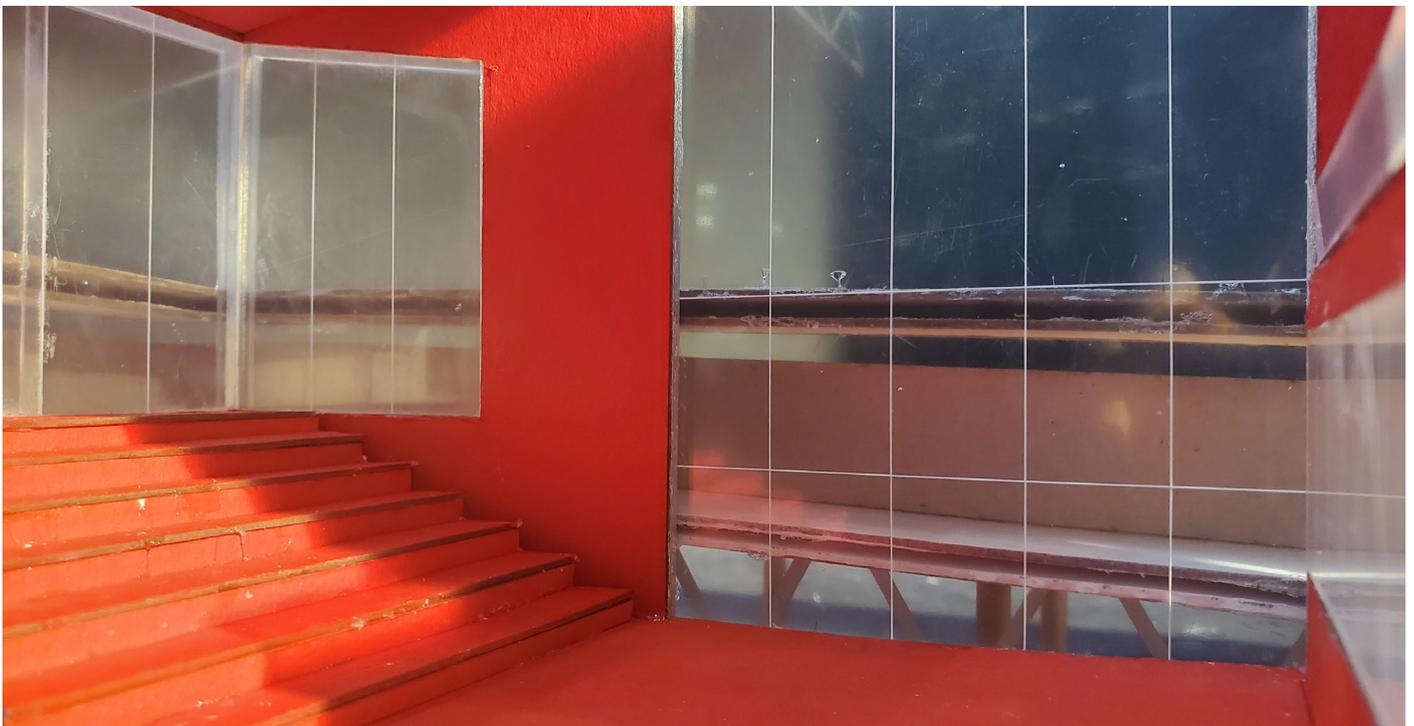
1:100 Sectional Study Model
Classical Auditorium



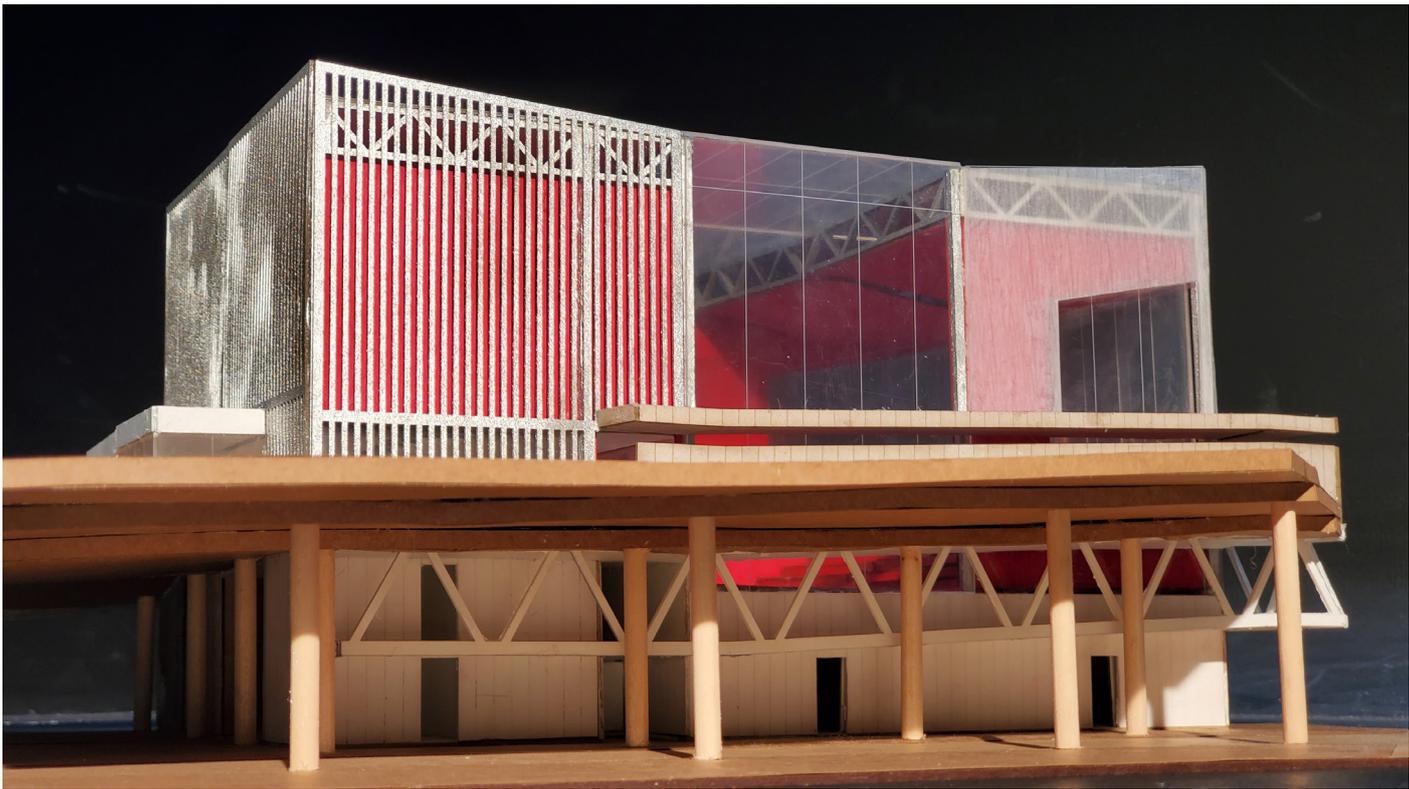
1:100 Sectional Study Model
Classical Auditorium



Testing of Different Facade Expressions



Possible Visual Interaction



Loading Bay



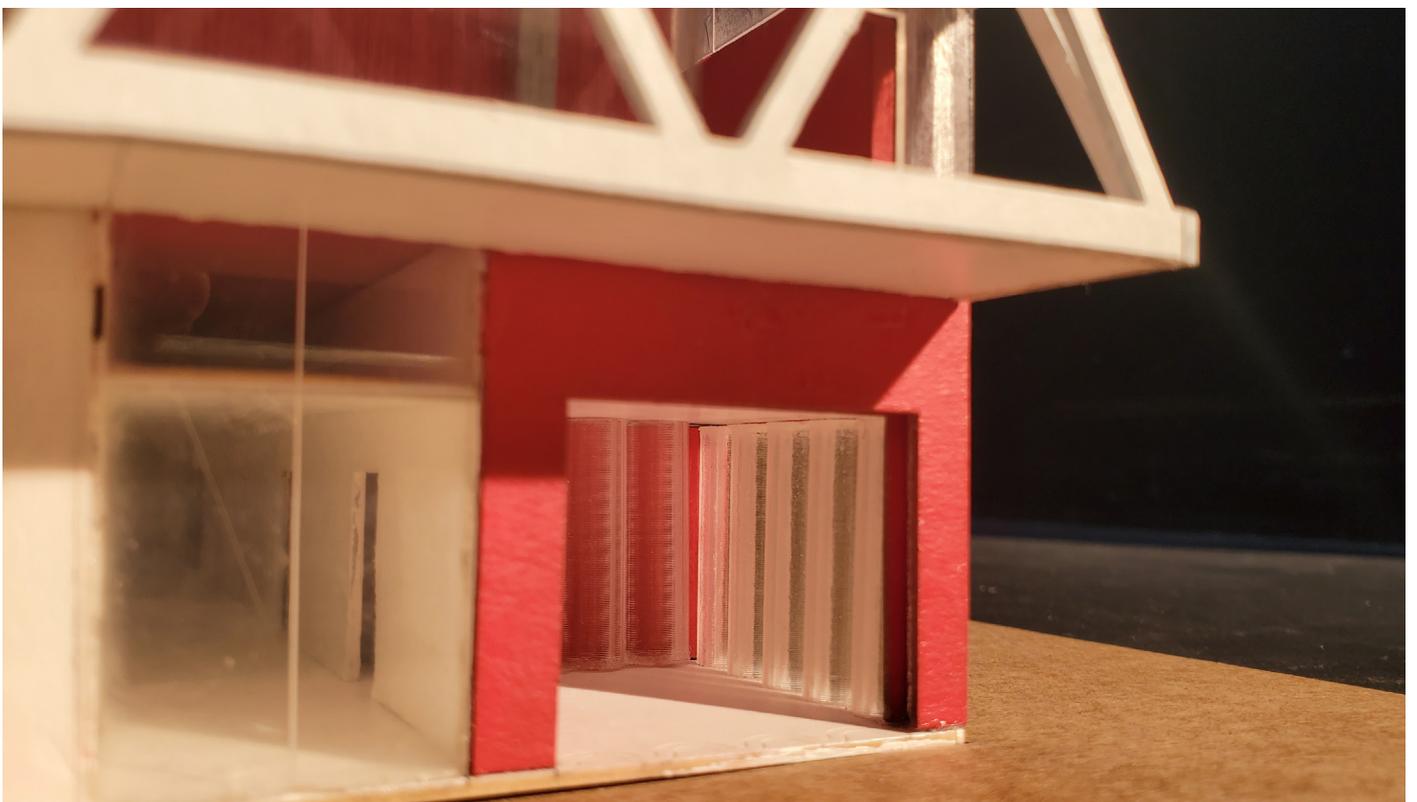
Cantilevered Walkway



Prelude Exterior



Prelude Interior



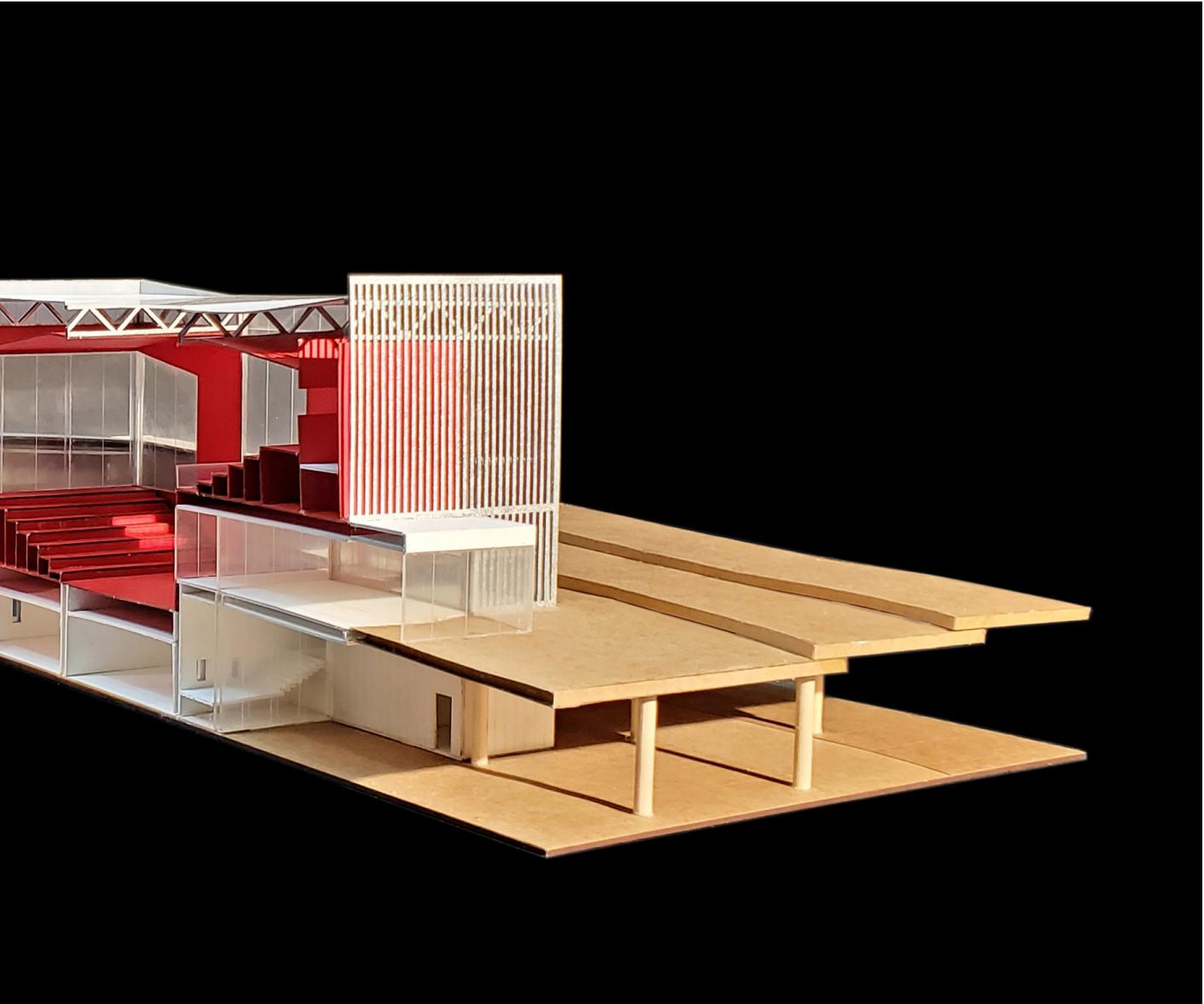
Curved Glass at Rehearsal Room



Audience Seating

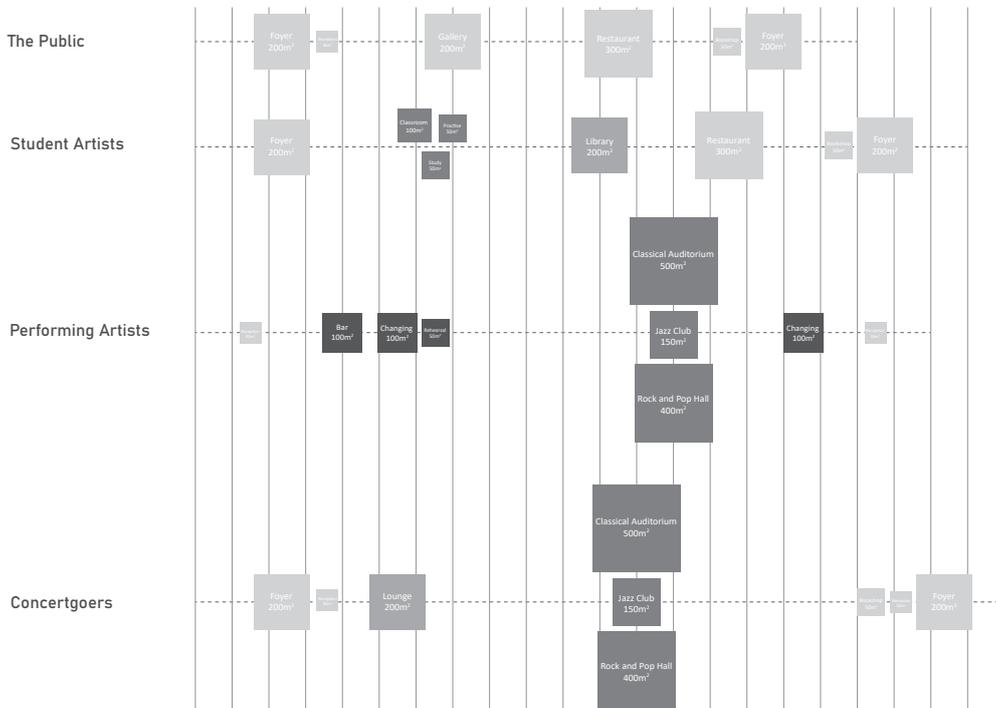


Sectional Study

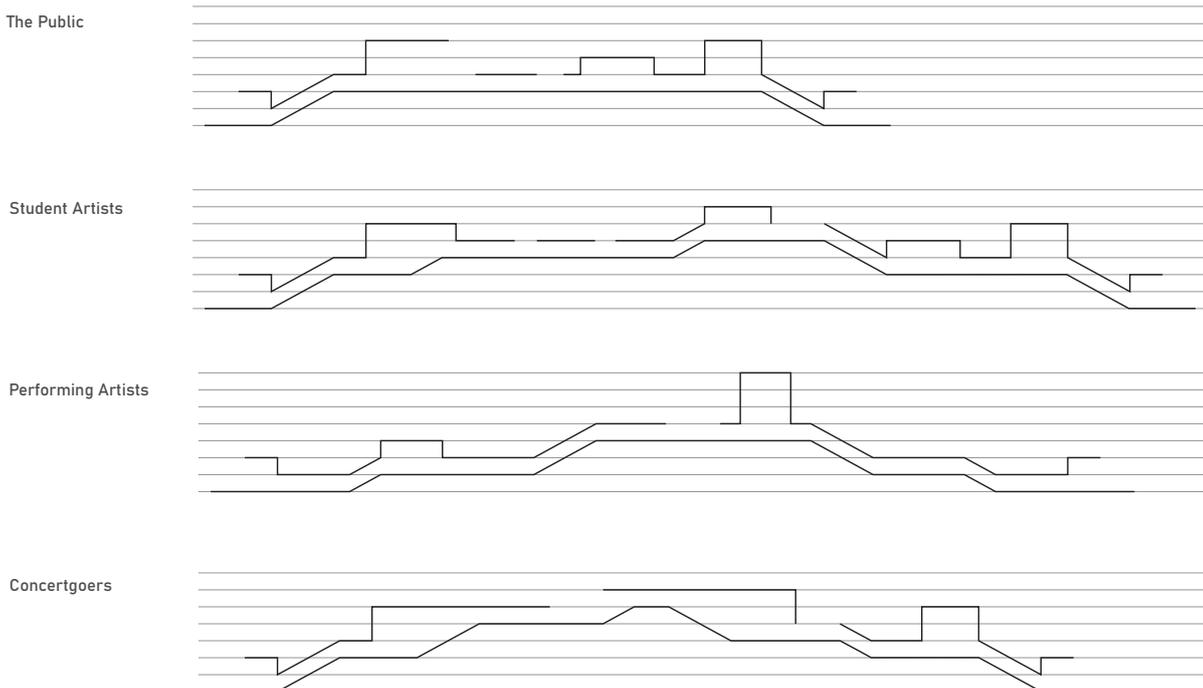


Trial 2 (Continued)

Programmatic Sequence

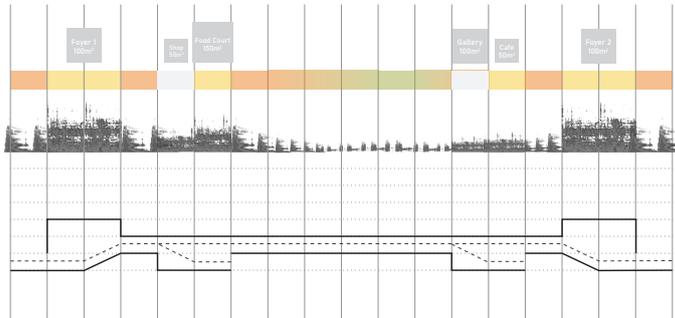


Spatial Sequence

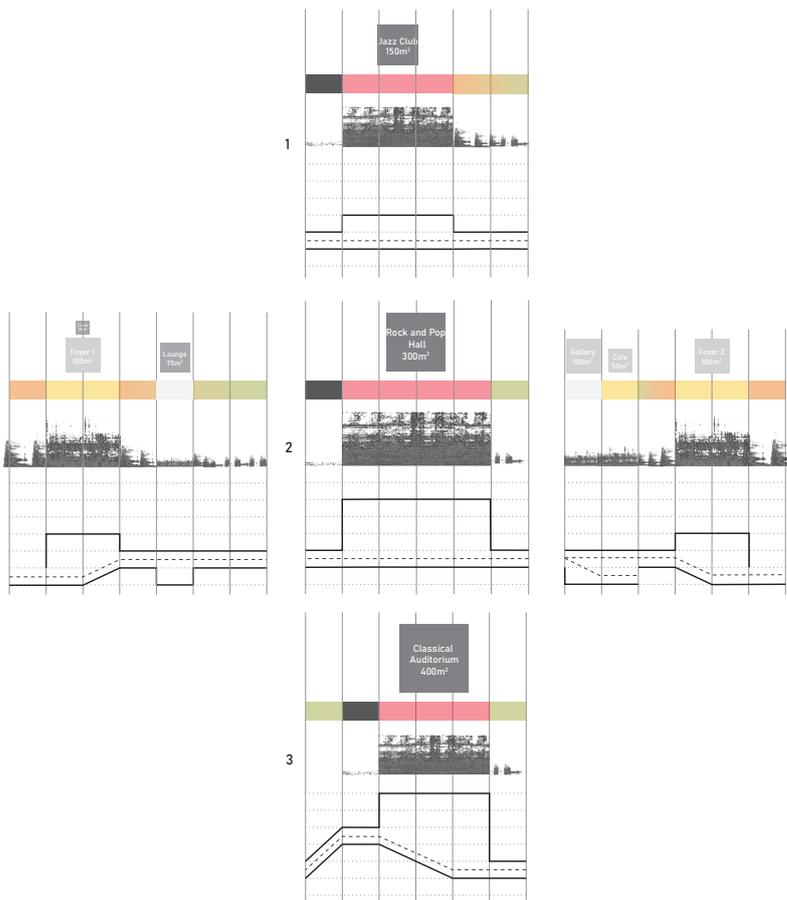


Test Design 1

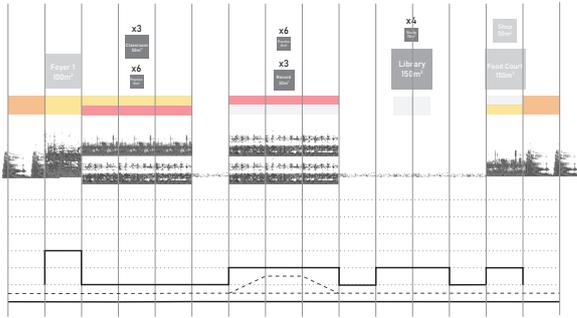
The Public



Concertgoers



Student Artists

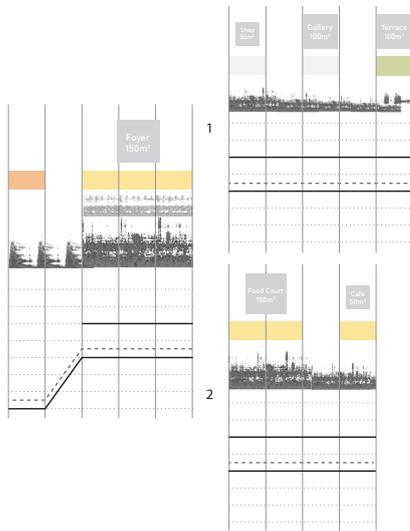


Performing Artists

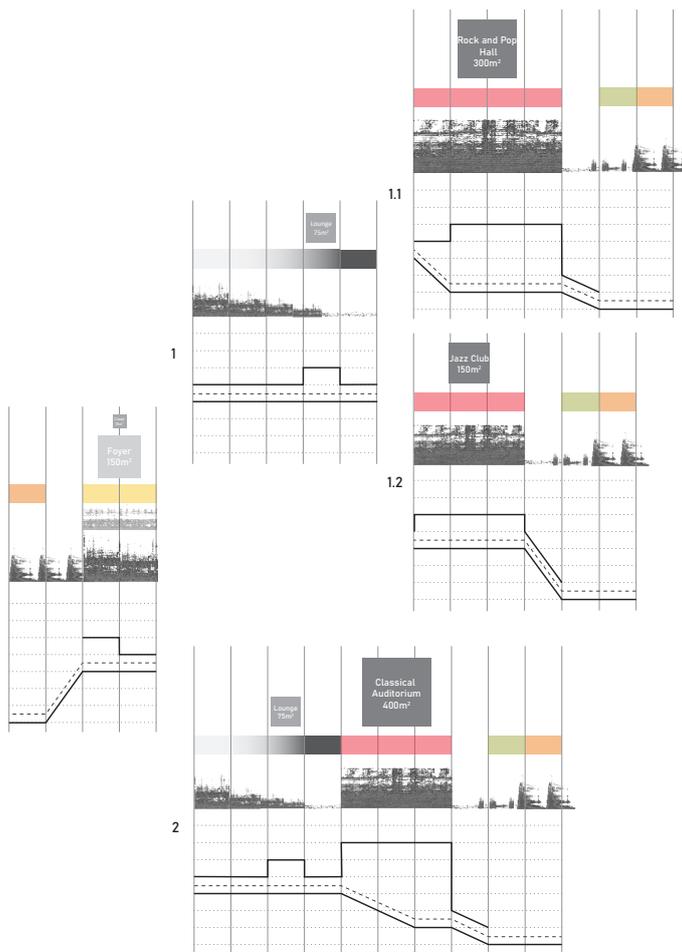


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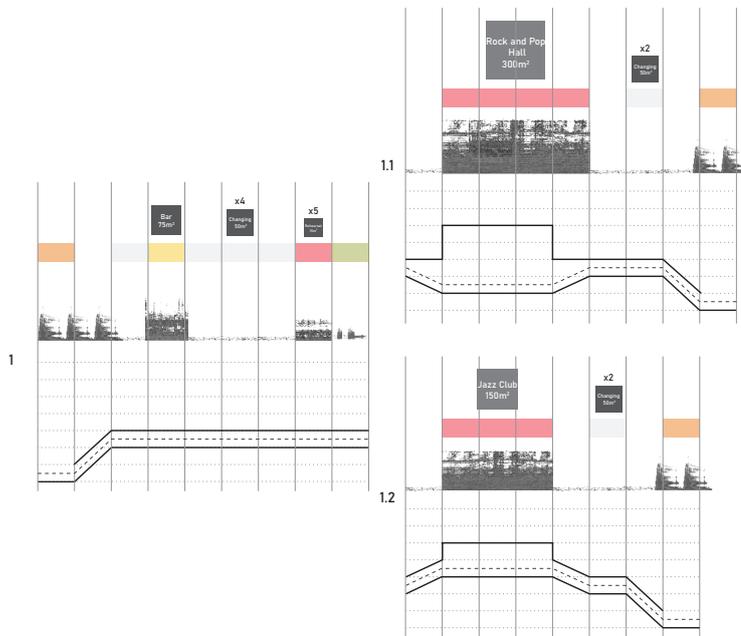
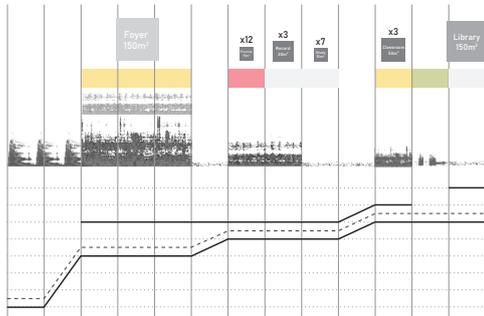
The Public



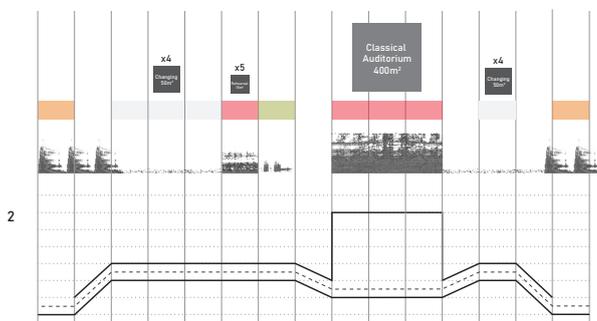
Concertgoers



Student Artists

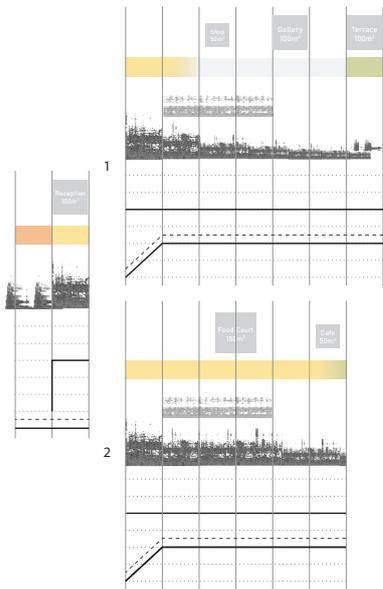


Performing Artists

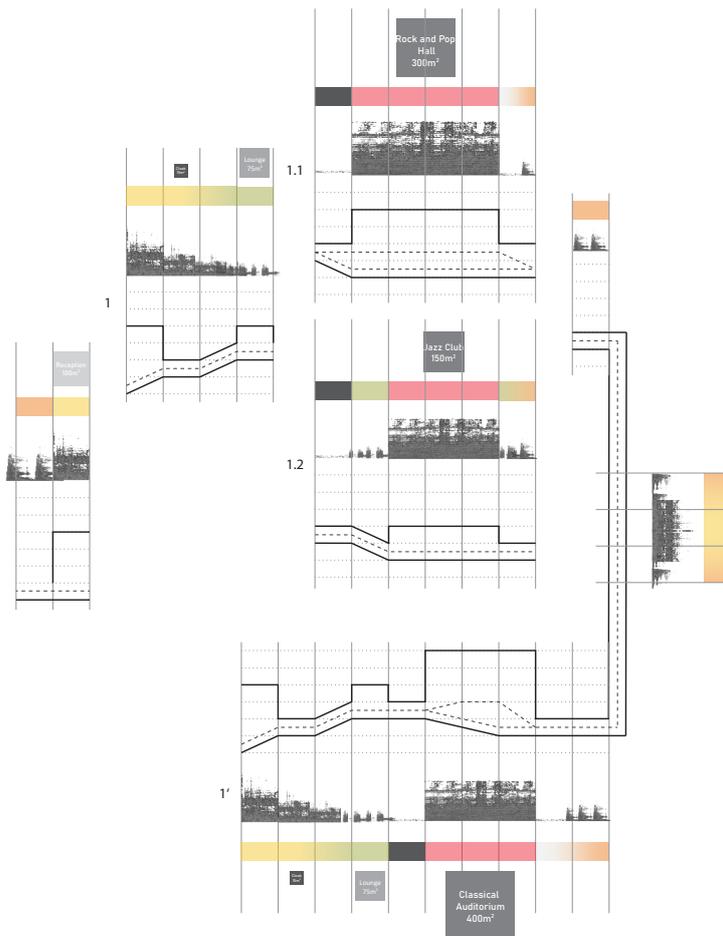


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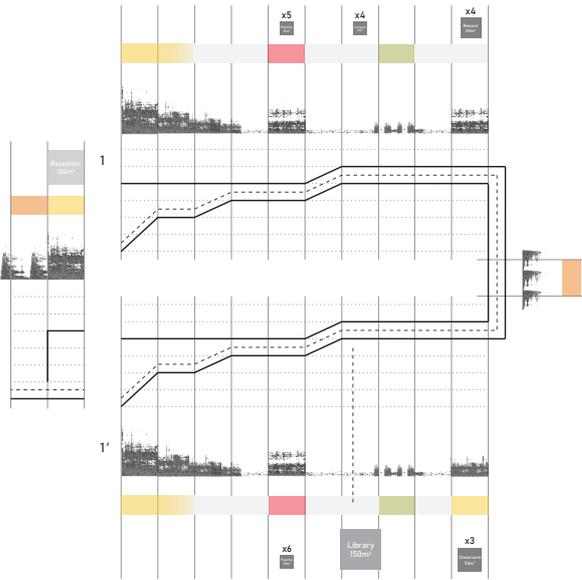
The Public



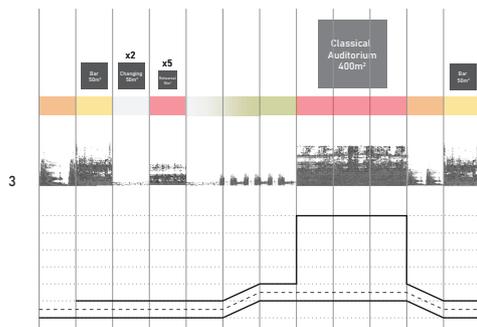
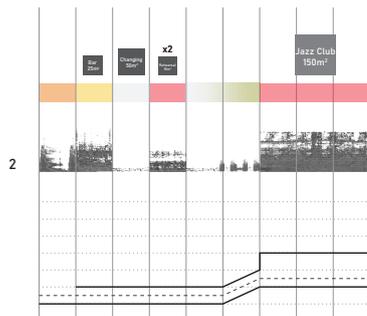
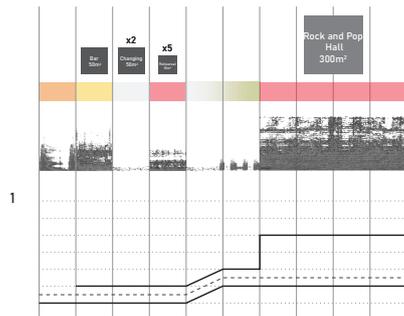
Concertgoers



Student Artists

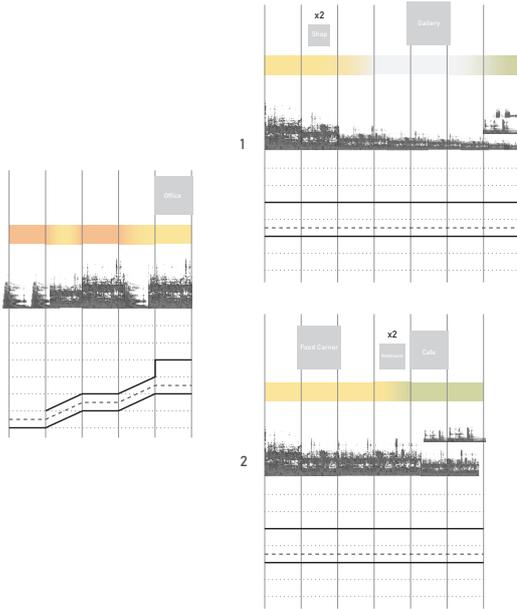


Performing Artists

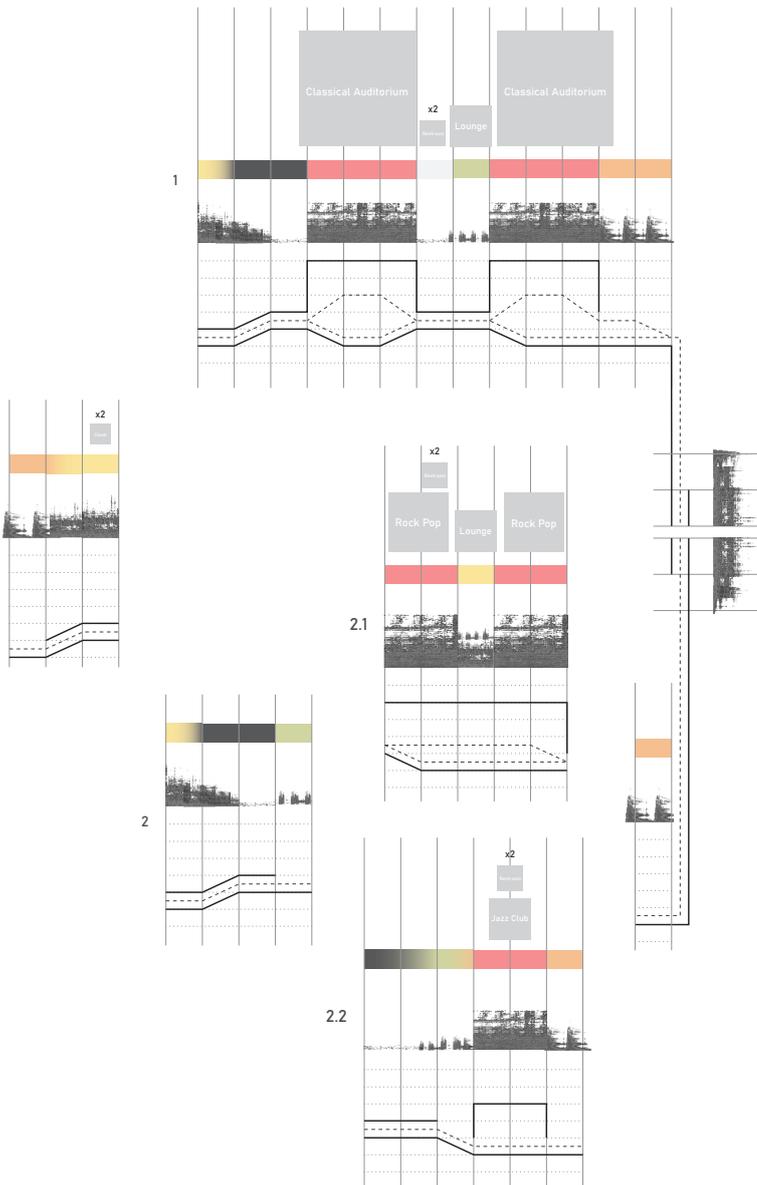


Schematic Design

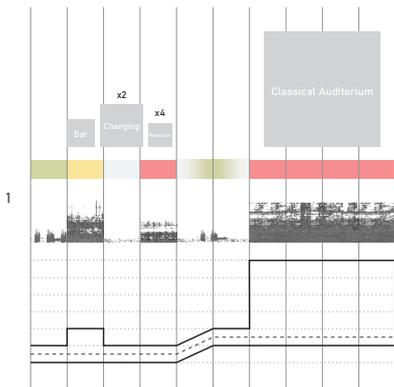
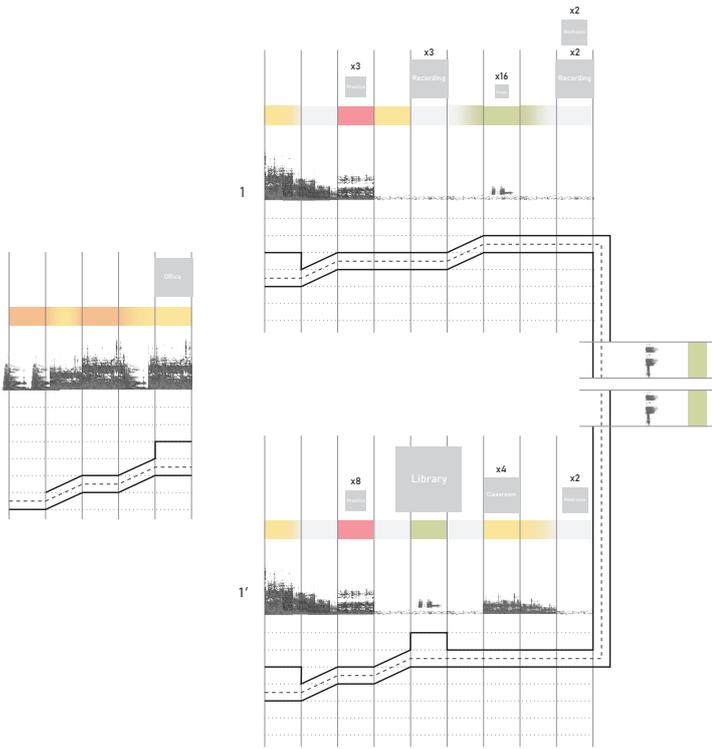
The Public



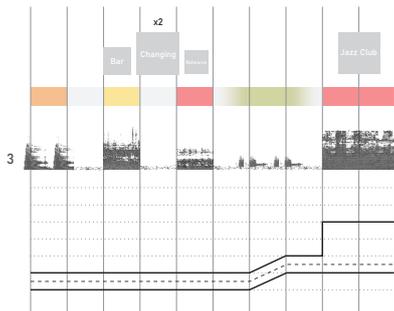
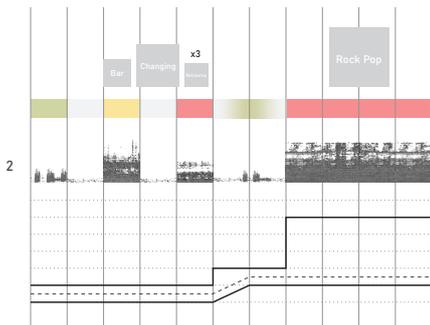
Concertgoers



Young Artists

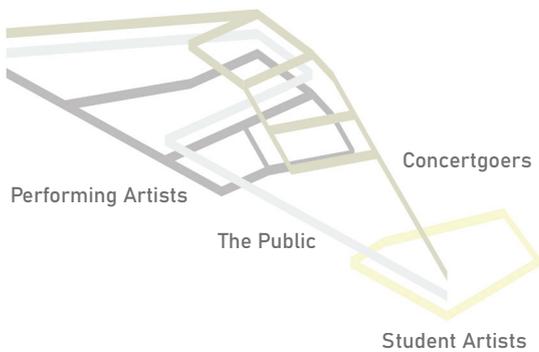


Performers

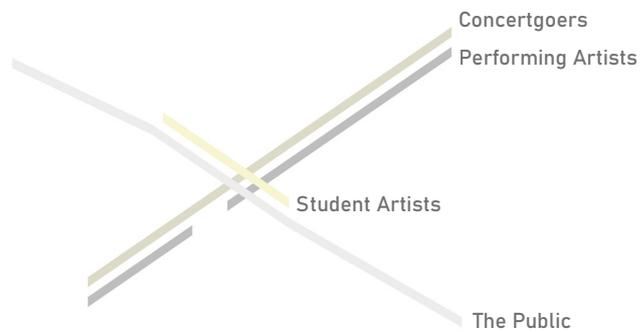


DIAGRAM

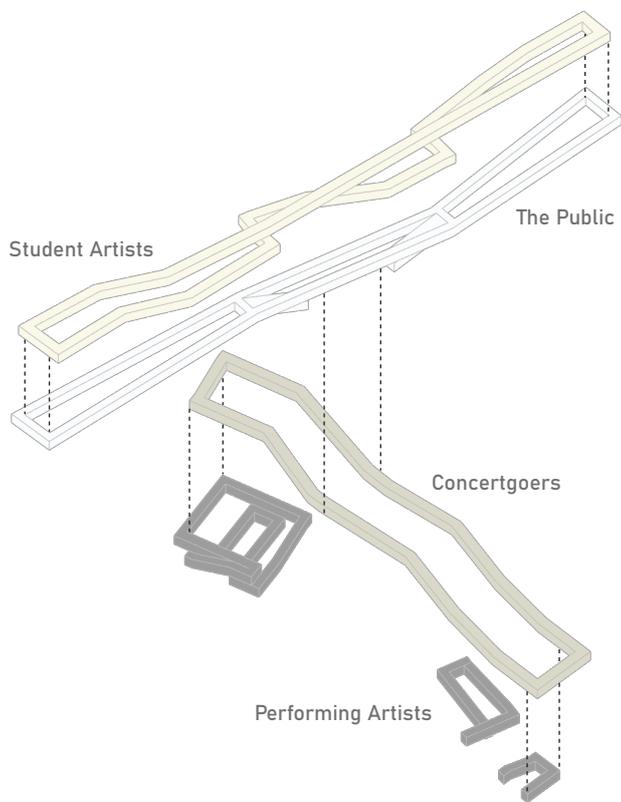
Test Design 1



Test Design 2



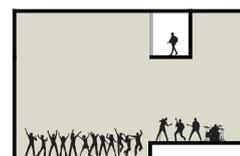
Test Design 3



Loop Linear Form Crossover



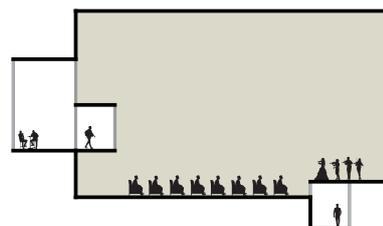
Moment - Public Corridor



Moment - Rock and Pop Hall

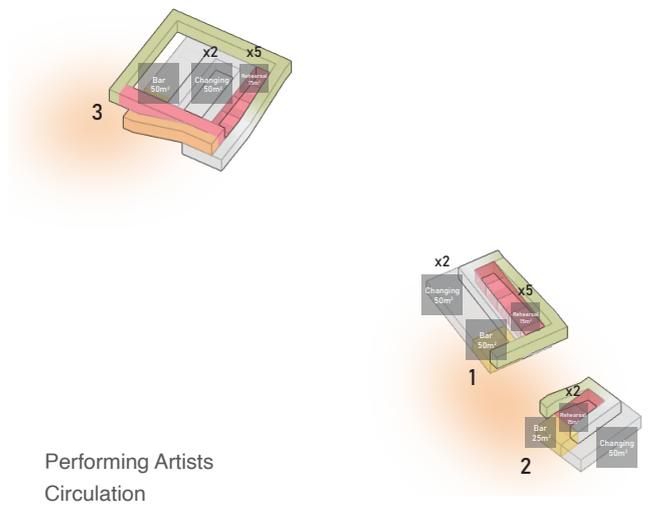
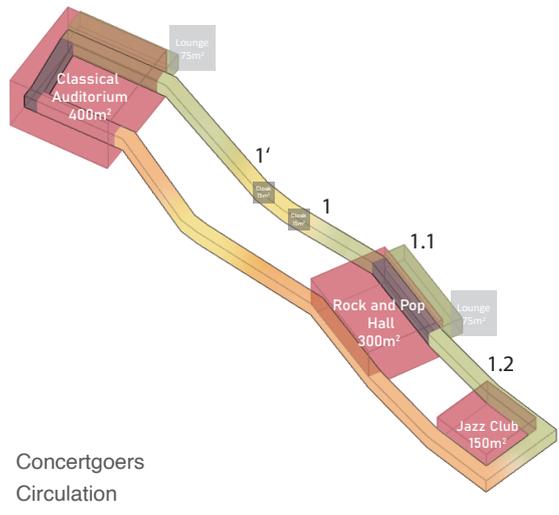
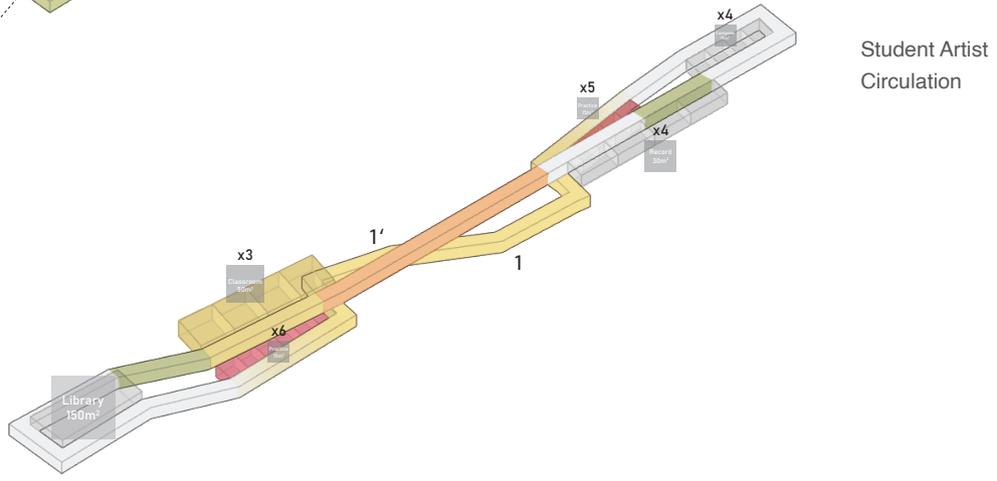
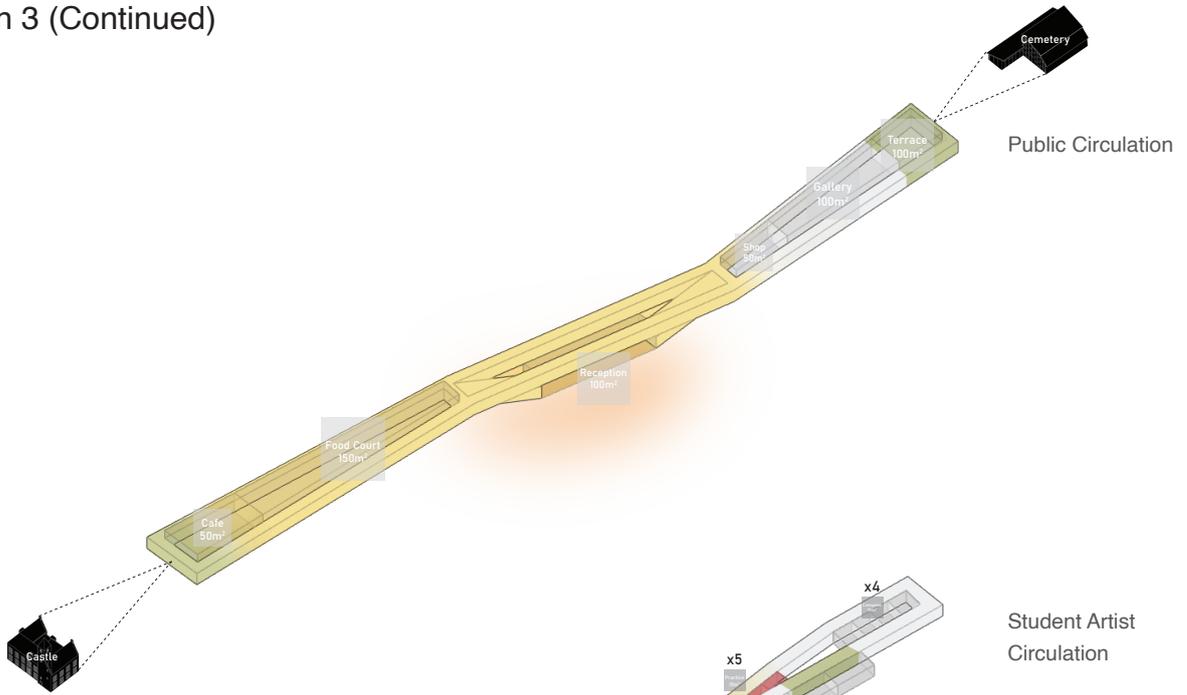


Moment - Jazz Club

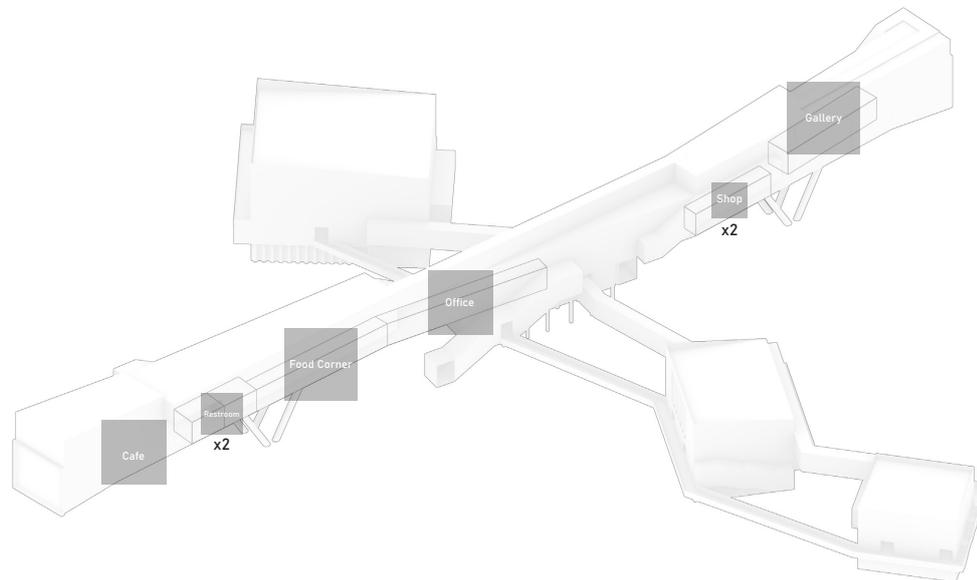
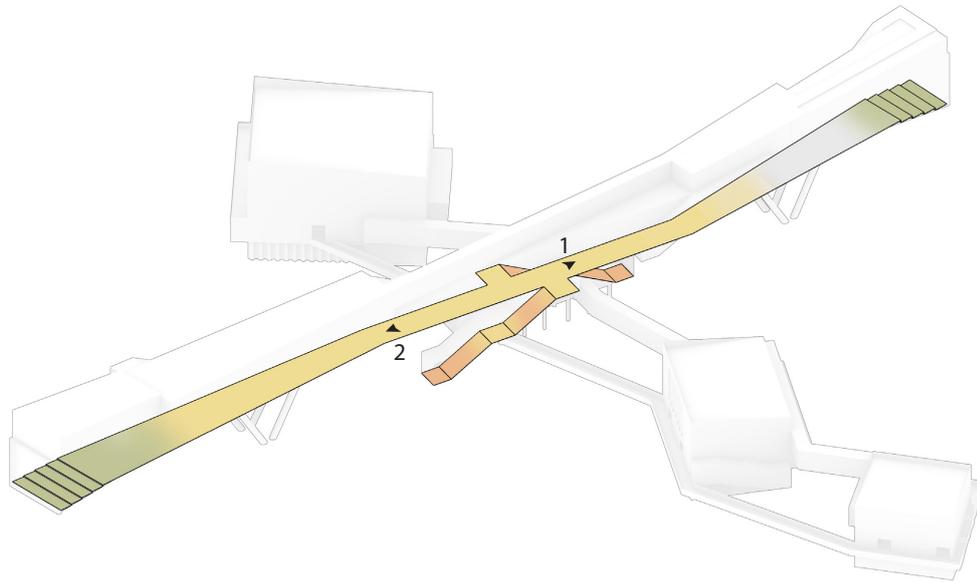


Moment - Classical Auditorium

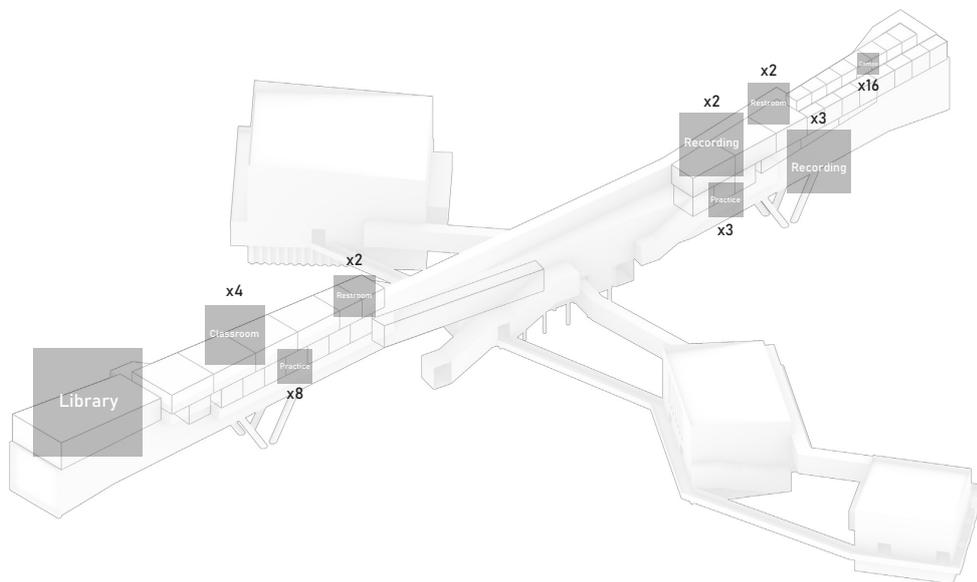
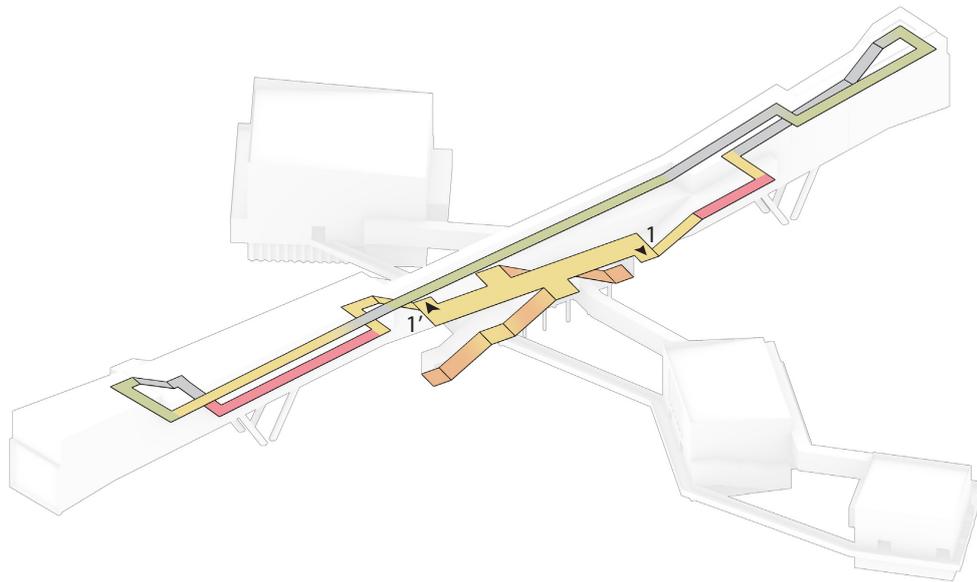
Test Design 3 (Continued)



Schematic Design

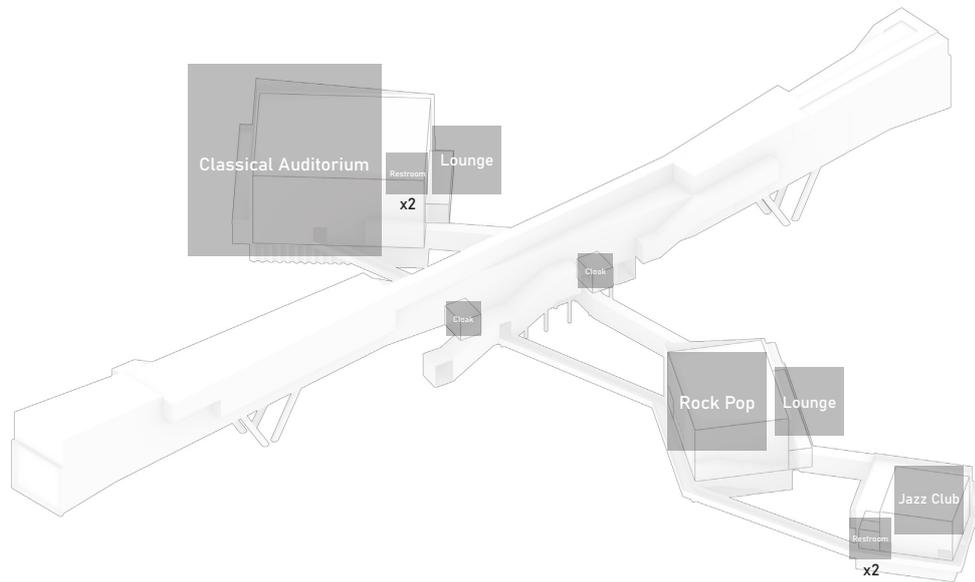
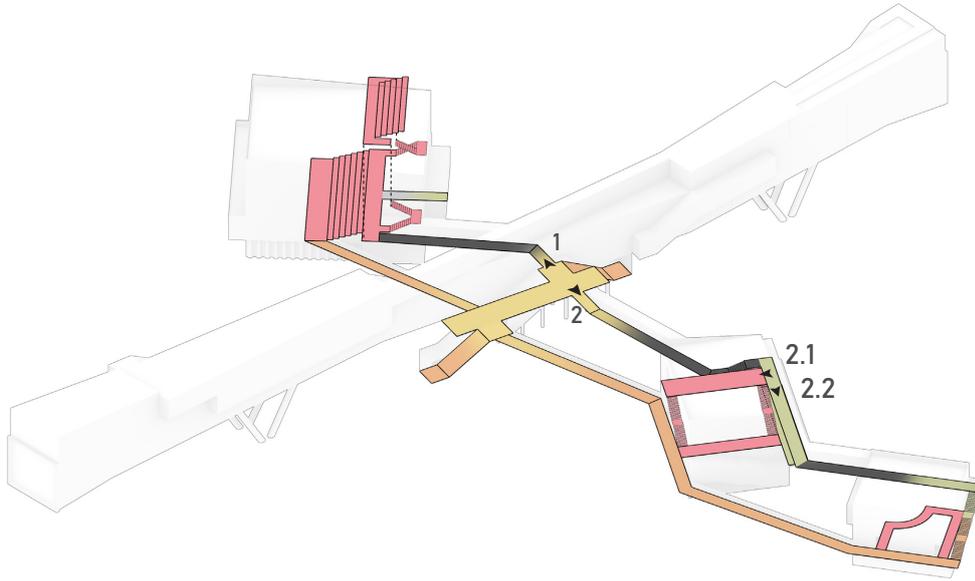


Public
Circulation + Programme

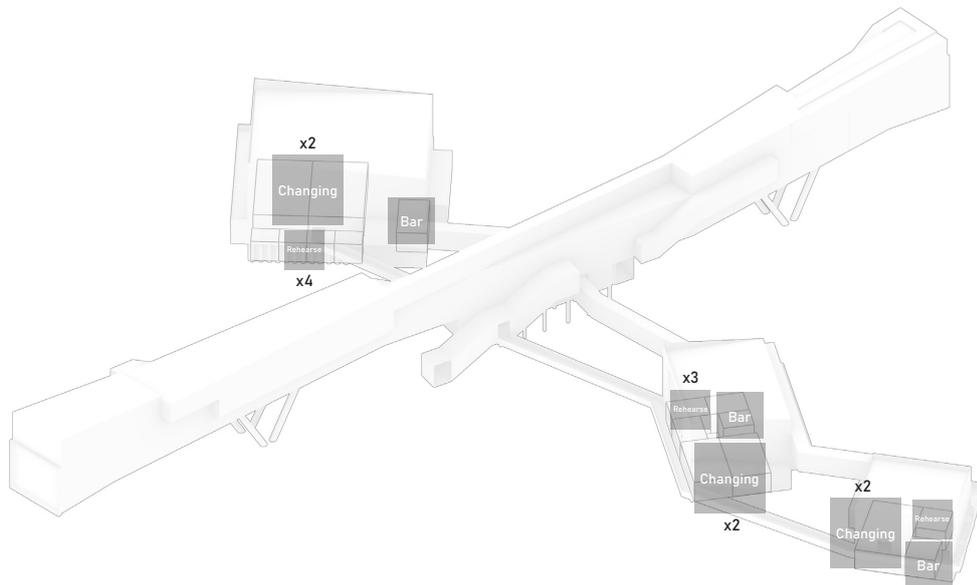
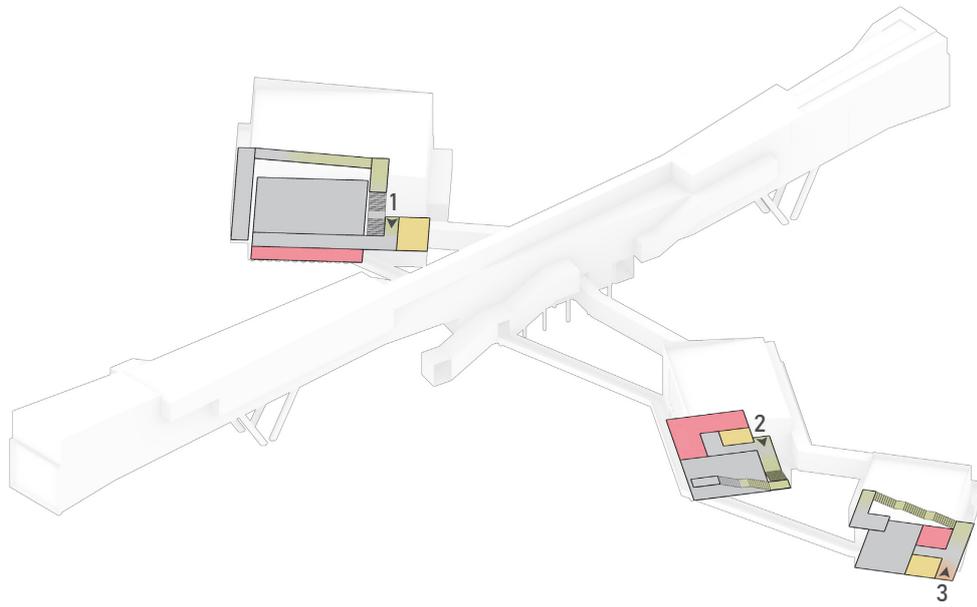


Student Artists
Circulation + Programme

Schematic Design

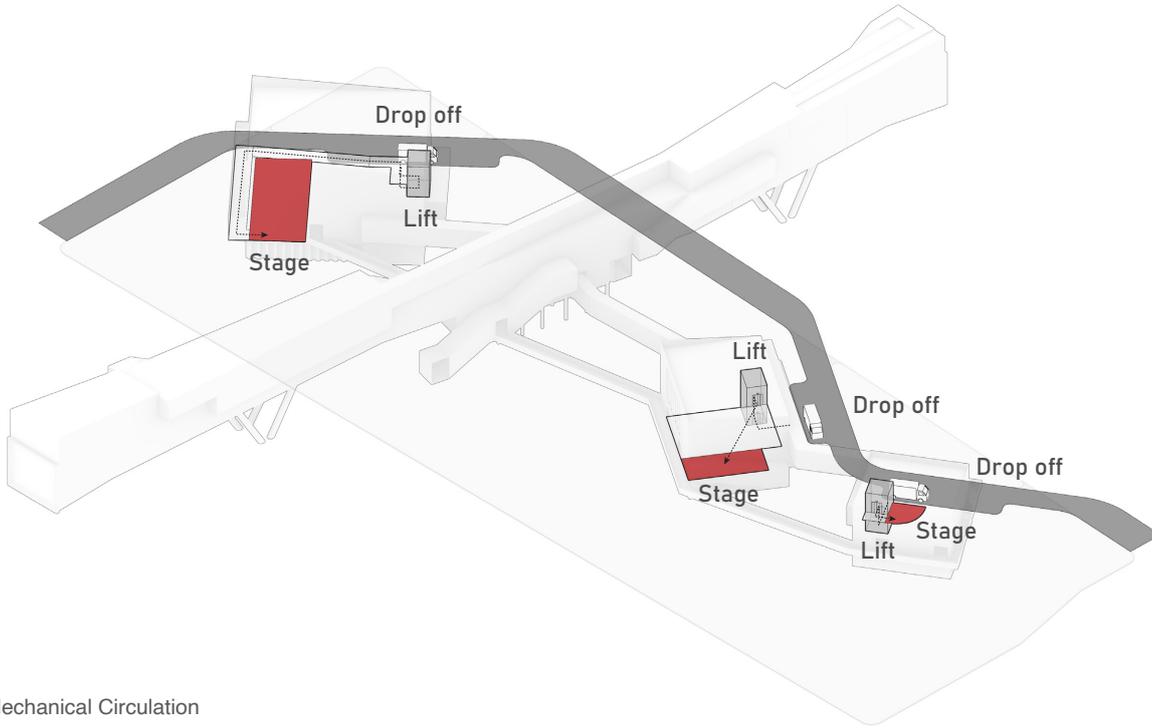


Concertgoers
Circulation + Programme

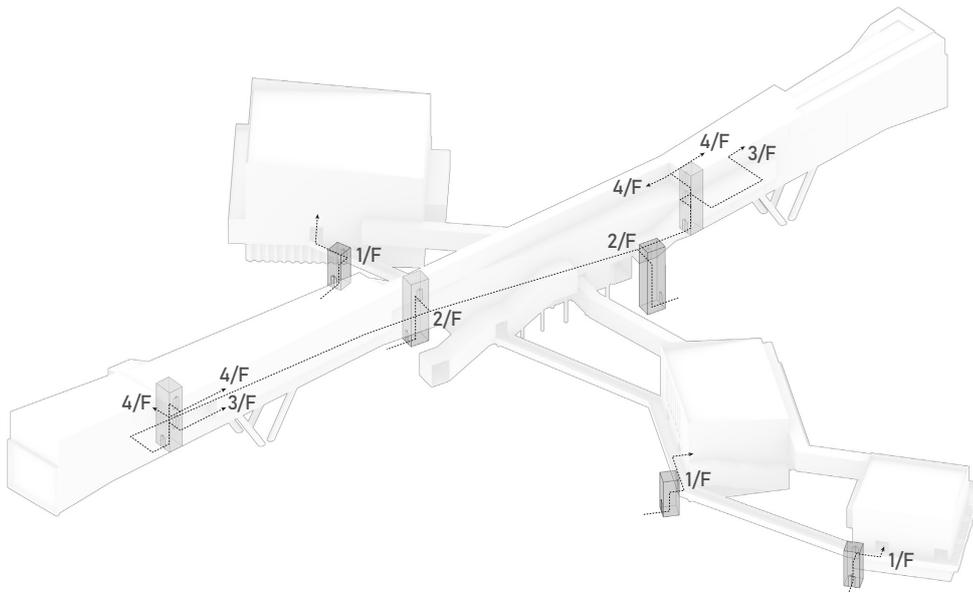


Performing Artists
 Circulation + Programme

Schematic Design



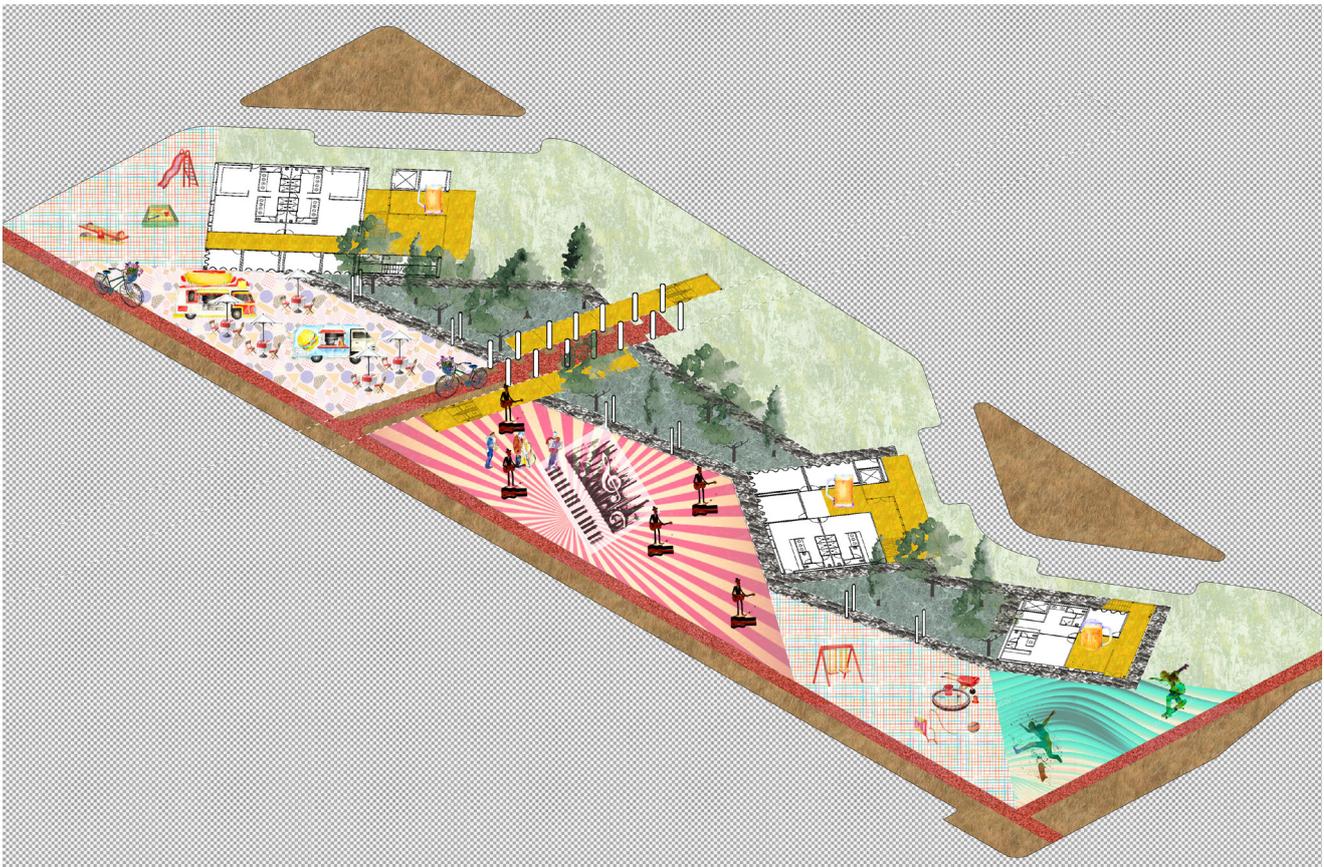
Mechanical Circulation



Universal Access

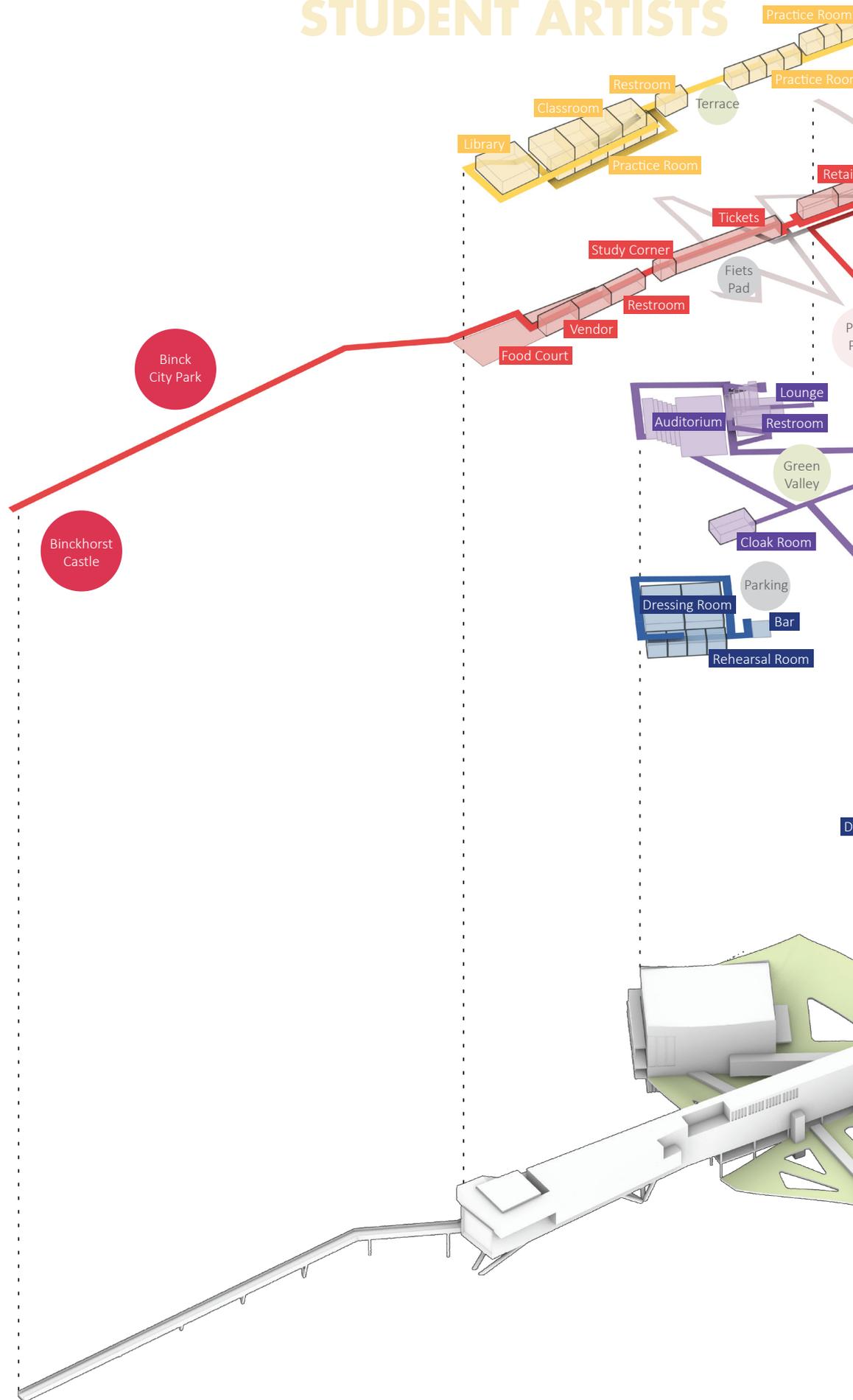
Landscaping Concept

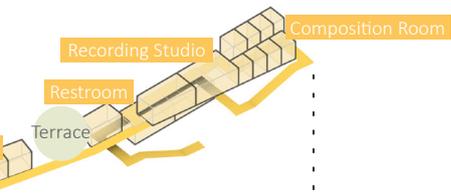
As the music venue is pursuing a floating gesture, the ground level that is freed up requires additional programming effort. With respect to aforementioned differences in the spatial atmospheres between the front and the back of the building ground, the open area overlooking the Binckhorstlaan is reserved for two children's playgrounds, a market place, a street busking plaza and a skating park. The rear drop-off area adjoining the Saint Barbara Cemetery is a green space. Encircled by the walkways leading to the three concert volumes, the green valley at the centre is grown with trees to mediate the pluralistic urban characters coexisting in the lot.



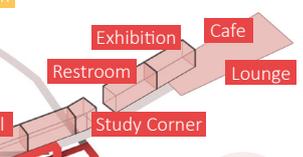
The urban collage is inspired by the work of Yves Brunier, the late French landscape architect.

STUDENT ARTISTS

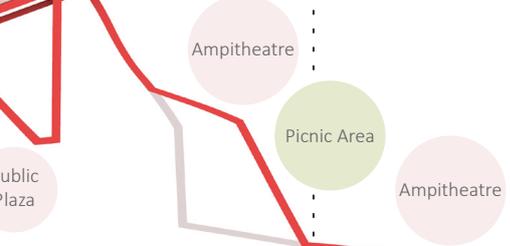




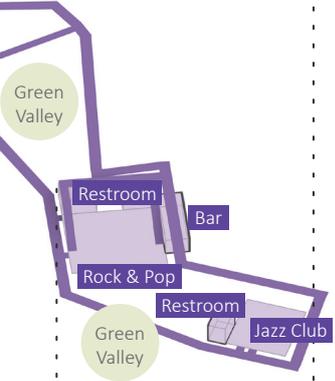
Saint Barbara Cemetery



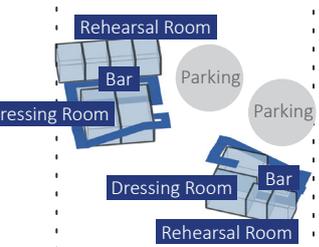
De Nieuwe Hallen



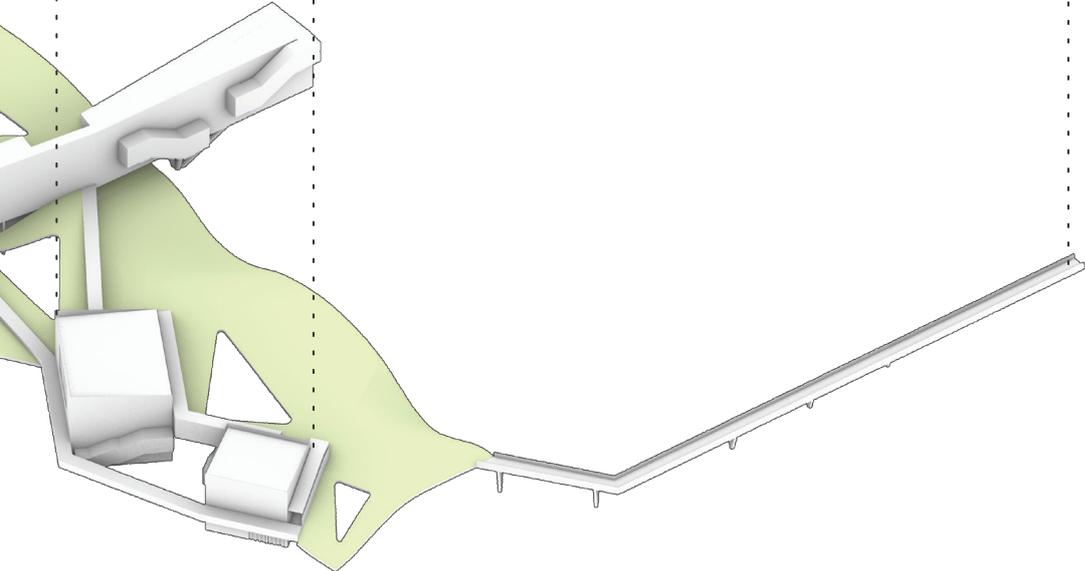
PUBLIC



CONCERTGOERS

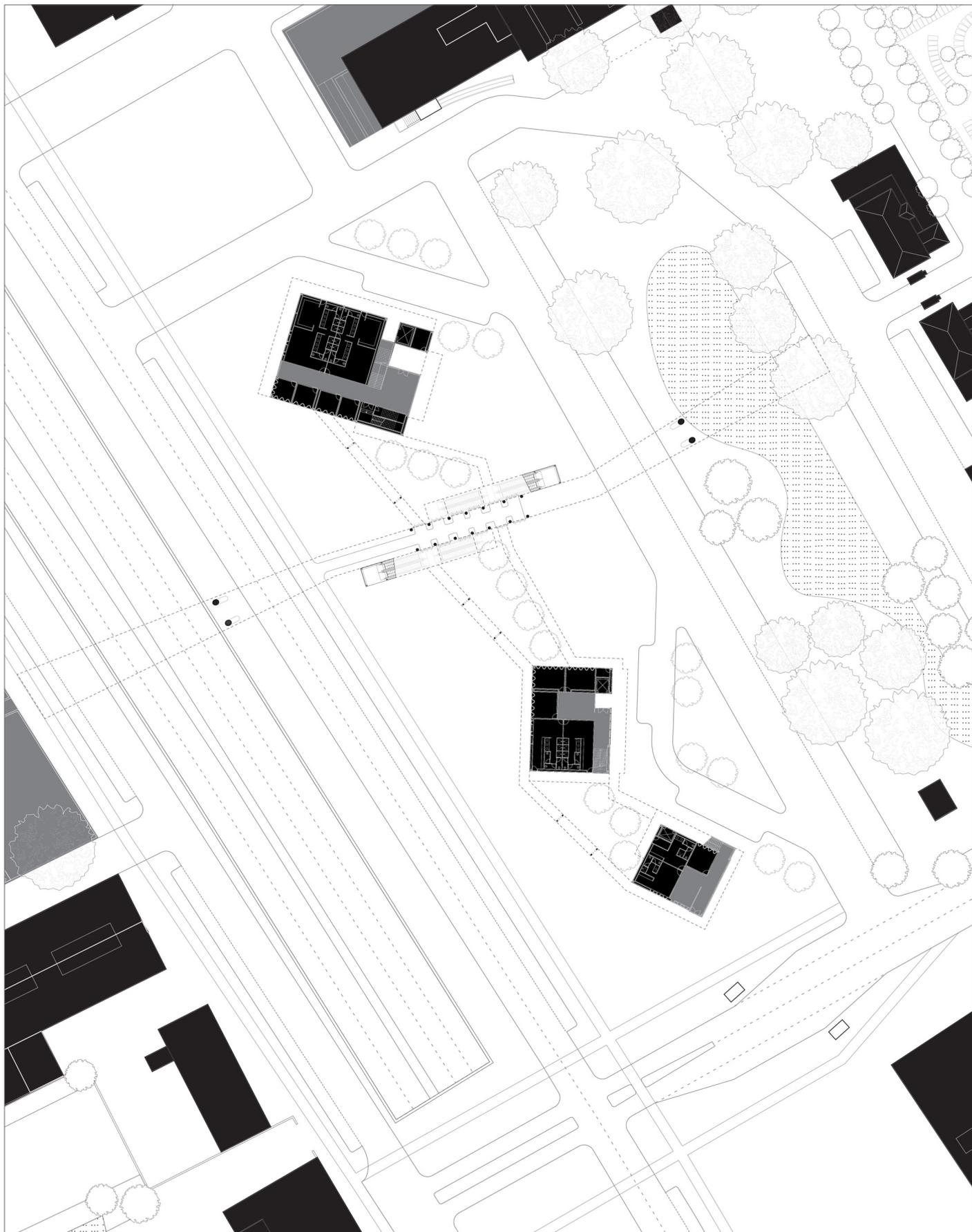


PERFORMERS

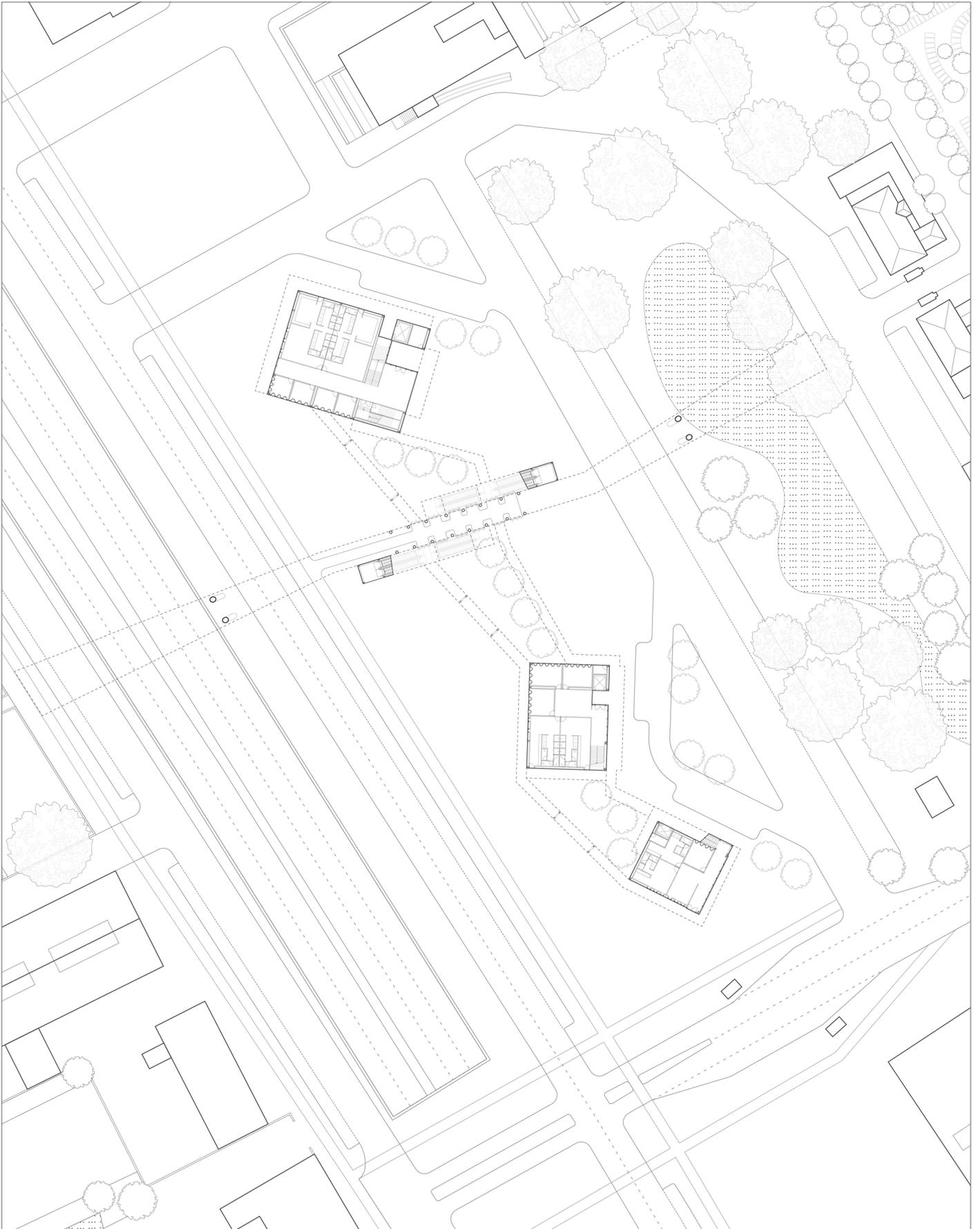


PLAN 1.0

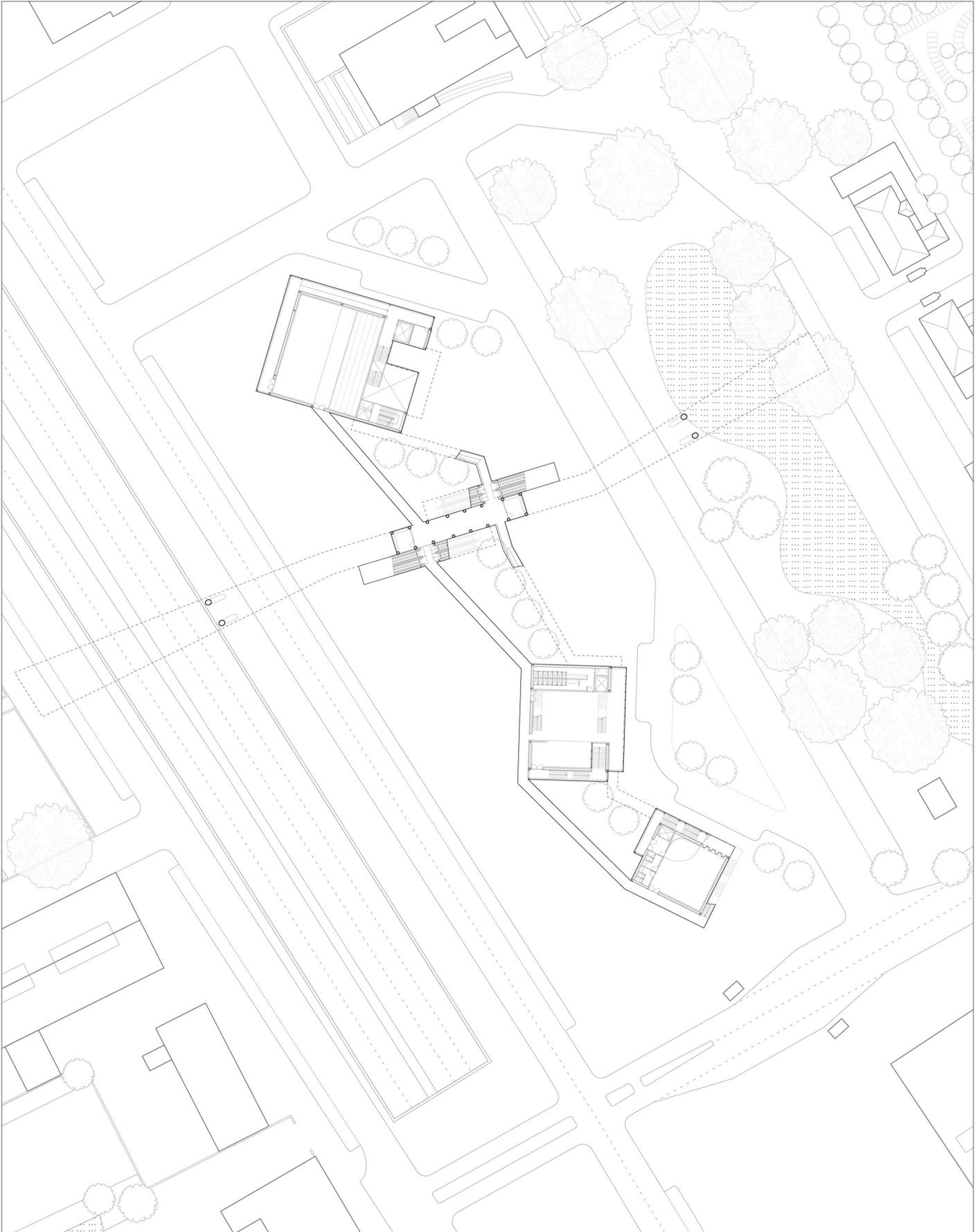
Schematic Design - Nolli Map



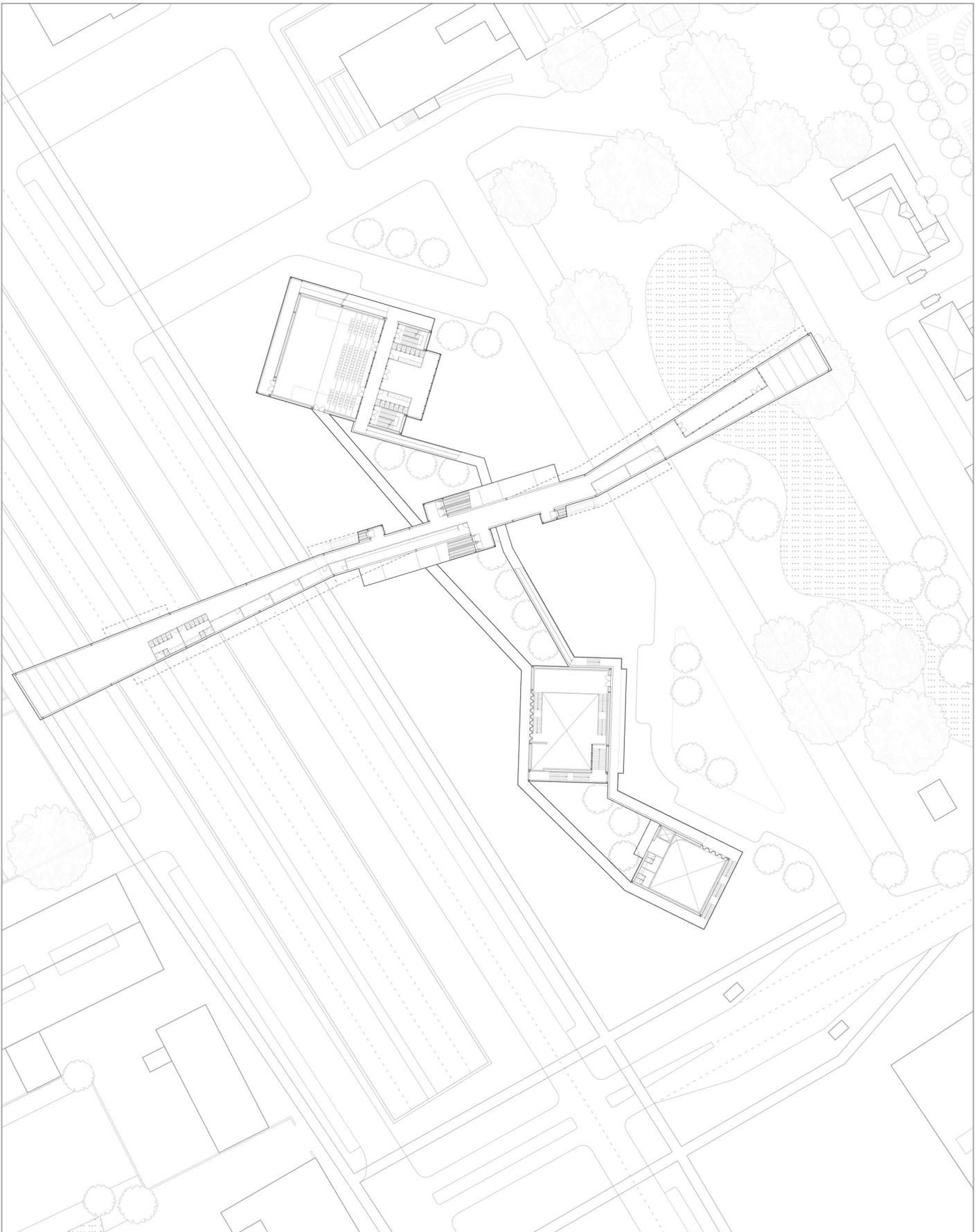
Schematic Design - Ground Floor



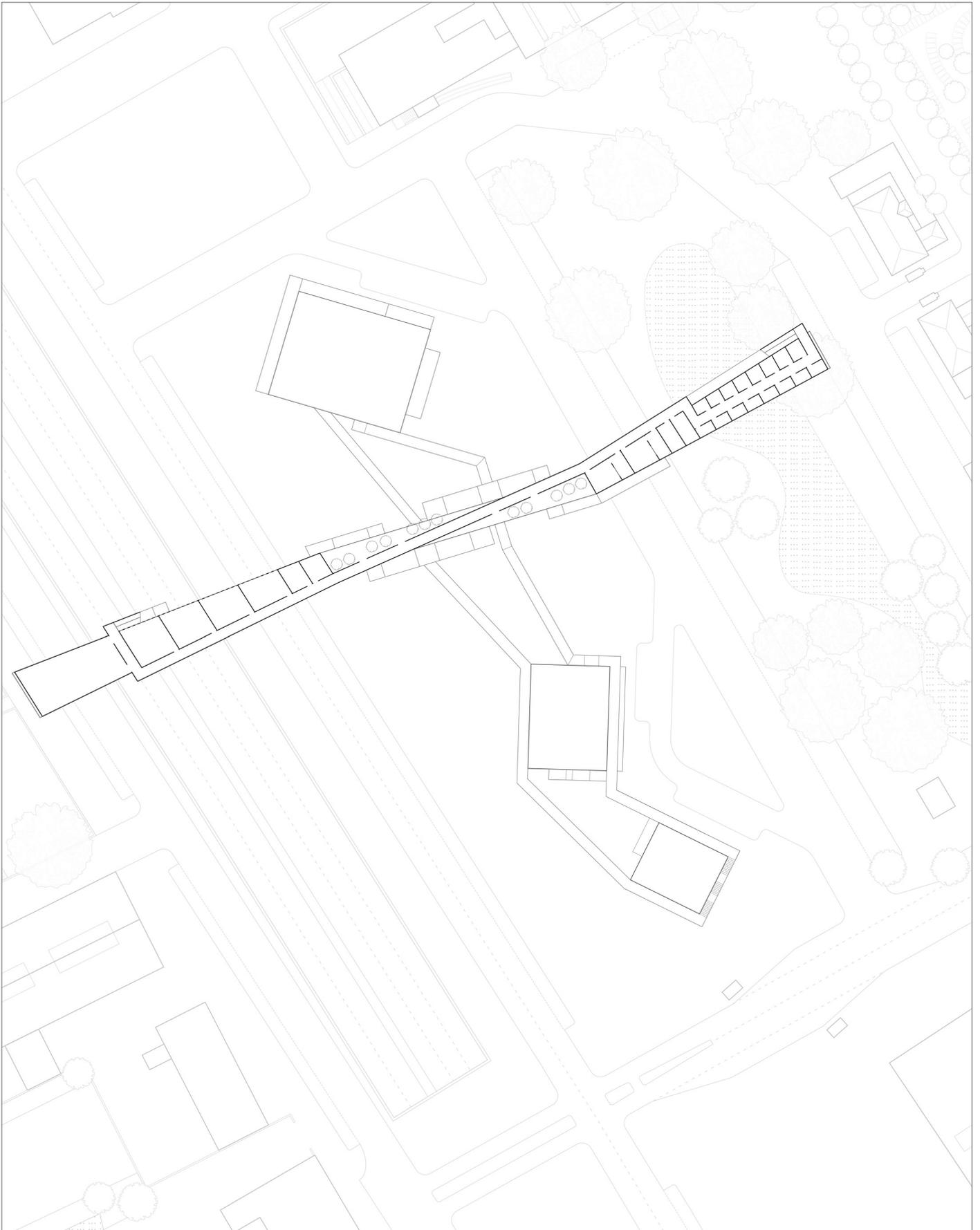
Schematic Design - First Floor



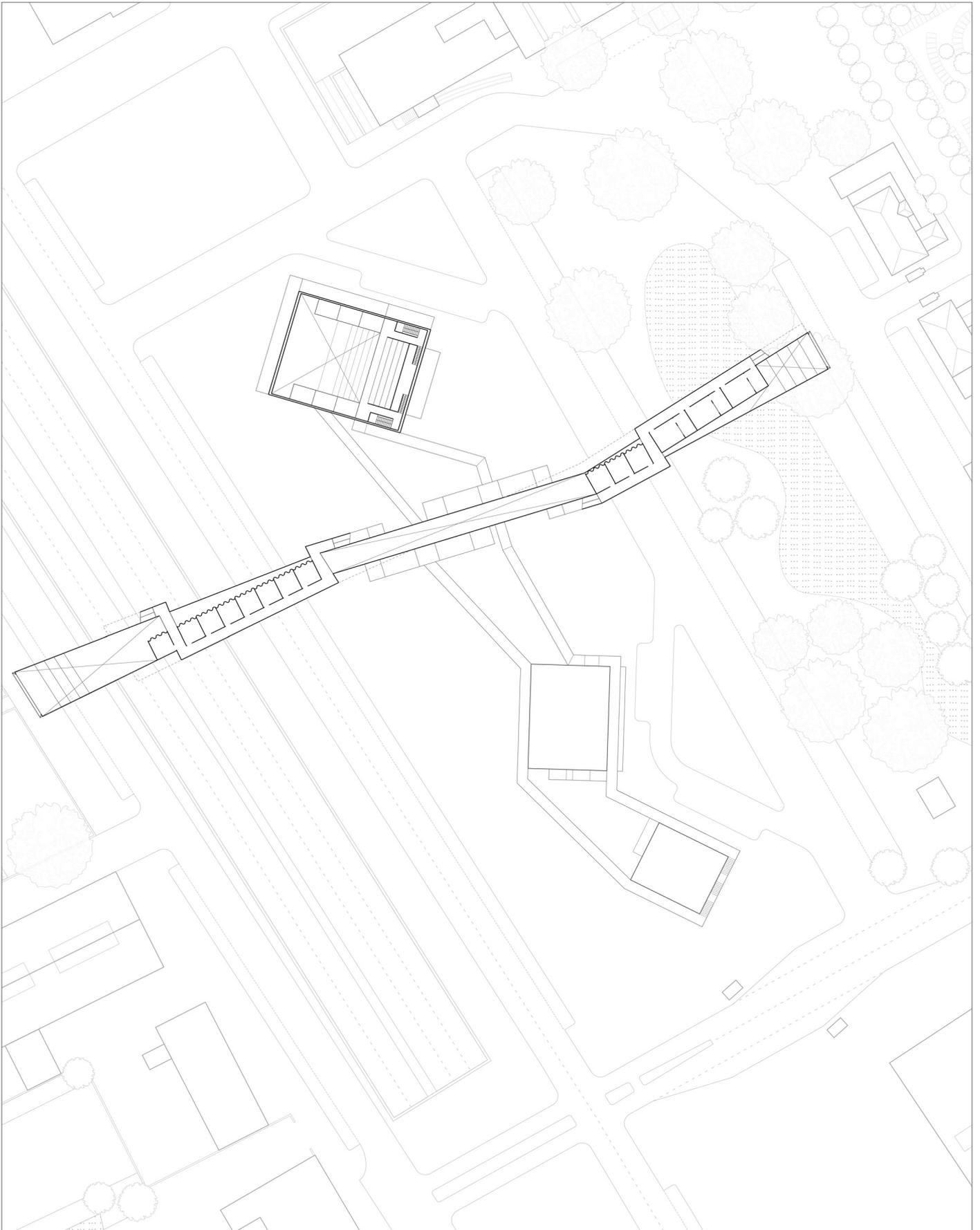
Schematic Design - Second Floor



Schematic Design - Third Floor



Schematic Design - Fourth Floor

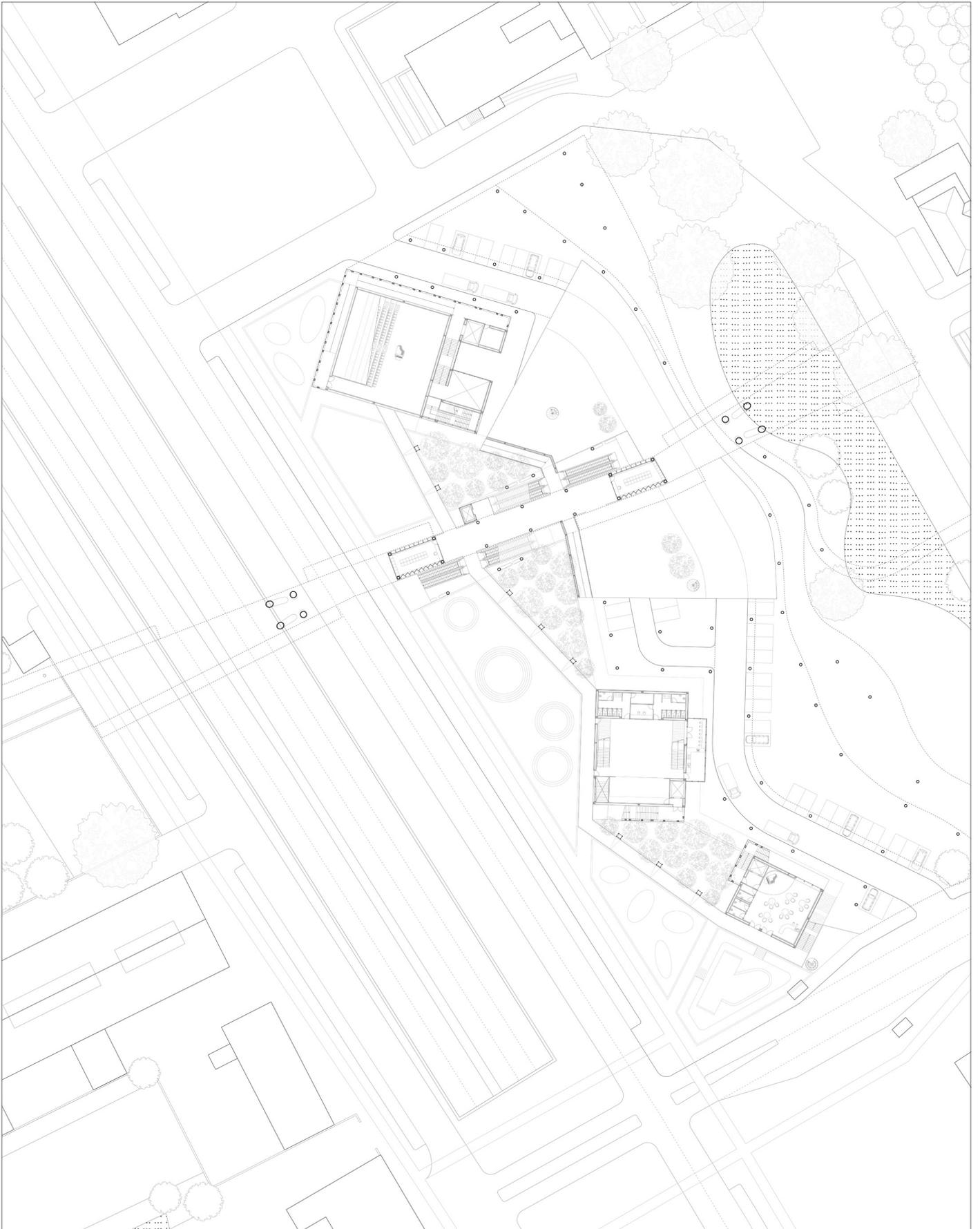


PLAN 2.0

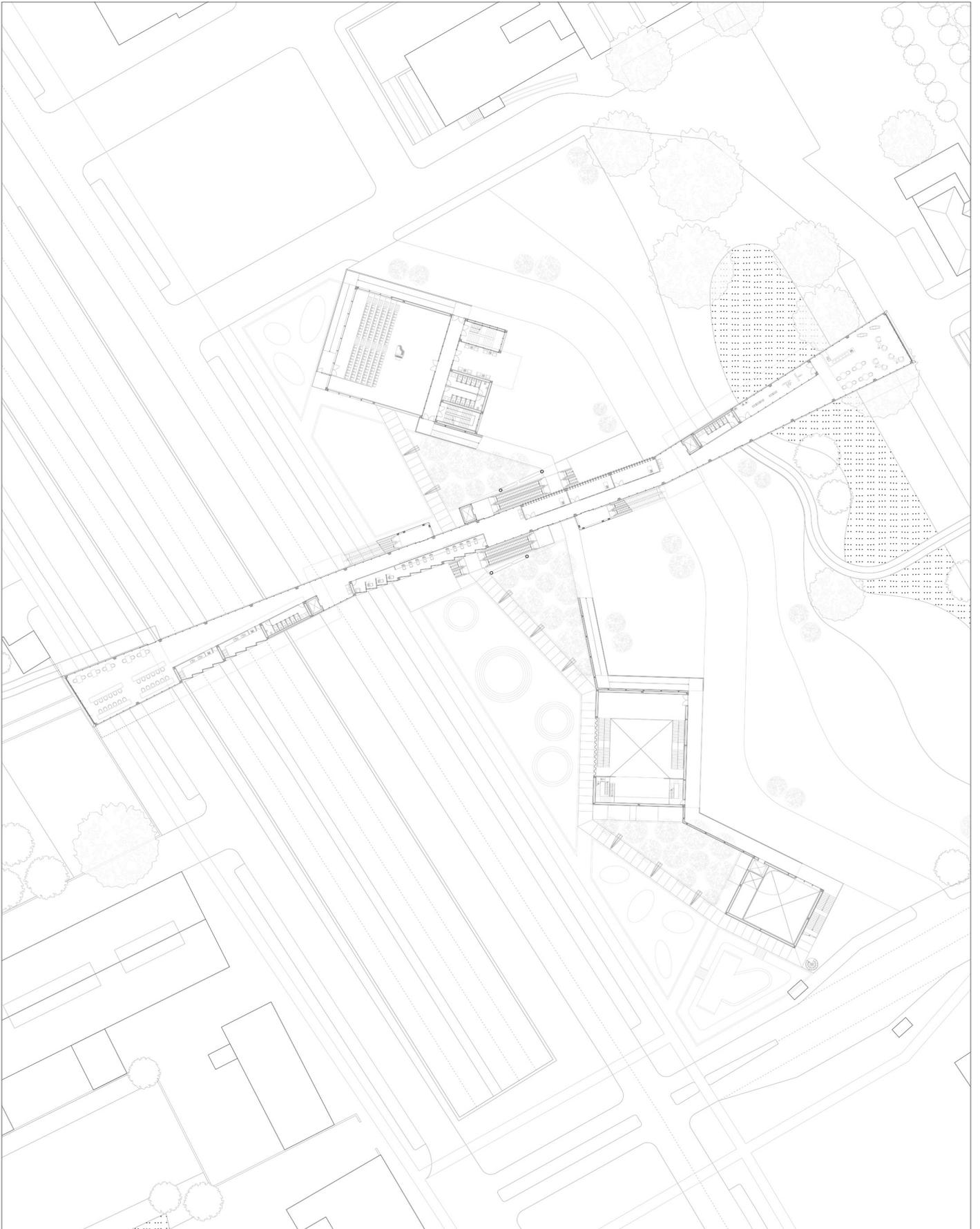
Ground Floor



First Floor



Second Floor



Third Floor



Fourth Floor



PLAN 3.0

Ground Floor



First Floor



Second Floor



Third Floor



Fourth Floor



PLAN 4.0

Ground Floor



First Floor

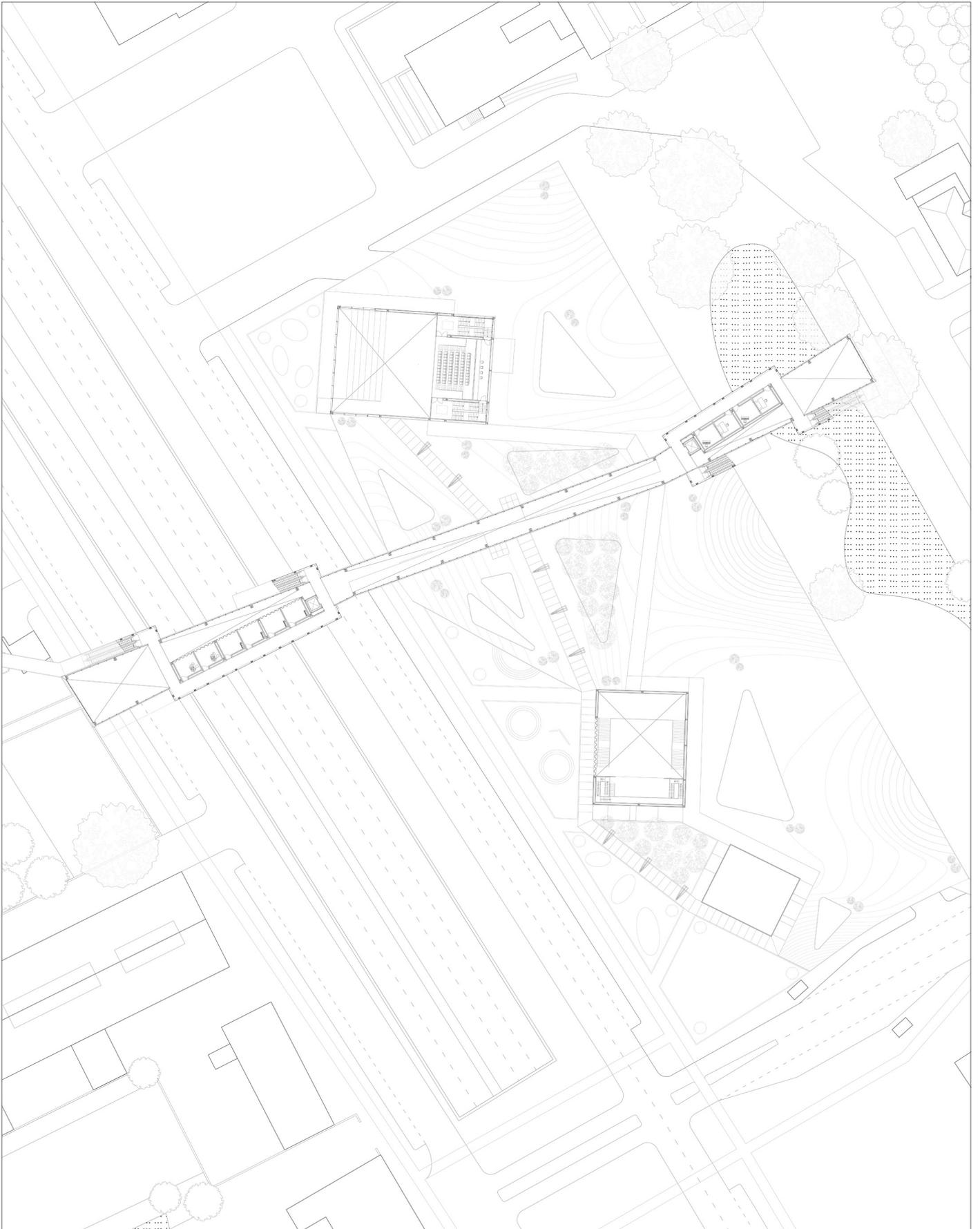


Second Floor

0 15 30 60m



Third Floor



Fourth Floor



PLAN 5.0

Ground Floor



First Floor



Second Floor



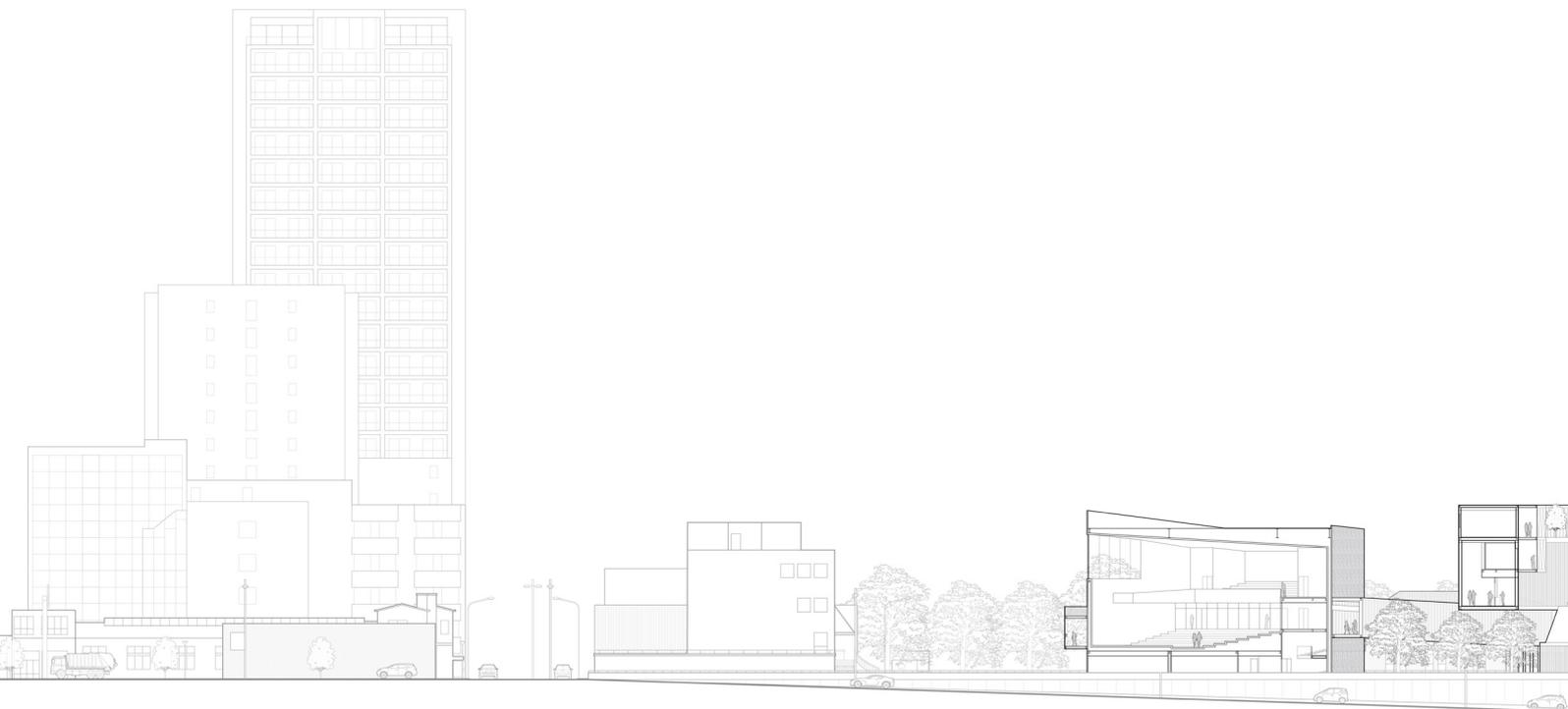
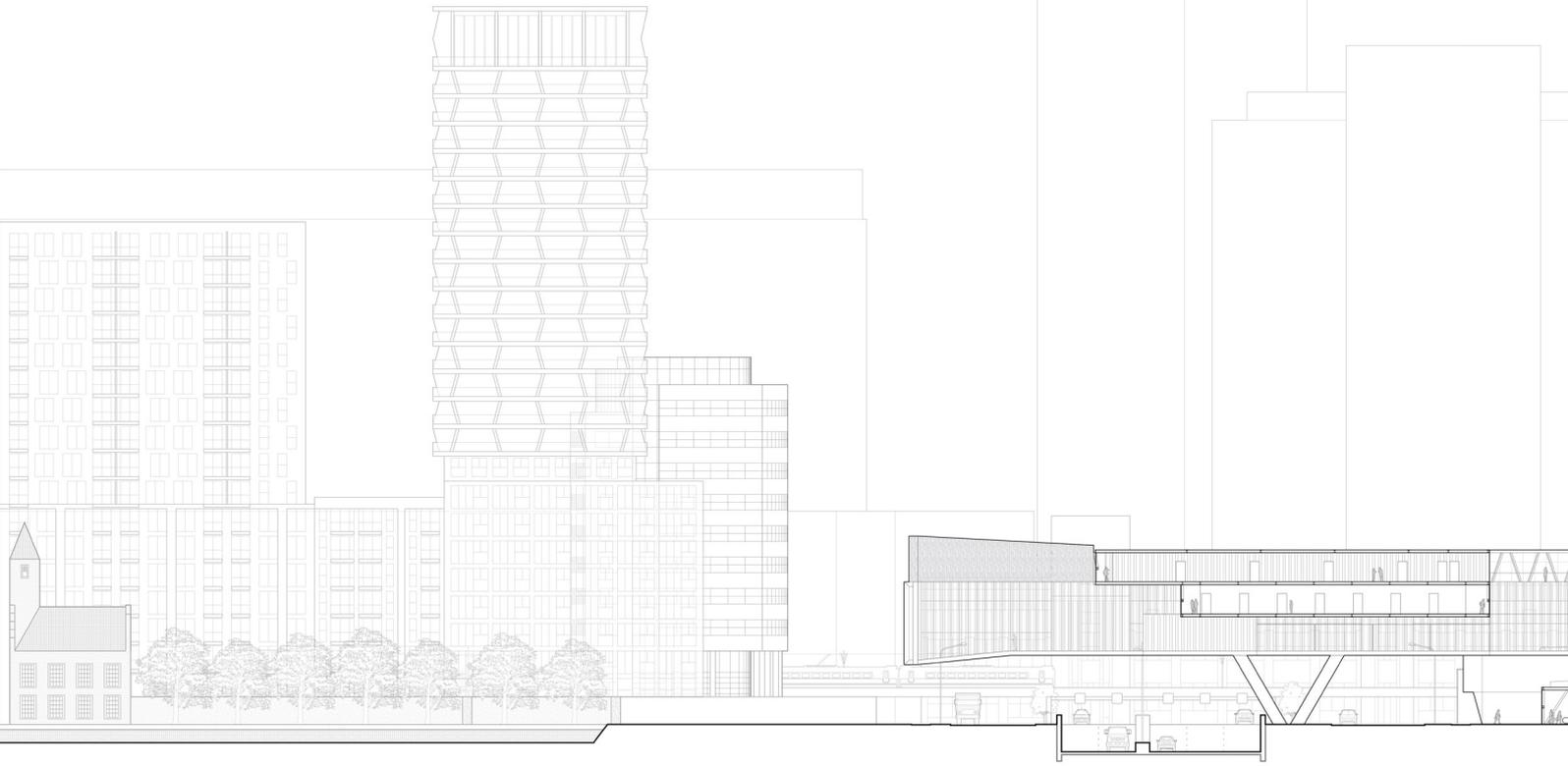
Third Floor



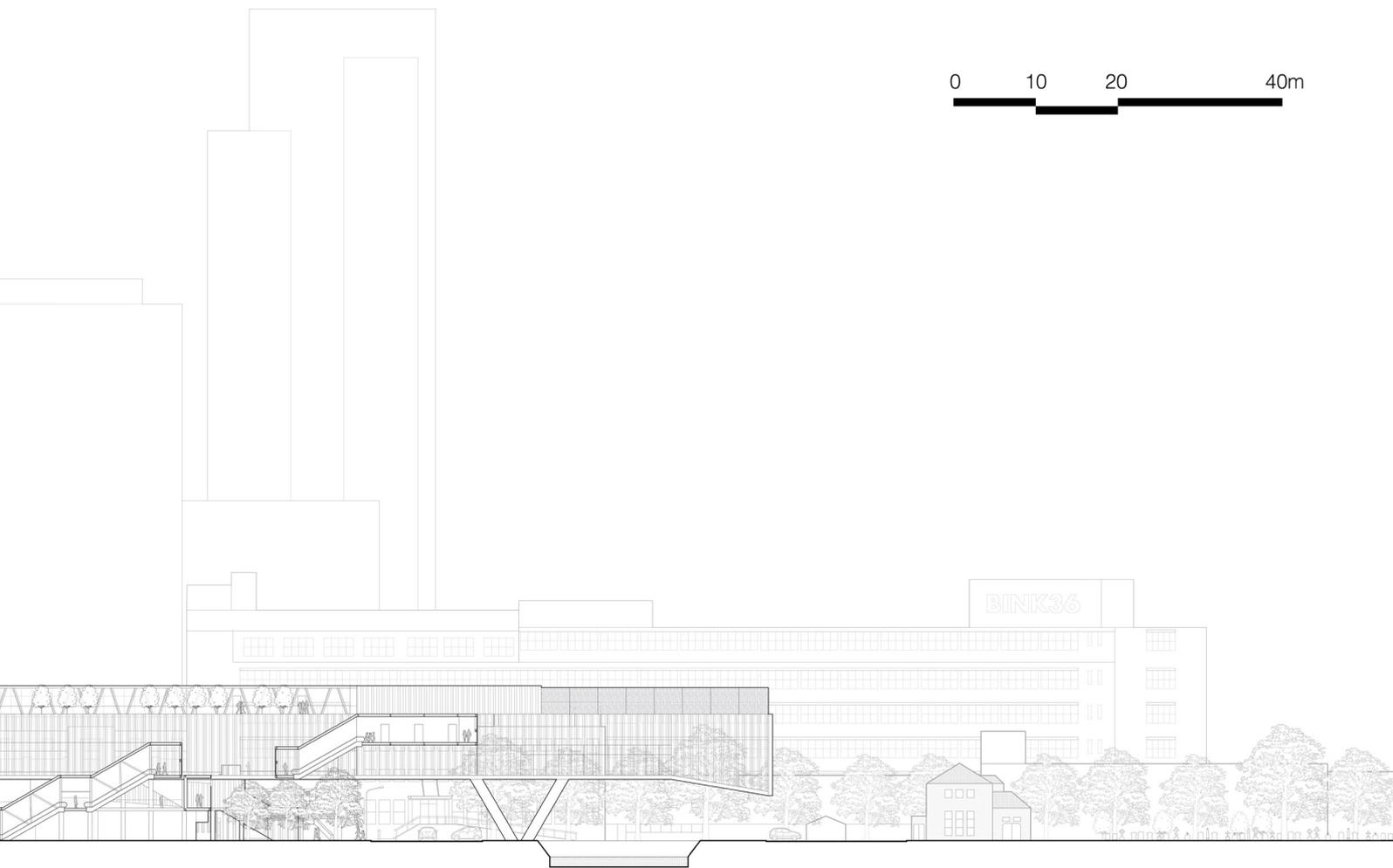
Fourth Floor



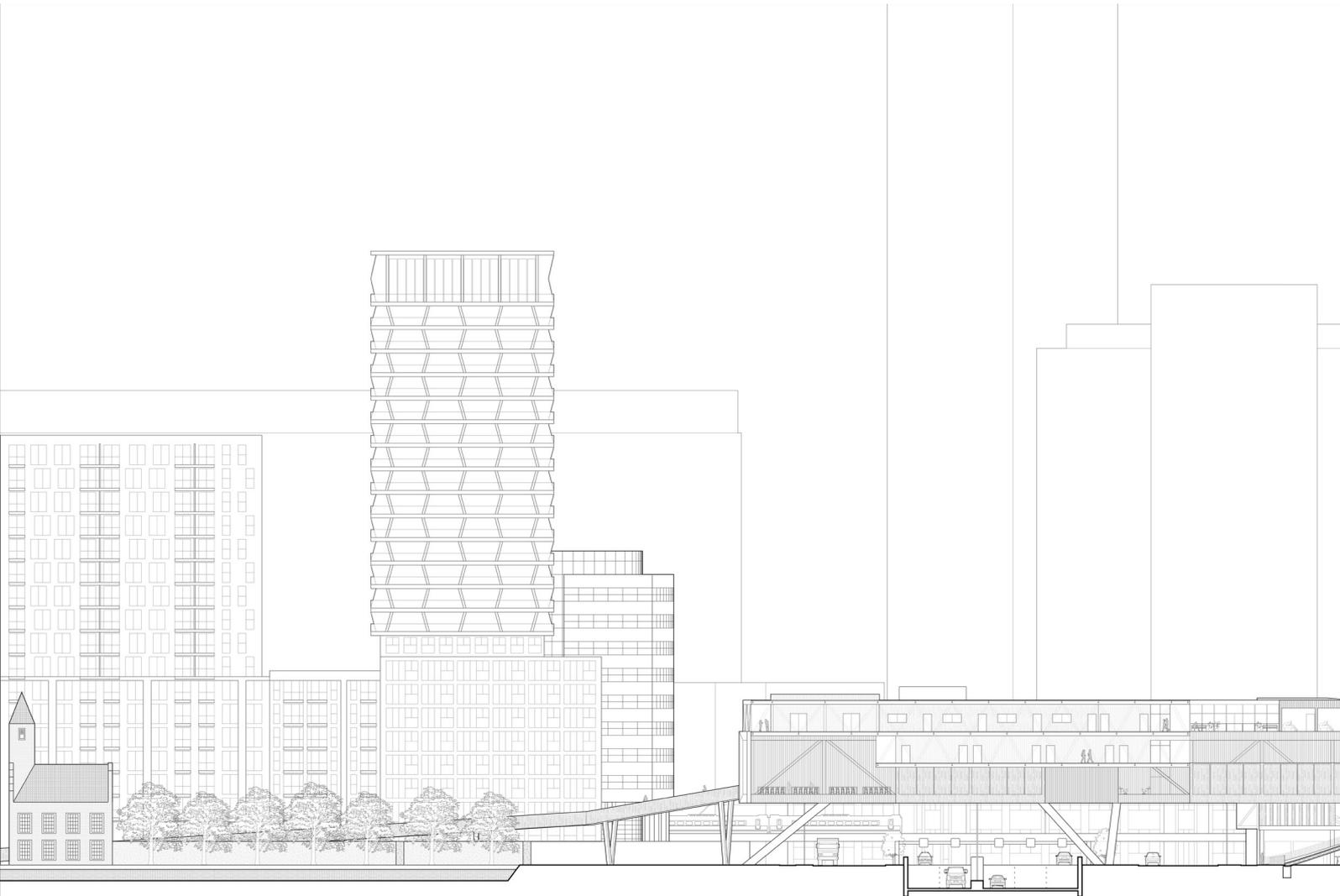
SECTION 1.0



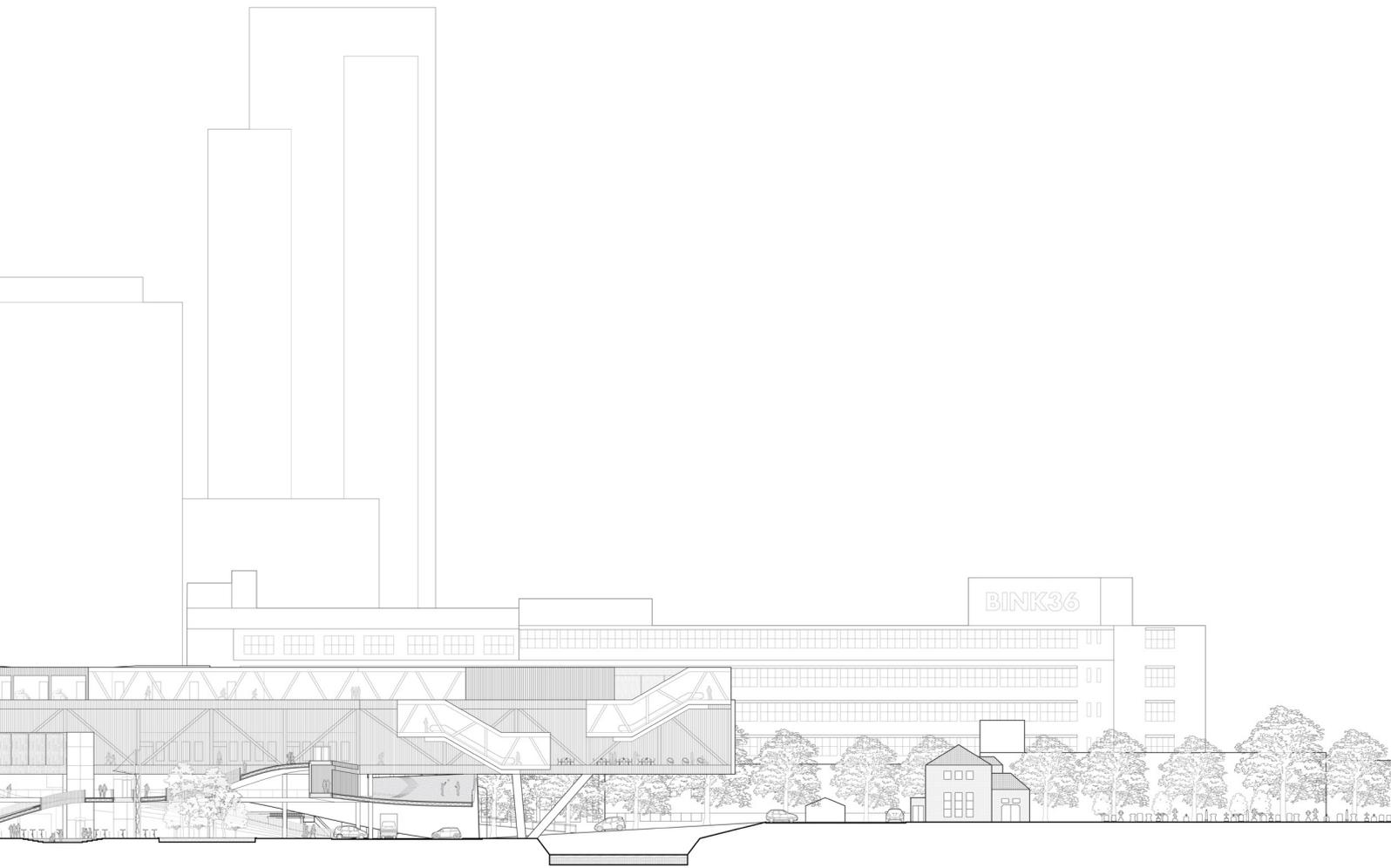
0 10 20 40m



SECTION 2.0



0 10 20 40m



PERSPECTIVES 1.0



Approach



Shared Entrance



Public Corridor



Gallery



West Terrace



East Terrace



Academy Level



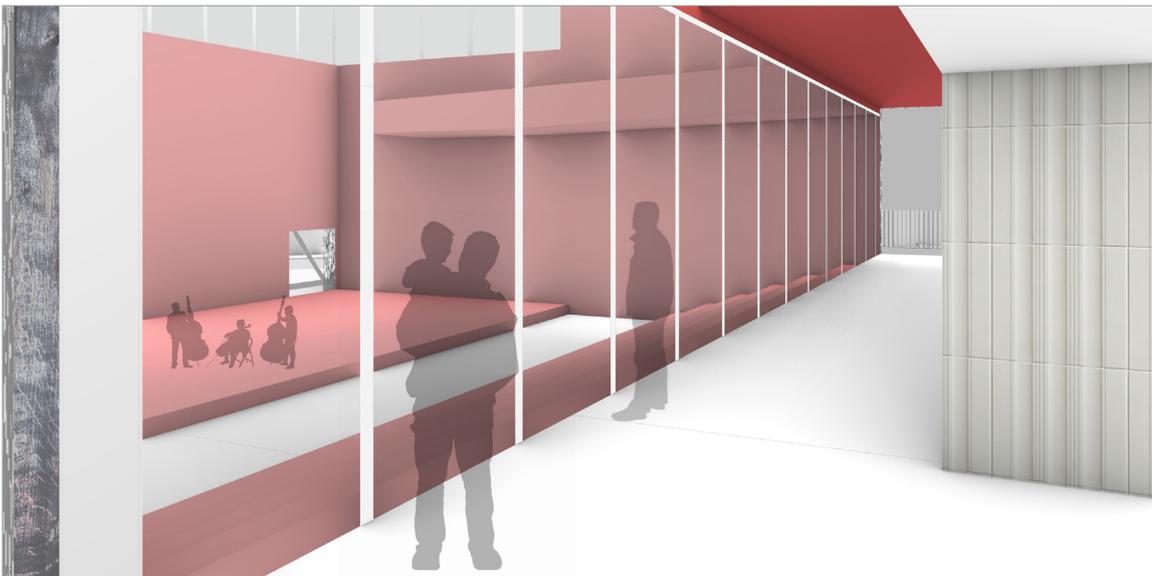
Roof Terrace



Concert Prelude



Concert Hall Terrace



Outside
Classical Auditorium



Inside
Classical Auditorium



Rock and Pop Hall



Jazz Club



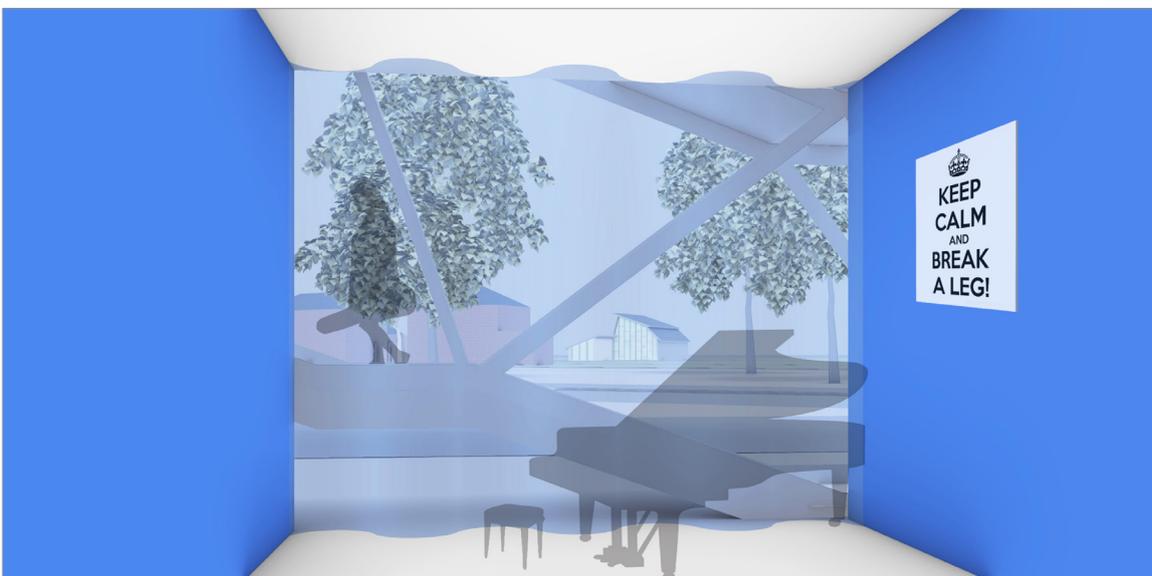
Concert Postlude



Performer Entrance



Musician Bar

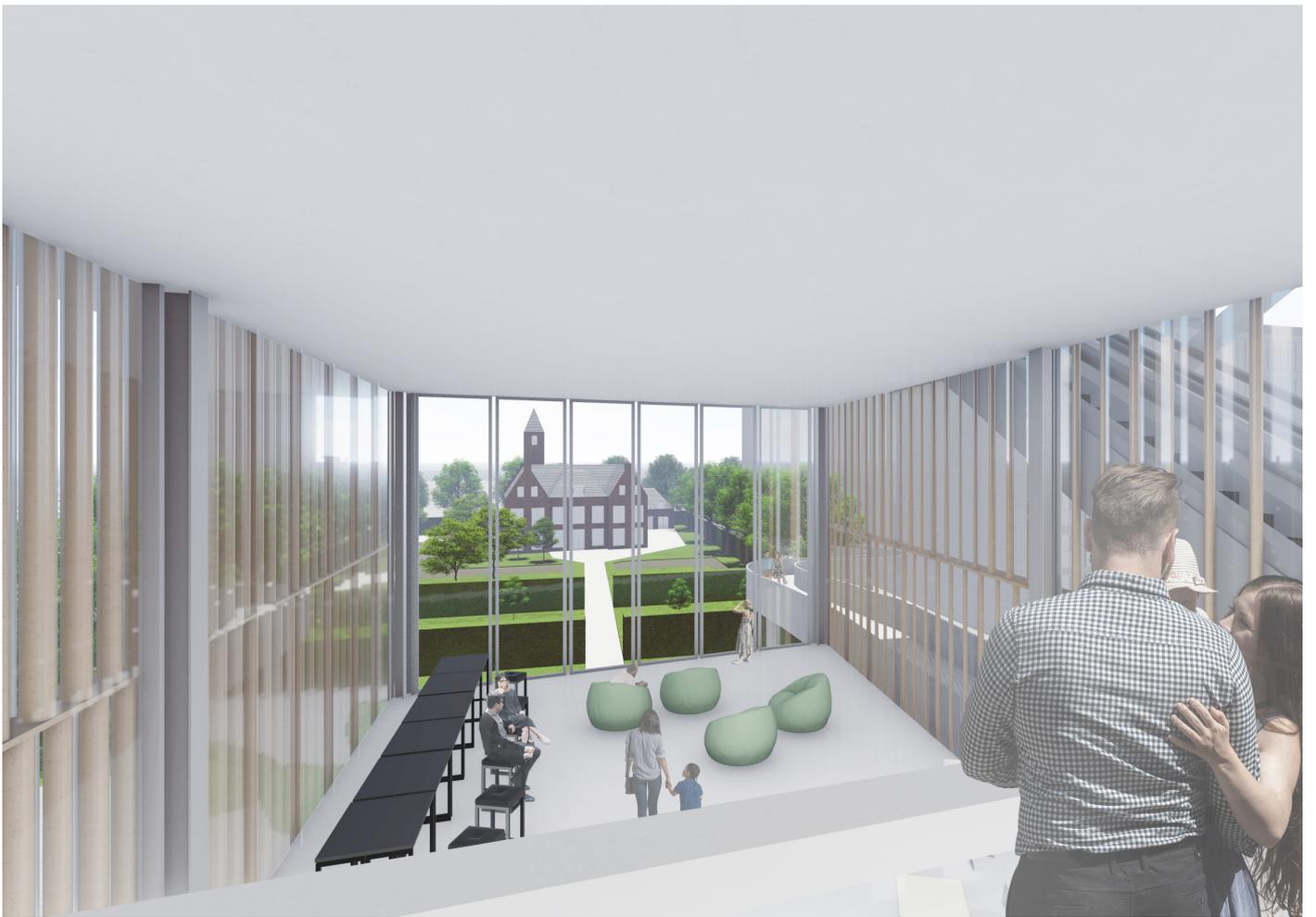


Rehearsal Room

PERSPECTIVES 2.0



Public Corridor Entrance - Concrete Bridge



Public Corridor Atrium



Vendors Along Public Corridor



Postlude

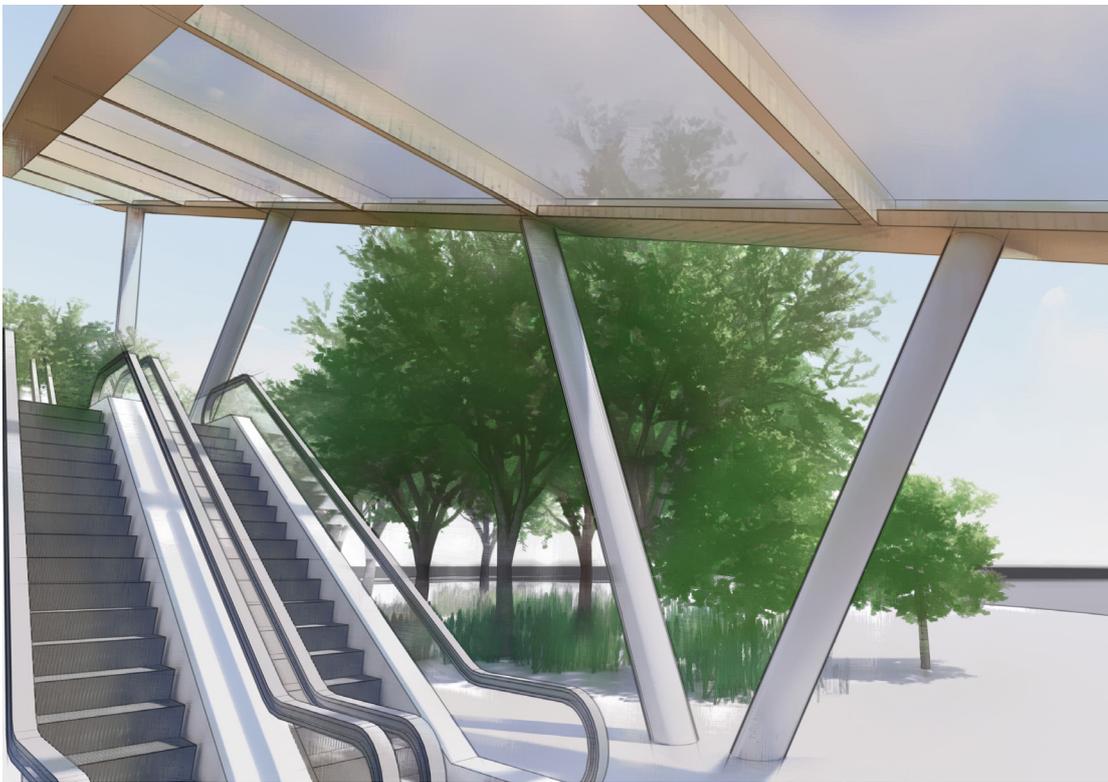
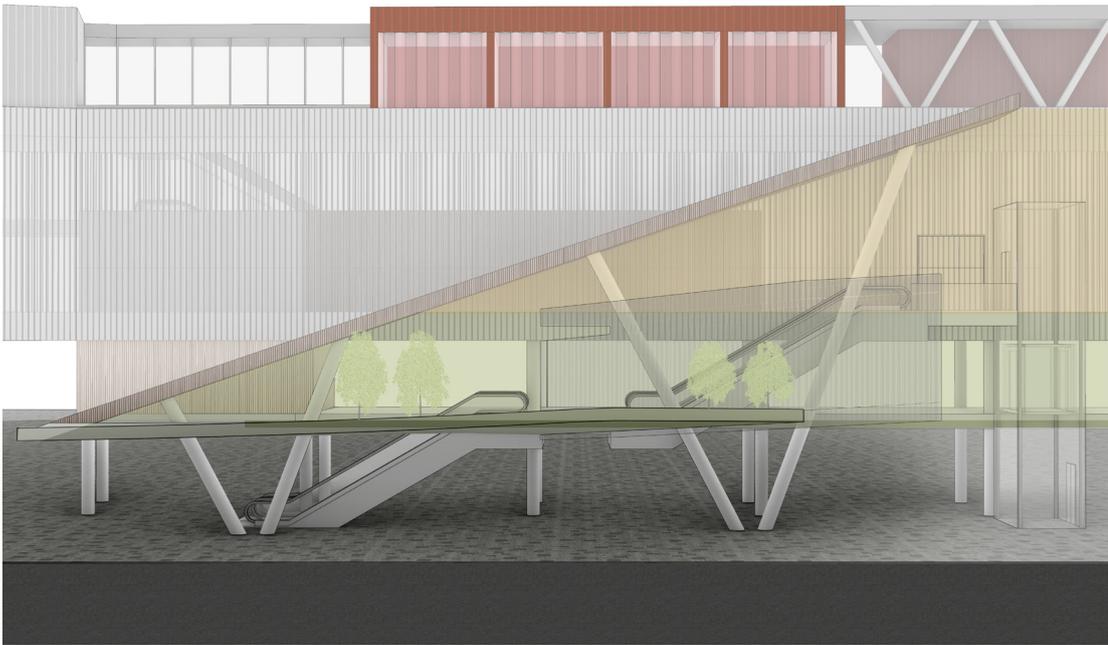


Artificial Landscape - Frontal Entrance

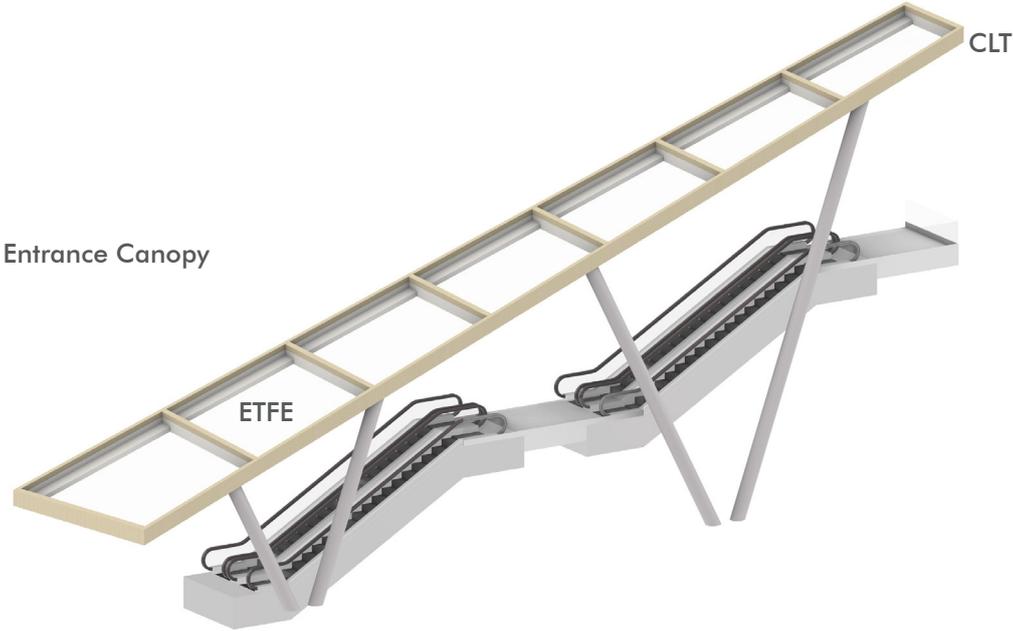


Public Plaza

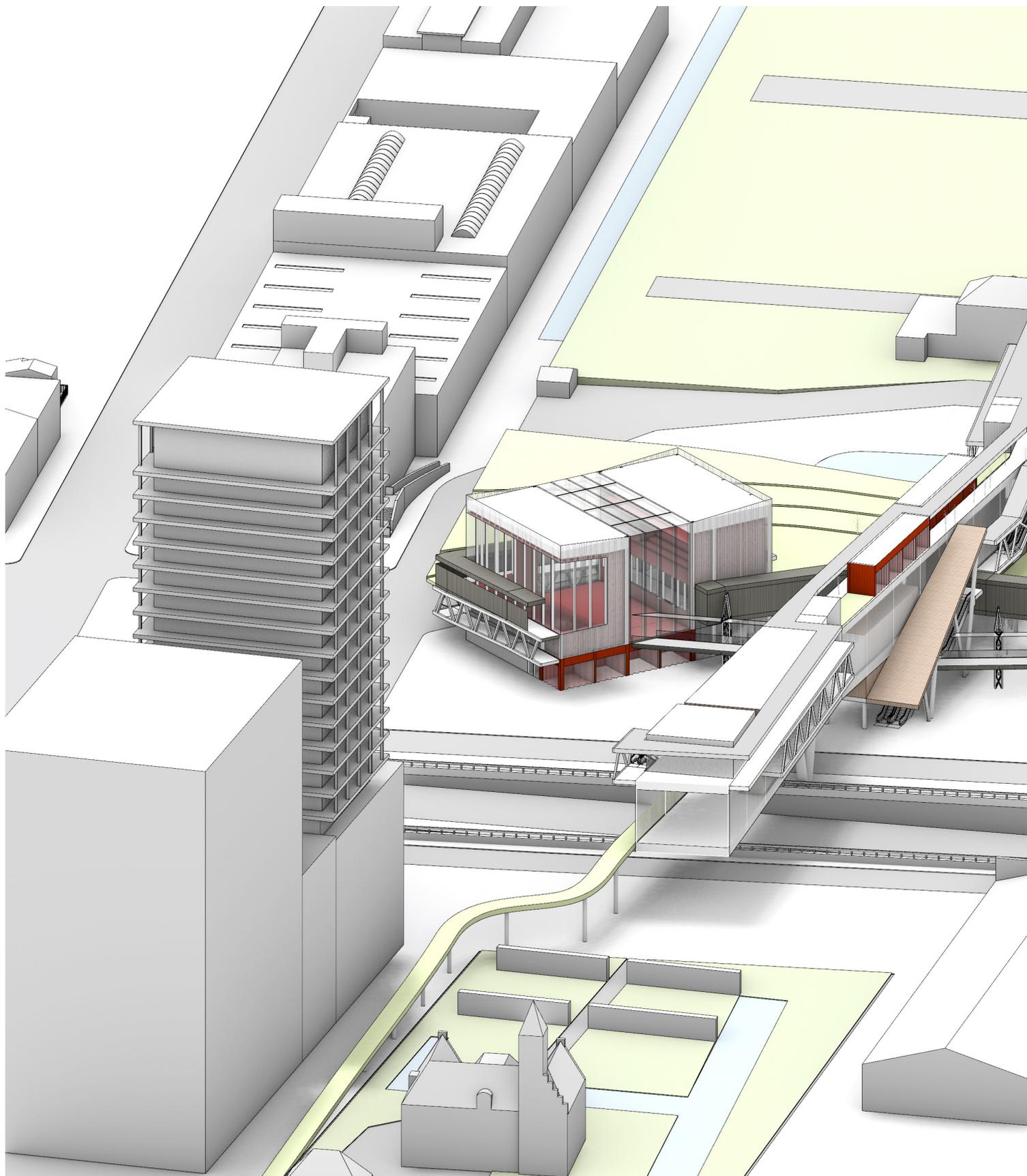
ENTRANCE STUDIES



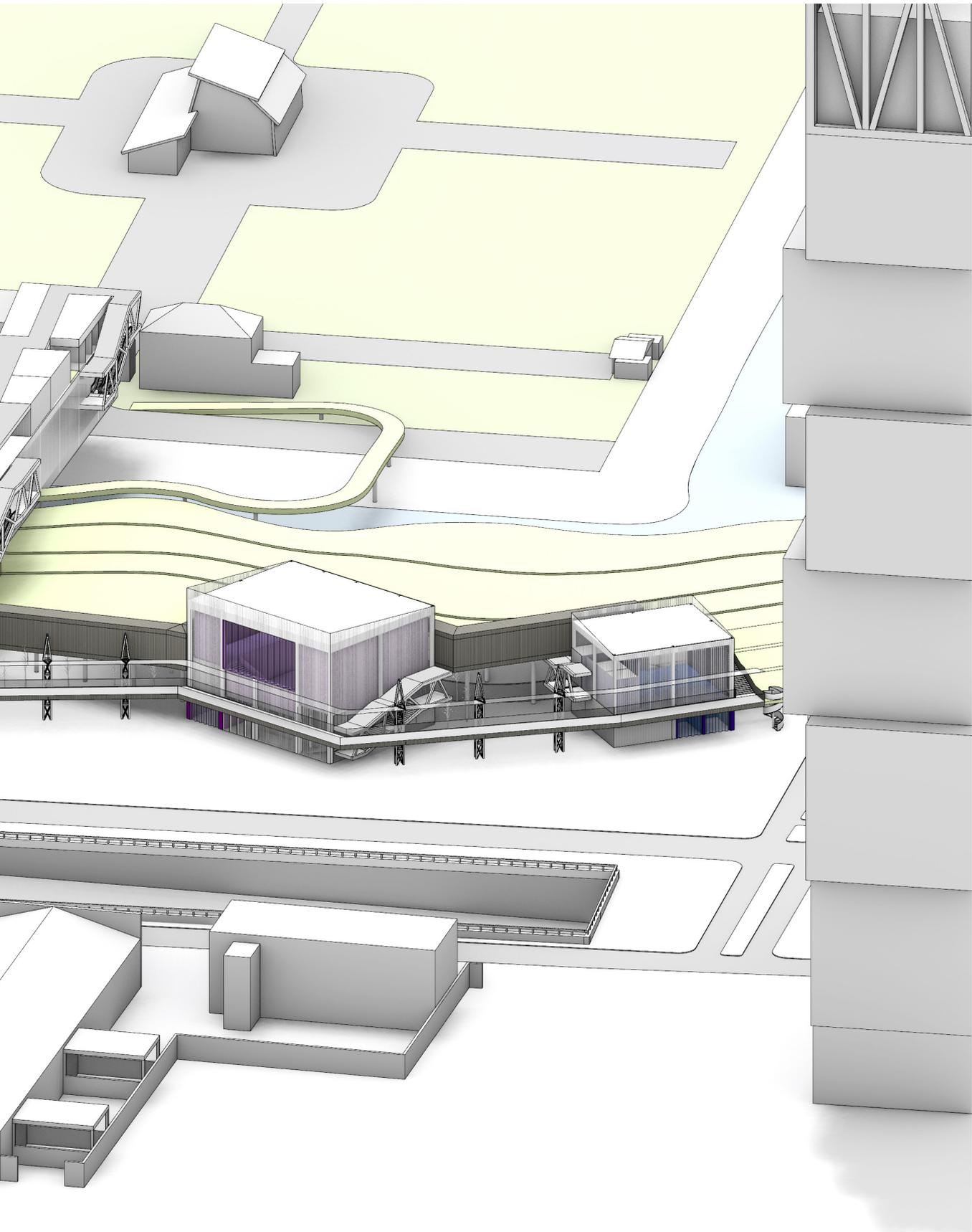
The original entry of the public corridor from the ground level is by means of escalators. However, this is not much different than a train station entrance. As the building aims to provide a more exciting approach experience, I eventually gave up this idea and turned to the artificial landscape for possibilities.



CONNECTION STUDIES



The original idea of the public corridor is to foster direct connection between the castle and the cemetery. However I later realized there is no incentive for large amount of people to swarm into the cemetery for sightseeing.



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² Koolhaas, Rem. *Delirious New York: A Retroactive Manifesto for Manhattan*. New York: The Monacelli Press, 1994.

³ Venturi, Robert. *Complexity and Contradiction in Architecture*. London: Architectural Press, 1977.

⁴ "Casa Da Musica.", *El Croquis* no. 134 (2007).

⁵ Tschumi, Bernard. *Bernard Tschumi: Architecture: Concept & Notation*. Edited by Migayrou Frédéric. Paris: Editions Du Centre Pompidou, 2014.

⁶ "Cordoba Congress Center.", *El Croquis* no. 131/132 (2006).

⁷ Colbert, Moriah , Jeremy Sims, Aniekan Basse-Etuk and Tucker Harding Saloni. *Centre Pompidou: Structural Case Study*. 2018.

IMAGE SOURCES

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E. PARAMETERS TO CONSTRUCT THE MUSICAL PROMENADE

Shing Yat Tam Samuel



SKIN_MATERIALITY 1.0

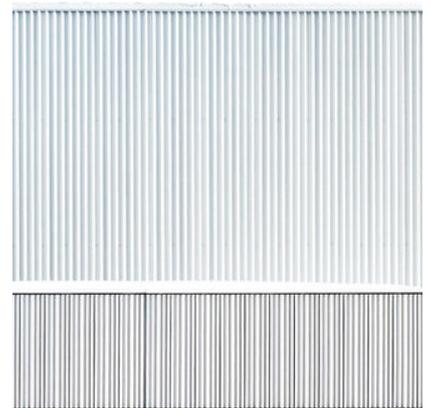
1. Tubular Metal Curtain

Reserved for the public corridor, the porous layer consists of an array of round steel tubes. Attached to the primary steel frame at both ends, the rods can help transfer vertical loads. Alternatively, they may also be installed with clappers and emit soothing sounds as wind chimes do to enliven the vibe of the common area.



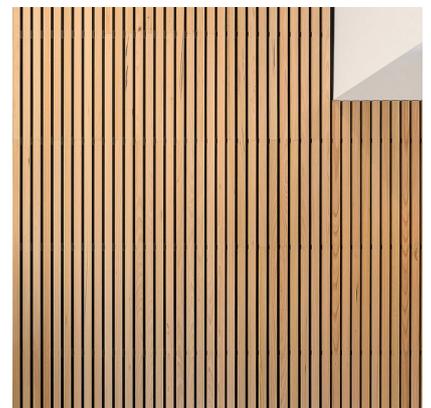
2. Light Aluminum Sidings

This minimalistic layer is assigned to spaces that are supposedly isolated from the disturbances of the outside world or require a high degree of privacy. Examples include the recording studios and changing rooms for the performing artists. Besides, it is the external envelop for all restrooms, mechanical zones and storage spaces.



3. Timber-coated Aluminum Sidings

Water-proof and fire-resistant aluminum sidings mimicking wood veneer are designated for gathering hotspots full of energy. For instance, the reception office, food court and the bars exclusive to performing artists. With a yellow tinge and grainy texture, they increase the warmth of the space.



4. Fritted Glass

Glass with a frosty look begets a translucent quality that is ideal for spaces of retreat, such as composition rooms and the library where people demand concentration but do not ask for complete introversion. The coated pattern can be a visual abstraction of certain plant types, which adds a feeling of nature to the space.



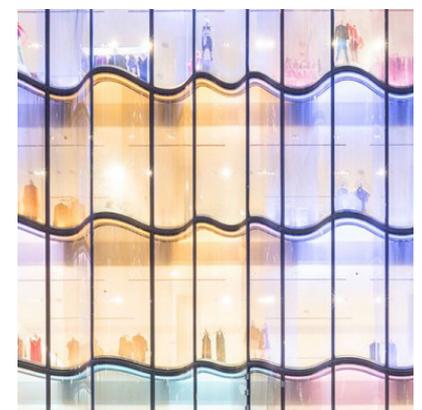
5. Transparent Glass

The generic glass layer is applied to the walkways coiling around the major building masses to differentiate them from the spaces housing specific programmes. Aside from the structure, the users moving at different heights are exposed as if they were characters on a vertical stage appreciated by pedestrians on the street level.



6. Stained Corrugated Glass

Glass in curved form is a popular material choice in contemporary concert halls because of its ability to diffuse sounds. In my project it is used to fill the openings of the practice and rehearsal rooms. The colours accentuate the atmospheres of space and boost its playfulness.



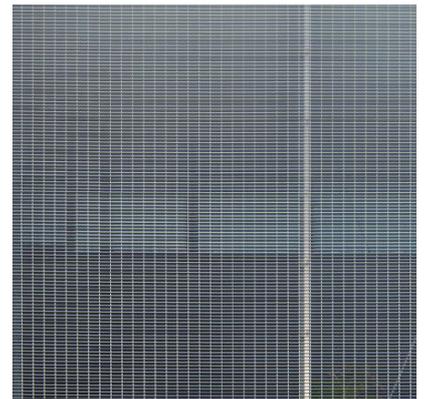
7. Dark Aluminum Sidings

Reserved for the public corridor, the porous layer consists of an array of round steel tubes. Attached to the primary steel frame at both ends, the rods can help transfer vertical loads. Alternatively, they may also be installed with clappers and emit soothing sounds as wind chimes do to enliven the vibe of the common area.



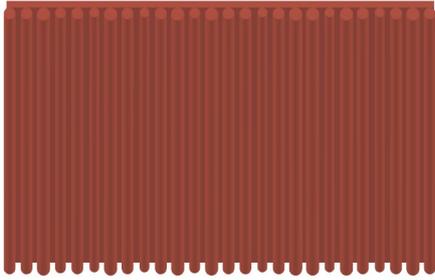
8. Perforated Metal Screen

This minimalistic layer is assigned to spaces that are supposedly isolated from the disturbances of the outside world or require a high degree of privacy. Examples include the recording studios and changing rooms for the performing artists. Besides, it is the external envelop for all restrooms, mechanical zones and storage spaces.

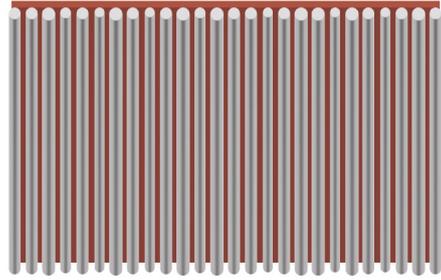


SKIN_MATERIALITY 2.0

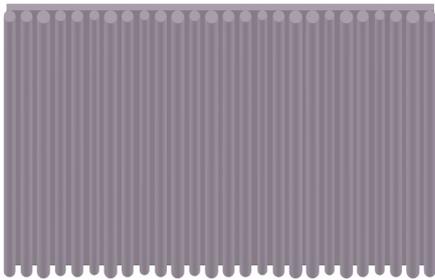
Red Pipes + Red Aluminum Panel



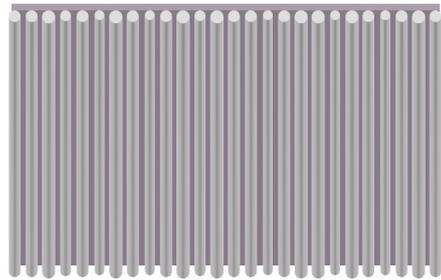
Silver Pipes + Red Aluminum Panel



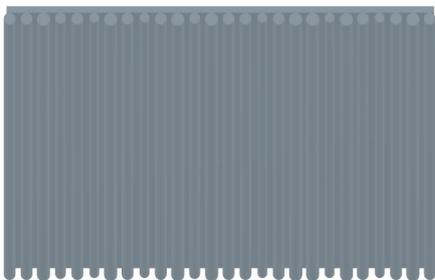
Purple Pipes + Purple Aluminum Panel



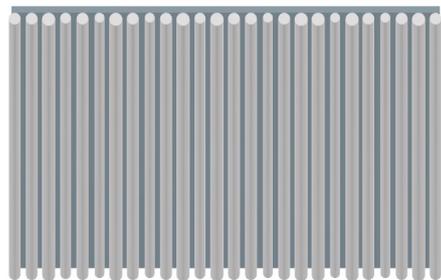
Silver Pipes + Purple Aluminum Panel



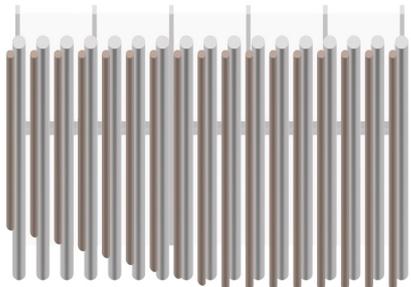
Blue Pipes + Blue Aluminum Panel



Silver Pipes + Blue Aluminum Panel



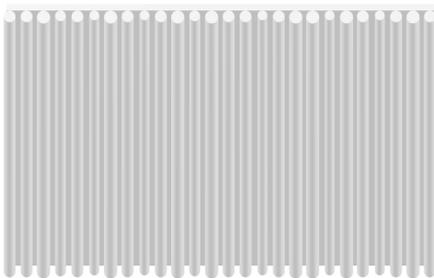
Brass Pipes + Silver Pipes + Glass Curtain



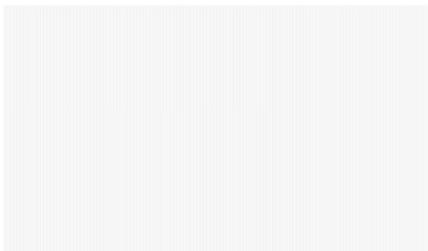
Cross Laminted Timber



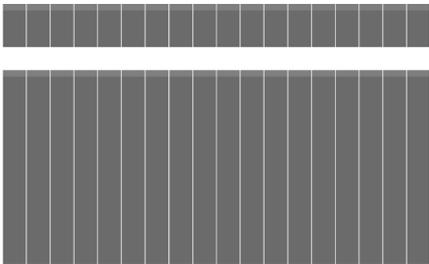
White Pipes + White Aluminum Panel



Polycarbonate Panel



Dark Aluminum Panel

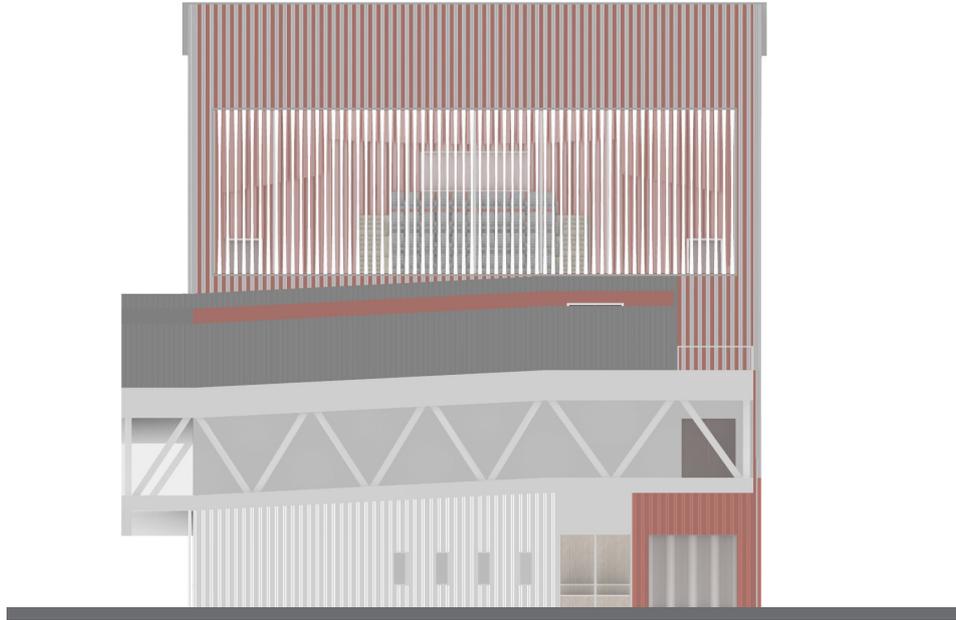


Corrugated Glass

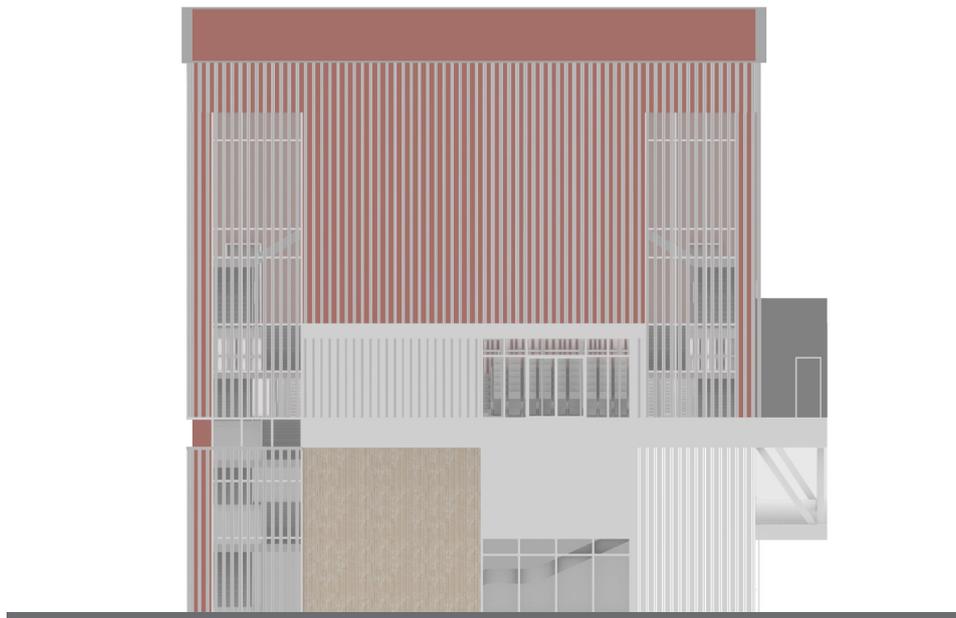


APPLICATION

Classical Auditorium



Front



Back

APPLICATION

Rock & Pop Hall

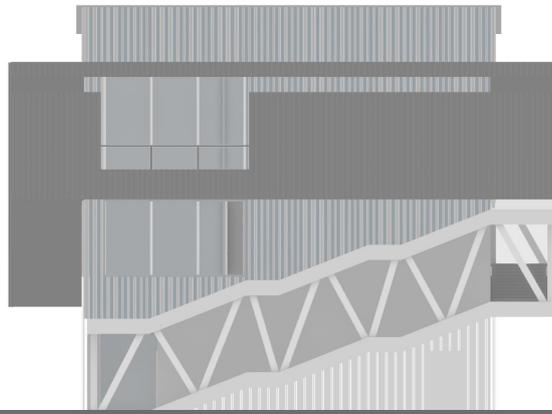


Front

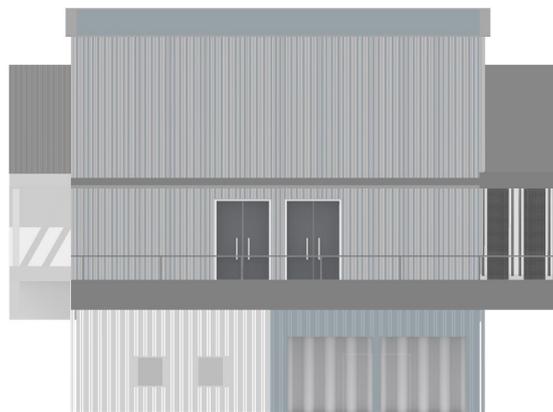


Back

Jazz Club



Front



Back

APPLICATION

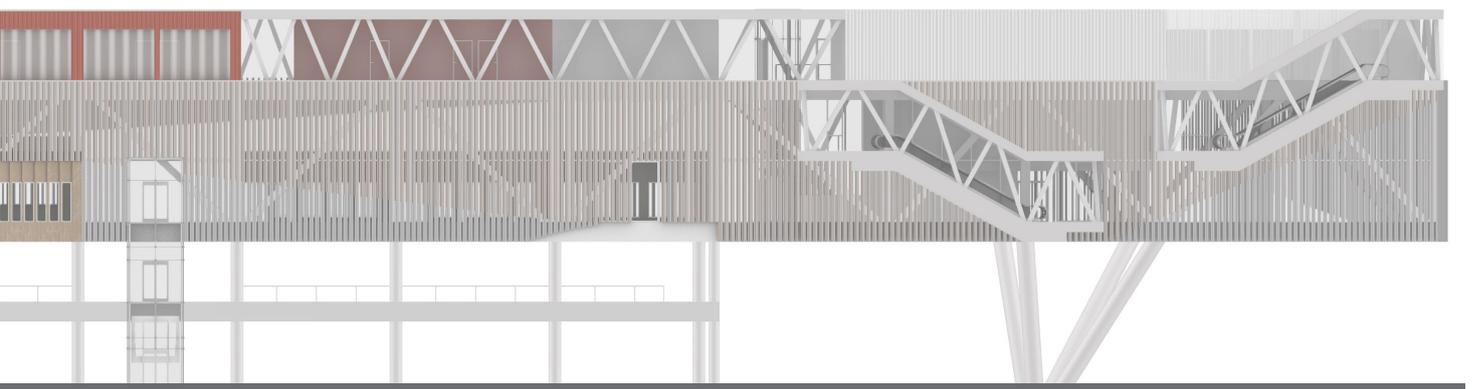
Public Corridor

Northern Facade



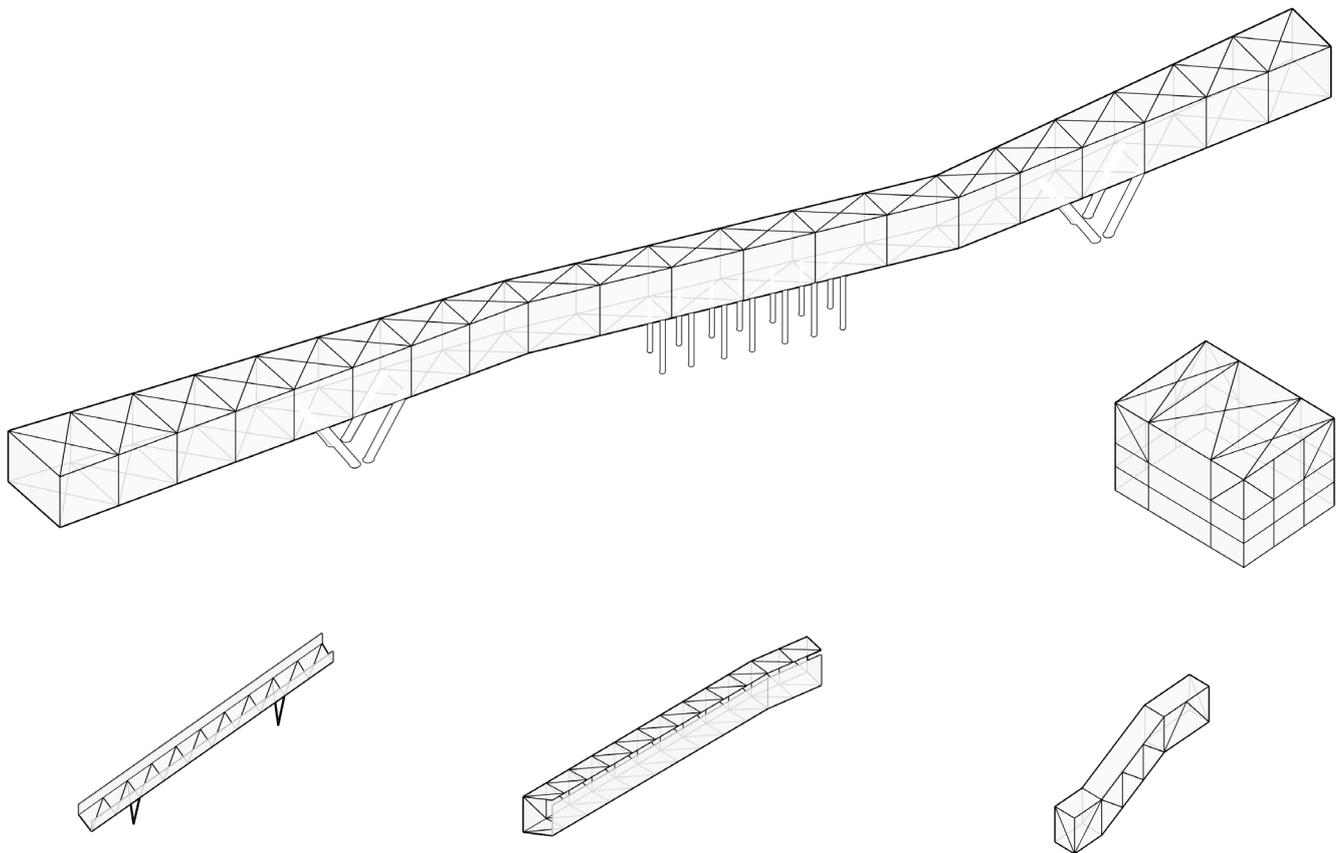
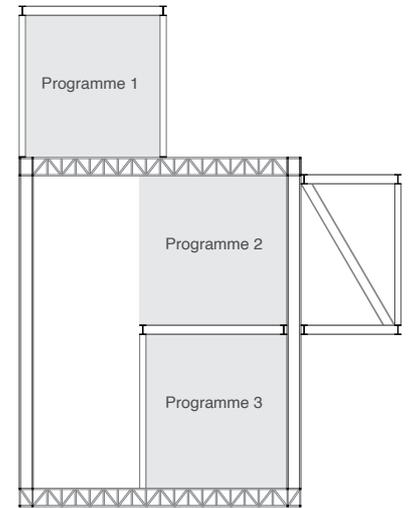
Southern Facade





STRUCTURE 1.0

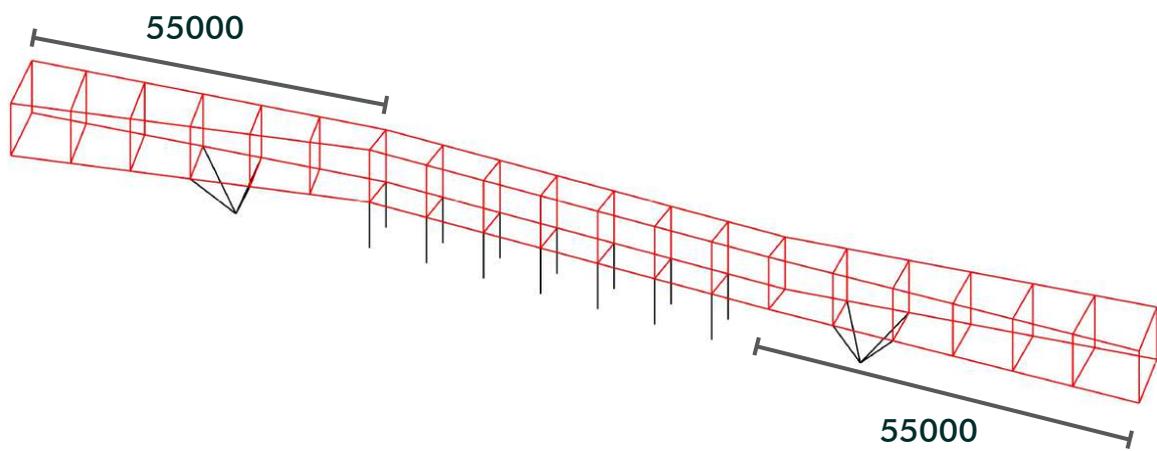
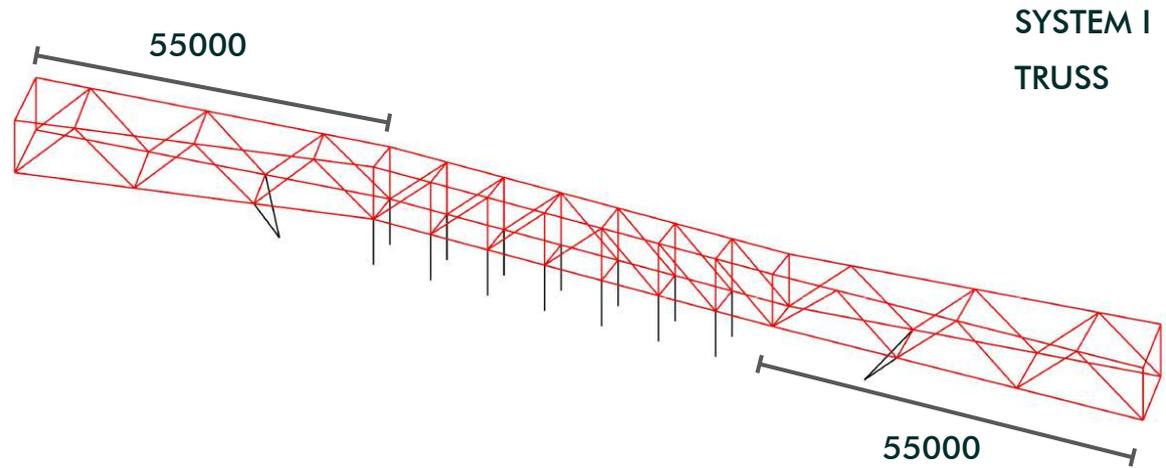
The design can be dissected into several types of construction independent from one another. The public corridor intersecting the Binckhorstlaan is a long span structure supported by either slanted or vertical columns. Same as the three concert volumes placed in parallel to the main road, it adopts a steel exoskeleton which ensures maximum flexibility for the uninterrupted occupation of programmes within the rigid frames and sometimes on top of them. As for the walkways cutting through, encompassing and linking the individual masses, they are mostly cantilever systems clinging to the exterior surfaces of the heavier structures. At least three variations are developed because of the differences in the degree of enclosure.



Structuring Framing of Different Parts of the Building (Public Corridor, Concert Space and Skybridges)

STRUCTURAL CONSULTATION I

DIAGRAM A



SYSTEM I
TRUSS

SYSTEM II
FRAME

DIAGRAM A

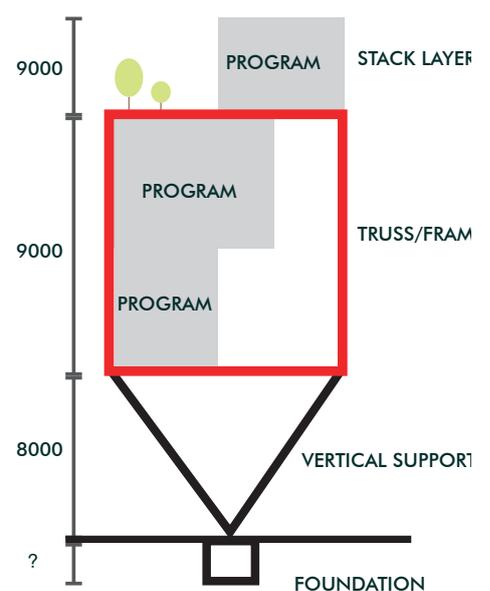
Q: For the long spanning structure, what is the difference in sizing of steel members between system I and II? If I want to go for a minimum amount of bracing, how should I do it without compromising lateral stability?

A: System 2 is inherently unstable unless you use moment resistant joints such as in a vierendeel truss. This would use twice as much material.

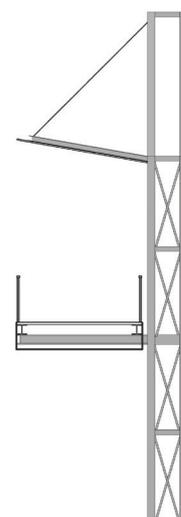
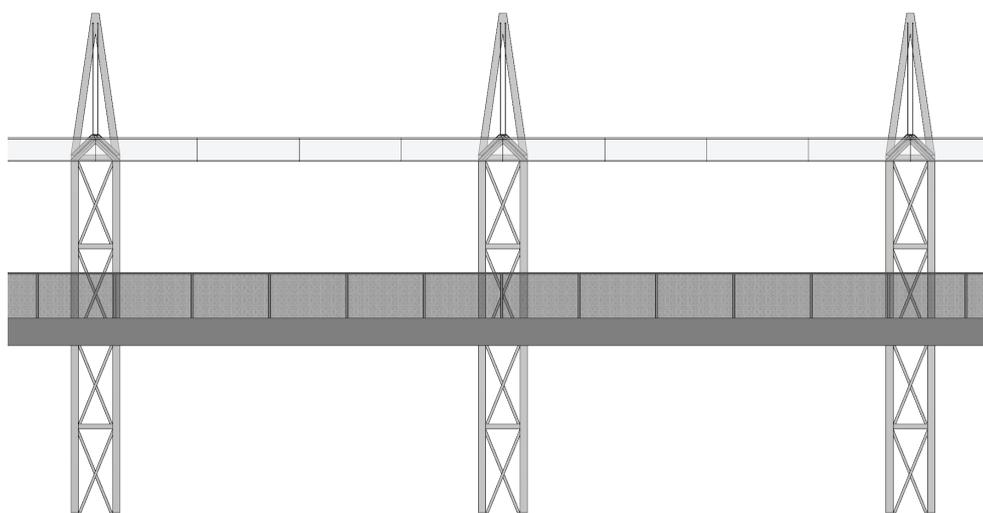
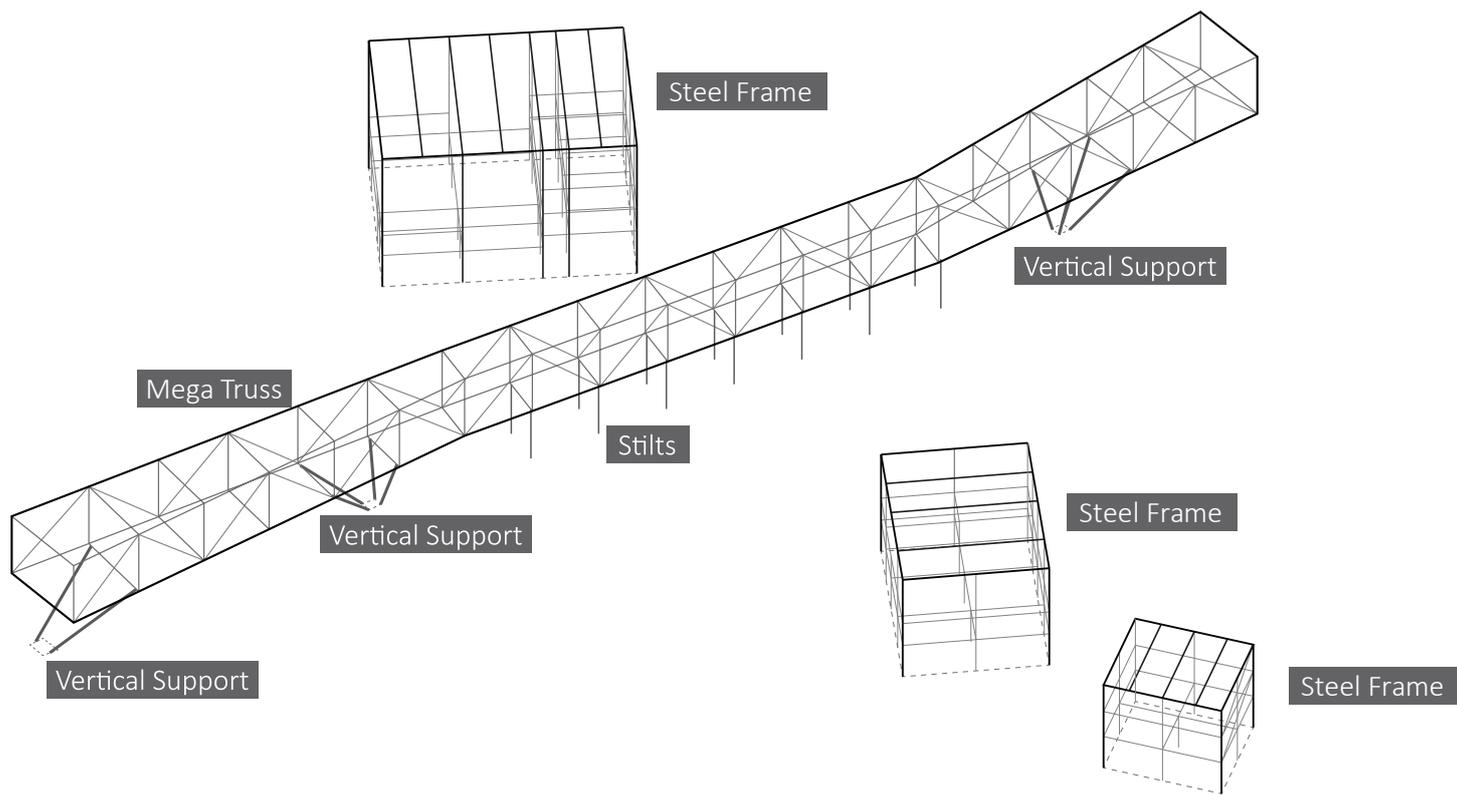
System 1 can be stable but the cantilevers are too large. This would require a height for the truss of at least 7 m. (20% of the length of the cantilever)

Q: For suspended heat pipes, do they have to be attached to the steel beams directly, or can the mullions for the glass curtain alone hold them in place?

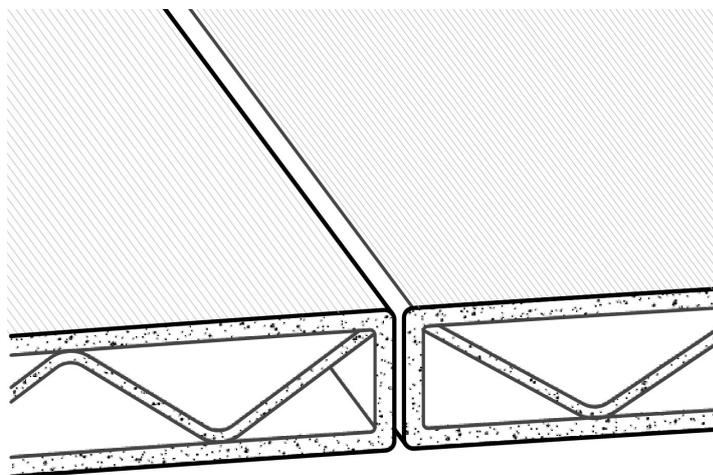
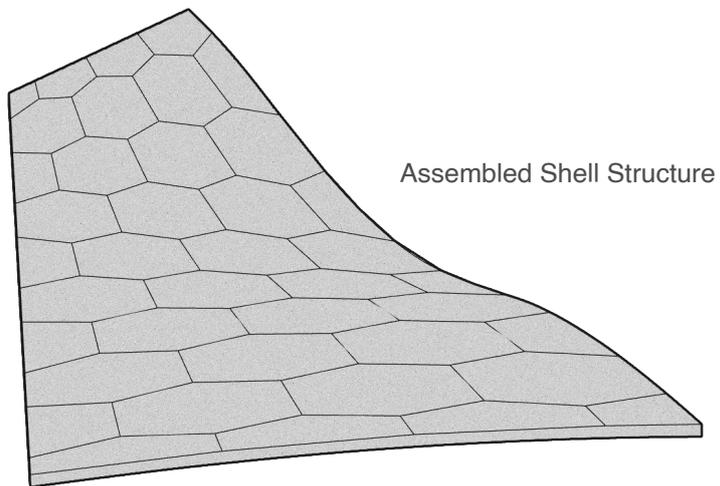
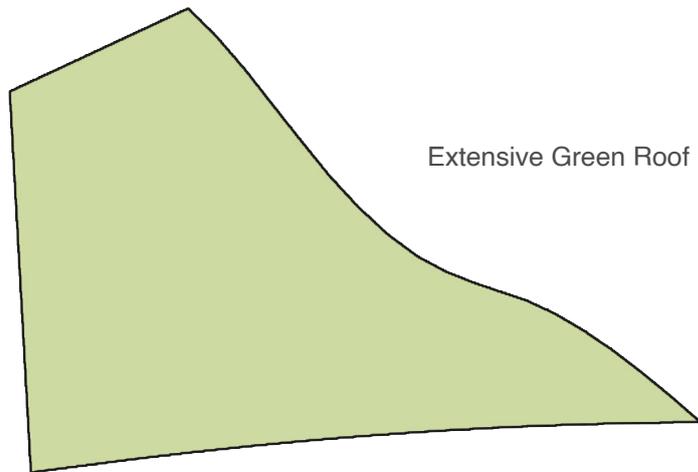
A: For safety they need to be attached to the steel beam.



STRUCTURE 2.0



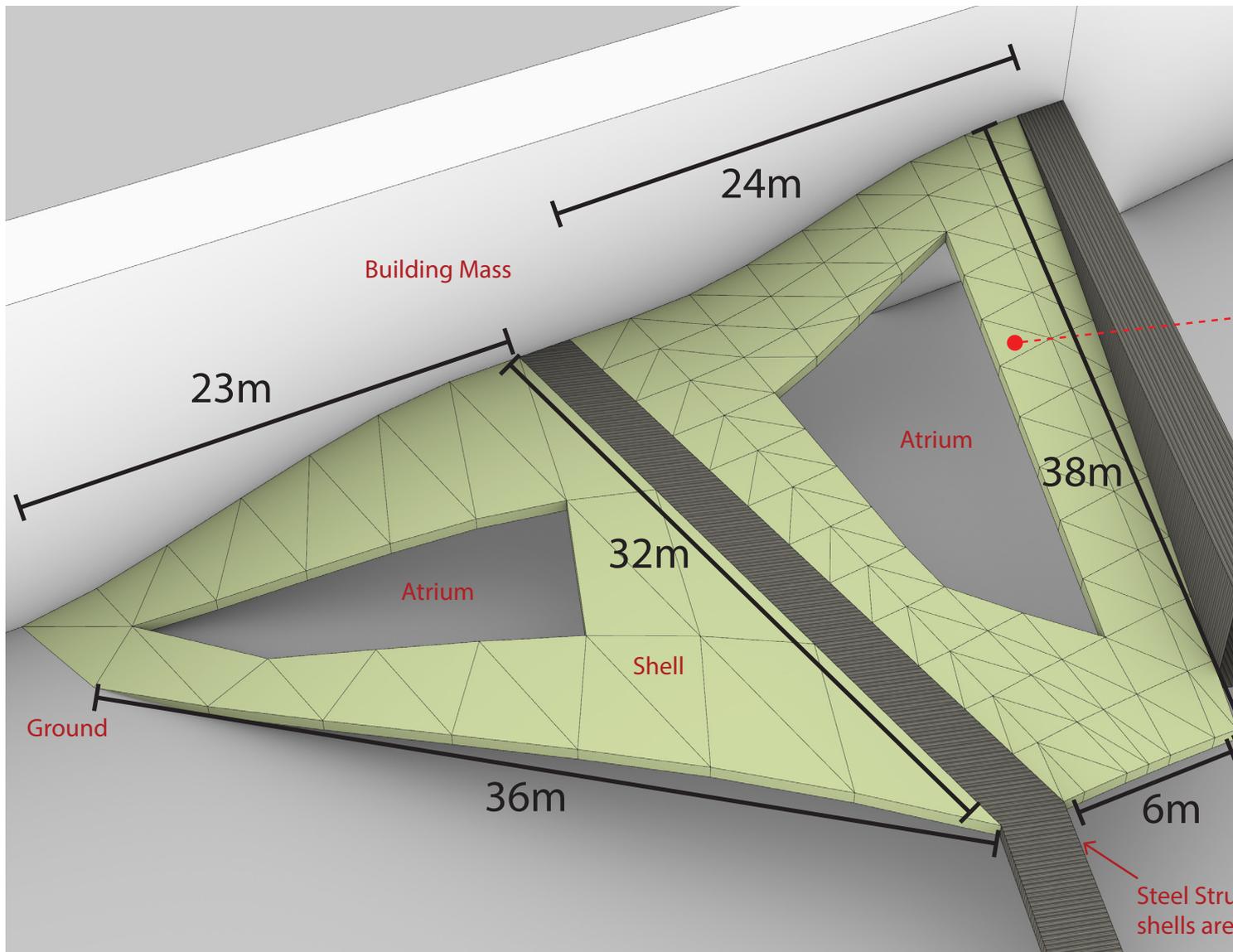
3D PRINTED LANDSCAPE

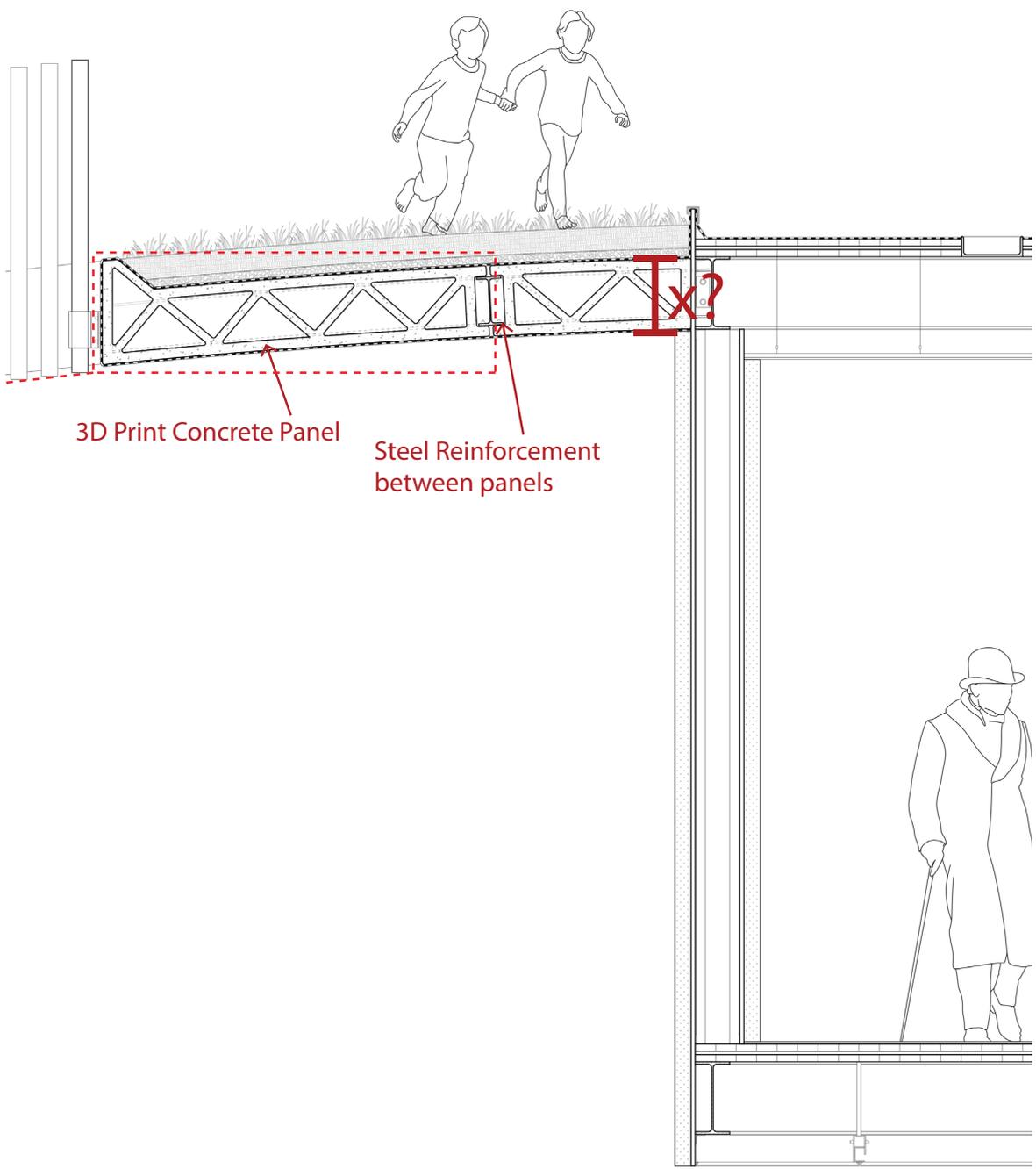


3D Printed Concrete Panels

STRUCTURAL CONSULTATION II

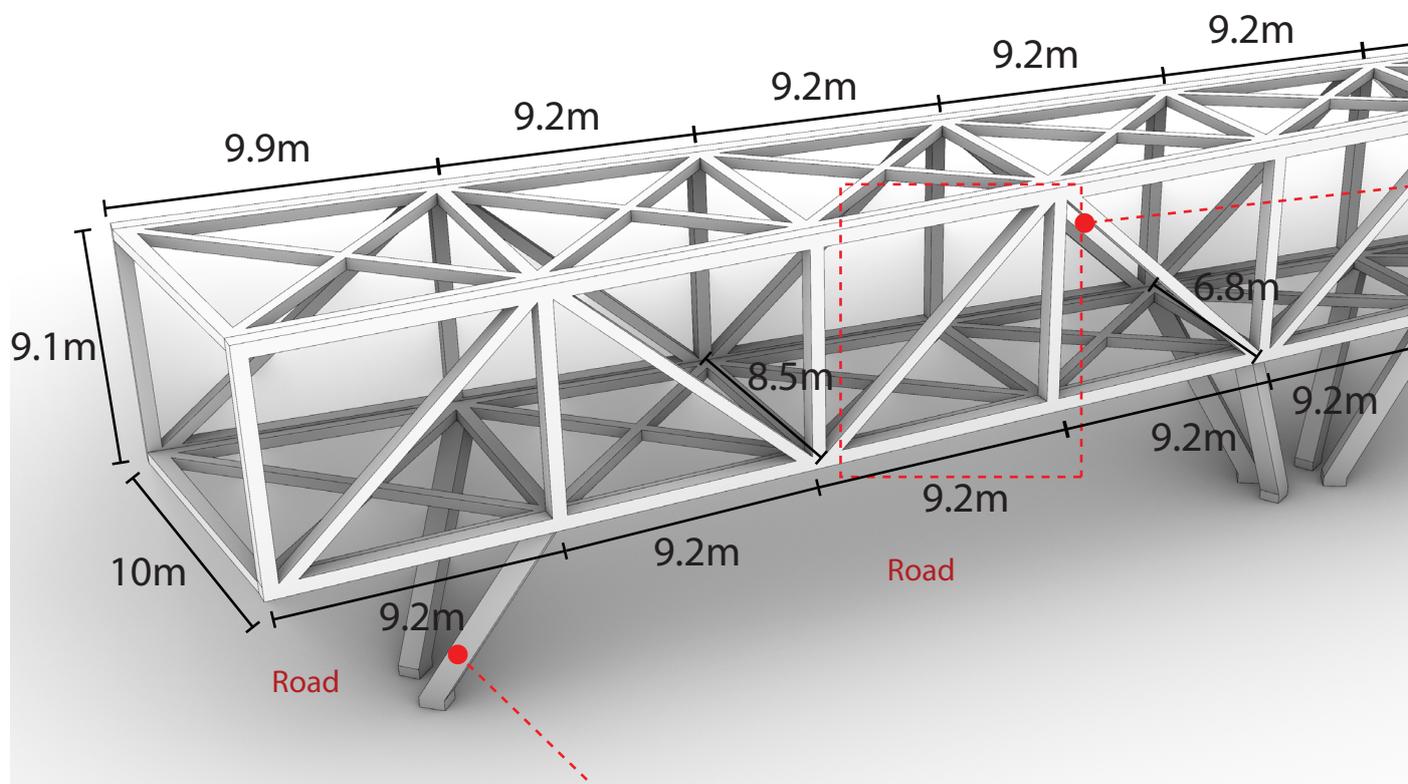
FIGURE 1





STRUCTURAL CONSULTATION II

FIGURE 2



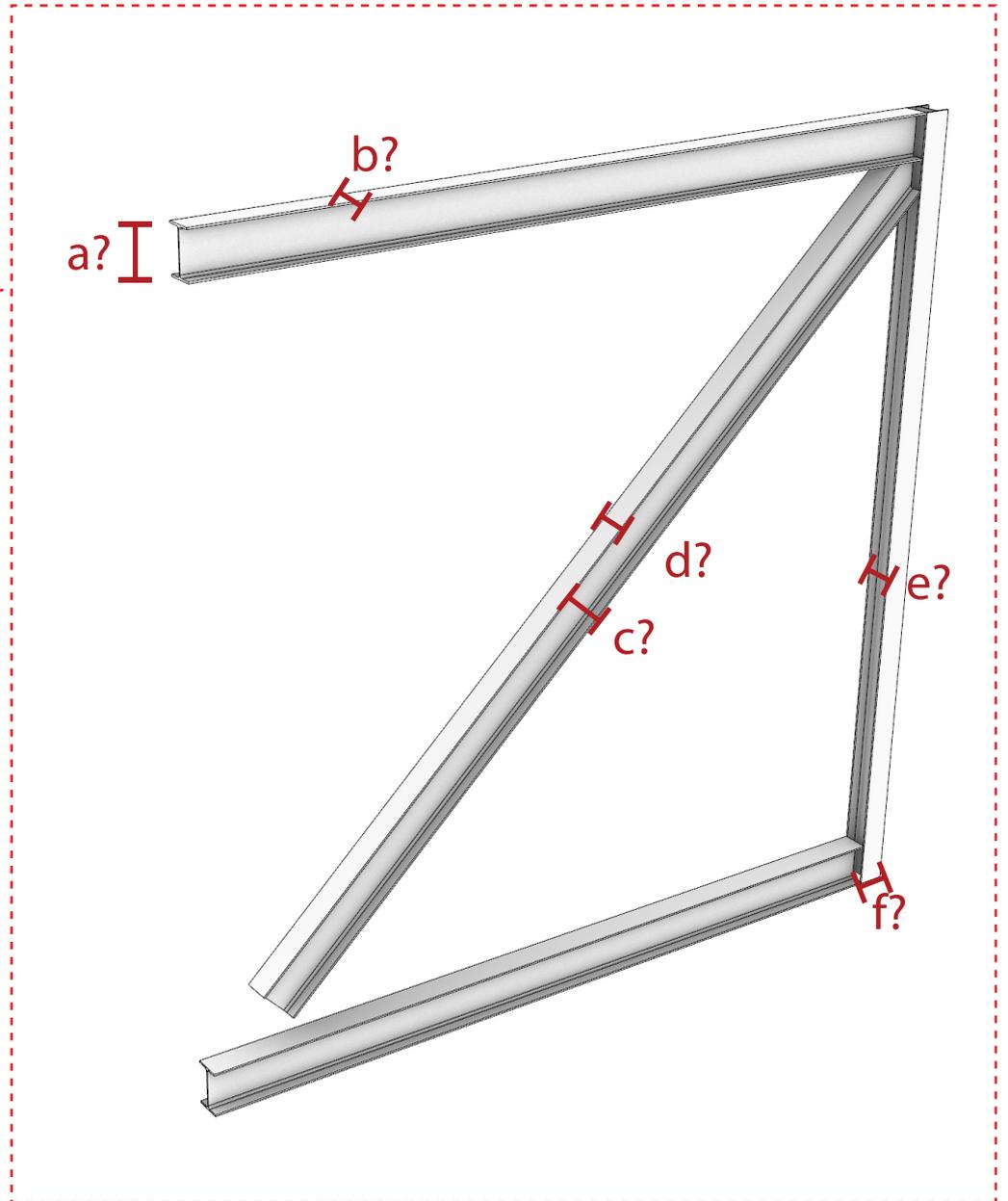
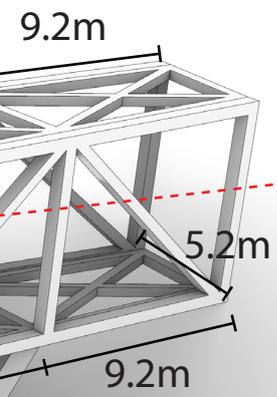


Figure 1

Q: I would like your general comment on the structural feasibility of the proposed concrete shell system, which are formed by triangulated 3d printed concrete panels laid on a steel grid that runs through it. Preferably column free along the span. When compared to the traditional on-site casting of concrete, do you think this method of construction is saving more materials and more efficient?

A: 3D Printing anything this size in situ in reinforced concrete is beyond the current state of the art. 3d Printing it in parts would require a complex steel connection system the cost of which would outweigh any benefits from the 3d printing because it is difficult to integrate into the 3d print. .

In practice this would be designed and made as a series of prefabricated steel structures which can be assembled on-site into a single unit on which a layer of concrete would be poured to finish it off.

Q: What is the minimum structural depth (x) of the triangulated panels? Is there a maximum size?

A: Considering that you propose to span a 36 m length in concrete the height of the element would be 3.6 m. if it was flat. As a curved shell structure this could be much thinner, but would due to the curvature be impossible to walk on.

In steel an optimized design would still be 1.2 m high.

Q: Are there any constraints in terms of the sizes and geometry of the atriums?

A: Yes, but this would need to be designed as a steel structure with steel elements in the atrium space to support the glass. Calculating this in detail is however too complex for an MSc in architecture. This would take an experienced steel structural engineer a month to make an optimized design. If you do not want visible supports in the open area of the atrium you might be able to open up 25% of the area.

Figure 2

Q: What is the minimum diameter of the columns (y) ?

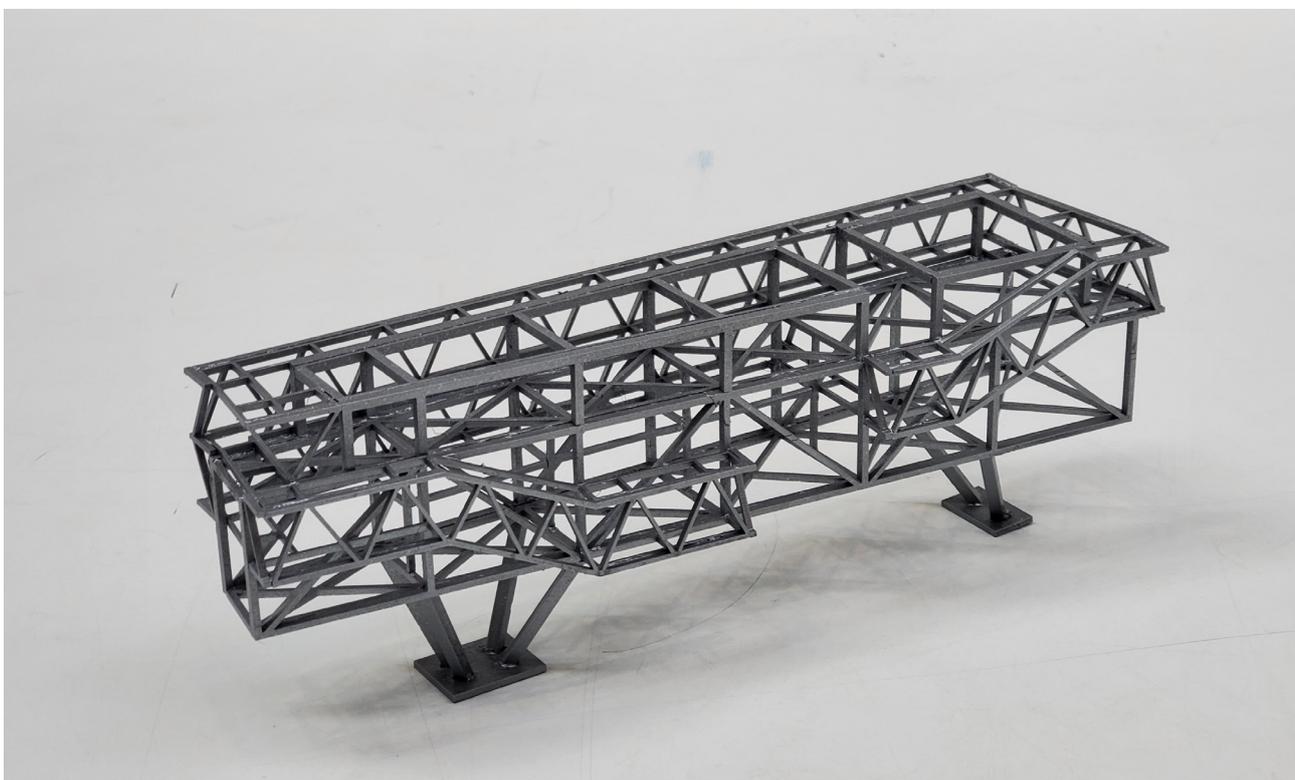
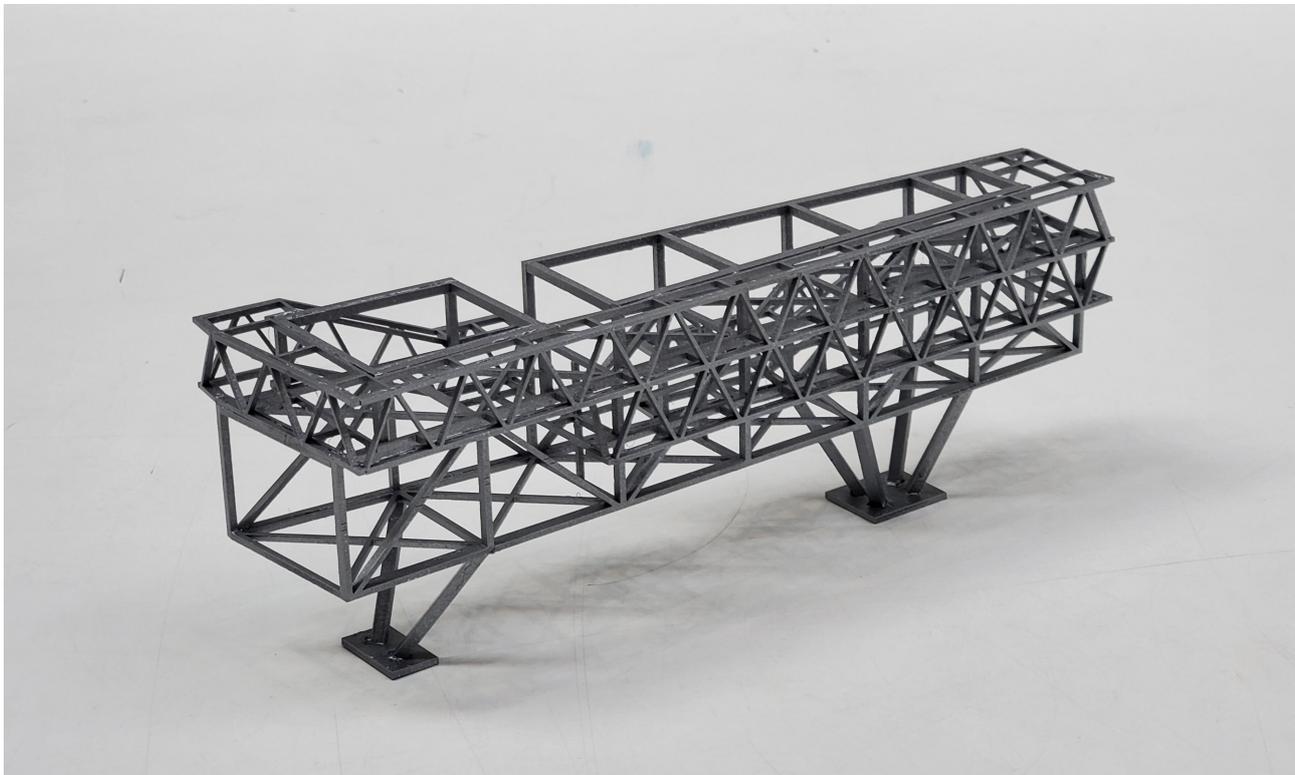
A: Considering the angle $1/15$ th of the length of the column. (if the column is made in steel).

Q: What is the minimum width/depth of the truss members (a,b,c,d,e,f)?

A: Height of the profile should be $1/20$ th of the length of the span or height.

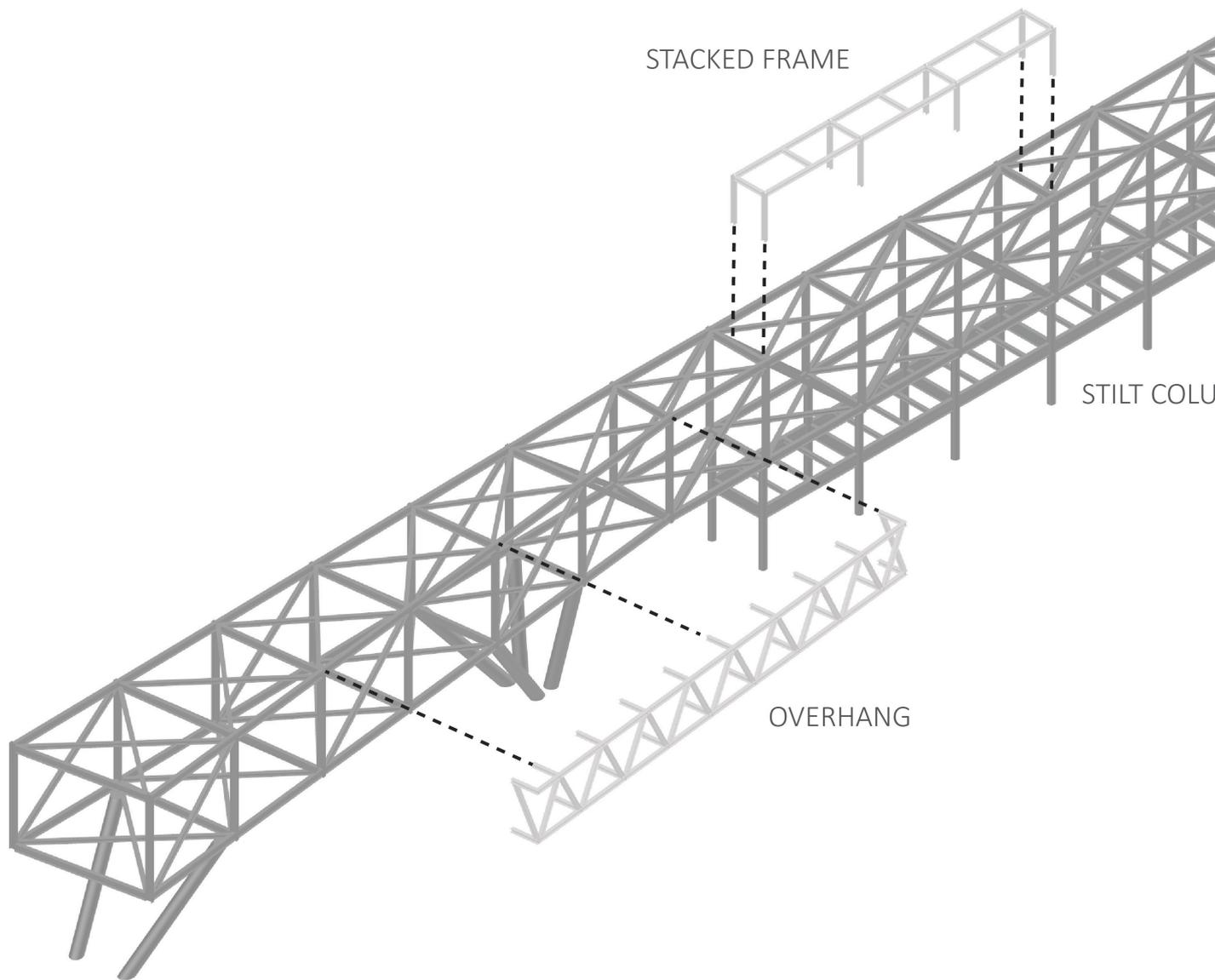
STRUCTURAL TESTING

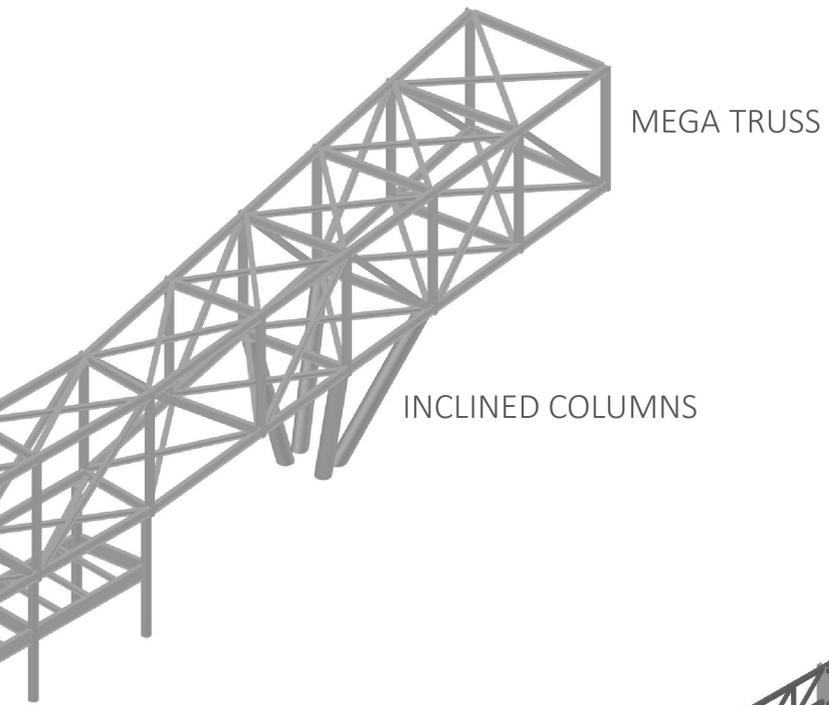
1:200 Stick Model





STRUCTURE 3.0

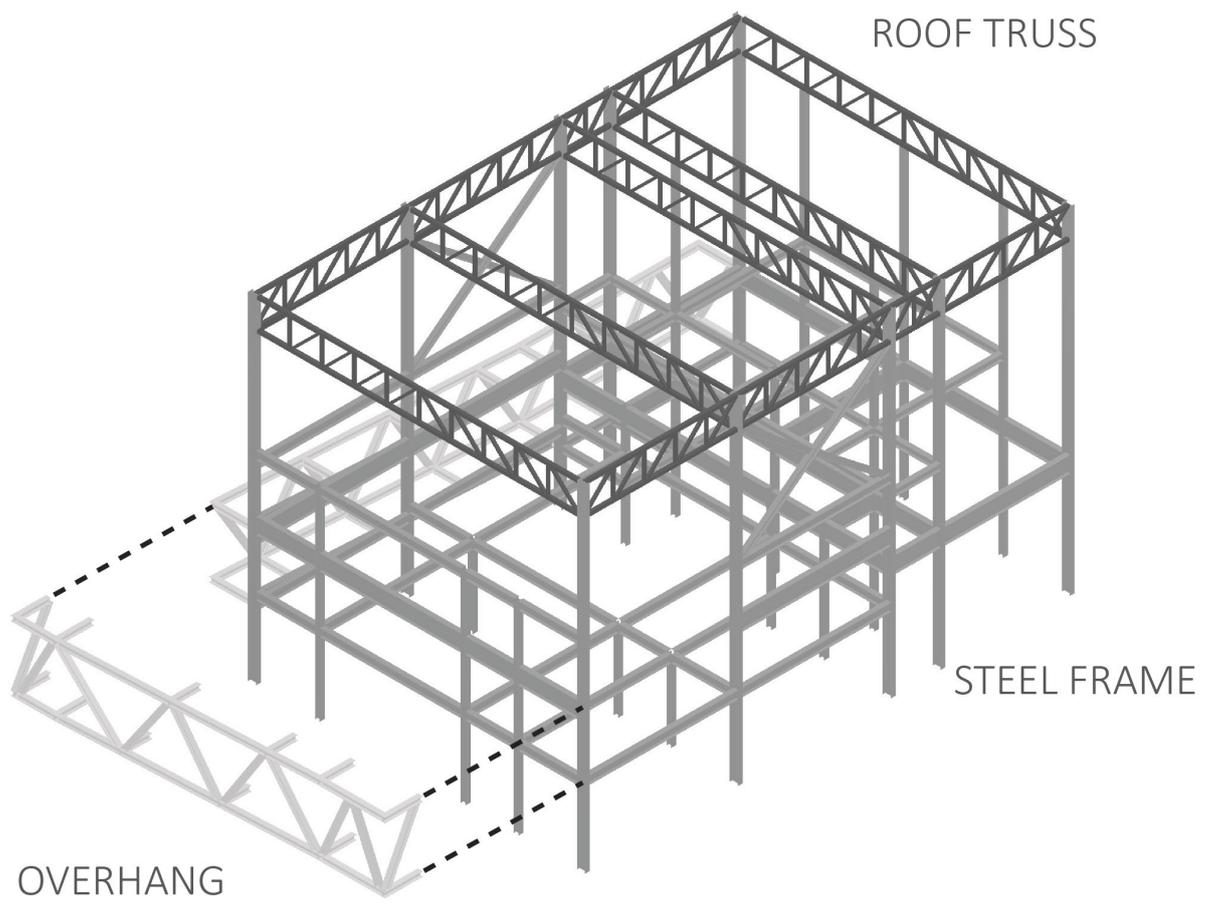




MEGA TRUSS

INCLINED COLUMNS

MNS



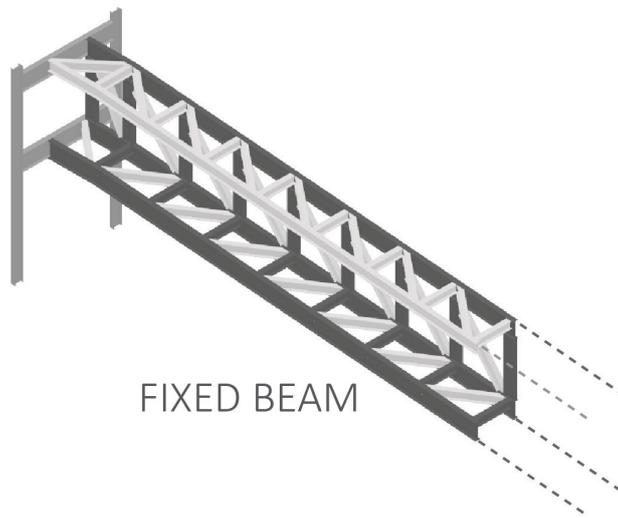
ROOF TRUSS

STEEL FRAME

OVERHANG

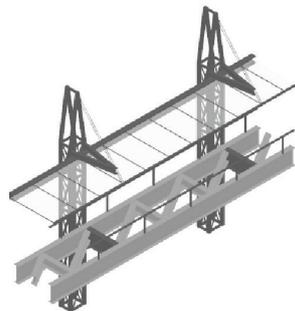
STRUCTURE 3.0

STEEL FRAME END

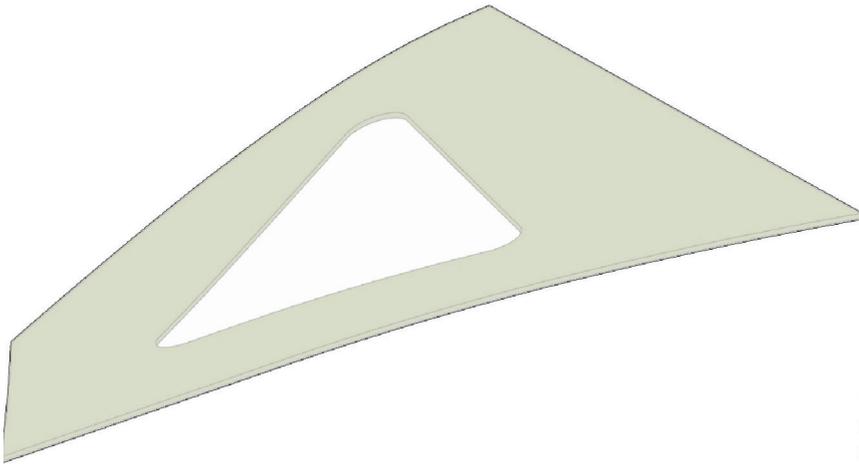


FIXED BEAM

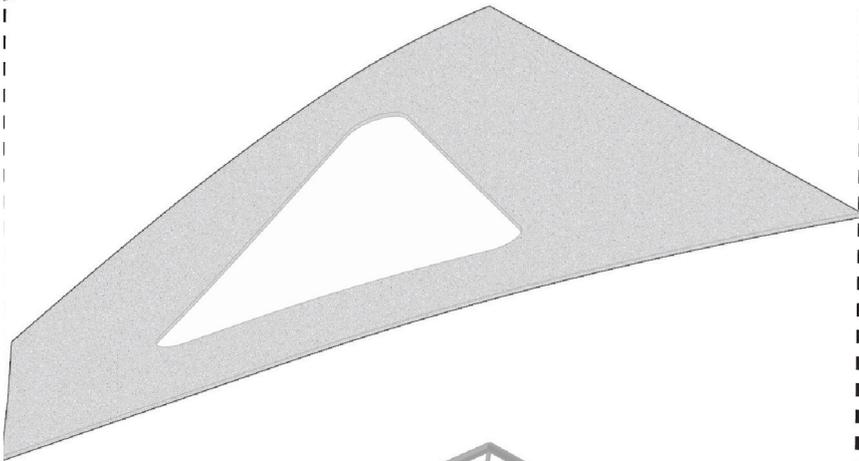
TRUSS COLUMN



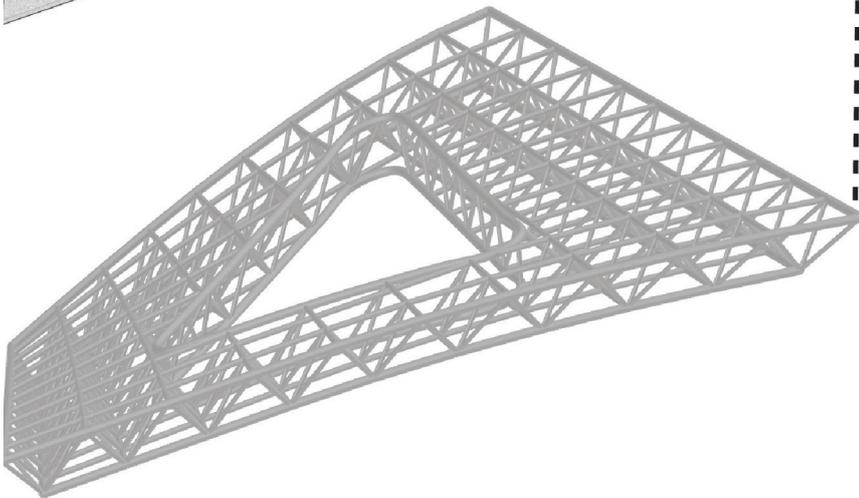
CONTINUOUS BEAM



EXTENSIVE GREEN ROOF



LIGHT WEIGHT CONCRETE



3D TRUSS

ACOUSTICS

As stated in the project abstract, acoustics is not solely treated as a practical task confined to the main spaces where music takes place, but rather made to inform the totality of visitors' exploration of the building and its urban surroundings.

A catalogue of all environmental sounds readily available near the building ground, along with sounds to be added to expand the sonic dimension of architecture, has therefore been produced to systematize them into distinct categories for better identification of design opportunities. Each sound type acting as spacemaker has been associated with certain aroused emotions and atmospheres of space. They are visualized and defined by their corresponding spectrograms and descriptive adjectives respectively.



Spatial Distribution of Environmental Sounds

Sound Types

Atmospheres

Concert Music



Passionate
Vibrant
Exciting

Chamber Music



Passionate
Vibrant
Exciting

Vehicles



Loud
Obtrusive
Speedy

People



Cheerful
Optimistic
Warm

Birds



Calm
Peaceful
Reassuring

Neutral
Pure
Reclusive

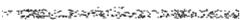
Wind Chimes



Calm
Peaceful
Reassuring

Neutral
Pure
Reclusive

Silence



Neutral
Pure
Reclusive

Mysterious
Uncertain
Power

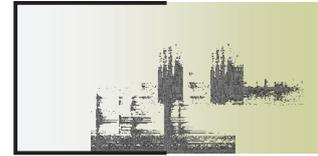
Conditions

Examples

Forms of Occurrence

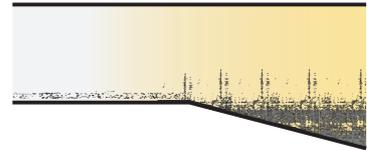
Interwoven

Sounds of wind chimes and birds can be heard simultaneously on the terrace



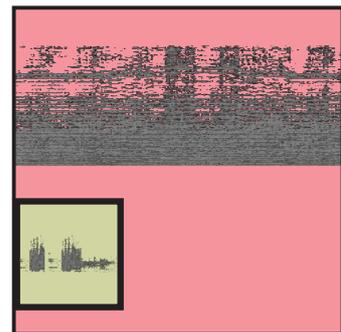
Gradual Dissipation

Noises fade out over the circulation distance between foyer and recording studios



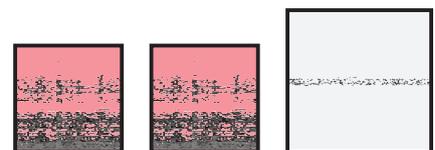
Box In a Box

The enclosed lounge is double insulated to keep the loud concert music out



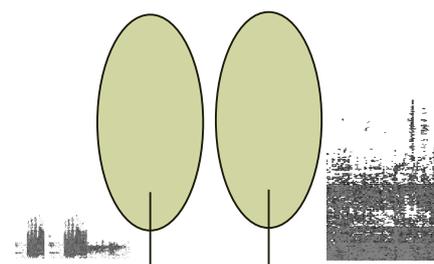
Self Containment

Music cannot travel out of each practice room and contaminate other spaces



Soft Boundary

Structural planting shields the quiet zones from the hustle and bustle of the road



METAL TUBE

SOUND BARRIER

Opaque Casing

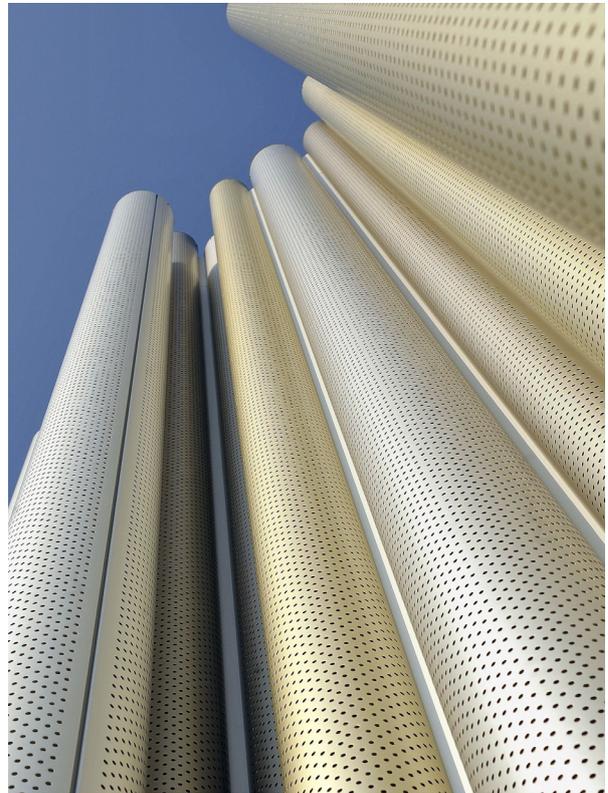


Opaque Metal



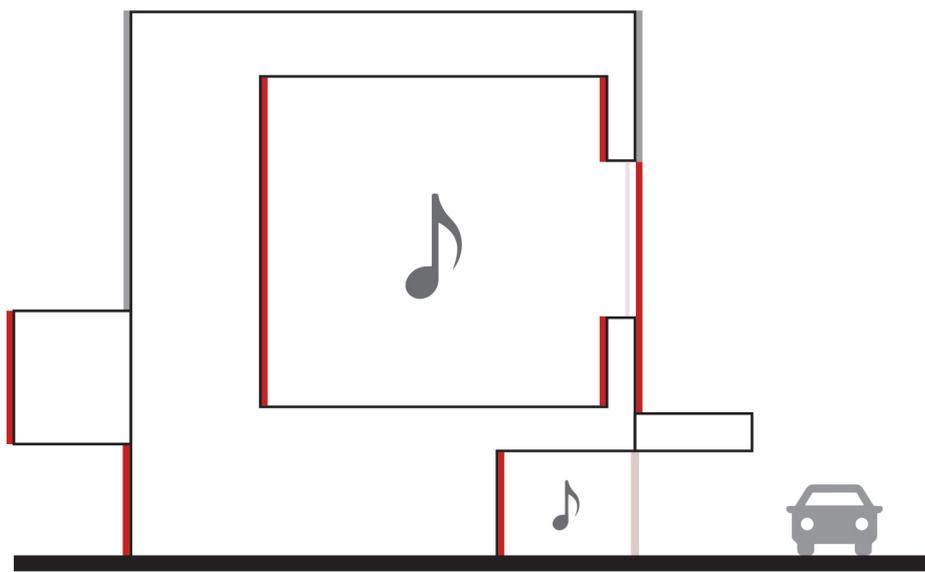
Glasswool Infill

Perforated Casing



Source of Inspiration:

Sound of Silence by VHP Architecten, Eindhoven

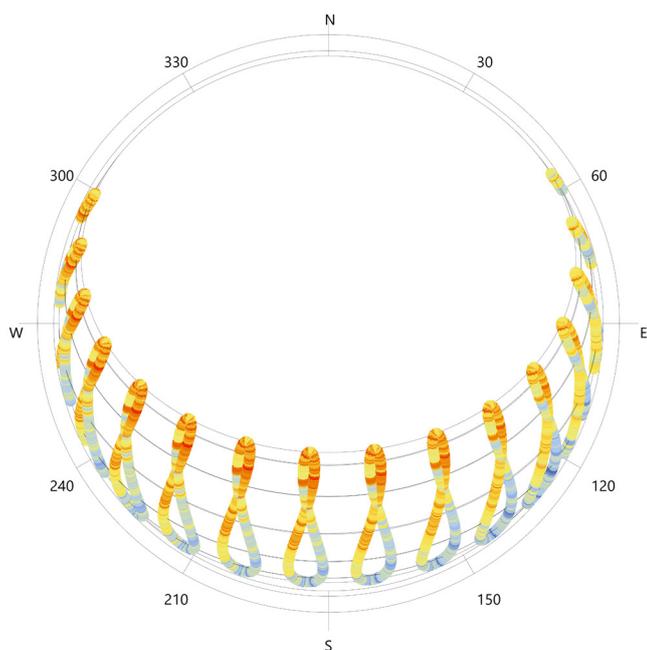
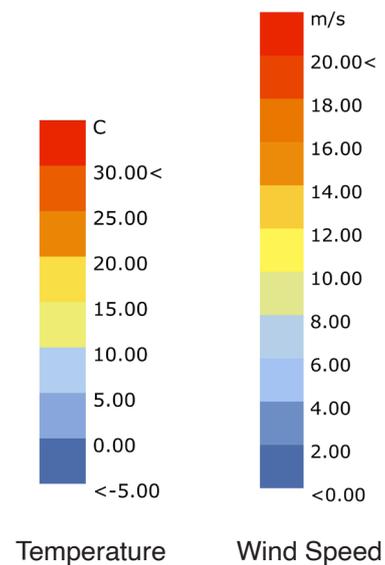


-  Sound Barrier
-  Solar Heat Pipe
-  Curved Glass
-  Typical Glass

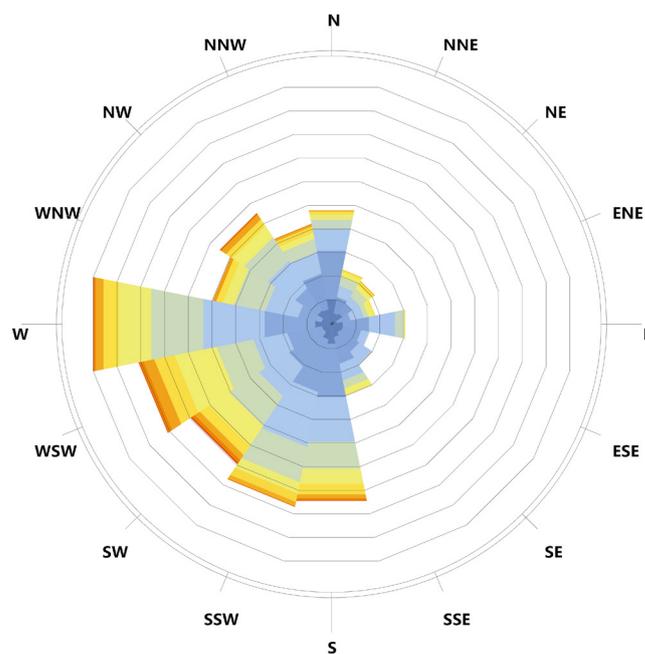
ENERGY

Enjoying a relatively mild winter and cool summer, the building ground is under the influence of prevailing wind from the west. Due to the absence of residential high-rises along the east-west axis formed by the Binckhorst Castle and Saint Barbara Cemetery, a wind corridor that allows for natural ventilation is generated.

The water canal and green space at the back of the site contributes to the regulation of the urban microclimate and relief of heat island effect. However, the emptiness of the building ground also means that it has great exposure to the sun. The planned constructions nearby which span over a height of fifty and one hundred meters, only provides a very localized shading effect. Accompanied by the long daylight hours in summer, the radiation intake during the hottest months is exceptionally high. Thermal comfort is therefore the most pressing energy issue, especially for some segments of the circulation that alternate between indoor and outdoor.

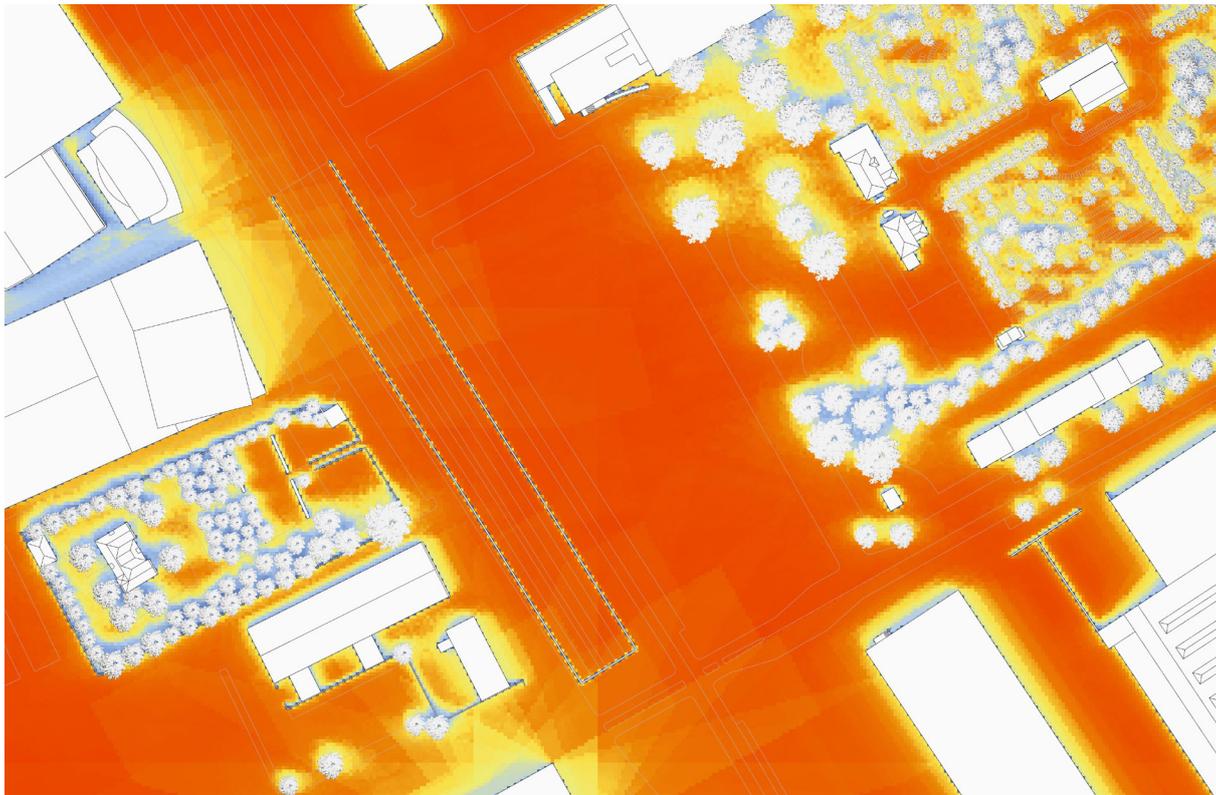


Sun Path Diagram

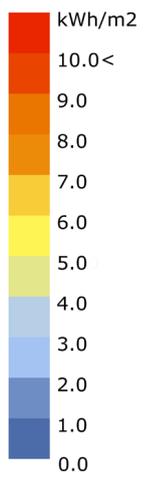


Wind Rose Diagram

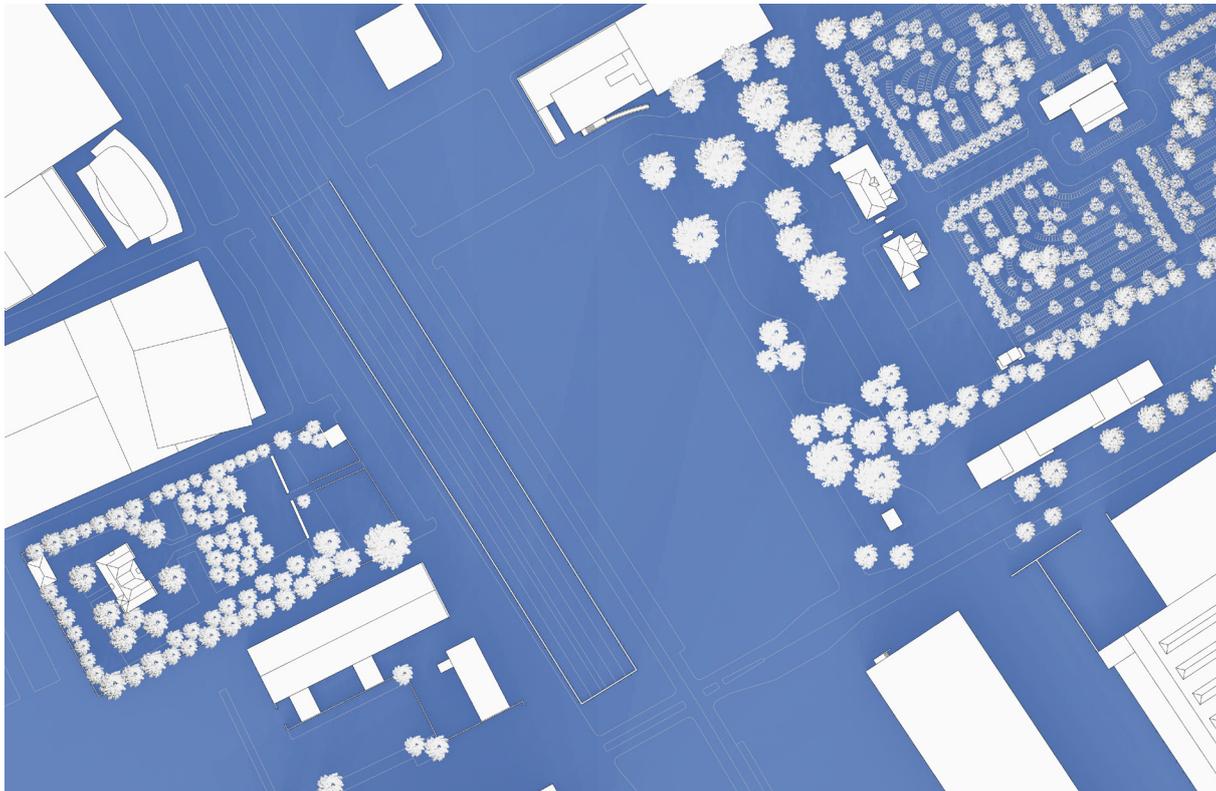
Summer Solstice (21 June)



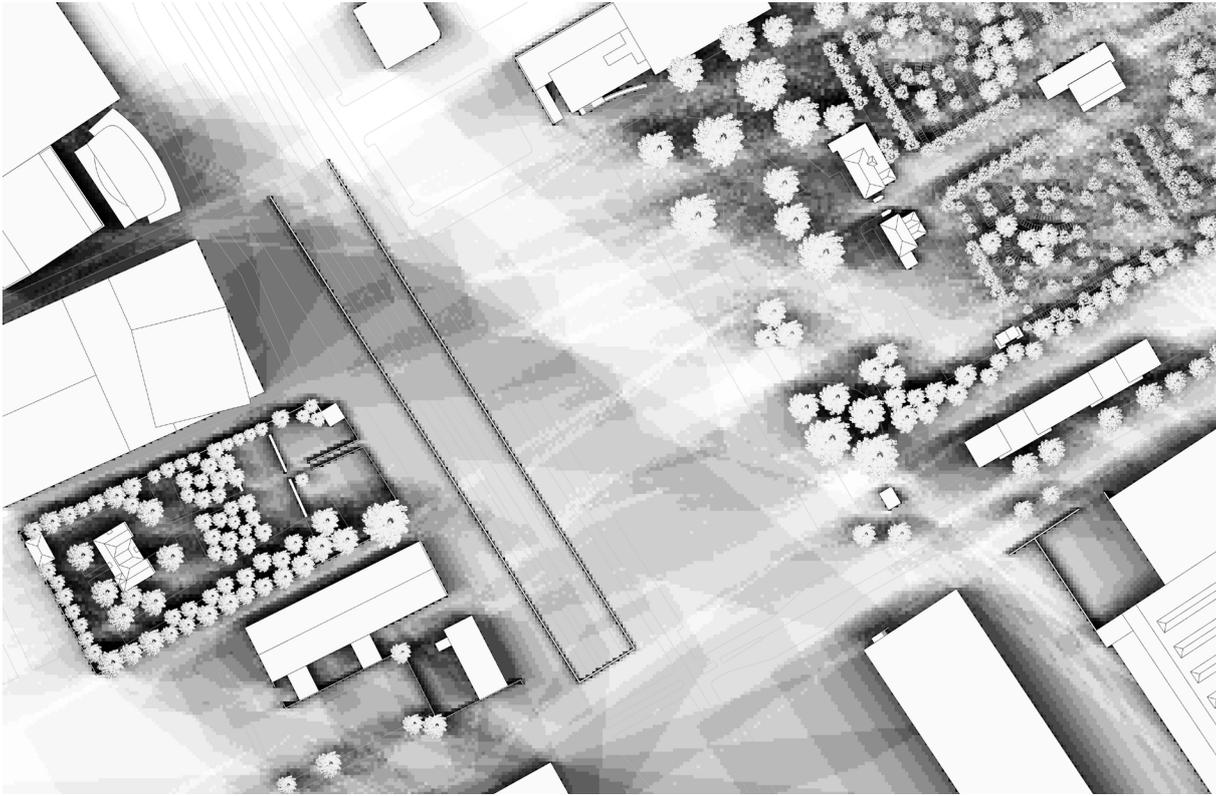
Radiation



Winter Solstice (21 Dec)



Summer Solstice (21 June)

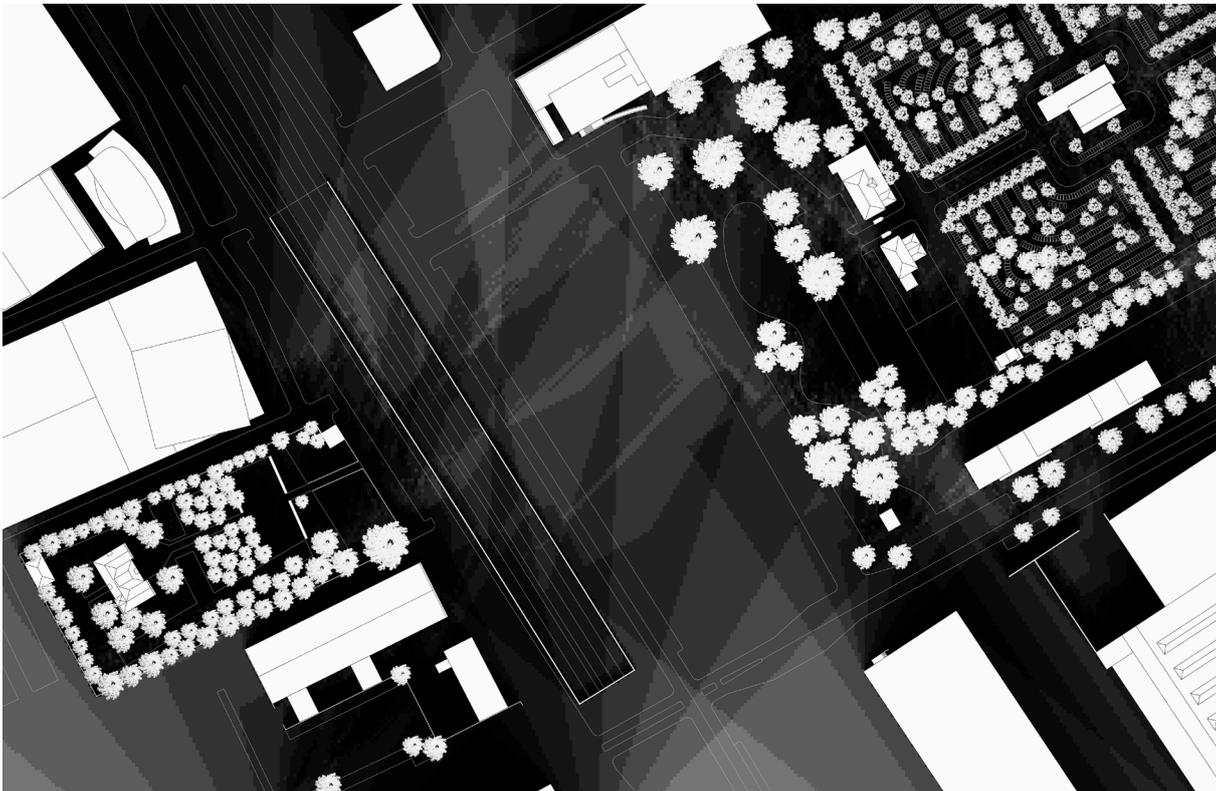


Daylight

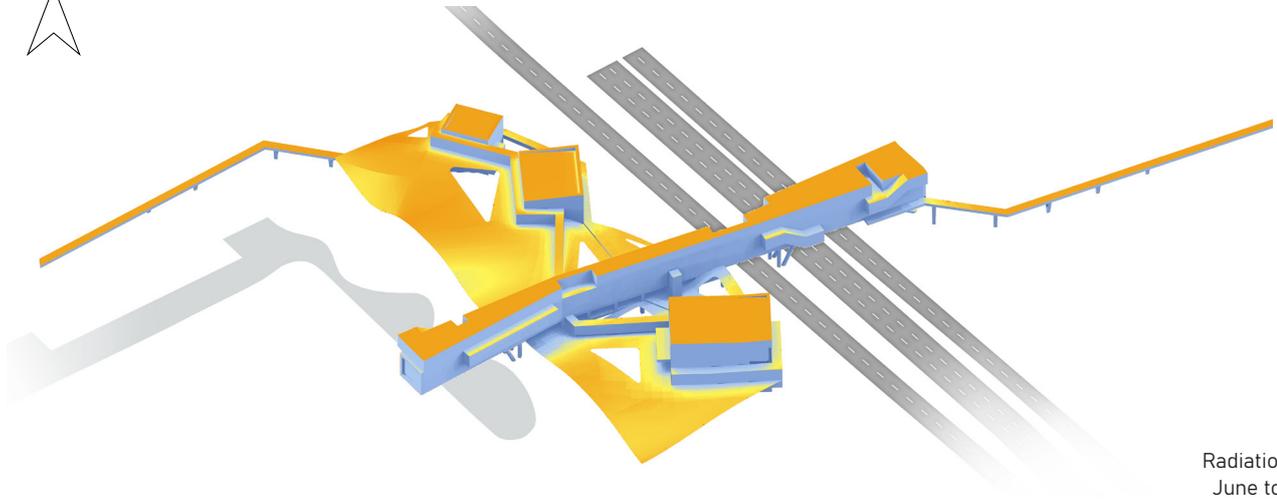
Hours



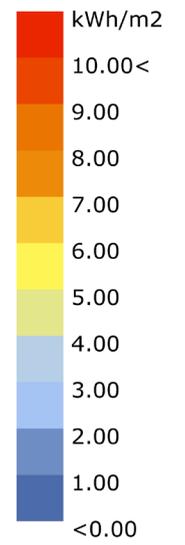
Winter Solstice (21 Dec)



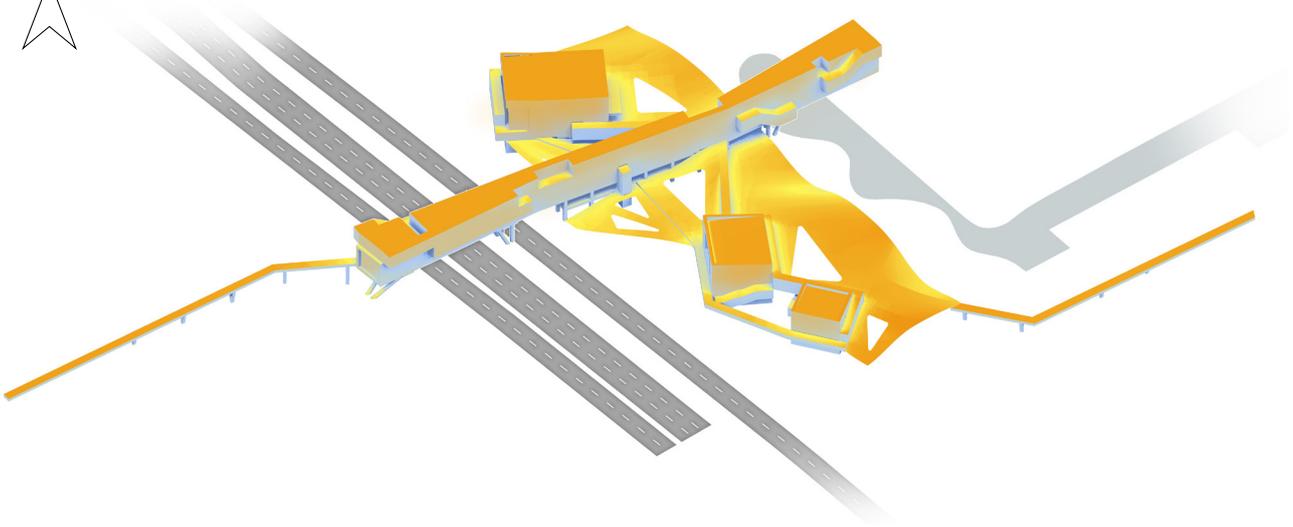
S North Facing Side



Radiation Intake
June to August



N South Facing Side



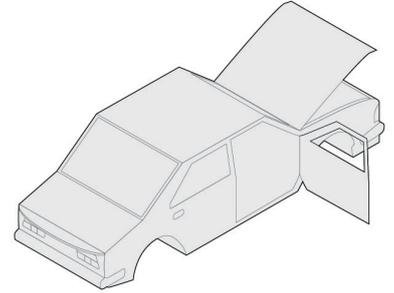
CIRCULARITY 1.0

Home to many small-scale industries, Binckhorst has attracted an agglomeration of automobile companies operating to provide car repair services to the residents of den Haag. During my field survey, I repeatedly came across with dismantled and abandoned car bodies. They are in fact a good source of scrap iron, which can be remelted in a blast furnace and rolled into new steel sections for construction. With a view to establishing a circular economy and contributing to waste reduction, I am exploring the feasibility of recycling the unwated metal pieces and turning them into the structure or the skin of my music venue. This is also a chance for the project to strengthen its local identity by granting the industrial output of the site a second life.

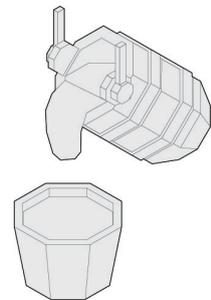


Car Repair Workshops in Binckhorst

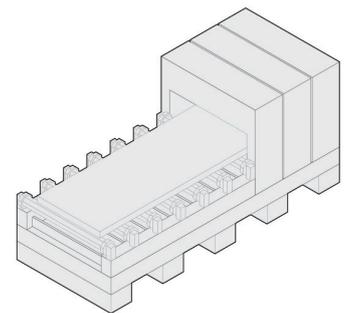
1. Scrap Iron



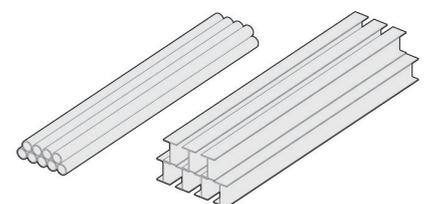
2. Remelting



3. Rolling



4. Steel Sections



CIRCULARITY 2.0

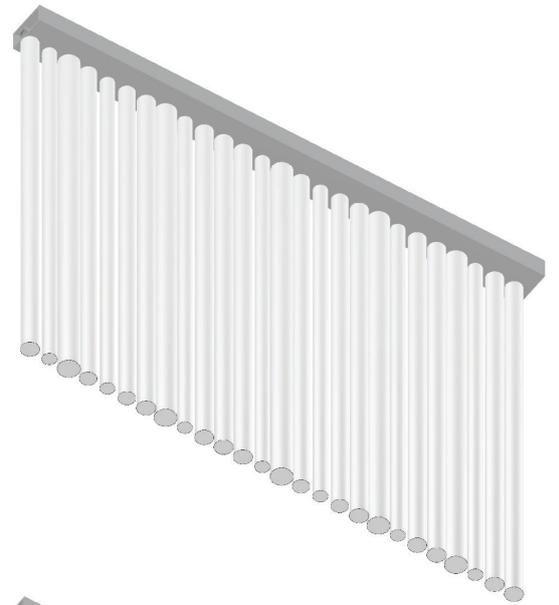
METAL TUBE



SOUND BARR

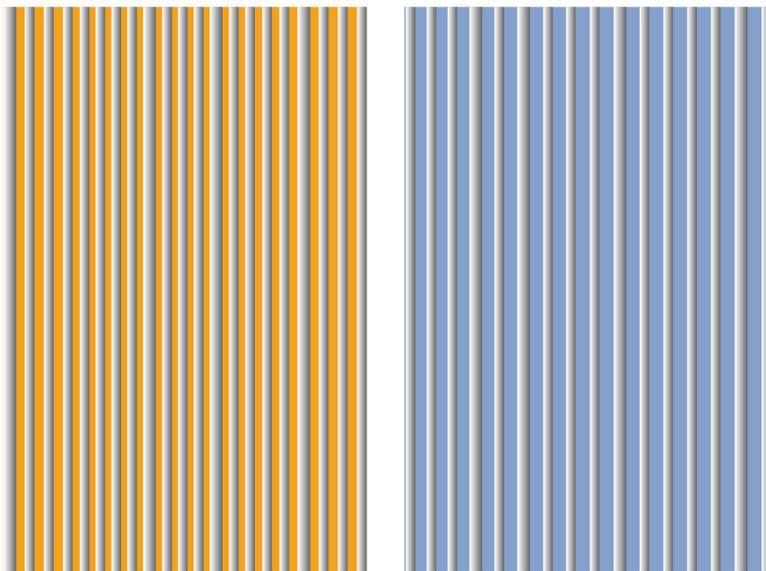


VARIATION 1: SIZING

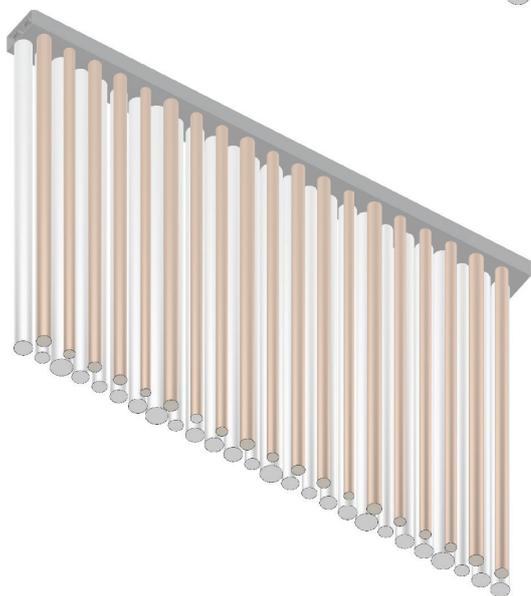


VARIATION 3: LAYERING

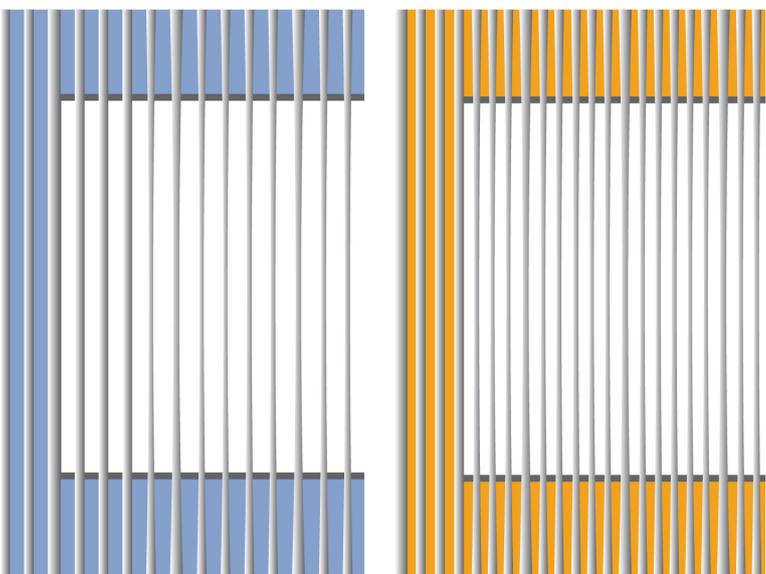
VARIATION 2: SPACING



BARE WALL TREATMENT



VARIATION 4: DYED COLOR



FENESTRATION TREATMENT

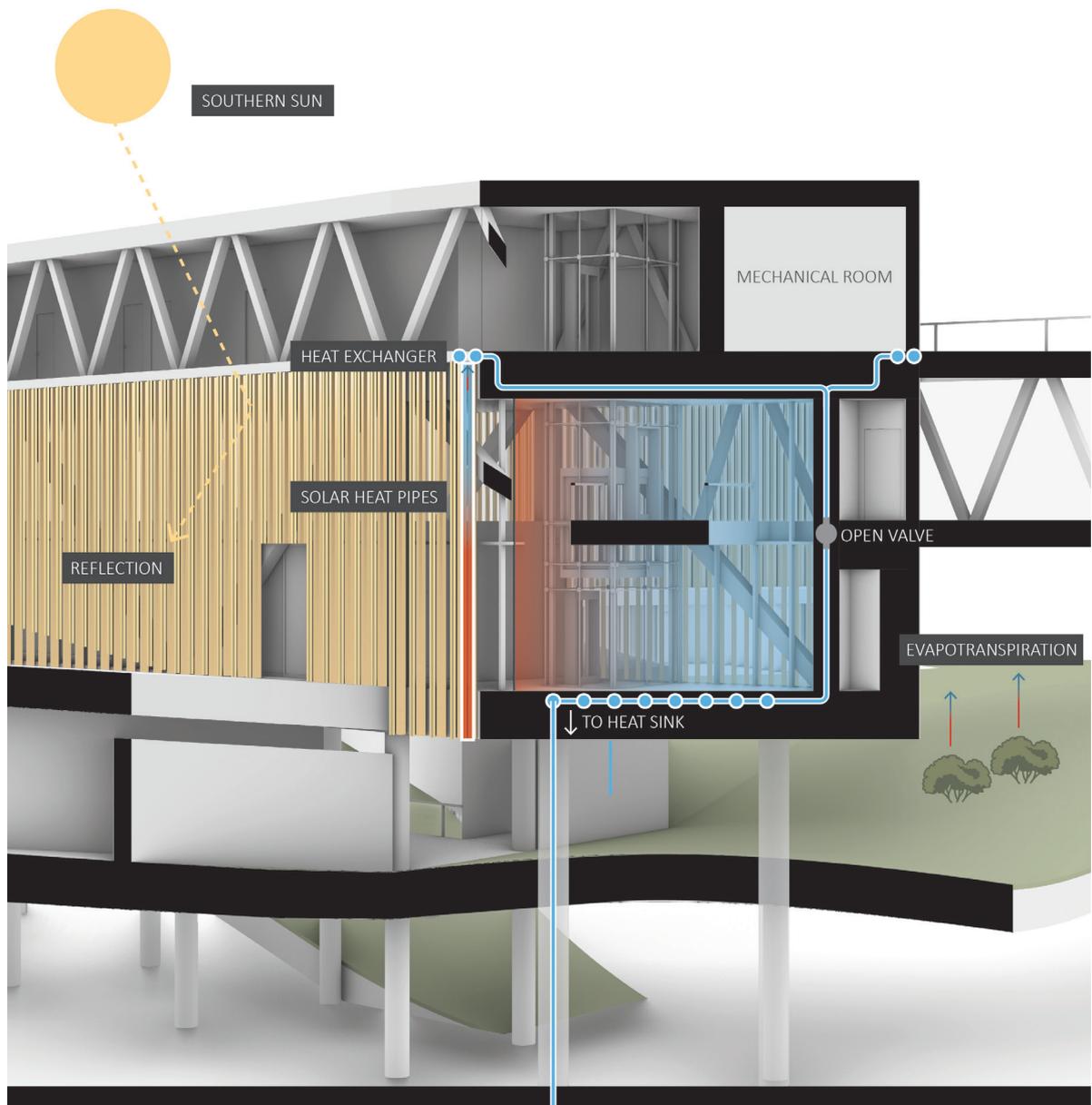
CIRCULARITY 2.0

Summer

Concert Halls



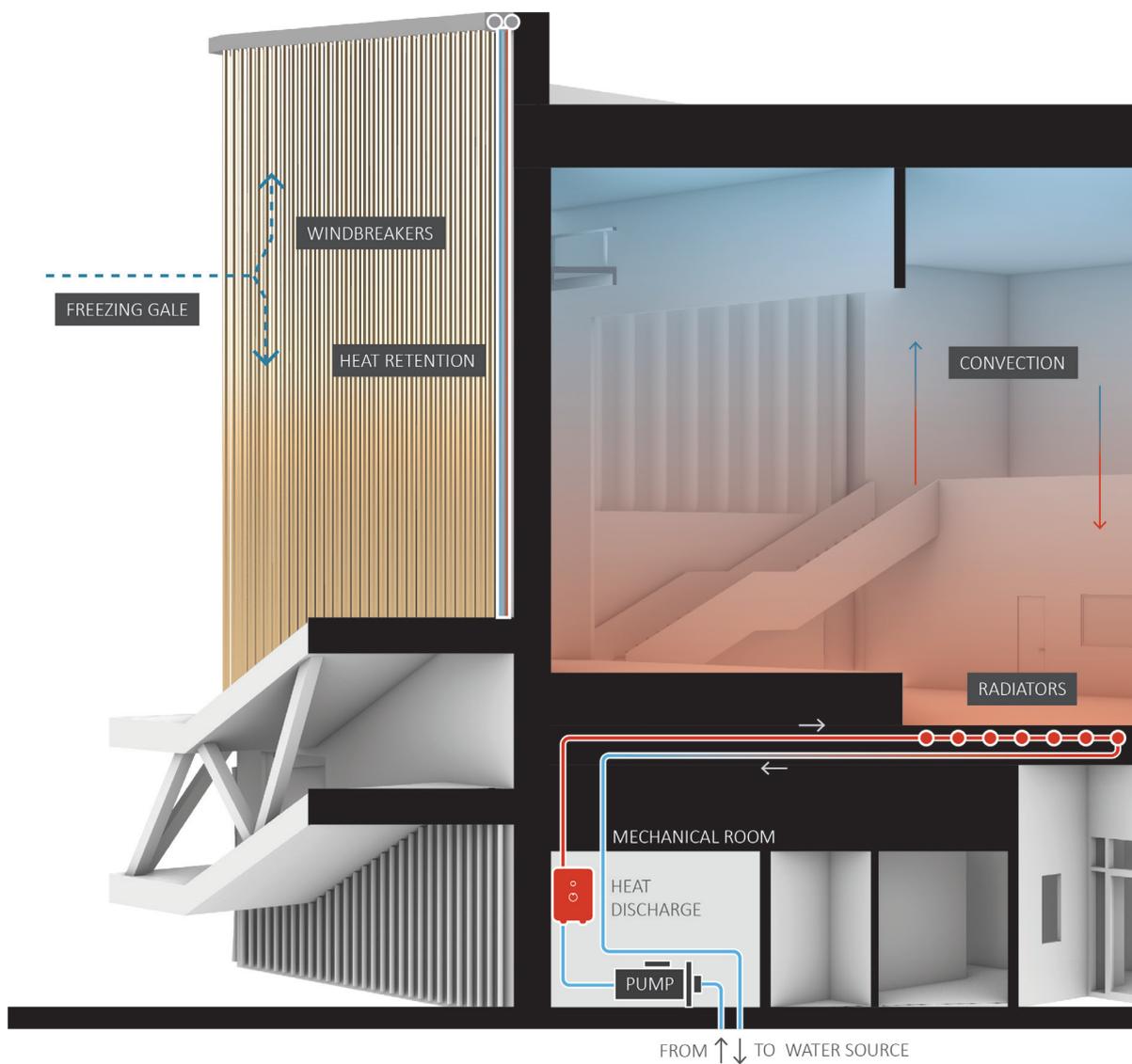
Public Corridor



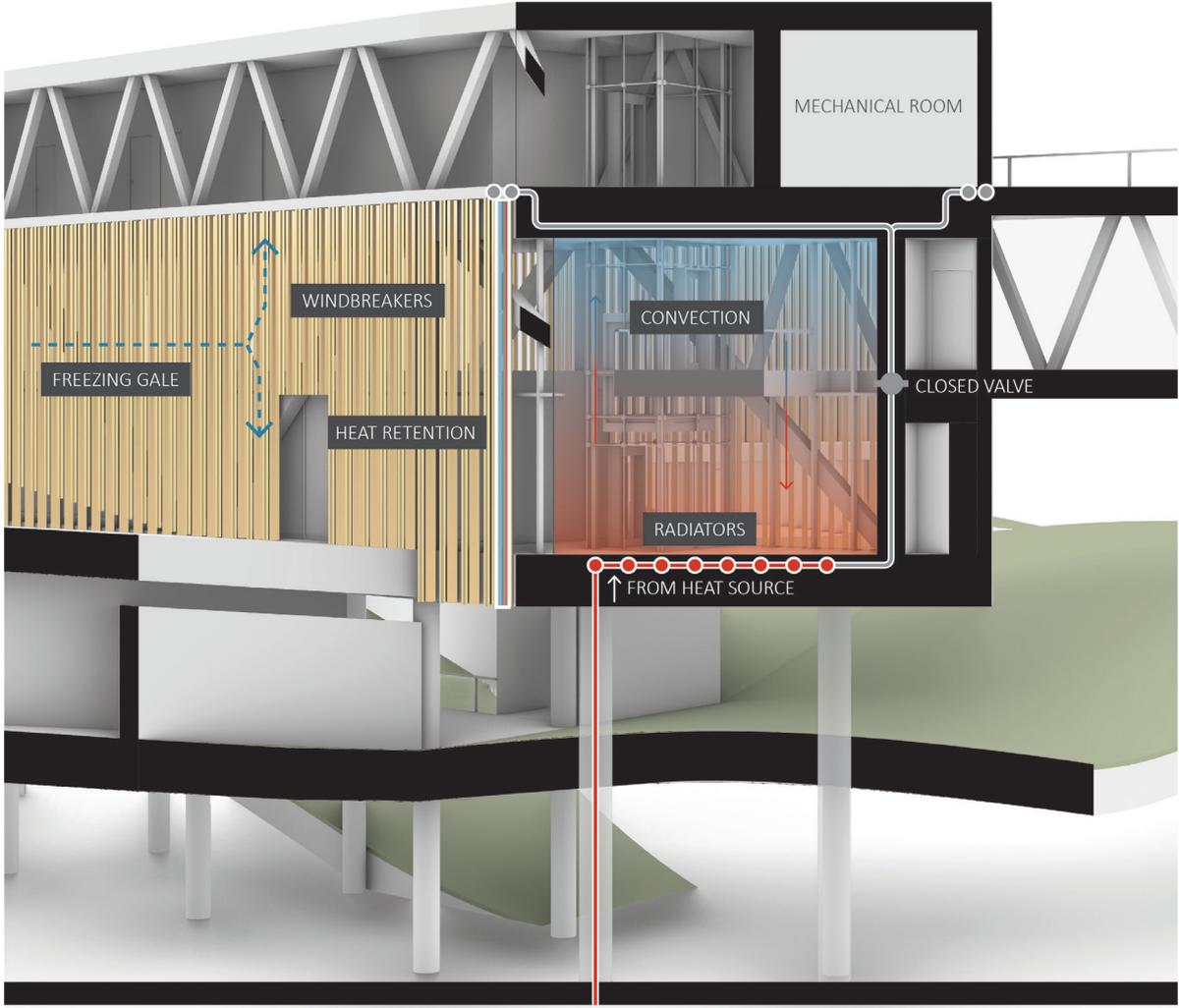
CIRCULARITY 2.0

Winter

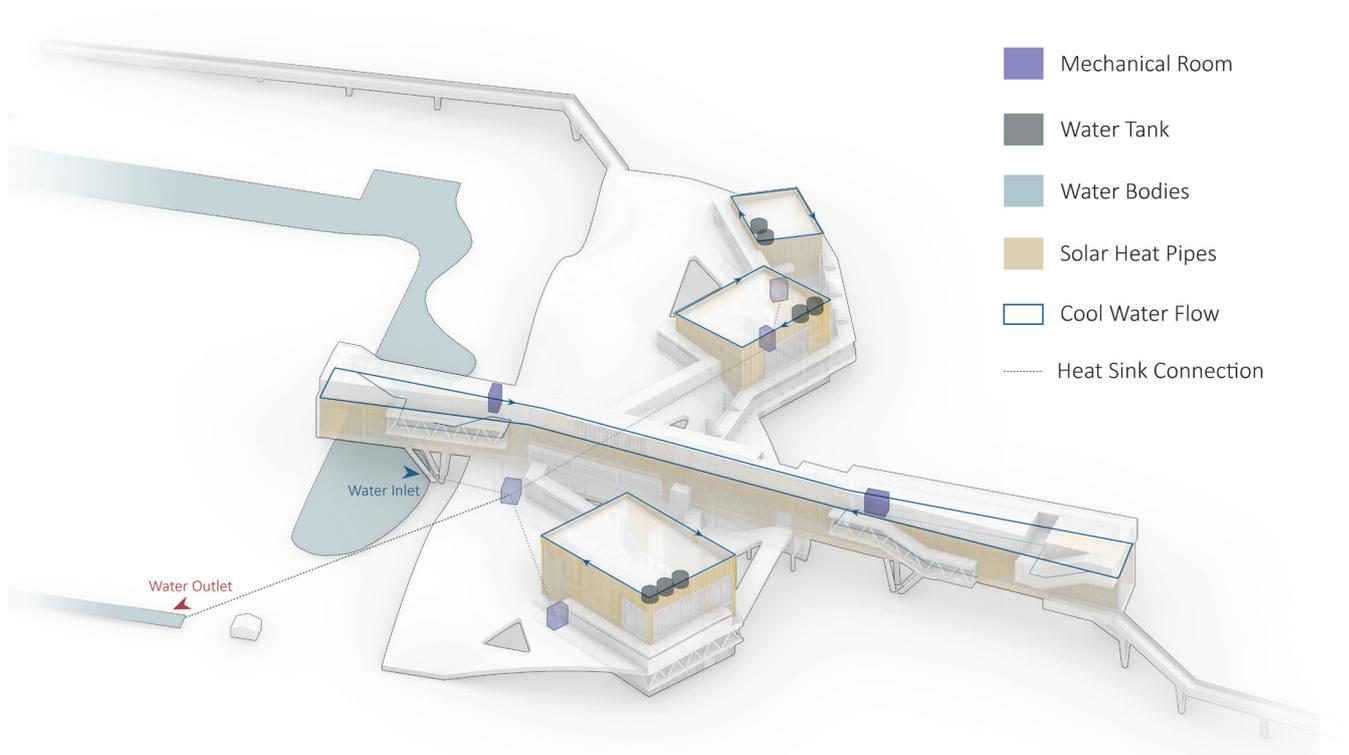
Concert Halls



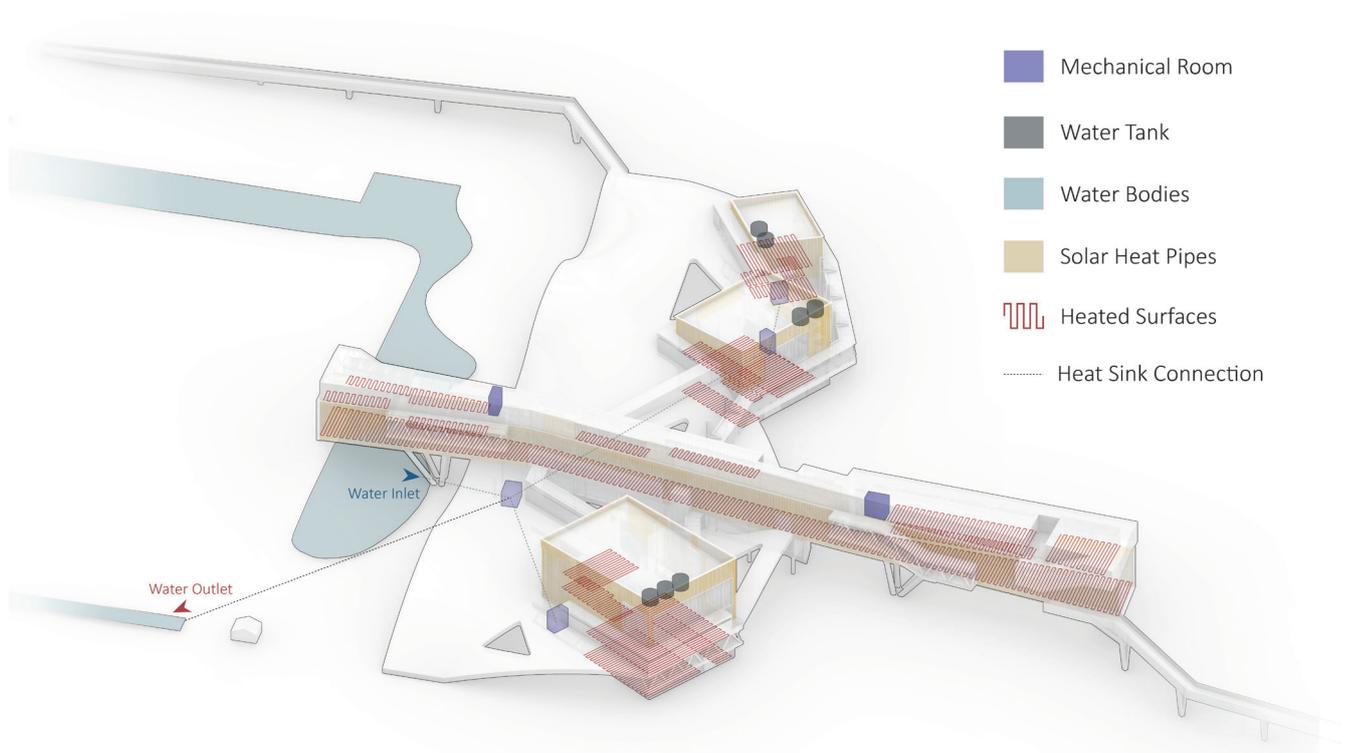
Public Corridor



Envelope Cooling

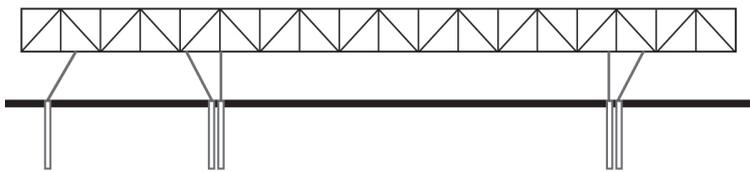


Underfloor Heating



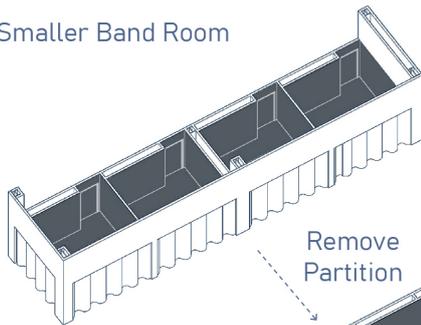
CIRCULARITY - FINAL POSITION

>100 YEARS STRUCTURE

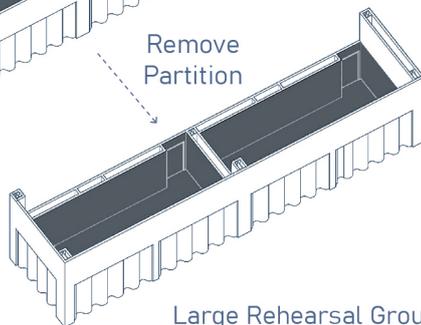


<10 YEARS SPACE PLAN

Smaller Band Room



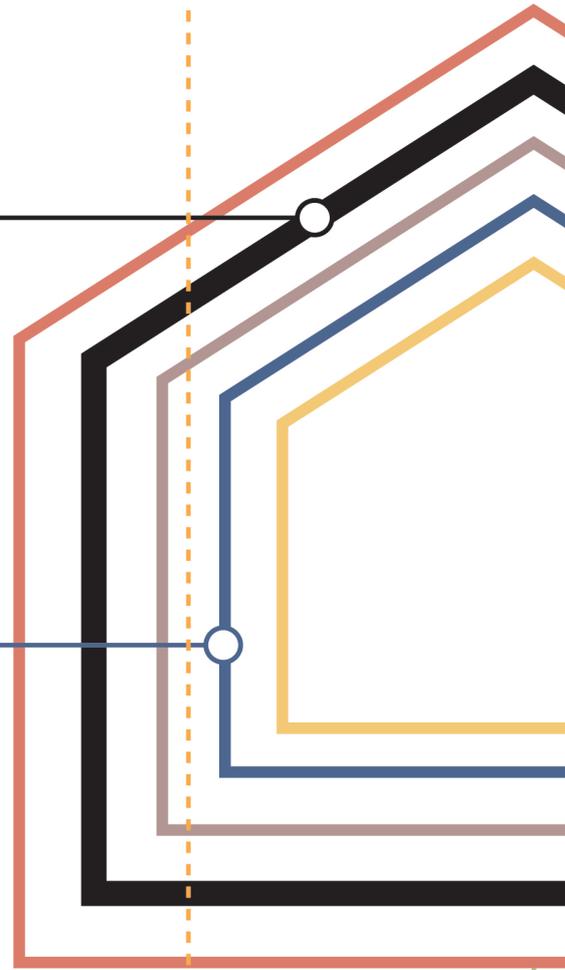
Remove Partition



Large Rehearsal Group

ENERG

→ SOLAR



SPACE HE



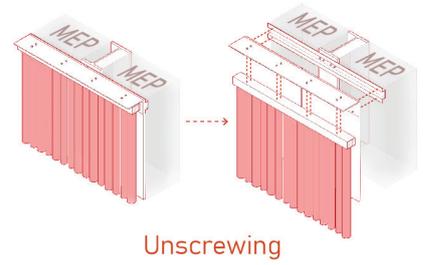
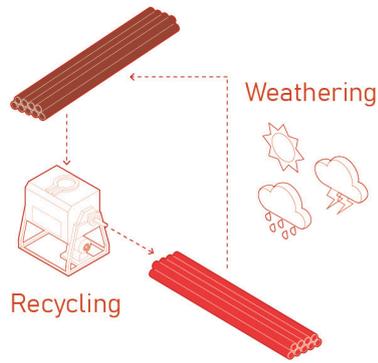
SITE ET

ENERGY

HEAT

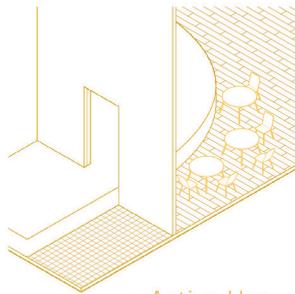


SKIN ~15 YEARS

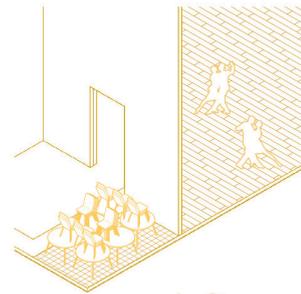


SERVICES ~15 YEARS

STUFF ~3 MONTHS



Active Use



In Storage

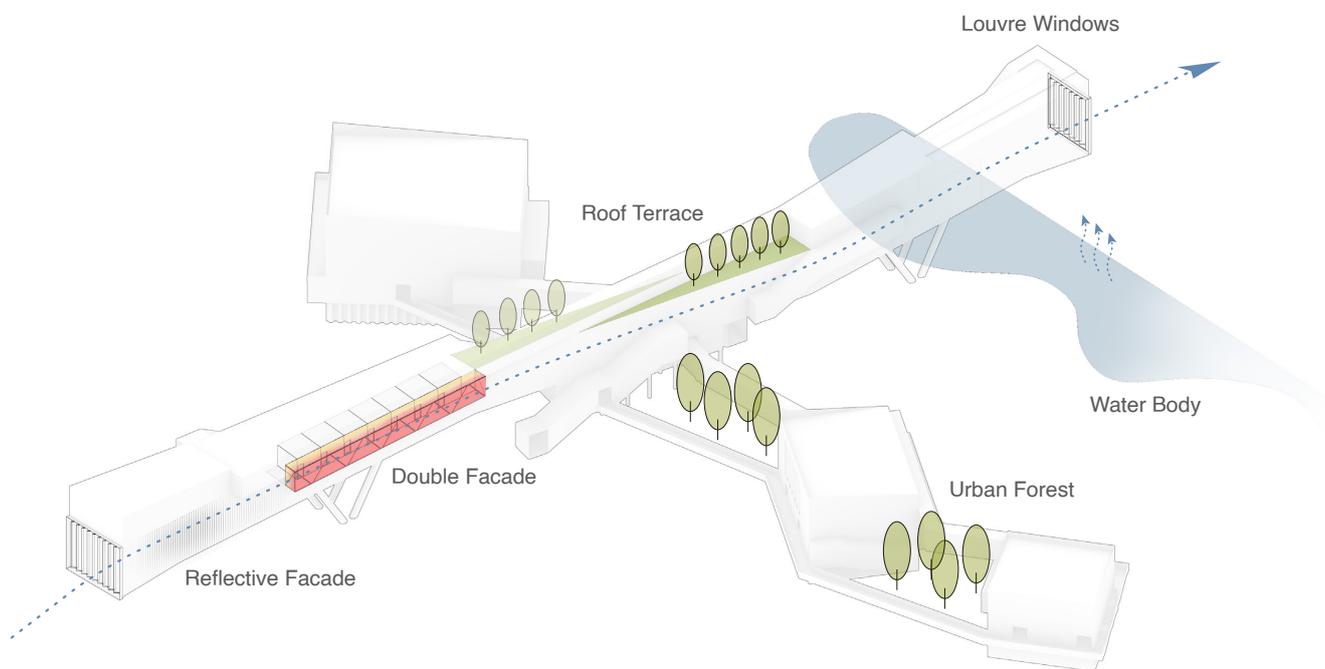
HEATING ←



INTERNAL

CIRCULARITY

Secondary Strategies



Thermal Strategies

MULTIPLICITY

MODALITIES

The design strives to encourage multiple ways to experience architecture and the city in which it is nested. Both vision and audition play a vital role in crafting spatial perception. Images and sounds are interwoven to redefine the built environment.



MUSICAL GENRES

The project endeavors to function as a melting pot for multiple kinds of music without compromising their idiosyncracies. Different formats, be it group performances, recitals or flash mobs, are possible at various locations.



THE PEOPLE

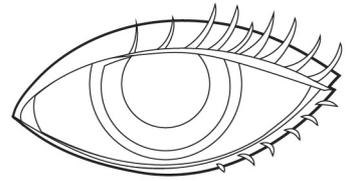
The building is not monopolized by one party but open to the public regardless of their age, race, gender and knowledge about music. Buskers or concertmasters can equally find their places in the musical commune.



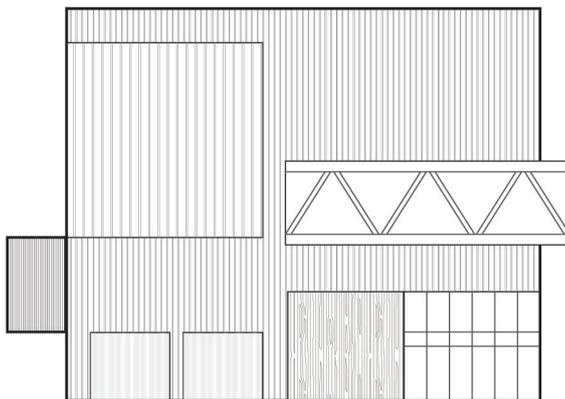
MULTIPLICITY



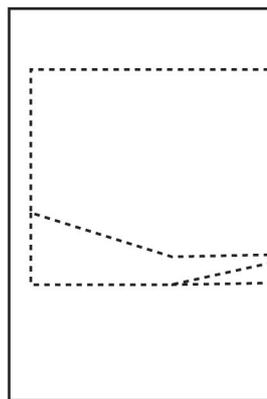
People



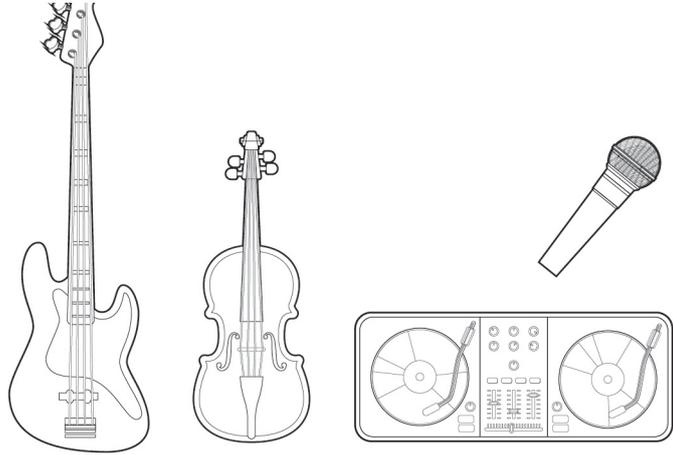
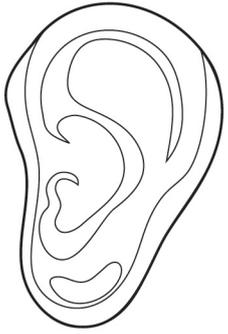
Moda



Materiality

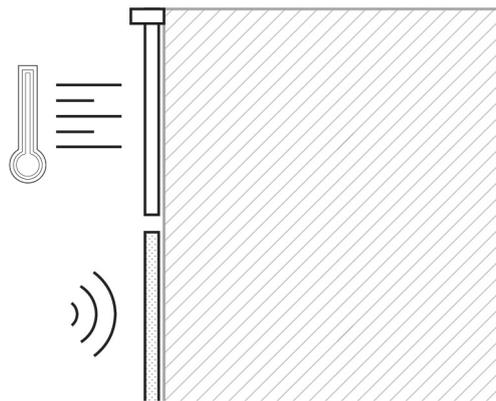
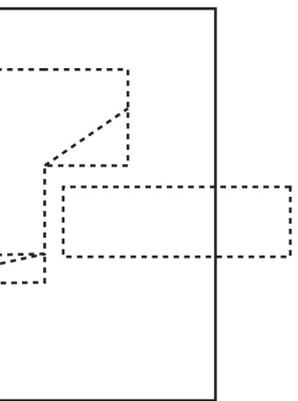


Us



lities

Genres



e

Building Technology



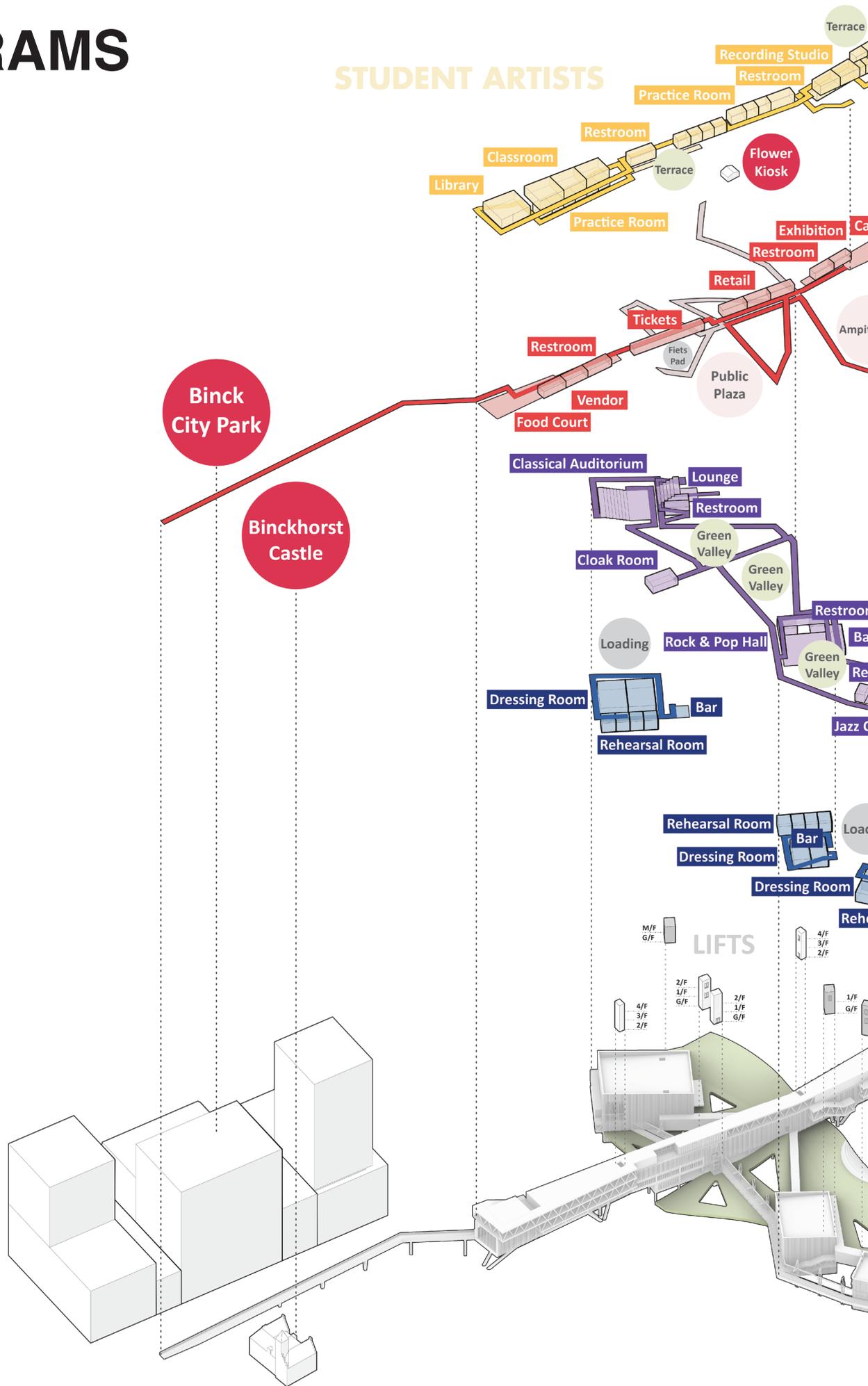
F. FINAL DESIGN

MUSICAL BINCKCROSS

Shing Yat Tam Samuel



DIAGRAMS



Composition Room

Life

Lounge

theatre

Picnic Area

Ampitheatre

PUBLIC

m

r

stroom

CONCERTGOERS

Club

ding

PERFORMERS

Bar

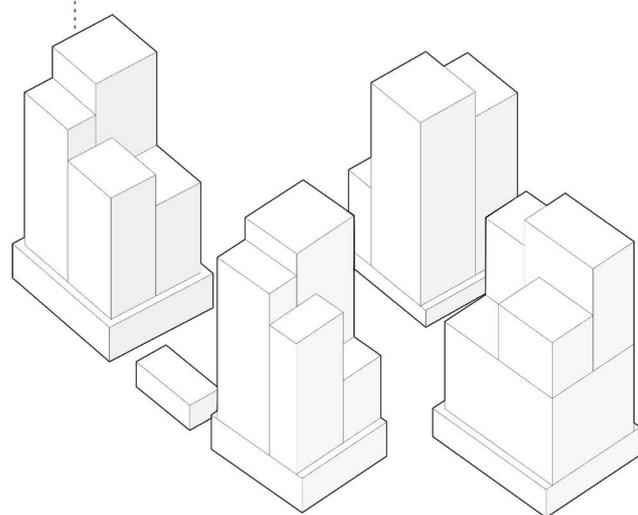
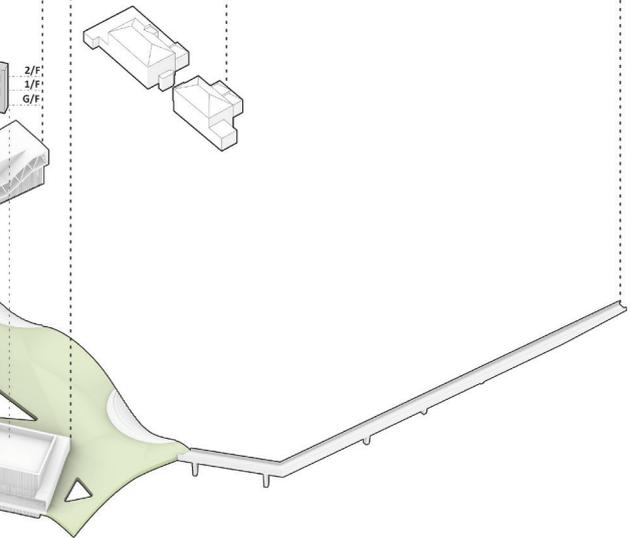
Rehearsal Room

2/F

1/F

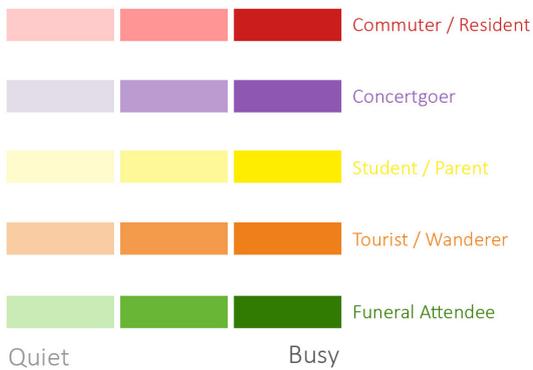
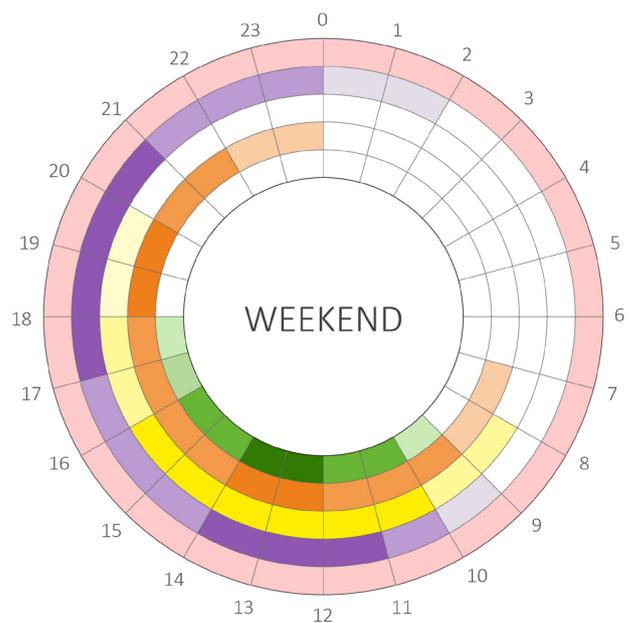
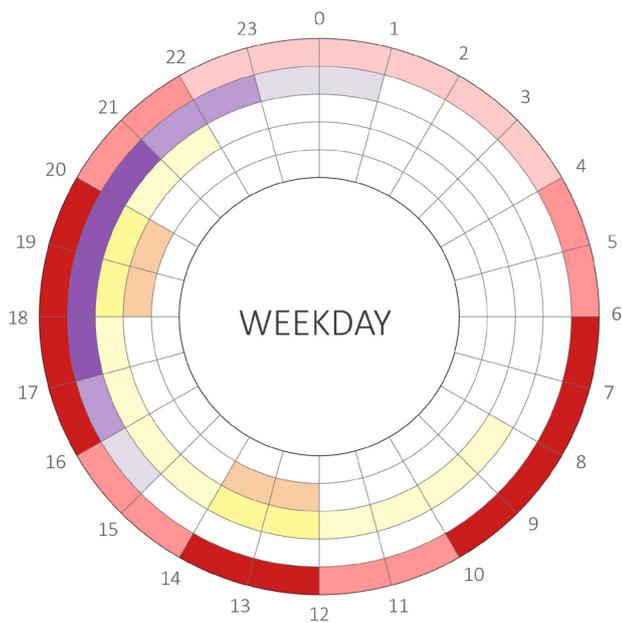
G/F

De Nieuwe Hallen



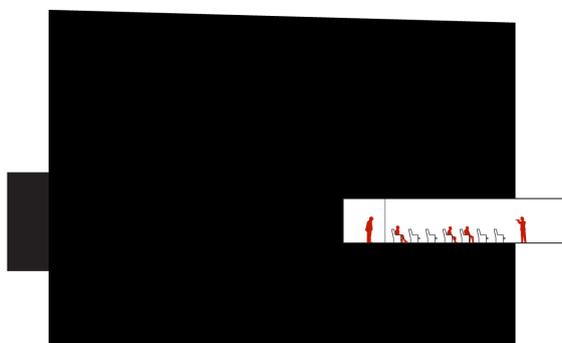
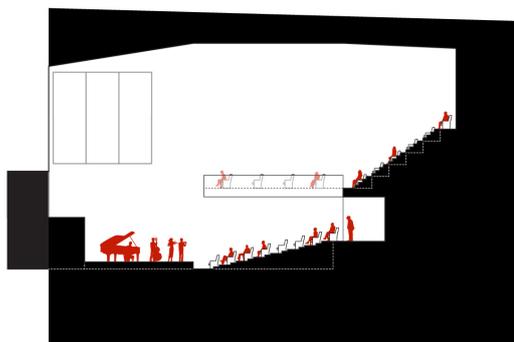
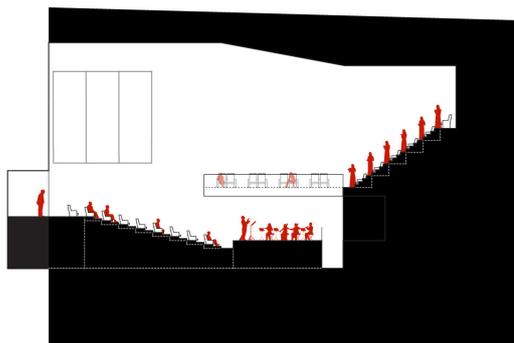
DIAGRAMS

Public Corridor - Projected Usage

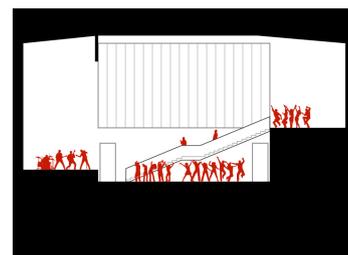


Concert Hall Configuration

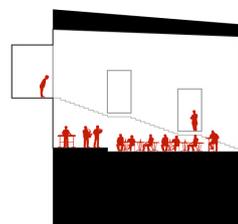
CLASSICAL AUDITORIUM



ROCK AND POP HALL

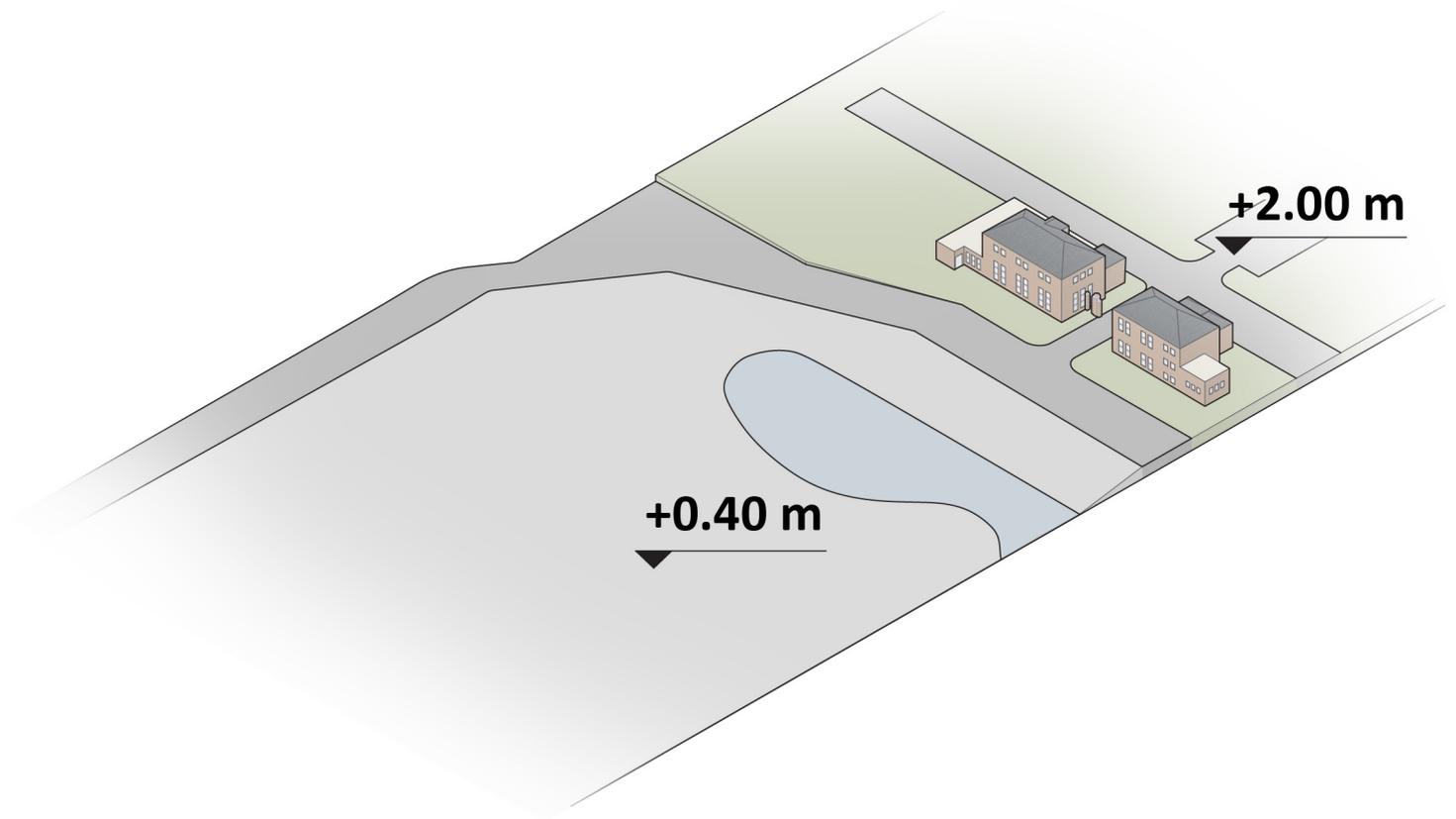


JAZZ CLUB

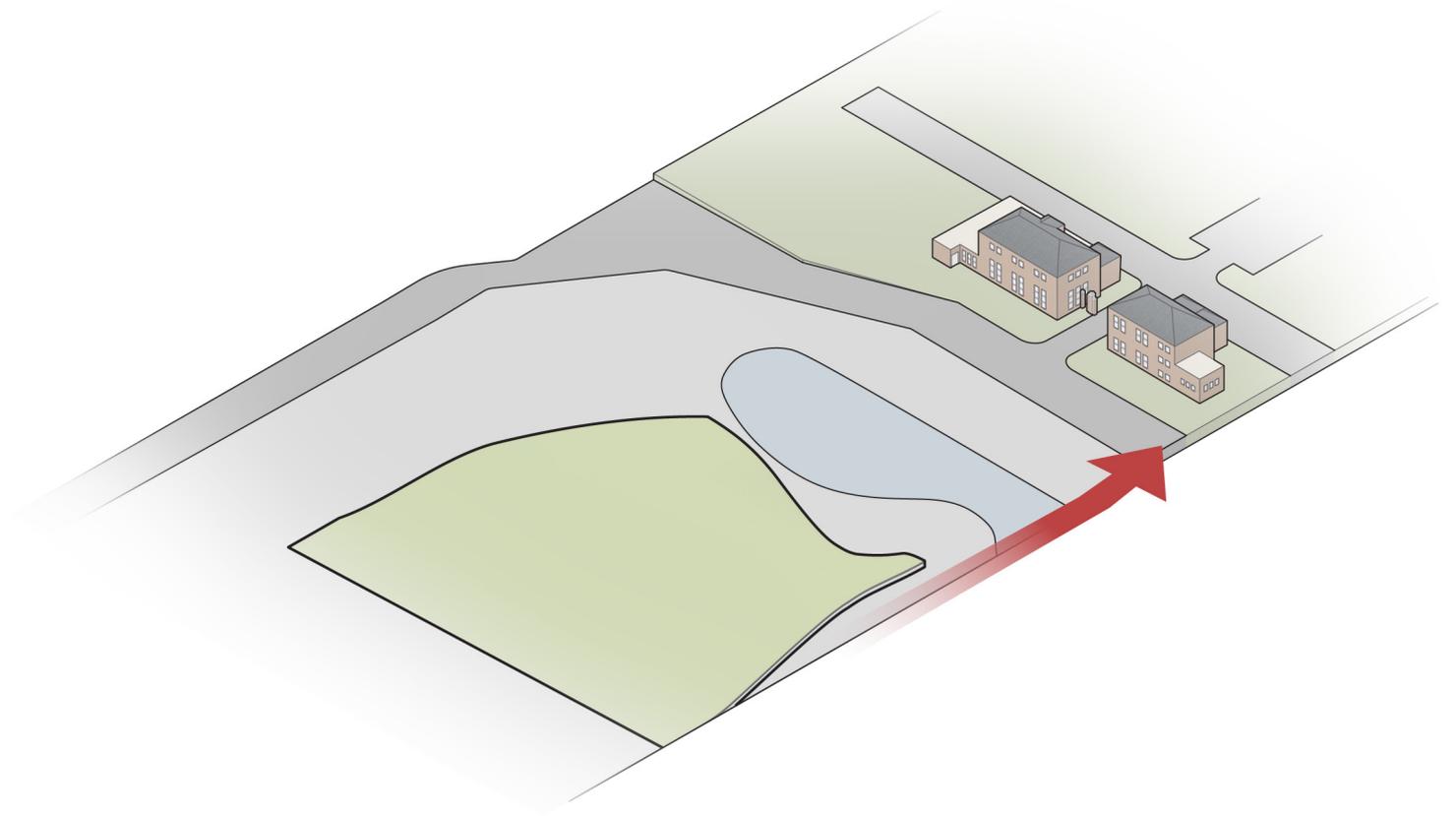


DIAGRAMS

Artificial Landscape Development



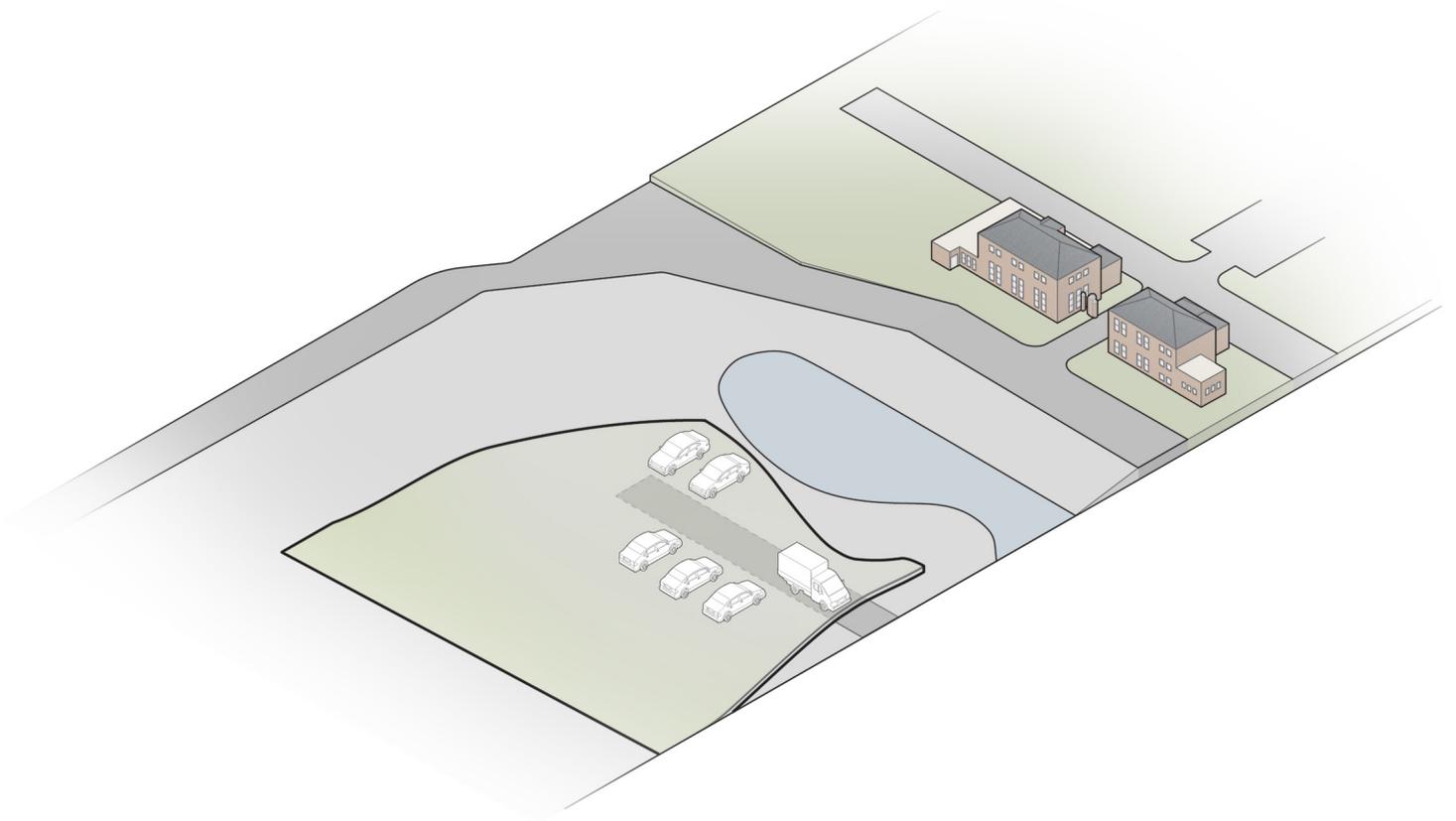
Level Difference



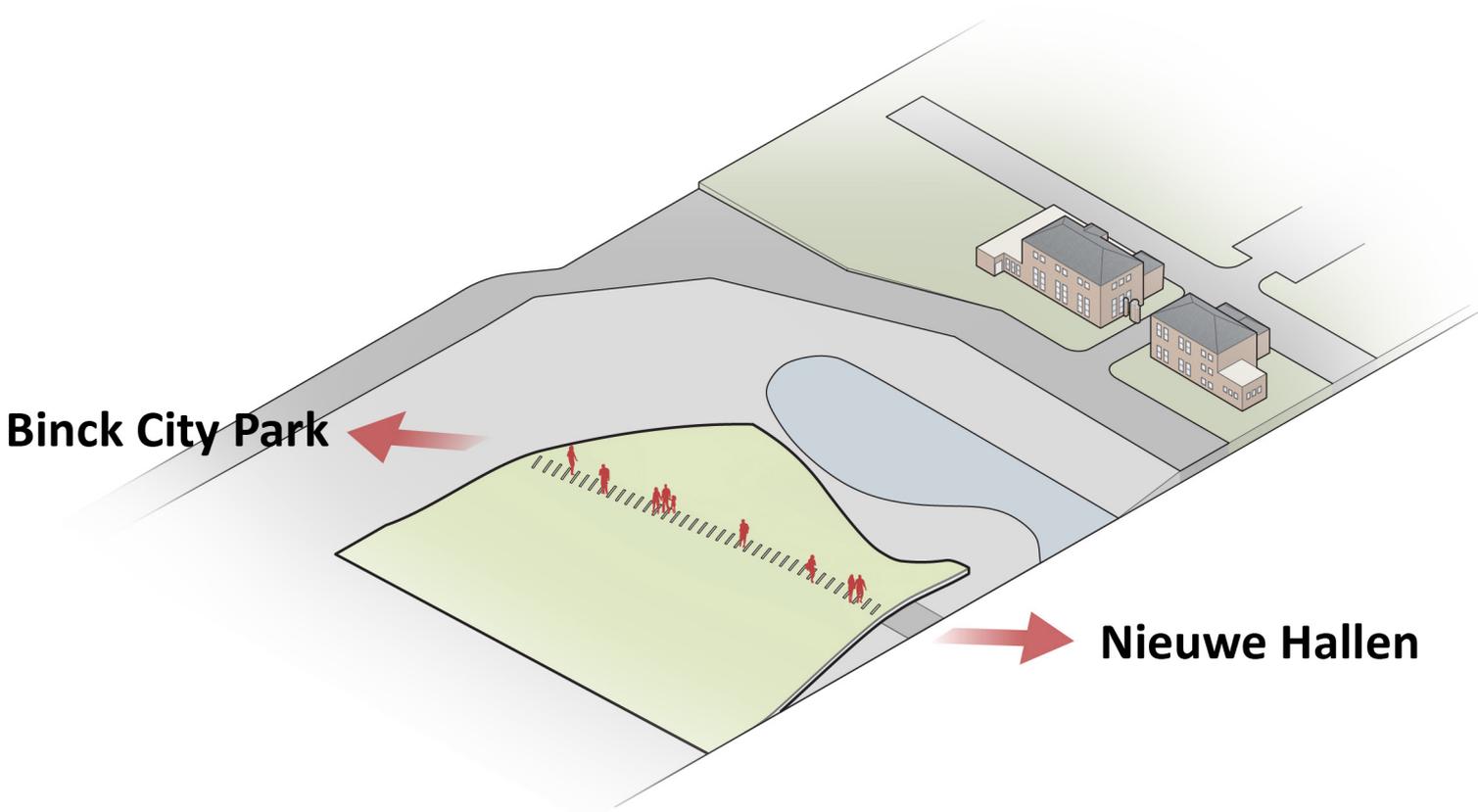
Dialogue

DIAGRAMS

Artificial Landscape Development



Back of House Concealment



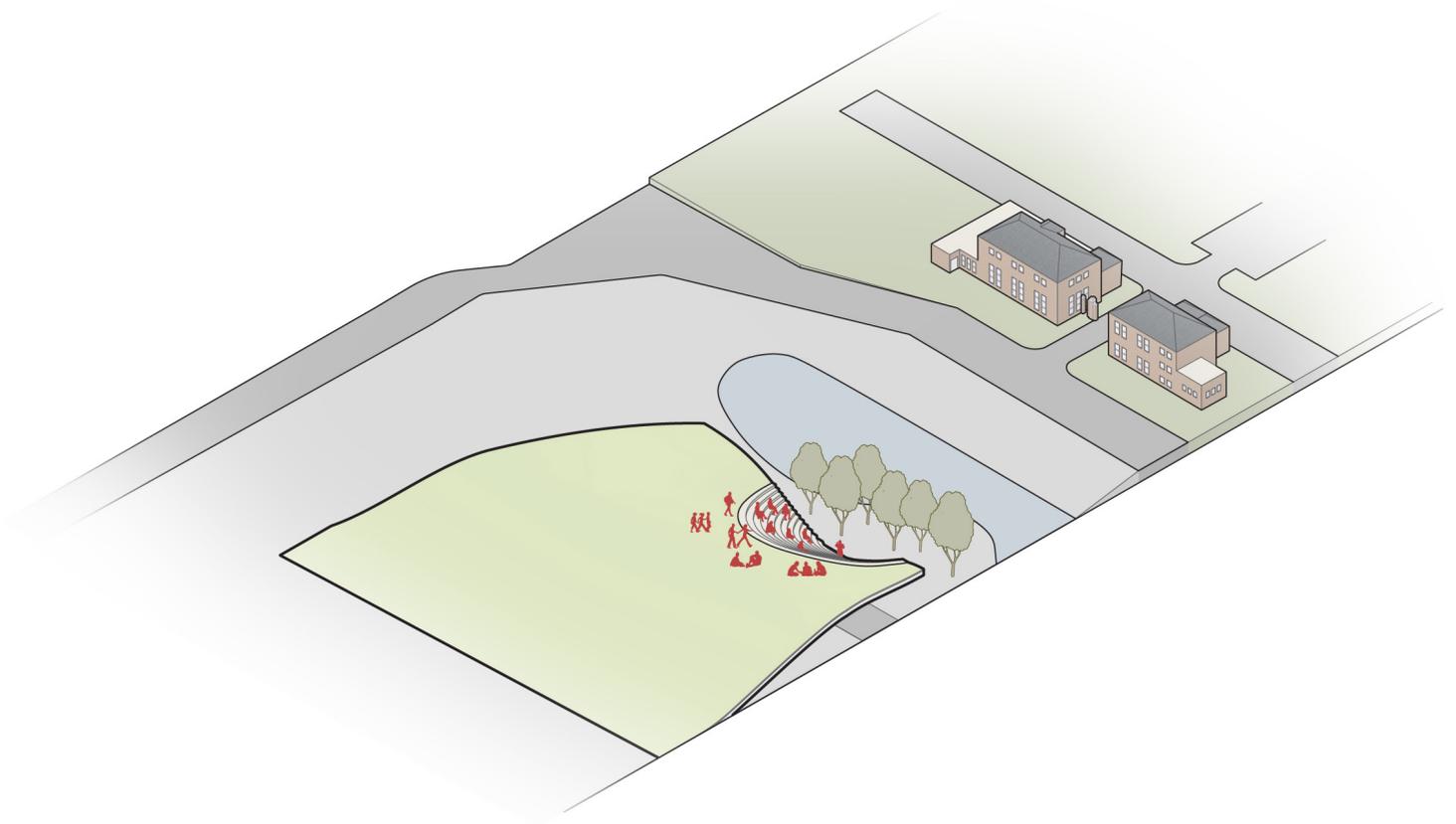
Binck City Park

Nieuwe Hallen

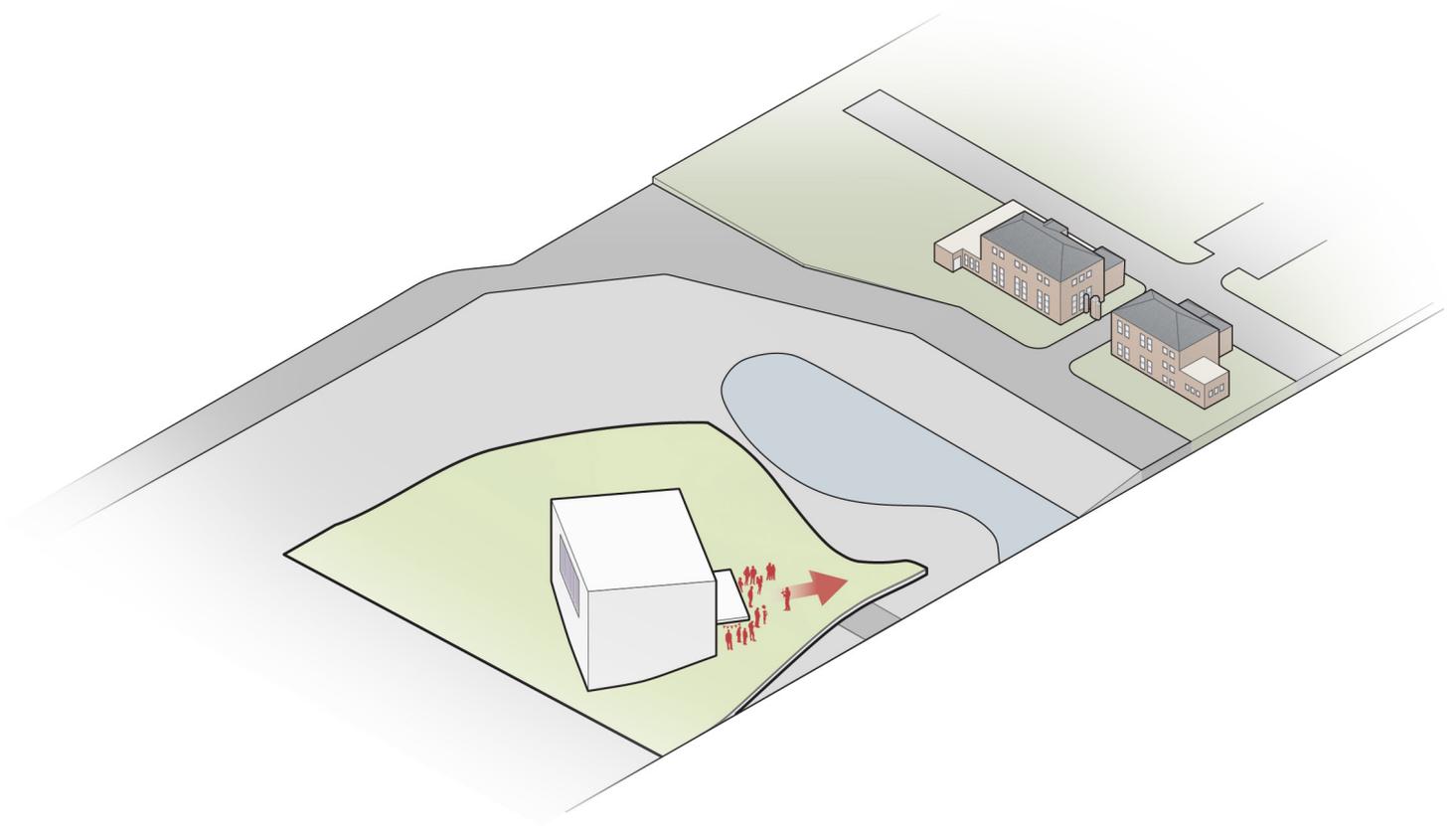
Possible Urban Linkage

DIAGRAMS

Artificial Landscape Development

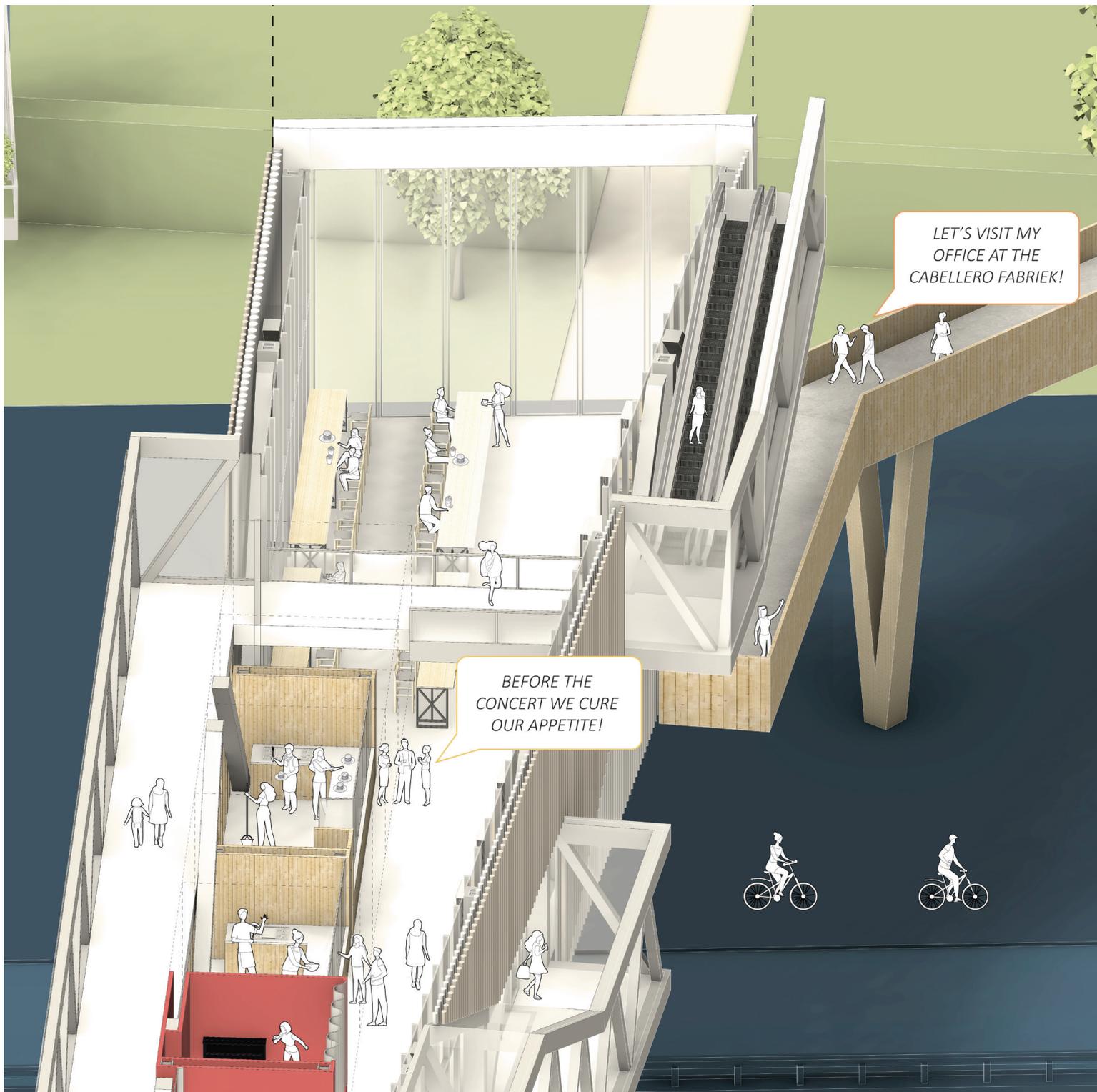


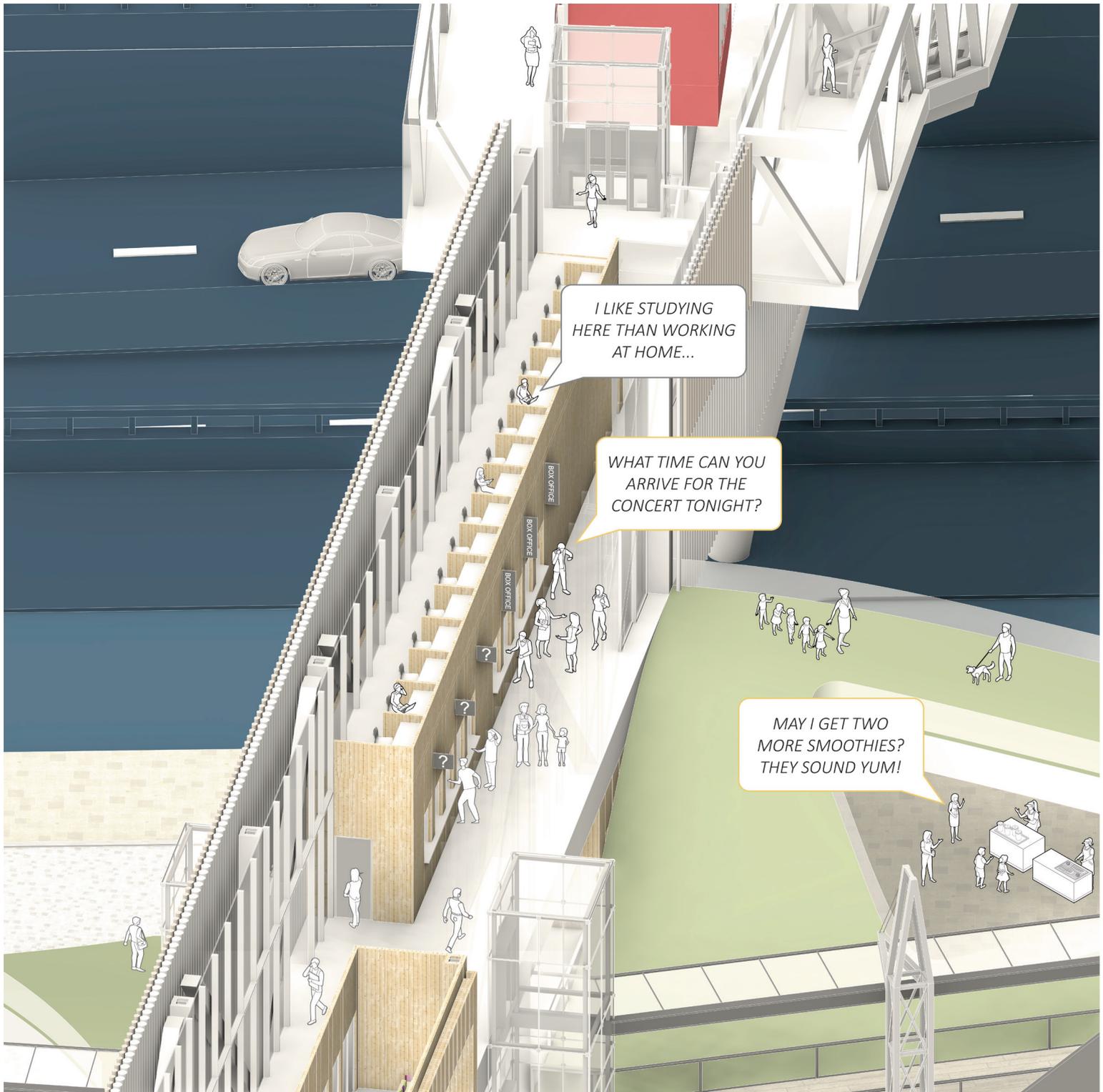
Extra Performing Arts Venue



Outward Diffusion

AXONOMETRIC



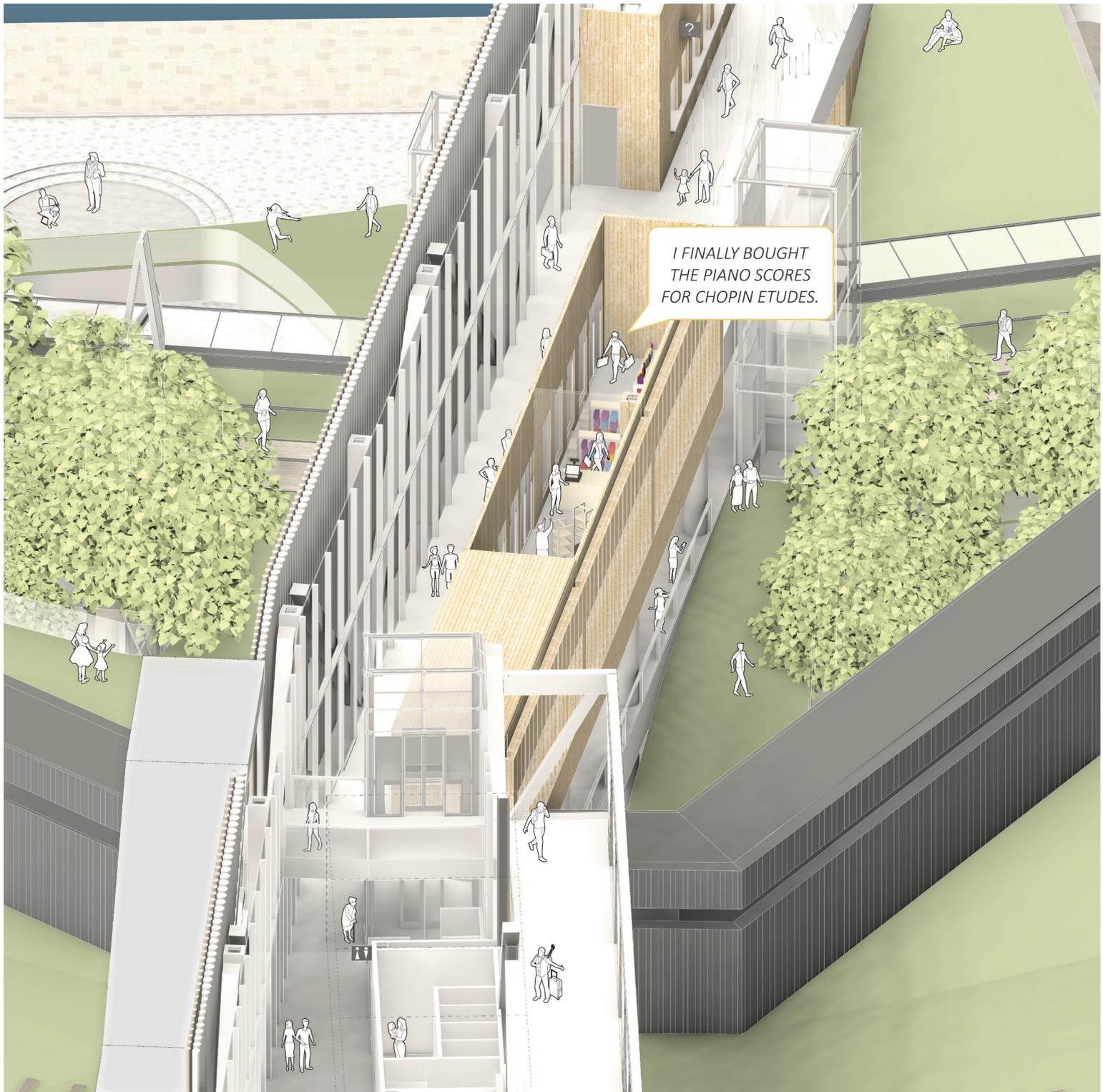


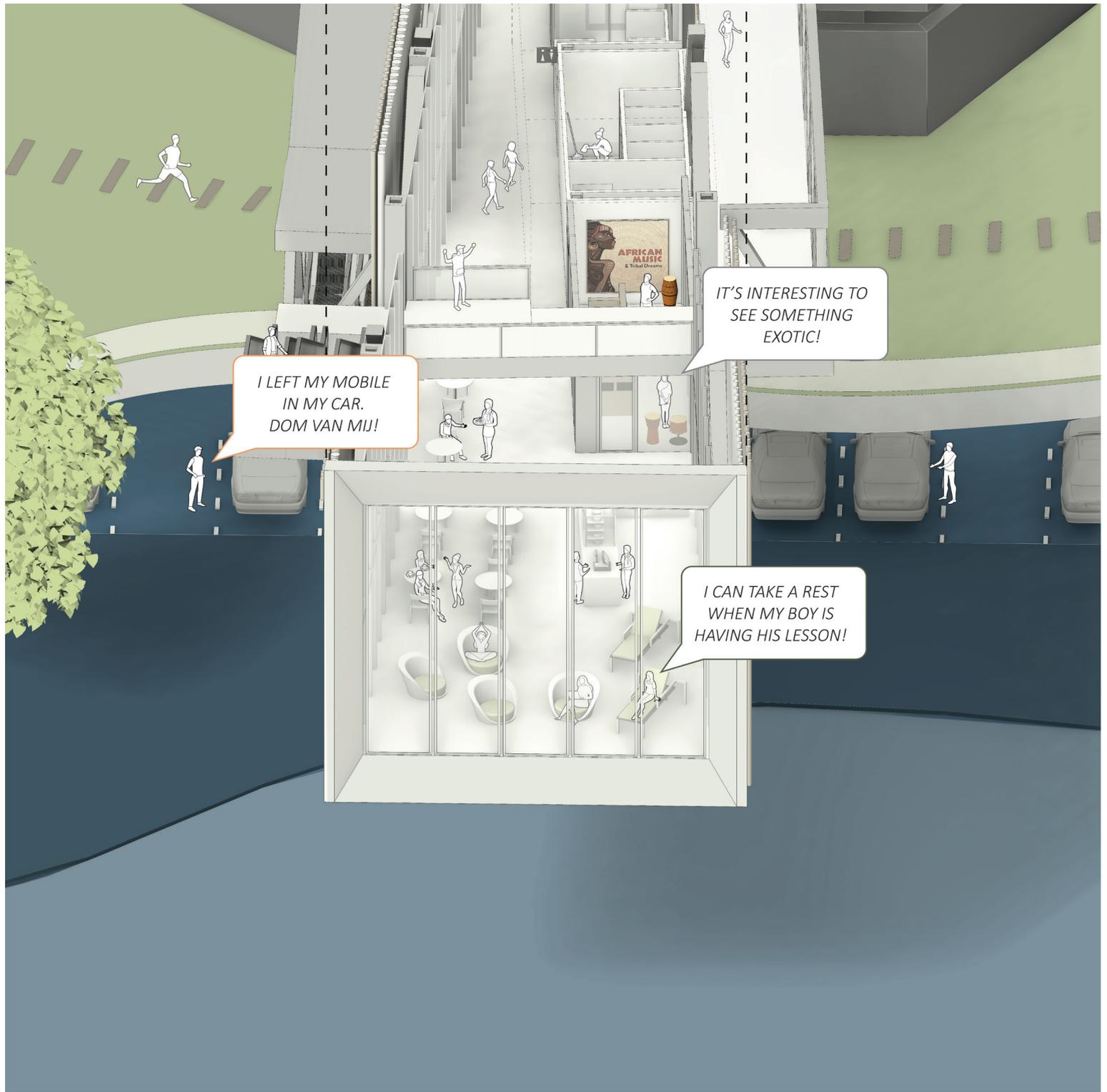
I LIKE STUDYING
HERE THAN WORKING
AT HOME...

WHAT TIME CAN YOU
ARRIVE FOR THE
CONCERT TONIGHT?

MAY I GET TWO
MORE SMOOTHIES?
THEY SOUND YUM!

AXONOMETRIC



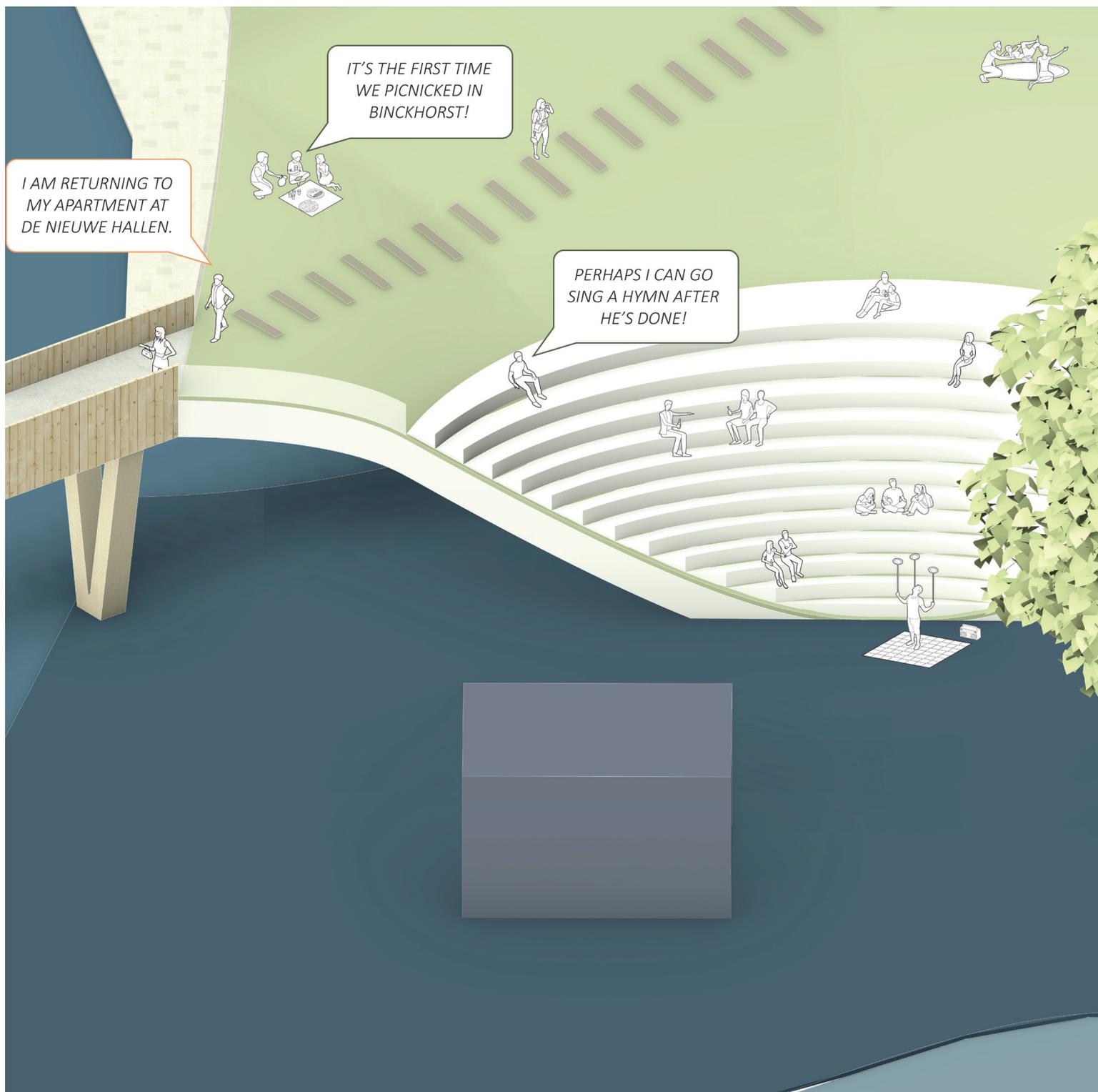


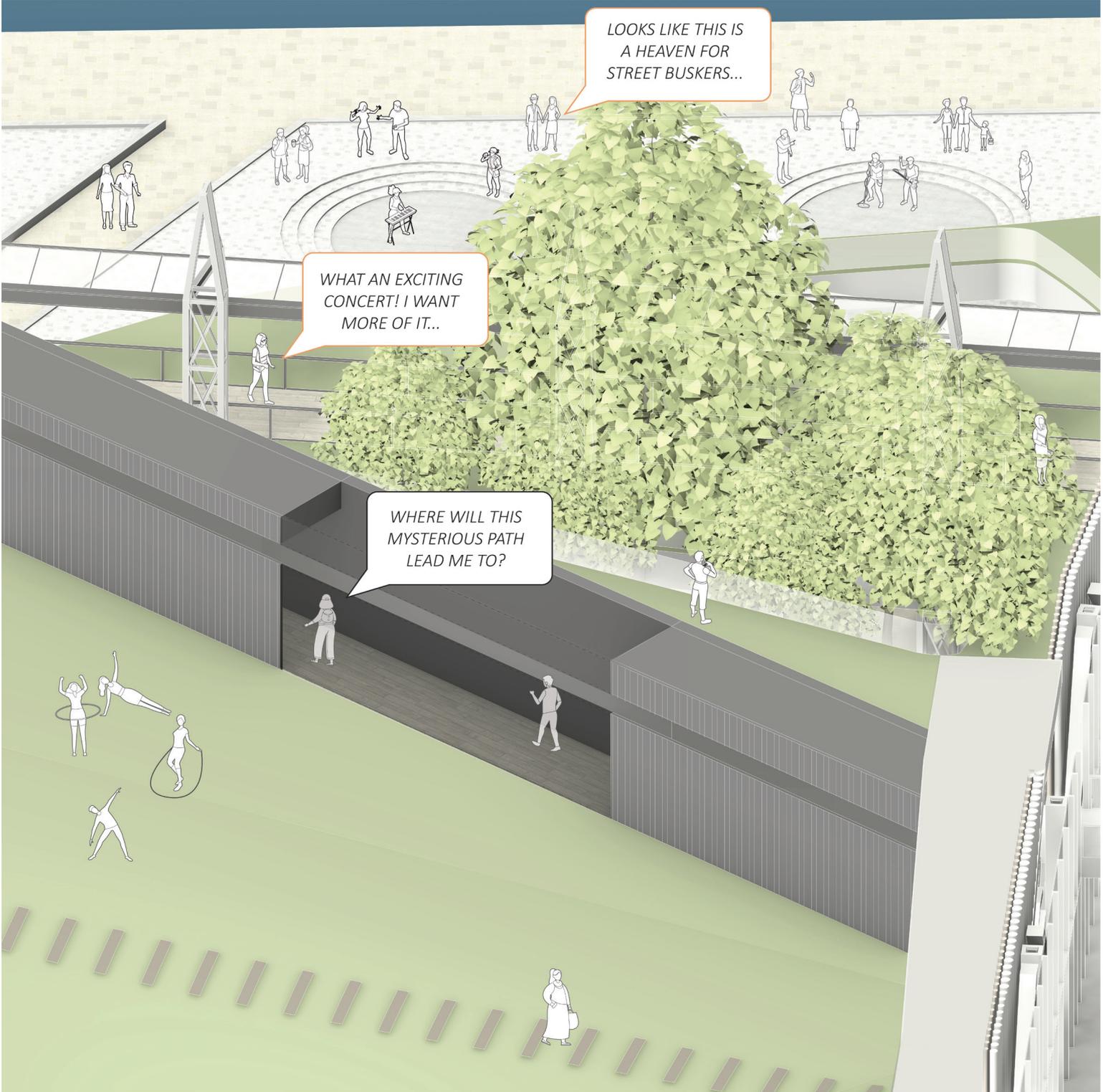
I LEFT MY MOBILE
IN MY CAR.
DOM VAN MIJ!

IT'S INTERESTING TO
SEE SOMETHING
EXOTIC!

I CAN TAKE A REST
WHEN MY BOY IS
HAVING HIS LESSON!

AXONOMETRIC



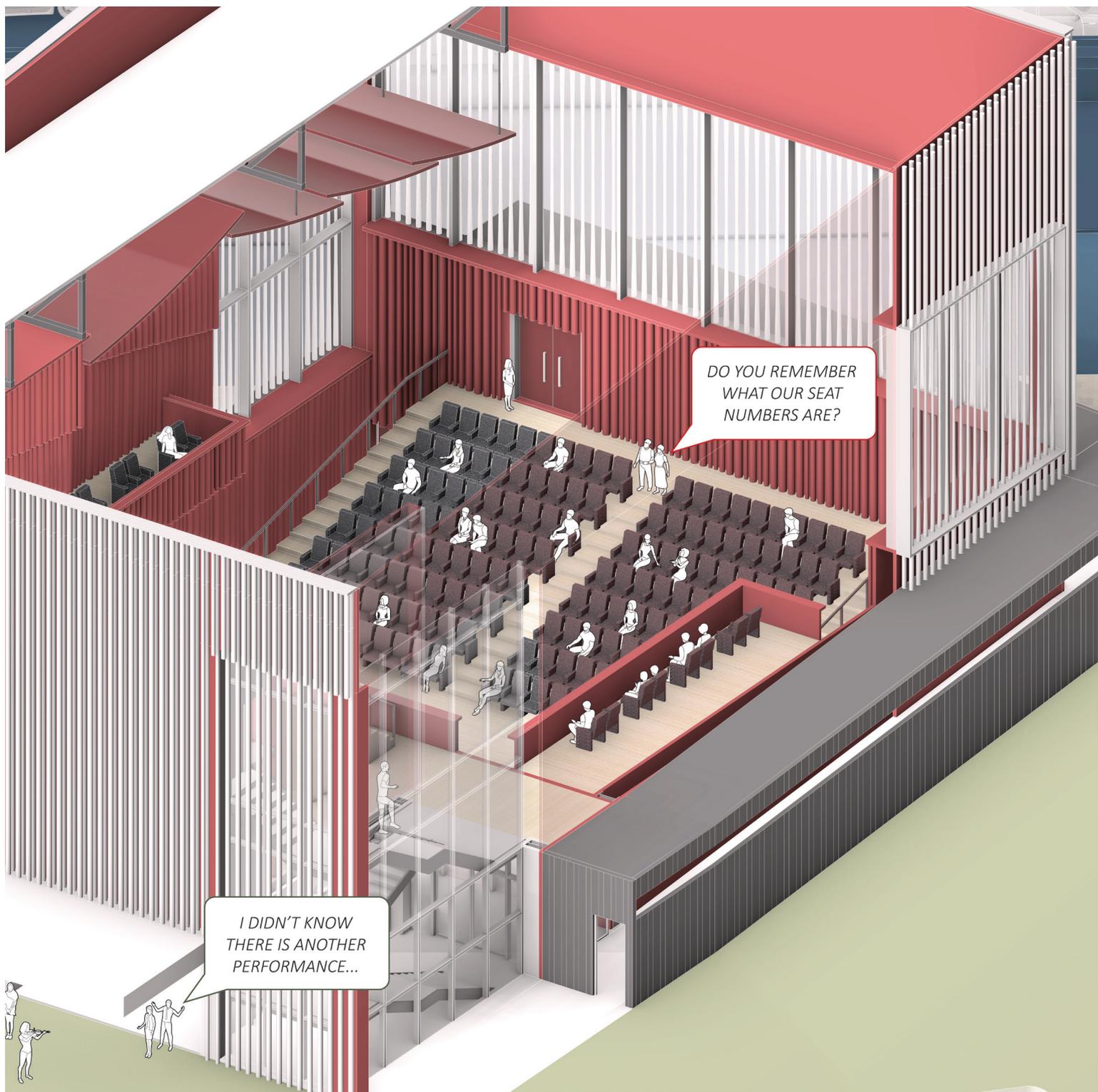


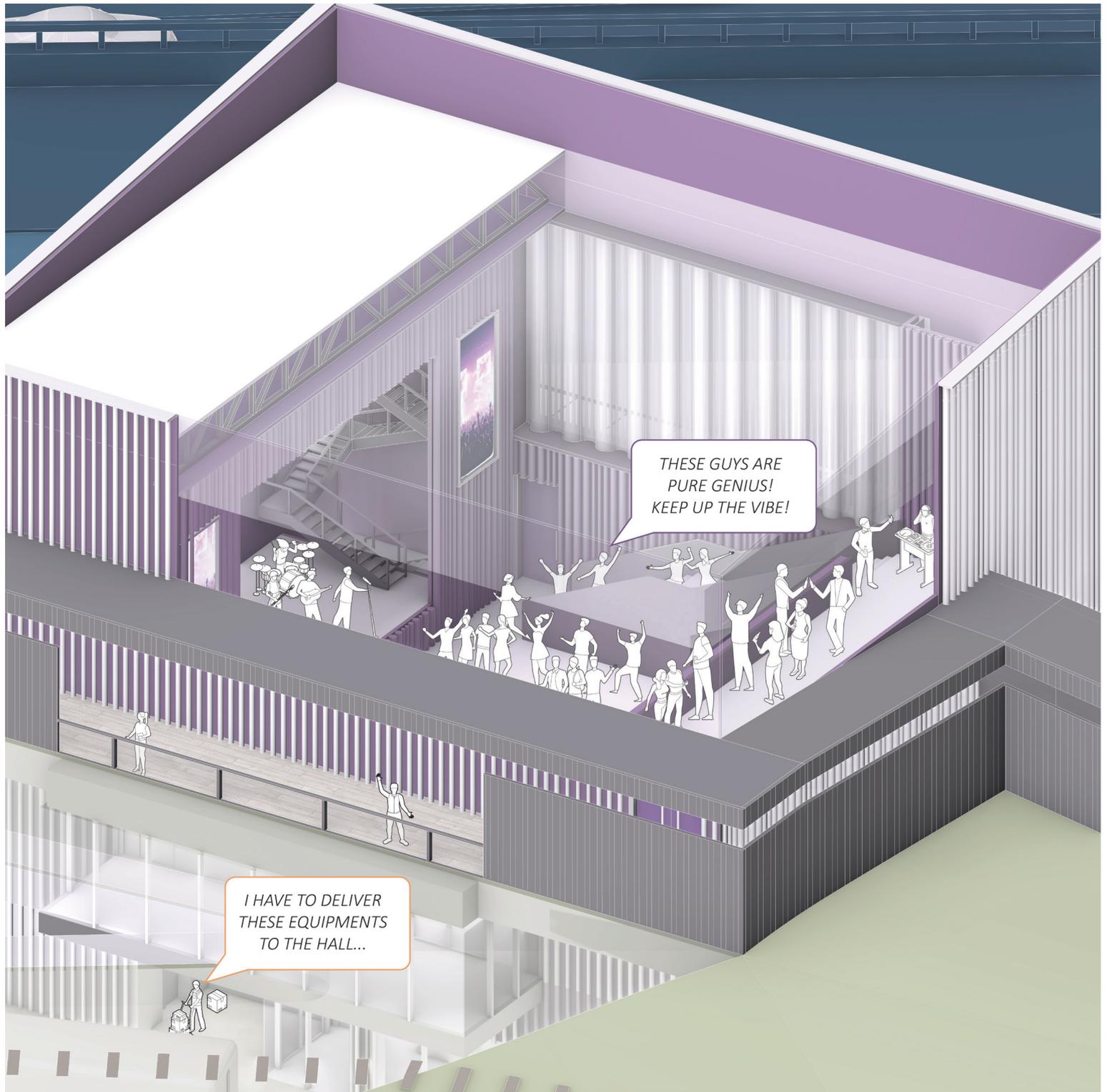
LOOKS LIKE THIS IS
A HEAVEN FOR
STREET BUSKERS...

WHAT AN EXCITING
CONCERT! I WANT
MORE OF IT...

WHERE WILL THIS
MYSTERIOUS PATH
LEAD ME TO?

AXONOMETRIC

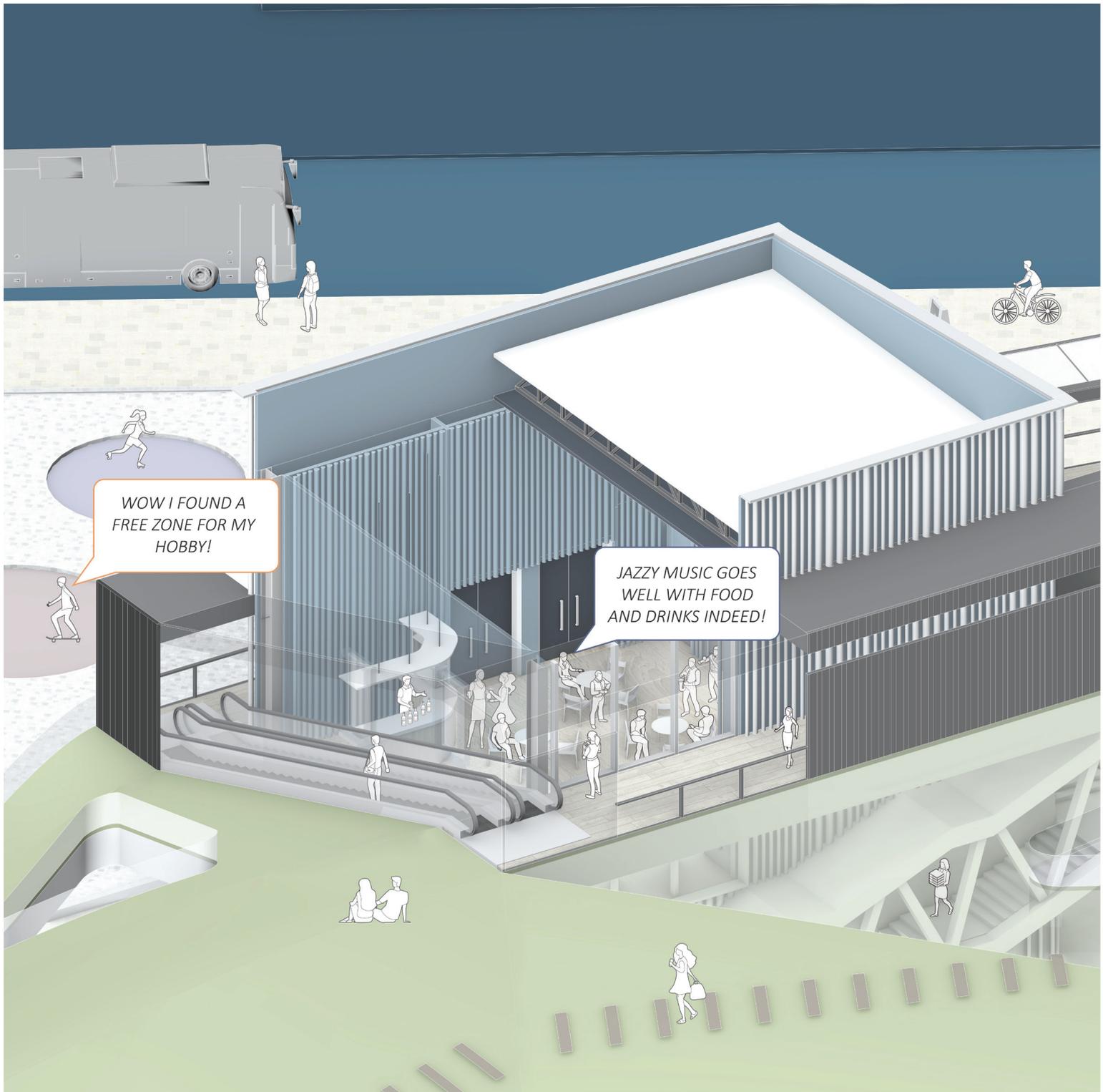




THESE GUYS ARE
PURE GENIUS!
KEEP UP THE VIBE!

I HAVE TO DELIVER
THESE EQUIPMENTS
TO THE HALL...

AXONOMETRIC



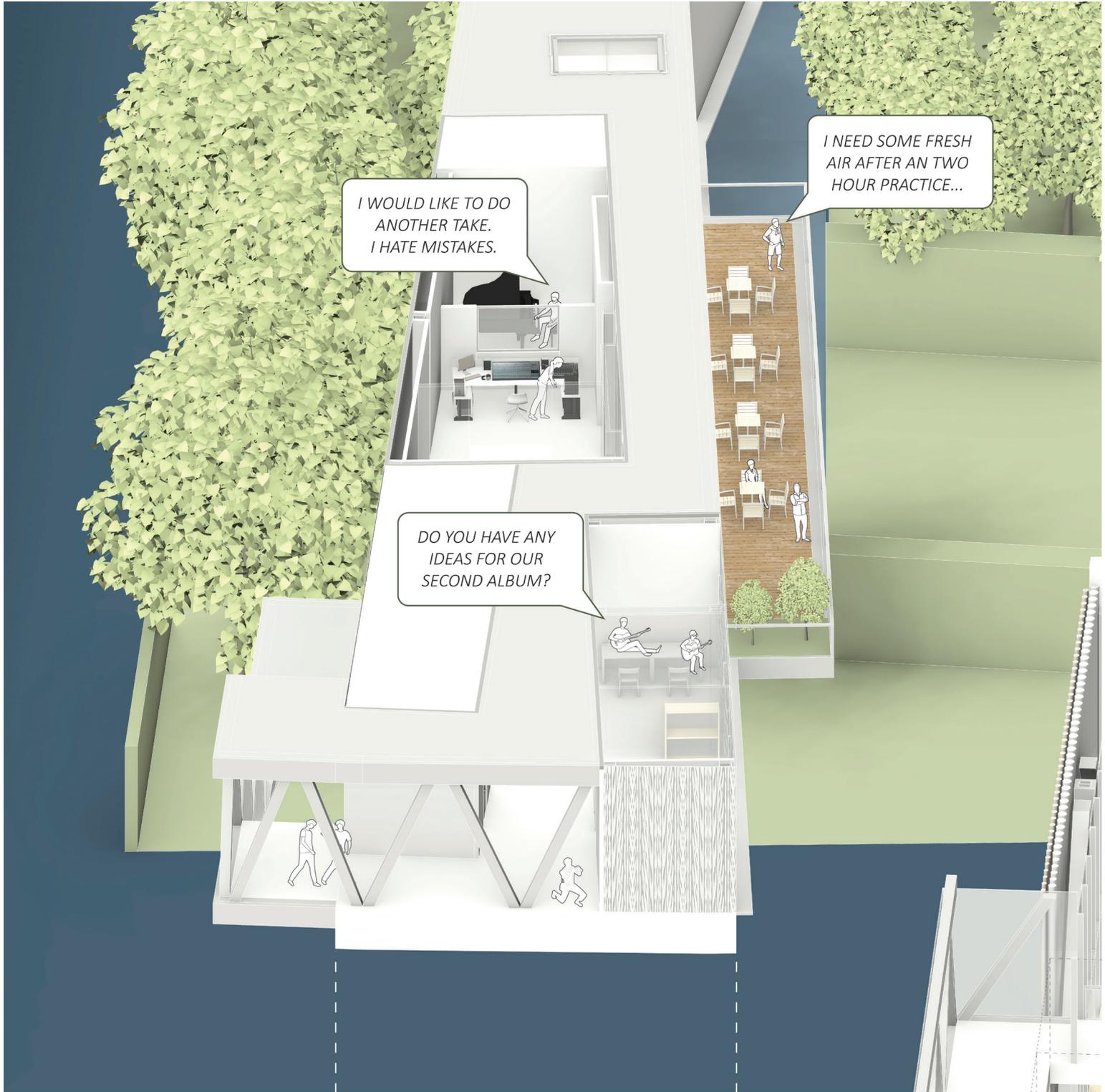


I AM NOW
RESEARCHING ON
MODERNIST MUSIC!

GOOD AFTERNOON.
THE LECTURE WILL
START IN 5 MINUTES.

AXONOMETRIC



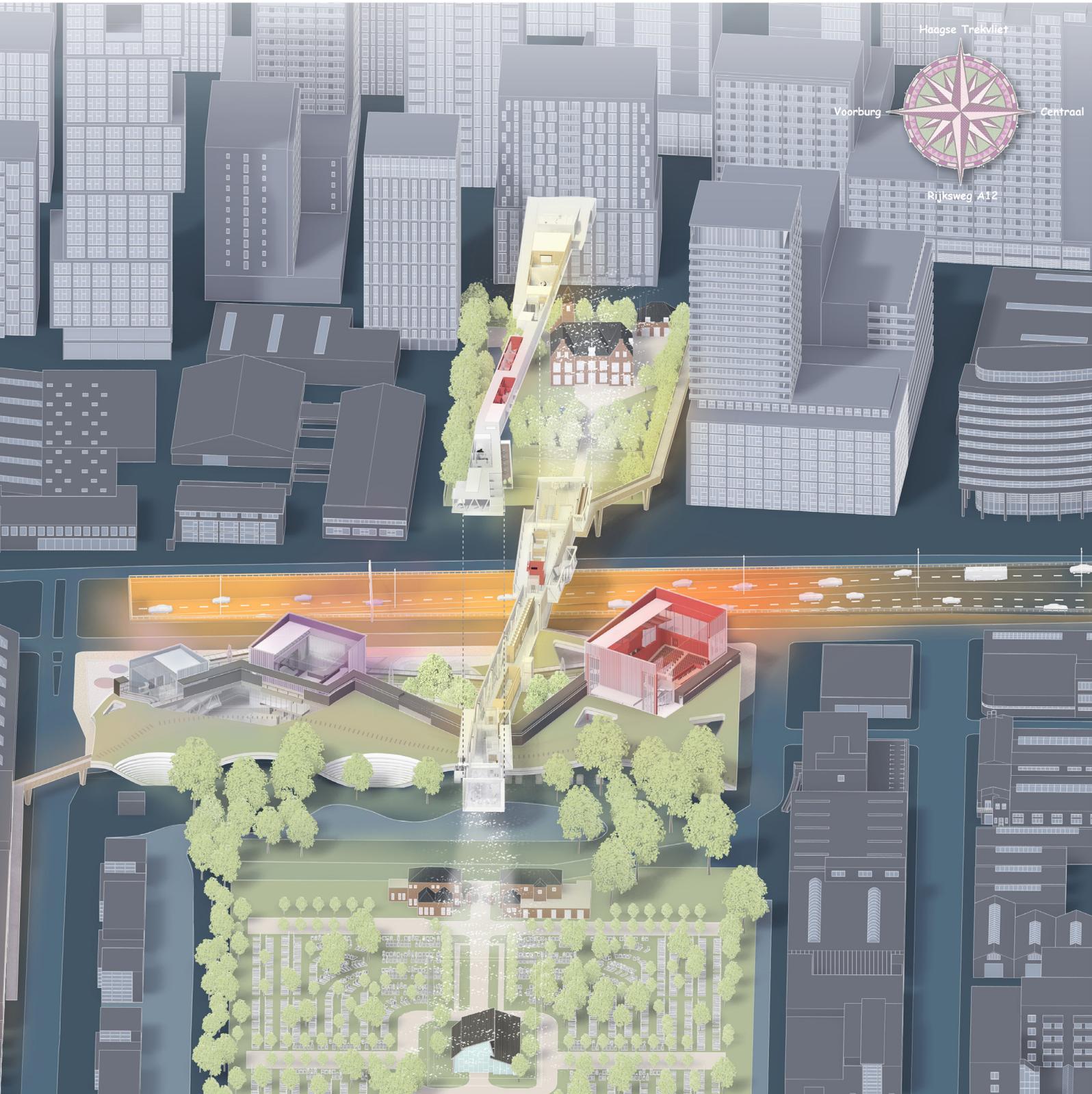


I WOULD LIKE TO DO ANOTHER TAKE. I HATE MISTAKES.

I NEED SOME FRESH AIR AFTER AN TWO HOUR PRACTICE...

DO YOU HAVE ANY IDEAS FOR OUR SECOND ALBUM?

AXONOMETRIC



PLAN

Schematic Design - Ground Floor Plan



PLAN

Final Design - First Floor Plan

0 15 30 60m



Schematic Design - Second Floor Plan



PLAN

Final Design - Third Floor Plan

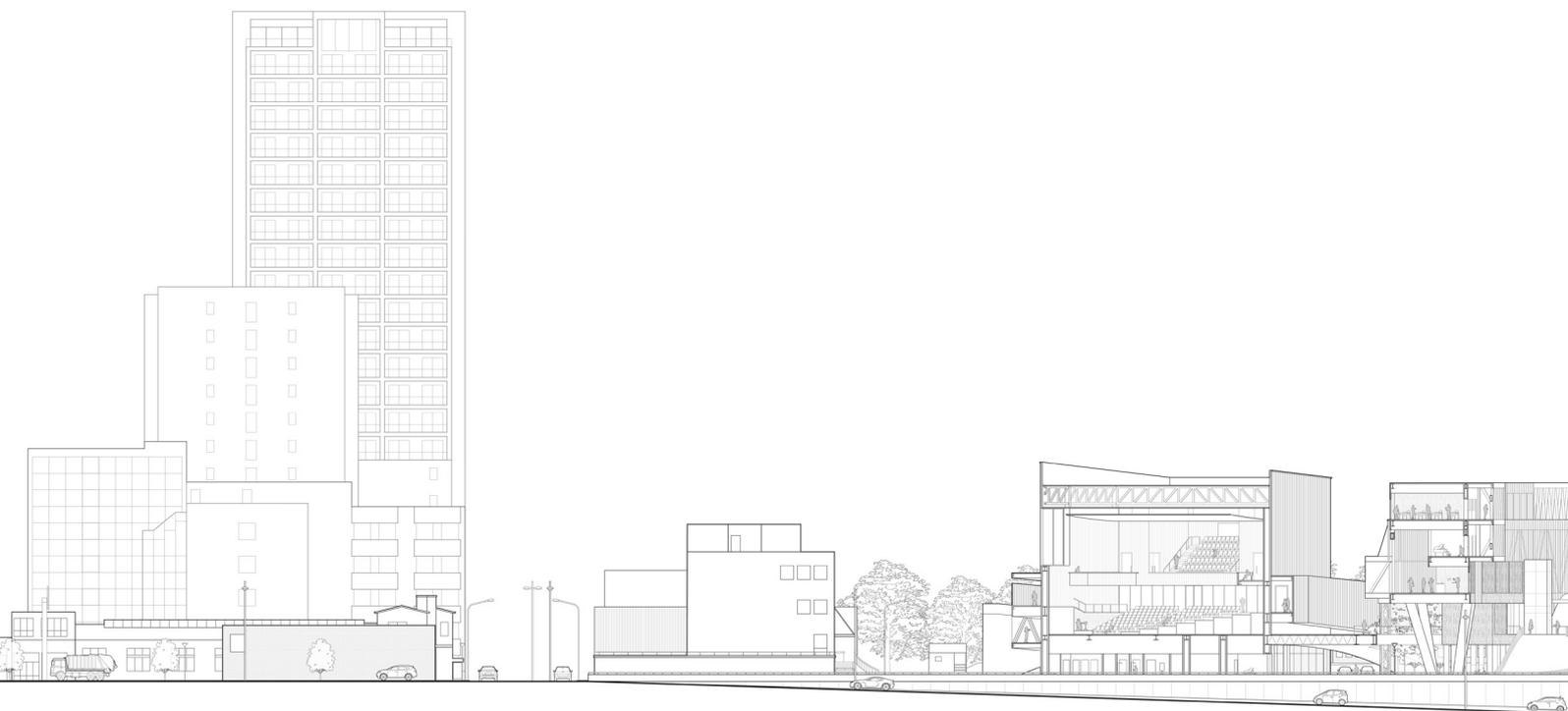
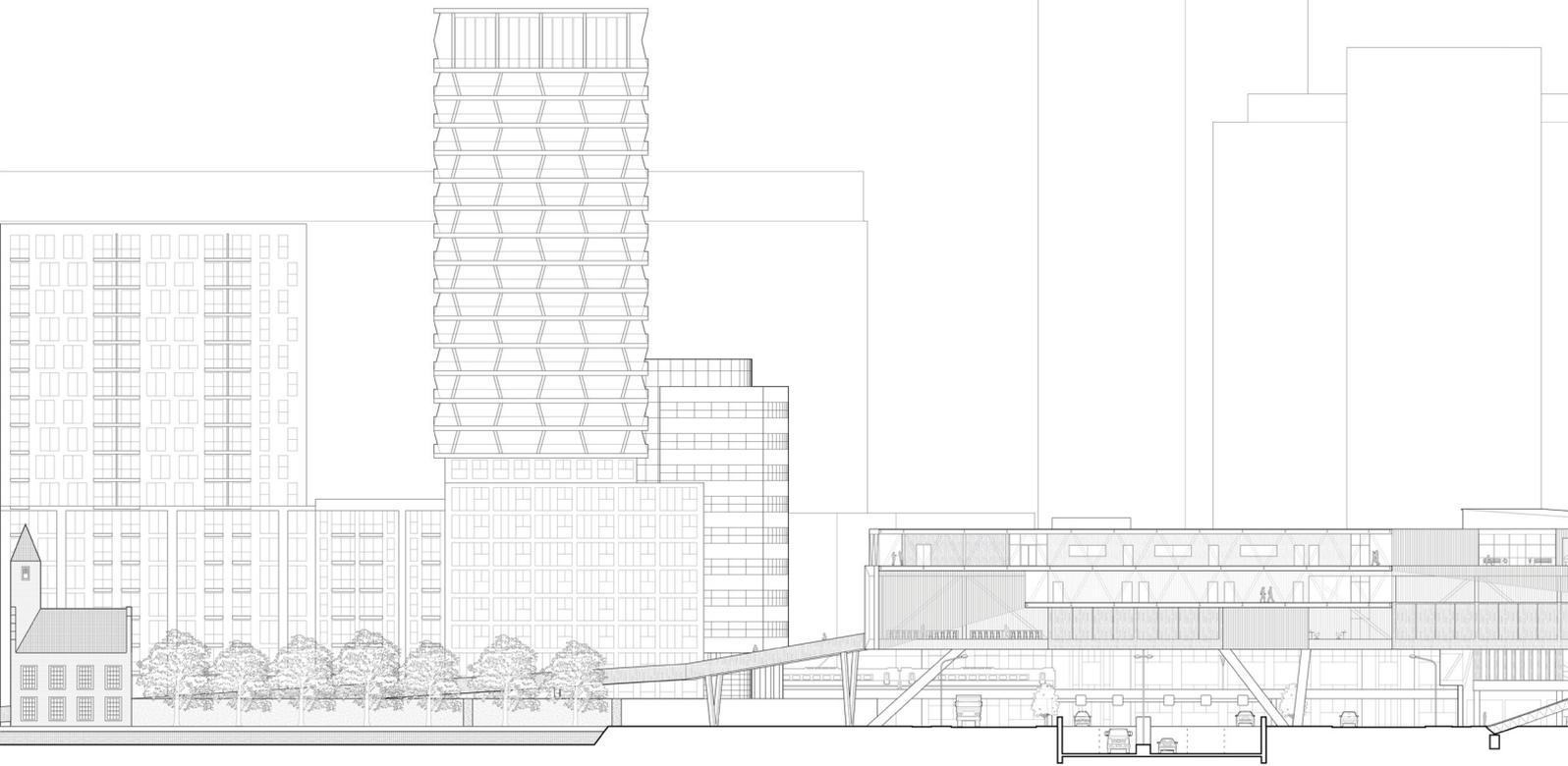
0 15 30 60m



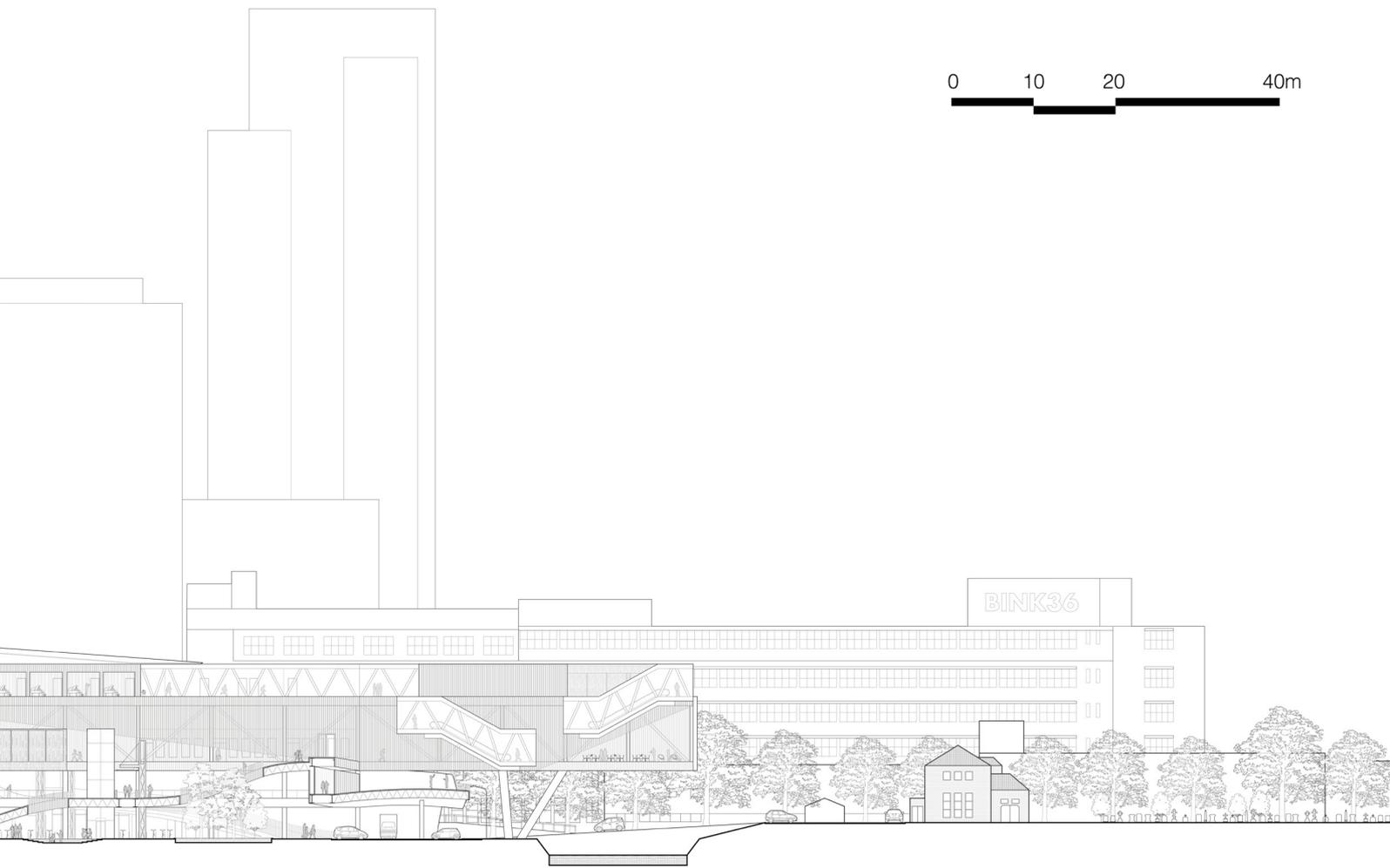
Schematic Design - Fourth Floor Plan



SECTION



0 10 20 40m



PERSPECTIVES















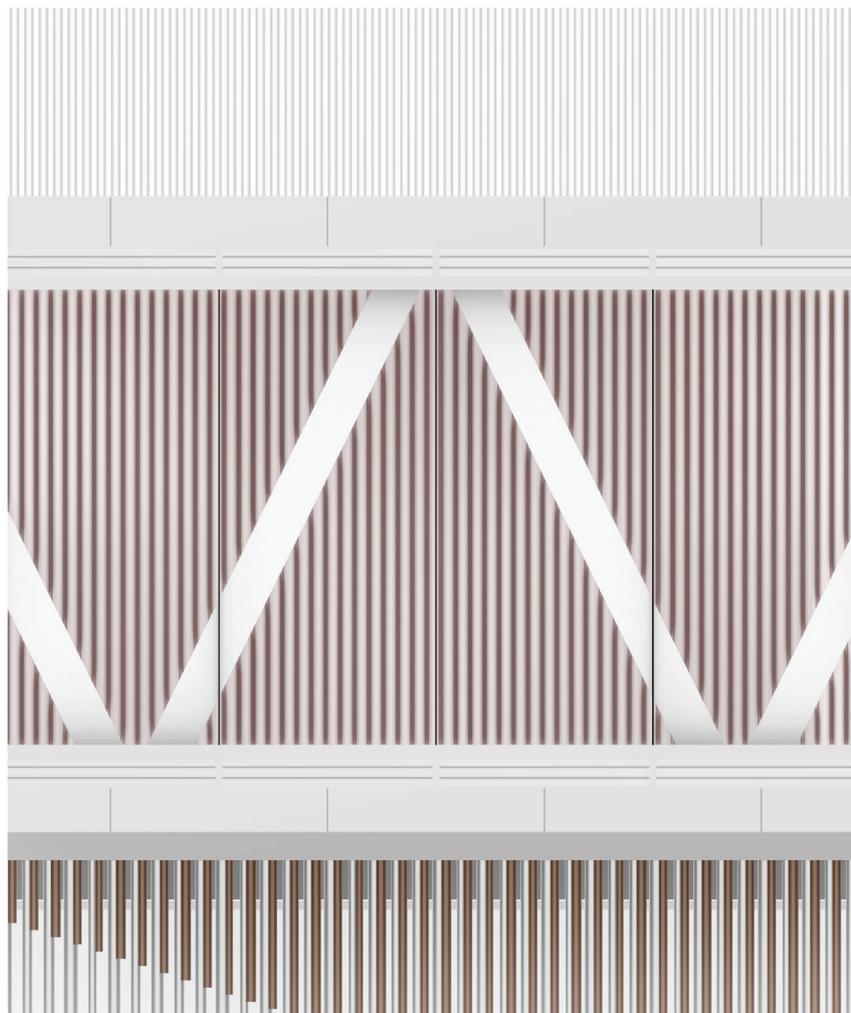


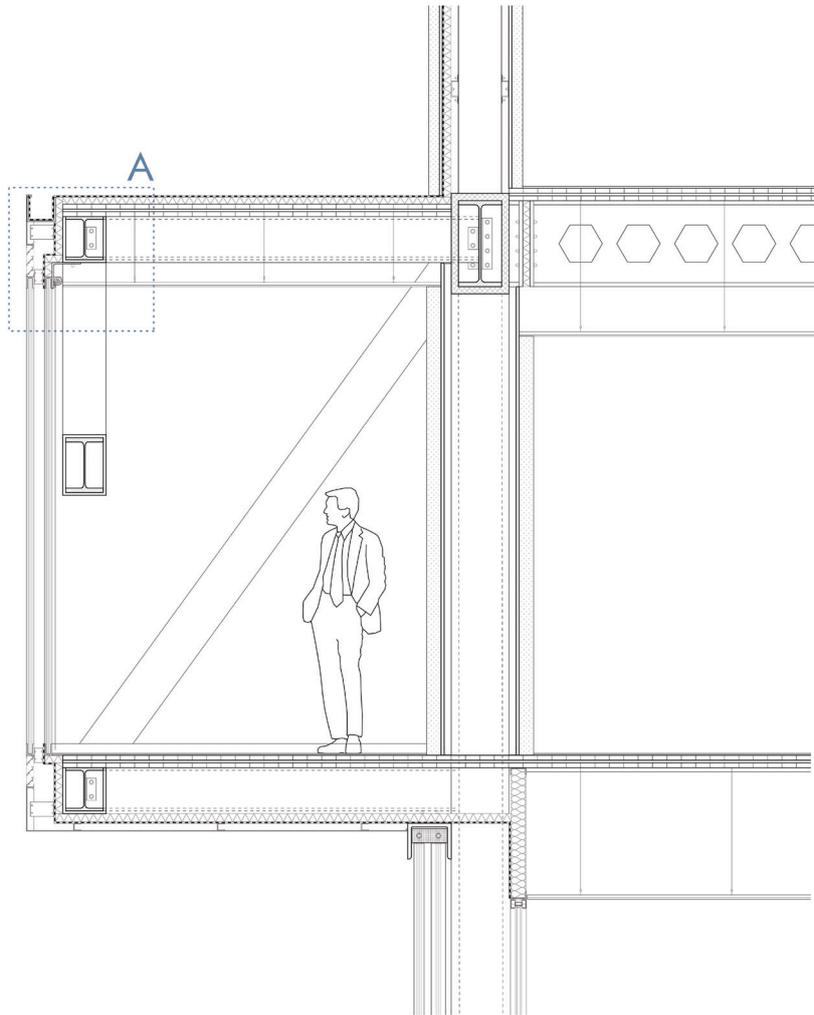




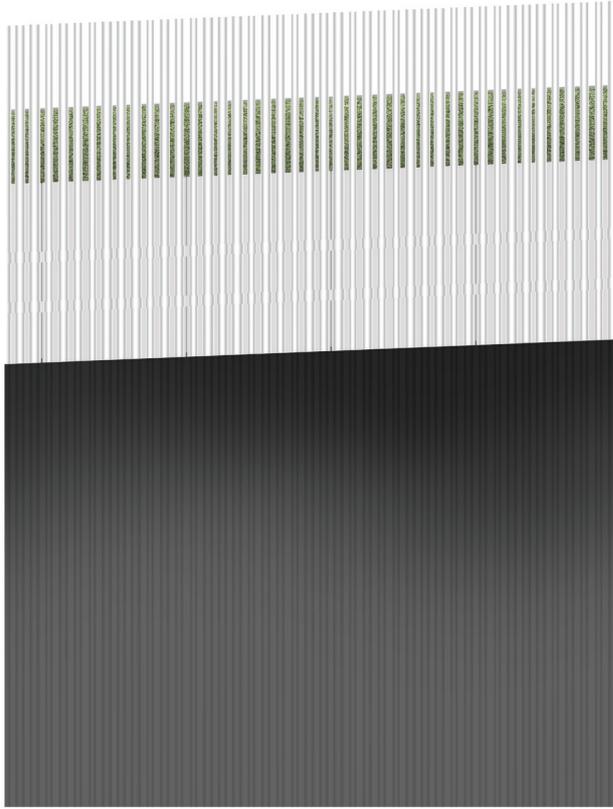


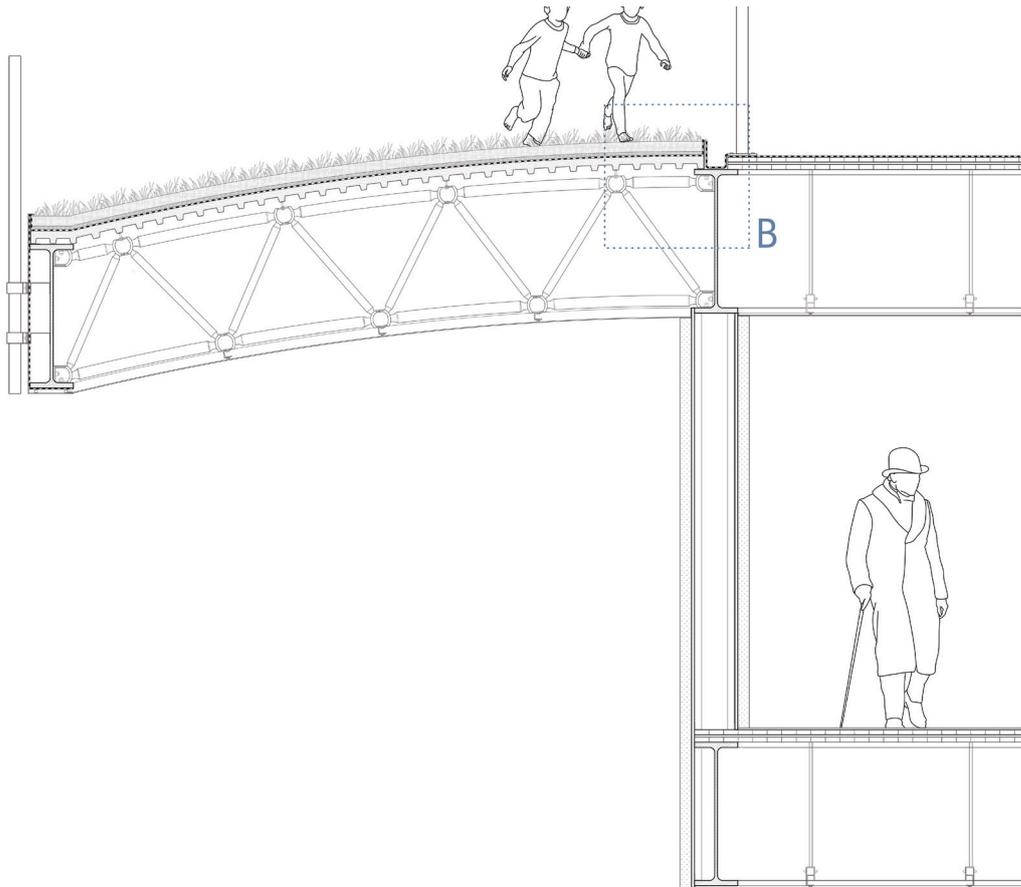
DETAIL



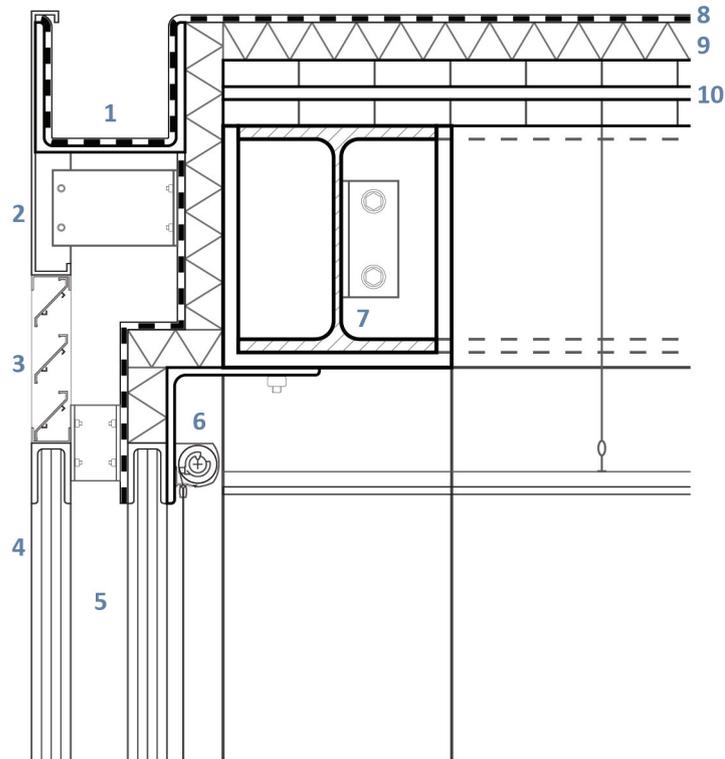


DETAIL



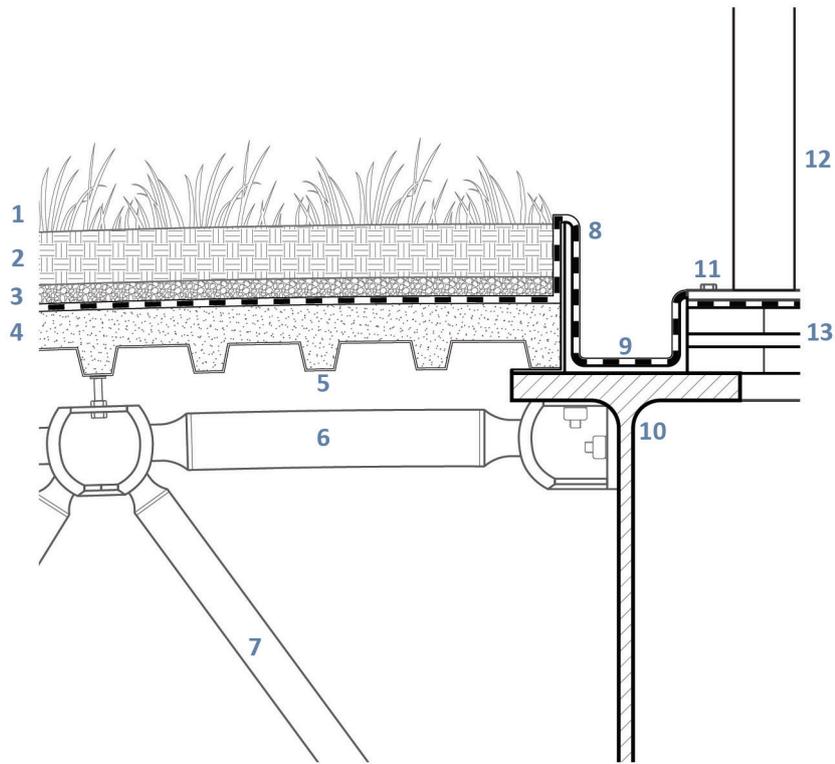


DETAIL



DETAIL A

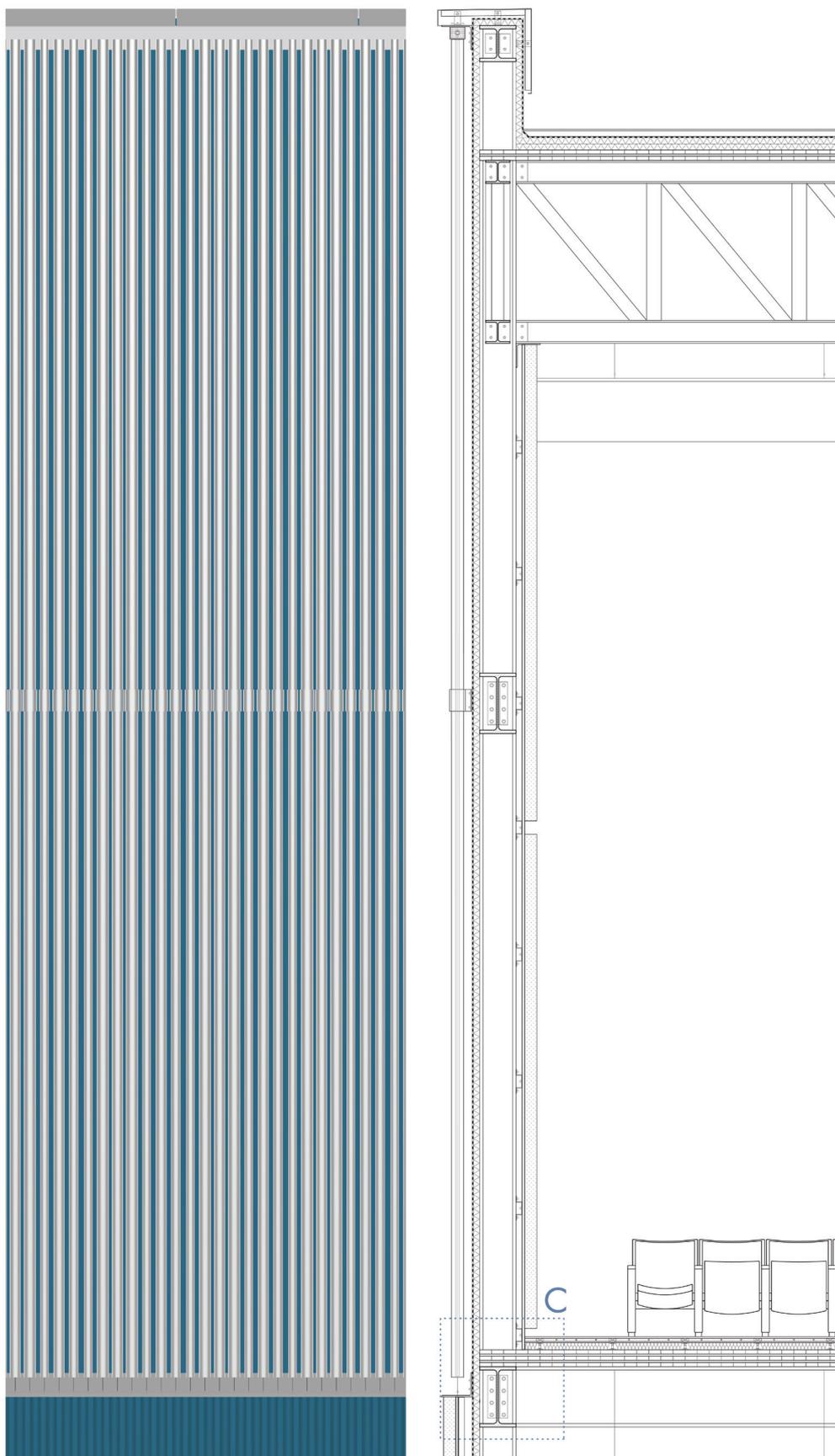
- 1 Formed Gutter
- 2 6 mm Aluminium Capping
- 3 Air Vent
- 4 10 mm Low Iron Laminated Glass
- 5 75 mm Air Space
- 6 Roller-blind Sunshade
- 7 HEB 260 Steel Beam
- 8 Waterproof Membrane
- 9 Rigid Insulation
- 10 87 V Cross Laminted Timber Panel

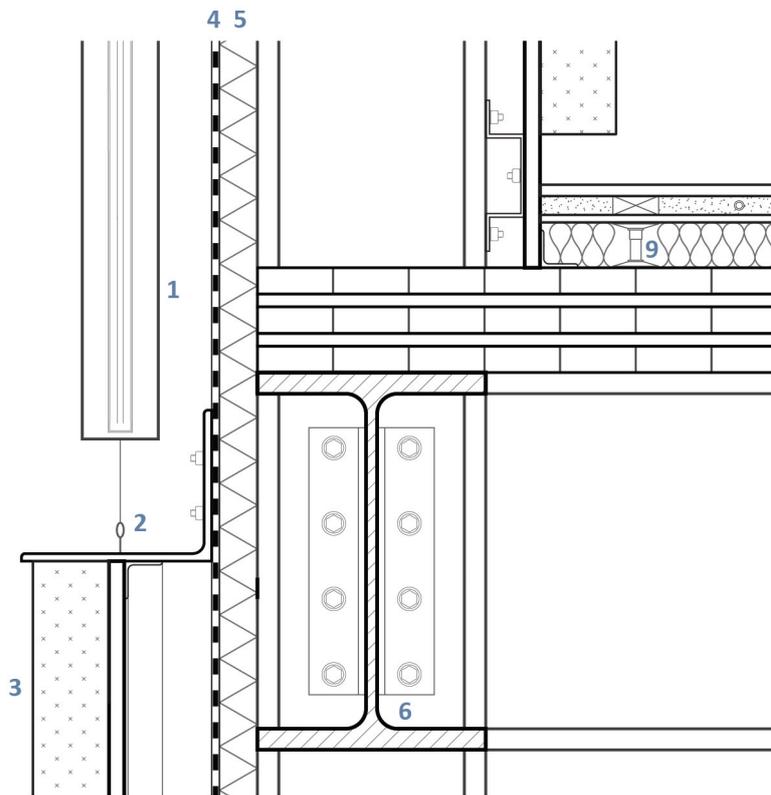


DETAIL B

- 1 Plant Cover
- 2 70 mm Growing Media
- 3 25 mm Drainage Filling
- 4 50 mm Lightweight Concrete
- 5 38 mm Steel Decking
- 6 Steel Chord Member
- 7 Steel Diagonal Member
- 8 Waterproof Membrane
- 9 Formed Gutter
- 10 HEB 1000 Steel Beam
- 11 10 mm Steel End Plate
- 12 Anodized Steel Balustrade
- 13 87 V Cross Laminted Timber Panel

DETAIL

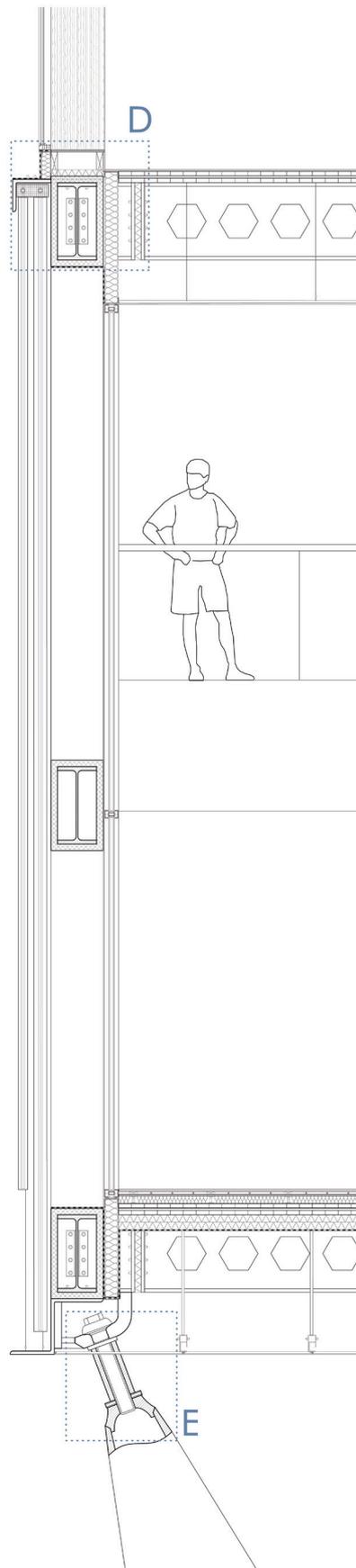
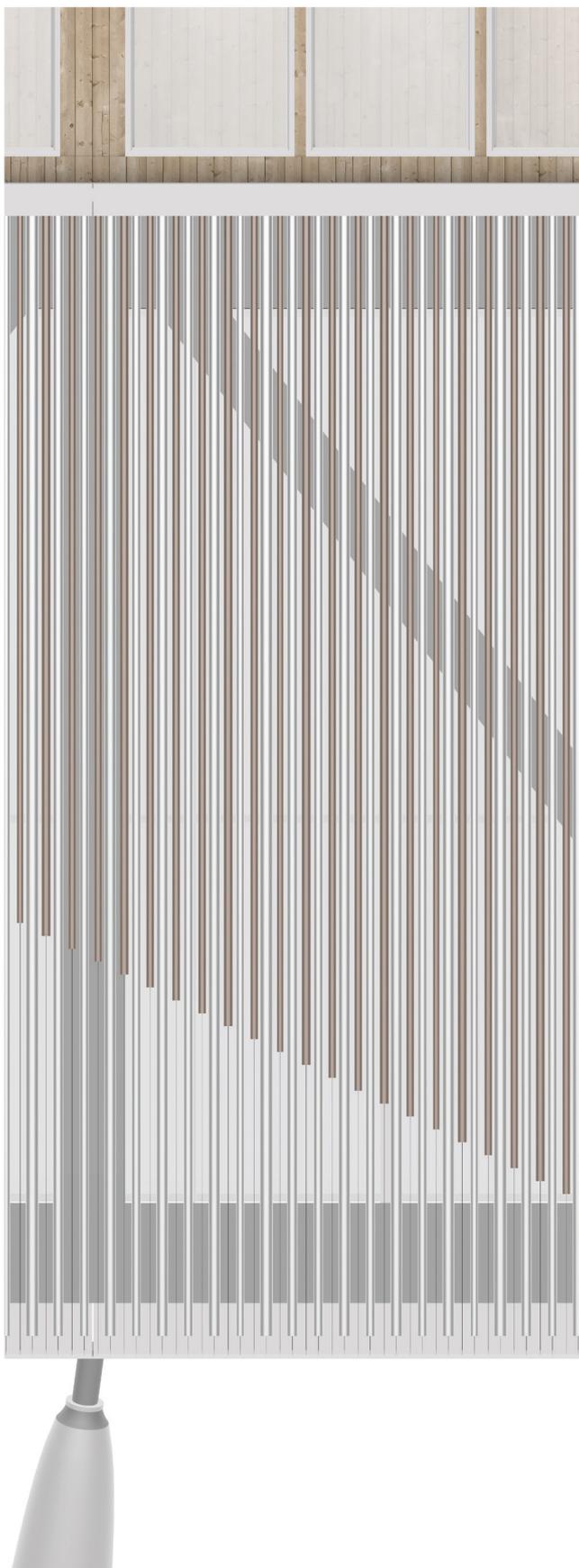


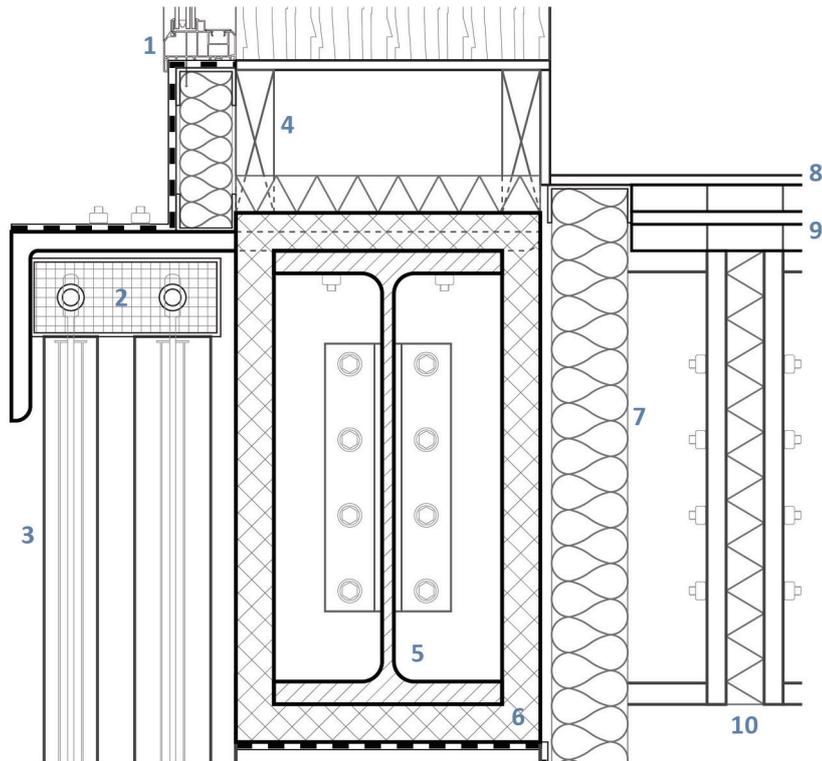


DETAIL C

- 1 Single Layer Solar Heat Pipe
- 2 Guided Cable
- 3 Anodized Steel Noise Barrier
- 4 Waterproof Membrane
- 5 Rigid Insulation
- 6 HEB 500 Steel Beam
- 7 15 mm Hardwood Flooring
- 8 Underfloor Heating Pipes
- 9 Adjustable Pedestal
- 10 Mineral Wool Insulation
- 11 139 V Cross Laminted Timber Panel

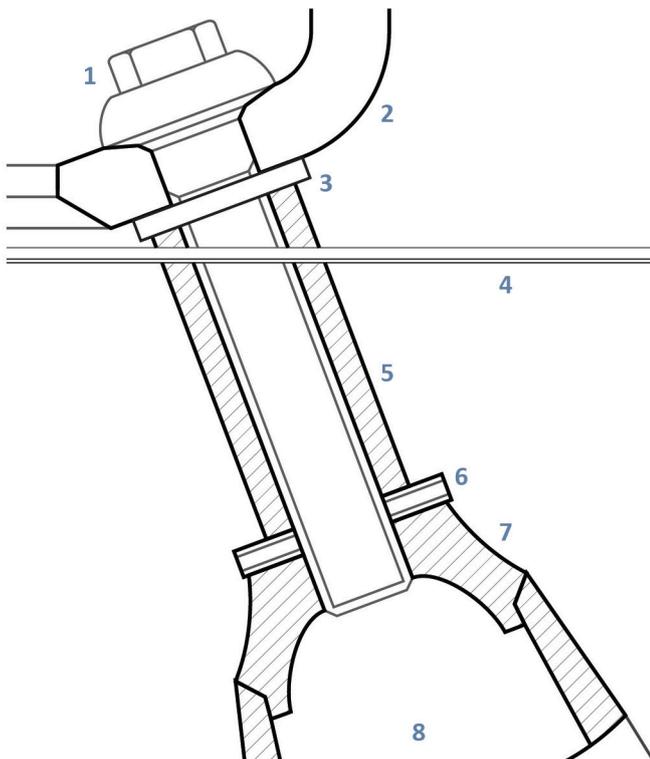
DETAIL





DETAIL D

- 1 Double Glazed Aluminium Window
- 2 Heat Exchanger
- 3 Double Layer Solar Heat Pipe
- 4 Internal Sill Lining Support Block
- 5 HEB 600 Steel Beam
- 6 Fire Protection
- 7 HEB 260 Steel Beam
- 8 Cement Screed Floor Finish
- 9 87 V Cross Laminted Timber Panel
- 10 Structural Thermal Break



DETAIL E

- 1 Bolt Fixing
- 2 Node
- 3 Plastic Separation Washer
- 4 Aluminium Suspended Ceiling
- 5 Sleeve
- 6 Bolt Stopper
- 7 End Cone
- 8 Stainless Steel Pipe



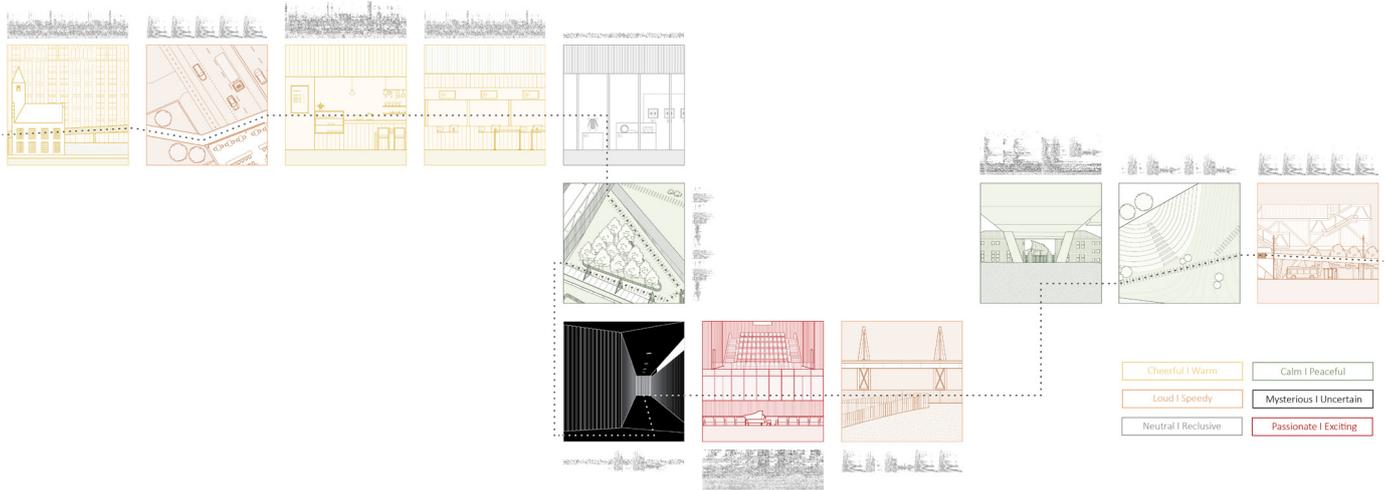
G. FINAL REFLECTION

MUSICAL BINCKCROSS

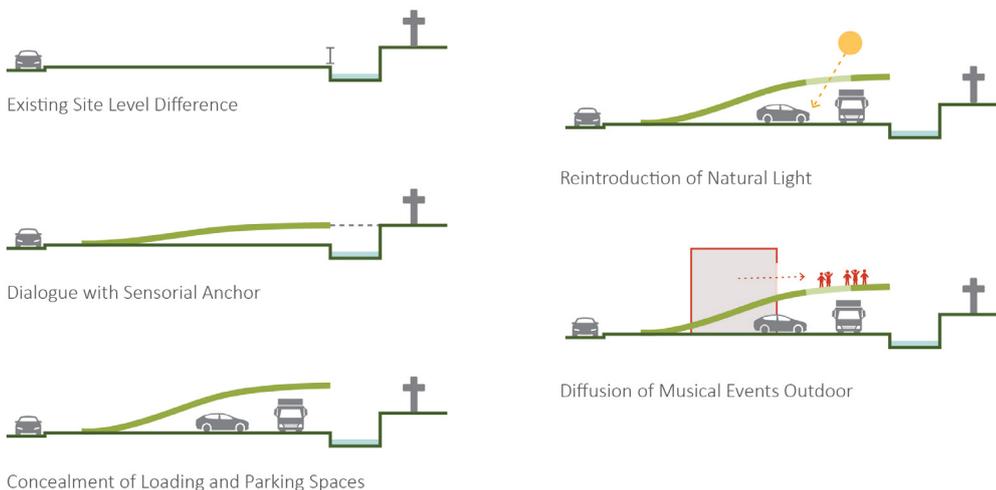
Shing Yat Tam Samuel



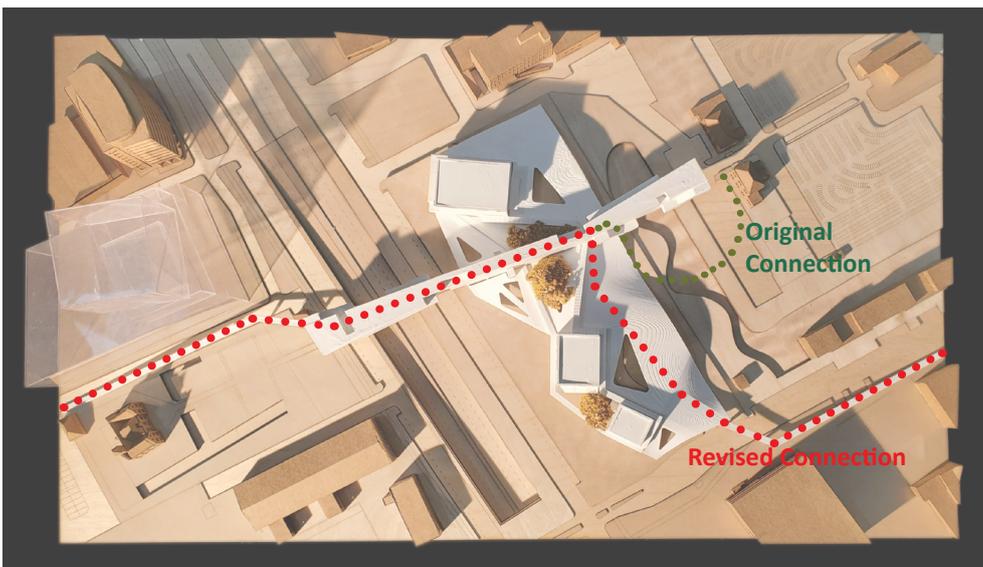
First I would like to reflect upon "how" and "why". Since P1, I approached the project from an experiential perspective, which involved a sequencing of atmospheres, activities and programmes. The specificity of each processional sequence begets different patterns and hierarchies of movement, which eventually gave rise to the cruciform of the musical complex. In this process, I referenced Bernard Tshumi's Manhattan transcripts and studied the colors of spaces along with their atmospheric implications from the lens of a filmmaker. Yet as opposed to only paying attention to what one can see, both the visual and sonic dimension of architecture were taken into account. This provides me with a useful rationale to decide on the placement of the buildings and walkways across the site, while hinting at the openness of spaces.



At P2, the critics commented on the possibility of exploiting the landscape as a driving force for the design, given the subtle height difference between the site and the cemetery unbeknownst to most visitors. This led to the development of an artificial landscape which could respond to this specific physical condition and conceptually reconcile the displaced levels. Initially I found it hard to further justify its existence. However, having reconsidered the question with the notion of multiplicity in mind, I believe I found the answer. The introduced shell structure can serve to conceal the loading activities and car parks at the back of the concert halls. What's more, it facilitates the diffusion of musical events from the building to the outside, which corresponds to one of the main intents of the project. Meanwhile, I have been urged to rethink the middle entrance of the public corridor floating above the concert hall loop, which was originally accessed by escalators. The landscape therefore become an opportunity for a more exciting entry experience and later functions as an extension of the bridge.

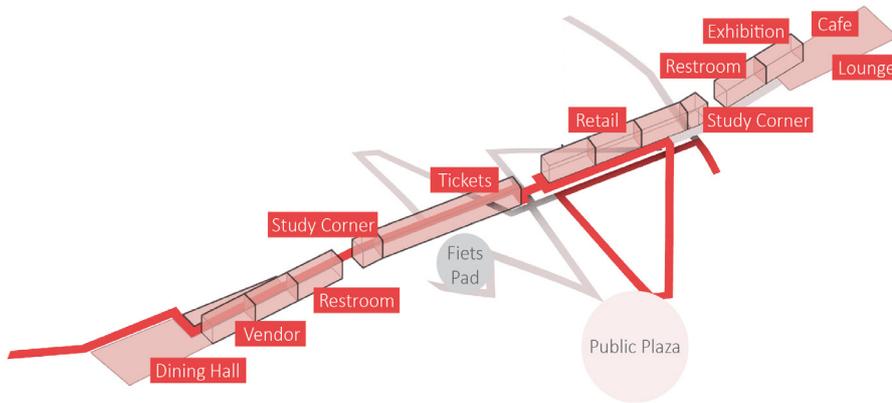


Another recurring question that my project has received concerns the use of the public corridor. According to the initial concept, the public corridor serves to frame the two landmarks of Binckhorst and House Amenities that complement the music-related functions, such as food courts, box offices, bookstores and restrooms. However, there are doubts about who is going to visit it and how it is accessed. The prime target users are of course the concertgoers, parents and students of the music school. Still, they don't seem to be sufficient enough to justify the creation of the public route. As a result, in later schemes I added extensions at two ends of the corridor which are connected directly to the Binck City Park and the Saint Barbara Cemetery. With that both the future residents of Binckhorst and the cemetery users also become potential users of the public corridor. Nevertheless, after more careful consideration, I realized people do not have the incentive to cross from Binck City Park to the cemetery on a daily basis. It also does not make sense to introduce a lot of visitors to the quiet precinct. Subsequently, while maintaining the connection to the Binck City Park, I gave up the idea of connecting directly to the cemetery, but rather shifting the focus to strengthening the public building's connection to de Nieuwe Hallen. Since it is another proposed new development site which consists of a considerable number of creative industries, offices and housing units, there is higher possibility that residents of Binckhorst will use the bridge whenever they want to traverse from the western residential area to the eastern work zone across the Binckhorstlaan. This commute across the busy traffic is also achieved with the aid of the artificial landscape.



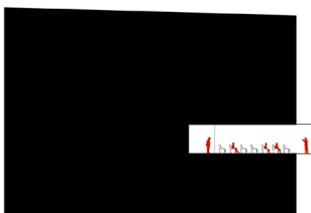
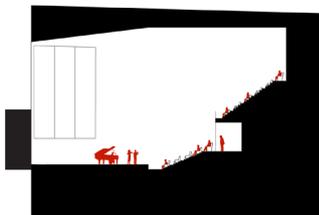
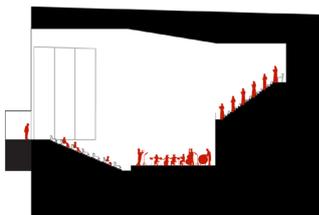
The question of why is also important for the design of public corridor. At one point the programmes along the public corridor brought the notion of density into the limelight. Critics asked if there really is a need for those non-music related activities to exist, and if I intend to instrumentalize the densification of programmes to attract more people. As I see it, the programmes I deployed are essential because they are a part of the concert experience. For example, people may want food replenishments before or after listening to music. Functionally speaking, the lounge pertains to parents who are waiting for their kids to finish their courses, and the presence of the exhibition gallery complements the music school as an imparter of knowledge. In other words, visitors climb the bridge because of their inherent reasons, but their journey will be spiced up thanks to these auxiliary programmes.

I believe my Music Marvel should not simply consist of a concert hall and a grand staircase or ramp leading to that main space. On the contrary, it is an elaborate route which alternates between the "secular" and the "divine", indoor and outdoor, as well as active and rest, with different programmes being one of the placemakers. That being said, during the rationalization of the bridge's programmatic structure, I have learnt to address the issue in terms of modalities, considering what kind of target groups will use the public corridor during different times of the day or different days of the week. This allows me to figure out how to fully activate a public space and make sure it will be fully utilized upon its opening.



As I dug deeper into the technical aspects of the design, I discovered that multiplicity is not necessarily restricted to programme types, people involved and facade expressions. In fact, multiplicity can be achieved through flexible configurations of concert halls, which enables different forms of performances to take place at the same hall at different occasions. In my classical auditorium, the audience seating on the lower level can be flipped, and the upper deck can be converted to a choir stand depending on the genre. It echoes back to my group theory research theme of ephemerality, from that we started to think of ways to experiment with the "change of state" in architecture, be it physically or perceptually.

CLASSICAL AUDITORIUM



Besides, my project embraces multiplicity by hybridizing the building engineering solution for acoustics and thermal control. Throughout the musical complex, metal tubes suspended from the ceiling or attached to the walls form into a common language and yet retain their local specificities. They all share the tubular form on the outside, but differ in their internal structure and hence their performative aspects. At locations prone to solar radiation, they function as solar heat pipes. Whereas installed inside the concert halls or next to busy traffic they are refit as sound barriers capable of absorbing and deflecting music or noise.

Recycled Metal Tubing



Opaque Casing

Type 1 Sound Barrier



Perforated Casing + Glasswool Infill + Opaque Casing

Type 2 Solar Heat Pipe



Opaque Casing + Wick + Vapor Cavity

For the upcoming P4 presentation, I will mainly use drawings and diagrams to explain the project. After P4, a 1:200 model will be constructed to represent the spatial, material and programmatic composition of the building along the site. More renderings of eye level views will be produced to deliver a sense of spatial immersion.