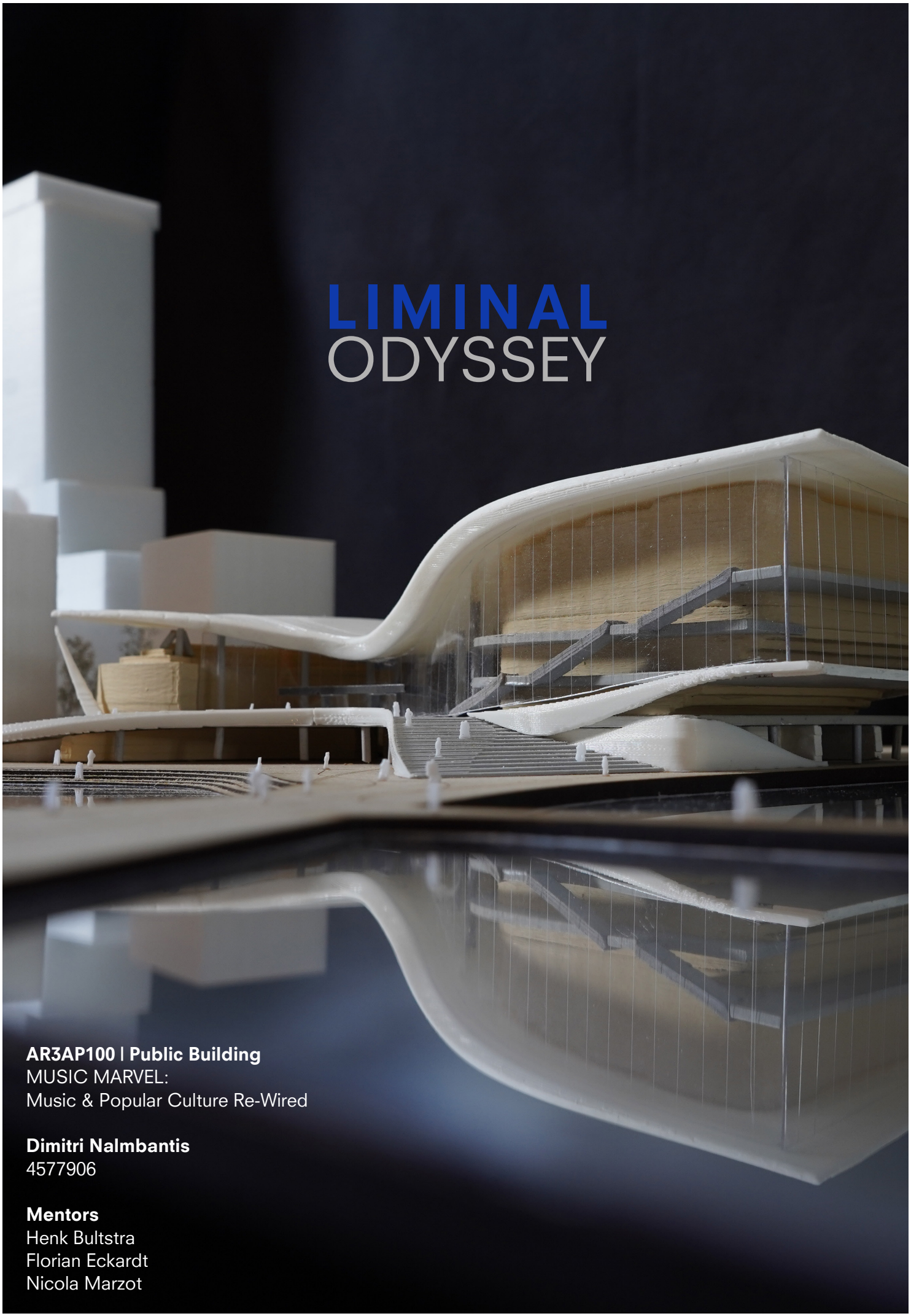
LIMINAL
ODYSSEY



AR3AP100 | Public Building
MUSIC MARVEL:
Music & Popular Culture Re-Wired

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Mentors
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Graduation Report by Dimitri Nalmbantis, 4577906
Graduation Studio 2021/22.

Course Code
AR3AP100 Music Marvel: Music & Popular Culture Re-Wired

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GRADUATION PLAN

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	Dimitri Nalmbantis
Student number	4577906

Studio		
Name / Theme	Public Building / Music Marvel	
Main mentor	Henk Bultstra	Architecture
Second mentor	Florian Eckardt	Building Technology
Third mentor	Nicola Marzot	Research
Argumentation of choice of the studio	First of all, I was interested in the studio because public buildings have a huge impact on the use and character of a place. Therefore, doing a graduation thesis on public buildings, will allow me to explore new possibilities on how to connect people with the city and culture. The contrast between the daily life and the musical experience inspired me to apply for the studio and study the fluidity in between.	

Graduation project	
Title of the graduation project	A Liminal Odyssey (Architecture as a Transitional Sequence and Catalyst)
Goal	
Location:	Binckhorst, The Hague, The Netherlands
The posed problem,	In the near future, the industrial Binckhorst will become a residential area. However, it's surrounded by many barriers and therefore forms an island within the city. The masterplan shows sky high ambitions, with lots skyscrapers, but a main public function as a crown on the developments is still missing. Building a music venue near one of the borders of the Binckhorst can leverage activity into the site, forcing a connection. Likewise, achitecture of public buildings nowadays focusses on easy accessibility as a key strategy to connect. But, as a result musical buildings lack attention on the experience. There is no conscious transition in liminal space that allows the visitor to escape from the profane state in the city to the sacred state within the music hall. Therefore, the music building for Binckhorst should consider an approach based on liminality, which will not only enhance the architectural experience of the sequence to music, but also the 'facade' of the Binckhorst area.
research questions and	**Main question:** How can an architectural route based on theories of liminality enhance the sense of escaping? **Sub questions:** Why is escapism important for the visitor and the implementation in architecture? How does the sequence of liminality in rites of passage unfold? How can both liminality and escapism be translated into architectural elements?
design assignment in which these result.	The objective is to determine a sequence of stages with a set of spatial and temporal requirements in order to acquire a standard which can be used for future route design in buildings for audio (and visual) entertainment to transition between the state of the profane and the sacred through public space.

Process
Method description
1. Literature research will be conducted for understanding the themes of liminality and escapism. Liminality will provide the conclusions on different stages - separation, transition and incorporation – and escapism will give design parameters to take into consideration. Since these fields of research originate from psychosocial and ethnographic disciplines, their application in architectural literature was limited and case studies will be needed to translate the information into design input.

2. Case studies will be used to translate the design parameters from the non-architectural sources into design tools that are architectural. Aspects that will be analysed are: three phases of liminality, duration of event / space, speed of movement, light / darkness, materiality, relation inside / outside and (dis)orientation. This will allow me to understand the tools of route design and how the sequence forms a narrative for the visitor.

3. Field research analysing the design site already from outside the Binckhorst, helps to identify the issues created by the surrounding thresholds. How will the building act as a catalyst, and how will this change the perception of the future Binckhorst or perhaps even The Hague?

Literature and general practical preference

Literature (most important sources are highlighted):

Adams, M. & Guy, S. (2007) Editorial: Senses and the City, The Senses and Society, 2:2, 133-136, DOI: 10.2752/174589307X203047

Andrade, I., Dorneles, V., & Ely, V. H. M. B. (2012). Accessibility for all: going from theory to practice. *Work, 41*, 3840–3846. https://doi.org/10.3233/wor-2012-0687-3840

Bostan, B. (2020). *Game User Experience And Player-Centered Design*. https://doi.org/10.1007/978-3-030-37643-7

Choi, E., & Trotter, M. (2017). *Architecture Is All Over*. New York, United States: Columbia Books on Architecture and the City.

Cox, C., & Warner, D. (2017). *Audio Culture* (Revised edition). New York, USA: Bloomsbury Academic.

Dollinger, S. J. (1993). Research Note: *Personality and Music Preference: Extraversion and Excitement Seeking or Openness to Experience?. Psychology of Music*, 21(1), 73–77. doi:10.1177/030573569302100105

Downey, D., Kinane, I., & Parker, E. (2018). *Landscapes of Liminality*. London, United Kingdom: Rowman & Littlefield International.

van Gennep, A. (1960). *The Rites of Passage*. Chicago, United States: The University of Chicago Press.

Gulati, P. (2020, August 20). Escapism And Introverted Architecture. Retrieved 20 November 2021, from https://www.bssaeditorial.com/post/escapism-and-introverted-architecture

Hara, N. R. (2015). Architecture as liminal space. *In_bo*, 3. Published.

Tschumi, B. (1977). The Pleasure of Architecture. *Architectural Design*, 47(3), 214–218. Retrieved from http://media.crossfit.com/cf-video/Tschumi_PA_excerpts.pdf

Tuan, Y. (2000). *Escapism* (New edition). Amsterdam, Netherlands: Amsterdam University Press.

Tuan, Y. (2001). *Space and Place: The Perspective of Experience* (Vol. 8). Minneapolis, United States: University of Minnesota Press.

Zimmerman, P. T. (2008, May). *Liminal Space in Architecture: Threshold and Transition*. Knoxville, United States: University of Tennessee.

Smith, A., & von Krogh Strand, I. (2011). Oslo's new Opera House: Cultural flagship, regeneration tool or destination icon? *European Urban and Regional Studies*, 18(1), 93–110. https://doi.org/10.1177/0969776410382595

Stenner, P. (2017). *Liminality and Experience*. https://doi.org/10.1057/978-1-137-27211-9

Case studies:

Frank Lloyd Wright (1959). Guggenheim. New York, USA

Herzog & De Meuron (2017). Elbphilharmonie. Hamburg, Germany

Jean Nouvel (2017). Louvre. Abu Dhabi, UAE

Neutelings Riedijk (2011). MAS. Antwerp, Belgium

NL Architects (2019). Forum. Groningen, Netherlands

OMA (2020). Museum Boola Bardip. Perth, Australia

Peter Zumthor (2011). Serpentine Pavilion. London, UK

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 goal of the project is to understand the true position of a music venue within the city as a temporal escape from the daily routine. For the total field of the built environment, it will be important for it to both function as a catalyst for development but simultaneously still function as a musical escape for the public.

2. What is the relevance of your graduation work in the larger social, professional and scientific framework.
   For the discipline of architecture, exploring the field of liminality and escapism to understand what the possibilities are to get the most out of the experience for its visitors is key. Because there is also a psychological importance to the theme of escapism, understanding human behaviour, escapism and designing buildings

accordingly can contribute to human well-being, since it has the potential to reduce stress levels. Therefore, the result of the research and even the design itself can become a reference for future designs of cultural buildings like cinema's, museums and in particular music venues.

ABSTRACT

ATTENTION TO LIMINALITY

In the design of public buildings, there's always a degree of transposition in the experience of a visitor, a passage between the public realm and the specific main function of the building. In anthropological terms this can be referred to as liminality, a state of transition between two stages. Throughout the past, designers have established different architectural philosophies that intentionally or unintentionally influenced this notion. An early key development appeared in the 19th century, when squares and boulevards emerged around theatres. They became extensions to the ritual of attending a concert / play since they were arranged with cafés and restaurants. The wide sidewalks were also intended for big crowds to stroll around as flâneurs. On the interior side, majestic designs of lobbies and theatres were packed with detail and made the visitor feel in a totally different world detached from the city life (NOS, 2021).

Today in architecture, spatial accessibility appears to be a key design philosophy concerning liminality (Andrade, Dorneles, & Ely, 2012). Public buildings and master plans are frequently about making the shortest and most economical connections. Easy access, not only into the building but also into the main function, stimulates participation, and thus regenerates the urban surroundings (Smith & von Krogh Strand, 2011). This is an ideology that emerges out of practical thinking.

However in the design of a music building, an experience is not only part of the practical, it is also part of the pleasure. People visit a music building to emerge in the art, yet they are thrown right into a concert hall without consciously making a transition. This is not necessarily unacceptable, but it gives insight into a missed opportunity.

Escapism is the tendency to leave or mask an unsuitable condition, and enter a pleasing situation (Tuan, 2000). If one can mentally let go of the daily routine and its corresponding senses within the liminality of an architectural route, how will this increase their experience of exploring new senses towards and within the music hall? A journey that can best be described as an odyssey: ''*a long wandering or voyage usually marked by many changes of fortune*" (Merriam Webster, n.d.).
The research will focus on the following question: *How can an architectural route based on theories of liminality enhance the sense of escaping?*

Architecture rarely reaches a state of pleasure without seduction, or seduction without illusion (Tschumi, 1977). A building is a seducer, constantly disguised behind a mask. Hence, it generates tension to discover what kind of reality it hides on the inside. Tuan describes a disguise in his definition of escapism in the opposite way (2000). He states that the feeling of escapism masks the perception towards the unwanted reality. Therefore, the architecture of escapism should be achieved as an intermediate of concealing and seducing. When translated to a music venue, the transition between the public realm and the music hall can be considered as a liminal space in the middle of the 'profane' and the 'sacred' (van Gennep, 1960).

To achieve the sense of transitioning for the visitor, three steps are crucial to be designed inbetween the city and the music hall: *separation*, *transition* and *incorporation*. In the separation phase one departs from the city through a puncture in the grid, a passage, or a stair bringing the visitor to a higher elevation. Transition forms then the interior. Determined by the foyer and other internal routes. Finally, the incorporation phase allows visitors to anticipate already the musical activity. Some of the techniques used to achieve this are: layering phases, blurring visual relations, camouflage and deformation.

(For notational system, see appendix 1)

MANIFESTO

A JOURNEY TO A DEEPER MEANING

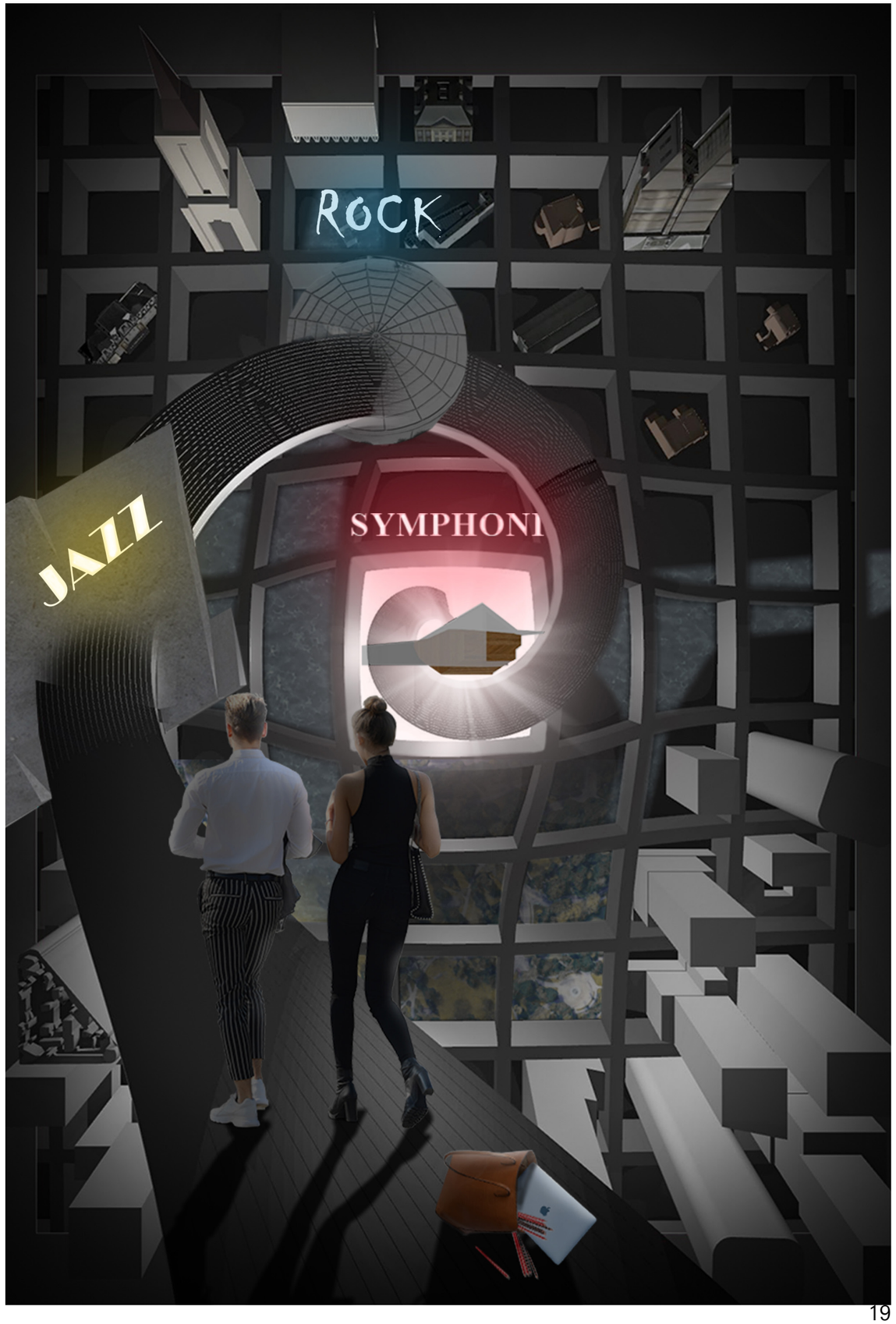
The music marvel will be placed at the border of the Binckhorst. However, the new Binckhorst and the older surroundings, are all surrounded by elements of organisation, like infrastructure. They create the grid of the city, which organises the elements so they can retain their architectural and functional differences. But it's within this transitional location that has the potential to manipulate the grid and create something magical within: music.

People attend a concert to enjoy something sacred, escaping their daily lifes. It will take a route to the music hall, because sequence can change ones perception. Hence, the two people in the drawing are walking through this sometimes disorienting route, dropping behind their daily lifes. The metaphor for this is the working bag. Laptop and pencils fell out of the bag and are left carelessly, highlighting the urge for music as they pass through the grid - which also resembles mental constraints - in search for a deeper meaning. The music types are placed in sequence along the route based on personality traits.

Jazz, based on the personality of extraversion forms the plinth of the structure. It is the continuation of the grid, because if you want to pass through a grid, it should be there first. A plinth has the most connection with the surroundings.

Rock, based on excitement, will be placed in the old silo. Reusing old buildings gives a magical atmosphere that creates excitement.

Finally, the symphonic hall will be based on experience. Hanging over the waterfront, it forms the landmark of the site. The route starts at a semi transparant facade, revealing the monumental hall on the inside and the surrounding stairs and balcony's in a vague manner. At the overhang towards the water, the facade is made of clear glass towards the views over the distance.



DESIGN BRIEF

BINCKPHILHARMONIE
THE HAGUE

Areas	Area Sqm	Percentage
Public Program	**2675**	**20%**
foyer	1810	
toilets	296	
exhibition space	569	
Jazz Cafe	**692**	**5%**
Jazz cafe (incl. bar)	581	4%
kitchen	51	
dressing room	60	
Rock Hall	**1399**	**11%**
rock hall	750	6%
toilets rock hall	70	
wardrobe	69	
backstage + loading bay	400	
dressing rooms	110	
Symphonic Hall	**3028**	**23%**
symphonic hall	1401	11%
wardrobe	185	
backstage + loading bay	390	
dressing rooms small	150	
dressing rooms small	96	
dressing rooms large	360	
back of the house	18	
artists lounge	205	
rehearsal hall	170	
film studio	33	
recording studio	20	
Residual Areas	**5305**	**40%**
circulation	2920	
emergency routes	92	
first aid	103	
offices	510	
storages	310	
toilets private	62	
security	31	
technical spaces	1277	
Parking Areas	**2868**	
public bike parking	1228	
private car parking	1640	
Total Area	**15967**	
Total Area (ex. parking)	**13099**	**100%**
Total Music Hall Area	2732	21%

The program of the building is based on a mix of three different musical styles: jazz, rock and symphonic The total music hall area is about 21%, which is about the same efficiency as Tivoli Vredenburg in Utrecht. This comparison makes sense, since both are a multi genre music building including a symphonic vineyard hall, jazz café and amplified hall.

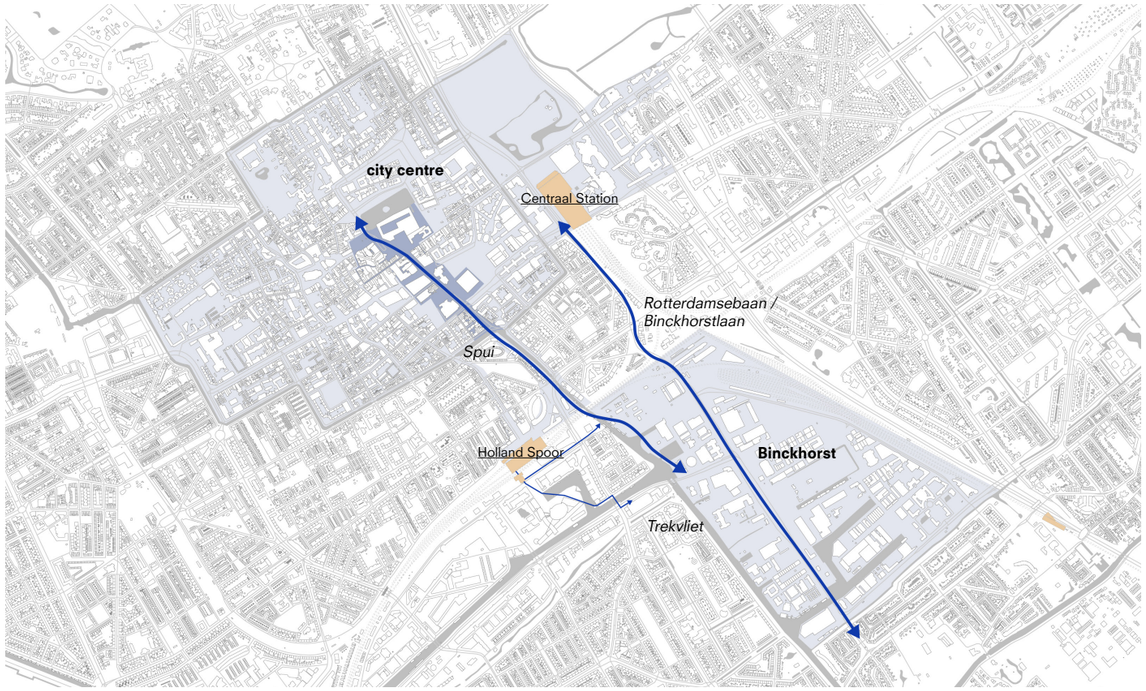
The graduation project title is called “Liminal Odyssey” (referring to the theoretical connection), while the building itself is called “Binck Philharmonie”.

PROCESS DOCUMENTATION

INDIVIDUAL RESEARCH

INTRODUCTION TO BINCKHORST

The design location Binckhorst is quite a strange area. It is an industrial site, located right next to the city centre. In the past this made sense when Binckhorst was outside the boundaries of the city's built environment. However, nowadays it is completely surrounded by housing neighbourhoods. As a result, Binckhorst sits in the city as a unwanted enclave.



Binckhorst is a 10 minute walk from the two intercity stations Den Haag Centraal and Den Haag Holland Spoor. Its only connections to the city centre right now are the Rotterdamsebaan which turns into the Binckhorstlaan, and the Spui. Both of these streets are completely different from eachother. Rotterdamsebaan is solely focused on traffic, while the Spui originates in the heart of the city centre and is constantly surrounded by lots of activities and important functions. This however stops at the Binckhorst.

former gas silo

former machine hall

lots of private areas

graffiti and trash

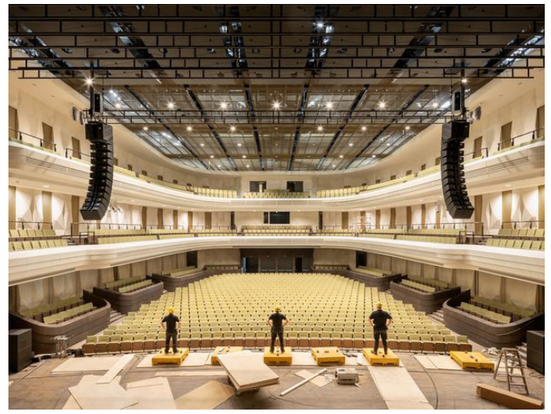
waste facility

Rotterdamsebaan tunnel

SECTION ALONG THE SPUI

If you draw a section along the Spui, you could clearly see the change in image between the Binckhorst and the city centre. The municipality wants to build skyscrapers in the Binckhorst as a result of urban densification and a housing crisis. The quality of these skyscrapers would be based on so-called hoogstedelijk wonen, which means living with the qualities of a city centre. However, as it is visible in the section, there do not seem to be any central qualities to the Binckhorst. Skyscrapers are merely houses, a city centre should be defined by more than that. The city centre has a parliament, the town hall, a brand new music building (Amare), lots of shops and restaurant. So what would the Binckhorst need to become a part of the centre?

Amare exterior



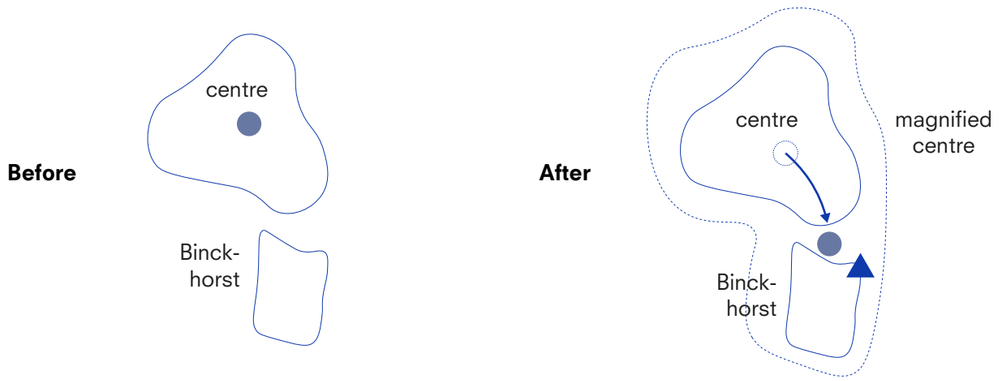
Amare interior

The Hague Centre

Binckhorst

THE MAGNIFIER EFFECT

Cities like Hamburg, Oslo and Reijkjavik all have constructed an iconic music building in order to redevelop a part of the city, and hence be put on the map with a world class music venue. How does this affect the site? These music buildings have functional, architectural and public weight. As a result they can leverage the centre of gravity of the city more towards the developed area. As a result, more activity will flow to the site. This effect can be called a catalyst for urban development. However, there is more to the catalyst. Because more people and activities will flow to the developed area, it will merge with the city centre and its activity. As a result, the size of the city centre will magnify. Take Oslo, where the developed Bjørvika district after the Opera House also becomes part of the city centre with the new city's library and the Munch Museum.



What is the quality of these areas without the music venue?

Understanding the effect of a magnifier

Hamburg *2000*

Now

Oslo *2007*

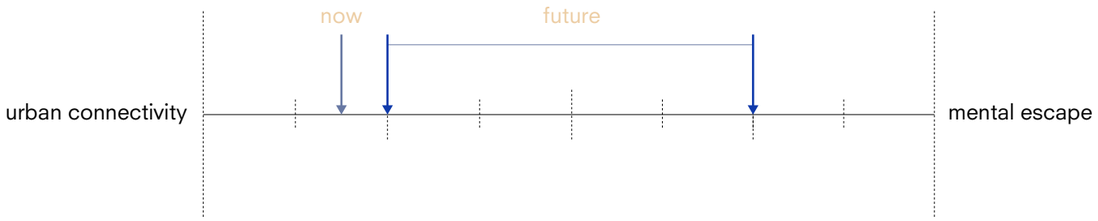
Now

Reijkjavik *2004*

Now

THE ESCAPISM PARADOX

The true function of music often gets forgotten in the architectural design of music buildings. Going to a concert is for all people an escape from the routines of daily life. However, most music buildings nowadays do not consider this, and the contrary happens to connect to an urban setting. Take for instance Amare, which fits within the grid of the city and feels like an office building. On the other hand, the more you want to escape mentally, the less connected the building becomes with the urban setting. Therefore, it is paramount to find a way to design in the future that will both implement a sense of escapism and keep the qualities of an urban catalyst. To achieve this, the building's character would need to change along the route of a visitor: from an extroverted urban landmark, to a introverted music building.

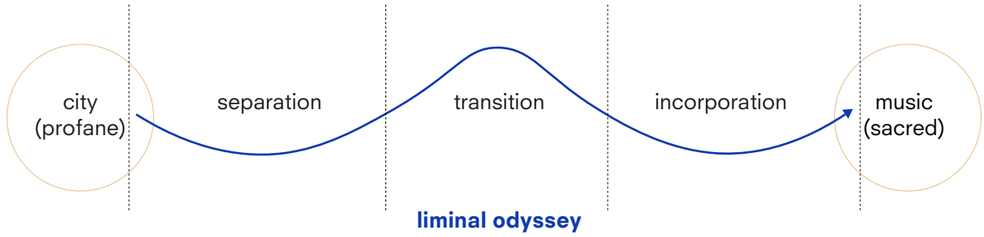


What if a music building can be both?

It would take a a change from an extroverted icon to an introverted oasis

RITES OF PASSAGE

Rites of Passage by Arnold van Gennep give insight in what this change along the route should be based on in terms of mental processes. He stated that the point of departure can be seen as a profane state and the destination as a sacred state. Inbetween, a person passes through three stages. In the separation phase a person is forced to leave the old situation and routine behind. During transition, a predetermined sequence as the middle of the ritual follows. Finally, incorporation is anticipating the identity of the new based situation. To set parallels between the theory and architecture, the city should be considered as profane and the music hall as sacred.



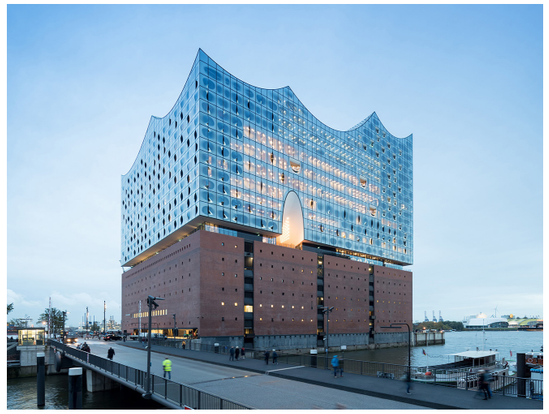
liminal: *adjective* | lim·i·nal | being an intermediate state, phase, or condition

odyssey: *noun* | od·ys·sey | an intellectual or spiritual wandering or quest

CASE STUDY DESIGN TOOLS

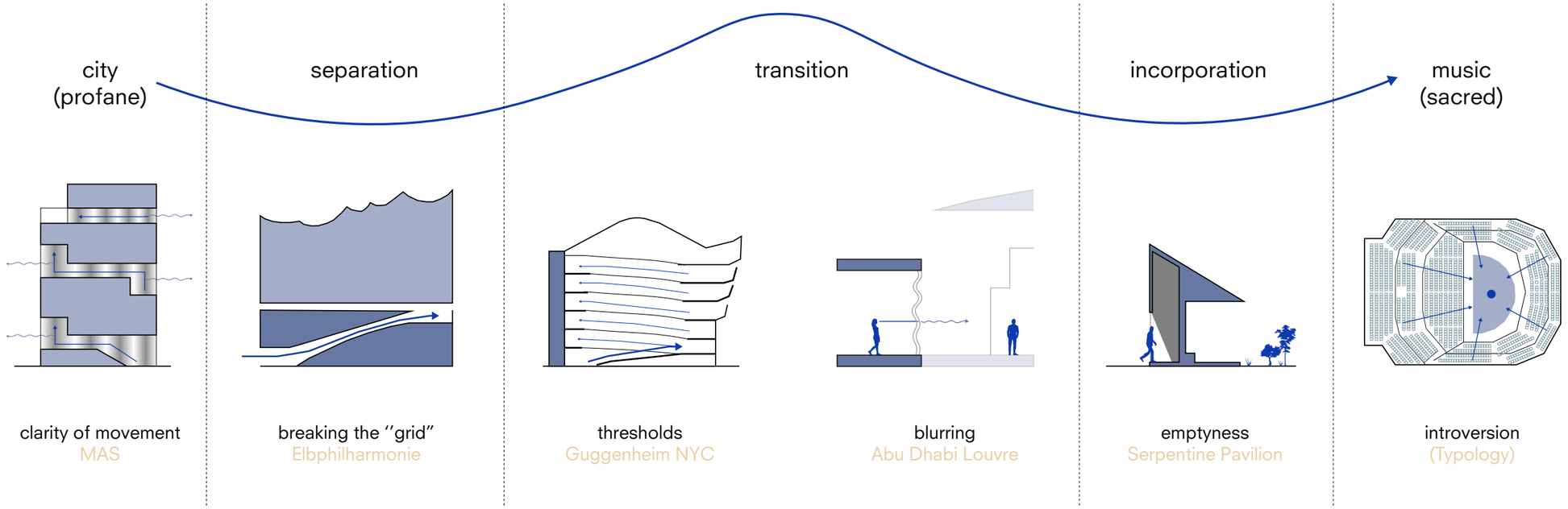
These three phases of liminality are based on a transition in the mind. It describes mental processes of a ritual. To translate these mental processes into architecture, a case study analysis has been conducted. Not only did it focus on music buildings, but also on other building types where the sequence of routing matters.

Next to the three phases, there should also be interest in the states of profane and sacred, since architectural experience already starts by seeing the building from a distance and does not stop when the concert inside the hall finsihes.



Elbphilharmonie escalator

Serpentine Pavilion Zumthor



CASE STUDY DESIGN TOOLS

The composition of masses and voids in the MAS clearly show the routing through the building. This makes visitors want to go through the building. Tuan explains in his book on escapism that lucidity is crucial, otherwise the ritual would not be understood (2000).

The Elbphilharmonie routing starts with a three minute long escalator ride from the street level up to the foyer. This escalator goes right through an old harbour shed. This old building is nested in the site not only physically but also historically, it belongs to the harbour. By going through this building with an escalator ride to the more modern foyer on top, the visitor gets separated from the site. It breaks through the organisational rules of the site; it breaks through the grid.

The NYC Guggenheim by Frank Lloyd Wright is a constant threshold based on a spiral shape. Visitors have to endeavour the ramp, which makes the heartbeat rise. Meanwhile, they lose track of their orientation due to the rotations they have made.

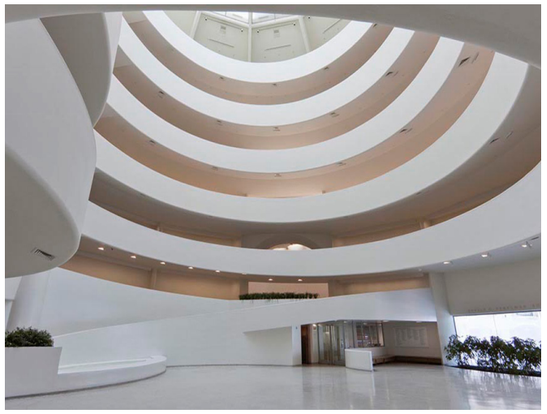
Abu Dhabi Louvre makes use of semi-transparant curtains in the exhibition spaces. This creates a tension between the exterior and the interior. Tschumi states that a building rarely reaches a state of pleasure without seduction (1977). Tuan on the other hand states that escapism is about masking the unwanted reality (2000). Hence, the architecture of escapism should be achieved as an intermediate of concealing and seducing.

The Serpentine Pavilion by Zumthor makes use of a dark space as an incorporation to the middle garden. It's a final threshold; a mental reset.

The music hall typology should also foster a sense of escapism. Visitors will be spending most of the time in this space after all.

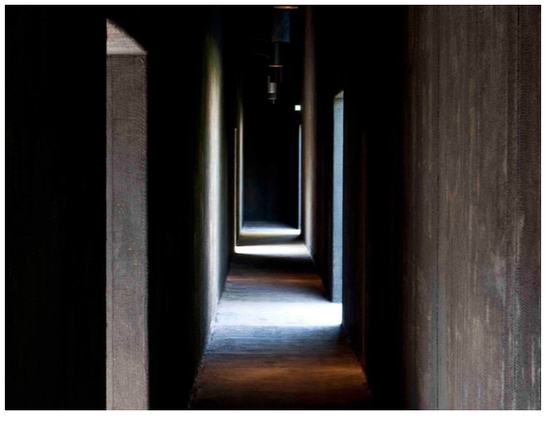
MAS Antwerp

Elbphilharmonie escalator



NYC Guggenheim

Abu Dhabi Louvre



Serpentine Pavilion Zumthor

music hall

CASE STUDY DESIGN TOOLS

The full case study analysis conducted in the matrix.

Design parameters	**Abu Dhabi Louvre** by Jean Nouvel	**Elbphilharmonie** by Herzog & De Meuron	**Museum Boola Bardip** by OMA
Separation / transition / incorporation	separation: canopy transition: atomization route incorporation: (semi) transparant views	separation: layering contrast old and new. escalator ride cutting through old transition: white cuts through void incorporation: stairs?	separation: layering contrast old and new. Moving upwards is a threshold, hence it will make the separation a conscious step. transition: - incorporation: -
Speed of movement / duration of event or space	Slow around exhibition spaces	escalator is standing still, takes 2-3 minutes. Lobby to hall takes a couple stairs.	-
Relation inside / outside	(semi transparant) windows used every now and then to gradually anticipate incorporation	viewpoint square halfway in transition space. Windows have a vignetting effect.	-
Orientation / disorientation	zigzag and uniformity of squares causes disorientation. Orientation comes only at the final square again	no disorientation, only orientation	-
Light / dark	light spaces followed by dark spaces followed by light again. But this is because of the exhibitions mostly	the liminal spaces are always light. Especially around the music hall	-
Materiality	simple, heavy, light	heavy brick below as the old glass / reflective on top	heavy brick below as the old semi transparant / blurred on top

Serpentine Pavilion by Peter Zumthor	**Guggenheim New York** by Frank Lloyd Wright	**MAS Antwerp** by Neutelings Riedijk	**Forun Groningen** by NL Architects
separation: small inclining ramp transition: dark room, zig zag incorporation: canopy The phases are all layered	separation: a stair on the bottom, creating a threshold transition: the spiral ramp causes a disorientation. It also forces you to be consciously active all the time because the inclination does not feel like a natural position incorporation: side coves as mini squares for the portrayed art	separation: because the building is in the middle of a lake, separation takes place already on the dock in front transition: disorientation, a constant repetition of escalator, square, view incorporation: doors to the exhibition halls	separation: not really something visible. Probably they designed the threshold as low as possible to allow people in. transition: staircase atrium with constant views over the city incorporation: squares in front of the functional spaces
fast in the surroundings, slow in the dark transitional room, but also the urge to go faster because of fear of the dark. Still in the green atrium admiring whats there.	slower speed at the stair in the separation, walking up the stair causes the heartbeat to increase. Then the speed becomes constant in the ramp over the entire route, enhancing the disorientation into multiple senses.	the building aims for a similar approach as the Guggenheim. The journey upward is to be as uniform as possible. However, in the MAS, uniformity is created throughout rhythm and repetition. Escalator - square - view - escalator...	the escalators here can be seen as a fast movement, while the squares in between can be seen as slow paced movement spaces.
the only relation between the inside and the outside can be experienced in the transitional corridor. Here you can see the light coming from the atrium and from the park. Because it is zig zag, there is never a direct relationship.	on the ground floor square you can see the outside. But once you're in the spiral you can only see the light coming from the sky.	The constant view to the outside however changes, because with every rotation upward, you have gained some stories of height. As a result your perspective of the city changes gradually almost even without noticing. A rooftop viewpoint is the ultimate space.	From the outside the atrium/liminal space is visible in the facade, which creates lucidity for visitors entering the building. From the inside, the views over the city make you want to go higher.
disorientation due to simplification of the shape, all sides are equal	disorientation through constant speed of movement, repetition, spiral shape. Not only disorientation of direction, but also of height and walked distance.	the spiral route with lots of views creates dissorientation from the human perspective of the city. But it increases orientation of the city on the bigger scale.	Because all the movement goes through the atrium with its cuts on both ends, it is relatively easy to orient yourself.
llight influences the peoples'movement to the different realms	disorientation through constant speed of movement, repetition, spiral shape. Not only disorientation of direction, but also of height and walked distance.	The route is constantly lit by outdoor light. The exhibition spaces are all in the centre, and are therefore dark.	Atrium and route are constantly lit, no differentiation in the route. From bottom to top, it feels the same.
dark wood or concrete, the simplistic shapes help to constantly frame the nature, the sky, but also sounds. Simplicity helps to focus and forget.	one color stucco material creates the illusion of being in one entity, enhancing the disorientation. This is all done to perceive the artworks and forget about the rest.	Material is constant over the outside as well as on the inside. It's a rock like facade panel, contrasting with the light glass structure, which is curved glass. The facade panels form also the floor, ceiling and the dock/bridge going to the land.	Like the Guggenheim, it has white cladding or stucco everywhere, putting more emphasis on the outdoor view.

WHY AND WHAT IN BINCKHORST?

Earlier in this research, it was discussed that music buildings have the potential to regenarate an area and become an urban icon. So why should this development happen in Binckhorst?

In the Randstad four areas are relatively similar in terms of development from industry to intensive dwelling organisation. The Hague is the only one missing on a unique music venue. Utrecht has Tivoli, Amsterdam and Rotterdam have many. Arguably, Amare is not really on a Randstad scale. Maybe in terms of seating it is, but not in terms of hall type. It's a flat shoebox hall, which is not a unique type. Amare is not the icon for The Hague. It houses music and a music school rather than experience music.

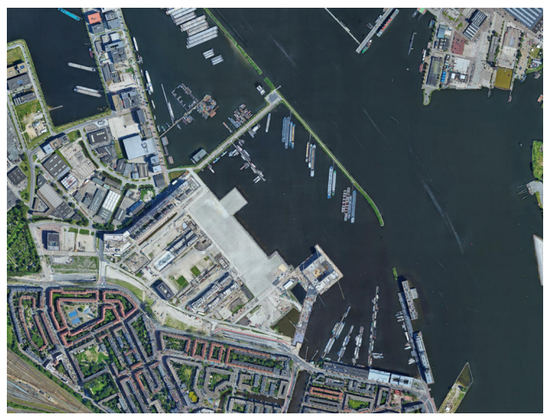
Next to this, the Netherlands does not have a state of the art vineyard type hall yet.

The Hague	**Type**	**Reach of audience**	**Hall type**
Amare	concert hall / theatre	local	shoebox
Koninklijke Schouwburg	theatre	local	
Utrecht			
Tivoli Vredenburg	concert hall / amplified	national	(old) vineyard
Schouwburg	theatre	local	
Beatrix Theater	theatre	national	
Amsterdam			
Muziekgebouw t'IJ	concert hall	national	shoebox
Concertgebouw	concert hall	international	shoebox
Paradiso	concert hall / amplified	national	shoebox
Nationale Opera	theatre / opera	national	
Ziggo Dome	amplified	international	
AFAS Live	amplified	national	
Rotterdam			
De Doelen	concert hall	national	shoebox
Ahoy	amplified	national	
Schouwburg	theatre	local	
Carré	theatre	national	

Binckhorst *Den Haag*

Merwe Vierhavens *Rotterdam*

Cartesiusdriehoek *Utrecht*



Houthavens *Amsterdam*

GENRES AND PERSONALITY

Studies show that musical preference can be linked to personality traits (Dollinger, 1993). The research by Dollinger analyses three types of personality traits in relation to music. These are experience, extraversion and excitement. Everyone escapes their daiy lifes differently, we're not all the same and listen to the same music. Hence, it would be wise for each selected type of genre to take a unique position in relation to the routing and escapism. Because of this personality research, the needs for listeners of a specific genre are layed out for the design.

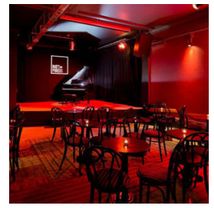
In terms of experience, classical music (symphonic music) has the highest positive correlation. This means that symphonic music could have a longer route, with more stops along the way in the form of bars or views over the city.

	experience (r)	extraversion (r)	excitement (r)
classical	**,49**	,18	,00
jazz	,46	**,35**	,18
popular	-,13	,05	-,01
country	,04	-,09	-,12
rock	,22	,24	**,33**
soul / blues	,35	,19	,16

Music and personality (based on Dollinger, 1993)
r > 0 = positive correlation
r < 0 = negative correlation

Jazz scores highest in extraversion. These people are outgoing looking for social interaction. Positioning this musical type in a place that is accessible and easily reachable for many people, will enhance the amount of social interactions. Besides, this music type can then best be implemented in the form of a jazz cafe, where music goes together with food and drinks.

Rock is all about excitement in the moment. The "soul" of the hall is important here. Think of Paradiso in Amsterdam, where the main hall is inside an old church building. The historic layer of the hall passes the excitement both to the audience and the performer.



TYPOLOGY OF THE MAIN HALL AS THE APOTHEOSIS

The music hall has everything to do with escapism. People attend a concert to escape their daily lifes for a brief moment and enjoy a magical concert. But which hall gives the deepest experience?

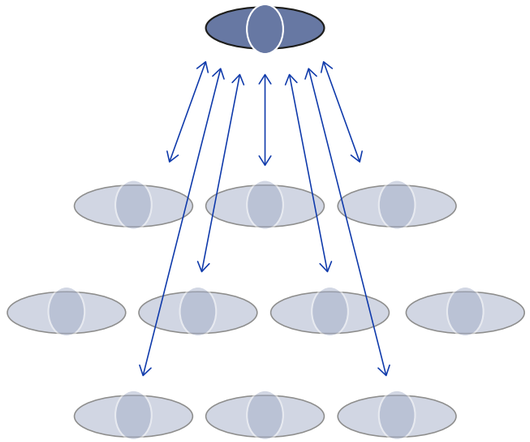
As people are biologically unique, we usually have the feeling that we are different from other people, resulting in a sense of being disconnected (Tuan, 2000). By escaping to culture, people might also want to escape this disconnectedness. By attending in group activities this feeling can be surpressed, and hence it will feel stronger as an escape from the self. So, what music hall generates the stronger feeling of connectedness?

In a classical shoebox configuration, it's all about the acoustics through side reflections. But as a result, people are just sitting in rows behind each other watching the performer from one side. It's one dimensional.

Vineyards on the other hand surround the performer. It's an arena like configuration, where all the people are sitting in this one pit where they are able to see eachother. This makes the setup feel more intimate and more connected with the other people and the performer. Also the people sitting behind the orchestra have an amazing position, since they can also look on the musical sheets and feel as if they are part of the orchestra. This means that there can be a variety of different audiovisual experiences inside a vineyard. In front or behind the orchestra, on or under the balcony, closeby or far away. As a result, people can try sitting somewhere else the next time and have a totally different experience.

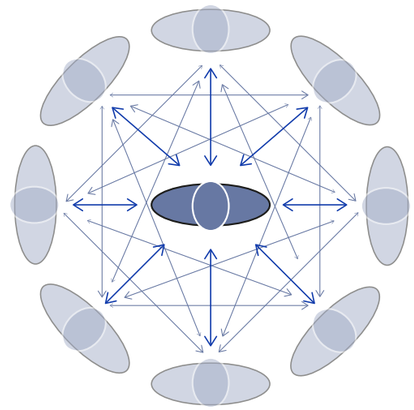
Shoebox

Ornamentation makes you escape to a different world. However, it's a one dimensional experience with the audience just sitting on one side behind eachother.



Vineyard

People are biologically unique, resulting in a feeling that we are different from others. To escape from this "disconnectedness" we have to participate in culture together.



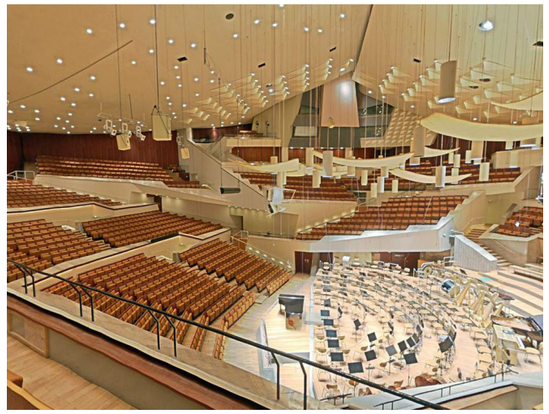
VINEYARDS IN EUROPE

A vineyard typology is difficult to define in architectural terms. Acoustically speaking it is a typology where the audience sits around the hall in balconies that reflect the sound in multiple directions. However, modern halls like the Elbphilharmonie and Philharmonie don't have as many balconies as the classic vineyard. The balconies in these halls are continuous. Looking at the map of surrounding countries in Europe, it

appears that there are not many vineyard halls. This says something about the uniqueness and the reach that the typology can gain once being realised in The Hague. Tivoli Vredenburg which is a relatively old hall, doesn't have the national / international reach that the other halls do have.

Elbphilharmonie

Philharmonie de Paris



Berlin Philharmonic

Tivoli Vredenburg

Royal Albert Hall

Concerthuset

VINEYARD SIZE

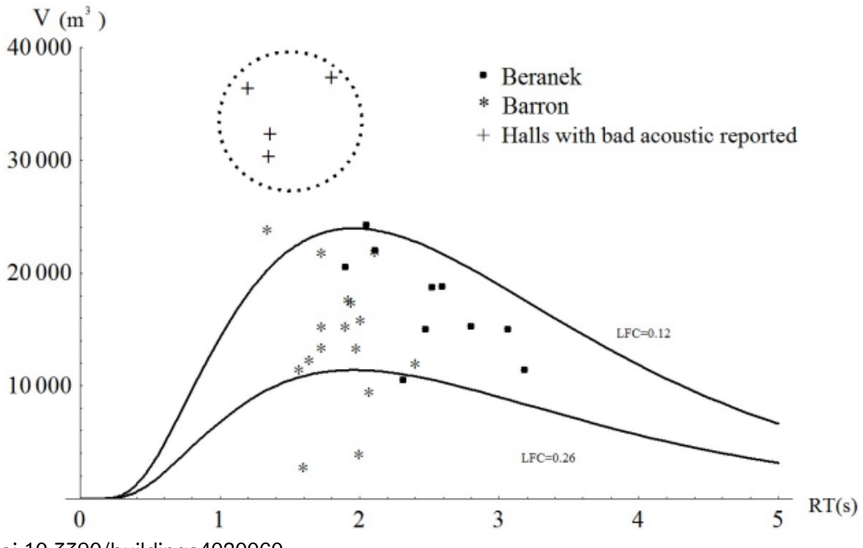
The most important aspect of a symphonic music hall is its acoustic quality. The sound quality in a hall can often be determined by the reverberation time. This is the time needed for sound to decay over a specific range. The formula for reverberation time is:

T = V/6A

T = reverberation time
V = volume
A = absorbtion value

According to the following research, two curves can be drawn that show the relation between hall volume and reverberation time. Inbetween the two curves, lies the optimal hall volume. A concert hall would generally need a reverberation time between 1.8 and 2.2 seconds. This makes the optimal volume between about 10.000 m^3 and 24.000 m^3.

Figure 2. V-RT region following Ando-Beranek's formula.



doi:10.3390/buildings4020060

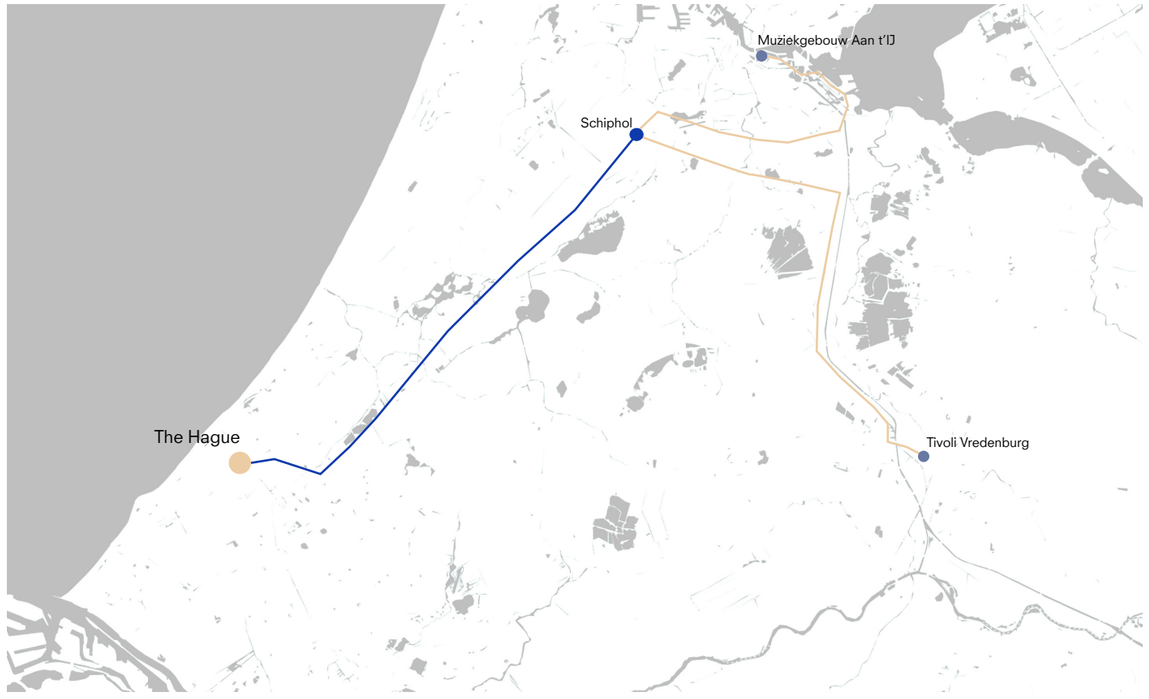
DISTANCE FROM SCHIPHOL

The Hague is relatively close to Schiphol airport and the other cities of the Randstad. Especially with Holland Spoor close to Binckhorst, it's very easily reachable.

Binckhorst
public transport **40 min**
car **33 min**

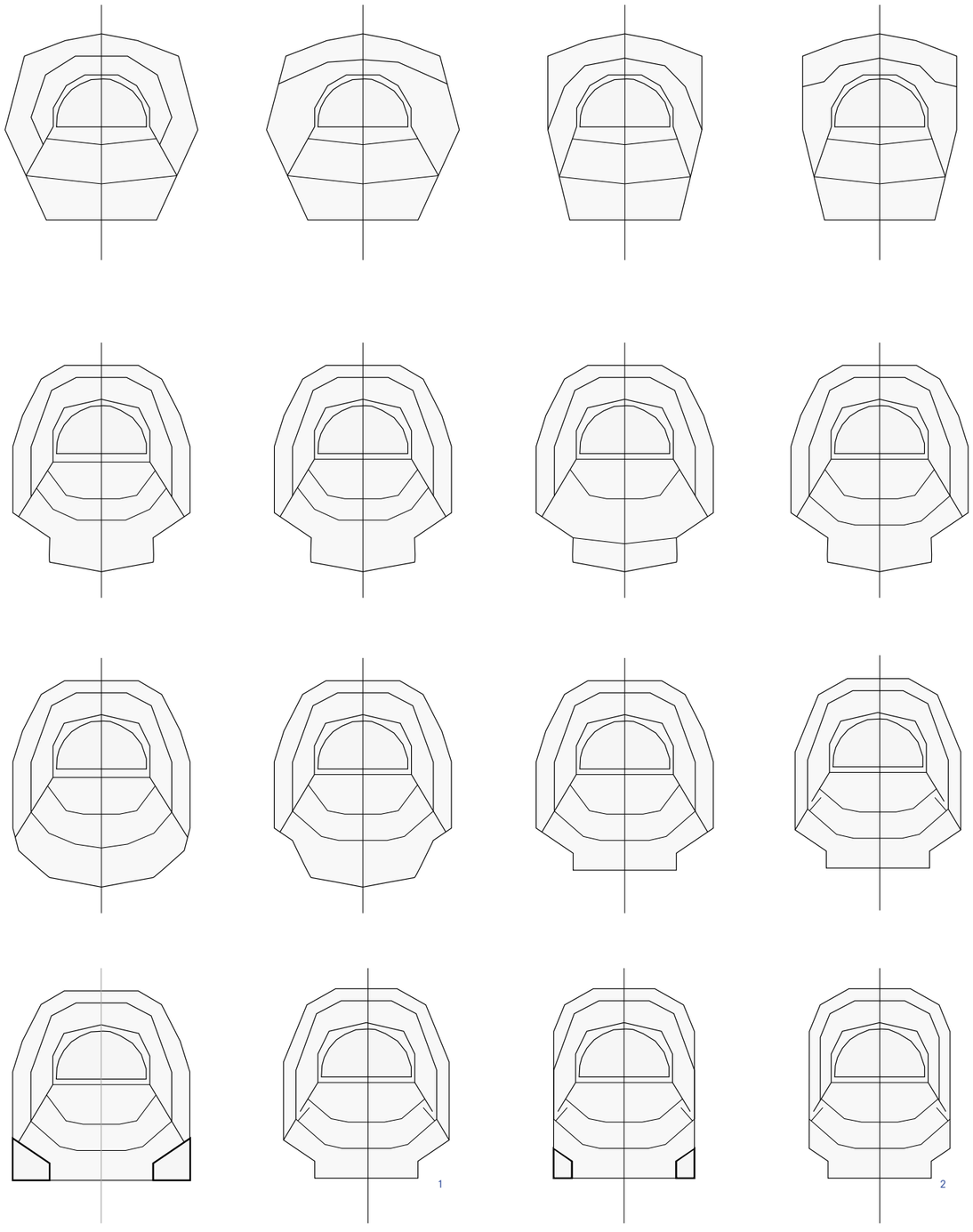
Muziekgebouw Aan T'IJ
public transport **35 min**
car **32 min**

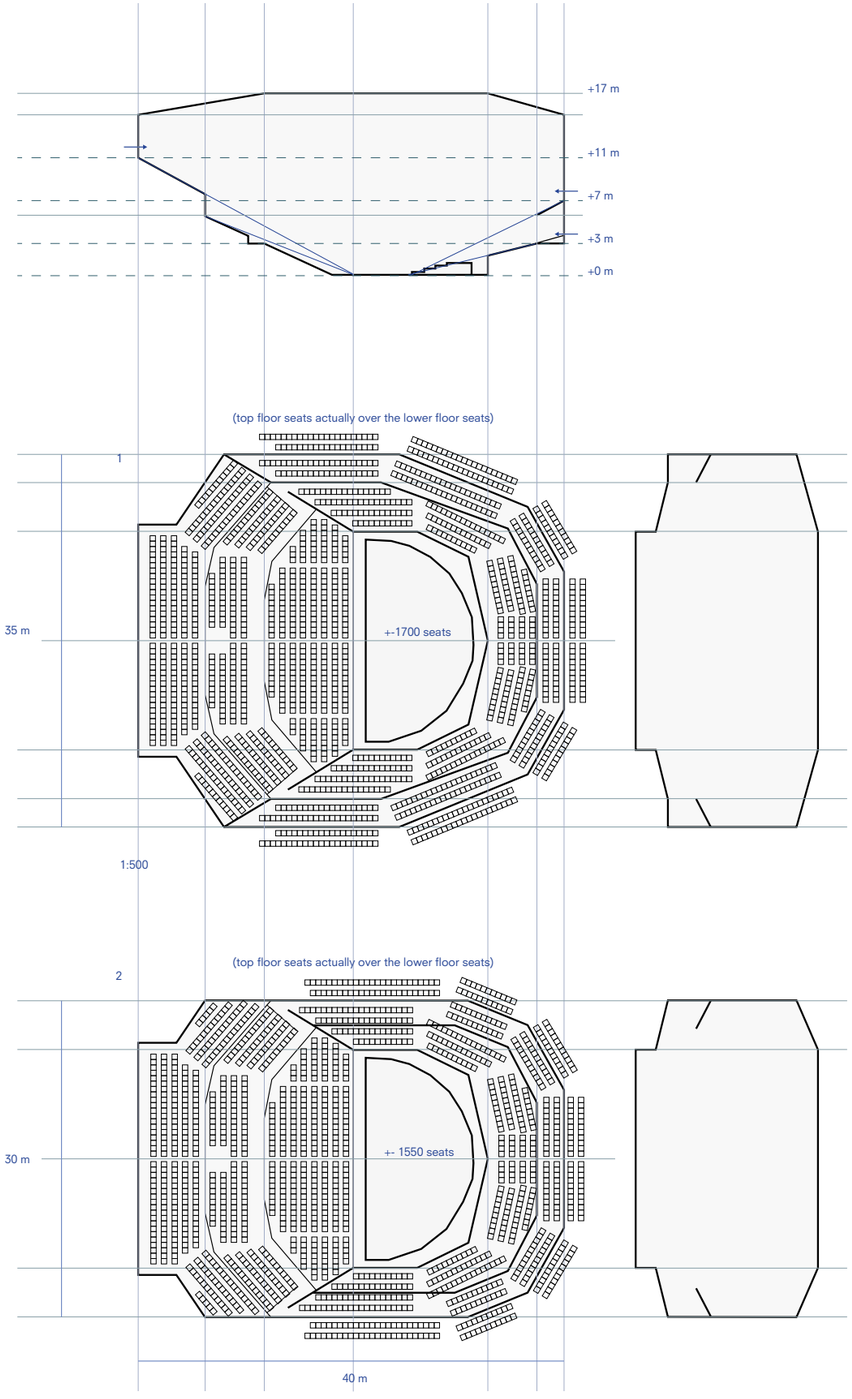
Tivoli Vredenburg
public transport **51 min**
car **44 min**



VINEYARD SIZE STUDY

A first study for the dimensions of the vineyard hall.





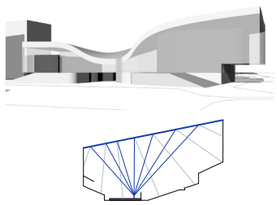
selected
+-18000m³

ACOUSTICS STUDY

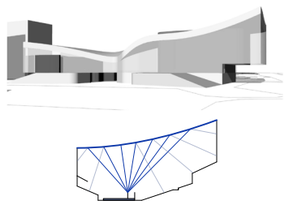
Generally shoeboxes are known to be the best concert halls world wide acoustically speaking. Research concluded that shoeboxes sound better due to the so called lateral reflections. These are reflections that bounce off from the side walls towards the audience. Especially in the best acoustic halls like the Vienna Philharmonic or the Concertgebouw in Amsterdam, the ornamentation breaks the reflection slightly.

Why do these side reflections actually sound so good? It's simply because of the effect that occurs with stereo sound. The sound approaches the listener from multiple directions. As a result, the audience experiences a surround effect in the music hall.

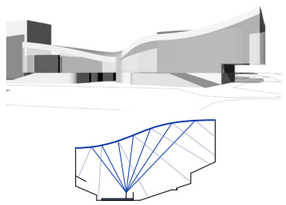
Vineyards are generally closer to the stage and the audience faces the walls with their backs. Hence, they won't experience the same strong surround effect as in shoeboxes. However, there is one more major reflection plane in music halls: the ceiling. The best surround effect from a ceiling can be achieved if the reflections come from a high angle. Otherwise, it might not be distinguishable from the direct sounds. A gentle arch seems to be the perfect ceiling shape for these hall dimensions.



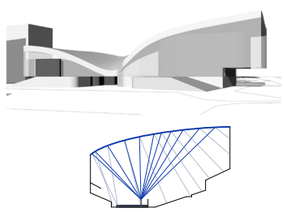
straight



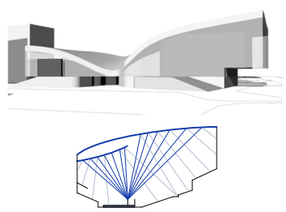
hanging arch



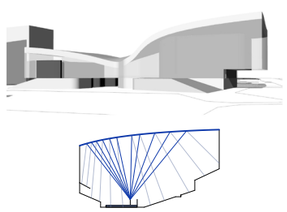
combination



arch



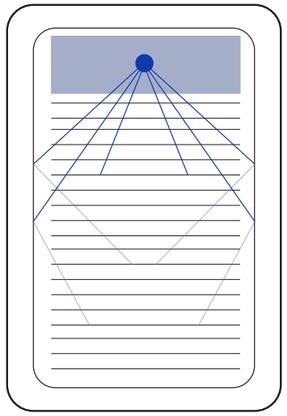
arch with correction panel



gentle arch

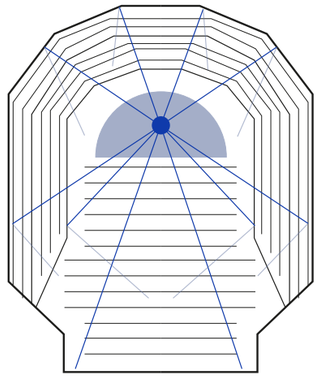
Shoebox

Side reflections generate a surround effect for the audience, adding to the overall experience.



Vineyard

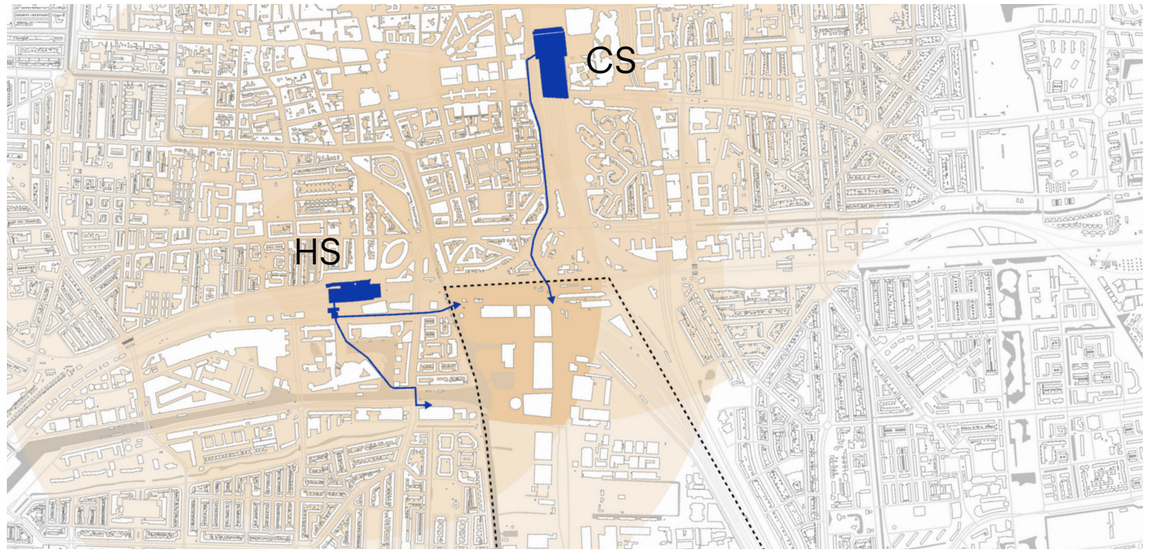
Reflections are more complex, focus is more on the direct sound. Can you still create a surround effect?



SITE SELECTION

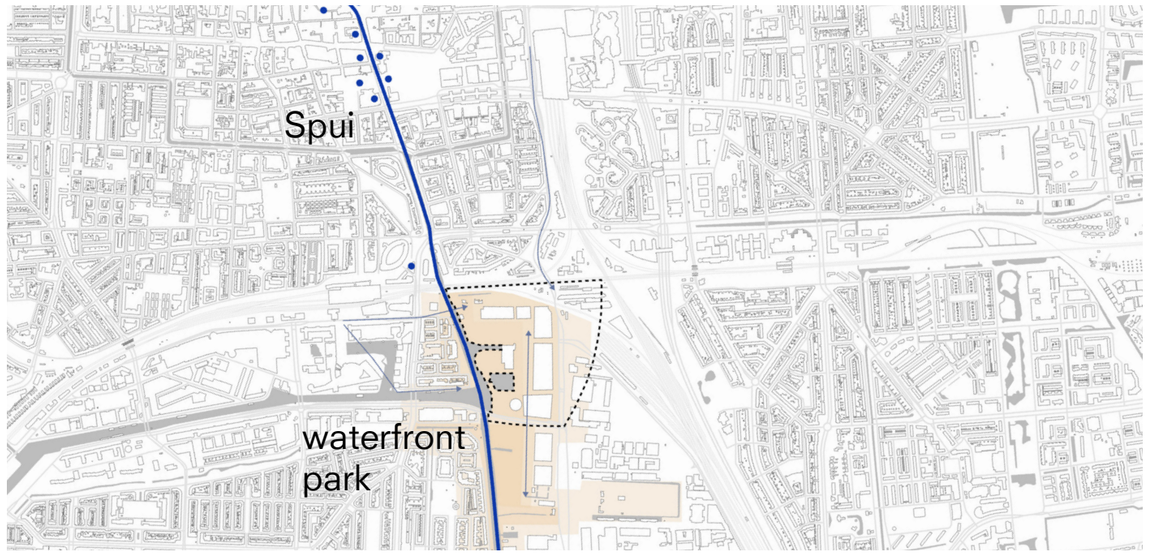
1. Proximity

The design location should be within close proximity to the major transportation hubs. Otherwise the building would be too unreachable, and the magnifier effect would not work. Picking a site within 1 km of Holland Spoor and 1,5 km of the Central Station gives the best connectivity to the rest of the city. This area sits largely within the former gas factory terrain on the northwestern tip of the Binckhorst.



2. Quality

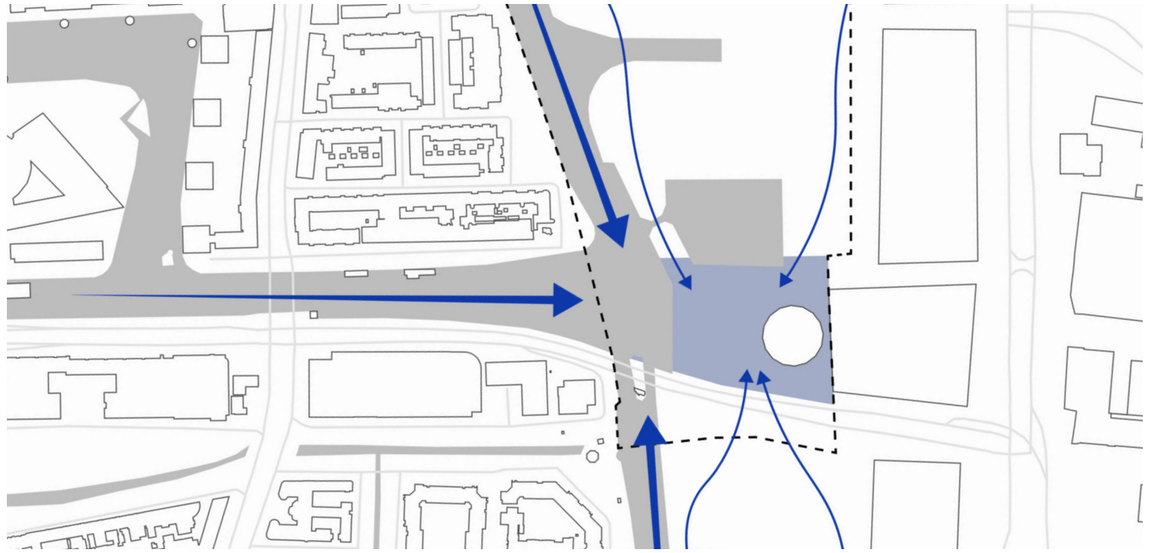
Music buildings often are part of a qualitative public space. Activity, restaurants, cafes, waterfront, a park, a square and more, are some of the “ingredients” to create a qualitative public space. By extending the Spui to the future waterfront park, it becomes an entire axis that starts as a central urban shopping street, and gradually changes into a waterfront park with restaurants and cafes. Hence, the addition of a music building along this waterfront park will be a tactical choice.



SITE SELECTION

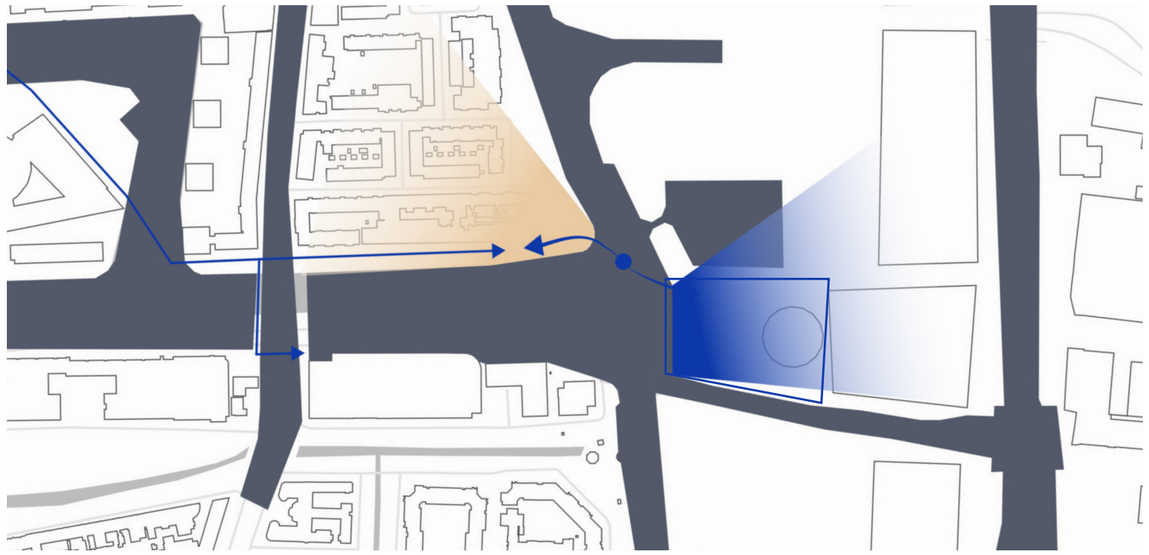
3. Visibility and connection

To become an icon, a building would need an iconic and very visible location. Along the waterfront, views towards the future building can be established already from a far distance. Especially at the junction of the Trekvliet and the Goudriaankade this is the case. This location is accessible coming from all directions out of the Binckhorst. However, it is not well connected to the rest of the city yet.



4. Threshold and identity

To continue on this topic, not only the waterfront, but also the Mercuriusweg viaduct form a barrier. This viaduct which is the only connection to the city around the site, is difficult to pass for pedestrians and cyclists. It sits hidden in the urban network and there is no sidewalk before the viaduct. A new connection crossing the waterfront would have potential positive benefits. Binckhorst can enjoy activity from the rest of the city, and the qualities of the Binckhorst can spread outward. We can see this already happening through developments just across the Trekvliet (The Grace by Mecanoo and the developments around Holland Spoor).

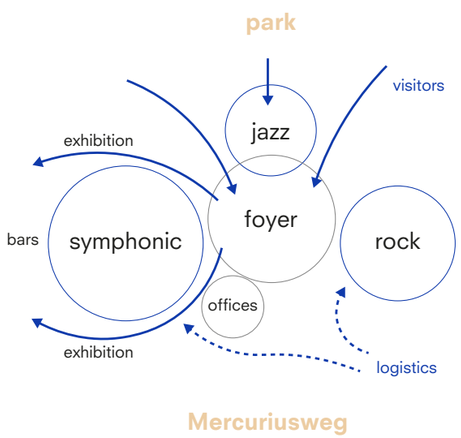


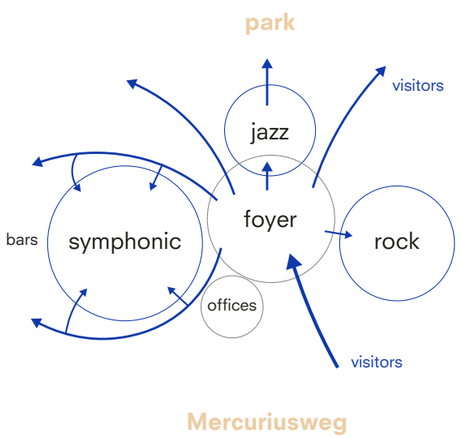
SITE PHOTOS

In the contemporary situation, there are several industrial companies on the site that will leave in the future once constructions start realising the new Binckhorst image. Alongside the building, there's a lake that has been dug a couple of years ago (the Poolsterhaven). Within the site outlines sits a former gas silo, which the municipality would like to see reinterpreted in the future Binckhorst.

PROGRAM PLACEMENT

The building's organisation in relation to the site creates a type of multiplicity. During daytime, the logistics take place on the south alongside the Mercuriusweg. Meanwhile the north along the park functions as an extension, and exhibition spaces connected to the foyer can be visited. In the evening however, the concerts become part of a ritual. People enter from the Mercuriusweg, where they arrive either by car or bus. After the concerts, people would want to go to the park to have a drink or meal on the park avenue. The park avenue is the street between the new skyscrapers and the park. Along the park avenue, many restaurants and cafes can be found.





view to the site

future view to the site

view from the site

future view from the site

Trekvliet in front of the site

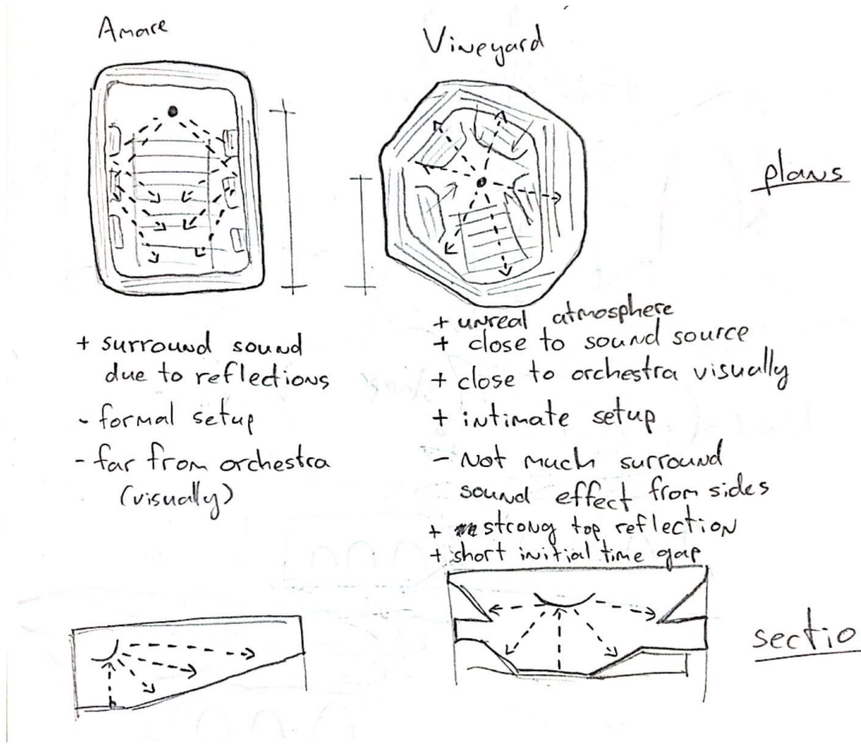
former gas silo

PROCESS DOCUMENTATION

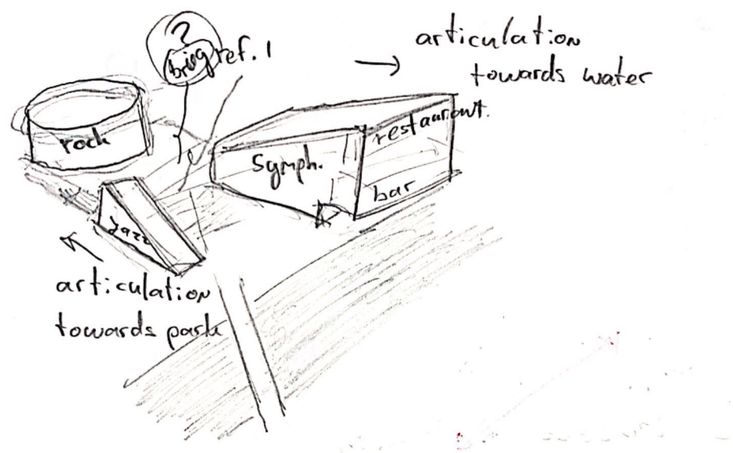
DESIGN JOURNAL

SKETCHES

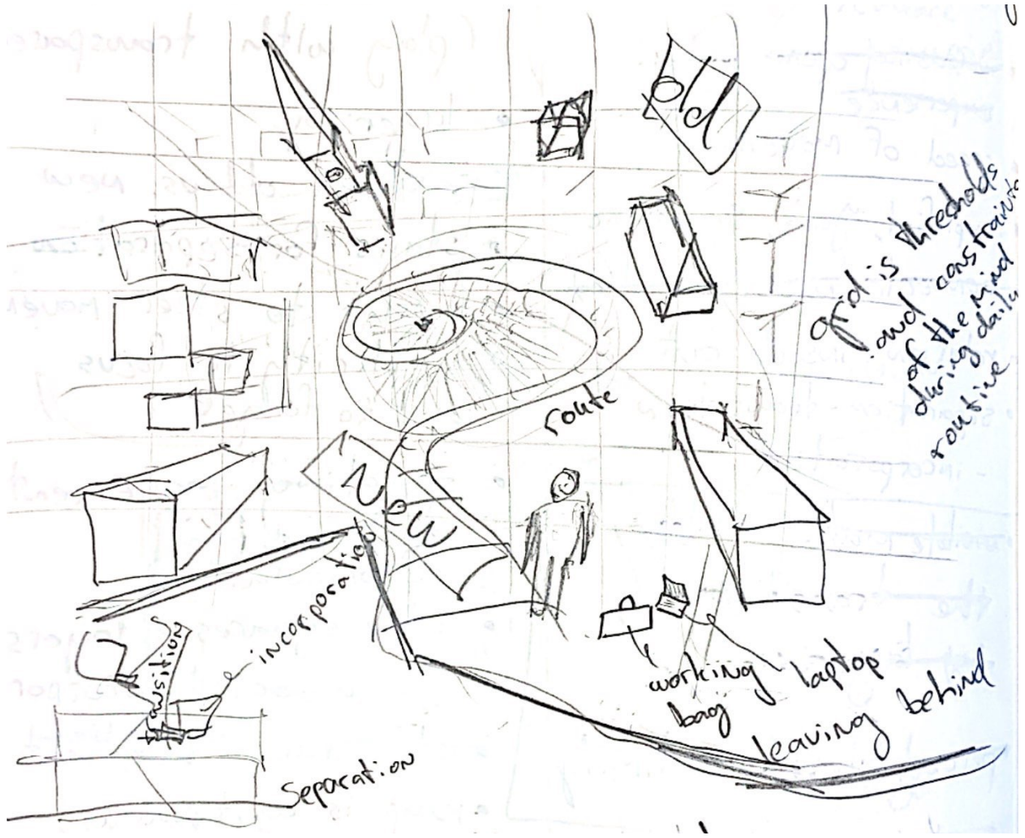
Amare versus the vineyard typology.



Placing the halls according to their meaning related to the research on musical preference and personality traits.

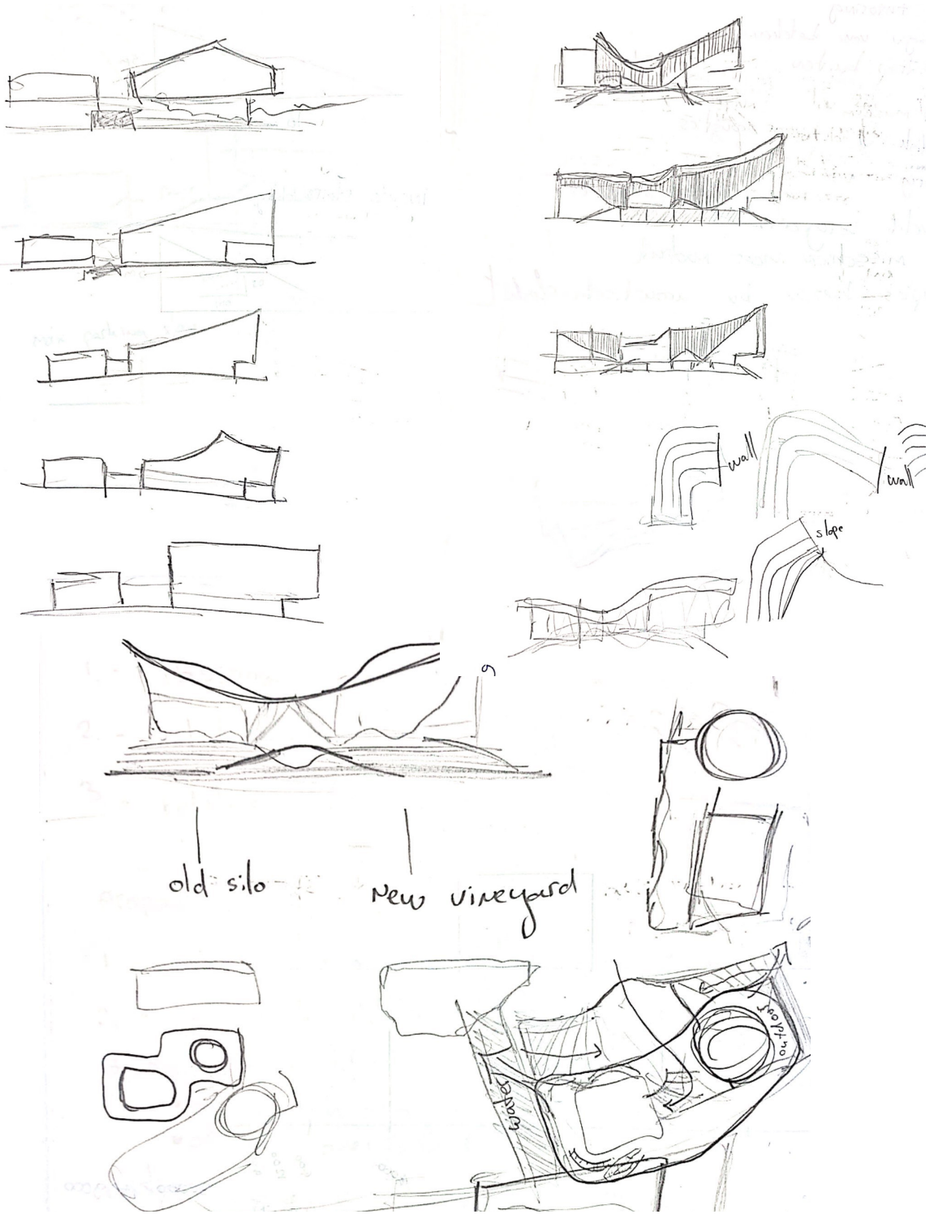


The following sketch is the first impression for the manifesto. A fluid round object representing the route to the music hall, pierces through the organisational system of the city.

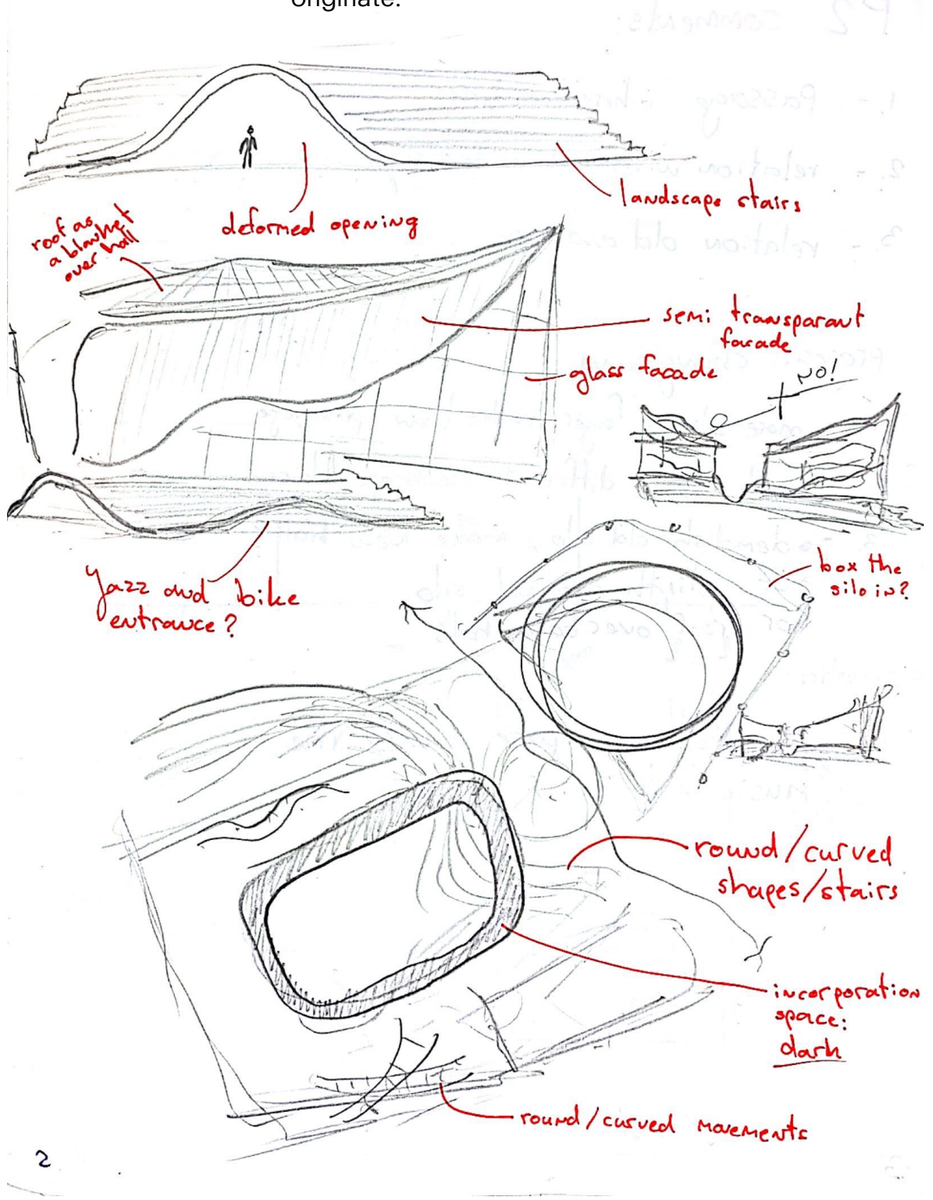


Along the routing, the visitors can leave behind their daily lives (represented by the fallen working bag) before enjoying music. The music halls gain an iconic position through the anticipation.

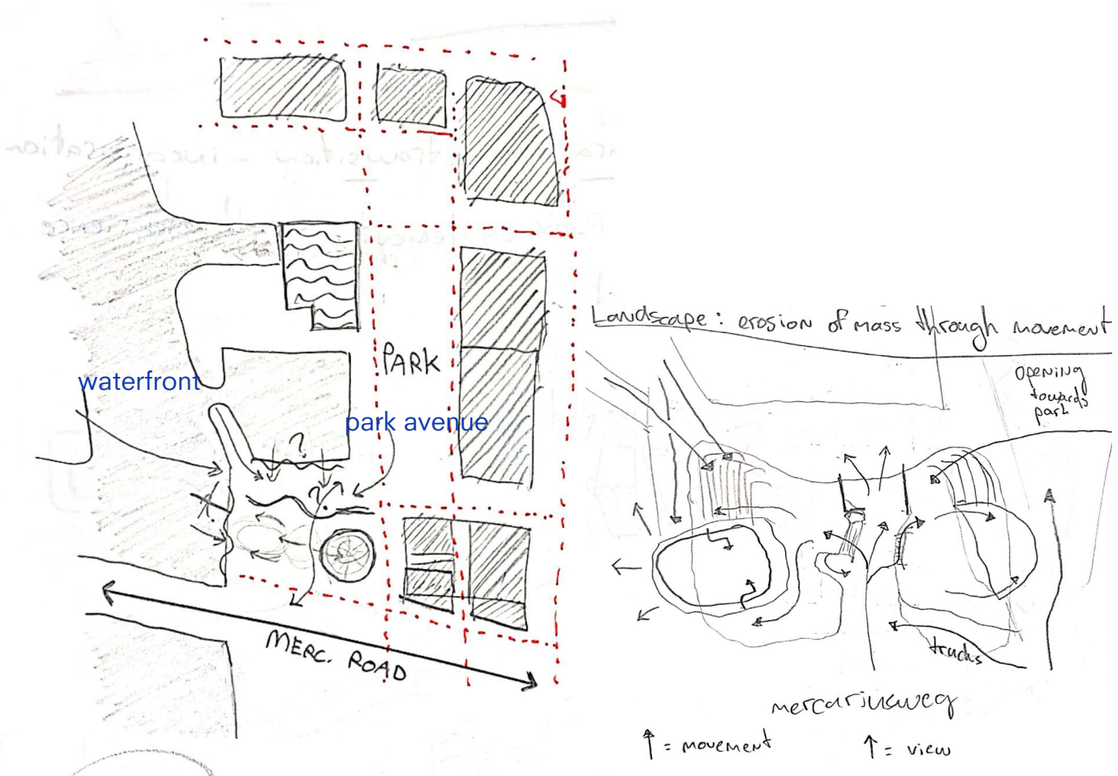
The roof shape would be crucial for the building. A roof can join together the old silo and the modern symphonic hall. The indecision in this study shows that there need to be more parameters to shape the roof.



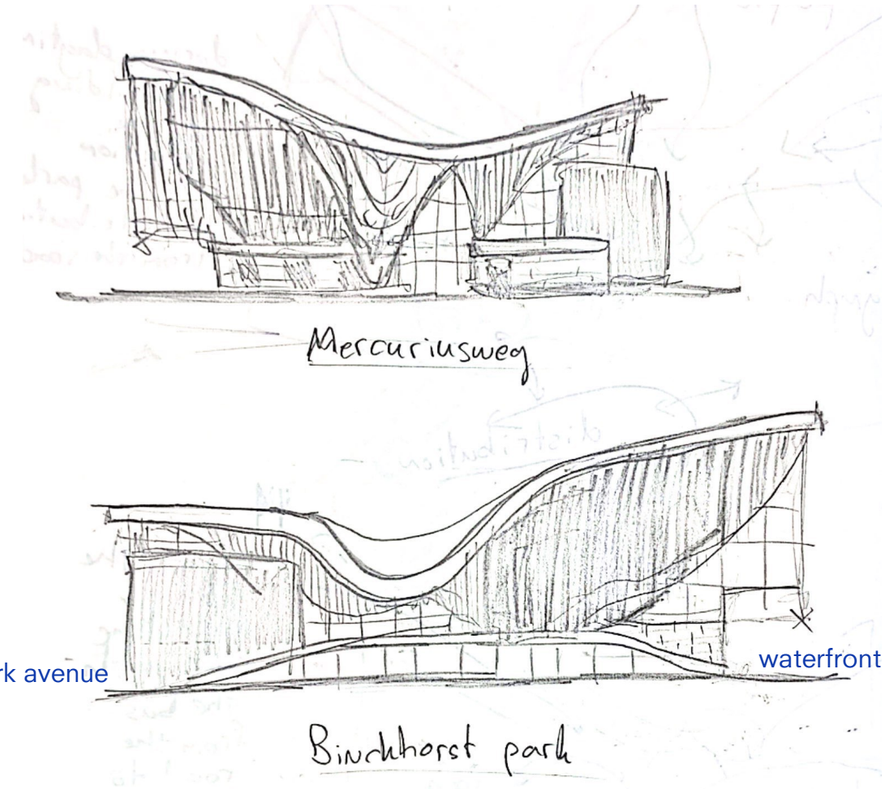
To separate from the landscape, the design must break the element that nests the architecture in the site. This was for the Binckhorst characterised by the plinth. By manipulating the plinth, a landscape of separation will originate.



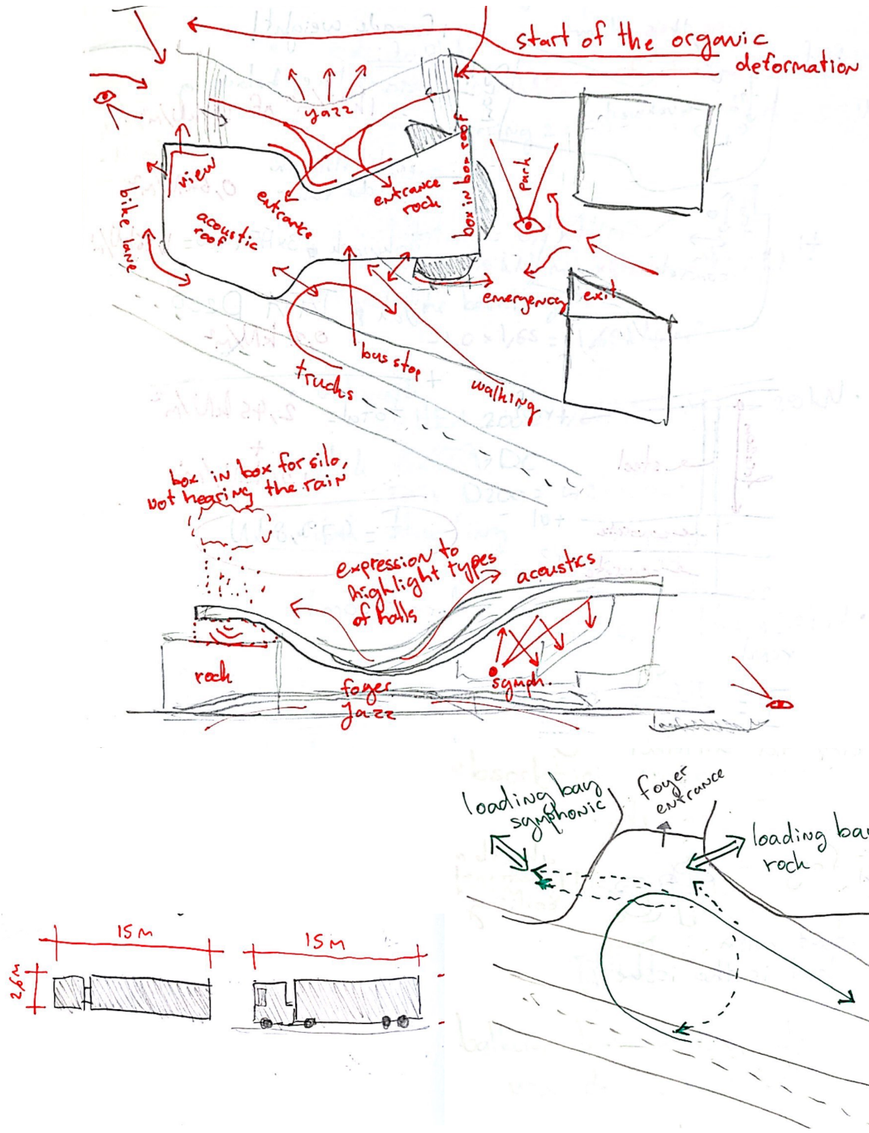
What would this landscape of separation look like? It depends on where the people come from (urban context) and where they have to go to (the music halls). As a result, a grand entrance is placed along the Mercuriusweg where the buses arrive. On the north side of the building, two stairs will extend both from the waterfront and the park avenue towards the building.



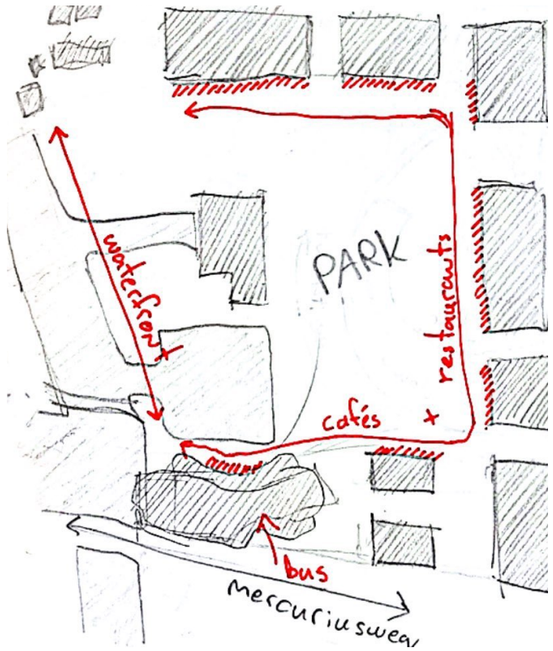
In the following sketch, the roof shape follows an acoustic line and responds to the approaching directions. It is now shaped to movements coming from either the waterfront, the park avenue or the Mercuriusweg, directing the people towards the entrances.

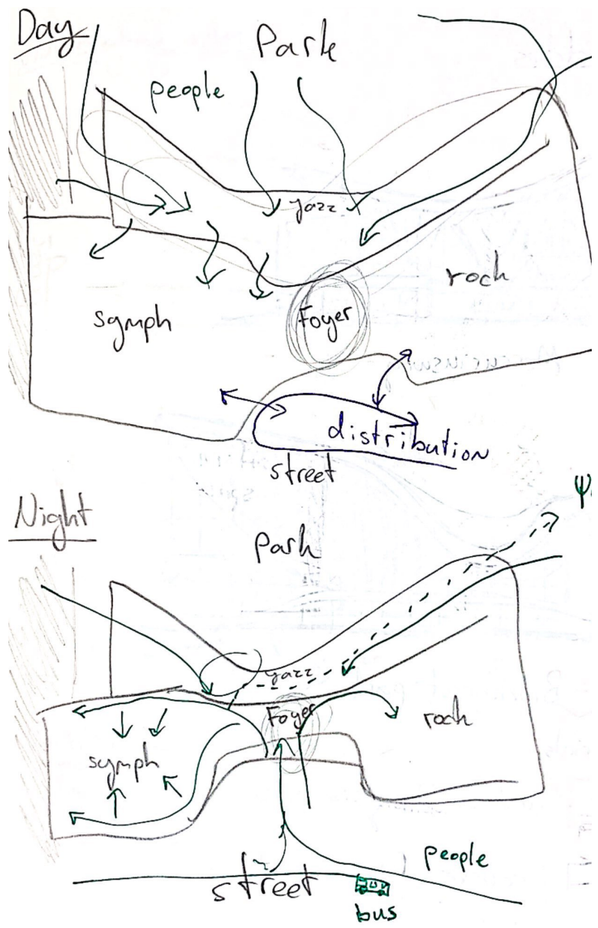


The roof is shaped in plan following the same lines of movement as in the elevation. Yet, in a music building there's not only visitor's movement. There's also logistics. These also influence the shape of the building. Since trucks arrive from the Mercuriusweg, the plan was shaped to the turning circle of a truck.

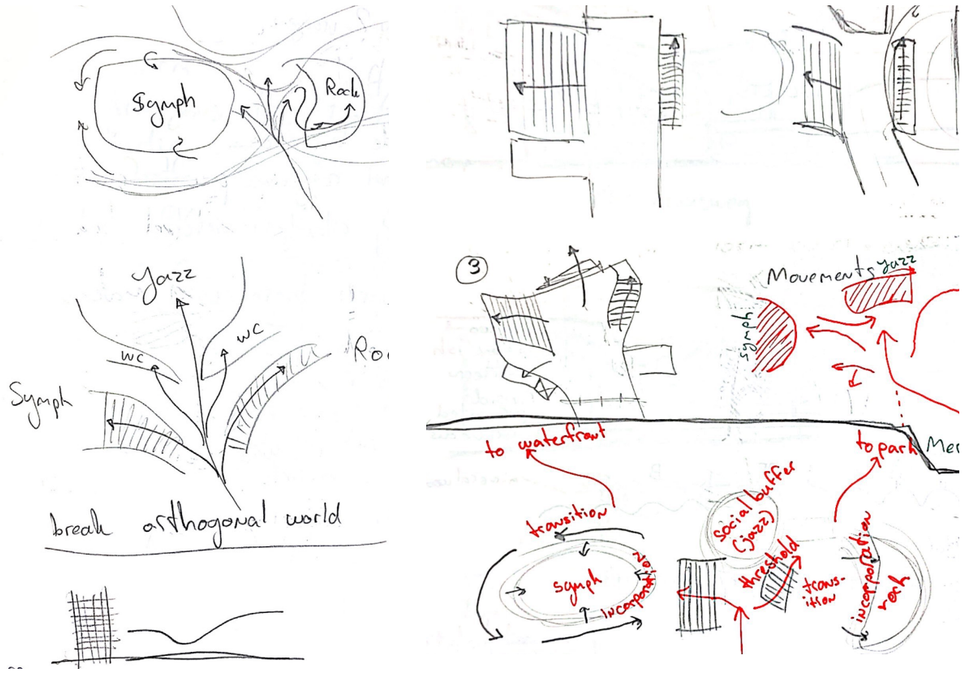


The day and night multiplicity concept as explained earlier in the process documentation. The site sketch shows that both the waterfront and the park avenue are important to the positioning of the building as a connection between the two.

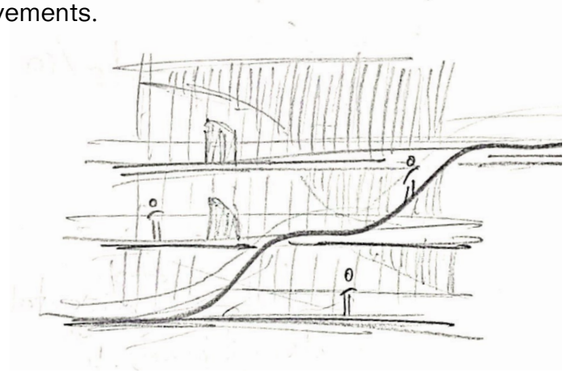




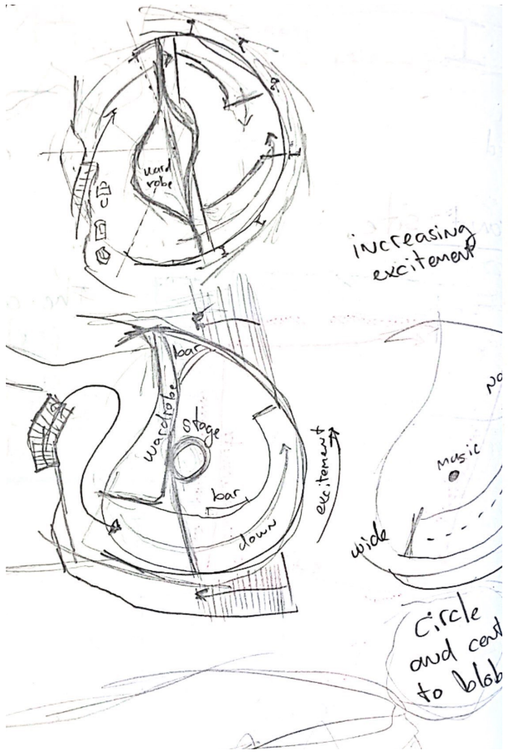
The flow of movements doesn't stop at the exterior. Once the visitors have separated from the orthogonal surroundings through fluidity, the architectural style needs to be continued on the inside to form a completely opposing world of fluidity.

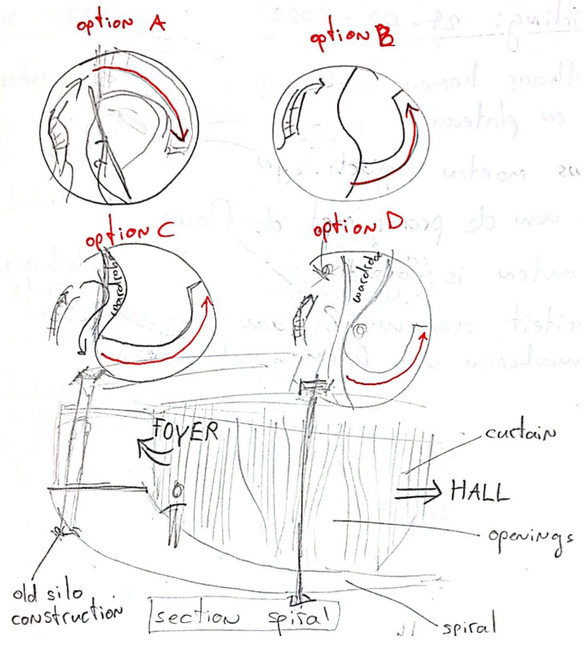


This means that also the stairs should be integrated in the fluid system. A stair might be a different element than a floor, but in the fluidity language of the design it should be made continuous, and react to elements like floors, landings and movements.

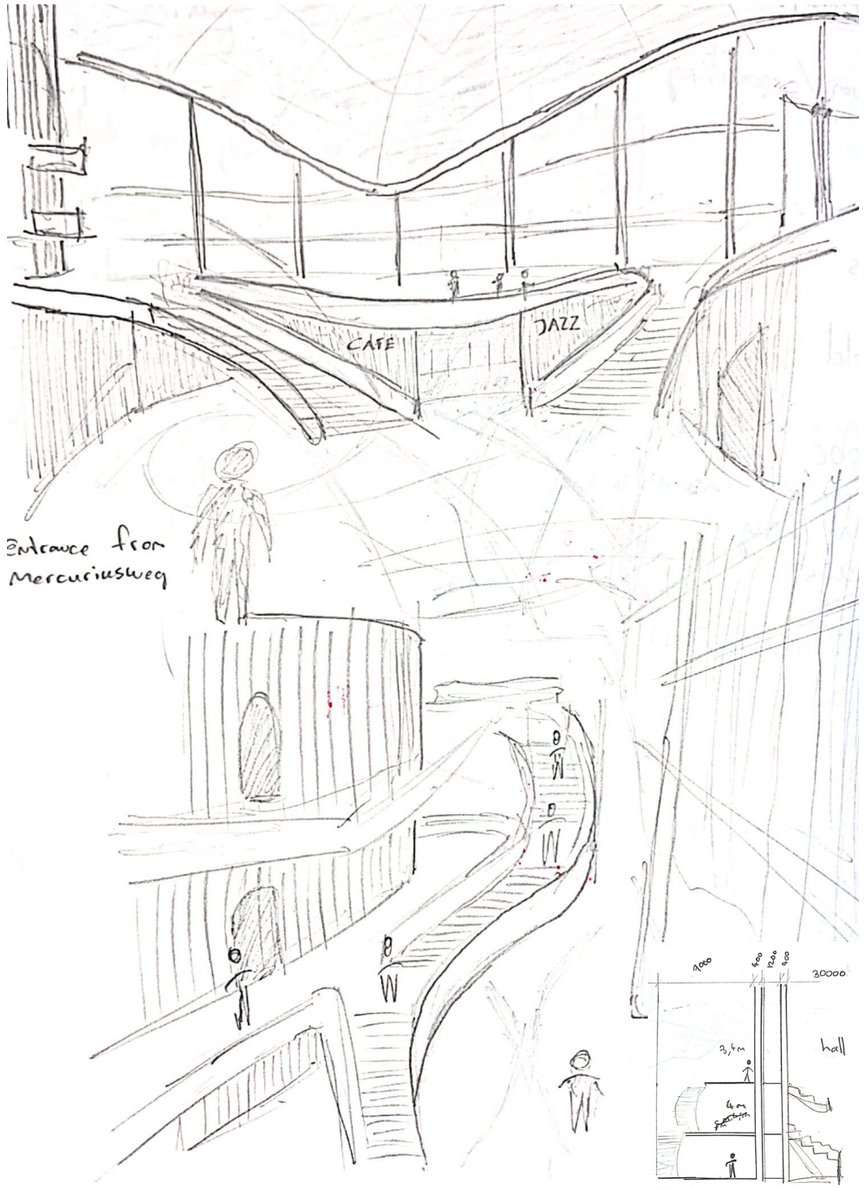


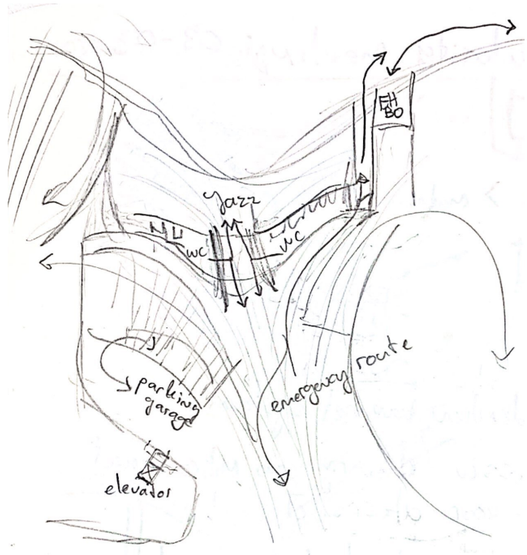
The rock hall should generate a sense of excitement. To achieve this, it is positioned in the old silo. Like the NYC Guggenheim, a spiraling movement towards and in the silo causes a sense of increasing excitement, while also losing track of the spatial orientation slightly.



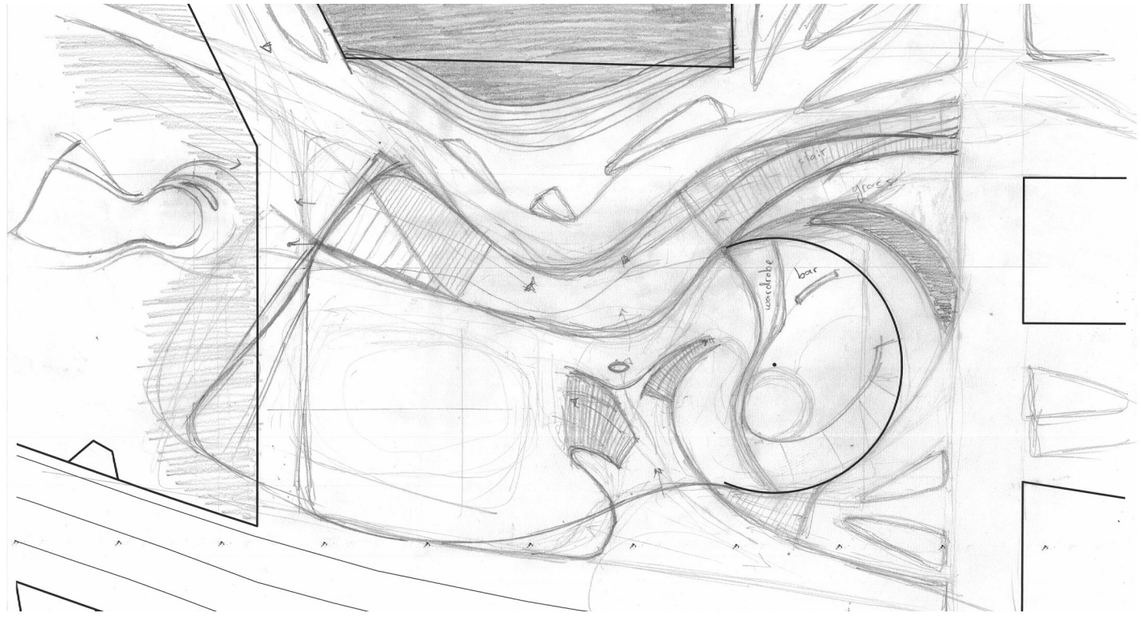


Entering the music building from the Mercuriusweg, visistors are presented with three options. The jazz cafe is directly accessible from the ground floor. The rock hall and the symphonic hall each have their own stairs leading to the first floor.

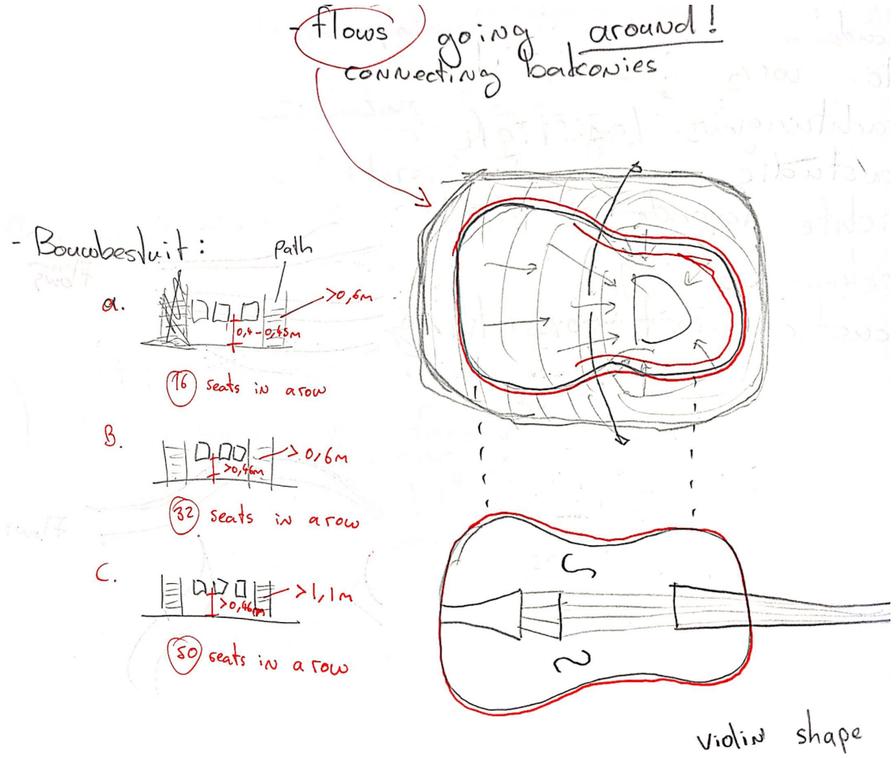




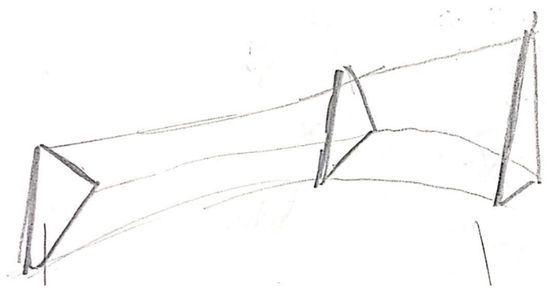
The following sketch has now become the combination of all these movements into one fluid shape. From here on this was used as a base for further design developments.



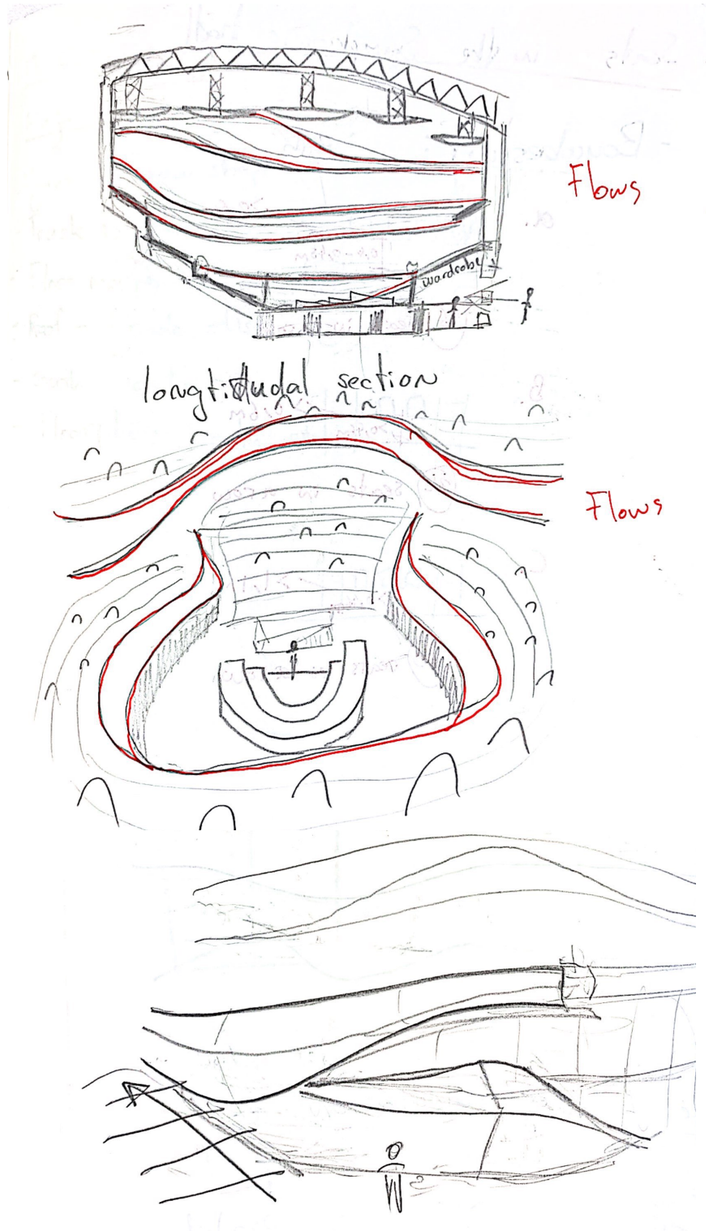
Inside the music hall, the fluidity is inspired by the shape of a violin. The optimisation of this shape has been perfected over multiple centuries. It fits very much in the vineyard ideals of the hall, where the audience sits around the hall.



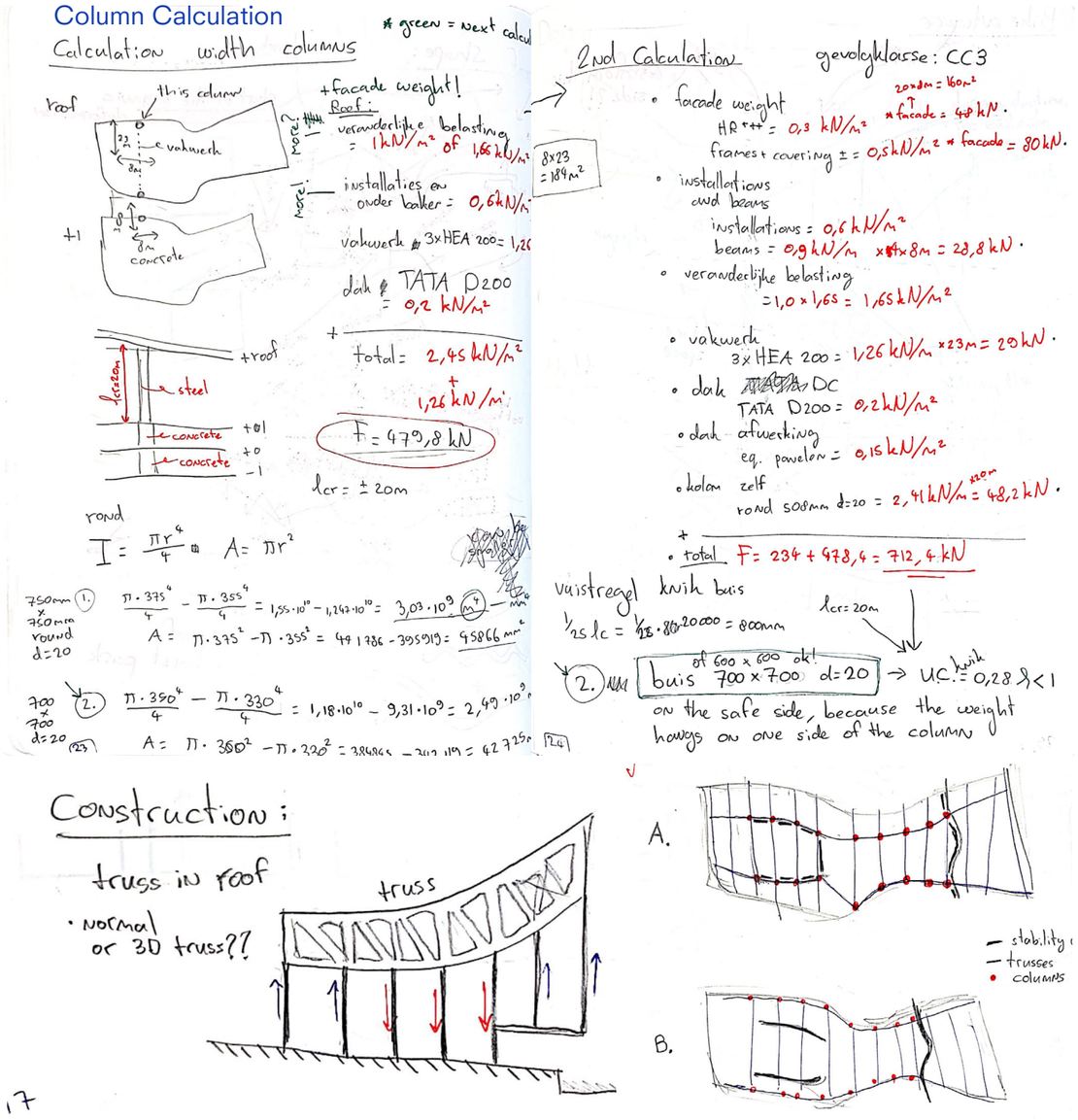
The balusters have been shaped with a triangular profile. Over the length, the balusters are double curved, which is paramount not to reflect the sound back in one direction.



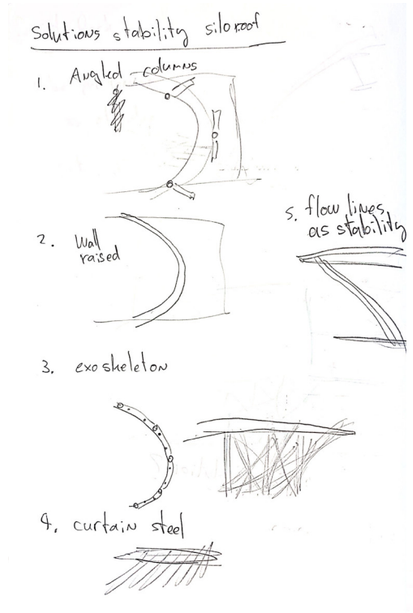
Instead of the older vineyards with multiple discontinued balconies, the violin shaped flows go around the entire hall. This increases the experience of sitting around an orchestra, which is the main feature of a vineyard hall.

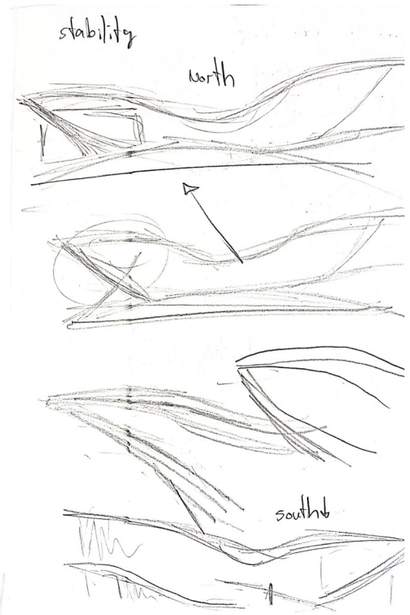


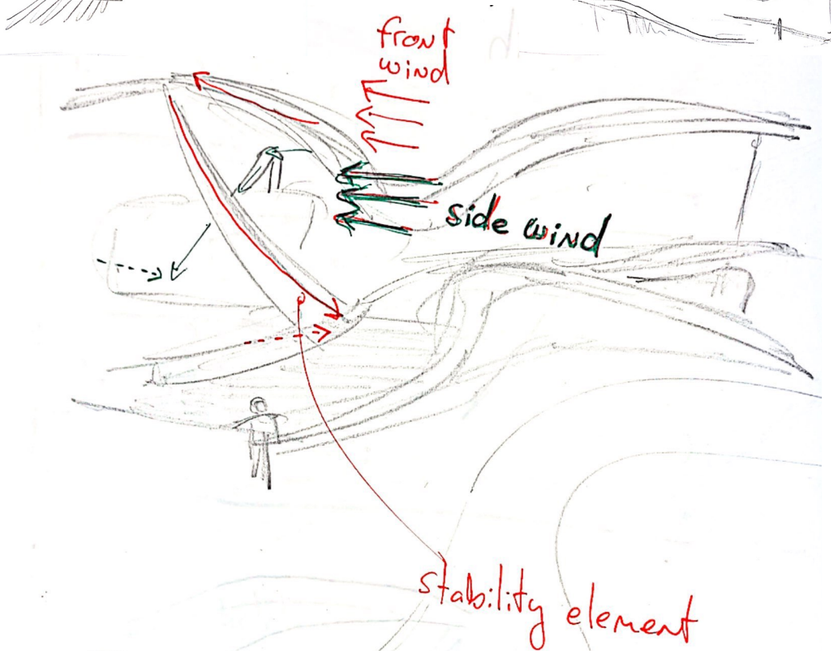
The structural line largely follows the the box-in-box structure of the symphonic hall. As a result, most of the structure will be hidden from the sight. Also it will be more efficient in terms of materials usage.



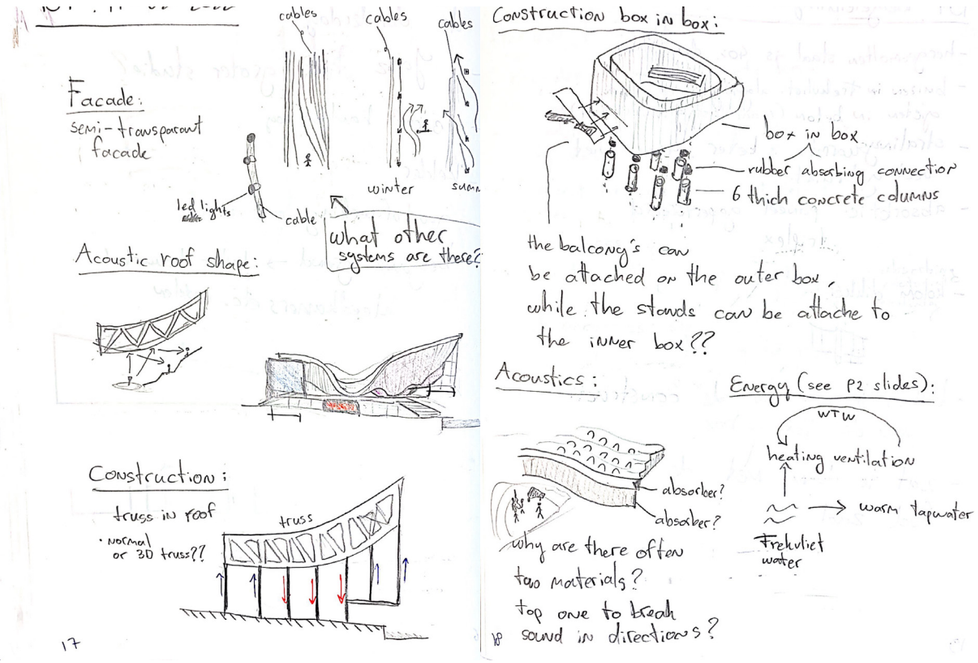
Because the building shape has two peaks on the ends with a little valley in the middle, the two peaks need their own stability supports. Now the building exists of three “systems”: flows, halls and a curtain. Out of five options, solving stability through flow lines was the best option in relation to the architectural image, because it did not add a new system.

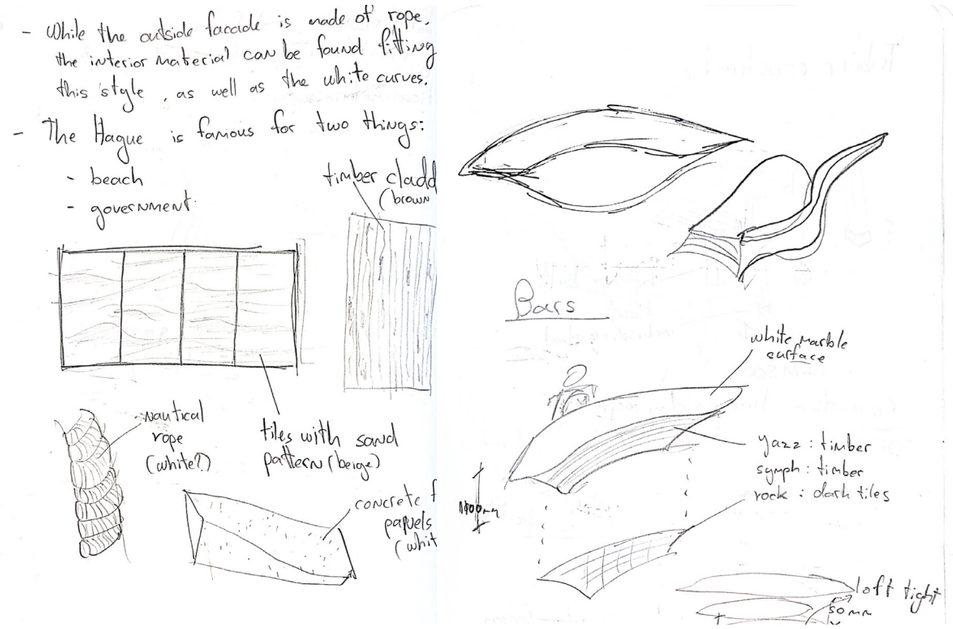




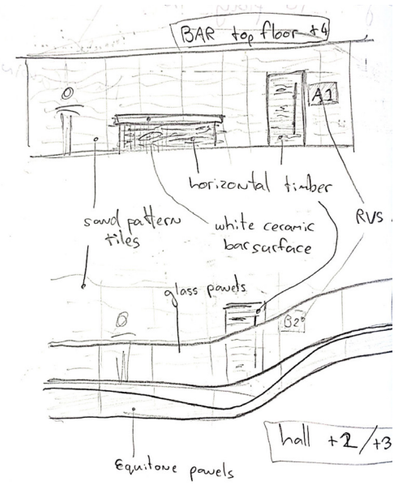


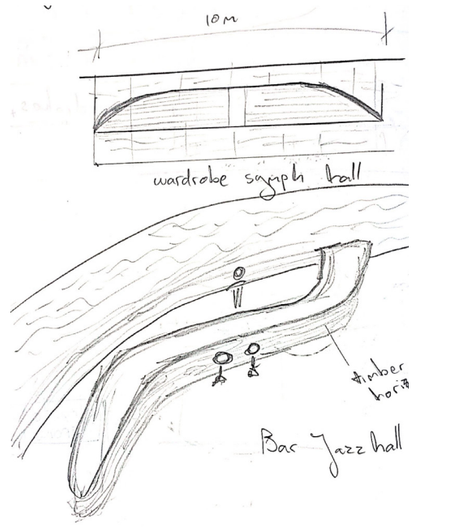
Sketches on BT aspects of construction, solar radiation, acoustics and energy.



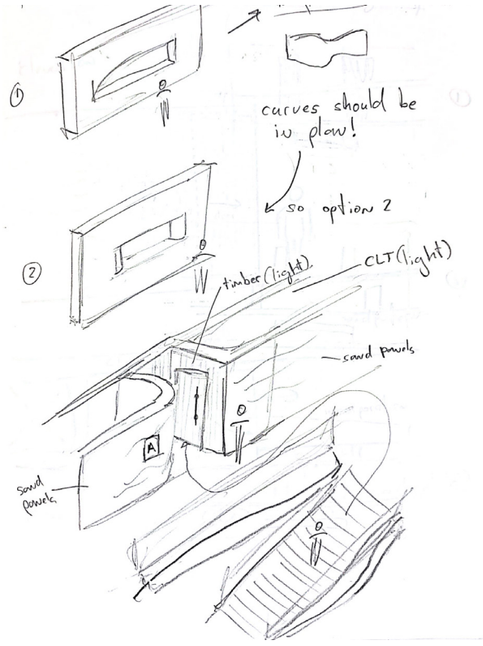


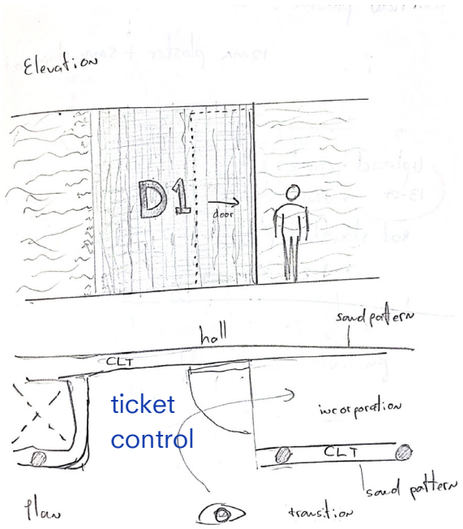
Materials and style studies for the balusters, bars, doors and walls.



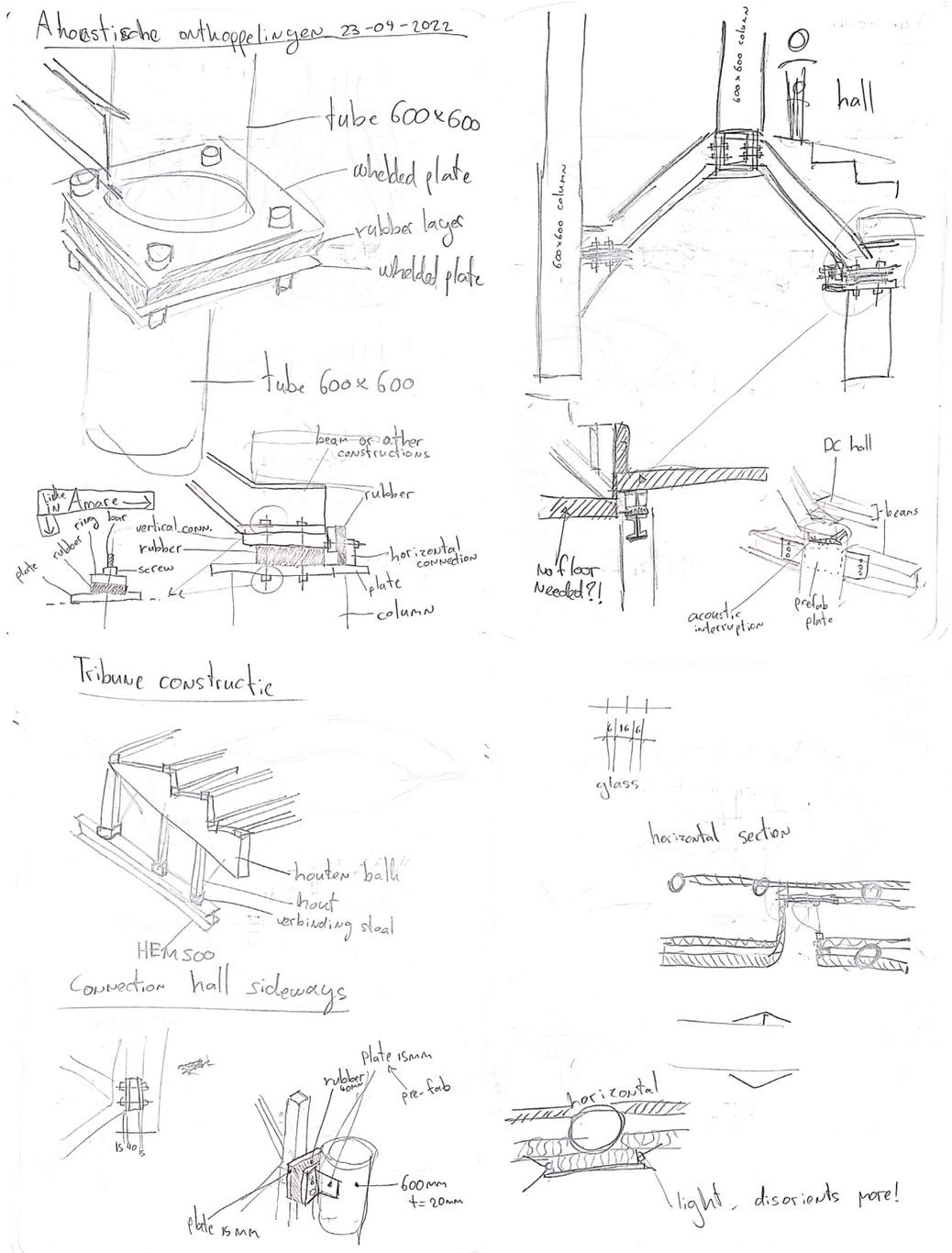


At the cavities in front of the symphonic hall gates, the tickets of the visitors can be checked.

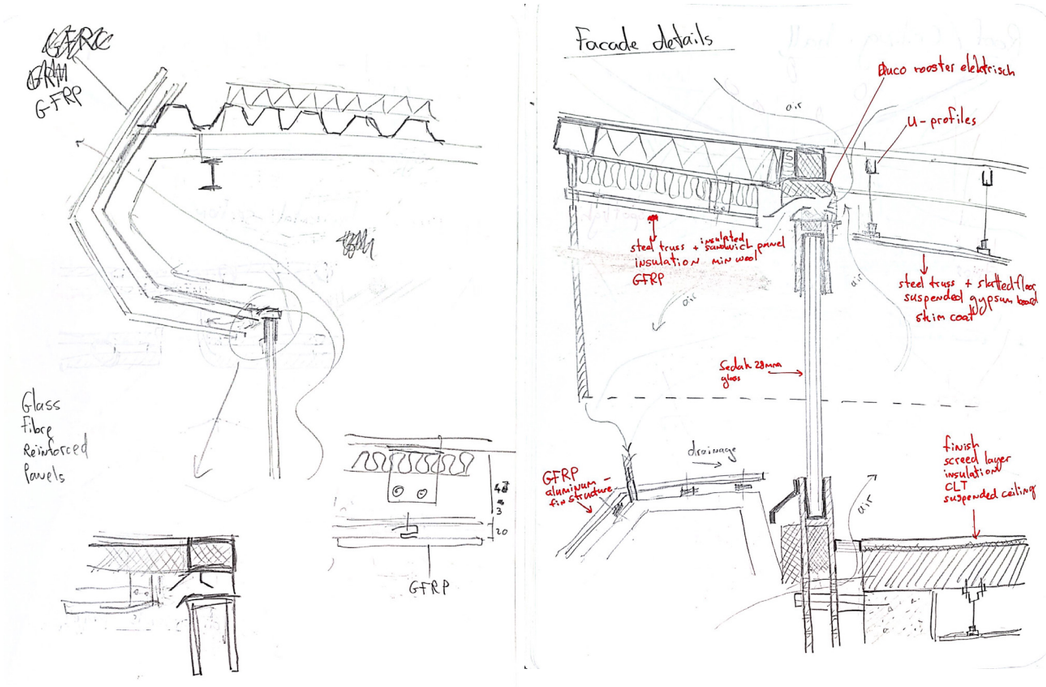




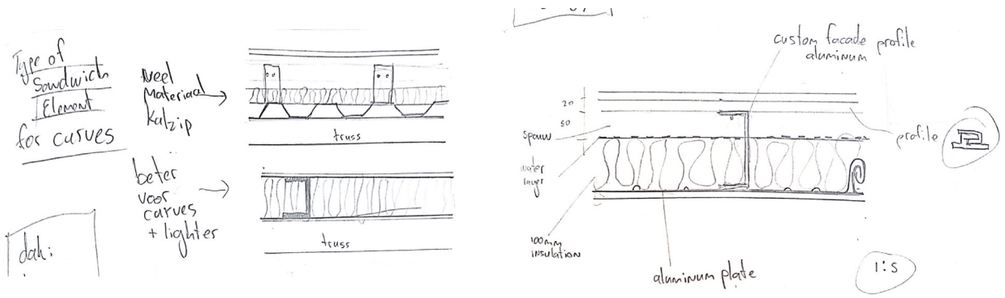
Sketches on details concerning acoustics and mainly the acoustic joints.



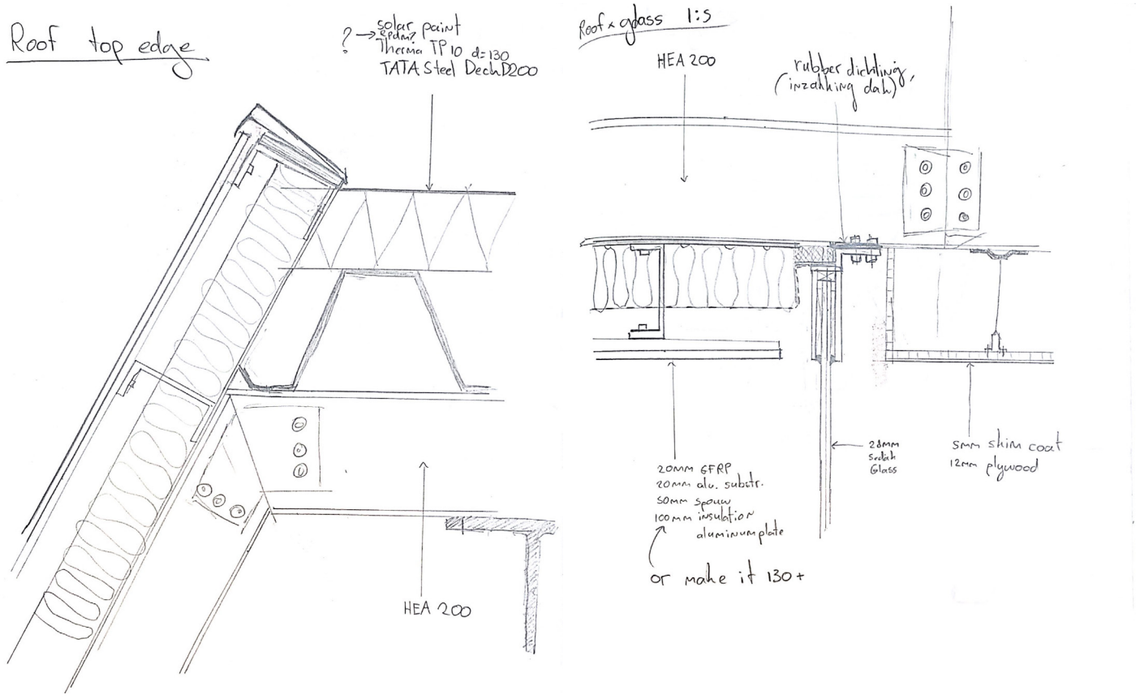
First sketches for the facade details. Picked points are the roof edge, the top and bottom connections for the glass panels and the symphonic hall balcony.

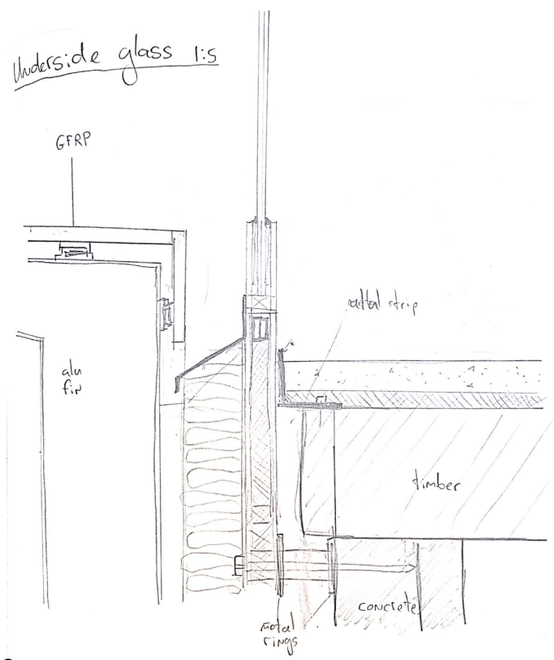


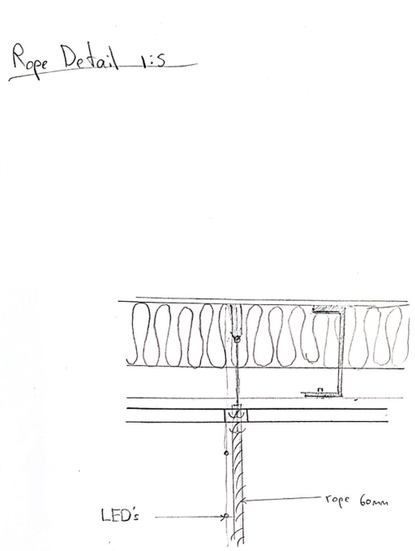
The double curved shapes require an easy system for manufacturing. The design will include an aluminum insulated sandwich panel with glass fibre reinforced panels as a finish.



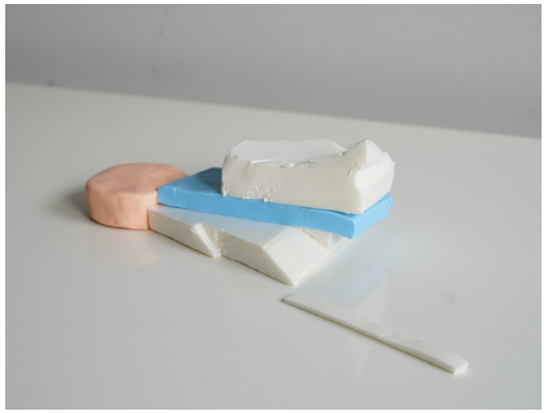
Facade details sketches.



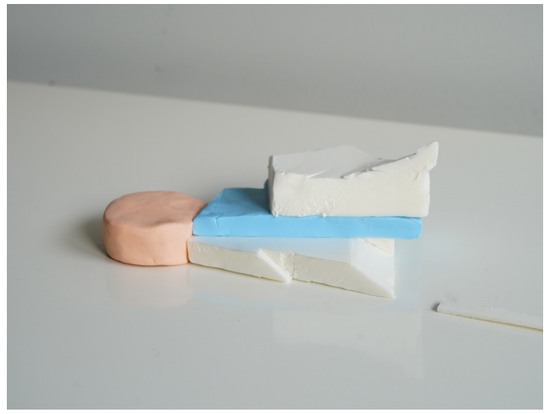




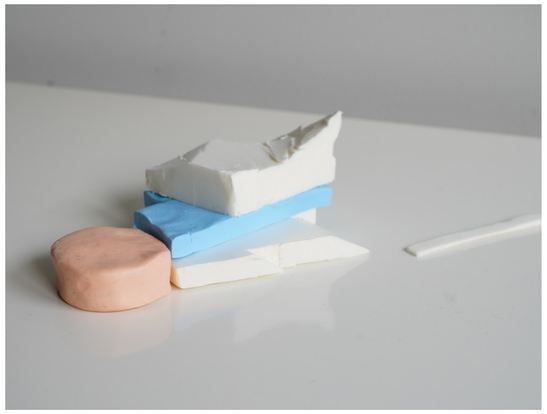
WORKING MODEL P2



north west



north

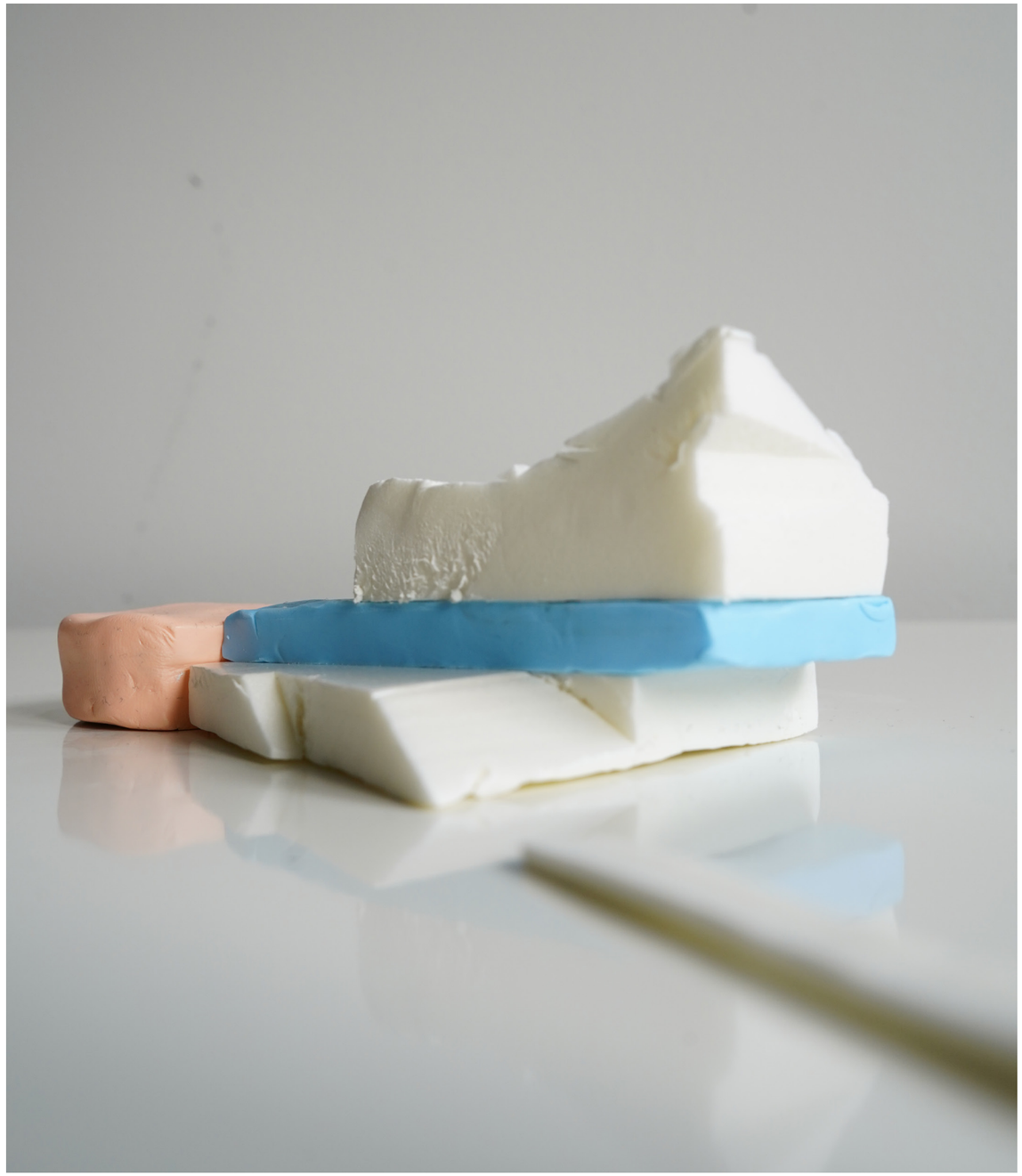


north east

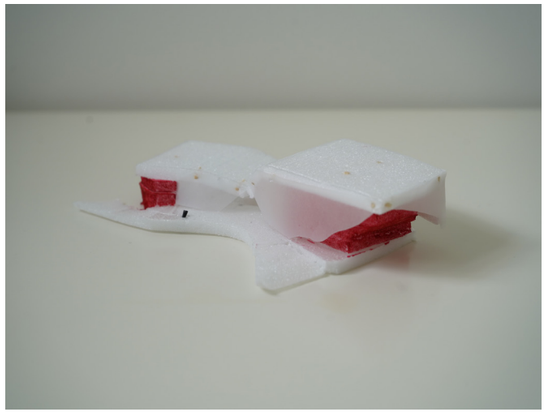
east

south

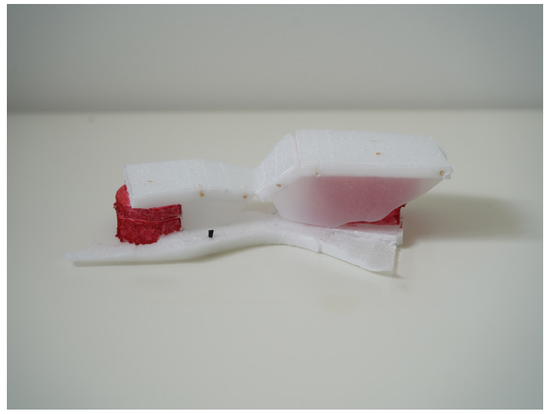
south west



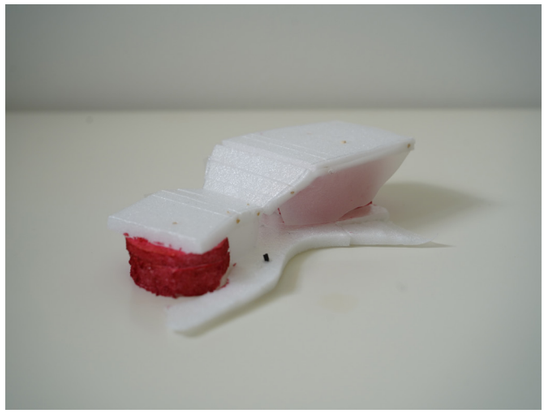
WORKING MODEL P4



north west

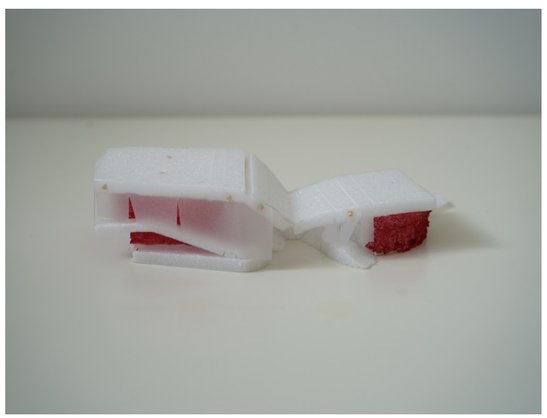


north

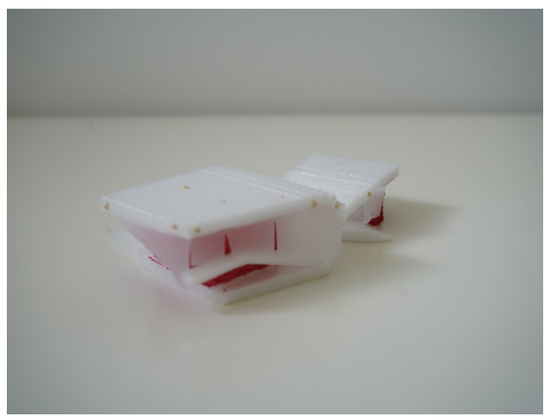


north east

east



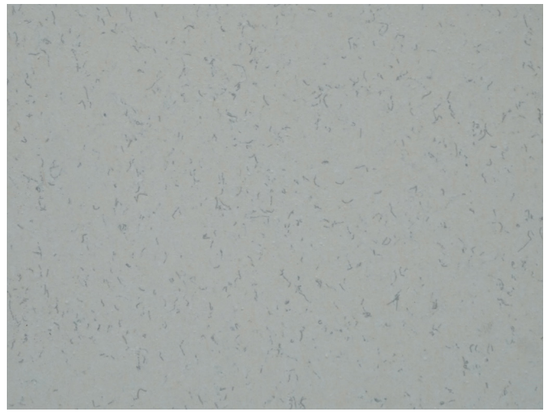
south east

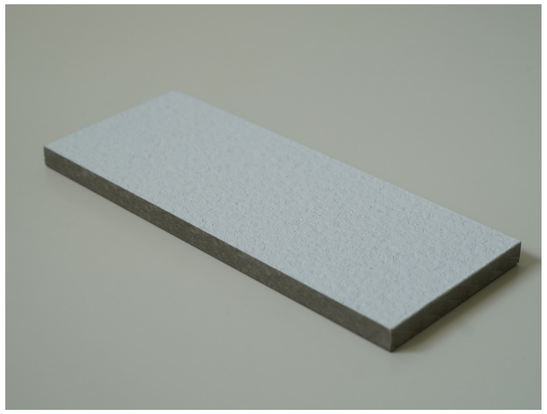


south

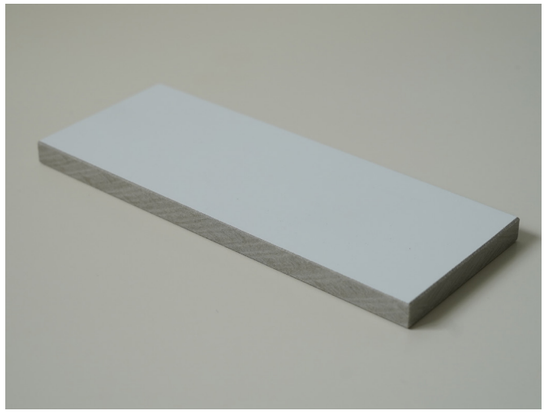
EQUITONE FIBRE CEMENT PANELS

Equitone natura





Equitone textura



Equitone pictura

SELF MADE SAND PATTERN PANELS

sand panels smooth texture

sand panels rough texture

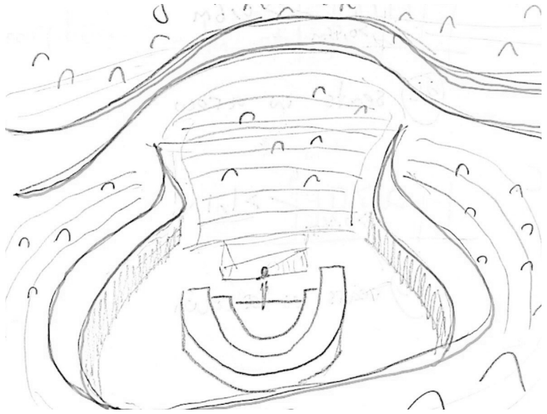
Equitone panels and sand pattern panels can both be found in the symphonic hall. The balconies will be cladded with the Equitone panels, while the walls will be cladded with the sand pattern panels for breaking acoustic reflections.

For the balconies, the Equitone pictura and for the walls the sand panels rough texture will be applied. This gives a satisfying contrast between rough sand and smooth flows.

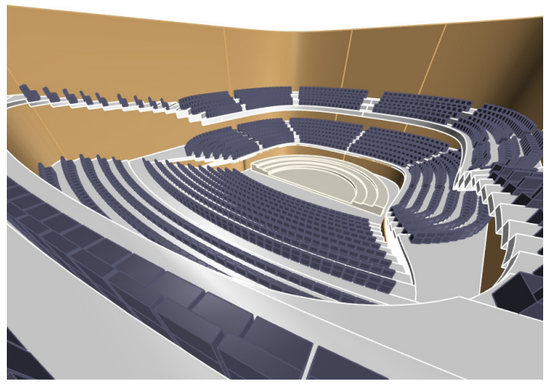
I've made the sand pattern panels myself with acrylic resin. However, the real ones will be made from fibre cement.

Fibre cement has been chosen because of its heavy wheight, which allows for a high acoustic reflection.

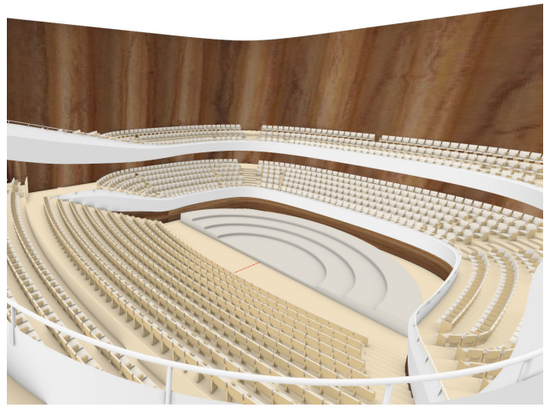
SYMPHONIC HALL EVOLUTION



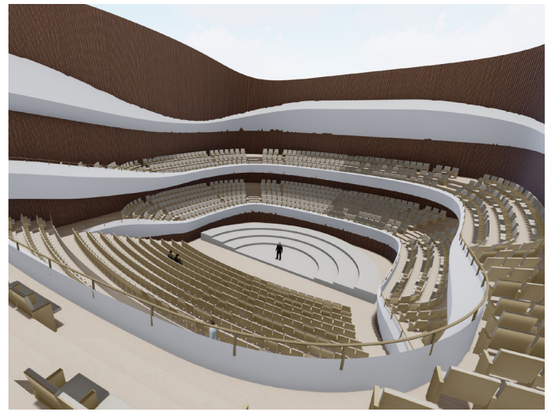
March 10



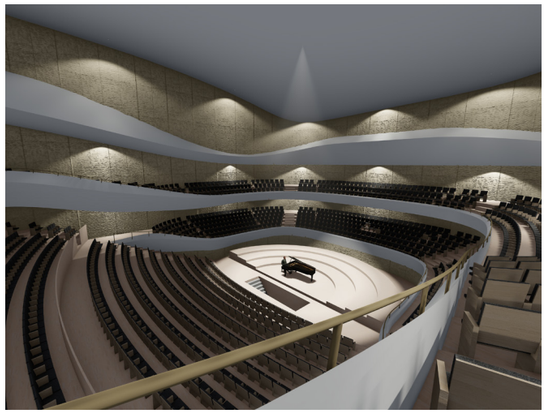
March 11



March 21



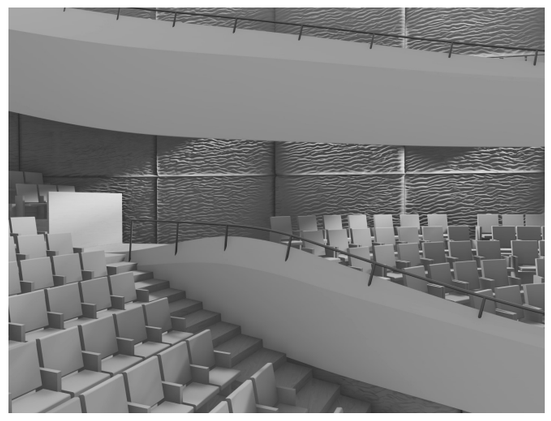
March 23



April 5 (for P3)

May 9 (for P4)

June 12 (for P5)



Seat design, wall texture and flows study

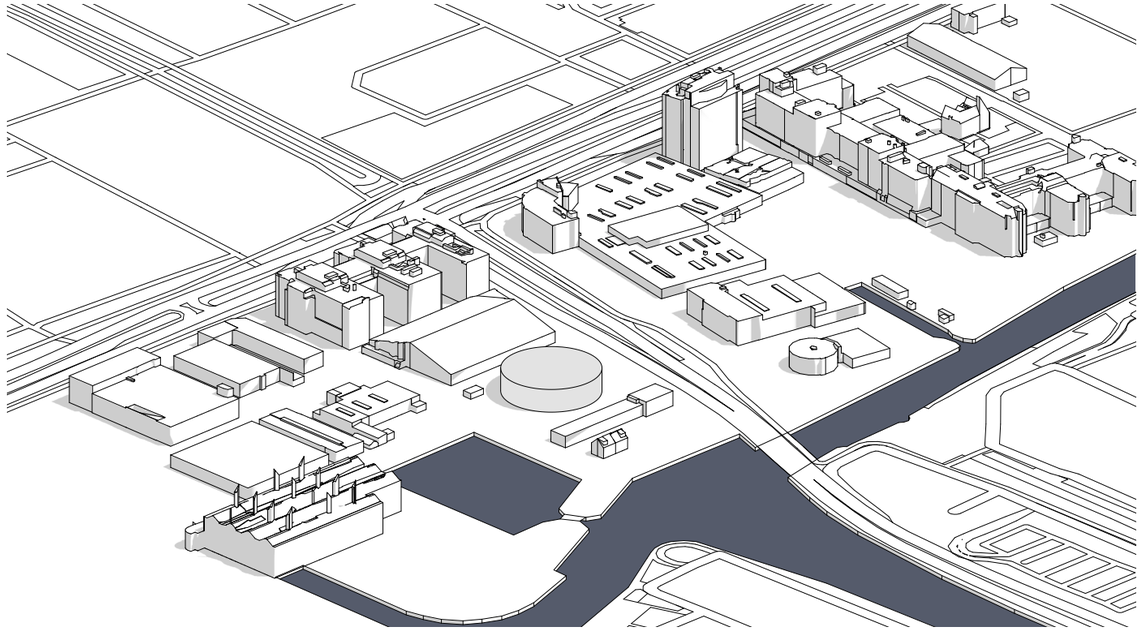
The concept emerged from the violin flow sketch. In the first day of desiging the 3D model, the overall dimensions of the floors were determined. The next step was to design the seats and calculate the hall capacity and stairs following Bouwbesluit building regulations. Flow lines joined all balconies together, creating a sense of connectedness. The roof kept following the acoustic line, while also allowing for a sufficient light plan and putting emphasis to the centre point above the orchestra.

FINAL DESIGN

FORM EVOLUTION

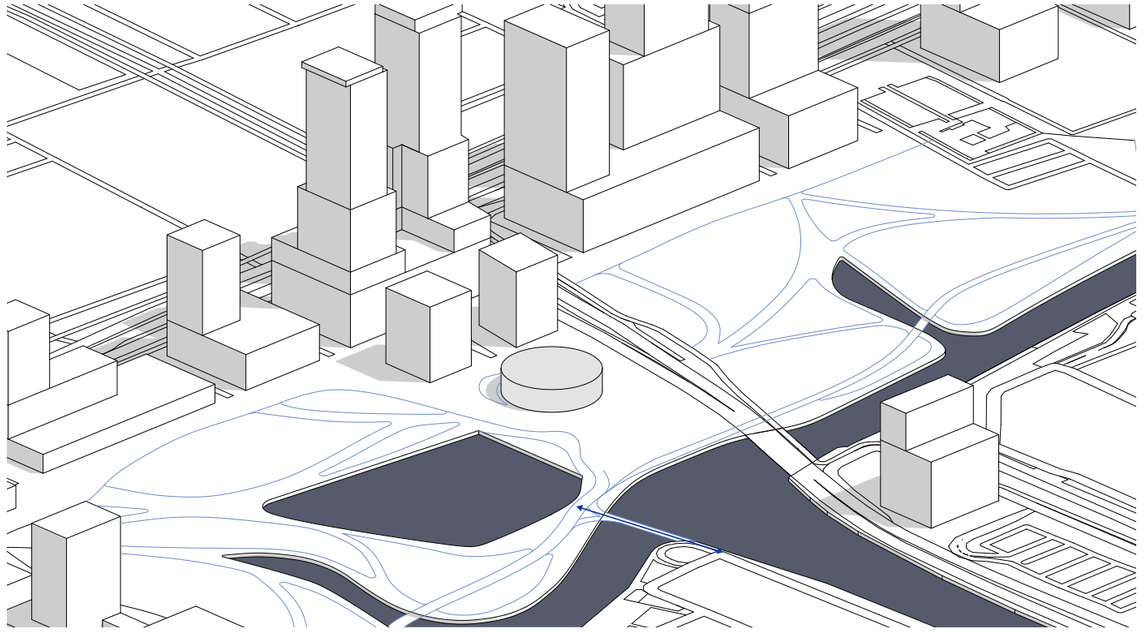
1. Current industrial situation

As a result of the current industrial character in Binckhorst and the surrounding thresholds, the site has become disconnected from the rest of the city.



2. Future developments

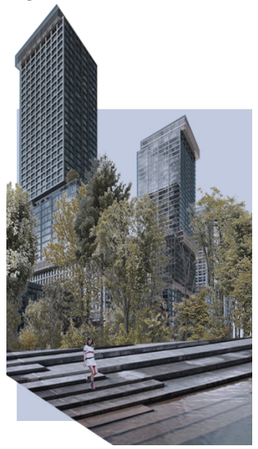
High density housing will be built in the Binckhorst in the future. As an addition to this, the entire waterfront will be redeveloped with a park. A connection is needed to the neighbourhoods across the water. The viaduct along the Mercuriusweg is very difficult to cross for pedestrians. Therefore, a pedestrian and cyclists bridge will make Binckhorst accessible coming from Holland Spoor and surrounding neighbourhoods.



3. Plinth as an extension of the grid

To break through the grid, it must first be continued. Usually a plinth houses the public functions, this is what happens in the surrounding buildings. However, in the music venue, the plinth is needed to overcome. As a result, the private functions are placed in here. Recording rooms, dressing rooms and backstage areas can all be found here.

park avenue

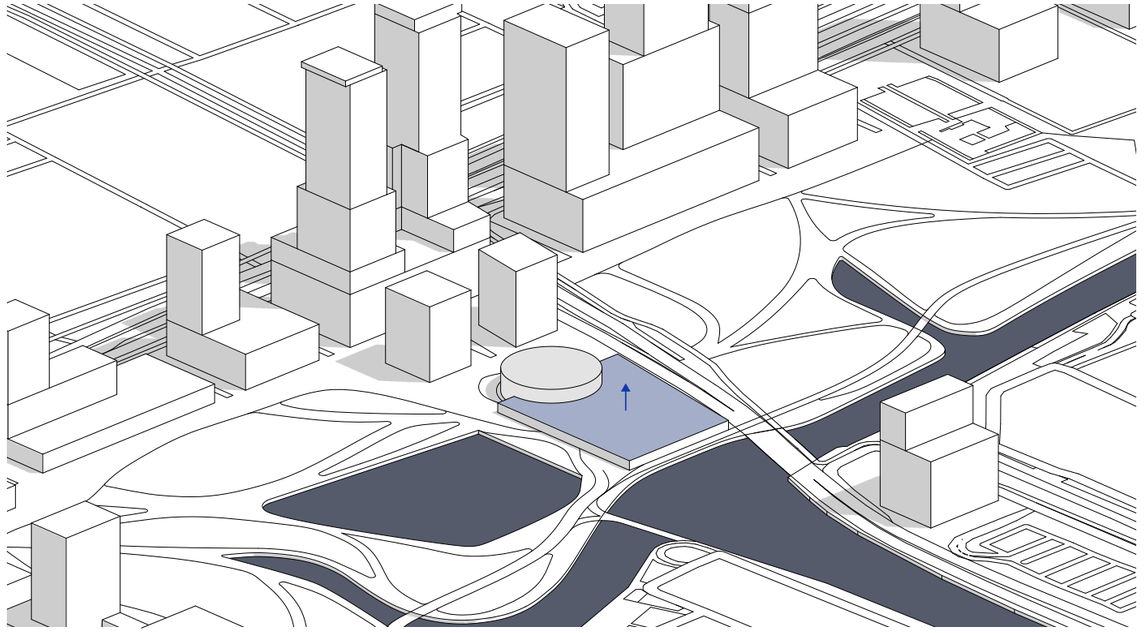


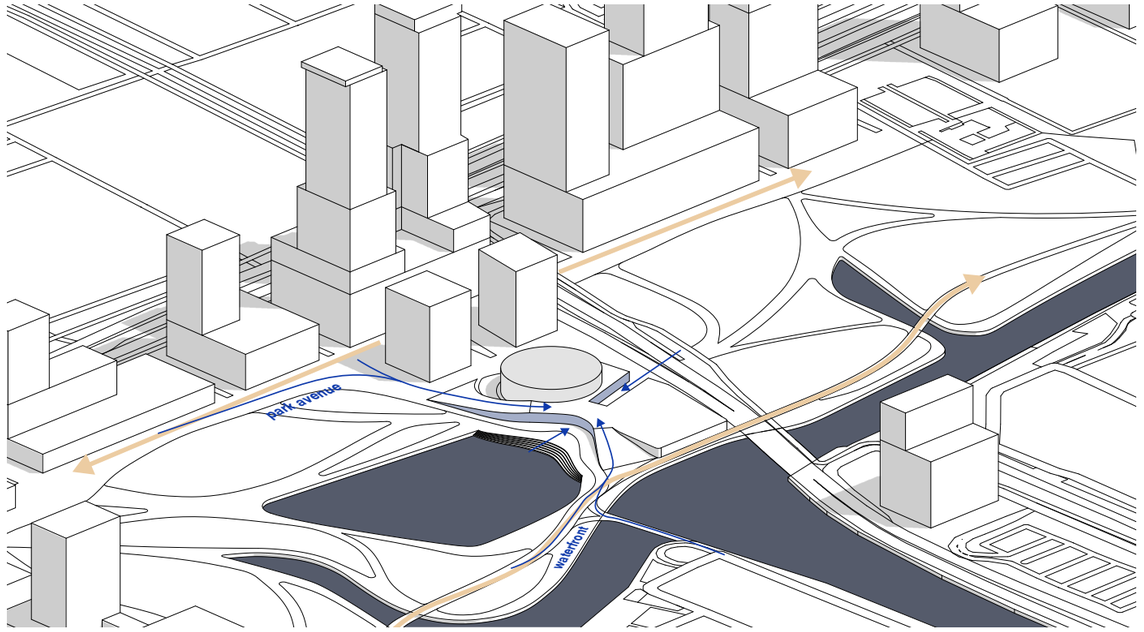
waterfront

4. Manipulating the grid with stairs and a grand entrance

By manipulating the plinth to the context of surrounding spaces, the separation will be formed. On the north side, the park avenue and waterfront will be connected to the building. A wide waterfront stair allows also for a seating area, while the stairs on the side of the park avenue are more of an extension of the avenue.

The south side on the Mercuriusweg will have a grand entrance to the building. Here will be a bus stop and the public parking garage exit (situated underneath the skyscrapers behind the silo).





FORM EVOLUTION

5. Positioning halls according to different experiences

The halls will be placed in the building according to the audiences' personality traits. Jazz is positioned alongside the park avenue route.

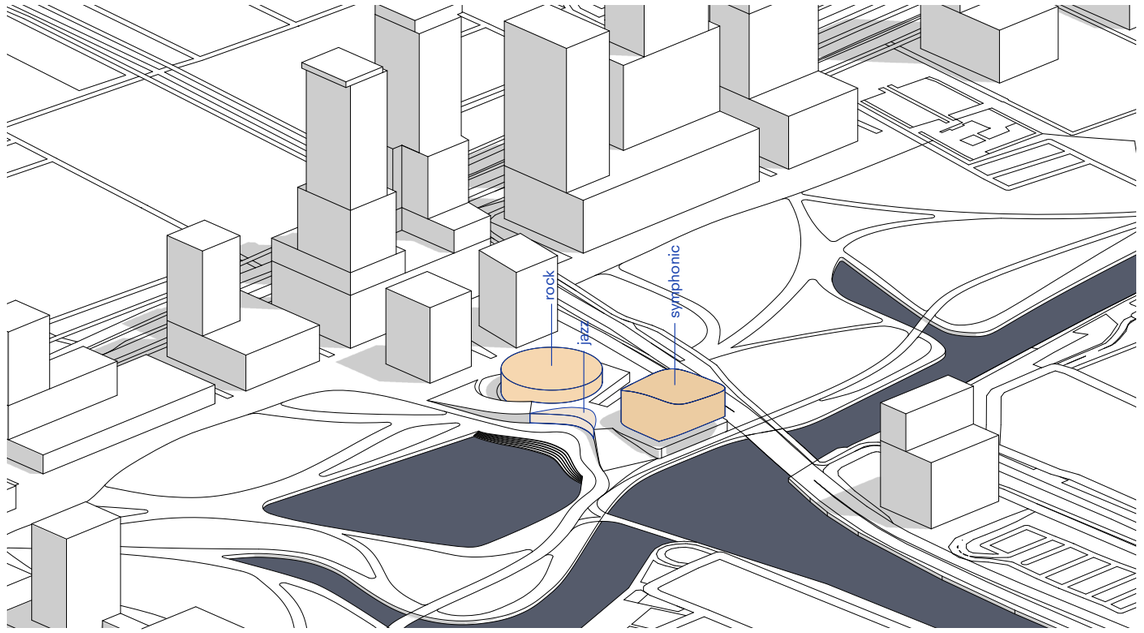
Jazz is about extraversion, hence people would want to walk by and stop for a drink and some amazing jazz music. Rock music will be played in the old silo. The historical layer of this place adds to the excitement. Symphonic is about the experience. Hence, it will be anticipated as a monument on top of the grid and hanging over the water where people would want to go to.

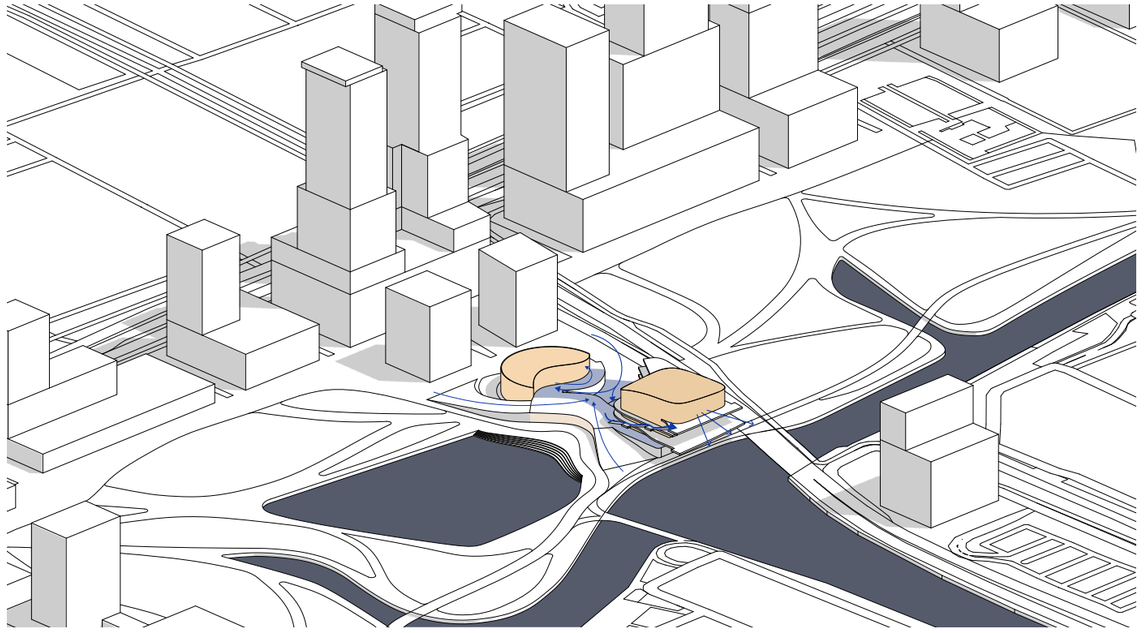
These halls can each be identified by their unique geometrical shape. They will all be cladded with a similar material so they will be perceived as three halls within a landscape. The Hague is known for its beach at Scheveningen. Here are beautiful sand dunes formed by the wind. It would fit the building architectonically and acoustically if the cladding on these walls will be made with sand pattern panels.

6. Circulation cultivates the architecture of fluidity

Next step was to create a complete contrast to the orthogonal surroundings. A ruled system versus freedom. Fluidity creates an unusual architecture that we are not used to, which makes you feel like entering a different realm. Therefore the circulation system is based on movements from the context towards the hall.

Since the halls all have a different geometry, there should come an architecture that overpowers them, but also respects them as monuments. Fluidity is therefore used as a technique to join all the music halls together.

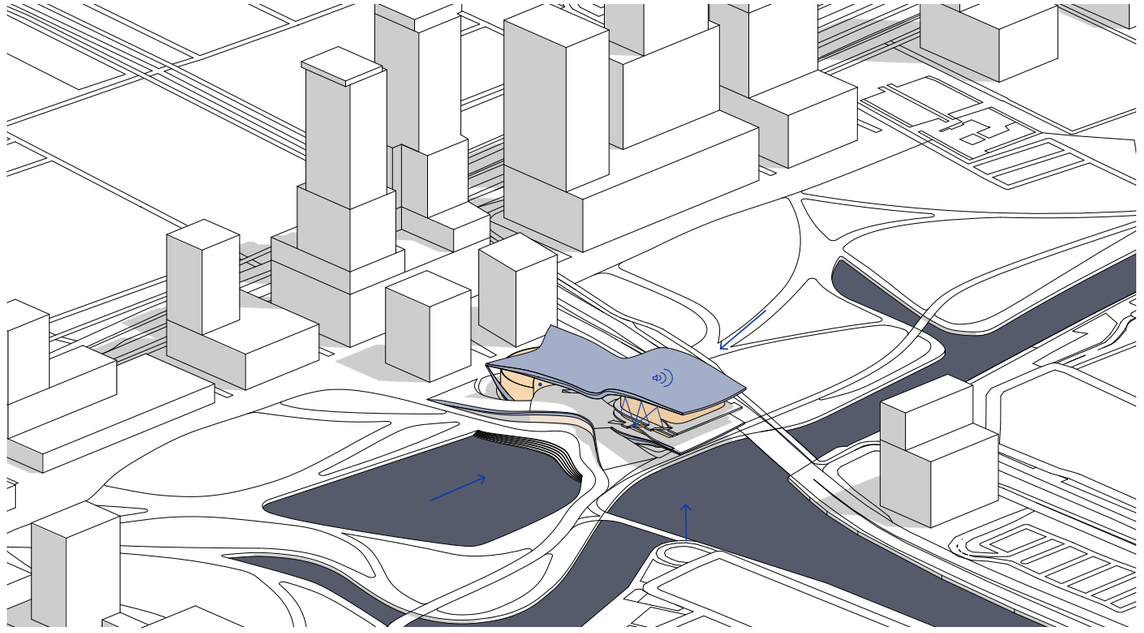




FORM EVOLUTION

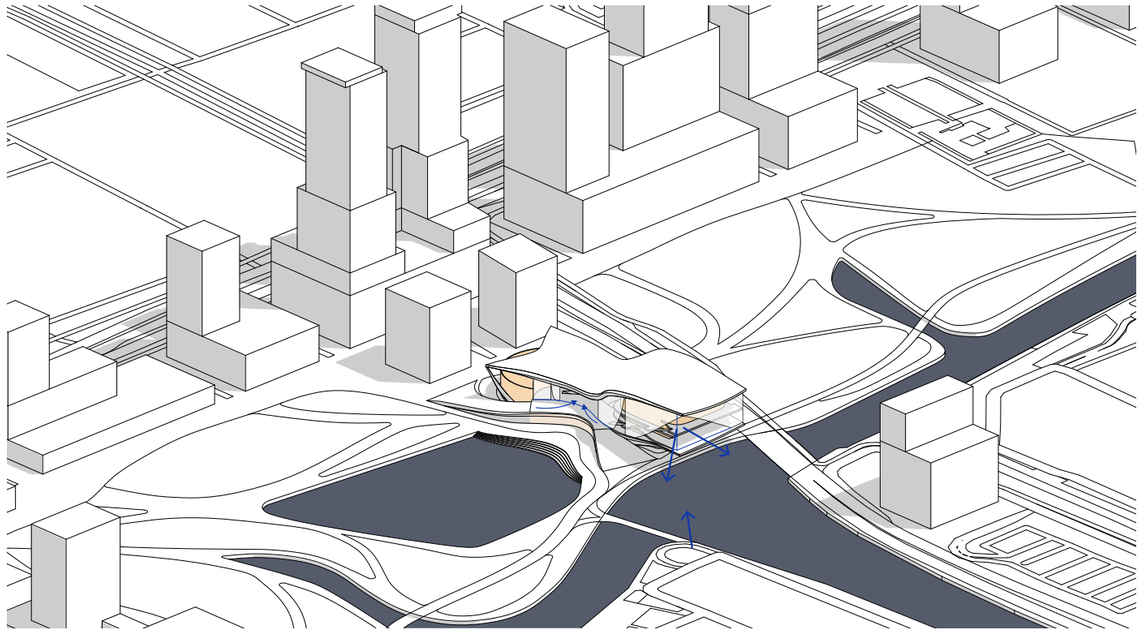
7. Flows shaped following movements, perspectives and acoustics

By highlighting the fluid shapes through so called “flows”, the design becomes more dynamic. Especially the roof, which plays a big part in this composition, is recognisable. It responds to the fluidity of the circulation, but also adds parameters like acoustics.



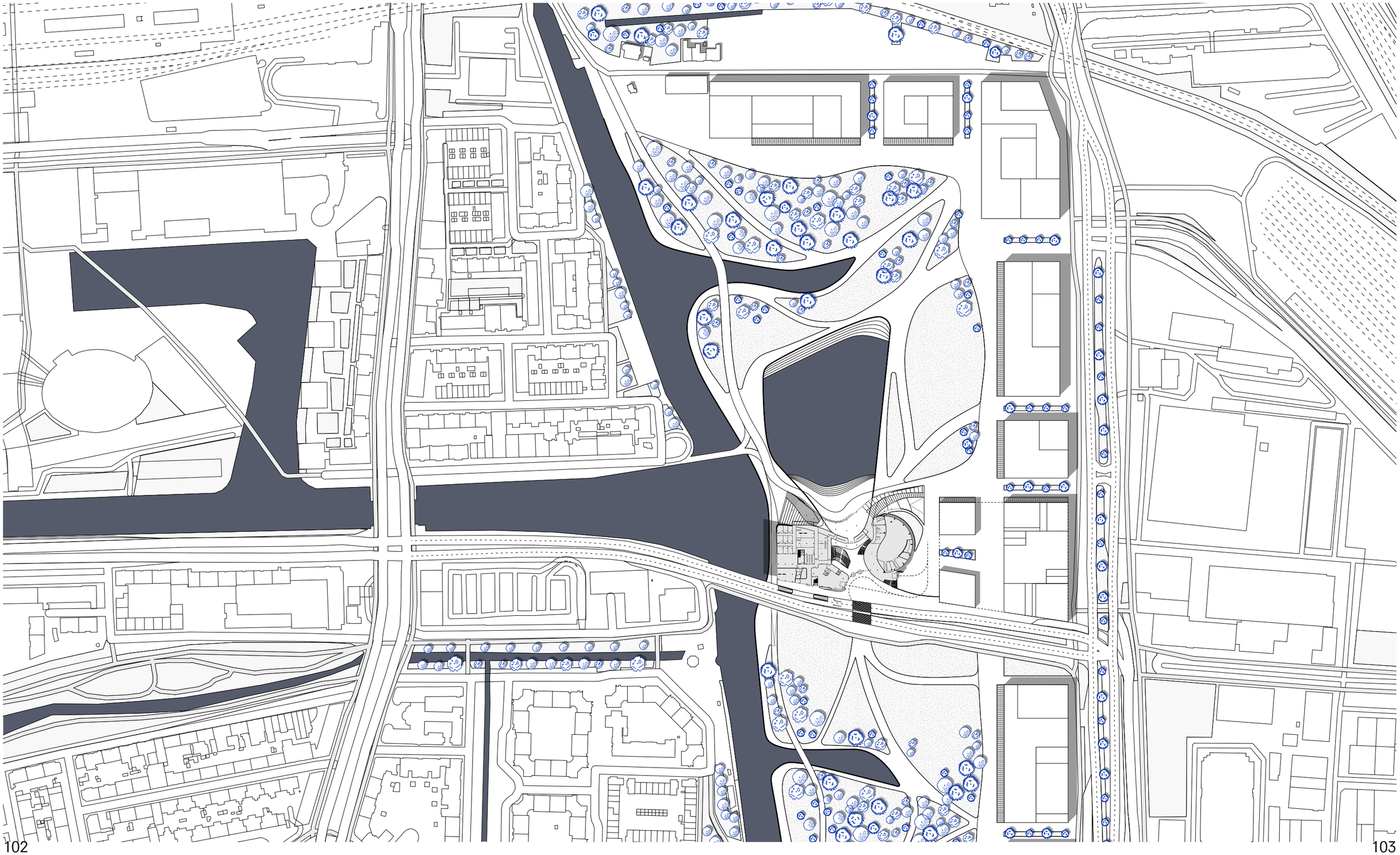
8. Blurring inside or outside through the facade

A semi transparant curtain made of nautical rope will be hung from the roof, blurring the inside or the outside. Blurring is a method that drives the transition phase. You can not entirely see the outside and neither the inside. The space behind the curtain literally becomes inbetween the music and the city. Moreover, when the wind blows on the curtain, the shadows cast on the interior will act as a moving shadow painting.



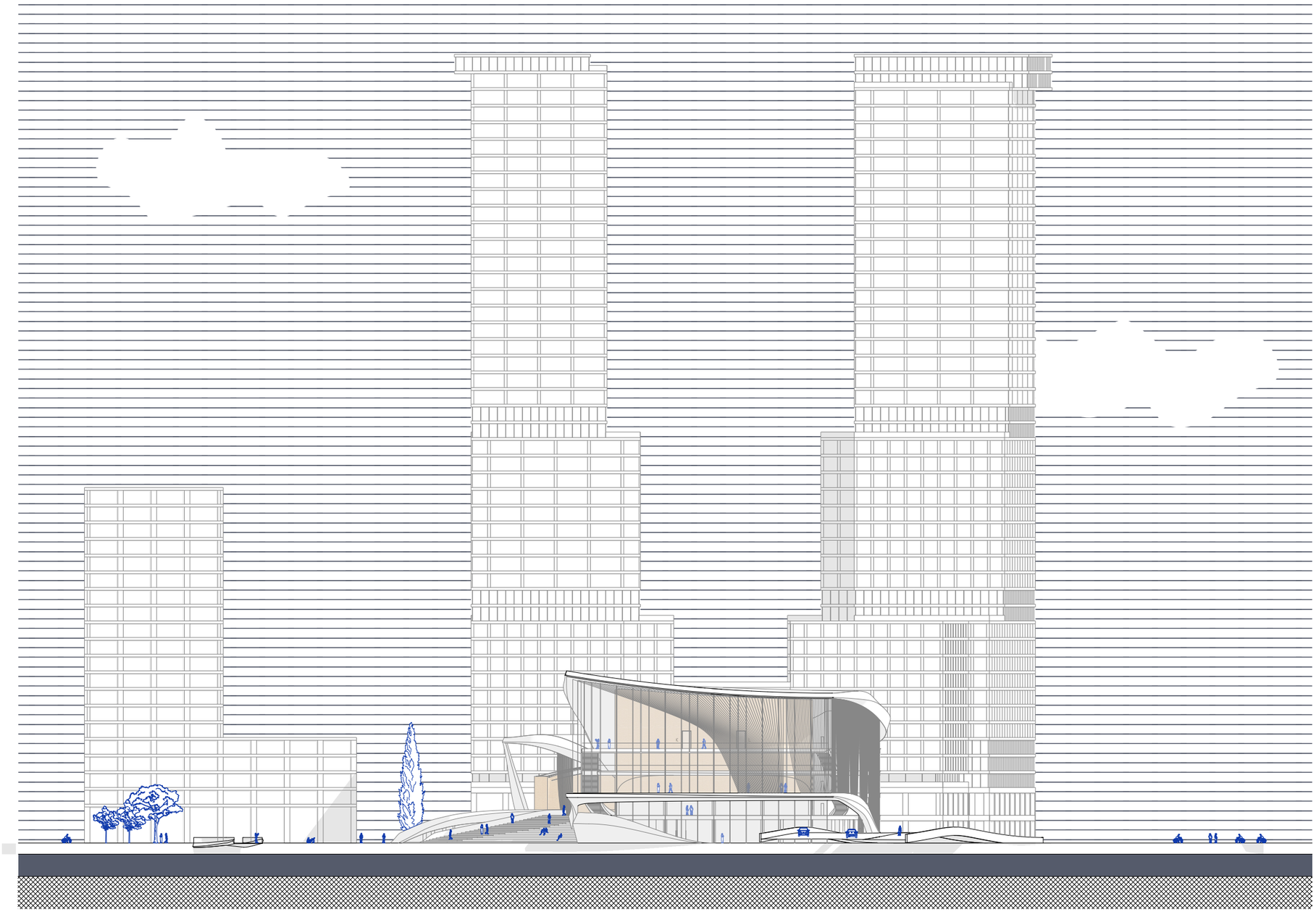
SITE PLAN (NOLLI)

1:2000 (scaled to 1:3000)



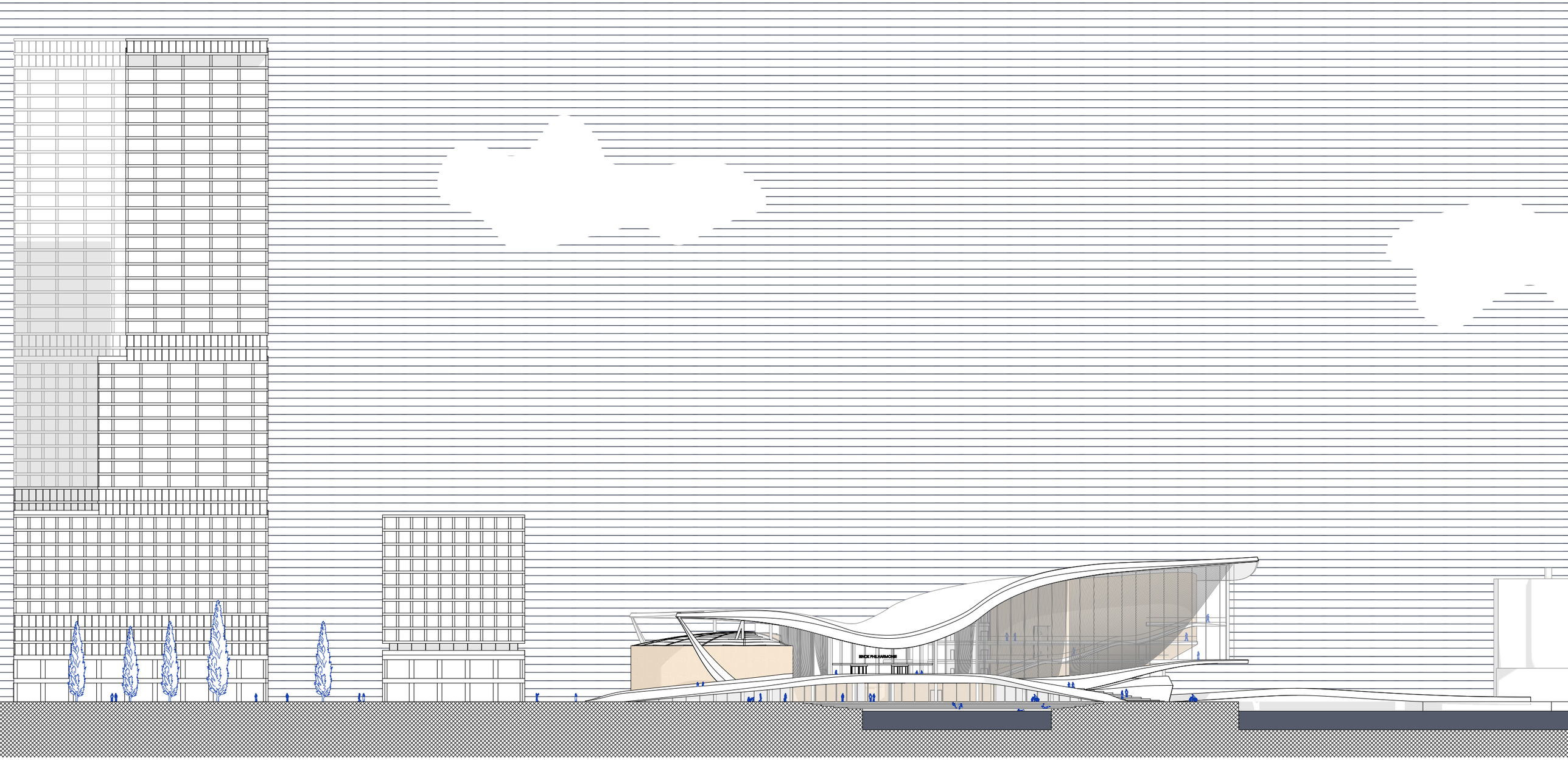
WEST ELEVATION

1:500 (scaled 25%)



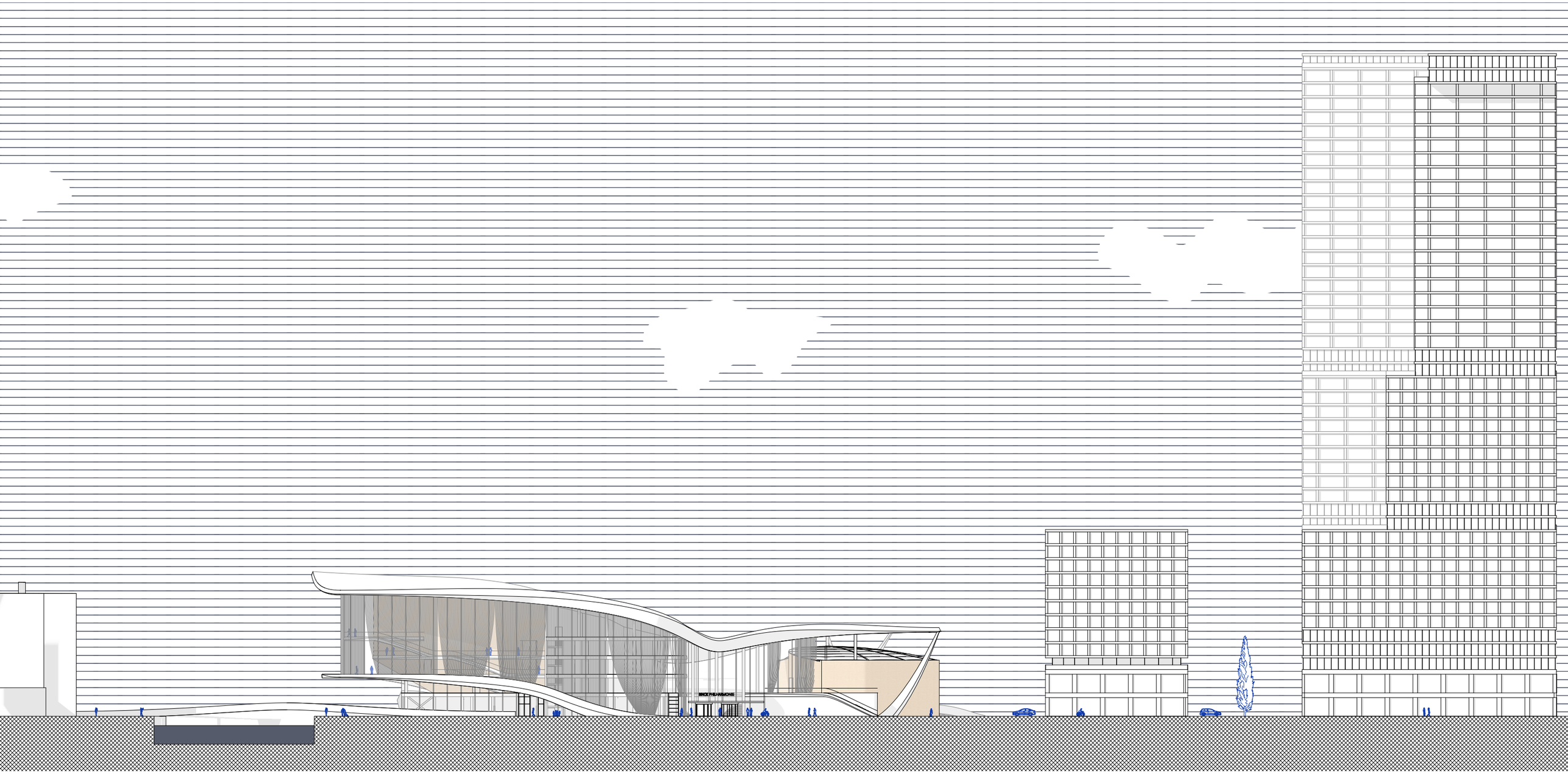
NORTH ELEVATION

1:500 (scaled 25%)



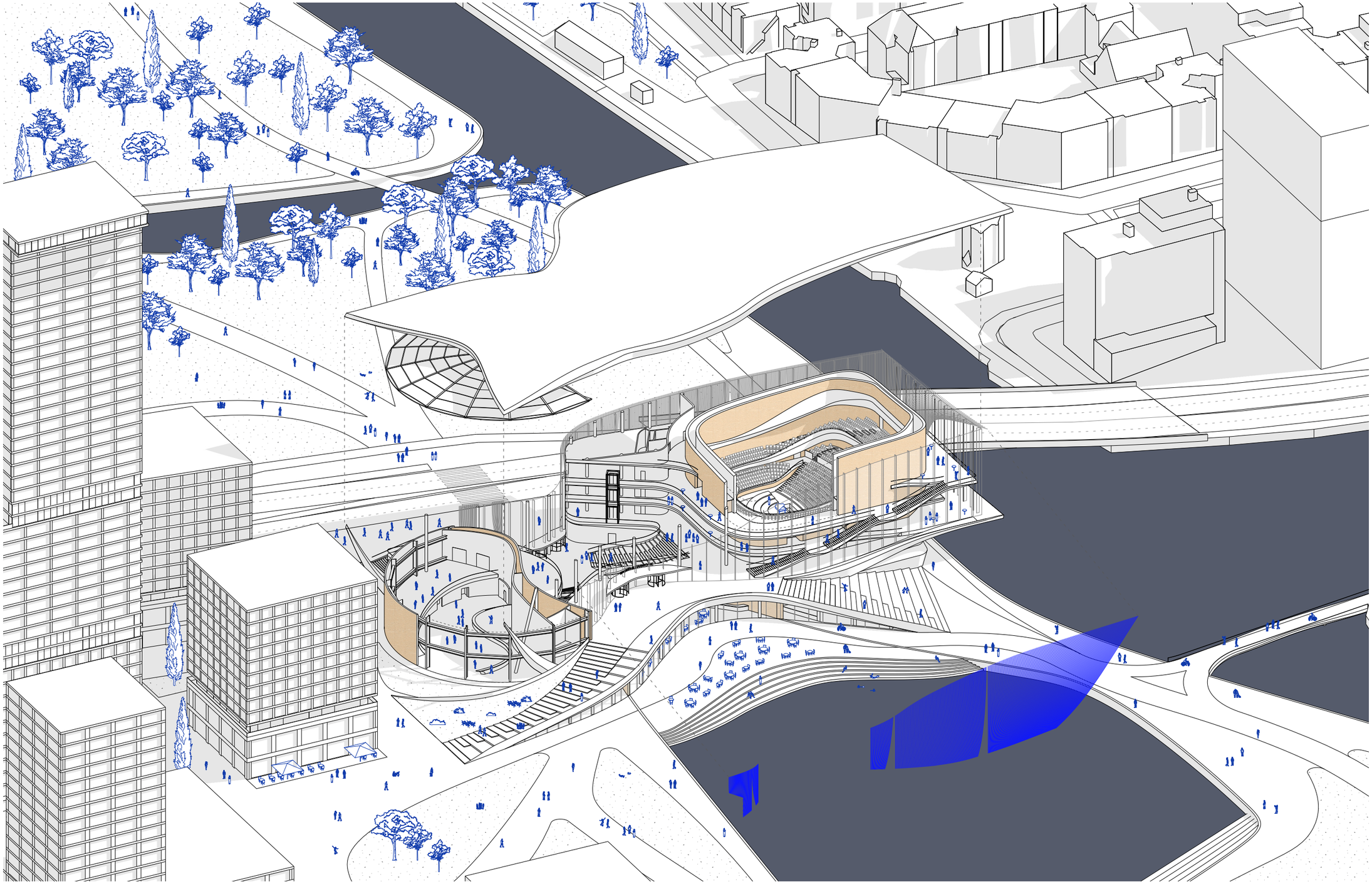
SOUTH ELEVATION

1:500 (scaled 25%)



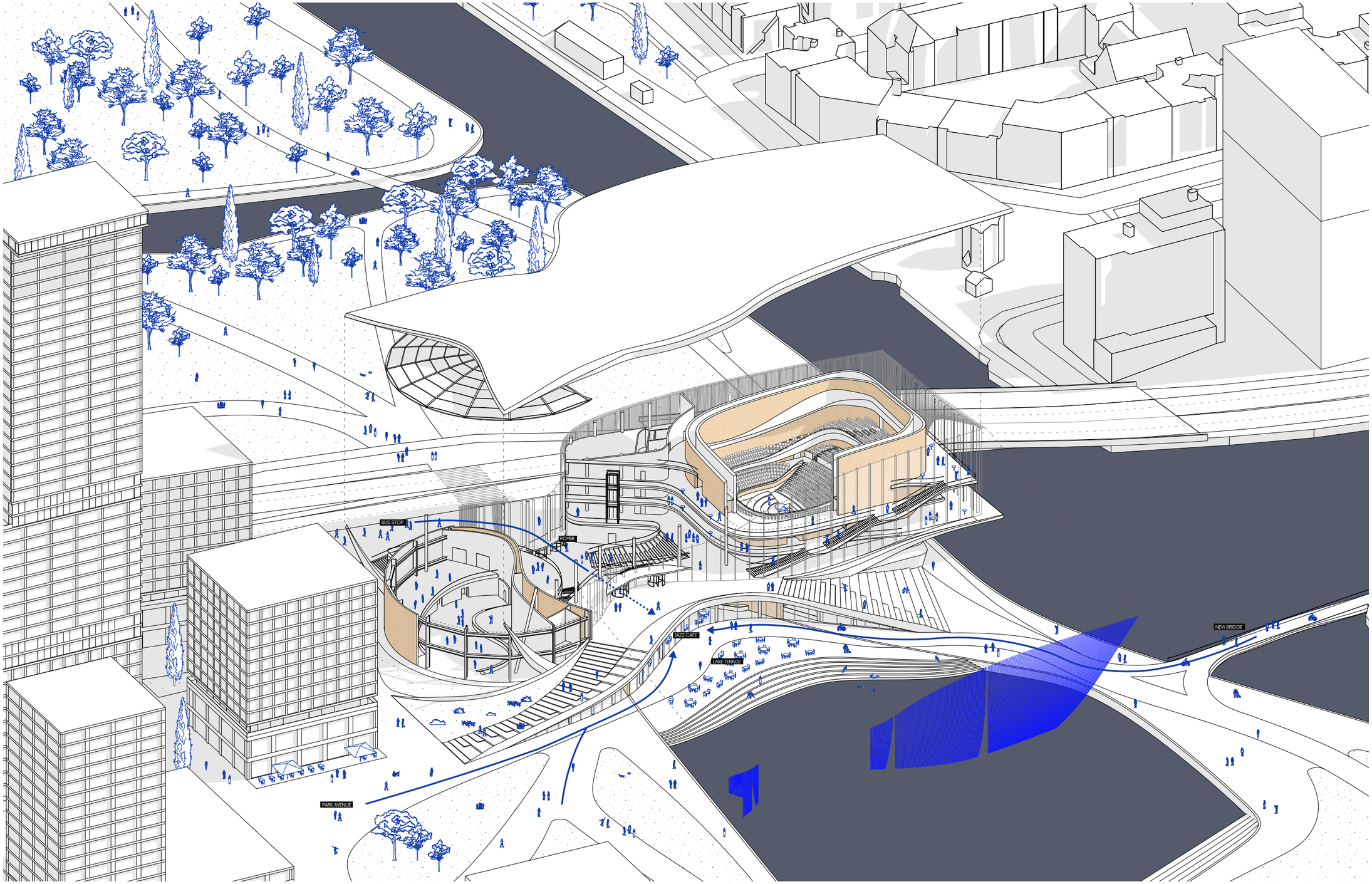
EXPLODED AXONOMETRIC

1:200 (scaled 25%)



MOVEMENTS JAZZ

1:200 (scaled 25%)



MOVEMENTS ROCK

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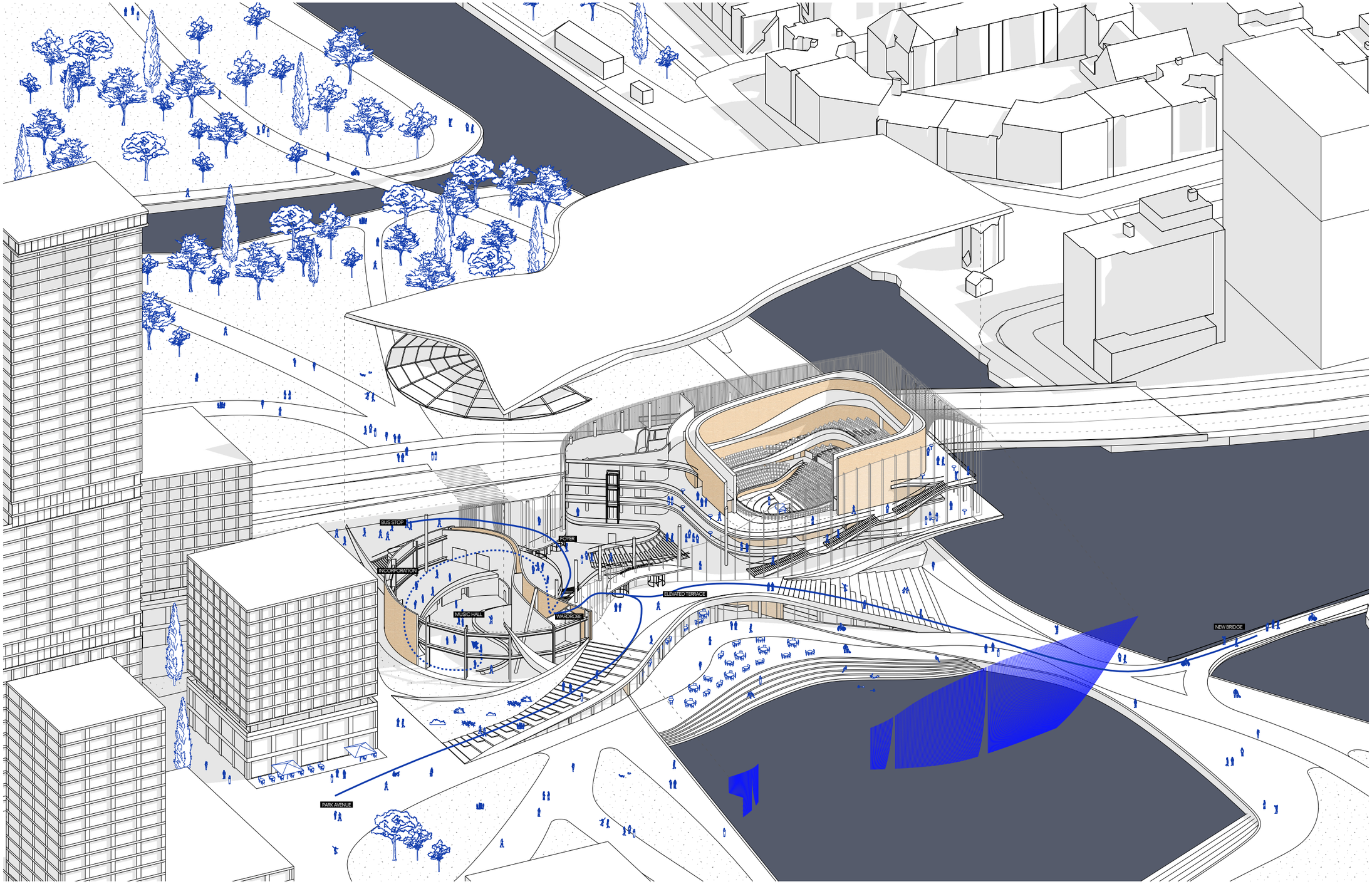
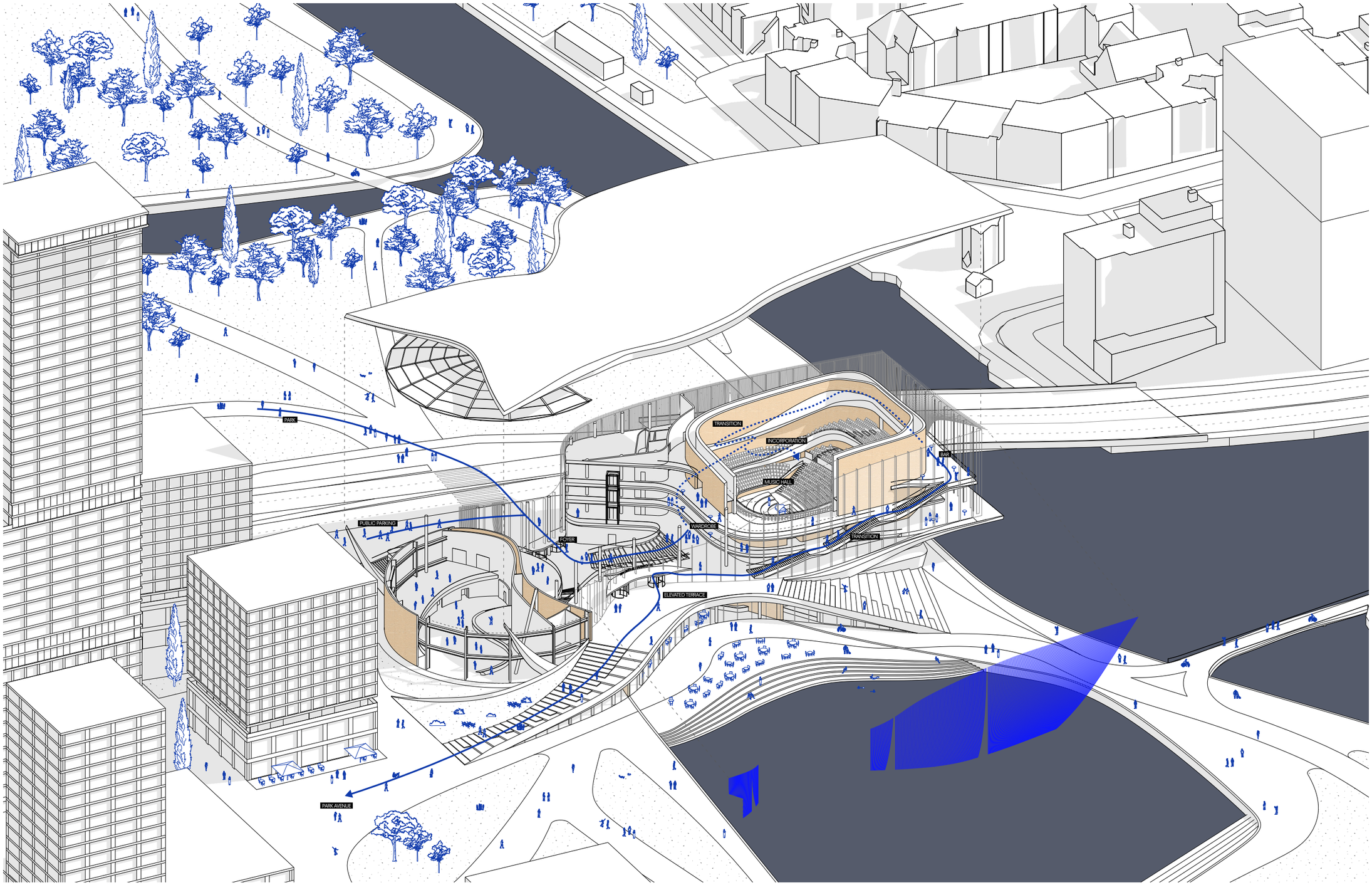


MOVEMENTS SYMPHONIC

1:200 (scaled 25%)

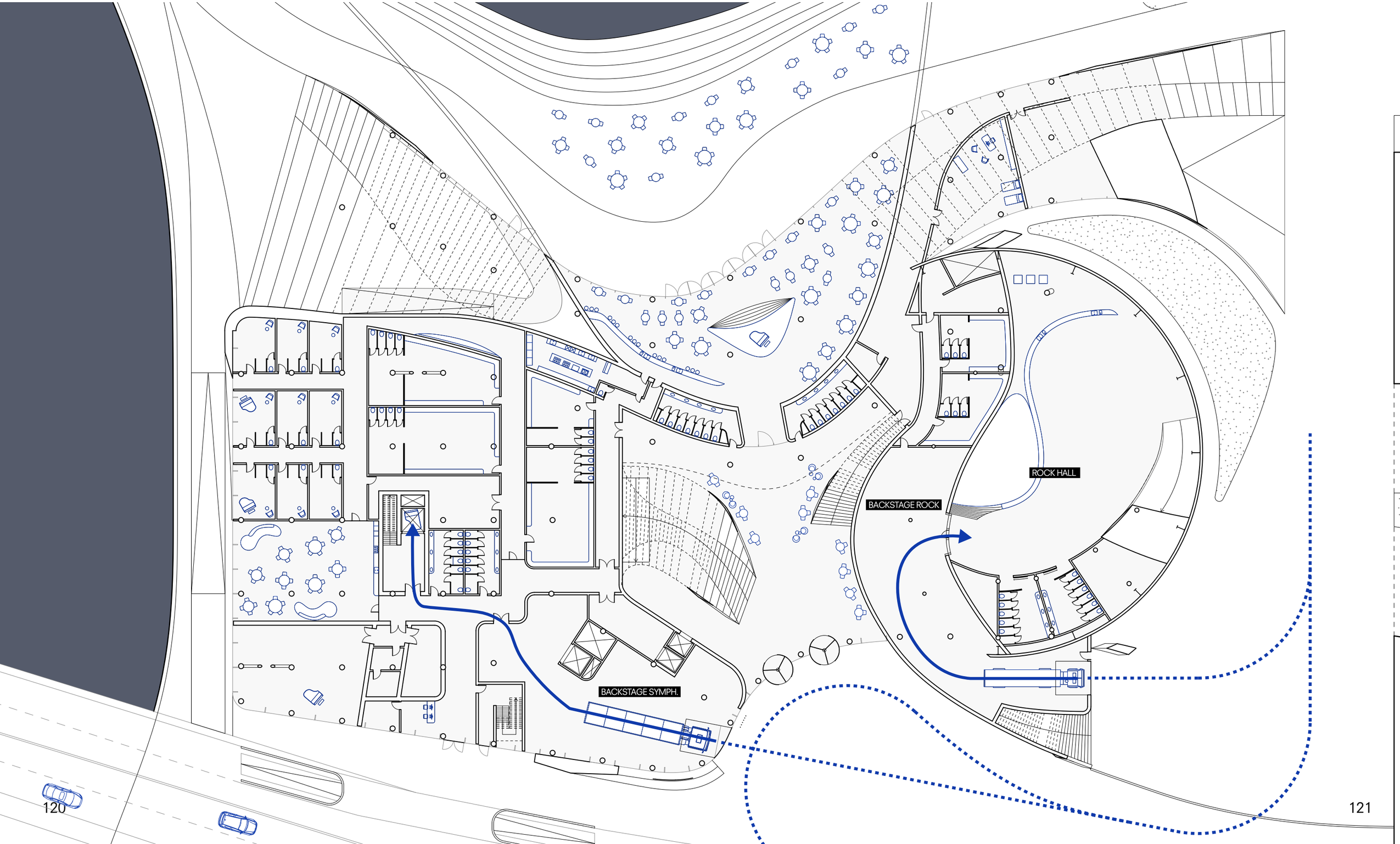


GROUND FLOOR (P=0M)

1:200 (scaled 1:400)

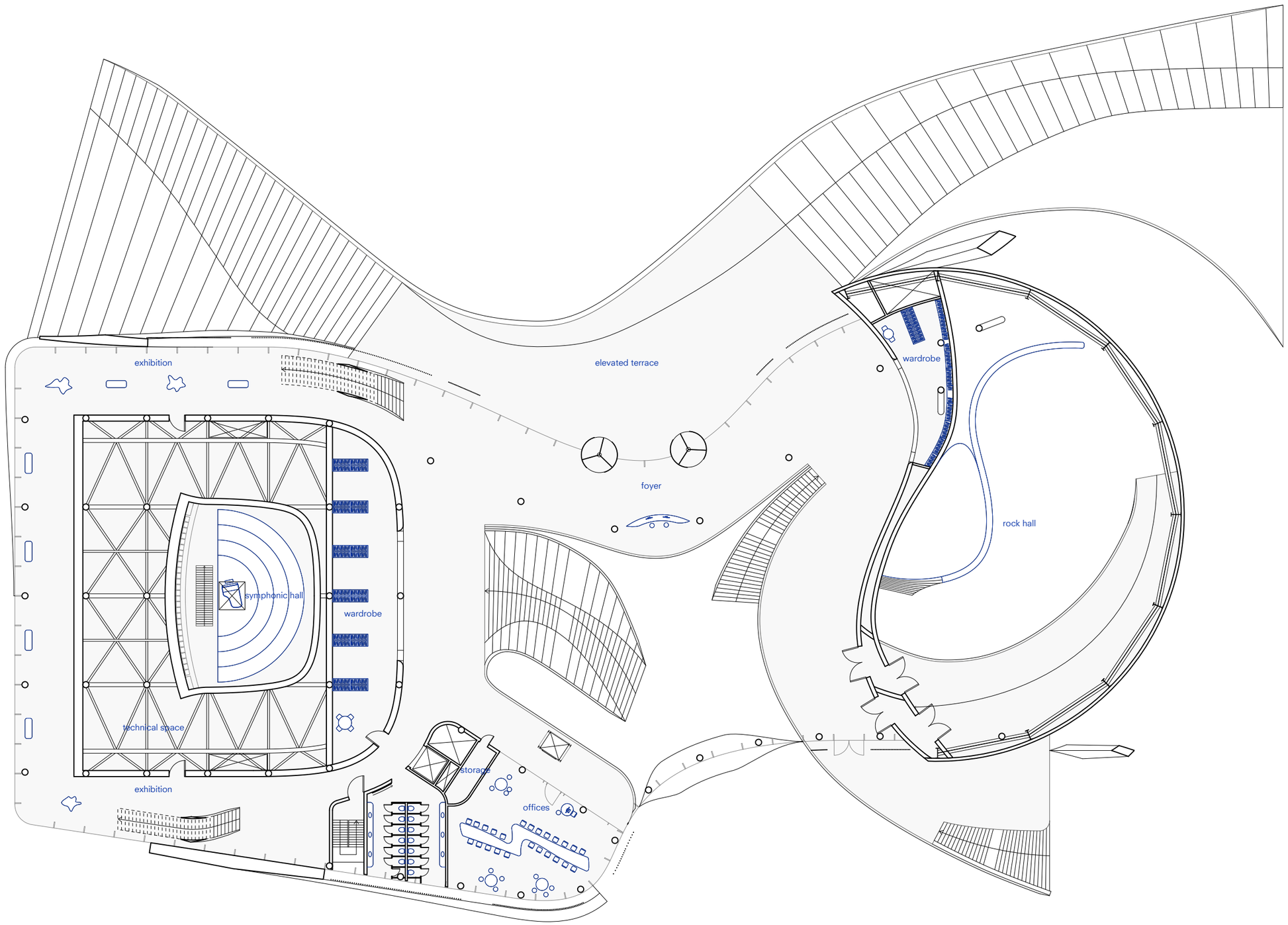
GROUND FLOOR (P=0M) LOGISTICS

1:200 (scaled 1:400)



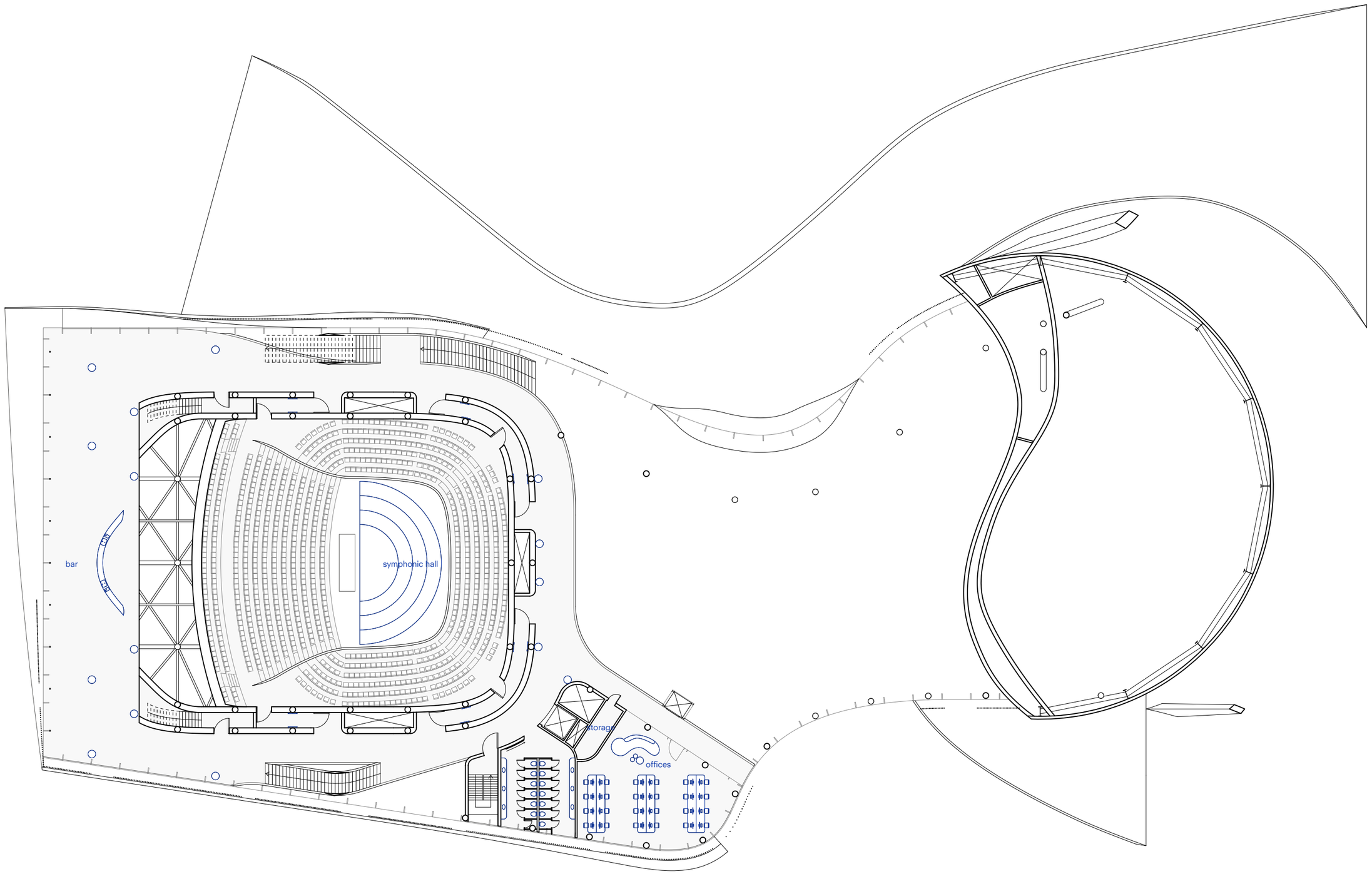
1ST FLOOR (+5M)

1:200 (scaled 1:400)



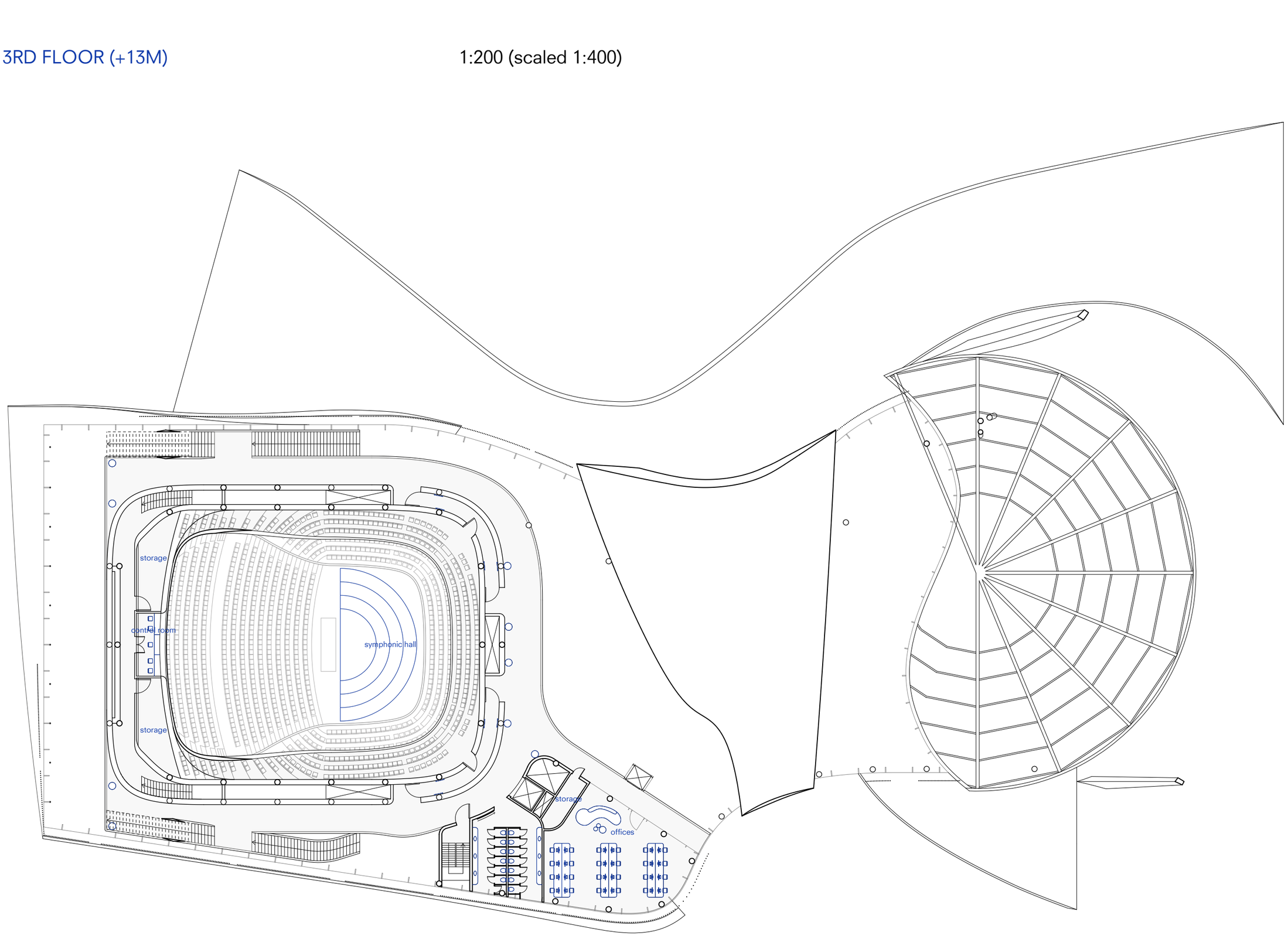
2ND FLOOR (+9M)

1:200 (scaled 1:400)



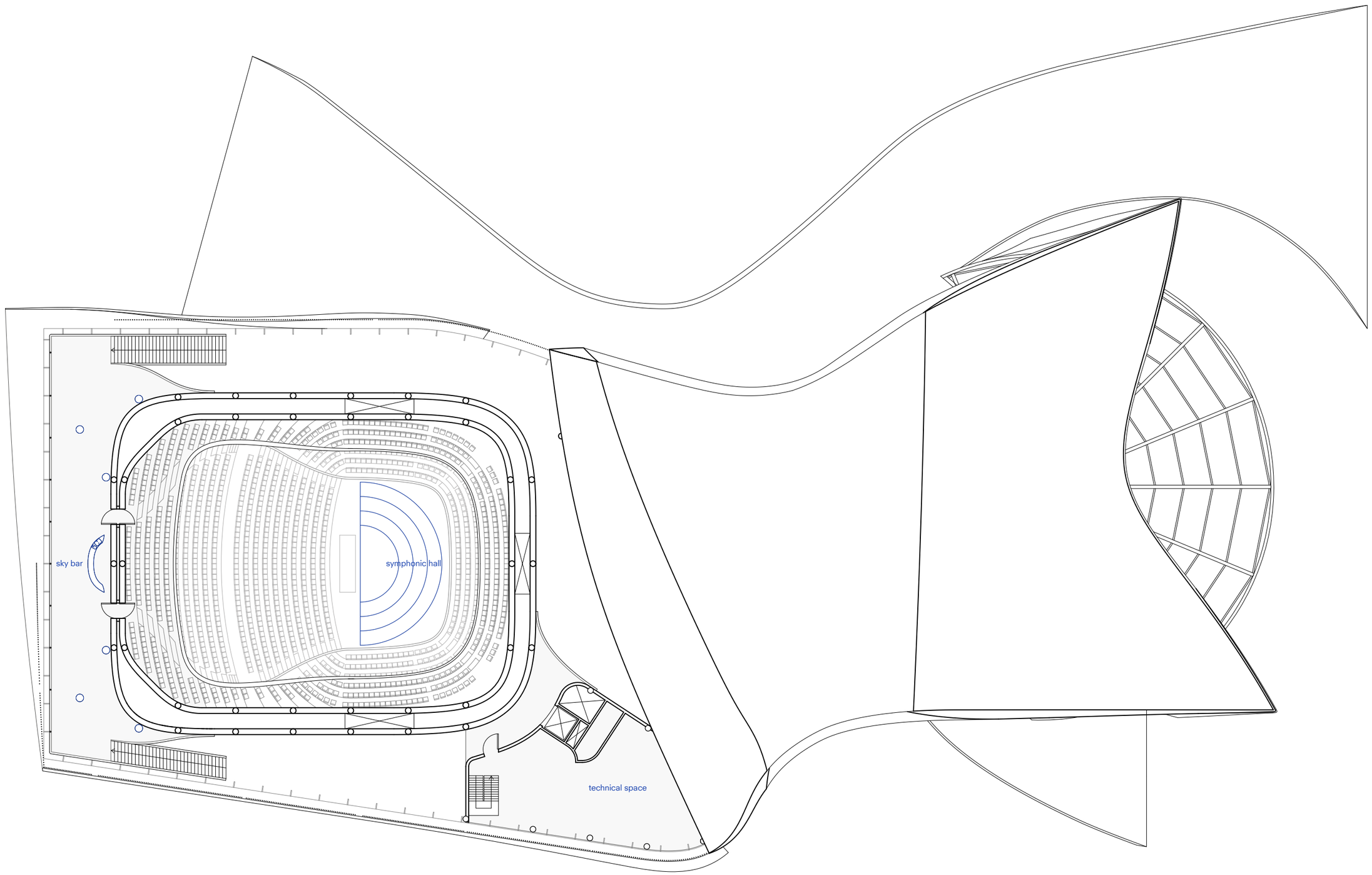
3RD FLOOR (+13M)

1:200 (scaled 1:400)



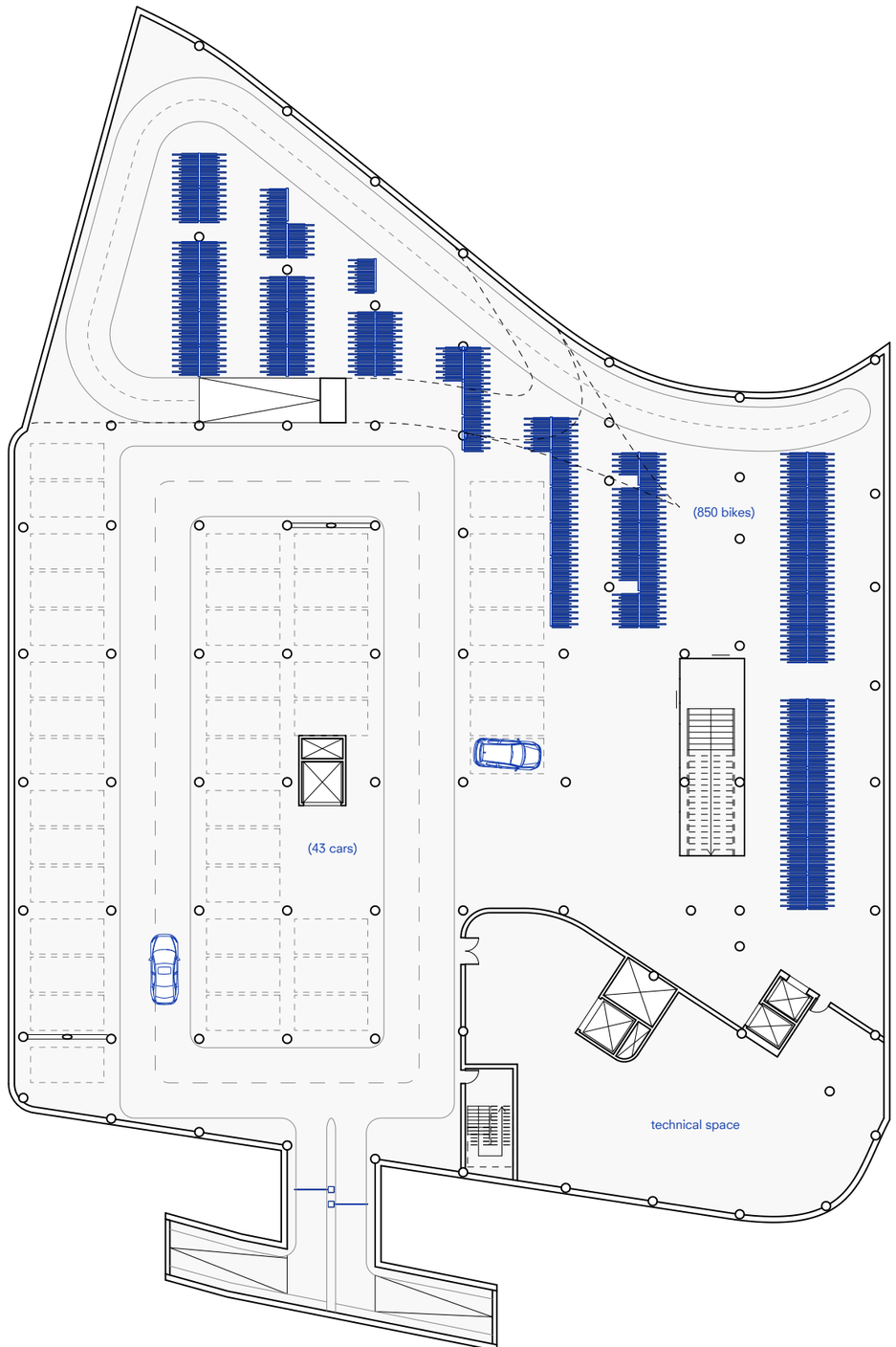
4TH FLOOR (+17M)

1:200 (scaled 1:400)



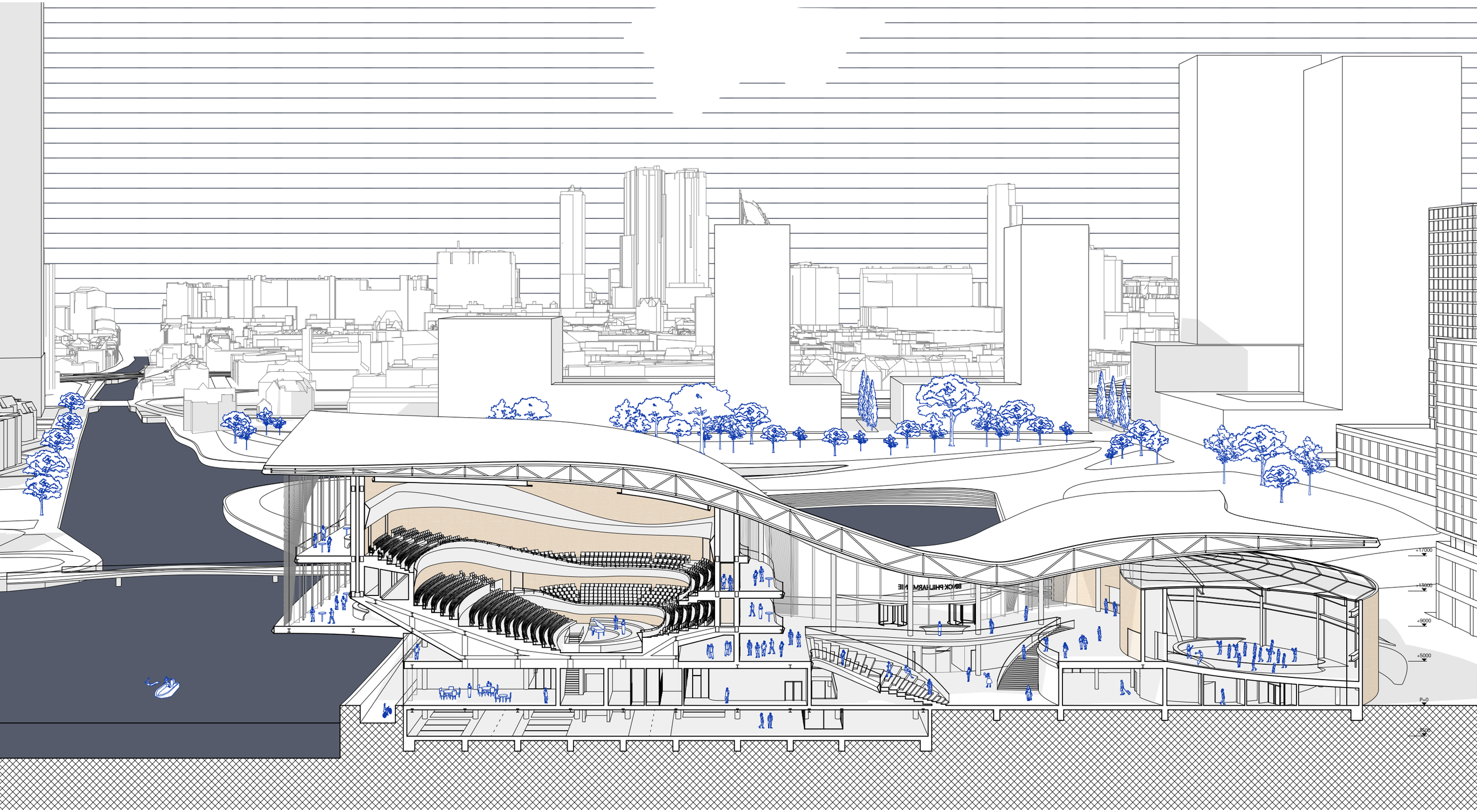
-1 (-3,5M)

1:200 (scaled 1:400)



SECTION

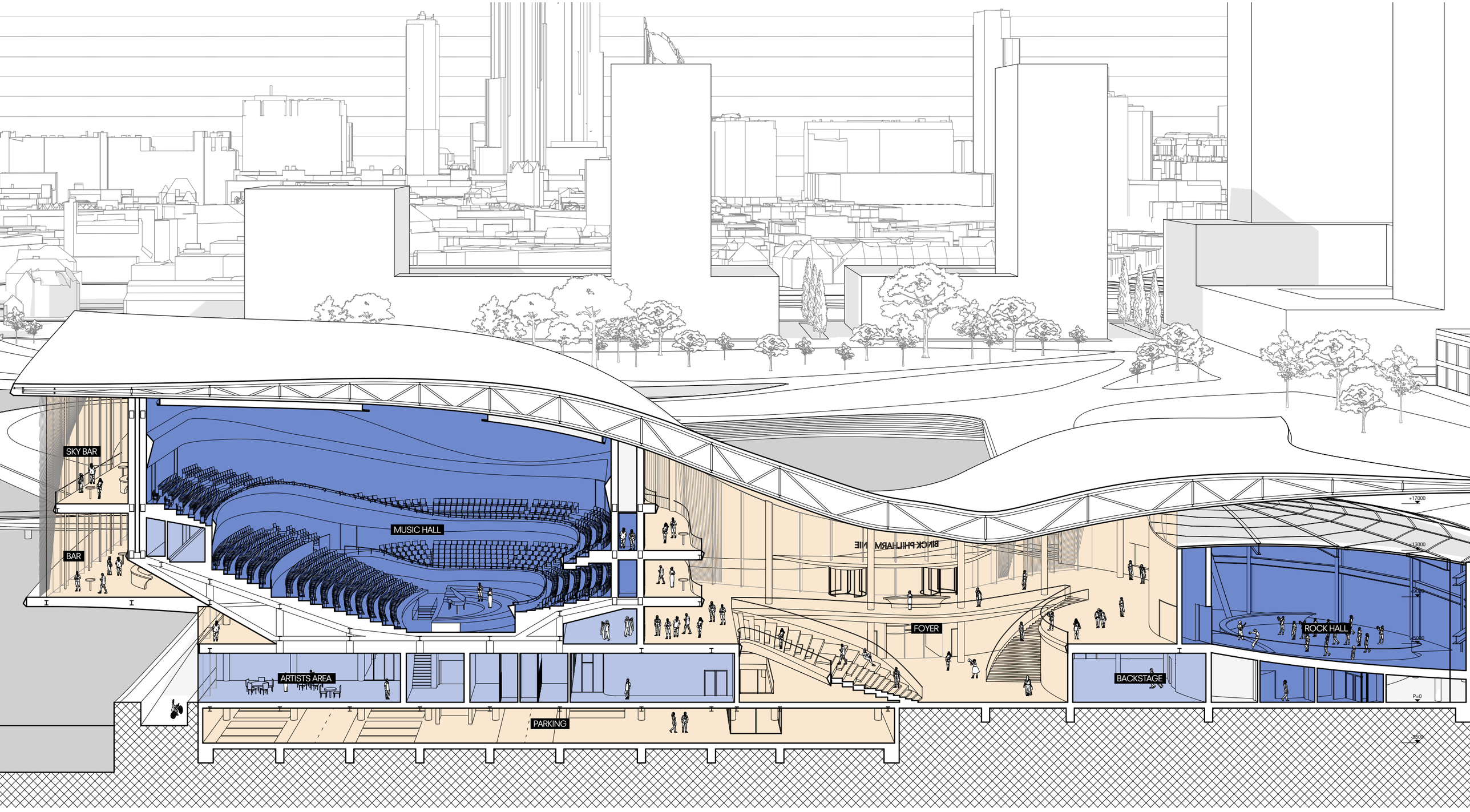
1:200 (scaled 1:400)



SECTION ZONING

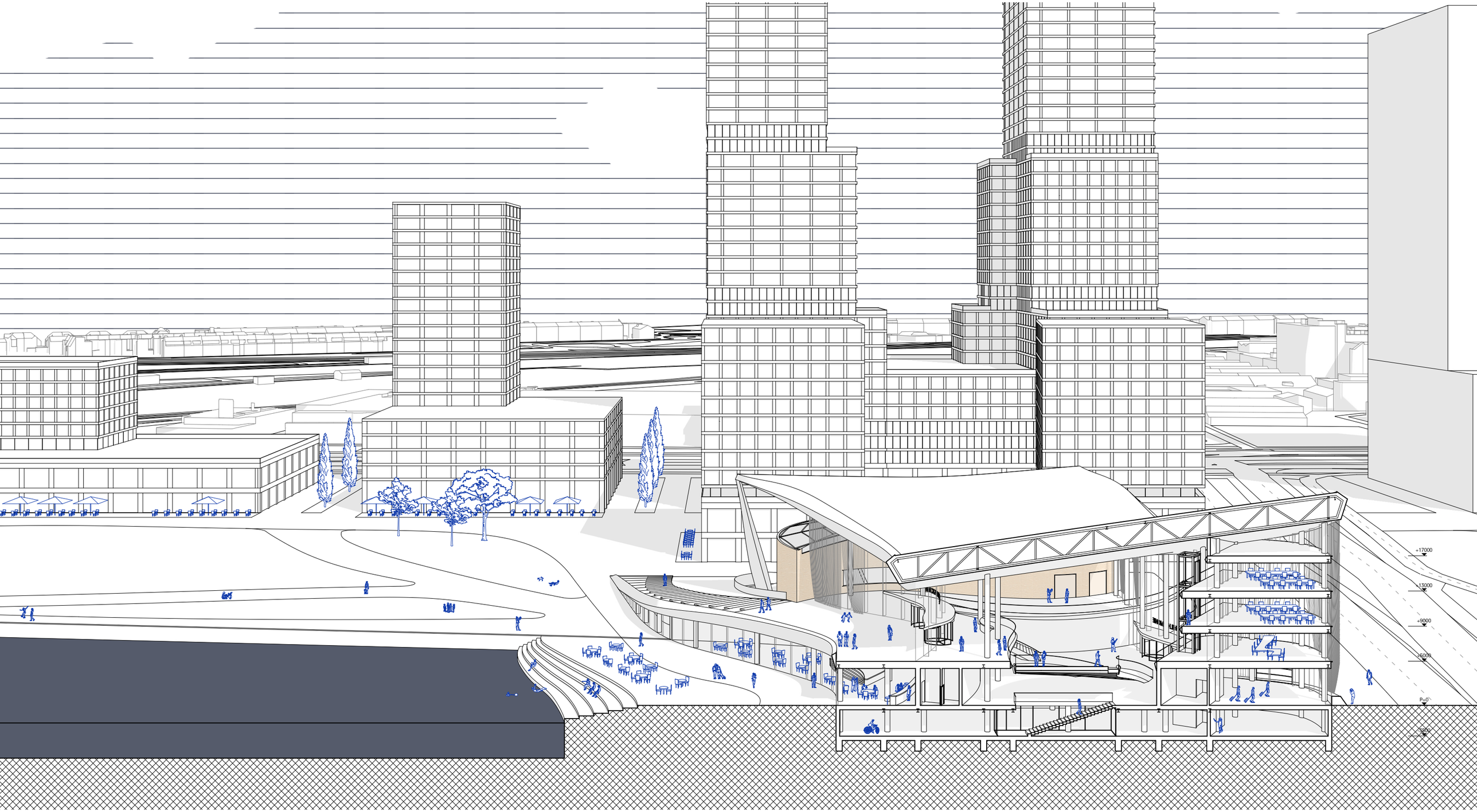
1:200 (scaled 1:300)

music hall
private
public



SECTION

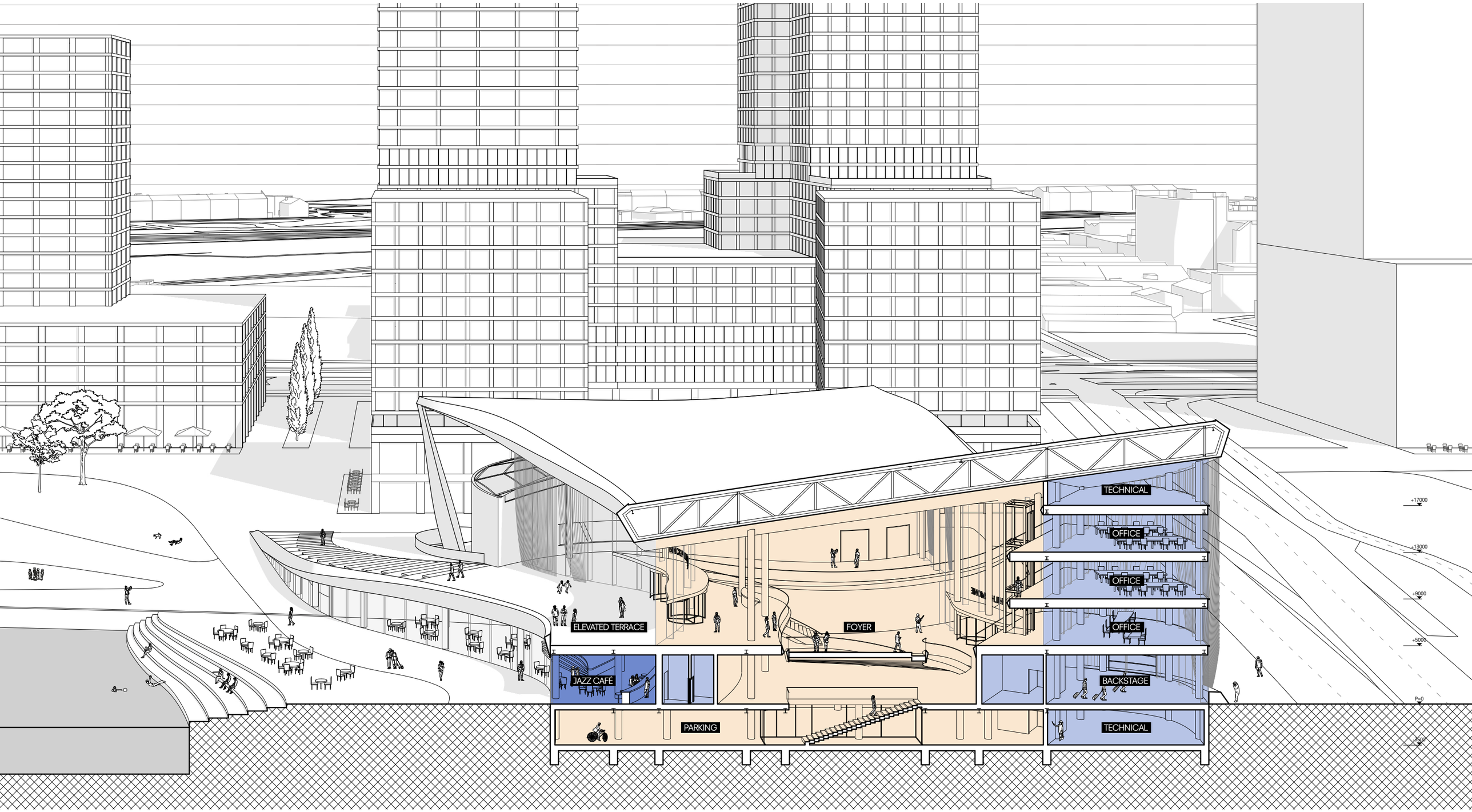
1:200 (scaled 1:400)



SECTION ZONING

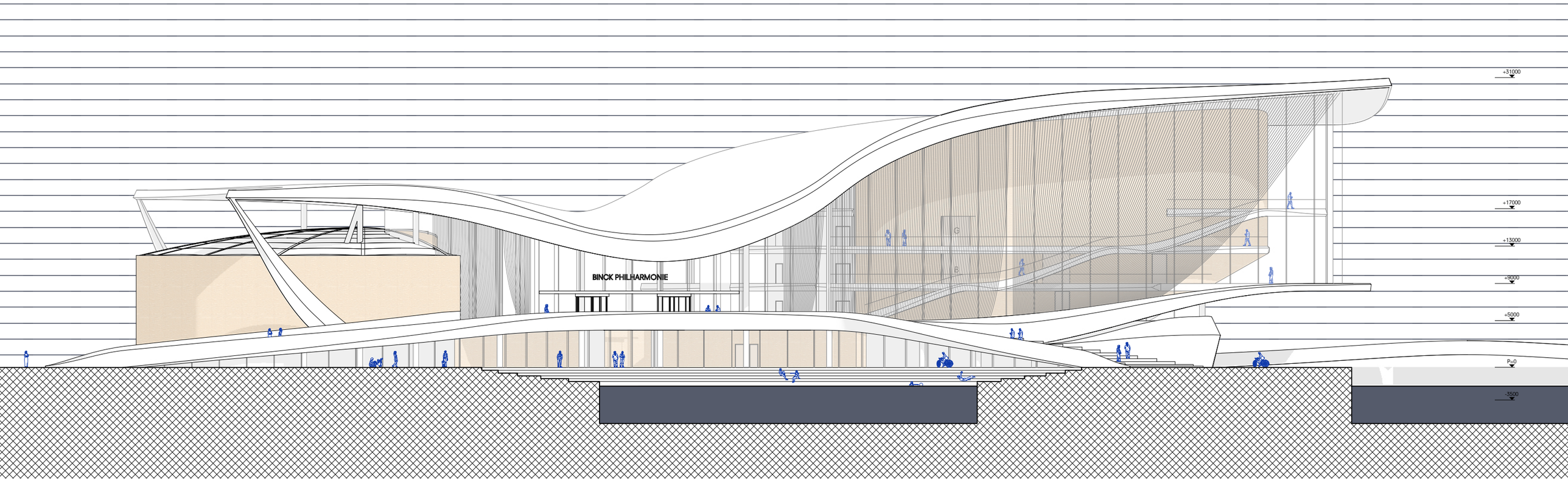
1:200 (scaled 1:300)

music hall
private
public



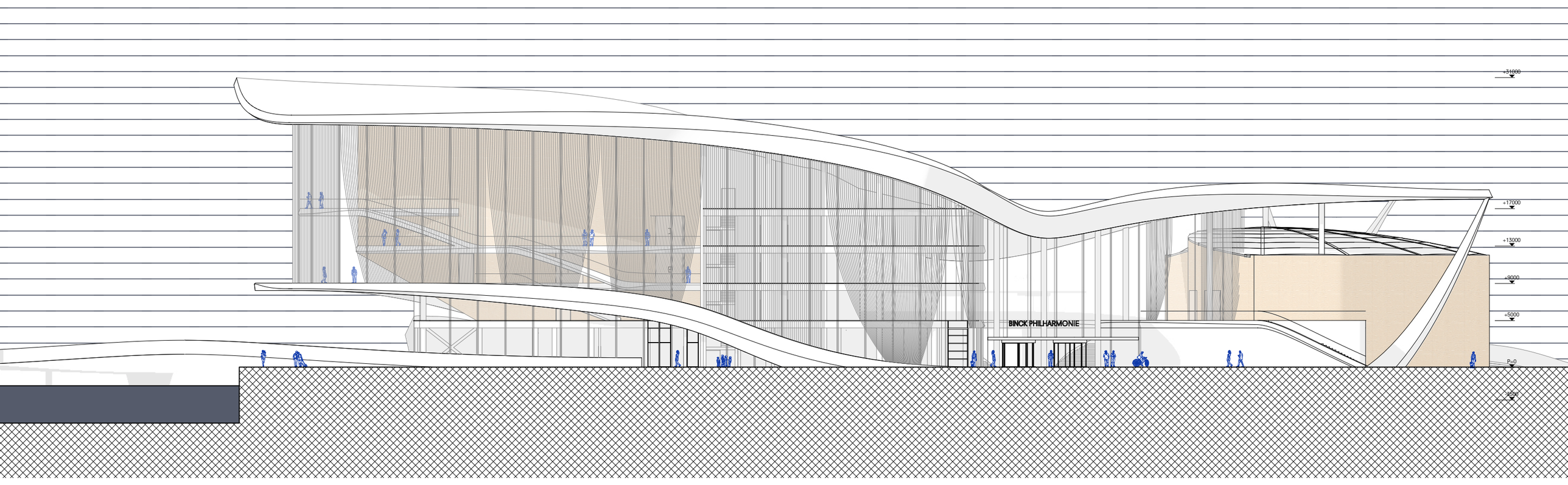
NORTH ELEVATION

1:200 (scaled 1:400)



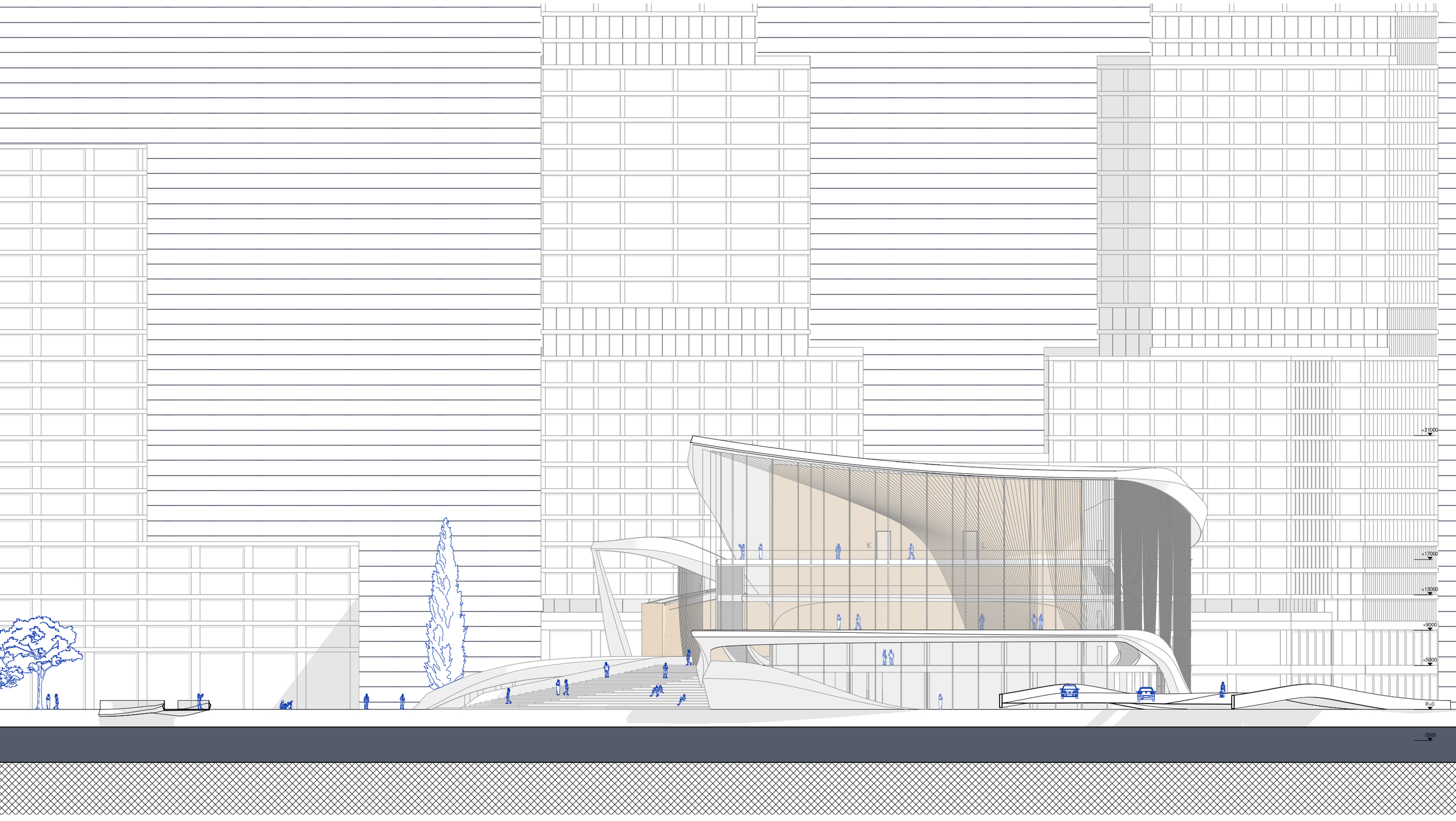
SOUTH ELEVATION

1:200 (scaled 1:400)



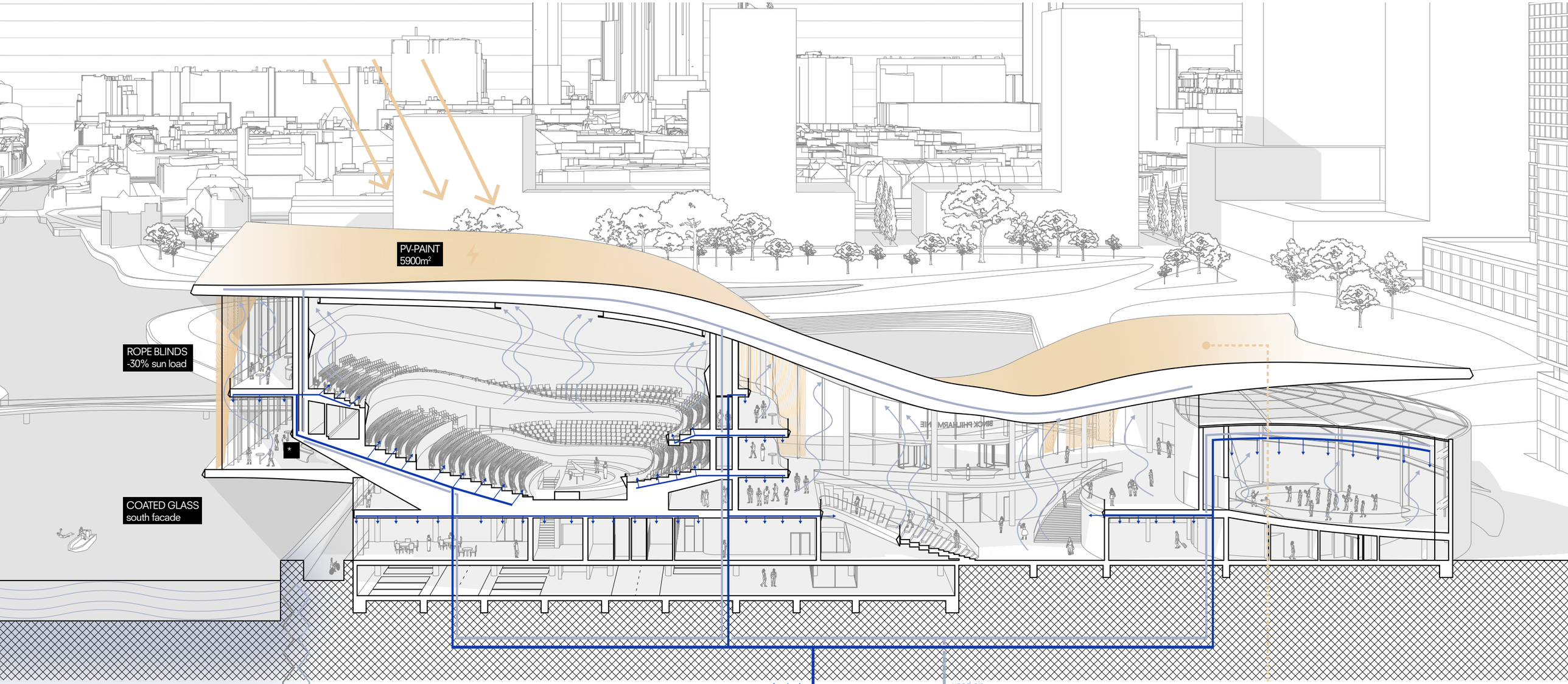
WEST ELEVATION

1:200 (scaled 1:400)



CLIMATE SECTION

1:400 (scaled 90%)

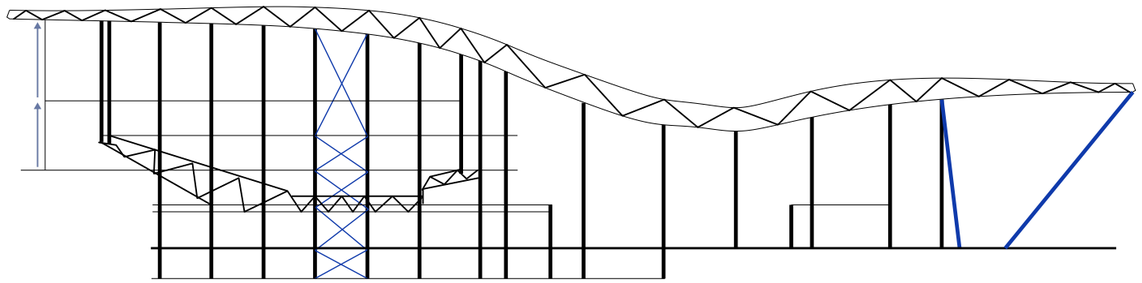


*main ventilation ducts do not go underneath the hall floor. The shafts where it actually goes through are only visible in the floorplans and not in section. The concept remains the same however

STRUCTURAL DIAGRAM

The building will be constructed by using different methods. Mostly a steel skeleton will be used, since this will be the most efficient considering the spans and overhangs of the building.

The trusses in the roof and a 3D truss underneath the symphonic hall, will allow for the overhang towards the waterside and the needed counterbalance. Steel cables will direct the forces from the overhang floors to the roof truss.



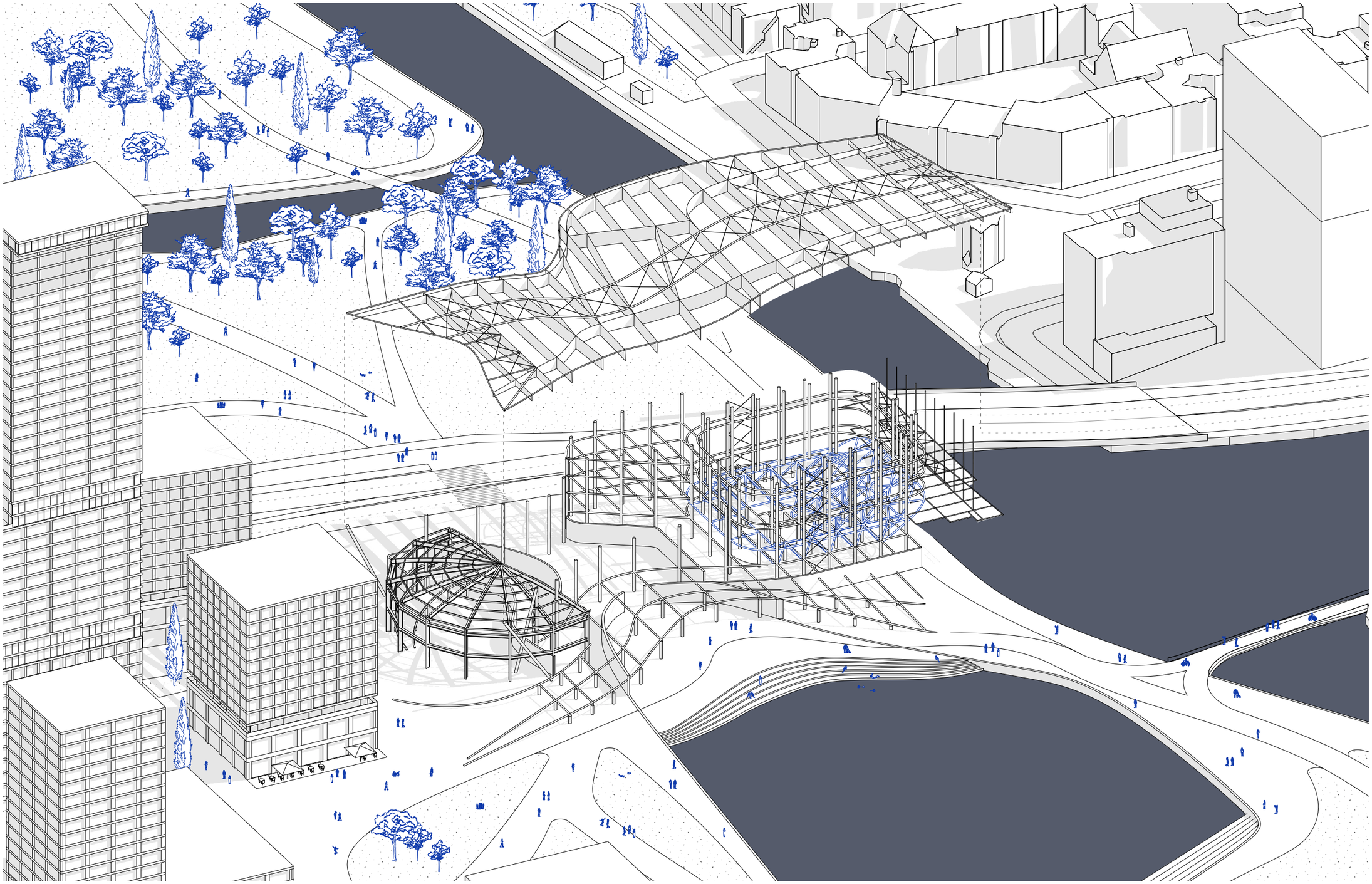
The building needs to be divided into two sides in terms of stability because of the kink in the middle.

The symphonic hall side will achieve stability through steel wind braces and additional infill of CLT wall elements.

The rock music side which hovers over the silo, is stable due to the angled steel columns.

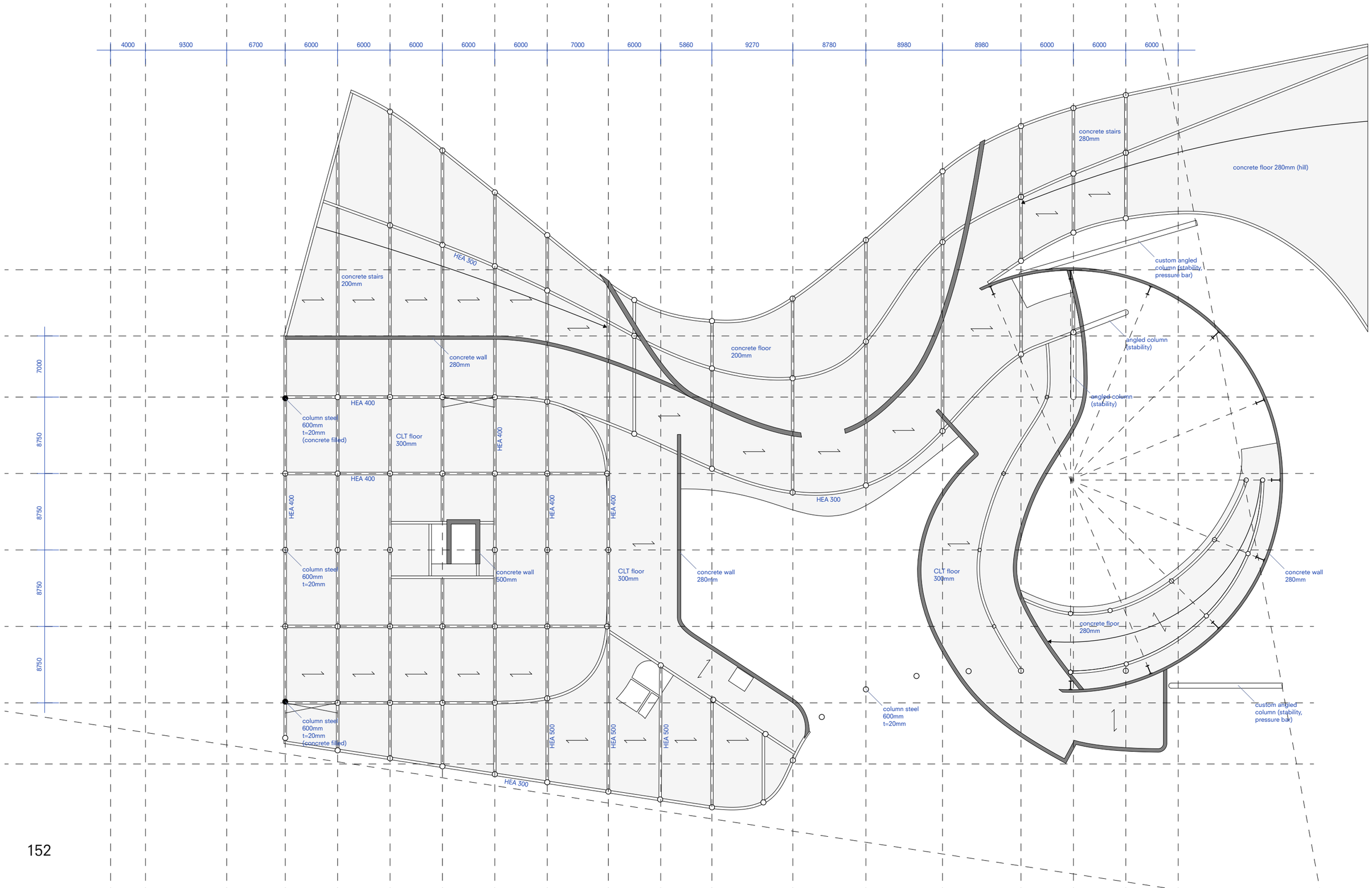
EXPLODED STRUCTURAL AXONOMETRIC

1:200 (scaled 25%)



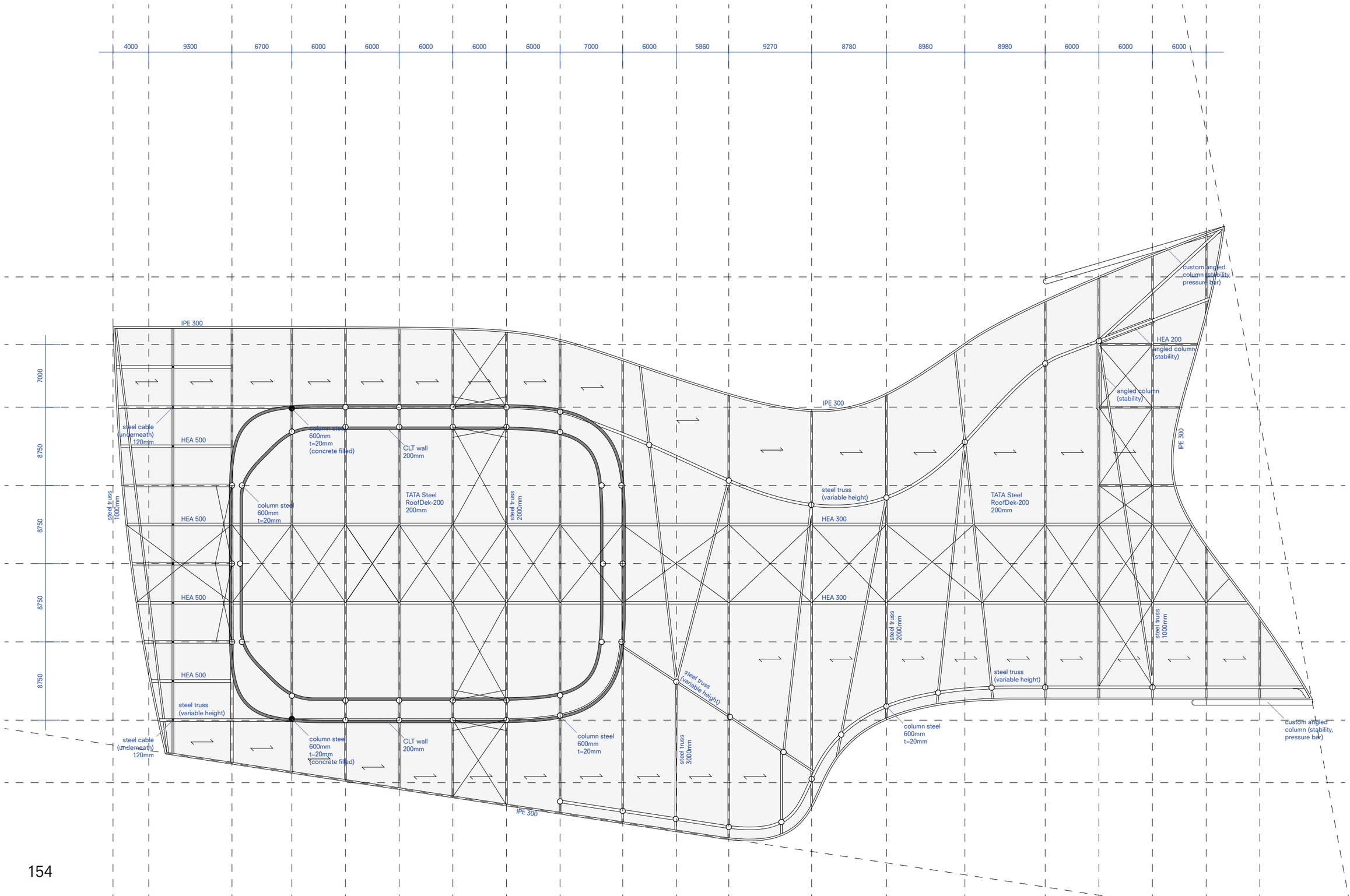
1ST FLOOR (+5M) CONSTRUCTION

1:200 (scaled 1:400)



ROOF (+14M TO +31M) CONSTRUCTION

1:200 (scaled 1:400)



FRAGMENT SECTION
1:20 (scaled 38%)

A
PV roof coating, 2 mm
EPDM, 1,3 mm
Therma DP10, 140 mm, Rc = 6,31
Vapor barrier, 0,1 mm
TATA Steel Deck D200, 200 mm
Steel truss

B
GFRP, 20 mm
Aluminum substructure, 20 mm
Cavity, 70 mm (incl. substructure)
Water barrier, 0,5 mm
Thermal insulation, 130 mm, Rc = 6,00
Vapor barrier, 0,1 mm
Aluminum plate, 3 mm

C
LED cables
Nautical rope, 60 mm
Sedak insulating glass, 3 x 20 m, 28 mm

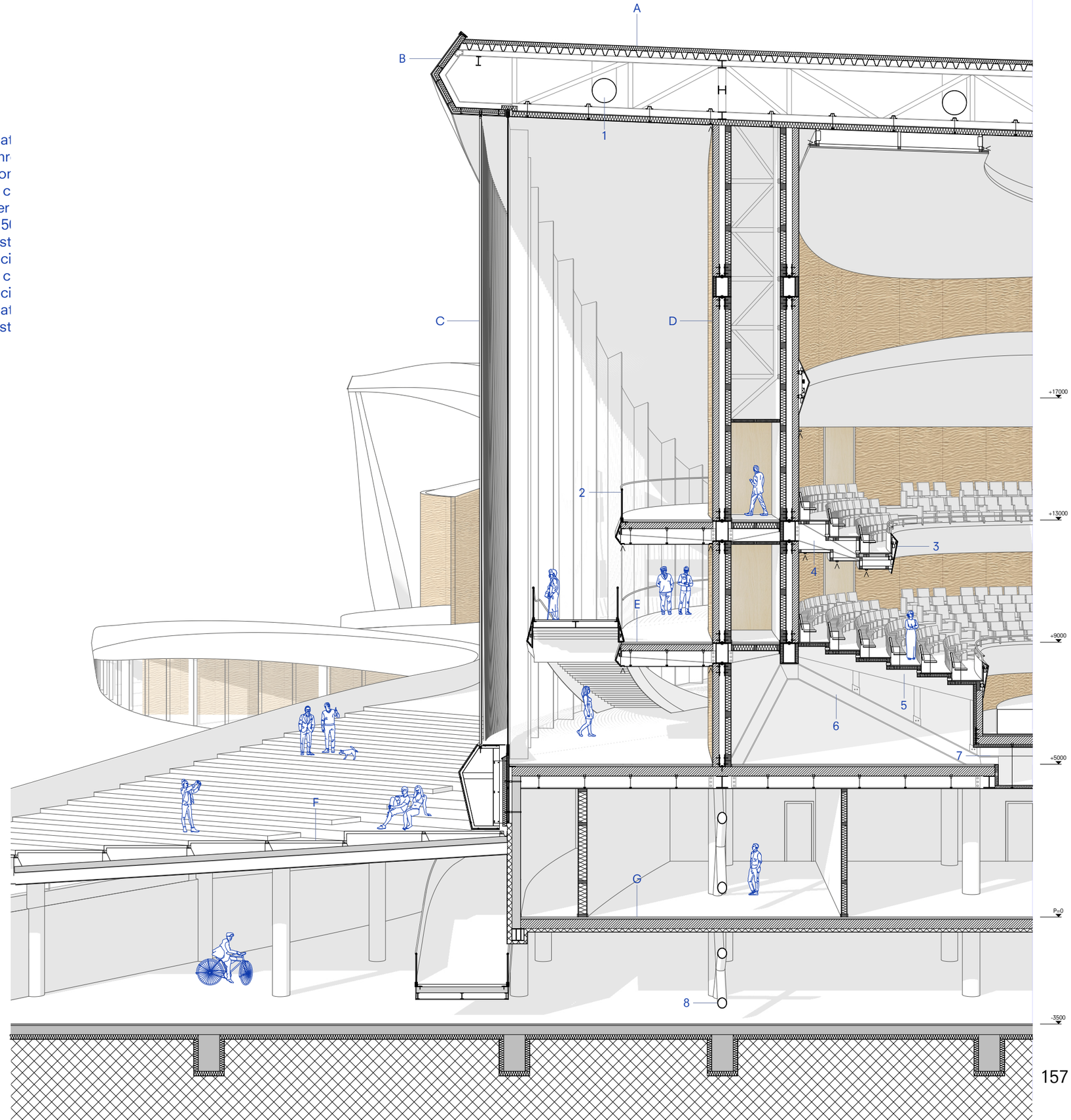
D
Equitone sand pattern panels, 20 mm
Cross-laminated timber, 200 mm
Cavity, 200 mm
Plywood, 12 mm
Mineral wool, 176 mm
Wooden inner wall parts, 12 mm

E
Cast floor, 5 mm
Screed floor, 50 mm
Acoustic spring floor, 30 mm
Cross-laminated timber, 200 mm
Suspended ceiling, 508 mm
Plywood, 12 mm
Skim coat, 5 mm

F
Concrete tiles, 80 mm
Spacing, variable
Concrete floor, 200 mm
HEA 400
Plywood, 12 mm
Skim coat, 5 mm

G
Cast floor, 5 mm
Screed floor, 50 mm
Acoustic spring floor, 30 mm
Cross-laminated timber, 300 mm
Vapor barrier, 0,1 mm
Kooltherm K10, 108 mm, Rc = 5,00
Gypsum board, 12 mm
Skim coat, 5 mm

1 Ventilat
2 Fall-thr
3 Equitor
4 Steel c
5 Timber
6 HEM 5(
7 Acoust
8 X-braci
9 Steel c
10 X-braci
11 Ventilat
12 Acoust



FRAGMENT FACADE
1:20 (scaled 38%)

A
PV roof coating, 2 mm
EPDM, 1,3 mm
Therma DP10, 140 mm, Rc = 6,31
Vapor barrier, 0,1 mm
TATA Steel Deck D200, 200 mm
Steel truss

B
GFRP, 20 mm
Aluminum substructure, 20 mm
Cavity, 70 mm (incl. substructure)
Water barrier, 0,5 mm
Thermal insulation, 130 mm, Rc = 6,00
Vapor barrier, 0,1 mm
Aluminum plate, 3 mm

C
LED cables
Nautical rope, 60 mm
Sedak insulating glass, 3 x 20 m, 28 mm

D
Equitone sand pattern panels, 20 mm
Cross-laminated timber, 200 mm
Cavity, 200 mm
Plywood, 12 mm
Mineral wool, 176 mm
Wooden inner wall parts, 12 mm

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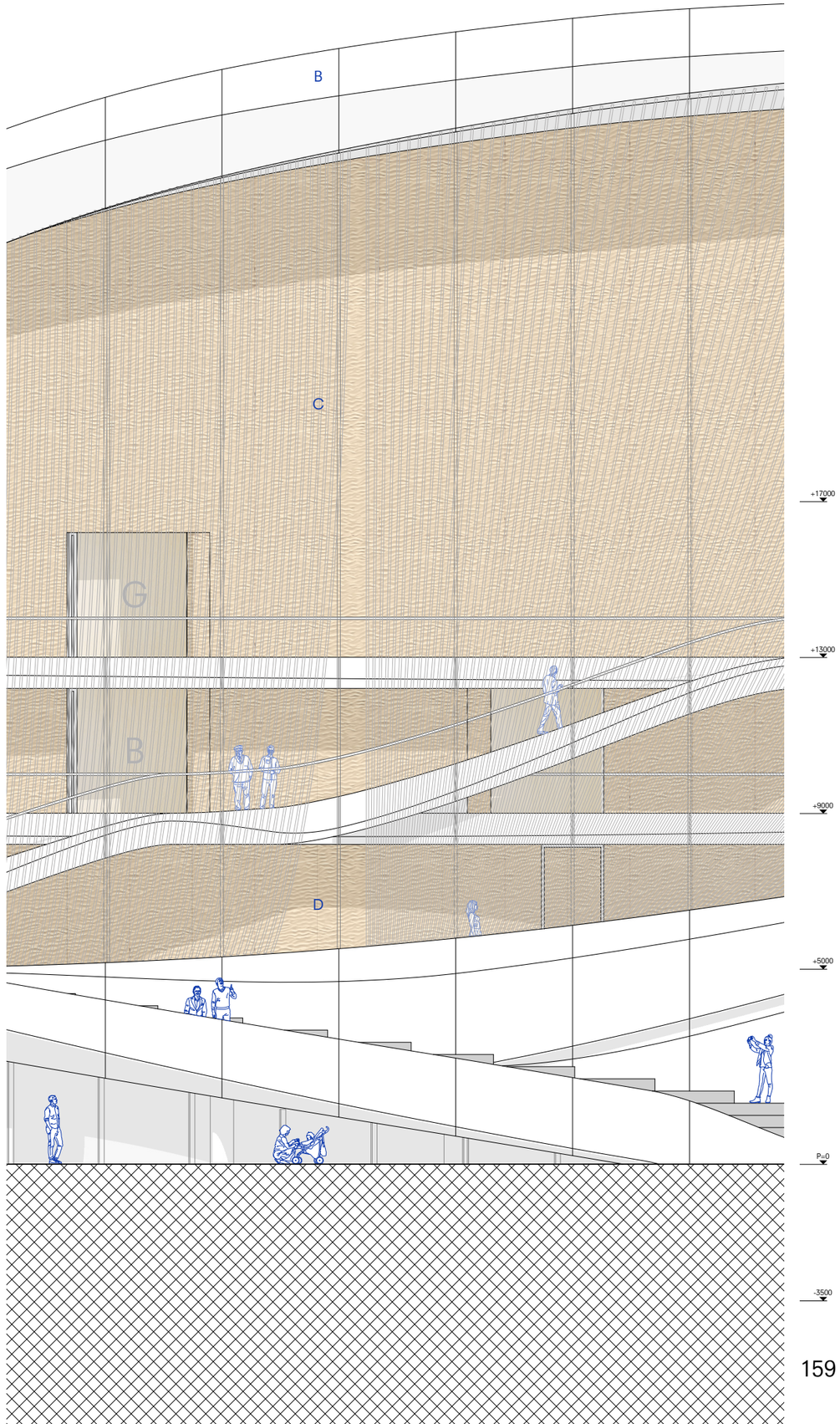
Cast floor, 5 mm
Screed floor, 50 mm
Acoustic spring floor, 30 mm
Cross-laminated timber, 200 mm
Suspended ceiling, 508 mm
Plywood, 12 mm
Skim coat, 5 mm

F
Concrete tiles, 80 mm
Spacing, variable
Concrete floor, 200 mm
HEA 400
Plywood, 12 mm
Skim coat, 5 mm

G
Cast floor, 5 mm
Screed floor, 50 mm
Acoustic spring floor, 30 mm
Cross-laminated timber, 300 mm
Vapor barrier, 0,1 mm
Kooltherm K10, 108 mm, Rc = 5,00
Gypsum board, 12 mm
Skim coat, 5 mm

1 Ventilation duct (output)
2 Fall-through safety glass, 40 mm
3 Equitone pictura, 20 mm
4 Steel console
5 Timber tribune construction
6 HEM 500 (3D truss)
7 Acoustic joint (see 3D detail)
8 X-bracing, 300 mm (d = 10 mm)
9 Steel column, 600 mm (d = 20 mm)
10 X-bracing, 80 mm
11 Ventilation shaft
12 Acoustic door, 70 mm



FRAGMENT HORIZONTAL SECTION
1:20 (scaled 38%)

A
PV roof coating, 2 mm
EPDM, 1,3 mm
Therma DP10, 140 mm, Rc = 6,31
Vapor barrier, 0,1 mm
TATA Steel Deck D200, 200 mm
Steel truss

B
GFRP, 20 mm
Aluminum substructure, 20 mm
Cavity, 70 mm (incl. substructure)
Water barrier, 0,5 mm
Thermal insulation, 130 mm, Rc = 6,00
Vapor barrier, 0,1 mm
Aluminum plate, 3 mm

C
LED cables
Nautical rope, 60 mm
Sedak insulating glass, 3 x 20 m, 28 mm

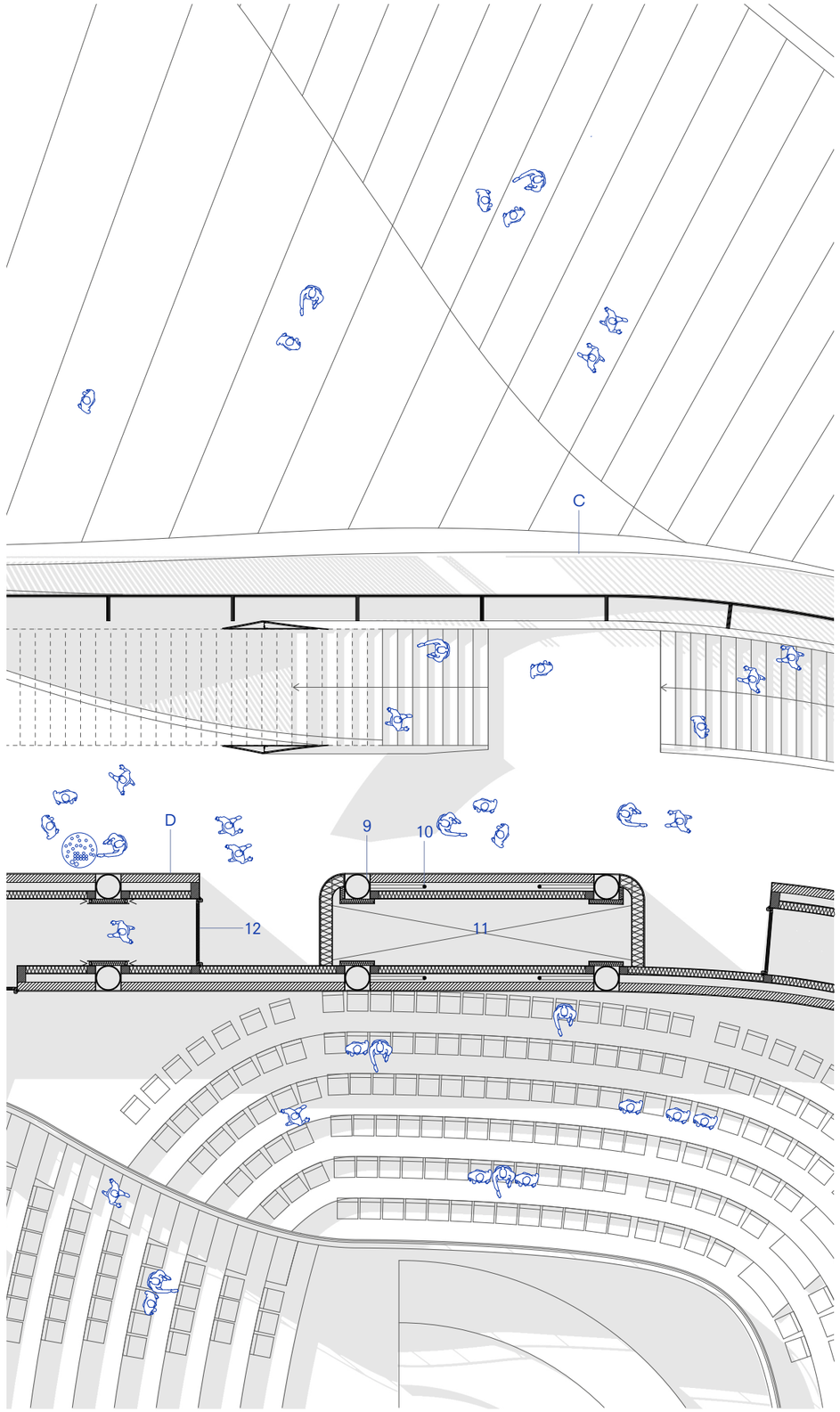
D
Equitone sand pattern panels, 20 mm
Cross-laminated timber, 200 mm
Cavity, 200 mm
Plywood, 12 mm
Mineral wool, 176 mm
Wooden inner wall parts, 12 mm

E
Cast floor, 5 mm
Screed floor, 50 mm
Acoustic spring floor, 30 mm
Cross-laminated timber, 200 mm
Suspended ceiling, 508 mm
Plywood, 12 mm
Skim coat, 5 mm

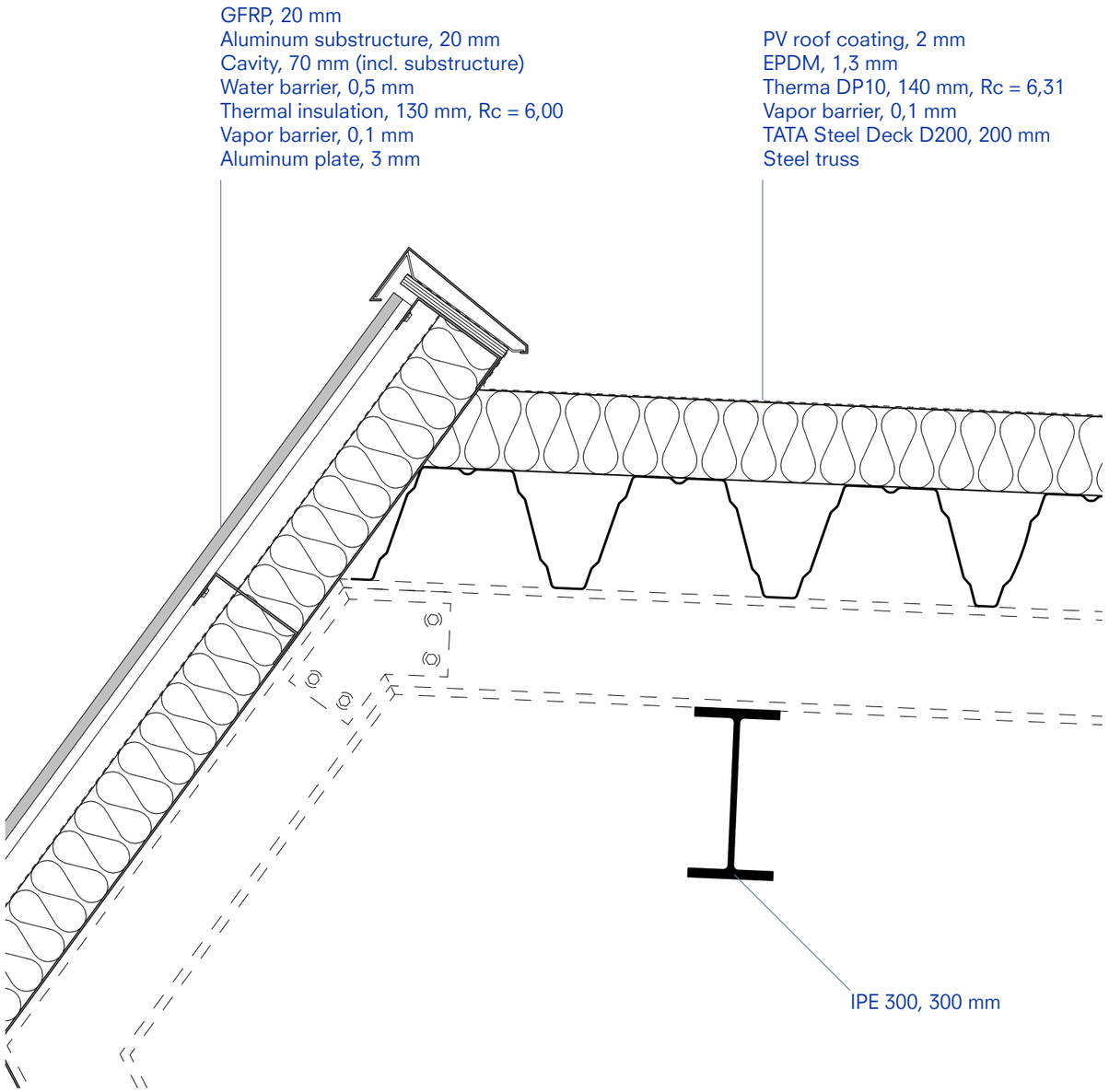
F
Concrete tiles, 80 mm
Spacing, variable
Concrete floor, 200 mm
HEA 400
Plywood, 12 mm
Skim coat, 5 mm

G
Cast floor, 5 mm
Screed floor, 50 mm
Acoustic spring floor, 30 mm
Cross-laminated timber, 300 mm
Vapor barrier, 0,1 mm
Kooltherm K10, 108 mm, Rc = 5,00
Gypsum board, 12 mm
Skim coat, 5 mm

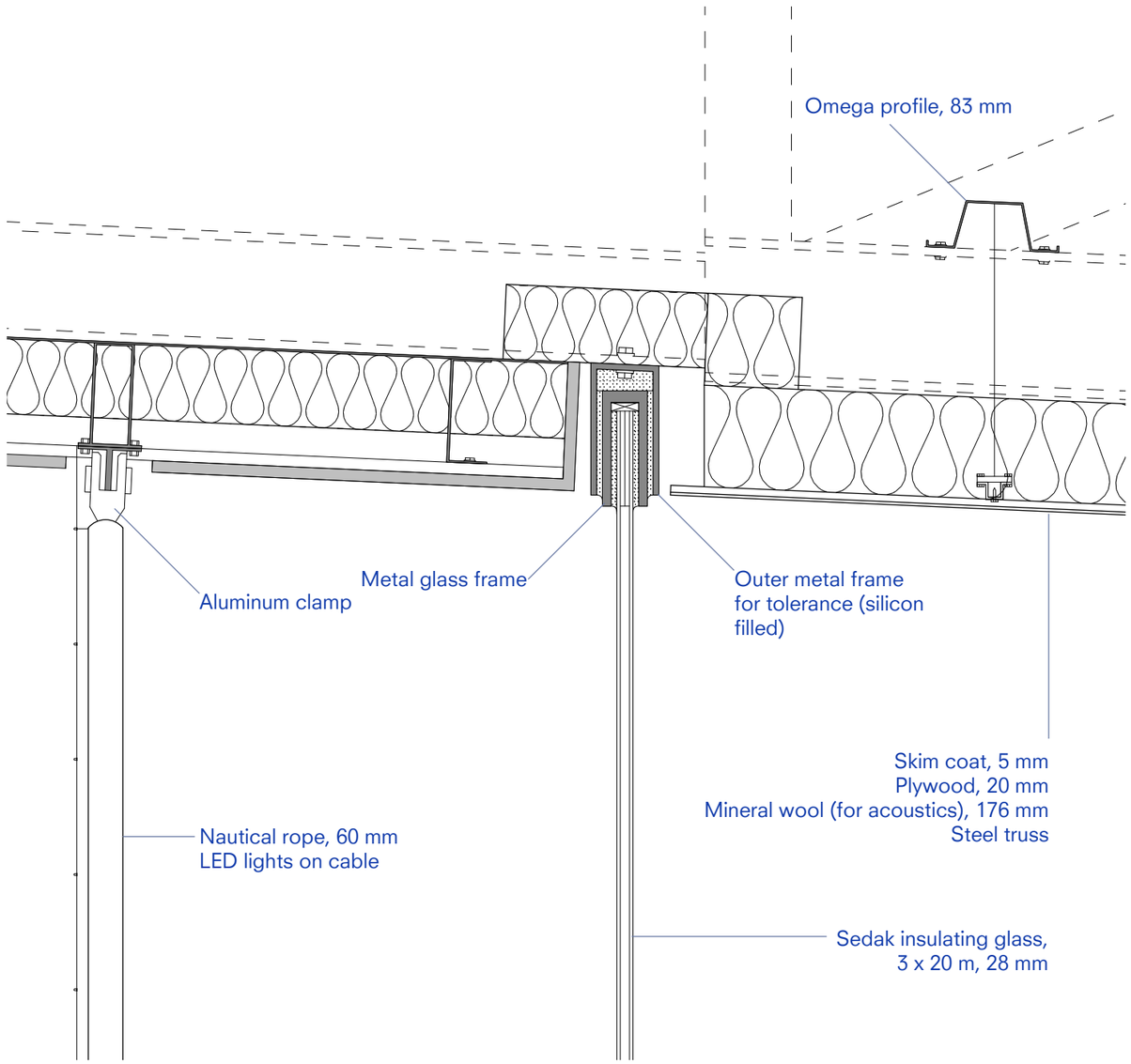
1 Ventilation duct (output)
2 Fall-through safety glass, 40 mm
3 Equitone pictura, 20 mm
4 Steel console
5 Timber tribune construction
6 HEM 500 (3D truss)
7 Acoustic joint (see 3D detail)
8 X-bracing, 300 mm (d = 10 mm)
9 Steel column, 600 mm (d = 20 mm)
10 X-bracing, 80 mm
11 Ventilation shaft
12 Acoustic door, 70 mm



DETAIL ROOF EDGE
1:5 (scaled 1:10)



DETAIL FACADE TOP
1:5 (scaled 1:10)



DETAIL FACADE UNDERSIDE
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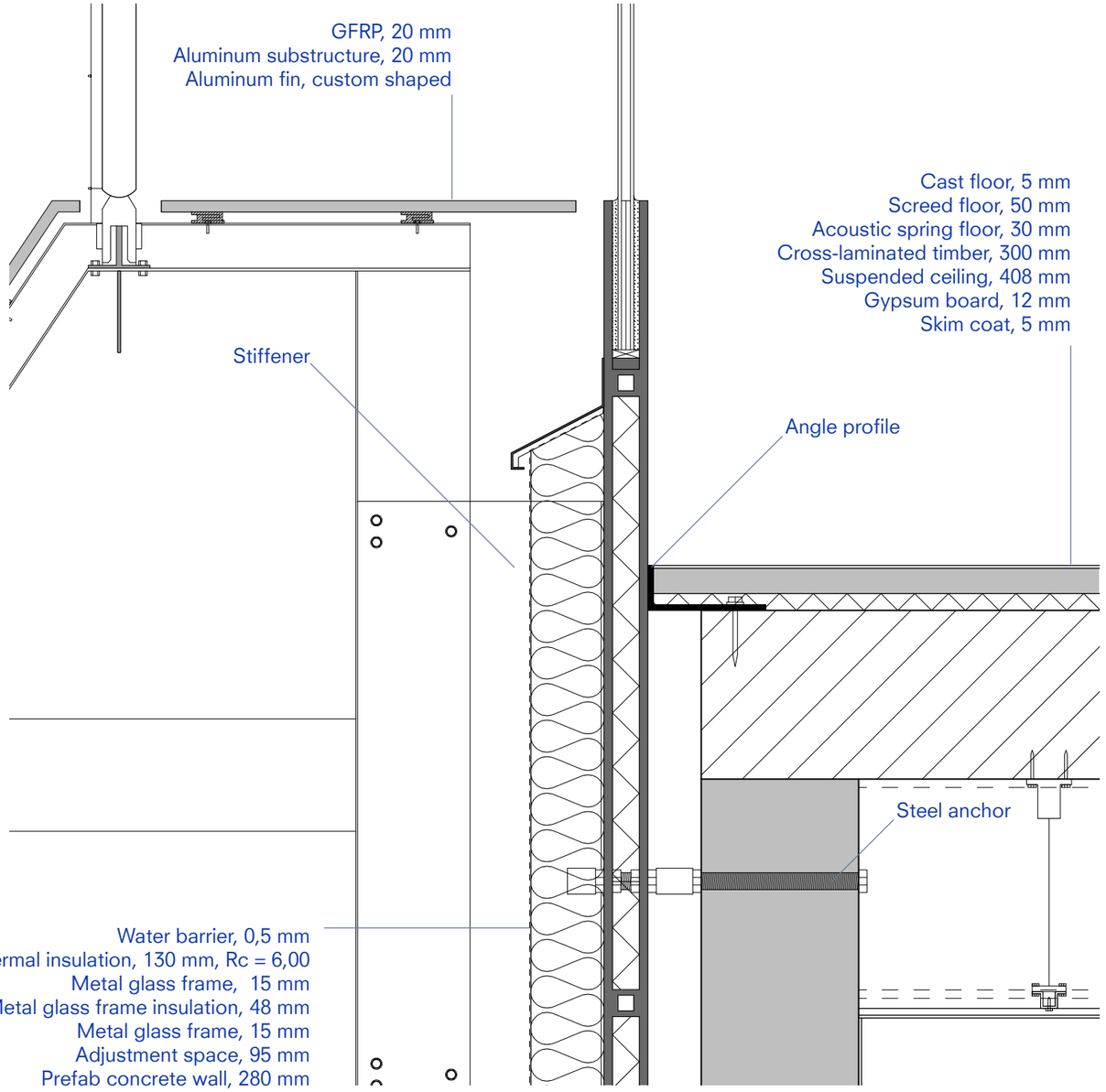
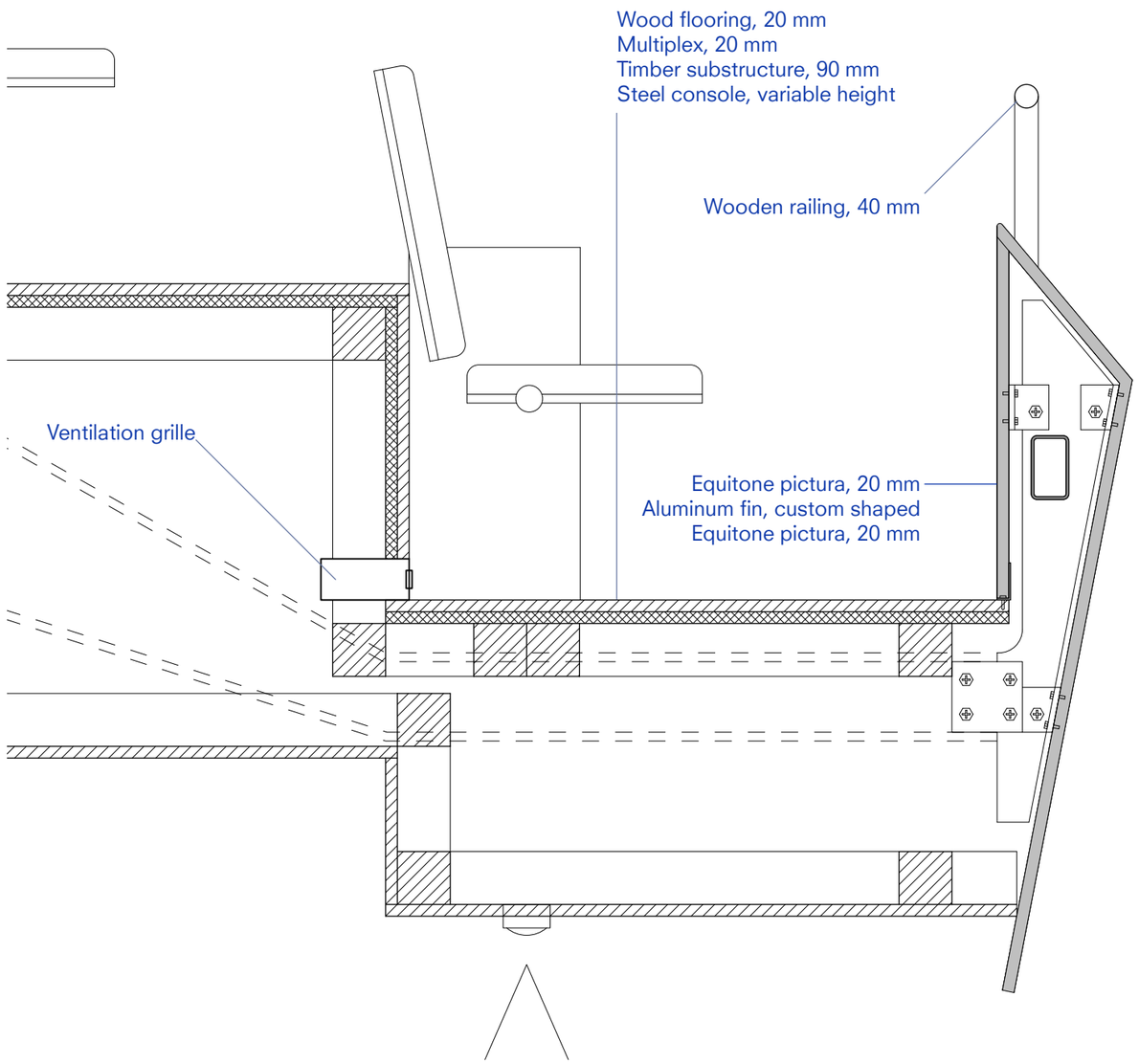
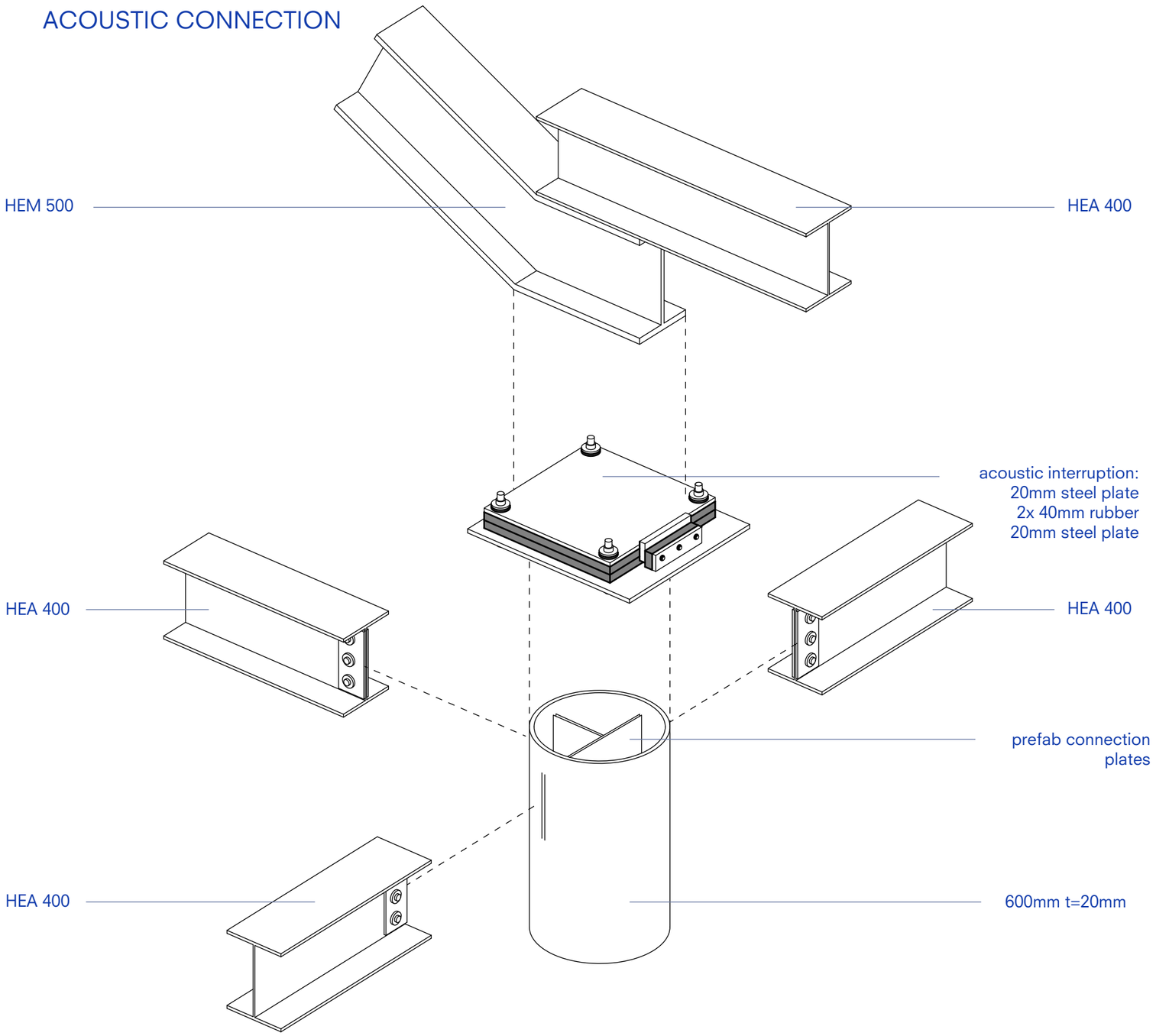
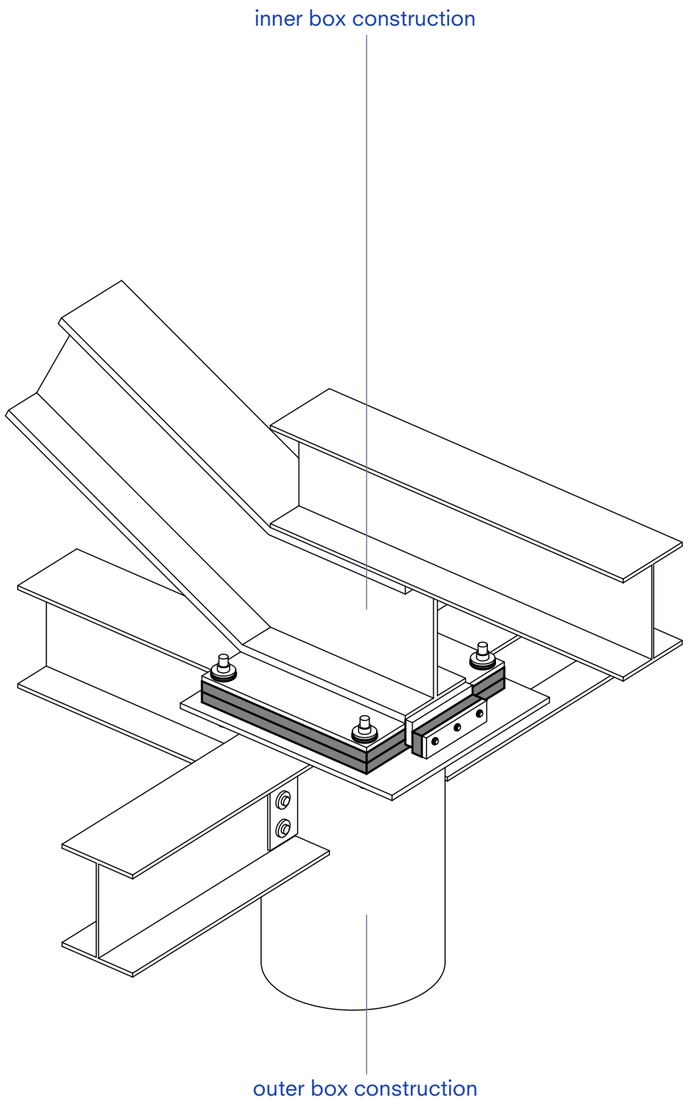


DETAIL HALL BALCONY
1:5 (scaled 1:10)



ACOUSTIC CONNECTION



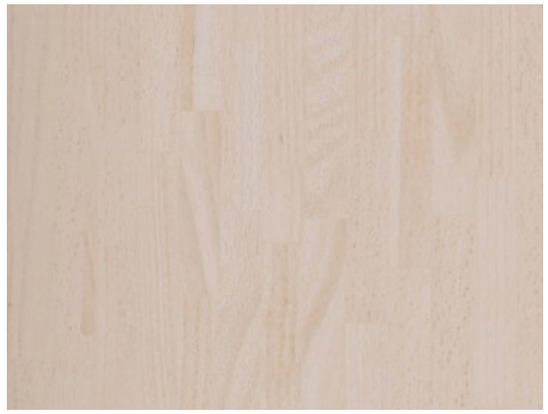


MATERIAL FINISHES

gfrp (glass fibre reinforced polymer) panels

nautical rope

fibre reinforced concrete sand pattern panels



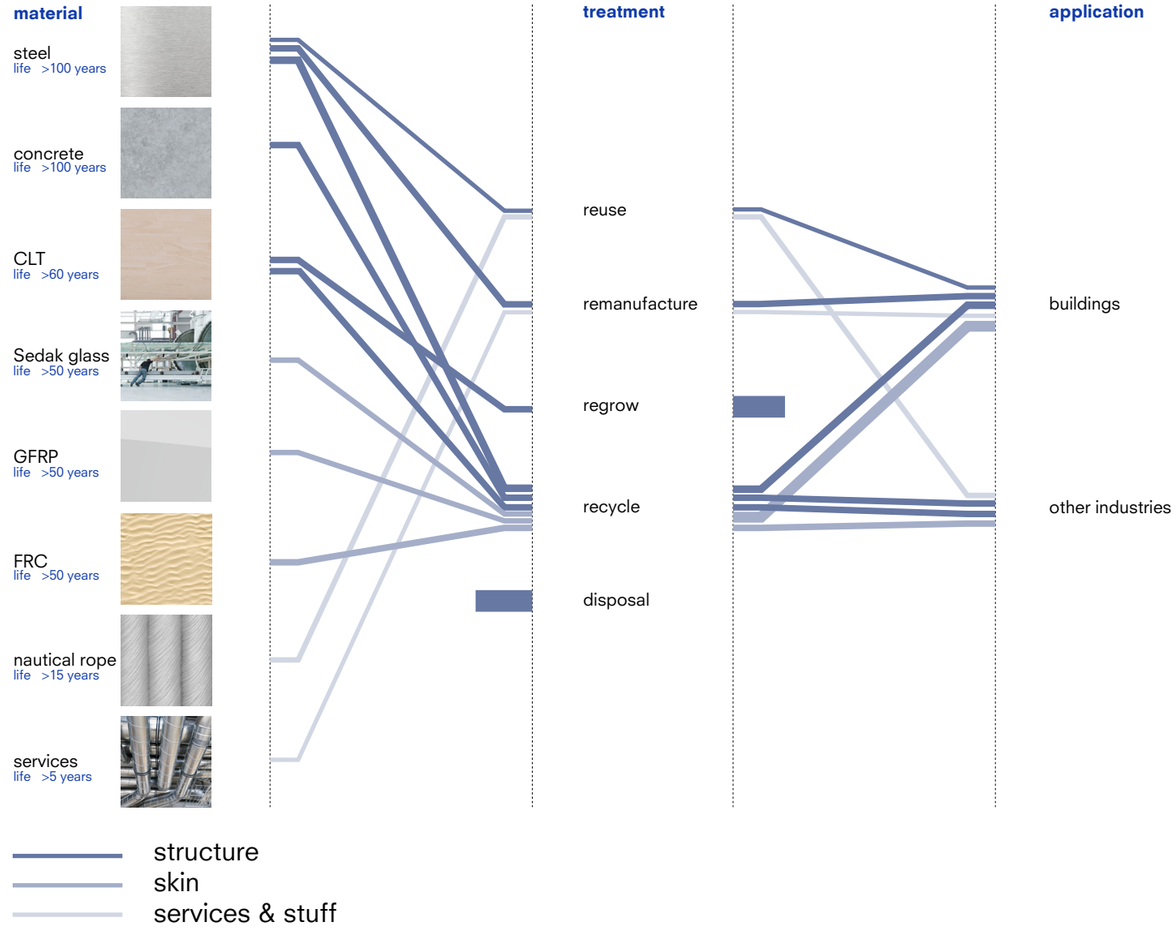
wood

cast floor

concrete tiles

CIRCULARITY

Because of the double curved shapes, the materials used can not be reused or remanufactured for other buildings easily. However, they are still recyclable. So, it becomes paramount for a building with double curved shapes that the materials used are easy to assemble, easy to maintain and extremely durable to get the best out of them.



RENDERS

waterfront bridge

lakeside terrace

lakeside terrace

RENDERS

waterfront park

Mercuriusweg

elevated terrace

RENDERS

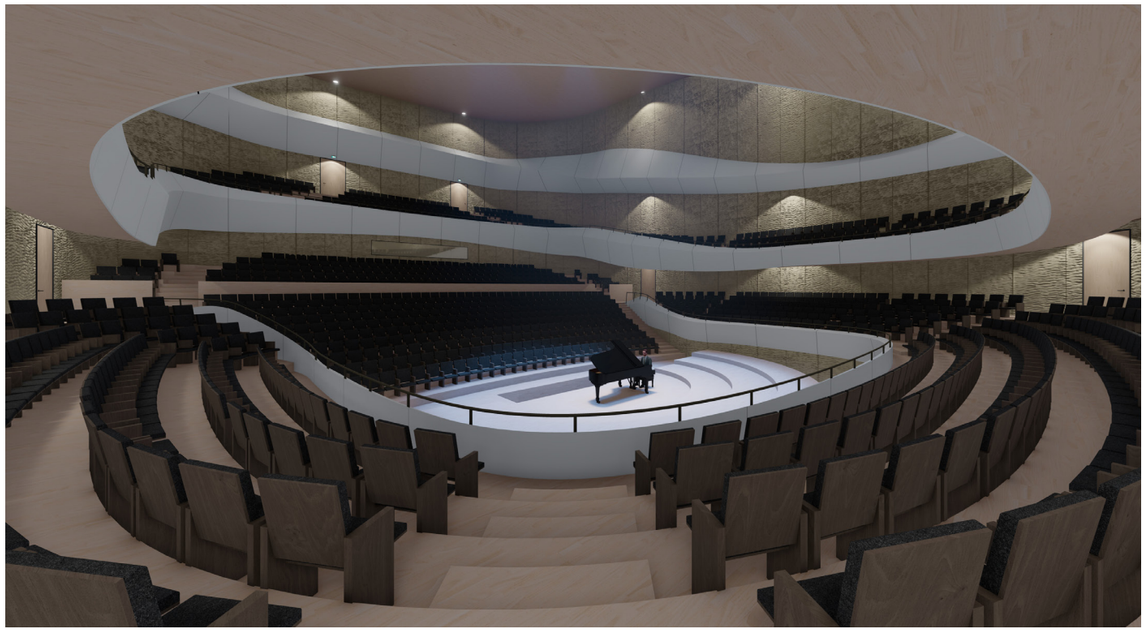
foyer

transition space

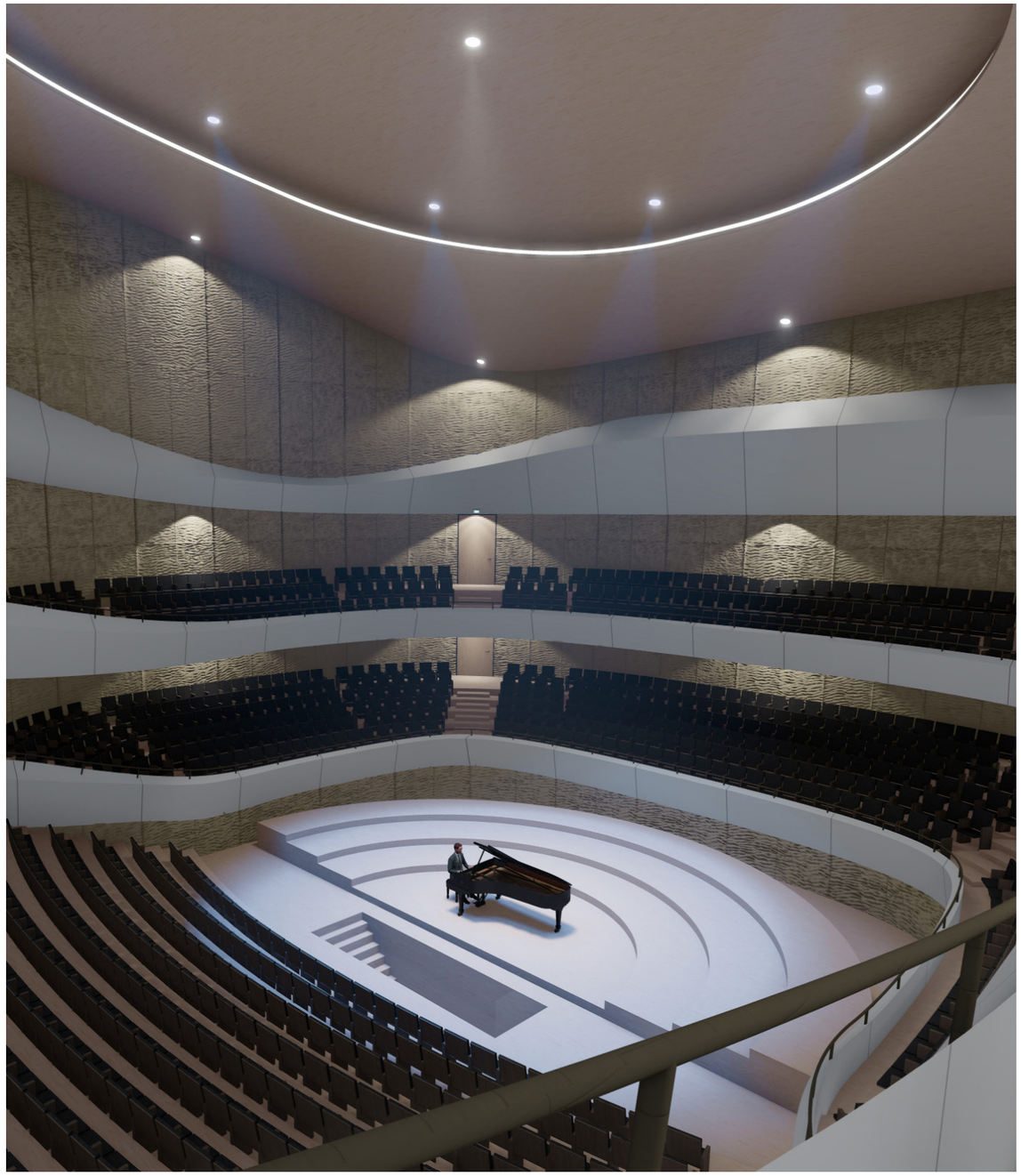
skybar

RENDERS

upper balcony



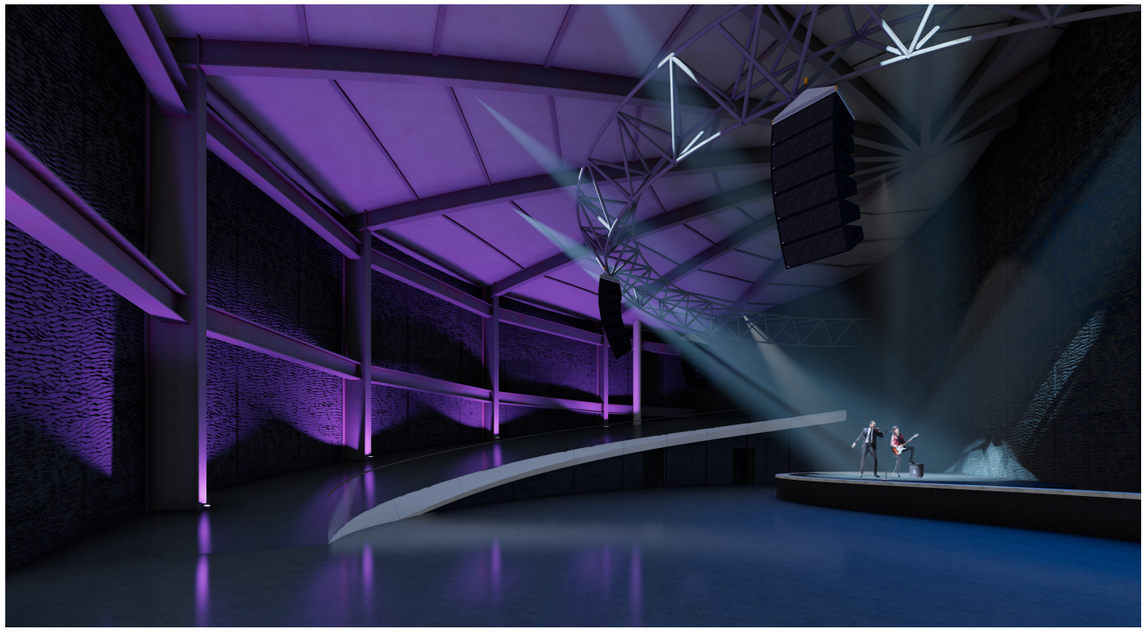
lower balcony



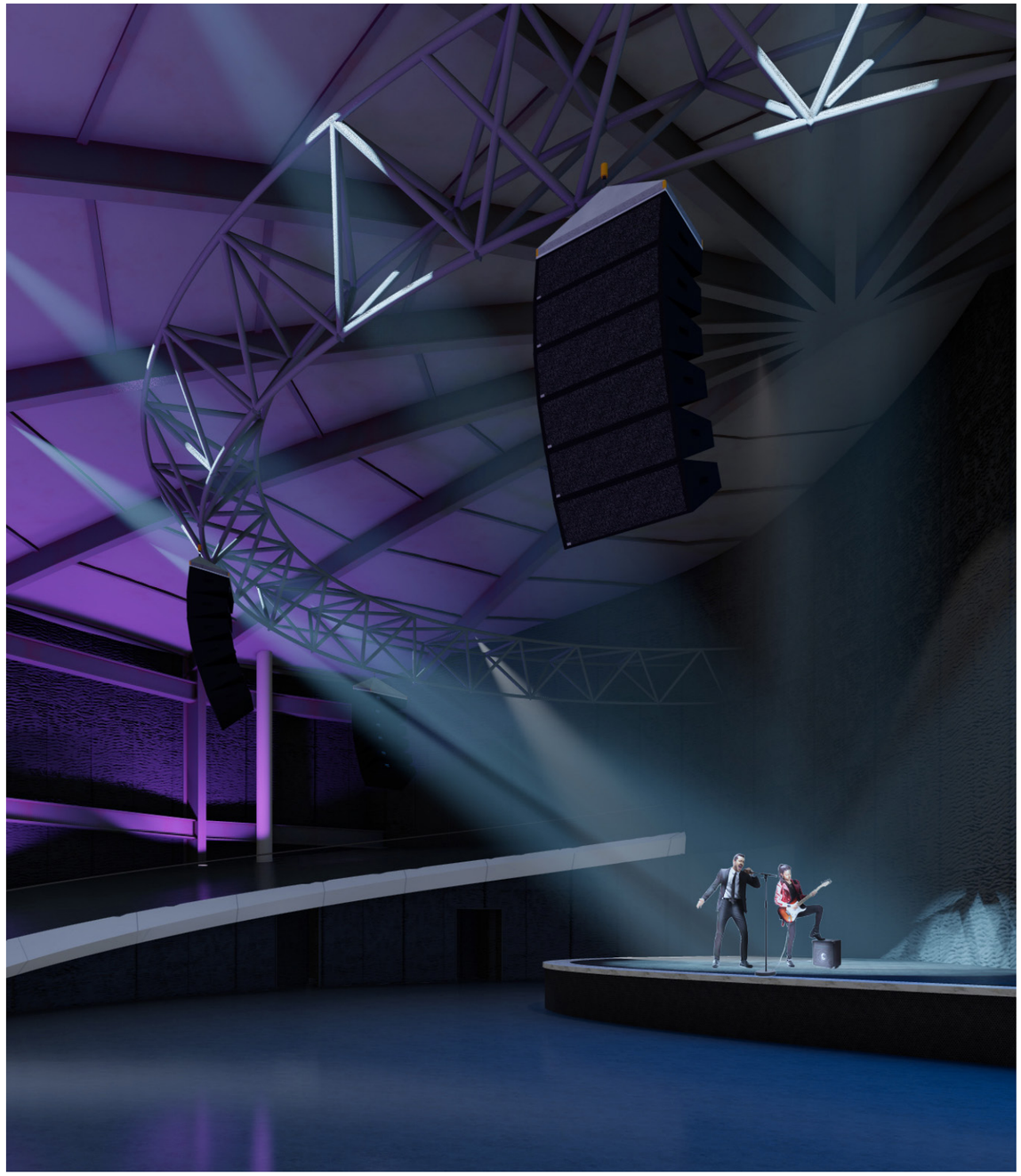
upper balcony

RENDERS

jazz cafe

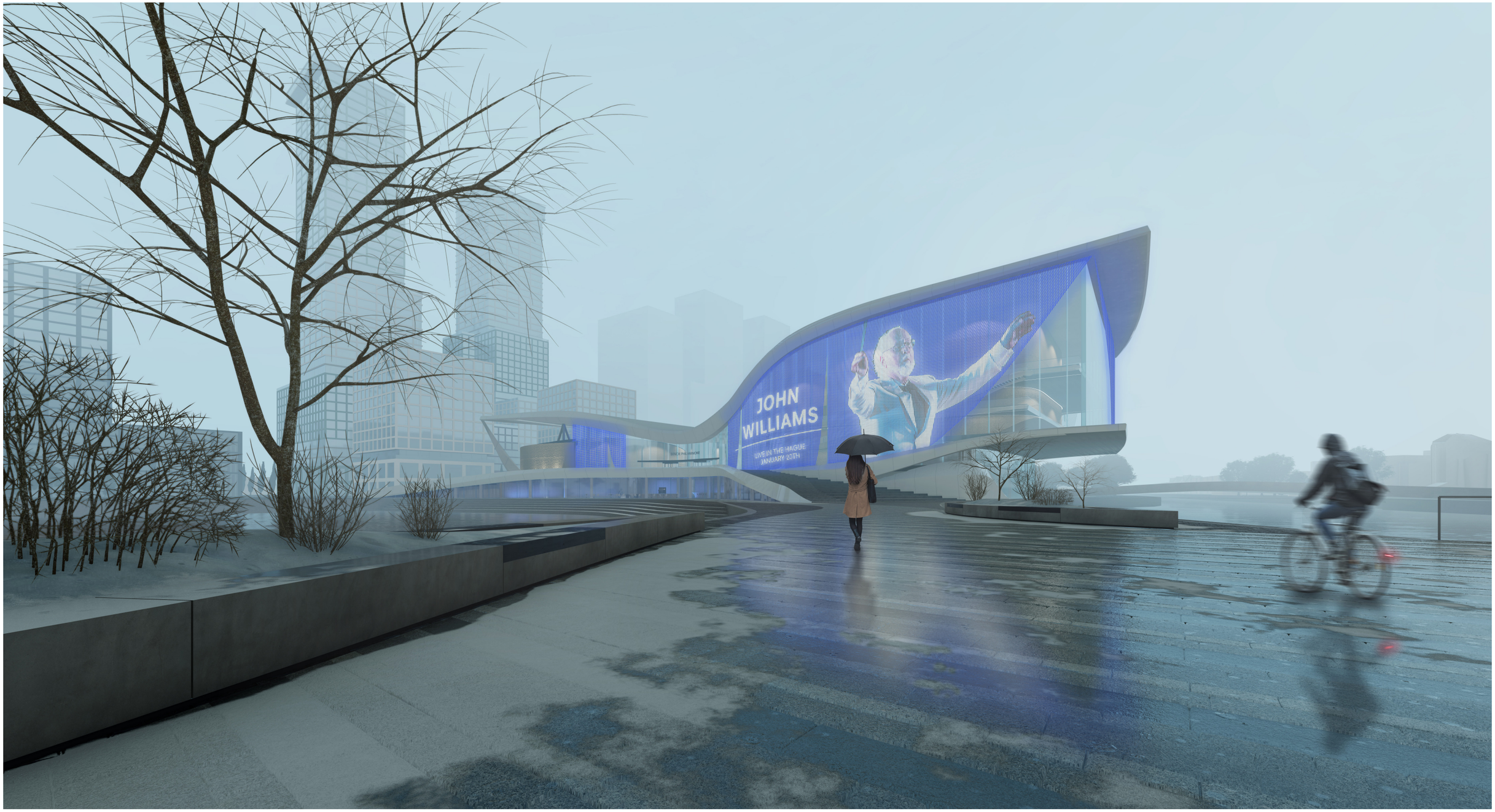


rock silo



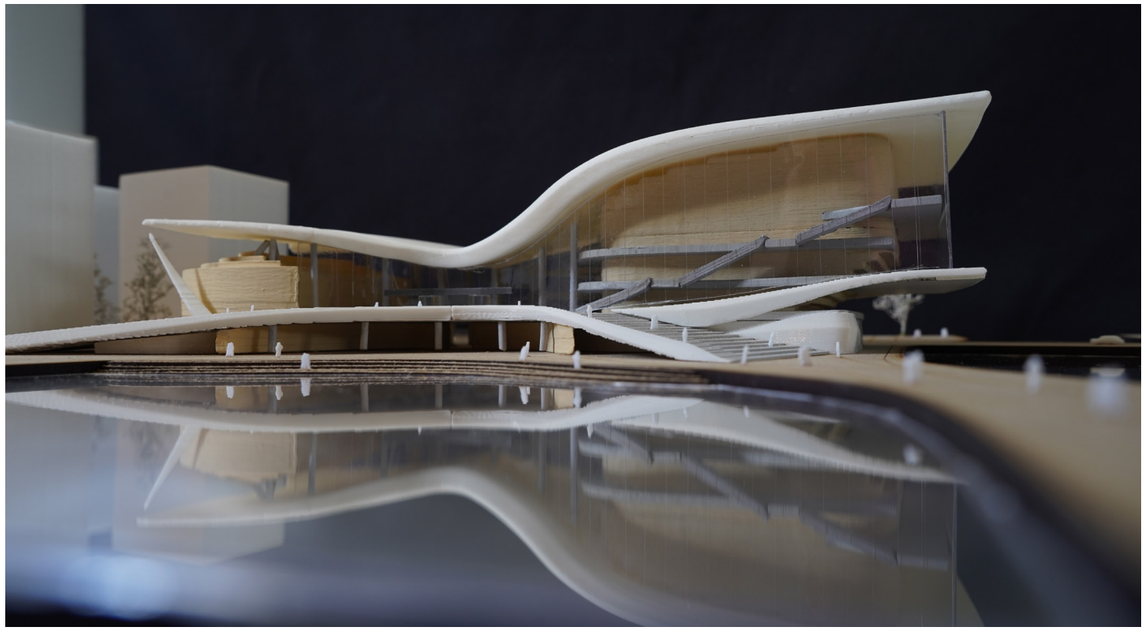
rock silo

RENDERS

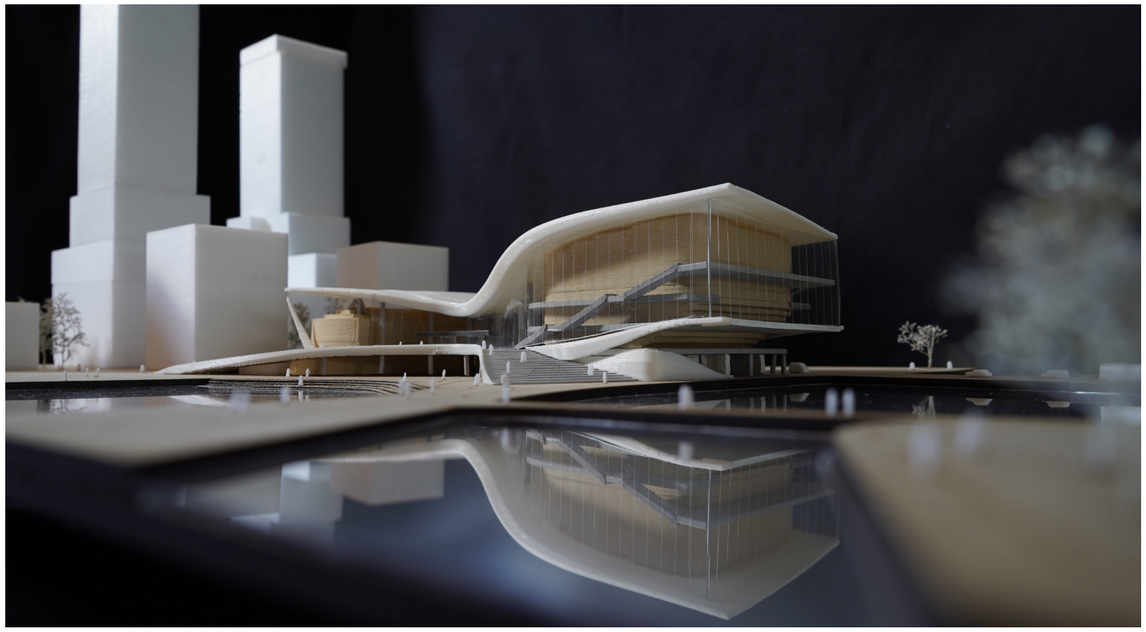


waterfront boulevard

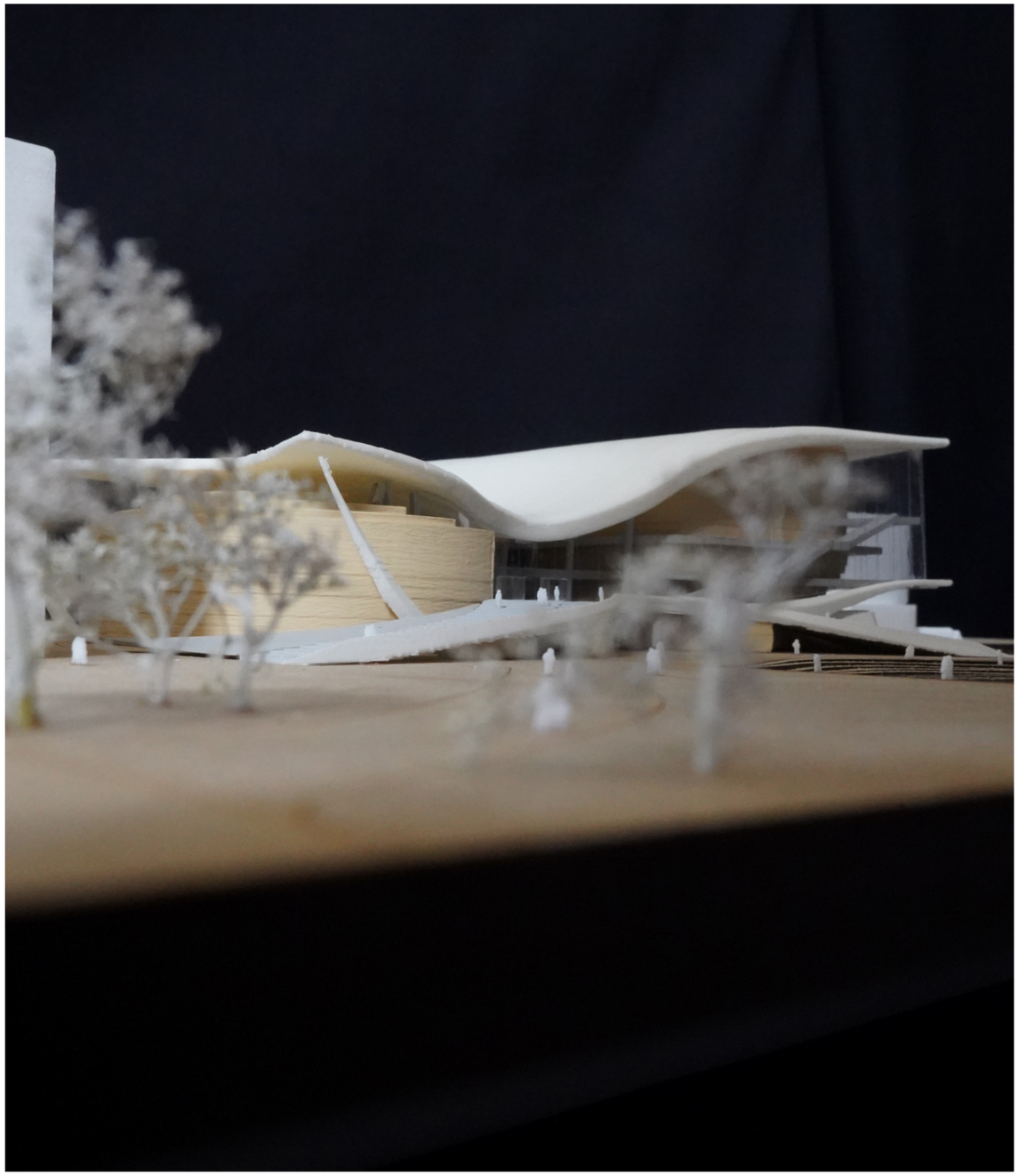
MODEL
1:500



lakeside

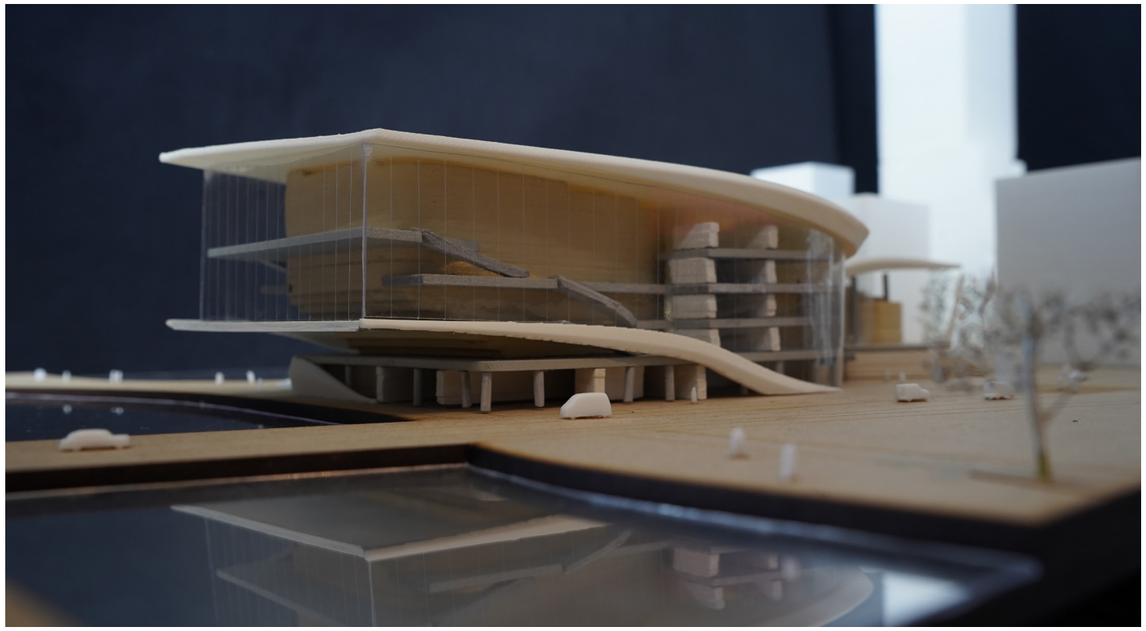


Trekvliet

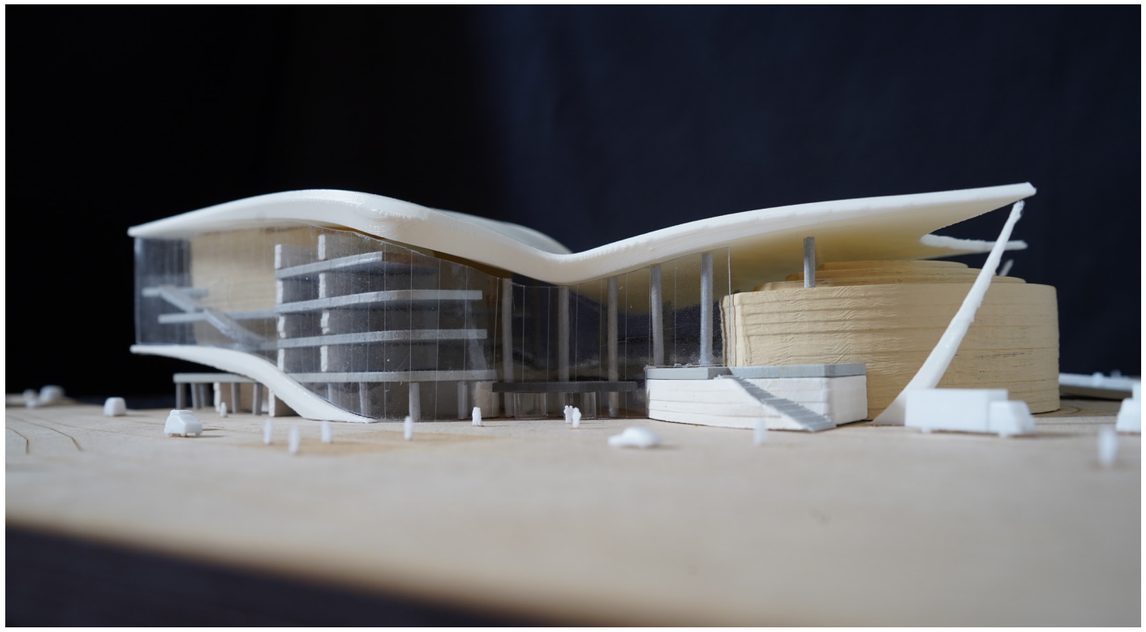


park avenue

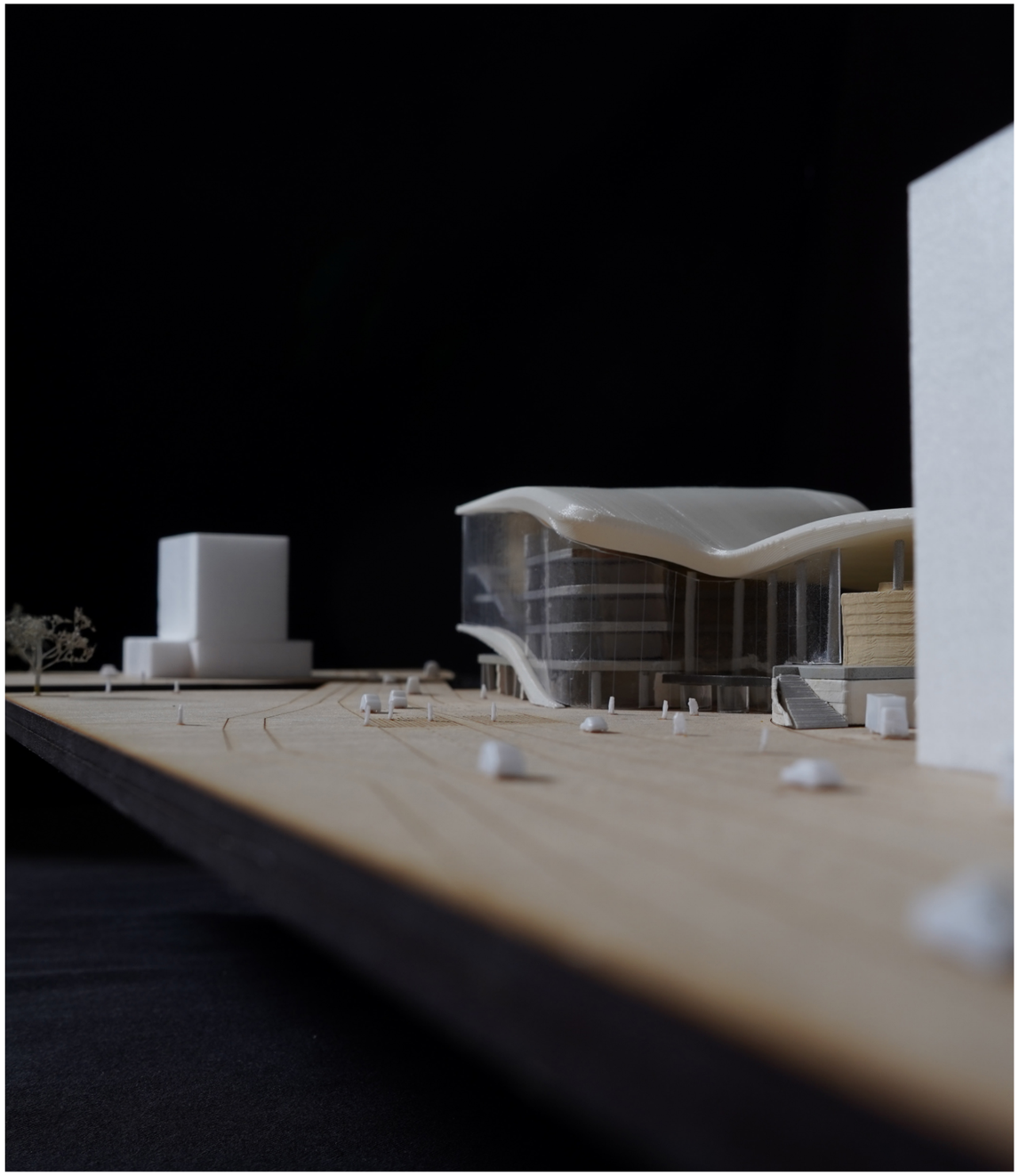
MODEL
1:500



waterfront

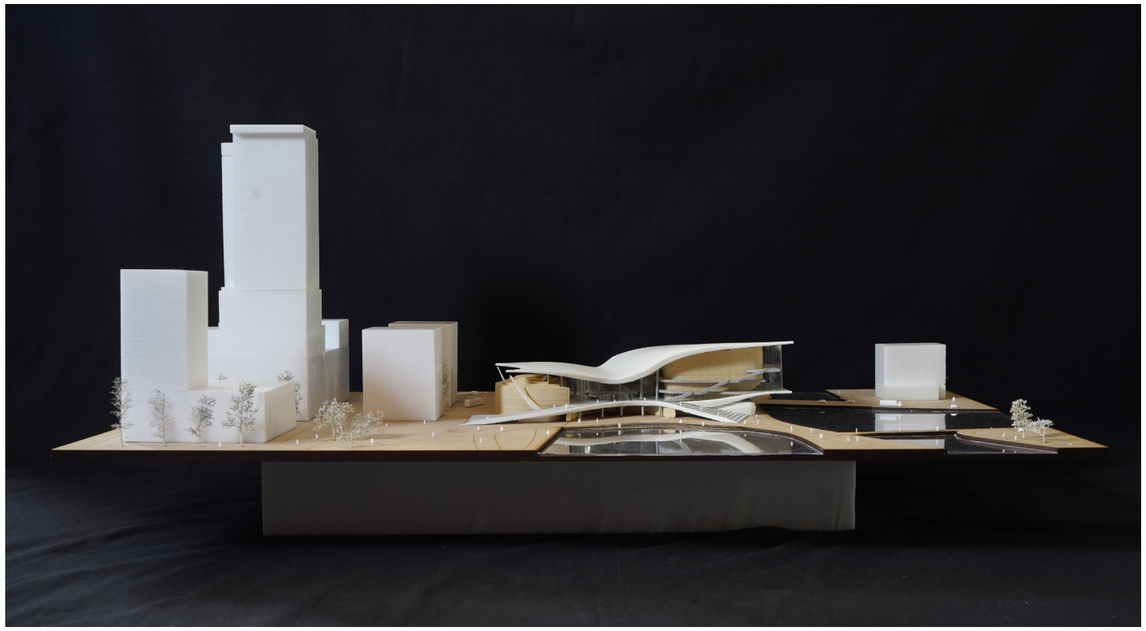


Mercuriusweg



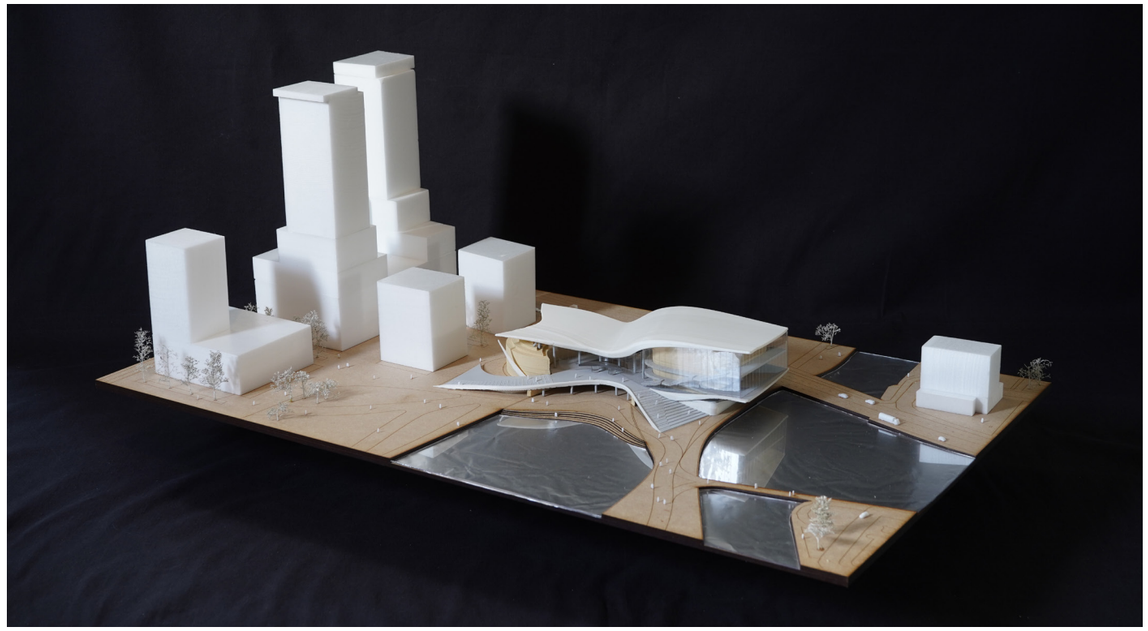
Mercuriusweg

MODEL
1:500



north facade

south facade



north west

south west

FINAL REFLECTION

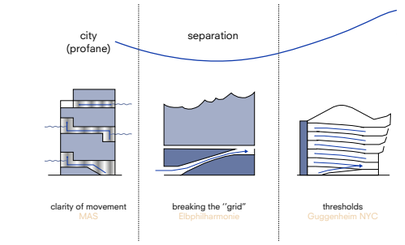
FINAL REFLECTION

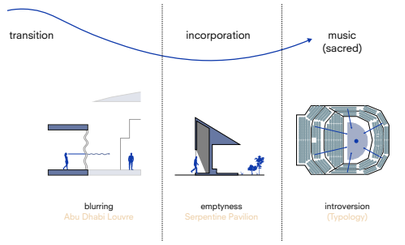
The graduation research I conducted revolved around the question of how an architectural route based on theories of liminality (transition) can enhance the sense of escaping. First I questioned myself what a route actually is. Is it a visible continuous theme within a building, or does it exist in phases. The latter was the case after analysing ethnographer Arnold van Gennep and the three phases of liminality: separation, transition and incorporation. However, in the implementation of this I encountered the first dilemma which I called the escapism paradox. The more one wants to escape the routines of daily life in a building, the longer the route becomes and the more difficult it becomes for the building to function as an urban catalyst.

In this reflection I will look back on the methods, decisions, relevance, feedback, the course theme and dilemma's.

Approach and methods

The approach and methods I set up in the graduation plan worked, but in a different way than I expected. I expected the phases of separation, transition and incorporation to be such an important element in the building, that they should each clearly be recognisable in the building's architecture. For instance: separation should be cladded with material X, transition with Y and incorporation with Z. However, during the design process there are also factors which you can not anticipate in advance. One of these factors that influenced my perception of the liminal phases was the building programme with its three distinctive music halls (jazz, rock and symphonic). But this unaccounted for factor became the crucial demarcation for my project. Without demarcation, the research would've been too generic. I believe that this is what makes architectural research possible. It's not just the theory, neither is it theory combined with site. It needs a crucial demarcation of an assignment, like in my case the three halls. In this particular situation, the three halls were again selected through a theory which links personality to music. So the research merged with the design assignment at an early stage, to set up a proper demarcation.





case studies in relation to phases of liminality

After this revelation I learned that the halls could be set in a landscape of one type of architecture in which the three phases could be implemented. This architectural style distinguished itself through its curved / fluid building shapes.

During this phase my personal case study research became very important, since it allowed me to interpret design elements that foster a transition between city and music. For example, the Elbphilharmonie in Hamburg breaks through an old building with an escalator ride through a tunnel. I interpreted this as a manipulation on a base that is nested on the site, which then causes separation. Now the case studies have provided me of a deeper meaning, which I can redesign in my own way rather than just picking physical elements from an existing building.

Scientific / architectural importance

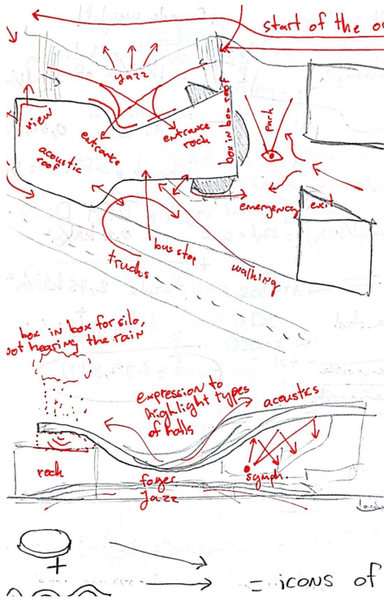
For the field of architecture it is essential to keep the escapism and liminality in mind. As psychological studies show, escaping everyday life every now and then is beneficial to our mental health. Especially looking at the true purpose of leisure buildings, which is to enjoy the time there. This graduation research has shown that a building could implement escapism as an integral aspect without compromising the urban connectivity. It is not just about finding a balance between these two, but when executed carefully they can become each other's extension. Like the elevated terrace with its stairs that cause both a separation from the rest of the city to a new realm of music, but also function as a qualitative public space along the waterfront park. Hence in future, I deeply advise designers to consider not just placing leisure functions in a box. But carefully think of the journey of a visitor in relation to their intention of escaping the context.

Reflecting on the how and why? Decision making during the design process

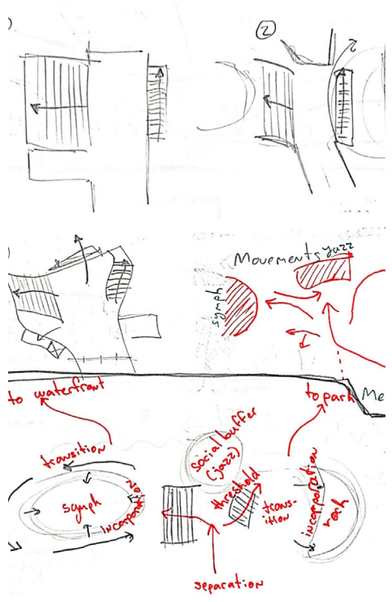
At a certain point during the design, I had some difficulties with how to proceed, because in the P2 I mostly answered the practical issues, but not necessarily the architectural ones. So I had to translate the practical assignment into architecture. I knew already from the design position I took in the manifesto, that fluidity was an important aspect since it was the complete contrast of a grid. It was zoning rules versus spatial freedom. So fluidity is not an architectural approach because it looks beautiful, it became crucial to create a contrasting realm of music and join the three halls together. It was at this all time low where I was able to find the correct way to implement fluidity into the architecture. How? By trying to think as logically as possible. Architectural offices that practice the method of fluidity like Zaha Hadid or UNStudio also must have a logic. The tutor advised me constantly that the composition had to be self-evident. Only then will fluidity become understandable for visitors. So first, I looked at the surroundings. Where do the people depart and come from? Second, I looked at where the people had to go to (the three music halls). And thirdly, I kept the three phases in mind. From here on the boundaries were set with site, programmatic and theoretical research. Next thing I had to do was to sketch and test variants. This was the way to understand if an idea made sense or not.

Reflecting on the feedback by the mentors

In the beginning of the process, the feedback was highlighting the issues I had myself with my search for an architectural solution to my problem. It was a period (before, and right after P2) which I had to overcome. Later however when I found the solution, my main tutor's feedback became different. It became obviously more focussed on the architectural aspects of the building rather than the research and how that is linked to the building. This makes sense to me, because in a conceptual phase, the design is not yet so tangible. It's



sketches on fluidity



sketches on movements in the foyer

based on architectural theories, which is more difficult to discuss with tutors. Later in the design phase when the building got more defined, the tutoring sessions became extremely valuable to me.

In short, I distinguished two types of feedback during the graduation year: conceptual feedback and tangible feedback.

Translating the feedback into work

The two types of feedback which I argued in the previous paragraph, were each translated into work in their own way. Mind the difference between 'to consider' and 'to reconsider'.

The conceptual feedback often called for research on the site, theory or concept. These were often setbacks in the process, since you had to reconsider aspects instead of consider.

Feedback during the elaboration phase mostly called for design studies, which is to consider something. I usually did this through sketching. From plans and perspectives, to details, I almost tried everything through sketching. After a sketch, the best options or ideas needed more elaboration. These were then made in 3D in a computer model. This was critical, especially in my design, because it was impossible to fully understand the fluid shapes in sketches only. Sometimes when I made a sketch it turned out impossible in 3D.

How you've learned from your own work

I've learned from my work in the graduation studio in three different ways.

First, and most obvious, I've learned a lot on the research topics. How liminality can be implemented into architecture for human benefit.

Second, I've learned to cross the boundaries and work with completely different tools than I was used to. Not necessarily the 3D program, but more the creation of the curved shapes. Was my mindset limited by the tools I knew to make these shapes? No, I always started through sketching. So if the maximisation of curved shapes was

limited in any way, it was by my spatial insight rather than the design tool.

But in a way, I have been truly pushing my spatial insight last year with this project. And this is the third lesson I've learned from my work. I've learned to not give up on my goal while also maintaining a professional workflow and decision making ability.

What is a music marvel to me?

A music marvel is not shy of its ambition. It makes use of the full potential it can have to get people to enjoy a concert in more than just the music. Its architecture showcases it being different from houses and office buildings. As a result of this contrast, people are drawn to the marvel, which is paramount for the visitors feeling the urge to escape daily life. It should resemble this leisure and provoke interest. Only then will the ambition become reality and gain iconic value on a large scale.

Relation between studio and design

For me, the delineation research and the case studies were especially valuable for the design. The delineation research manifesto made me think about the site differently than I was used to right from the beginning. This allowed me to take a position with a deeper meaning concerning the manipulation towards the surrounding system. The case studies were helpful in more than just understanding how a music building operates. What I found most interesting was the city research, which I was lucky to conduct on Oslo and the Barbican. Due to this I could truly start to understand what impact a building can have on the city. I think that may have prompted my approach for an iconic building that would function as a catalyst for Binckhorst. Especially after seeing what Oslo did to the Bjørvika district, it all made sense to me. That's when I discovered the "magnifier effect", which is not only about being an urban catalyst, but also magnifies the size of the city centre.

However, It was a bit disappointing that we didn't do much with the production for the theory

delineation research manifesto

research course (not the research / graduation plan). The notational system, which I made with my group, helped me to understand the issues on the borders of Binckhorst. This has also influenced my decision to build along the borders, since these thresholds control the face and entry to the Binckhorst the most.

What is your concept of multiplicity?

I studied two types of multiplicity for my design.

On the one hand there is multiplicity in function. A building should resemble more than just one function. The marvel thrives on three completely different types of music with each having their own approach on routing. Another layer of multiplicity is the public function, which is created by the extension to the surrounding park through an elevated terrace and an indoor exhibition space.

On the other hand there is multiplicity over time. A change of function or adaptation of the current building. This carried a big dilemma for the design. The building gets its succes from its strong and custom designed composition for this specific function. The more custom made the design gets, the more difficult it becomes to change its function in the future. However, the more generic the design becomes, the less it will function as an icon. I believe that this building is now so strong in its architecture in relation to the function, that if let's say in fifty years time there is no more interest in physical music buildings, this will be the last one to close its doors. The architecture in relation to the function has surpassed a critical point where it means more than just a music building. The building has become, and it should remain, a rare occasion.

So in its function it is multiplicity, but in the long term it is singularity, and that's what I believe is needed for these types of iconic buildings to have a proper effect on the urban realm.

Circularity ethical dilemma
Another ethical dilemma I had to deal with later in the project were the building costs and material circularity. This came to light especially during the detail phase. Most of the materials needed to make these spans and double curves are more expensive than materials for orthogonal buildings. Also they are less remanufacturable and reusable (they are still recyclable though). But handing in too much on this front would have an immediate effect on the architecture, and thus indirectly on the building and its operation as an urban icon. So my approach then became to work with materials that are very durable. They should be easy to maintain, easy to assemble and have a long lifespan.

How will I fill in the final part of the graduation period?
I am planning to explore methods on how to make a physical model of the design. Presumably, the double bended shapes ask for some innovative manufacturing approaches like for example 3D printing, which I am not yet familiar with.

(the five aspects for reflection from the Graduation Manual are all integrated in the topics discussed in this reflection)

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<u>Appear only in the abstract:</u>

NOS. (2021, October 17). 100 jaar Tuschinski, 'de mooiste bioscoop ter wereld'. Retrieved 18 October 2021, from https://nos.nl/video/2401994-100-jaar-tuschinski-de-mooiste-bioscoop-ter-wereld

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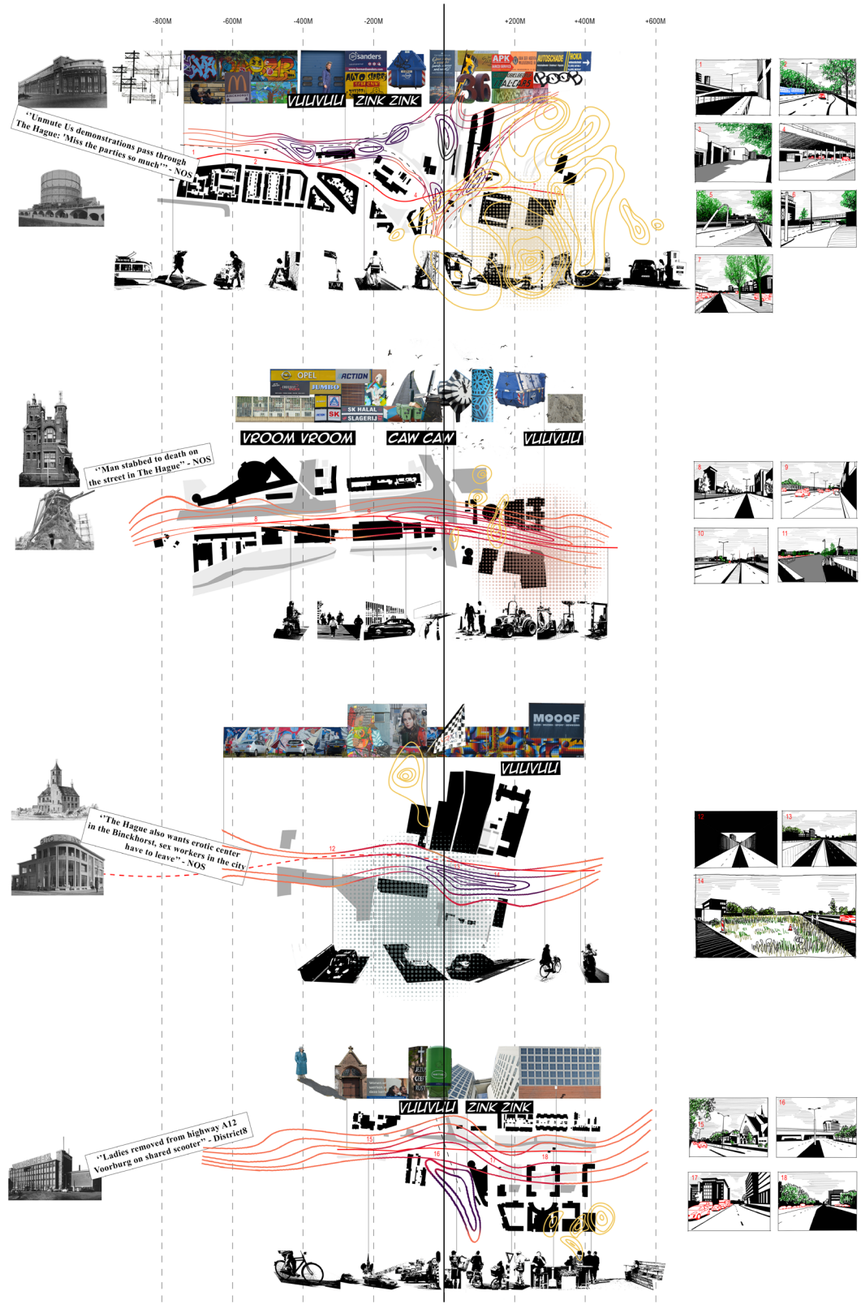
APPENDIX 1

NOTATIONAL SYSTEM

TRANSITIONING INTO BINCKHORST

Made by Group 4 (Alara Külekci, Dimitri Nalmbantis, Ghassan Mosto & Stephan Nieuwesteeg) during the period for P1. A psychogeorgaphical analysis of four approaches towards the Binckhorst shows the differences in character between the site and the surroundings.



APPENDIX 2

CASE STUDIES

BARBICAN CITY

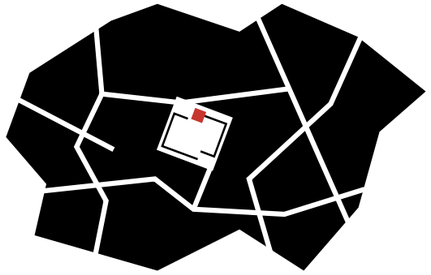
London

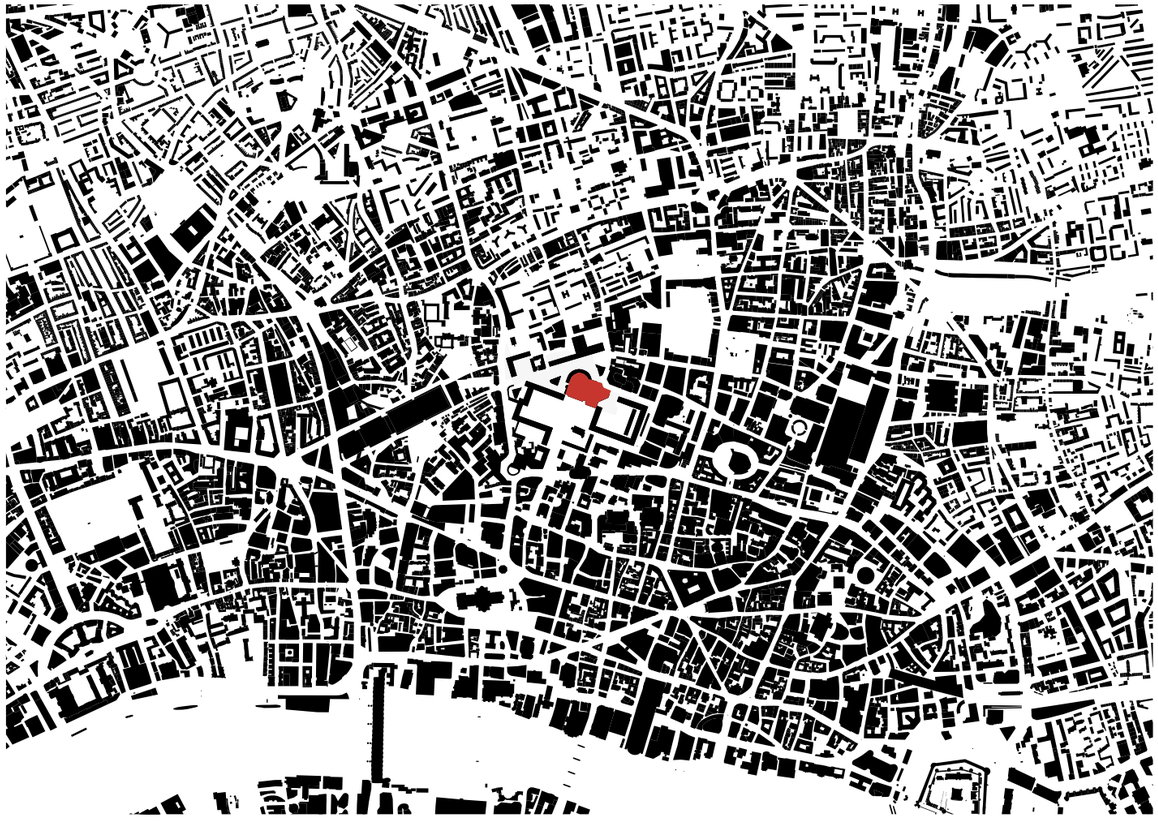
The Barbican is situated in the centre of London, UK. Being the largest city in the country, it is also one of the most prominent cities in Europe. It is an economical but also a cultural hotspot. The Barbican Estate is a big residential area in the middle of London. Designed for an ideal society, the music building was to put the Barbican on the cultural map. Hence, the location allows for good connecions to all directions of the city, but also to bigger scales.

A.01 Location in the city 1:200.000

High density

A figure ground map shows the density of the city centre. The building blocks of the surroundings are based on an irregular grid. In contrast to this, the Barbican is designed on a largely orthogonal grid. The rectangular shaped buildings are therefore exceptional in this part of London's centre. Combined with the elevated terrace level and the blocks forming urban walls, the Barbican has become a fortress of its own inside the city (''Barbacane'' = fortified outpost).





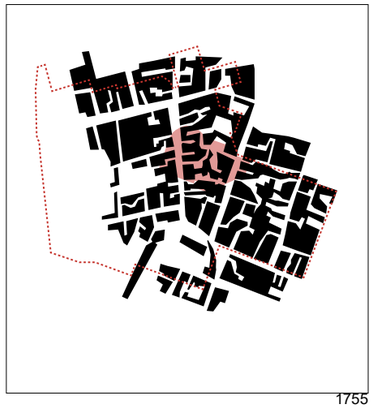
A.01 Figure ground 1:20.000

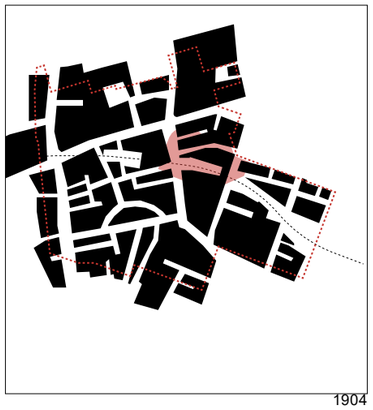
Site history

Tabula rasa

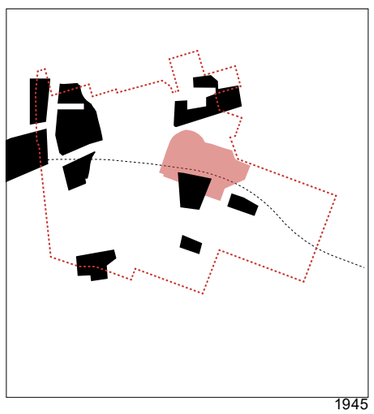
In 1666 a big conflagration destroyed almost the entire city centre. Between the 18th and 20th century, the new blocks changed from unplanned smaller scale buildings with lots of alleys, into larger scale buildings with a proper design. This was largely put in motion by the planning of the railway through the site. The railway goes underground, but at the points where it doesn't pass underneath a building it was visible below. After the bombing of 1945, most buildings in the zone were entirely destroyed. This allowed for the new urban plan to be something completely new, not following the grid. The route of the railway/subway has been changed correspondingly for the new building volumes. This also resulted in the foyer to be positioned between the subway and the music hall. Even from this historical analysis, it can be concluded that the location of the music centre has always been hidden in the density of the urban network.

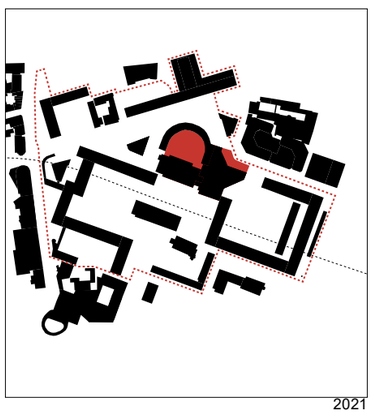
1666 (large scale)


1755


1904

1945 (large scale)


1945

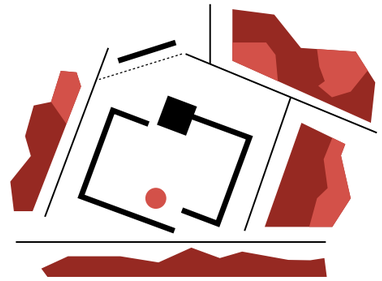

2021

A.01 Historical maps 1:10.000

Building age

Mixed pre- and post-war

Around the Barbican estate, building ages are very mixed. There are some older buildings that were built around the 19th century that survived the bombings. The empty spaces have been replaced by newer buildings. Also many relatively new structures, being built after 2000. These can mostly be found to the east of the Barbican. Within the Barbican, the 14th century St. Giles Cripplegate church is being ''protected'' by the massive and solid blocks of the Barbican.



Older than music venue

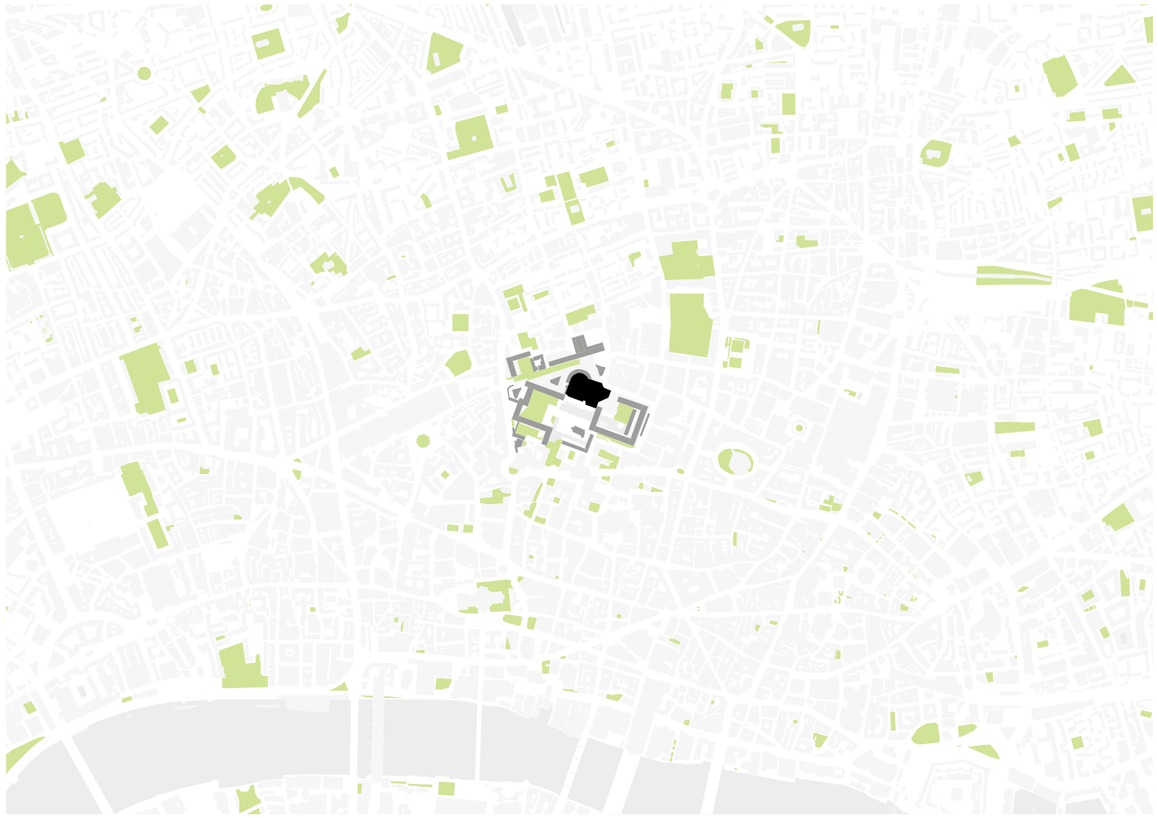
Newer than music venue

A.01 Building age 1:5.000

Green

No relation, oasis

Green spaces in this part of the centre seem to be quite hidden. In terms of greenery in the Barbican, there are multiple parks within the borders, all very close to the music hall. This creates multiple courtyards, giving the feeling of an oasis within the city. The ‘‘ground level’’ of the public space has been lifted from the normal ground level of London. This increases the level of detachment from the city while walking through the Barbican.



Green

N

A.01 Green 1:20.000

Water

Detached from Thames

The waterfront within the Barbican outlines, called the Lakeside, is after the river Thames, one of the bigger water bodies in the city centre. This allows for a high quality public space for people to meet and relax, hence it’s called the Lakeside Terrace. Here you can find an important pedestrian entrance to the Barbican Centre. Its distance to the Thames is about one kilometre, making it, combined with the dense building network, visually detached from the river.

Water

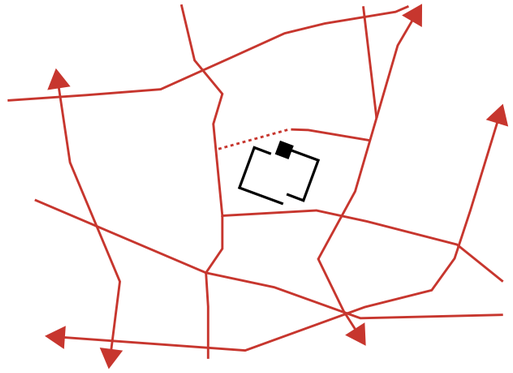
N

A.01 Water 1:20.000

Road network

Overloaded

There are plenty of roads for the car to drive. Yet, the width of the streets is quite narrow. Because of this, it can get relatively busy in the centre, and travel times will be enormous. There are also various car parks near and underneath the Barbican. As a result, most people would probably prefer taking the bicycle or the public transport. There are no separate bike lanes around the Barbican, they are mostly integrated on the same road as the cars.



Side roads
50 kmph. roads
Highways, national & regional roads

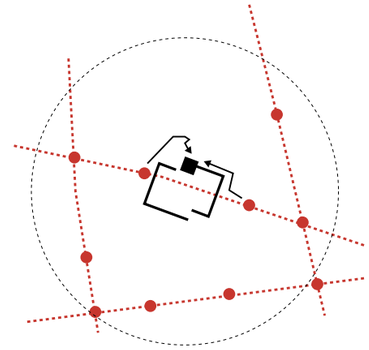
N

A.01 Road network 1:20.000

Public transport

Many directions

Because the estate is built on a subway line, two stations are right around the corner. On the east side is the Moorgate metro station, which connects to multiple lines. In total, there are 14 metro and train stations within a kilometre reach from the Barbican. All are connecting to different directions of the city. This highlights the amazing connectivity to all scales, showing the importance of closeby public transport to the functioning of Barbican Centre.



Train
Metro
Tram
Bus
Ferry

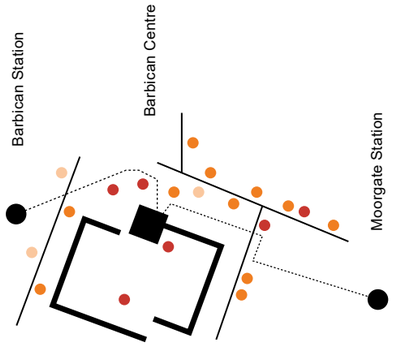
N

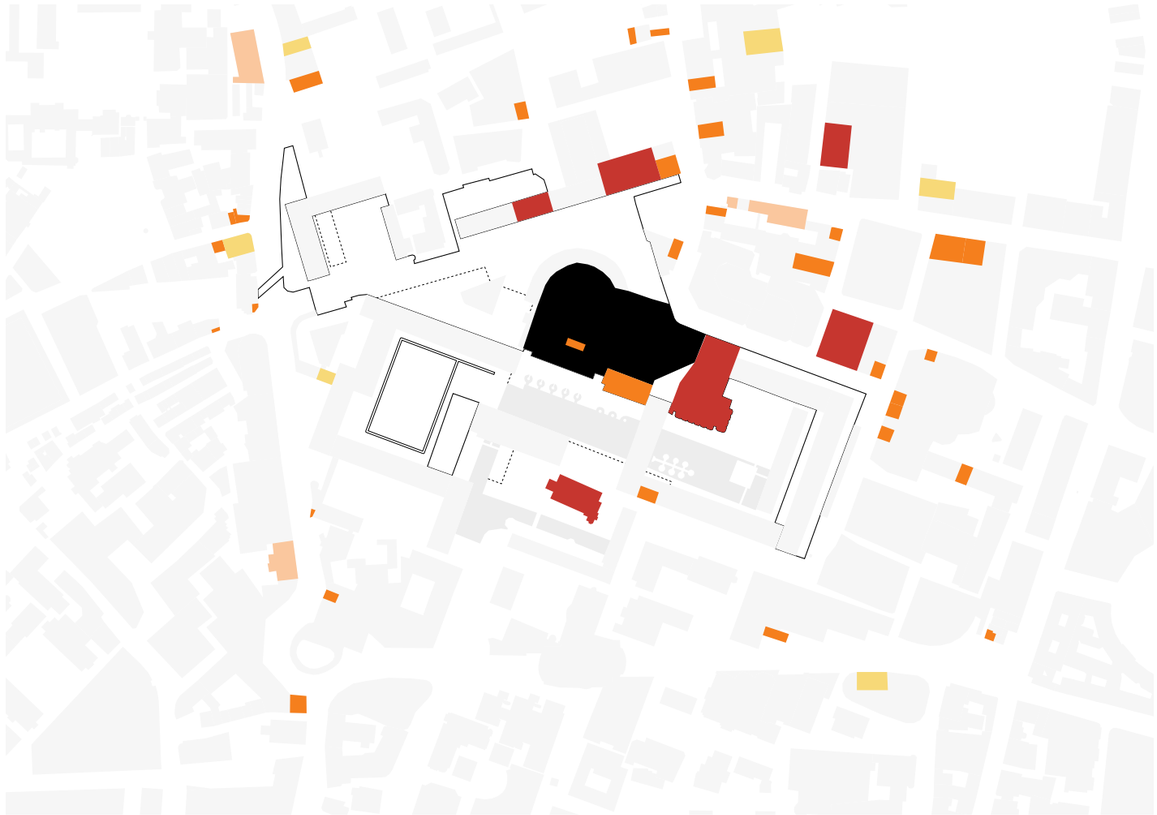
A.01 Public transport 1:20.000

Amenities

Mixed around the streets

Attending a concert or a play is not just the performance itself. It is the full experience including dining and drinking, sleeping and shopping. These relevant surrounding functions and the music building are inseparable. Around the Barbican, all these different functions seem to be spread around the site in both the main streets and the smaller side streets. There is also no cluster forming. The functions seem to be mixed. There are just not many hotels in the area.





Cultural
Café / Restaurant
Shops
Hotels

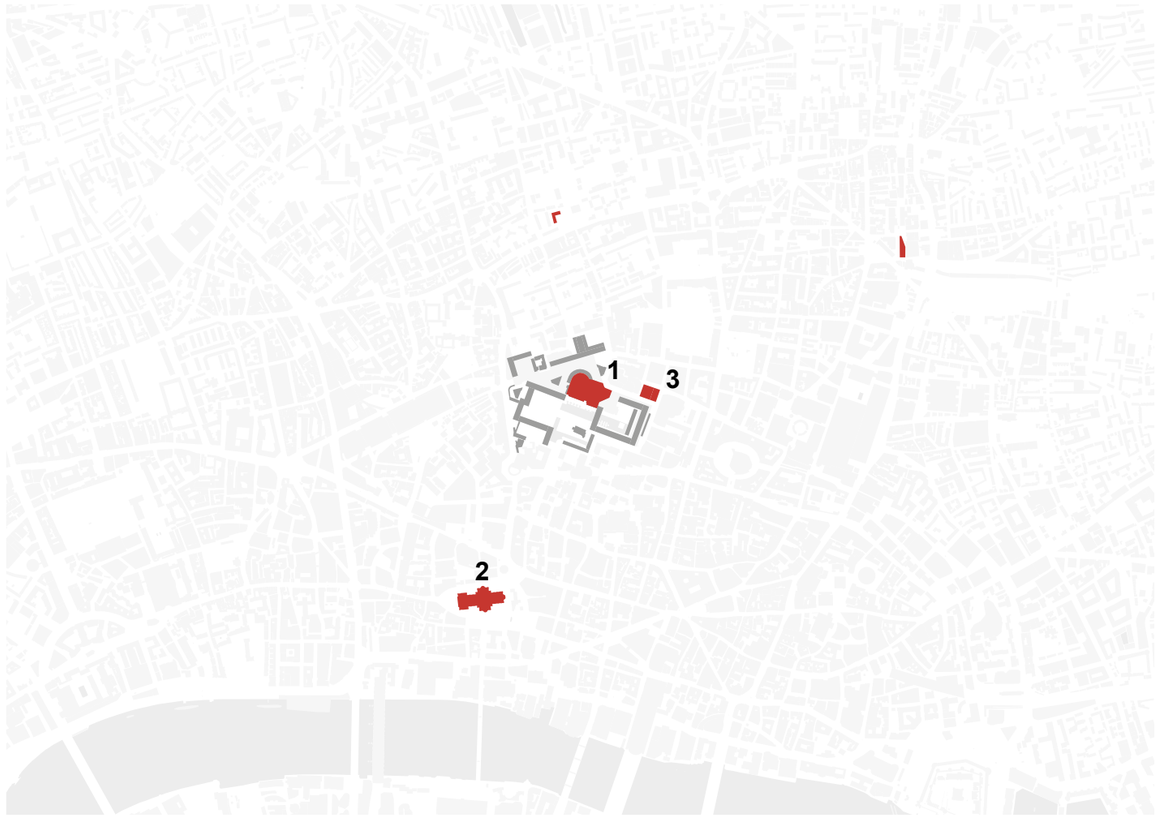
N

A.01 Relevant public functions 1:5.000

Music venues

Sparse

London has many good music venues for all types of music performances. Think of the Royal Albert Hall, the big concerts at the O2-Arena or even at Wembley stadium. When zooming into the area around the Barbican, there are just a few other music buildings. Except for some smaller ones, there's a concert hall right across the street at Milton Court, which houses the Guildhall School of Music. Also the St. Paul's Cathedral is used for concerts sometimes.



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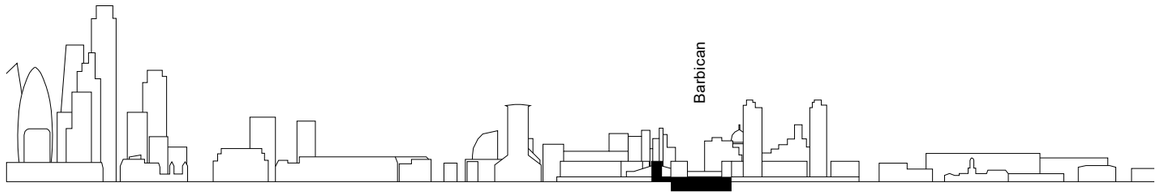
A.01 Competing music venues 1:20.000

Form

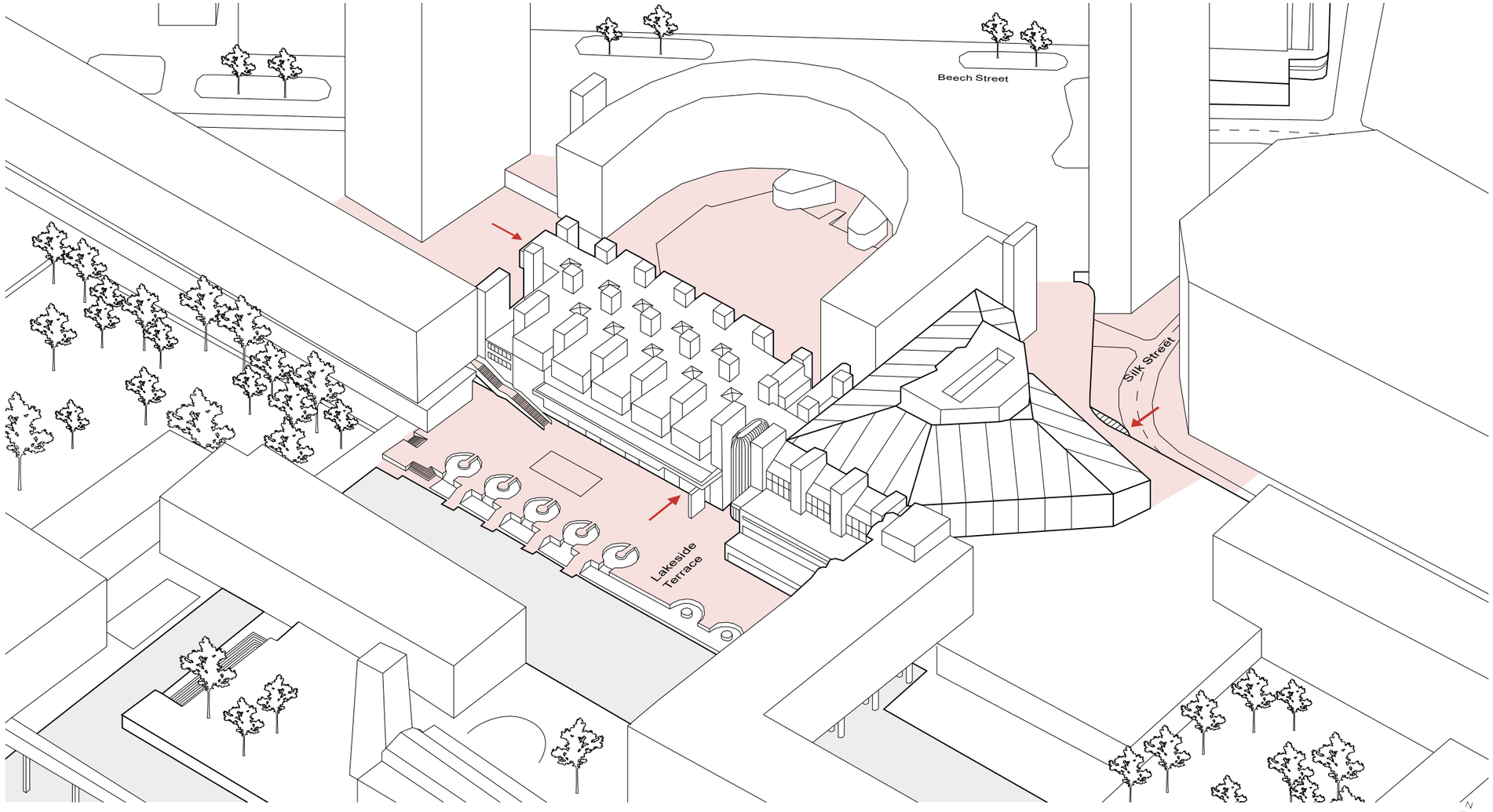
Obstructing, protective, horizontal & vertical

The main entrance of the Barbican Centre foyer (for going to the cinema, theatre or music hall) is for people who don't live in the Barbican mainly focused on the passage connecting to Silk Street in the north. Because of the placement of private spaces, building blocks, height differences and water bodies, the entrance on the Lakeside Terrace is difficult to approach. Especially when coming from the subway, the Silk Street entrance seems more convenient. From the south, there is a passage underneath one of the building blocks, crossing the lake. The residents of the Barbican seem to have easier access to the Lakeside Terrace. The skyline shows how the venue is not only hidden horizontally, but also vertically, since it is built underground largely. However, the three 130 m tall towers of the Barbican estate are noticable in the skyline since they are surrounded by lowrise building blocks (see photo).



A.01 Urban Elevation 1:10.000 North Elevation

https://www.flickr.com/photos/duncan/26446211509

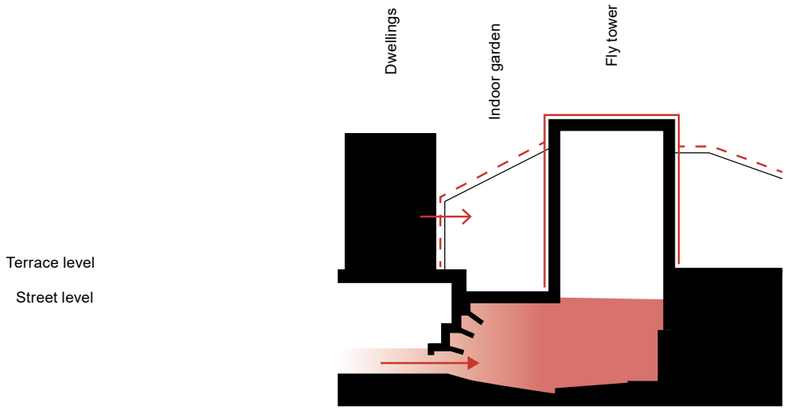


A.01 Form AXO 1:####

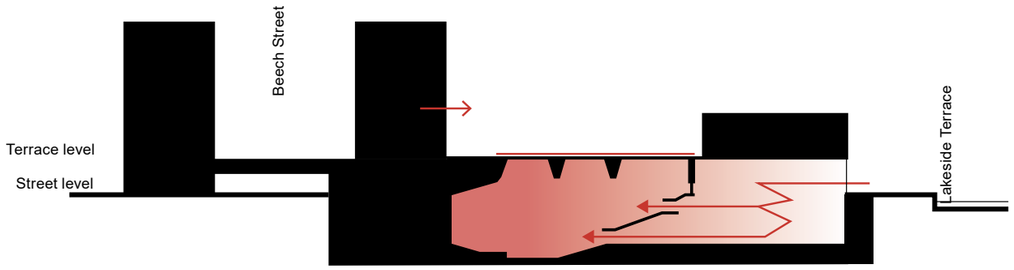
Facade porosity

Hidden music functions

The Barbican faced a major challenge during the design stages. Since it had to contain both a residential estate and a music venue, these two worlds needed to be kept separate from each other. This was difficult to achieve, since the residents wanted to have good outdoor views, while on the other hand the music halls are big volumes with boring and closed facades. There were two solutions to this problem for both the music- and the theatre hall. First, because of the elevated terrace, the halls could be built underneath the terrace level and partially underground. As a result, the only exterior facades of the halls were the roofs, which than again are being used as a public space on top. In the theatre hall there was another issue. The tall standing fly tower was visible. The residents did not approve this, so the architects designed a glass structure between the dwellings and the fly tower, creating an indoor garden.

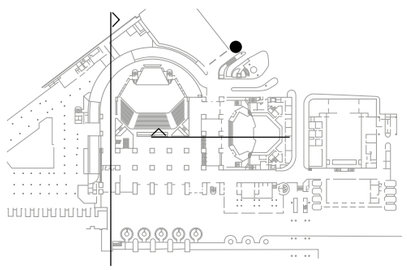


Theatre Hall



Concert Hall

50 m



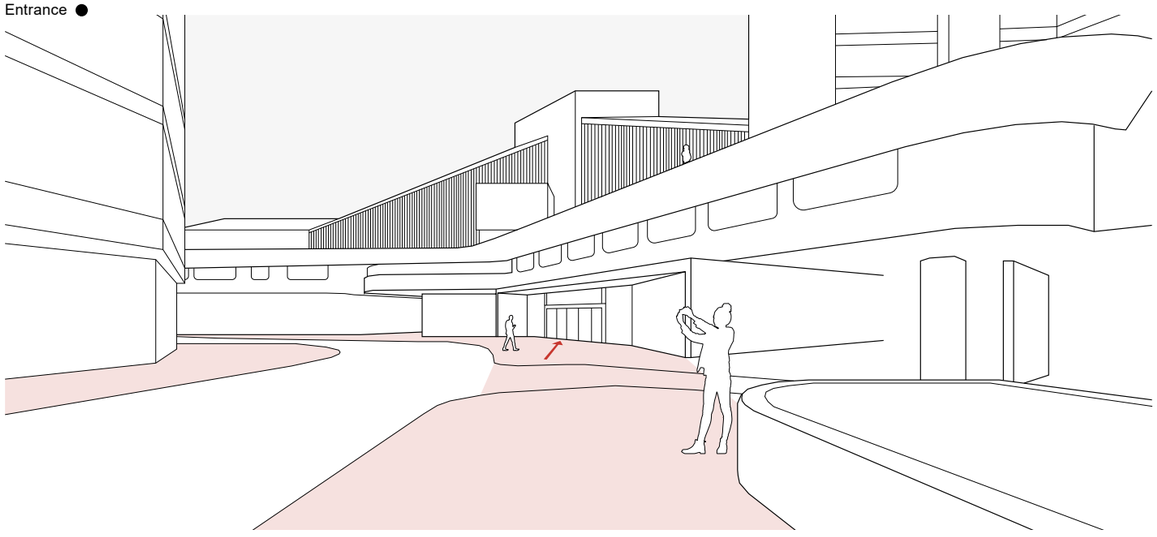
Entrance / exit

Tight

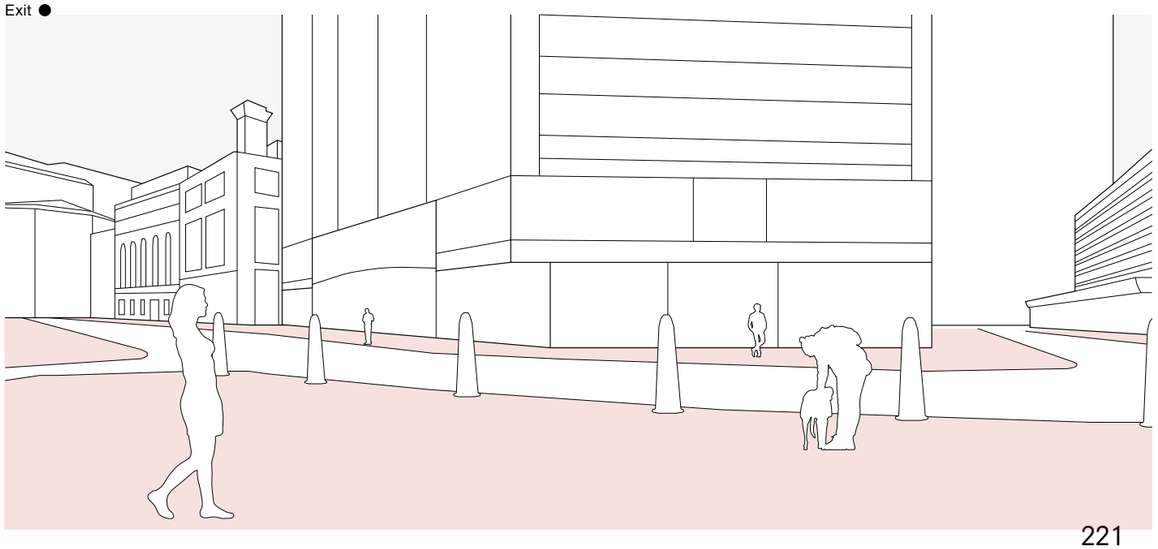
The Barbican centre is hidden from the public space mostly, even though it's Europe's biggest performing arts centre. It's largely underground, and the entrance is pushed away underneath a concrete edge of the elevated terrace. After entering through the main entrance at Silk Street, the following space is a long hallway with nothing but walls around it, making the music halls even more detached and distant from the urban fabric. This is not necessarily a bad thing. It can help the visitors to assimilate the transition from the city to the music hall. The other way around is an exit is in a tight street.

On top of the elevated terrace, one of the three Barbican residential towers can be seen. Also the fly tower is visible, with its by glass surrounded indoor garden. This makes it the only part with a lightweight construction, considering the contrast with the rest of the brutalist Barbican.

Entrance ●



Exit ●



Approaching

Moorgate Station

While the Barbican Musical Centre is barely visible from the street, only when highlighted red, the complex appears when walking through some of the side streets coming from Moorgate. Since the architecture of the Barbican estate is monotome, it can both be guiding, since you know that you are at the Barbican, or confusing, since the facades all look similar.

Barbican Station (tunnel)

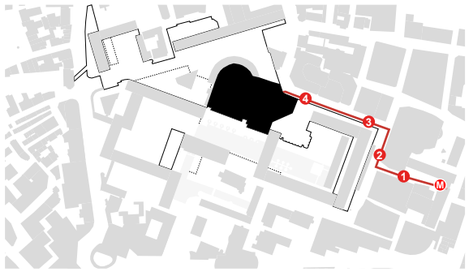
Coming from Barbican Station, it is impossible to go straight to the Lakeside terrace entrance. See the axonometric to understand the restrictions created by the building masses. The first route goes underneath the Barbican, in the tunnel of Beech street. The car sounds are loud, and all logistic entrances to the Barbican are situated here.

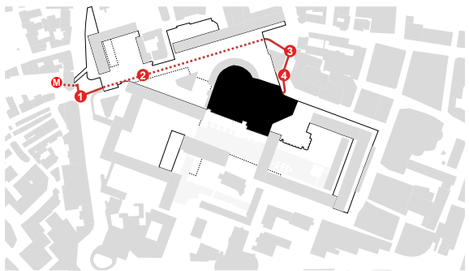
Barbican Station (elevated terrace - Beech Street)

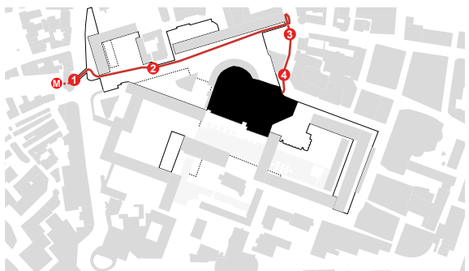
Therefore, the elevated terrace on top of the tunnel is a more human centered approach to the venue. While walking here, the venue becomes already visible. Yet, it is inaccessible from this side to prevent disturbance for the residents. As a result, you are allocated to walk all the way to the end of the terrace, to the same point where the tunnel ends, arriving at Silk Street.

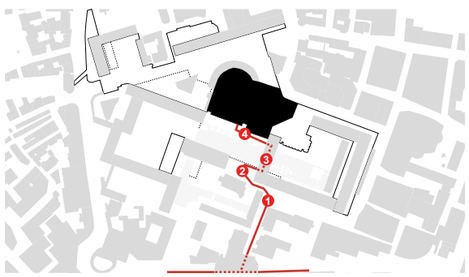
London Wall

The only other way to enter the Barbican is by coming from the south. This is the only exception to the Silk Street entrance. Hence, people use the foyer in combination with this route as a shortcut through the Barbican, instead of walking around it. From this side, the music venue is much more visible since it dares to show itself to the inside / oasis of the Barbican.









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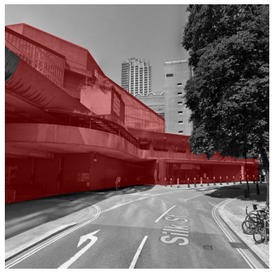

4

1

2

3

4

1

2

3

4

1

2

3

4

Traveling

Very busy networks

The location of the Barbican in the centre of London comes with many issues on the city scale. Especially with the car, busy traffic situations occur very often. As a result, it takes relatively long to arrive at the Barbican. This happens within the local scale on the roads in the centre as well as from distant neighbourhoods or the airport. It takes between 50 and 100 minutes to get to the Barbican to the Heathrow airport. On the other hand, London has an extensive subway network, allowing usually for faster travel times than by car. Looking to the bigger scale, London has high speed train connections to big cities like Birmingham and Manchester. Also there is a train connection to Paris.

Understanding that travelling on the small scale takes relatively long, but the large scale is relatively short, highlights that the reach of the Barbican can be very big. This is because London is a world city. Hence it should be very accessible on the large scale.

Point of departure	Modes of transport	Traveling time
Public transport hubs		
Barbican Station	🚶	< 5 min.
Moorgate station	🚶	< 5 min.
Liverpool Street Station	🚶	10 min
Heathrow (airport)	🚌 – 🚌 – 🚌 – 🚶 / 🚗	52 min. / 50 min. - 1 h. 40 min.
Nearest highway		
M25	🚗	30 min. - 1 h.
Neighbourhoods		
Trafalgar Square (centre)	🚌 – 🚶 / 🚲	27 min. / 14 min.
Croydon	🚌 – 🚌 – 🚶 / 🚗	33 min. / 1 h.
Tottenham	🚌 – 🚌 – 🚌 – 🚶 / 🚗	49 min. / 40 min.
Cities (from city centre / airport)		
Watford	🚌 – 🚌 – 🚶 / 🚗	1 h. 9 min. / 1 h. 10 min.
Reading	🚌 – 🚌 – 🚌 – 🚶 / 🚗	1 h. / 1 h. 50 min.
Birmingham	🚌 – 🚌 – 🚶 / 🚗	2h. / 2 h. 50 min.
Manchester	🚌 – 🚌 – 🚌 – 🚶 / ✈	3 h. 5 min. / 2 h.*
Paris	🚌 – 🚌 – 🚶	2 h. 42 min.
Dublin	✈ – 🚌 – 🚌 – 🚌 – 🚶	3 h. 2 min.*

*Includes one hour time at the airport.

OSLO CITY

Oslo

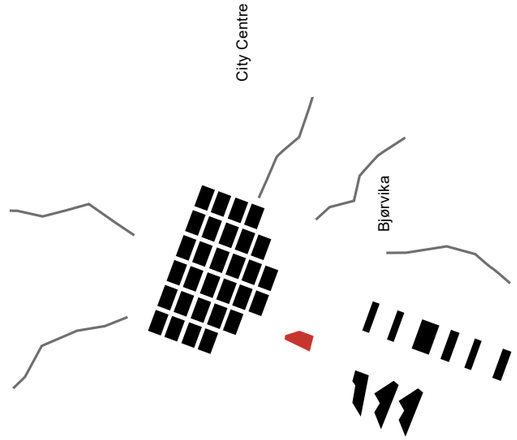
Oslo is the capital and largest city of Norway with a population just over a million. It is situated at the end of the Oslofjord along the North Sea. The fjord landscape is characterized by the many islands and sharp coastline. The new Opera House aimed to revitalise the connection between the city and the fjord by introducing not only culture, but also a very special public space. Architects Snøhetta achieved this by making the rooftop a public observation deck.

A.01 Location in the city 1:200.000

N

Organised

In the figure ground map, the Opera House is located in between different elements and areas of the city. To the west of the Opera House is the historic city centre, organised in an orthogonal grid. In the east is Bjørvika, a modern neighbourhood of the Fjord City redevelopment. The neighbourhoods surrounding the city centre form a connection between the centre and the highway ring around Oslo. The Oslo Opera House has one of the biggest footprints in the city.



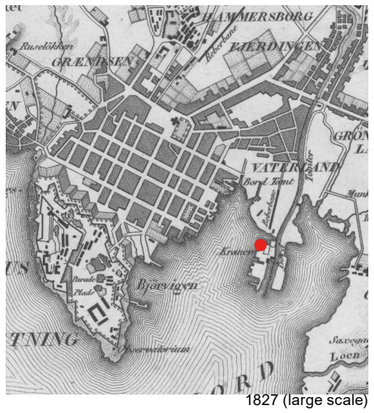
A.01 Figure ground 1:20.000

N

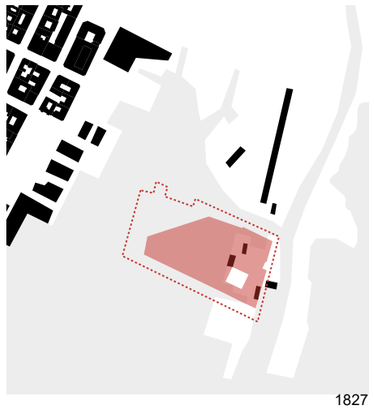
Site history

Constantly changing waterfront

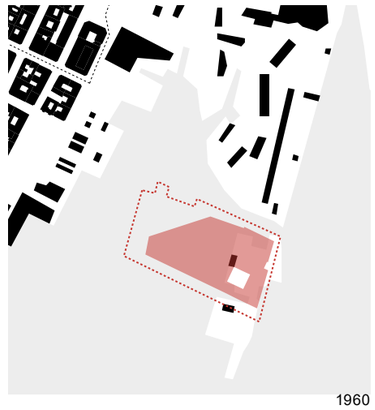
In the 1827 map, the centre of the city has already been established on the west side of the map. Back then, the natural character of the waterfront was largely defined by the river estuary. Yet, an island on the southern tip of the estuary seems to have been appropriated by humans. Industry was expanding towards the waterfront, and a culture of coastal adaptation started. Over a century later, in 1960, the shape of the riverbed on the east side has been cut into a straight line to form more docks. Industrial buildings have been placed in the Bjørvika district. In 1875 the tram was introduced in the city centre and in 1987 the train station opened. The Bjørvika waterfront has increased and forms a serious port for the size of Oslo. Yet the quality of this waterfront was not compatible with the 21st century ideals of the city. So, the waterfront had to be redeveloped again, starting with the construction of the Opera House.



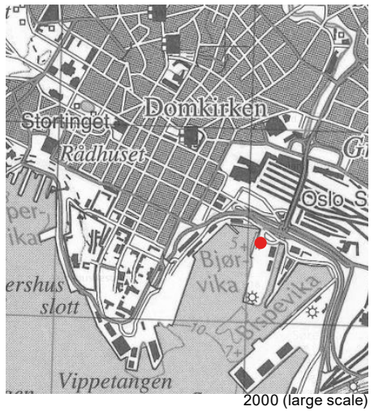
1827 (large scale)



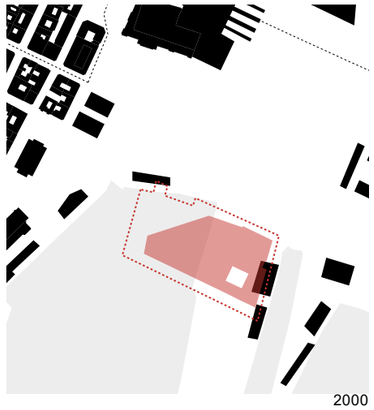
1827



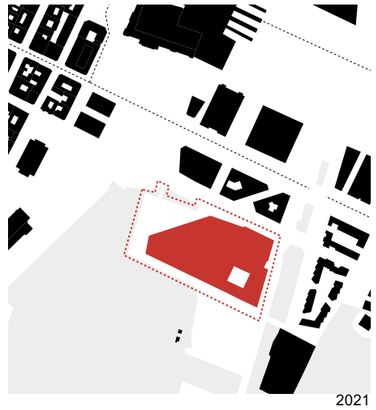
1960



2000 (large scale)



2000

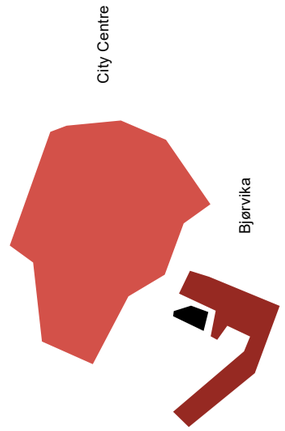


2021

Building age

Tactical position

As discussed in the previous topic, the city centre of Oslo was already well established in the 19th century, while Bjørvika used to be the port for many years. The strategic position of the Oslo Opera House was right next to the city centre. As a result, it did not only allow for Bjørvika to be redeveloped, but it also prompted its succes by forming a connection between the old centre and the new area. Hence, the Opera House is a public condenser, functioning also as a connection.



Older than music venue

Newer than music venue

N

A.01 Historical maps 1:10.000

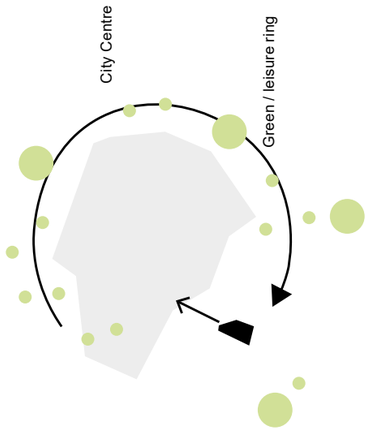
N

A.01 Building age 1:5.000

Green

Green belt

While the city centre of Oslo does not have many green areas, most are focused around the edges of the centre. As such, a belt of attractive public spaces is created around the city centre. This expands the total area of attractiveness of the centre. While the Opera House is no green space, it still forms an engaging public space. While it is also positioned at the very end, it finishes a journey beatifully with views over the entire city on the rooftop observation deck.



Green

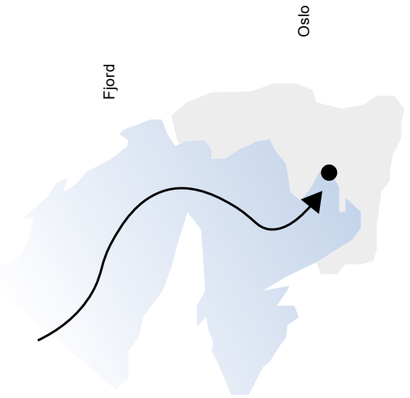
N

A.01 Green 1:20.000

Water

Fjord approach and connection

The Opera House is located right at the very and of the Oslofjord. It creates a physical connection between the city and the water, especially when arriving by ferry. The rough edges of the fjord landscape are reinterpreted in the design of the Opera House, with its sharp edged composition. Thus, architecturally it also connects to the landscape. To the west of the Opera House the small river estuary has been dug out again, since it was gone from around 1970 to 2000.



Water

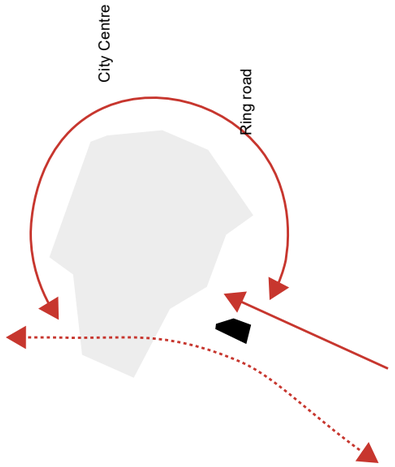
N

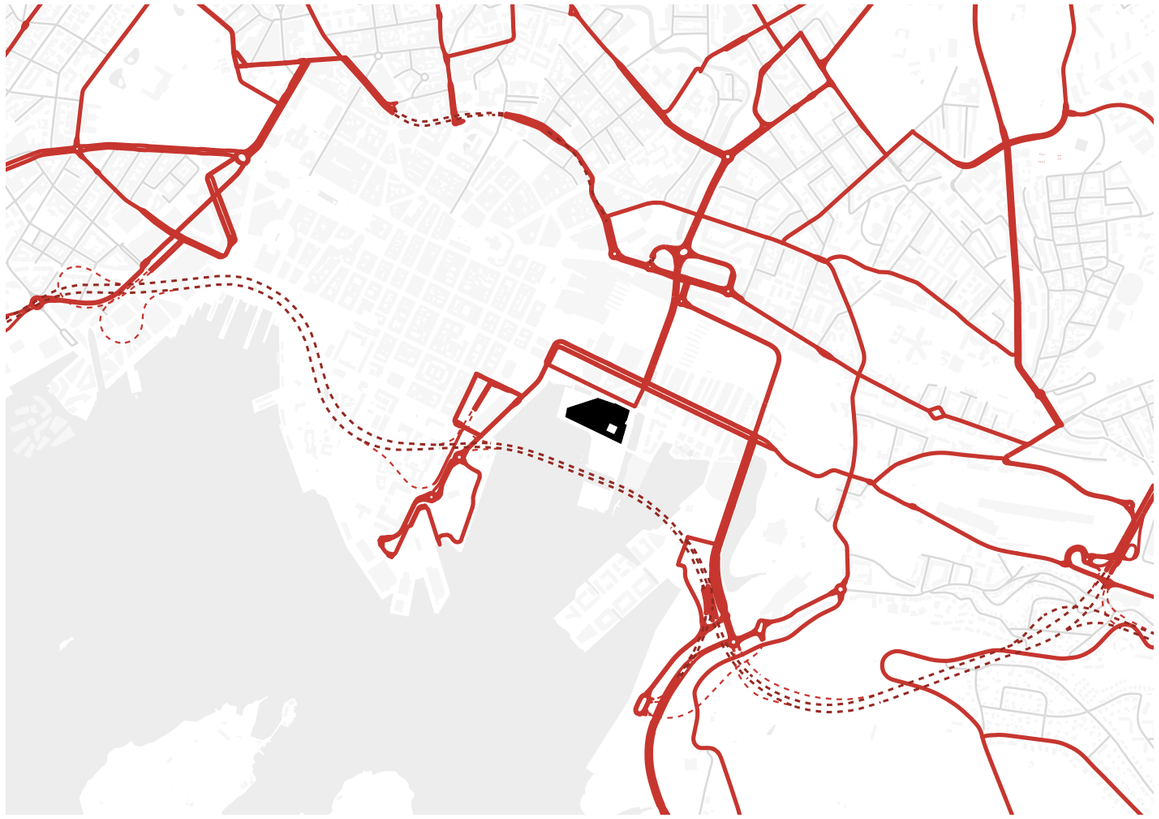
A.01 Water 1:20.000

Road network

Car-free centre

The old town is inaccessible for cars, so the 50 roads remain around it. Interestingly, Oslo's highway ring road is in contrast to most other bay cities with a developed waterfront that have a half ring road, only connecting through the land side of the city, so the waterfront will remain free of highways. But Oslo's ring is completely closed, while not affecting the visual quality of the waterfront. This is achieved through constructing a highway tunnel underwater.





Side roads
50 kmph. roads
Highways, national & regional roads

N

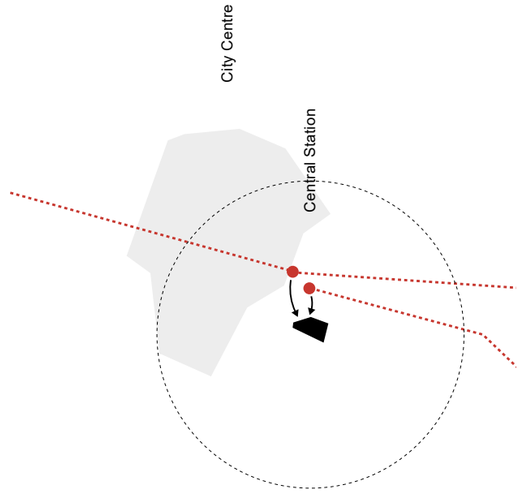
A.01 Road network 1:20.000

Public transport

Nearby main hub

First of all, there is a central train station just around the corner of the Opera House, which allows for a connection on a national level. Furthermore, the metro lines will operate on the city scale, and tram lines throughout the smaller scale of the old centre. The fourth type is the ferry boat, connecting both local and international destinations. With the Opera House being just along the waterfront, it is one of the three main landmarks* visible by boat.

*These landmarks (town hall, opera and ski jump) are further discussed in the approaches.



Train
Metro
Tram
Bus
Ferry

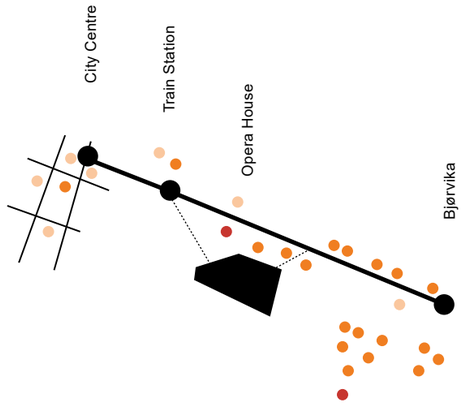
N

A.01 Public transport 1:20.000

Amenities

From old centre to lifestyle of Bjørvika

Noticably, the amenenities complementing the venue can best be illustrated along the main road between the centre and Bjørvika. Towards the centre there are more hotels, since the tourists will probably visit both the city centre as well as the opera. Towards Bjørvika there is a big cluster of restaurants and cafés. These functions in combination with the new dwellings and the cultural functions (Munch Museum, Opera and Library) are generating a modern public lifestyle.

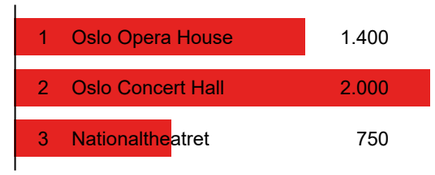


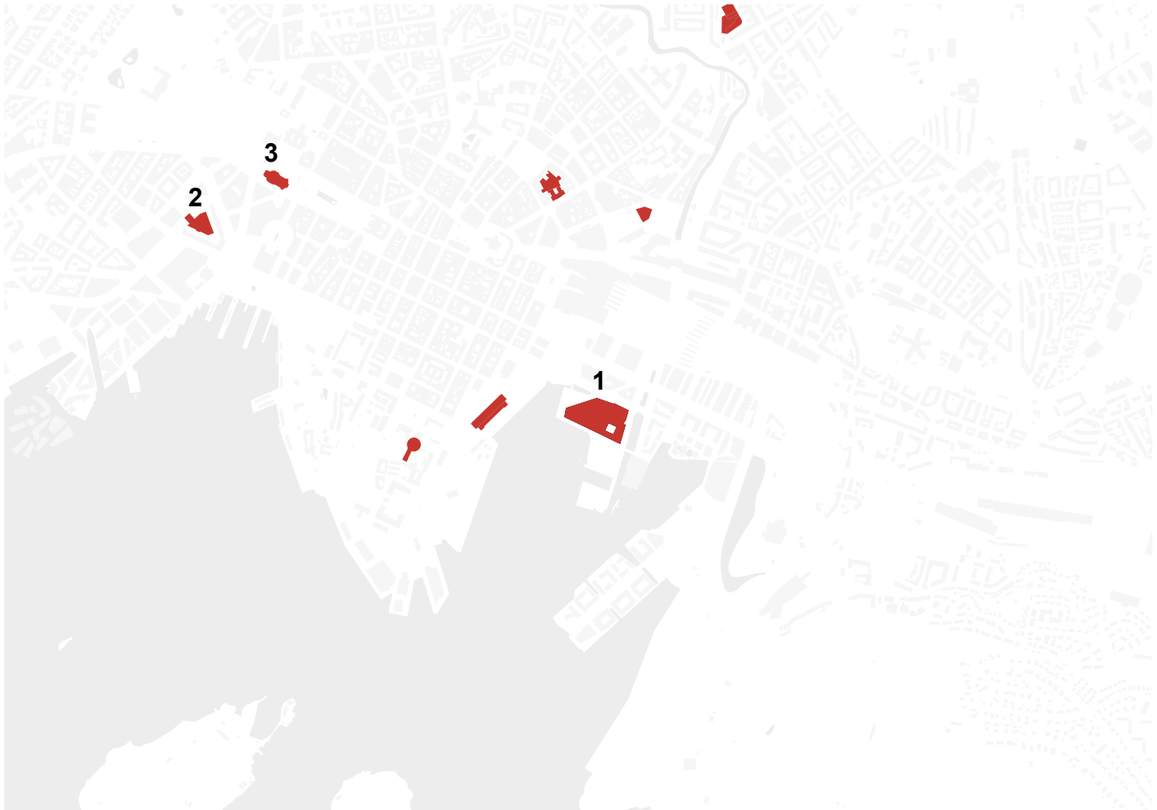
A.01 Relevant public functions 1:5.000

Music venues

Leisure belt

While the Oslo Opera House is perhaps the most noticable, it isn't the largest venue in the city centre. Neither is it the biggest for non-amplified music. The Oslo Concert Hall positioned on the other side of the centre, close to the old Nationaltheatret, has a larger capacity in the main hall. Again, like the green space map, the music venues are positioned in a circle around the city centre. This amplifies the belt around the centre to become an area for leisure activities.



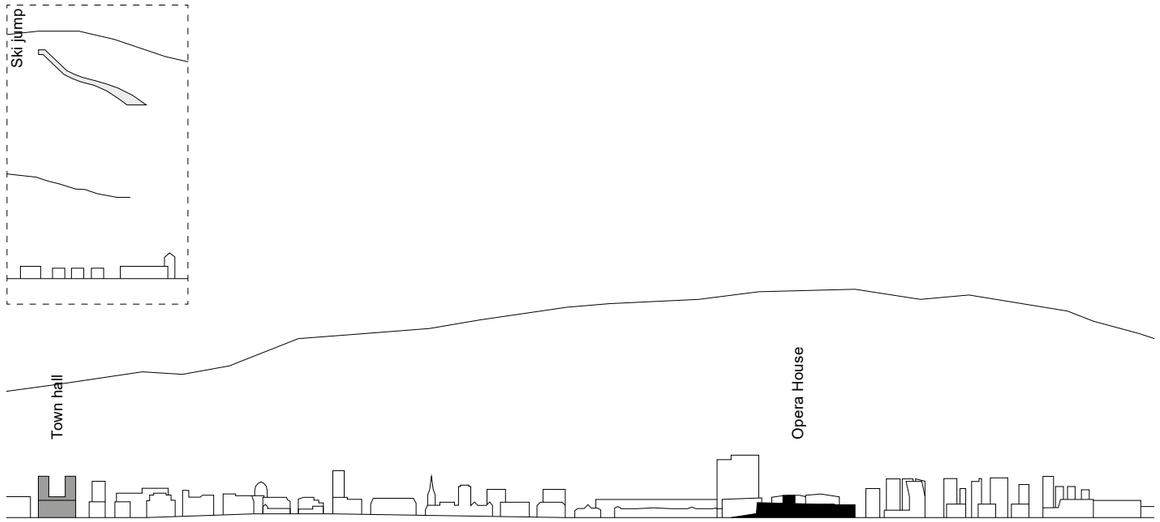


A.01 Competing music venues 1:20.000

Form

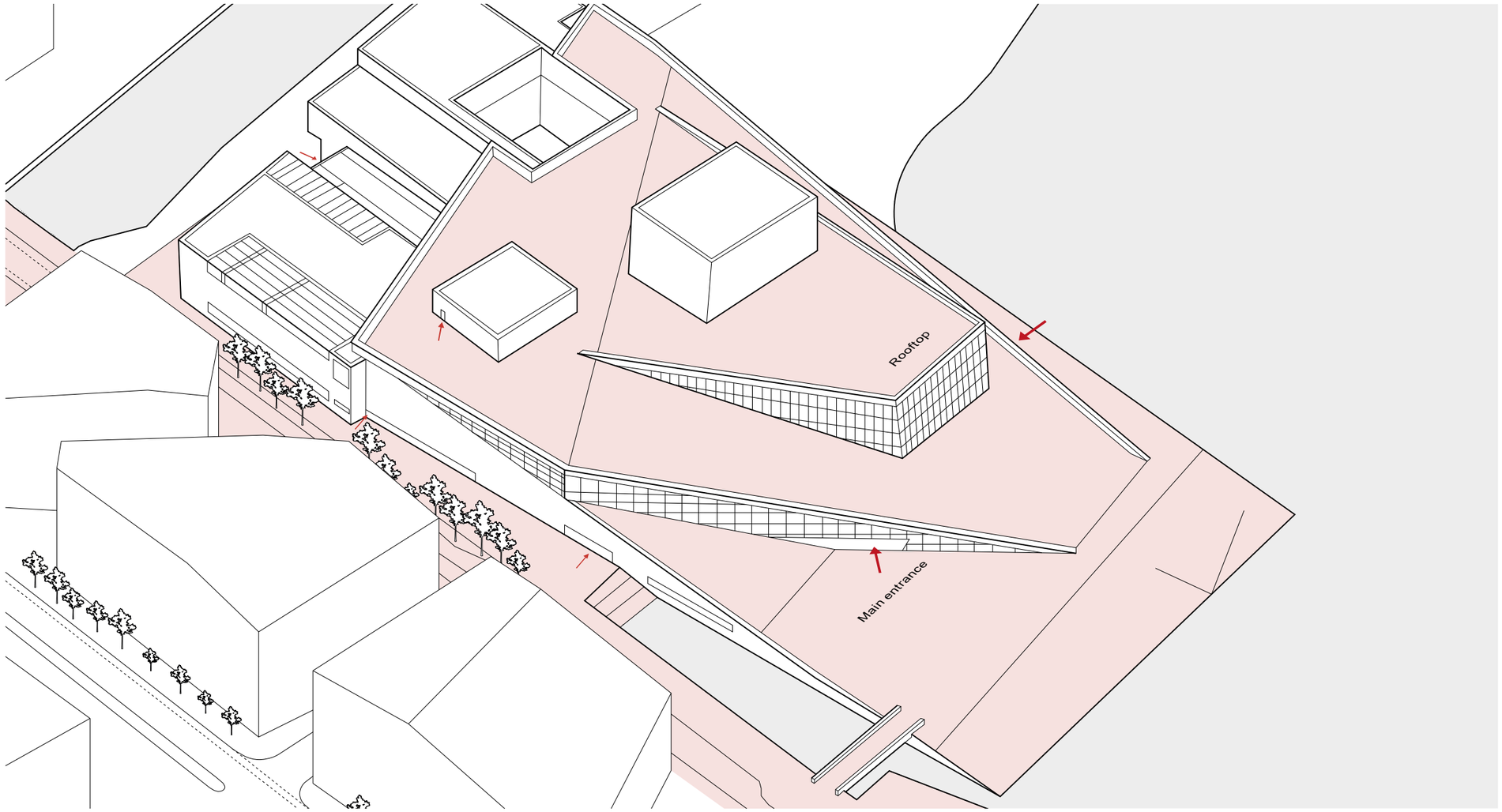
Fjord and ice

To understand the form of the Oslo Opera House, one must look into the shape of the natural landscape of the fjord. Its hard and sharp edges are represented in the Opera House. In winter, when the mountains in the background are covered in snow, the Opera House blends in perfectly with the natural surroundings. Another indication for this sharp shape is the ice that is formed on the water of the fjord. When the ice breaks, it creates a pattern of sharp edges (see photo). To conclude, the building blends in more during winter. However, in summer it is perceived as a white monolithic landmark. In elevation, the building is not tall. But, its unique shape absorbs the attention nevertheless. In terms of entrances, there is only a small bridge to the square in front of the main entrance. Yet, the entrance to the building opens up by a curtain wall underneath the roof. A gate on the roof allows for elevator access for disabled people.



A.01 Urban Elevation 1:10.000 South Elevation

https://artborghi.com/2015/01/10/a-winter-visit-at-oslo-opera-house-den-norske-opera-ballett/



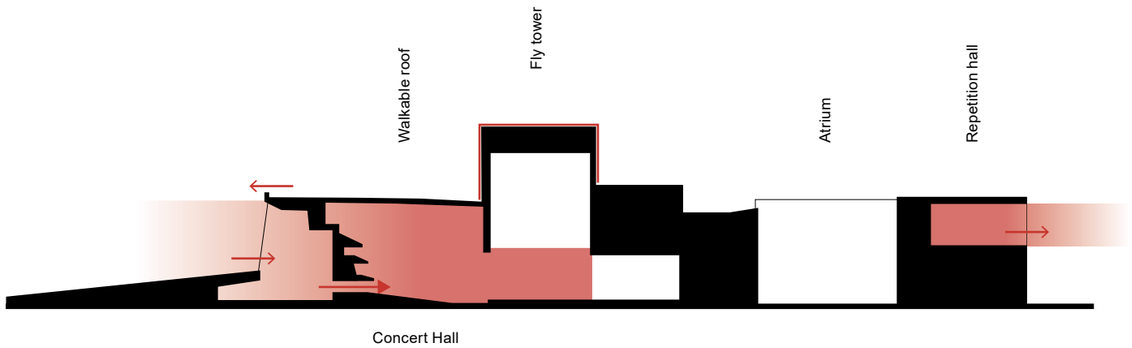
A.01 Form AXO 1:####

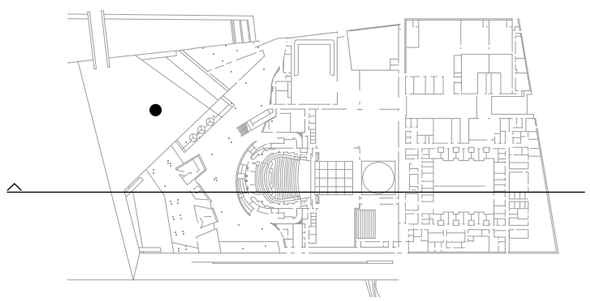
Facade porosity

Public to private

In terms of porosity, the Oslo Opera House clearly has two sides. In the west, the white marble roof opens up ocassionally for a big curtain wall. The curtain wall at the entrance creates a physical and visual relation between the inside and the outside, while another curtain wall over the foyer creates a visual relation only. Yet, this one is stronger, since it is on three sides and from a taller perspective overlooking the city when walking to the concert hall.

The fly tower is visible in the most functional shape of a square, completely in contrast with the rest of the shape. It resembles probably a transition between the aesthetically focused front side and functional back side of the building. To not interrupt the public aesthetic side, private functions are focused introverted and on the backside. Hence an atrium provides light for most private functions. A repetition hall in the back has a glass facade for a minor connection to the outside.





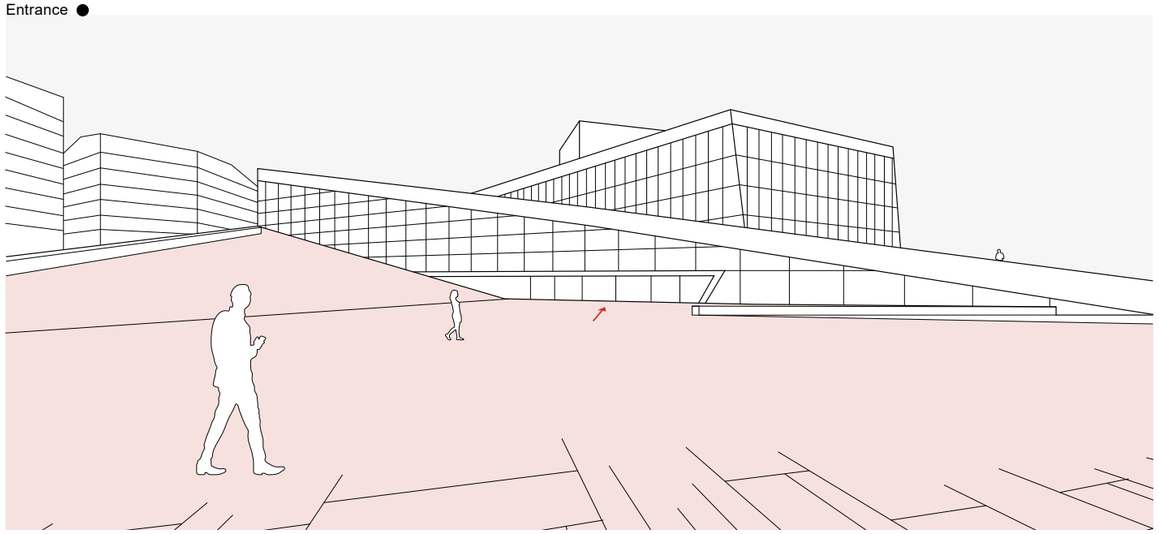
Entrance / exit

Clear and framing

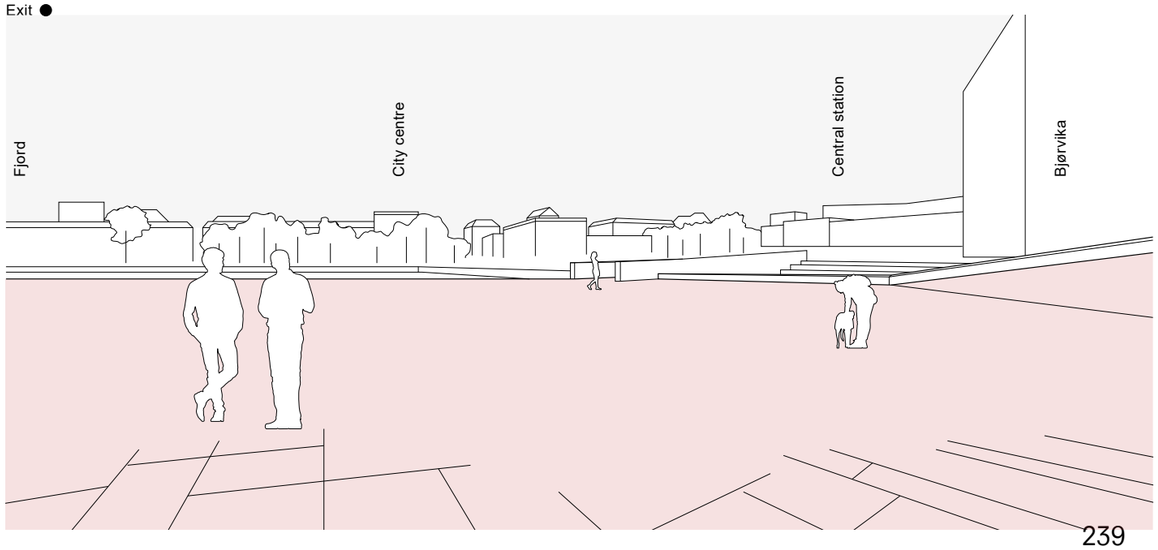
It is interesting how the architects designed the entrance as an integral part of the building shape. The angled roof ‘‘lifts’’ up and creates a void underneath. Finished with a transparant curtain wall, this facade functions as the main entrance now. The public space in front of the entrance is formed by a square, paved with white marble tiles. Since these continue to the roof, the square is perceived as part of the building too, while it physically is only the man made island on which the building has been constructed.

A different perception of the square occurs when exiting the building. Now the big square forms a canvas for the city. The square surface gives a clear sense of position and direction to the city for the visitor. You can see from left to right: fjord, city centre, central station and Bjørvika. This sense of position and direction is important since it otherwise can be confusing after an opera show that takes hours.

Entrance ●



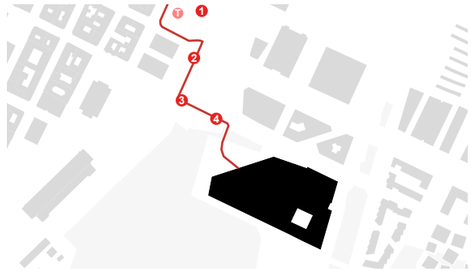
Exit ●



Approaching

Central Station

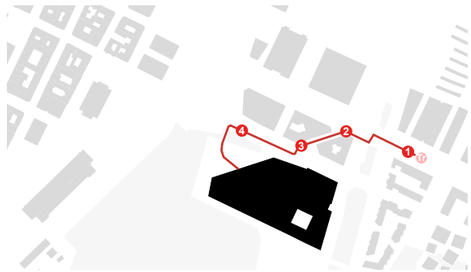
Probably the most common approach to the Opera House is this one from the central station and the closest metro station. The approach starts by exiting on the square in front of the station, from which you already can see the Opera House in between the umbrellas of the terraces. From here it's a short walk, without even losing sight of the Opera building once.



1 2 3 4

Bjørvika Tram stop

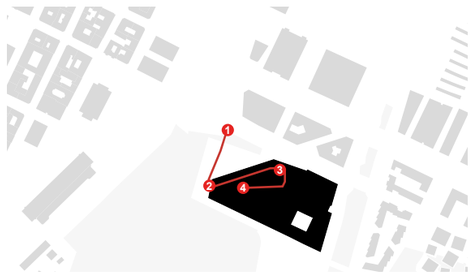
Since the tram stop is situated one street further, several buildings block the view to the Opera House. Hence, in the design of this area, which was built after the Opera, a diagonal street has been created between the tram stop and the Opera. This diagonal street follows exactly the same angle as the front entrance facade of the Opera House.

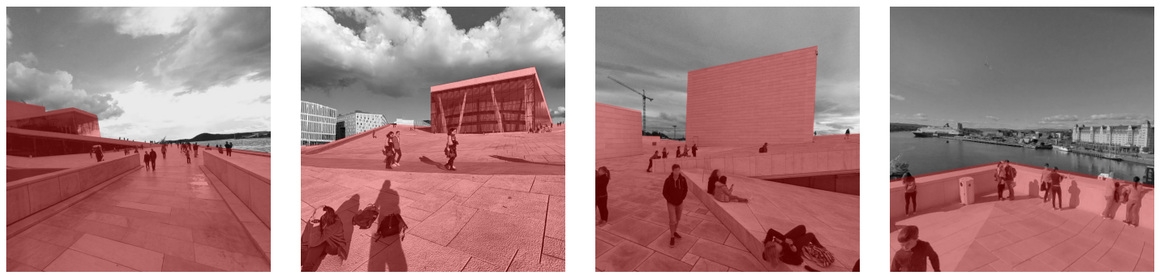


1 2 3 4

Rooftop sequence

The interior function of the Opera is not its only function. Due to the multiplicity, the observation deck has created a route of its own. Starting at the little bridge at the front square, you can walk over the foyer and even look into it through the glass facade. On the roof you make a 180 degree turn, overlooking the centre. View on the town hall is blocked by a building.

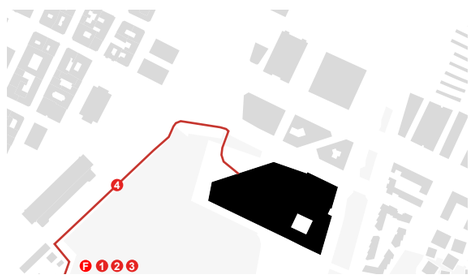




1 2 3 4

Ferry arrival

Coming by boat, the sightseeing starts already when entering the fjord many kilometres before Oslo. When approaching Oslo, three landmarks: the Opera House, town hall and ski jump, should all be very visible. Between the town hall and the Opera, the city centre is defined, while the ski jump marks the city's backdrop characterized by the mountains.



1 2 3 4

Traveling

Long distance (dis)connection

The city centre of Oslo might be car-free, however the nearby ring road still creates a good connection. It is only 5 minutes by car to the Opera House from the nearest exit of the ring road. Looking at public transport, the Opera house is near the central station which also has the main bus stops, tram stops and a metro stop. As a result, the Opera House is very close on the city scale both by car and public transport.

However, the issues for Oslo are in its connection to other cities by car or public transport. Consider connections to two other major cities of Norway: Bergen and Trondheim. Both are around six hours away from Oslo. It's not only the distance, it is also because of the rough fjord landscape. Therefore, Oslo is connected to other cities, also internationally, mostly by plane. To cities in the south, like Kiel or Copenhagen, there are ferry boats. This makes the Opera House internationally accessible.

Point of departure	**Modes of transport**	**Traveling time**
Public transport hubs		
Central Station	🚶	< 5 min.
Bjørvika Tram	🚶	< 5 min.
Oslo Lufthavn (airport)	🚌 – 🚶	35 min.
Nearest highway		
E18	🚗	< 5 min.
Neighbourhoods		
Oslo Domkirche (centre)	🚶	11 min.
Nordre Aker	🚌 – 🚶 / 🚗 / 🚲	17 min. / 14 min. / 19 min.
Lambertseter	🚶 – 🚌 – 🚶 / 🚲	30 min. / 22 min.
Cities (from city centre / airport)		
Drammen	🚌 – 🚌 – 🚶 / 🚗	48 min. / 38 min.
Göteborg	🚶 – 🚌 – 🚶 / 🚗	3 h. 47 min. / 3 h. 20 min.
Bergen	🚌 – 🚶 / ✈ – 🚌 – 🚶	6 h. 12 min. / 2 h. 25 min.*
Trondheim	🚌 – 🚶 / ✈ – 🚌 – 🚶	6 h. 59 min. / 2 h. 30 min.*
Paris	✈ – 🚌 – 🚶	3 h. 50 min.*
London	✈ – 🚌 – 🚶	3 h. 50 min.*
Copenhagen	⛴ – 🚶	19 h. 20 min.

*Includes one hour time at the airport.

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