



Music Marvel

Public Building Graduation Studio

MSc Architecture, Urbanism & Building Sciences
2021/2022

Mentors:

Project Design: Ir. Stefan Witteman
Building Technology: Dr. Piero Medici
Theory Research: Dr. Sang Lee
Delineation Research: Dr. Nicola Marzot

Delegate P2:

Dr. ir. Gregory Bracken

Delegate P4 + P5:

Dr.ir. Ad Straub

Romeny Koreman

4735633

Access to the Music Building

Graduation Report

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Prefase

Immersive pop, swinging jazz, inspiring classical music, the best r&b concerts, and more. Throughout the year, the most amazing artists perform in music buildings. With all these different musicians and music styles, a large number of different visitors come to music buildings. All those people have one thing in common: they enjoy live music and want to share it with each other. It is an experience, that starts with the purchase of tickets and stays in your memories for a long time after the concert. Not only the artist(s) who is(are) performing, but also the design of the music building influences the visitor's experience. For example, architecture, materialisation and acoustics can determine the comfort and attractiveness of the music building.

Since I often go to concerts and have worked in various music venues, I think it would be very interesting to design a music building myself.

Introduction

The Public Building graduation studio 'Music Marvel' focuses on the design of a complex that amplifies music and popular culture. The design brief should bring together buildings, squares and environment for and about music performances, public events and popular culture.

The first part of this Graduation Report consists of individual research, pre-design, conceptualization, and schematic design in three areas: Project Design (PD), Theory Research (TR) , and Delineation Research (DR). Thereafter follows the process documentation, the final design and reflection.

A. Graduation Plan

| Graduation Project | |
|---|--|
| Title of the graduation project | Access to the Music Building |
| Goal | |
| Location | Binckhorst, The Hague |
| The posed problem, | <p>The Binckhorst is currently not attractive and inviting. There are many barriers and few attractive public spaces. This makes the area feel inaccessible and unpleasant.</p> <p>An inaccessible and unpleasant public outdoor space in front of a music building can negatively affect the visitor's experience. Since fans sometimes wait for hours in front of the entrance, it is important to pay attention to this public (outdoor) space.</p> |
| research questions and | <p>When is the 'in-between space' of a music building perceived as pleasant and accessible (by visitors, artists, staff and passers-by)?</p> <ul style="list-style-type: none"> - How can a pleasant public (waiting) area be created? - How does the design influence the access to the music building? - Where/When/How do you enter the music building? Are concert tickets scanned inside or outside at the door? Is the queue inside, outside, covered? Are there several entrances? Should the entire flow of visitors for both concert halls pass through the same entrance? - What if the square in front of the building becomes the foyer? |
| design assignment in which these result. | Design a music building with a pleasant and accessible public (outdoor) space, which will function as a comfortable waiting and reception area. |
| <p>The aim of this research is to get a better understanding of the public and private domain and the 'in-between space', in relation to a music building. The (crucial) transition between the public and private domain usually takes place on the ground floor where both are directly adjacent to each other. This is the 'in-between space', where public meets private, and outside meets inside. Therefore, attention will also be given to the entrances to a music building. Additionally, this research is intended to provide starting points for the design of a music building with a pleasant and accessible public (outdoor) space, which will function as a comfortable waiting and reception area. A public space where an enormous diversity of people comes together and where the physical encounter with 'the other' takes place. People with different experiences, stories and memories encounter each other, pass each other, meet each other. Moreover, the research intends to discover ways in which the architectural design of a music building can contribute to an inviting, pleasant and accessible public space for visitors, artists, staff and passers-by. Realising an attractive public music building design, requires a balance between the spatial quality and its functional necessity, depending on multiple factors.</p> | |
| Process | |
| Method description | |
| <p>For the research, a theoretical study will be conducted. This will mainly be research into the 'public domain' and the 'in-between space'. Herman Hertzberger and Aldo van Eyck defined the 'in-between space' as an intermediate space between contrasting elements such as inside and outside, open and closed, public and private. Bernard Tschumi and Sou Fujimoto applied this idea of the 'in-between space' in their designs (Park, 2015). Their work shows how this idea of 'in-between space' acquires meaning in design practice.</p> | |

Tschumi has also, in both his theoretical and architectural work, constructed an imposing argument about the role of the architect as a 'facilitator' of the public domain (Avermaete, 2008, p.6). It is, therefore, useful to delve further into his work. The research into the public domain and the 'in-between space' will be connected to the site analysis of the Binckhorst in The Hague and the final design of the music building.

In addition, different case studies will be selected, analysed and compared. This include music buildings such as Ziggo Dome Amsterdam, AFAS Live Amsterdam and De Doelen Rotterdam. This selection of music buildings was made based on functions, capacity and the variation in design and surrounding public space. For example, the Ziggo Dome has one large square in front of the entrance, which functions as a waiting and reception area for visitors during events. In contrast, De Doelen has multiple waiting and reception areas at different sides of the building. Moreover, the queue for the main hall is inside the building. The variation in music buildings can make it possible to look at both good and less successful examples of what an architectural design can do with public space. With the use of analytical drawings, the advantages and disadvantages can be presented and discussed. The relationship between the design, the public space and the users can be observed and studied through correlational research. Patterns will be analysed and differences, similarities and connections will be discovered. Through observations, it is possible to map out how the public space in and around a music building is used before, during and after a concert, but also when there are no concerts at all. For this analysis, it is useful to observe at different times and during different types of concerts, due to differences in audience. Considering that teenagers may behave differently from adults. In addition, there are various user flows such as visitors, artists, staff, goods and passers-by. Mapping these flows of visitors will provide insights into the movement around and access to a music building. This observation will be documented with photos and analytical drawings.

Literature and general practical preference

Avermaete, T. (2008). Into the open : publieke plaatsen = accommodating the public (Ser. Oase, 77). NAI Uitgevers/.

Beranek, L. L. (1962). Music, acoustics and architecture.

Beranek, L. L. (2004). Concert halls and opera houses: music, acoustics, and architecture (Vol. 2). New York: Springer.

Forsyth, M. (1985). Buildings for music: the architect, the musician, the listener from the seventeenth century to the present day. CUP Archive.

Hammond, M. (2006). Performing architecture : opera houses, theatres and concert halls for the twenty-first century. Merrell.

Hertzberger, H. (1991). Lessons for students in architecture. 010 Publishers.

Kronenburg, R. (2019). This must be the place : an architectural history of popular music performance venues. Bloomsbury Academic.

Newhouse, V. (2012). Site and sound : the architecture and acoustics of new opera houses and concert halls. Monacelli.

Park, H. (2015). A Study on the meaning of in-between space in Sou Fujimoto and Bernard Tschumi's Architecture. Korean Institute of Interior Design Journal, 24(6), 87-95.

Tschumi, B. (1990). Questions of space : lectures on architecture (Ser. Text / architectural association, 5). AA Publications.

Tschumi, B. (2000). Event-cities 2. MIT Press.

VROM-raad, Den Haag. (2009). Publieke ruimte. Naar een nieuwe balans tussen beeld, belang en beheer. OBT bv, Den Haag

In recent years, I have been to many concerts in different music venues, including the Melkweg, Paradiso, Ziggo Dome, AFAS live and Johan Cruyff ArenA. Additionally, I have worked at several concerts at the Concertgebouw Amsterdam, at the Johan Cruyff ArenA and at various music festivals. These location visits and experiences will be consulted during the research.

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

In public space, certainly in the city, it is often about a good interaction between building, public space and users. The design of the building and its surroundings, therefore, plays an important role in the extent to which people find the public space pleasant, inviting and accessible. Especially, the transition between the building and the street, the 'in-between space', is an interesting part of a public building design. A soft transition between building and street, for example through large transparent windows and public functions such as cafes and restaurants, creates a lively and inviting appearance. Closed, passive walls with few doors or hidden entrances have the opposite effect. Therefore, it is relevant to design a music building with soft transitions and publicly accessible spaces, where an enormous diversity of people can come together and where the physical encounter with 'the other' can take place. A place where people with different experiences, stories and memories encounter each other, pass each other, meet each other.

In the near future, the Binckhorst area in The Hague will be transformed into a modern, creative and innovative living and working environment. Therefore, it is crucial to pay attention to the public spaces in this area. Designing for the public means designing accessible places or buildings for everyone, both communities and individuals. Access to public space in and around the music building is, therefore, the focus of this graduation project. It will show how people could experience public space in an attractive, inviting and accessible way.

| Time Planning | | | |
|---------------|--------------------|-----------|---|
| Week | Dates | | Tasks |
| 2.8 | 10.01 | | - Hand in Graduation Plan - Finalise Design Manifesto - Prepare P2 Presentation |
| 2.9 | 17.01-21.01 | P2 | Presentation, Schematic Design (SD) - SD of the Music Building + Urban context, expressing Design Manifesto and Design Objectives |
| 2.10 | 24.01-28.01 | P2 | - Review feedback P2 presentation |
| - | 31.01 | | Holidays |
| 3.1 | 07.02 | | - Further integration of the design on the site |
| 3.2 | 14.02 | | - Interior concept main elements |
| 3.3 | 21.02 | | - Programmatic placement and routing (plans, sections, elevations) |
| 3.4 | 28.02 | | - Focus on materialisation and structural design |
| 3.5 | 07.03 | | - Focus on sustainability and climate design |
| 3.6 | 14.03 | | - Focus on technical details |
| 3.7 | 21.03 | | - Prepare P3 |
| 3.8 | 28.03-01.04 | P3 | Presentation, DD Progress Review - Design Development (DD): From Schematic Design (SD) to Final Design (FD) From scale 1:500/200 to 1:100/50/20/5 - Review feedback P3 presentation |
| 3.9 | 04.04 | | - Design development, add more detail (plans, sections, elevations) |
| 3.10 | 11.04 | | - Translation of the Design Manifesto into a Project Description text with storyline and concept clarification diagrams |
| 4.1 | 18.04 | | - Model making |
| 4.2 | 25.04 | | - Visualisations |
| 4.3 | 02.05 | | - Prepare P4 |
| 4.4 | 09.05-13.05 | P4 | Presentation (Go-No Go) - Plans, sections, elevations, 3d visualisations (+ physical model) and relevant details |
| 4.5 | 16.05-20.05 | P4 | |
| 4.6 | 23.05-27.05 | P4 | - Review feedback P4 presentation |
| 4.7 | 30.05 | | - Finalisation |
| 4.8 | 06.06 | | - Prepare P5 |
| 4.9 | 13.06-17.06 | P5 | Final presentation, Final Design (FD) - Public Presentation, Examination, and Diploma Conferral |
| 4.10 | 20.06-24.06 | P5 | |
| 5.1 | 27.06-01.07 | P5 | |

B1. Design Manifesto (DR)

Key points: Access, Entrances, Crowd Control, Visitor flows (Artists, Visitors, Staff, Materials/Service, Passers-by), Public space, In-between space (the intermediate space between contrasting elements such as inside and outside, open and closed, public and private).

Research questions: When is the 'in-between space' of a music building perceived as pleasant and accessible (by visitors, artists, staff and passers-by)?

How can a pleasant public (waiting) area be created?
How does the design influence the access to the music building? Where/When/How do you enter the music building? Are concert tickets scanned inside or outside at the door? Is the queue inside, outside, covered? Are there several entrances? Should the entire flow of visitors for both concert halls pass through the same entrance? What if the square in front of the building becomes the foyer?

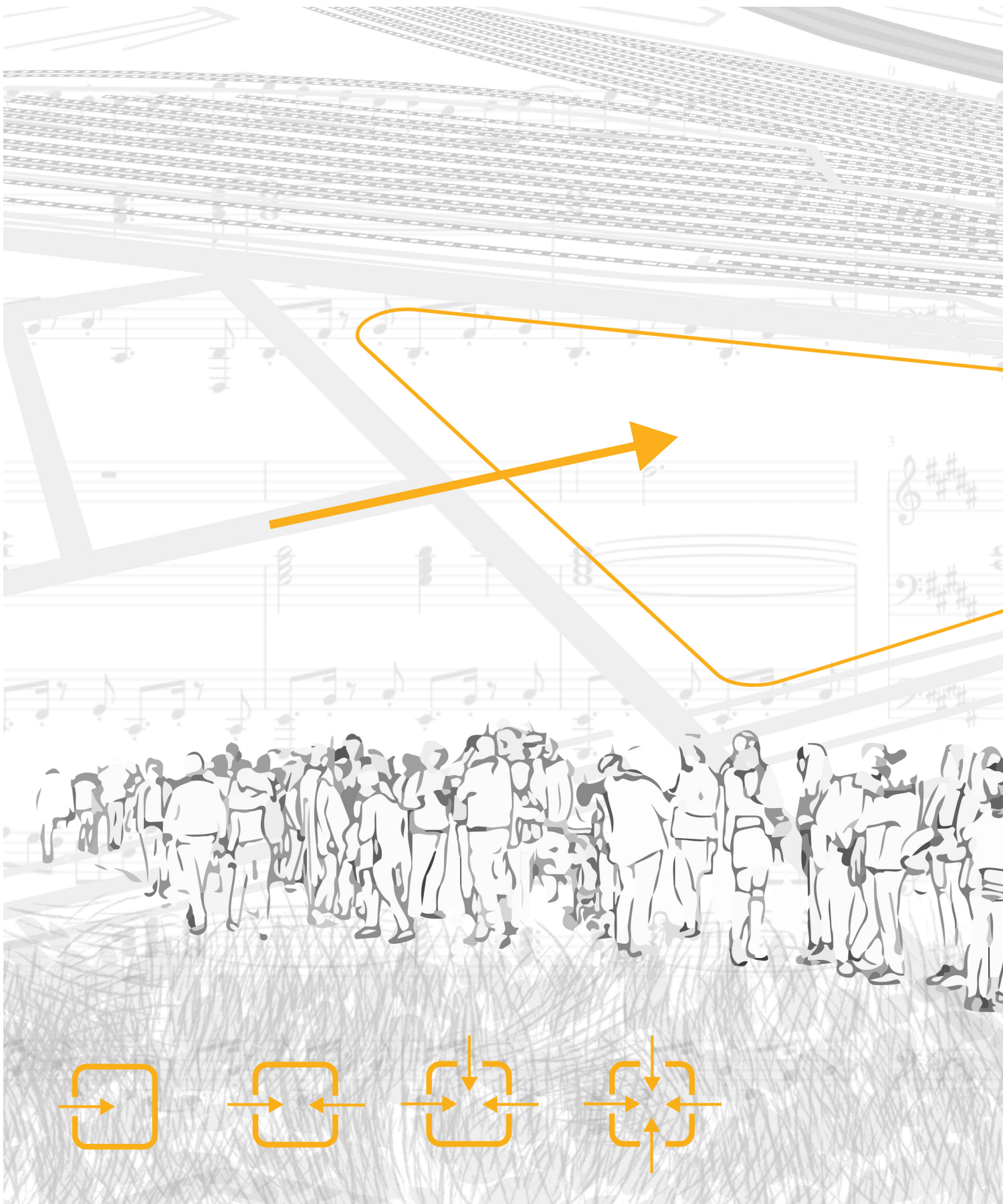
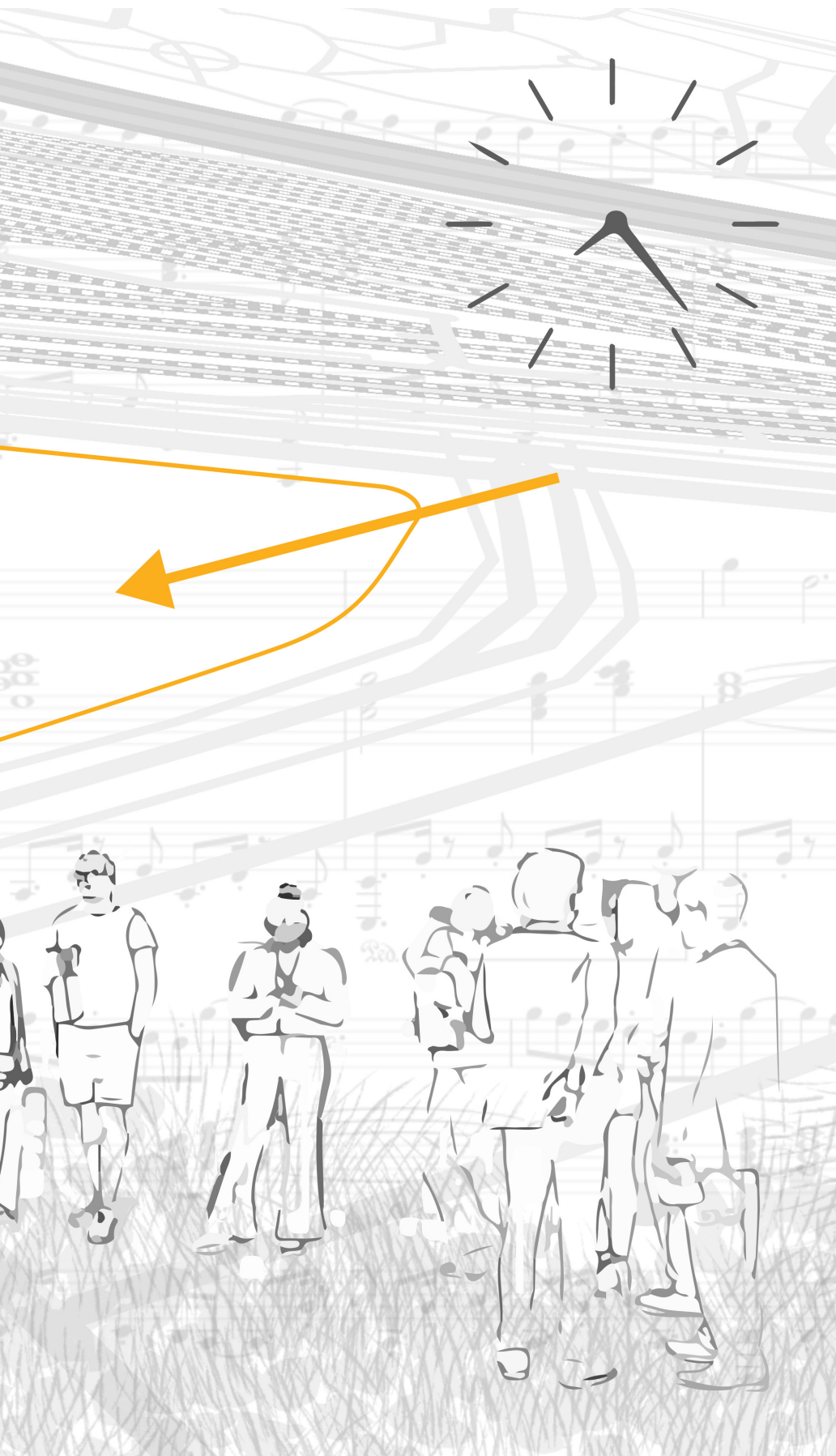


Figure B1.1: Manifesto by Romeny Koreman



The Queue in front of the Music Building

Waiting outside in a long line in front of a music building is not always pleasant. Sometimes concert visitors stand in line for hours and even in the rain. The waiting time should be reduced and/or the waiting should become more pleasant. By giving attention to the access to the music building, this can be achieved.

B2. Theory Research (TR)

For the Theory Research part, it is expected to study particular concepts about designing for and with music and performing arts. This implies an understanding of the value of notation and composition as an intellectual but tectonic process (PB Studio Handbook, 2021).

Notation is the form in which a description is created. There are many specialised forms of notation, including music notation. Music notation is a system of signs used to record music on paper so that it can later be read and performed. The result is called sheet music or score.

After visiting the area, we made a notation for the Binckhorst. In this notation, the striking aspects of the area are represented with 'signs' on a schematic map. The map shows the main roads, the train tracks and the highway, which mark out the area. The legend indicates which sign stands for what.

As can be seen in the notation, there are a lot of closed fences and barriers that demarcate private areas. There are also many cars, parked cars and car dealers in this area. In addition, the water of the inland harbour is a characteristic feature of the binckhorst.



Figure B2.1: Notation Binckhorst 'Details', by Group 2: Bram van den Berg, Dino Vojvodić, Romeny Koreman, Ümit Çelebi (2021)

Composition can apply to any piece of art, from music to painting to writing, that is ordered by conscious thoughts. In the visual arts, composition is the ordering of visual elements according to a predetermined strategy. It is an attempt to create order out of chaos. The following compositions of the Binckhorst, are inspired by artworks of Kazimir Malevich, Piet Mondrian and Roy Lichtenstein.

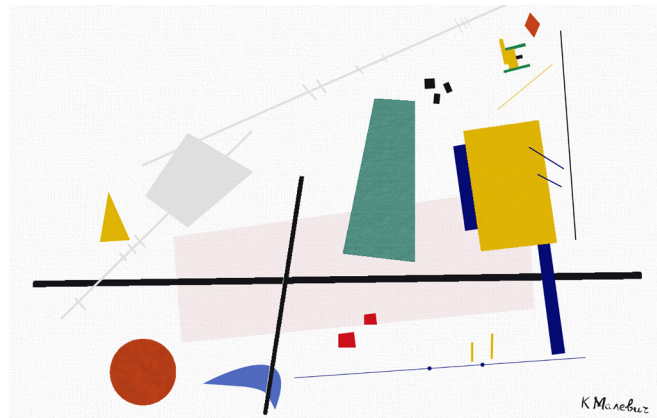


Figure B2.2: Notation Binckhorst 'Elements', by Group 2: Bram van den Berg, Dino Vojvodić, Romeny Koreman, Ümit Çelebi (2021)

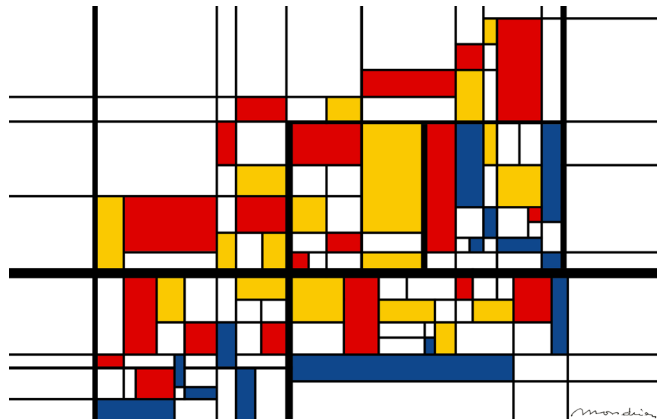


Figure B2.3: Notation Binckhorst 'Zones', by Group 2: Bram van den Berg, Dino Vojvodić, Romeny Koreman, Ümit Çelebi (2021)

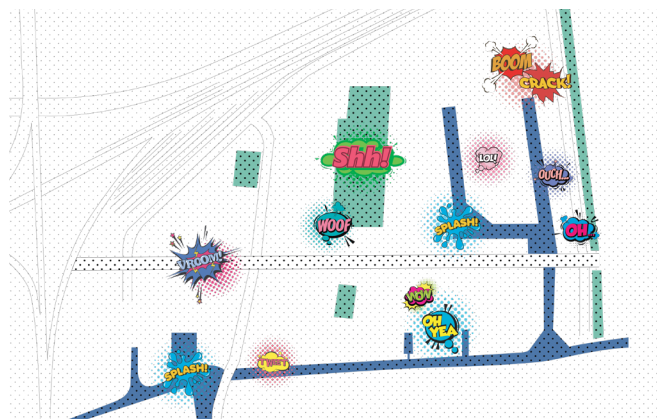


Figure B2.4: Notation Binckhorst 'Senses', by Group 2: Bram van den Berg, Dino Vojvodić, Romeny Koreman, Ümit Çelebi (2021)

During the site analysis, we recorded what we thought, did, felt, saw and heard at that moment in specific places. Thereafter, we discussed the positive and negative points and answered the questions: what do I like/wish/wonder and what if?

| | I like... | I wish... | I wonder... | What if... |
|--------|---|---|---|--|
| Bram | discovering the small communities hidden away between the anonymus building masses | less space was privatized and locked away; to return it to the public realm | what the users of the area want to see changed/ remain in the furture | Binckhorst became the new nightlife center of The Hague, going from car based to people based when the sun goes down |
| Dino | drinking coffee on a cafe terrace and looking at rowers next to the waterfront | for more leisure/ resting spots in industrial and unattractive neighborhood | if anyone is coming here for leisure/ cultural or any other purposes rather than to work or fix car | Binckhorst keeps the industrial/abandoned appearance but variety of new functions were introduced within buildings |
| Romeny | the waterfront / to see the rippling water, the nature and feel the peace | there is more attention for the public space | who works/lives/stay here | there is more green (public space with grass, trees and places to sit) |
| Ümit | the contrast between the open wide public areas in between the closed and more private spaces | the Binckhorst area was more inviting towards outsiders by having more activities to do | what kind of activities would attract outsiders to visit the area | the restricted areas would turn into public spaces full of activities for people in and outside of Binckhorst |

Table B2.1: 'I like/wish/wonder, what if', by Group 2: Bram van den Berg, Dino Vojvodić, Romeny Koreman, Ümit Çelebi (2021)

Attractiveness of the Public Space

Public space plays a major role in people's daily lives and the attractiveness of cities. Pleasant and usable public space is essential for the liveability of cities and contribute to a healthy and attractive living and working environment. Attractive public spaces are those places where social interactions take place, such as meeting friends, and mixing cultures. These are places that are accessible and inviting for everyone.

Currently, the attractive public places and buildings in the Binckhorst in The Hague, are either hidden or more visitor-specific in nature, making them uninviting and inaccessible to the general public. The Binckhorst is the domain of industry, car dealers, scrap yards, dismantling companies, cement factories, waste transfer and an asphalt plant. In addition, the Binckhorst has many other programs such as offices

(some have been vacant for 15 years), a cemetery, a castle and three inland harbours. However, there are almost no inhabitants. In the near future, this area will be transformed into a modern, creative and innovative living and working environment. Therefore, it is relevant to pay attention to the public space in this area. In order to improve the attractiveness of the public space in the Binckhorst, research will question what kind of factors people are attracted to and how these can affect the new situation. Since attractiveness differs from person to person, its definition becomes a subjective matter. During the research, the factors that determine the attractiveness of a public space or building will be defined. This research will provide a framework of factors that are crucial to make a public place/building (more) attractive.



Figure B2.5: Binckhorst collage, by Group 2: Bram van den Berg, Dino Vojvodić, Romeny Koreman, Ümit Çelebi (2021)

C. Design Brief

Concert hall

| | |
|----------------------------------|--------------------|
| Venue | Large |
| Audience (standing) | 1.500 - 5.000 |
| GFA (m²) | 10.000 - 15.000 m² |
| Concert hall/space (prop. 1:2,5) | 2.000 - 3.000 m² |
| | h = 11m + |

Concert space

| | |
|---------------------------------|----------------|
| - Stage | 250 - 500 m² |
| - Back stage | + 0,5 of stage |
| - Side stage | + 0,2 of stage |
| - Stage director's area | 20 m² |
| - Dressing rooms private (1 p) | 4x 15 m² |
| - Dressing rooms medium (6-8p) | 4x 40 m² |
| - Dressing rooms large (20-25p) | 2x 90m² |
| - Crew area | 60 m² |
| - Balcony | + |
| - VIP-area | + |
| - Bar | + |

Audience acces

| | |
|--------------------|--------------------------|
| - Waiting line | + 1.000 m² |
| - Entrance/Foyer | + 1.000 m² |
| - Wardrobe/Lockers | 100 m² |
| - Cassier | + |
| - Restrooms | 8 m + 12 f or 16 n, 16 u |

Dedicated access

| | |
|-------------------|--------|
| - Artist entrance | + |
| - First aid room | 30 m² |
| - Office space | 300 m² |

Support

| | |
|--------------------|--------------|
| - Loading area | 2 trucks |
| - Storage | 100 m² |
| - Technical spaces | + 10% of GFA |

Congress center

| | |
|---------------------------------|------------------|
| - Auditorium | 1.500 m² |
| - Stage | + 100 m² |
| - Reception area | + |
| - Foyers | + |
| - Conference rooms | up to 650 guests |
| - Meeting rooms | + |
| - Offices | + |
| - Modern audiovisual facilities | + |
| - Restrooms | + |
| - Technical spaces | + 10% of GFA |

Parking

| | |
|-------------------|---------------|
| - Car parking | 300 cars |
| - Bicycle parking | 600b / 750 m² |

Cafe/Restaurant

| | |
|--------------------|---------------|
| 200 m² | |
| - Entrance area | + |
| - Dining area | + |
| - Kitchen | + |
| - Bar | + |
| - Restrooms | 2+4 or 5n, 5u |
| - Storage | 20 m² |
| - Loading area | + |
| - Garbage area | + |
| - Technical spaces | + 10% of GFA |

D. Process Documentation

D1. Individual Research Book (PD)

In the near future, the Binckhorst area in The Hague will be transformed into a modern, creative and innovative living and working environment. There are plans to build mainly high-rise buildings along Binckhorstlaan. This has been modelled in various urban scale models, such as the model by Blink Eiland (figure

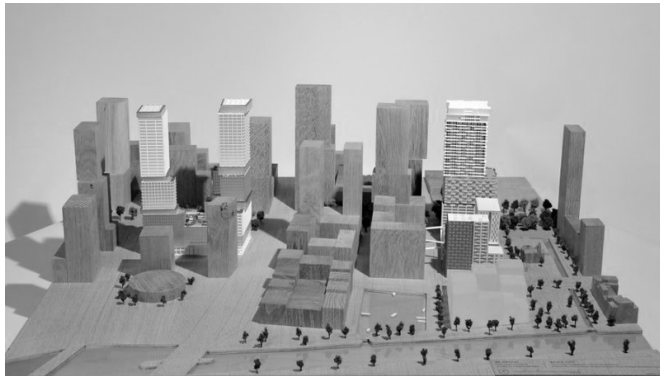


Figure D1.1: 'B-Proud + Binck City Maquette 2' by Blink Eiland. From <https://www.flickr.com/photos/186569220@N08/with/49453955838/>

D1.1). With the whole group, we also made a site model (figure D1.2). In these models, the future plans are implemented. As you can see, especially in the model 'B-Proud + Binck City Maquette 2' and 'Sketch Boogie Woogie, Binckhorst', the Binckhorst will have a completely different look.

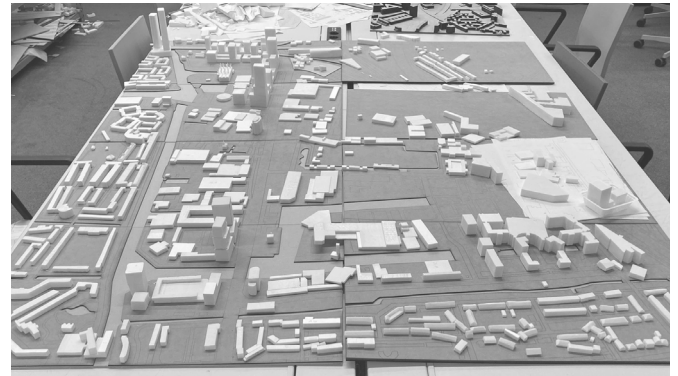


Figure D1.2: 'Site Model of the Binckhorst (in progress)' by Public Building / Music Marvel Studio 2021/22



Diagram D1.1: 'Binckhorst, old situation', own diagram



Diagram D1.2: 'Binckhorst new situation / building plots', own diagram

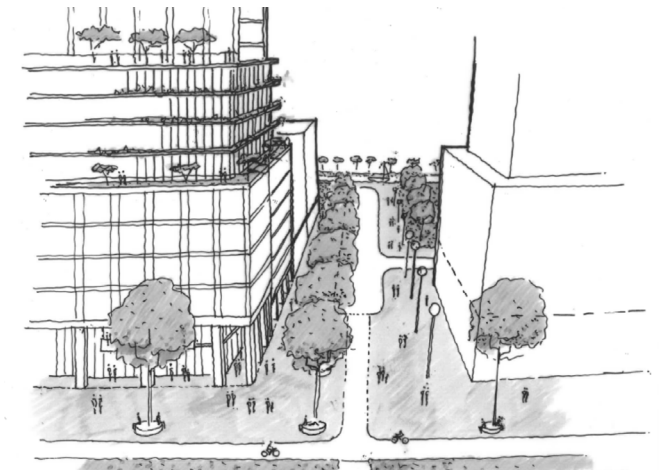


Figure D1.3: 'Sketch Boogie Woogie, Binckhorst'. From <https://local.nl/projecten/boogiewoogie/>

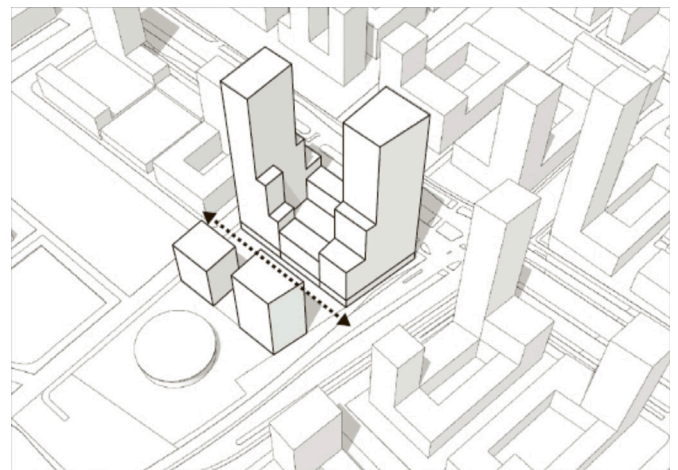


Figure D1.4: '3D model B-Proud / Mixed-use The Hague', by OZ architect. From <https://www.ozarchitect.nl/projects/b-proud-mixed-use/>

Location

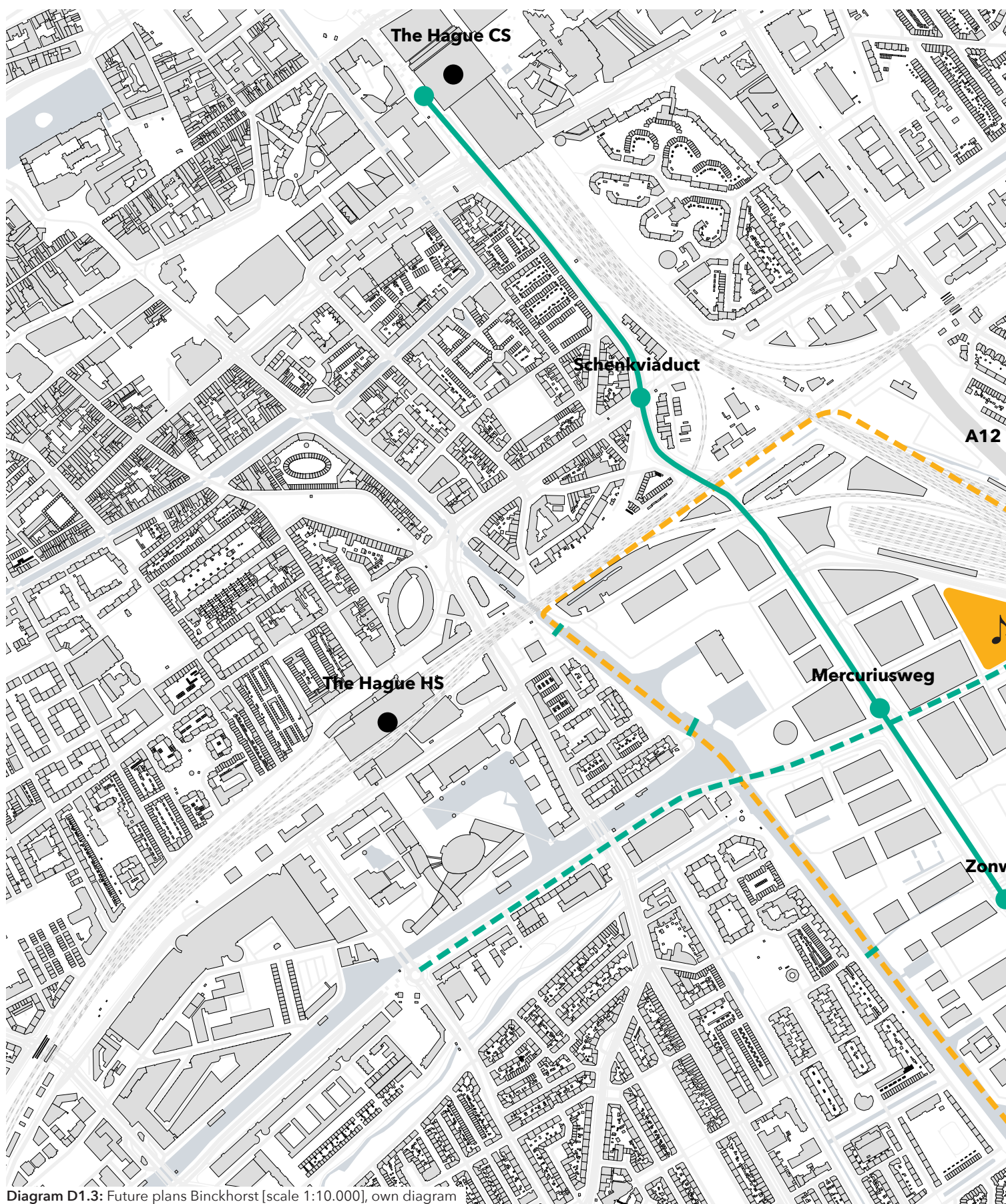
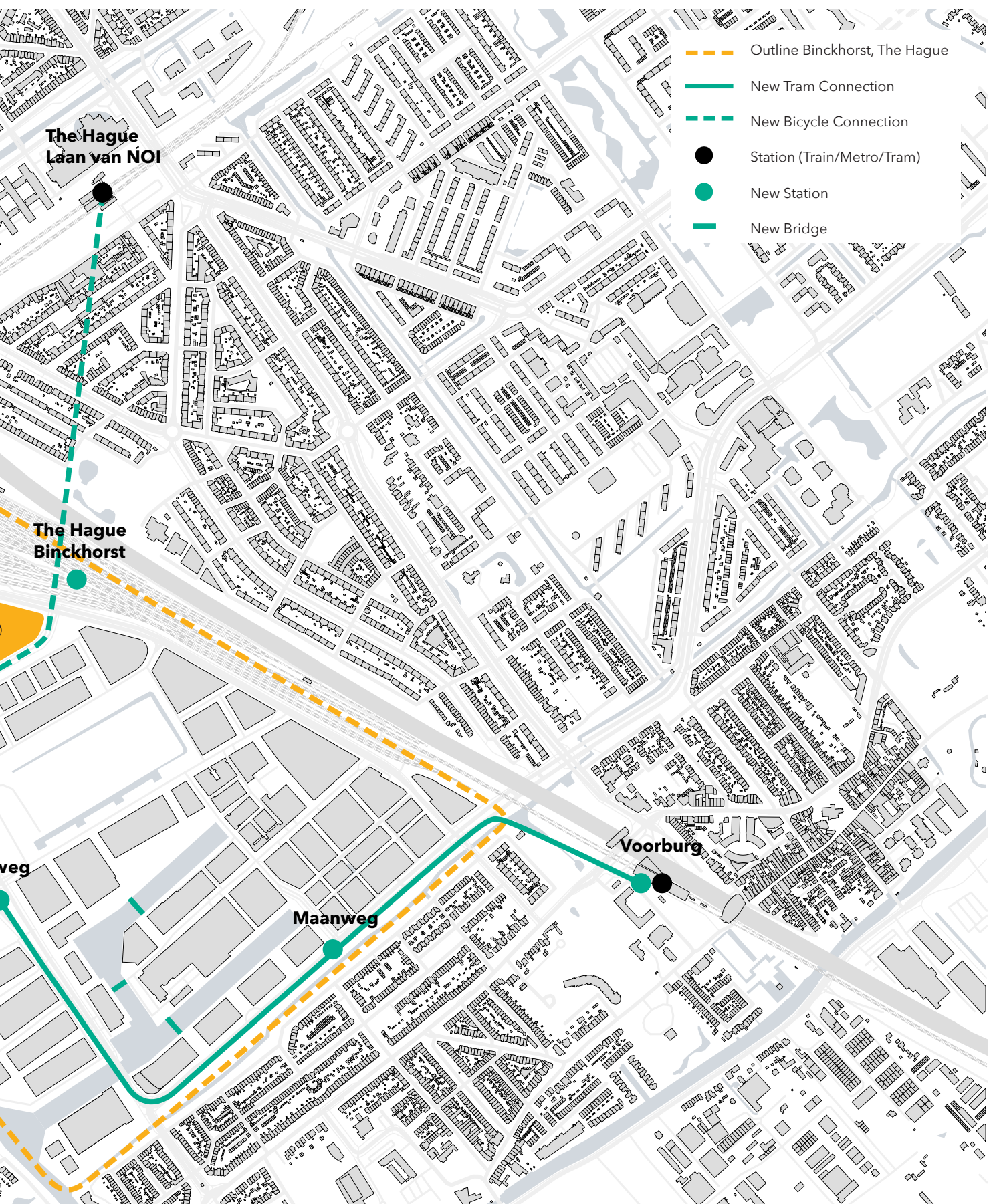
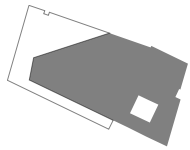


Diagram D1.3: Future plans Binckhorst [scale 1:10.000], own diagram



Case Studies



Oslo Opera House

Capacity:
1.400seats (main auditorium)



Casa de Musica Porto

Capacity:
1.400 seating



Tivoli Vredenburg

Capacity:
1.717 seated, 2000 semi-seated
(Grote zaal)



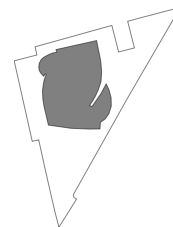
Cité de la Musique Paris

Capacity:
800 - 1.200 seats (concert hall)



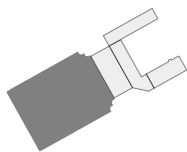
Philharmonie Paris

Capacity:
Large hall 2.400 seats /
3.500 in contemporary setup



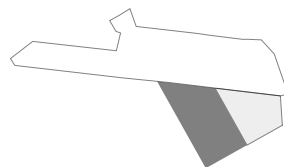
Philharmonie Luxembourg

Capacity:
1.500 seats (Grand Auditorium)
300 seats (Chamber Music Hall)
120 seats (Electro-acoustic hall)



Ziggo Dome

Capacity:
1.000 - 17.000 visitors
Floor 6.300 visitors



AFAS Live

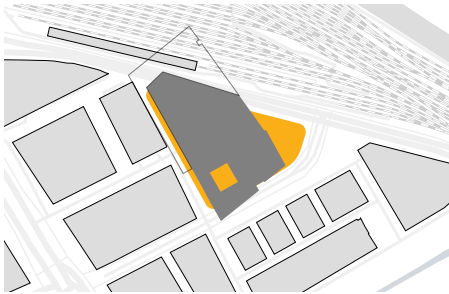
Capacity:
3.500 seats / 5.500 standing visitors
(Black Box)
487seats / 700 standing visitors
(Beat Box)



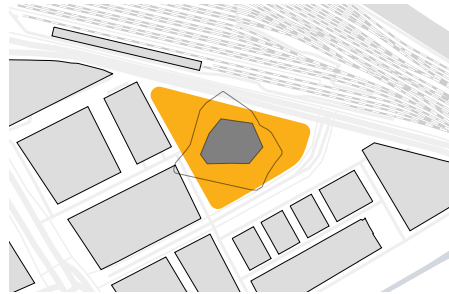
De Doelen

Capacity:
1.755 seats (Grote zaal)
500 seats (Juriaanse zaal)
700 seats (Willem Burger zaal)
180 seats (Eduard Flipse Zaal)
400 seats (Feestzaal)

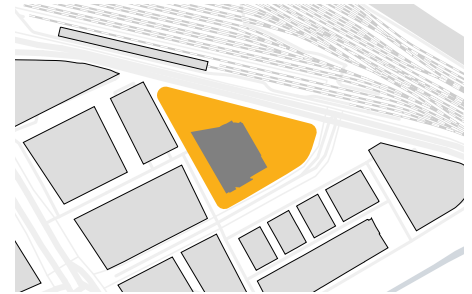
Diagram D1.4: Casestudies Music Buildings, own diagram



Oslo Opera House
GFA: 38.500 m²



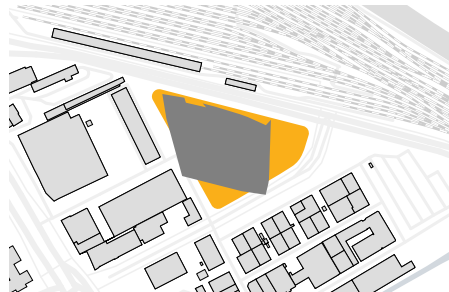
Casa de Musica Porto
GFA: 22.000 m²



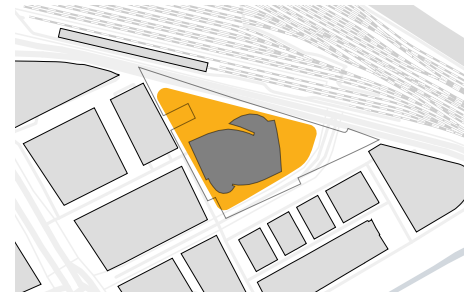
Tivoli Vredenburg
GFA: 30.000m²



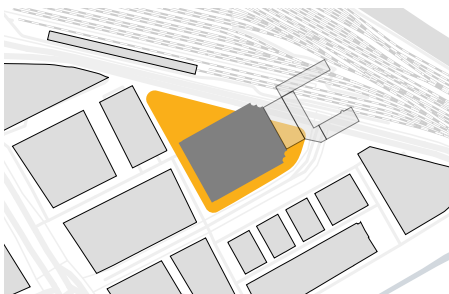
Cité de la Musique Paris
GFA: 40.000 m²



Philharmonie Paris
GFA: ... m²

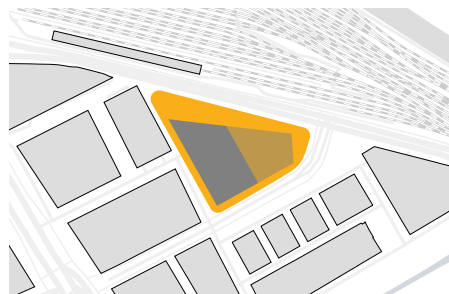


Philharmonie Luxembourg
GFA: 20.000 m²



Ziggo Dome
GFA: 51.000 m²

Surface area Concert hall:
8.100 m² (90x90x30m)



AFAS Live
GFA ... m²

Surface area Black box
3.000 m² (46x65m)
Beat Box 500 m²



De Doelen
GFA: ... m²

Grote zaal 2.400 m²
Juriaanse zaal 532 m²
Willem Burger zaal 710 m²
Eduard Flipse Zaal 216m²
Feestzaal 456m²

Diagram D1.5: Casestudies on plot, own diagram

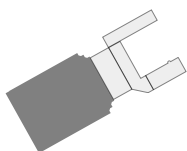
Capacity

The most interesting case studies for my research are Ziggo Dome and AFAS Live, because these are large pop podiums. The Hague does not yet have a large-capacity music/pop venue. In the new Amare, in the center of The Hague, there is a concert hall with a capacity of approximately 2.500 standing visitors in the 'pop' arrangement. In its 'classic' configuration, the hall can accommodate 1.500 seated people. Compared to the Ziggo Dome and AFAS Live, this is relatively small.

The capacity of the Ziggo Dome is almost 7 times more and the AFAS Live is slightly more than double than the concert hall in the Amare.

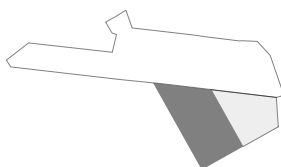
De Doelen is also very interesting because of the combination of concerts and congress halls. As a matter of fact, many congresses are held in The Hague. Adding a new conference room in the music building might be interesting for the Binckhorst.

Functions



Ziggo Dome

Concerts
Sports events
Gala dinners
Television shows
Musicals
+ Hotel / Cafe / Restaurant



AFAS Live

Concerts
Meetings
Drinks
Dinners
Workshops
Television shows
Fashion shows
Theater shows



De Doelen

Concerts
Congress
Business conventions
Livestreams
Receptions
Dinners
Exhibitions
+ Cafe / Restaurant



Figure D1.5: 'Korfbal Leaguefinale'. (2018) by Sonnie Sier. From https://www.sportnext.nl/events/korfbal_leaguefinale_toe_aan_volgende_stap_stadion_behoort_tot_mogelijkheden/



Figure D1.6: 'Hunkemöller Fashion Show in AFAS Live' (2020). From <https://www.afaslive.nl/zakelijk/zalenoverzicht/black-box/modeshow>



Figure D1.7: 'Dinner at De Doelen ICC Rotterdam'. From <https://www.events.nl/bedrijven/beursgebouwen/de-doelen-icc-rotterdam>

Congress Centers in The Hague

The Hague offers a great diversity of first-class congress and meeting facilities, from old city palaces and characteristic hotels by the sea to the largest congress hall in the Netherlands. Since there are already many congress halls in The Hague, an inventory has been made:



Figure D1.8

New Babylon Congress Center

650 seated visitors

(Room 1.1)

12 rooms/areas

4 foyers

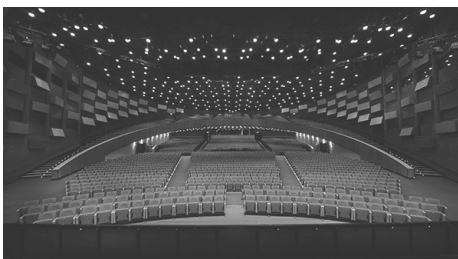


Figure D1.9

World Forum Congress Center

2.161 seated visitors

(King Willem Alexander room)

35 rooms/areas

17.500 m²



Figure D1.10

Fokker Terminal

1.000 visitors

(Plenary hall)

18 rooms/areas

2000 m²



Figure D1.11

NH Den Haag

350 visitors (meeting rooms combined into one large conference room)

1 room (12 meeting rooms)



Figure D1.12

HNK Den Haag

150 visitors

(Theater V9)

11 rooms/areas



Figure D1.13

Postillion Hotel & Convention Centre Den Haag

125 visitors (Room 1+2)

18 rooms/areas

2.000 m²

Figure D1.8: 'Room 1,1'. From <https://thehagueconferencecentre.nl/zalenoverzicht/>

Figure D1.9: 'King Willem Alexander room'. From <https://www.worldforum.nl/congres/zaalinformatie>

Figure D1.10: 'Plenary hall'. From <https://fokkterterminal.nl/zalen/>

Figure D1.11: 'Conference room'. From <https://www.nh-hotels.nl/hotel/nh-den-haag/meetings-events>

Figure D1.12: 'Theater V9'. From <https://www.deskbookers.com/nl-nl/venue/v9-23610/>

Figure D1.13: 'Room 1+2'. From https://www.postillionhotels.com/Postillion/media/Widget-Images/PHCC-Den-Haag_info_2021-ENG_opzet2.pdf?ext=.pdf

Ziggo Dome, Amsterdam

The Ziggo Dome is specially developed for concerts by (inter)national artists. But the music hall is certainly also suitable for sports events, gala dinners, television shows and musicals, for example. It is expected to host one hundred events per year for more than 1 million visitors. The building has an area of approximately 10.000m² and a height of 31 meters and can accommodate 17.000 visitors.

Source: <https://www.beemster.nl/project/elektrotechnische-installatie-ziggo-dome/>

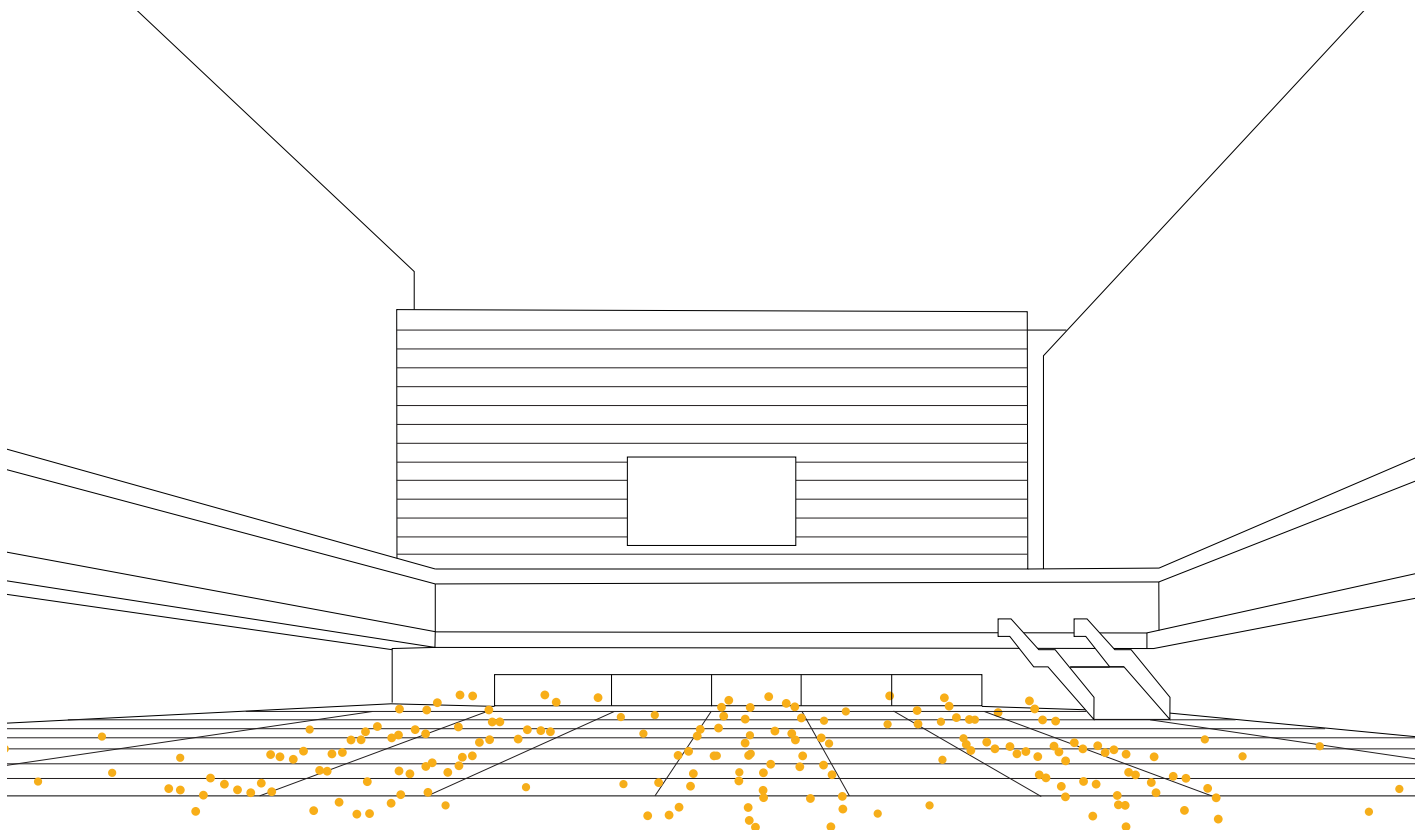


Diagram D1.6: Entrance Ziggo Dome, own diagram.



Figure D1.14: Ziggo Dome Amsterdam, From: <https://www.missyvy.nl/venues/ziggo-dome/>



Figure D1.15: Concert hall Ziggo Dome, From: <https://www.beemster.nl/project/elektrotechnische-installatie-ziggo-dome/>

The queue in front of the Ziggo Dome

Queue up all night and all day for concert at Ziggo Dome: these are the Ariana Grande diehard fans. Mainly young people from the Netherlands, but also from Germany and Italy are sitting, lying and standing in front of the concert hall, since the early hours. The doors only open at 6.30 p.m., but last night there were already some die-hards in front of the door (Mol, 2019).



Figure D1.16



Figure D1.17



Figure D1.18

Figure D1.16/17/18: 'Hele nacht én dag in de rij voor concert in Ziggo Dome: dit zijn de Ariana Grande-diehard' (2019) by Dingena Mol. From: <https://www.ad.nl/amsterdam/hele-nacht-en-dag-in-de-rij-voor-concert-in-ziggo-dome-dit-zijn-de-ariana-grande-diehard~a152682b/>

Figure D1.19/20: 'Michelle Obama als powervrouw in Ziggo Dome' (2019) by Ben Houdijk. From: <https://blog.ticketmaster.nl/cultuur/michelle-obama-als-powervrouw-in-ziggo-dome-5445>

Figure D1.21: 'Three hours before the start of the BTS concert, the doors opened. This was the queue 2,5 hours before the concert' (2018) by Romeny Koreman.

Michelle Obama as a power woman in Ziggo Dome

In front of the Ziggo Dome, queues of people are waiting outside to get in. Tonight, it will be a little slower than usual, as all tickets are personalised and they will be checked more strictly than ever (Houdijk, 2019).



Figure D1.19



Figure D1.20

Queue of nearly one kilometre: K-pop band BTS performs at Ziggo Dome

The immensely popular South Korean pop band BTS is in the Netherlands for the first time. The group will give a concert in the Ziggo Dome in Amsterdam tonight and the surrounding area will know it. Hundreds of young people have already gathered early this morning. The queue starts at the entrance and ends almost a kilometre away (NOS Nieuws, 2018).



Figure D1.21

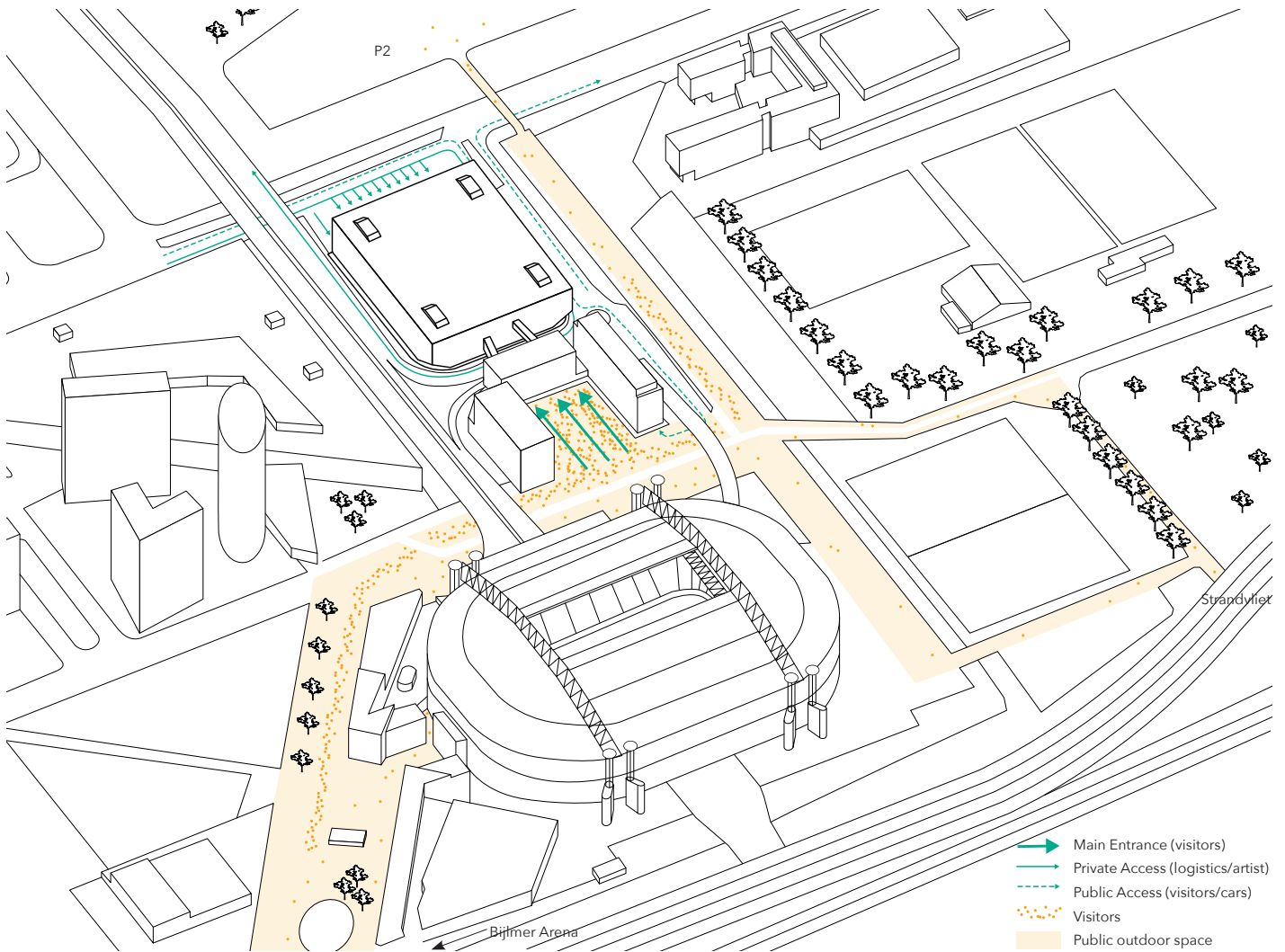


Diagram D1.7: Public/Private Access Ziggo Dome, own diagram.

On the square in front of the Ziggo Dome, the queues are formed before the concert starts. As soon as the square is full of visitors, the queue forms around the corners, towards the train station and the car park.

Most concert visitors come from train/metro station Amsterdam Bijlmer ArenA, metro station Strandvliet or the P2 car park behind the Ziggo Dome.

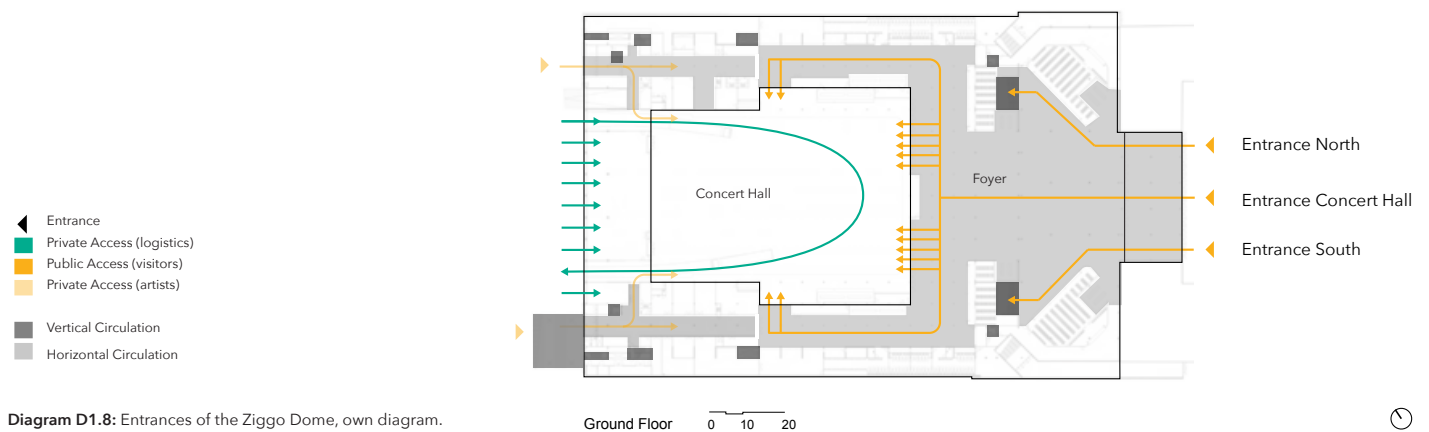


Diagram D1.8: Entrances of the Ziggo Dome, own diagram.

AFAS Live, Amsterdam

AFAS Live is more than just a concert hall. The venue is equipped with different spaces, giving it a host of possibilities. The hall is delivered empty, which gives you the opportunity to decorate it in your own theme. Moving a stage, building a VIP area, laying out a red carpet, it's all possible in AFAS Live. AFAS Live is hired as a location for large award shows, but also for small-scale events with their own speakers.

Source: <https://www.locaties.nl/afas-live.134063.lynkx>

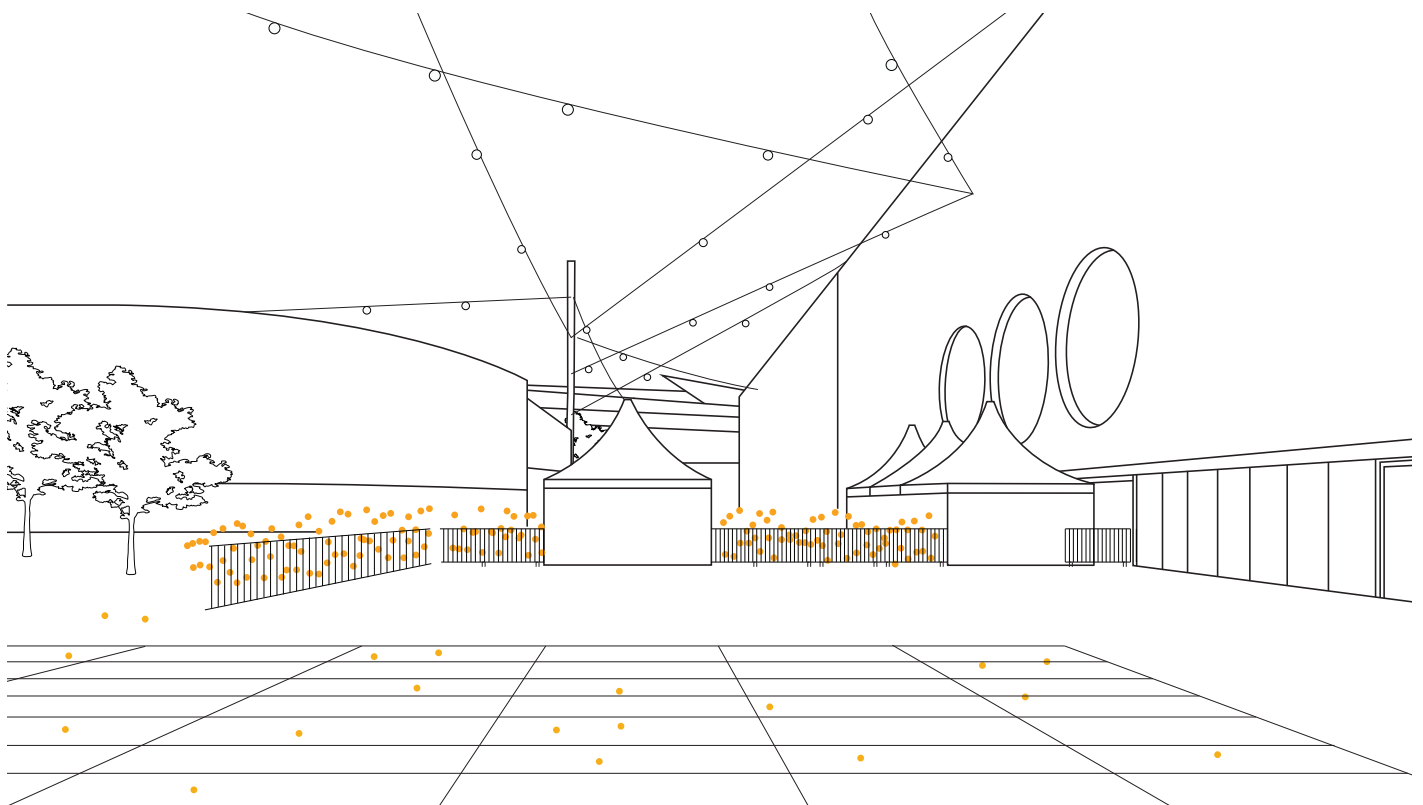


Diagram D1.9: Entrance AFAS Live, own diagram.



Figure D1.22: AFAS Live Amsterdam, From: <https://www.locaties.nl/afas-live.134063.lynkx>



Figure D1.23: Black Box AFAS Live, From: <https://www.locaties.nl/afas-live.134063.lynkx>

The queue in front of the AFAS Live

70 hours in line for Harry Styles: 'Cosy, cold and painful'.

Some fans have been waiting for seventy hours in line for Harry Styles at Afas Live. They are freezing, with no feeling in their toes, a sore butt and exhausted from lack of sleep. Dozens of Harry Styles fans have been waiting in the cold for days in front of Afas Live, where their idol is performing on Wednesday night. 'I'm afraid I'm going to pass out soon'. (Wolthuizen, 2017)



Figure D1.24



Figure D1.25



Figure D1.26

Figure D1.24/25/26: '70 uur in de rij voor Harry Styles: 'Gezellig, koud en pijnlijk!' (2017). by Josien Wolthuizen. From: <https://www.parool.nl/nieuws/70-uur-in-de-rij-voor-harry-styles-gezellig-koud-en-pijnlijk-b9f3ecb1/>

Dozens fans of One Direction singer Niall Horan bivouac in front of Afas Live

Tonight Niall Horan, known as one of the members of the boy band One Direction, will perform in Afas Live. Since yesterday, fans are bivouacking in front of the pop venue to be able to stand in the front. The doors open at 18:30. Niall Horan himself doesn't start until 21:00, but more and more fans are already queuing up. The first ones arrived yesterday afternoon. They are prepared for the rain: plastic sheeting has been brought along. Officially, fans are only allowed to queue up from 12:00 today, the pop podium warns on its website. "It is not allowed to be present earlier and/or stay overnight at the square. If you are present earlier you will be turned away by the police and receive a fine." Despite the harsh words, no one has been turned away. Over a hundred - mostly teenage girls - are already in line. Afas Live expects 5.500 visitors. The concert was sold out minutes after the presale started (AT5 Amsterdam, 2018).

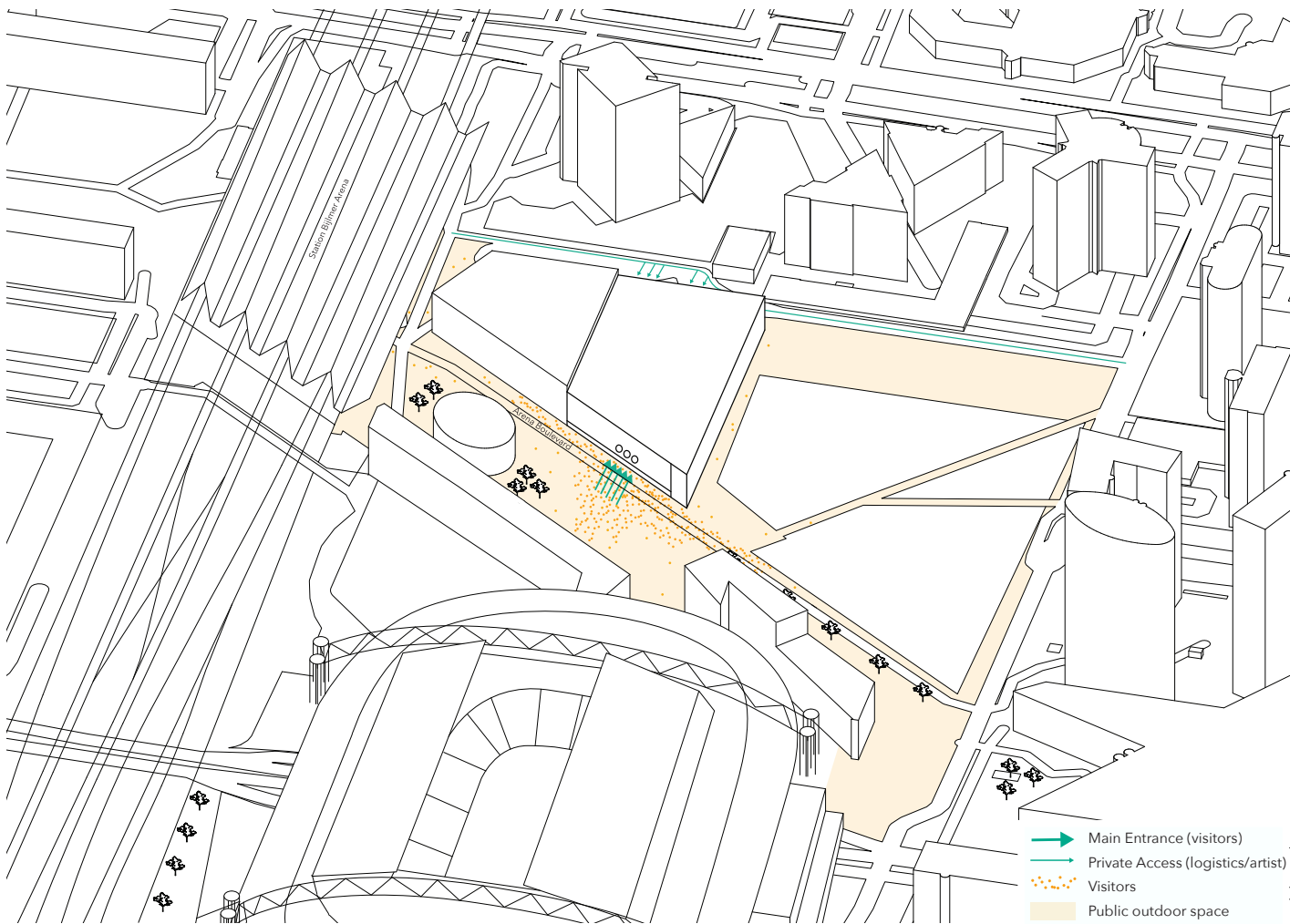


Figure D1.27



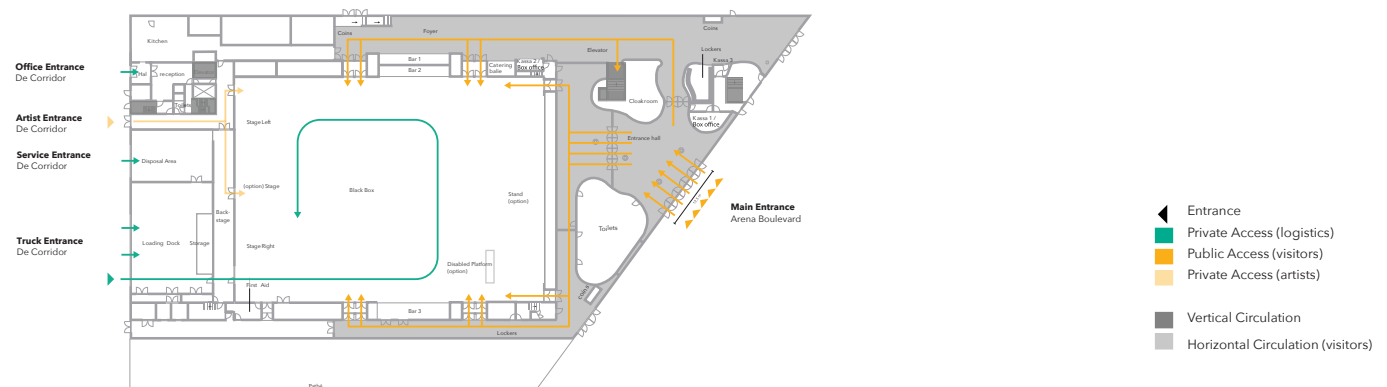
Figure D1.28

Figure D1.27/28: 'Tientallen fans One Direction-zanger Niall Horan bivakkeren voor Afas Live' (2018). by AT5 Amsterdam. From: <https://www.nhnieuws.nl/nieuws/223761/tientallen-fans-one-direction-zanger-niall-horan-bivakkeren-voor-afas-live>



On Arena Boulevard the queue for the concerts in the AFAS Live forms. Remarkable is that during busy concerts the line does not form in the direction of the Bijlmer Arena station, but in the opposite direction.

This is probably managed in such a way that access to the Pathé, to the left of the AFAS Live, and the station remains possible.



De Doelen, Rotterdam

As a concert and congress hall, de Doelen lends itself perfectly to a wide variety of business events, from small knowledge-oriented symposia to large international congresses. The combination of rooms, the professional appearance and the unique location in the center make De Doelen a popular location. De Doelen has years of experience in the field of event organization and therefore likes to act as a partner who thinks and moves along in order to optimally realize the objective of a meeting. Choosing de Doelen is choosing for professionalism.

De Doelen comprises three groups of halls or complexes: the Grote Zaal (Main Hall, max. 1.755), the Willem Burger Zaal (max. 700) and the Jurriaanse Zaal (max. 465). Each complex has its own entrance, hall, foyer, and a number of smaller meeting spaces. One distinctive feature is that these three groups of halls can be used individually or in combination. This makes de Doelen uniquely flexible and perfectly suited for gatherings ranging from 100 to 3000 delegates.

Source: <https://www.events.nl/bedrijven/beursgebouwen/de-doelen-icc-rotterdam> and <https://www.dedoeleniccrotterdam.nl/en/halls/>

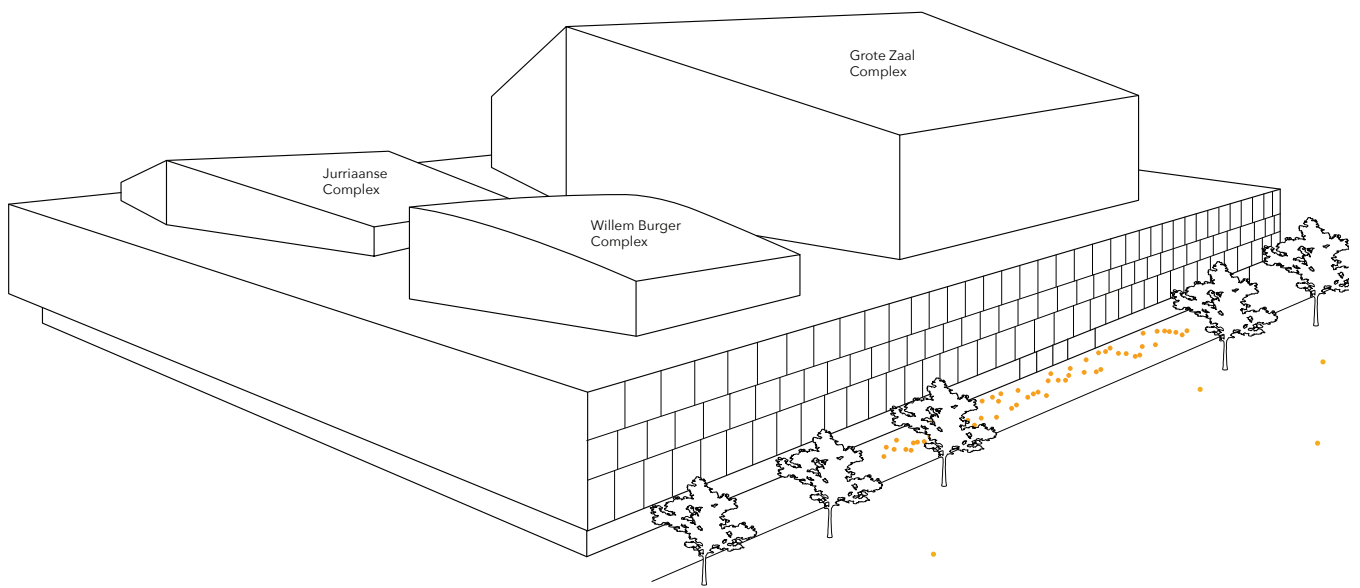


Diagram D1.12: Main Entrance De Doelen, own diagram.



Figure D1.29: De Doelen Rotterdam, by Sophia van den Hoek. From:<https://indebuurt.nl/rotterdam/gezondheid/corona/deze-rotterdamse-zalen-mogen-nu-toch-meer-dan-dertig-personen-ontvangen~145867/>



Figure D1.30: Grote Zaal De Doelen, From:<https://indebuurt.nl/rotterdam/gezondheid/corona/deze-rotterdamse-zalen-mogen-nu-toch-meer-dan-dertig-personen-ontvangen~145867/>

The queue in front of the De Doelen

Small Queue

One hour before the concert starts, the doors usually open. Since the capacity of the main hall is only 1.755, and about 60% of them come trickling in on time, the line outside is not too long. Many of these visitors have

a drink in the foyer beforehand. The remaining people arrive about fifteen minutes in advance. Then there may be a small queue, on the sidewalk along the building.



Figure D1.31: De Doelen Rotterdam, by Sophia van den Hoek. From: <https://indebuurt.nl/rotterdam/gezondheid/corona/deze-rotterdamse-zalen-mogen-nu-toch-meer-dan-dertig-persoon-ontvangen-145867/>



Figure D1.32: De Doelen Rotterdam (2016) by ANP. From: <https://www.ad.nl/film/filmfiethebbers-klagen-over-kaartverkoop-iffra-a9edc714/>



Figure D1.33: Foyer of De Doelen. From: <https://www.dedoelen.nl/>



Figure D1.34: Hallway of De Doelen . From: <https://www.ateliers197.nl/?projects=concert-en-congresgebouw-de-doelen-rotterdam>



Figure D1.35: Stairs towards the Grote Zaal of De Doelen. From: <https://www.dedoelen.nl/pQ64mil/je-bezoek/je-bezoek-plannen>

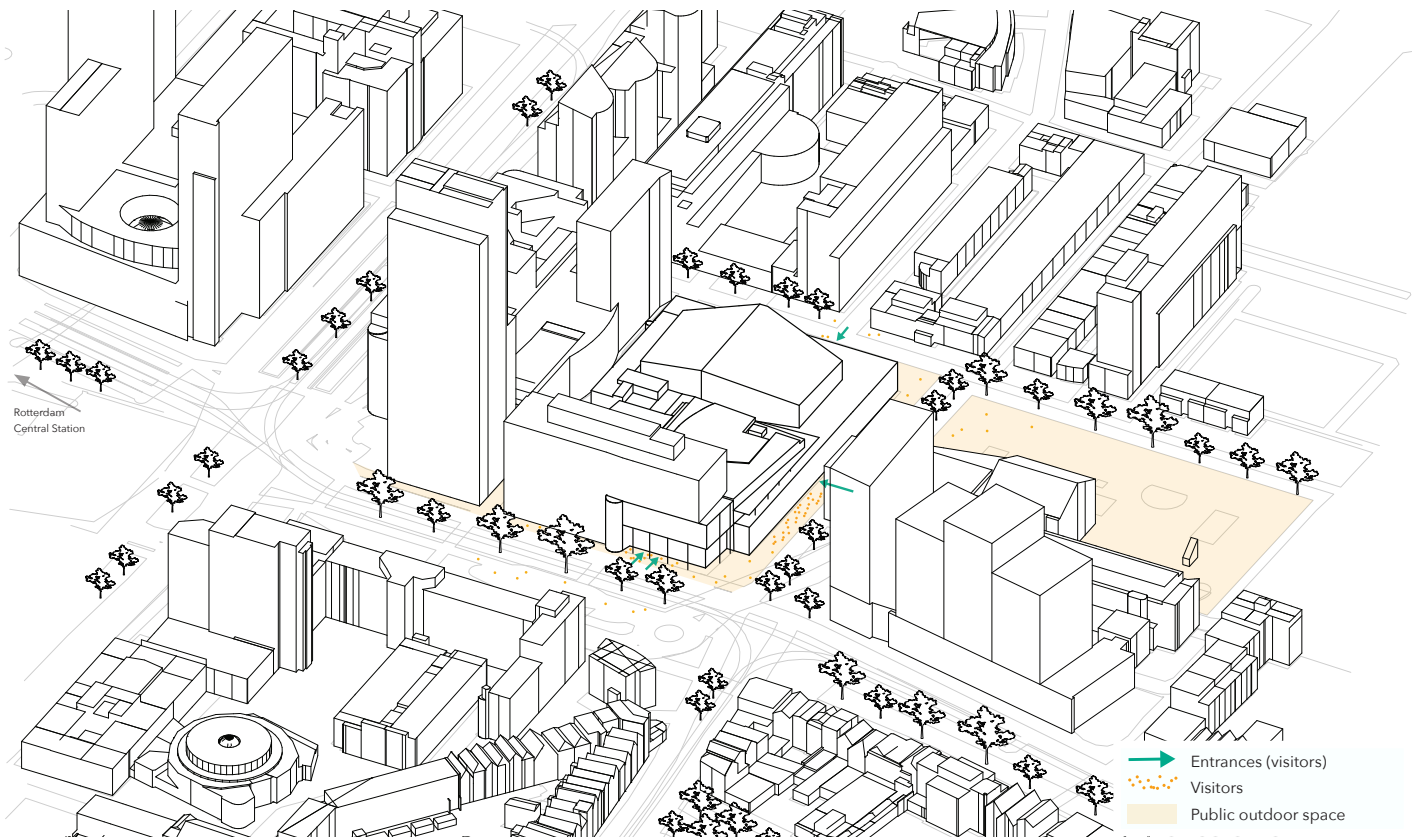


Diagram D1.13: Public/Private Access De Doelen Rotterdam, own diagram.

The main entrance of De Doelen has a small canopy where waiting visitors can shelter when it rains. At the entrances on Kruiskade there is a small covered square.

In front of De Doelen is the Schouwburgplein, where concert or congress visitors could possibly gather, meet, and even wait in the sun.

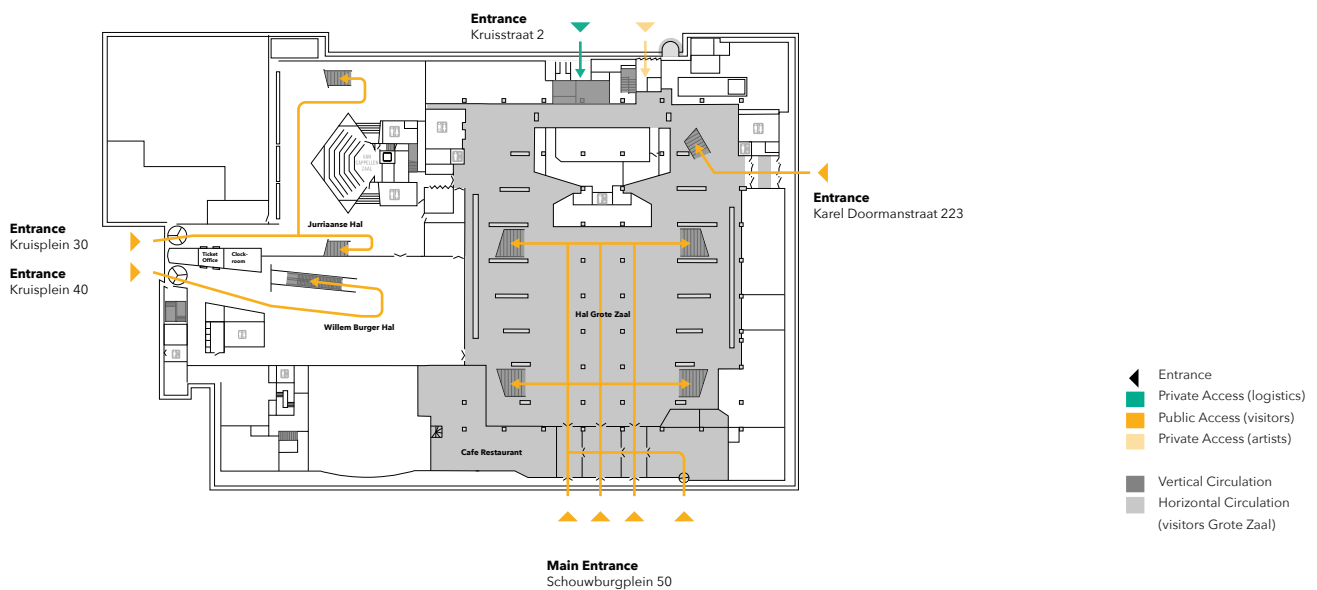


Diagram D1.14: Entrances of De Doelen, own diagram.

D2. Design Journal (PD)

Key Points



Music
Pop Podium



Public Space / Foyer
Inside / Outside
Public / Semi-Public / Private



Entrances
Artists
Visitors
Staff
Materials/Service
Passers-by



Users / visitor flows
Target Groups



Views
Open / Closed
Transparency



Gather/Meeting
Activities

Diagram D2.1: Key point icons, own diagram.

Entrances

A music building has multiple entrances, since there are also several user flows. However, there can also be several entrances for just the visitor flow. If there is an entrance on one side of the building, it is also likely that visitors will line up on that side. When there are

several entrances on different sides, the queue will be spread over several areas. The entrances and visitor flows of the case studies have been analysed, this is shown in diagrams D2.3/4/5.



Diagram D2.2: Entrances icons, own diagram.

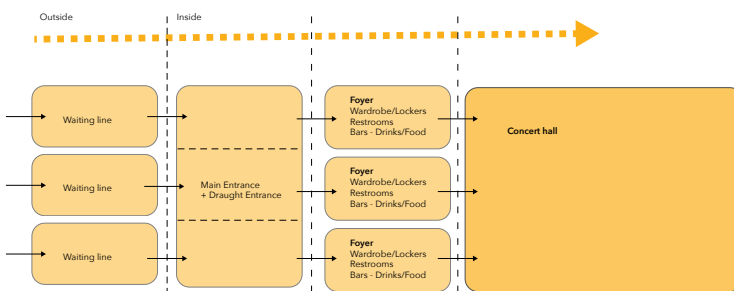


Diagram D2.3: Visitor flows Ziggo Dome, own diagram.

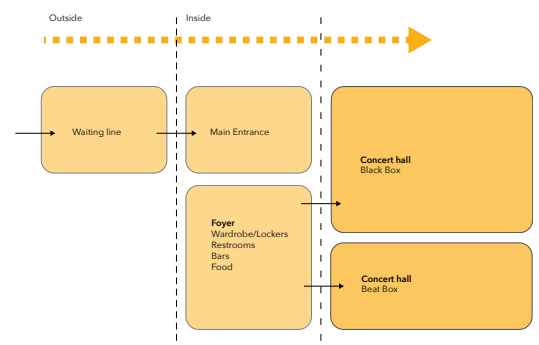


Diagram D2.4: Visitors flows AFAS Live, own diagram.

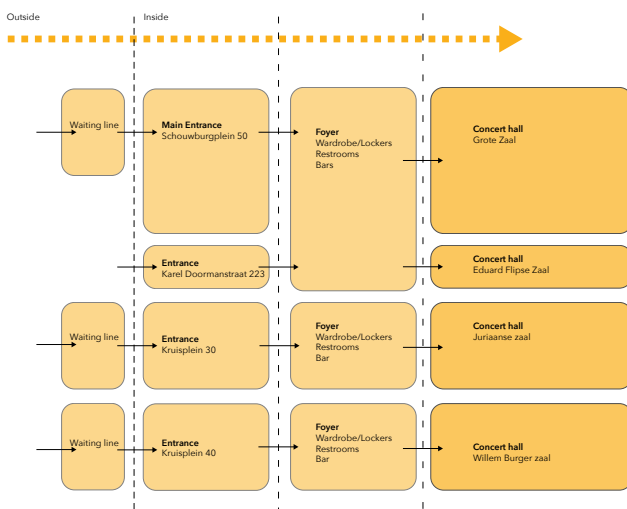


Diagram D2.5: Visitors flows De Doelen, own diagram.

- Ziggo Dome: 1 entrance, 1 concert hall
- AFAS Live: 1 entrance, 2 concert halls
- De Doelen: 4 entrances, 4 concert halls

Program / User flows

Music Building and Congress Center

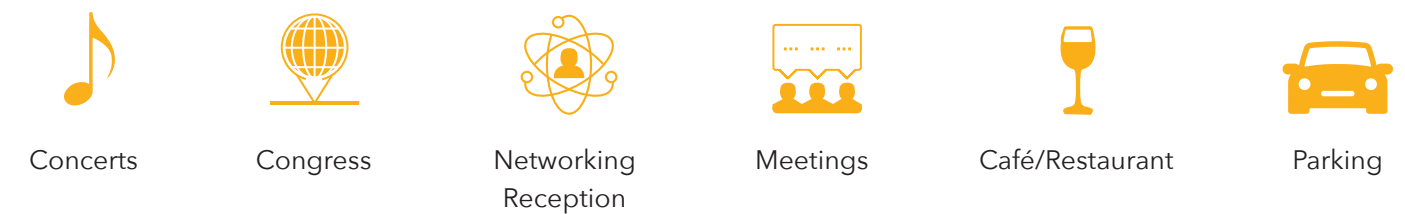


Diagram D2.6: Program icons, own diagram.

For a music building, there are different user flows, such as concert visitors, artists and staff. Diagram D2.7 shows how they enter the building and which functions they pass through before arriving in the concert hall.

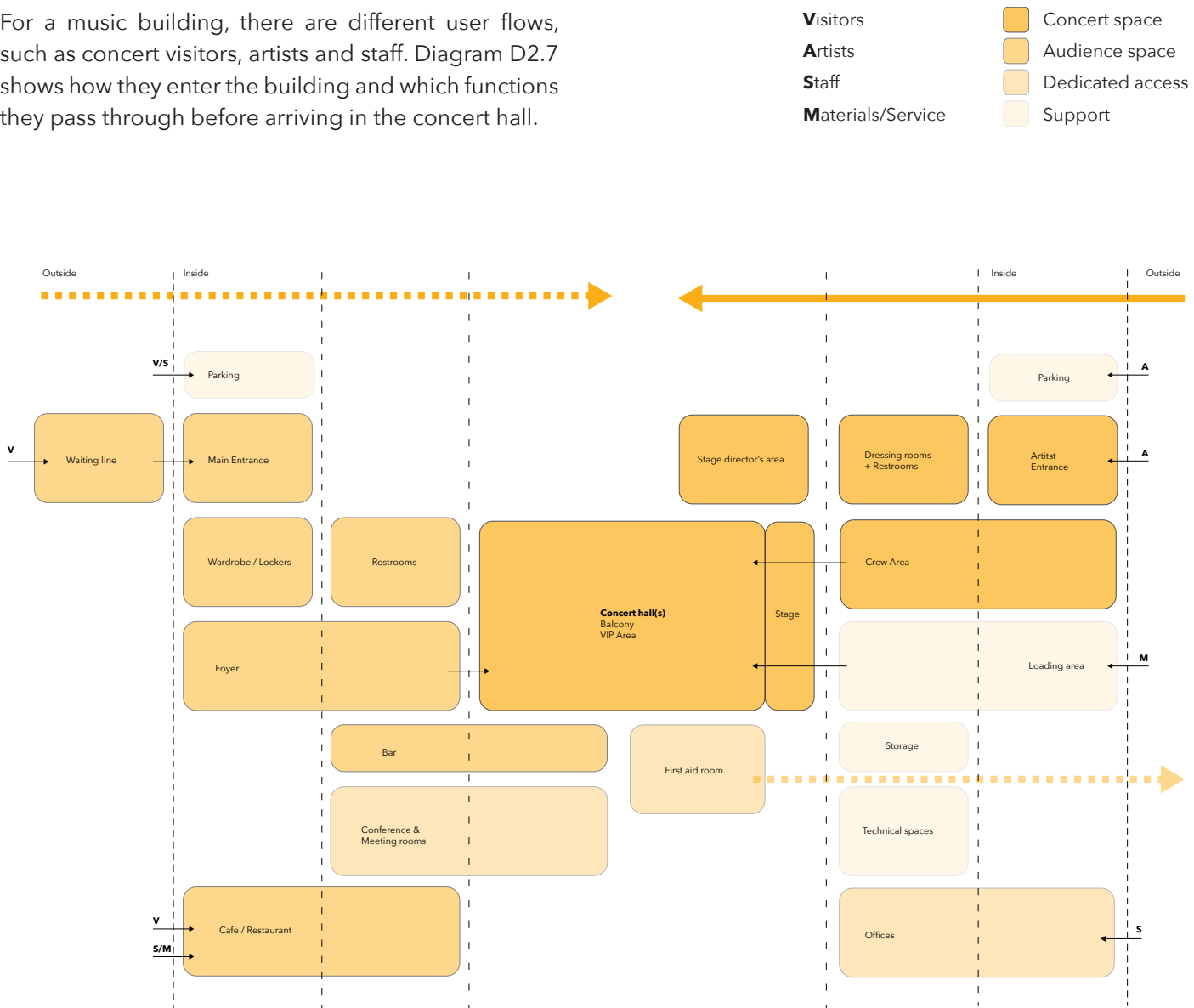


Diagram D2.7: User flows, own diagram.

The various functions with allocated square meters are shown proportionally in diagram D2.8. Since not all square meters have yet been allocated to all functions/spaces, the total area will be larger.

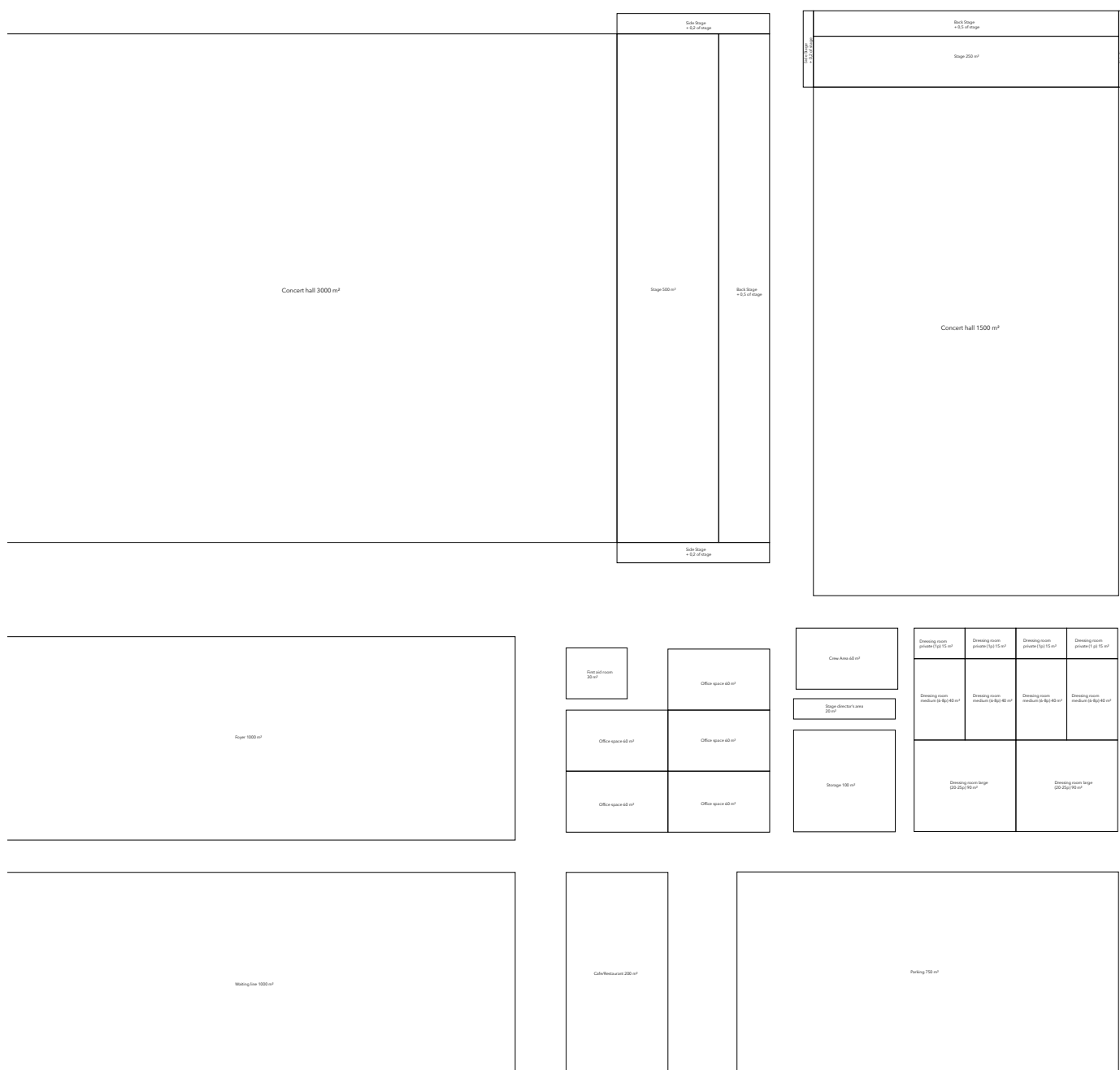


Diagram D2.8: Functions/square meters, own diagram.

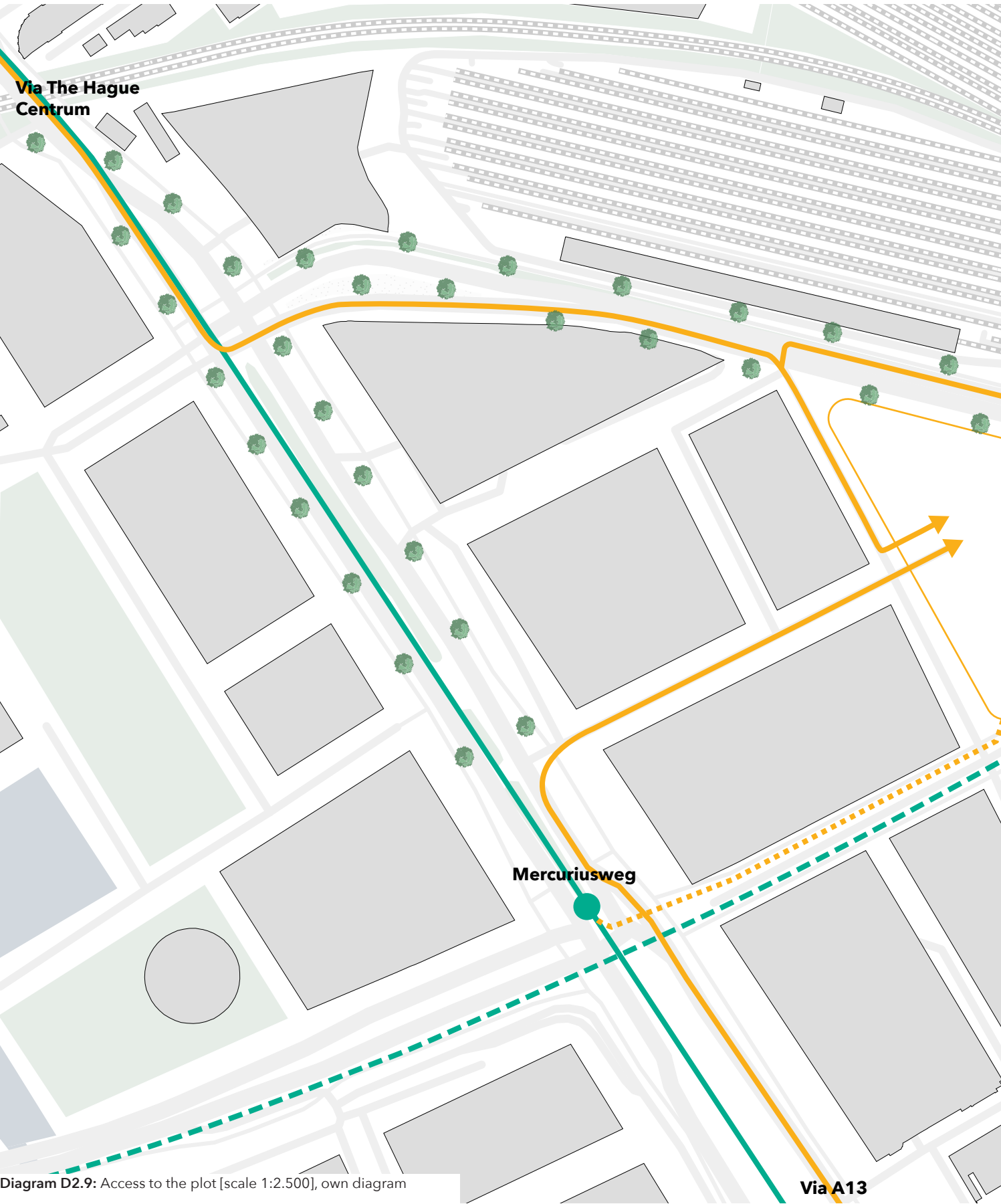
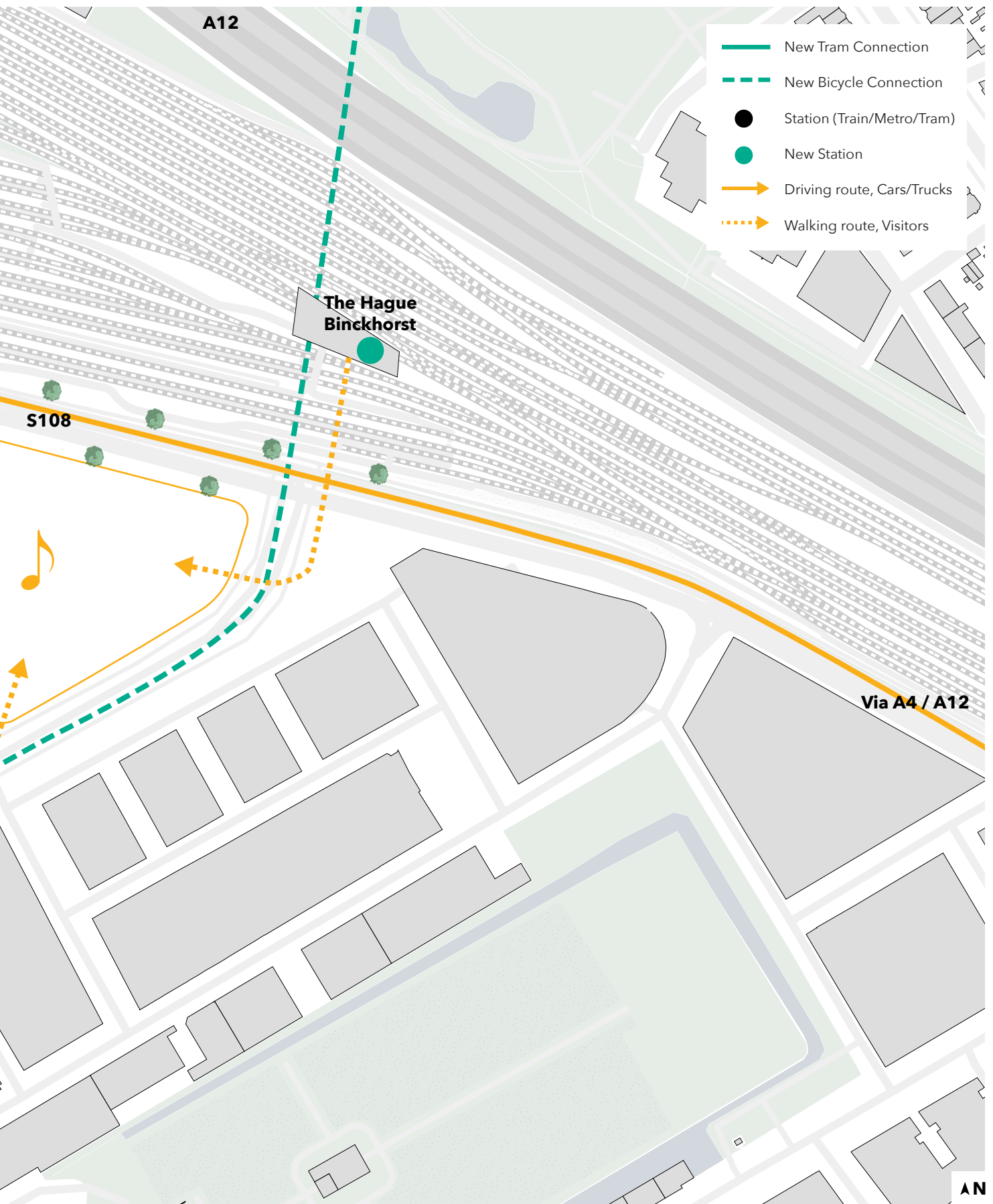


Diagram D2.9: Access to the plot [scale 1:2.500], own diagram



Plot size & Surface areas

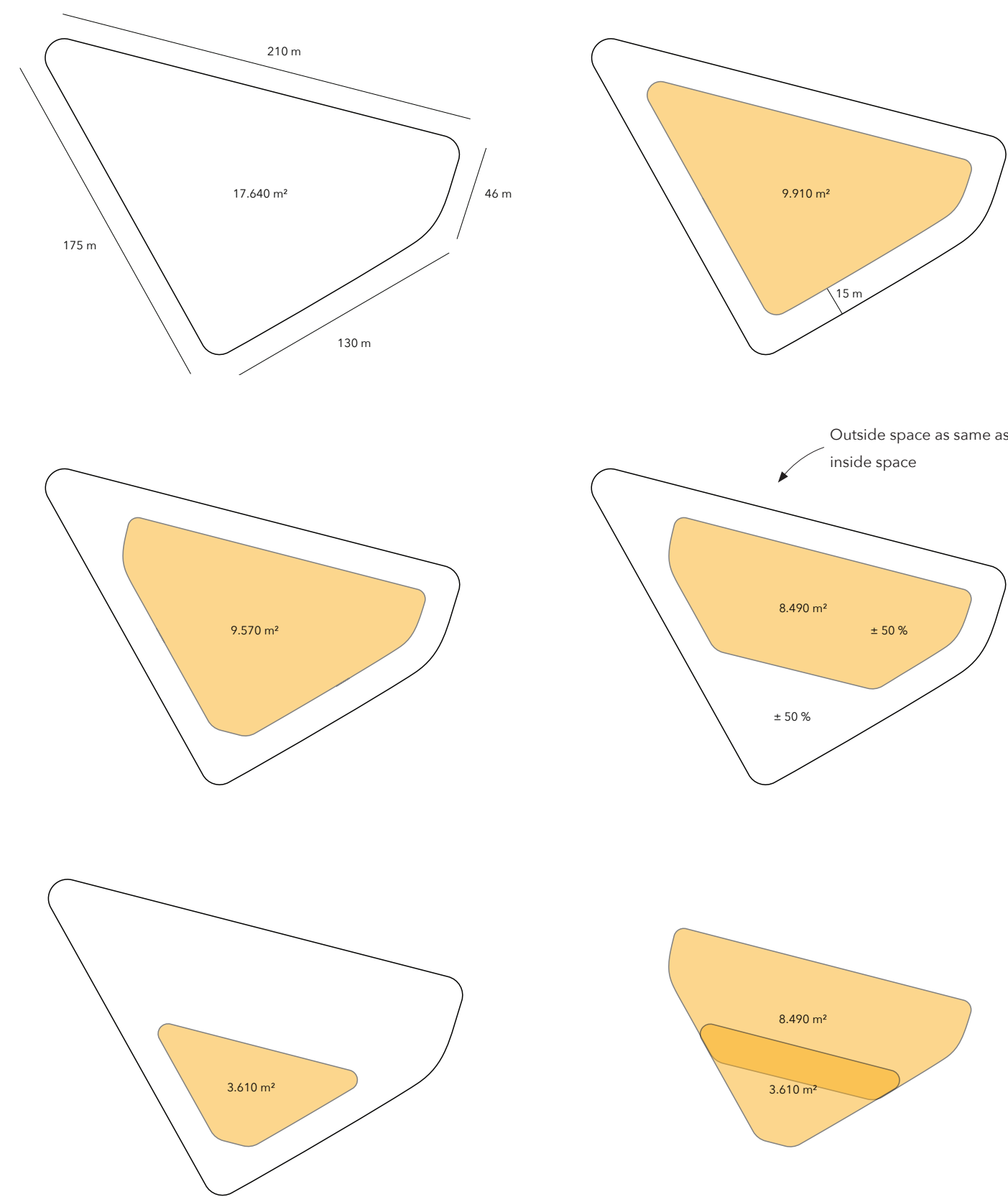


Diagram D2.10: Square Meters Plot, own diagram

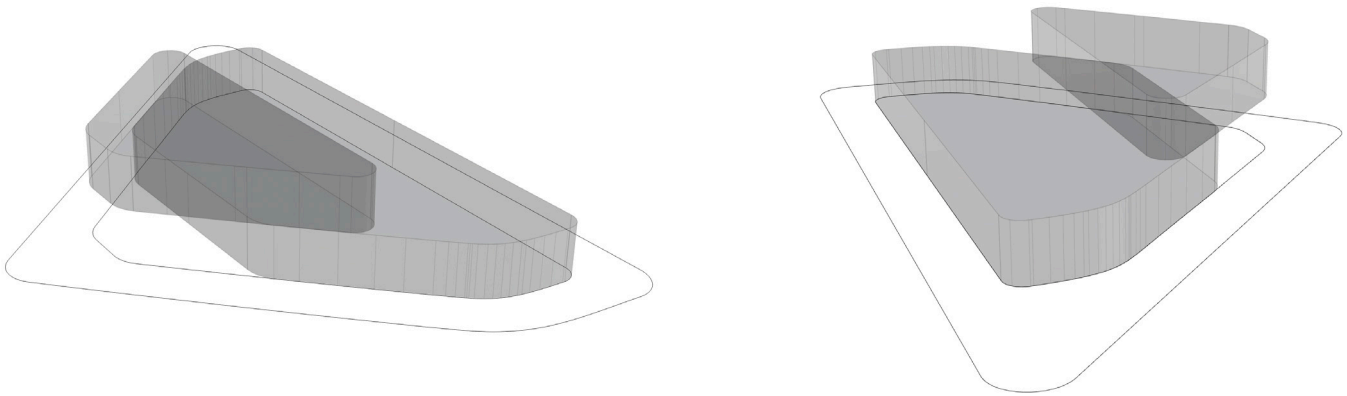
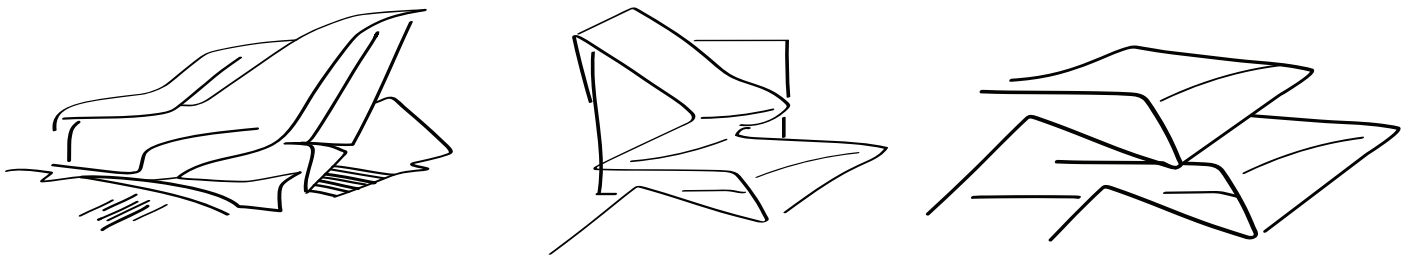
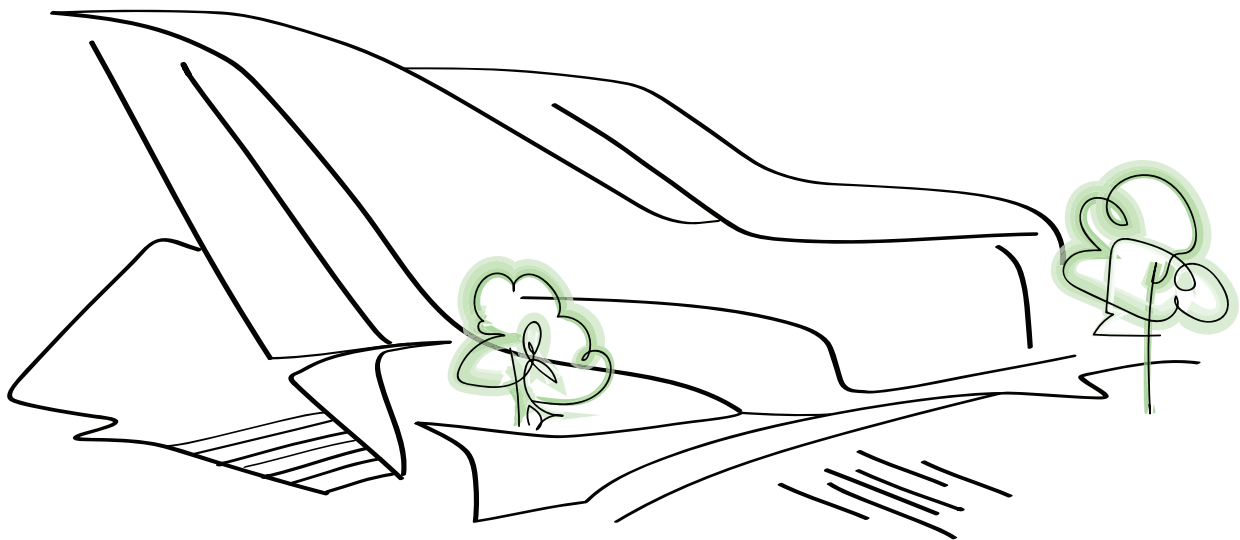


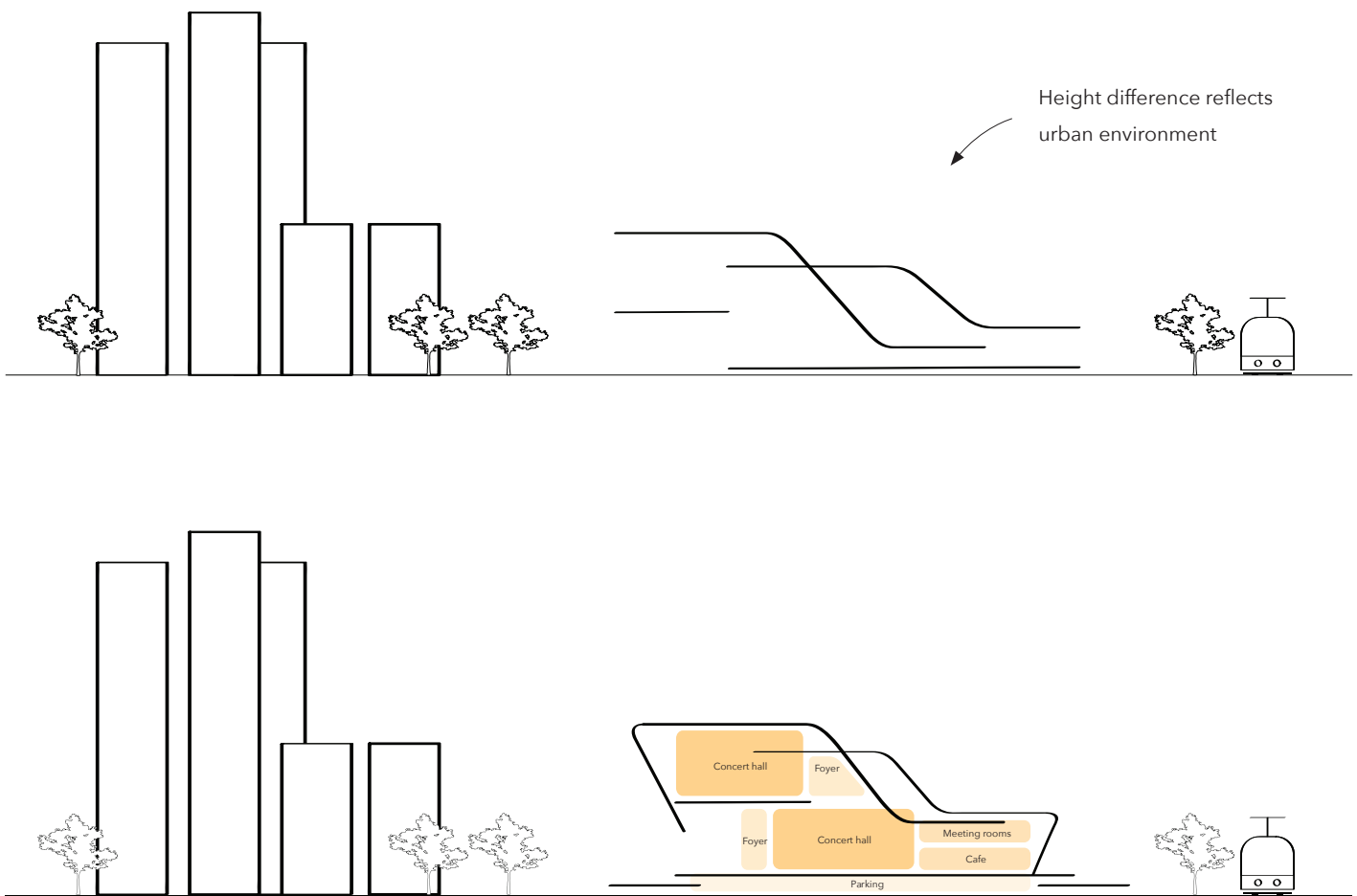
Figure D2.1: 3D Volume Music Building, own model



Sketch D2.1: Sketch Music Building, own sketch



Sketch D2.2: Sketch Music Building, own sketch



Sketch D2.3: Sketch Music Building and surroundings, own sketch

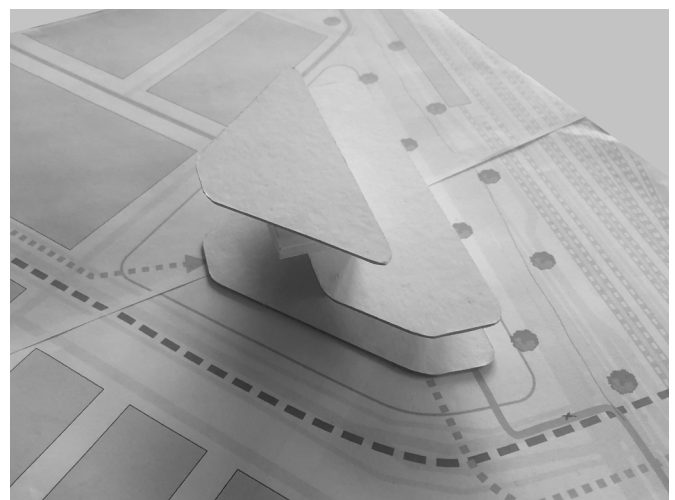
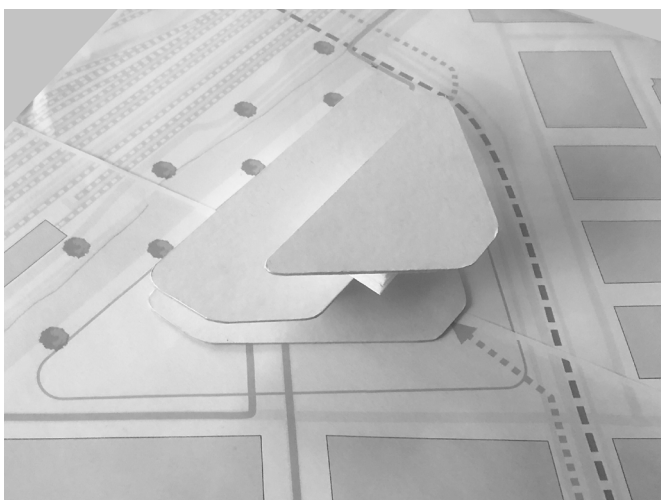


Figure D2.2: Physical 3D model Music Building, own model

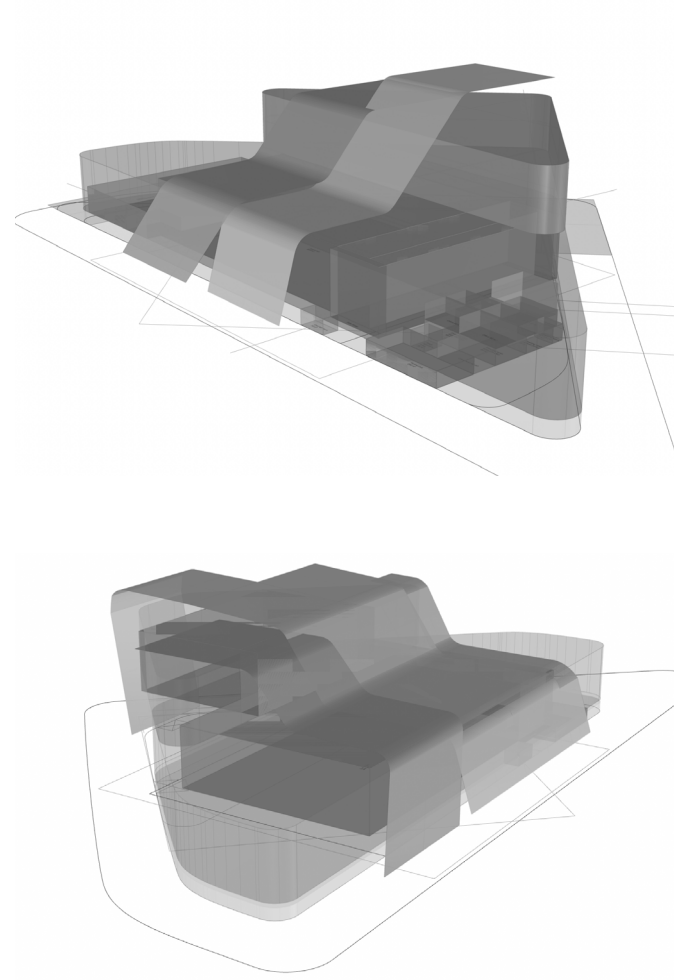
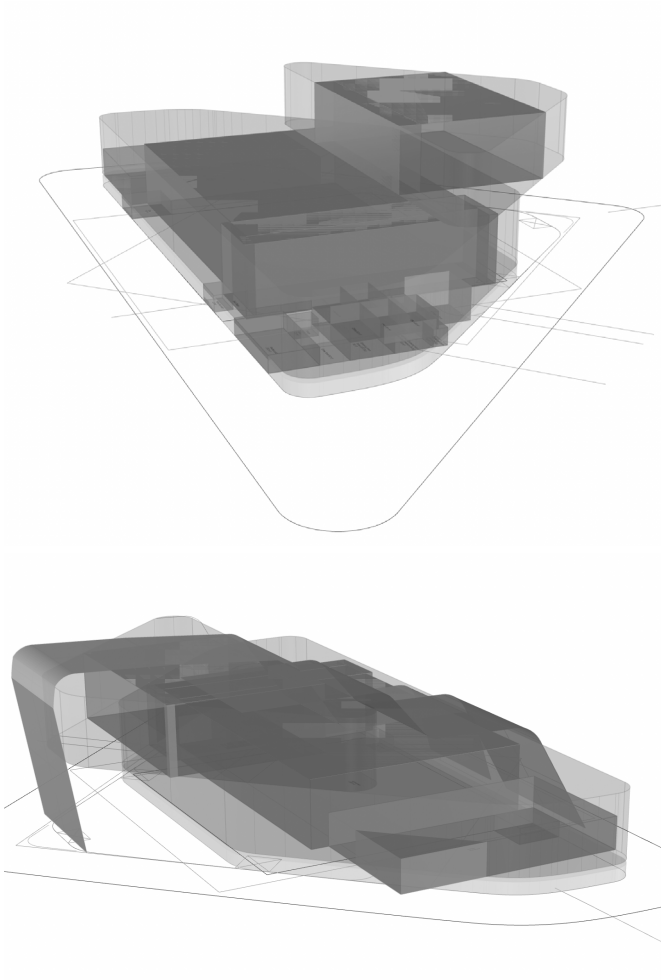
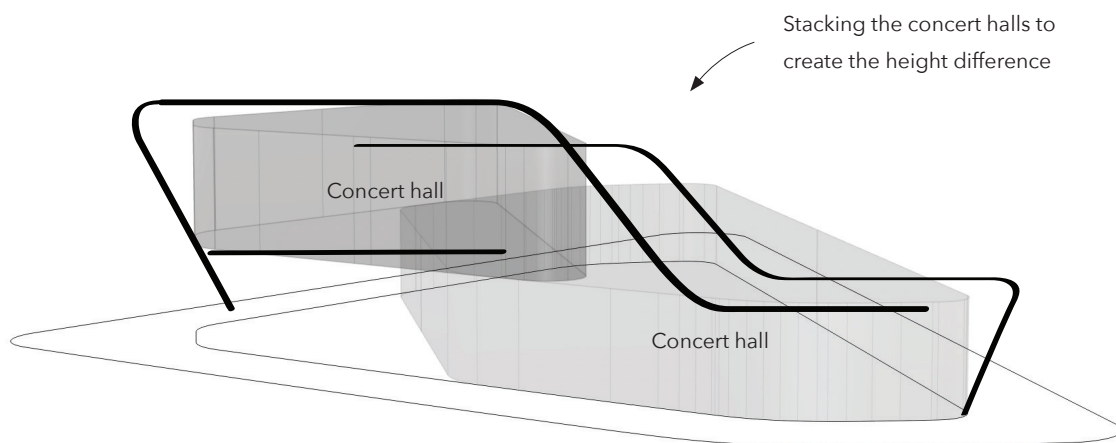


Figure D2.3: 3D model Music Building, own model



Sketch D2.4: Sketch Music Building 3D, own sketch

The Queue in front of the Music Building

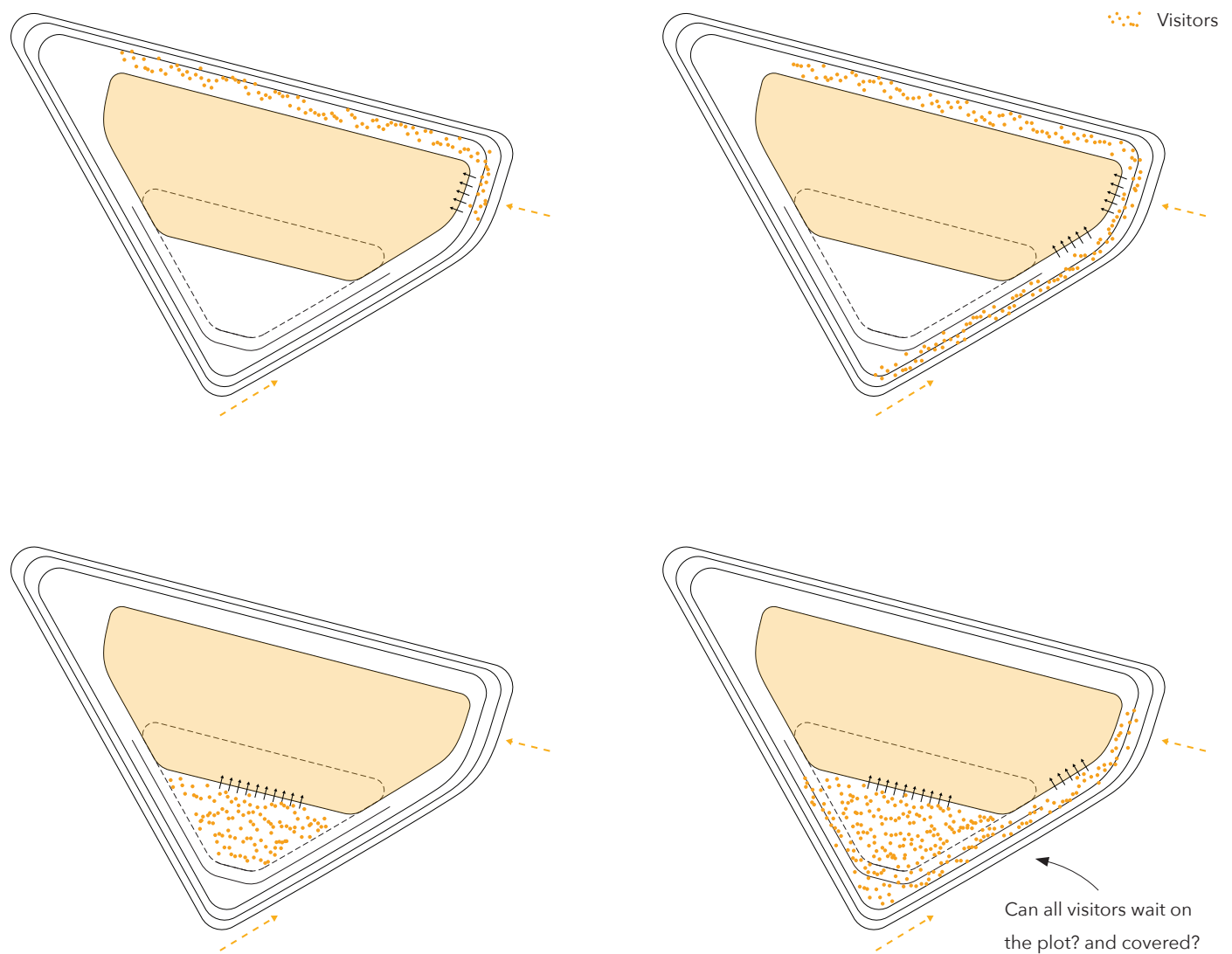
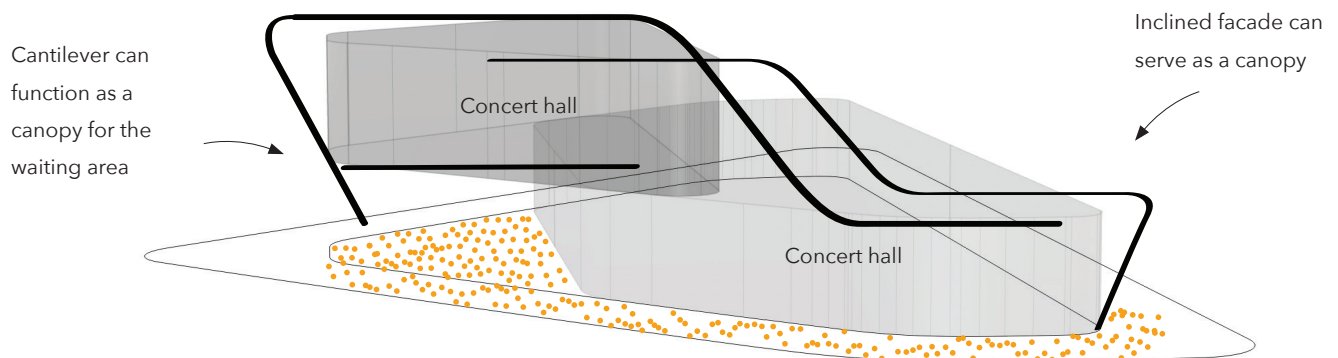


Diagram D2.11: Visitor flows, waiting line and (main) entrances, own diagram.



Sketch D2.5: Sketch Music building, own sketch.

References



Figure D2.4: Philharmonie Luxembourg by Christian de Portzamparc. From <https://www.christiandeportzamparc.com/en/projects/philharmonie-luxembourg/>



Figure D2.6: Stedelijk Museum by Benthem Crowell Architects. From <https://www.stedelijk.nl/nl/museum/host-een-evenement>

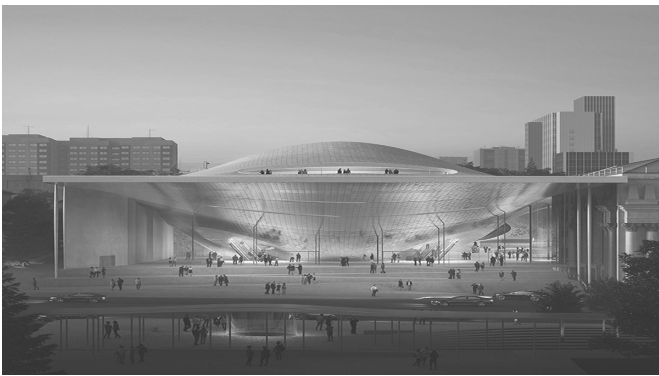


Figure D2.5: Sverdlovsk Philharmonic Concert Hall by Zaha Hadid Architects. From <https://www.zaha-hadid.com/architecture/sverdlovsk-philharmonic-concert-hall/>

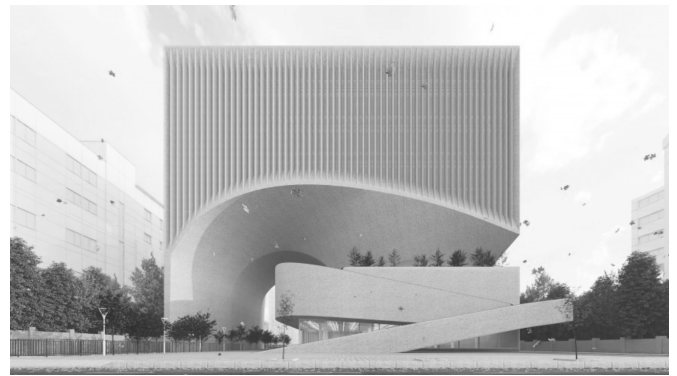
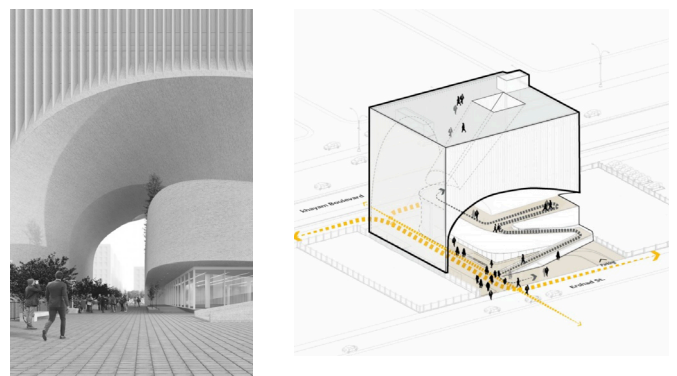


Figure D2.7: Mashhad C.E.O. Headquarter, by Next Office. From <http://nextoffice.ir/#!/project/mashhad-c-e-o-headquarter/>



E. Schematic Design (PD)

E. Schematic Design (PD)

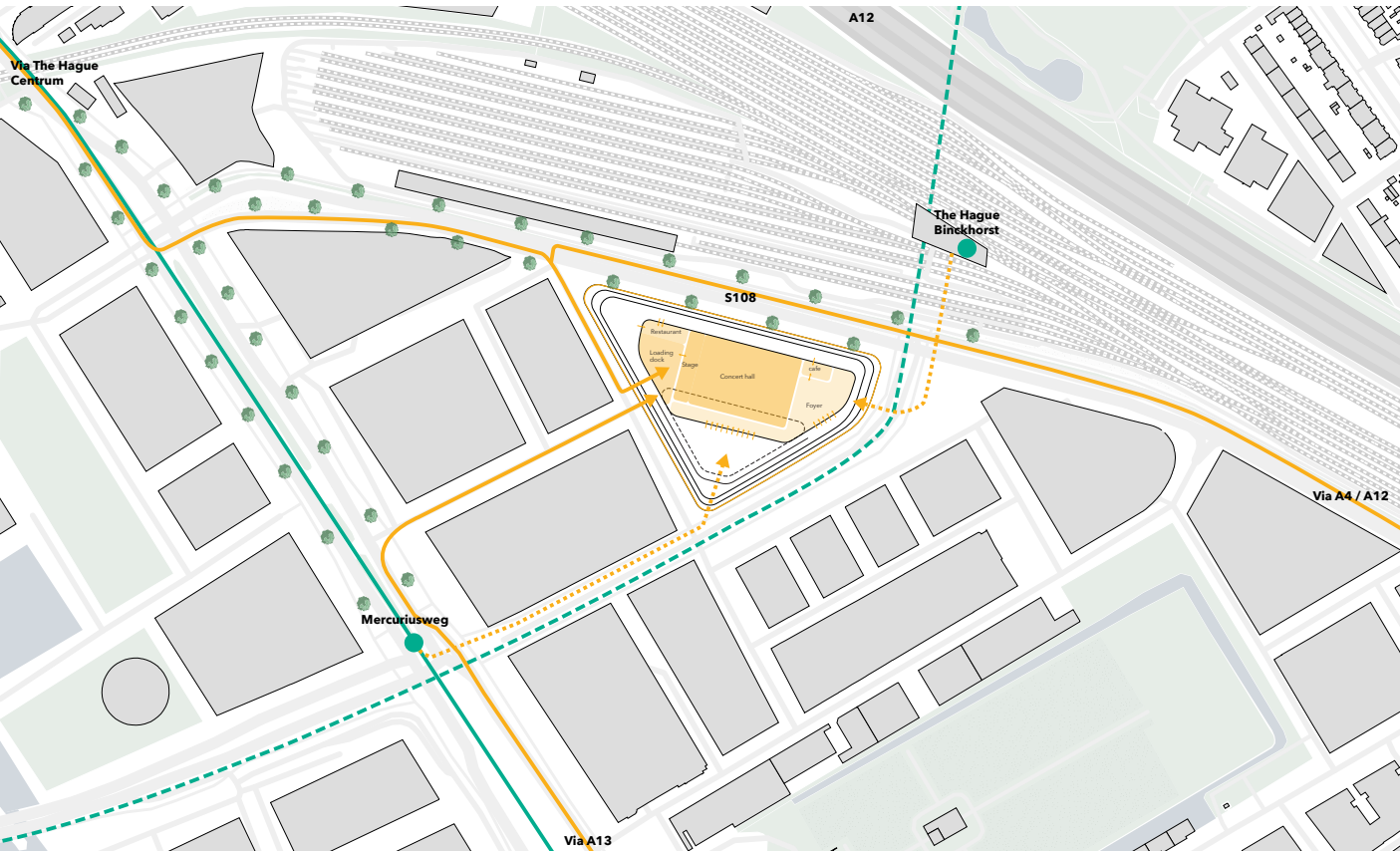


Diagram E.1: Access to the plot / music building, own diagram

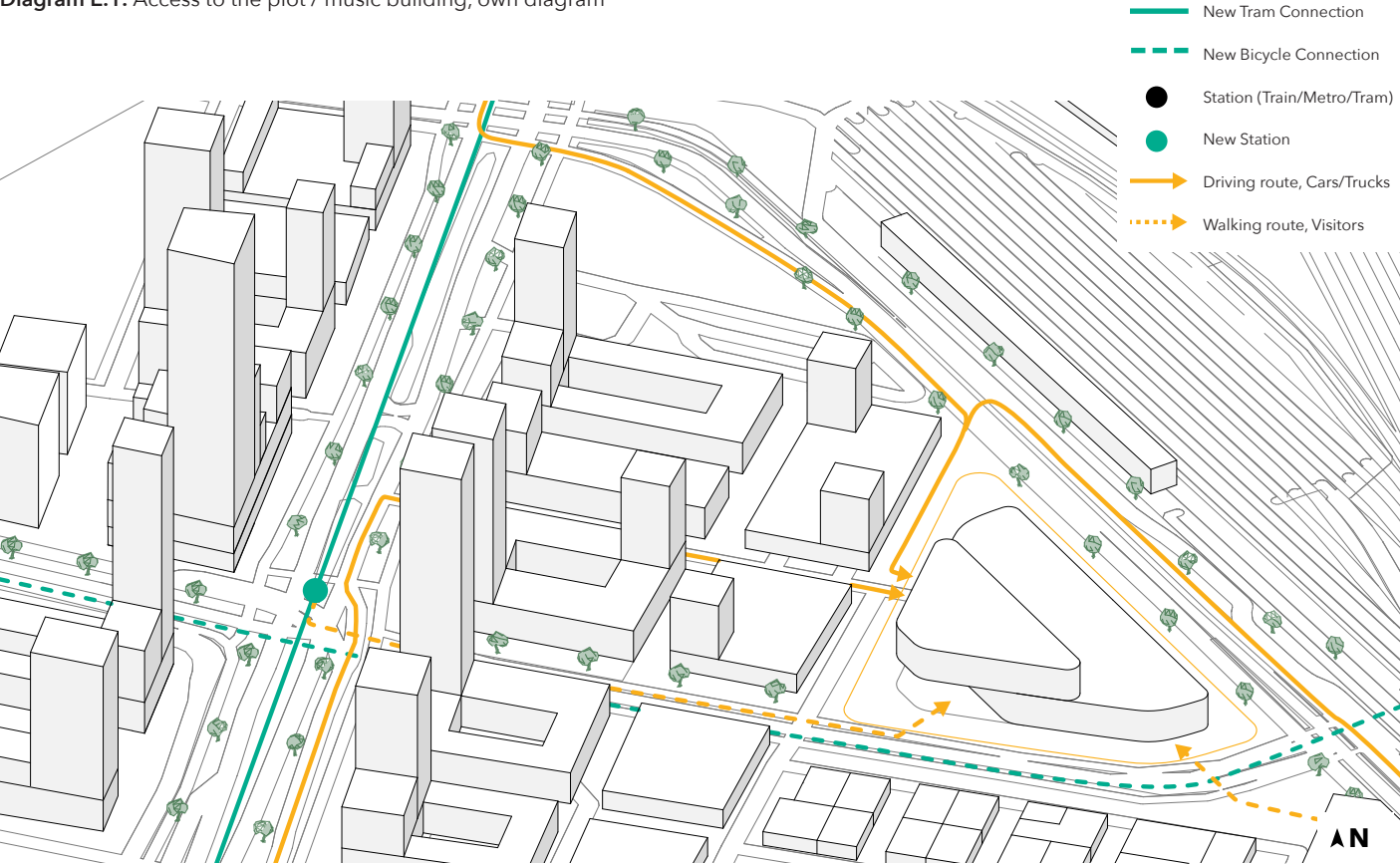
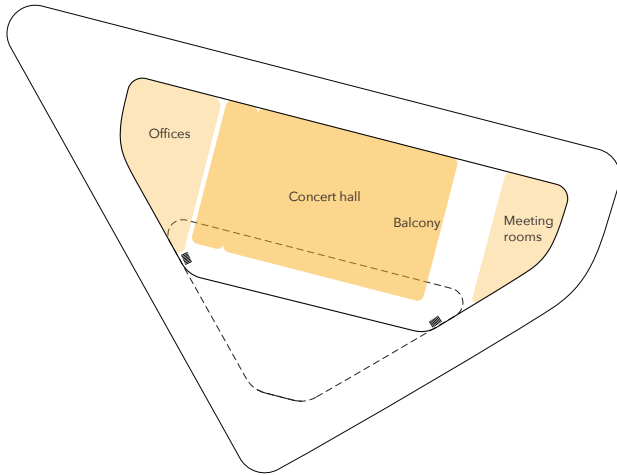


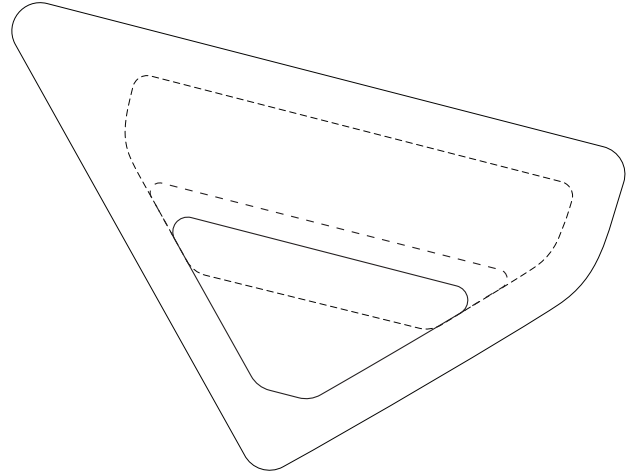
Diagram E.2: Access to the plot / music building - 3D, own diagram

Plans, Program and Circulation

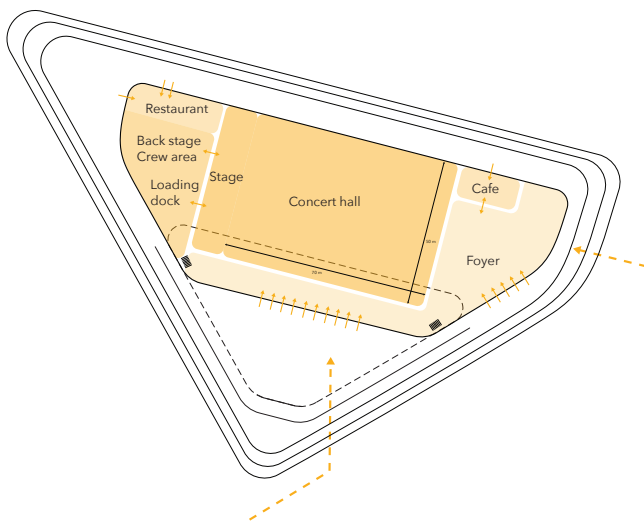
2. Second floor



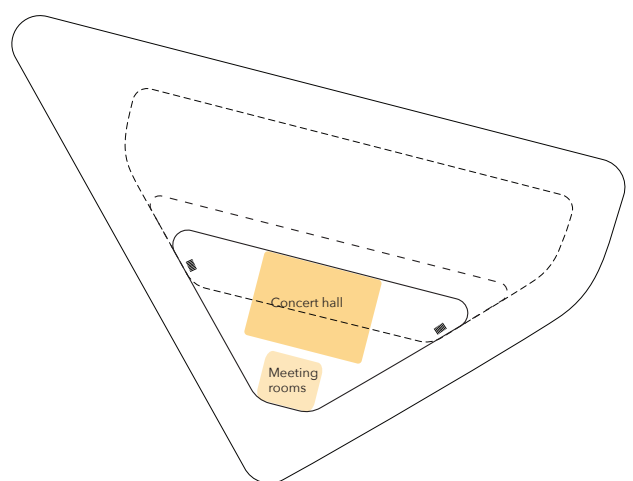
5. Roof



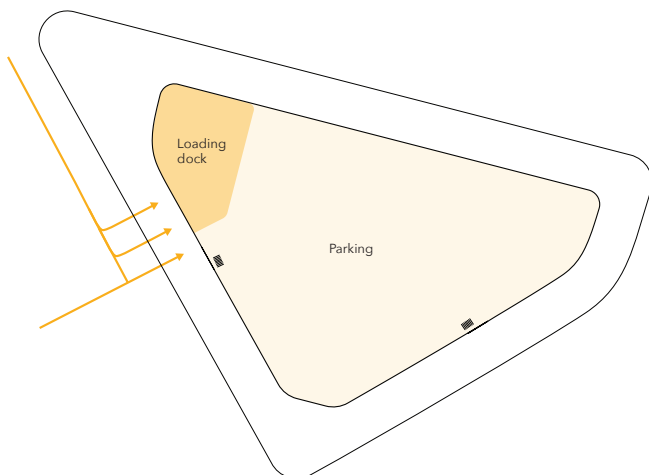
1. First Floor



4. Fourth floor



0. Ground floor



3. Third floor

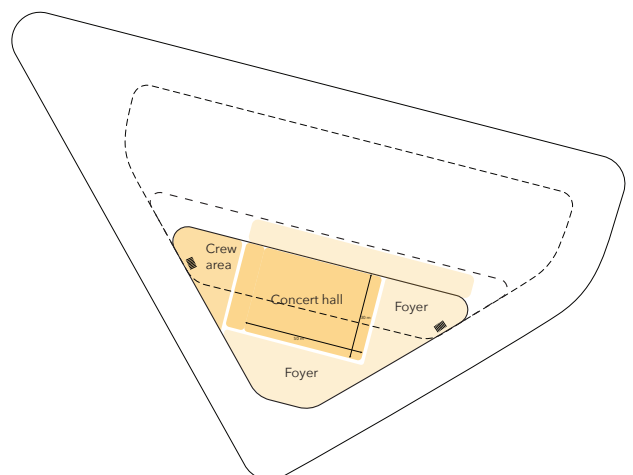


Diagram E.3: Plans music building, own diagram

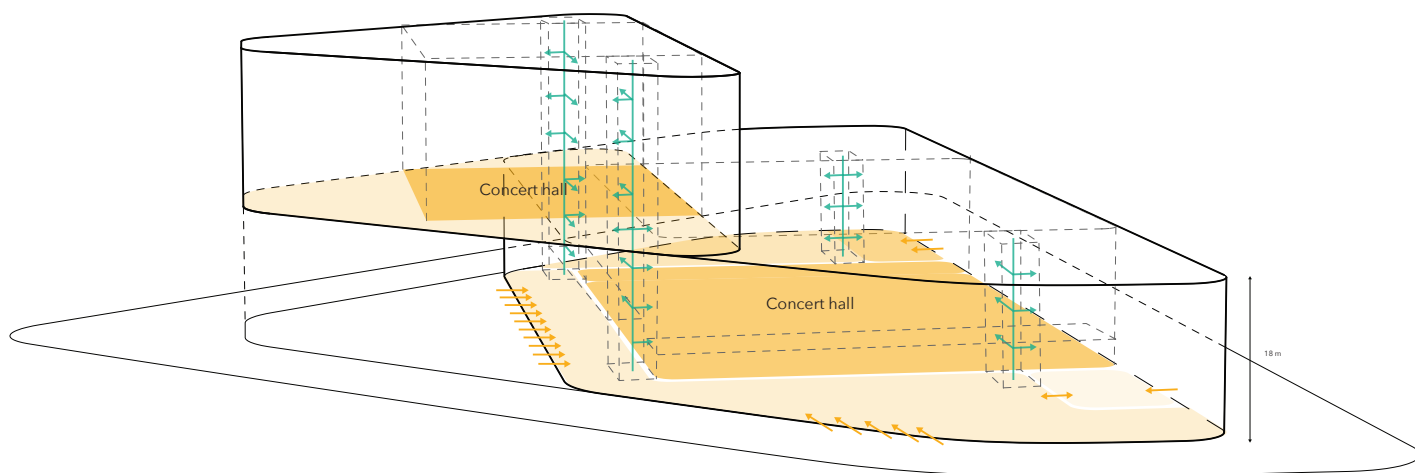
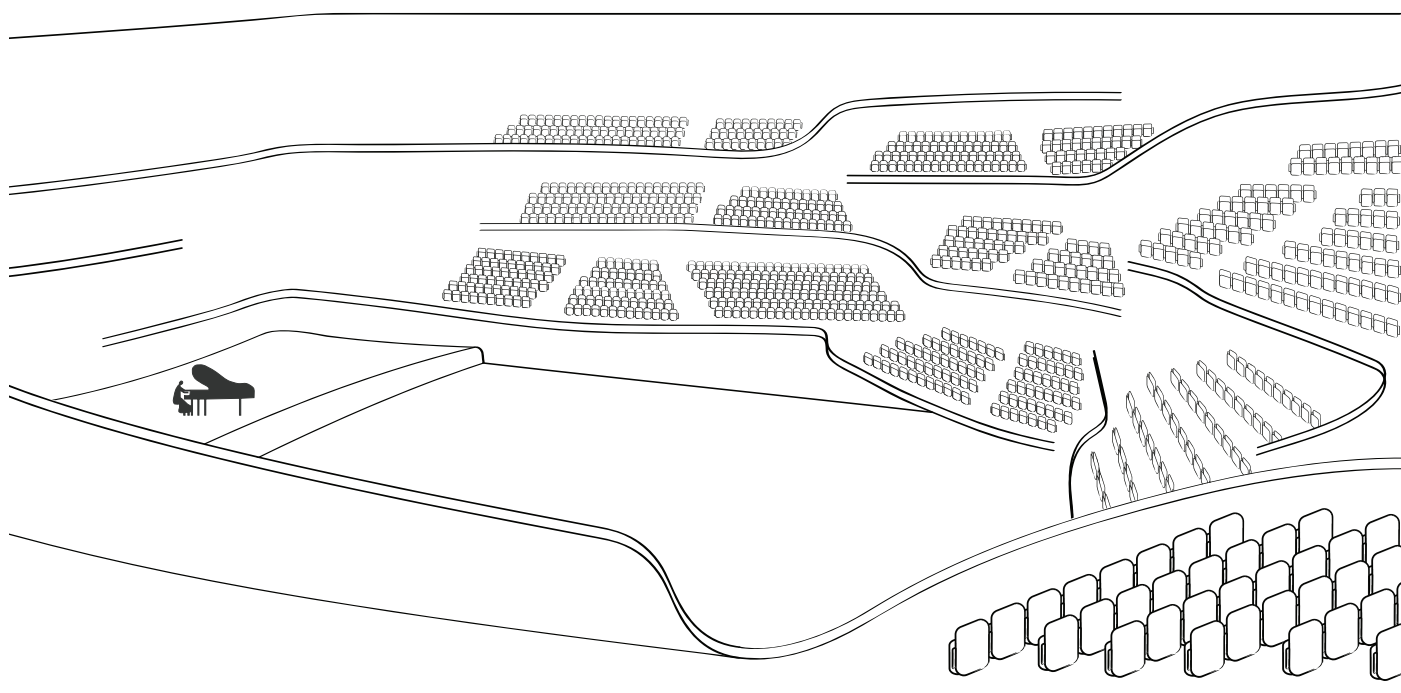







Diagram E.4: Circulation Music Building



Sketch E.1: Interior Concert Hall, own sketch

F. Parameters to Construct (BT)

F. Parameters to Construct (BT)

| | |
|---|---|
| <p>F1. Circularity</p> <ul style="list-style-type: none"> - shearing layers - several layers of longevity of built components - structure of the building that might last for 30-50 years - demountable (?)  | <p>F2. Specific Site Conditions</p> <ul style="list-style-type: none"> - next to railway, noise pollution - foundation problems / soil pollution, makes underground parking difficult - shadowing will hardly have any effect on plot  |
| <p>F3. Energetic Issues</p> <ul style="list-style-type: none"> - lots of electricity needed music systems, lighting, etc. - use daylight where possible - solar panels (?)  | <p>F4. Materiality</p> <ul style="list-style-type: none"> - akoestic materials - natural materials - transparency / glass - strong construction - greenery  |
| <p>F5. Acoustic</p> <ul style="list-style-type: none"> - prevent noise pollution towards the environment - the two concert halls must not cause any noise pollution between them - apply acoustic materials  | <p>F6. Multiplicity</p> <p>"Beauty doesn't come out of the shape alone, but of the multiplicity of impressions, sensations and emotions that the shape has us to discover."(Saieh, 2010)</p> <p>Nico Saieh. "Multiplicity and Memory: Talking About Architecture with Peter Zumthor" 02 Nov 2010. ArchDaily. From https://www.archdaily.com/85656/multiplicity-and-memory-talking-about-architecture-with-peter-zumthor</p> |

G. Process Documentation

After the schematic design, the design process continued. The design is elaborated both on a spatial and aesthetic design as well as on a technical level

(construction and climate design). A critical selection of the most relevant material that has been produced during these phases is shown below.

Adding a core
for stability
and circulation
reasons.

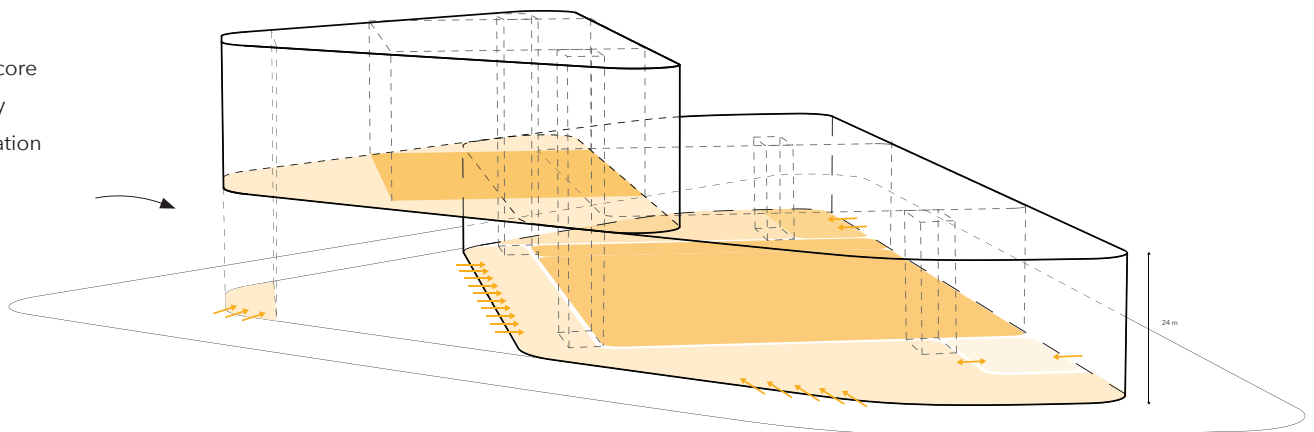


Diagram G.1: Volume Music Building, own diagram

Since the overhang was quite large and the upper hall was not very accessible, an additional core is added. This makes access to the upper concert hall easier and better. Also in case of emergency there are more escape routes.

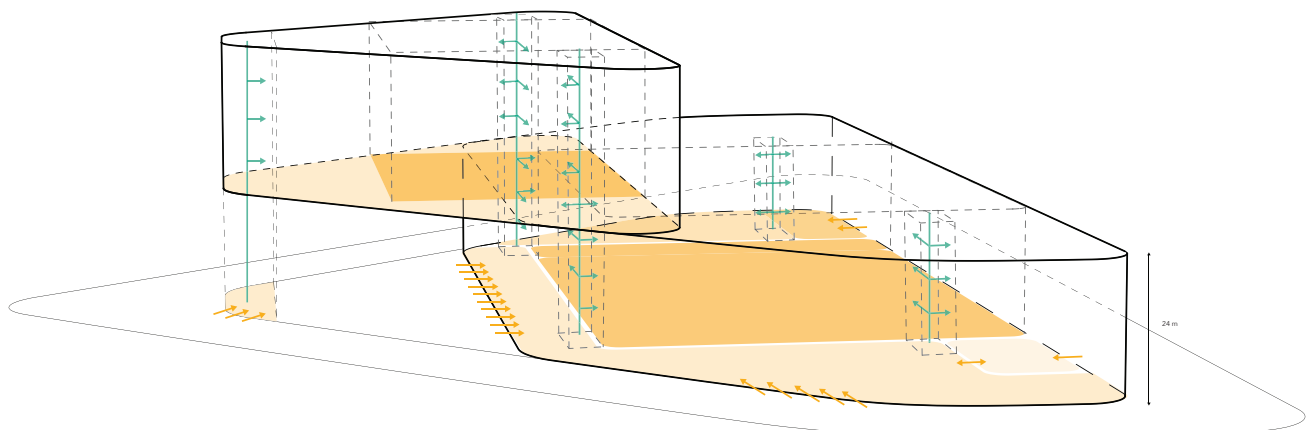


Diagram G.2: Circulation Music Building, own diagram

The Waiting Line

In front of the entrances of the music building queues will occur. In order to reduce these queues, research has been done on the structure of the queue.

The contexts in which queues can take place are diverse and the the shape/structure can be different. For example, a queue at the airport can differ from a queue in a shop or in front of a music venue. However, queues are always directional and directed. Diagram G.3 shows different types of queues. The structure of these queuing systems and thus the spatiality differs.

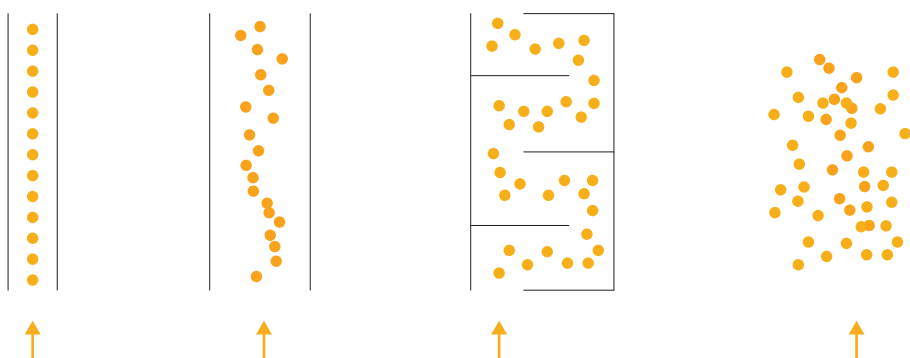


Diagram G.3: Queuing systems, own diagram

The length of the queue for a music building depends on various factors, such as the capacity of the music building, the number of entrances, the flow (the structure of the queue).

The concert hall on the ground floor will have a capacity of about 5.000 visitors (to be determined later exactly). When all the people wait patiently in line in a single queue, the queue is much longer than when the queue is wider and people can stand next to each other, shown in diagram G.4. Not only is the single queue

extremely long, but also the wider queue will be about 750 m if everyone gets in line. For this reason, it has already been determined that there will be multiple entrances to the music hall in order to limit this queue. However, it is still important to give structure to these queue, because "queues are an increasingly dominant spatial phenomenon" (Salazar, 2016). Will it be two long lines, several small lines, a zigzag line? Either way, the queues take up a lot of space.



Diagram G.4: Lenght queu, own diagram

Source: Salazar P. C., Kiesewetter R., Jetée L., and Parasite 2.0. "The Politics of Queuing and the Architecture of the Queue". (2016). Online. From: <https://parasiteparasite.com/projects/the-politics-of-queuing-and-the-architecture-of-the-queue/>

Queues carry the spatial and mental condition of being neither inside nor outside: while queuing, you are nowhere, not inside not outside, in between. Also, the queue can be seen as a management tool to control individual bodies, publics and spaces.

A queue can be influenced by specific elements and by spatial design. This can be used to improve the spatiality of the queuing system and the experience of queuing itself.



Figure G.1. "Silent movie night" at National Kaohsiung Center for the Arts by Macanoo

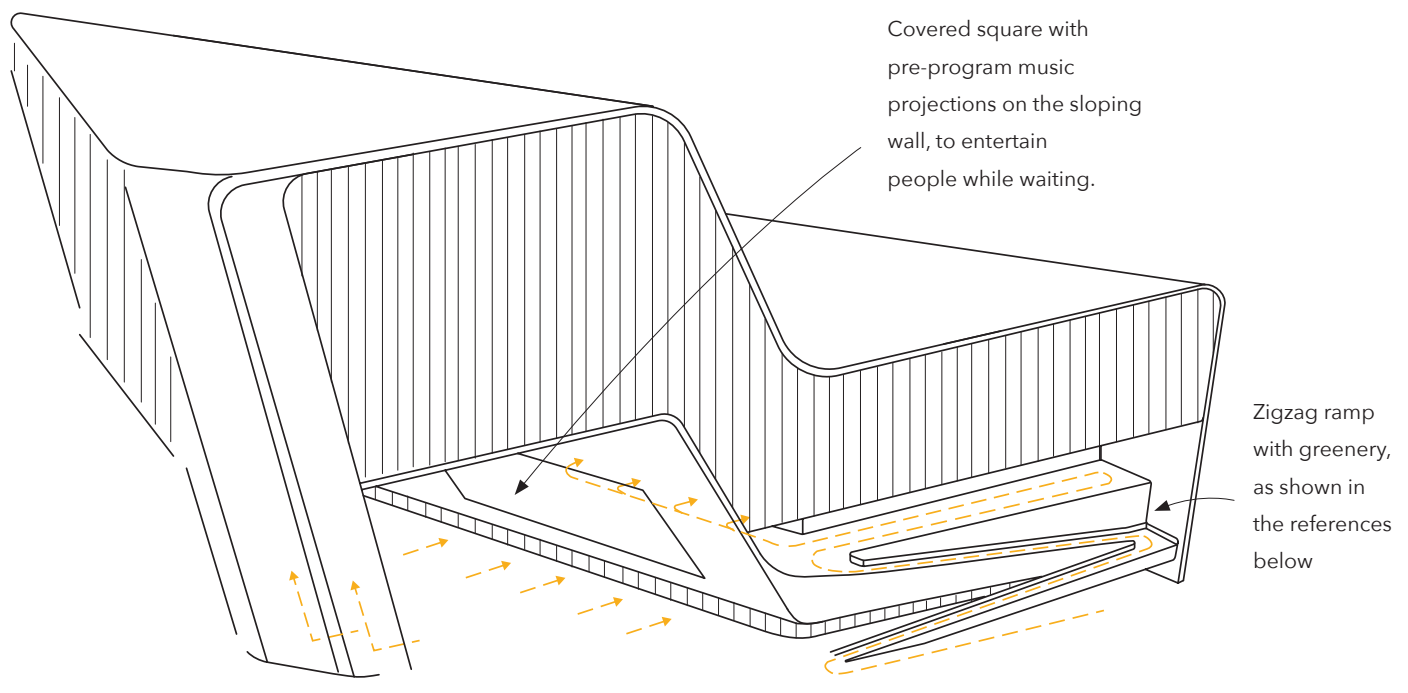


Diagram G.5: Design elements for Music Building, own diagram

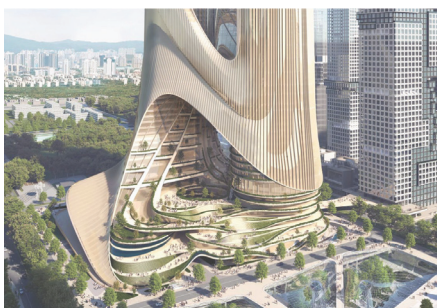


Figure G.2. Tower C Shenzhen by Zaha Hadid Architects



Figure G.3. Terraces, Green balustrades (by unknown)



Figure G.4. Green levels, render by UN Studio

The Waiting Line

Since the intention is that all people can wait in front of/around the building, and not on the street/between the other buildings, the facade of the building is used. There is a zigzag line (in vertical direction) integrated in the facade. This ramp should be long enough to keep all visitors on the plot. To find out if there is enough room, it was calculated how long the line would be approximately if everyone will be in line.

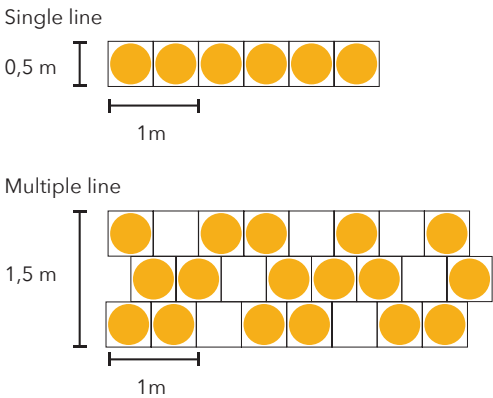


Diagram G.6. Dimensions queue, own diagram

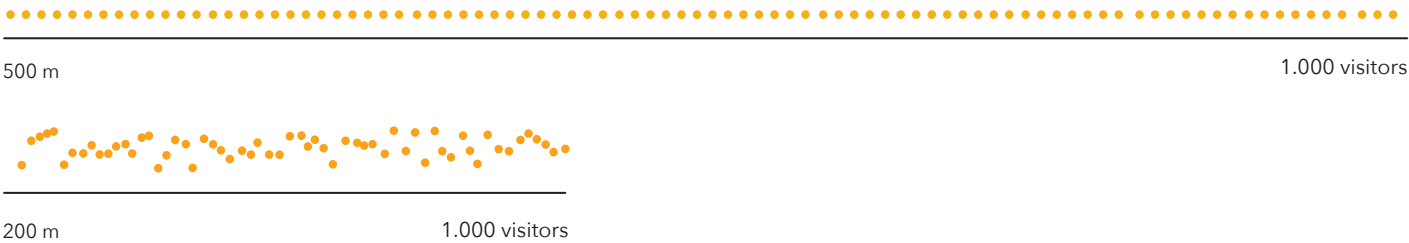


Diagram G.7. Dimensions queue, own diagram

Concert hall 1 has a maximum capacity of 6.000 visitors. Since there are three main entrances, this number can be divided as follows :

- Ground floor: 1.600 seats / 4.000 standing
- Balcony 1: 1.000 seats
- Balcony 2: 1.000 seats

The ramp is per lane about 75 meters long. So less than 3 lanes is enough.

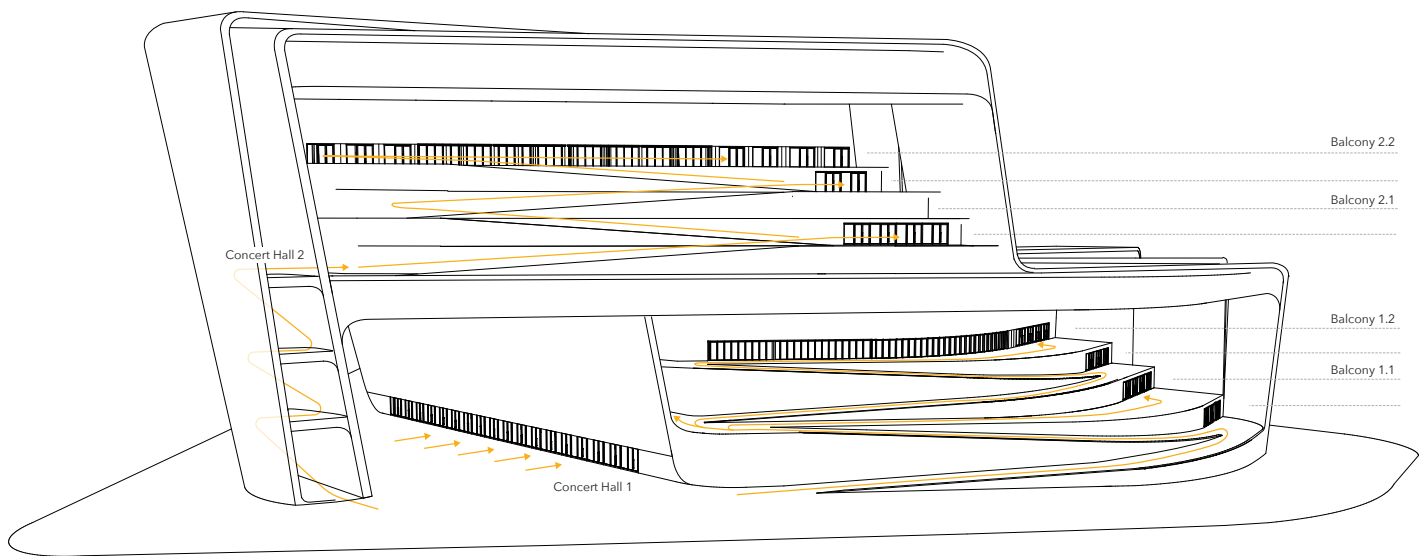


Diagram G.8. Entrances Concert halls, own diagram

Concert hall 1 has three main entrances:

- 1.0 On the ground floor adjacent to the covered square
- 1.1 On the second level of the zigzag ramp
- 1.2 On the fourth level of the zigzag ramp

Concert hall 2 has two main entrances, both of which can be reached via the stairwell.

- 2.1 On the first level of the zigzag ramp
- 2.2 On the third level of the zigzag ramp

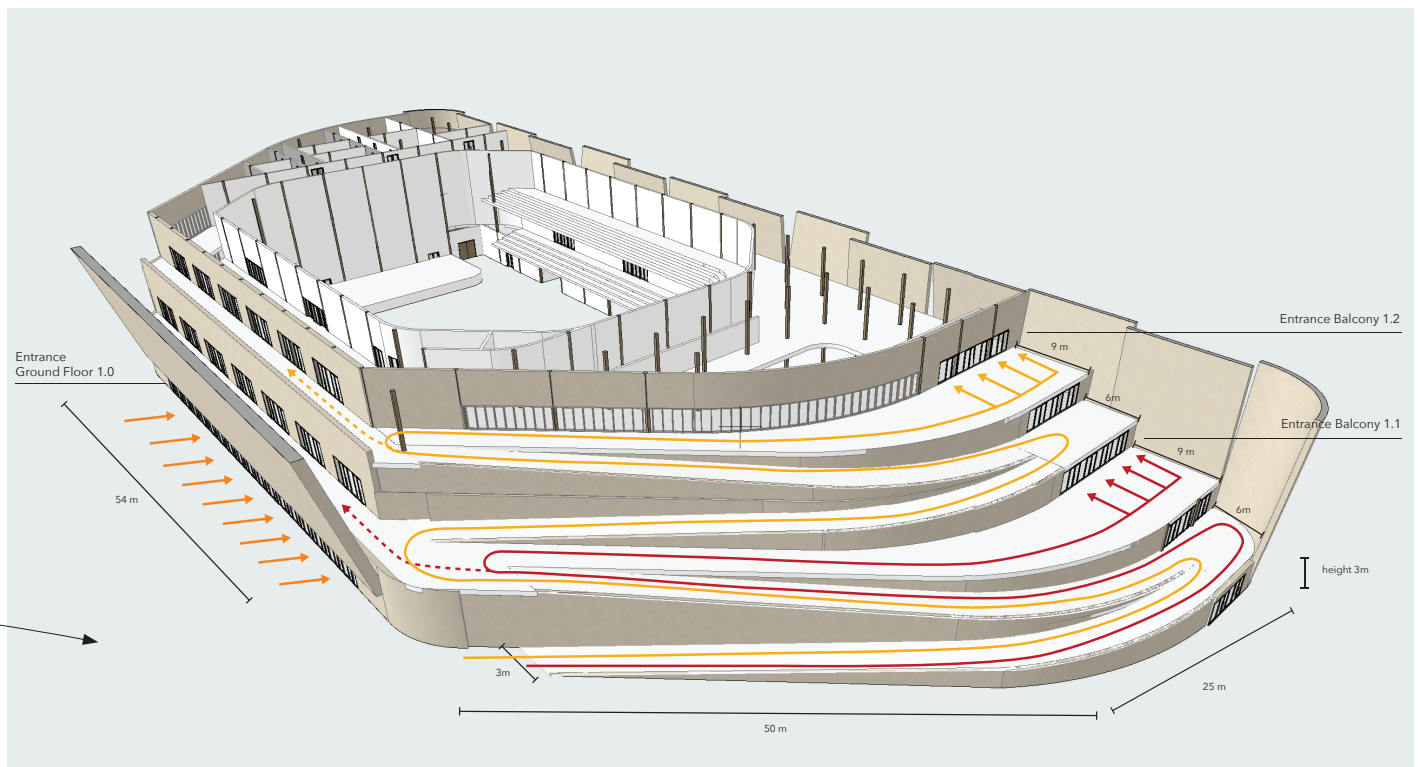
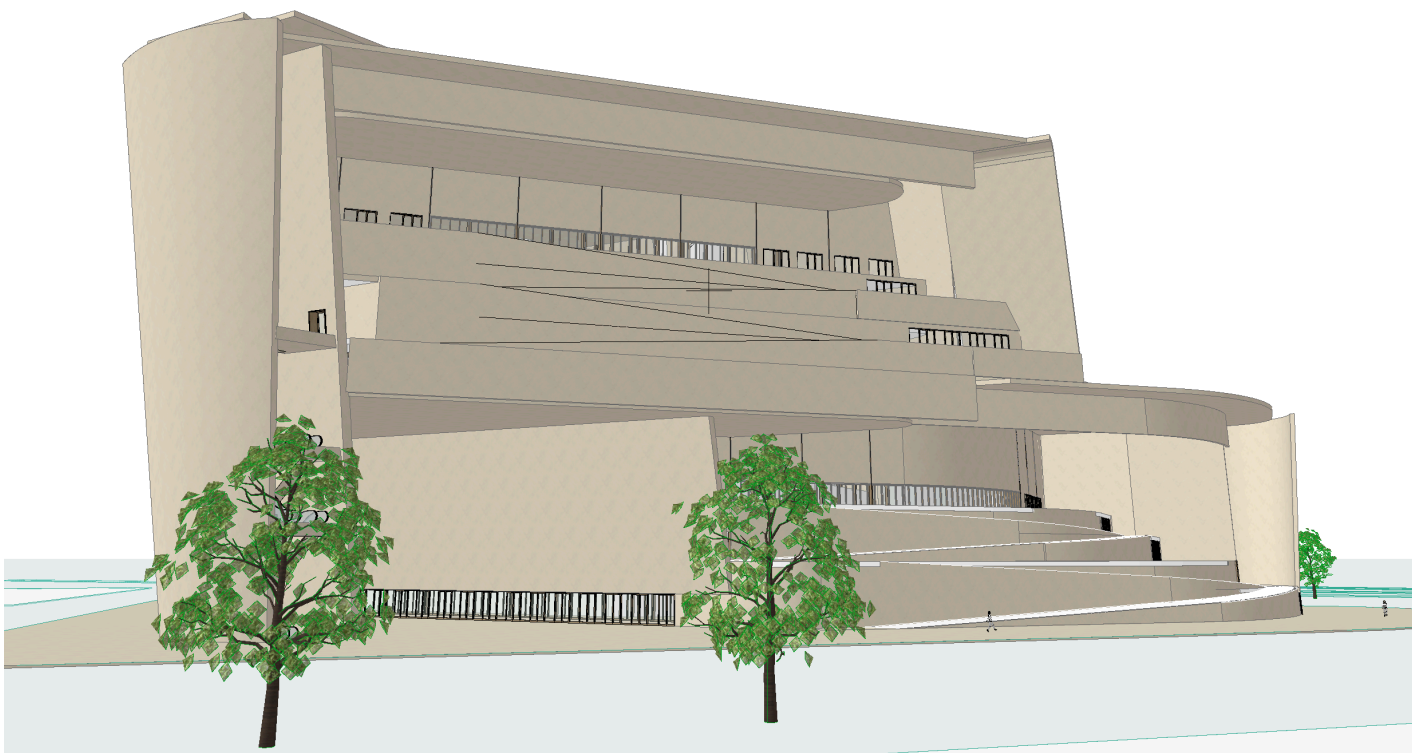


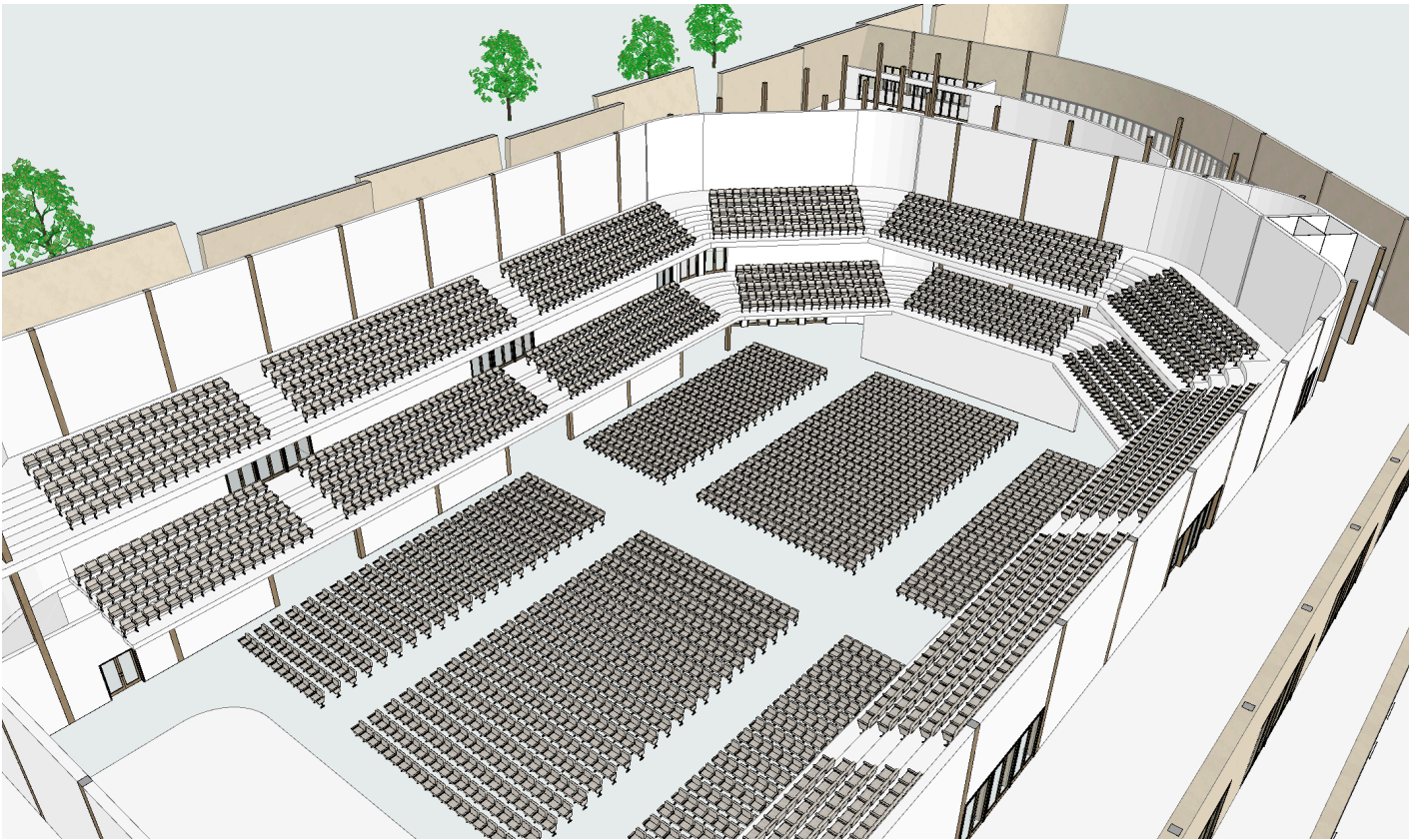
Diagram G.9. Entrances Concert hall 1, own diagram

Music Building

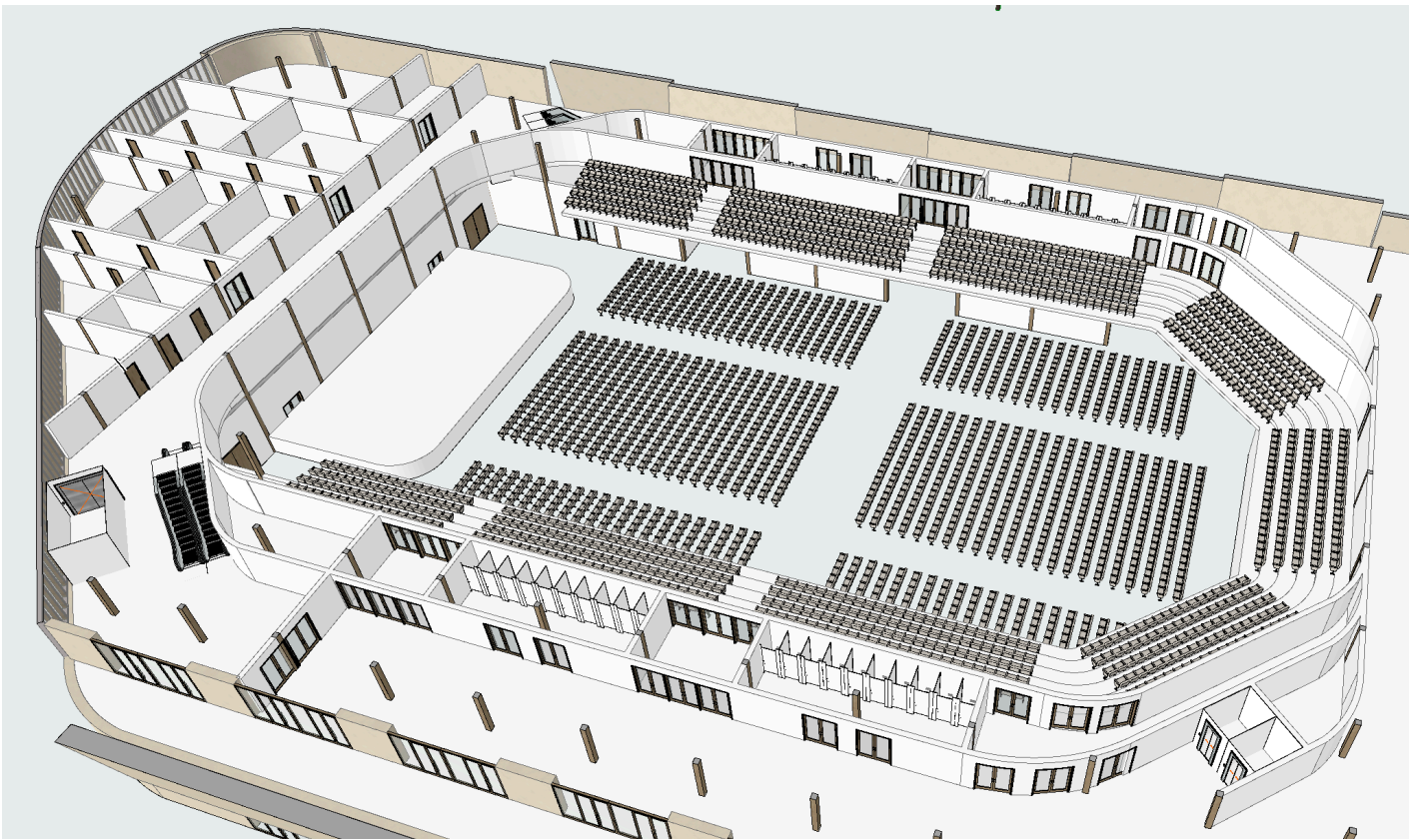
In this music building, there is space for concerts, congresses, networking receptions and meetings. There will be two concert halls, one large concert hall mainly for 'pop music', with 3.600 seats or 6.000 standing visitors and one smaller concert hall, more focused on conferences with 1.200 seats.



Visual G.1. Exterior perspective - Music Building, own visual

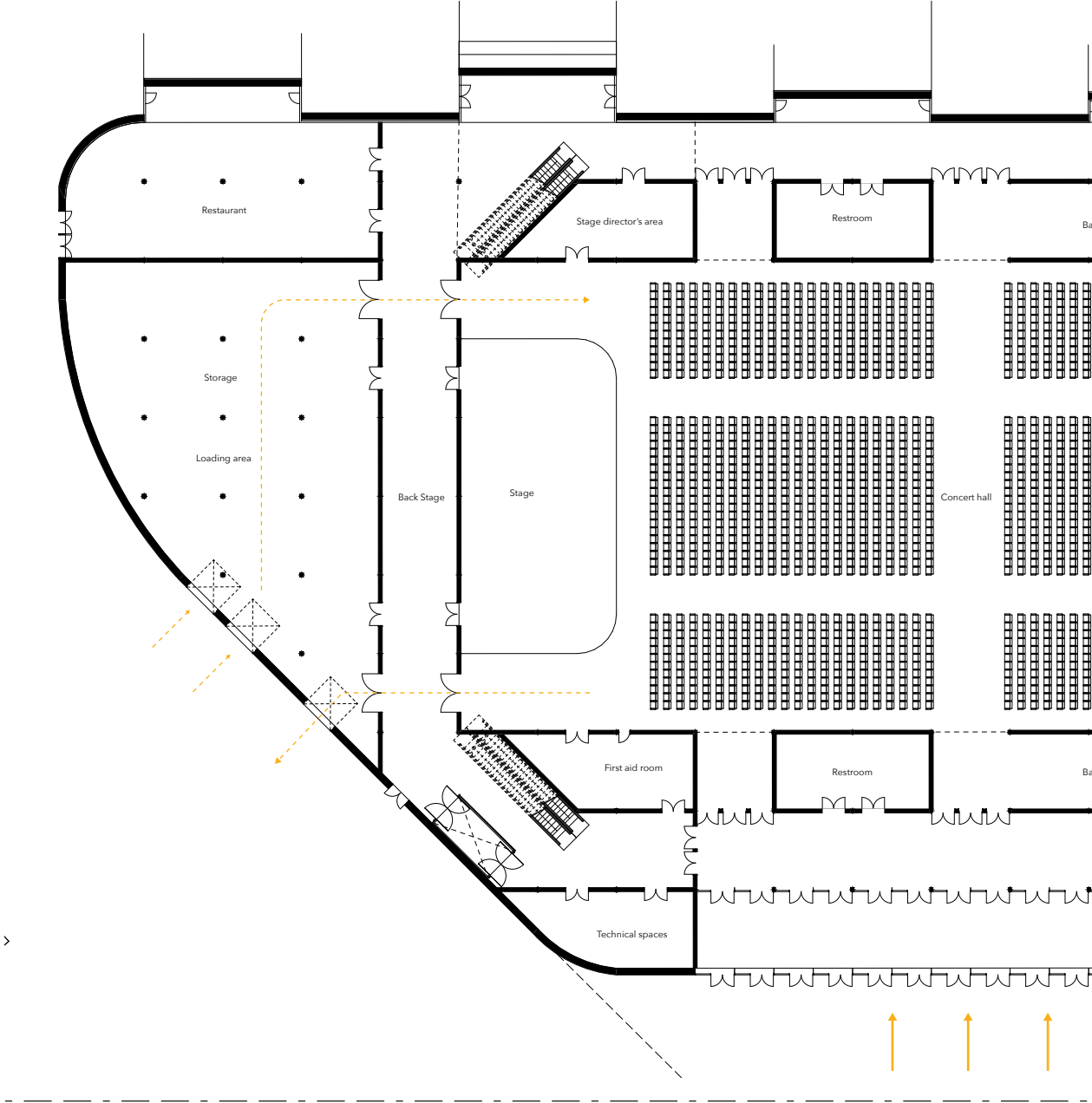


Visual G.2. Interior perspective - Concert Hall 1, own visual

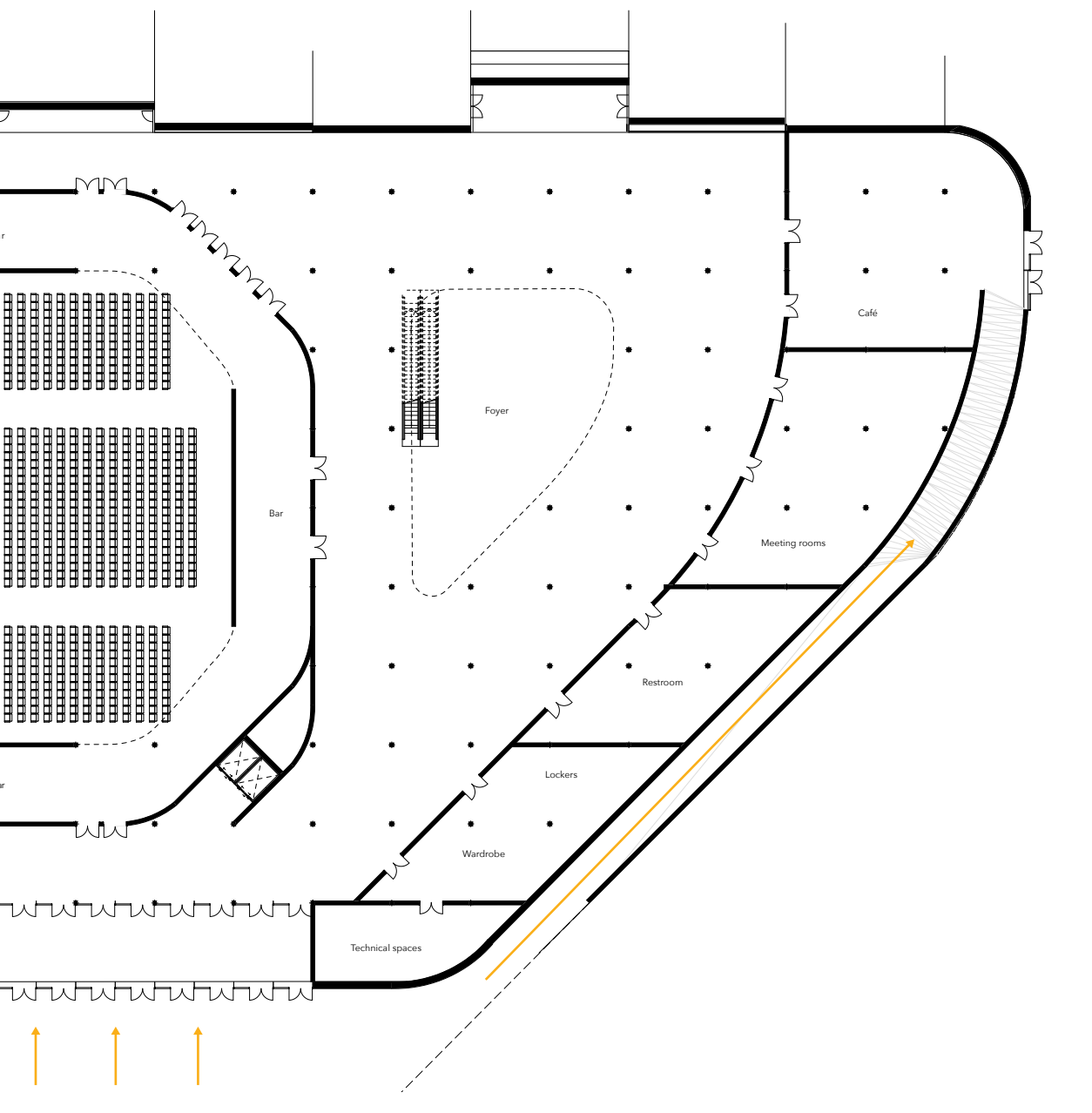


Visual G.3. Interior perspective - Second Floor, own visual

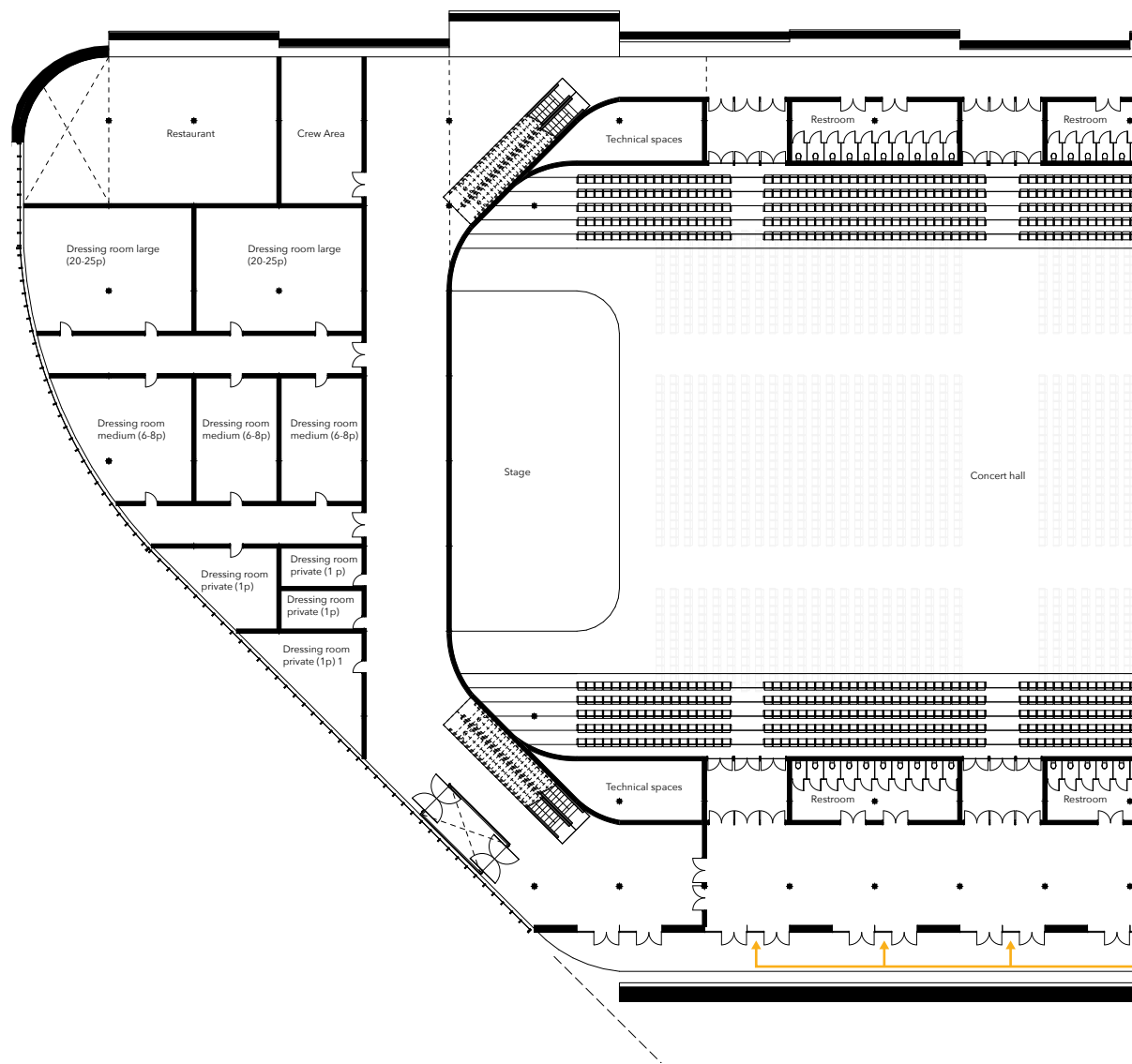
Plan - Ground Floor of the Music Building



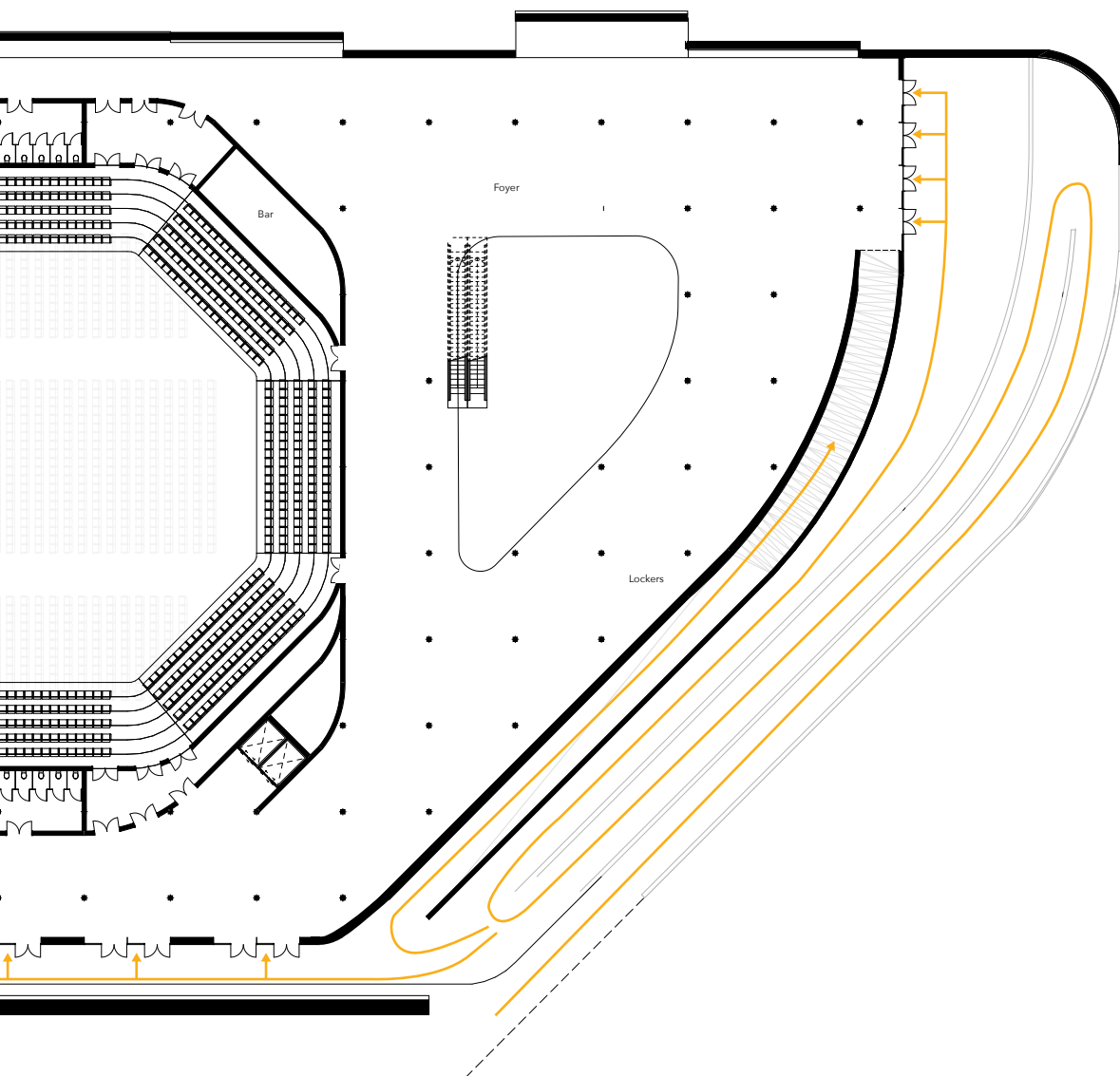
Drawing G.1. Plan - Ground Floor [1:500], own drawing



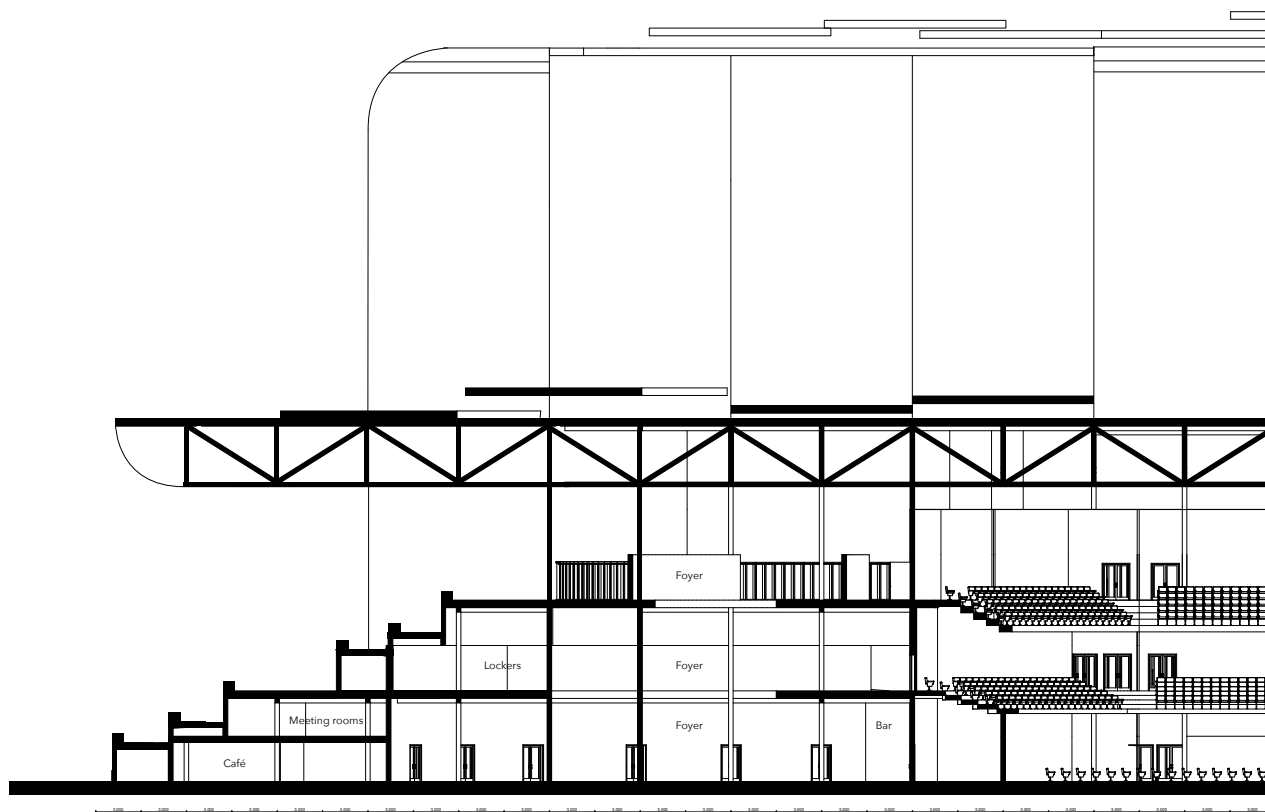
Plan - Second Floor of the Music Building



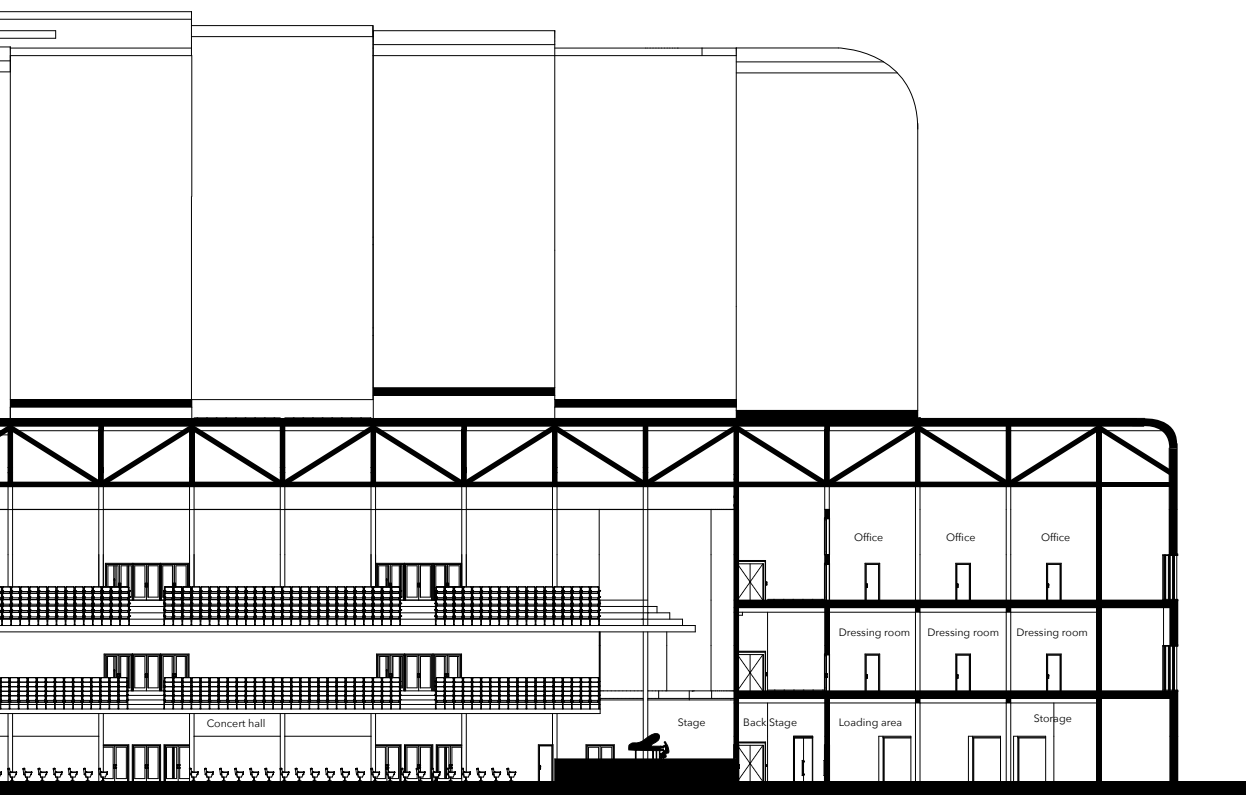
Drawing G.2. Plan - Second Floor [1:500], own drawing



Section of the Music Building



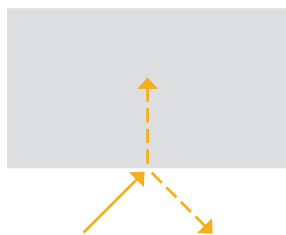
Drawing G.3. Section [1:500], own drawing



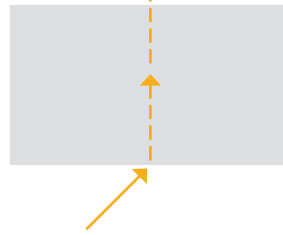
Reflection



Absorption



Transmission



Diffusion

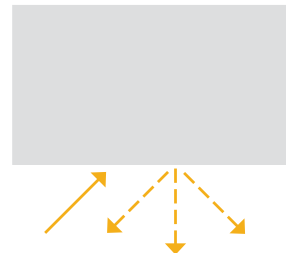


Diagram G.10. Acoustic Principals, own diagram

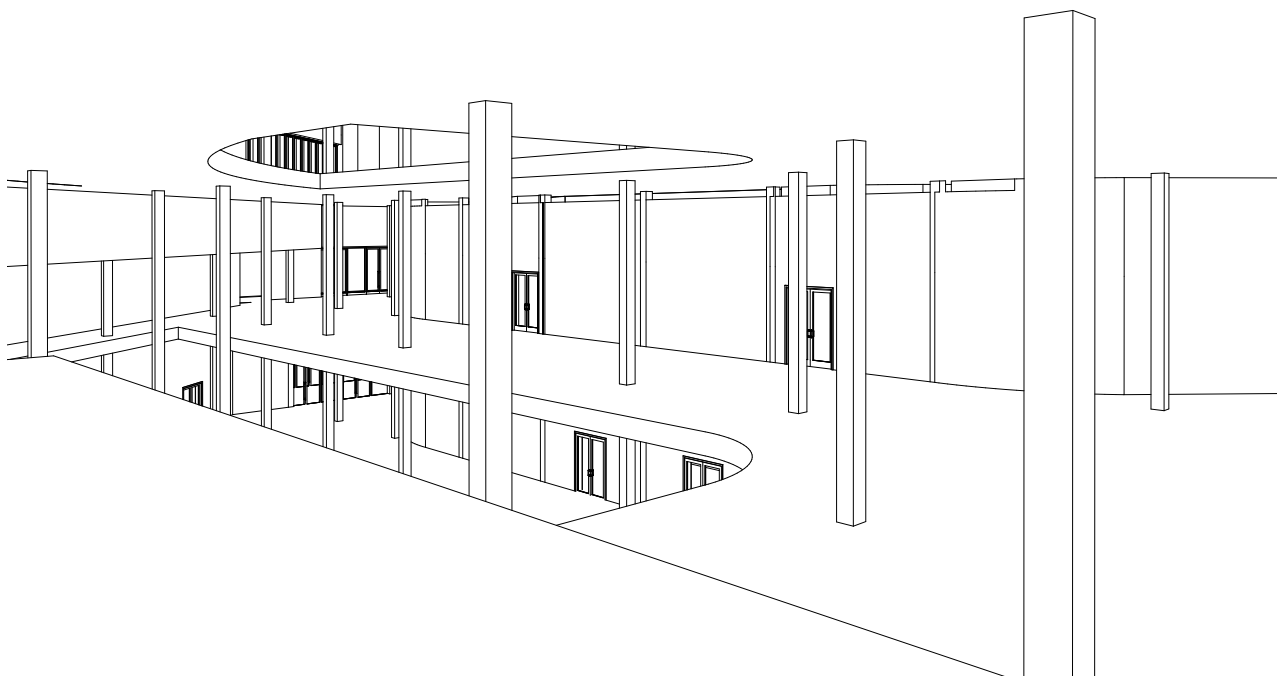


Diagram G.11 Interior perspective - Foyer, own diagram

In the foyer, the curved wall of the concert hall will provides diffusion. The wall will improve the overall sound quality in the Foyer, while avoiding added sound effects such as echo or reverberation.

Applying an acoustic wooden panels, which improves the sound absorption. Sound absorbing surfaces will reduce disturbing noises and shorten the stressing reverberation time.

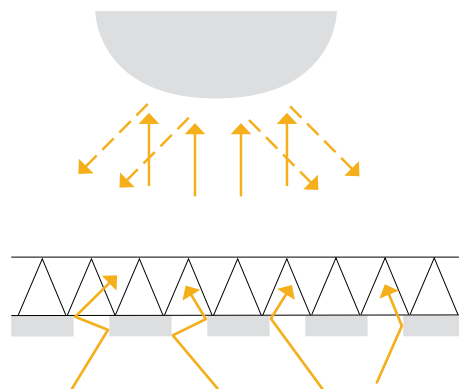
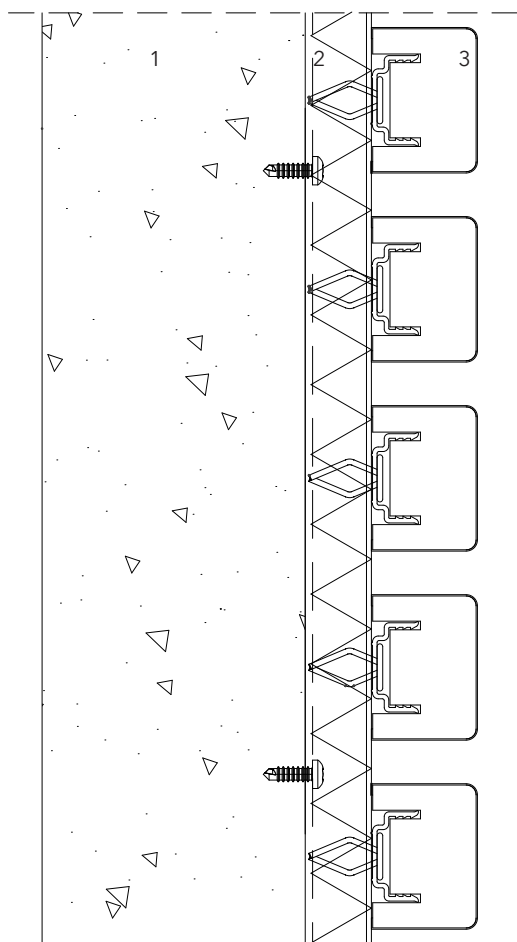


Diagram G.12 Acoustic principles foyer, own diagram



1. Concrete wall
2. Insulation
3. Acoustic panel / Wood

Diagram G.13. Detail -Acoustics timber panel, own diagram



Figure G.5. Slatted timber panels, Gustafs Linear Rib - Lecture Hall At Umeå University

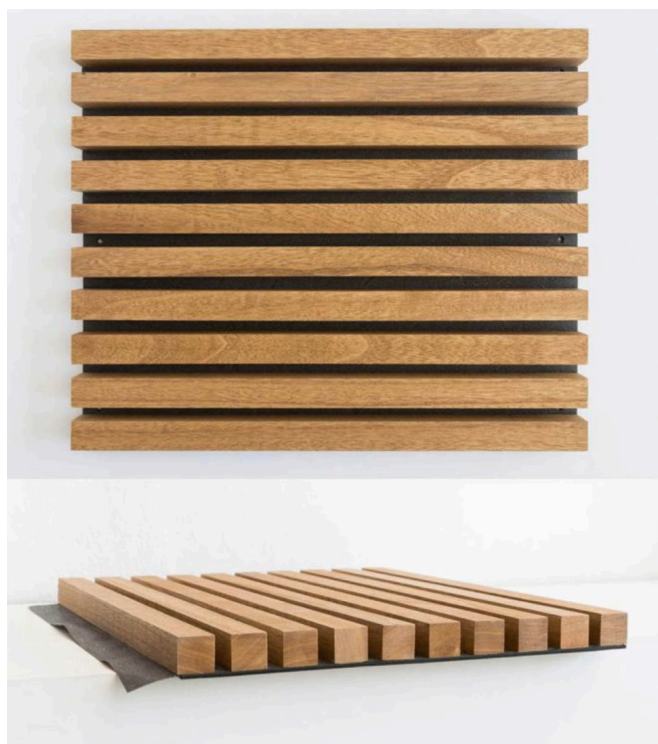
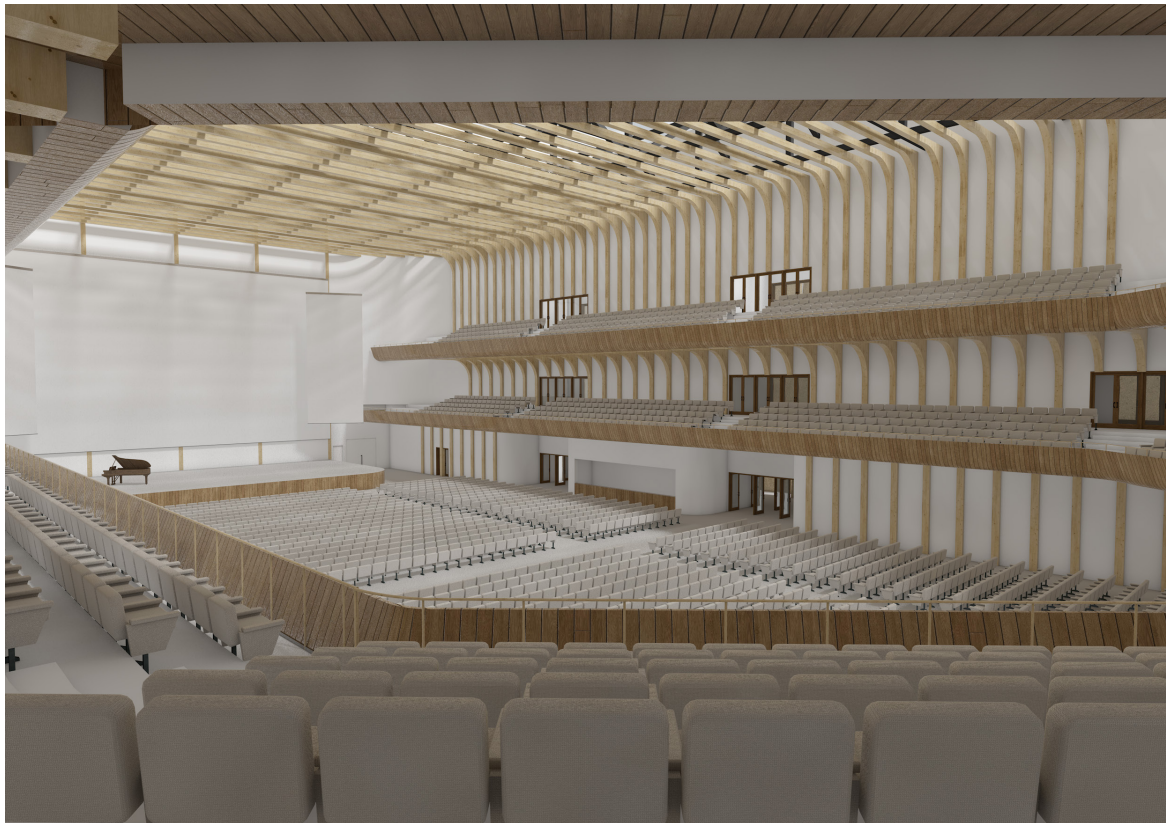


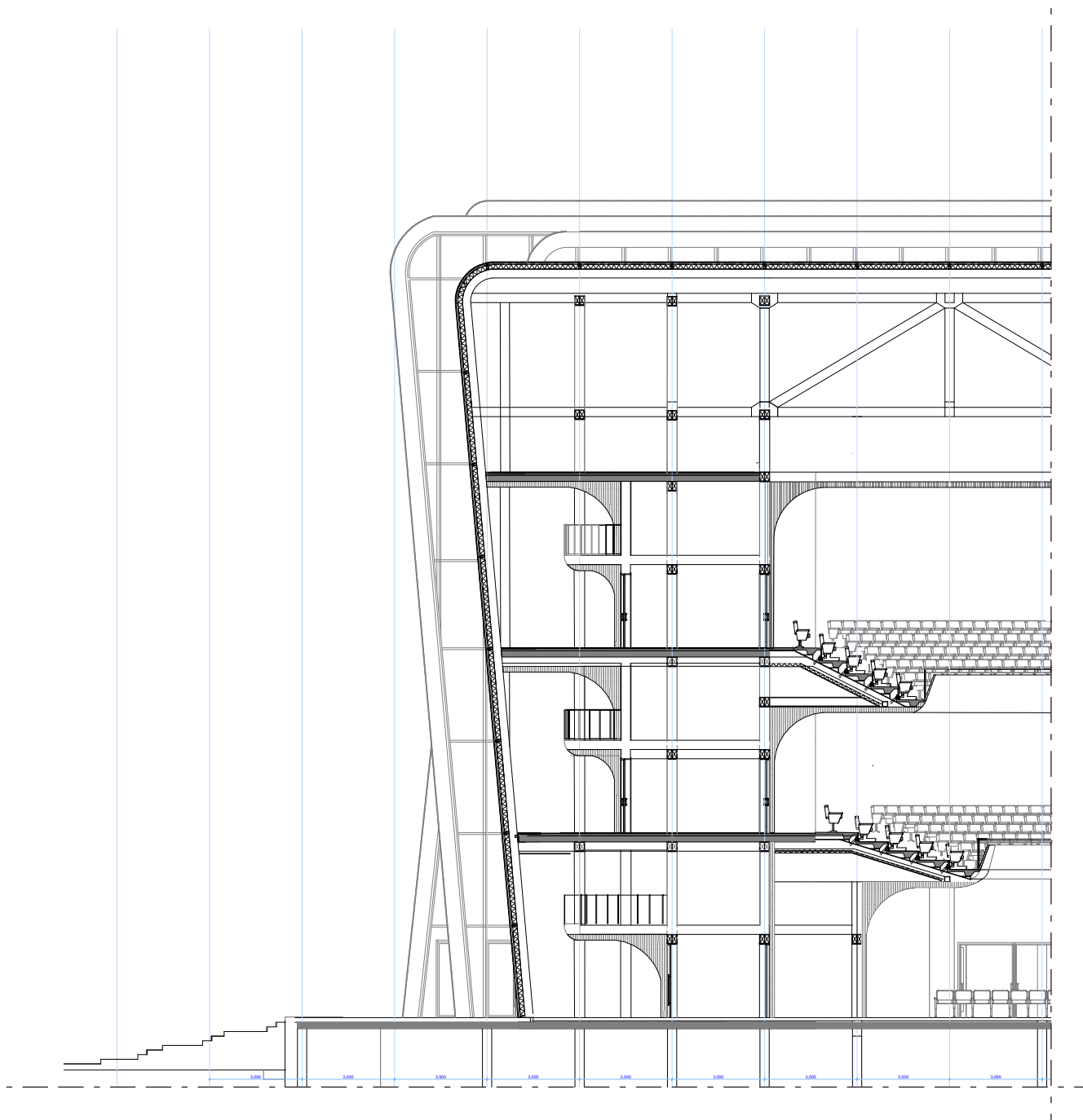
Figure G.6. Slatted timber panels, Gustafs Linear Rib



Visual G.31 Interior Concert hall 1, own visual



Visual G.3. Interior Foyer, own visual



Drawing G.4. Section, own drawing

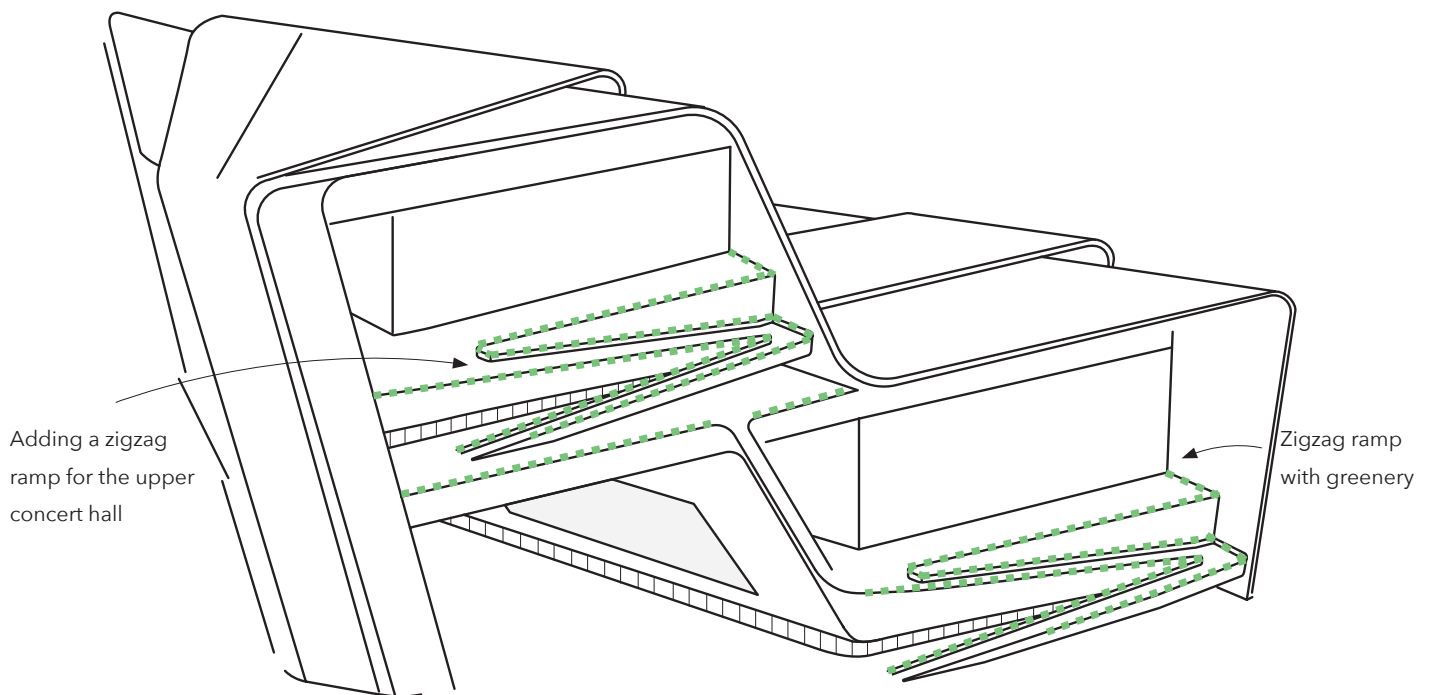
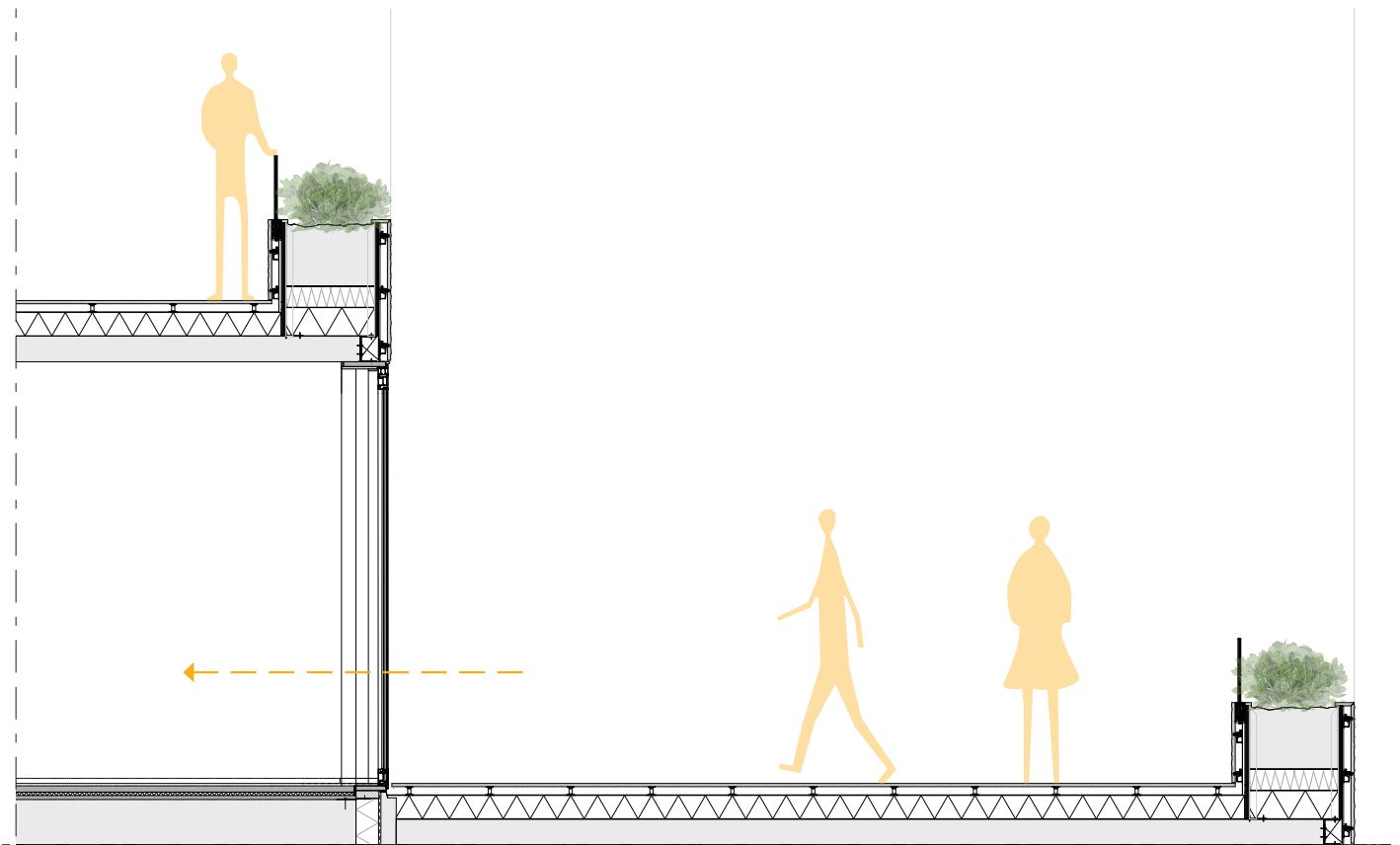
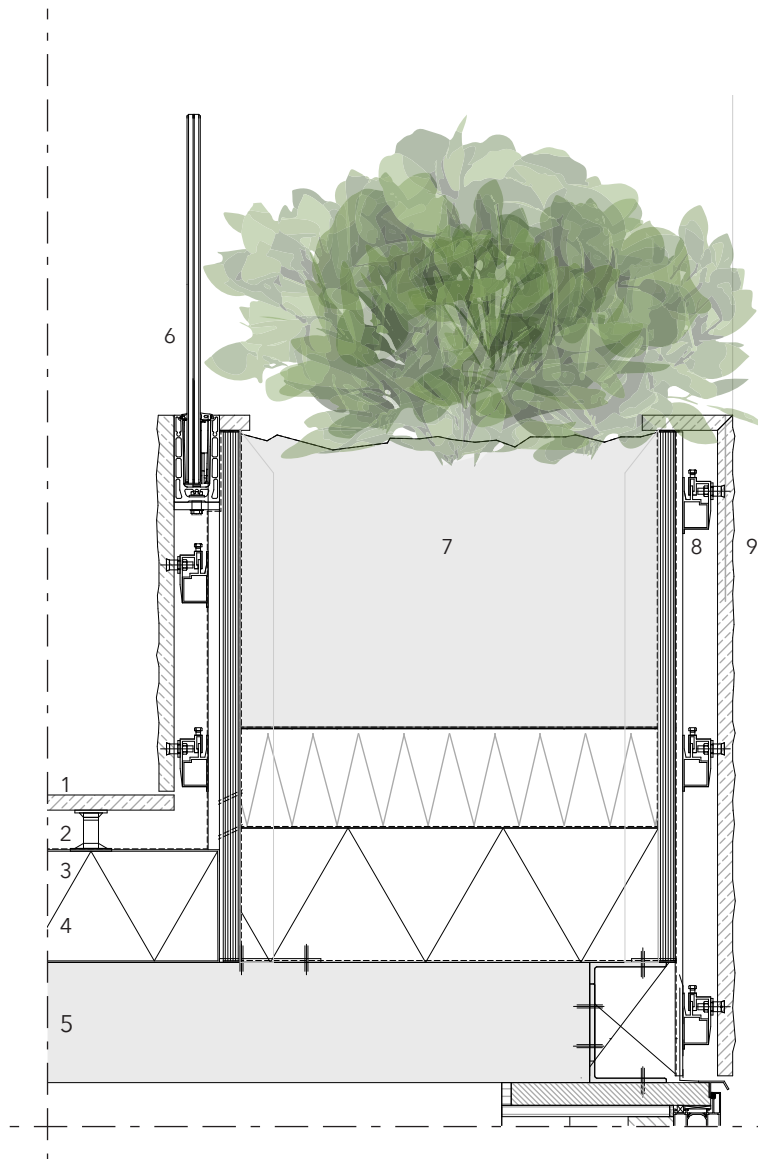


Diagram G.14: Facade and Greenery Music Building, own diagram



Drawing G.4. Facade section / ramp, own drawing



Drawing G.5. Detail [1:10]

- 1. Natural Stone / Limestone Floor
- 2. Terrace pedestals
- 3. Waterproof layer
- 4. Thermal insulation with inclination
- 5. Reinforced concrete floor slab
- 6. Glass balustrade
- 7. Planting soil
 - Filter fabric
 - Drainage deck
 - Waterproof layer
 - Thermal insulation
- 8. Fixing Elements
- 9. Natural Stone / Limestone Facade

Design and Materialisation

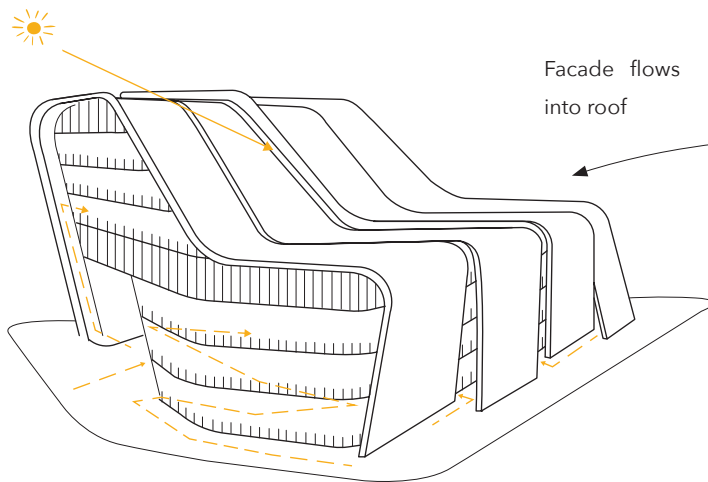


Diagram G.15. Facade flows into roof, own diagram



Figure G.7. Doha Metro Network by UN Studio

Relevant materials:

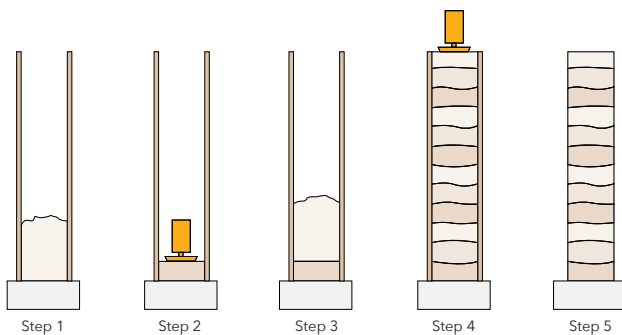


Figure G.8. Glass windows and Wooden slats - by Reflex-fasad

Rammed-earth wall

1. The first layer of moist earth (mixture of sand, gravel, clay and concrete) is filled in reinforced plywood formwork
2. The layer of moist earth is compressed with a pneumatic backfill tamper
3. Next layer of moist earth is added
4. The process is repeated to height of wall
5. Once dry, the formwork is removed to reveal the rammed earth wall

Diagram G.16. Rammed-earth wall, construction diagram, own diagram



Figure G.9. Rammed-earth walls - Observation Tower by De Gouden Liniaal Architecte

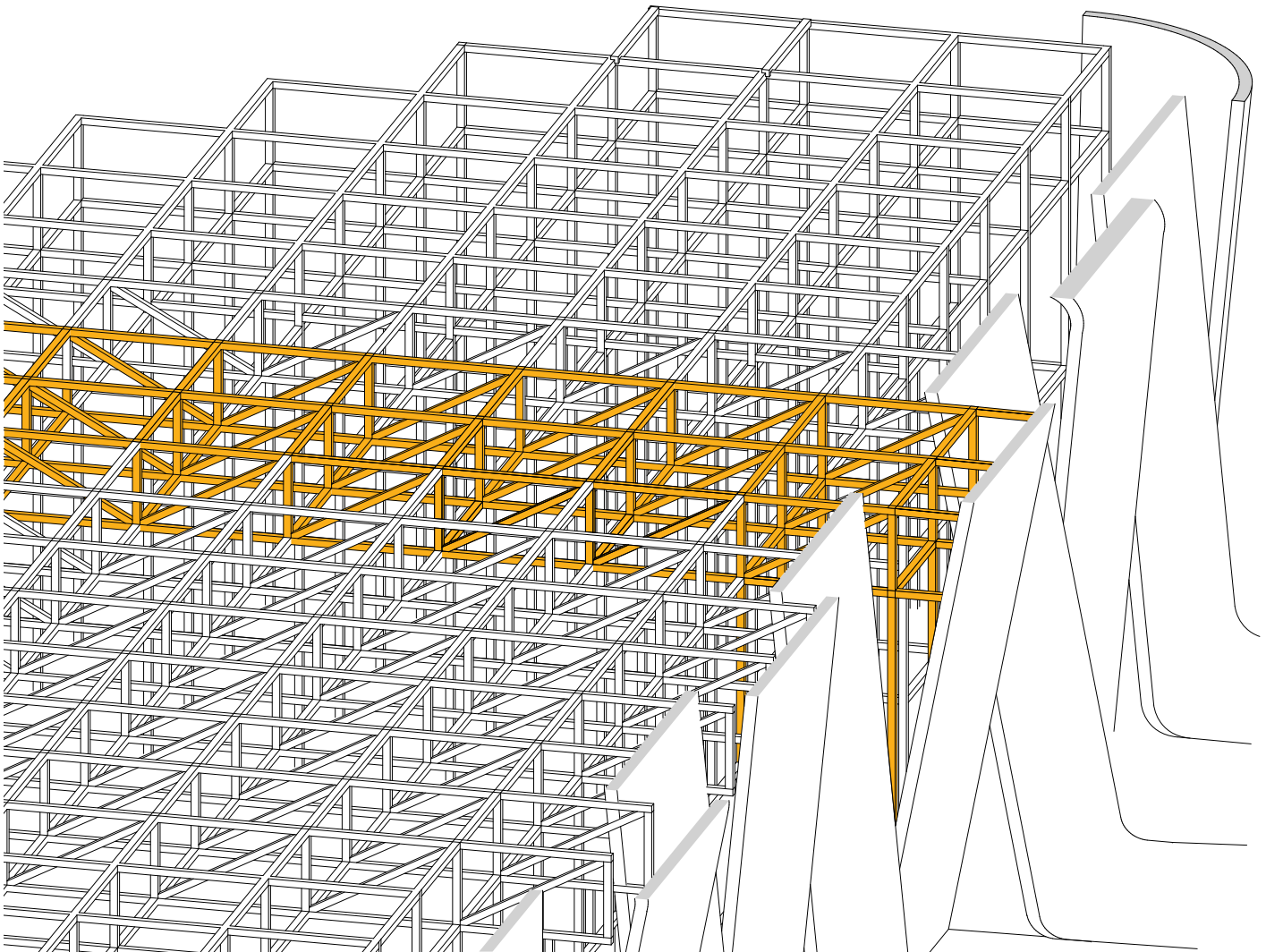


Diagram G.17. Construction - Facade Connection

Curved, timber columns and beams inside the music building, similar to what is shown in Figure G.10. This principal can also be applied in the concert hall under the balconys.



Figure G.10. Øslo public space by KØS Studios

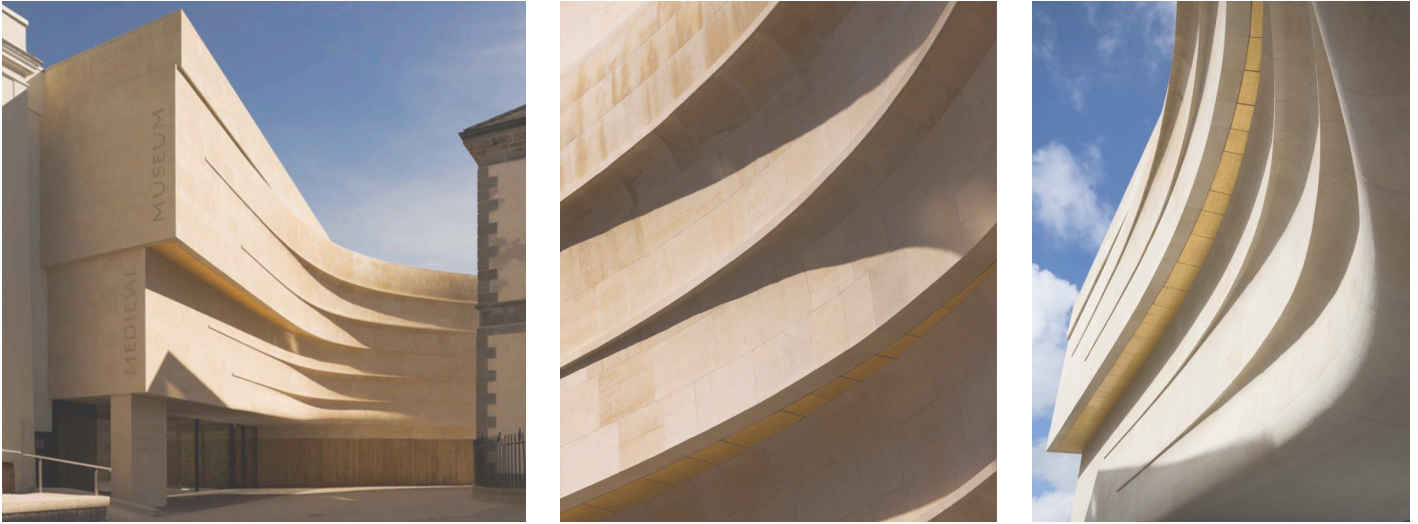


Figure G.11. Limestone facade - Medieval Museum by Stephen Burke Architectural Sculptor

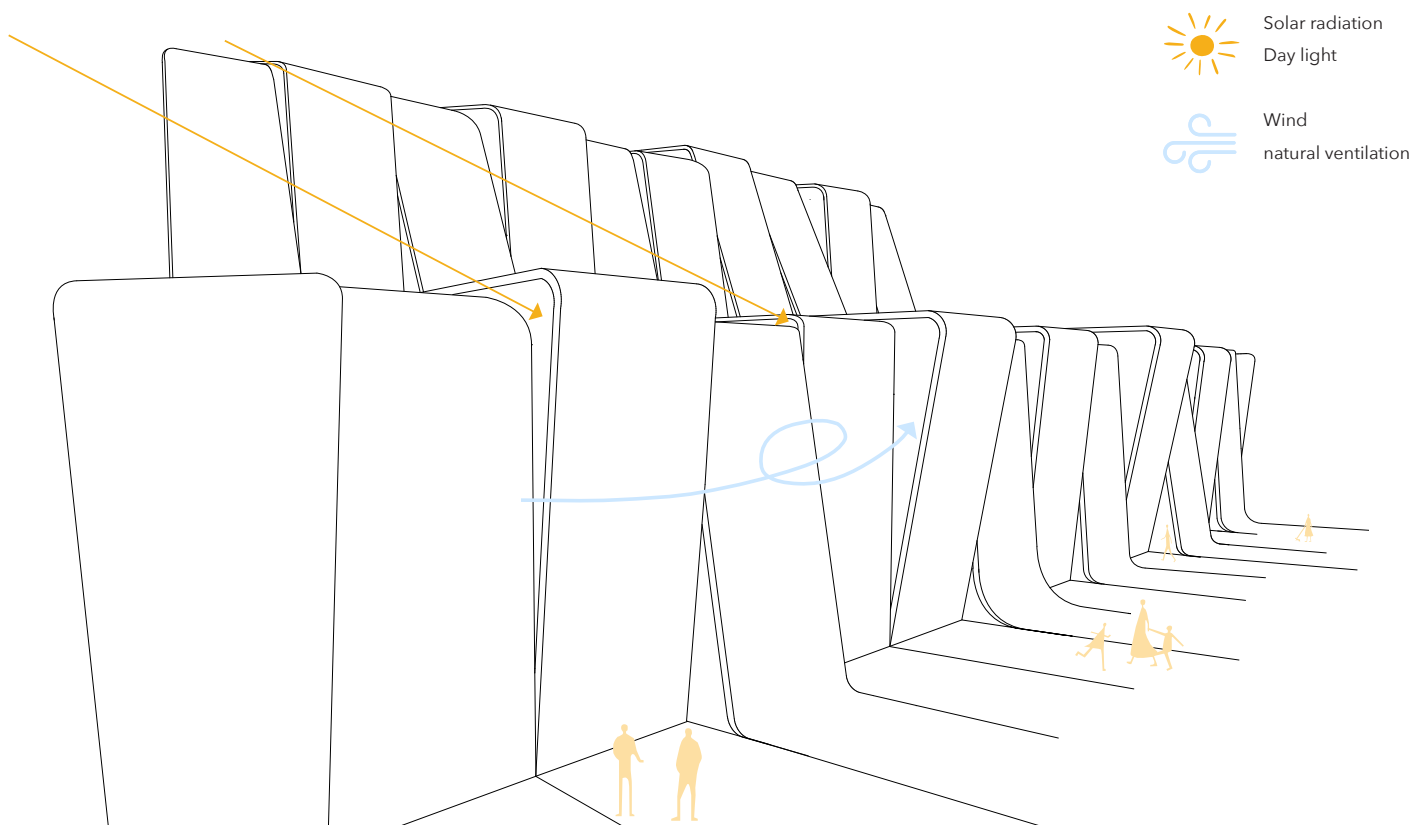


Diagram G.18. Climate Diagram, own diagram

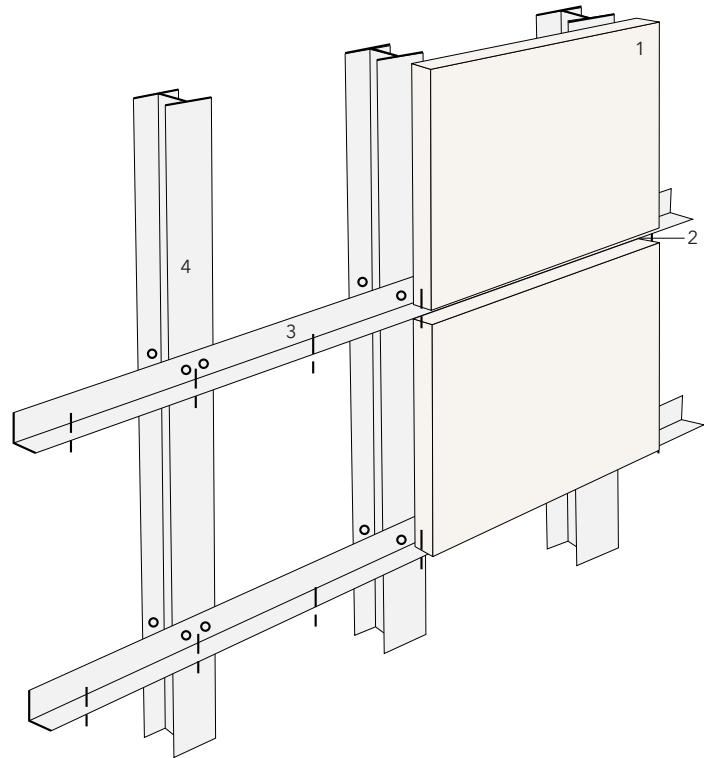
This staggered facade is created to make the facade more lively (instead of one closed facade). Through the openings access to the building is possible. This makes it possible, for example, to enter the café through one of the openings. In addition, this provides daylighting

and natural ventilation possibilities. Also, emergency exits will be placed between the staggered facades, reducing the escape route from the concert hall. This part of the facade will consist of limestone cladding and glazing.

Limestone Facade Detail -

Construction Diagram

1. Limestone panel (60mm)
2. Caulk joint between panels
3. Top and bottom for limestone anchorage (horizontal rail)
4. Construction vertical struts



5. Limestone Panel (60mm)
6. Hairline joint between panels
7. Open joint between panels
8. Insulation
9. Plywood Boars fixed to timber joists to support insulation
10. Bracket and hanger
11. Timber joists
12. Timber beam

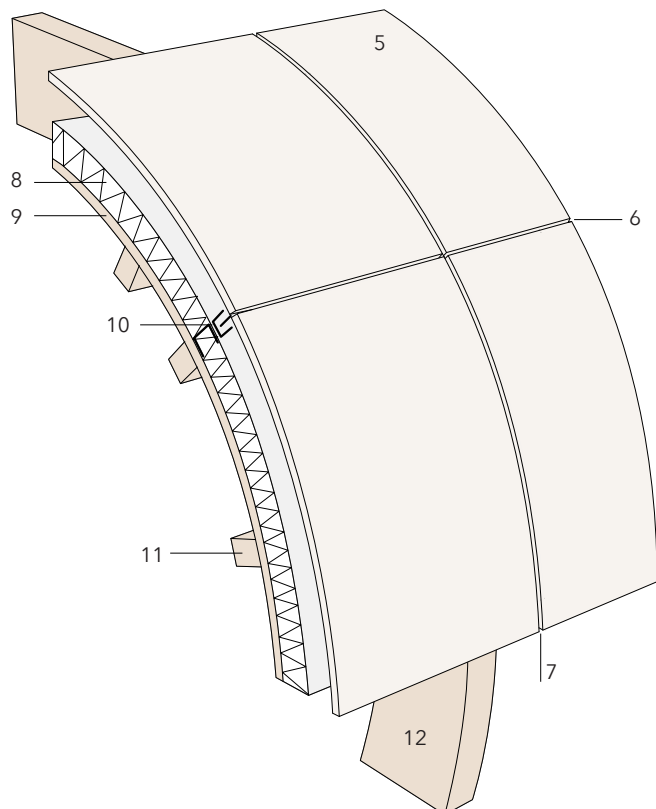


Diagram G.19. Limestone facade, own diagram



Visual G.3. Music building East facade, own visual



Visual G.4. Music building East facade, own visual

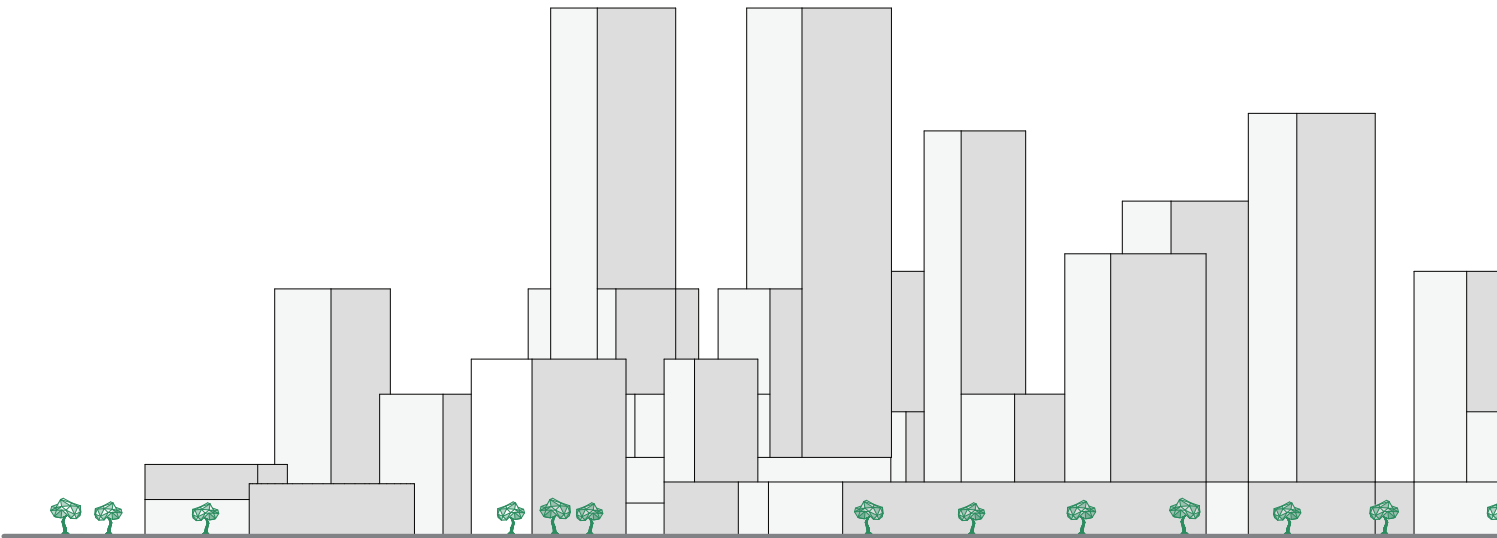
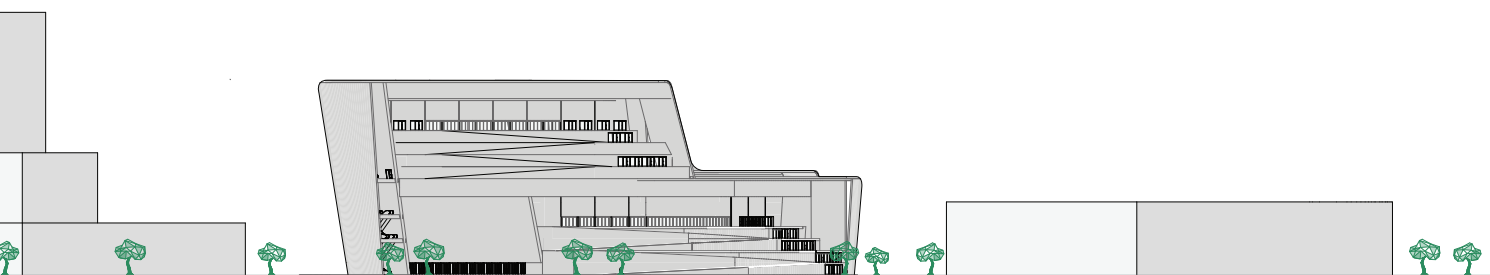


Diagram G.20. Profile, showing direct surroundings, own diagram



Visual G.5. Music building North facade, own visual



H. Final Design



Visual H.1. Music building - Form, own visual



Visual H.2. Music building North facade - perception from (new) train station, own visual





Diagram H.1. Access to the Music Building East Facade, own diagram

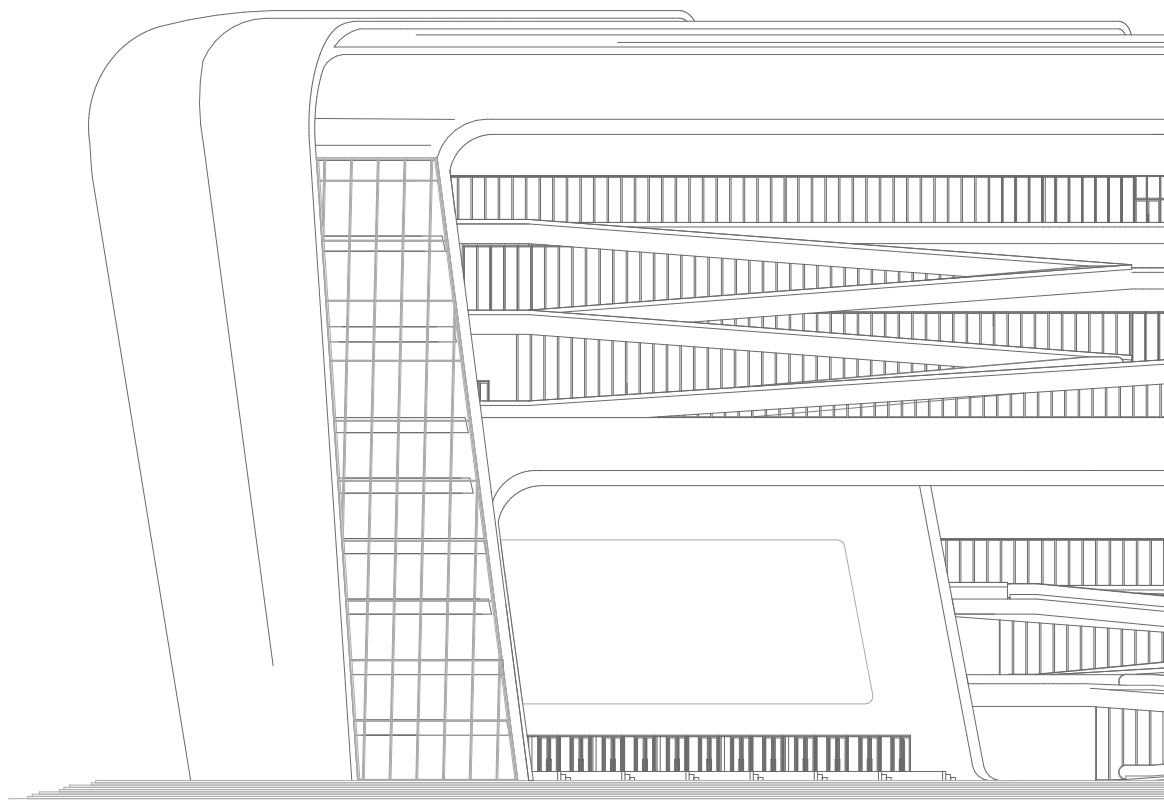


Visual H.2. Music Building East Facade, own visual

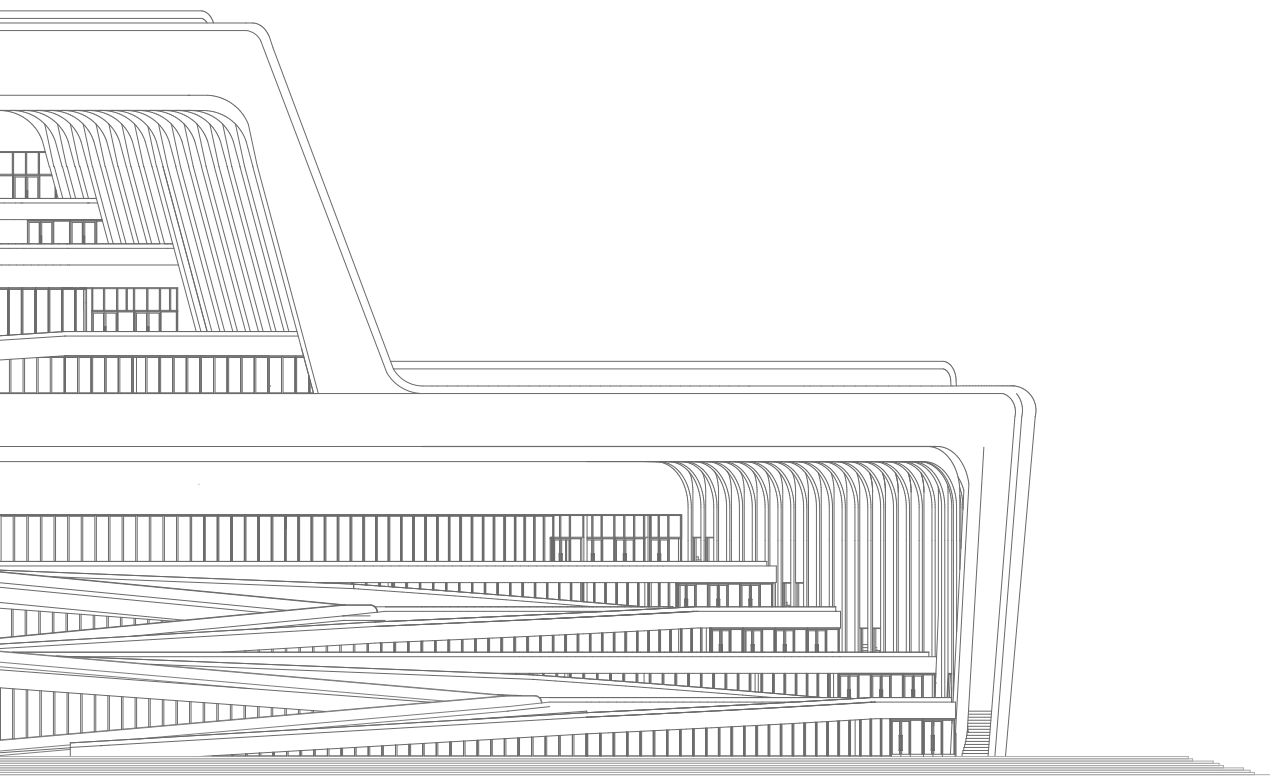


Visual H.4. Music building North-West facade, own visual

Elevation East



Drawing H.1. Elevation East, own drawing



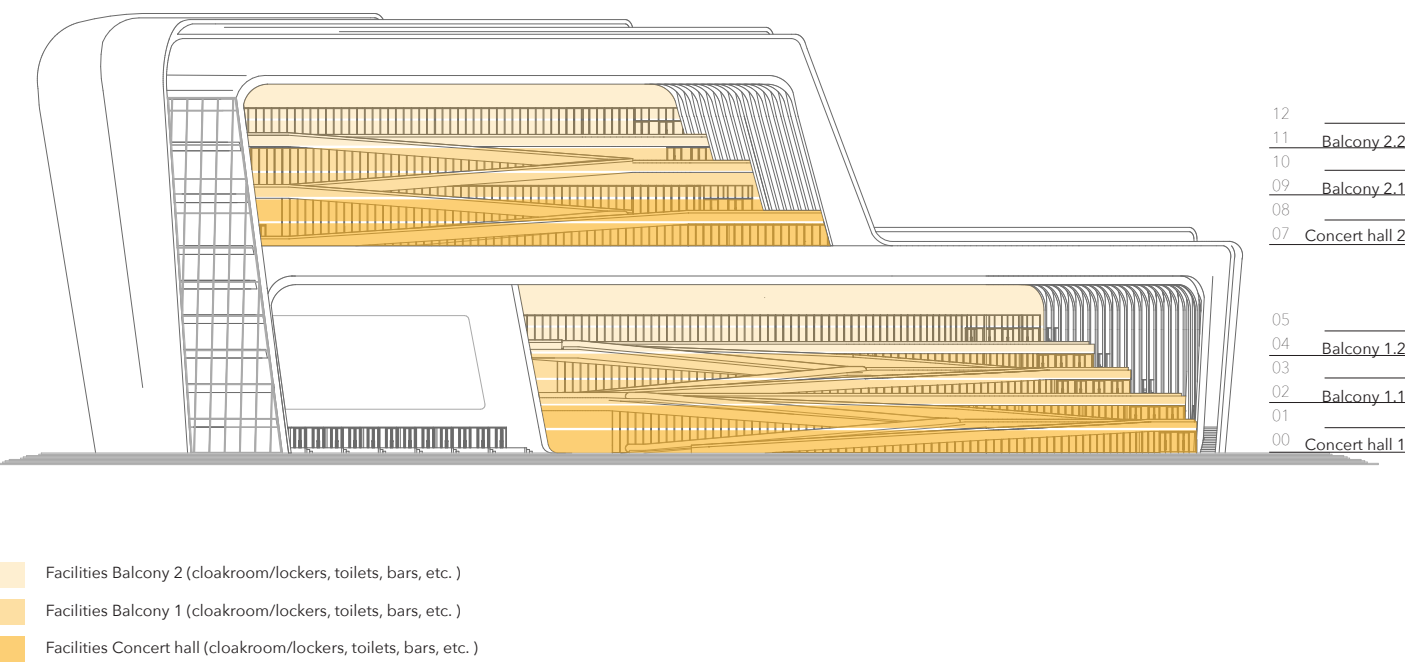
Program Music Building & Congress Center



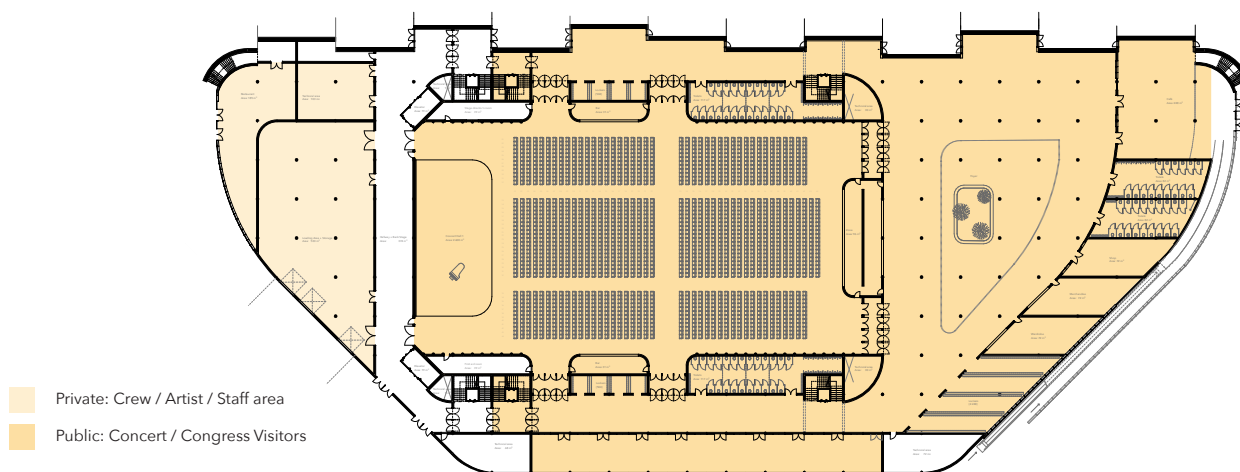
Diagram H.2: Program icons, own diagram

There are two concert halls in this music building and congress center. The large concert hall (Concert hall 1) is located on the ground floor, has a surface area of 2.600 m² and a capacity of 6.000 visitors. The small concert hall (Concert hall 2) is on top, has a surface area of 600 m² and a capacity of 1.250 visitors.

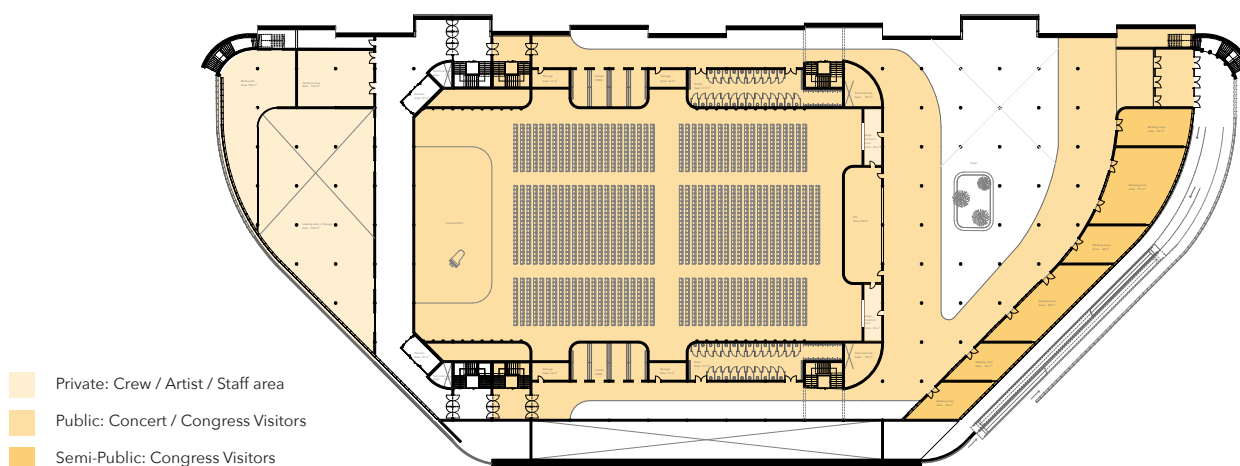
The facilities such as the cloakroom/lockers, toilets and bars are located around the concert hall. This is repeated every two floors. So, for example, if you have a ticket for balcony 1, you can hang up your coat, go to the restroom and get something to drink on the second and third floor.



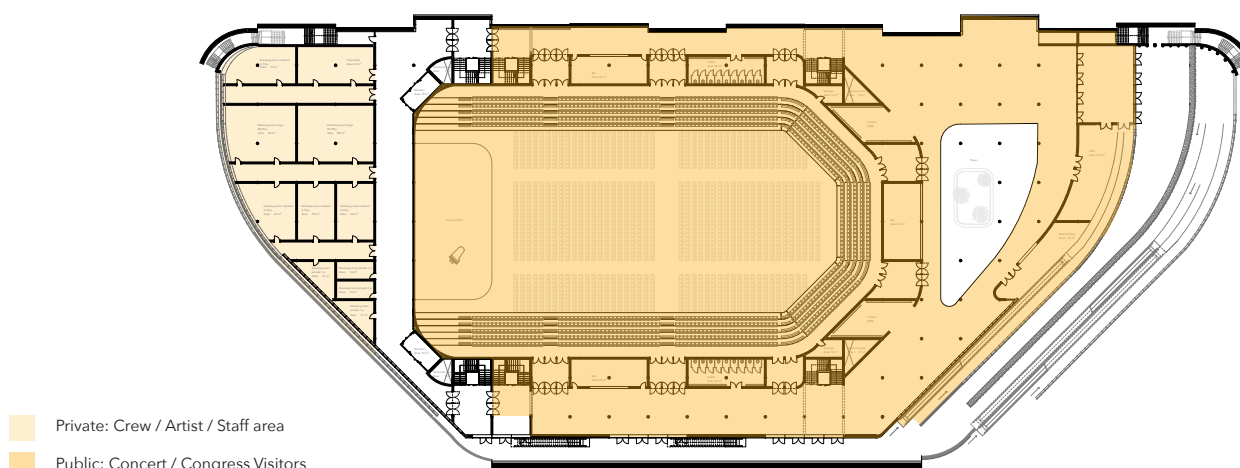
Drawing H.1. Facilities, own drawing



Drawing H.2. Public/Private - Ground Floor, Concert hall 1, own drawing



Drawing H.3. Public/Private - First Floor, Concert hall 1, own drawing



Drawing H.4. Public/Private - Second Floor, Concert hall 1, own drawing

Entrances and Routing

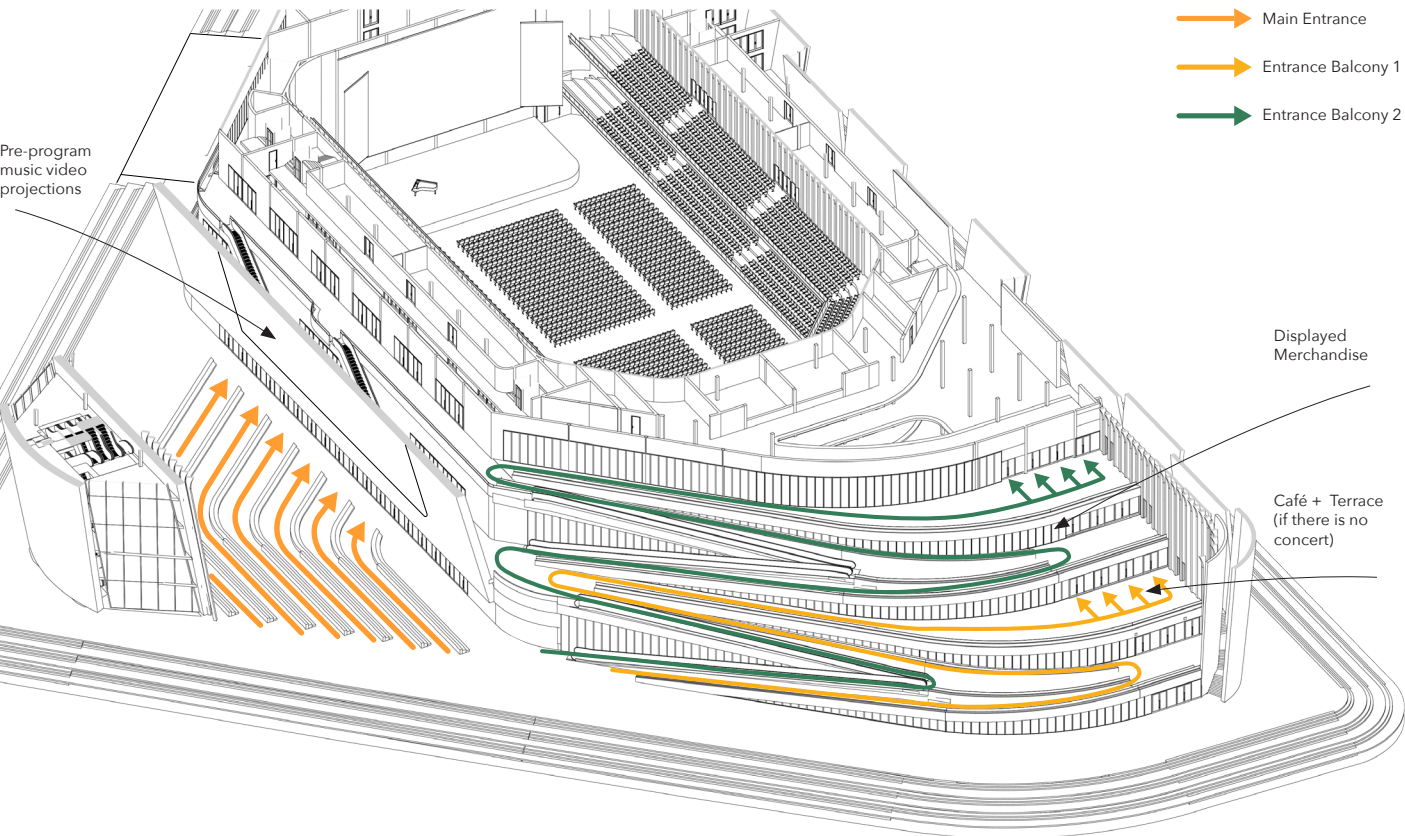


Diagram H.3. Entrances and Routing Concert Hall 1, own diagram

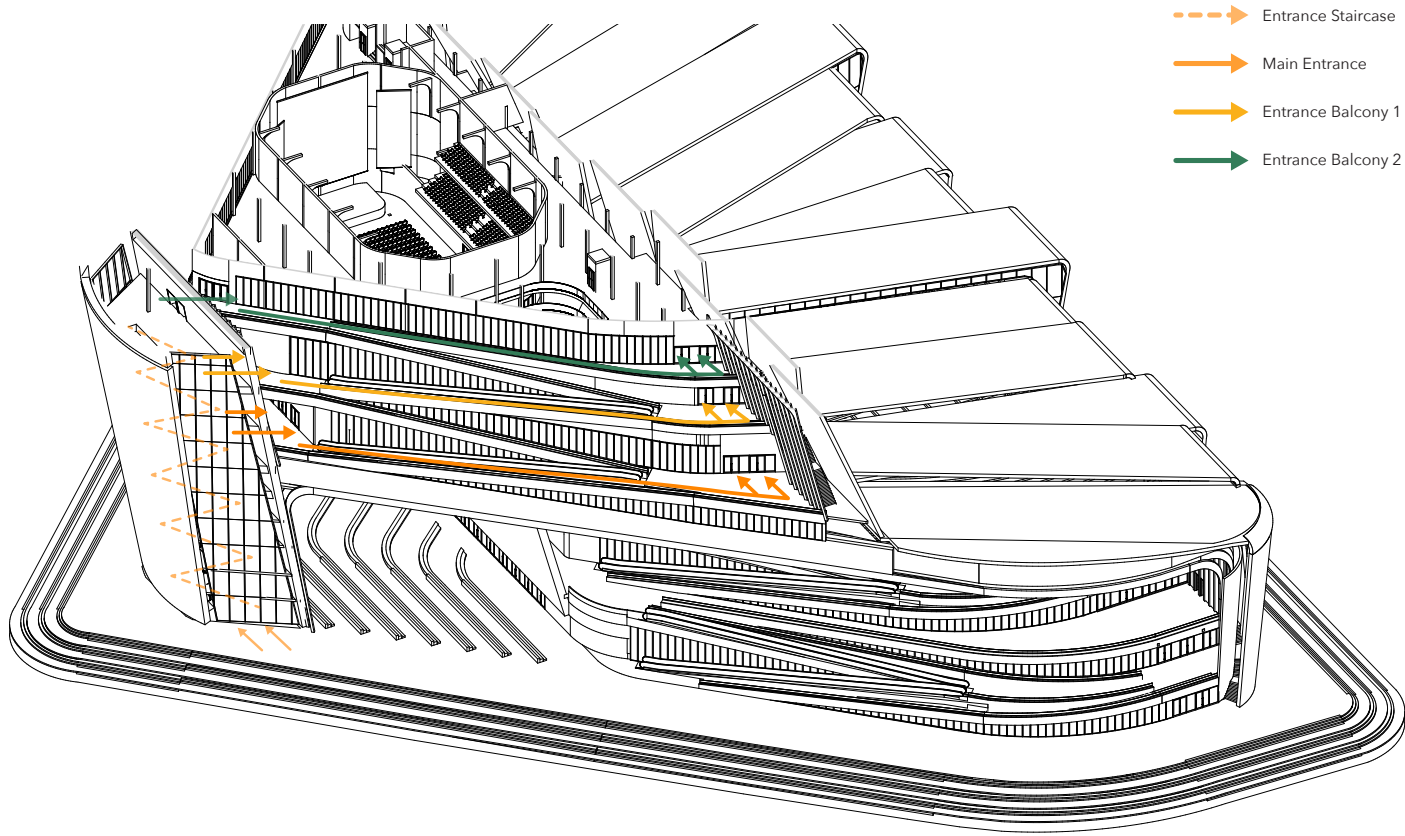
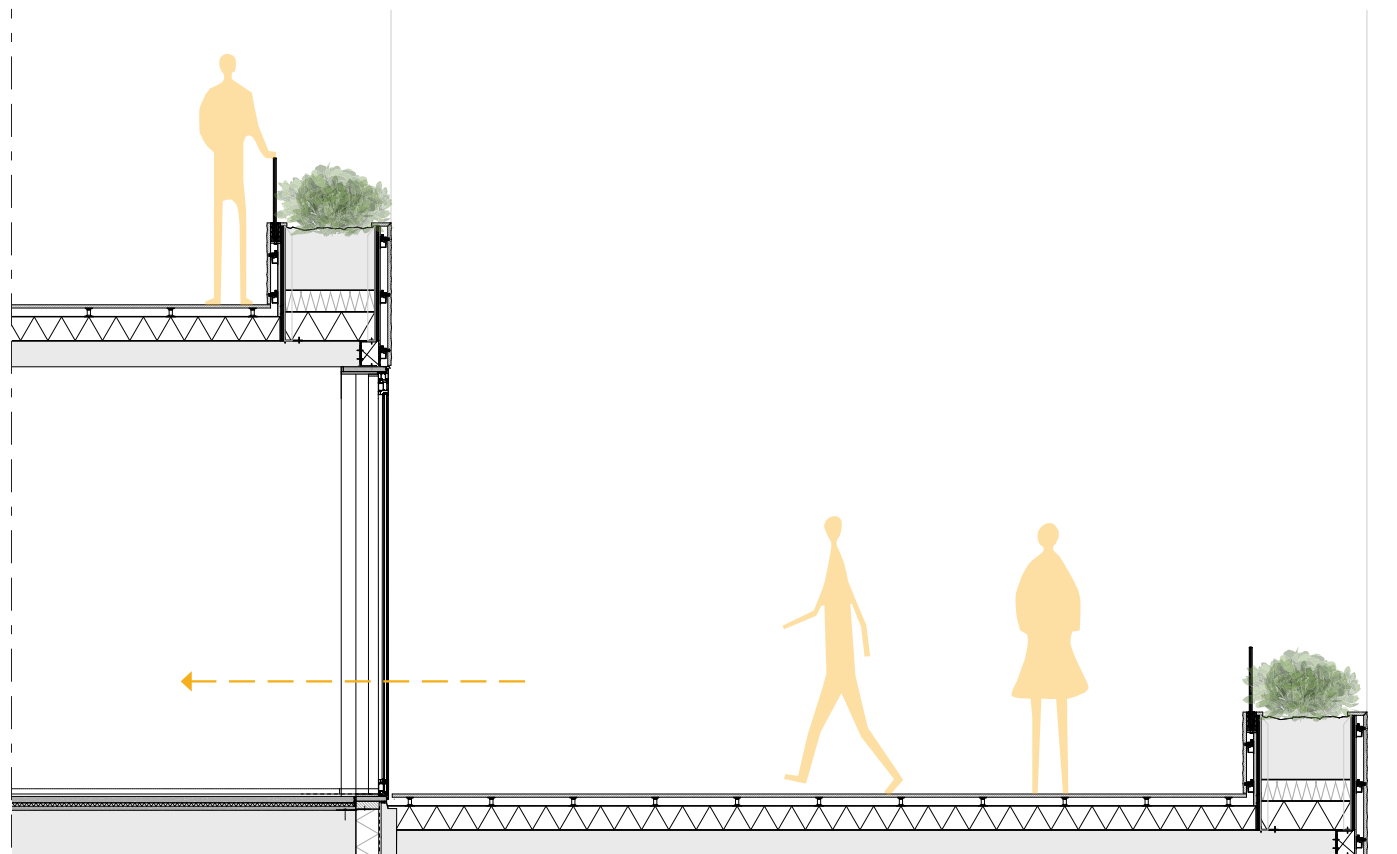


Diagram H.4. Entrances and Routing Concert Hall 2, own diagram



Visual H.5. Music building North-West facade, own visual



Drawing H.7. Facade section / ramp, own drawing

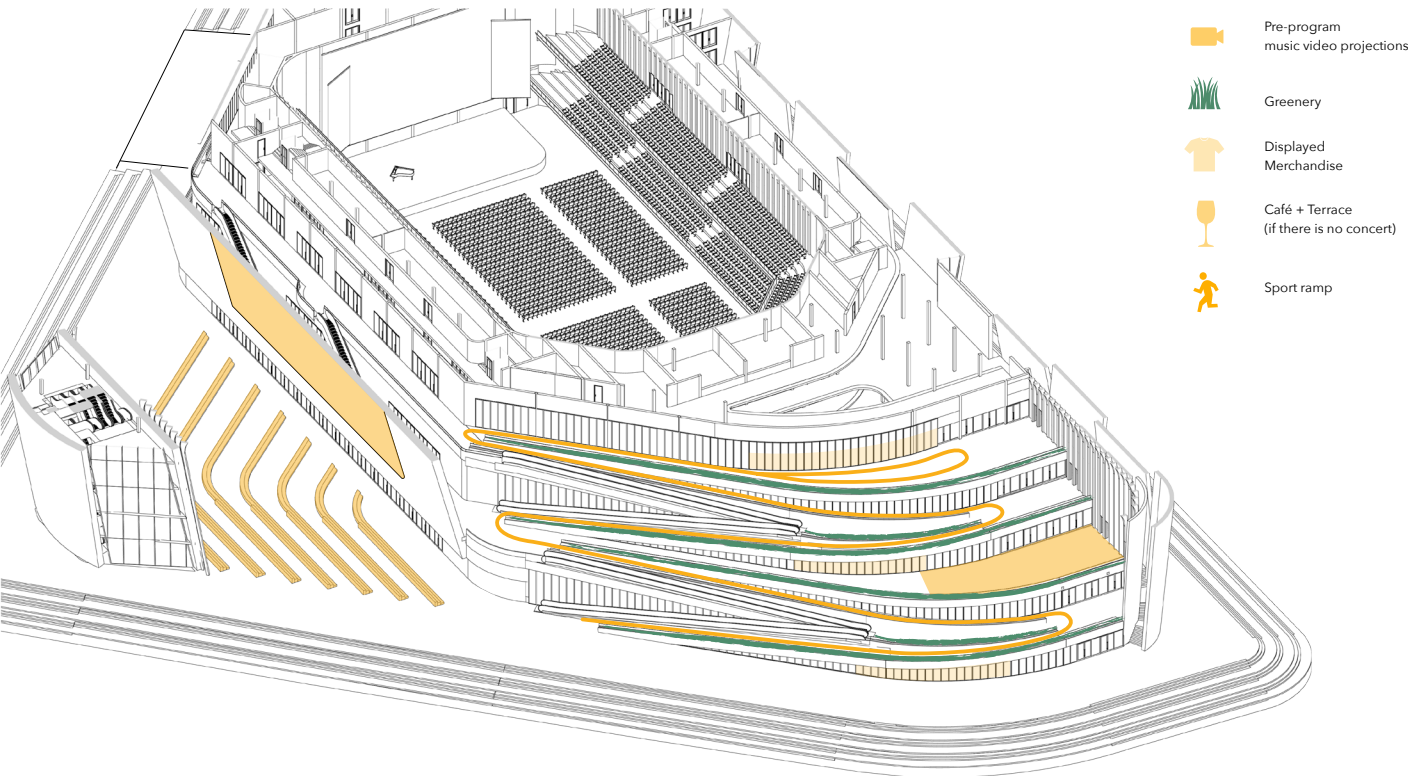
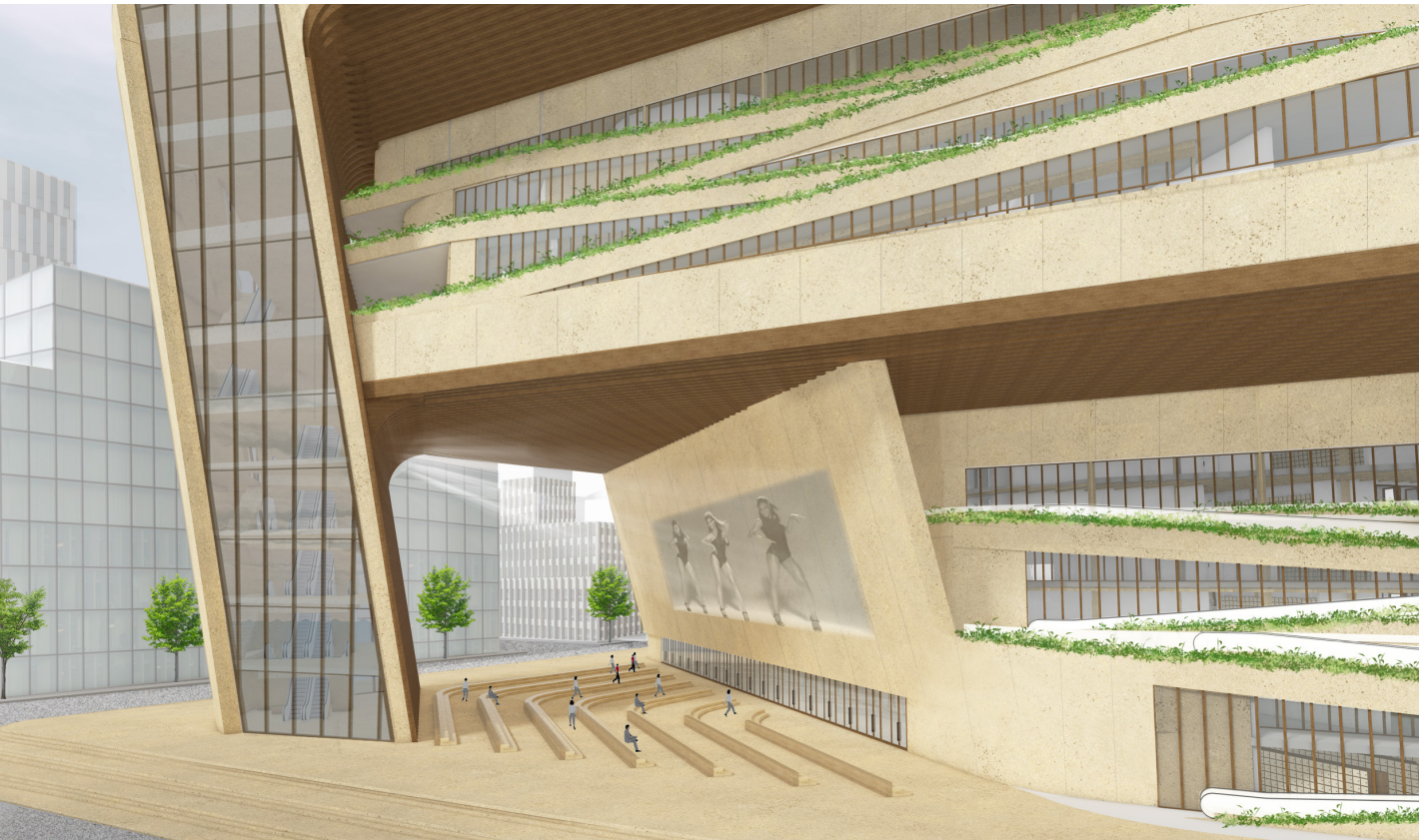


Diagram H.5. Multiplicity Music building, own diagram



Visual H.6. Music building East facade, own visual

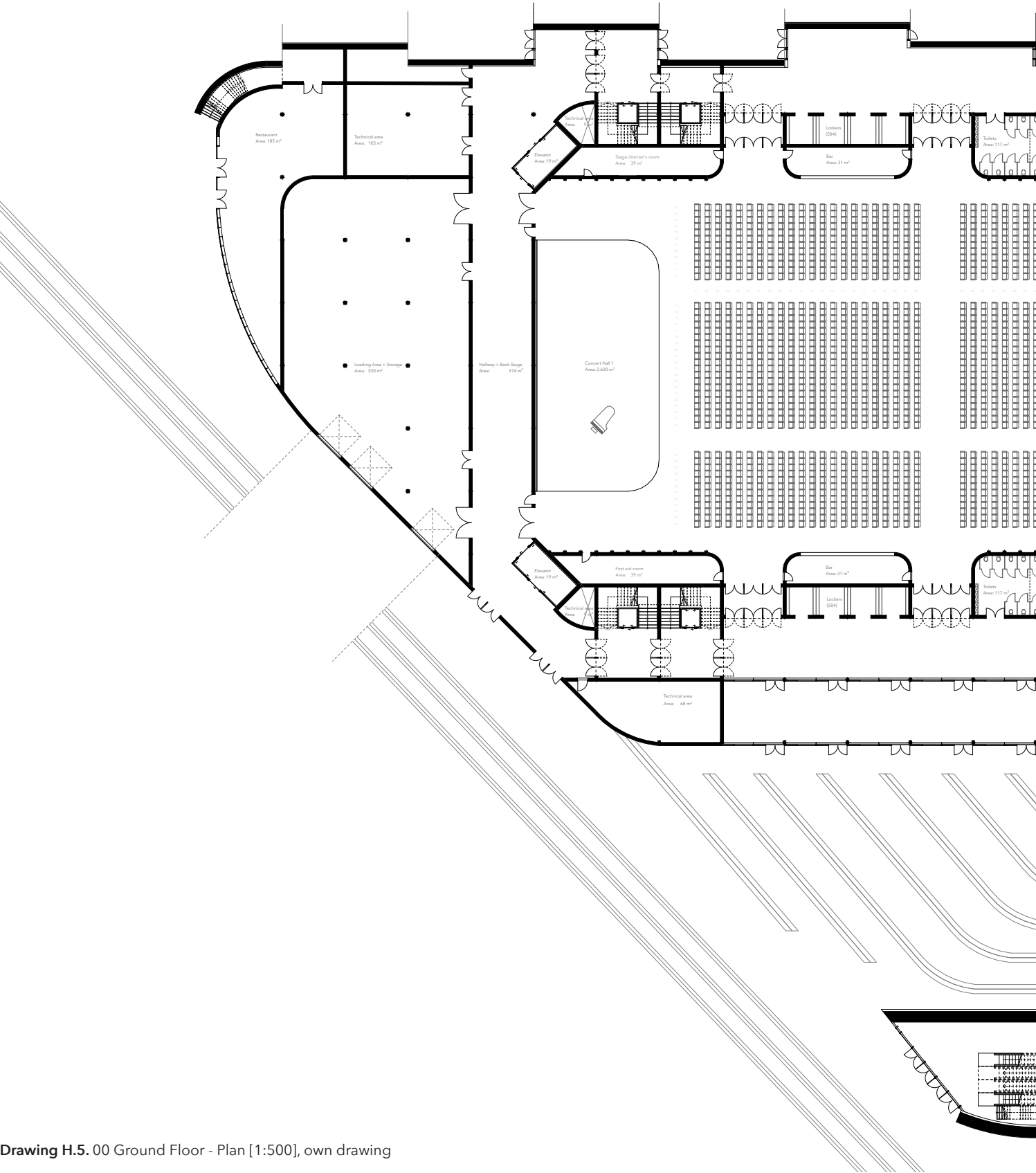


Visual H.7. Displayed Merchandise and Greenery Ramp - Music building, own visual

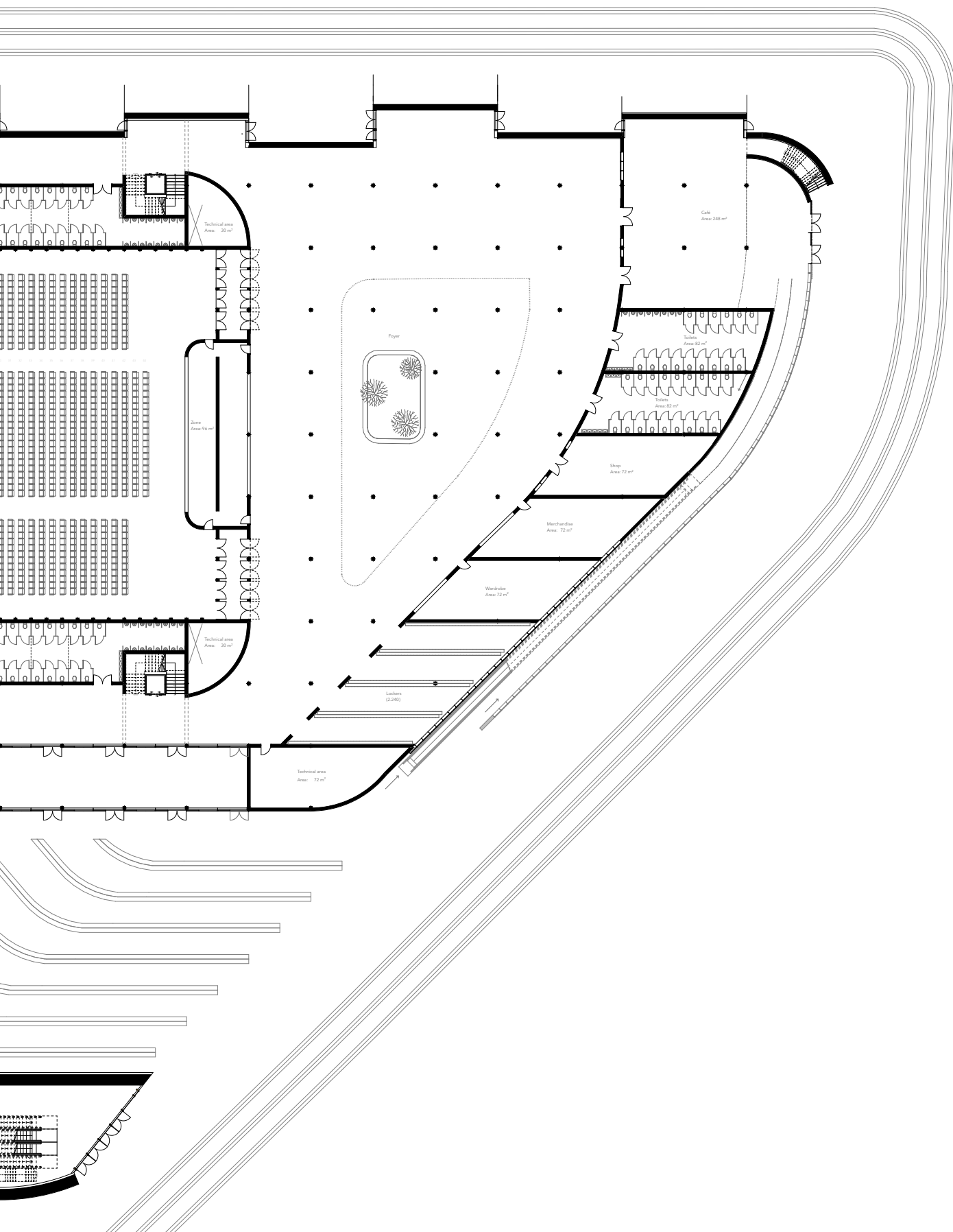


Visual H.8. Entrance Balcony 2.2 - 13th Floor - View, own visual

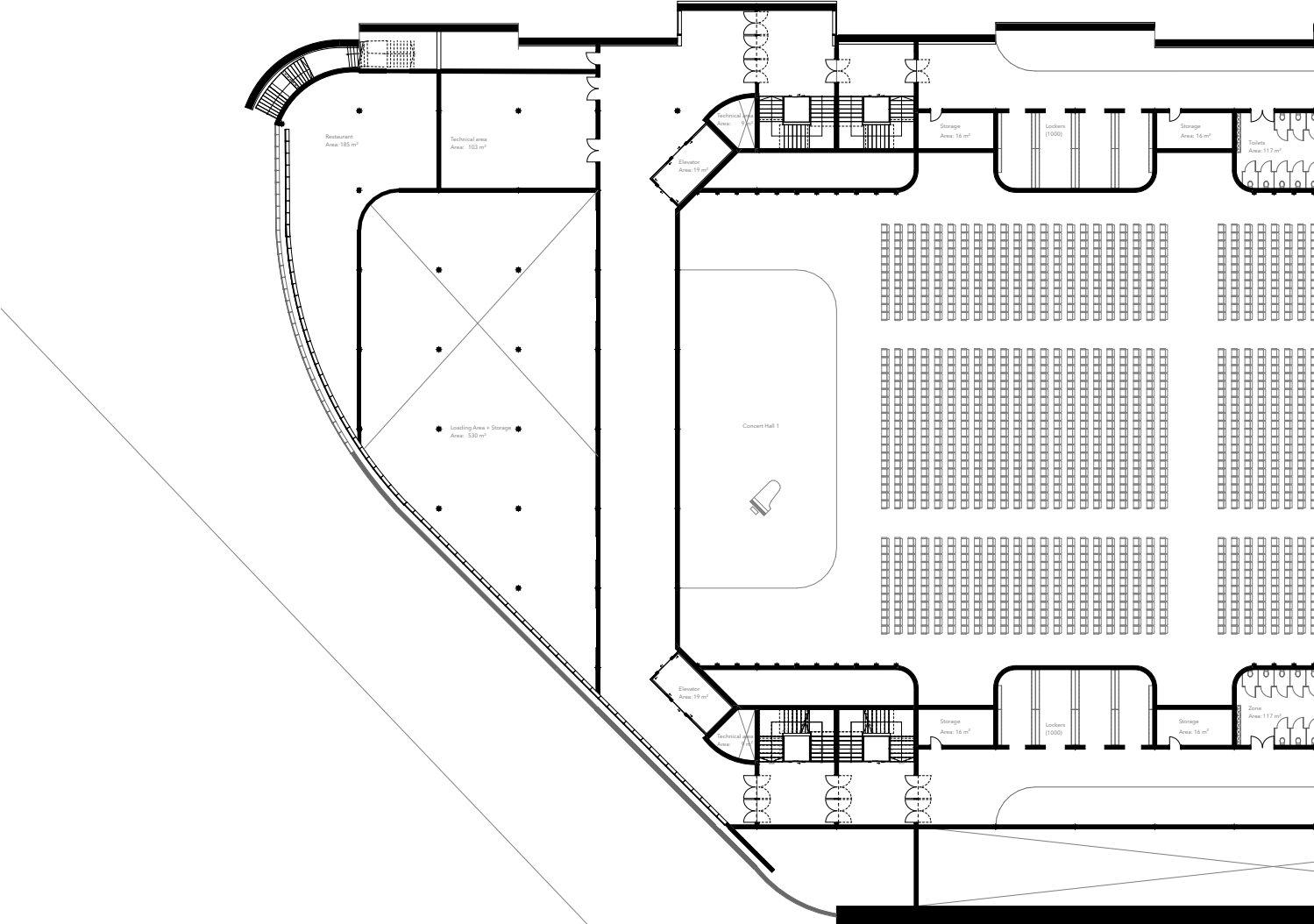
00 Ground Floor - Plan [1:500]



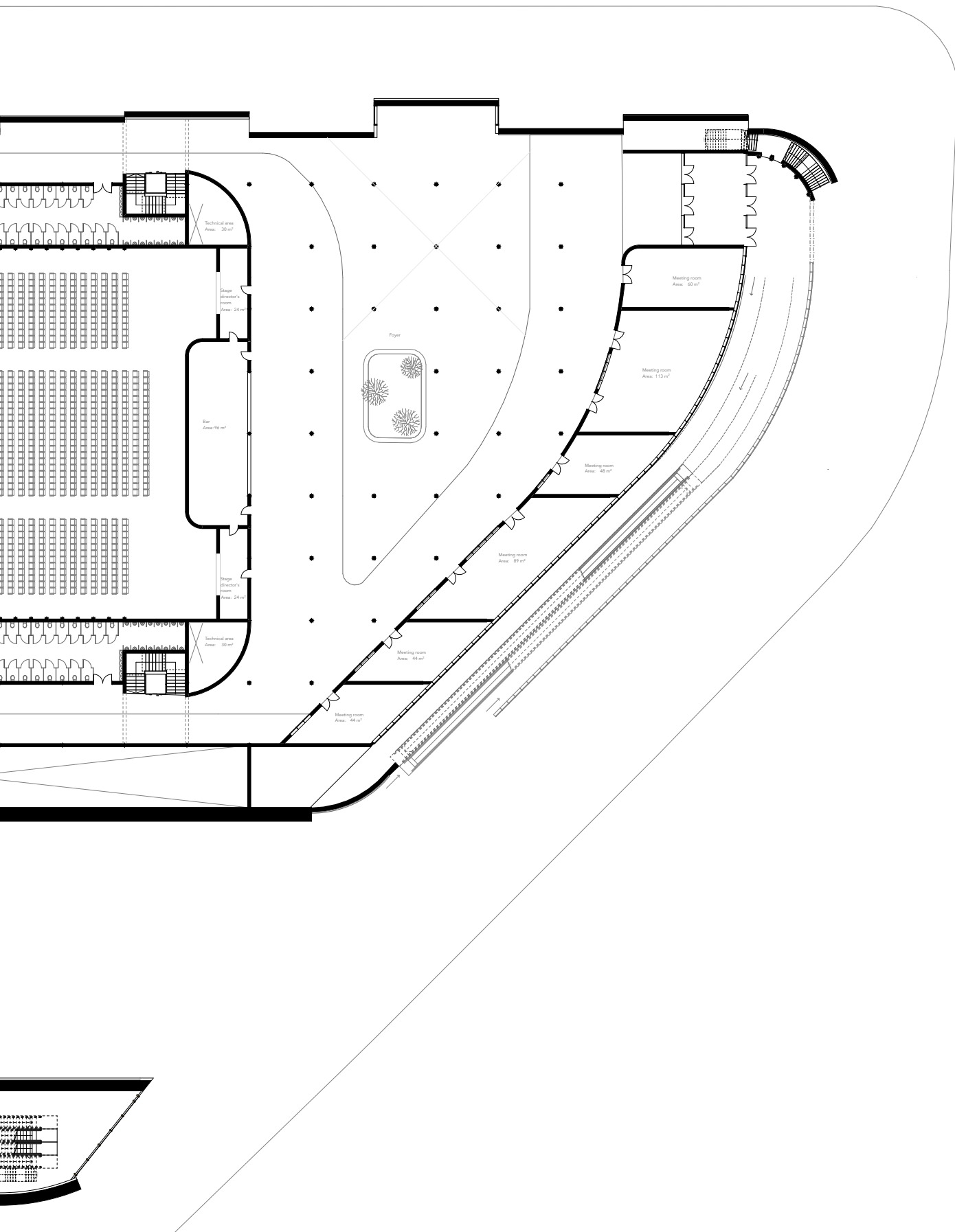
Drawing H.5. 00 Ground Floor - Plan [1:500], own drawing



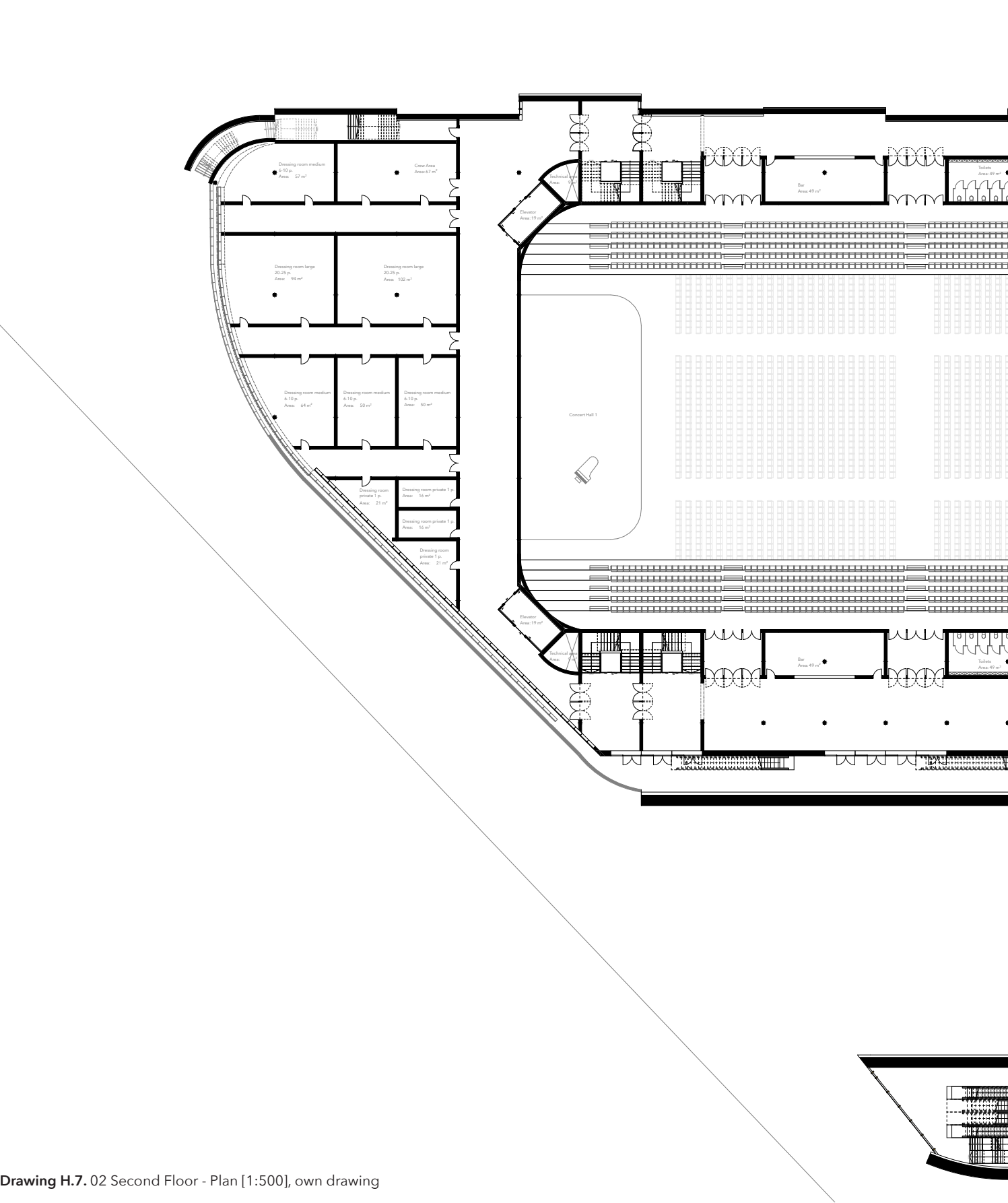
01 First Floor - Plan [1:500]



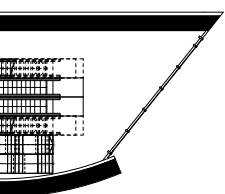
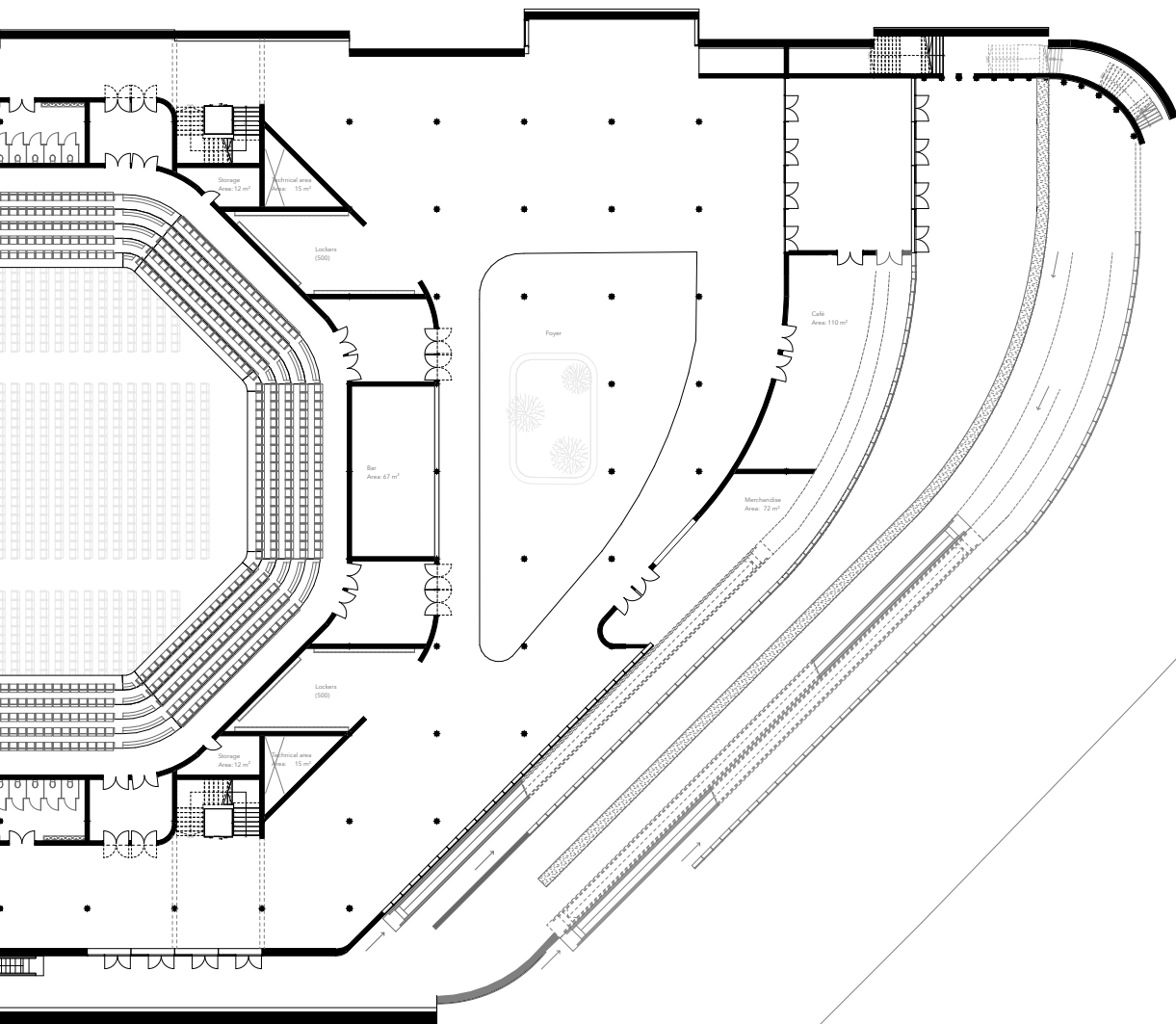
Drawing H.6. 01 First Floor - Plan [1:500], own drawing

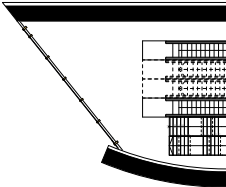


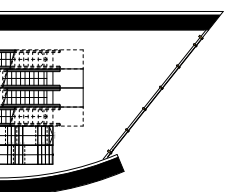
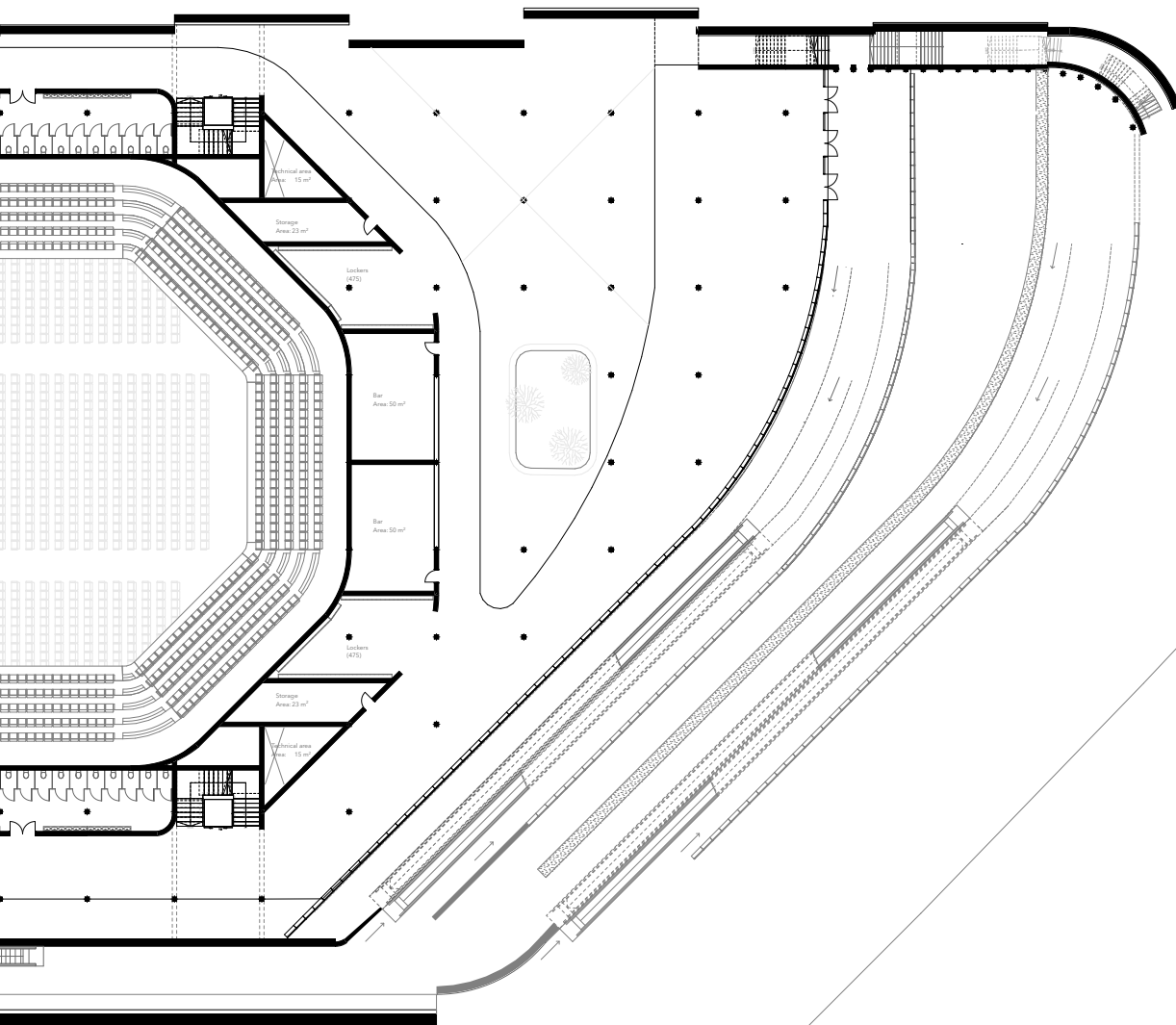
02 Second Floor - Plan [1:500]

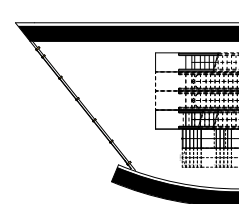


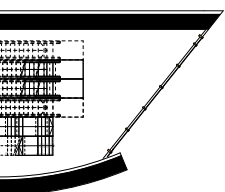
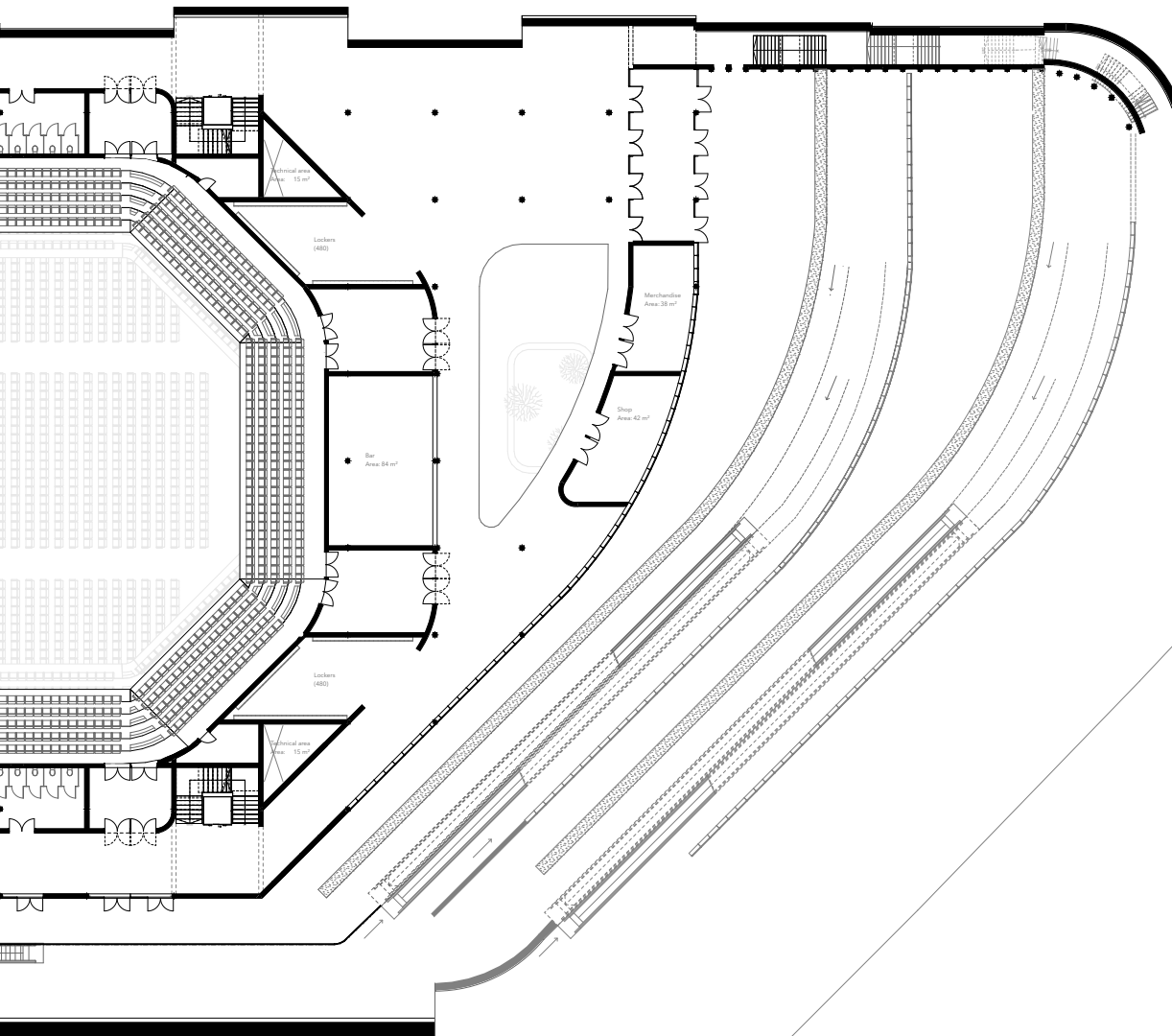
Drawing H.7. 02 Second Floor - Plan [1:500], own drawing



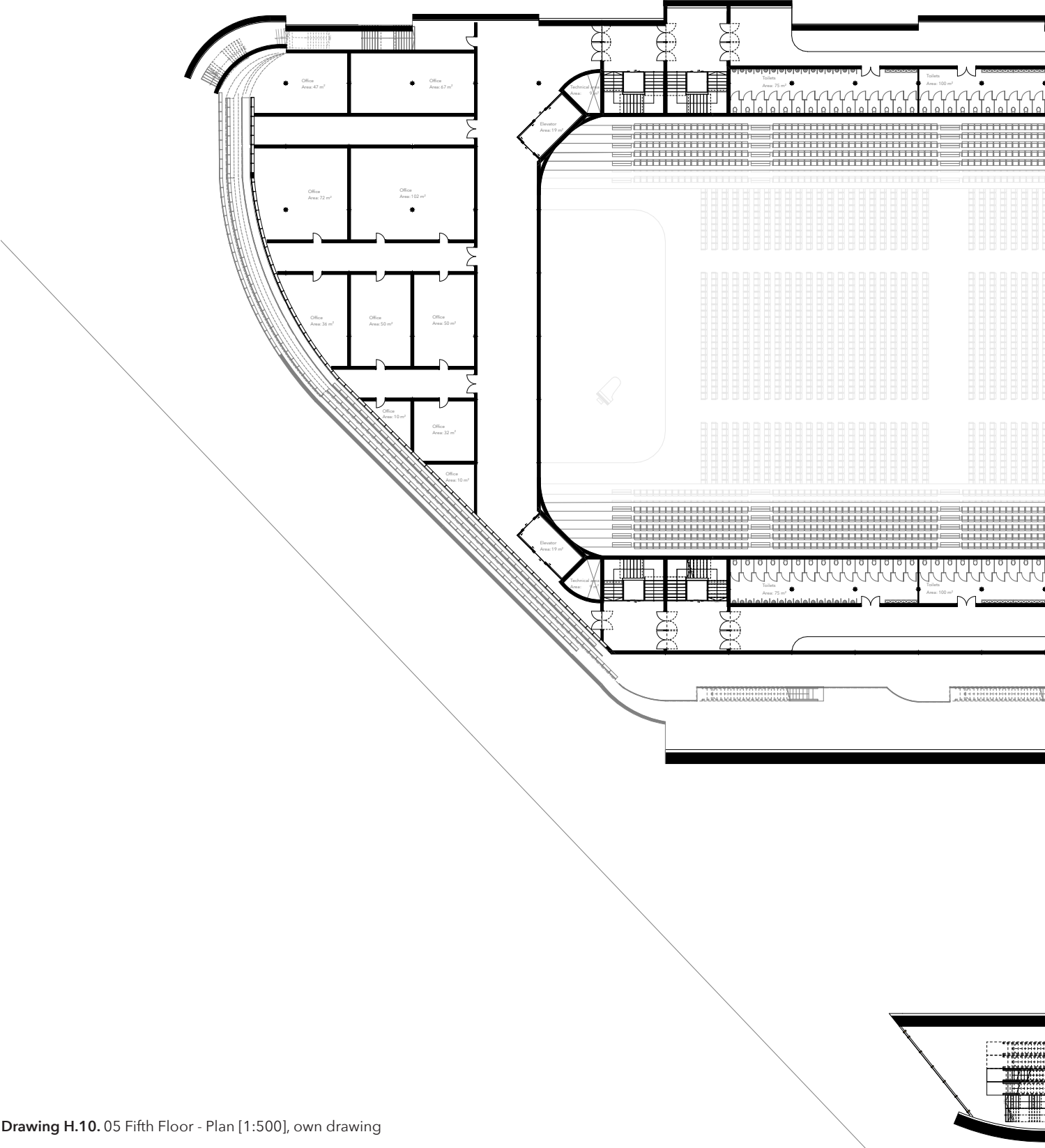




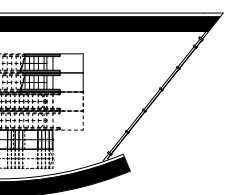
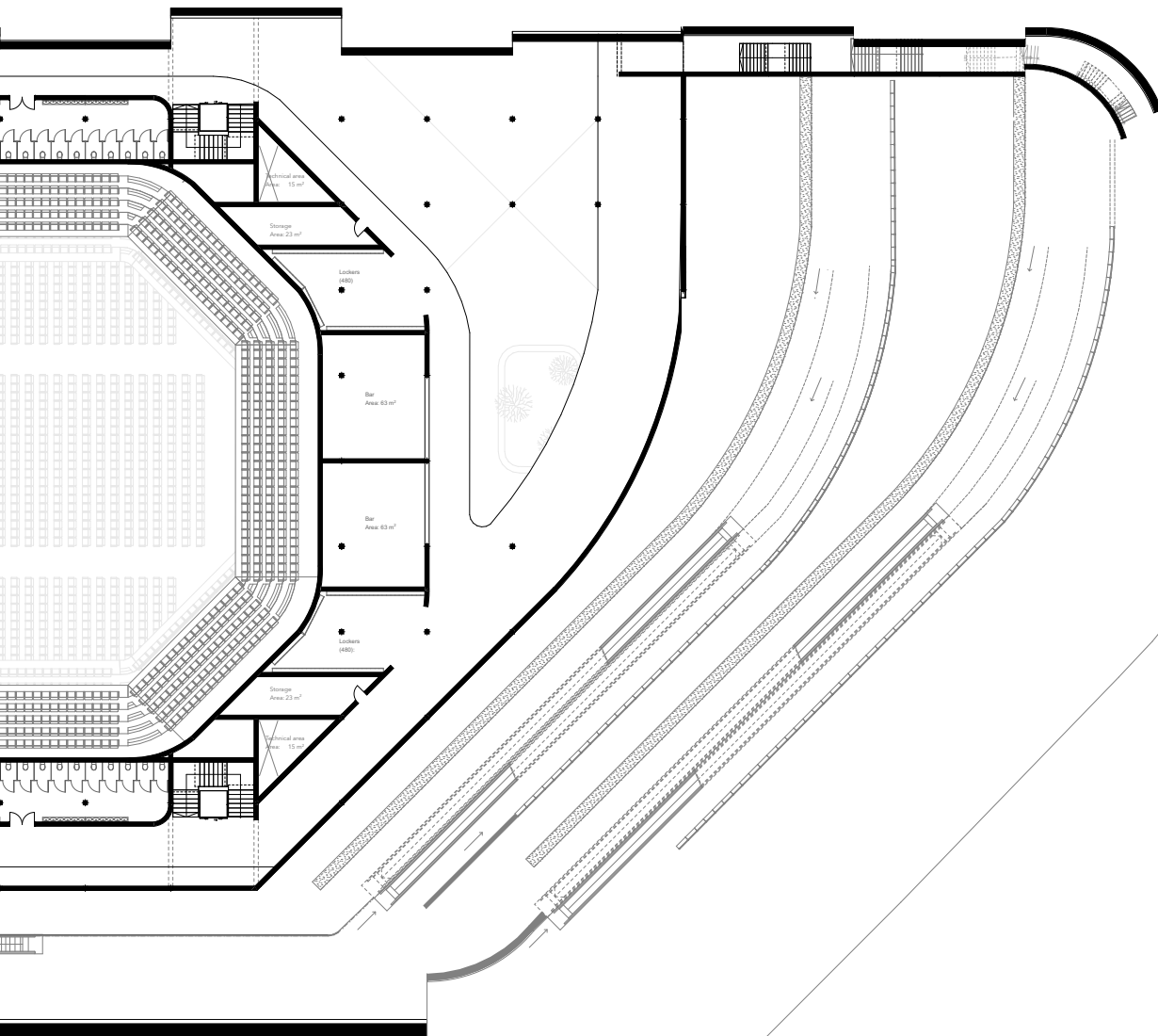




05 Fifth Floor - Plan [1:500]



Drawing H.10. 05 Fifth Floor - Plan [1:500], own drawing



At large events, order and security around crowds are extremely important. It is, therefore, essential to have a clear understanding of how people can leave the building in a structured way, especially in case of an emergency. With crowd control, it can be ensured that the number of people never becomes too large.

Large crowds = running is not possible > flow problem

Flow capacity of rooms, doors and , staircases

There are requirements regarding the closure and direction of rotation of doors.

Escape time within the threatened (=firing) sub-fire compartment is 1 minute. The escape time from the entrance of the threatened sub-fire compartment to the adjacent terrain (so: real safety) depends on the type of escape route people are on. Of course, in these cases a certain fire separation is present.

- The last person must have left a burning sub-fire compartment within 1 minute
- The last person must have reached the public area within 15 minutes (NEN 6089) (Via escape routes with the lowest degree of protection, otherwise there is more time).
- The burning floor must have been evacuated within 3,5 minutes, or
- The burning floor must be evacuated within 6 minutes if there is a WBDBO (Weerstand Brand Doorlatend Brand Overslag / resistance to fire penetration fire spread) of at least 30 minutes between the fire compartment and other spaces.

Capacity of the escape route

The flow capacity of a section of an escape route, expressed in persons, is at least the number of persons assigned to that section. In determining the flow capacity, the following will be assumed:

ROOMS

- 90 persons per minute per meter of clear width of a room

DOORS

- 90 persons per minute per meter of clear width of an aisle, if in the aisle there is double door or similar movable structural component with a maximum opening angle of less than 135 degrees;
- 110 persons per meter of free width of a aisle, if there is a single door or a comparable movable construction component in the aisle with a maximum opening angle of less than 135 degrees;
- 135 persons per meter of clear width of any other aisle.

STAIRCASES

- 45 persons per minute per meter of width of a staircase for bridging a height difference of more than 1 meter;
- 90 persons per minute per meter of width of a staircase for bridging a difference in height of no more than 1 meter, if the step of the staircase is at least 0,17m

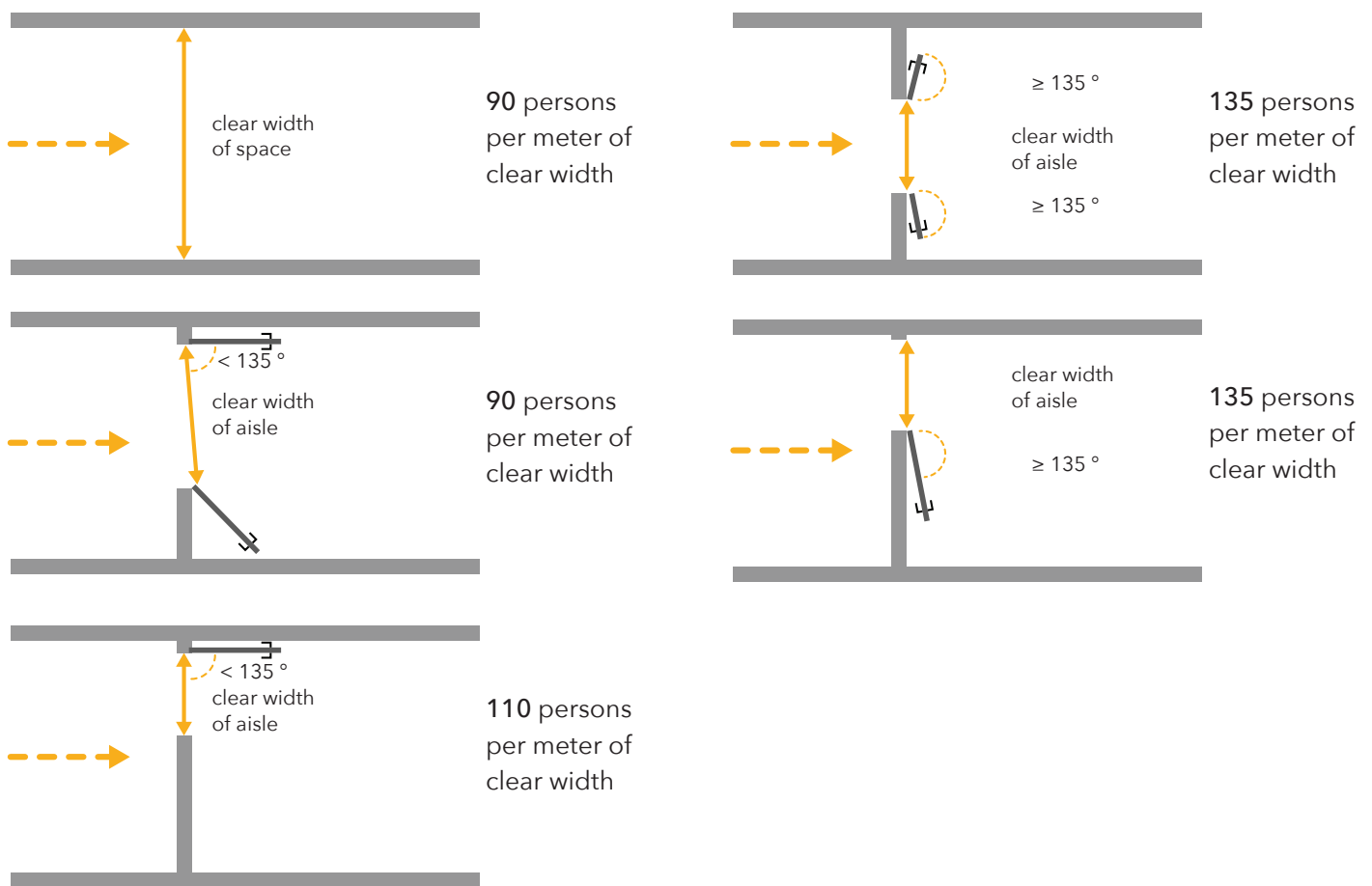
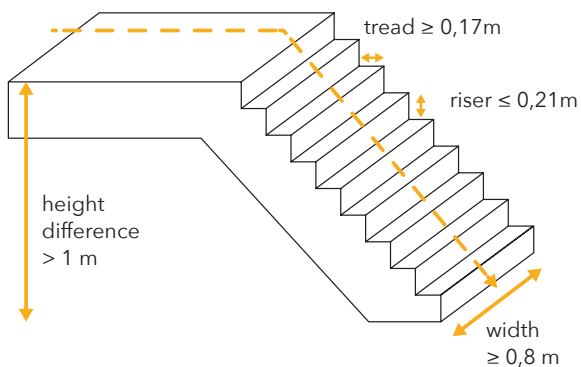


Diagram H.1. Flow capacity rooms, doors, aisles, own diagram

45 persons per m¹ width



90 persons per m¹ width

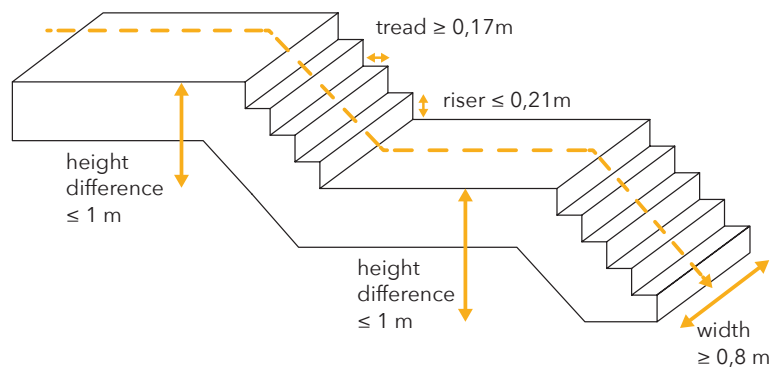
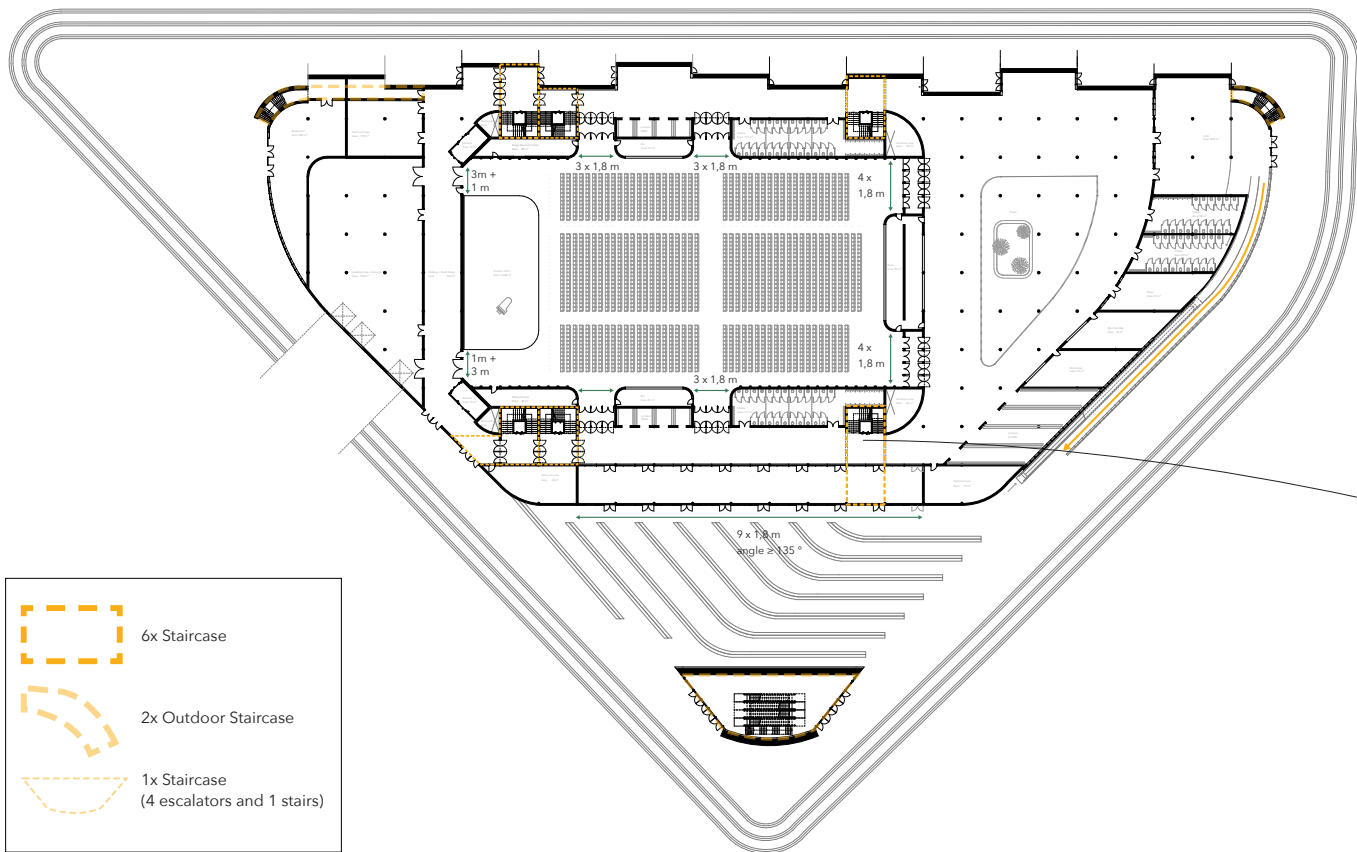


Diagram H.2. Flow capacity stairs, own diagram

Escape route capacity = Number of persons x Width of clear passageway

This rule applies to all parts of any escape route: aisles, doors, stairways, ramps



Drawing H.3. Staircase Music Building, own drawing

Doors Concert hall

The ground floor of concert hall 1 can have a maximum of 4.000 people. How many double doors of a net width of 1,80 m are needed to get the people out of the hall in time?

$$4000 / 90 = 44.44 \text{ meters,}$$

$$44.44 / 1,8 \text{ m} = 24.6 = 25 \text{ doors}$$

The escape route capacity per door is:
 $90 \times 1,8 \text{ m} = 162 \text{ persons per minute}$

Per aisle there are three or four doors, thus $162 \times 3 = 486$ or $162 \times 4 = 648 \text{ persons per minute per aisle.}$

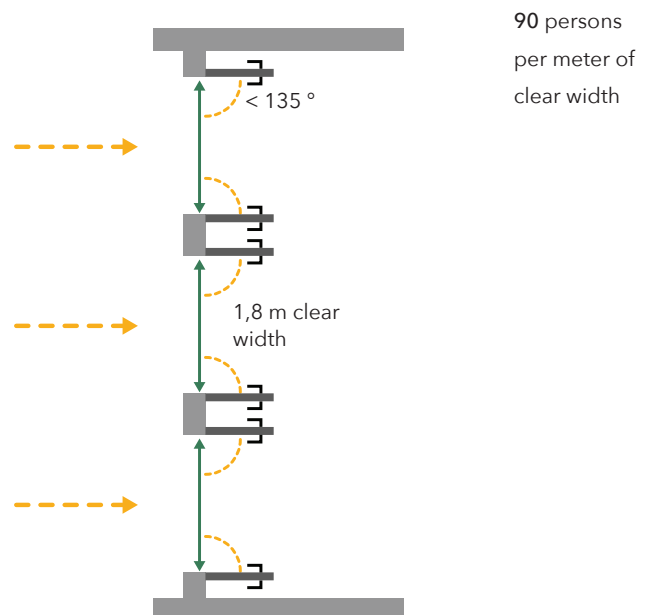


Diagram H.4. Doors Concert hall 1, own diagram

Entrance/Exit Doors

The main entrance of the concert hall has a total of 9 doors of 1,8 m with an opening angle of more than 135 degrees. The escape route capacity per door is:

$$135 \times 1,8 \text{ m} = 243 \text{ persons per minute}$$

In total:

$9 \times 243 = 2.187$ persons per minute can escape via this main entrance

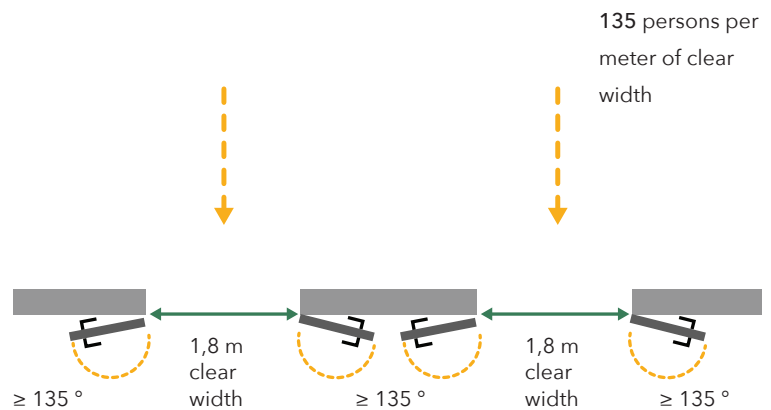


Diagram H.5. Doors Main Entrance Music Building, own diagram

Staircases

In the music building there are 6 stairwells as shown in diagram I.3. The stairwells have a width of 1,8 m and every 1 meter height difference there is a landing. The escape route capacity per staircase is:

$$90 \times 1,8 \text{ m} = 162 \text{ persons per minute}$$

In total:

$6 \times 162 = 972$ persons per minute can escape via these stairwells.

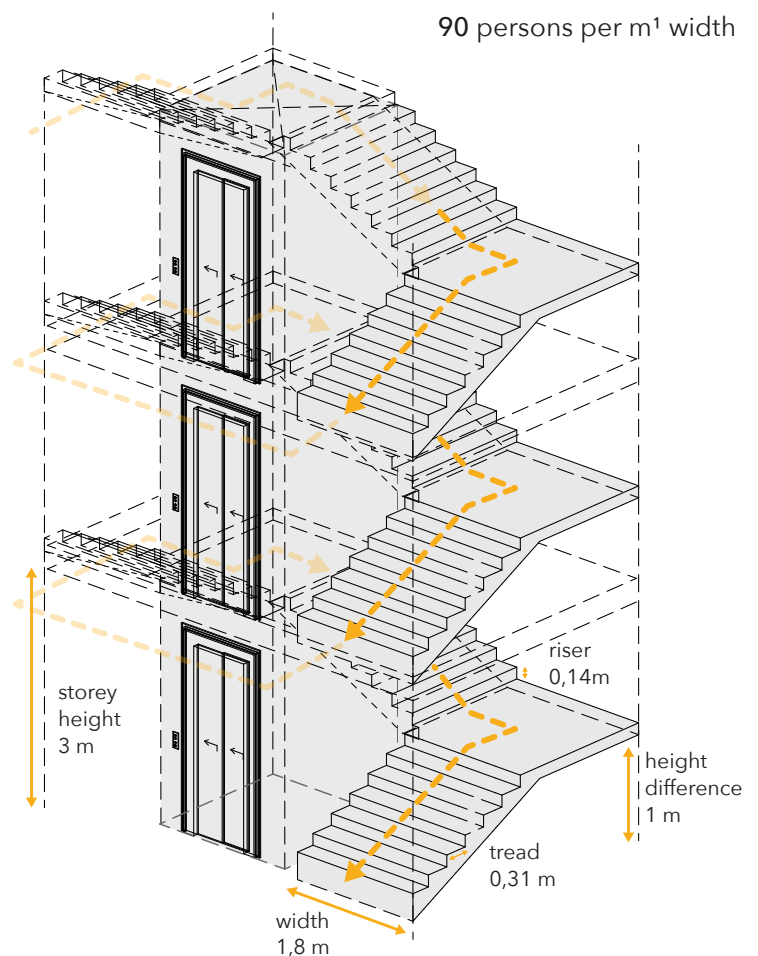


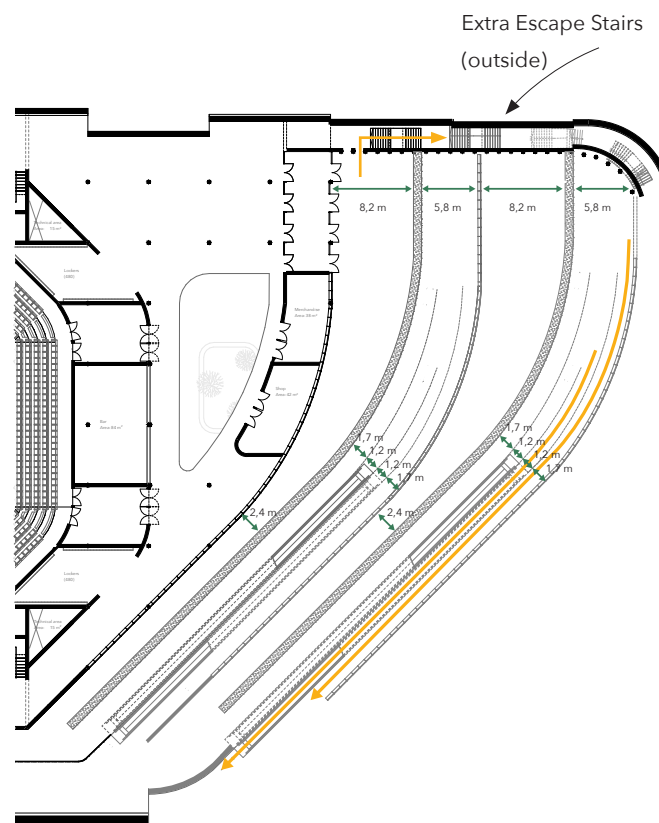
Diagram H.6. Staircase Music Building, own diagram

Ramp

In front of the entrances/exits the width of the ramp is 8,2 m, which means an escape route capacity of:

$$8,2 \times 90 = 738 \text{ persons per minute.}$$

However, the ramp is not equally wide everywhere. In fact, it is getting smaller. $2,4 \times 90 = 216$ persons per minute can escape via this narrower passage of the ramp. This may cause a traffic jam, that's why an extra staircase has been added.



Drawing H.10. Dimensions ramp, own drawing

Escalators

If an escalator would be used in a smoke free escape route, it should be proven that it has the same level of safety as a staircase. Therefore, the required dimensions of an escalator are as follows:

Width 0,58 -1,10 m

Tread $\geq 0,38$ m

Riser $\leq 0,24$ m

Total Height ≤ 4 m

An experiment of TNO shows that a stationary escalator has the same flow capacity as a staircase. Besides, the test showed no signs of excessive tripping.

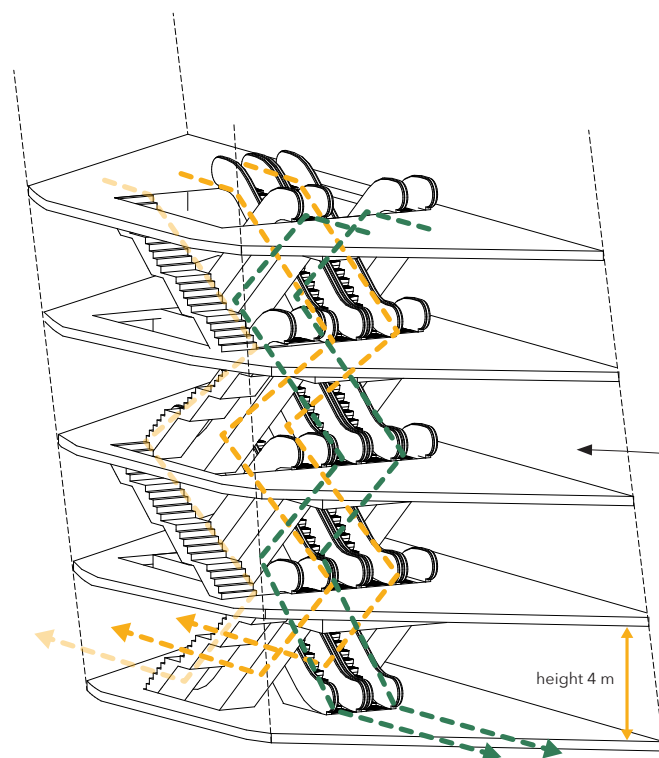
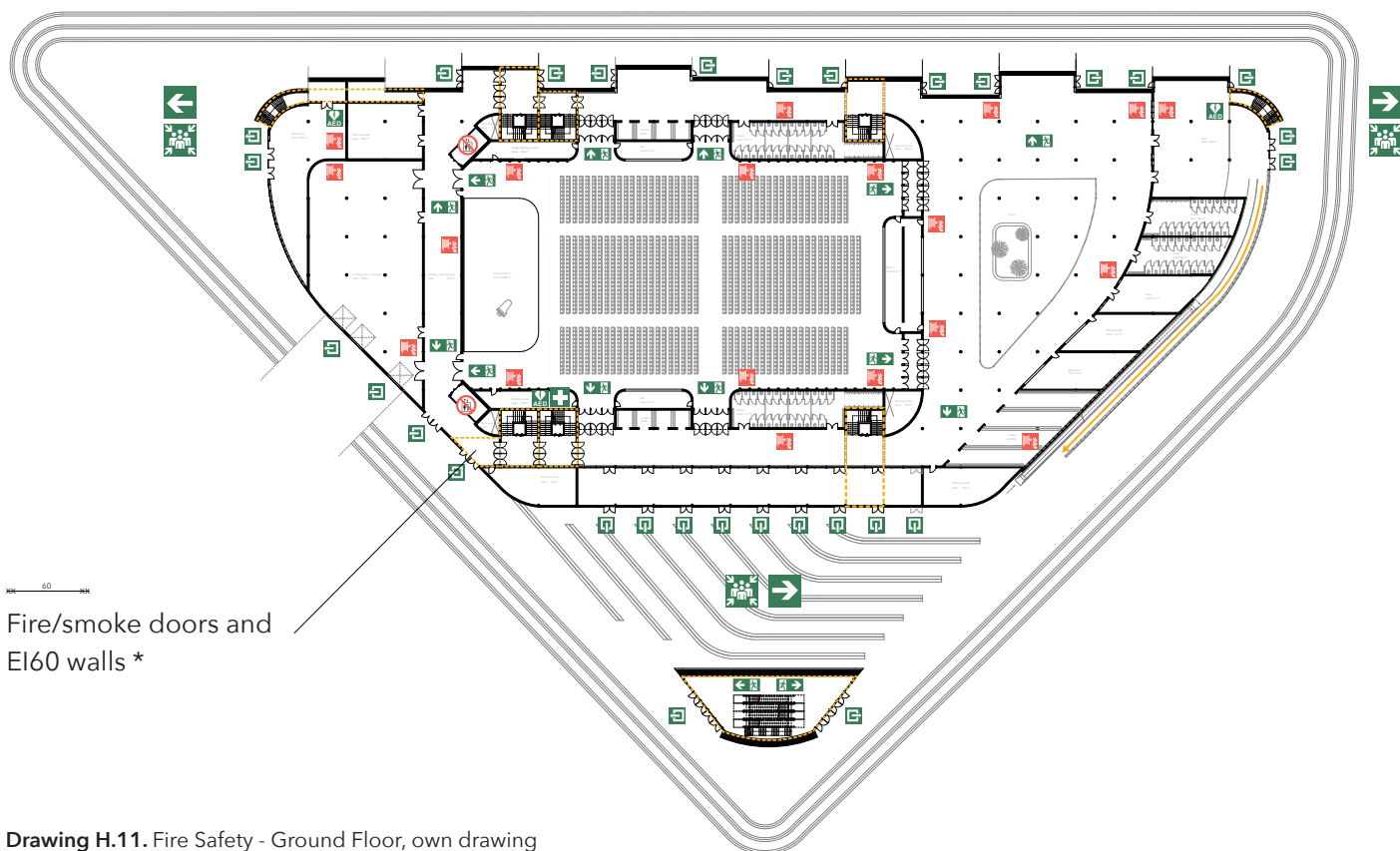
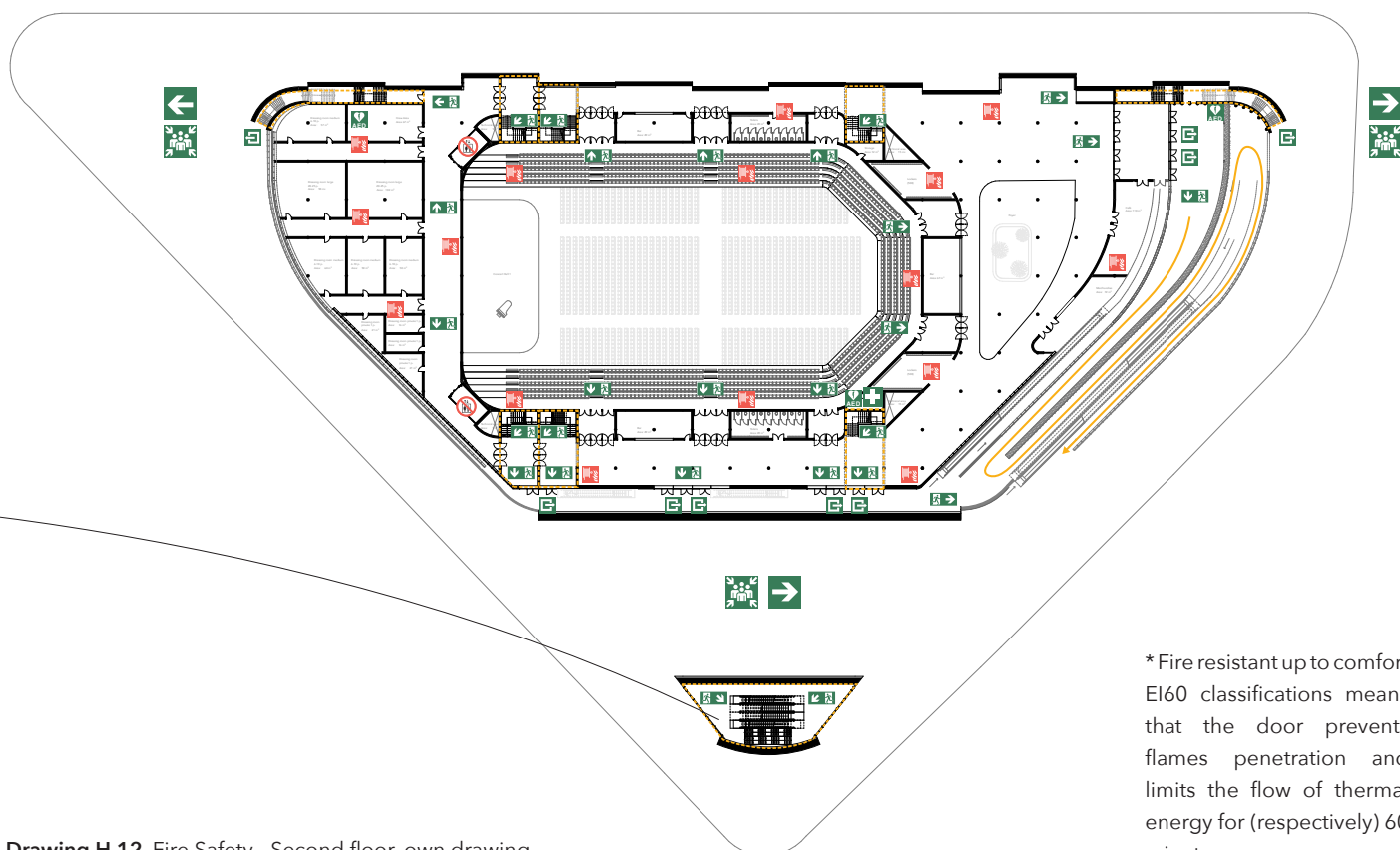


Diagram H.7. Staircase with 4 escalators and 1 staircase, own drawing

Source: ir. J.W.J.L. Kramer. (2007). 'Vluchten op rolletjes, een verkenning naar de mogelijkheden van roltrappen in vluchtroutes als gelijkwaardige oplossing'. Online. From: <https://docplayer.nl/29009-Vluchten-op-rolletjes.html>



Drawing H.11. Fire Safety - Ground Floor, own drawing



Drawing H.12. Fire Safety - Second floor, own drawing

The construction of the music building will be hybride. The aim is to use as much wood as possible. However, this is a difficult task for a large music building. Because of the large spans, the acoustics and fire safety, metal

and concrete will also be applied. In table I.1 an analysis is shown of the different floor types that will be used in the music building.

| Floor type | Max. Span | Self-weight | Local load distribution | Horizontal stability | Construction | Integration of installation | Fire | Acoustic performance |
|---------------------------------|--|--|---|--|---|--|--|-----------------------------------|
| CLT (cross laminated timber) | ± 8 meters, depending on the floor thickness // number of layers | ± 80 kg/m ² , depending on the floor thickness | Limit, due to the strength of the timber | Limit, due to the connection between the prefab elements | Prefab elements / temporary propping system not necessary | Limit to electrical pipes and boxes | Low, additional components | Low, additional components |
| TCC (timber concrete composite) | ± 9 meters, depending on the thickness // number of layers | ± 150 kg/m ² , depending on the floor thickness | High, due to the reinforced concrete top layer | High, due to the reinforced topping | Prefab elements / temporary propping system not necessary | Limit to electrical pipes and boxes, only in the concrete part | Medium, due to the concrete layer | Medium, due to the concrete layer |
| Hollow core slab (concrete) | ± 18 meters, depending on the floor thickness | ± 380 kg/m ² , depending on the floor thickness | High in case of adding a structural, reinforced topping | High in case of adding a structural, reinforced topping | Prefab elements / temporary propping system not necessary | Limit to electrical pipes and boxes | Up to 120 minutes, depending on reinfor. cover | High |

Table I.1. Analysis of different types of floor systems

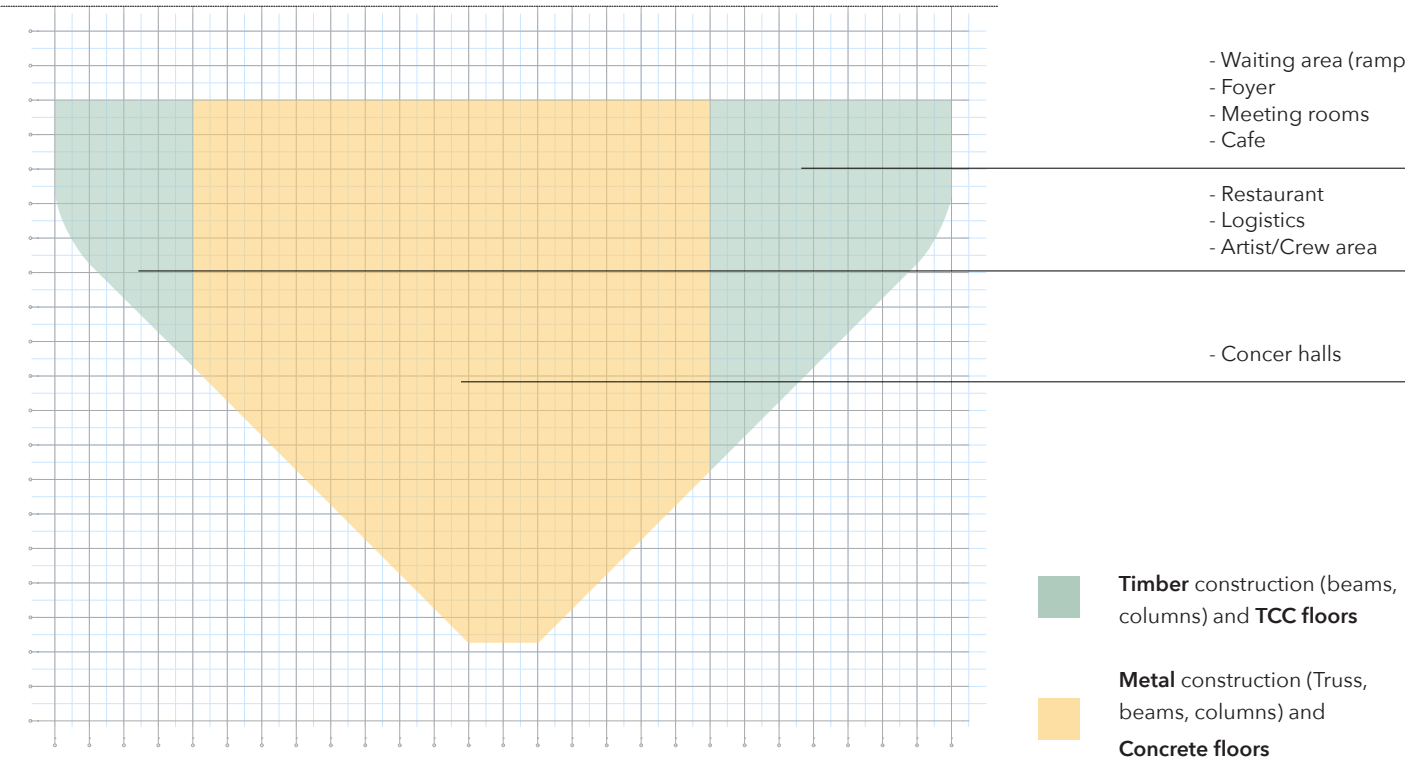


Diagram H.8. Construction materials division - Plan, own diagram

The main load-bearing structure for the concert halls is made of metal. Because of the large spans in the concert hall, metal trusses will be used. Also, lighting and decorations can then be hung on this structure.

The structure of the ramp, foyer and artist/crew area will be made primarily of timber.

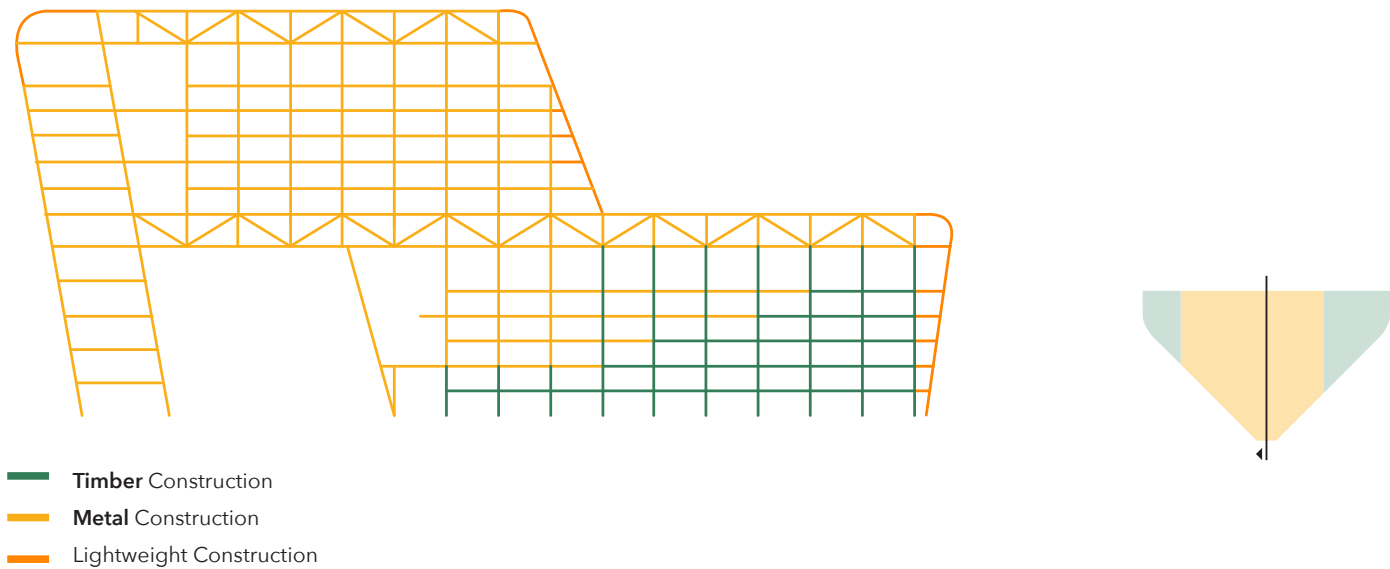


Diagram H.9. Construction materials division - Section East, own diagram

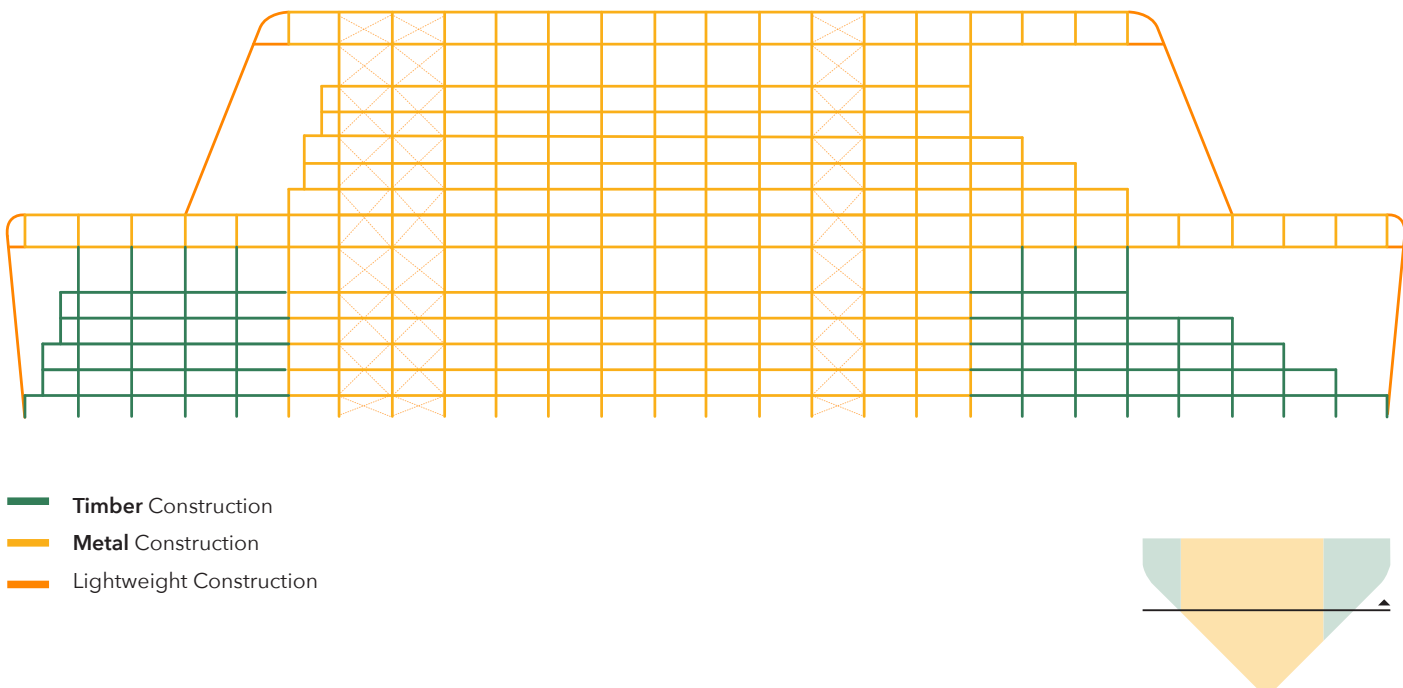
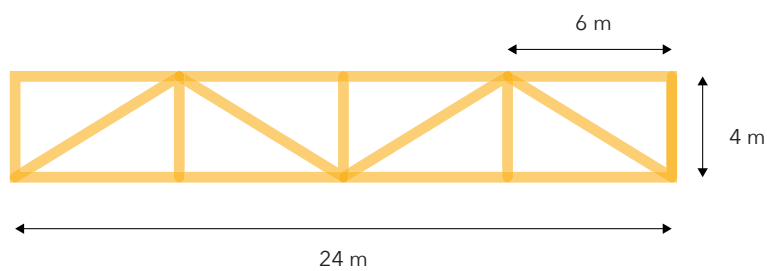
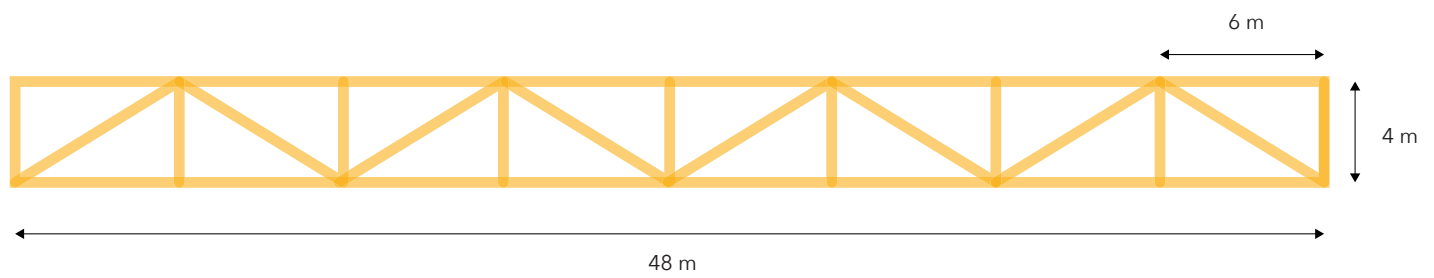


Diagram H.10. Construction materials division - Section North, own diagram



Height steel trusses with parallel edges = $\frac{1}{12}$ à $\frac{1}{15}$ x length

$$\frac{1}{12} \times 48 = 4 \text{ m}$$

$$\frac{1}{12} \times 24 = 2 \text{ m}$$

For concert hall 2, the truss is higher than it should be.

Diagram H.12. Metal Truss Concert hall 2, own diagram

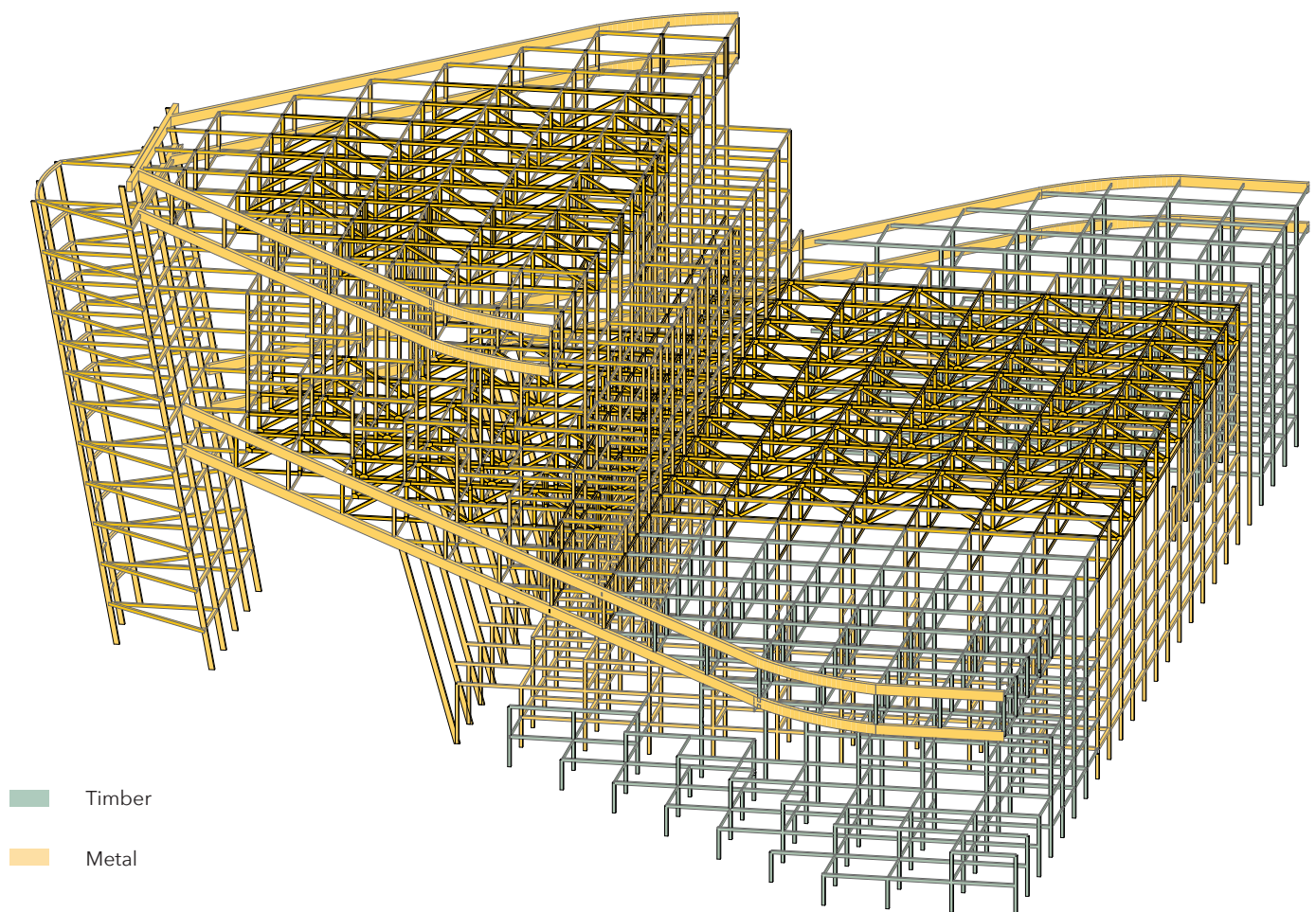
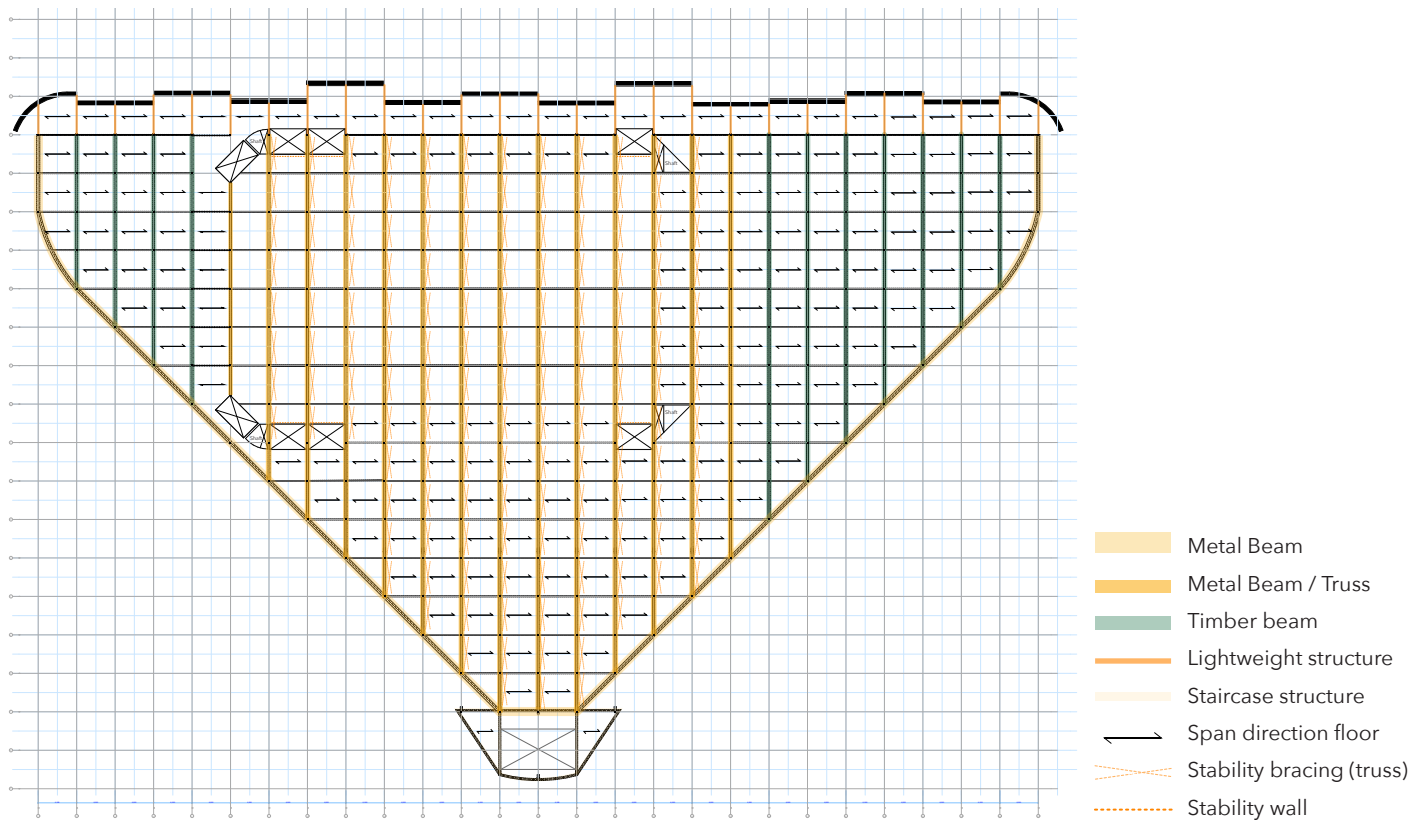
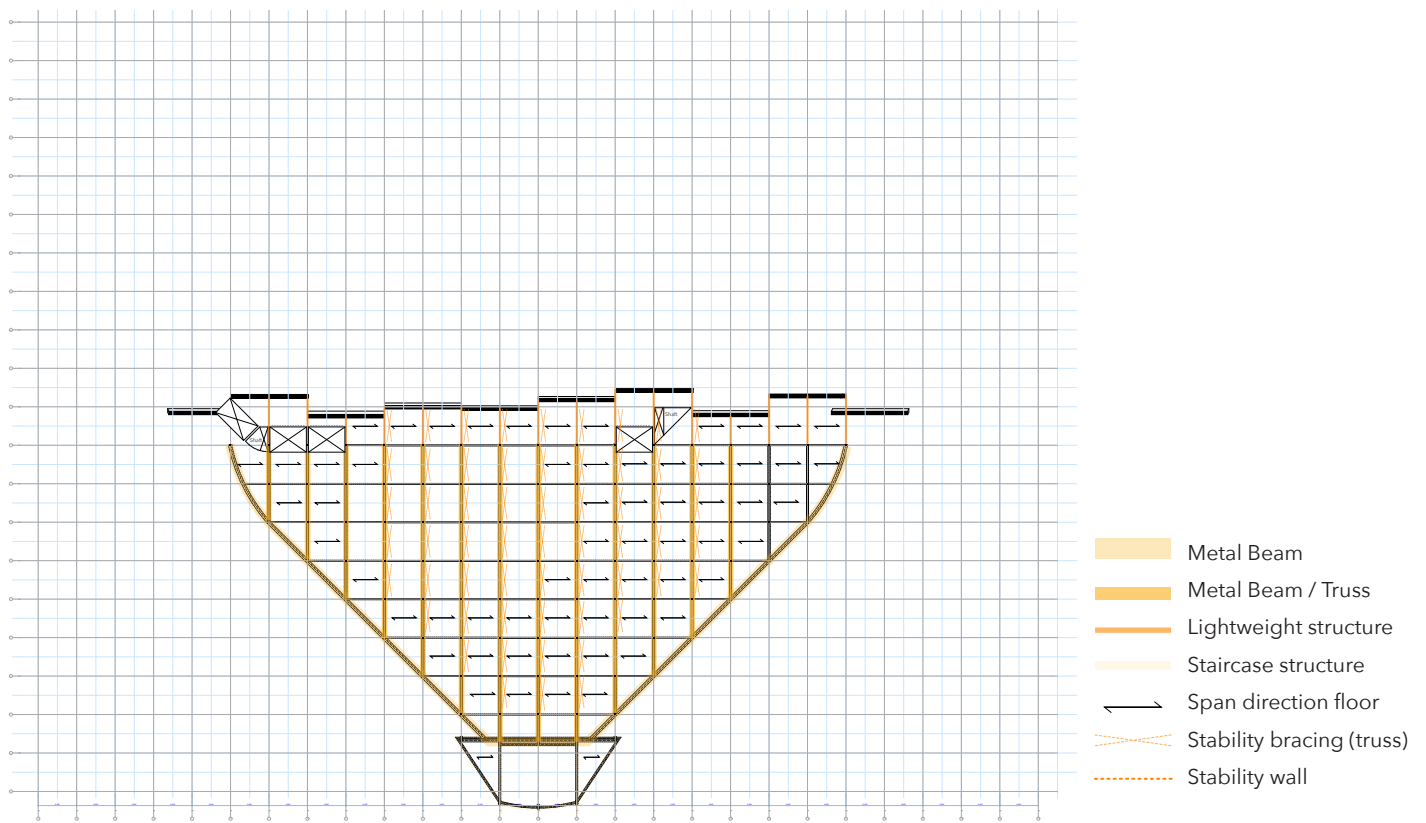


Diagram H.12. Structure Music Building, own diagram



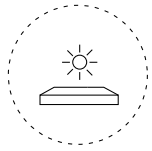
Drawing H.13. Construction - Sixth floor, own drawing



Drawing H.13. Construction - Thirteenth floor, own drawing

Materiality Facade

Limestone stand out for their porosity, which gives them non-slip properties.



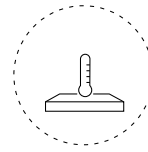
INALTERABLE COLOURS THAT LAST OVER TIME

It is resistant to UV radiation and so maintains its colour



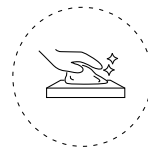
RESISTANT TO FIRE AND HEAT

Under fire it emits no smoke or toxic substances.



LOW THERMAL CONDUCTIVITY

Limestone facades are permeable, matt, and porous. This stone is preferred especially for ventilated facades in construction. Its low thermal conductivity value enables it to act as an insulator in extreme weather.



EASY CARE AND MAINTENANCE

Limestone is very simple stones to maintain as they do not require any specific care for cleaning them. Widely used in outdoor applications, they tend to have good resistance to damp and weather inclemencies.



Visual H.9. Limestone facade, own diagram

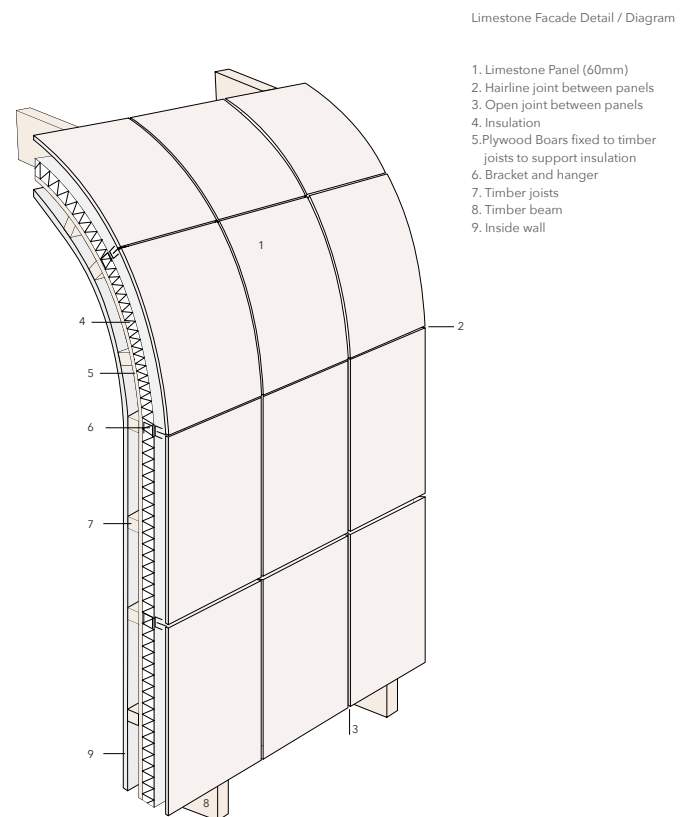


Diagram H.9. Limestone facade detail, own diagram



Visual H.10. Concert hall 1, own visual



Visual H.11. Foyer, own visual

- Facade/Roof - Overhang

Shading element ensure thermal comfort and lower cooling demands.

- Especially in winter, heating up to a comfortable temperature will be quite a task in the 18-meter-high Foyer. Huge fans, with a wingspan of about 6 meters, will be placed in the ceiling of the Foyer. The fans ensure that the warm air is pushed down again. In this way the warm air is distributed throughout the foyer and saves a lot of energy.



Daylight

- LED lighting will be used throughout the building

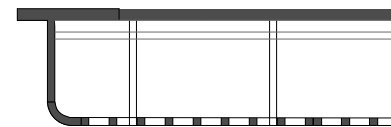
- Waterless urinals

A unique system (Biocompact) eliminates the need to flush urinals. Sounds dirty, but it's not. The urinals have a valve that opens automatically when it comes into contact with urine. So you don't have to flush any more. Besides saving a considerable amount of water, five liters per visit to the toilet, the no-flushing device has the added advantage that the urinals clog less. Moreover, the filter means that no more rubbish ends up in the sewer. The urinals save about 2.6 million litres of water. It is not only sustainable, but it also saves on cleaning and maintenance.

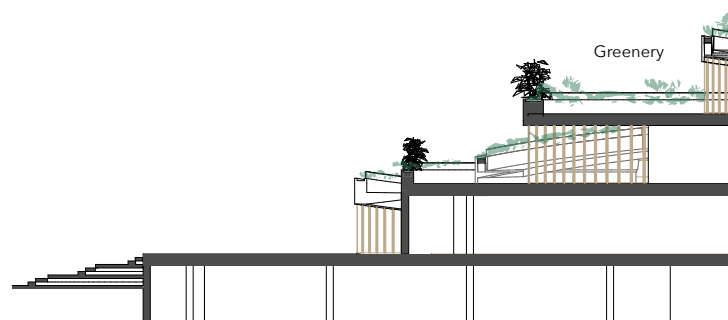
- Water saving taps and shower

All taps in the toilet areas will be operated by infrared sensors. Because of these sensors you have no waste of water, because the faucet will close automatically. Furthermore, the faucets will have an automatic flush to prevent legionella development and save about 4 liters of water per minute. In addition to the faucets, the showers also have water-saving measures. They save 8 liters of water per minute.

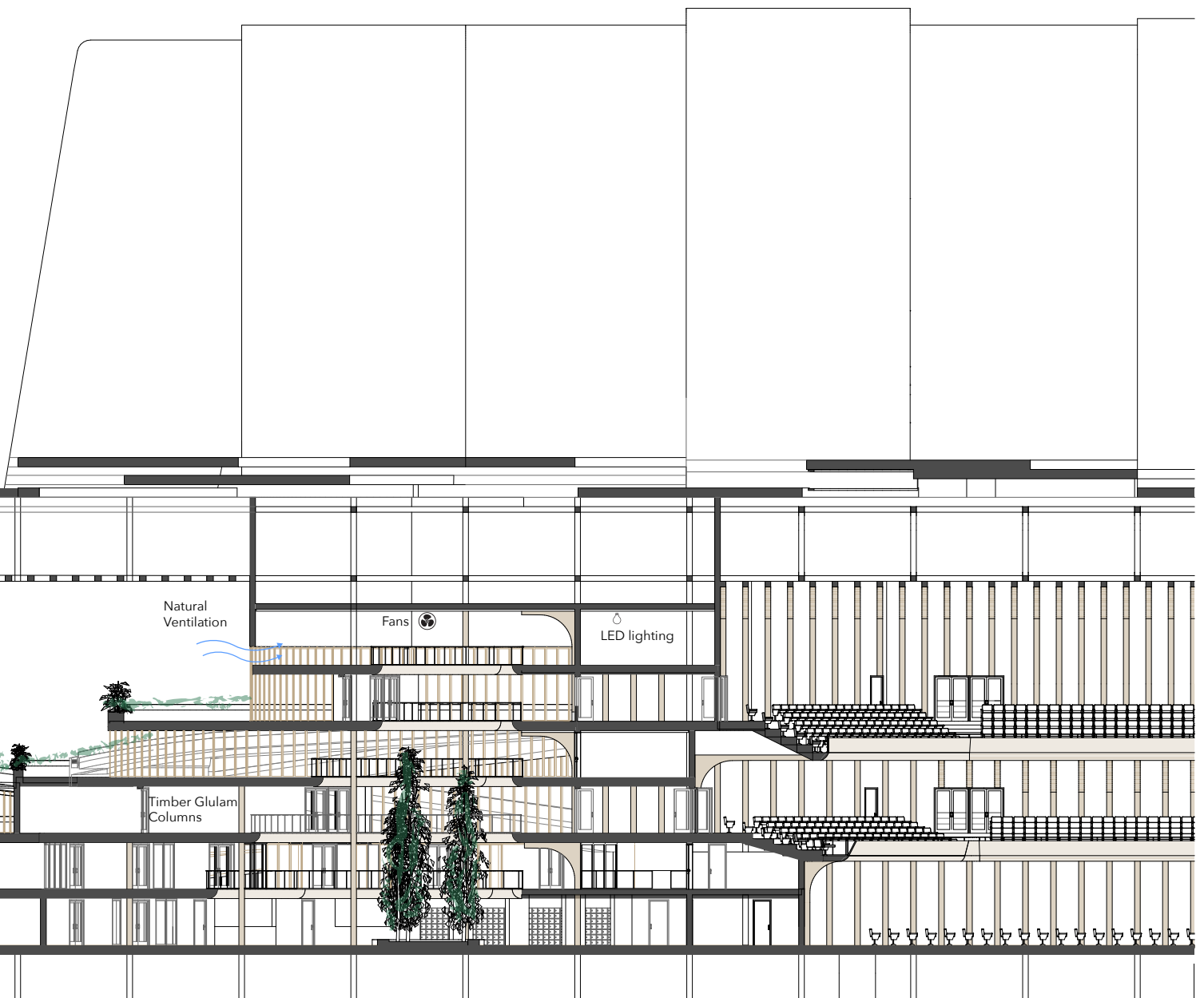
- Cooling and freezing systems can also be major energy consumers. That is why the hospitality facilities in the music building will be using an advanced cooling system. This will result in considerable energy savings.



Overhang Sun Shading

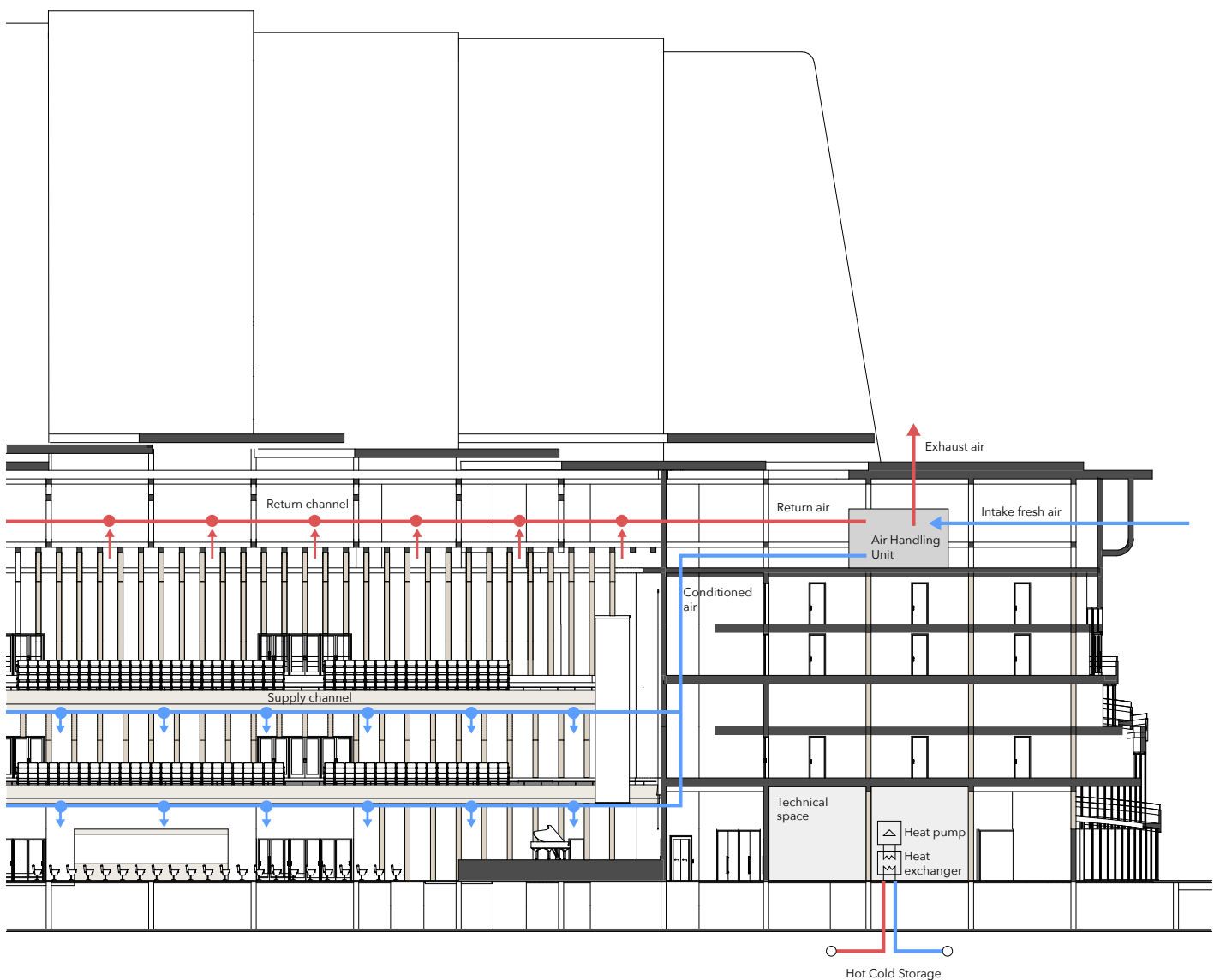


Greenery



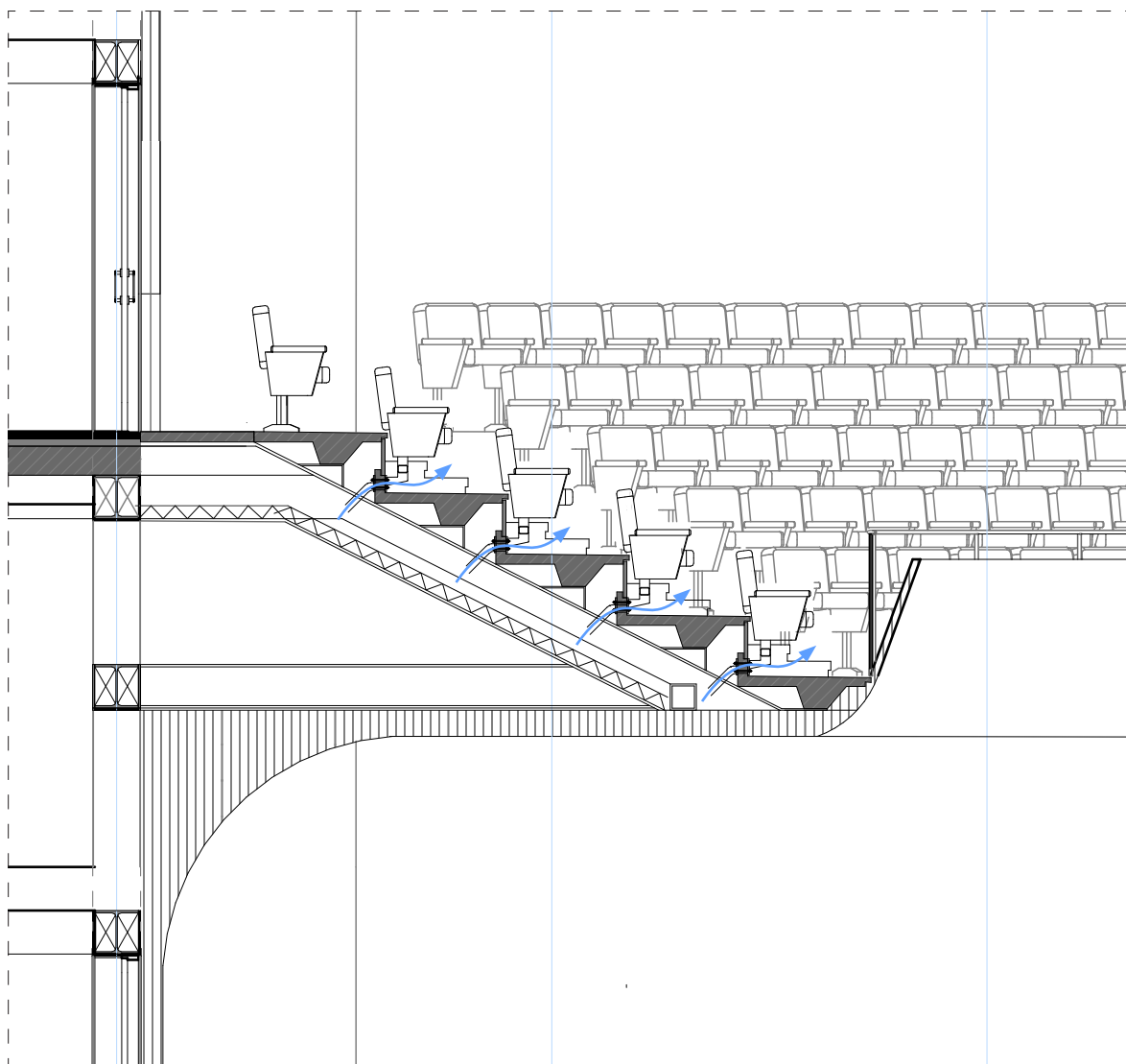
Drawing H.14. Climate principals - section, own drawing

- The music building will be cooled and heated in a durable manner by using its own underground heat and cold storage system. A large heat pump will be connected to the ground energy system. This heat pump is a huge machine that will be placed in the basement of the music building and will ensure that the hall and the rest of the building can be cooled, heated and that the air supply will be optimal.



Drawing H.15. Climate principals - section, own drawing

Vetilation system under seats



Drawing H.16. Ventilation system / Balcony seats, own drawing

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Picture H.1. Maguette, own picture



Picture H.2. Maguette, own picture



Picture H.3. Maguette Music Building - North Facade, own picture



Picture H.4. Maguette Music Building - East Facade, own picture



Picture H.5. Maguette, own picture

I. Reflection

In this reflection, I will briefly explain the problem statement, the goal and approach. Then I will describe the process and feedback. Finally, I will reflect on the result.

Problem statement

The location for the music building is in the Binckhorst, The Hague. This area is currently not attractive and inviting. There are many barriers and few attractive public spaces. This makes the area feel inaccessible and unpleasant. An inaccessible and unpleasant public outdoor space in front of a music building can negatively affect the visitor's experience. Since fans sometimes wait for hours in front of the entrance, it is important to pay attention to this public (outdoor) space. From this, the following question arose: *When is the 'in-between space' of a music building perceived as pleasant and accessible?*

Regularly, I walk past the AFAS Live and the Ziggo Dome in Amsterdam, where I often see large queues in front of the music buildings. Sometimes these visitors have been waiting for hours, and even in the rain. The plazas in front of these music buildings are quite big and open, but also uninviting, empty and with not much to experience. In my opinion, both in the Binckhorst and in front of some existing music building, little attention is paid to the public space. While the concert experience of the visitors starts there!

Goal and Approach

The aim of the research was to gain a better understanding of the public and private domain and the 'in-between space', in relation to a music building. The (crucial) transition between the public and private domain usually takes place on the ground floor where both are directly adjacent to each other. This is the 'in-between space', where public meets private, and outside meets inside. Strikingly, the 'in-between space' of a music building is, among other things, the area where the queue forms. Queues carry with them the spatial and mental condition of being neither inside nor outside: while queuing, you are nowhere, not inside not outside, in between. However, visitors spend a significant amount of time in this 'in-between space' while waiting. Some visitors queue for hours, sometimes even in the rain. Since the waiting time and experience are related to the overall experience

of the concert night, it is important to pay attention to this part of the design. In order to find out how this 'in-between space' is designed in existing music buildings, several case studies were selected, analysed and compared. Including the music buildings Ziggo Dome Amsterdam, AFAS Live Amsterdam and De Doelen Rotterdam. This selection of music buildings was made based on functions, capacity and the variation in design and surrounding public space. During the analysis, the entrances of these music buildings and the flow of visitors were studied. Through observations, it was possible to map out how the public space in and around these music buildings is used before, during and after a concert, but also when there were no concerts at all. The observations were made at different times of day and during different types of concerts, because of the differences in audience. Given the fact that teenagers may behave differently from adults. It was remarkable that there were often long queues at the Ziggo Dome and AFAS Live, even before the doors open. And at the Ziggo Dome, the queue can be so long that people do not even fit on the square in front of the music building. However, the flow of visitors at the Ziggo Dome is very good, as soon as the doors open. Within no time everyone is inside, mainly because of the number of entrances and the wide hallway. All in all, this analysis has shown both advantages and disadvantages. But in any case, it provided starting points for the design of my music building. With this, the design of the waiting area, the 'in-between space', and the experience of queuing itself can be optimised.

Process and Feedback

During the first period P1, we analysed 16 different music buildings with the whole group. This was very inspiring and it resulted in interesting findings. However, this research was rather general and because we did not research everything ourselves, you could not consider everything yourself.

Accordingly, my own specific research did not actually start until the P2 period. During the P2 period, I conducted the case study analysis. This research took a lot of time, but it did provide many interesting leads for my design for the music building. Also during this period, the schematic design had to be created. Because I spent a lot of time doing the analysis, I started working on the schematic design quite late. Two weeks before the P2 presentation, I had actually

done almost nothing for the design, which made these weeks very stressful. Looking back at this planning, I would make the collective research period shorter, so that individual, specific research can be done earlier and there is more time for the schematic design.

After the P2 schematic design presentation, the design process had to speed up. But then I got sick twice in a row. This slowed down the process, but fortunately I was able to resume the work afterwards. In addition, the P3 presentation ensured that I had to take major steps in the design process. The research had to be translated into a design and the program had to be incorporated into it. During the p3 presentation, I was able to show a design in which this all comes together. After the P3 presentation, the mentors gave positive feedback and a few points for improvement. They mentioned that the theme of waiting is expressed in a nice way. The waiting people literally become the facade of the building. But the logic of the queue still needs some attention. How does this really work? During the presentation I showed a diagram (Diagram I.1), which indeed did not clearly show which line you have to follow for which entrance. So immediately after P3, I made a new diagram (Diagram I.2), which shows the lines better, making it more visible how it works. However, the diagram is now clearer but the logic of the queues is still not entirely clear and logical. For example, it is not clear whether the two rows for the balconies of the concert hall wait together or are split up. Also, there are no shortcuts or opportunities to get upstairs in a faster way, if there is not already a queue. Since this waiting area is an important part of my design, I paid extra attention to it and developed it further. Afterwards, I was able to create a new diagram showing how visitors can enter the different levels of

the concert halls in the smoothest way possible.

They also wondered what will happen in this facade when there are no waiting people? What does it communicate then (a green sawah?) and is another use possible? Multiplicity as a property of buildings and building elements is an overarching theme of the Public Building studio. "Multiplicity in Architecture aims to give buildings and building elements properties that make them less singular in function, more productive, more transformative, and more resilient" (AR3AP100 Music Marvel, Public Building Graduation Studio Handbook 2021-22, p.18). Designing a multi-used building and public space is therefore an aspiration. During concerts, the ramp will be used as a waiting area/foyer. When there are no concerts, this space can be used in a different way. For example, the café inside the music building is positioned in a way that if there are no concerts, the terrace can be placed outside on the straight part of the ramp. Moreover, active neighbours can also use this slope as a 'mountain' to run on.

Furthermore, it is important to pay attention to the interior, how will the architecture be translated from outside to inside? For this I looked at the use of materials and the recurring shapes and elements that have been applied to the exterior. These shapes and elements are continued inside, making it a whole.

The period between P3 and P4 is relatively short, while an enormous amount of work has to be accomplished during this period. There are also relatively few feedback moments, due to national holidays. Actually, I have only had two meetings with the building technology mentor, whereas at this point in the process I would have liked more feedback. Nevertheless, the design process continues and I am in the process of finalising the project. This is an incredibly busy

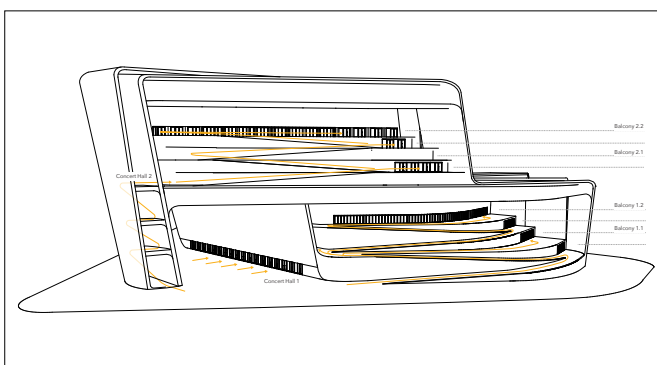


Diagram I.1. Entrances Concert halls, own diagram

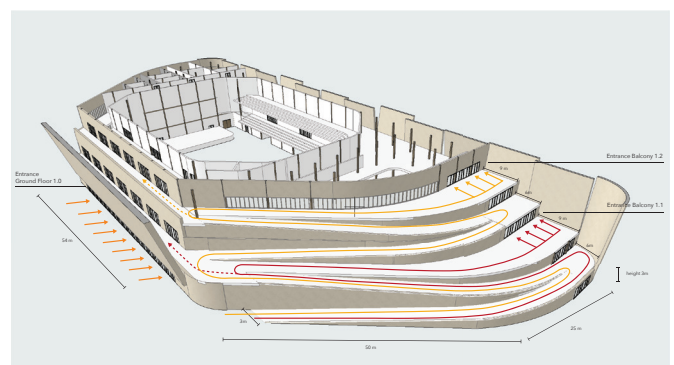


Diagram I.2. Entrances Concert hall 1, own diagram

period, because I would actually like to design a lot of things additional and work them out in more detail. But at the same time, it also has to be finished for the presentation. Prioritising is therefore very important, but sometimes difficult to do. What is most relevant for the presentation? What do I emphasise and to what level do I elaborate? Especially because I am designing a relatively large music building, it is almost impossible to work everything out in this short period of time.

From the beginning of my individual research and during the design process, I have focused on the queue, the flow of visitors, the entrances and the circulation in the music building. Therefore, it is important to show these aspects clearly in the presentation. I hope that all the important diagrams, drawings and visuals are clear and will explain the design well during the P4 presentation. If there is any confusion about anything, it will be corrected for the P5 presentation. Looking ahead to this final part of the graduation period, I plan to use that time to upgrade the visuals and finish the maquette.

Result

In my opinion, I have designed a music building with a pleasant and accessible public outdoor space, which will function as a comfortable waiting and reception area. The waiting area, and therefore the facade, is the most important part of my design. This is not just an 'in-between space', this is the space where everything comes together. Both inside and outside, public and private. This is the space where the queuing experience, and therefore the overall concert experience, becomes more interesting and pleasurable.

Although I think the design is promising, I believe that the technical part could have been worked out in more detail. It is, of course, an integrated design process, but I have spent considerably more time on research and the design. This is because I am particularly interested in design, I also have a design background (my previous study was a bachelor Spatial Design at an art academy), and hopefully after graduation I can find a job focused on design at an architectural firm. Besides, I think that the size of my music building and the complexity of my design made it a bit more difficult for me. Designing such a large building on your own and then working everything out is an enormous task in such a short time. Moreover, for complex shapes the elaborations are more difficult. Due to the complexity

and size of the building, it is sometimes even difficult to represent it in diagrams. Nevertheless, I found it very interesting and learned from it.

Also, I have learned a lot from crowd control and fire safety for buildings with such a large capacity. For example, there are regulations on the dimensions of openings, corridors and staircases to which they must comply. In fact, the through-flow capacity is very important, especially in case of an emergency.

Overall, I look back with pleasure on this graduation project, from which I learned a lot. And at this point, I can already say that I am proud of what I have accomplished in such a short time. And I am very much looking forward to P5!

