

## MASTER

### Diplomatic serendipity connecting embassies in Norway

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# DIPLOMATIC SERENDIPITY

LAURENT KHUAT DUY DIPLOMATIC SERENDIPITY

CONNECTING EMBASSIES IN NORWAY

LAURENT KHUAT DUY



# **DIPLOMATIC SERENDIPITY**



**CONNECTING EMBASSIES IN NORWAY**

**LAURENT KHUAT DUY**

## GRADUATION STUDIO PROJECT

### KEYWORDS

Embassy, identity, sustainability, Netherlands, Dutch, Norway, architecture  
Connector, attractor, unforeseen encounters, serendipity, connect, informal, opportunities

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## ABSTRACT

This thesis aimed to bring an architectural answer to the following research question: How should a Dutch embassy in Oslo be conceived in order to reflect the modern needs of diplomacy?

In existing Dutch embassies, the identity of the Netherlands is, at best, subtly expressed, for example by a reference to water. However this approach does not say much about some core characteristics of the Dutch mindset. In this thesis, a different approach is used, that considers the Dutch identity as an ensemble of Dutch values. From these values, a mission statement abroad can be derived and summarized into a master objective: the creation of opportunities.

In response, the concept of connector emerged. It contains a central element, the attractor, that possesses unique qualities that regularly attract the people that need to be put in contact. The beauty is that the process occurs automatically and leads to unforeseen encounters. A dynamic environment is created and fosters serendipitous opportunities.

Proximity is a key element of a working connector. This is why several embassies and startups are sharing the building. The embassy complex is also carefully located in the direct neighborhood of key partners. By doing so, the power of the connector concept is multiplied by exploiting it at multiple

scales: urban, building and office.

The identity (values) of the partners needs to be compatible for the connector to work optimally. Five compatible countries have been selected on the basis of the commonalities of their mindset. From the four common traits, matching architectural qualities were derived, and eventually gave birth to an optimal environment where these countries can thrive.

Global sustainability is also an important point of this thesis. Social sustainability is achieved via the use of the connector concept and an architecture focused on personal well-being. Economic sustainability is mainly the consequence of the extra opportunities generated by that architecture. Environmental sustainability comes from the building physics considerations that were used in the design.

The diplomatic world is the place by excellence where new alliances can be forged. Small countries can grow stronger together. The proposed embassy complex can be seen as a living experiment, where dynamism and serendipity are pushed to the extreme.

## ACKNOWLEDGEMENTS

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## THEME AND OBJECTIVES

This thesis is the concluding document of a master graduation studio in architecture at the Technological University of Eindhoven. It revolves around two themes: identity and sustainability. These themes are illustrated by their incorporation in the elaboration of the design of a new Dutch embassy (or an extension or a consulate) in Norway. The embassy should take further important considerations, such as security concerns, the possible inclusion of the residence of the ambassador, and the current political objectives of the embassy.

## RESEARCH QUESTION: ELABORATION AND RELEVANCE

Before delving into the design of a new embassy, the relevancy of a physical embassy building in current times needs to be questioned.

Diplomacy is heavily based on communication and exchange of information. With the globalization and the recent advances in technologies in telecommunication, most information transit electronically, in particular via internet. Embassies cannot ignore this fact and are urged to adapt adequately.

Why then is there still a need for the physical presence of an embassy on a foreign soil? Why spend millions to keep ambassadors and all supportive staff in expensive representational buildings, when all communication

Two researches were conducted prior to the design of the embassy. The first one consisted in capturing the essence of the Dutch nationality via the design and manufacturing of a gift representing the identity of the Netherlands. The second one consisted in the writing of an essay related to the aesthetics of sustainability.

Further research could then be built on the findings of these exercises, in order to design the embassy. During that steps, key questions inevitably occurred, such as how the Dutch identity should (or not) be expressed in the proposed architectural design.

could be done electronically in a much faster and inexpensive way? A network of local contacts could then still gather and provide information. And when a person-to-person contact is needed, air travel can still be used.

Diplomacy cannot be limited to internet: the effort of a physical presence is also a statement. A diplomat leaving its embassy is a strong statement, such as the recent withdrawal of the Australian diplomat in Indonesia to protest against the death penalty to two of its citizens.<sup>1</sup> Shutting down the internet access of the embassy website to the offending country could simply look like a temporary computer failure, making

the strength of the statement vanish.

In the September 2013 issue of *The Diplomat*, Moira G. Gallaga argues:

"Although economic and commercial interests invariably play a big factor, diplomacy is about more than just dollars and cents. Indeed, it is as much about form and symbolism as it is about substance. Specifically, establishing or maintaining an embassy is a clear sign to the host government of a commitment to deepening bilateral relations."<sup>2</sup>

Gallaga adds that the quality of electronically-gathered information is not the same as that gathered in person by the local staff of the embassy. And it is clear that a personal human contact can never be replaced by an email or a phone conversation. These constitute

competitive advantages for trade.

But the importance of a physical embassy extends beyond business. With the increasing number of migrant communities, an embassy plays a critical role in protecting its citizens against human traffic or other illegal practices.

In practice, a middle ground needs to be found. The costs are lowered down by closing and/or downsizing the existing embassies. "One novel and effective option being explored by some countries entails arrangements that deploy a resident diplomat based in an embassy of another country or the mission of a multilateral organization.", mentions Gallaga.

The world is changing, and it

is clear that the embassies should adapt consequently. This adaptation goes beyond the implementation of networked laptops and teleconference rooms. The whole approach to diplomatic interactions needs to be rethought. They need to be made more efficient, to offer more opportunities, while reducing their overall costs. At the same time, they should act as a symbol, a mission statement that makes their citizens proud.

This thesis will attempt to address this multifaceted desire by answering the following research question, applied to a specific situation:

How should a Dutch embassy in Oslo be conceived in order to reflect the modern needs of diplomacy?

## HOW TO READ THIS DOCUMENT

This thesis consists of four chapters.

The first one exposes the general theme and context of the research and design.

The second chapter is focused on a theoretical approach of the theme. The research question is developed and methodically answered. From the conclusions, a general concept applicable to embassies is derived.

The third chapter presents a design that integrates the concept of the theoretical research. An appropriate building site is determined, a program elaborated, and the building design is explained and argued.

The fourth chapter illustrates the physical composition and appearance of the newly designed building. Sketches, floor plans, elevations, sections, details and renders are found there.

The thesis ends with an overall conclusion exposed in chapter five.

# 2

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## RESEARCH THEME AND METHOD

The introduction showed the relevancy of a physical presence of an embassy abroad.

The case that will be studied in this document is that of the Dutch embassy in Norway. Such an embassy already exists, and is being renovated as we speak. Its occupants seem happy with their current location and the old character of the neo-classical building.

Why then would a new embassy be needed? What would be the most appropriate design for it? How should the identity of the Netherlands be expressed? What approach can be used towards sustainability? And towards security? What are eventually the goals that the embassy wants to achieve in Oslo? These are the kinds of questions that will be addressed in the theoretical part of this thesis.

These questions will be explored through several methods, each one bringing its own views on the subject.

The answers will, piece by piece, lead to a general concept and conclusions that will serve as a strong foundation for the design of the new embassy.

The methods used are:

- Litterature and documentaries about existing Dutch embassies, and embassies in general,
- Visit of the current site of the embassy and analysis of its urban context and interior layout,
- Interviews and presentations from researchers and persons that play a role in the current Dutch politics abroad,
- Inspirational architecture references.

## IDENTITY

An embassy represents its government abroad. It is used for consular services (passports, assistance to expatriates), but also for political connections and representation, and for trade and other economic purposes. What is less clear however, is how the embassy building should physically express the identity of its country.

By observing existing embassies, conducting interviews with the users and reflecting on the evolution of the world and its needs, a model of the ideal embassy of tomorrow can progressively be built.

Since the role and geopolitical situation of each embassy widely depends on the hosting and the represented countries, we make the following assumptions:

- Both the host and the represented country are developed
- Both countries are at peace and not a high-risk target for terrorism
- The represented country is small (less than 20 million inhabitants)

The Netherlands in Norway is taken as an illustrative example. The conclusions of this research may also be valid in other situations, but might require some adaptations to be made (eg. higher security measures).

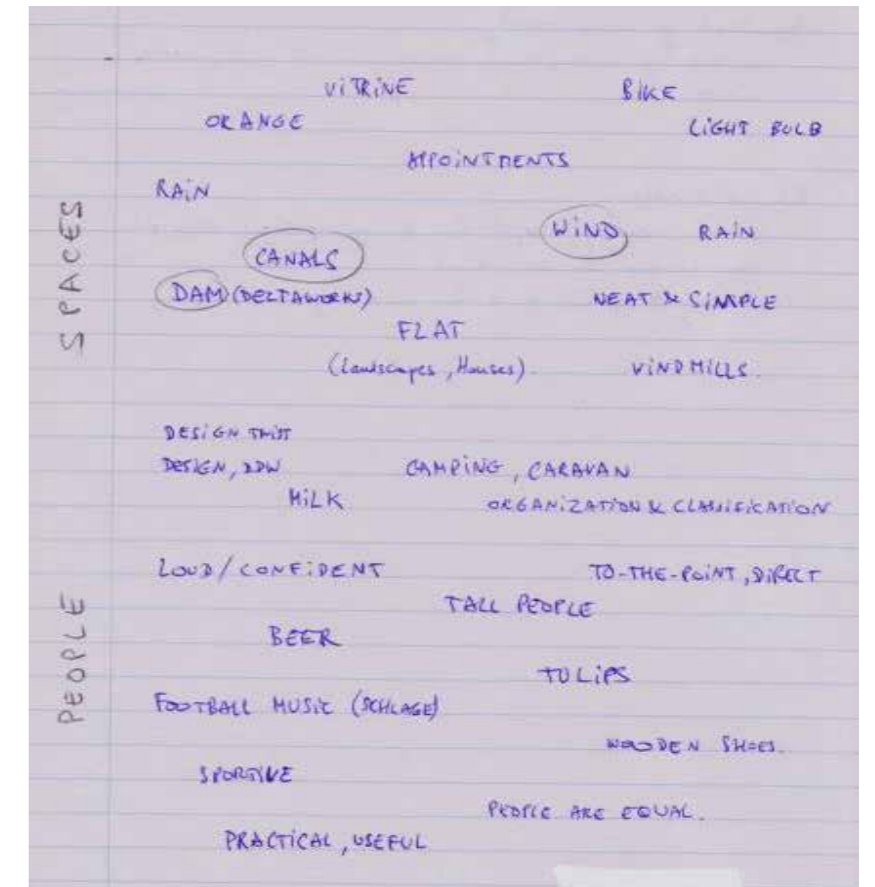


Fig. 1. Brainstorm about the Dutch identity.



**Fig. 2.** Dutch embassies: Addis Ababa (Ethiopia) by Dick Van Gameren, Bjarne Mastenbroek (2005), Berlin (Germany) by OMA (2003), Maputo (Mozambique) by Claus en Kaan Architecten (2003) and Paramaribo (Suriname) by Lafour & Wijk architects (1996).

## THE DUTCH IDENTITY

What is the Dutch identity? In order to investigate this question, a preliminary research was conducted, whose goal was to capture the Dutch identity into a hand-made gift. The procedure started typically with a brainstorm of keywords and/or images that reflect the Dutch identity (Fig. 1). Some of these words were then selected to serve as a basis to generate the Dutch gift. It was advised to delve deeper than the stereotypical Dutch gifts (cheese-tulips-windmills-clogs).

The fourteen gifts thus generated were significantly different. Does it mean that the Dutch identity is not that well defined?

Some concluded that the Dutch identity did not really lie in objects, often originating from foreign lands, but rather in a process. The typicality of this process is that it is simple, clear and practical, and is inspired by retaining the best from the various cultures they meet.

My conclusion is that the Dutch identity is too complex to be captured by a single object, even though a single object could strongly refer to the Netherlands (who said wooden clogs?). But these are either stereotypes or single facets of the Dutch identity. The identity of the Netherlands lies in the whole ensemble, as it can progressively be experienced when living in the Netherlands (front window and garden, gezelligheid, mindset of entrepreneurship,...).

A way to reproduce the identity

of the Netherlands would be to render an atmosphere similar to the one that can be perceived there, by combining several elements together.

The current worldwide trend however is a fading out of the cultural barriers, as can be witnessed by international architecture, or online communities. As a consequence, a work of architecture that is intended to represent the Dutch identity could be mistaken to represent another country. This is not a problem in itself; it simply reflects the ever-evolving identity of a nation, which might happen to be captured by its materialization into an embassy... until it becomes obsolete.

It is therefore relevant in this research to investigate how the current identity of the Netherlands should be captured in an embassy building.

## THE DUTCH IDENTITY IN EMBASSIES

How did the Dutch express this identity in their embassies so far?

### A DOCUMENTARY ABOUT FOUR DUTCH EMBASSIES

A first answer to this question can be obtained from the documentary "Mission Statements".<sup>3</sup> Four Dutch embassies are studied: Addis Ababa (Ethiopia), Berlin (Germany), Maputo (Mozambique) and Paramaribo (Suriname) (Fig. 2).

In three embassies, the identity of the Netherlands is expressed via the use of water (Fig. 3). The embassy in Ethiopia has a roof that retains water in sculpted polders shapes. The site of the embassy in Berlin was purposely chosen by Rem Koolhaas to be aside the water of the river Spree. The embassy in Suriname contains an atrium filled with a water stream running down large steps.

All four embassies show an effort of the architect to integrate the building into the environment of the host country, not only visually but also functionally (Fig. 2).

The embassy in Berlin uses an overly large quantity of glass to represent the transparency of the modern diplomacy of the Netherlands. This gives a special character to the place; it has been designed for art, but not for the employees who suffer from a lack of privacy.

The embassy in Mozambique

also uses a lot of glass. But unlike in Berlin, the prison-like entrance gate is not welcoming. Once inside though, one can enjoy the peaceful atmosphere of the inner garden.

The documentary concludes by deploring that embassies with such care on the design will progressively disappear, mainly for economic reasons.

### A PRESENTATION ON DUTCH EMBASSIES WORLDWIDE

The understanding of the expression of the Dutch identity in embassies has been further refined in a presentation by H el ene Damen (2015), PhD researcher at the Technological University of Eindhoven (The Netherlands). Her results so far are summarized below.

The Dutch architecture remained relatively unknown until the late 80's, when the Dutch government decided to promote internationally the architecture of the Netherlands. For this purpose, they issued an architectural memorandum, "Architecture notes", and provided grants for exhibitions, publications, travel. This contributed significantly to the fame of some architects, such as Rem Koolhaas, Ben van Berkel, Winka Dubbeldam, MVRDV...

The fading boundaries due to the current globalization led the Dutch to build everywhere in the world. When observing the Dutch embassies all over



**Fig. 3.** The Dutch identity expressed by water in the embassies in Ethiopia, Germany and Mozambique.



Fig. 4. The current Dutch embassy in Oslo.

the world, one can say that they are contextually designed: the embassy blends and works in its environment. It is made of local materials and techniques. Dutch details are visible but subtle.

Among the typical Dutch themes, one can find: Calvinism (soberness), Dutch sense of humor, Dutch visual arts "conceptual", gezelligheid (coziness), woonerf (residential area). Building-wise, the Dutch identity is often represented by a certain degree of transparency (open spaces, semi-public), or reference to water (polders on the roof top of the Dutch embassy in Addis Ababa, or waterfront against the Dutch embassy in Berlin).

An embassy should be seen as the business card of the nationality it represents.

Additional notes:

The policy about embassies is decided by the ministry of foreign affairs in Den Haag.

- Dutch embassies are built according to Dutch standards or higher.
- There is no specific rule regarding the location of the embassy.

#### THE DUTCH EMBASSY IN OSLO

The Dutch embassy in Oslo (in January 2015) is a large neoclassical mansion, originally built in 1868. Based on measurements on the satellite pictures, the embassy has a ground area of roughly 350 m<sup>2</sup>. That area extends over two floors, for a total gross floor area of 700 m<sup>2</sup>. It

is currently hosting 12 people, 10 of which are locals of Dutch nationality. The mansion contains individual working rooms, each assigned to a specific diplomatic division (e.g. defense, consular area, etc.). Due to the small number of employees, the rooms are occupied by only one or two persons. More information about the current situation can be found in Annex A – Interviews and presentations.

The building is currently being renovated, even if this alternative has a higher cost with respect to moving to a new location. The employees, most of which have been working there for a long time, liked the location and the architecture of that historic building.

The building is located in a decentered residential area that protects it from the agitation of the city center, while still being within easy reach. Many other embassies are established in the neighborhood, making them readily accessible. The character of the mansion and its history gives the impression that Dutch representatives have been occupying this place for a long time. This house

conveys a sentiment of permanence, reliability and conservationism.

Why then would the Dutch diplomats ever want to move to a different location? An answer will be found in the next section, that studies the evolution in time of embassies.

#### CONCLUSIONS

Several recent Dutch embassies have been carefully designed to represent the Dutch identity. They are integrated in the environment of their host country. They are made of high-quality construction that blends in with local materiality. They typically have a subtle element that represents the Dutch identity, such as water or the use of glass for a transparent diplomacy. Unfortunately, budget cuts and the changing needs of embassies make the future of such designs uncertain. This is not necessarily a bad situation, as it will force the architects to come up with designs that are better adapted to modern needs.

EVOLUTION

DRIFT

An embassy serves as a bridge between two countries and facilitates international negotiations. But it goes beyond that, as it also acts as a physical statement of the values of the represented country.

These values that were once adequately represented will sooner or later end up in obsolescence for three reasons. First, the values of the society we live in change continuously as our civilization evolves. Second, our perception of symbols evolves as well, and a high-tech building of today will be seen as a piece of world heritage tomorrow. Third, economical and physical limitations always force a choice to be made. As a consequence, it could be that the functional properties of a building end up prevailing over its architectural qualities and symbolism.

A good example of such a drift has been studied by Loeffner. The fear of terrorism led the United States of America to put security on such high priority that their embassies ended up looking like hostile fortresses. <sup>4</sup> This drift went so far that it led to numerous protestations from architects. On the bright side, it forced them to reconsider how an ideal embassy should be designed. They ended up defining guiding principles that define Design Excellence:

- construction of embassies and consulates that are safe, secure,



Fig. 5. The Dutch identity encompasses many values.

- functional and attractive;
- acquisition of (smaller) sites in urban areas, where possible, to enhance symbolism and accessibility;
- selection of designs that are cost-effective, contextual, flexible and enduring; use of the latest engineering techniques to maximize sustain-ability and energy-efficiency and to minimize long-term costs and maintenance issues;
- the hiring of the best designers and contractors;
- integration of art (local and American) to showcase cultural exchange and enhance buildings and grounds;
- and care and preservation of historic properties and other cultural assets.

Most of these criteria can be found in the embassy design requirements of other countries. A particular accentuation is put on the costs, flexibility and practicality of the building. This includes its growth and possible reuses. <sup>5</sup>

Unfortunately such requirements have the tendency to lead to one-

size-fits-all designs. In a letter to his government, the ambassador of the United States to Poland warned against such drifts and the poor image they would give of his own country: "The buildings should be user friendly and reflect an openness and the spirit of freedom where possible. They should reflect America's highest hopes and aspirations." <sup>6</sup>

FORM FOLLOWS VALUES

In her PhD thesis "Form follows values. Explaining embassy architecture", Natasha Dimitrova Guenova states that architecture is widely accepted to reflect values. <sup>7</sup> In embassies, it is used to make powerful statements about international relations. In political architecture, form follows values rather than functions. She concludes:

"The major finding of this study is that the characteristics of host country are the single most important predictors of embassy design as reflection of values. Countries act in their self-interest as well as for

Period	Architecture	Values
Early 20th century – Post-World War II	Neo-classicism	Traditionalism, stability, continuity, social order
Late 1940's – 1970's	Modernist	innovation, change or progress, moving forward
Since 1950's	Business-focused (economically-based decisions)	wealth or prosperity
1980's	Security-focused	safety and security

Table 1. Evolution of architectural types in the United States according to the evolution of values.

the Identity perspective about the importance of cultural factors and some for the liberal perspective about the importance of trade in international relations."

Dimitrova also points out that the evolution of architecture through four architectural types is quite universal in the sense that they reflect four basic human needs, or values: 1) stability, continuity, social order; 2) innovation, change or progress, moving forward; 3) wealth or prosperity and 4) safety and security. An example for the United States is given in Table 1.

Dimitrova mentions that the Scandinavian countries, represented by Sweden and the Netherlands, do seem likely to value wealth as well as technological innovation; Northern European countries are an example for post-materialistic values.

Even if one can agree that the form should follow the values, the question remains on which values should be expressed. So far three kinds of values have been distinguished:

- The values representing the (per-

- ceived) identity of the country
- The values resulting from the evolution of the country
- The values at which the country aspires (and possibly already has)

For the Netherlands, a sample of these values could be:

- Open-mindedness, practicality, extroversion, cheapness,...
- Post-materialism, innovation, moving forward
- Transparency, efficiency, reliability, open-mindedness

Which of these values, then, should be expressed in architecture?

The situation can be compared with that of a first encounter. When a man meets a woman, his brain subconsciously assigns her to a specific category of persons, and dictates the next step he should take. It could be being friendly to her, or avoiding her. The man will act in consequence and present the traits of character that his brain learned to use in similar situations. These traits of character will be those that will help him

accomplish his goals. If he is interested in the woman, he will subconsciously use a body language that indicates his interest. This language is in fact a sub-selection of his whole personality. His true identity will only be shown progressively. His shield will fade as he gets to know the woman better.

As a consequence, the first impression plays a big role, and it is mostly visual. That is why the appearance of an embassy is so important. It expresses the role the embassy wants to play in the relationship. Is it authoritarian? Is it friendly? Is it exuberant?

The degree of comfort the observer will experience will make that person more or less likely to naturally bond with that nation. The architecture of an embassy acts as a filter.

MODERN NEEDS

In order to know what values the Dutch embassy should express, the goals of that embassy need to be

Goals	Means
Costs reduction	Lower gross floor area. Low-energy design. Costs sharing (eg. by sharing premises). Creation of opportunities (return on investment). Higher efficiency.
Efficiency	Faster and easier access to the building. Proximity to places the embassy needs to deal with. Better working environment (space layout, new technologies, comfort). Networks and opportunities.
Opportunities	Easy and fast access to prime information. Unexpected encounters and networking. Attraction of people in the vicinity of the embassy.

**Table 2.** Means of achieving the major goals of the Dutch diplomatic mission in Oslo.

known. For that purpose, an interview with an advisor of the Dutch ministry of foreign affairs and with Dutch diplomatic representatives in the embassy in Oslo were conducted. The full details can be found in Annex A – Interviews and presentations. The most important points are summarized below.

The focus should be on costs, efficiency and opportunities.

A new way of working is part of the redesign of the embassy. This includes the use of smart technologies, shared desks, circulation of the information via open spaces, easy access to external partners,...

The Dutch embassy in Oslo has several roles (consular, diplomatic, defense, economics). Its main activity is focused on trade. The design of building should favor opportunities. There is no money assigned to culture, and sustainability is less important than costs. The focus lies on

functionality rather than image.

The building should be remarkable, easily accessible and close to other embassies. It should be clear that we are entering a diplomatic soil of Dutch nationality. However the architecture itself should only subtly hint to the Dutch identity, while blending in the local context. For that, and for ecological reasons, local materials and ways of building will be favored.

Security should be minimal (for costs reason and appearance). In Norway, the risk of attacks is low. Only a small part of the building is public. The consular desk and IT room are the only rooms that need to be protected against an attack. The other parts of the building are protected by regular doors and security cameras. In Oslo, the defense against intrusions relies heavily on a good cooperation with the local police. Consular area and main entrance should be separate.

Flexibility should be kept in

mind. The new embassy should be designed for the currently 12 working people with an average occupancy of 0.7 FTE (full-time equivalent). It should accommodate possible future expansions or contractions of personnel, as well as a possible future conversion of the building to another function. The expected lifespan of the embassy is 10-15 years.

This list is rather practical and straightforward, however the consequences of certain decisions should not be taken lightly as they could go beyond what was initially intended. For example, choosing low costs over sustainable measures might have unforeseen secondary effects such as:

- Higher building use costs; impossibility to implement certain sustainable measures at a later stage.
- Convey the impression that Dutch do not care about sustainability (and thus do not care about other people), or do not have the techno-

logy (lack of innovation).

- Decrease the productivity of the employees by not making them proud of their building, or let them worry about whether the architect selected health-friendly materials.

## MISSION STATEMENT

### GOALS AND MEANS

Among all the goals presented in the previous section, the most important according to the members of the diplomatic mission are costs reduction, efficiency and opportunities. How can these goals be encouraged through an appropriate architecture?

Table 2 shows several ways that these goals can be attained. It is particularly interesting to see that the costs reduction can be achieved via a higher efficiency, itself favored by the creation of opportunities. In other terms, by improving the chance of opportunities, the efficiency and the costs will also be improved. Certain means are also common to several goals.

In brief, the primary point of focus should be the creation of opportunities. And the primary means should be the proximity of people the embassy wants to deal with, and the networking possibilities.

### CONCLUSIONS

The evolution of the values in a society should be reflected by an appropriate design of new embassies. The values the embassy should display

### STATEMENT

“Welcome onboard and feel at home, let us have a talk.”

This is, in a couple of words, the essence of the building that will be developed in this document. It is attractive and welcoming. People simply like to be in its presence because they feel comfortable with it. It can be trusted. But at the same time, the building is also inviting the people to come on a wonderful journey, to meet new people and develop their network. The building exhales dynamism, but at the same time stability.

The current Dutch embassy in Oslo is a like an island isolated in its plot among the other residences of the area. One would not run into it by chance. Its traditional appearance exhales stability and conservatism rather than dynamism and vision of the future. The large rooms seem to ally comfort and luxury at the detriment of efficiency. Without its Dutch and European flags, the building would not be recognizable as an embassy.

The architecture and location of the current embassy building are

and encourage need to be carefully selected to serve the agenda of the represented country. The message should be elevating. It should carry a simple and clear mission statement.

not much in alignment with its goals. However it still presents certain qualities, one being the gezelligheid, or feeling of coziness, and another being its contextual look. The house indeed fits in its neighborhood.

### CONCLUSIONS

The architectural traits of a new Dutch embassy should, like its successful predecessors, be contextualized to blend in its environment. The Dutch identity should be conveyed via architectural subtleties, but most importantly, the current Dutch values should be encouraged by the architecture of the building.

The inviting coziness, dynamism, reliability and open-mindedness are typical of the Dutch identity. Even if they are not exclusively Dutch, they act at a double level. They are the values the Dutch want to show, not only because they are part of their identity, but also because they will help them accomplish their goals.

# THE CONNECTOR CONCEPT

## GENERAL CONCEPT

The architectural concept that is going to be presented here goes beyond the design of an embassy. It is about creating a whole environment called **connector** that has the quality to attract people and make them informally connect. The central element of a connector environment is the **attractor** (Fig. 6). This is the element that will intrigue, invite, and push the people to come closer, to experience the place, and come back again. A typical attractor would be the Eiffel tower. But it can also be a café or a small square in a park with a special character.

Several **supporting elements** are attached to the attractor. Their role is to encourage the people to stay around the attractor and connect together. For example, if a café is an attractor,

the supporting elements would be the terrace siding it, the home-made beer, the panoramic view, the sunny weather outside, the trees around providing shade, etc.

Several **targets** surround the attractor. They are typically the spaces and/or people that need to be connected together. The proximity of the targets, their compatibility and the regularity at which they are put in contact significantly improves the quality of the attractor.

It is in our human nature to meet, connect, and eventually build something together. The communication goes through a multitude of signals, often subconscious, that make a person feel whether cooperation can be built. The information transmitted via a face-to-face conversation can never

be matched by other means such as newsletters, emails, phone calls, and even videoconferences. All the subtleties of the verbal and non-verbal languages can eventually make the difference between making the deal and missing an opportunity.

When an embassy is part of a connector configuration, its chances to be in contact with opportunities will increase significantly. The reason is that key fresh information and rumors are generally not transferred via official ways. Usually they are communicated via informal talks.

For these talks to happen, the connector should be located close to the working offices the embassy wants to connect to. These are typically the ministry of foreign affairs, other embassies, and maybe some

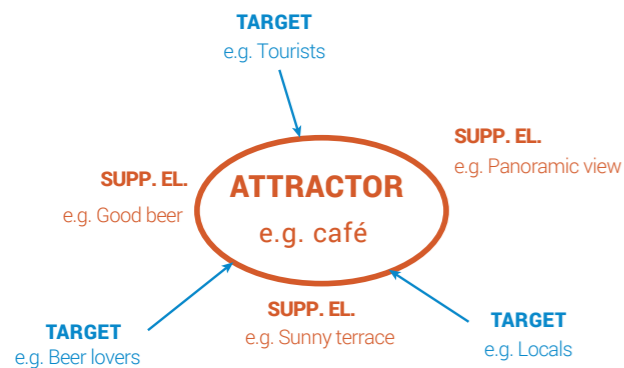


Fig. 6. Schematic representation of the connector concept and illustrative example.

businesses. Then, one day, it might happen that "by chance", an employee from the Dutch embassy and one from the ministry of foreign affairs are in the same café-restaurant of the connector. They will not know each other but the next time they come, their faces will be familiar to each other. Maybe they will start a conversation about the rain outside. Maybe they will learn that they both work with a colleague that is involved with the export of lumber. From there, opportunities may emerge.

This kind of conversation can

only arise upon unexpected informal encounters: at a bus stop, in a café, in a restaurant. This is why the environment of the new embassy should not be based on showing strength, wealth and authority, but rather on blending in, being at the center of a network of information deeply rooted. So deeply that even if the physical symbol of the country would be blown up by terrorists, the soul of the bonds would remain intact.

Without connector, the embassy would be more isolated. Nobody would

come around "by chance" and the meetings would be essentially driven by a predefined agenda. By missing on the informality of sharing a drink on a terrace, even small talk will have a background of polite inquiry rather than genuine concern. And everyone knows that genuine interest in the other is the golden path to win friends.<sup>8</sup>

A connector is a cradle for serendipity, potentially turning what started like a normal day into a wonderful adventure.

## USE CASE

Architectural designs that foster serendipity are not new. Steve Jobs, for example, made this a key requirement for the design of the new Pixar Studios. The first architectural proposal, separating the animators, computer scientists and Pixar executives into three buildings, was immediately rejected by Jobs. He wanted a single

central airy space, where people could meet (Fig. 7).<sup>9</sup> Jobs still had to make people go there. He did that by placing all sorts of common services (the supporting elements of the attractor): mailboxes, meeting rooms, the cafeteria, the coffee bar, foosball, the reception, the gift shop, two 40 seats viewing rooms and a large theater.

Jobs even wanted the atrium to host the only restrooms of the building, but he had to skip on that one.

The spaces surrounding the atrium were left clean and flexible to let Pixar fill them following their own creativity.<sup>10</sup> From this emerged unforeseen spaces such as the Lucky 7 Lounge.



Fig. 7. Central atrium in the Pixar Studios Headquarters, Emeryville, California. Architect: Bohlin Cywinski Jackson.



Fig. 8. Thematic gondolas at Google Zurich.



In their previous building, Pixar had opted for a much more open floor plan filled with cubicles and noted the difficulty to get the work done. This time, only a limited amount of individual offices (5 or 6) are clustered together around a central gathering space, bringing the serendipity to a smaller scale. The employees are free to express themselves in their own office space. This led to a wide variety of decorations, ranging from minimalistic to chaotic styles.

Did it work? Absolutely! The number one factor that defines who a person picks up as friends is not common interests, but rather proximity. This has been proven by researches based on sociometric survey techniques, according to Baker.

<sup>11</sup> Even at the scale of a building block, the mere arrangement of the houses will have a significant influence on who you will meet informally. For an embassy, this means that there is a significant difference between being the next door neighbor of the ministry of foreign affairs, and being 500 meters away.

Innovation-driven corporations pay a special attention to create an environment that foster creativity. Besides the promotion of unforeseen encounters, these companies also focus strongly on the well-being of people via stimulating and atmospheric environments (Fig. 8). This kind of design is generally targeting a young and dynamic audience, mainly from entertainment firms.



**Fig. 9.** Aerial view of the complex of the Nordic embassies in Berlin. It clearly shows the concept of carving out the six buildings out of a single mass of keyhole-shaped material.

## SHARING PREMISES

As already mentioned, one of the key elements to encourage unforeseen encounters is the proximity of the actors that need to be put in contact. For an embassy, the proximity of the ministry of foreign affairs is of prime importance, but also the proximity of other embassies and business opportunities.

Sharing premises with other entities is an easy way to combine proximity and a reduction of costs. Furthermore, it enhances the visibility and attractiveness of each partner, since visiting one partner is also seeing the other ones.

### THE SCANDINAVIAN EMBASSIES

The successful concept of embassies sharing premises has already been implemented at various scales. A famous example is the Nordic Embassies complex in Berlin (1999), shared between five countries (Denmark, Iceland, Norway, Sweden, Finland). <sup>12</sup> The complex is surrounded by a 15m-high green wavy copper clad wall. It contains five national buildings arranged geographically. A sixth one, the Felleshuset, contains the entrance to the complex, an auditorium and a canteen. Each of the six buildings has its own architectural materiality, but is geometrically bound to the other ones

via their carving out of a single keyhole-shaped mass (Fig. 9), a pond of water touching each building, and the copper clad outer wall. <sup>13</sup>

The Netherlands are also looking for potential European alliances that would allow cost reductions in countries other than Norway. For example, discussions were ongoing in 2013 about potential partners with whom to share the embassy in Sofia. <sup>14</sup> Among the candidates, one could find Belgium, Luxembourg, Germany, Denmark and the United Kingdom. It goes without saying that the common interests of these countries can also become a source of conflict of interests when the host country offers deals that the represented countries would rather not share. A cooperation of the Netherlands with Germany, for example, could work well in Sofia, while this is more doubtful in Oslo, where they would have to share interesting oil concessions.

In the Nordic embassies complex in Berlin, the Felleshuset clearly plays the role of an attractor, where the employees of the five other buildings meet and connect. This configuration however isolates each embassy in its own building. This is a missed opportunity compared to the configuration of the Pixar studios, where all entities are located in a single building, and share the same coffee corner.

Sharing a single building is a



**Fig. 10.** Snøhetta's open space office.



**Fig. 11.** The 200 employees working at this table are required to switch seat every six weeks.

delicate matter: the partners must be compatible and not prone to conflicts of interest. They must have their own individual assets, without being in concurrence with their partners. This topic will be further discussed in section .

**INCUBATION OF STARTUPS**

Numerous barriers prevent small Dutch startups from being implemented into foreign countries. Among the common barrier, one can mention the difference in language, the lack of knowledge of the local economic and political situation, the local legislation,...

The role of the Dutch embassy in facilitating the integration of such startups in the host country is often not known by the prospecting companies. The visibility of this role would be improved if by using the embassy direct environment as a cradle where new startups could develop.

The incubation phase would eventually lead to the independence of the startup. After a year or two, they would leave their spot to new emerging startups.

This situation is highly desirable in terms of opportunities and costs. It allows fresh information and opportunities gathered by the embassy to be quickly implemented in practice, giving the startup an edge over its competitors. Wealth is generated at several levels:

- (Future) income generated by the

startup;

- Multiplication of incubated startups (via increased visibility);
- Rental fees paid to the embassy, owner of the building;
- Fees paid in exchange for advices from the embassy;
- Time saved by the startup in obtaining information, and speed advantage.

**ADOPTING NEW PERSPECTIVES**

The strength in sharing premises can further be boosted by using a seat shifting strategy. The Norwegian architecture bureau Snøhetta uses this technique in its headquarters in Oslo. The office is made of a single large room that accommodates 450 employees (Fig. 10 ). A key element to serendipity is the obligation for each employee to change seat every year. The new seats are assigned randomly and, as a consequence, people from different projects get to know each other, and new friendships or ideas can emerge.

Some companies, such as the independent advertising Mother London, even push this seat switching to the extreme. Their office hosts an impressive concrete table that can accommodate about 200 employees. They are required to switch seat every six weeks (Fig. 11).<sup>15</sup>

**CELEBRATING IDENTITY DIFFERENCES**

The advantages of sharing premises have been clarified, but a question remains: how should the various entities be selected for a fruitful collaboration?

The first selection criterion is the size of the entity (country, startup). The smaller the entity, the bigger the advantage of sharing premises:

- When the entity is small, being part of a bigger group makes it more powerful.
- The costs savings due to the collaboration are proportionally more significant than for bigger entities. The maintenance costs of embassies in particular are substantial.
- A startup brings on the table some specific skills, whereas bigger companies already have many

abilities, risking some overlap with other companies.

- Smaller entities make the atmosphere more familial and cozier: everyone has the chance to get to know everyone.
- Opportunities in increasing or decreasing the size of the offices, as the embassies or startups grow or shrink.

The size of an embassy is generally small when the host and the hosted country are both small. The Dutch embassy in Oslo for example, only employs 12 people currently, and this number is fluctuating. This makes the current building inadequately too big and costly to maintain.

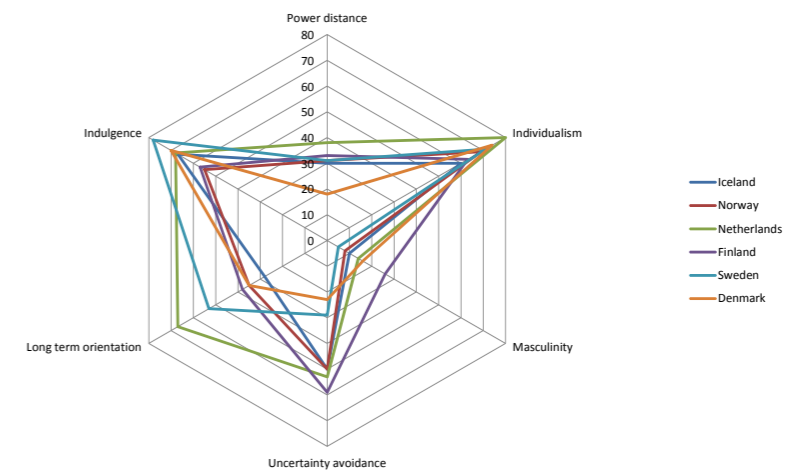
The second selection criterion is to find compatible entities. Of course,

the selection of the entities should not be the cause of conflicts of interest, but it goes further than that.

The mindset of the people that share the building should be similar, at least to a certain extent. The goals, values and identity of the countries need to be studied and their characteristics will influence the design of the architecture that encourages the unforeseen collaborations.

In the case of Oslo, a group of five countries was to be chosen. These countries had to be small in population (below 20 million inhabitants).

Five northern European countries were selected, because their geographical proximity gives them an advantage in understanding each other and having a similar mindset. Choosing



**Fig. 12.** Comparative chart of the main behavioral characteristics of the northern countries.

five countries scattered around the world was also a possibility, but cultural differences may add some extra barriers to collaboration, sometimes almost impossible to surmount.

The five countries that were chosen are: The Netherlands, Denmark, Finland, Sweden, Iceland. The values and behavioral characteristics of these countries have been studied by the Hofstede Centre. <sup>16</sup> Fig. 12 shows a chart comparing the six main behavioral traits of these countries (plus Norway), on a scale ranging from 0 to 100.

CONCLUSION

The main goal of the embassy can be summarized by one word: opportunities. This led to the elaboration of a simple concept, that of a connector.

A connector is an environment which promotes serendipity: unforeseen encounters that lead up to new connections and the creation of opportunities. A connector is made of three constituents:

- The attractor is the central element, where the targeted people will want or need to spend time;
- The targets are the entities (e.g. embassy, ministry) containing the population that the attractor aims to attract;
- The supporting elements are elements helping to attract the people and keep them inside the attractor (coffee corner, comfortable seats,

This chart shows that the five chosen countries have in common four traits of character: low power distance, low masculinity, high individualism and high indulgence. To better understand the signification of the embedded values, they are described by keywords in Table 3. From there, matching architectural qualities can be derived (Table 4).

The ideal environment for the five embassies is therefore non-hierarchical and open-minded, focused on well-being and celebrating the individual assets of each collaborator.

view, etc.).

A successful connector has three qualities: the proximity of the targets, their compatibility and the regularity at which they are put in contact.

The concept of connector has already been used in several works of architecture with success. It includes smart ways of fostering new encounters, by making the attractor a needed point of passage, or by reconfiguring the work location of the employees. It has even been used for embassies sharing premises.

In this thesis, the concept of connector will be used at several levels, thereby multiplying the impact. It involves the sharing of the premises between five countries that are small enough to keep the atmosphere cozy, and have compatible traits of character. From there, architectural qualities are

At first, working in such an environment might be unusual, disconcerting. But the initial apprehensions will fade out as the employees progressively open themselves up. Eventually, an emulating and exciting environment will set into place. For this to happen, the architecture of the place has a big role to play. Serendipity and collaboration must be encouraged at every corner of the building. As Churchill said: "We shape our buildings; thereafter they shape us".

derived and used in the design of an embassy complex that fits its hosts.

Low power distance	Low masculinity	High individualism	High indulgence
no hierarchy	nurturing	celebrate differences	freedom
equality	feminine	self-reliant	choices
informal workspace	caring	initiative	possibilities
decentralized power	well-being focused	responsible	epicurism
direct communication	work/life balance	right to privacy	positivism and optimism
participative	consensus	personal opinions	leisure
consensus	equality, solidarity	win-win	
	compromises, negotiation	efficiency-driven	
	listening	options for way of working and environments	
	incentives: free time and flexibility	collaboration	
	solidarity	expertise	
		no hierarchical separation	

Table 3. Description by keywords of the common traits of character of the five countries.

Alike	Opposite
connect, meet, share	strict, rigid, framed
informal, varied [atmospheres]	symmetry, tall, straight, rectangular
undefined spaces, flexible, adaptable	strength, mass
individual strengths	hierarchy, inaccessibility, sequence
straightforward, efficient, direct, to-the-point	security, closed, protection
options, moods, diversity	distance, status
playful, positive, optimist	hiding, mystery, maze
cozy, nurturing, caring,	
open, available	

Table 4. Architectural language that corresponds to the values shared by the five selected countries.

## SUSTAINABILITY

Integrating sustainability considerations in new architectural projects is now among the top architectural priorities. When designing a new building however, what is the place of these sustainable considerations: are they defining the architecture and appearance of the building, or are they mere add-ons to an already defined architecture?

Our pre-graduation research consisted in exploring the aesthetics of architecture by means of a series of essays. Various subjects are discussed: new technologies, passive and active approaches, contextualization of the architecture, vernacular solutions, adaptability and flexibility, recycling, reuse and production of materials...

My conclusion over this study, which is also that of my essay,<sup>17</sup> is that as designers, we should be aiming for global sustainability, in the sense of the triple bottom line approach (environmental, economic and social) as described by Elkington (Fig. 13).<sup>18</sup> My essay has explained how using an industrialized modular system allows acting along these three main axes at once.

However an industrialized modular system is especially appropriate for buildings that are going to be massively built. It does not mean that they will all be exactly the same, but it means that they will have a consistent grid, and consistent way of

interlocking together. Their production process will have been optimized for maximum efficiency of the production line, hence defining the maximum dimensions of the prefabricated modules. As a consequence, a reduction in costs together with a higher energy performance and a faster construction with less mistakes can be expected.

For unique buildings, this method should not be viable because the development costs and the difficulties in adjusting the construction in situ are not worth it. In that case, environmental sustainability and reduced costs can still be achieved by the use an appropriate approach. For example, decomposing the building into a series of elements as big as possible (but still easily transportable) that can be assembled off-site will cause less waste of materials and a better quality control than in situ construction. This will also make the construction faster, and therefore save costs.

Social sustainability is achieved by designing a building that is agreeable to use and can stand the test of time. Social sustainability is at the heart of this thesis. The connector concept is entirely centered on generating an exciting work environment, where everyone can chose the way he/she wants to contribute. The fostering of new encounters and serendipitous collaborations will enrich the life of the

employees and increase their chances to build new friendships. Furthermore, well-being is also considered and the health of the employees is promoted via the presence of standing desks, free fresh fruits, bicycle shed and shower, or the direct vicinity of the biggest park in Oslo.

As a consequence, the new opportunities that arise will also act positively on the financial targets of the embassies. This alone takes a major part in assuring the economic sustainability of the whole project. In addition, extra sources of income and cost savings make the project even more attractive:

- shared building costs (or rent by other countries)
- rental of offices to startups
- café-restaurant
- tax returns and contact creations via the incubation of startups
- promotional events that increase visibility and some returns (e.g. concerts on the plaza, keynote speeches in the auditorium)
- sale of works of art via the exhibition space.

The environmental sustainability is studied in the "Design - Building physics" section. The design is an opportunistic response to the assets of the site. For example, one of the most important assets is the presence of the railway station 30 meters below surface.

Exhaust pipes are running just below the embassy complex and their heat can be recuperated to warm up the embassy complex. Furthermore, the high thermal mass of earth, 30 meters deep, can readily be exploited since an access for a heat pump is already available. The advantage of a heat pump (with respect to solar heaters) is that they are more efficient and can be used both for heating up and cooling down the building.

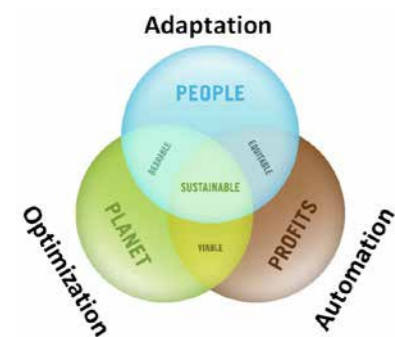


Fig. 13. The triple bottom line approach.

## CONCLUSIONS

The research on identity presented in this chapter has been conducted by approaching the subject from different domains and aspects. The research methods used include the fabrication of a gift representing the Dutch identity, various literature reviews, interviews with analysts and end users. From the observations and conclusions that each piece of the puzzle could provide, it turned out that the current Dutch embassy in Oslo could be updated to better fit the current needs of the Dutch government.

A new concept, based on the construction of a connector, emerged as a solution. A connector is an environment comprising a center of attraction (the attractor) whose role is to gather people and invite them to engage informal discussion that otherwise wouldn't have happened. The attractor is helped in its role by supporting elements (e.g. café, benches, fountain,...) and will favor the connection of people from the neighboring targets (building, spaces).

This concept needs to be combined with specific objectives. For the Dutch embassy, these objectives are the expression of a clear mission statement and the Dutch identity through the Dutch values. In practice, these principles should be followed:

- The architecture of the embassy should be integrated and contextual. The Dutch identity should

be conveyed in a subtle way. Its values and mission statement should be encouraged by adequate aesthetics and functionality.

- The mission statement of the embassy should be simple, clear and elevating. It should also help serve the country's best interests. In a nutshell, it could be expressed by "Welcome onboard and feel at home, let us find on what win-win situation we can cooperate."
- The most important values to highlight in the architecture are:
  - Connection, welcoming atmosphere, clarity and simplicity
  - dynamism and practicality
  - transparency and integrity

As a result, the main goals of the diplomatic mission – opportunities, efficiency and costs reductions – are expected to be attained.

The building design should also be approached from the three aspects of a globally sustainable solution: environmental, economic and social.

The environmental aspects are typically building physics considerations. A whole section (3.7) is dedicated to the analysis of the site and the subsequent technologies that can be used to save energy and make the place healthier.

The economic advantages do not primarily come from the construction costs of the building itself, but are the consequence of the application of

the connector concept. Money comes from new trade opportunities, faster exchange of information, new informal friendships, shared costs of premises, incubation of startups, rental fees of office spaces.

The social advantages are mainly the promotion of interactions via the use of the connector concept. They are also the special attentions to the well-being of the employees, via freely-configurable spaces, quiet zones, gathering zones and some health-promoting touches.

# 3

<b>40</b>	<b>Design goals</b>	<b>76</b>	<b>Building physics</b>
		76	Thermal
<b>41</b>	<b>Location</b>	77	Lighting
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72	Interior		
74	Identity		

## DESIGN GOALS

The theme of this graduation studio was to design an embassy or a consulate in Norway. However, the limited size and impact of Dutch consulates made the design of an embassy a better opportunity to explore a new concept of diplomacy. As a result, the building is located in the capital city, Oslo.

The main design goal is to come up with a solution that satisfies the current needs of the Dutch embassy in Norway. It was concluded in the theoretical section that these needs would be satisfied by the creation of an environment that generates opportunities. The underlying concept is that of a connector, which brings people together and fosters unforeseen encounters. As a result, serendipitous opportunities arise.

The following points of attention have been addressed:

- Integration of the building in the urban context
- Integration of the connector concept at multiple scales
- Adding value to both the public and the occupants of the building
- Accessibility and visibility
- Identity
- Security
- Social sustainability: flexible, stimulating and dynamic environment
- Environmental sustainability: energy savings and recycling, healthy materials
- Economic sustainability: opportunities to generate money



Fig. 14. Location of Oslo, capital of Norway (Western Europe).

## LOCATION

It is vital to understand that the site location is of primordial importance. Indeed, as mentioned in section , two sites 500 m apart will see a different crowd going to the surrounding restaurants and cafés. The site that is used in this thesis

has been carefully chosen to attract the most interesting crowd for the embassy. The impact of a proper location is further enhanced by an appropriate combination of spaces and functions so that the people of interest will be attracted to the embassy and

generate new relation opportunities and exchanges of fresh information.

To achieve the goals of visibility, efficiency and opportunities creation, the new embassy needs to be in a place that fulfill the following requirements.

Site Requirements	Description
Proximity of partners	Efficiency and opportunities arise via the proximity of current and future partners: ministry of foreign affairs, other embassies, business areas.
Visibility	The place could easily be accidentally discovered. Citizens and tourists should remember this building and know what it is.
Accessibility	The site is easily reachable by public transportation, by foot and by bike (Norwegian are sportive).

Table 5. Main criteria used for the site selection.

## CITY ORGANIZATION

Oslo is located in the south of Norway, at the very end of the Indre Oslofjord (Fig. 14). It is a rapidly growing city whose borders cannot be expanded inland because of protected natural sites. For this reason, the obsolete industrial zonings on the waterfront are currently being heavily expanded and redeveloped into modern residential, commercial, cultural and business areas. Aker Brygge and Tjuvholmen have been redeveloped. The area surrounding the opera is

still being discussed. The scarcity of available buildable land combined to the expansion makes the costs of living in Oslo the second most expensive worldwide after Switzerland. More details can be found in the annexes, sections 6.4 and 6.5.

The diameter of Oslo city center is currently about 1 km. The main axis of the city runs WNW-ESE and links the main train station to the Royal Palace via the center (Fig. 15). Among Oslo's famous landmarks, one can

mention the city hall and the opera. Several green spaces are disseminated throughout the city, the main one being the Royal Park.

Oslo is well served by public transportation (Fig. 16). It contains a train station, a metro line and several bus and tram lines. There is also a political will to encourage the use of bicycles but the adequate infrastructures are not yet implemented.

The Vika district is of primary interest for the construction of an



- |                 |                               |
|-----------------|-------------------------------|
| A City Center   | 1 Royal Palace                |
| B Vika District | 2 Ministry of foreign affairs |
|                 | 3 Underground Station         |
|                 | 4 National Theater            |
|                 | 5 City Hall                   |
|                 | 6 Main Station                |

Fig. 15. Green spaces and landmarks in Oslo.

embassy. The area is dominated by public institutions, such as the Norwegian Ministry of Foreign Affairs and the Oslo City Hall. It also contains a number of cultural institutions, such as the Nobel Peace Center and Oslo Concert Hall. It is also a direct neighbor to the city center and the popular Aker Brygge along the waterline.

Most embassies are located within 1,5 kilometer-wide corridor

along the WNW-ESE axis (Fig. 17), on the west of the city center. The cloud of embassies is about 3 kilometers long and contains clusters of embassies, generally in residential areas, and particularly around the Royal Palace.

The embassies are generally located in side streets, easily accessible by public transports. The side streets give them privacy. These residential embassies (Netherlands, Belgium,

Indonesia, etc.) are often of neo-classical style, and are surrounded by a fenced garden, conveying an image of private islands. Newer embassies (Canada, USA, Philippines, etc.) are in newer buildings.

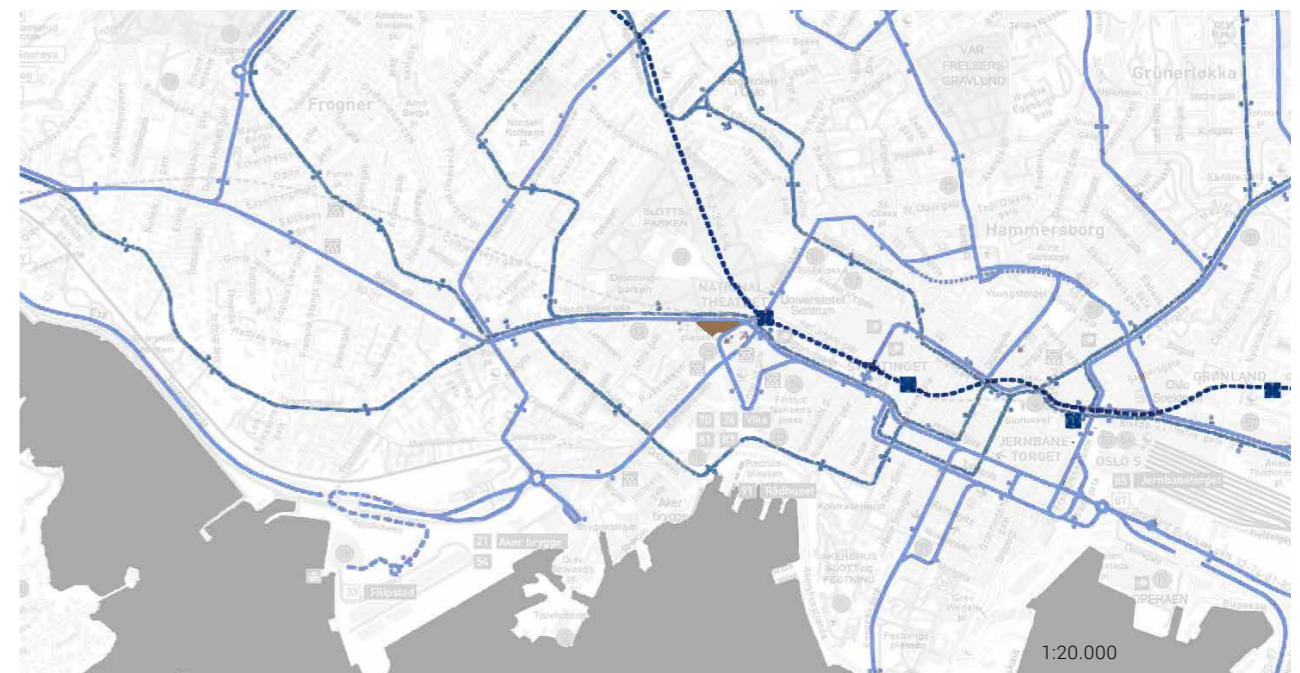


Fig. 16. Mass transit (bus, tram, metro lines)

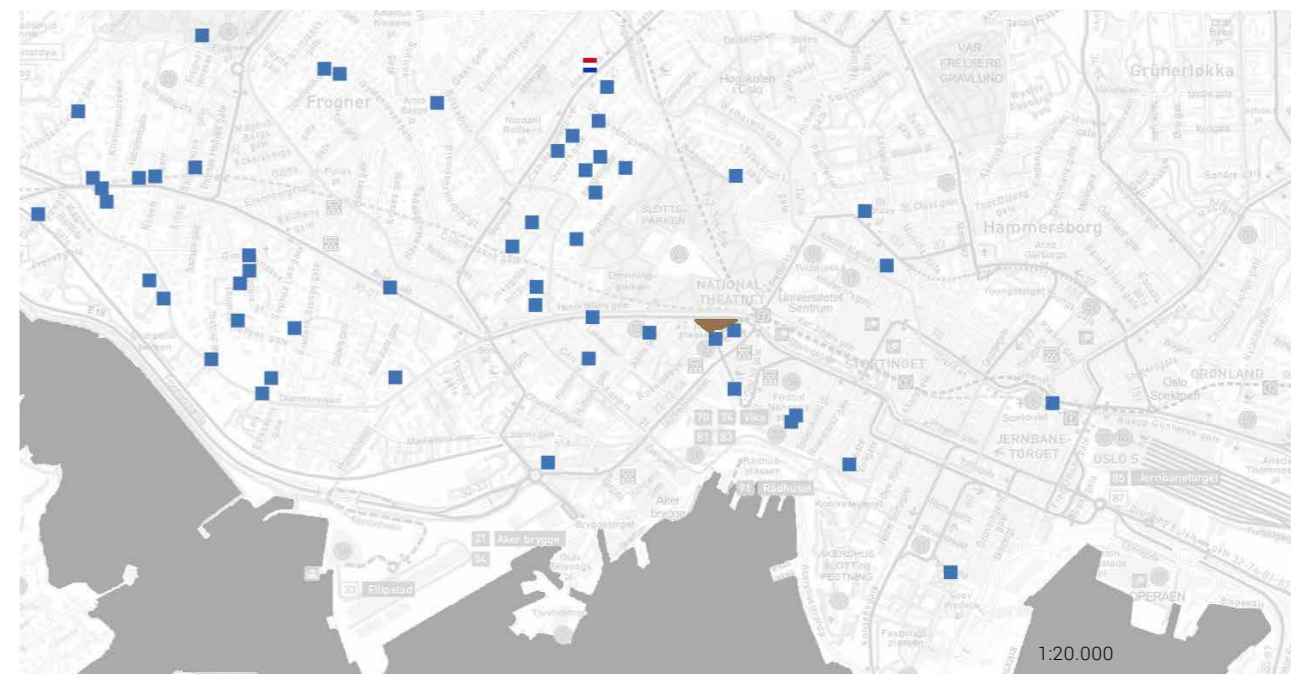


Fig. 17. Map of the embassies in Oslo.



SITE SELECTION

The current location of the Dutch embassy is a bit decentered, leaving it aside from the places that are more prone to hosting interactions and unforeseen encounters. Furthermore, its neo-classical construction is not only expensive to maintain but also inefficient to work in. Its location in a residential area makes it poorly visible. Although it can easily be accessed, the only reason to be in the neighborhood would be the embassy itself. For these reasons, a new more opportune location of the embassy needed to be chosen.

Although the Opera bay was initially considered as a potential

building site, the idea was discarded due to its remoteness from the ministry of foreign affairs and the other embassies. Furthermore, the Opera bay is expecting to mainly host residences and cultural centers, or big business corporations such as those found in the Barcode area.

More appropriate sites, closer to the ministry, the embassies, and smaller businesses, lie in the Vika district. Several plots have been compared, but the most promising one lies right next to the ministry of foreign affairs: the place of the 7th of June (Fig. 18). This spot offers the following advantages:

- Adjacent to the ministry of foreign affairs,
- Proximity of other embassies and the city center,
- Excellent access via public transportations (train, metro, tram, bus),
- Vika is a rich quarter, and the heart of the central business district of Oslo,<sup>19</sup>
- Strong visibility of the site,
- Interesting sightseeing opportunities for the design of the building.



Fig. 18. Selected building site, right beside the ministry of foreign affairs (Victorian building on the left).

SITE DESCRIPTION

HISTORY

The place of the 7th of June, also named Square of Independence, commemorates the independence of Norway from its union with Swedes the 7th of June 1905. In the center of the square, the statue of Haakon VII, first king of Norway, looks at the horizon toward the sea (Fig. 21). The statue, standing on its 2 meters high pedestal, is 3,3 meters high and has been crafted by Nils Aas in the 1970's.

The place is located on top of the oldest and historically most important railway station in Oslo. Built in the 1930's, it was, together with the Oslo East Station, constituting a two-station

line running under the city center.

The current station has four tracks and two 220-meter long island platforms. An underground metro station located above the railway station serves all six lines of the Oslo Metro. At this point, the railway and metro lines share a common tunnel over 280 meters. The exact depth of the railway tracks is not clear, one source mentions 18 meters<sup>20</sup> while another mentions 30 meters<sup>21</sup> below surface. These data can nevertheless be conciliated if one considers that 18 meters are measured below sea level, while 30 meters are measured from the main entrance of the station.

The station operates 24 hour



Fig. 21. Place of the 7th of June, Oslo.

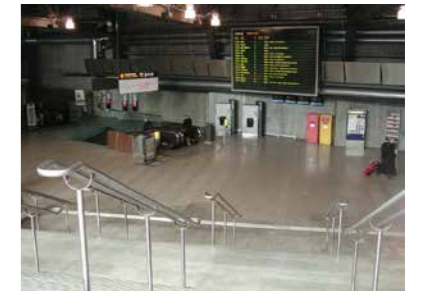


Fig. 19. Main entrance of the Nationaltheatret metro station (2014).



Fig. 20. Second entrance of the Nationaltheatret metro station (1935).

a day, runs 20 trains per hour at peak hours, and has a capacity of 8000 passengers per hour, making it the second-busiest train station in Norway.

22

ACCESSIBILITY

The site is located at the confluence of three major road axes: Henrik Ibsens gate, Haakon VII's gate and Frederiks gate (Fig. 24). In addition to the four train tracks and the six metro lines serving the site, it is also the transfer point between two

tramway lines and six bus lines.<sup>23</sup> The south-west corner of the place of the 7th June is used to park bicycles, and there is a taxi spot at the main entrance of the metro station. The metro station has an extra entrance on the square in front of the National Theater.

The site is surrounded by parking garages, for a total of 603 parking places (Table 6). A rough estimation of the number of needed parking places for an office building is 1,5 places per 100 m<sup>2</sup>. Estimating the gross floor area of the building at 2000 m<sup>2</sup>, this means a need for 30 parking places. However since the site is an important public

network hub at a central location, and since Oslo citizen mostly travel by public transports, bike or foot, we could reduce the number of needed places to 20. This can be easily accommodated by the 603 available parking spaces if needed. The Q-Park parking places can be long-term rented and the Q-Park has 26 places for electric cars.

TOPOGRAPHY AND SIGHTSEEING

The site shape is a 150m-long acute triangle that slopes down along the Henrik Ibsens gate, toward the roundabout located 6 meters lower. The sidewalk further goes down by 3 meters toward the main entrance of the metro stations. The main entrance can be recognized by its three openings each covered by a canopy. From there, the highest point of the triangle (west corner) can be accessed via a 7-meter high monumental staircase followed by an inclined plaza where the statue of king Haakon VII stands (Fig. 22). This topography gives rise to several picturesque points of view, each of which reveals a corner, a façade, or a street from a different perspective.

The place of the 7th of June is visually connected to the old harbor via a 35m-wide corridor: the Haakon VII street (Fig. 27). In the opposite direction, the Royal Park extends its flowers and green trees along the place, and the Royal Palace is visible once the trees have lost their leaves. On the eastern side, the national theater stands at a lower level, promising opportunities

Owner	Parking	Distance	Places
Municipality	Victoria terrasse	50m	75
Q-Park	Saga	100m	110
Q-Park	Vika	150m	250
Q-Park	Konserthuset	200m	168

Table 6. Parking garages surrounding the place of the 7<sup>th</sup> of June.



Fig. 22. Place of the 7<sup>th</sup> June seen from the bottom of the monumental staircase. The main entrance of the metro station is made of three openings.

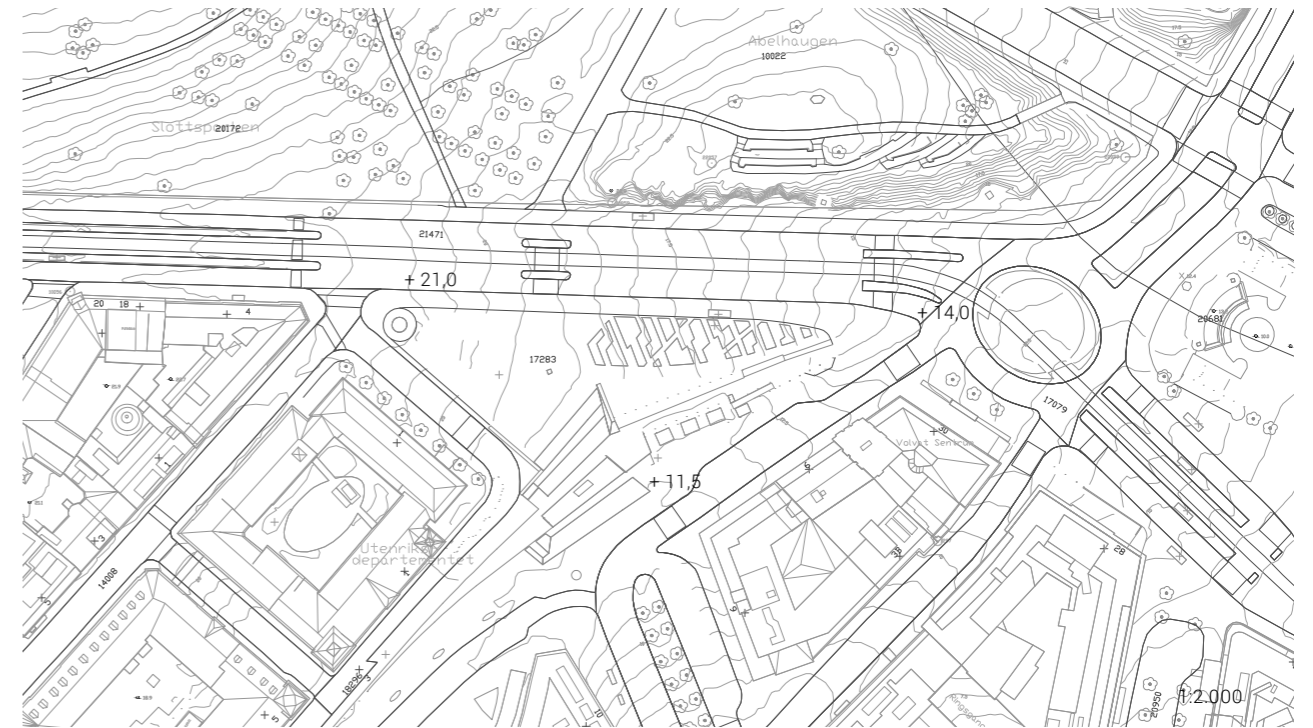


Fig. 23. Topography of the building site. Levels every 0,5 m. Plaza center at 17,2 m.



Fig. 24. Parking garages around the site (blue dots).



Fig. 25. Restoration establishments surrounding the place of the 7<sup>th</sup> June.

for an aerial view of the busy square in front of it. On the western side, the Victoria Terrasse extends its façade over 180m and hosts the ministry of foreign affairs. It was originally designed by the architect Henrik Thrap-Meyer in the 1880's, and was at the time the biggest apartment complex of Norway, with 124 luxurious apartments with electric lights.

The particular location of the plot also opens numerous opportunities of being seen from different perspectives. For example, the Ruseløkkveien street, which goes along the Victoria Terrasse (but two floors below) gives

perspectives from the bottom of the monumental staircases. The Henrik Ibsens gate is a long street going down towards a perspective view of the site on its right side. There are also viewing possibilities from the National theater plaza. All these sightseeing possibilities are not yet fully exploited by the current setup of the square.

**BUILDING TYPES**

The height of the buildings located around the site is matching that of the Victoria Terrasse (18m,

without the towers). The buildings located below due to the difference of level are built taller (typically around 24m) to compensate that difference. These are typically office buildings (Fig. 26).

The area is surrounded with cafés and shops (particularly in the Ruseløkkveien street, Fig. 25). One can count 4 restaurants and 8 café-bars within a radius of 150m. The restaurants can accommodate an average of 30 persons. Their type range from traditional Norwegian cuisine to pizzeria.

**CONCLUSION**

The place of the 7th of June has been selected as a building site because it offers the highest potential to achieve three important goals:

proximity, accessibility and visibility.

A new architectural concept promoting diplomatic interactions has been developed in this thesis. By

using a visible and accessible site, this concept will be well promoted and express a strong mission statement to the public.



Fig. 26. Aerial view showing the typology of the building surrounding the building site.

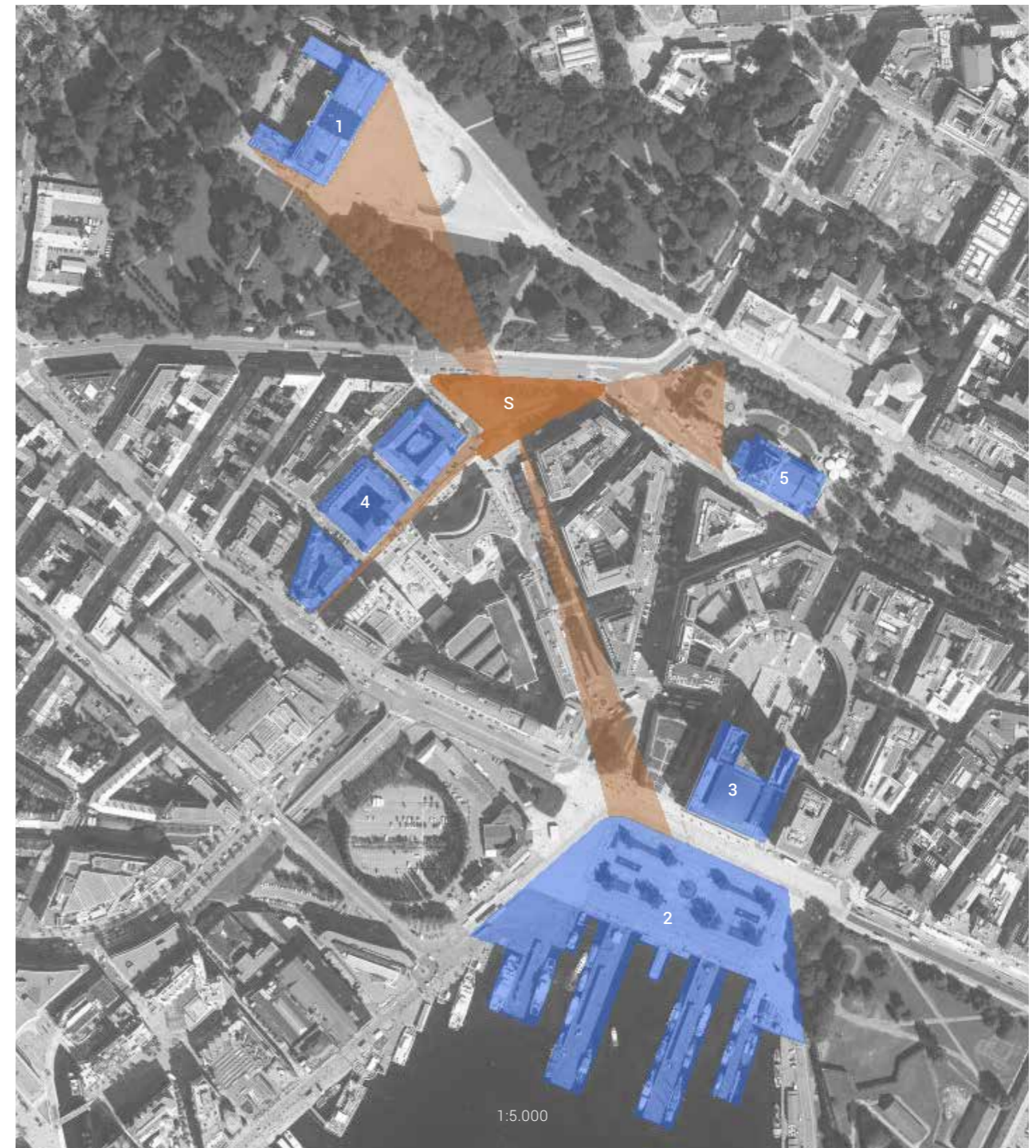


Fig. 27. Potential sights from the place of 7th of June: Royal Palace (1), old harbor (2), City Hall (3), Victoria Terrasse (4), National Theater (5).

## CONCEPT INTEGRATION

### STRATEGY OVERVIEW

The Theoretical Position chapter presented the connector concept and its usage in various works of architecture, including embassies. The design developed in this thesis pushes this exploration to the extreme: the connector concept is used at multiple scales at the same time: the urban scale, the building scale and the office

scale. Any person immersed in such a layout is constantly exposed to fresh news and unforeseen interactions.

Each attractor has a different atmosphere, so that the employees can always find a working location that fits their mood. As was seen before, this will be appreciated by the represented countries, where well-being is a point of

high importance.

It is important to remember that the participants occupying the building are not in conflict: their sector of activity is rather complementary than in concurrence to each other. Situations of conflict of interest are avoided and the participants are open to cooperate with each other.

### INTEGRATION AT THE URBAN SCALE

The urban connector should contain an attractor where people are susceptible to come back daily. This would for example typically be the case for a bus stop.

For the embassy complex the chosen attractor is a café-restaurant open to the public. People need to eat every day, and stay there for a sufficiently long amount of time to have the chance to run into the same people each time they come. The atmosphere of a café-restaurant is also very informal and encourages contacts to occur.

In order to have people coming back to the café-restaurant, it offers unique advantages that are appreciated by persons to be attracted (ministry, embassies, business partners):

- high standing, fast service, quality, VIP advantages (exclusive access

or events, lower meal prices)

- Sunny south-facing terrace with wide panoramic view
- Easy access (on top of train, metro, tram, bus, car, bike, foot)
- Direct neighborhood of the people to attract

The restaurant offers buffet-style lunches. The food is thematic, typical from the embassies hosted. This setting is not only fast and original, but also encourages serendipitous conversations where the people pick up their food. Lunches are non-profit for the occupants of the building who receive a membership card. Such membership card can also be purchased, or offered free to selected people, such as the employees at the ministry of foreign affairs.

The atmosphere is intended to be informal, with a touch of luxury. The

space is open toward the outside via large windows and a terrace, offering a view of the city.

Extra supporting elements have been designed to encourage the passer-by to come up to the restaurant. The building itself takes the shape of a ramp that offers a succession of events to the visitor (Fig. 28):

1. passage over a bridge with overview of the plaza below with Haakon VII's statue
2. progression of step terraces ornamented with colorful flowers (Fig. 29).
3. 270° panoramic view of the National Theater and its dynamic plaza
4. To conclude with a 270° panoramic view of the harbor, the Royal Palace, the Victoria Terrasse and the Haakon VII plaza (Fig. 30).



**Fig. 28.** Succession of points of interest along the ramp leading up to the restaurant: bridge (1), flower terraces (2), panorama (3), panorama (4), access to the restaurant (5).



**Fig. 29.** Pansies of different varieties have been chosen to give a colorful succession of flowers. These perennial flowers can be planted at different moments of the year so that the terraces remain florished most of the year.

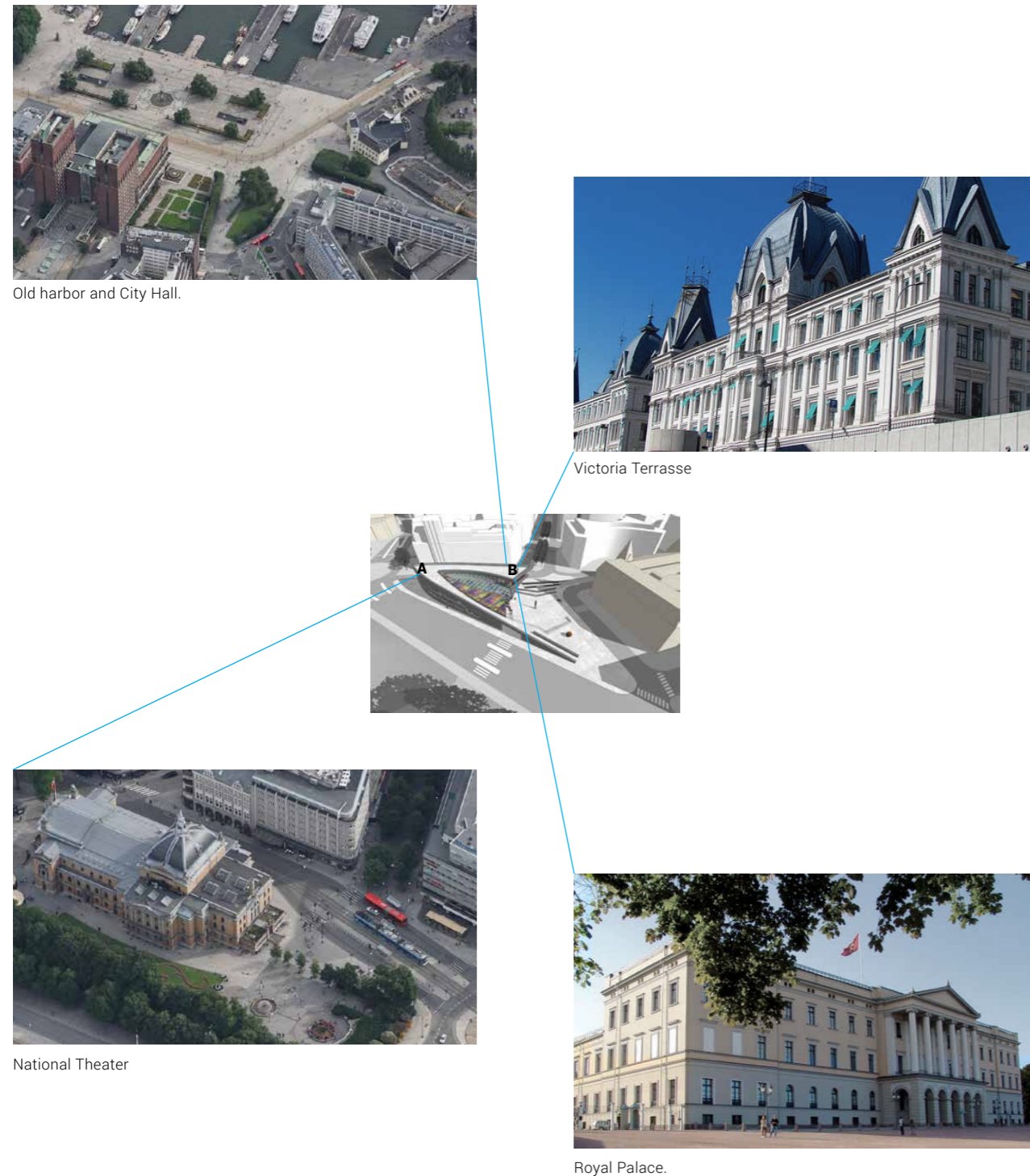


Fig. 30. Panoramic sights from the two points of view on the rooftop ramp (A, B).

These elements are not mere additions to incite the people to come to the restaurant. The whole plaza has in fact been completely redesigned, enhancing the experience of the place of the 7th June. The central position of Haakon VII statue is emphasized via the lines of pedestrian transit (Fig. 31).

The passage below the bridge opens symmetrically towards the statue and is sided by seating spots looking at the plaza. These spots are also sitting alternatives to the existing tram and bus waiting stops. These spots, and other points of interests around the plaza (bicycle shed, sunny stairs steps, work of art close to the start of the ramp) also contribute to the generation of unforeseen encounters.

When coming from the Henrik Ibsens street, three choices are offered to the pedestrian: continuing straight on

the sidewalk, taking the ramp up to the panoramic view, or joining the place of the 7th June (Fig. 32). The monumental staircases are also leading toward the statue. They have been modified with

respect to their current appearance: their direction splits into two to indicate two possible directions: that of Henrik Ibsens street and that of the embassy complex. Between these directions lies



Fig. 31. Emphasis of king Haakon VII's statue.



Fig. 32. Redesign of the place of the 7th June. Several choices of itinerary are offered to the pedestrians (curved lines) around the statue of King Haakon VII (square).

the statue of the king and the passage toward the royal park. Finally, the axis of the embassy complex is oriented

toward the statue. The main entrance and the common space at the first floor offer a sight that is directed to the

statue.

### INTEGRATION AT THE BUILDING SCALE

The attractor at the building level is a long atrium located on the first floor. All of the five embassies offices are located on the same floor and their doors open directly onto that common space (Fig. 33). One floor below, the open space used by the startups is readily connected to the common space via a staircase.

It is directly connected to all embassies and startups, and provides

a maximum of shared services to the employees: a coffee corner, toilets, printers, comfortable sofas and standing desks. A large skylight covers the whole area, providing ample amounts of sunlight while reflecting the infrared light to the outside.

On the west side, a balcony looks down onto the entrance hall of the embassy. The opposite side opens to a triangular master conference room

with large windows that offer views toward the city center.

The atmosphere inward-turned, accentuating the intimacy of the place (Fig. 34). The rounded edges of the atrium make the space embracing. Warm textures are used: the whole space is covered in wood and the floor is carpeted. The entrances of the embassies are recessed from the wooden walls, leaving the space

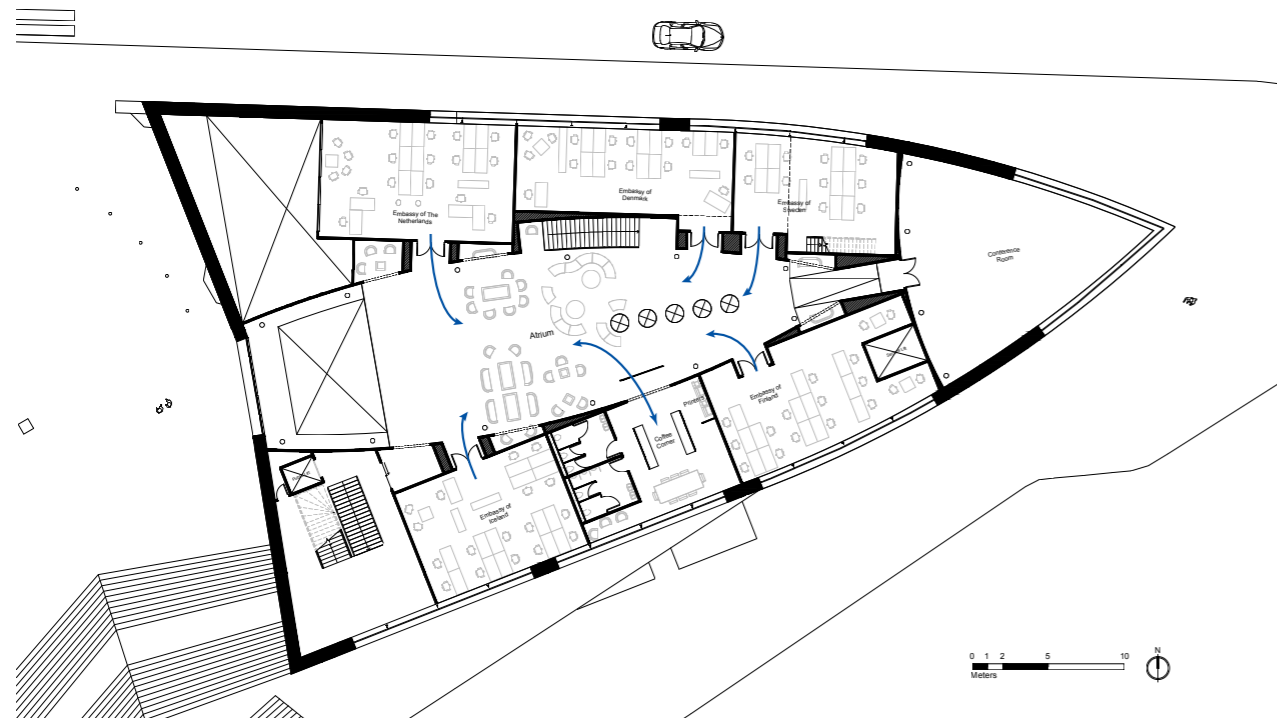


Fig. 33. First floor of the embassy complex, showing the connection to the common space (atrium).

intimate and free from intrusive doors. Recessed openings in the walls offer cozy seating alcoves for more intimate conversations. The motives on the tiled carpet encourage various configurations of seating clusters.

The meeting rooms and phone capsules (cabins to give a phone call without bothering people in the open space) are located at the ground floor,

at the foot of the staircase leading to the atrium. They are shared and could be considered as supporting elements to the attractor, although the dynamics are slightly different. Fortuitous encounters would happen either while transiting toward the meeting rooms, or while being inside a meeting room and spotting someone through the glass door. This configuration however

does not have as much potential as that of the main atrium, because the people are in a configuration that prevents unforeseen communication. They are, for example, busy in their meeting, or with a phone call. This is also the reason why these services are put on the ground floor.

### INTEGRATION AT THE OFFICE SCALE

As mentioned earlier, the Dutch embassy in Oslo hosts its employees in separate rooms. An employee there mentioned the advantage of the

quietness but deplored the feeling of isolation.

To solve the problem, each embassy is given a column-less open

floor plan of about 100 m<sup>2</sup>. That area can be customized to accommodate the needs of each specific country. If a country wants to maximize the



Fig. 34. Atmosphere of the central atrium, main attractor inside the building.

interactions between its employees, the space can remain fully open and more desks can be clustered together. If a country wants a more intimate configuration, less desks can be clustered together, shelves can be installed to act as separators, and non-load bearing walls can even be assembled to fraction the room (Fig. 35).

The startup space is similar to the embassy space: it is an open floor plan that can be configured according to needs. Since the startups typically contain between 1 and 4 persons, an appropriate starting configuration would cluster the desks by groups of 2 or 4, and separate them with a shelf.

In any case, privacy and quietness can always be obtained via two closed meeting rooms, four phone capsules and a quiet office space on the ground floor.

Eventually, serendipity is further stimulated by a regular seat switching.

It is expected for example that after a year or two, the startups have incubated enough to become independent from their embassy. This brings a double advantage. On the one hand, they leave the spot to other companies. On the other hand, they spread in Norway after their incubation while remaining in contact with their embassy, thereby bringing more visibility and opportunities to their country.

The embassies themselves internally swap offices after 3 to 5 years, simply to offer their employees a fresh and stimulating perspective of their working environment. The proximity of the employees is shuffled, thereby promoting new serendipitous encounters.

On a shorter term, the employees of an embassy swap seat every 6 to 12 months. In a similar way, the employees of the startups regularly change seats, even if this leads some employees of a

single startup to be spread over several desks.

This approach is rather uncommon nowadays. Even if it has a lot of potential, some employees might not feel at ease with it. A proper approach is to consider the embassy complex like a terrain of experimentation, where various degrees of privacy and interaction can be tried and tuned for the best global and individual performances.

## THE EMBASSY AND THE RESIDENCE

The residence of the ambassador will remain physically separated from the embassy because they represent two different "two different rooms of the same house". They work together but have a different role. The residence has a representative role. It should be usable for meetings involving a high number of people, but also for informal dinners or celebrations in a non-work related atmosphere. It can also offer more privacy than the shared premises whenever necessary. Furthermore, the visibility of the embassy is further expanded as The Netherlands will be physically represented at two different locations that are used by two different kinds of populations.

Therefore the ambassador's residence will be preserved as it is currently. Despite the Den Haag's ministry will to cut costs by outsourcing representative dinners, it turns out that the residence is currently used 2 to 3 times a week for big representations. Downsizing the residence does not appear to be a good option cost-wise, but also image-wise. The location is excellent: in a residential area, close to public transportation, and embodying the historical presence of the Netherlands in Oslo.

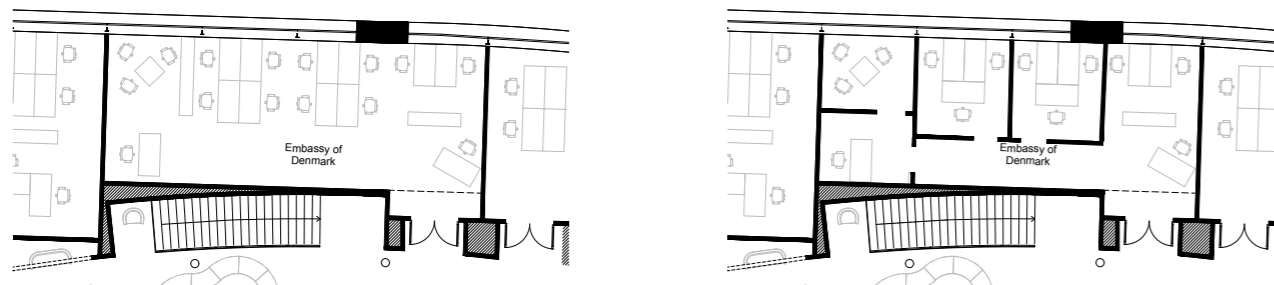


Fig. 35. Various degrees of privacy can be accommodated by the open spaces of the embassies.

# PROGRAM

## BUILDING CAPACITY

The Dutch ministry of foreign affairs plans to reduce the budget assigned to the embassies by 25%. A first budget has been derived by reducing the current usage of the space at the Dutch embassy in Oslo (Fig. 36, left) by 25%.

The cost reductions can even go further by sharing premises with

other embassies. The more shared services, the lower the costs. This, in addition, goes in the same direction as the connector concept: aiming for a maximum of shared services that will be placed in a central common space.

First, the current space usage and population of the five embassies has been estimated from the size of

their building and their website (Table 7).

Second, a global estimation of the number of employees in the building has been calculated, taking into account a possible 25% increase of the personal (Table 8).

The resulting budget is detailed in Fig. 36 (right table).

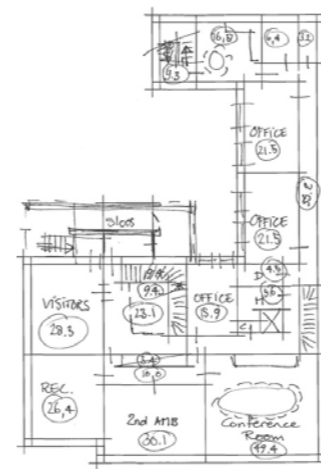
Country	Code	Visiting hours	Gross floor area	Nr employees
Netherlands	NL	10-14	700 m <sup>2</sup>	12
Sweden	SE	10-12	700 m <sup>2</sup>	Estim. 8-12
Iceland	IS	10-15	Shared building	Estim. 6-12
Denmark	DK	9-16	Shared building	Estim. 10-16
Finland	FI	9-12	700 m <sup>2</sup>	Estim. 10-12

Table 7. Current properties of the embassies whose premises will be shared

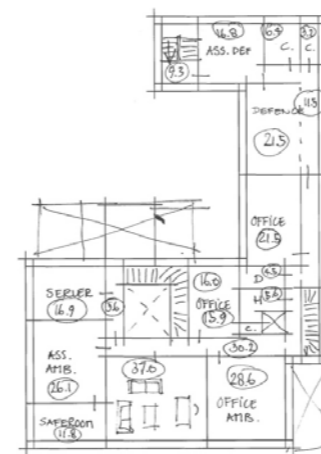
Element	Max pers.*	Avg pers.*	Qty	Total
Personal embassies	16	12	5	60
Personal startups	4	2	10	20
Restaurant	80	60	1	60

Table 8. Estimated population in the embassy complex. Max pers. and avg pers. are the number of persons present at once in that space.

### Current Budget



Level 0



Level 1

### Proposed Budget

Lv	Status	Element	Max pers.*	Area (m <sup>2</sup> )	Qty	Total
0	Public	Waiting room	10	20	1	20
0	Shared	Consular room	5	18	1	18
0	Private	Safe room (incl. Server)	2	8	5	40
0	Public	Toilets waiting room disabled	10 users	8	1	8
0	Shared	Toilets CA	10 users	8	1	8
0	Shared	Security desk	3	15	1	15
0	Public	Entrance space	na	8	1	8
0	Public	Welcome / Info desk	2	12	1	12
0	Public	Exhibition	20	100	1	100
0	Public	Multimedia space / Library	10	80	1	80
0	Public	Auditorium	44	120	1	120
0	Shared	Storage	-	10	2	20
0	Public	Stairs: Metro to Restaurant	-	33	1	33
0	Public	Lift: Metro to Restaurant	5 pers / 2'	6	1	6
0	Shared	Lift: Services	-	6	1	6
0	Shared	Stairs: Metro to Embassies	-	0	0	0
0	na	Walls	-	-	-	117
0	na	Corridors / open spaces	-	-	-	-
0	Shared	Toilets startups + disabled	20 users	15	1	15
0	Shared	Shower	1	4	1	4
0	Private	Startup office small	2	12	5	60
0	Private	Startup office big	4	20	5	100
SUBTOTAL						789

1	Shared	Flex quiet spaces	2	6	3	18
1	Shared	Informal meeting egg/spot	5	8	2	16
1	Shared	Informal sitting area med	8	10	2	20
1	Shared	Informal sitting area big	8	15	1	15
1	Shared	Flexible room	16	30	2	60
1	Shared	Master conference room	25	70	1	70
1	Shared	Printers	2	6	1	6
1	Shared	Toilets embassies + startups	80 users	28	1	28
1	Shared	Shower	1	3	1	3
1	Private	Embassy: Flex office space	89,6	89,6	5	448
1	Private	Embassy: Small quiet room	4	4	5	20
1	na	Walls	-	-	-	81
SUBTOTAL						785

2	Public	Restaurant: buffet area	60	120	1	120
2	Private	Restaurant: Kitchen	for 60	30	1	30
2	Private	Restaurant: Toilets kitchen	5 users	8	1	8
2	Public	Restaurant: Toilets public	60 users	21	1	21
2	Public	Restaurant: Reception + Vestiaire	-	10	1	10
2	Public	Restaurant: Stairs	-	33	1	33
2	Public	Lift: Metro to Restaurant	5 pers / 2'	4,37	1	4
2	Private	Lift: Services	-	4,37	1	4
2	na	Walls	-	-	-	59
SUBTOTAL						289

**TOTAL**

**1862**

**Notes**

Shared = Shared between embassies and startups (not accessible to public).

Ground floor is at level 0 (Lv 0)

Max pers. And avg pers. Are the number of persons present at once in that space.

Fig. 36. Spatial budget for the current embassy (left schematics) and the new embassy complex (right table). Schematics: courtesy of Johanna van Warners.



MASS STUDY

The place of the 7th June is very sculptural, due to its elongated triangular shape and its role as a transition space between different levels of height, and the presence of monumental staircases.

Numerous questions needed a clear answer in the form of the chosen mass:

- How to exploit advantageously the triangular shape and the slope of the terrain?
- How should the place mark the transition between the urban landscape and the Royal Park?
- How to take care of the current lines of pedestrian circulation?
- What sculptural qualities can invite the people to come visit the building, while leaving them the choice to continue their itinerary?
- How to enhance the quality of the existing plaza and the presence of the statue of the king, rather than

dwarf them or ignore them?

- What compromise can integrate the connector concept while taking the context into account?

Numerous masses have been explored (some of which are shown in Fig. 38) to finally end with a simple and clear shape: a ramp that is lifted up from the triangular ground and encompasses the existing plaza (Fig. 39). The mass of the building is occupying the eastern side of the place, because it offers sunny exposures for the rooftop ramp and the terrace of the restaurant (see Building physics: Lighting). Furthermore, this location is on the side of the monumental staircase, leaving some room for the plaza with the statue of the king.

The slope of the terrain is exploited by sloping the ramp in the opposite direction, thereby doubling the height of the panoramic points (Fig. 37). The wider part of the building was

chosen to host the main attractor of the building (common atrium). The tip was attributed to special rooms and fit particularly well their function (master conference room and auditorium).

The height of the building is lower than its neighbors, making it a transition zone between the urban heights and the lower royal park. A large gate under the ramp marks the transition between the park and the city.

The slope of the terrain and slope of the ramp add up to quickly offer a panoramic view of the national theater (Fig. 37).

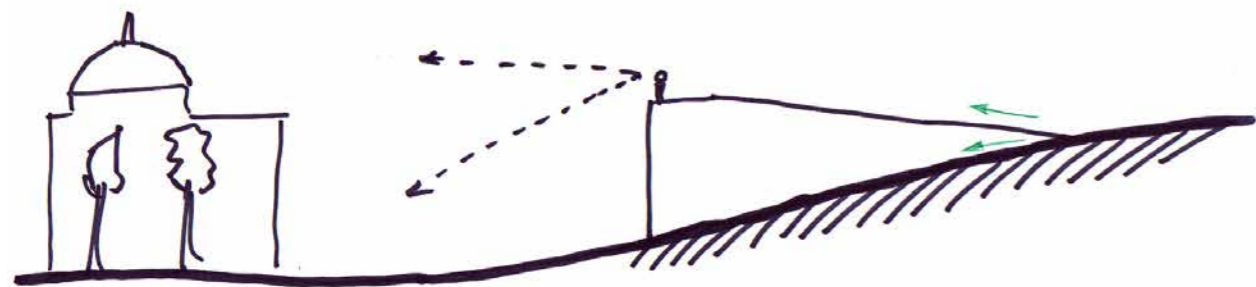


Fig. 37. Sketch showing how the slope of the terrain and the slope of the ramp add up to offer a panoramic view of Oslo's National Theater.



Fig. 38. Some of the masses that have been explored before settling down with the final ramp shape.



Fig. 39. Final mass for the embassy complex.

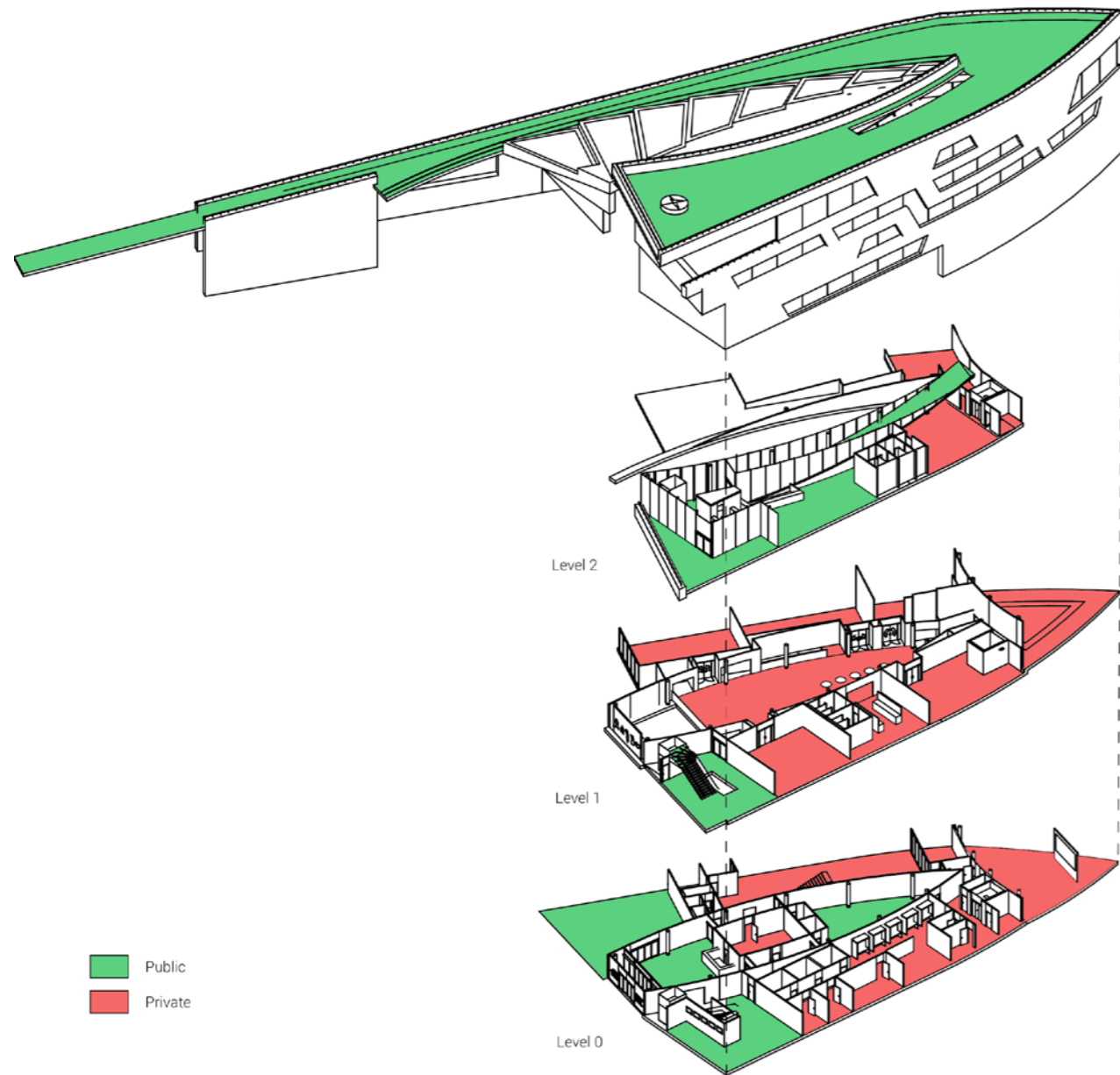


Fig. 40. Configuration of the public and private parts of the embassy complex.

## ROUTING AND ORGANIZATION

The circulation around the embassy complex has been presented in Fig. 32. The higher part of the monumental staircases has been deviated from its original position to direct the pedestrians to the main entrance of the embassy complex. The routing around the building focuses into inviting people to explore a new route, while not forcing them to do so.

The building can be seen like a private layer (embassy offices and startups) sandwiched between public layers (metro station, main entrance and public activities, rooftop promenade) (Fig. 40). It is a way of making the public parts of the building readily accessible to the public, while keeping the private parts closer to its heart.

The organization of the functions inside the embassy is depicted in Fig. 41. The circulation between floors is done via stairs and lifts (yellow). The two lifts continue below Level 0 to reach the level of the main entrance of the metro station.

- Reception / Waiting Room
- Entertainment
- Startups
- Security Office
- Consular Area (shared)
- Auditorium
- Offices for the 5 embassies
- Common Space (Building Attractor)
- Conference Room
- Restaurant (Urban Attractor)
- Kitchen
- Services
- Stairs / Lifts / Ramp

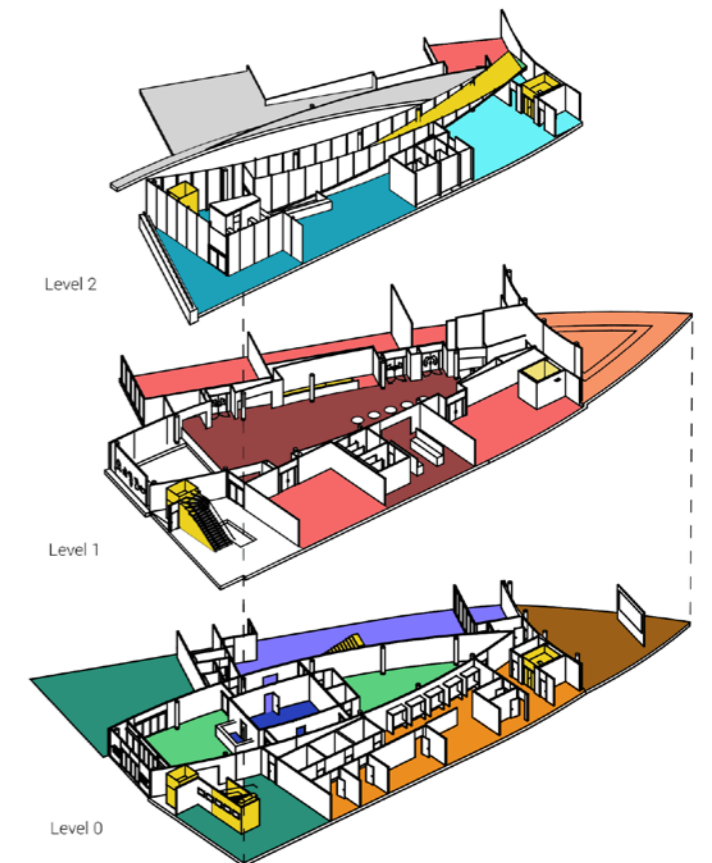


Fig. 41. Exploded view showing the organization of the functions inside the embassy.

# SCENARIOS

## EMPLOYEES

The main entrance, located at the western end of the embassy complex, opens into the entrance hall (Fig. 42). From there, the employees take the door on the left side of the security room, that they open with their badge. They enter the startup open area from which they can take the stairs to end up in the main atrium, one floor above. Disabled employees can take the lift to the first floor, where they can badge in to access the atrium. This door is normally closed for the employees, but can be unlocked remotely by the security when needed. It could for example be convenient to unlock the door during lunch times so that the employees can directly access the restaurant from their floor. Even when the door is unlocked, the badge of the employee is still needed to open the door.

Convenient services are offered to the employees. Most of them are setup to encourage interactions.

- Shared printers. Confidentiality is assured via a badge system that is required at the moment of printing.
- Shared coffee corner. High quality coffee machine and alternatives (tea, hot chocolate). Basket of fresh fruits every day. Celebration of country feasts with a cake typical of the country. These foods and drinks are free for the

employees (subsidized by the embassies).

- Comfortable seating spots, grouped in small clusters in a cozy atmosphere and plenty of daylight.
- Toilets are configured such that only a small number of toilets are available at the startup floor. If they are busy, the employees are encouraged to go to the larger toilets in the atrium. Who knows who they could run into on their way?
- Shower room to encourage sport.
- Shared meeting rooms. Only two rooms are available to encourage informal discussions in the atrium rather than meetings in a closed room.
- Phone capsules. Four movable cylindrical phone rooms are located in the startup flex space, to offer some phone call privacy and prevent noisy calls from distracting the employees around. Each phone capsule is acoustically insulated and contains a one-person seat and a table for laptops.
- Master conference room. For bigger meetings, with a panoramic view toward the city center.
- Auditorium. For keynote speeches or the projection of videos. The auditorium can also be made accessible to the public.

The close proximity to the Royal

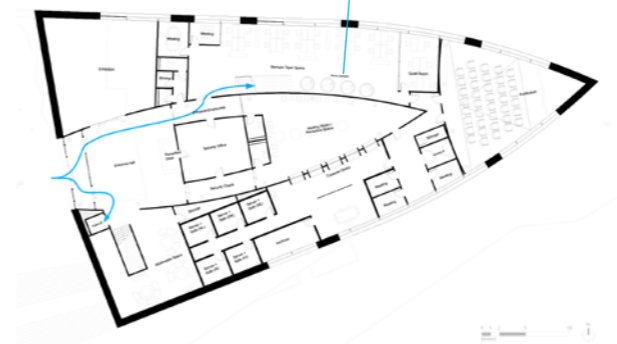
Park and the city center is also an opportunity for the employees to leave the building and breathe some fresh air during a digestive walk.



Startups area: phones capsules.



Startups area: phones capsules.



Level 0. Blue path: itinerary of the employees.



Level 1.



Common space: coffee corner and printers.

Fig. 42. Scenario for the employees of the embassy complex.

DIPLOMATIC PERSONALITIES

Foreign diplomatic personalities present themselves at the reception desk. They are invited to visit the exhibition or sit down in the multimedia room while waiting. Their contact comes picking them up at the reception and tour them in the building. This is an opportunity to make them discover the advantages that a connector configuration can bring. The meeting can start informally at the coffee corner, then continue more privately in an alcove, around a table in the embassy office, or in one of the meeting room.

Some diplomats might be uncomfortable to be received in such an open and informal setting. It is up to the ambassador to decide whether their guest should come meet them in the embassy complex or at their residence, which has a more formal setting. This was one of the reasons to keep the ambassador's residence separate from the embassy offices.



Fig. 43. Scenario for diplomatic personalities, guests at the embassy.



Fig. 44. Statue of King Haakon VII.

TOURISTS AND CITIZEN

The place of the 7th June is a heavily trafficked zone that joins various key areas of the city (Fig. 45). This thesis redefines the plaza into a more intimate setting where the statue of king Haakon VII is emphasized (Fig. 44). The lines of pedestrian traffic remain the same, but the experience is enhanced by the added presence of new perspectives and sitting points oriented toward the center of the plaza. The rooftop ramp of the embassy building is curved in a gesture that embraces the plaza. It offers at its highest point an overview of the crowd movements occurring there (Fig. 46).

The place is flooded by daylight and has become a place where the people are invited to stay for a little while rather than quickly walk through. The area will be a place of choice to host cultural representations such as small concerts, as the surrounding staircases and platforms will constitute ideal natural locations to sit around a scene.

In addition to redefine the plaza, the ramp of the embassy invites the passerby's to a journey offering various perspectives of the city: crossing of a bridge with the royal park on the right and the plaza on the left, a succession of terraces with flowers, a panoramic view of the national theater, a sloping path to the restaurant with a view at the atrium of the embassy complex, and a master panoramic view of the harbor, the Royal Palace, the Victoria Terrasse and the plaza.



Fig. 45. Place of the 7th June in the 00's. The pavilion on the left is not there anymore.



Fig. 46. Place of the 7th June redesigned as a pole of attraction for tourists and citizens.

The main entrance of the embassy complex is transparent and invites the people to freely enjoy country-related activities: an exhibition, a multimedia space and the panoramic terrace of the café-restaurant. The exhibition presents purchasable art of the five countries. The multimedia space gives access to a sitting area where people can read magazines from the five countries, or watch TV in their language.

The restaurant can be accessed via stairs, lift, or the rooftop ramp. It is publicly accessible for lunch, dinner or drinks. The lunch is a high-quality buffet with thematic food from the five countries. For the dinner, menus à la carte are offered. During the afternoon and the evening, drinks can be ordered at the bar and enjoyed on the terrace.

During special events, the auditorium is open to the public. The waiting room of the consular area serves as a reception and the consular desks are hidden behind a curtain that

is pulled out of a wall compartment.

The withdrawal of passports occurs in the consular area, directly accessible after passing the security check at the right of the reception desk. The waiting room exhales a quiet atmosphere lit by the sunlight penetrating by five translucent openings in the ceiling. Five desks – one per country – open onto the waiting room (Fig. 47). Personal meetings with the public can be hosted by two meeting rooms siding the consular area.



Fig. 47. Waiting room of the consular area and consular desks.

## DISABLED PERSONS

Special care has been brought to make every area of the building accessible to disabled people in a wheelchair. Each floor is reachable by lift and contains a toilet for handicapped people. The light switches, door openers, lift buttons and badge readers are positioned low enough to be easily actuated by people in a wheelchair.

Disabled persons can also easily enter the embassy complex directly

from the bus stop, the taxi stop and the railway transports via a lift located near the main entrance of the metro station. Furthermore, the slope of the rooftop promenade is low enough for a wheelchair. A rewarding panorama can quickly be offered due to the downward progression of the ground along the Henrik Ibsens street, while the ramp is going up at the same time.

## SECURITY

As mentioned earlier, the risks of terrorist attacks in Norway against small northern European countries is quite low. The act of bringing them together in a single building makes them stronger, as attacking the building is attacking five countries at once. One could expect that threats would mainly come from isolated fanatics or psychopaths rather than a deliberate aggression from a sizeable organization. The current Dutch embassy has only a fence, an airlock and an armed consular area with bullet-proof glass as protection measures.

The embassy complex offers several layers of protection (Fig. 48). The building clearly separates the public areas from the private areas. The main entrance, closed by a sluice, opens into the entrance hall where the visitor directly faces the welcome desk behind which the security room stands. The hall is visually connected

to the exhibition space on the left and the multimedia space on the right. It is also overlooked by the balcony of the atrium on the first floor.

From there, the visitor has a free access to the public zones on the sides of the entrance hall: stairs and lifts leading to the restaurant, exhibition and multimedia room. At the reception desk, the routing forks. A badge-protected door on the left gives access to the embassies and startups offices. A security-guarded airlock gives access to the waiting room for the consular area.

The data in the laptops is encrypted, as well as the internet network of the embassy. One could even imagine an extra layer of protection that requires the employee to be physically present at the embassy to log into his/her laptop. A more flexible solution, used in large technological companies, makes the login possible

from anywhere via a security dongle (keyfob).

The only valuable resources for a thief are the administrative papers (passports and visas). These documents are locked into a safe room inside the consular office. Each embassy has its own safe. It also contains the country's server, as its destruction would potentially cause the loss of important information. The safes are enclosed, together with the consular desks, in an armored perimeter. The desk windows and the external window are bullet-proof. The external window is located 8 meters above ground.

An automatic security system is set into place in the unlikely case of an attack with hostages. It locks all the passports into their vaults and can only be unlocked by the local police in combination with the office coordinator.



Fig. 48. Several layers of protection are set into place.

# MATERIALITY AND EXPRESSION

## FAÇADE

A part of the square has been lifted up to give rise to the embassy complex. One expects that it is made of a monolithic massive material. This is why the façade is designed such that it has the appearance of dark bulk concrete. The windows are punched into the mass. They are recessed by forty centimeters so that the thickness of the walls becomes obvious.

This building is strong, yet it is dynamic, as expressed by the edges of the windows, all inclined. The windows seams are designed to disappear in order to enhance the total outline of each window. The finish of the concrete walls is diagonally grooved parallel to the inclination of the windows (Fig. 50). It follows the slope of the ramp, further adding some dynamism toward the restaurant (Fig. 51, south view). The Vierendeel steel structure that supports the façade is concealed inside the walls whenever possible (Fig. 49).

The large non-openable windows

and the skylight of the atrium reveal the activities occurring inside the building. Transparency shows a high degree of integrity and self-confidence, and expresses the atmosphere inside the building: "We have nothing to hide because we want a win-win situation and are working towards a common goal." The visibility is dimmed by a semi-reflective coating on the window. Even if the embassies have a policy of transparency, it doesn't mean that the employees should be framed in vitrines. The semi-reflective coating increases the privacy to a proper level and prevents the passerby's from being distracted from the sculptural shape of the building.

The motives and arrangement of the windows of the northern façade are different from those in the southern façade. Their connecting edge is however perfectly symmetric, as can be seen from the roundabout where the building is pointing to (Fig. 51, east

view).

The cutting of the windows subtly translates the functions in the building. The several ground floor windows on the northern façade indicate that several startups are sitting there together. Their windows point upward toward the embassy floor, to which they directly connect via stairs. The first floor is made of a long, unique window, representing the union of the embassies. Its extremities connect to the other floors, in a gesture that go upward, following the ramp.

The southern façade also expresses an upward-going gesture, that ends with the presence of the urban attractor: the café-restaurant. The latter is made of tall glass windows that progressively become even taller, until they stop to leave room to a terrace protected by a large overhanging roof.

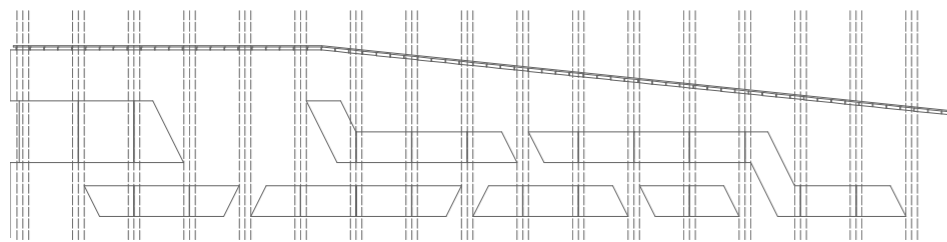


Fig. 49. The Vierendeel structure is concealed inside the façade whenever possible.

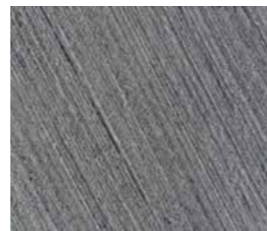


Fig. 50. Concrete finish.

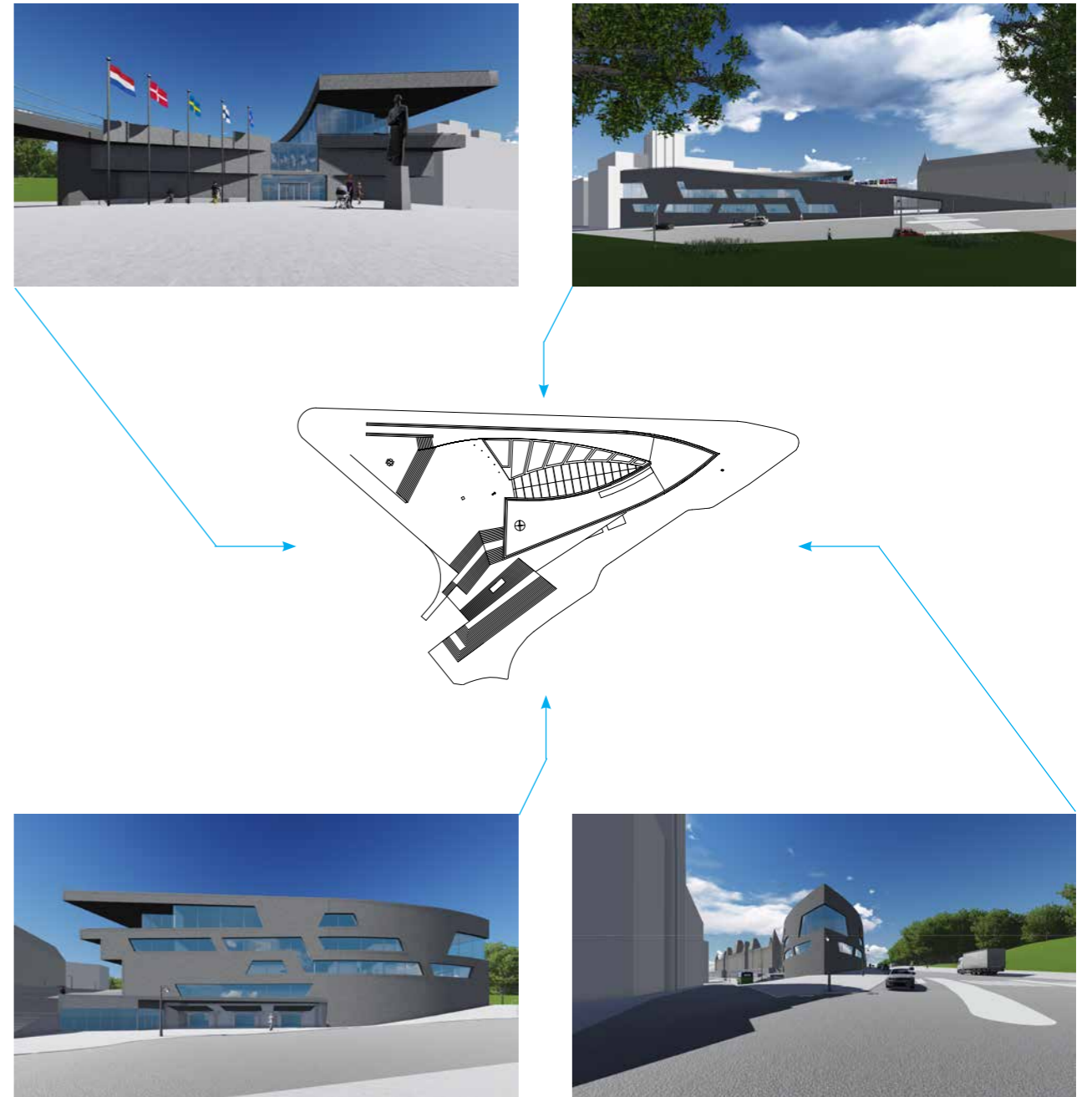


Fig. 51. Perspective elevations of the façade.

## INTERIOR

The flooring is made of a carpet tiles. These offer many advantages: resilience in heavy traffic areas, easy maintenance and replacement, easy adaptation to the shape of the room, no underlay needed and a good sound absorption. Furthermore, colored patterns on the floor can be assembled. For the embassy complex, the default color that will be used is gray. However in special areas such as the common atrium space, the master conference room, the auditorium and the main entrance, colored carpet tiles will be used (Fig. 52). In the atrium for example, seating zones are suggested by the patterns on the floor. In the entrance hall, routing possibilities are highlighted.

The interior finish in the startup and embassies offices is white, leaving complete freedom to the decoration and organization of these spaces. While the dark flooring prevents unwanted glare to occur, the white walls increase the amount light in the room. As a result, less electricity is spent in lighting.

The interior finish of the main atrium is in wood, contrasting with the rest of the building. It gives it a unique cozy and warm atmosphere, where the employees will enjoy spending time. The wooden planks are set horizontally to widen the room and enhance its dynamism. The interstices between the wooden planks dissimulate sound absorbers. The canopies that cover the entrance door of the embassies are

finished with a sound-absorbing layer.

The interior columns have a steel core with a smooth concrete finish. Their base is protected by a sheet of stainless steel. The columns are ornamental in addition to be structural. They emphasize the shape of the atrium and convey a sentiment of grandeur.



Fig. 52. Usage of colored carpet tiles in the main atrium and the entrance hall.

IDENTITY

The identity of the five countries are primarily expressed via their way of working in a connector setup. This has already been extensively covered and will not be discussed here.

However it is important that the individuality of each country be recognized. Each entity has its own personal assets to bring to the community. For this reason, the office space of each embassy is different. For example, the office above the exhibition room has a large window that looks directly into it. In another office, a mezzanine makes use of an extra available ceiling space (Fig. 54).

Centered on the glass doors of the embassies, a country-shaped depolished area indicates the country of origin of the embassy (Fig. 53). Each embassy is free, in its open office space, to personalize the space to represent the country and its way of working.

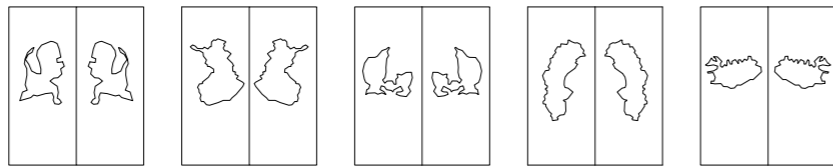


Fig. 53. The entrance door of an embassy subtly indicates what country this embassy originates from.

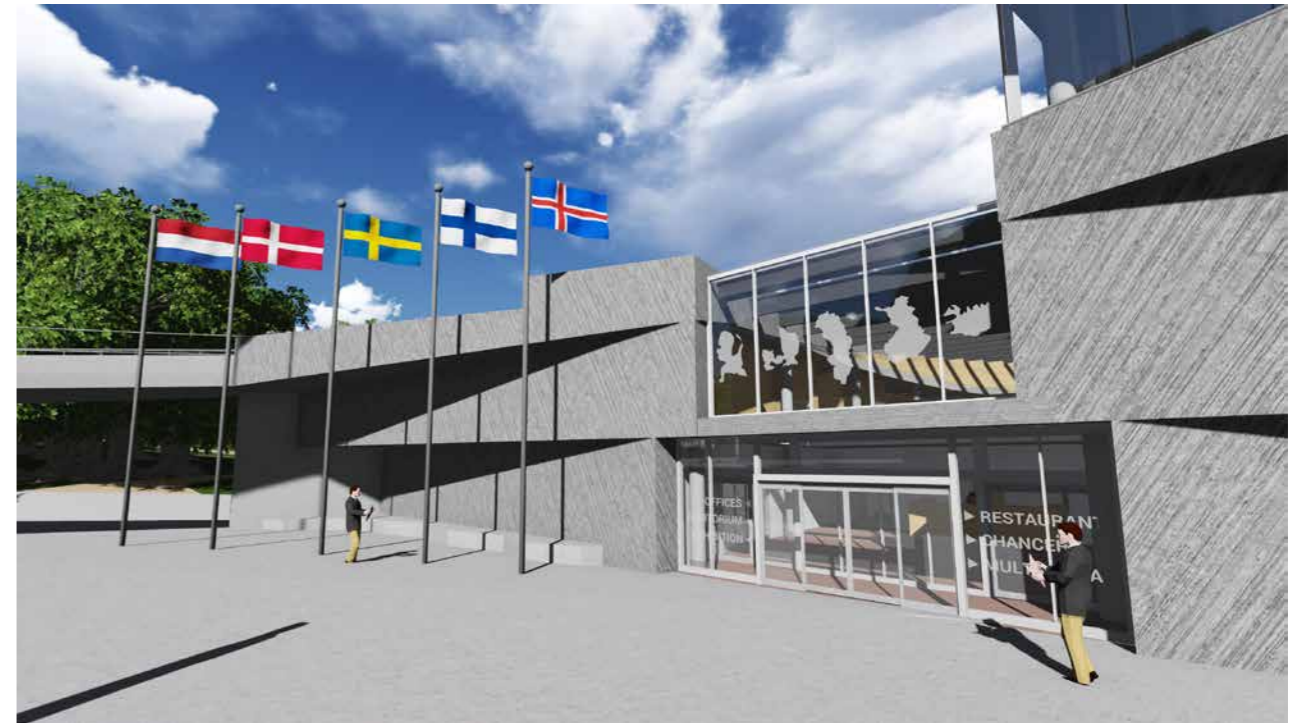


Fig. 55. The cooperation between the five countries is announced at the entrance by the flags and the shapes of the countries engraved in the windows.



Fig. 54. Typologies of the offices of the five countries..



# BUILDING PHYSICS

## THERMAL

Due to the relatively fresh climate of Oslo (Fig. 56), a building may end up spending a significant amount of money in the heating of the building. The following energy-saving measures are implemented in the embassy complex.

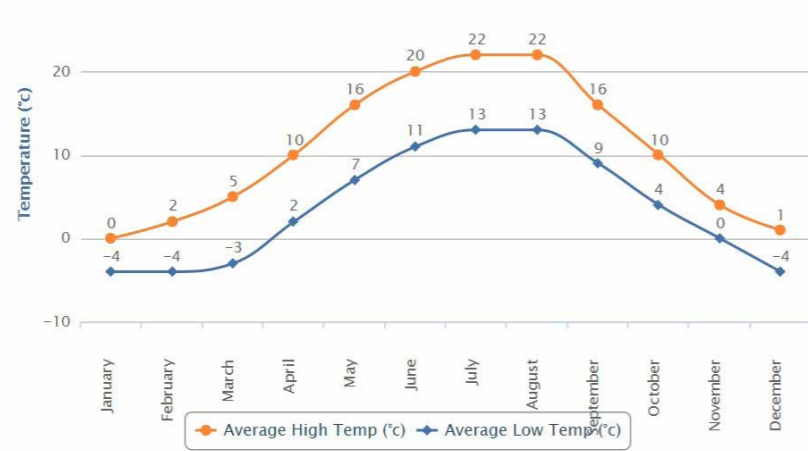


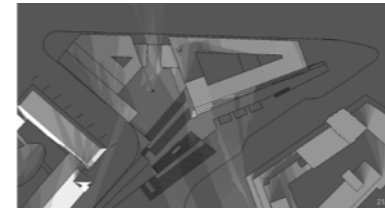
Fig. 56. Average temperature in Oslo.

Technology	Location	Usage description
Heat exchanger	Under ground floor	Easy access to a huge thermal reservoir via the metro and train station to heat up or cool down the whole building according to needs.
Wall insulation	Facades	The wall thickness leaves significant room for insulation (see details section).
Secure triple-glazed windows	Facades	Non-openable insulated windows, with 50% reflective coating to attenuate the visibility into the building.
Photovoltaic triple-glazed insulating windows <sup>24</sup>	Roof atrium	Multifunctional windows that (i) absorb UV energy and convert it into electricity, (ii) act as heat barriers by reflect infrared light, (iii) provide day lighting by transmitting the visible spectrum of light. This is the glazed area most exposed to sun.
Ventilation	Inner side of facade	A high-efficiency HVAC system runs upwards from the heat exchanger to the top floor. The automatic HVAC control in each room can be manually overridden.
Terraces	Roof	Primarily used for architectural purposes, the terraces also offer extra insulation to as significant portion of roof.
Radiant floor heating	Floor	Provides extra heat when HVAC is not sufficient. Keeps the interior cleaner.

Table 9. Thermal-related environmental measures implemented in the embassy complex.

## LIGHTING

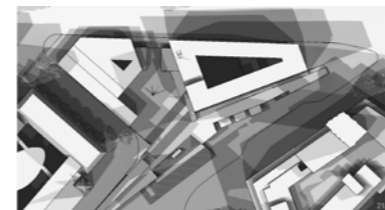
The high latitude of Oslo, at almost 60° North, makes it experience a wide variety of inclination of sun rays (Fig. 58). A solar study of the building site is presented in Fig. 57.



Daylight from 9:03 to 15:53.



Daylight from 6:23 to 18:26.



Daylight from 3:04 to 21:32.

Fig. 57. Solar study of the empty building site.

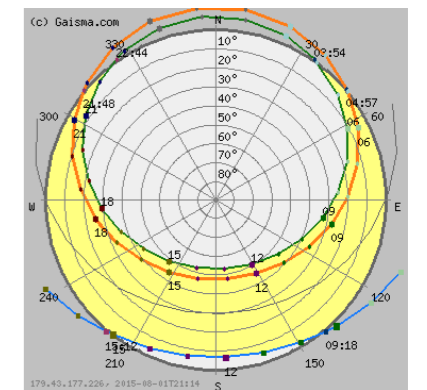


Fig. 58. Sun path diagram for Oslo.

Technology	Location	Usage description
Recessed windows	Facades	All windows are recessed by 40 cm, which prevents glare and heat during the brightest hours of the summer days.
Vertical blinds		During early spring and late autumn, the windows recess will be insufficient to prevent glare from low-angle light. Interior vertical blinds with a diffusing texture will prevent glare from occurring while redistributing extra light into the room.
Economic lights	Ceilings or walls bottom	LEDs are used whenever possible, e.g. for low-intensity lighting of a staircase.

Table 10. Lighting-related environmental measures implemented in the embassy complex.

WIND

Wind needs to be taken into account, as they can make the difference between people enjoying or not their experience during their promenade on the roof of the building or during their dinner at the terrace of the restaurant.

A wind rose of Oslo is pictured in Fig. 59. The prevailing winds are located along the NNE-SSW direction. Fig. 60 depicts the direction of the winds that were studied.

- The winds coming from NNE are blocked by the Royal Palace and its park, located on a higher ground (A).
- The wide Haakon VII gate leading to the harbor is oriented SSE, enough not be in direct line of the wind (B).
- The winds coming from the Victoria Terrasse shopping street are blocked by the transversal building blocks (C).
- No high building on the site or its surrounding (all buildings are lower than 30m). The wind will not be redirected downwards from the façade of a skyscraper.
- The strength of the winds is low, generally speaking.

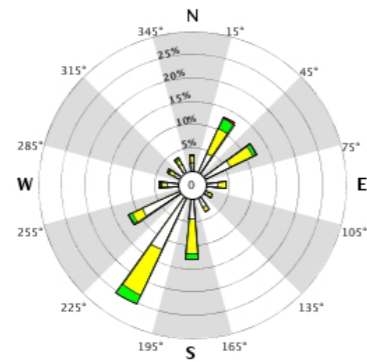


Fig. 59. Oslo wind rose, averaged over 2 years in 1990. Source: <http://sharki.oslo.dnmi.no>.

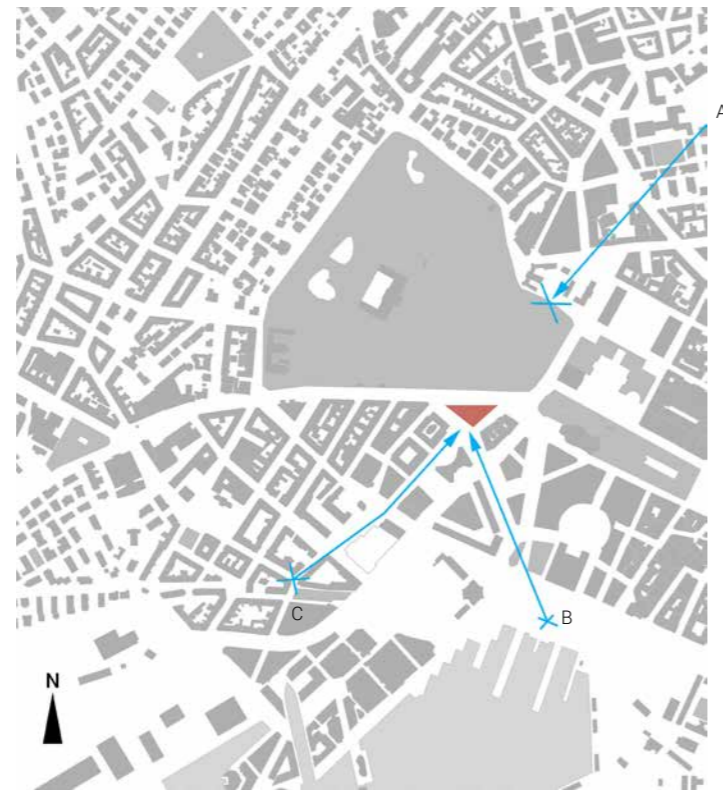


Fig. 60. Wind study on the site of the embassy building.

ACOUSTICS

Noise from the outside is reduced by the usage of thick facades and triple glazing. Inside the building, the noise is damped by the usage of carpet flooring and sound absorbers in the walls of the atrium.

MATERIALS

Special care is taken to use environmentally friendly non-toxic materials. These are typically materials

without volatile organic compounds. A wide choice is available on the market and lots of them are made (at least partially) of recycled products.

Regional materials are preferred to reduce the pollution due to transportation, and natural resources are taken from properly managed sources (e.g. FSC wood).

The environmental-friendliness of materials lies not only in their production (and transportation), but also in their maintenance. The windows of the embassy building are sealed, which might make their

cleaning difficult.

Fortunately, new technologies have been developed to produce self-cleaning surfaces (including glass). This mechanism is inspired by nature and uses UV light as a catalyst to detach the contaminants from the specially coated surface (e.g. with TiO<sub>2</sub>).<sup>25</sup> These technologies are developed among others by the Norwegian Research Center on Zero Emission Buildings (ZEB).

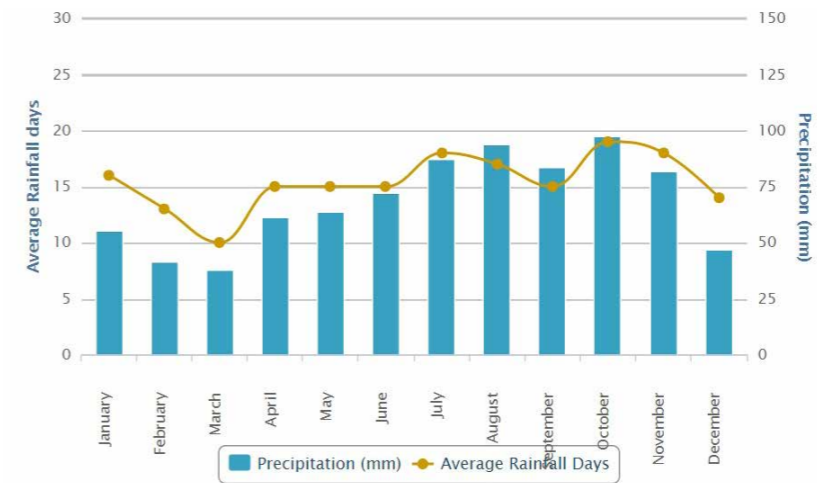


Fig. 61. Average monthly rainfall in Oslo.

WATER

The average rainfall in Oslo is given in Fig. 61. Measures are taken in order to reduce fresh water consumption.

Technology	Location	Usage description
Rainwater catchment system	Roof	The large surface of the roof is used to capture water for the gray water circuit.
Eco-toilets	Whole building	The dual-flush toilets use water from the gray water circuit.
Eco-shower	Shower	Low water usage and timer encouraging short showers.

Table 11. Lighting-related environmental measures implemented in the embassy complex.

# STRUCTURAL

## FOUNDATIONS

As explained in the site selection chapter, the building is standing right above the Nationaltheatret metro station (Fig. 63). Below it stands the Nationaltheatret metro station, a heavily trafficked train station, located 30 meters below ground level.

Due to the important flow of people, it would be very costly (if not unacceptable) to block temporarily the access to the station, even for a couple of hours during the night. For this reason, the building and its foundations are designed such that they interfere as little as possible with the traffic.

For the foundation, a series of columns was first envisaged but this solution presented several disadvantages. First, it would involve heavy construction work inside the access hall to the metro (and train) stations. Such work not only involves noise and dust, but also restricts the traffic, which is both costly and involves a careful safety assessment of the situation.

Second, the insertion of columns into the space would cut the space at unwanted locations. The location of the columns inside the station would then need to be designed not only to create decent spaces, but also to appropriately support the grid of the building above.

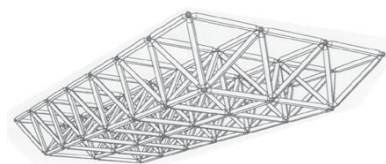
A solution to both problems can

be given by the use of a space frame (Fig. 62). This solution preserves the inside of the station column-free and unaltered. It can also be built with minimal impedance of the traffic, and thanks to that also becomes a less expensive solution than the use of columns.

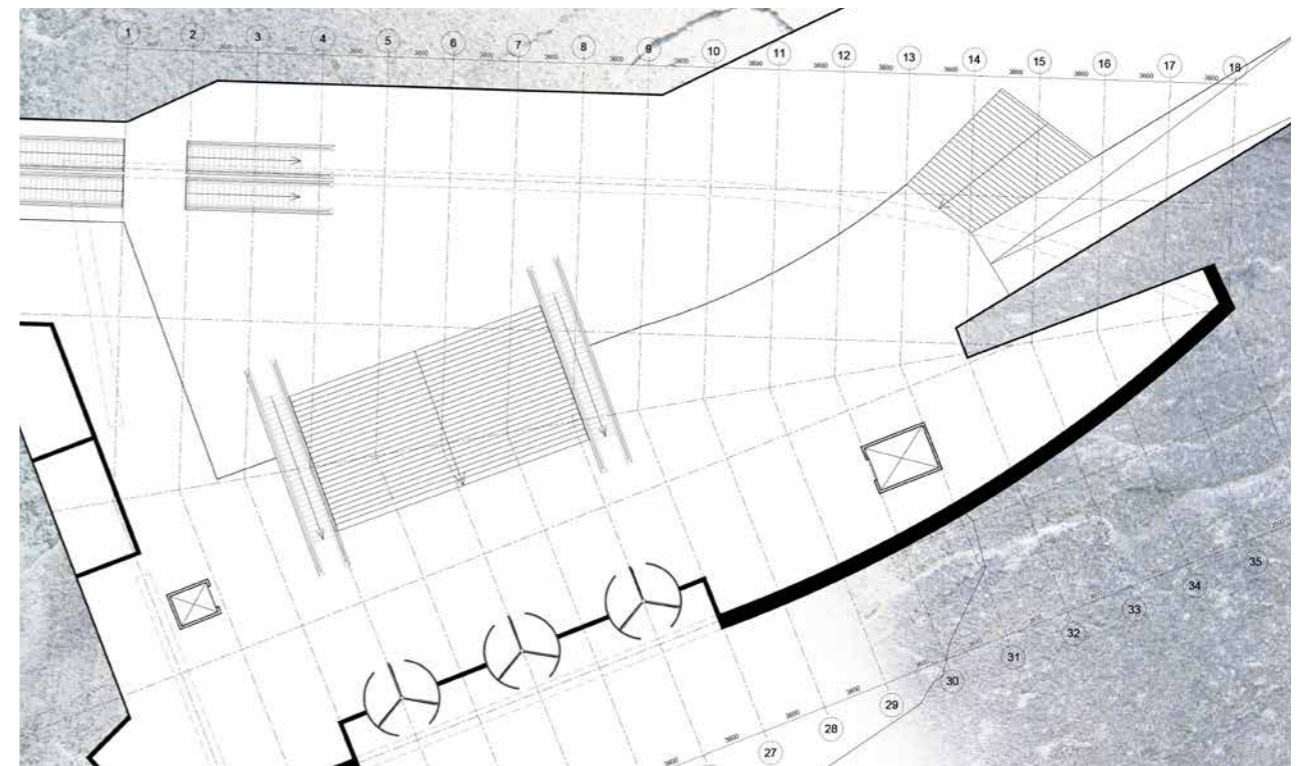
A geological analysis of the site reveals that

the ground in Oslo consists of clay-filled grooves up to 30 meters deep. The area also contains alum shale, which expands when it comes into contact with air and water and can attack concrete, argillaceous schist, cracks with clay and water, and hard volcanic rocks.<sup>26</sup>

The same document mentions that the initial train station was blasted in bedrock, confirming its presence under the building site. The presence of hard rock makes it possible to use strong anchor points for the space frame, and at the same time, decouple it from the vibrations of the station below. The available height for the space frame is between 1 and 2 meters. It can be further expanded by half a meter if necessary, lifting up the whole embassy building and the level of the plaza.



**Fig. 62.** The foundation of the building consists in a space frame hovering above the metro station.



**Fig. 63.** Photo of the interior of the Nationaltheatret metro station and estimated plan of the metro station. The outline of the embassy building and its grid are shown in overlay. The grid is matching that of the metro station on the southern side, then diverges to follow the structure of the embassy building.

### BUILDING STRUCTURE



Fig. 64. Wide-slab flooring.

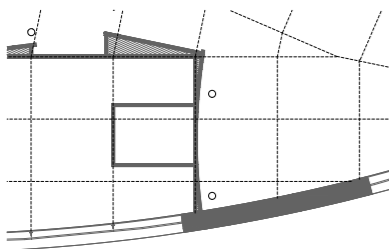


Fig. 65. The floor is made of wide-slab prefabricated concrete elements (dotted lines). Their dimension is typically 3600 mm x 2733 mm.

The inner columns and façade carry the weight of the building. The façade, coupled with the floors, assures the resistance to shear forces.

The building is using a 3,6 m wide by 3,5 m high Vierendeel steel structure for its loadbearing façade. This geometry enables the incorporation of long-span windows at arbitrary locations and spreads the weight of the building uniformly over the space frame below. A detailed section of the façade is given in section .

The center of the building is supported by two curved rows of columns that follow the lines of the central atrium. These columns, together with the Vierendeel structure, supports a rectangular 3m-wide grid steel beams. The maximum free beam span is at about 12 meters, for which 400mm I-shaped steel beams can

be used. Wide-slab prefabricated concrete flooring elements are fitted between the steel beams (Fig. 65). They are subsequently filled with the services. Concrete is then poured over until the top of the I-beams are not visible anymore.

The dimensioning of the columns is derived from the building weight as estimated in Table 12.

The total load carried by the columns is: 48519 + 21727 = 70245 kN.

The load is distributed between 14 internal tubular steel pillars and the Vierendeel structure (3x 14 steel pillars). Assuming that the internal columns carry twice as much load than the façade, one can calculate the minimum cross-section area A of steel needed for the internal columns.

$$\frac{2/3 * 70245 \text{ kN}}{14 A} < 300 \text{ MPa} \Rightarrow A > 0,011 \text{ m}^2$$

Standard beams of 323,9 mm diameter with 12,5 mm thickness (A = 0,0122 m<sup>2</sup>) can be used. <sup>27</sup>

The compression strength of steel (300 MPa) has been used to give a first estimate of the columns dimensions. Final structural calculations (out of scope of this document) will also need to take into account the buckling strength.

Calculation Vierendeel on the southern side of the building based on a horizontal grid of 3,6 m:

$$\frac{1/3 * (24260 + 21727) \text{ kN}}{18 A} < 300 \text{ MPa} \Rightarrow A > 0,0029 \text{ m}^2$$

Currently: T section has 0,003 m<sup>2</sup> OK but detailed calculation needed.  
Glass size: 2m x 3,6 m max.

Element	Weight	Level 0	Level 1	Level 2	Total weight
		m <sup>2</sup>	m <sup>2</sup>	m <sup>2</sup>	kN
Floors 0,40m concrete & steel	28 kN/m <sup>3</sup>	-	1500	700	
Ground floor 0,6m concrete & steel	28 kN/m <sup>3</sup>	1500	-	-	
Roof 0,40m concrete & steel	28 kN/m <sup>3</sup>	-	1000	500	
Load-bearing facade (1,7 kN steel + 1,3kN glass & wood)	3 kN/m <sup>2</sup>	207 x 3,5	207 x 3,5	130 x 4	
Load combination (ECO)	12,23 kN/m <sup>2</sup>	1500	1500	550	
TOTAL Weight (kN)		45719	48519	21727	115964

Table 12. Estimation of the building weight. : Eurocode 0 - EN 1990 was used for load combination. [numbers to be updated]

# 4

86	Impression Sketches
88	Floor plans
102	Sections
106	Elevations
108	Realistic Impressions
118	Details



ROOFTOP PROMENADE



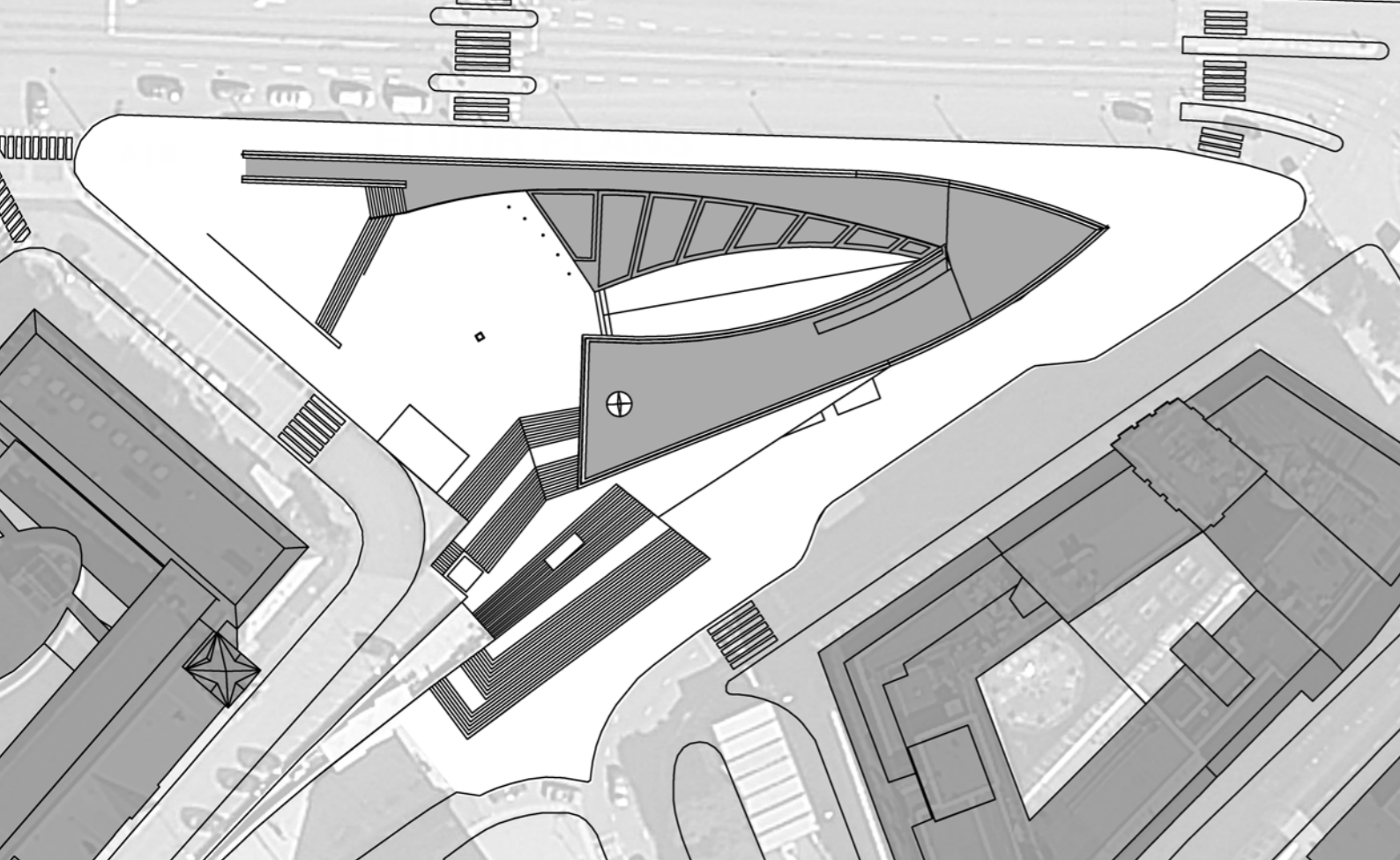
COMMON SPACE (ATRIUM)



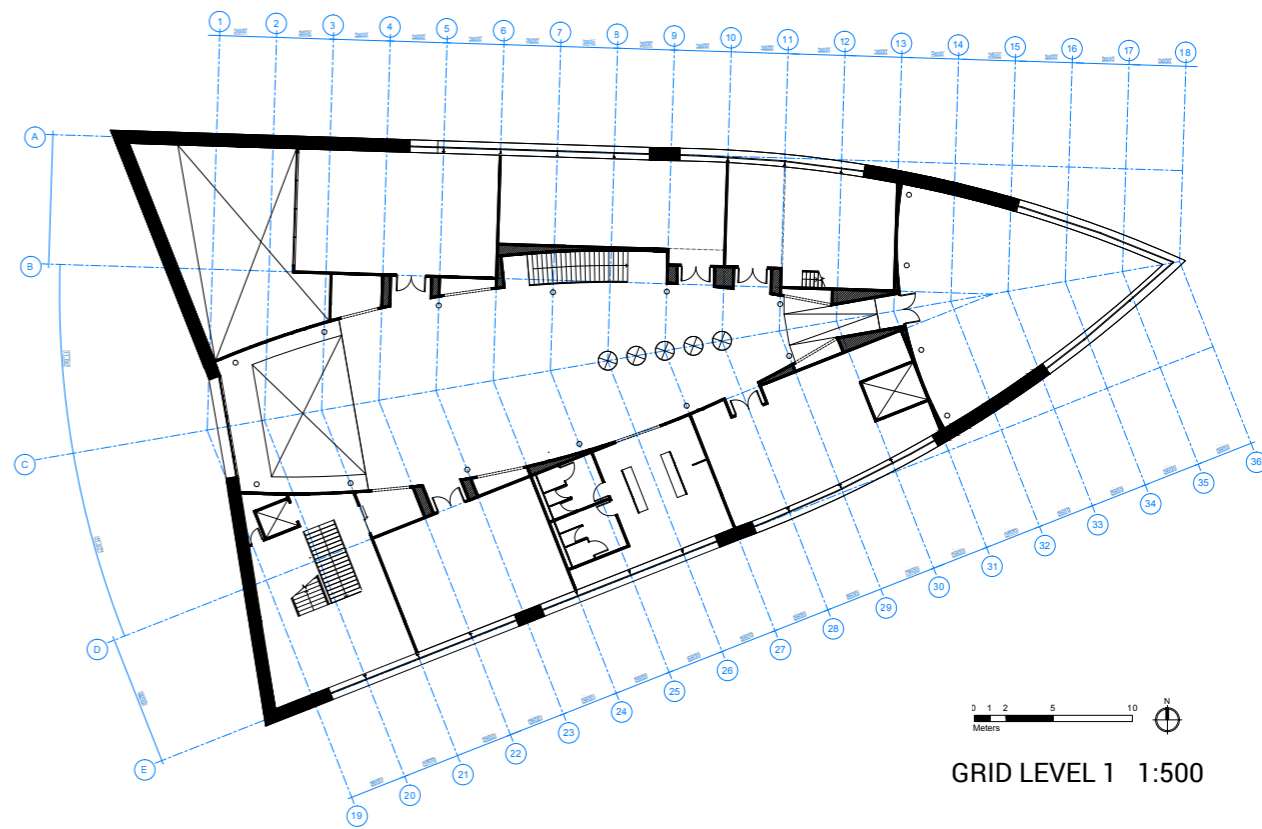
VIEW OF THE VICTORIA TERRASSE FROM THE RESTAURANT



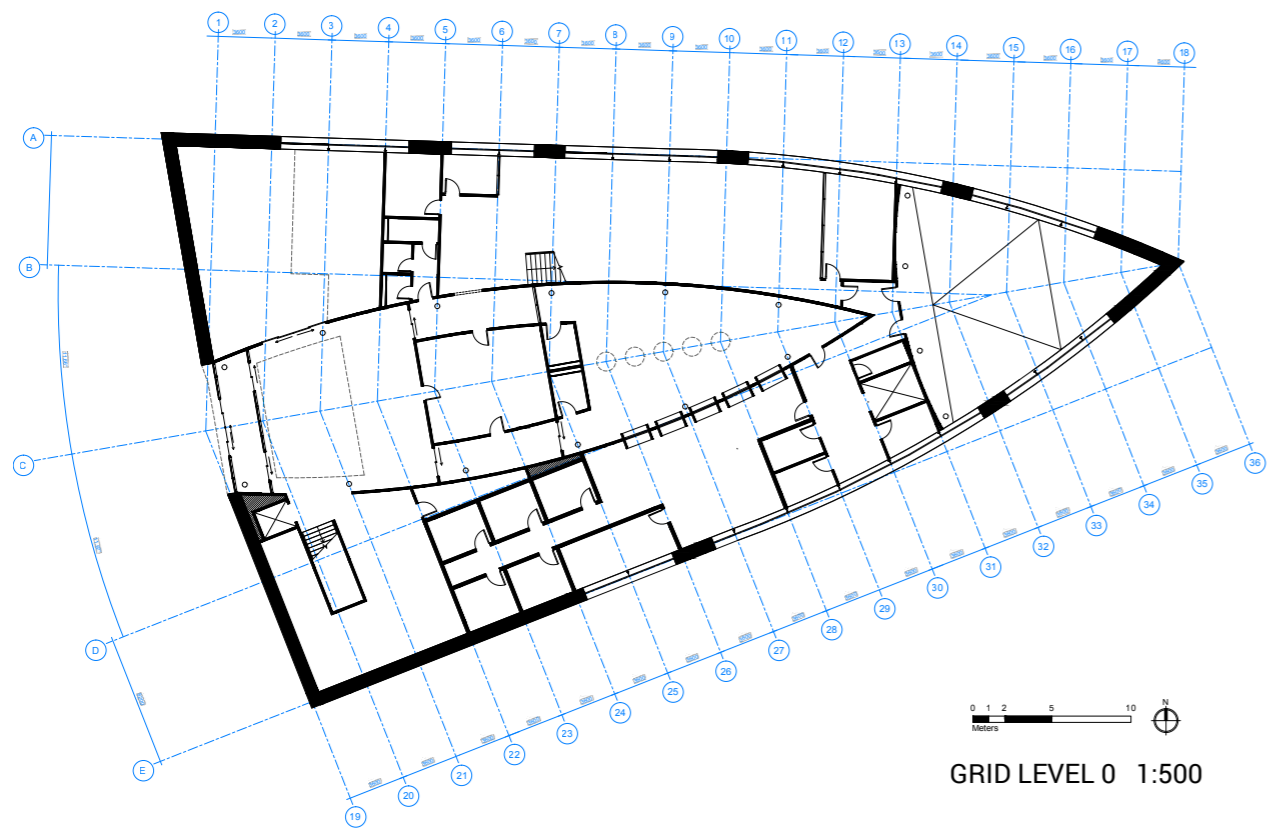
AUDITORIUM



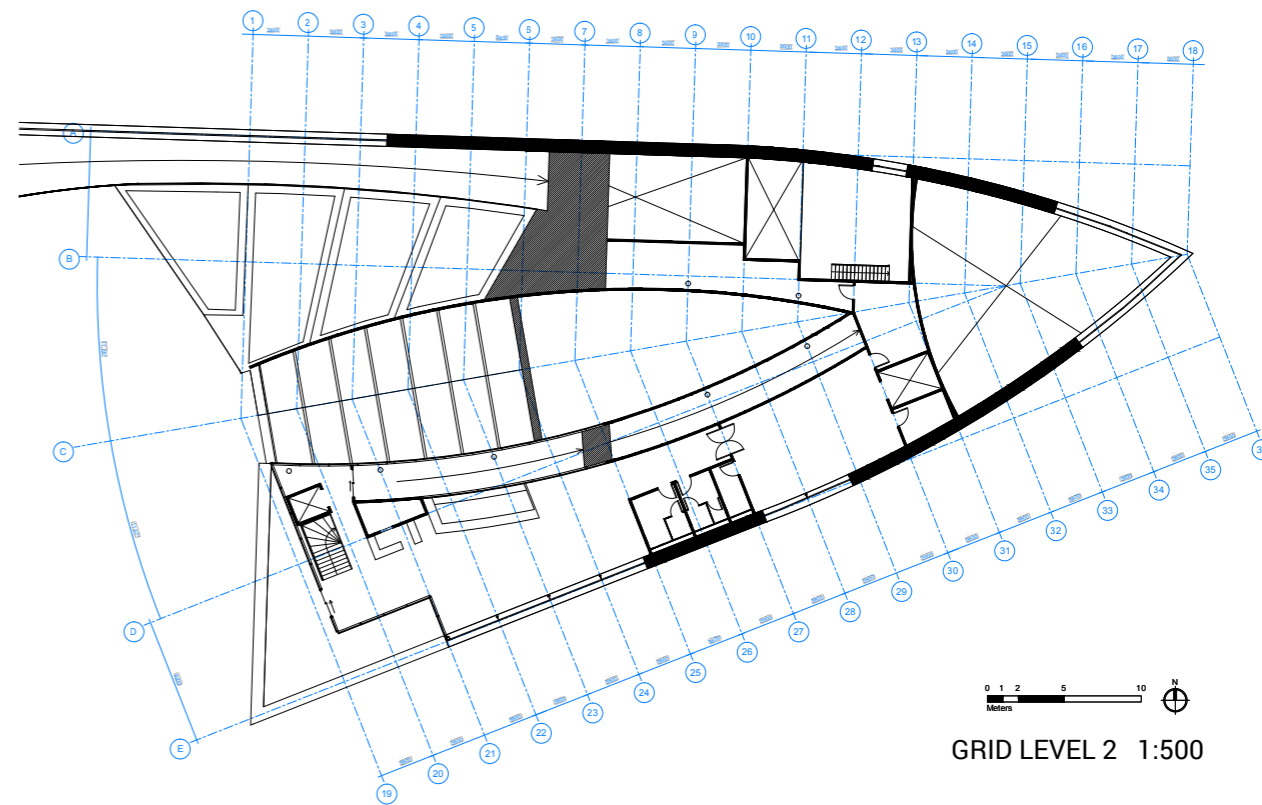
PLACE OF THE 7TH JUNE 1:1000



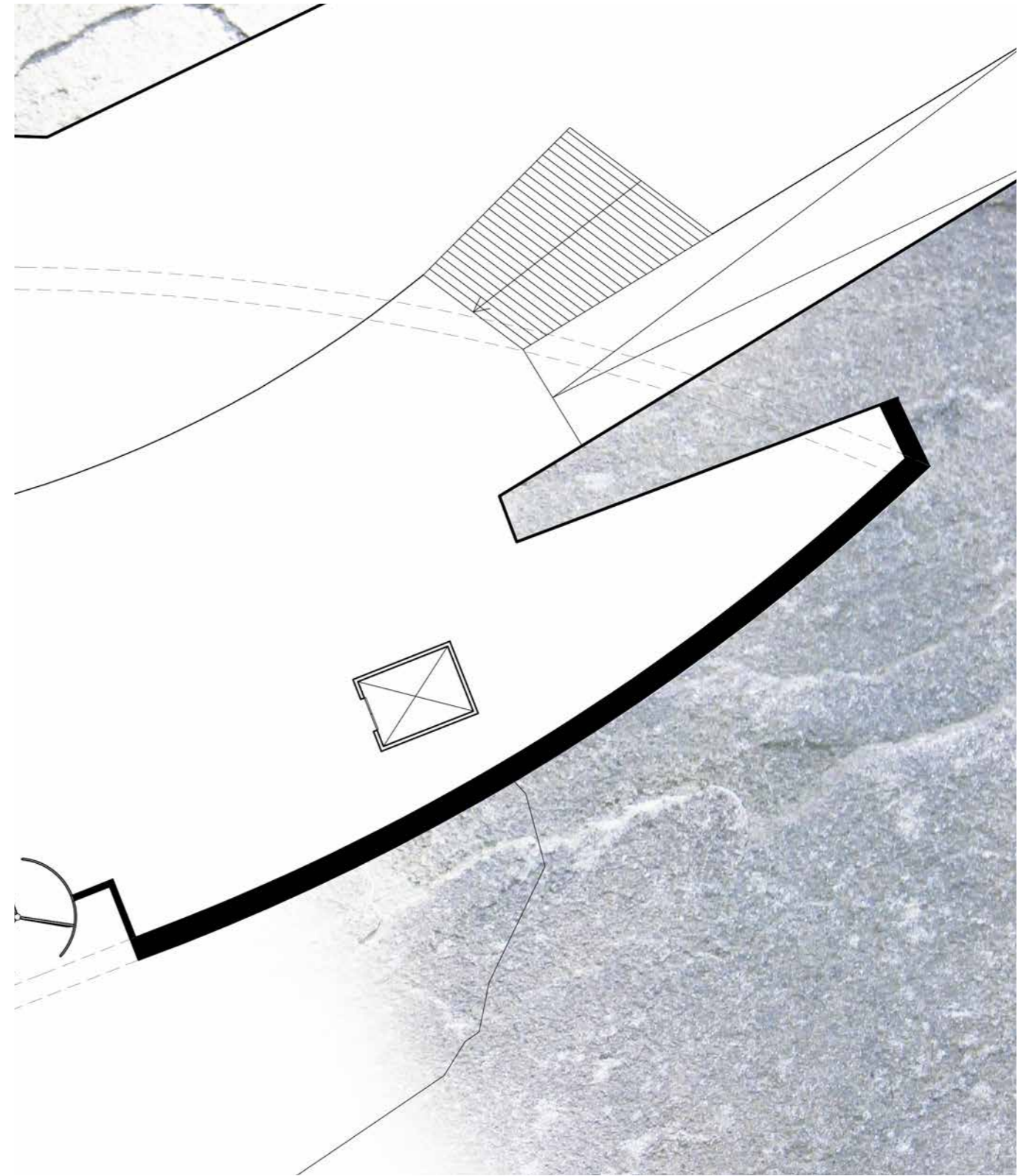
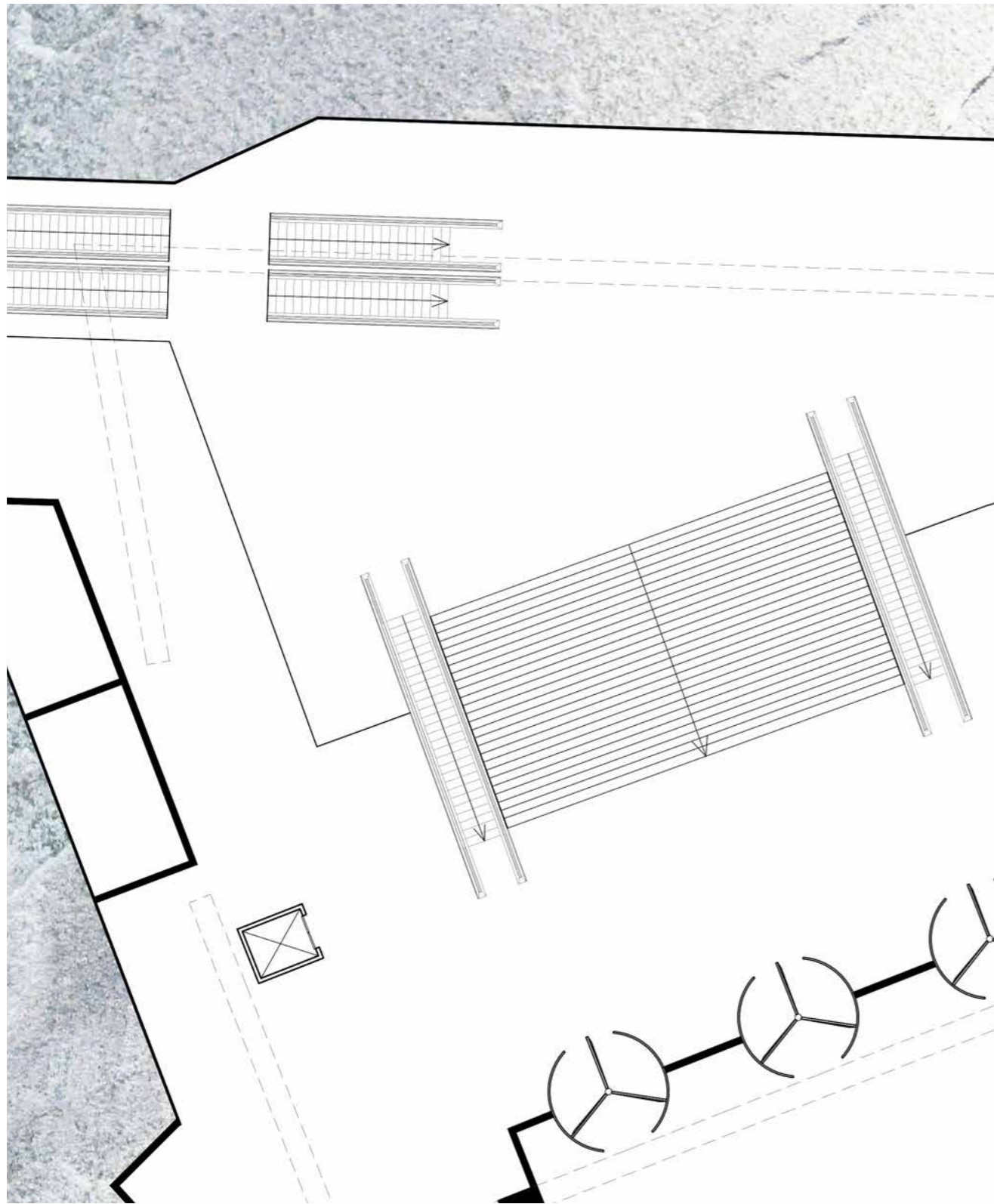
GRID LEVEL 1 1:500



GRID LEVEL 0 1:500

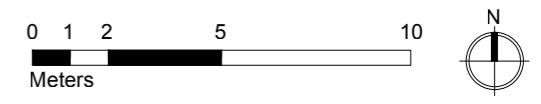
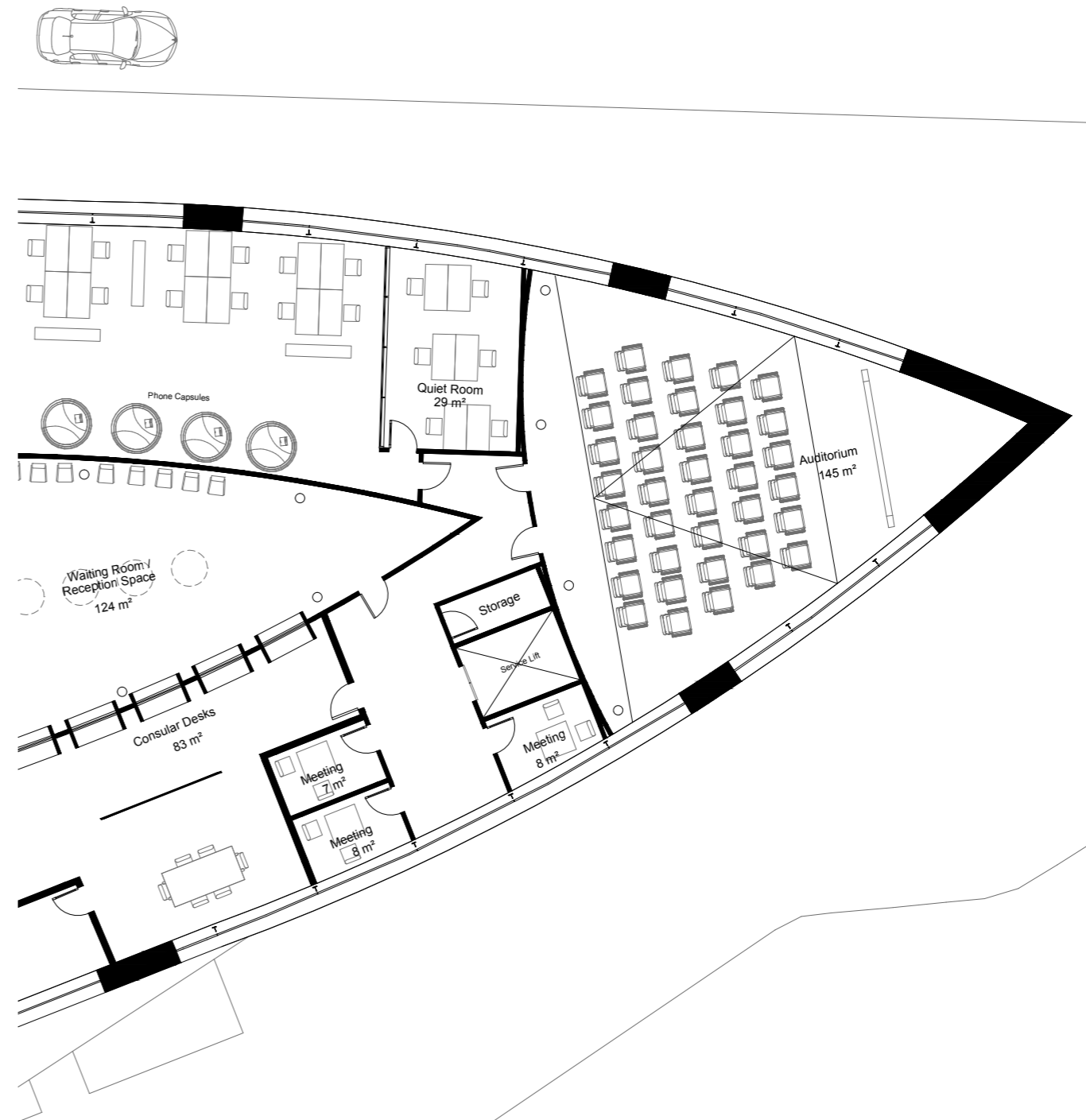


GRID LEVEL 2 1:500

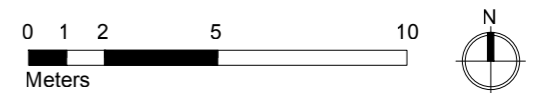
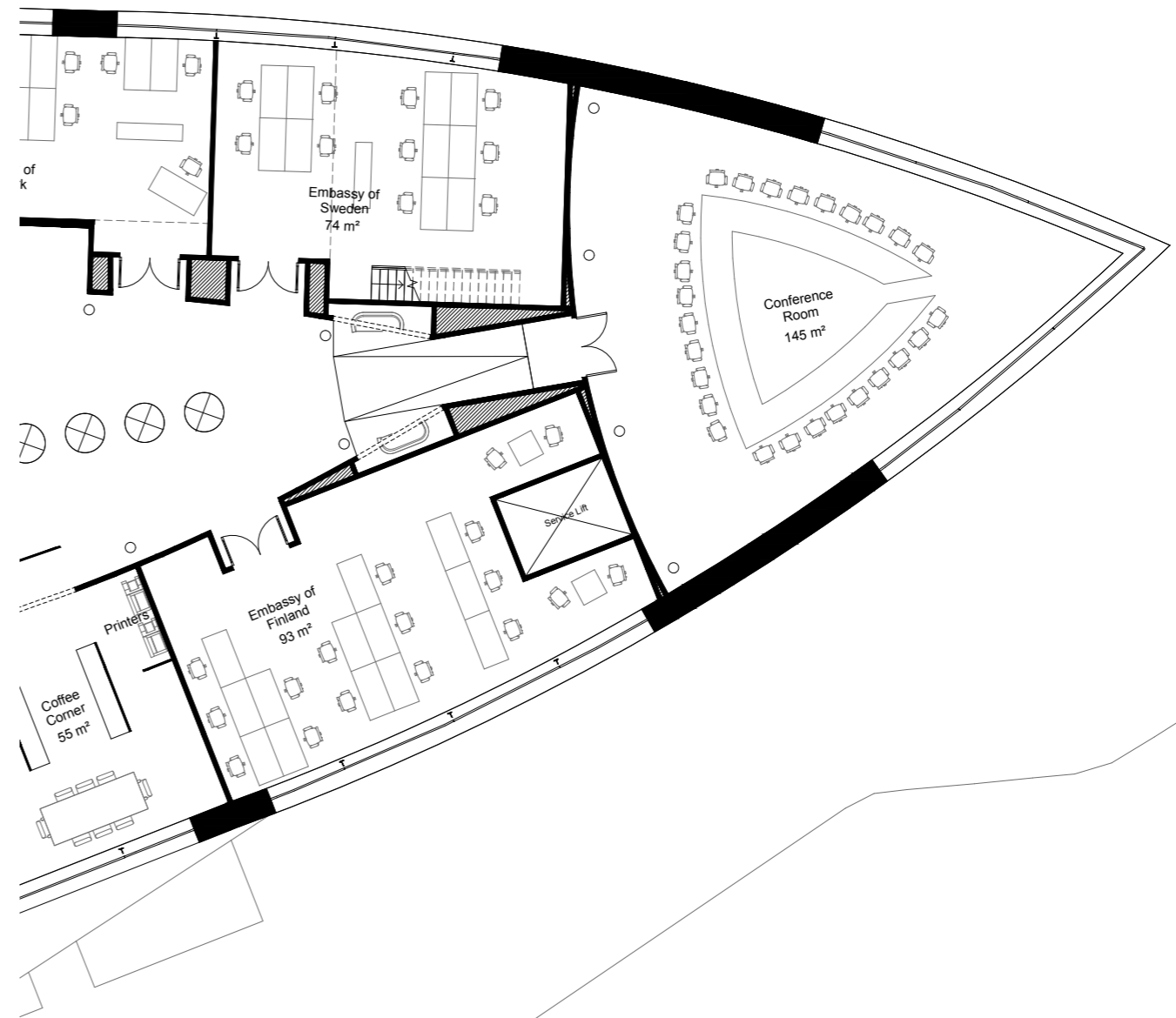
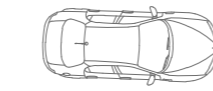


LEVELS -1 & -2 - METRO STATION ENTRANCE (ESTIMATE) 1:200

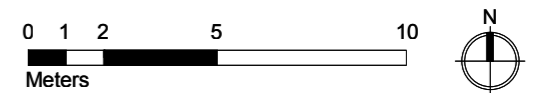
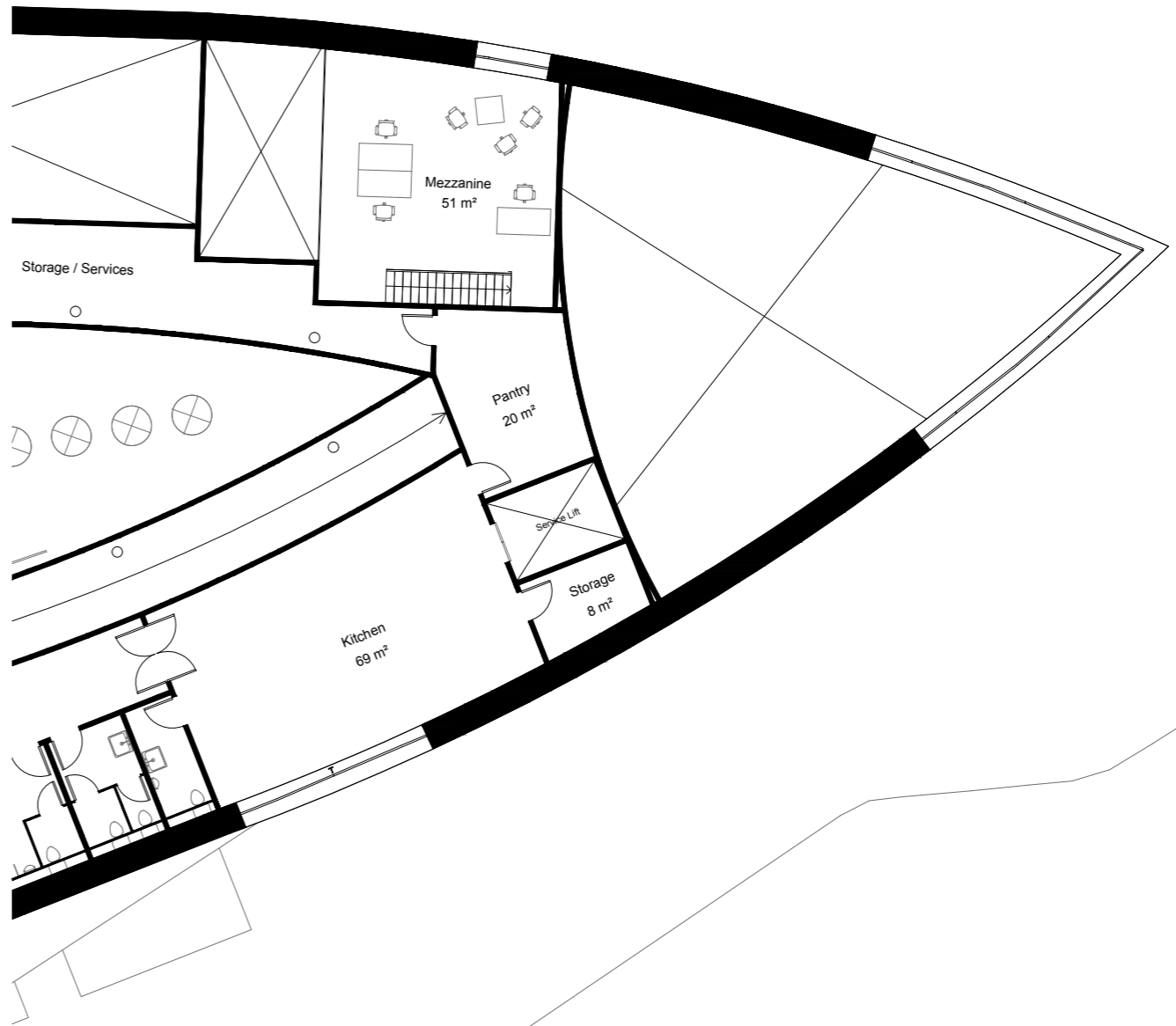
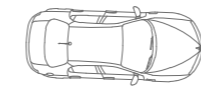
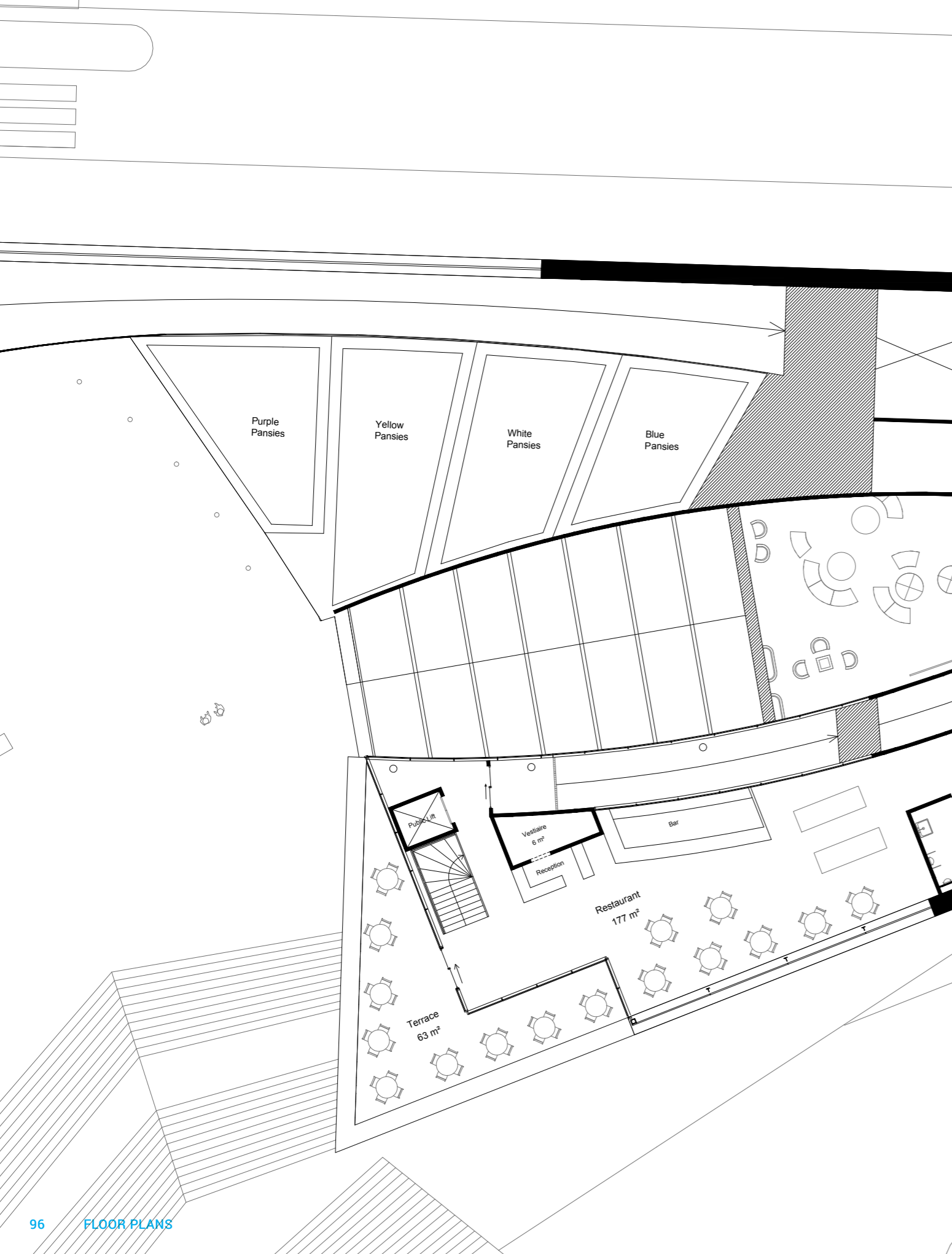




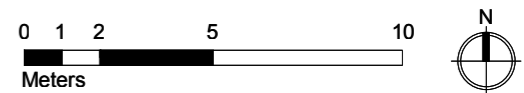
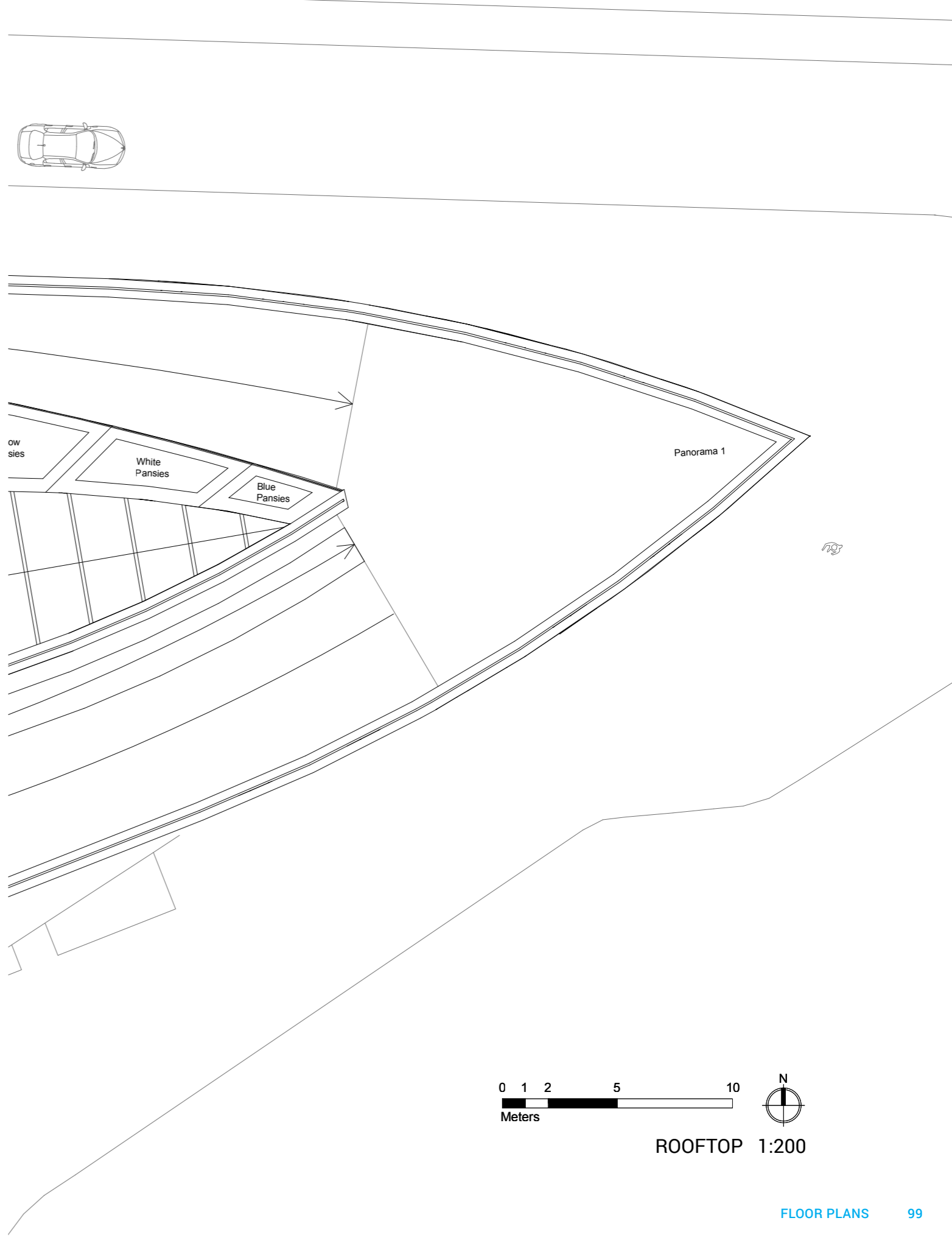
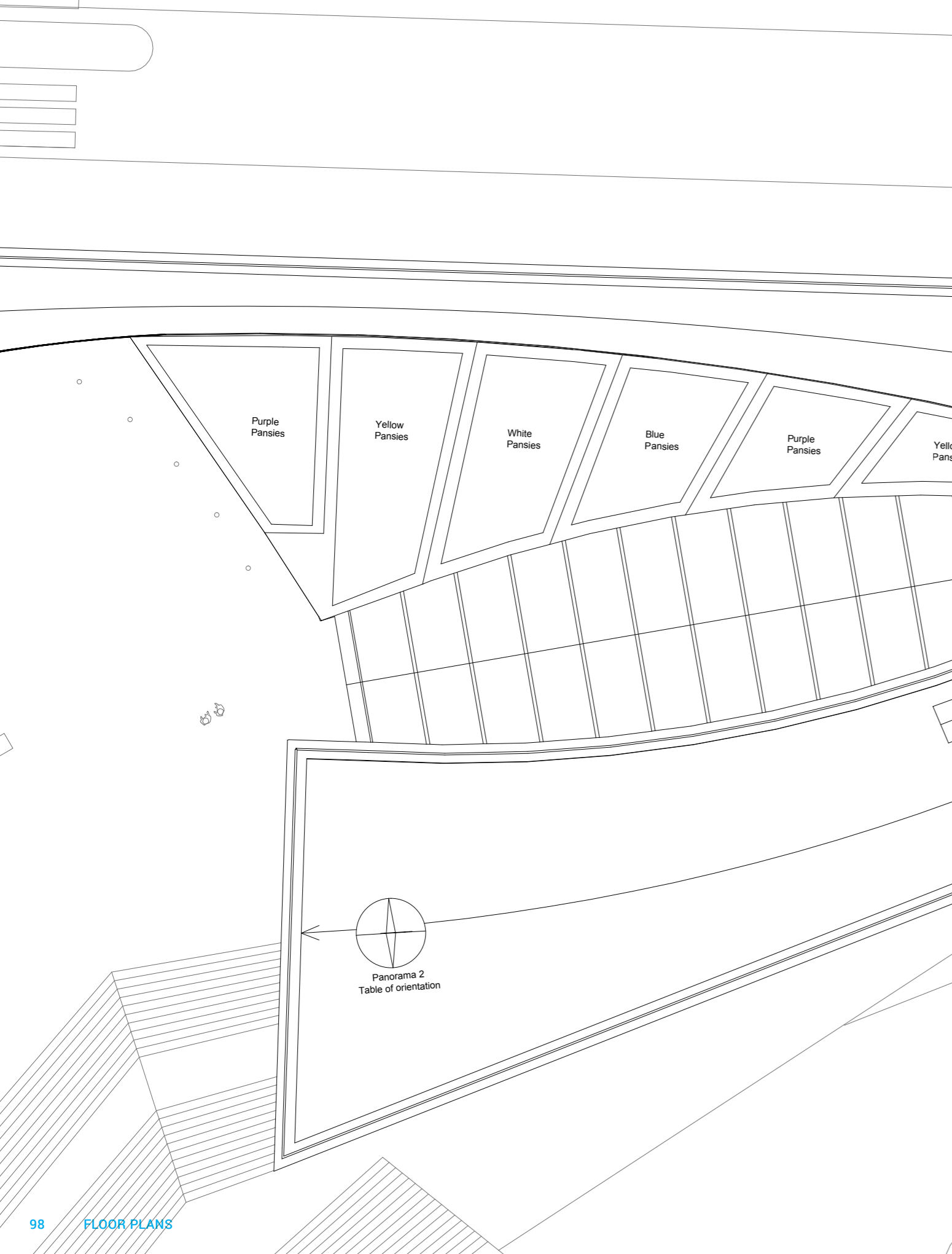
LEVEL 0 - PUBLIC AND STARTUPS 1:200



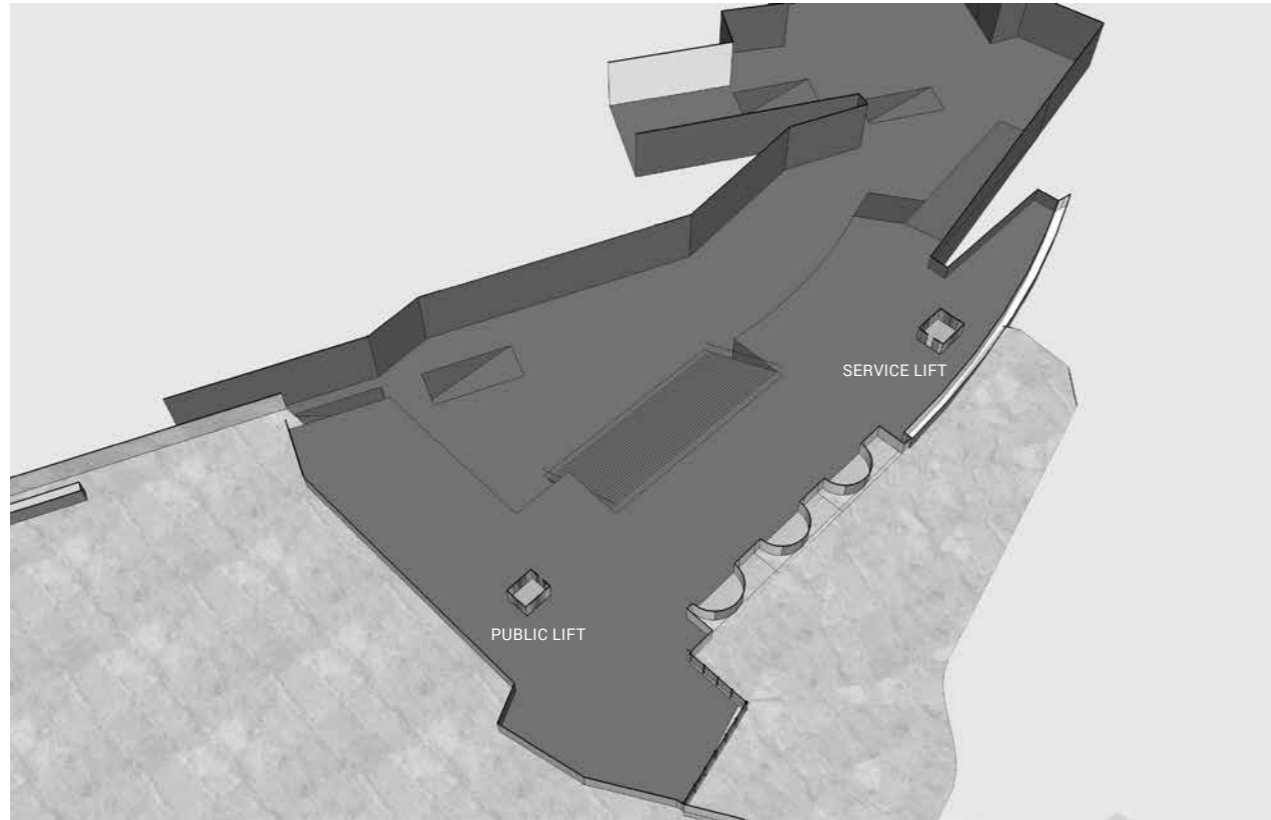
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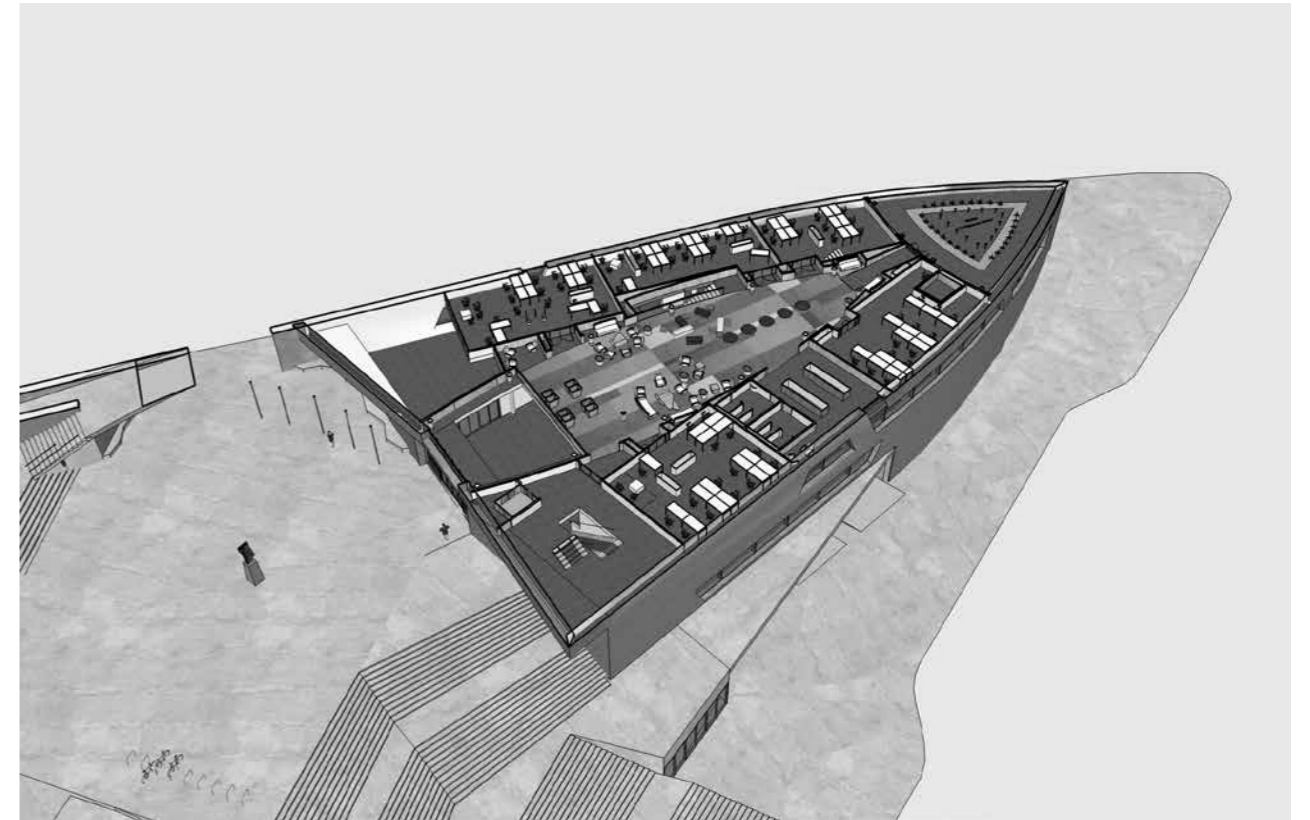
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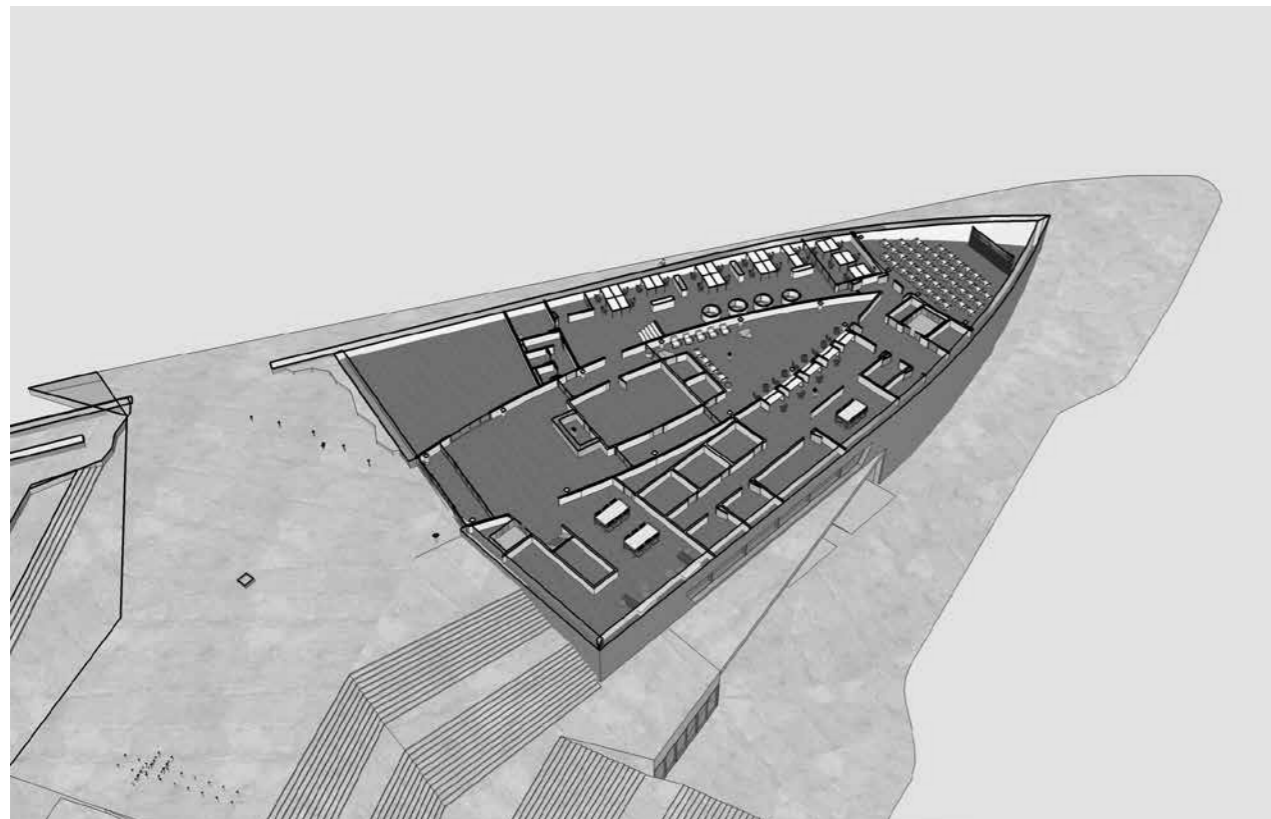
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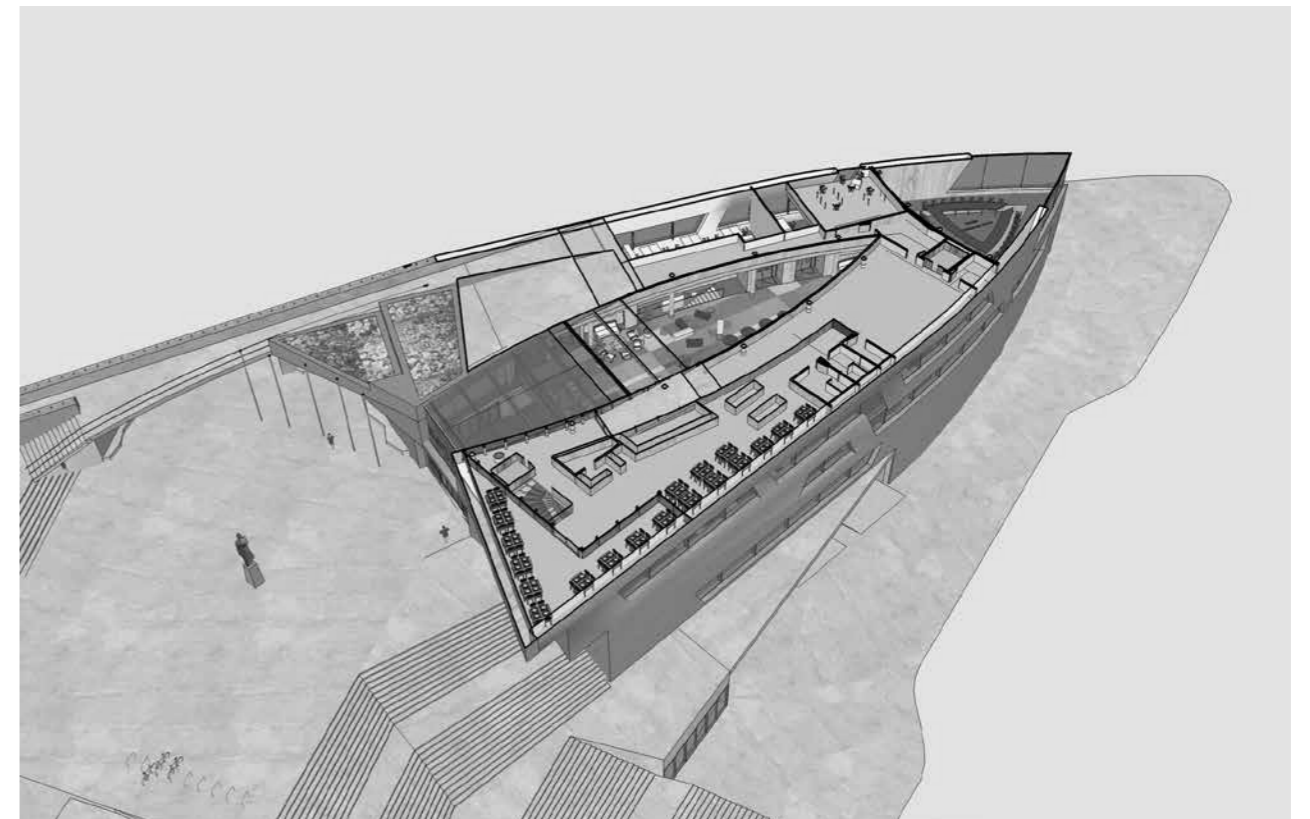
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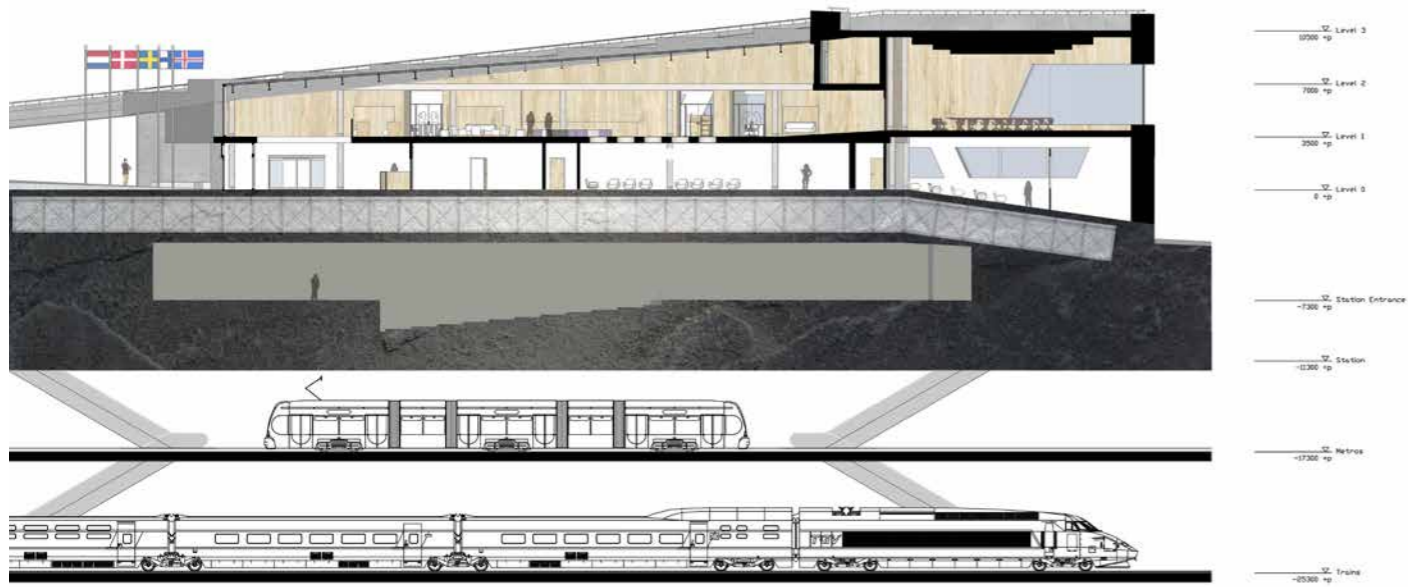
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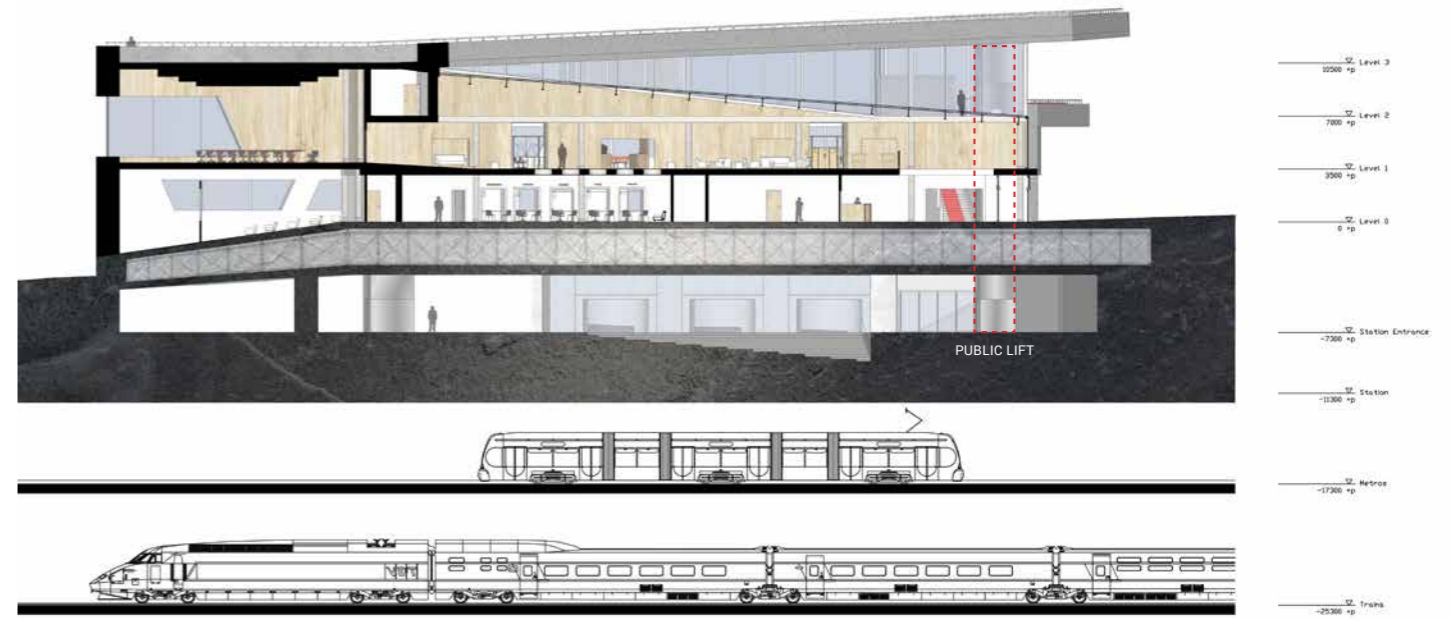
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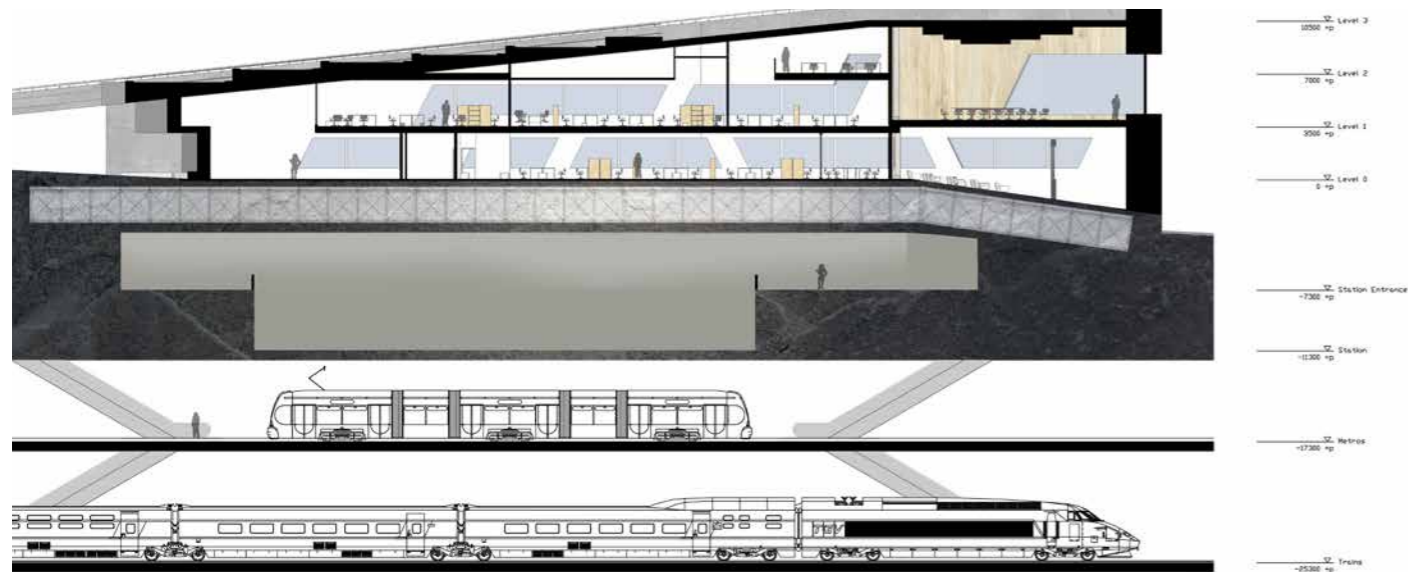
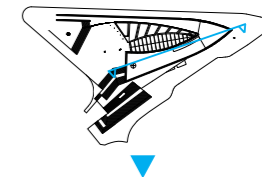
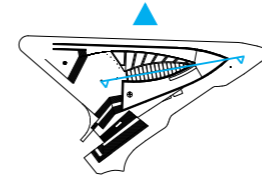
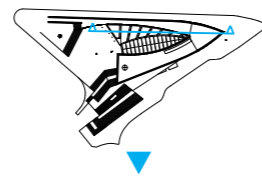
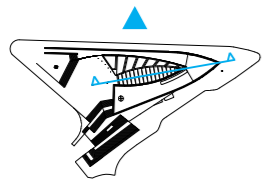
LEVEL 2 - RESTAURANT



ATRIUM SPLIT OPEN - NORTHERN SIDE



ATRIUM SPLIT OPEN - SOUTHERN SIDE



NORTHERN OFFICES



SOUTHERN OFFICES

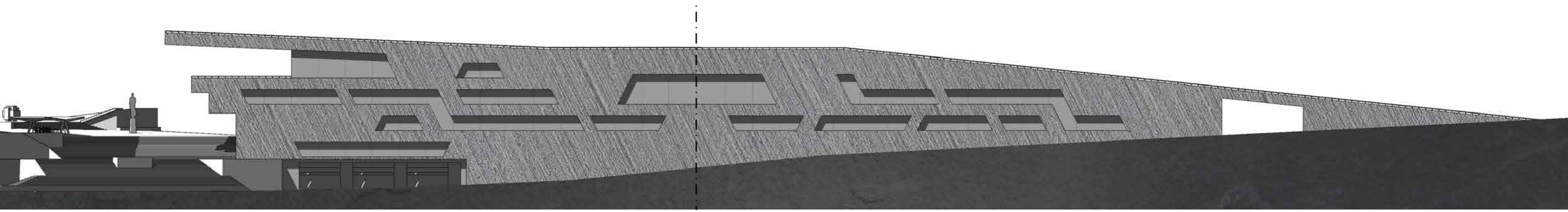
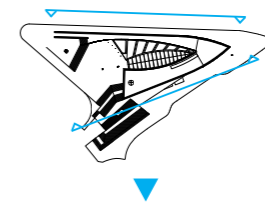
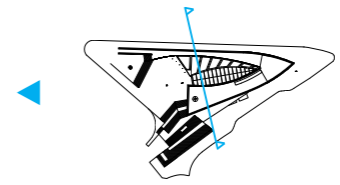
SECTIONS 1:500

SECTIONS 1:500



- Level 3  
10500 sp
- Level 2  
7200 sp
- Level 1  
2900 sp
- Level 0  
0 sp
- Station Entrance  
-7200 sp
- Station  
-10200 sp
- Platform  
-17200 sp
- Trains  
-25200 sp

SECTION 1:500



SOUTHERN FACADE

NORTHERN FACADE

ELEVATION, UNFOLDED 1:500



SOUTH ELEVATION



NORTH ELEVATION

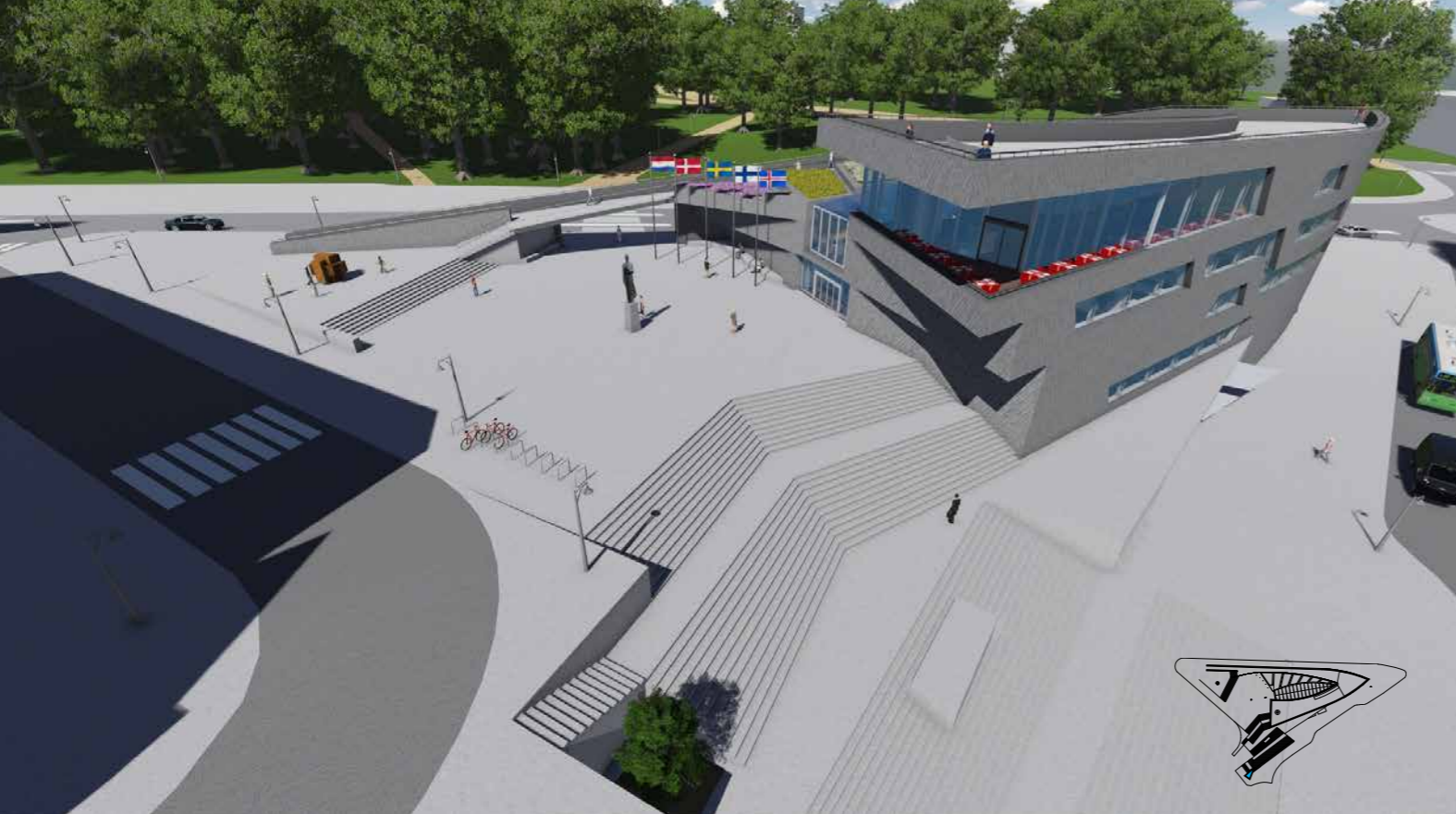


EAST ELEVATION



WEST ELEVATION

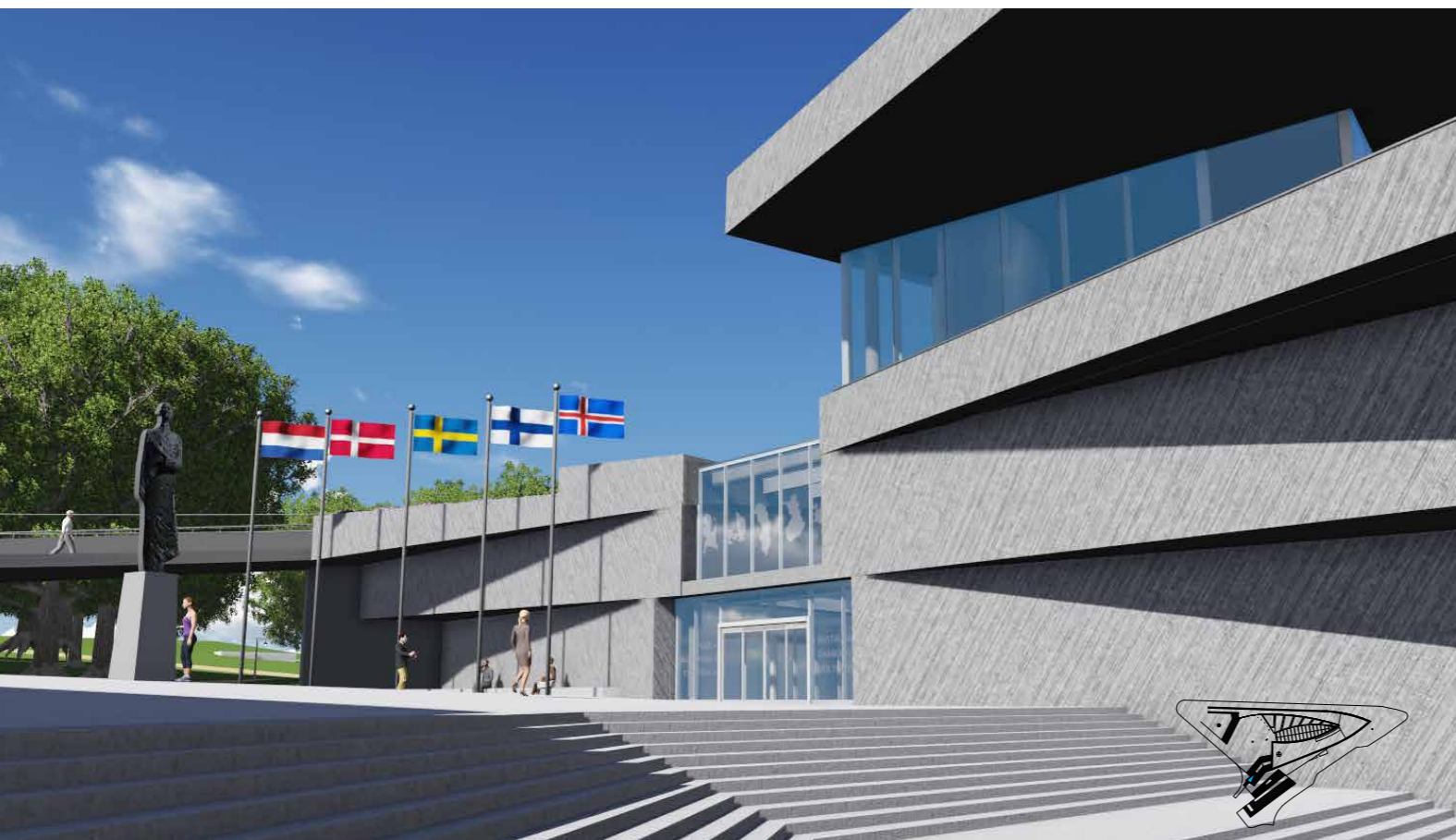




PLACE OF THE 7TH JUNE



MONUMENTAL STAIRCASES



MAIN ENTRANCE



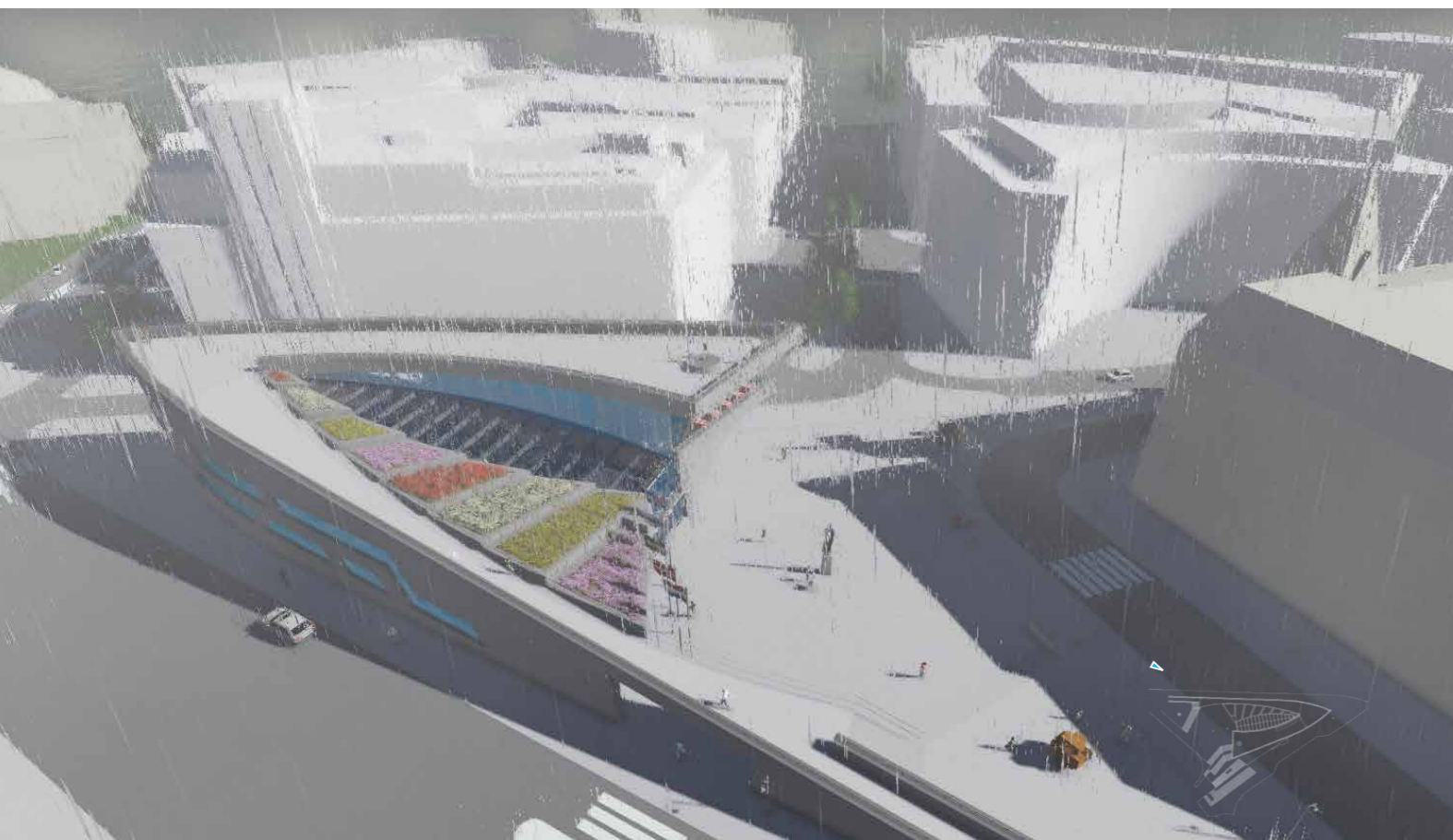
LAST SUN RAYS



INVITATION FOR A PROMENADE



VIEW FROM THE ROUNDABOUT



RAINY DAY



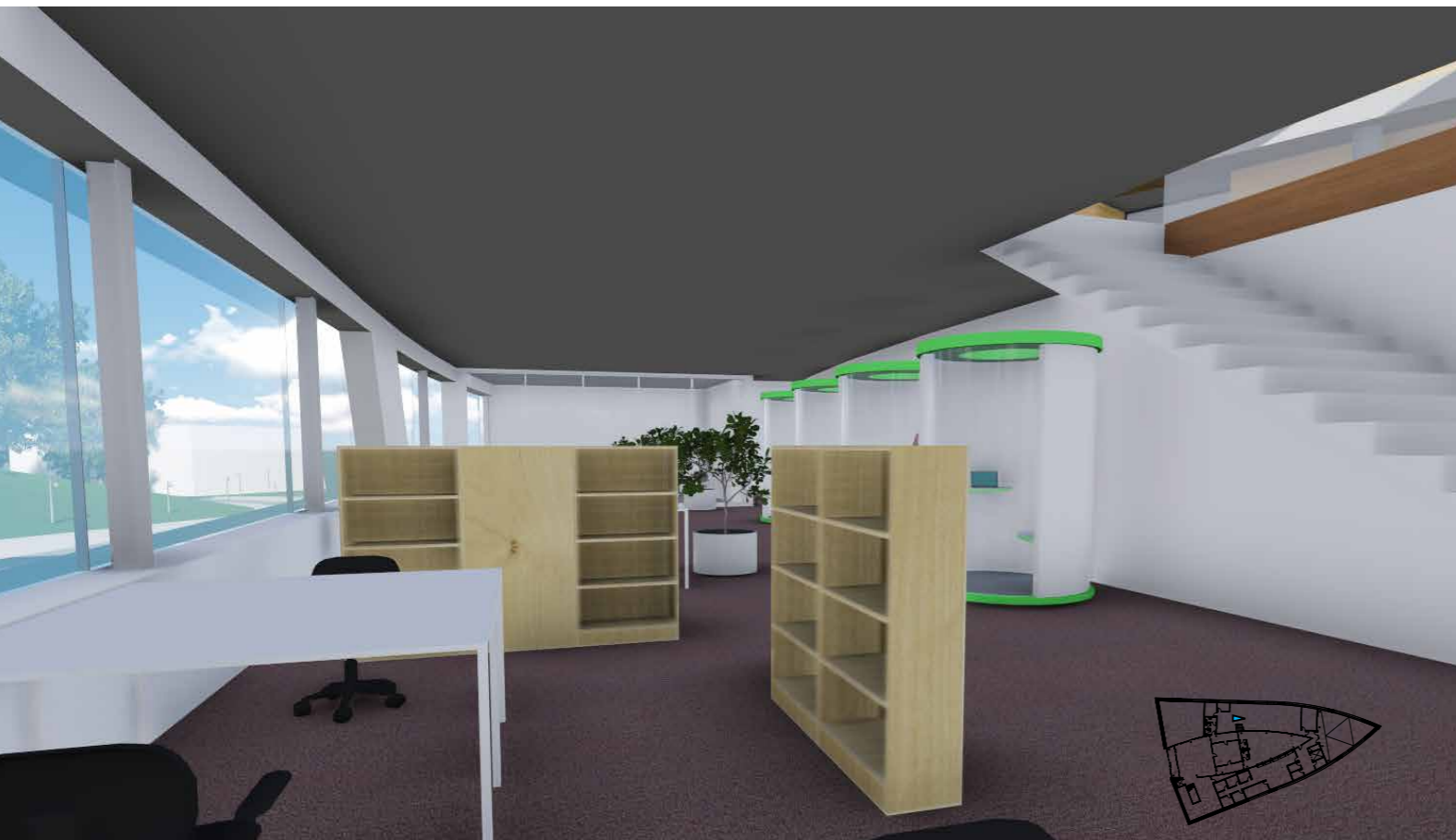
SNOWY DAY



ENTRANCE HALL



WAITING ROOM

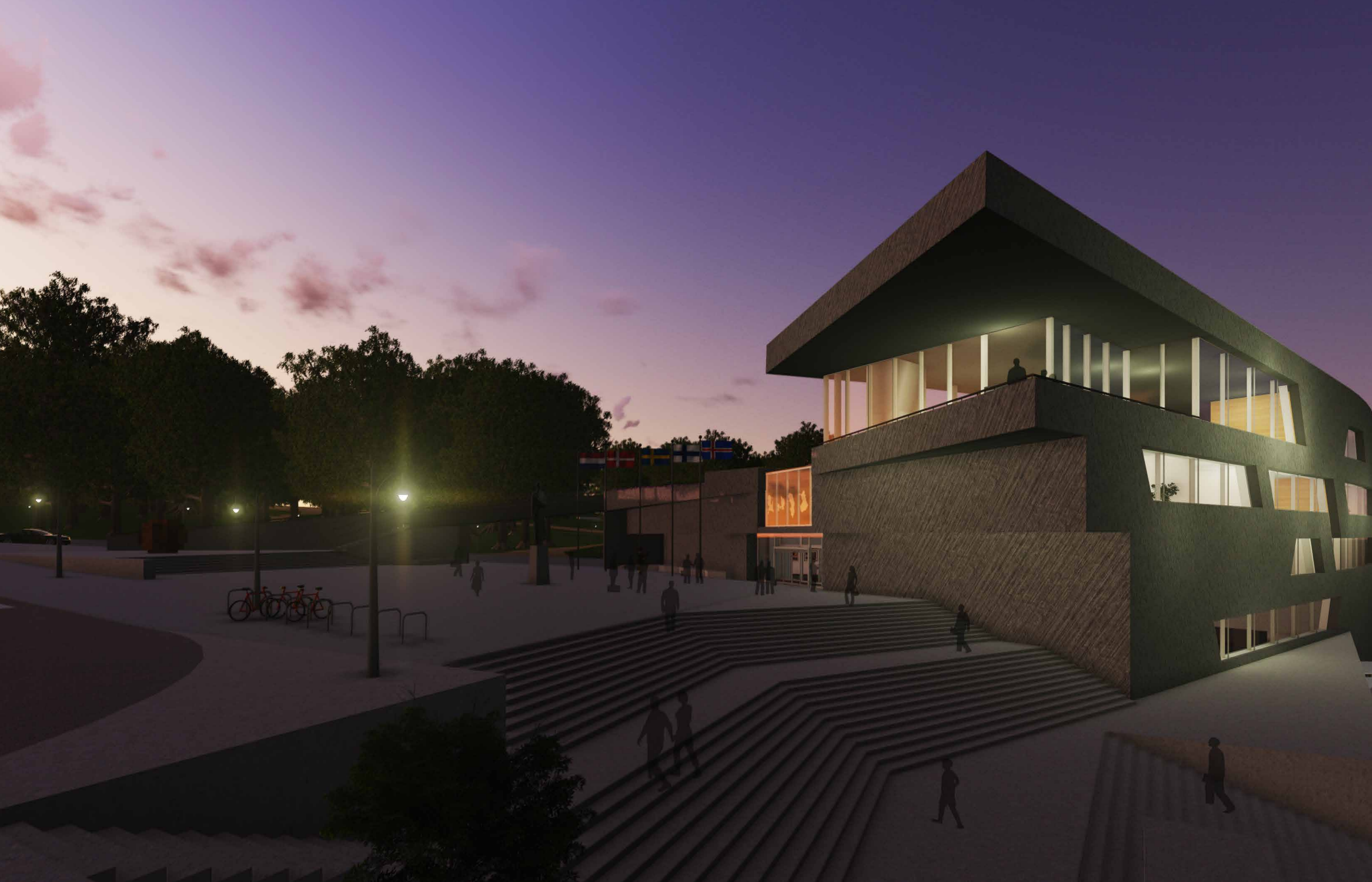


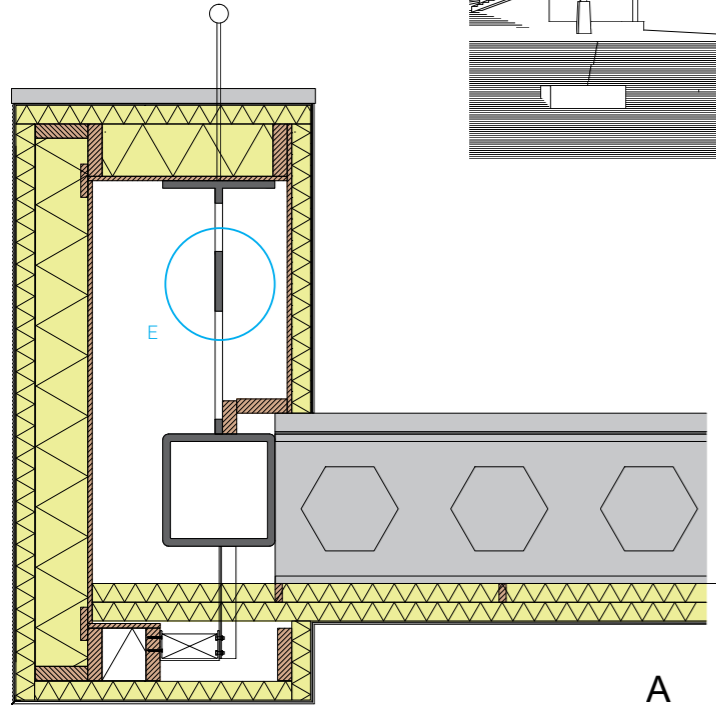
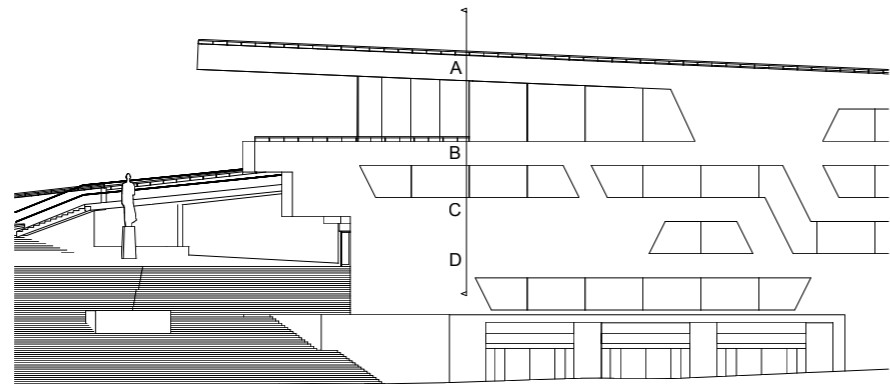
STARTUPS OFFICES



COMMON SPACE (ATRIUM)



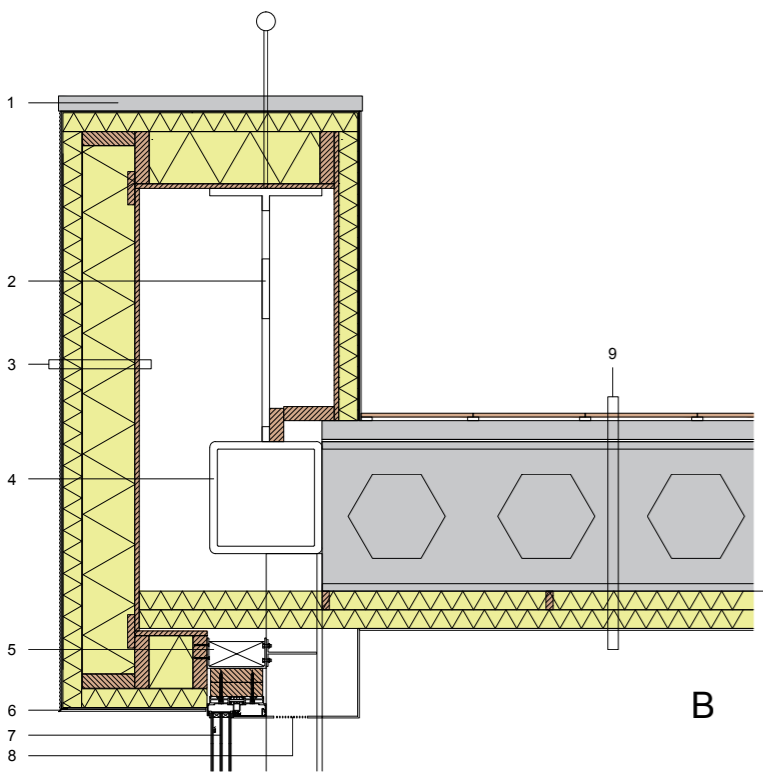




A

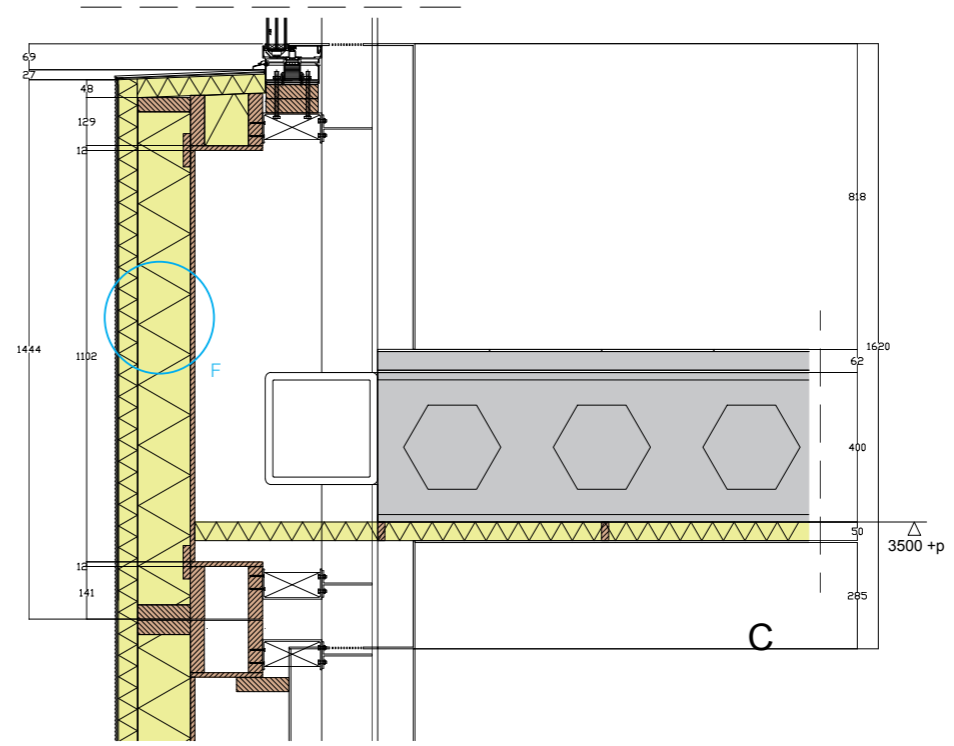
12262 +p

- 1  
40 mm concrete finish.
- 2  
Steel trangular truss.
- 3  
Diagonally striated concrete plaster finish.  
Glass fiber mesh embedded in mineralic reinforcing coat.  
50 mm expanded polystyrene panel (600 mm wide).  
140 mm rockwool in 38 mm timber framing (600 mm spacing).  
12 mm wooden panel (600 mm wide).
- 4  
300 mm x 300 mm tubular beam (20 mm thick).
- 5  
Steel bracket bolted to a plate pre-welded to the vertical steel structure.
- 6  
Stainless steel drop profile.
- 7  
Triple glazing in alumnium framing.
- 8  
Ventilation grid on white aluminium paneling.
- 9  
20 mm wooden tiles (300 mm x 300 mm) on hard plastic matrix.  
50 mm concrete screed.  
6 mm acoustic insulation.  
400 mm wide-slab flooring.  
50 mm insulation (battens 19 mm x 50 mm).  
50 mm insulation (couner-battens 19 mm x 50 mm).  
White thermoplastic finish.



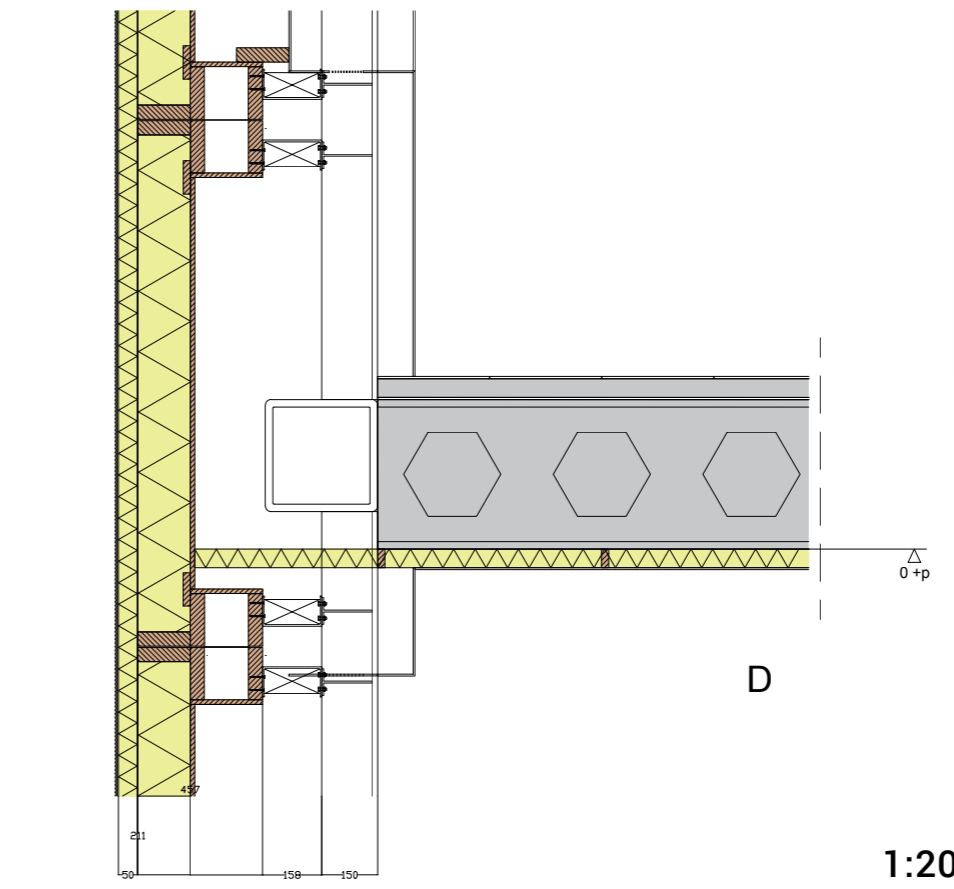
B

7000 +p



C

3500 +p

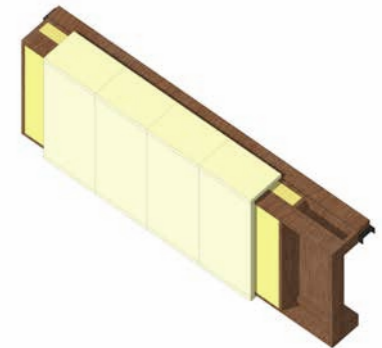


D

0 +p



E



F

1:20

# 5

## DISCUSSION AND CONCLUSIONS

At the beginning of this architectural studio, I was not convinced that a new Dutch embassy was needed in Oslo. The existing building was well located and seemed to be working smoothly. However after researching the subject more in depth, it quickly became clear that several improvements could be brought to the current situation.

One of the main reasons is that the world evolves constantly, and the Dutch values with it. A new embassy, that takes advantage of the current ways of living and working, could fulfill the needs of the embassy in a better way. The question became evident: How should a Dutch embassy in Oslo be conceived in order to reflect the modern needs of diplomacy?

A research conducted via several methods brought the pieces of the puzzle together and led to a strong concept: that of a connector. The selection of the building site is of key importance. A couple hundred meter can make a huge difference in the efficiency of a connector. The best location was to be the direct neighbor of the Norwegian ministry of foreign affairs.

However the site configuration was far from appropriate for the implementation of the concept (which required a centric configuration): it was thin triangular, sloped with 9 meters of height difference, built above a metro

station and already connected via pedestrian routes and a monumental staircase. It was also the Place of Independence, where king Haakon VII statue was standing.

In my design, I attempted as much as possible to turn the difficulties into assets. The slope of the terrain could be used to make the panoramic sights readily accessible. The metro station could be enhanced for a direct access to the embassy or the restaurant. The Place of Independence was redesigned into a place where people may want to wander around instead of just passing through. The triangular shape of the plot encouraged the generation of a very plastic mass, with a strong yet contextual character.

Throughout this thesis, several important conclusions have been derived.

1. Identity. The approach to the expression of the Dutch identity is different. Rather than focusing on a material representation of some symbol of The Netherlands (such as water), the focus is on its identity as a whole. That identity is represented by an ensemble of values that varies with time. Combined to these values are the goals that justify the presence of The Netherlands in Norway. The goals are synthesized into a master goal (the creation of opportunities).

The Dutch values are the means that will help accomplish these goals.

The extravert nature of the Dutch would perfectly fit in an environment where they can easily meet and connect with other people who share similar values.

2. Connector. The next step was to make people connect together. This gave rise to the connector concept. The connector, by facilitating and encouraging unforeseen encounters, automatically generates potential opportunities in a repetitive way. It is important to remember that the key ingredients of a working connector environment are the proximity and compatibility of the potential partners, and the regularity with which they have a chance to meet.

3. Multiplication. The impact of a connector can be multiplied by using it at several scales (here: urban, building, office). The gathering point (attractor) is different at each scale, so that a certain crowd (and certain types of opportunities) is present at a certain place. Careful attention to details also have a multiplying impact. For example, the presence of the sole coffee machine and printers on the floor forces the people to transit regularly via that point; or the policy to move to a different desk every now and then also favors dynamism.

To conclude, the embassy complex can be seen as a life experiment. The connector concept has never been implemented at such depth. It is difficult to predict how

the dynamics of the people inside will evolve. The building has been configured to offer a maximum of flexibility and adaptability. In such a dynamic environment, everyone will be able to find a configuration that suits him and promotes its well-being.

The connector concept does not limit itself to embassy buildings. It can and should be applied in all situations where collaboration and creativity are important. No universal connector configuration exists: each case needs to be tailored to fit the personality of the users, their number, their type of activities, etc. However the core principles described in this thesis are universally applicable and will without doubt foster serendipitous opportunities.



# 6

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**Goal of the interview: learn the role of Dutch embassies and their latest program of requirements.**

Raymond Toet is a real estate advisor (for policy and client side, not services) of the Dutch ministry of foreign

affairs (contact of Maarten Willems). He presented the new requirements of Dutch embassies during an informal session on January 9, 2015. The most important points are summarized below.

## ROLE OF THE DUTCH EMBASSY

- The ambassador (also called head of mission) is surrounded by his deputies.
- An honorary consul (HC) helps Dutch citizens with administrative papers in case of emergency. The HC is located in his own company office, and only assumes his duty as HC a couple of hours per week. A consulate is a deputy of the embassy. He mainly does consular work.
- The residence of the ambassador is for representation. The chancery (= embassy office) is for function. Both are on diplomatic soil.
- In some places it is important to show our Dutch identity (e.g. Rem Koolhaas in Berlin), but not everywhere (e.g. conversion of an embassy in Austria does not carry the Dutch identity).
- The embassy is promoting Dutch business and culture,

- by facilitating (not organizing) cultural events (e.g. make the Dutch king meet local people).
- Specific to Oslo:
- General policy framework: the embassy takes care of everything: politics, economics, consular.
- The embassy in Oslo has currently 12-14 people (3 Dutch, 11 Norwegians). All work full-time.
- An embassy does not need to be isolated. It can be a floor in a skyscraper.
- An embassy is occupied only during office hours, typically from 7:00 to 18:30.
- Vienna convention: rules of diplomacy.
- Showcasing of art would not be in the embassy but rather in the residence.

## NEW PROGRAM OF REQUIREMENTS

The new program of requirements for Dutch embassies is driven by a 25% costs reduction in building-related expenses (from 25M€ to 18M€). This shall be accomplished by a modernization of diplomacy (new way of working):

- Focus on costs, efficiency and possibilities.
- Flexibility: desk sharing, remote working, open areas (30-35 m<sup>2</sup>), total available space adaptable in function of demands.
- Modern way of working: not limited to use of laptops: it also includes being outside, overhear what others say,...
- It should be possible to easily convert the building to a different usage when it ceases to host the Dutch embassy.

- The area required by the embassy is based on the occupancy rate of the employees. This rate is, on average 0.7. This means that the current size of the embassy, based on an occupancy rate of 1.0, can be reduced by 30%. As a consequence, the expected size of the new embassy in Oslo is expected to be about 400-450 m<sup>2</sup>.
- Should cope with future needs, e.g. passports validity of 5 years will become 10 years.
- Location: the embassy should be easy to find and access. It is more important than showing the Dutch identity of the building.
- Several embassies can be combined to facilitate information sharing. Combination of countries with competing

- interests should be avoided (e.g. Germany also sells oil).
- An embassy may not sublet a part of its ground to another embassy. However it can split its place with a "Holland house" (incubator for startups). This should be possible for a limited amount of time only. The incubated companies then pay a fee (it cannot be called a rent).
- For big celebrations, renting a space for the day outside the embassy is cheaper.
- Cost is more important than sustainability. In Oslo, we aim for a lifetime of 10-15 years.

The ministry of foreign affairs issued a confidential document stating the guidelines for the design of new Dutch embassies. The most important points are summarized below. Some of them have already been mentioned above.

- Differentiation in size of the embassy according to its

## SECURITY

In summary, "Roll back barriers and open spaces." Technically:

- Consular section: standard 120cm-wide desk with bullet-proof glass for 1500 passports + 3000 visas per year.
- Server room (12 m<sup>2</sup>) to secure all IT components.
- Keep these two areas as small as possible for reduced costs and vulnerability.
- Besides these two rooms, no other rooms are secured. In Oslo, the access to the building is done via a standard main door.
- Wifi use is allowed.
- Current IT problem: it takes 30 min to download your own profile on a desktop. But laptops can be taken home security issue.

- role and status.
- Smart working, flexible spaces whenever possible.
- Occupancy rate taken into account (general: 0,7 FTE, consular: 1,0, representation: 0,5)
- Head of mission's room: hospitable "best room" designed for wide-range use.
- General facilities based on needs, instead of provided by default.
- Incubators to assist Dutch business abroad.
- Savings: ISO construction, commonly adjustable spaces, documents digitization, wifi, furniture standardization, less art (+borrowed).
- Security: based on needs; no airlocks as long as consular area and main entrance are separate.
-

**Goal of the interview: learn about the needs of the Dutch embassy in Oslo from its users.**

A visit of the embassy was organized on January 22, 2015. Photos were not allowed, but the striking points are as follow:

- Consular area is relatively large (possibly 20 m<sup>2</sup>), contains 2 desks and a pickup desk protected by a 4m-high bullet-proof window and a light armored door.
- There are several large individual offices. An employee commented that she enjoyed the quietness at times but

also misses the proximity of colleagues.

- The embassy contains a small kitchen, a coffee corner and a shower.
- Newly installed: videoconference room (basically a computer and a webcam on a desk). It is currently being used 4 times a month.
- Paper archives have disappeared: all documents are now digitized.  
Two embassy representatives gave a talk, summarized below.

## INTERNAL ORGANIZATION

- Currently 12 working people (from 20 in 1989): 10 FTE, 1 80% FTE. Defense was reduced from 5 to 2, and takes now care of several countries (Norway, Sweden, Iceland, Denmark, Finland). 10 of these 12 people are locals, but of Dutch nationality.
- Each employee has a different function (trade, economics, defense, etc.) but there are also projects where all have to work together.
- The ambassador is assisted by 2 secretaries.
- The furniture of all embassies is Dutch-designed and provided by The Netherlands. All embassies receive the same items.
- The ambassador residence is used for representations

2-3 times a week. It is also open for usage by Dutch companies.

- Small meetings take place in the embassy. Big meetings and dinners take place in the residence.
- The embassy can be seen as an office building.
- Open to remote working: what matters most is efficiency. Most contacts are by email, with direct questions.
- Flexible rooms are desired to adapt to the number of people. Security should also be taken into account.
- The visibility comes from the ambassador rather than the building.
- It is convenient to be close to the ministry of foreign affairs. The barcode area would be inconvenient for that.

## GOALS OF THE DUTCH EMBASSY IN OSLO

- Consular activities: passport renewal (not possible in consulates), pensions, help in case of accident.
- Understand how Norwegians think about sustainability, or other topics of the world. Consulates are extra antennas to gather news (e.g. Iceland consulate represents 3,5 million people).
- Visibility is important: the flag of the Netherlands should fly outside (and also that of Europe)
- There is no money assigned to the promotion of Dutch

culture.

- Significant trade: Norwegian timber, exotic herbs transiting via Rotterdam, Shell, KLM,...
- More Dutch companies should know about the advantages getting help from Dutch embassies. Simple advises are free. The interest of the embassy lies in the information they can gather from the smaller companies. However it is better for the Dutch companies to be in a Norwegian environment. Therefore, office space for

startups provided by the embassy should be limited to a short period.

- The embassy should be visible. It should also be visible that one enters a diplomatic territory.

## OTHERS

- Norwegians are functional (like the Dutch). Mundane relations are not the most important.
- Norwegians are inward-turned, to the contrary of the

Dutch.

- Combining embassies is difficult administratively (both ministries of foreign affairs need to approve).

## FUNCTION OF AN EMBASSY

- The embassy sees itself as a satellite of the ministry of foreign affairs in Den Haag, but also for other ministries. It also represents the king.
- Politics: the embassy is not needed anymore for political discussions. However it is used for exchange of information, usually related to economics.
- Economics: is the current main focus of the embassy.
- Export to Norway
- Arctic (ship route via north pole to Japan)
- Focus on arctic and energy (oil concessions).

The embassy has a role of match-maker. 40% of the companies are state-owned, so Dutch companies need to deal with the state.

- Defense: show presence and interest, to take the same stand as friendly countries (mainly regarding Russia).
- Consular: assist Dutch people in real trouble.
- In short, the primary goal of the Dutch embassy in Norway is to look for opportunities: to get in contact with people and generate trade and innovations.

## SECURITY

- Only a small part of the building is public.
- The risk of attack is low. Prevention: entrance gate, good cooperation with the local police, direct alarm connection (onsite within 4 minutes)
- Attacker's goal are either:
  - Steal documents (passports are worth a fortune).
  - Attack the Netherlands. They look up for visibility by blowing up an embassy, kill the ambassador, encourage demonstrations, ...
- Secure communication taken care of by Den Haag. Only a small percentage is confidential though. Office doors stay open.
- It is nice to physically separate the residence from the embassy.

- The residence has no special door. Only a gate and cameras. They inform the police if there's a dinner in the ambassador's residence. Parking is not a problem because the guests usually come by bus or taxi (especially for dinners).
- The Dutch law applies to the territory of the embassy.

**Goal of the interview: learn about the development of Oslo.**

Architektur-N is an architecture magazine based in Oslo. Its editor in chief, Ingerid Helsing Almaas, was interviewed on January 21, 2015. Here is a summary of her teachings.

- Current prices in Oslo increase rapidly. Real estate is profitable but some say it is a bubble. In Oslo, renting a building is uncommon, but now the high prices make a purchase difficult. Ndlr: according to the banks, there's no bubble because the salaries are increasing faster than the house prices.
- The conservationist government prevented a coherent city masterplan to be issued. Instead, the constructions and zonings development are driven by the market.
- The waterfront used to be industrialized and is progressively being redeveloped. This started with Aker Brygge in 1980, and then with its recent extension Tjuvholmen. This is an expensive residential and commercial area, appreciated by the tourists in summer.
- The waterfront on the east (Barcode area) is being redeveloped with new apartment residences.
- In Oslo, the citizens are at home around 4PM. More status is attached to the leisure activities in the middle-class. Job stability is good.

**Goal of the interview: learn about the development of Oslo and his views on the Dutch embassy.**

Ralph Bertram graduated at the Technological

University of Eindhoven in 2008. He worked at A-Lab until 2012, then cofounded Topicark Architects in January 2013. Here is a summary of her teachings.

## LIFE IN OSLO

- Only 1,4% of Norway is a built area. A 35% growth of Oslo is expected by 2030.
- The city center is expected to progressively move to the Barcode area (big redevelopment projects).
- In Oslo, the winter is quiet: people stay inside. In summer, the citizens go out a lot. They are very sportive.
- Family life is supported: good schools, accommodating schedules, 12 months of parental leave.
- People in Norway want to follow the rules. They don't complain.
- Strong equality between men and women.
- But contrary to Dutch people, Norwegians are introvert.

## THE DUTCH EMBASSY

- The current residence of the ambassador is at a prime location.
- The embassy should be visible, located close to other embassies, and easily accessible.
- Dutch values as seen by him: open, accessible, friendly.

## LITERATURE & REFERENCES | NOTES

1. Butt and Lindsey, "Politics Turns Indonesia's Death Penalty into Game of Chance."
2. Gallaga, "Do We Still Need Embassies?"
3. den Hollander, "Mission Statements."
4. Loeffler, "Embassy Design: Security Vs. Openness."
5. Czech Centre London, "Architecture for Diplomacy."
6. "Embassy Architecture - Time to Stop, Review and Rethink - C\_Pages19to21\_Ashe.pdf."
7. Guenova, "FORM FOLLOWS VALUES. Explaining Embassy Architecture."
8. Carnegie, *How to Win Friends & Influence People*.
9. Barker, "This Is One of the Best Networking Tips for Introverts."
10. "Pixar Headquarters and the Legacy of Steve Jobs - Office Snapshots."
11. Baker, *Achieving Success through Social Capital*.
12. nordicembassies.org, "Nordic Embassies."
13. euro-inox.org, "The Nordic Embassies in Berlin."
14. Zaken, "The Netherlands and Lithuania Are to Share an Embassy Building in Sofia - News Item - Government.nl."
15. "16 Stimulating Design Offices to Stir the Senses | Design | Creative Bloq."
16. "The Hofstede Centre."
17. Khuat Duy, "Eternal Buildings."
18. Elkington, *Cannibals with Forks*.
19. "Nationaltheatret Station."
20. "Oslo Tunnel."
21. "Nationaltheatret Station."
22. "Oslo Tunnel."
23. "Nationaltheatret Station."
24. "Onyxsolar Photovoltaic Triple Glazed Insulating Units."
25. Jelle, "BPJ - Material Research for Zero Emission Buildings - Klimax Breakfast Seminar 2014."
26. Holøs, *Stasjoner I Sentrum*.
27. "Ruukki Steel Sections."

## LITERATURE & REFERENCES | BIBLIOGRAPHY

- "16 Stimulating Design Offices to Stir the Senses | Design | Creative Bloq." Accessed June 8, 2015. <http://www.creativebloq.com/design/design-offices-912828>.
- Baker, Wayne. *Achieving Success through Social Capital: Tapping the Hidden Resources in Your Personal and Business Networks*. Chichester: John Wiley and Sons Ltd, 2000.
- Barker, Eric. "This Is One of the Best Networking Tips for Introverts." *Quartz*. Accessed June 7, 2015. <http://qz.com/152519/this-is-one-of-the-best-networking-tips-for-introverts/>.
- Butt, Simon, and Tim Lindsey. "Politics Turns Indonesia's Death Penalty into Game of Chance," 2015. <http://sydney.edu.au/news/84.html?newsstoryid=14597>.
- Carnegie, Dale. *How to Win Friends & Influence People*. New York: Pocket Books, 1998.
- Czech Centre London. "Architecture for Diplomacy," 2004.
- Den Hollander, Jord. "Mission Statements." NPO 2, October 7, 2012. <http://programma.ntr.nl/238/het-uur-van-de-wolf/detail/aflevering/6000013090/Het%20Uur%20van%20de%20Wolf:%20Mission%20statements>.
- Elkington, John. *Cannibals with Forks: The Triple Bottom Line of 21st Century Business*. Gabriola Island, BC ; Stony Creek, CT: New Society Publishers, 1998.
- "Embassy Architecture - Time to Stop, Review and Rethink - C\_Pages19to21\_Ashe.pdf," n.d.
- euro-inox.org. "The Nordic Embassies in Berlin," 2002. [http://www.euro-inox.org/pdf/case/nordic/Nordic\\_EN.pdf](http://www.euro-inox.org/pdf/case/nordic/Nordic_EN.pdf).
- Gallaga, Moira G. "Do We Still Need Embassies?" *The Diplomat*, April 9, 2013. <http://thediplomat.com/2013/09/do-we-still-need-embassies/>.
- Guenova, Natasha Dimitrova. "FORM FOLLOWS VALUES. Explaining Embassy Architecture," 2012. [http://trace.tennessee.edu/utk\\_graddiss/1298/](http://trace.tennessee.edu/utk_graddiss/1298/).
- Holøs, Bjørn. *Stasjoner I Sentrum: Hovedstaden I Jernbanehistorien*. Oslo: Gyldendal norsk forlag, 1990.
- Jelle, Bjorn Petter. "BPJ - Material Research for Zero Emission Buildings - Klimax Breakfast Seminar 2014," 2014.
- Khuat Duy, Laurent. "Eternal Buildings," 2015.
- Loeffler, Jane C. "Embassy Design: Security Vs. Openness." *Foreign Service Journal*, no. 09–2005 (2005): 44–51.
- "Nationaltheatret Station." *Wikipedia, the Free Encyclopedia*, June 4, 2014. [https://en.wikipedia.org/w/index.php?title=Nationaltheatret\\_Station&oldid=611579057](https://en.wikipedia.org/w/index.php?title=Nationaltheatret_Station&oldid=611579057).
- nordicembassies.org. "Nordic Embassies," n.d. [http://www.nordicembassies.org/englissh/Architecture\\_Felleshus\\_e.pdf](http://www.nordicembassies.org/englissh/Architecture_Felleshus_e.pdf).
- "Onyxsolar Photovoltaic Triple Glazed Insulating Units," n.d. <http://www.onyxsolar.com/photovoltaic-skylight.html>.
- "Oslo Tunnel." *Wikipedia, the Free Encyclopedia*, May 11, 2014. [https://en.wikipedia.org/w/index.php?title=Oslo\\_Tunnel&oldid=608135910](https://en.wikipedia.org/w/index.php?title=Oslo_Tunnel&oldid=608135910).
- "Pixar Headquarters and the Legacy of Steve Jobs - Office Snapshots." Accessed June 8, 2015. <http://officesnapshots.com/2012/07/16/pixar-headquarters-and-the-legacy-of-steve-jobs/>.
- "Ruukki Steel Sections," n.d. <http://www.ruukki.com/Steel/Hollow-sections/Circular-hollow-sections/Circular-Ruukki-double-grade-structural-hollow-sections>.
- "The Hofstede Centre," n.d. <http://geert-hofstede.com/norway.html>.
- Zaken, Ministerie van Buitenlandse. "The Netherlands and Lithuania Are to Share an Embassy Building in Sofia - News Item - Government.nl," March 19, 2013. <http://www.government.nl/news/2013/03/18/the-netherlands-and-lithuania-are-to-share-an-embassy-building-in-sofia.html>.

## LITERATURE & REFERENCES | ILLUSTRATIONS

All illustrations are the work of the author, with the exception of the figures listed below.

The aerial photographs are retrieved from Bing Maps ([www.bing.com/maps](http://www.bing.com/maps)) and subsequently modified by the author.

- Fig. 2. <http://www.bdonline.co.uk/royal-netherlands-embassy-addis-ababa/3094528.article#>  
<http://www.adgnews.com/dutch-embassy-in-berlin/en>  
<https://www.flickr.com/photos/23634100@N06/7402486270>  
<http://montrealserai.com/2013/02/26/montreal-serais-periscope-view-of-the-international-festival-of-films-on-art/>
- Fig. 3. <http://ethiopia.nlembassy.org/organization/the-embassy-in-addis-ababa/our-building.html>  
<http://ethiopia.nlembassy.org/organization/the-embassy-in-addis-ababa/our-building.html>  
<http://www.ntr.nl/NTR-Documentaires/>
- Fig. 4. <http://www.mimoo.eu/projects/Germany/Berlin/Netherlands%20Embassy/>
- Fig. 6. <http://www.starwoodhotels.com/sheraton/property/photos/index.html?propertyID=132>
- Fig. 7. <http://officesnapshots.com/2012/07/16/pixar-headquarters-and-the-legacy-of-steve-jobs/>
- Fig. 8. <http://www.creativebloq.com/design/design-offices-912828>
- Fig. 9. [http://architectuul.com/architecture/view\\_image/embassies-of-the-nordic-countries/12289](http://architectuul.com/architecture/view_image/embassies-of-the-nordic-countries/12289)
- Fig. 11. <http://www.creativebloq.com/design/design-offices-912828>
- Fig. 13. <http://www.eoi.es/blogs/carlosomargarcia/2013/04/15/values-the-triple-bottom-line-in-the-sme%E2%80%99s-and-corporate-sector/>
- Fig. 20. [https://commons.wikimedia.org/wiki/File:Holmenkolbanen\\_entrance\\_at\\_Nationaltheatret.jpeg](https://commons.wikimedia.org/wiki/File:Holmenkolbanen_entrance_at_Nationaltheatret.jpeg)
- Fig. 21. <https://www.google.fr/maps/>
- Fig. 22. <https://www.google.fr/maps/>
- Fig. 24. <https://www.google.fr/maps/>
- Fig. 25. <http://od2.pbe.oslo.kommune.no/kart/#cp=598523,6644047,3>
- Fig. 29. <http://www.aujardin.info/plantes/famille-violaceae.php>  
<https://pixabay.com/fr/pens%C3%A9e-jardin-floraux-plantes-75031/>  
<https://pixabay.com/fr/pens%C3%A9e-jardin-floraux-plantes-75031/>  
<https://pixabay.com/fr/pens%C3%A9e-jardin-floraux-plantes-75031/>
- Fig. 30. <http://www.nordiska-voyages.com/formule-liberte/danemark,norvege,suede-les,capitales,scandinaves-761604.html>  
[http://www.flickrriver.com/photos/twiga\\_swala/sets/72157629924117042/](http://www.flickrriver.com/photos/twiga_swala/sets/72157629924117042/)
- Fig. 36. (c) Johanna van Warners.
- Fig. 55. <http://www.worldweatheronline.com/Oslo-weather-averages/Oslo/NO.aspx>
- Fig. 57. <http://www.gaisma.com/en/location/oslo.html>
- Fig. 58. [http://sharki.oslo.dnmi.no/Help/examples/demo/UK\\_Rose.jpg](http://sharki.oslo.dnmi.no/Help/examples/demo/UK_Rose.jpg)
- Fig. 60. <http://www.worldweatheronline.com/Oslo-weather-averages/Oslo/NO.aspx>
- Fig. 61. <http://www.grasshopper3d.com/forum/topics/help-please-irregular-space-frame>
- Fig. 63. <http://www.dehoop-pekso.nl/nl/producten/category:vloeren-en-wanden/product:breedplaatvloer.htm>