

Chrysalides

-- The Regeneration of Mapo oil
Tank Depot

Index

1. Programme

Background

Design Objectives

Project Outline

2. Preliminary
Research

City Status

Site Condition

Traditional Korean Architecture

Case Study

3. Concept

Returning to nature

"Form Follows Function"

4. Project

5. Appendix

1. PROGRAMME

Background

Design Objectives

Project Outline

1.1. Background

The Mapo Oil Depot is valuable industrial legacy of Seoul but has been forgotten for quite some time since its own purpose was terminated. In an era of economic growth in Korea, a fresh approach is needed regarding this industrial legacy, which, ironically can survive in having been forgotten. Deviating from conventional attitude, demolishing the old city and constructing the new, it is right time to try to keep the memory and history of this old structure and to revive its uniqueness. As an attempt to get back not only the old structure but also the territory having been closed for decades to the people of Seoul, this project will be a meaningful beginning.

In 1970's, the two oil crises cumulated in a major strain on the oil supply of the nation; the average inventory of oil company was only a 30-day supply. Therefore, the government decided to build oil reserves in order to stabilize the economy. Accordingly, in 1976, 5 tanks were built and buried on the hill of Maebong-san in Mapo, and they stored 131 barrels of oil under control of Korea Oil Development Corporation. The Nangi landfill and oil depot were built in the same year, 1978. Nangi landfill changed into World Cup Park as the World Cup to be held in 2002, but the oil depot, which is at 500-meter distance from the stadium, had to be moved for aesthetic and safety reasons. When the transfer of stored oil to Youngin finished in 2000, the Mapo depot was closed and a part of the site has been used as a temporary parking lot for the World Cup Stadium.

1.2. Design Objectives

The oil depot, located in Mapo-gu, Seoul, has lost its purpose, and is now a legacy of the Korean industrial era. The main objectives of this project are creating an "Open Park" and return this place to citizens with diverse programs such as performances, civic activity center, exhibitions, hotels, commerce, business and conference utilizing the uniqueness of this site.

There are a lot of reformation or restoration projects dealing with the abandon industry districts all over the world. After the reuse case of Rhur industry area, most of them are likely to make them into some exhibition public space and considering this form is the best way to bridge the gap between the city and the culture of the industry area. But in another way to see, the 'exhibition' method is kind of specialized the area to urban. After study about the case of Rhur industry area and 798 industry reforming project and so on, we are wondering if it is really the best way to give these old structures new lives. Thus, we propose that what about using a more soft way to give back the area to the establishing of the city, not only a place marked with 'culture', but a place to be what it should be under the control of urban plan with the culture as an additional advantage.

By considering the whole site context, we expect that the oil tanks work as visual, spatial devices in the entire park in our proposals as well as a contemporary reinterpretation of the history of the site.

General view



1.3. Project outline

Client: Seoul Metropolitan Government
Location: San 54, Seongsan-dong, Mapo-gu, Seoul, Korea
Site area: 101.510m²
Zoning: Natural green area
Building area: 23097.2m²
Duration of Design: 03/2015-07/2015

Subjects of Design:

1) A new park: access and use

The site is located on the hill of Maebong-San (mountain), difficult to access from outside, and had been used as oil depot for many years. This space was a 'forgotten land' to many people. Therefore we should make proposals considering the connection from the outside of the site in order to make an open park. The main entrance will be placed at the at the southern part of the site, which is near the World Cup Stadium. The entrance area is a place to naturally invite people to go into the park. The whole park are designed considering the circulation among the programs.

2) Utilizing the oil tanks: Various possibilities
There are five oil tanks on the site and they are essential in showing the history of the site. Each of tanks is in different size and height and consist of oil tanks made out of a steel sheet and a retaining wall surrounding the tank. Rusty steel of the oil tanks show the 30-year history of the facilities. Each tank has its own beauty as a visual, spatial object. We expect creative and innovative proposals that actively utilize the uniqueness of the tanks and the value of their history.

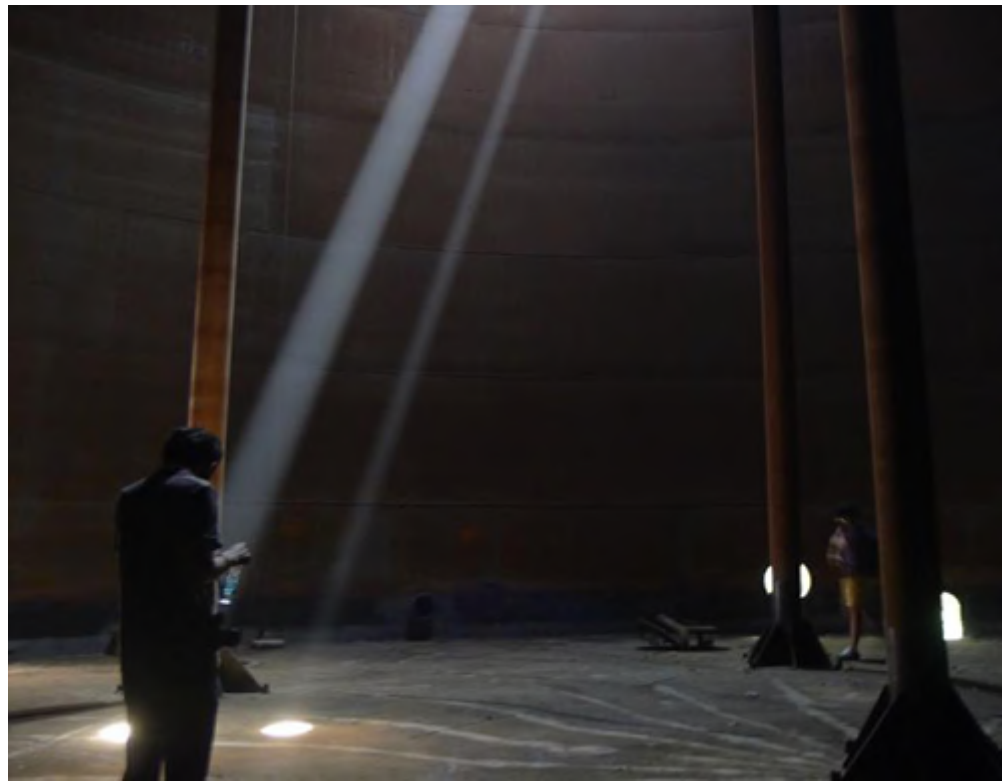
Besides the existing tanks' space, we also put new programs and functions using the exterior and interior of the existing tanks. The five tanks have its own main function each as well as some Intertwined functions to connect them together. Between the tanks connected bodies are designed to join them together in both visual and functional aspects.

3) The relationship between the park and the oil tanks:

This site is designed as one park with the connection between programs along the tanks. The existing pathway are used for main pedestrian space, and facilities such as a deck, a pavement, retaining walls, a plaza, an amphitheater are proposed. When designing a new building or structure, we taking into account environmental effects as the purpose of this project, trying to realize the oil tanks working as visual, spatial devices in the entire park as well as a contemporary reinterpretation of the history of the site.

4) Convenience and Maintenance Space

In order to run the park properly, it needs convenience facilities and an info center for visitors, also needs maintenance facilities such as offices and storage.



2. PRELIMINARY RESEARCH

City Status

Site Condition

Traditional Korean Architecture

Case Study

2.1. City Status

Seoul, officially the Seoul Special City, is the capital and largest metropolis of South Korea, forming the heart of the Seoul Capital Area, which includes the surrounding Incheon metropolis and Gyeonggi province, the world's second largest metropolitan area with over 25.6 million people. Located in the northwest of South Korea, It is home to over half of South Koreans along with 678,102 international residents. With a population of over 10 million, the megacity is the largest city proper in the OECD. It is the heart of Korea's culture and education as well as politics and economics.

Situated on the Han River, Seoul's history stretches back more than two thousand years when it was founded in 18 BCE by Baekje, one of the Three Kingdoms of Korea. It continued as the capital of Korea under the Joseon Dynasty. Thus, it is home to many old historic sites like Gyeongbokgung and Changdeokgung Palaces, and places of traditional culture like Bukchon Hanok Village, Insa-dong, and Namdaemun Market.

Today, Seoul is considered a leading and rising global city, resulting from an economic boom called the Miracle on the Han River which transformed it from the damage of the Korean War to the world's 4th largest metropolitan economy with a GDP of US\$846 billion in 2014 after Tokyo, New York City and Los Angeles. A world leading technology hub centered on Gangnam and Digital Media City, the Seoul Capital Area boasts 15



Fortune Global 500 companies such as Samsung, the world's largest technology company, as well as LG and Hyundai-Kia. In 2013, the city's GDP per capita (PPP) of \$39,448 was comparable to that of France and Finland. Ranked sixth in the Global Power City Index and eighth in the Global Financial Centres Index, the metropolis exerts a major influence in global affairs as one of the five leading hosts of global conferences. Seoul ranked seventh in the Sustainable Cities Index, the highest in Asia and ranked second worldwide in the social category. It also hosts the world's most art openings per square mile.

Location

Seoul is located at the north-west corner of South-Korea, 50 km from the border of the De-Militarized-Zone (DMZ) with North-Korea. Toward the west is the neighboring major port-city of Incheon, which is normally included in the Greater Seoul Area. Seoul proper comprises 605.25 km², [1] with a radius of approximately 15 km (9 mi), roughly bisected into northern and southern halves by the Han River, but Greater Seoul includes Incheon and numerous satellite cities. The Han River and its surrounding area played an important role in Korean history. The Three Kingdoms of Korea strove to take control of this land, where the river was used as a trade route to China (via the Yellow Sea). [47] The river is no longer actively used for navigation, because its estuary is located at the borders of the two Koreas, with civilian entry barred. The city is bordered by eight mountains, as well as the more level lands of the Han River plain and western areas.

Seoul is missed all the danger spots if one looks at earthquake zones from map of the world.



Location and districts of Seoul

Climate

Seoul has a humid continental/subtropical transitional climate, with characteristics of both. November–May is more akin to a continental climate while the warmer months are more like a subtropical climate with elements of a tropical wet/dry climate. Summers are generally hot and humid, with the East Asian monsoon taking place from June until September. August, the warmest month, has an average temperature of 22.4 to 29.6 °C (72 to 85 °F) with higher temperatures possible. Winters are often cold to freezing with an average January temperature of −5.9 to 1.5 °C (21.4 to 34.7 °F) and are generally much drier than summers, with an average of 28 days of snow annually. Sometimes, temperatures do drop dramatically to below −10.0 °C (14.0 °F), in odd occasions rarely as low as −15.0 °C (5.0 °F) in the mid winter period between January and February.

Population

Seoul is one of the most populated cities in the world. The Greater Seoul Area has almost 23 million inhabitants of which 10.3 million are residents of the Seoul city itself. Therefore, the Greater Seoul Area is the second most populated metropolitan area in the world, following only Greater Tokyo. Because of Seoul's relatively small area it is also one of the densest cities in the world.

Seoul has a very homogeneous population, as the majority of Seoulites are Korean. There are, however, small minorities of expatriates, Japanese and Chinese living in Seoul. In 2010, there were 255,500 foreigners living in Seoul out of its total population of 10.44 million. By the end of June 2011, there were 10.29 million citizens of the Republic of Korea in the city, with 281,700 foreigners.

Of its foreigner population, 66% were Chinese citizens of Korean ancestry, followed by Chinese citizens not of Korean ethnicity (nearly 30,000 in population). The

third largest group of foreigners were 10,000 US citizens not of Korean ancestry, followed by Taiwan (Republic of China) citizens with a population of 8,700.

The two largest religions in the city are Christianity and Buddhism, but other religions like Confucianism are practiced in Seoul.

As one of the most densely packed cities in the world, Seoul does not have much room for growth. In fact, Seoul's population has been declining for a few years as childbirth rates remain very low.

In the recent past, people were flooding to the capital for employment, packing the city and sending real estate prices through the roof. Seoul's population started its decline in 2011, dropping 0.11% in just one quarter. According to the Korea Institute for Health and Social Affairs, the city's number of single people keeps growing as young married couples move for cheaper housing.

By 2020, there will be 5 working people for every senior citizen, which will drop to 3 working people for every senior citizen by 2030. Time will tell if Seoul is able to reverse this trend, although it seems unlikely.

History

Archaeological exploration shows evidence of human settlement since about 4000 bce along the Han River in the area now occupied by Seoul. The earliest historical mention of Seoul and the surrounding area dates from the 1st century bce. During the Three Kingdoms period (c. 57 bce–668 ce) of Silla, Koguryŏ (Koguryeo), and Paekche, the area formed a borderland between the three countries, although during the early part of the period it was most closely associated with the kingdom of Paekche. Historical accounts as well as archaeological records indicate that the original site of Paekche's capital, Wiryesŏng (Wiryeseong), was in the northeastern part of present-day Seoul. Shortly thereafter the capital was moved south across the Han River; a number of remains, including earthen walls, dwellings, and tombs, have been uncovered at that site. It was not, however, until King Munjong of Koryŏ built a summer palace in 1068 ce that a fairly large settlement existed on the site of the modern city.

After the formal establishment of Seoul as the capital of the unified Chosŏn state in 1394, construction and growth were very rapid. Construction of the Kyŏngbok Palace began in 1392; it was the residence of the Chosŏn kings from 1395 until 1592. Before residence had even been established, construction of the city's defensive walls had been completed, although so hastily that they had to be reconstructed in 1422. The Tŏksu Palace, construction of which began in the late 15th century, was the residence of the Chosŏn kings from 1593 until 1611. The Ch'angdŏk Palace, begun in 1405, was the residence from 1611 to 1872, when the king moved back into the reconstructed Kyŏngbok Palace (it had been burned by the Japanese in 1592 and was not rebuilt until 1867). Throughout this period Seoul remained the centre of the "Hermit Kingdom," with little contact permitted with the outside world. The opening of Korea to diplomatic contacts

with the West in 1876, at a time when the weakening Chosŏn dynasty was unable to control Western influence, led in 1905 to the establishment of a Japanese protectorate over the kingdom.

A year after Japan's annexation of Korea in 1910, the name of the Seoul area was changed to Kyŏngsŏng (Gyeongseong), and minor changes were made in its boundaries. Seoul served as the centre of Japanese rule, and modern technology was imported. Roads were paved, old gates and walls partly removed, new Western-style buildings built, and streetcars introduced.

After the end of Japanese control in 1945, the name of the city was officially established as Seoul. Seoul came under the direct control of the central government as the Special Free City of Seoul. In 1949 its administrative designation was changed to "Special City of Seoul". The city was left devastated by the Korean War (1950–53), during which the capital was moved temporarily (1951–53) to Pusan (Busan). In 1962 Seoul was placed directly under the control of the prime minister. Out of the postwar rubble rose a modern city of skyscrapers and highways that has become one of the largest metropolises in the world.

City planning in the latter half of the 20th century tended to lag behind the urbanization process and the problems caused by its rapid concentration of population and municipal functions. However, the South Korean economy also grew, and rapidly enough to cover the construction costs and basic needs of the city. Beginning with the Seoul 1988 Summer Olympic Games, the city strove to increase its profile on the world stage. In the meantime, national development plans attempted to control urban sprawl while accommodating international businesses and high-technology industries. The stated goal of these plans was to establish Seoul as a cultural, political, economic, and transportation hub for northeastern Asia.



Suseonjeondo, map of Seoul, the capital of Korea and Joseon Dynasty (around 1840)



Street view of late 19th-century Seoul

Seoul in 1894

Culture

Korean Society & Culture

The family is the most important part of Korean life. They have very strong bonds within their families. As a result, they think of Korea as one big family. Though each Korean has a very busy lifestyle, they try to come together and enjoy each other as often as possible.

Traditionally, Koreans are proud of their good relationship among family members. They think that respect for the elder is the most noble attribute of Korean society. Elderly people give advice to the younger generation, and the younger people submit to the elder's wise advice. Korean families are called a "small society." They feel a strong responsibility about bringing their home as a part of the social educational center. Although the idea of individualism and economic growth brings family division, most Koreans don't forget that the family is the most important group for themselves as well as for the country. There are still many extended Korean families who live with three generations. Many first born sons feel their responsibility of taking care of their parents.

In Confucian tradition, the father is the head of the family and it is his responsibility to provide food, clothing and shelter, and to approve the marriages of family members. The eldest son has special duties: first to his parents, then to his brothers from older to younger, then to his sons, then to his wife, and lastly to his daughters. Family welfare is much more important than the needs of the individual. Members of the family are tied to each other because the actions of one family member reflect on the rest of the family. In many cases the family register can trace a family's history, through male ancestors, for over 500 years.

Confucianism

Confucianism, an ancient Chinese way of thought that has spread through much of East Asia, is often described as a religion. Perhaps a more accurate definition of Confucianism is that it is a detailed code of interpersonal behavior. In cultures where it is embraced, Confucianism is a practical political and social doctrine.

Kung Fu-Tzu, known in Western countries as Confucius, lived in China around 500 BC. He was a teacher who offered his students a system of order during a period when China was disrupted by warfare. One of Confucius's most important teachings was that there was a proper order to all things in the universe, including human society. Confucius taught that within and through this social order peace and harmony could be achieved if every person knew his or her proper place in society and upheld the responsibilities of that place. In Confucianism, this idea is summarized as follows, "Let the ruler be ruler, the subject be subject, the father be father, and the son be son." Through the definition of five basic relationships, Confucianism provided a simple guide for ordering the family and society. The five moral disciplines to govern the five human relationships were the following:

1. Justice and righteousness should mark the relations between sovereign and subject.
2. There should be proper rapport between father and son.
3. Separation of function between husband and wife.
4. The younger should give precedence to the elder.
5. Faith and trust should reign over relationships between friends.

In all familial relations, respect of parents and grandparents has supreme value. The



Architecture in Colonial Korea
(upper: Keijo Station (currently Seoul Station) lower: Chosen Commercial Bank Head Office)

elderly are considered superiors; as such, near total obedience is given to them by the rest of the family. At least in theory, quarrelling, loud talking, smoking, and drinking alcohol are not permitted in their presence. In turn, the elders are supposed to treat the younger generation with affection. They are allowed to be strict, but not cruel. While the husband/father is supreme within the family, he, in turn, is subservient to his employer, or national leader. All people have the responsibility of honouring and obeying their ruler. However, this responsibility is supposed to work two ways. The ruler also has responsibilities to his people. He is supposed to protect them, ensure their welfare, and above all, set good examples for them through his own actions.

Confucius thought that if a ruler was honest, his people would follow him in honest behaviour. But if the ruler was corrupt, how could he expect anything different from his subjects? The ruler also had a responsibility to follow the laws of heaven. If the ruler failed in his obligations, natural and economic chaos might follow, and the people would have to overthrow the ruler. Confucius taught that if everyone upheld these five basic responsibilities and relationships, social and political order would prevail. To further ensure harmony and unity, Confucianism stresses that several concepts are valued above all else in social situations. They are benevolence, righteousness, propriety (or decorum), wisdom and sincerity. Confucius taught that age brought wisdom. The older a person was, the more honoured was his or her place in ancestor worship. Confucius preached that people should always look to the past and the ways of their ancestors as the example for solving contemporary problems. People should learn the accumulated experience of their previous generations. Confucius taught, "By reviewing the old, we can learn the new."

For centuries in Korea, Confucianism has meant a system of education, ceremony

and civil administration as first expressed by Confucius in his writings. Confucian concepts of social harmony and moral precepts permeated the intellectual life of the old East Asia and played a pivotal role in moulding the Korean culture as we know it today. In Korea, Confucianism was accepted so eagerly and in so strict a form that the Chinese themselves regarded the Korean adherents as more virtuous. They called Korea "the country of Eastern decorum," referring to the punctiliousness with which the Koreans observed all aspects of the doctrinal ritual.

Confucian teachings have, over time, become less rigidly followed as a basis for government and administration. After so many centuries of indoctrination in these tenets, however, Koreans can hardly be said to have discarded the customs, habits and thought patterns derived from the system. In particular, kinship organization, ideology, ritual and associated behaviour have represented crucial, perhaps dominant, themes in Korean culture. Fundamental ideas about morality and the proper ordering of human relationships are closely associated with the Confucian concept of filial duty. The pervasive, highly elaborated system of lineages and branch lineages provided the basic structural principle on which most groups in traditional society were organized. Kinship loyalties and obligations have generally taken precedence over other claims and commitments, both ideally and in terms of actual behaviour. As part of the modernization process, profound changes have been taking place in the kinship system, particularly in the rapidly growing urban areas. There has been considerable erosion of the dominance of family concerns. Nevertheless, ideals of family cohesion and solidarity retain influence, and the individual's emotional dependence on close kin is still very great.

It is easy to see the influence of Confucianism on Koreans today. Older people are still very much respected; even

slight differences in age are acknowledged. Among a group of friends or co-workers, the oldest person is expected to pay in a restaurant or pub while the youngest is expected to pour beer, serve the food, and generally make sure that everyone has what they want. Still today, most young Koreans can imagine no greater trespass than openly defying their fathers.

Despite the sorry record of corruption and mismanagement at the highest levels of the South Korean government over the past several decades, most Koreans will rally behind authority when they're told to. Happily, this is generally for benevolent reasons. An example that comes to mind is support for the 2010 Winter Olympic Bid. Pyeongchang, South Korea was running against Vancouver to host the games. Public opinion polls in Vancouver showed tepid support for the bid among locals (around 55% in favour), whereas 95% of South Koreans were "very supportive" or "supportive" of their country's candidacy. To the bitter disappointment of 40 million South Koreans and the quasi-apathy of a couple of million Western Canadians, Vancouver prevailed.



Figure of Kung Fu-Tzu

Transportation

Seoul features one of the world's most advanced transportation infrastructures that is constantly under expansion. Its system dates back to the era of the Korean Empire, when the first streetcar lines were laid and a railroad linking Seoul and Incheon was completed. Seoul's most important streetcar line ran along Jongno until it was replaced by Line 1 of the subway system in the early 1970s. Other notable streets in downtown Seoul include Euljiro, Teheranno, Sejongno, Chungmuro, Yulgongno, and Toegyero. There are nine major subway lines stretching for more than 250 km (155 mi), with one additional line planned. As of 2010, 25% of the population has a commute time of an hour+.

Seoul's bus system is operated by the Seoul Metropolitan Government (S.M.G.), with four primary bus configurations available servicing most of the city. Seoul has many large intercity/express bus terminals. These buses connect Seoul with cities throughout South Korea. The Seoul Express Bus Terminal, Central City Terminal and Seoul Nambu Terminal are located in the district of Seocho District. In addition, East Seoul Bus Terminal in Gwangjin District and Sangbong Terminal in Jungnang District operate in the east of the city. To reduce air pollution in the metropolitan area, the municipal government is planning to convert over seven thousand of Seoul's diesel engine buses to natural gas by 2010.

Seoul has a comprehensive subway network that interconnects every district of the city and the surrounding areas. With more than 8 million passengers per day, Seoul has the busiest subway system in the world. The Seoul Metropolitan Subway has 19 total lines which serve Seoul, Incheon, Gyeonggi province, western Gangwon province, and northern Chungnam province. In addition, in order to cope with the various modes of transport, Seoul's metropolitan government employs several mathematicians to coordinate the subway,

bus, and traffic schedules into one timetable. The various lines are run by Korail, Seoul Metro, Seoul Metropolitan Rapid Transit Corporation, NeoTrans Co. Ltd., AREX, and Seoul Metro Line 9 Corporation.

Seoul is connected to every major city in Korea by rail. Seoul is also linked to most major Korean cities by the KTX high-speed train, which has a normal operation speed of more than 300 km/h (186 mph). Major railroad stations include:

Seoul Station, Yongsan District: Gyeongbu line

Yongsan Station, Yongsan District: Honam line

Yeongdeungpo Station, Yeongdeungpo District: Gyeongbu/Honam/Janghang lines

Yeongdeungpo Station, Yeongdeungpo District: Gyeongbu/Honam/Janghang lines

Cheongnyangni Station, Dongdaemun District: Gyeongchun/Jungang/Yeongdong/Taebaek lines

Two international airports serve Seoul. Gimpo International Airport, formerly in Gimpo but annexed to Seoul in 1963, was for many years (since its original construction during the Korean War) the only international airport serving Seoul. Other domestic airports were also built around the time of the war, including Yeouido.

When it opened in March 2001, Incheon International Airport on Yeongjong island in Incheon changed the role of Gimpo Airport significantly. Incheon is now responsible for almost all international flights and some domestic flights, while Gimpo serves only domestic flights with the exception of flights to Haneda Airport in Tokyo, Osaka Kansai International Airport, Taipei Songshan Airport in Taipei, Hongqiao Airport in Shanghai, and Beijing Capital International Airport in Beijing. This has led to a significant drop in flights from Gimpo Airport, though it remains one of South Korea's busiest airports.

Meanwhile, Incheon International Airport has become, along with Hong Kong, a major transportation center for East Asia.

Incheon and Gimpo are linked to Seoul by highways, and to each other by the Incheon International Airport Railroad, which is also linked to Incheon line #1. Gimpo is also linked by subway (line No. 5 and #9). The Incheon International Airport Railroad, connecting the airport directly to Seoul Station in central Seoul, was recently opened. Shuttle buses also transfer passengers between Incheon and Gimpo airports.

District & Future planning

Seoul city are distributed naturally into 2 parts by the Han river that forms northern and southern parts. Based on the regeneration planning, the Seoul administration creates some development axes which separate the city into several regions furthermore. So there are northwest region, city center region, northeast region, southwest region and southeast region according to their locations and functions. Our site locates on the northwest region.

Now, Seoul has three main centers functioning as international centers which are Seoul city wall, Gangnam and Yeongdeungpo Yeouido. In the future, 7 regional centers and 12 local centers will be developed to create an integrated system supporting the main centers. The regional centers are Sangam Susaek, Yongsan, Cheongnyangni Wangsimnie, Changdong Sanggye, Magok, Gasan Daerim, Jamsil and the local centers are Yeonsinnae Bulgwang, Sinchon, Gongdeok, Mia, Dongdaemun, Mangu, Seongsu, Cheonho Gildong, Suseo Munjeong, Sadang Isu, Bongcheon, Mokdong. Our site is near the regional center Sangam Susaek.



Seoul transportation map



Seoul regions ditribution



Main center, regional center, local center

2.2. Site Condition

Conditions of the Site in an Urban Context

Around the Site

Through the Airport Railroad, the site links southwestward to Magok and Kimpo Airport, and through the Subway Line 6 and Gyeongui Line, and links eastward to downtown Seoul. Within 2km radius of the site, there are plenty of green areas such as World Cup Parks (Noeul Park, Haneul Park, Pyeonghwa Park, Nangicheon Park, Nangi Ecology Park), Hangang (River), Seonyudo Park. Also, a high tech industrial complex (Sang-am DMC (Digital Media City)) and mega event space (World Cup Stadium) are located within the radius. World Cup Park is completed as its first phase, and as the second phase Sang-am DMC project is promoted.

System of Vehicle Access

Eastward to the site faces Jeungsan-ro (eight lanes), and it is easy to reach to the transportation system of the conurbation. The site is facing the main gate of World Cup Stadium. Vehicles approach from southward of World Cup Stadium Intersection need to make a u-turn at the World Cup tunnel and enter the parking lot.

System of Pedestrian Approach: Subway stations and Trails

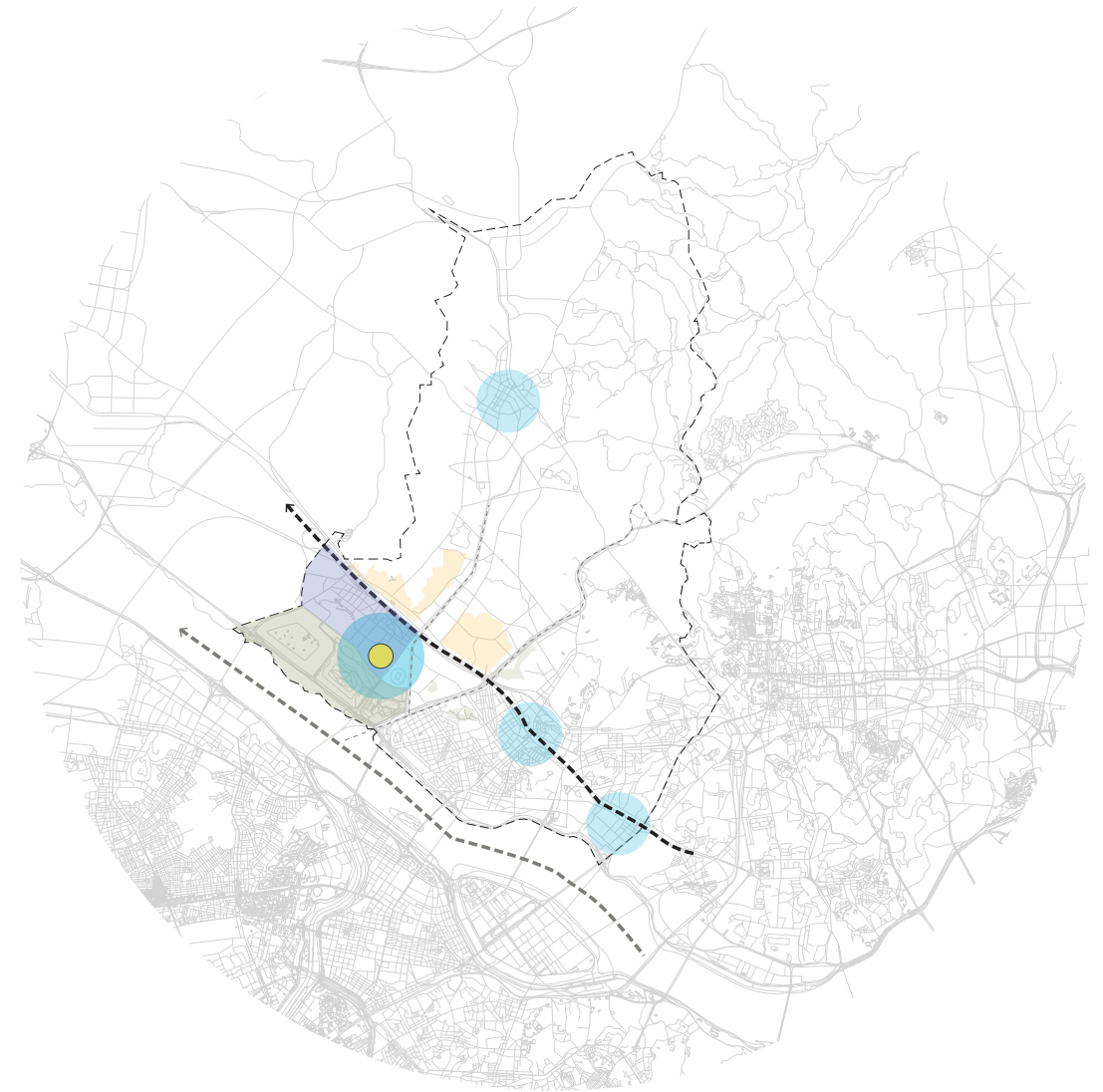
World Cup Stadium Station and Digital Media City Station (both on Line 6) are available subway stations nearby the site for pedestrian circulation. The straight-line distance between World Cup Stadium Station and the site is 420m but the real pedestrian route from the subway station to

the site is about 700m. From the Digital Media City station, it is walkable to the site following trails of Maebong-san, but it is 1.2km away and rather far to walk.

For the neighborhoods, it is feasible to approach along the trails of Maebong-san. Visitors from other facilities such as stadium can come to the site across World Cup-ro (about 60m) and Jeungsan-ro (about 60m).



Current site condition

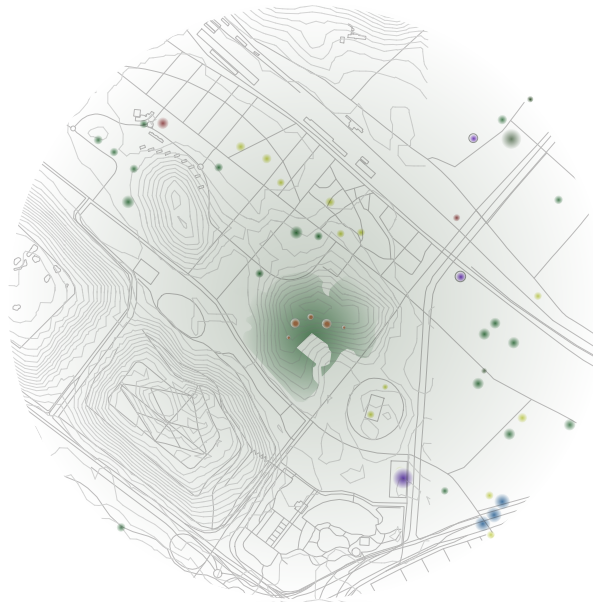


relationship between site and city

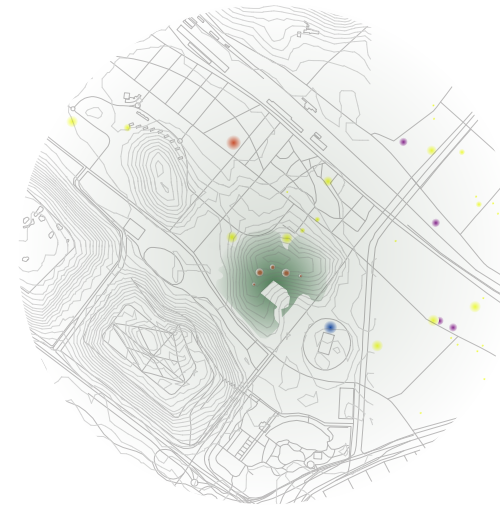
Plenty of estaurants locate nearby, however, the number of hotel is much more less than needed since the World Cup Stadium is near our site.

Facilities for local residence is not enough.

- restaurant
- hotel
- school
- market
- office

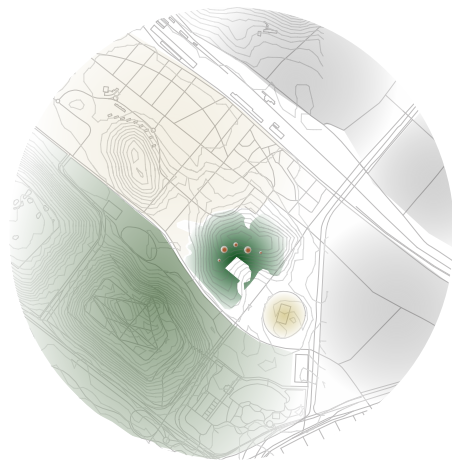
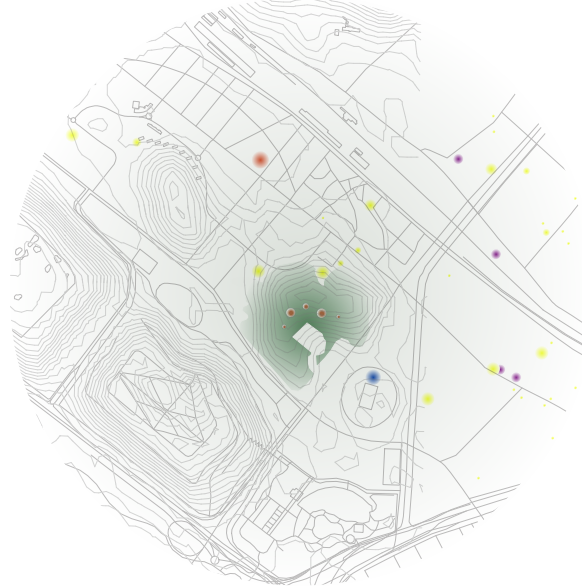


- Public facilities
- church
- culture center
- gym
- cinema



Public transportation & water system

- Public facilities
- church
- culture center
- gym
- cinema



On the northern part, there is a digital media zone
On the east, it is mainly residential area. On the southern part, it is mainly natural resources with green area and river.

Functional district & facilities around site



Status of Existing Facilities: Tanks and Retaining Walls

At the site, there are five oil tanks, and in order to distinguish each them, the tanks are numbered from the west end to the east end clockwise as tank number one to five. Each tank was places inside of the retaining wall on to the dissected hills of the mountain. Between each tank and retaining wall, there is a 3m gap. The diameter, height, and thickness of each tank varies as well.

Steel sheets of oil tanks
Steel structures can support its own weight, but it is there is no guaranteed structural stability with any additional weight. They can be used as design elements, not as structural elements.

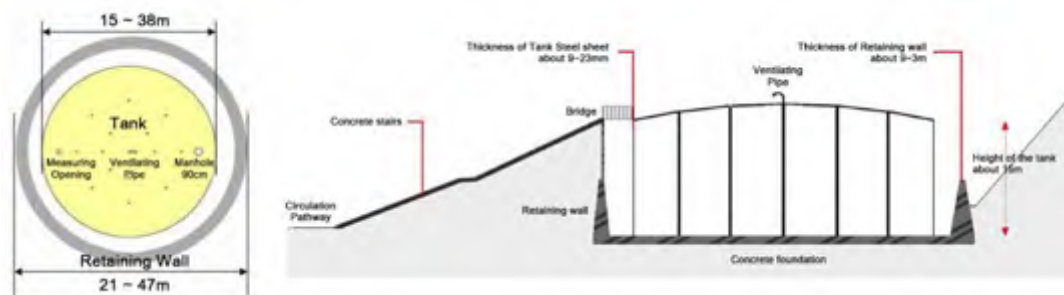
Pillars in the tanks
In the range of securing structural stability, pillars can be used.

Roofs of oil tanks
Roofs of oil tanks cannot be a structural element due to rust and deformation, which can cause safety issues. Accordingly, if needed, the roofs can be removed, or reused and refinished.

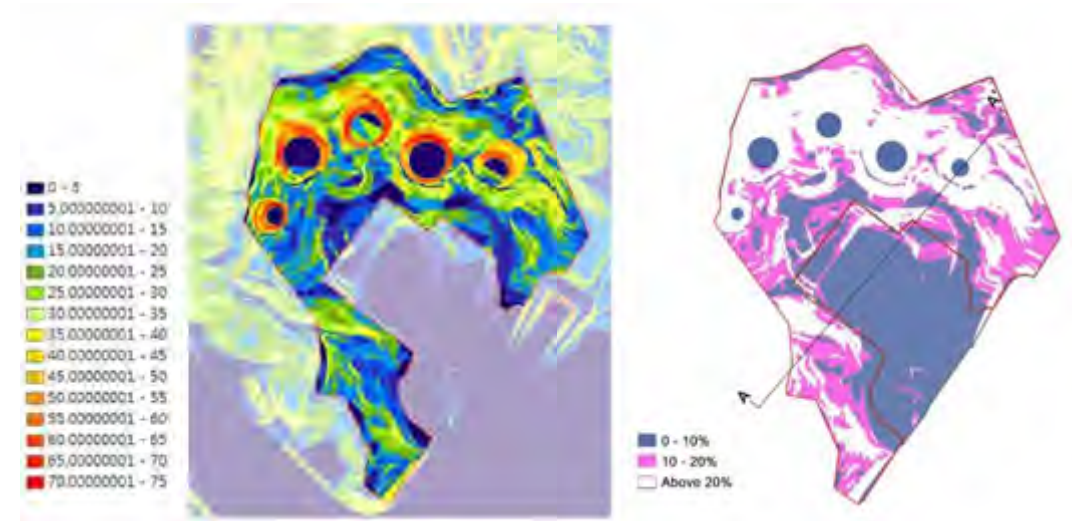
Retaining walls surrounding oil tanks
Retaining walls have structural stability with the wall at 600 to 3000mm thickness, and it is possible to attach additional structures. It is also possible to remove a part of a wall, but the stability of the soil of the slope should be considered.

Plan for Usage of Slope

In a process of designing the entire park, a delicate proposal considering existing topography and gradient is essential. On placing buildings and facilities, use the area of gradient less than 10% is the easiest and cheapest way so it comes first, if possible. Area with gradient between 10% to 20% is the medium grade to be used. Stiff area with gradient over 20% are used cautiously considering both the structural and economic aspects.



Tank plan & section diagram



Slope analysis

Circulations and Outer Space Plan

Circulation approaching to the park
 A main entrance for pedestrians is planned within the designated area, and a sub-entrance connecting existing trails to the park is considered.
 A main entrance for vehicles is planned within the designated area considering not to collide with the pedestrian circulation.
 The main entrances for pedestrians and vehicles to access to the park is planned within the area of southern part.

Circulation inside of the park

Due to the gradient of the site, a barrier-free design is particularly considered in the proposal.
 The existing pathway on the site is proposed as an inner circulation or plaza mainly for pedestrians.
 Now there is one direct entrance to each tank from a main circulation pathway
 Another circulation referred to other part of the site will be designed.
 To pursue a variety of experiences, circulation connection among tanks is doable.
 Emergency and service vehicle circulation is considered.

Planting and pavement

Existing green area including plants and trees are considered to be preserved properly,
 Combination of landscape elements such as a plaza, pavement and decks and plants will harmonize visually and physically.

Vegetation

The site is part of Maebong-San (mountain). Based on the Seoul vegetation map, the area is *Populus x albaglandulosa* forest.
 Pine trees, nut pine trees, empress trees, chestnut trees, oak trees grow over the area.
 Existing vegetation is in fair condition, however its conservation value is evaluated not to be extremely high.



Current site plan



Section of site

2.3. Traditional Korean Architecture

Hanok refers to Korean traditional architecture style with various roof types including thatches, shingles and tiles. With the vanishing of thatch-roofed and shingle-roofed houses, Hanok today is generally understood as the tile-roofed house. There are many tile-roofed houses not only occupied as private residences, but also maintained as national cultural heritages.

The Korean style Hanok house is not only the tradition of the past but also an effective architectural style in modern times. Hanok's charm is twofold: scientific excellence and environmental friendliness. The scientific excellence is demonstrated by a heating system called the "ondol." Ondol helps residents endure the cold of winter by heating the floors of the home. The word 'ondol,' now registered in the Oxford Dictionary, literally means "warming the stone." When heat coming from the fire in the kitchen is connected to the other rooms, the layer of stone in the floor of the target room becomes heated. The warm air at floor level rises, keeping the temperature of the whole room comfortable.

As much of Korean daily life utilizes the floor surfaces, the ondol culture, the core of the family's indoor temperature control, is always mentioned when discussing Korea. In the West, the cold floor is often avoided, while chairs and beds are preferred. However, the comfort of the ondol means that Korean people, rather than avoiding the floor, make full use of it. In fact, the reason that it is necessary to take off shoes before entering a house is to keep the floor as

clean as possible. This is because the floor is used for both dining and sleeping; short folding tables are brought out when dining, and bedclothes are placed on the heated floor at night for sleeping.

The words 'downside' and 'upside' are both derived from ondol. The floor near the fireplace is heated and is the hottest area when the fire is burning hot. The Korean people are always aware of the need to show respect to the elderly and therefore this area, the downside, is usually reserved for elders of the family. Fires are less necessary during the summer and Korean homes kept cool by utilizing nature's cooling system, the movement of air. The Hanok house has fewer walls and more doors. When the door is closed, it becomes a wall and when it is open, it brings in the breeze to keep air circulating throughout the living spaces. That is why the Hanok keeps cool in the heat of summer.

Ondol is also used for medicinal purposes. The Korean language has the phrase "sizzling the body," which refers to a kind of fomentation effect that is created when somebody lies on the hot floor in the cold winter. Such fomenting is known as being effective for tired or sick people, pregnant women and the elderly. To this day, Koreans prefer to forment on a toasty ondol floor when they get a cold or other such illness.

Another attraction of Hanok is its environmental friendliness. The earth, stone, wood and paper which make up the Hanok are obtained directly from natural sources.

Wood is used in pillars, rafters, doors, windows, and flooring. Walls are a mixture of straw and earth. The Korean paper used throughout the house is made from natural wood pulp and is glued to the frame of the sliding doors and the cross ribs of the windows. The floor is polished with bean oil after covering it with Korean paper, making the flooring waterproof. The Hanok breathes on its own because every material is from nature. The wood and earth breathe when it is humid indoors and exhale when it is dry.

Koreans built their homes in accordance to geomancy. Houses were positioned after considering the distance and direction in line with mountains and fields as well as the location of water. The direction and structure of the position of the house were decided by this principle. The theory of geomancy is not just a simple superstition. Koreans regard a house built against the background of a mountain and facing the south as being in the most ideal location, and certain points have to be taken into consideration when constructing a residential structure, such as limiting the effects of wind off the mountain, adequate ventilation and exposure to sunlight. When considering these points, Hanok is a very practical residential form.

Finally, the best experience of Hanok comes from the inside. With its scientific excellence and environmental friendliness, Hanok and its aesthetics may be appreciated the most from exploring it from its interior.



Philosophy

A hanok reflects the Korean people's philosophy of nature and the universe. This philosophy is what underpins Korea's nature-friendly and human-oriented architectural tradition.

Universe

Ancient Koreans thought the sky was round and the earth was square. This view of the universe, known as cheonwonjibang (round sky and square earth), was directly incorporated in Korean architecture. For instance, important or high-rising edifices were built round while residences, or lower edifices, were square or rectangular. Pillars or columns of Buddhist temples or royal palaces were round whereas ordinary houses were constructed with square pillars or columns.

Our ancestors thought of the human body, which has a round face and rectangular feet, as a small universe and the house we live in as a mid-sized universe; hence "life" was a universe within a universe. They believed the three main components of the universe were sky, earth, and humans, and considered the number three as an auspicious number. This is reflected in architecture, where shapes or motifs usually recur three times. A Korean house is also organized in a way that reflects the yin and yang principle, the universal principle of birth and change. Roof tiles, for example, are considered positive (convex-shaped) or negative (concave-shaped), residential buildings were constructed on positive sites, where sunlight reached, and the number of kan was kept to an odd number.



Nature

A traditional Korean house is the fruit of Korean people's long endeavors to create an ideal living space in harmony with nature and their attention to seasonal changes in the surrounding environment. This awareness of the environment is precisely feng shui. Feng shui is an empirical science and wisdom acquired from observing the earth and the movement of water and wind so that humans can obtain water and use wind for better living.

Hyeol (穴)

The area of a mountain range where qi(气) and jing(静) are most concentrated.

Josan (祖山), Jongsan (宗山)

Mountains located at a distance behind the hyeol.

Jusan (主山)

A high mountain behind a hyeol.

Ansan (案山)

A low-rising mountain in front of a closely located myeongdang (an ideal site in feng shui).

Josan (朝山)

A large, high-altitude mountain located at a distance beyond an ansan.

Myeongdang (明堂)

A site located immediately before a hyeol, considered surrounded by the blue dragon and the white tiger in feng shui.

Jwacheongnyong (左青龙 Left blue dragon)
A mountain to the left.

Ubaekho (右白虎 Right white tiger)

A mountain to the right.

Naejwacheongnyong (内左青龙 Inner left blue dragon)

A mountain located within the far left mountain.

Naeubaekho (内右白虎 Inner right white tiger)

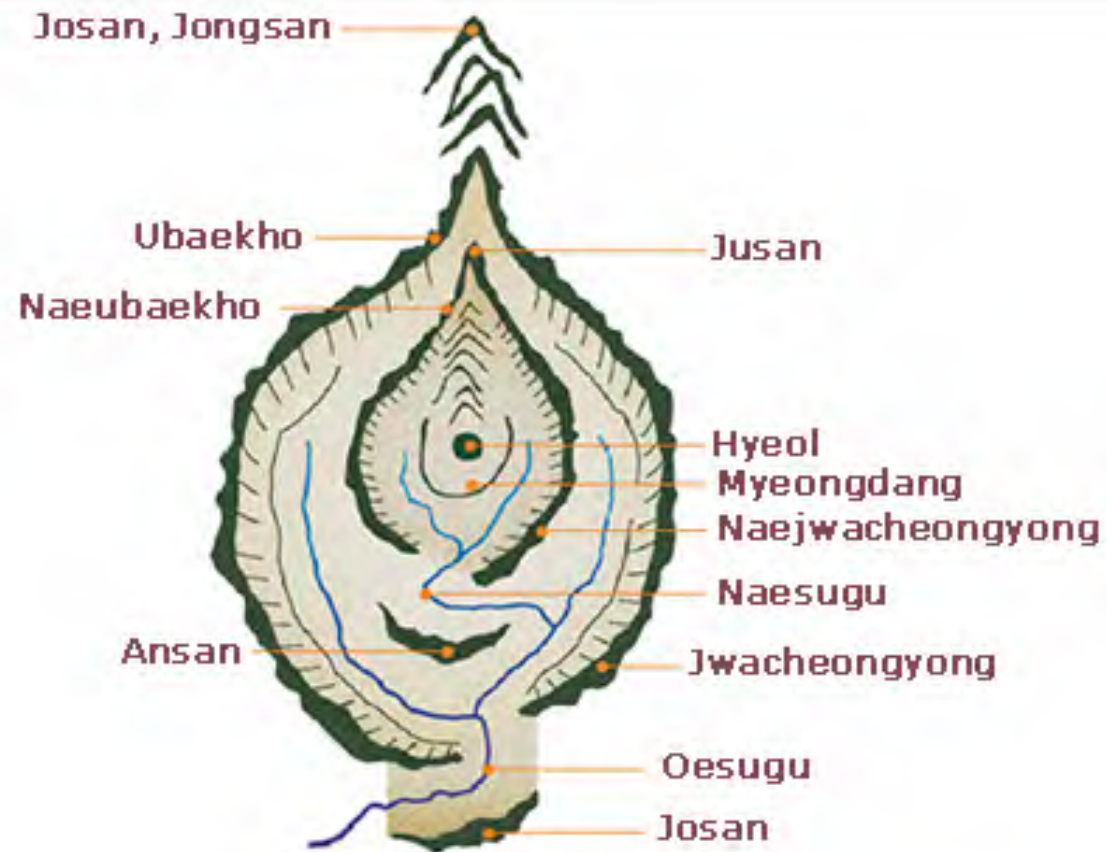
A mountain located within the far right mountain.

Naesugu (内水口 Inner water mouth)

Located inside the site, the point where streams join each flowing downstream.

Oesugu (外水口 Outer water mouth)

Located outside the site, the point where streams join each flowing downstream.



Human beings

As they enter a hanok, people say they feel comforted and enriched. Although small, it does not feel cramped or tight because hanoks were ergonomically designed and constructed. All spatial arrangements of a hanok are directly connected to the human body, so each space is optimally sized and located to facilitate the use and movement of the human body. For example, the threshold between a room and the hall has the width of an adult's shoulder, and a height that is comfortably reachable by an arm when sitting on the floor. Since people are usually sitting down in a room, the ceilings and the height of fixtures are generally lower than those in the hall, where people are usually standing.



Family Tradition

People's dreams and ideals are poured into the building of their own house. Above the entrance of a traditional Korean house, long wooden tablets are hung with inscriptions that portray the family's customs and traditions. A house is bound to bear the imprints of the particular temperament of the family that occupies it, forged by successive generations' values, attitude and ethics in life. Located in Gurye in Jeollanam-do Province, Unjoru, a Joseon Dynasty upper-class house over 300 years old, is the largest residence of a non-royal family with 90 kan (traditional Korean unit of measurement). The wealthy owners of Unjoru were well known for sharing their wealth with the community. Behind the outside shed was a large rice bin for less fortunate neighbors who didn't have much to eat. The family purposely placed the rice bin in a less visible place so that those who took rice from the bin would not feel embarrassed.

Politeness and manners

Korean people created a behavioral system focusing on respect and consideration for others. A traditional Korean house was one of the main spaces where politeness and manners were practiced. Because of the under floor heating system of a hanok, the section closer to the furnace is especially warmer, and the warmer area was reserved for elders. In shrines, they worshipped the memory of ancestors through regularly held memorial services, and observed the rules of the community to maintain social order. Meanwhile, to protect the privacy of domestic life, women occupied the inner section of a house, and men the outer sections.

Arrangement

Most importantly, the prime criteria in the orientation and layout of a hanok were that it had to be in harmony with the surrounding natural environment. It had to sit with a mountain in the back and stream of flowing water in the front. The house itself was to mirror nature, and there was no excessive digging of the ground during construction. When building a hanok, it was important that there was minimal environmental impact.

Asymmetry

70% of the surface area of Korea is mountainous or hilly. Although extremely mountainous, mountains are seldom excessively rugged in Korea, consisting mostly of gently-sloped ridges and valleys. Befitting to these invitingly gentle ridges, houses were built in moderate size, neither too big nor too small. The roof of a hanok is in perfect harmony with the lines of the surrounding mountain ridges and the left and right sides of the house are rarely symmetric. Both in shape and size, the two sides are asymmetric. This is because mountainous ridges against which Korean houses are set are asymmetric. The asymmetry of Korean houses, therefore, makes them blend seamlessly into the surrounding mountains and hills.

Circulation

Set against a mountain and facing a stream, a hanok is traversed by the cool air of the mountains, which flows into the warmer air in the front yard through the back windows of the hall. The cool air, halted in its movement for a while by the house, soon flows into the house through the windows gaining speed and creating a refreshing breeze. This breeze travels through all the open doors and circulates the air in the house. The hall, or central living space, is made of wood while the rooms are made of dirt and clay, and therefore, each of the rooms maintains a different temperature

depending on the materials used. The spaces in a Korean house are arranged in such a way that it ensures privacy while at the same time providing a connection to each other.

Order

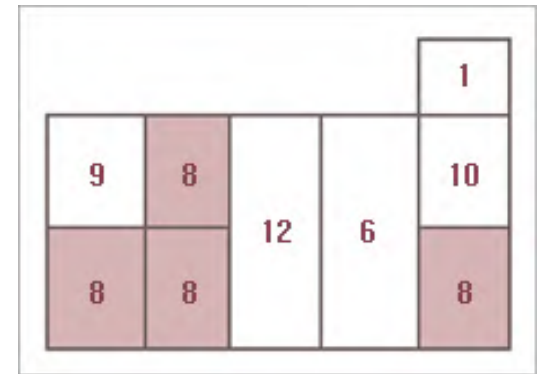
The buildings composing a hanok were distributed in an orderly manner, around the yard. If the lot was slanted, houses were built on the slanted ground, or seldom leveled before. As a general rule, the main buildings of a house were built on higher grounds, and annex buildings on lower-lying portions of the lot. Main buildings were larger and had higher roofs in order to create a harmonious skyline. Another important ordering principle was the inside and outside divisions. In most upper-class houses of the Joseon period, the inner quarters for women and children and outer quarters for men were clearly divided. The inside and outside divisions were also applied according to the social rank. While the family occupied the inner and men's quarters, the servants and farm hands' quarters were located closer to and on either side of the main gate of the house. The middle section of the house was occupied by cheongjigi, middle-class people who were hired by the upper-class to do various chores.

The layout of a Hanok

The layout of a hanok varied according to the regional climate. In northern provinces where winter is long and frigid, the rooms were laid out in a square plan to enclose the central living space, hence preventing the cold wind from entering the house. In southern provinces where the temperature is milder with longer summers, the rooms were laid out in a straight line, to optimize airflow, and the hall (central living space) in the center was open on one or both sides with many windows to let in natural air. In central Korea, the layout combined the northern and southern styles to form an L-shape.

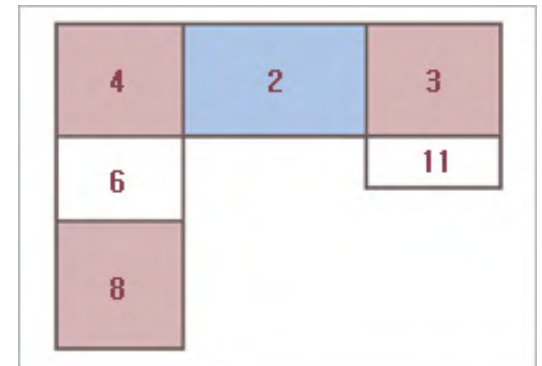
Northern Region (square layout)

Because the kitchens were built very large, a jeonjugan was included in the construction. The storage room and stables were also included indoors.

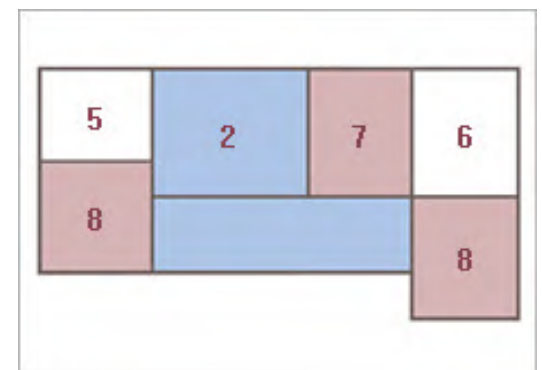


Central Region (L layout)

A small central living space with small windows was located between the main and second bedrooms. This was a typical layout of a central region home.



Southern Region (straight-line layout) All the rooms of the house were aligned in a straight line and the central living space was positioned at the center of the house. Southern houses were unique in that they had many windows and doors.



- 1 Toetgan (appending room)
- 2 Daecheong (hall/central living space)
- 3 Geonneonbang (second bedroom)
- 4 Anbang (main bedroom)
- 5 Gwang (granary)
- 6 Bueok (kitchen)
- 7 Keunbang (large bedroom)
- 8 Bang (room)
- 9 Dojangbang (lady's dressing room)
- 10 Oeyanggan (stable)
- 11 Toenmaru (veranda)
- 12 Jeongjugan (space between the kitchen and the main bedroom)

Layout

Traditional Korean houses consist of several standalone buildings.

Asymmetry

Sarangchae (men's quarter)

The sarangchae, or the men's quarter, was occupied by the man of the house. It also served as a reception area, guestroom, and a study area for children. Due to the strict gender-based Confucian society, the sarangchae was a space where men spent their time and discussed social matters, wrote poems, played instruments like geomungo (traditional Korean instrument), etc. Following the principles of the yin and yang forces, the room was located towards the east side of the house.

important, and so the construction of a house began with the sadang.



Anchae (inner quarters)

This inner section of the house, which was the main area for women, was where food was prepared, and also where important events such as the birth of a child or the death of a family member were held. The anchae was located in the center of the house, where it received the most sunlight, and was where important matters of the household were administered. Consisting of the anbang (main bedroom), andaechyeong (inner hall), geonneobang (second room) and the kitchen, the inner quarters were located towards the west of the house, in accordance with yin and yang principles.



Sadang (ancestral shrine)

As a space that enshrined the spirits and souls of deceased ancestors, the sadang was located far from the entrance gate, behind the andaechyeong or on the highest site behind the sarangchae. It housed the memorial tablets of deceased family members for whom the standard three-year mourning period had ended. The tablets bearing the names of the deceased were kept here for up to four generations. Ancestral worships were deemed very



Jeongja (open pavilion)

Similar to a porch or deck, a jeongja was usually built in an area with a great view, and people gathered to enjoy and share literature. Scholars and civil officials of the time sat by the deck and recited poems while listening to the trickling waters, blowing winds and singing birds. The Korean ideal for a simple and plain life in harmony with nature can be seen in the architecture.

way of landscaping was quite minimalistic, as the outdoor area of a house was considered a part of the surrounding natural environment, rather than an independent garden emulating nature. Therefore, nature was kept in the yard, rather than reproduced indoors. This way of combining nature and an empty yard is called chagyeong (borrowing the landscape). Koreans enjoyed resting on the wooden deck and looking at the mountains and prairies in the distance

Kitchen

Due to the ondol heating system of a hanok, the kitchen was constructed much lower than the rest of the house. The fireplace that burned wood for the ondol heating system also served as a stove, and right above the stove was a huge cauldron, now a symbol of a traditional kitchen, that was used to make rice for the entire family. The women considered the kitchen sacred and worshipped ancestral spirits in the kitchen by placing a bowl of water on the counter and asking the spirits to ensure the good health of the family.



Jangdokdae (jar stand)

Common Korean condiments such as soy sauce, soybean paste, Korean chili paste and kimchi are all fermented foods. These fermented foods are slow foods that need lots of sunlight and ventilation. Jangdokdae are usually located in the anchae (women's quarter) by the kitchen or near a well, and are slightly raised from the ground. Although jangdokdae are platforms for keeping these earthen jars that store condiments, they were also where women brought a bowl of water and prayed to the gods.



Madang (yard)

Located in the center of the house, the yard of a hanok served as a joint area where friends and family members held various events. The yard, usually kept bare, was in a sense a fully inhabited space. The Korean



Structure

Korean houses were designed with the human body in mind. The size of a room, the height of a door frame and the width of a gate were all decided in a way that made the people who lived in it modest and humble, and allowed the residents to concentrate on more important things. If the posts, beams and rafters were the skeleton of a house, the clay walls were its flesh, the windows and doors its face, and the roof its head. In this way, the shape of the doors and windows made the 'facial expression' of a house.

Check (Korean foot)

In traditional Korea, people's height was expressed using a unit known as check. One check is equivalent to 30.303 cm, and therefore, according to the Korean expression, a gucheokjangsin (9-check giant) measures over 270 cm, and a ocheokdangu (5-check small body) measured 151.5 cm. When building a house, they based the heights of ceilings and door frames on five check as the minimum human height. This consideration of human body size explains the cozy and snug feeling when one enters a room in a hanok.

Kan (traditional unit of measurement)

Usually, a hanok is measured by kan, and a large house of a very wealthy family is usually 99-kan. A kan, is the smallest spatial unit enclosed by four columns. In the yin and yang theory, tombs housing the dead are yin houses, and houses for the living, are yang houses. Accordingly, residential buildings had their front extending 1, 3, 5, 7 or 9 kan; in other words, odd numbers. Hence, the yin and yang principles were important criteria in determining the size of a house, and having a larger floor area was not the overriding concern.

Chae, meanwhile, is a unit referring to a building that has both rooms and a wooden-

floored hall. Korean houses are seldom one building, but are compounds of several chae.



Windows

Windows are passages that let air and daylight into a room. Windows in a hanok were generally rectangular, but occasionally, round and crescent-shaped windows were also seen. According to the type of latticework, windows were categorized as ttisalmun, bitsalmun, kkotsalmun, among others. The latticework frames were lined with paper that was ideal for absorbing air and light. Unlike today's glass windows, these hanok windows were made of a wooden frame lined with a traditional paper lining. The lining allowed for natural air to penetrate through the windows and also allowed for natural light to enter the room. Both the height and size of a window was based on the standard height and shoulder width of an adult person. The low window by the warmest spot of the anbang was located at a height low enough to be able to rest an elbow, yet high enough to cover a man lying down.

Doors

Doors provide passage into and out of a house, and also protect it from the external environment. In traditional times, Koreans believed that not only people and objects, but also good fortune and evil energy entered a house through its doors. This is why Korean families posted phrases like "Ipchundaegil (with spring comes great fortune)" on Ipchun (first day of spring), at gate posts or in other parts of the house. At times, tablets were hung over the doorframe giving it a special name.

Doors in a traditional Korean house vary widely depending on the intended purposes. Gates giving passage to outside areas include daemun (main gate), jungmun (middle gate) and hyeommun (narrow side gate). The most ceremonial-style gate for a residence is the soseul-daemun, a gate adorned with a high roof. This gate rises above the level of the abutting walls and roofs of the servant's quarters. While the main gate was used only on special

occasions, the hyeommun was used on an everyday basis. On the other hand, the jungmun provides passage from one area of the house to another. The wooden-floored hall in the center of the house may have a hatch door that is lifted open, and a door made with a thick wood board, called panjangmun, was placed at the back of the hall or for the kitchen.



Gosat (Gate Area), Tteul (Small Gardened Area)

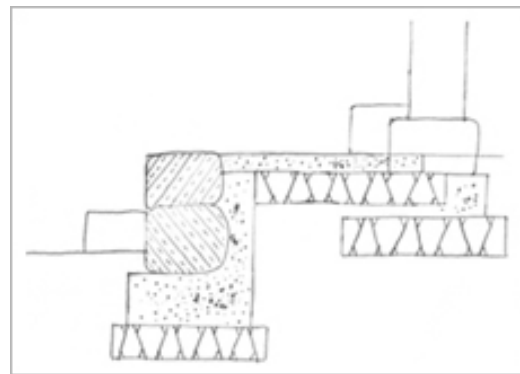
What distinguishes Korean paintings from their Western counterparts is that the vacant areas are left unpainted. These vacant areas of a painting make room for the imagination, letting the mind, inspired by what the eye sees, follow its own free course of thinking. Some call this discreet form of beauty the beauty of the void. Vacant or empty spaces are important structural and compositional elements in traditional Korean houses as well providing an architecture unfettered by constraints of symmetry. Gosat and tteul are two examples. The gosat is the area outside the main gate of a house and this intermediary space serves the symbolic function of preparing oneself before crossing the threshold into a house. The gosat is a narrow and rounded space, rather than a straight-angled rectangular space. The tteul, meanwhile, can be in the front, the back, or on either side of the house. This vacant space, often used to plant flowering plants or trees, provides an extra space, enriching life for the occupants of a Korean house.

of the house to the ground. In a hanok, cornerstones are often natural stone blocks with pillars hewn to fit them in a manner to create continuity. Cornerstones can also be hewn stone blocks for a more polished appearance. When the cornerstone is not a hewn stone block, the bottom of the pillar must be re-shaped to securely fit to the uneven surface of the cornerstone. This process, known as geuraenggijil, is quite elaborate.



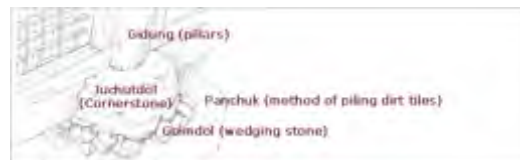
Gidan (Platform)

Hanok are built on a raised platform, usually made by piling rocks, to avoid water splashing into the house on rainy days and to prevent the cold air and humidity from the ground from entering. Although most often a stone platform, the gidan can be made of brick and roof tile, or stone and brick. Residences of the upper class used granite platforms, three to four cheok (90 cm to 120 cm) high. The height of the platform was generally proportionate to the social status of the occupants of the house.



Juchutdol (Platform)

Juchutdol, the cornerstones on which house pillars rest, serve two important purposes. One is to block the humidity from the ground, and the other to bear the load of pillars and efficiently redistribute the mass



Wooden Structures that Support the Roof

The various wooden structures placed on top of the pillars in a Korean house each have a specific and well-defined purpose as well as add to the visual appeal of the house. Crossbeams and purlins, horizontal pieces supporting the rafter, are particularly important pieces that are part of the roof's structure.

Bo (Crossbeam)

Bo are the horizontal crossbeams, placed perpendicularly to the pillars to support the load of the roof. Large bo are known as daedeulbo or daeryang.

Dori (Purlin)

Dori or purlins are wood pieces that support a rafter at a right angle from the bo.

Seokkarae (Rafter)

Seokkarae, constituting the horizontal sides of a roof, are sometimes referred to as yeonmok. They are thin and long wood pieces whose edges form the eaves.

Daegong (King Post)

A daegong is a short post supporting the ridgepole.

Wooden Structure that Supports the Eave

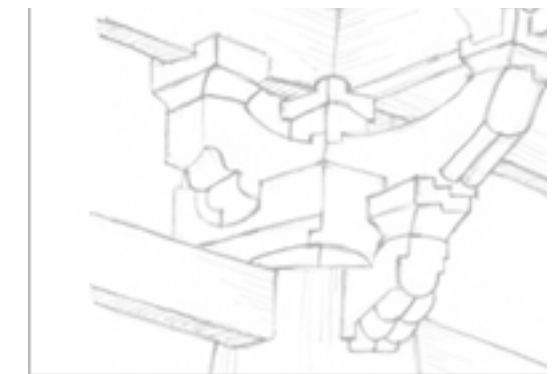
The eaves in a hanok rest on a complex wooden structure known as gongpo or po. The gongpo helps to optimally distribute the roof load to the pillars.

Cheoma (Eaves)

The cheoma, or eaves, is the portion of a rafter that extends beyond the pillar that supports it from underneath. Hanok tend to have long eaves. Far-projecting overhanging eaves are better at shielding the house from the high sun of summer months, as they provide a large amount of shade. Designed to be well shaded and with superior ventilation in mind, hanok are much cooler in summer. Meanwhile, in

winter months when the sun is low, sunlight penetrates deep into the interior of the house. The deep eaves also prevent the warm indoor air, heated by the ondol floor, from escaping the house. However, deep eaves, excellent for maintaining an optimal indoor temperature, can also darken the interior of a house. One way of remedying this was covering the yard with white dirt, which provides indirect sunlight into the indoor areas through reflection.

Deep eaves can sometimes look heavy, and to lighten up the look, the eaves are made slim and curvaceous. From the front, the eaves are lifted at either tip. From below, they are additional curves emphasizing the great detail put into every hanok.



Jibung (Roof)

Nothing speaks better to the beauty of a hanok than the line of its roof. The roofline was designed to run parallel to the curves of the mountain behind it. As though it were the silhouette of a crane folding its wings as it is about to land, the roof of a hanok is light, rhythmic and lively. This naturally curvaceous line conveys stability and is soothing for the eyes.

Matbae Jibung (Gabled Roof)

This roof, having triangular lateral sides without eaves at the corners, has a simple beauty.

Paljak Jibung (Hipped-and-gabled Roof)

It has the shape of a gabled roof placed on top of a hipped roof. Having a ridgepole, gabled ridge and a hipped ridge, this is the most ornate Korean roof.

Ujingak Jibung (Hipped Roof)

This roof has four slopes above each of the four sides of the building.

Moim Jibung (Pyramid Roof)

The four slopes of this roof terminate at a peak. A moim jibung has, therefore, no ridgepole or gable ridge, and only a hipped ridge. These roofs can have four, six or eight slopes and are mostly seen in open pavilions or pagodas.

Maru (Wooden-floored Hall)

The maru is usually located between the main and second bedrooms, or between the sarangbang and a numaru (balcony-like raised veranda) and acts as a connector for the two areas. With its floor raised from the ground for ventilation, the maru is open on the front and sometimes on the back and is a particularly important area of a house in the warmer regions of southern Korea.

Toenmaru (Veranda)

These verandas are usually found on the front, back or side of the house. An intermediary zone between the inside and outside, the toenmaru provides passage between rooms and the daecheongmaru, the main hallway.

Numaru (Balcony)

Numaru was the most valued space of an upper class residence. Built to resemble a fancy pavilion, these structures were raised on high posts so that they were far enough from the ground's humidity, yet low enough to receive the gentle breeze. Numaru were generally built in a corner of the sarangchae and served as a space to enjoy the view

of the garden and its natural surroundings. During the winter, the doors were kept closed in order to keep the cold air out. Numaru usually had umulmaru floors.

Umulmaru (Checkered Floor)

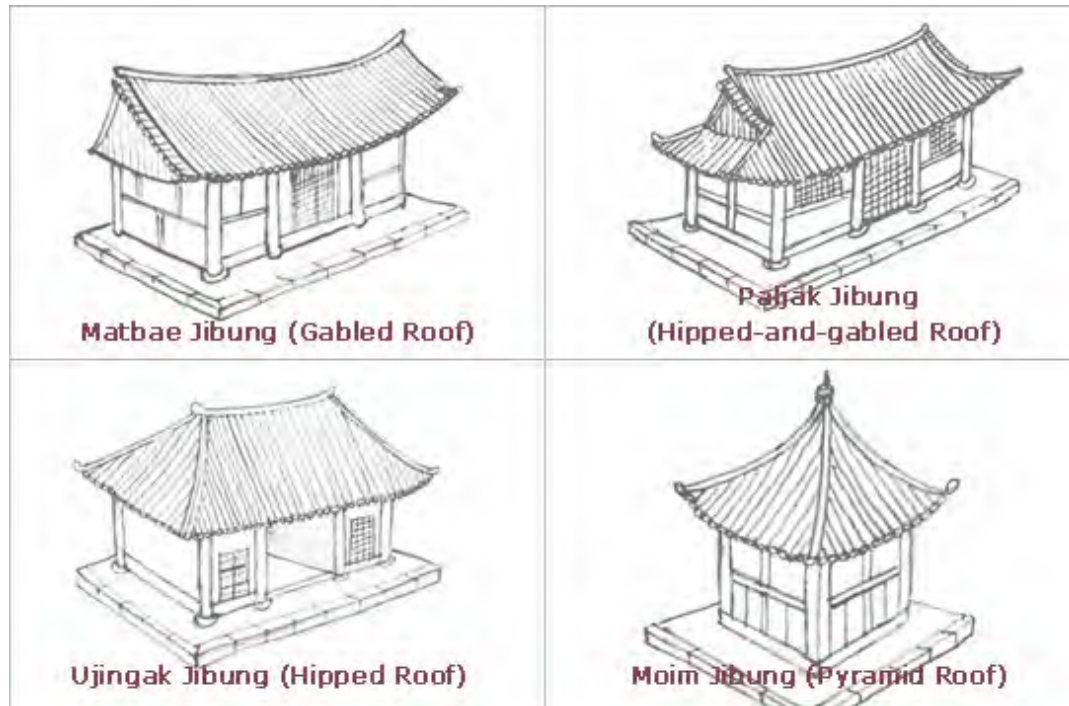
By crisscrossing short and long wood planks, a unique pattern in the shape of the number sign (井) was created. Umulmaru floors are ideal for the Korean climate, where the distinct four seasons create a wide temperature and moisture difference.

Daecheongmaru (Main Hall)

Daecheong, literally meaning a 'big maru,' is usually located in the middle of a building, and each section of the house, the anchaeng and the sarangchae, have a maru of its own, andaecheng and sarangdaecheng respectively. The andaecheng in the inner quarters provides communication between the main and second bedrooms, and the sarangdaecheng connects the sarangbang and the second bedroom as well as providing access to the raised veranda, if one is available.

Jangmaru (Long-plank Floor)

This floor was made by aligning long and narrow wood planks.



Gidung (Pillars)

Gidung are vertical structural pieces of a house bearing and transmitting the roof load to the cornerstones. Along with crossbeams that bear the load horizontally, gidung are the main components of a house frame.

Minheullim Gidung (Wide Based Pillar)

Minheullim widens at the base. The capital to base ratio is not set, and can vary.

Jingnipju (Straight Pillar)

The circumference of the capital, body and base of this pillar are the same.

Baeheullim Gidung (Entasis Pillar)

Pillars of this type are wide in the middle and have a narrow capital and a slightly wider base.

Gak Gidung (Straight Pillar)

Pillars whose cross-section is square, hexagonal or octagonal. Square pillars are usually used in residences, hexagonal pillars in open pavilions, and octagonal pillars in highly ornate buildings.

Dam (Fence Wall)

In a hanok, fence walls were meant to be left open and welcome people rather than to restrict entrance. Therefore, fence walls were built low so the outside could be seen from the inside and vice versa. Fence walls only served to differentiate a house from the street, and were very simple and humble in appearance. In some cases, houses did not have a fence wall, and instead planted shrubs called Korean lespedeza to mark the interior and exterior of the house.

Saetdam (Partition Fence Wall)

Saetdam are low fence walls that act as partitions inside a house lot. During the Joseon Dynasty, when male and female separation was quite strict, saetdam were built around the sarangchae (men's quarter) to close off the area.

Kkotdam (Floral Wall)

Kkotdam are ornate fence walls engraved with the Chinese characters for "long life (su)" and "good fortune (bok)." These character engravings symbolize people's hopes and wishes for the growth, joy and peace of their families. The fence walls were made of dirt and topped with tiles in order to protect them from the rain.



Technique

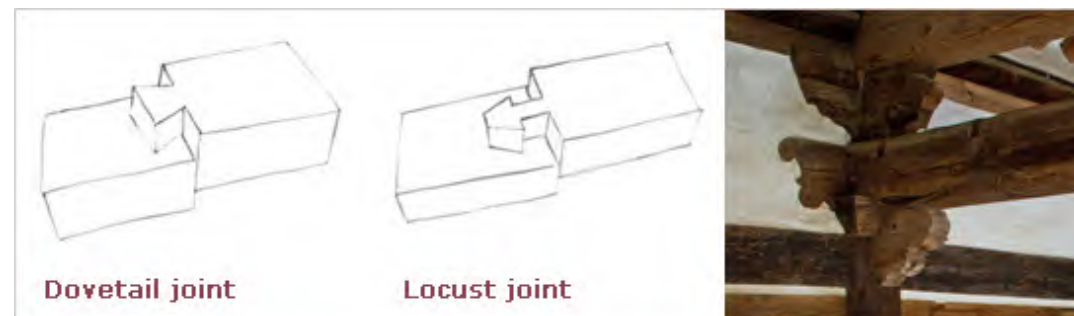
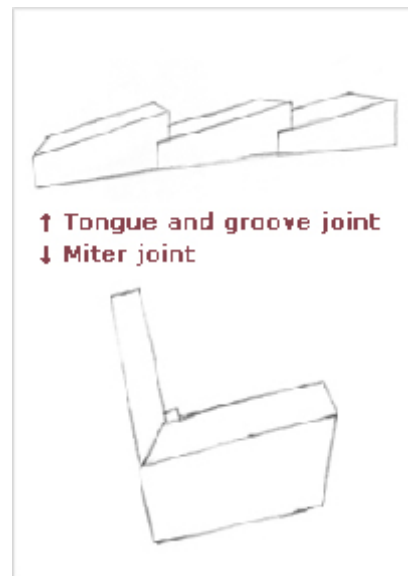
Hanok are built of various different kinds of woods but nails are not used to join the materials. Instead, Hanok are connected by using other natural materials and methods. The joining and connecting methods also mirror yin and yang principles.

Ieum (Adjoining)

Ieum refers to the joining of two wooden materials side by side, and matchum refers to joining two pieces of wood perpendicularly or diagonally. Various joinery methods are used in traditional Korean construction, including dovetail joints, halving joints, locust joints, and splayed scarf joints. The dovetail joint, the most popularly used joinery technique in Korean houses, consists of a series of trapezoidal pins interlocking with similarly-shaped tails. The locust joint has the same interlocking mechanism as a dovetail joint, except for the fact that the pins used have a longer tip, in a shape indeed reminiscent of a locust.

Matchum (Connecting)

Hanok are built much like wooden furniture, connecting pillars to crossbeams, and therefore, traditional Korean houses can be built using raw materials alone. The frame of the house is constructed using the dovetail method, joining pillars, purlins and crossbeams tightly and securely enough to be able to stand on its own. Other joinery techniques used in Korean houses include tongue and groove joint, formed by the insertion of the tongue of one intersecting wood piece into the groove of the other, and miter joint, in which two intersecting pieces of wood are joined at an angle, usually 45°, so that the intersecting ends are completely invisible.

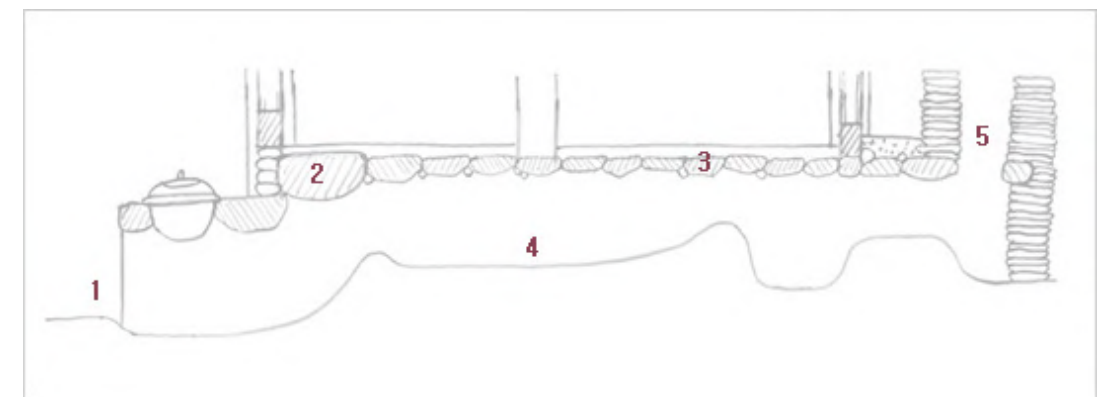


Ondol (Under-floor Heating System)

The hardwood floors of a hanok kept the house cool and breezy during the hot summers and, due to the ondol system, warm and cozy during the cold winters. Ondol is a unique heating system native to Korea. It goes back to prehistoric times, when a furnace attached to the room transmitted heat to the floor through a stone substructure. An age-old, yet highly scientific system, ondol keep a room toasty warm. The fire, which is started at the agungi (fireplace), travels through the underground flue until it reaches the gaejari (pit that retains heat), and then once the heat cools off, soot particles sink to the bottom and clear white smoke is released through the chimney.

Ondol, the traditional heating system of

Korea, consists of an agungi (fireplace), a gorae (heat duct) and a gulttuk (chimney). Gudeuljang (thin stone slabs) are placed over the heat duct that runs from one end of the room to the other, with the in-between space filled with dirt or rocks. The flat stone slabs (usually granite) are most often 5–8cm thick. The system is designed so that the hot smoke reaches all parts of the floor substructure so that the floor is heated evenly and warm in every part. The floor is slightly raised toward the side where the chimney is located. Meanwhile, the section of the floor, closest to the fireplace, can become extremely hot. To avoid injury, extra-thick stone slabs are placed in this area, usually in two layers. Thanks to the thickness of the stone slabs, this area of the floor tends to retain heat for many hours after the fire goes out in the fireplace; hence, the great heating efficiency of the ondol system.



- 1 Agungi (fireplace)
- 2 Bulmokdol (extra-thick stone slabs placed at the point of intersection between the agungi and gorae)
- 3 Gudeuljang (stone slabs placed above the gorae)
- 4 Gorae (heat duct)
- 5 Gulttuk (chimney)

2.4. Case Study

Almost all industrial cities would face such problems: after industrial restructuring, how to deal with the leaving architectural heritage of the industrial age? To pull everything down and reconstruct them or to leave them there and take some adaptive reuse?

Before 1975, most old buildings were pulled down and new buildings rising up afterwards. Only a little of them were preserved as museums. By this way, some culture disappeared and plenty of material, resources and money were waste at the same time. The urban development presents a fast centrifugal expansion.

Around 1975, with the slogan of "leaving into the heritages", people proposed to preserve the historical heritages and some legislations were promulgated in Europe and the US, such as European Charter of the Architectural Heritage, the Declaration of Amsterdam, the Zurich Planning and Building Regulation, Boston State Legislation Chapter 772, etc.

Afterwards, more old buildings were preserved and reused for new functions like museum, accommodation, cultural park, tourism zone, business center, etc, which realizes cultural continuity, reduces waste, controls the excessive urban development and realize the revitalization of industrial city.

Current reforming trends for reuse are mainly considering two aspects that are application of new technology and the attention spacial planning.

In this project, we mainly study the transformation of gasometer. By studying a large number of gasometer transformation, it is not difficult to find that they could be reused as different new functions like cultural center, commercial exhibition space, thermal battery for the district heating network, urban community, and even indoor diving center.

Among these cases, two typical cases are chosen for further study: Suvilahti and gasometer city in Vienna.

Case 1 Suvilahti

The Suvilahti power plant produced gas and electricity for the city's residents throughout much of the 20th century, after which it has produced a different type of energy in the form of culture. The operating model for the area is similar to that of the Cable Factory on the other side of town. The old industrial buildings are being renovated and rented out to various cultural actors.

Suvilahti comprises nine buildings, two large gasometers and 2.5 hectares of open-air yard space. The cultural centre will be formed gradually as the buildings are renovated and tenants move in. There has been no grand opening, and there won't be one in the future either.

Already now Suvilahti is an established venue for new circus and other performing arts. The circus performers at Suvilahti cover the entire scale from amateurs to professionals. Suvilahti is also a recognised venue for open-air music events. From June to August visitors to Suvilahti can enjoy a wide range of popular concerts.

The historically unique area combined with its interesting tenants are creating an internationally significant cultural centre.

Helsinki City Museum has identified Suvilahti as an important entity in terms of its architecture and significance for the city's image. The original buildings were designed over a century ago by Selim A. Lindqvist, who was inspired in part by the Art Nouveau architecture in Vienna. The historical preservation of these buildings plays a major consideration in the renovation work.

History

1907: decision taken to construct electrical power plant beside Suvilahti Bay in the Sörnäinen district of Helsinki.

14 July 1909: inauguration of power plant designed by architect Selim A. Lindqvist.

Expansions and extensions in the 1930's, 40's and 50's.

1976: power plant operations discontinued at Suvilahti.

Early 1980's: power plant converted into a warehouse and exercise facilities for employees of Helsinki Energy.

1980's: power plant first used for cultural projects, including KOM Theatre 1981–82 and a film studio.

1994: gas production discontinued at Suvilahti.

2000's: business activities and photography studios.

2007 March–October: mayor's committee considers future of area.

30 October 2007: proposal to transfer administration to Kiinteistö Oy Kaapelitalo.

1 January 2008: Suvilahti becomes part of Kaapelitalo's administration.



Historical images

Historical images

Location

The site is surrounded by the city district of Sornainen and the new, emerging urban district of Kalasatama. The old industry locations and the wholesale market area will evolve into a transforming into vibrant food and design districts, whereas Kalasatama area will evolve into a new center for business and residential housing that will one day be home to around 20,000 residents, 7000 workplaces, parks and several kilometres of shoreline promenades.

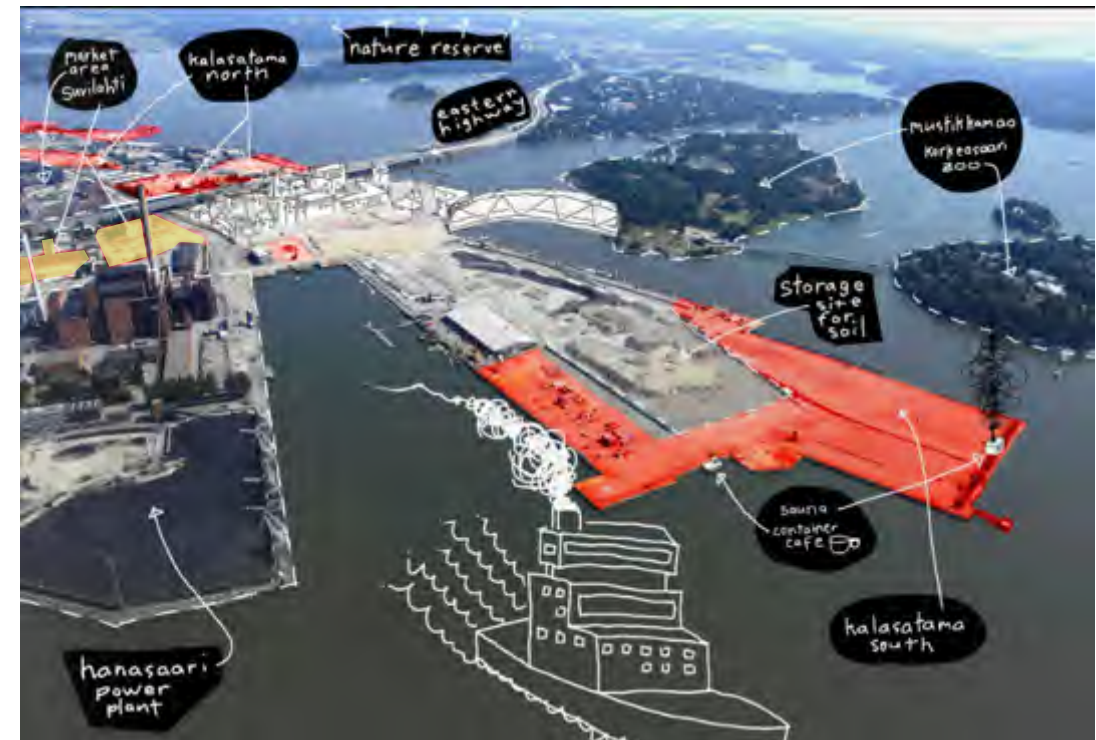
At the nearby Helsinki City Wholesale Food Market you will find the Abattoir ("Teurastamo" in Finnish), a new centre for food culture in a setting that dates back to the 1930s.

The historic redbrick buildings that once served as the city abattoir form a pleasingly authentic courtyard surrounded by boutiques and restaurants.

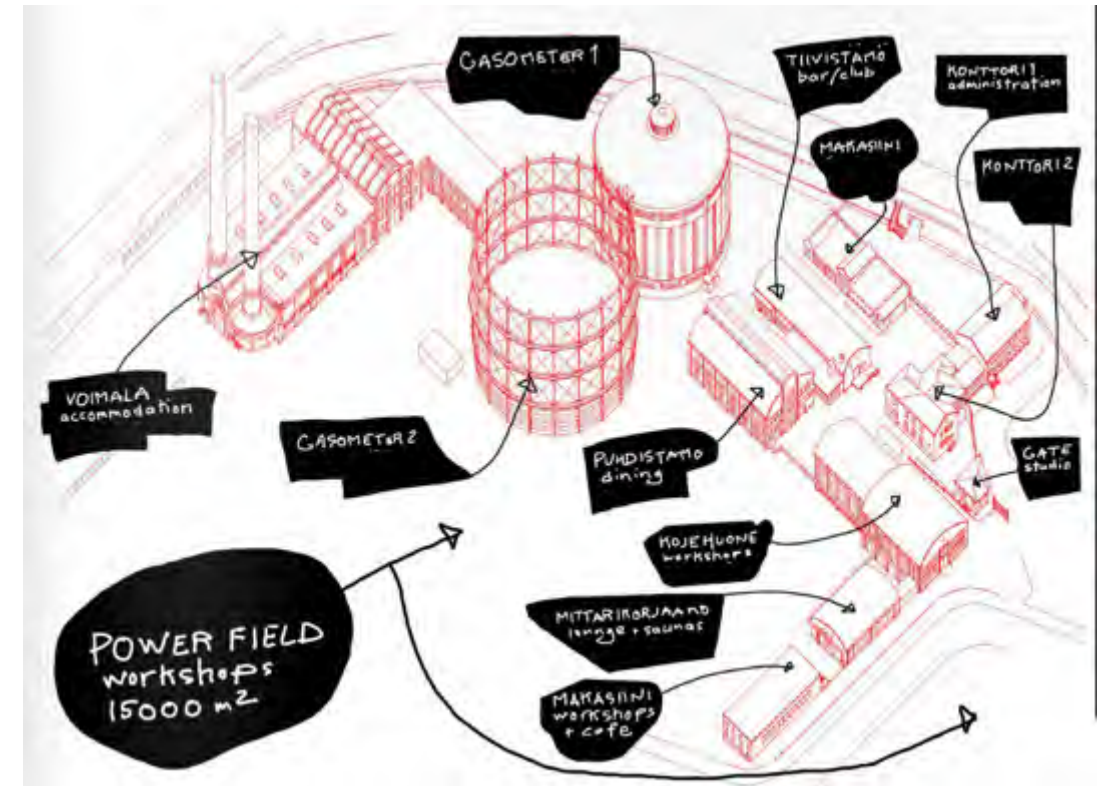
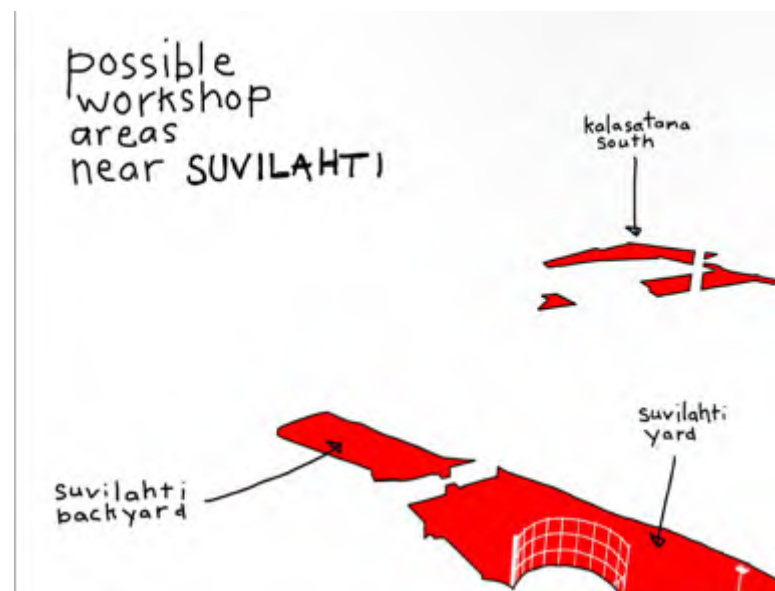
Since Suvilahti power plant is in the middle of all these massive transformations, as supporting facilities for the inhabitants, it will continue the transformation into a cultural center under the Kaapelitalo's administration.

"It's interesting that this factory environment attracts artists. Maybe that spirit of doing is still here."

- Power plant worker since 1958



Function distribution & Accessibility



1. Exhibitions/event hall, 4100sqm
2. Exhibitions/advertising, 11450sqm
3. Outdoor venue/advertising, 2000sqm
4. Storage, 420sqm
5. Bar/club/lectures, 680sqm
6. Dining/accomodation, 2200sqm
7. Administration, 1150sqm
8. Media-lab, 950sqm
9. Workshops/lectures, 3000sqm
10. Lounge/showers/saunas, 680sqm
11. Studio, 150sqm
12. Workshops/cafe, 840sqm
13. Courtyard, Event field, 25000sqm

Reflection to this project

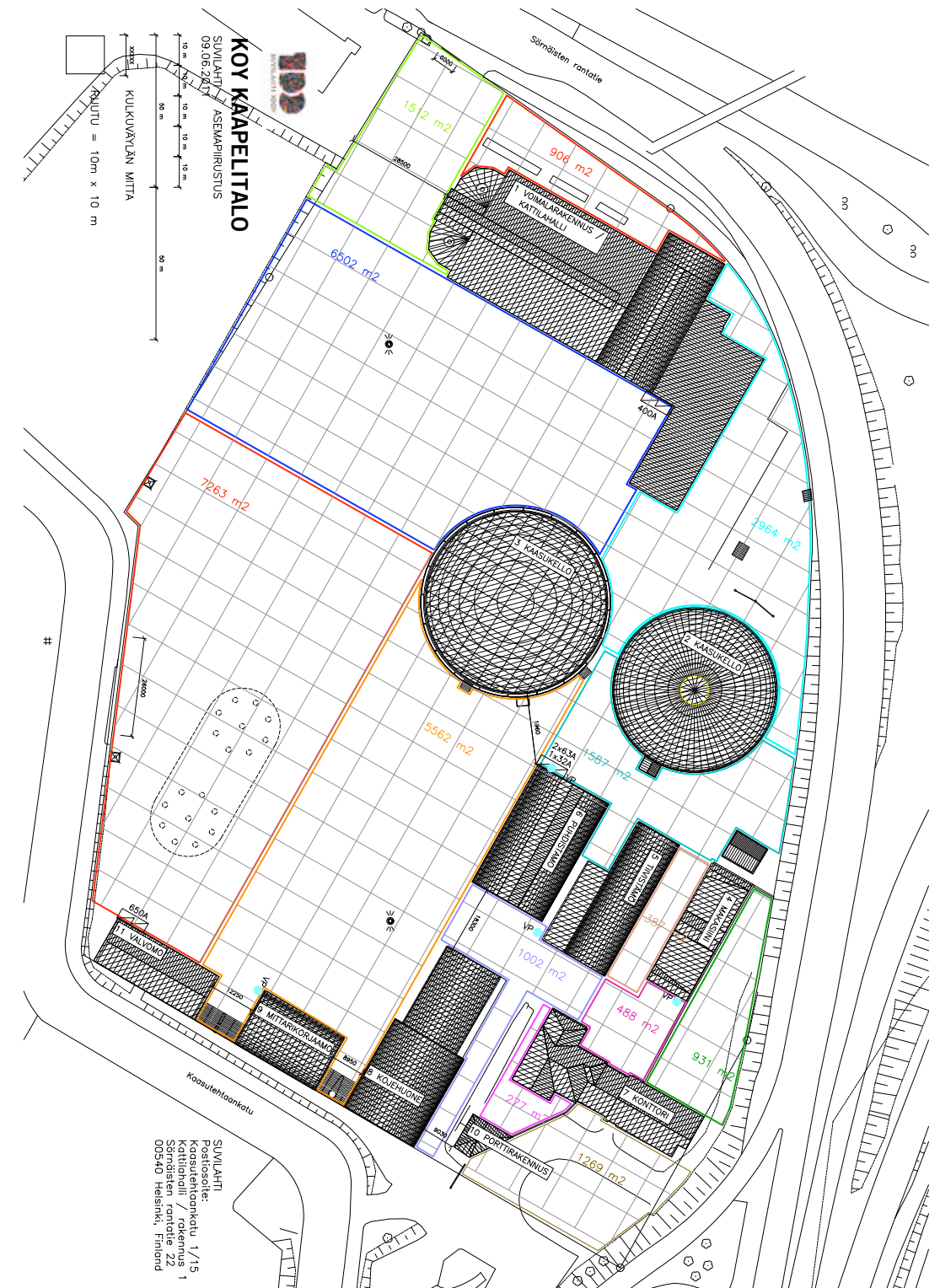
It is a good case to transform an old energy production area into a cultural center. It is utilised for cultural activities and business supporting these activities. In this case, work, atelier and performance space are put together being renovated at Sulvilahti for use by artists and artist groups, as well as by other cultural operators.

The transformation of the Sulvilahti area into a cultural center is part of the broader development plan for the Sörnäistenranta and Kalasatama districts. By reviving this area, the surrounding vacated space will be used to create a new urban district over the coming years.

It is not difficult to find that the transformation is a huge success since after reforming the old industrial plant is given a new attraction point marking with cultural and art center. As a result, it also creates much working opportunities for local artists and citizens.

As for the strategy of transformation, in order to get an exhibition space, interior structure is demolished so that it can create large public space. This space is not only used as exhibition hall but also can carry different functions.

For the outside looking, it keeps the original exterior skin and the steel structure to realise both view of beauty and cultural continuity.



Site plan



Building 1: Exhibitions/event hall

Building 5: Bar/club/lectures



Case 2 Gasometer City, Vienna

Gasometer City is a district of Vienna that was built around four gasometers, each with a diameter in excess of 60 metres. Situated a couple of kilometres from the city centre, the heavily modified gasometers house apartments, a shopping centre, a multiplex cinema and a concert/event hall with over a thousand seats. The historic gasometers have also been mated to modern architecture. The result is very impressive, and there is even a metro station underneath one of the gasometers.

At the end of the 19th century the gas supply for the city of Vienna was controlled by private corporations and the prices were kept pretty high for the consumers, the majority of them being families with modest incomes.

All that changed when the Gaswerks Simmering, or Simmering Gas Works, were built.

Located in the 11th district on Guglgasse, the first municipal gas storage tanks, with their impressive 55 meter-high brick walls, had the capacity to provide gas to a large part of the population. The inside walls of these four huge containers were made of iron in order to store the inflammable gas produced from hard coal.

The level of gas in the tanks would vary depending on the demand and it was sent to Viennese homes through a pipeline system that was spreading around town for hundreds of kilometers. Although by definition a gasometer is the circular gauge outside of the tank, the word was commonly used to call the containers themselves and still is today.

Even if the Simmering Works could provide over 100 million cubic meters of gas annually, the gasometers ended up not being able to supply completely the ever-growing population of Vienna.



After being upgraded several times to keep up with modern technologies, the gas production stopped in 1969, after the city began its conversion from coal gas to natural gas. But the tanks were still used for gas storage until 1984 when they finally closed due to new technologies in gasometer construction.

In 2001, four internationally renowned architects were each given a tank (Gasometer A, B, C, D) with the task of reinventing them.

Jean Nouvel made an indoor plaza with Gasometer A, with huge windows to catch the light coming in from the transparent dome.

Coop Himmelb(l)au produced a 22-storey building with a bending-shape attached to Gasometer B, creating a remarkable contrast with the circular shape of the container.

Manfred Wehdorn made an eco-friendly apartment building with indoor gardens in Gasometer C.

And Wilhelm Holzbauer ended up constructing an apartment building as well in Gasometer D, after he saw his project for a hotel rejected by the city.

Gasometer City has its own U-Bahn station, outside which there is a huge gas valve. It also contains a large shopping mall, 615 apartments with 1500 residents, offices, a media center, as well as the Wiener Stadt und Landesarchiv, the Vienna City and County Archives.

An interesting note: Gasometer City served as a set for the James Bond movie, *The Living Daylights*.

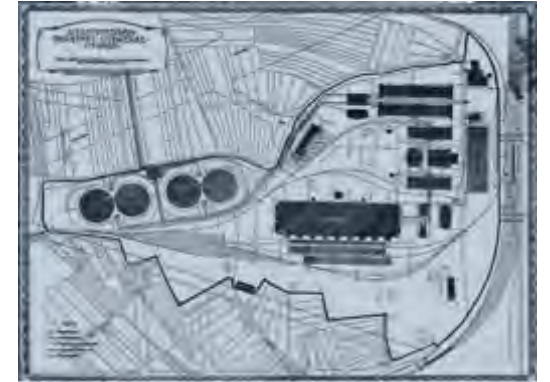


History

The Gasometers were built from 1896 to 1899 in the Simmering district of Vienna. The containers were used to help supply Vienna with town gas, facilities which had previously been provided by the English firm Inter Continental Gas Association (ICGA). These are four cylindrical gas tanks, the volume of each of which is 90,000 m³. Each one of the gasometers is 70 meters high and 60 meters in diameter. Coke gas stored in tanks, was designed for the city gas network. The gas was first used only in street lighting, but in 1910 was also introduced for use in cooking and heating in private homes.

The Gasometers were retired in 1984 due to new technologies in gasometer construction, as well as the city's conversion from town gas and coal gas to natural gas. Gas can be stored underground or in modern high-pressure gas storage spheres under much higher pressures and in smaller volumes than the relatively large gasometers.

During the years after their decommission, they were used for various purposes, including being used as a setting in the movie *James Bond: The Living Daylights* and as a venue to host the Gazometer-Raves. In 1978, they were designated as protected historic landmarks. Vienna City Hall undertook a remodelling and revitalization of the protected monuments and in 1995 called for ideas for the new use of the structures. One of the rejected ideas is the plan of Manfred Vedorn to use the gasmeters for hotels planned for the World Exhibition in Vienna and Budapest.



Location

The gasometers are located in the 11th district, Simmering, in a rather suburban district.

The city historical center is on its west. National park with large green area on its north-east continues to face the site. New developed business area stands on the other side of Danube.

Positioning

After 1984, there were several ideas what to do with the gasometers - but for a long time, little happened.

For the requirement of development of Vienna, this old industrial district with another name called "labour's district" needed to change its role to adapt current lifestyle and to realise economic recovery.

According to the studies and proposal of professor Manfred Wehdorn, in 1995, the government proposed a competition for it with the concept of fully respecting the history of the old gas tank in the city's role and protecting the original appearance, to adapt to the convert of function by completely changing the internal structure. But also people could clearly identify their former functions and local history from the appearance.

According to the location and administrative request, it changed into a community inside the city.

The metro line 3 and some highways were built to welcome the new life of it.



Goals

- overview of past urban planning - making reasonable decisions in the present

- lasting impacts on the overall functioning of the city to subsequent generations

- focus on urban development policy – directed towards renewal and improving the quality of life in densely populated urban areas

Scope and basic activities

Gasometers have developed a unique character of a village and are as a town in the town. A real sense of community has developed and they have split apart as a large physical community of residents and virtual internet community. Many theses and dissertations on psychology, urban planning, architecture and journalism have been written about this phenomenon.

Facilities include a concert hall with a capacity of 2000-3000 people, movies, campus, municipal archives and others. There are 800 apartments (two-thirds of which are within the historic brick walls) with 1600 permanent residents and 70 student apartments, housing 250 students.

Ideas for a change (activities)

The chosen designs by the architects Jean Nouvel (Gasometer A), Coop Himmelblau (Gasometer B), Manfred Wehdorn (Gasometer C) and Wilhelm Holzbauer (Gasometer D) were completed between 1999 and 2001. Each gasometer was divided into several areas for living (apartments in the top), working (offices in the middle floors) and entertainment and shopping (shopping malls in the ground floors). The shopping mall levels in each gasometer are connected to the others by skybridges. The historic exterior wall was conserved. One of the ideas rejected for the project was the plan by architect Manfred Wehdorn to use the Gasometers for hotels and facilities for the planned World Expo in Vienna and Budapest. During the

reconstruction everything from the interior was removed, and only the brick walls and the roof were left.

Concept

Overall, the project has been conceived as a sort of self-sufficient microcosm.

With the combination of the offices and residences it is intended to generate new ways of living and working in a single area.

The project emphasizes the skill with which it has resolved the restoration of the old deposits and the surprise of creating the new building in sharply innovative ways. The group is a prodigious merger between past and future.

The spectacle of it, the creation of new housing, commercial areas of recreation and culture, and regeneration of the industrial district turned the Gasometer into the alternative urban center of Vienna.

Strategy

A shopping street connects the gasometer tanks so that they become a whole and have more flexible flows between each other.

In each gasometer, they have different functions which is easier to organize people's flow and have rich functions to become a micro-city when they are together.

Interior spaces are so different in each gasometer thus each one has its specific characters and the spatial experience in the whole site is more abundant.

Public spaces are always on lower levels while the private spaces are higher. As a result, public sector and private sector are separated clearly which is more convenient for people living or visiting there.

Gasometer A

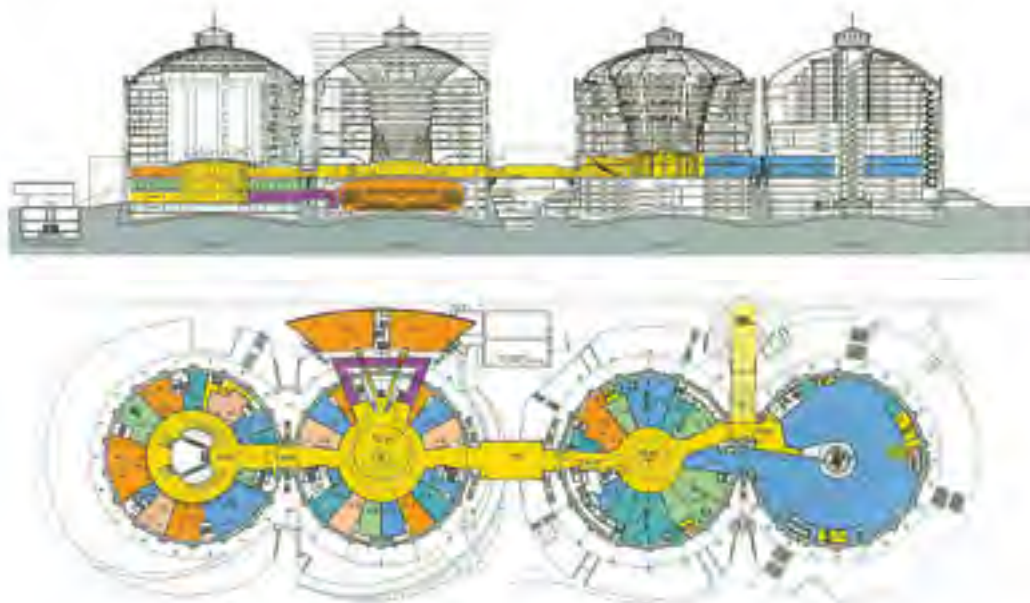
The gasometer A is designed by Jean Nouvel. It keeps the original outside looking made of bricks,

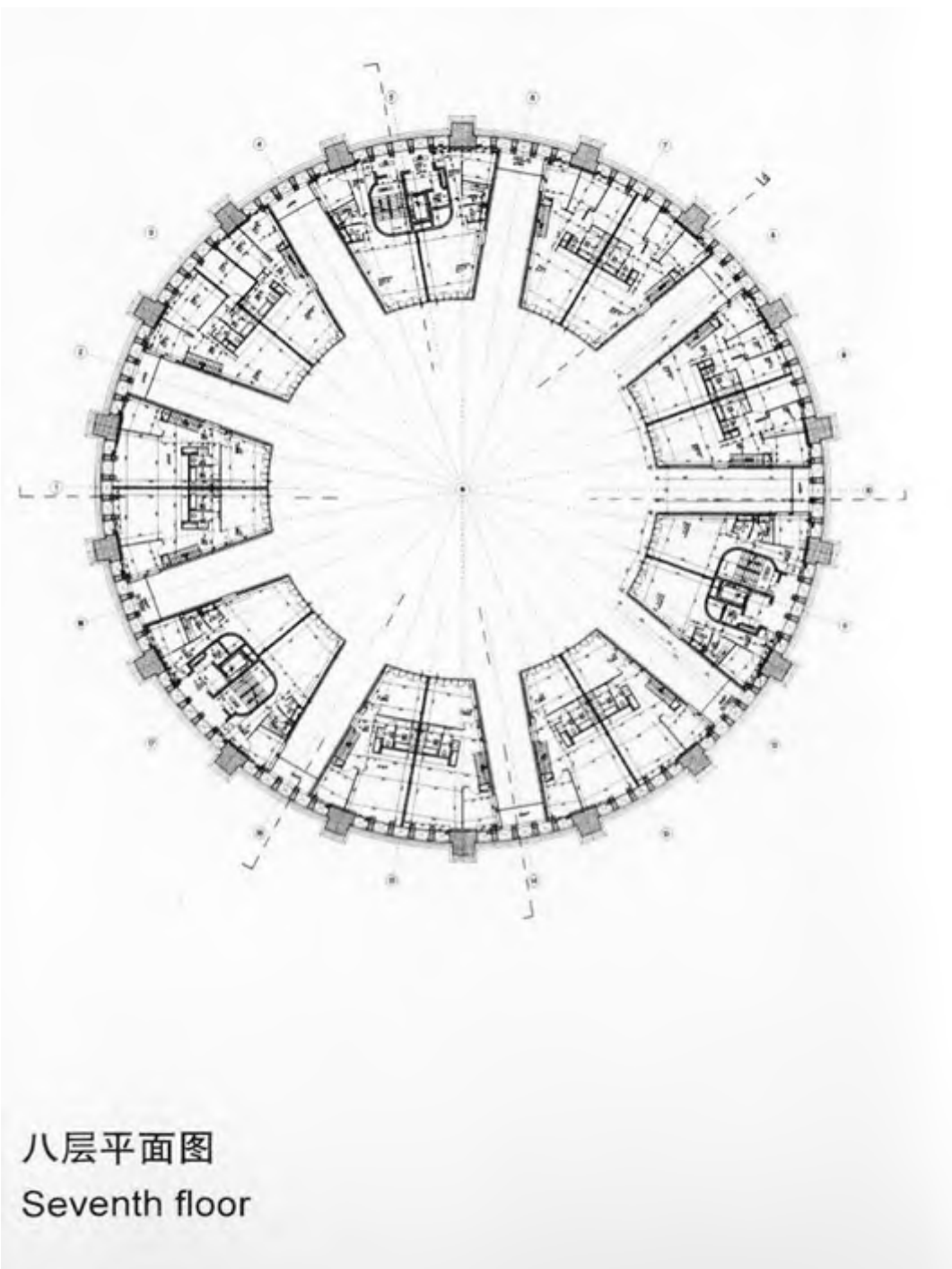
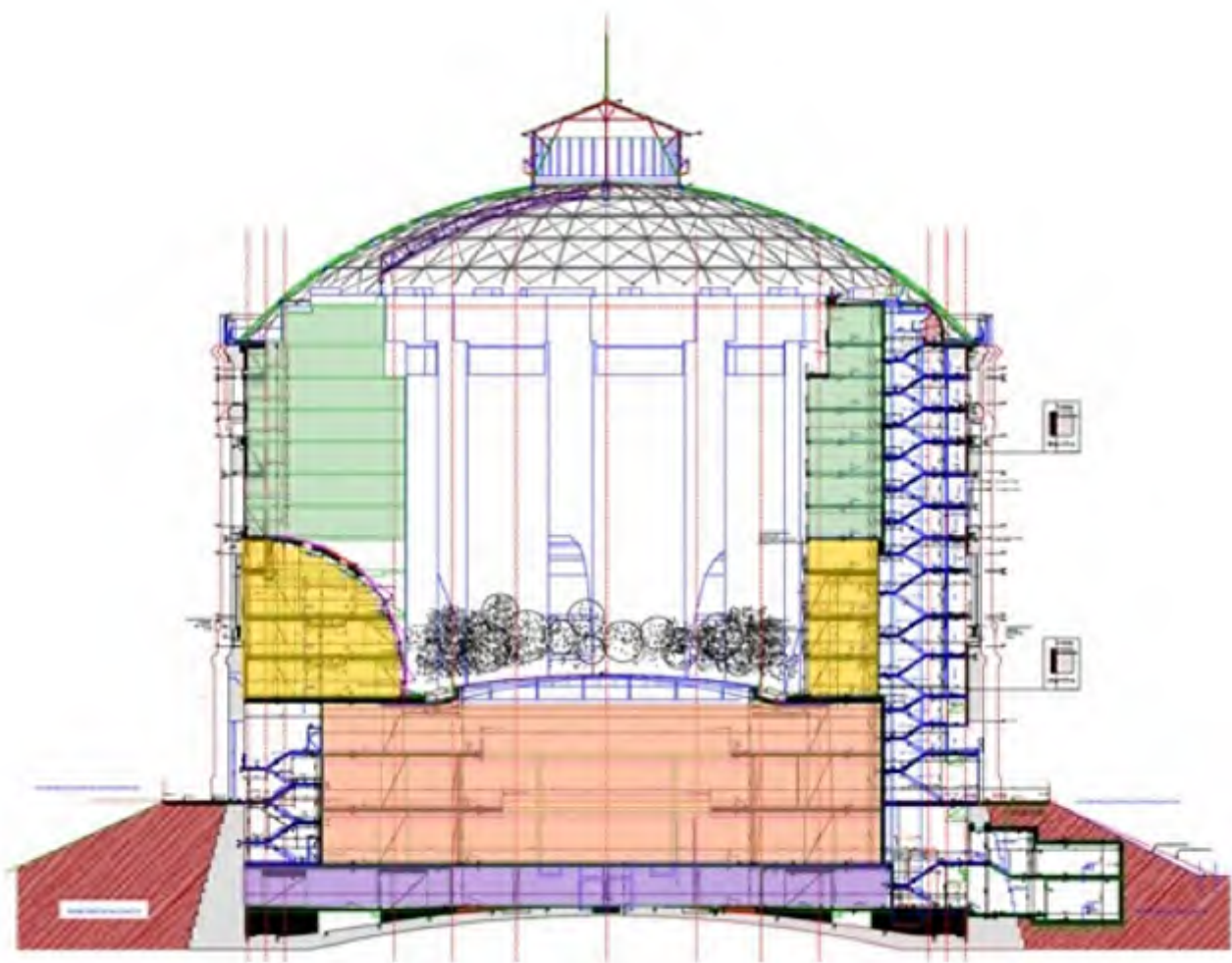
The lower three floors are used as shopping mall with a patio of three floors.

Reinforced concrete is used as structural material of the basement to provide enough strength for upper steel structure.

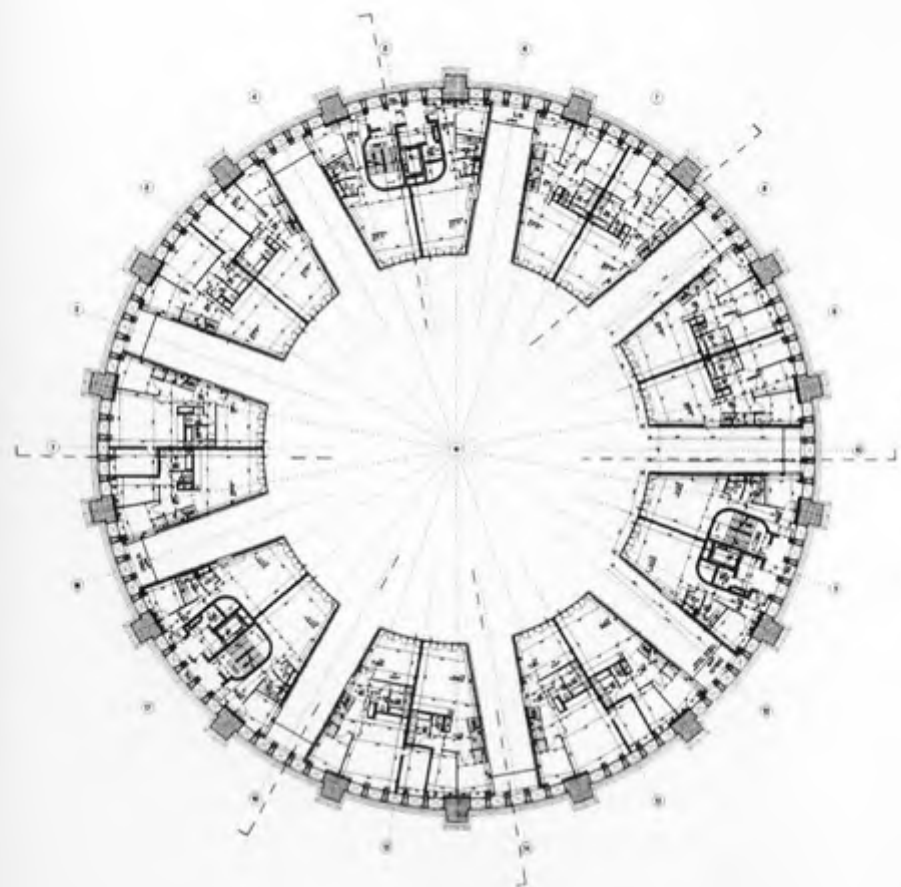
18 accommodation towers are located above the gasometer around the facade to form an inner courtyard.

Glass roof lets more natural light come into the building.

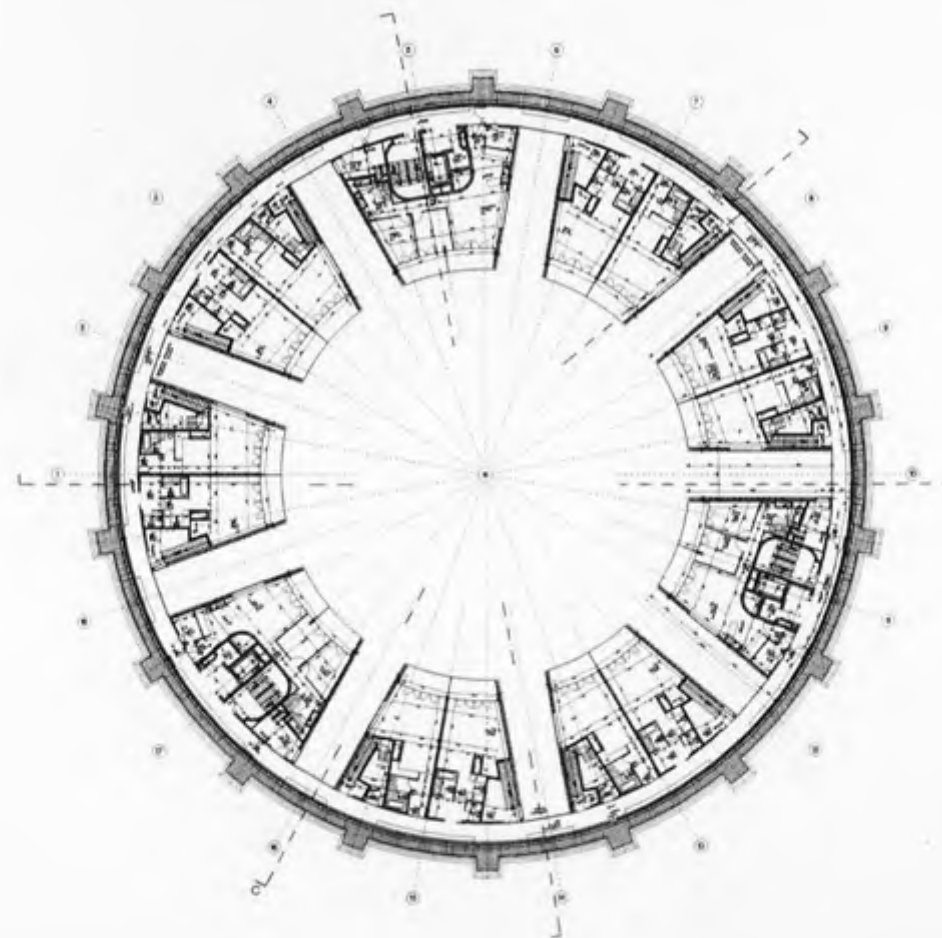




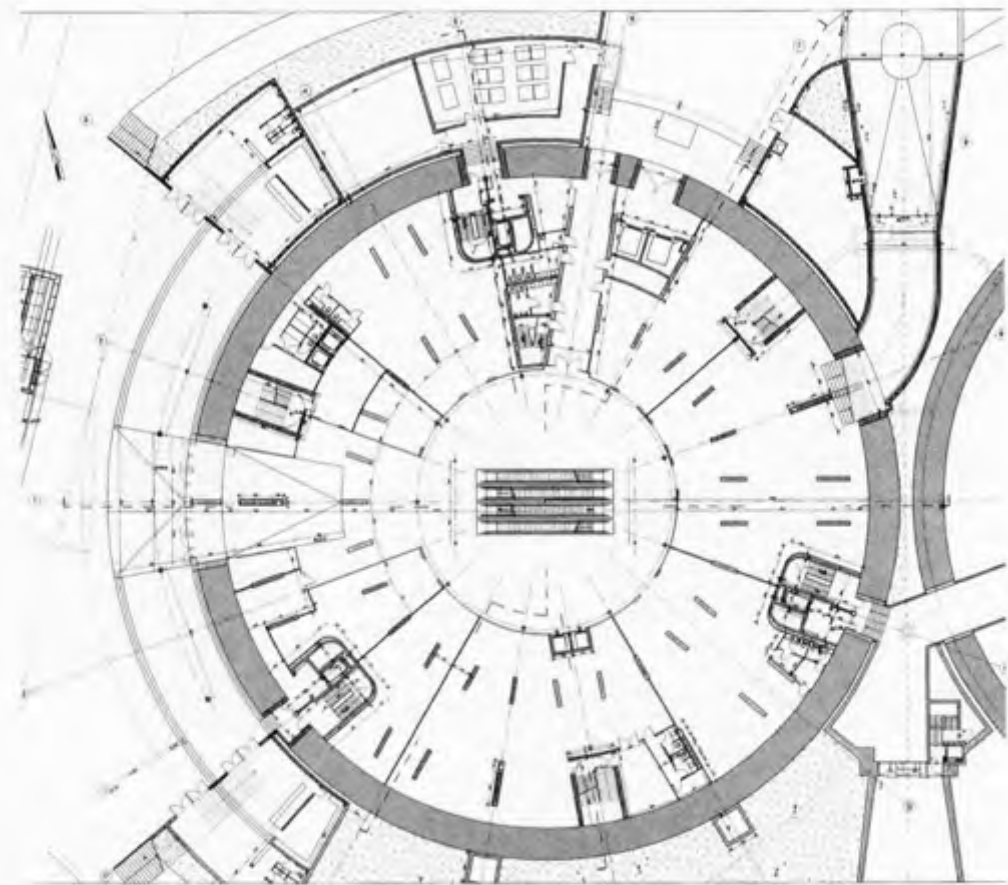
八层平面图
Seventh floor



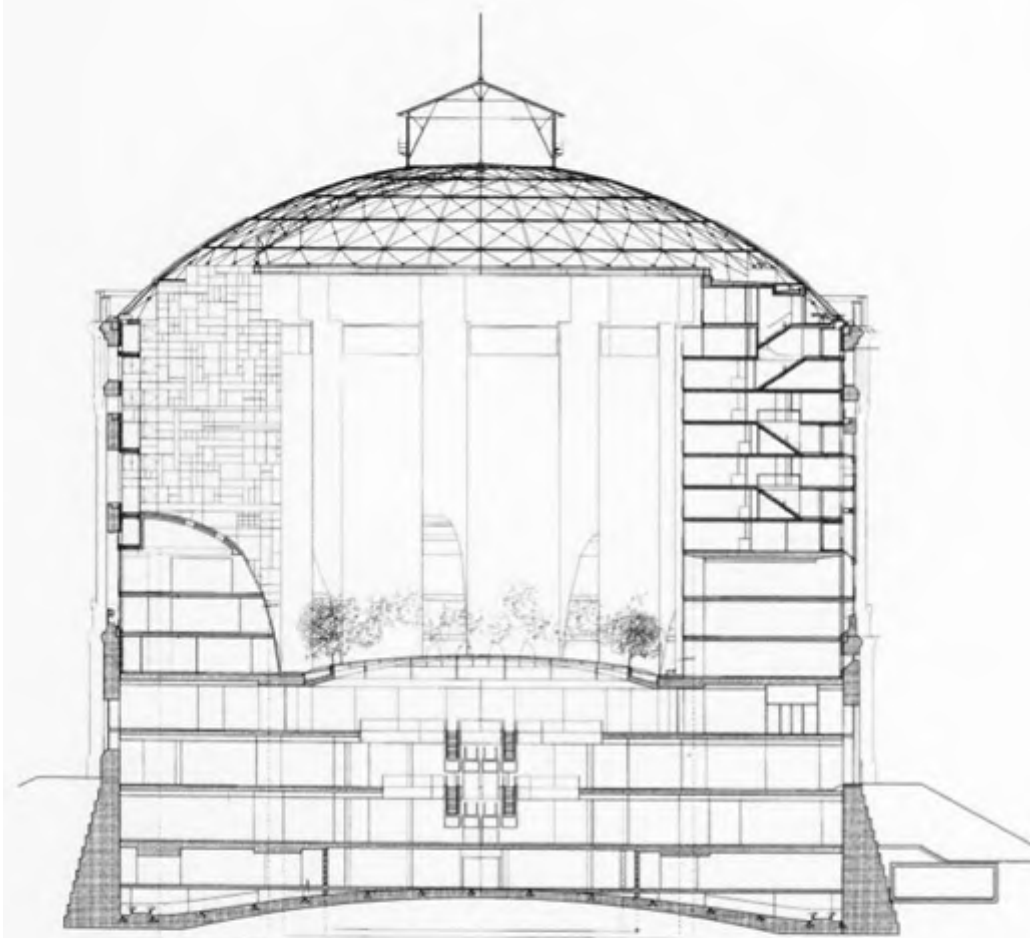
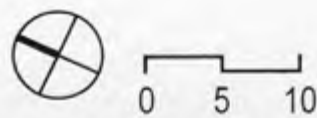
九层平面图
Eighth floor



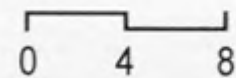
十层平面图
Ninth floor

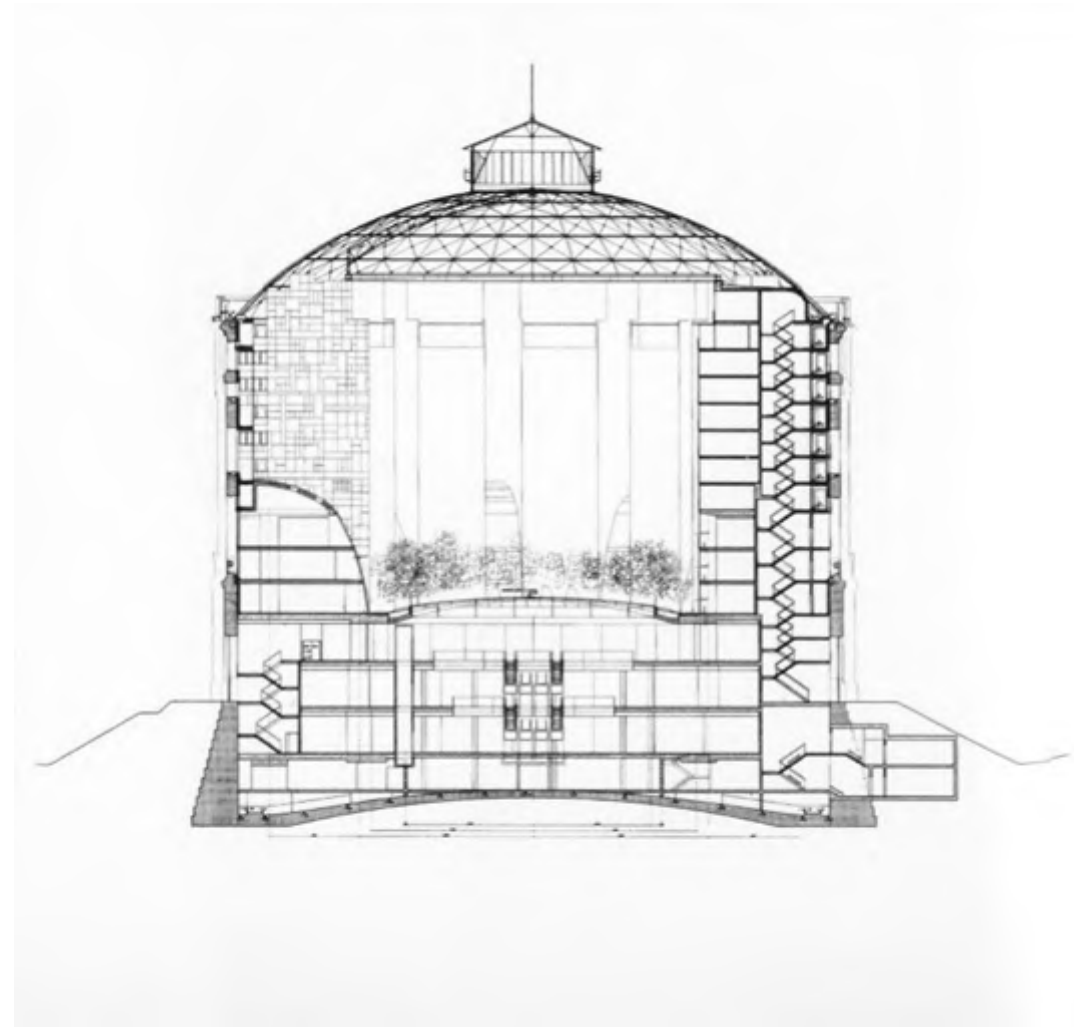
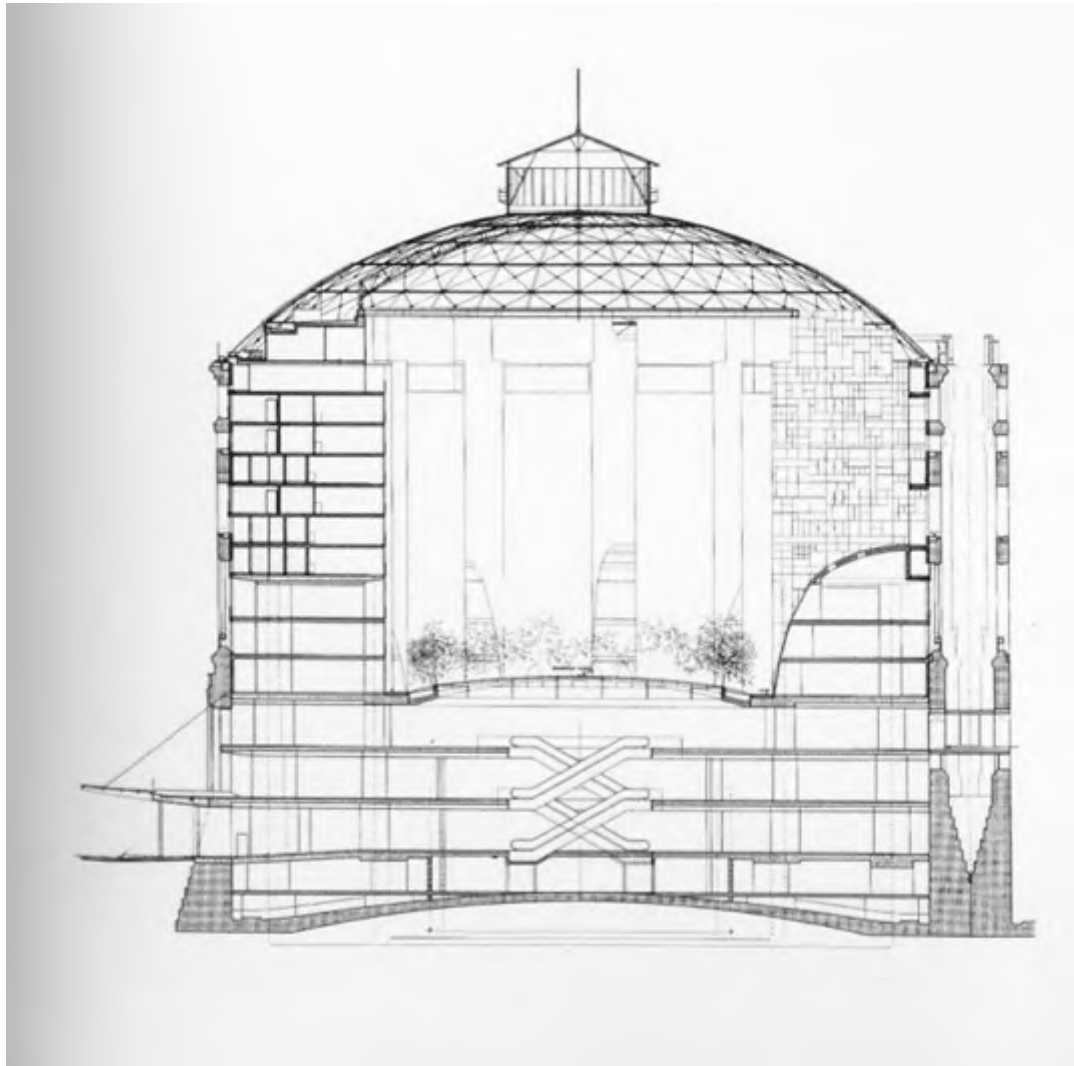


地下室
Basement



剖面图
Sections







Gasometer B

It is designed by Coop Himmelb(l)au with the style of deconstructionist line.

It is characterized by a continuous hall, a Shopping Mile that contrasts sharply with the regular alternation between straight passages (the outdoor walkways of the gasometer) and the covered plazas in the interior of the same gasometer.

A large auditorium and theater on the lower level.

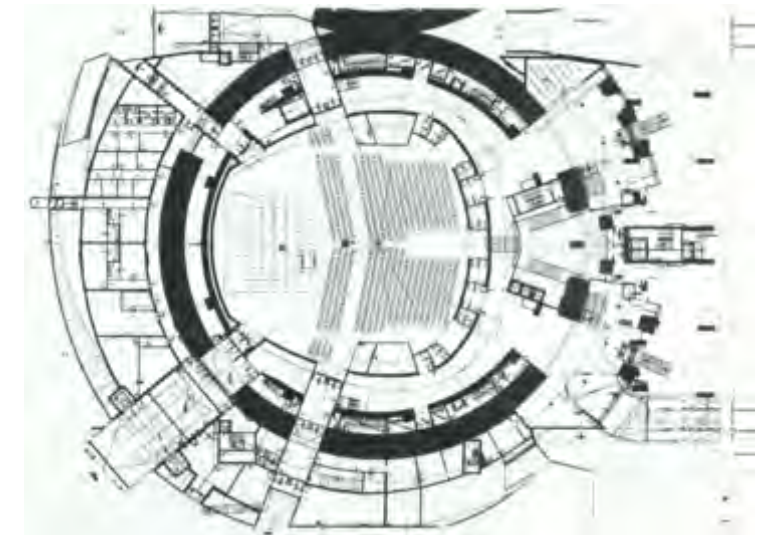
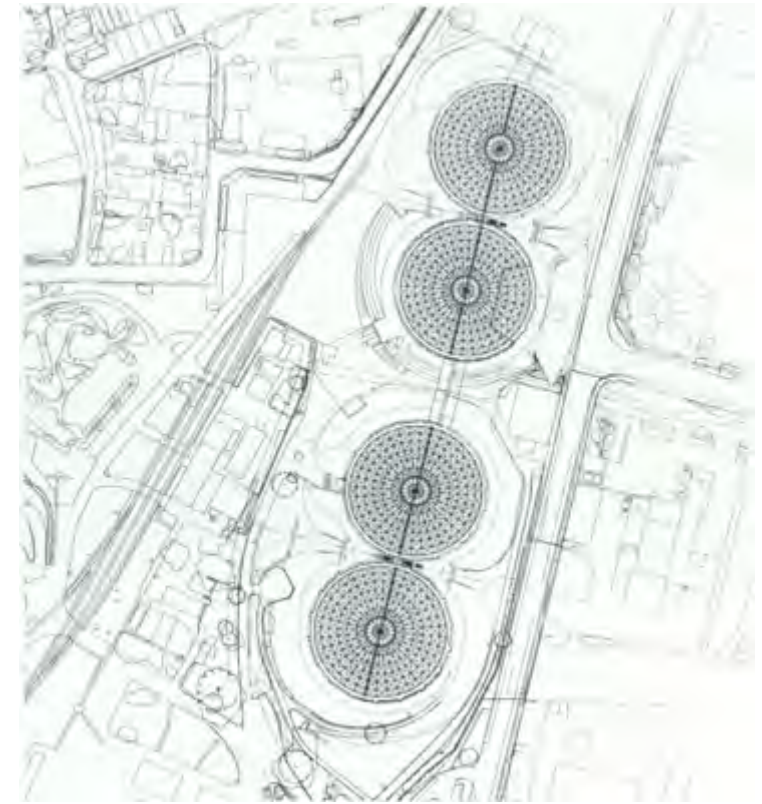
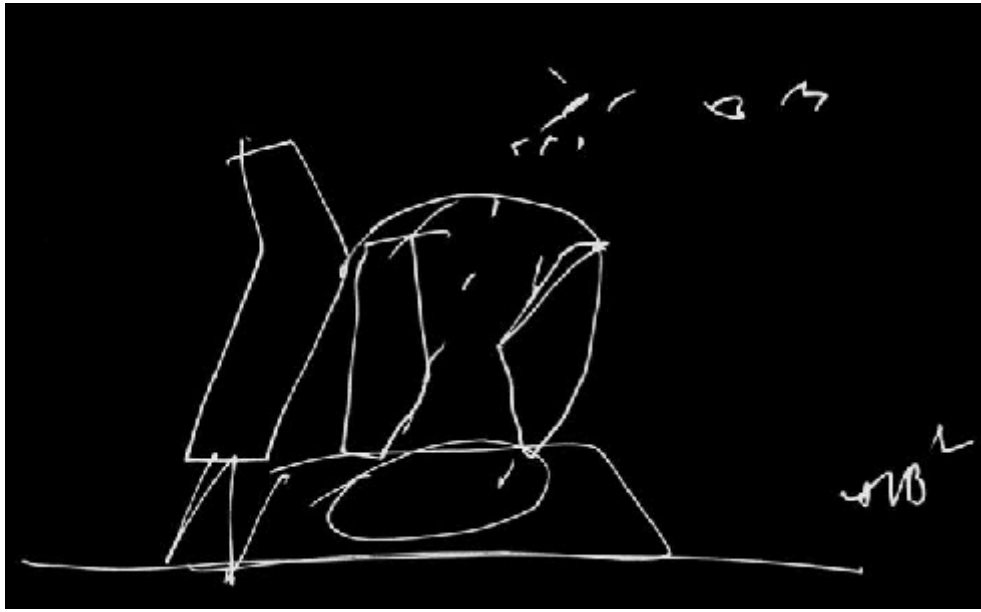
It creates a sort of bent shield that repeated a portion of the facade. Glass bridges connect the gasometer and the new building.

Accommodation is arranged in the gasometer, while the offices in the new building.



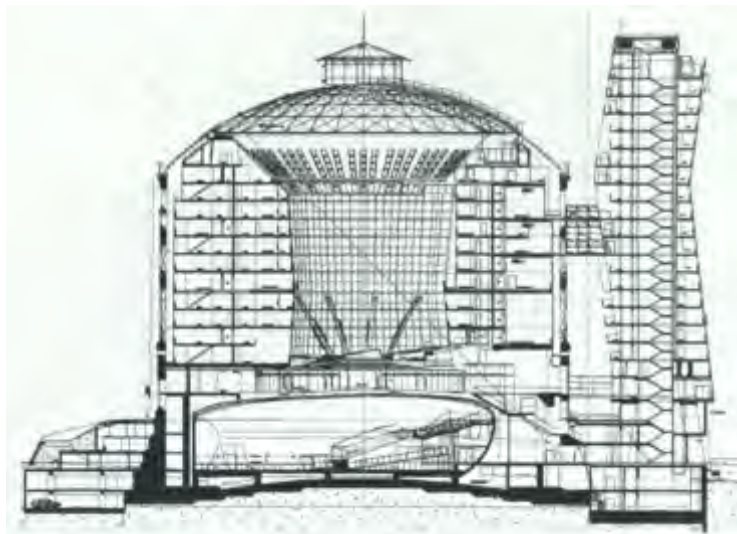
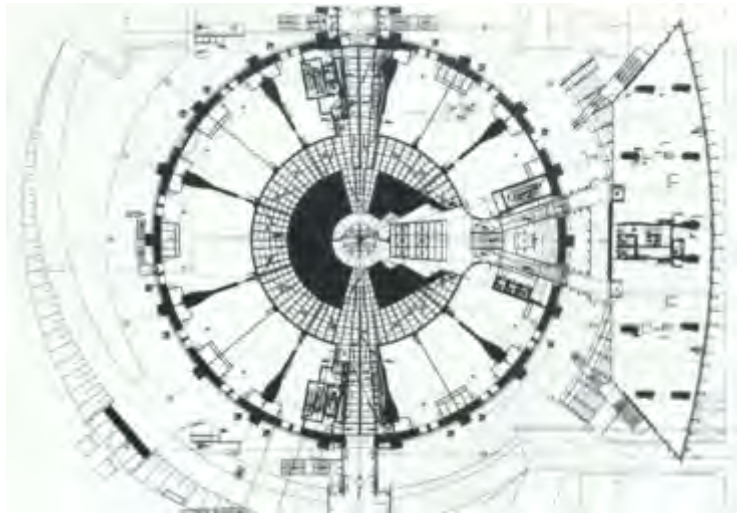
Interior view





Sketch and section model

Site plan & lower floor plan



Upper floor plan & section



View of new building



Gasometer C

Designed by Manfred Wehdorn, the gasometer C is mainly for accommodation.

The most specific characteristics is its interior courtyard with balconies and passages on inside part of the building facing it.

The glass dome let the natural light into the inner space directly.



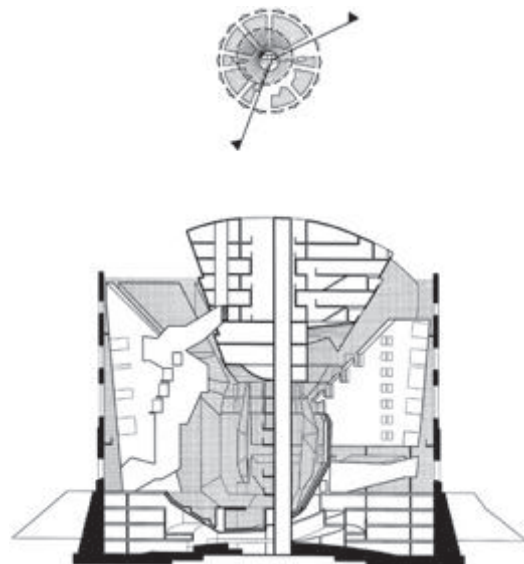
Interior view



Gasometer D

Designed by Wilhelm Holzbauer, the gasometer D characterized by its flexibility of the interior space.

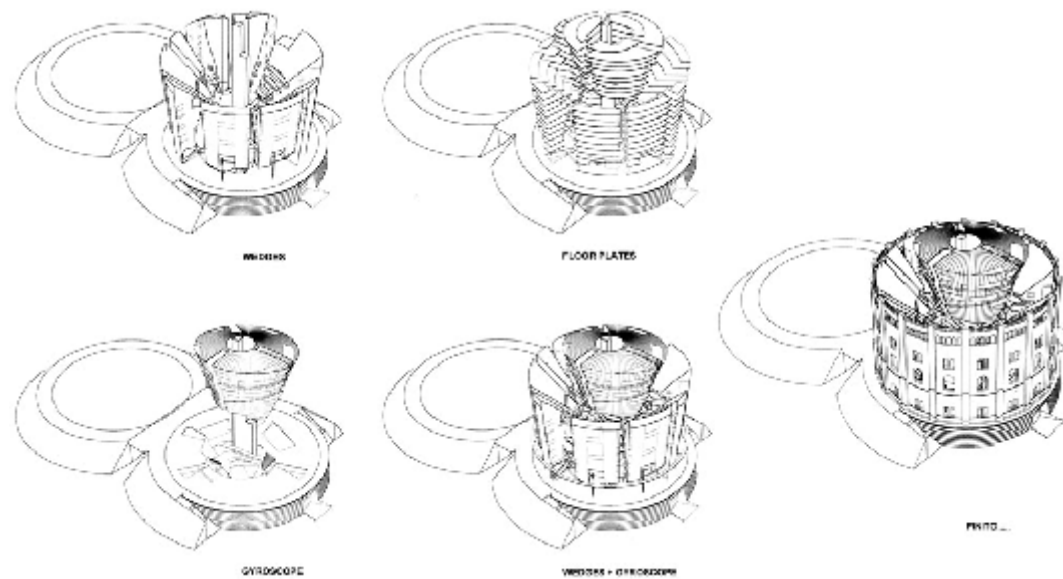
Like the other three tanks, it also keeps outside looking, and has interior courtyard with glass dome letting the natural light into inner space.



3. CONCEPT

Returning To Nature

"Form Follows Function"



3.1. Returning To Nature

Since the beginning of 20th century, due to the thriving of industry and the two world wars, a huge numbers of dwellings were needed, under that context, modern architecture developed rapidly. Lots of "concrete monsters" were erected up and the design of buildings and space becomes mechanization. As a result, skyscrapers could be seen everywhere, modern materials substitute traditional local materials, and cities were losing their specific characters gradually.

In Korea, after the Second World War, the whole country needed a fast development. Following Japan, after 1950s, the Korean learned from the Western, so modern architecture boomed there substituting much more traditional buildings, especially in Seoul, the capital city of Korea.

In the 21st Century, people begin to look back considering about the architecture in new century where to go. Since the western culture invades the whole world, most oriental countries are losing their traditions, including Korea. It is the time to return to tradition and develop it together with new techniques. Not as the cold rapidly copied structures, traditional architecture focus more on in harmony with nature that gives people warmer feelings. We need to be a different way of seeing and thinking about the structures we build and where they come from.

The pleasure and guilt of destruction of nature plagued ancient people, all architects are saddled with the same contradictory feelings continuing the architectural history.

It is a paradox that obsessions architecture forever. From the first step out from the cave, the human race stepped towards the destruction of nature. To the 20th century, a variety of architectural theories become prevalent that pushes the activity of destructing nature to the extreme.

However, even under this trend there are still some architects noticing the importance of nature. Architecture should not appear as an isolated object but as an element of the environment. Buildings should be able to melt into the surrounding landscape. Architecture itself can break down boundaries: a bridge, for example, can serve, both literally and figuratively, as connector between beauty and genius, between nature and man.

All buildings are connected to their surroundings, to nature above all – nature out there, as well as our internal nature as humans. It's a continuous dialogue and relationship that can be quite intimate. By nature, in this case the earth, I mean the place that all of us, consciously or not, are an extension of, where we can turn to reconnect on a deeper level with what's most important. As such, nature is here, now, real. It has the power to bring us into the present, to settle us down. Unlike the overload of sensory stimulation that is often part of that strata of existence common to most life as it currently is experienced, especially in urban areas, nature has the power to ground us, to return us to ourselves.

Nature as a primary point of reference in the built environment has been addressed in various ways by many architects, high on my list of which are Wright, of course, Louis Kahn, Carlo Scarpa, Peter Bohlin, James Cutler, John Lautner, Will Bruder, Kengo Kuma and not so well known, Jack Hilmer, to name but a few. I know I'm leaving out dozens more who've had much to offer in connecting us to the natural world through their architecture as well as their written words. But this is a good start. Their work represents a wide range of different possibilities, but share a common message.

Wright:

"How many understand that Nature is the essential character of whatever is. It's something you'll find by looking not at, but in, always in. It's always inside the thing, and it makes the outside."

"Building becomes architecture only when the mind of man consciously takes it and tries with all his resources to make it beautiful, to put concordance, sympathy with nature, and all that into it."

"study nature, love nature, stay close to nature. It will never fail you."



Reisley House, Frank Lloyd Wright



Millard House wall detail, Frank Lloyd Wright



Rose Pauson Residence, ship rock, before fire, Frank Lloyd Wright

Louis Kahn:

“And when you want to give something presence, you have to consult nature. And there is where Design comes in. And if you think of Brick, for instance, and you say to Brick, “What do you want Brick?” and Brick says to you, “I like an Arch.” And if you say to Brick “Look, arches are expensive, and I can use a concrete lentil over you. What do you think of that, brick?”

Brick says: “... I like an Arch”



Fisher House, Louis Kahn

Carlo Scarpa:

“If the architecture is any good, a person who looks and listens will feel its good effects without noticing. The environment educates in a critical fashion. As for the critic, he discovers the truth of things...”



Brion-Vega Cemetery, Carlo Scarpa



National Assembly, Bangladesh, Louis Kahn



Foundatione Querini Stamparia, Carlo Scarpa



National Assembly, Bangladesh, Louis Kahn



India Institute of Management, Louis Kahn



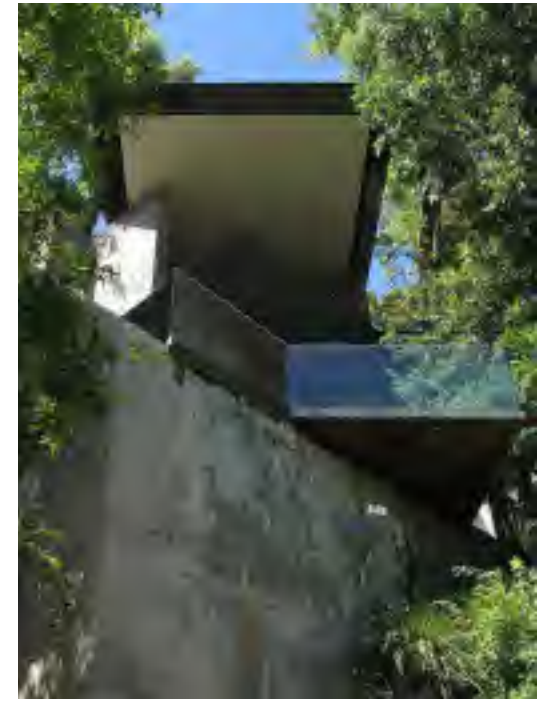
Brion-Vega Cemetery, Carlo Scarpa

Peter Bohlin/ Bohlin Cywinski Jackson:
 “We believe in an architecture that springs from the nature of circumstance.
 ...the nature of place, whether natural or man-made – the tilt and warp of the land, the sun and wind, rain and snow, its attitude, its spirit, the marks of man on a place, a dense urban world or a landscape that reveals its geological past and vestiges of man’s hand.
 ...the nature of man – our senses, how we move, how we touch, our intellect and our emotions, our dreams, our memories, our past, our institutions,
 ...the nature of making, of materials – stone, wood, concrete, steel, aluminum, glass, plastic, fabric – each has its particular qualities.
 ...All materials have a kind of will – we are fascinated by the connection between the nature of materials, the places they quite naturally make and our use of these particular places. from “Arcadian Architecture, 12 Houses”, by Oscar Riera Ojeda



Port Townsend Residence, Bohlin Cywinski Jackson

John Lautner:
 “As far as structure is concerned I think we should continually experiment and discover every new material and method and use it.”



Wolff House, John Lautner



Ridge House, Bohlin Cywinski Jackson



Segel Residence with Warren Lawson, John Lautner



Ridge House, Bohlin Cywinski Jackson



Mauer Residence, John Lautner

Will Bruder:

“...celebrate the materials and how they go together”

“...You’re getting paid to open the possibilities of what architecture is about”
And the goal of architecture, he says, “is to build a better world to live in, to build armatures for memory. And memory is what people value more than any physical thing.” from Residential Architect, October 18, 2011 post



Pond House, Will Bruder

Kengo Kuma:

“Sushi is a good metaphor for my architecture. The importance in sushi is to choose the best material from the place, in season. ‘If the journey of the ingredients is too long, the taste of the sushi is compromised. That is a problem that can’t be solved by modern technology, and that programme of using local material in season is the secret of good taste, and the secret of my style.”



Yusuhara Wooden Bridge, Kengo Kuma



Pond House, Will Bruder



Pond House, Will Bruder



Momofuku Ando Center, Kengo Kuma



Yusuhara Wooden Bridge, Kengo Kuma



Pond House, Will Bruder



Horai Onsen Bathhouse, Kengo Kuma

3.2. "Forms follows function"

"Form follows function—that has been misunderstood. Form and function should be one, joined in a spiritual union."

As a young architect Frank Lloyd Wright worked for Louis Sullivan (1856–1924) in his Chicago-based architecture firm. Sullivan is known for steel-frame constructions, considered some of the earliest skyscrapers. Sullivan's famous axiom, "form follows function," became the touchstone for many architects. This means that the purpose of a building should be the starting point for its design. Wright extended the teachings of his mentor by changing the phrase to "form and function are one."

This principle is thoroughly visible in the plan for the Guggenheim Museum. According to Wright's design, visitors would enter the building, take an elevator to the top and enjoy a continuous art-viewing experience while descending along the spiral ramp.

Wright's design for the Guggenheim has sometimes been criticized for being inhospitable to the art it displays. However, over the past five decades Wright's design has housed a wide variety of exhibitions, from traditional paintings to motorcycles to site-specific installations by contemporary artists. According to former Guggenheim Director Tom Krens, "great architecture has this capacity to adapt to changing functional uses without losing one bit of its dignity or one bit of its original intention. And I think that's the great thing about the building at the end of the day"

(Frank Lloyd Wright: From Within Outward Audioguide [New York: Antenna Audio, Inc. and the Solomon R. Guggenheim Foundation, 2009]).

Up to the very end of his life, Wright carried on a battle to be sure that the Guggenheim embodied his belief in the unity of form and function. On July 15, 1958, less than a year before his death, he wrote a letter that underscored the connection between his design for the Guggenheim and the paintings it would exhibit. "Yes, it is hard... to understand a struggle for harmony and unity between the painting and the building. No, it is not to subjugate the paintings to the building that I conceived this plan. On the contrary, it was to make the building and the painting a beautiful symphony such as never existed in the world of Art before" (Frank Lloyd Wright to Harry Guggenheim, July 15, 1958. From Frank Lloyd Wright: From Within Outward [Exh. cat. New York: Solomon R. Guggenheim Foundation, 2009], p. 268)

In this project, we propose this principle as one of our concept that we try to make some "emotional" spaces to arouse the resonate of people who is getting there.

To reach this concept, some excellent projects focusing on space are also studied by us.

4. PROJECT

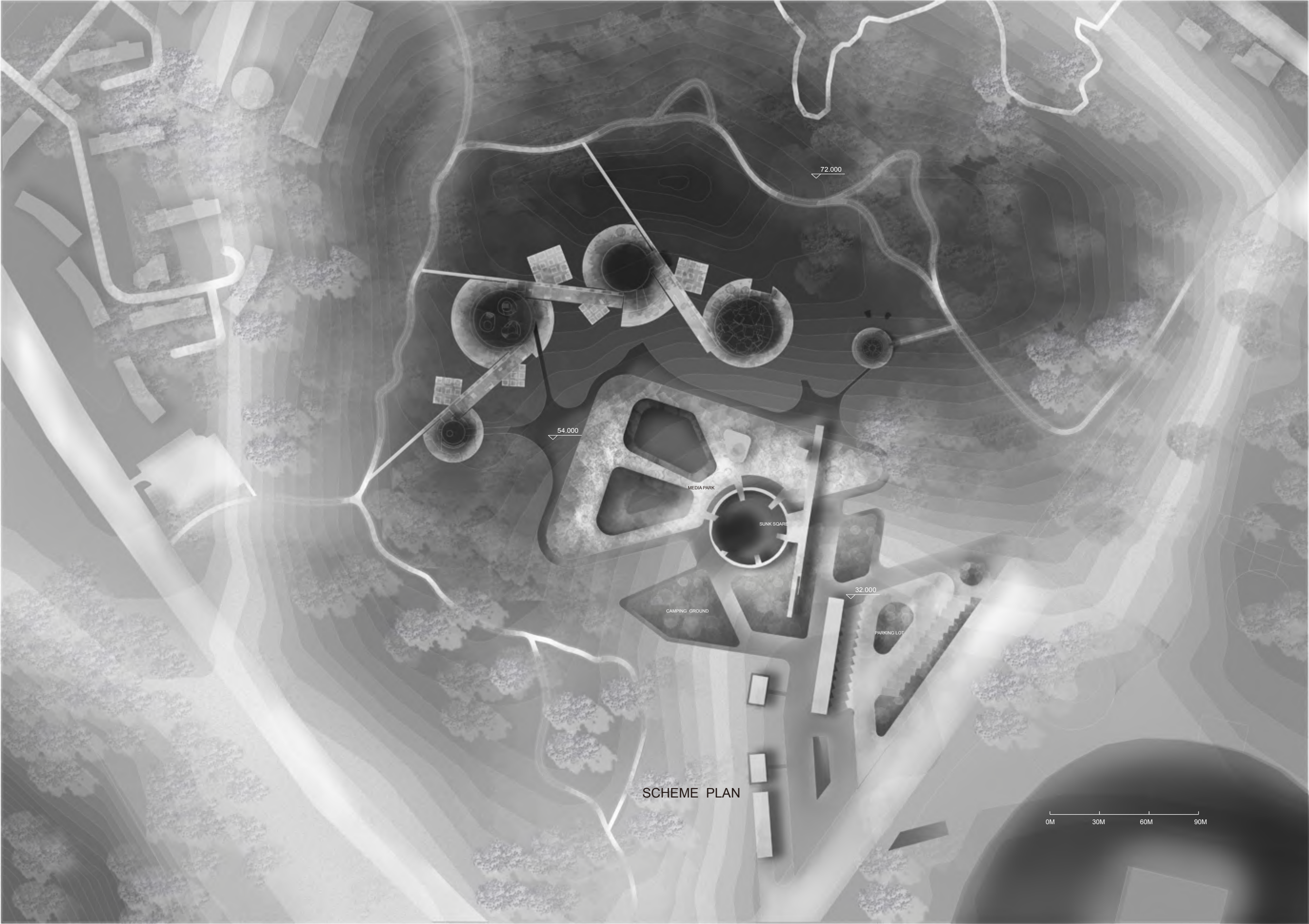
Master plan

Plan

Section

Elevation

Single object



72.000

54.000

32.000

MEDIA PARK

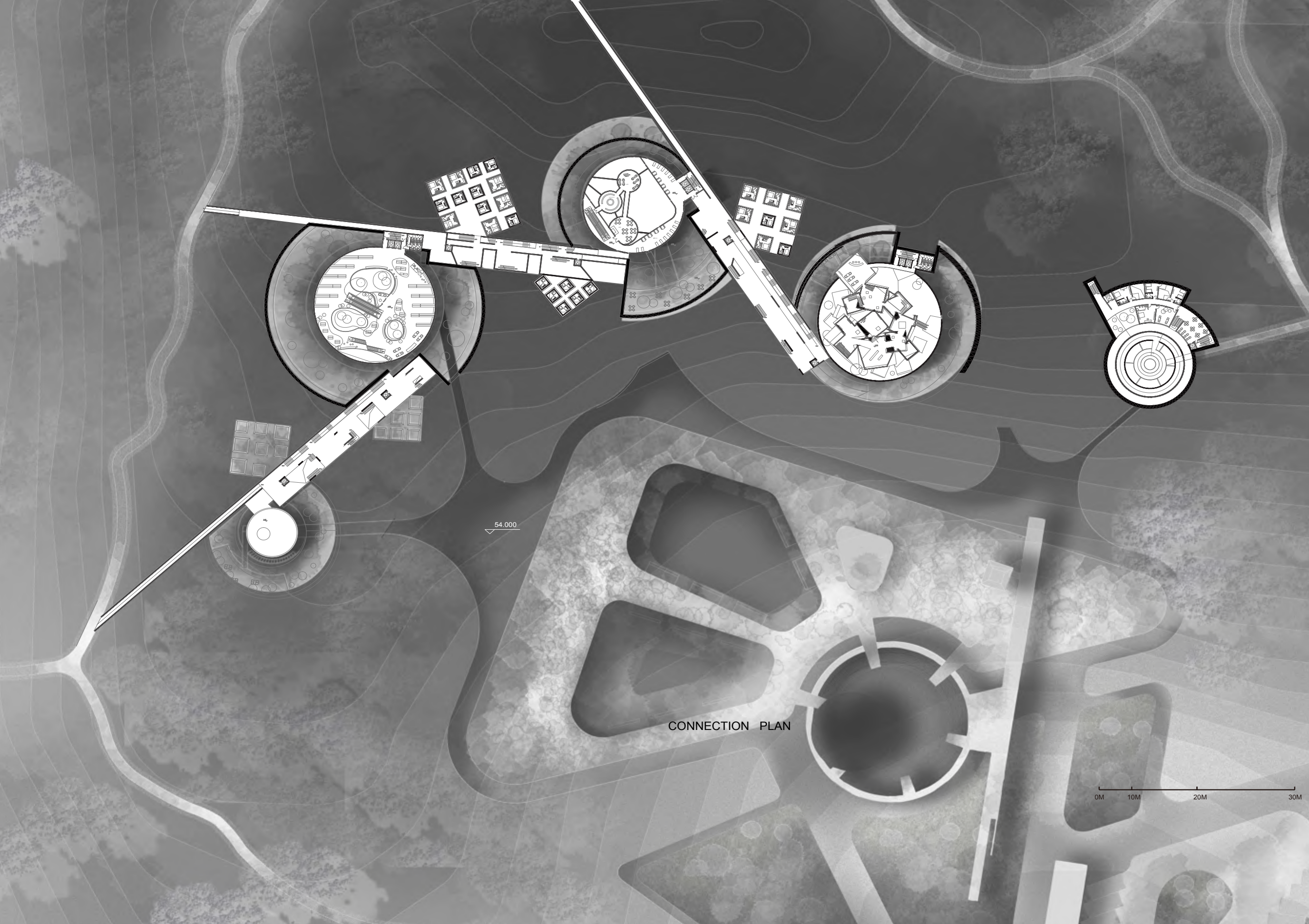
SUNK SQUARE

CAMPING GROUND

PARKING LOT

SCHEME PLAN

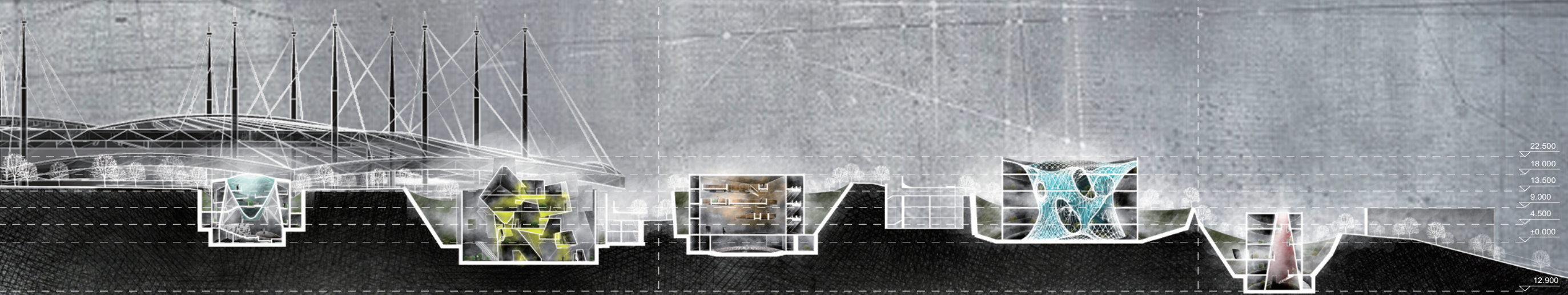
0M 30M 60M 90M



54.000

CONNECTION PLAN

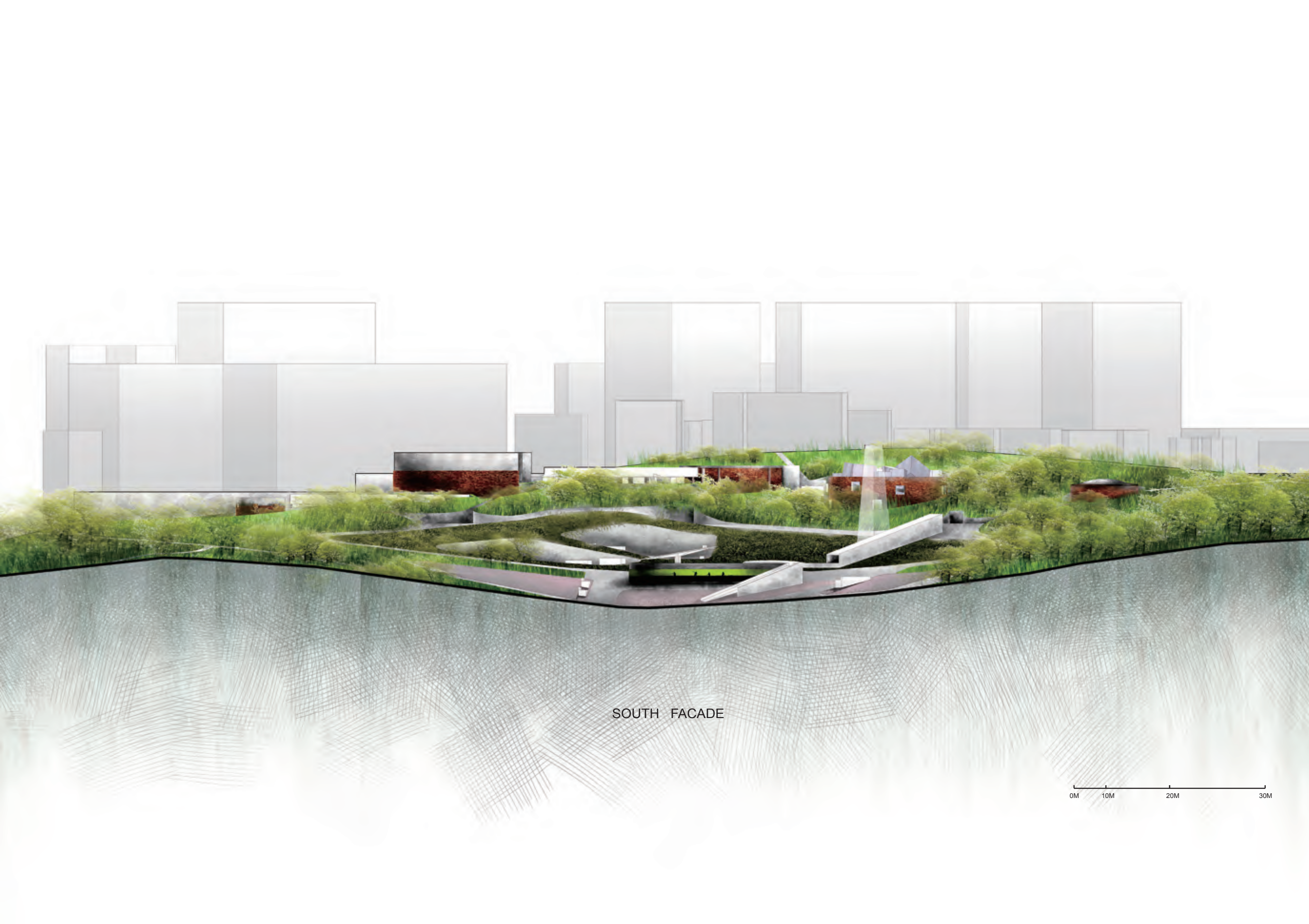
0M 10M 20M 30M



SECTION B-B

0M 10M 20M 30M

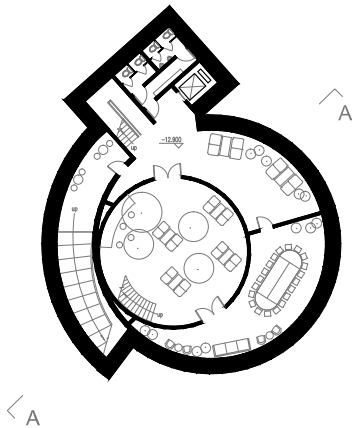
22.500
18.000
13.500
9.000
4.500
±0.000
-12.900



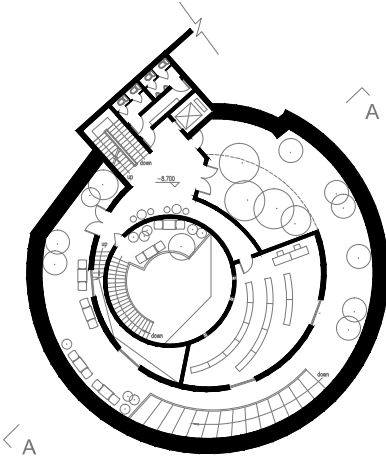
SOUTH FACADE

0M 10M 20M 30M

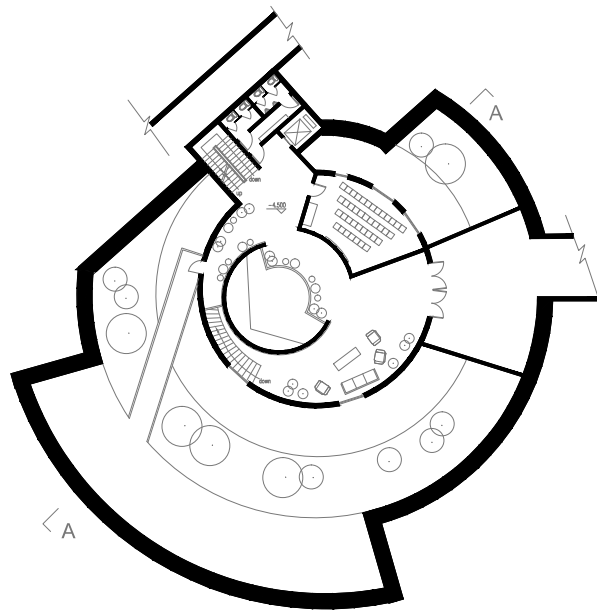
Tank 1 - OFFICE



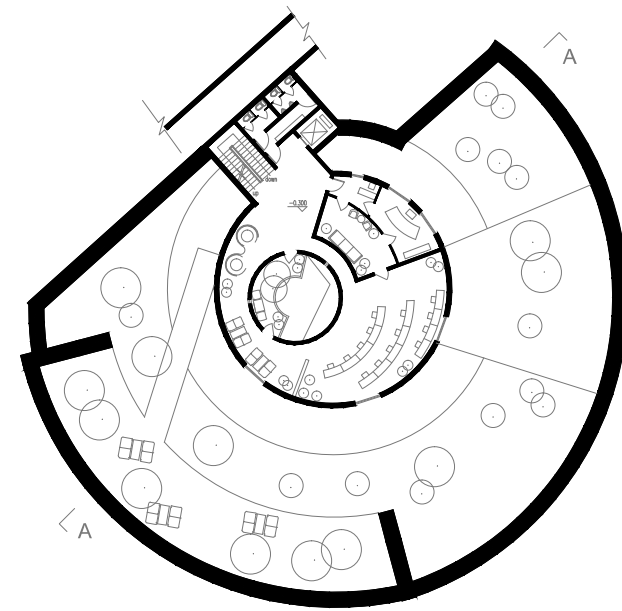
underground floor plan 1:500



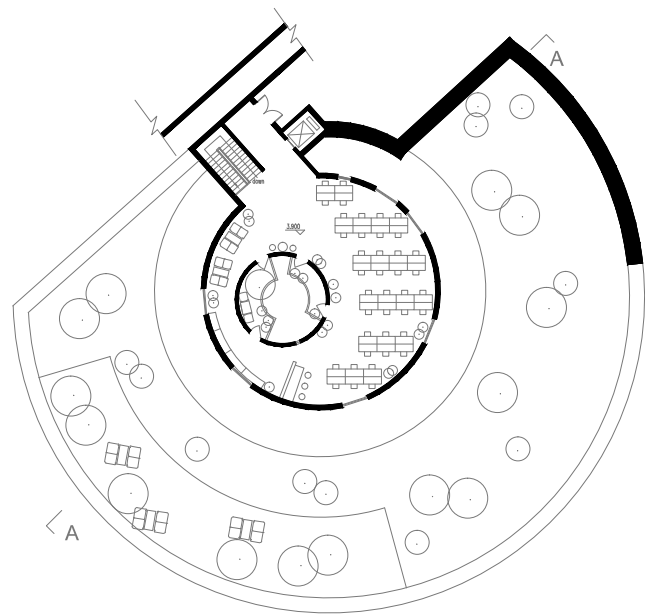
ground floor plan 1:500



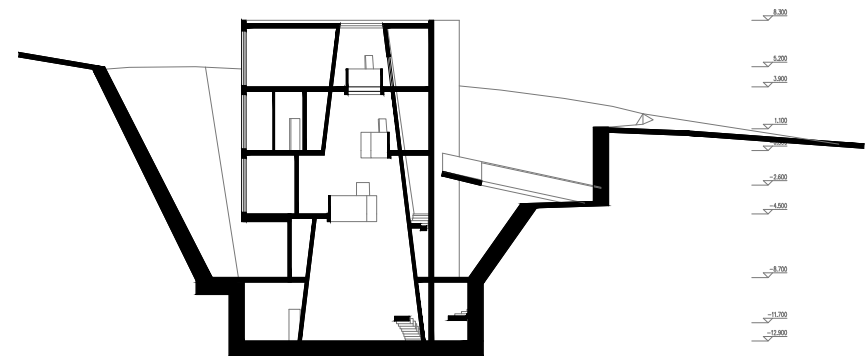
first floor plan 1:500



Second floor plan 1:500

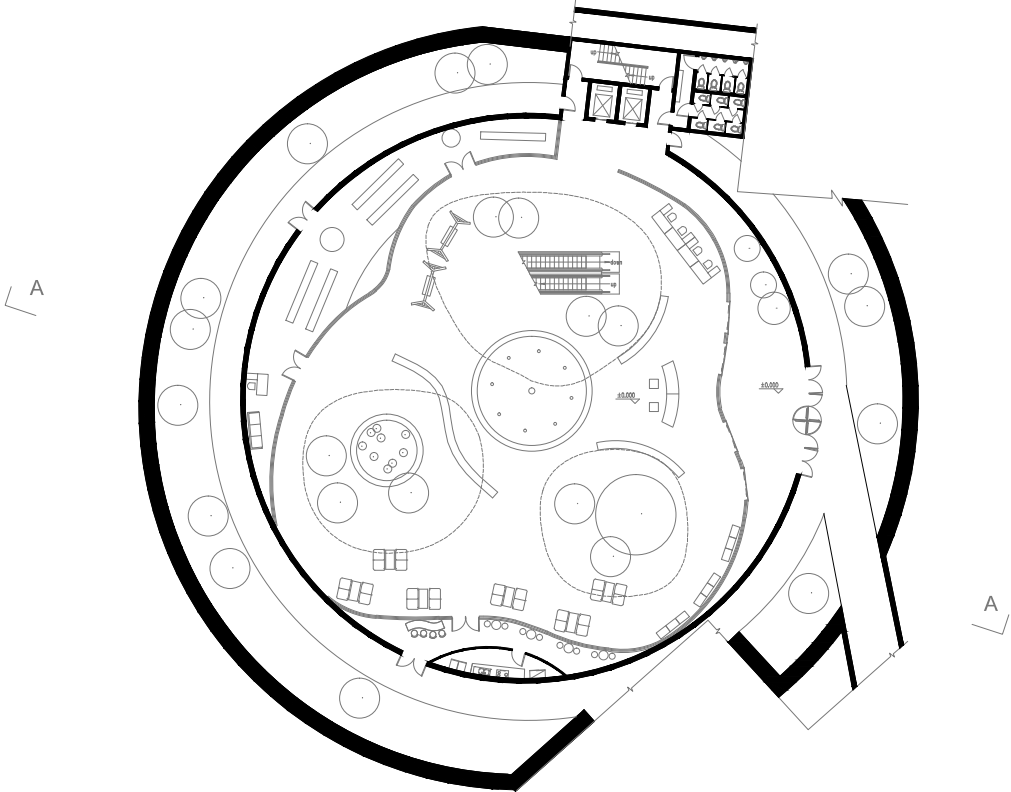


Third floor plan 1:500

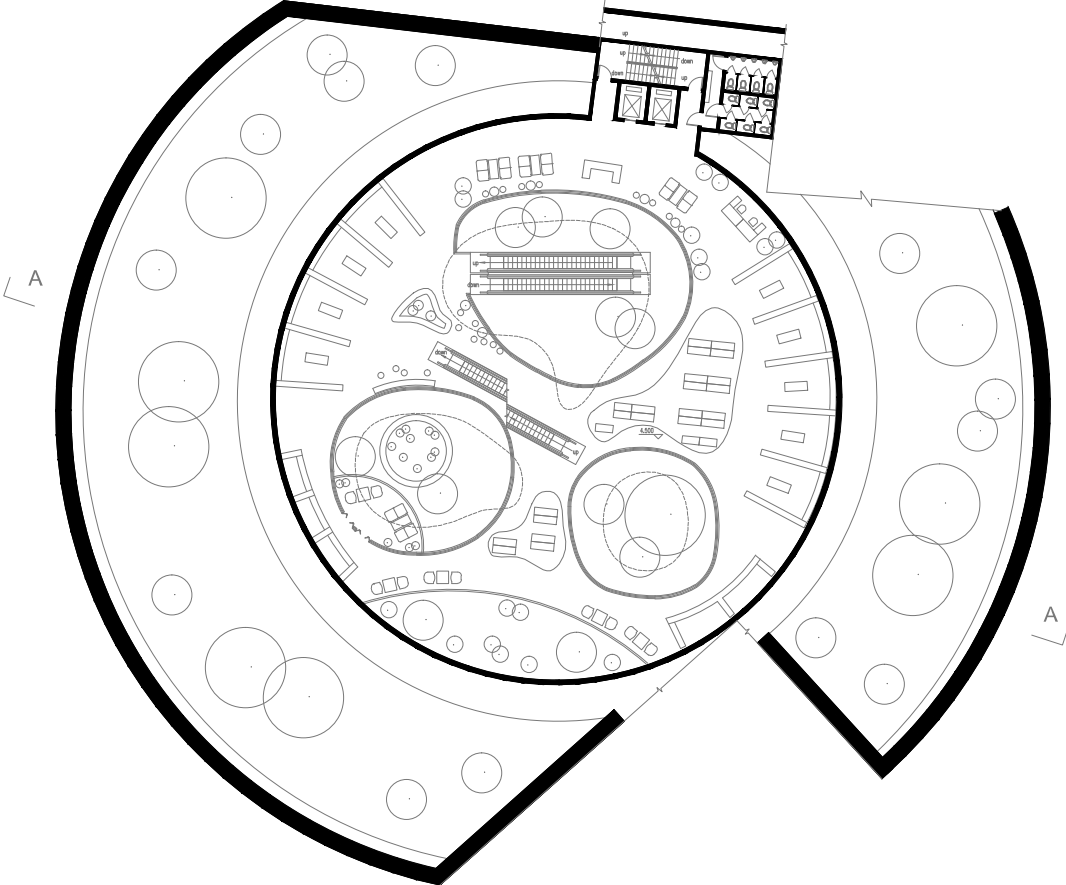


Section A-A 1:500

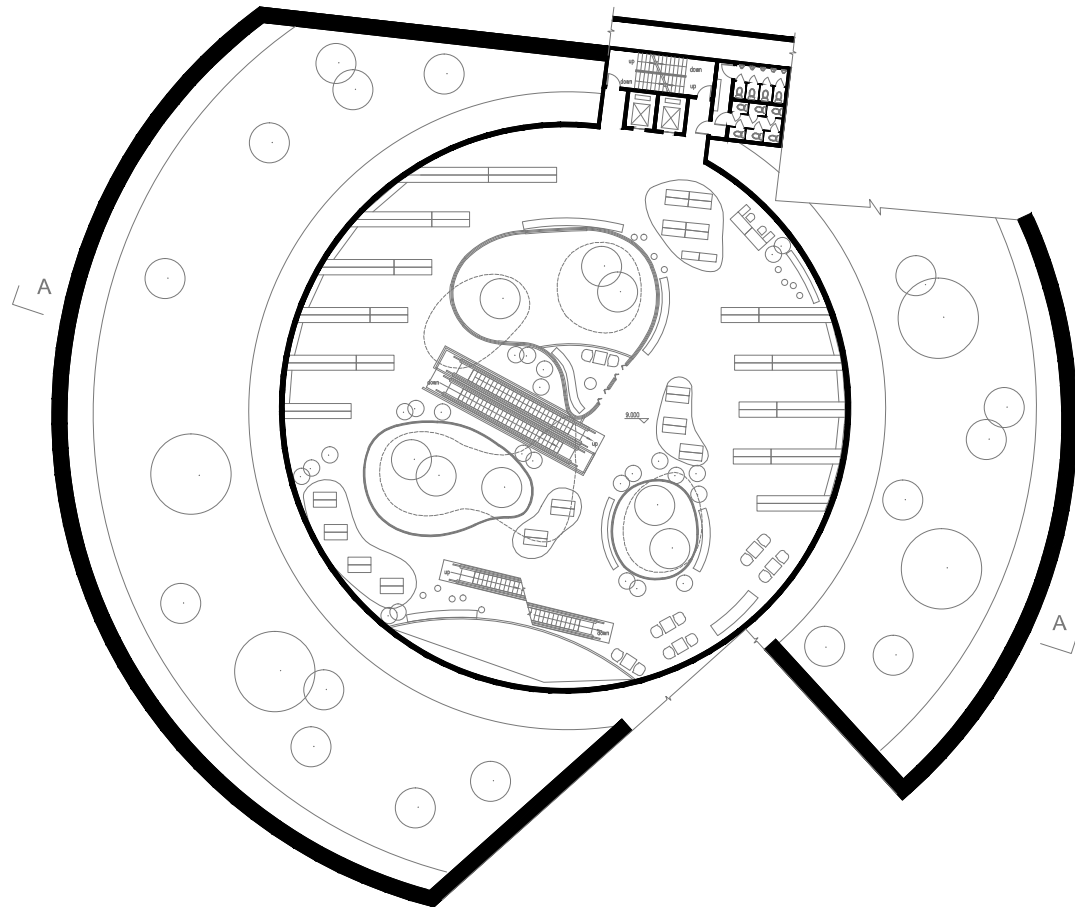
Tank 2 - SHOPPING MALL



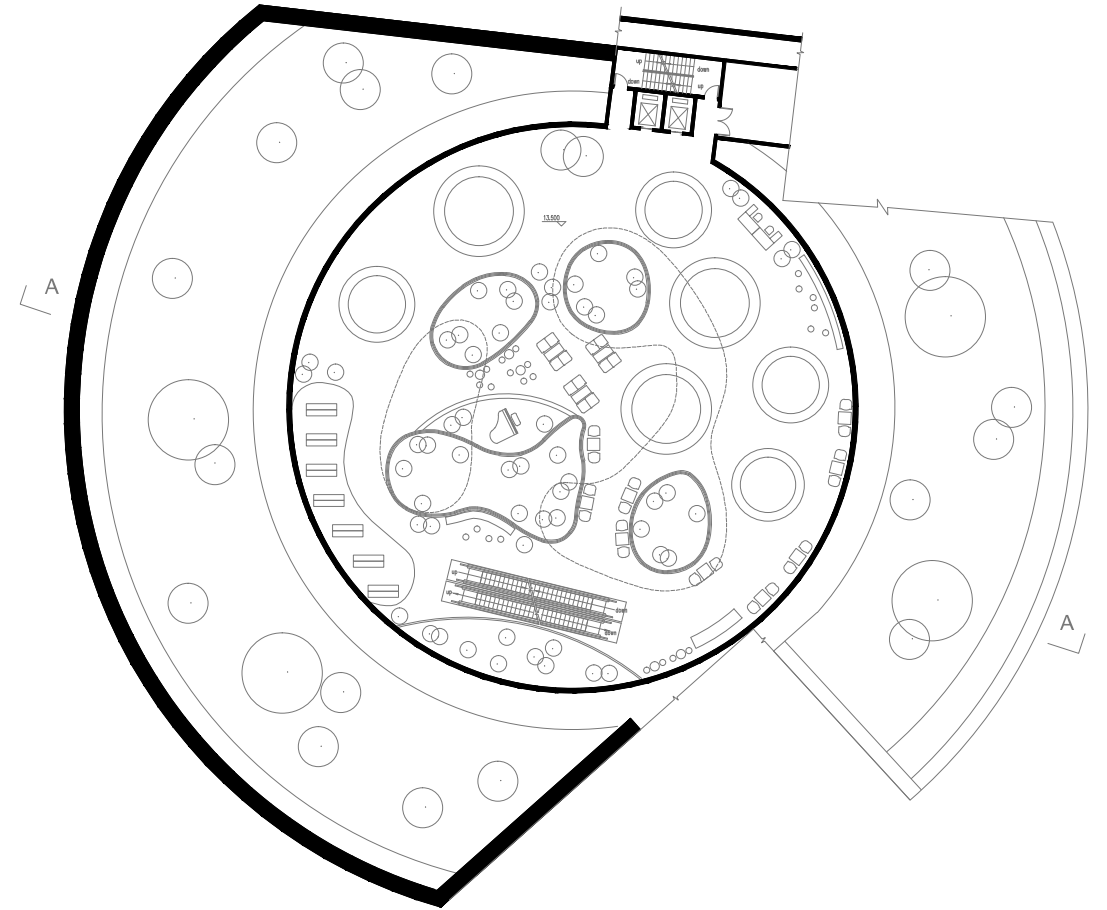
ground floor plan 1:500



first floor plan 1:500

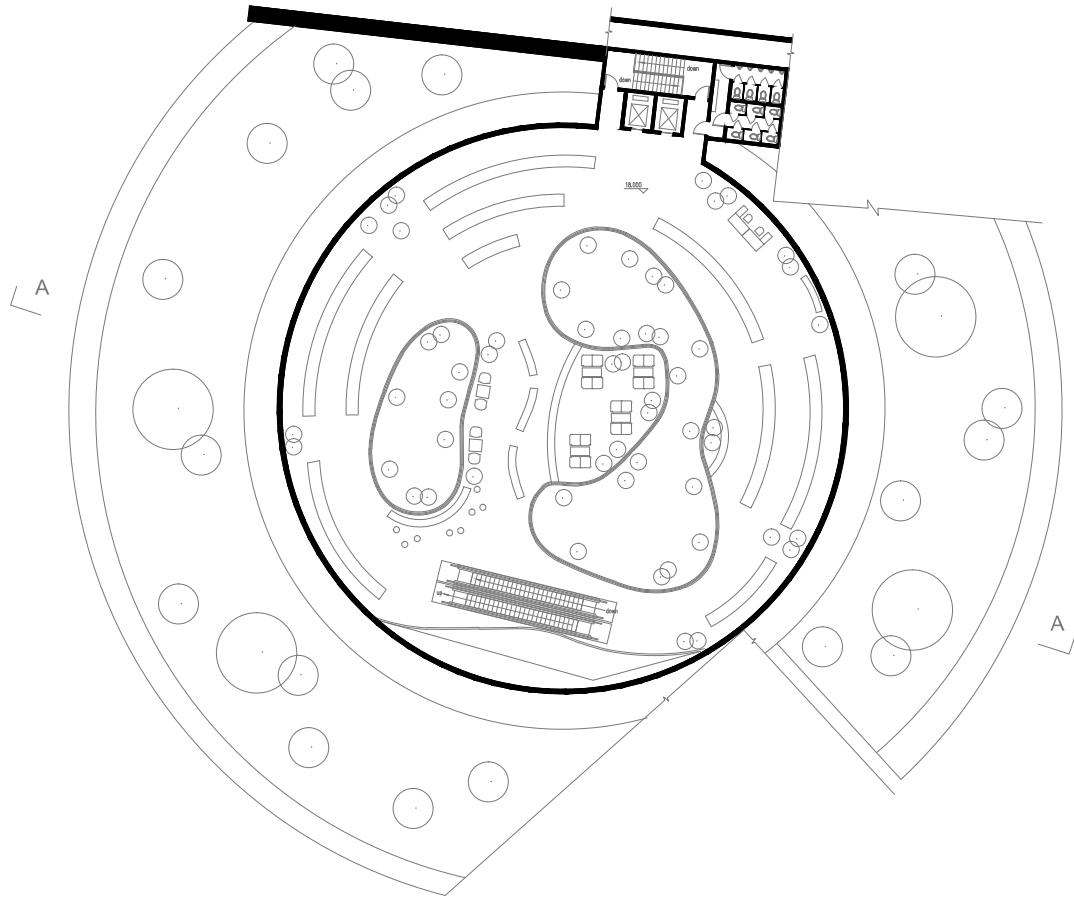


Second floor plan 1:500

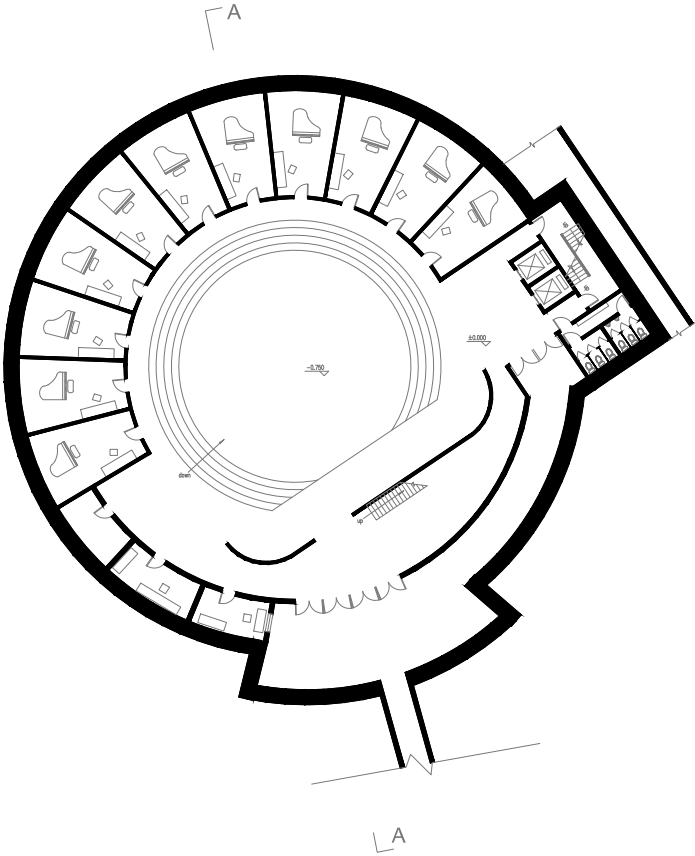


Third floor plan 1:500

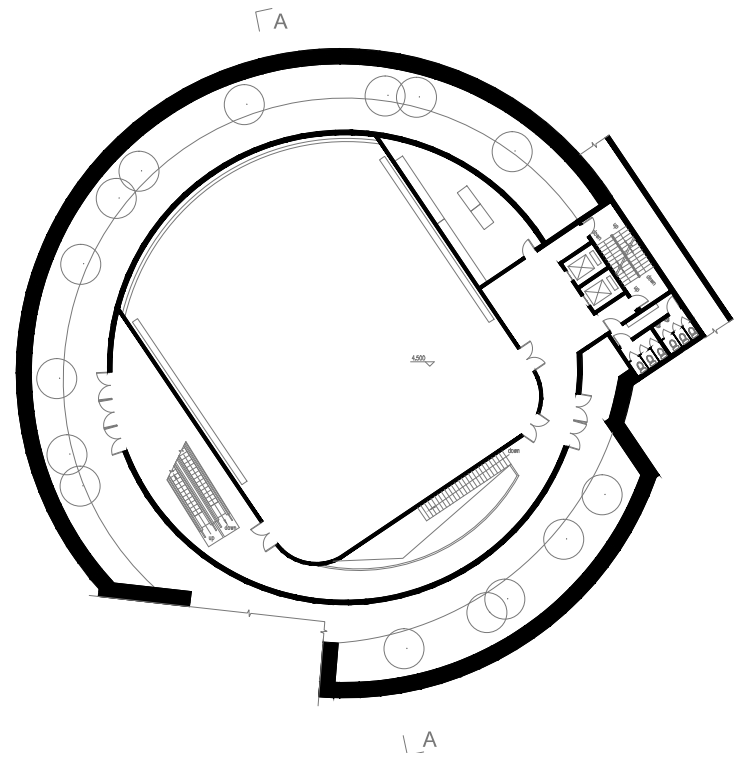
Tank 3 - ACTIVITY CENTER



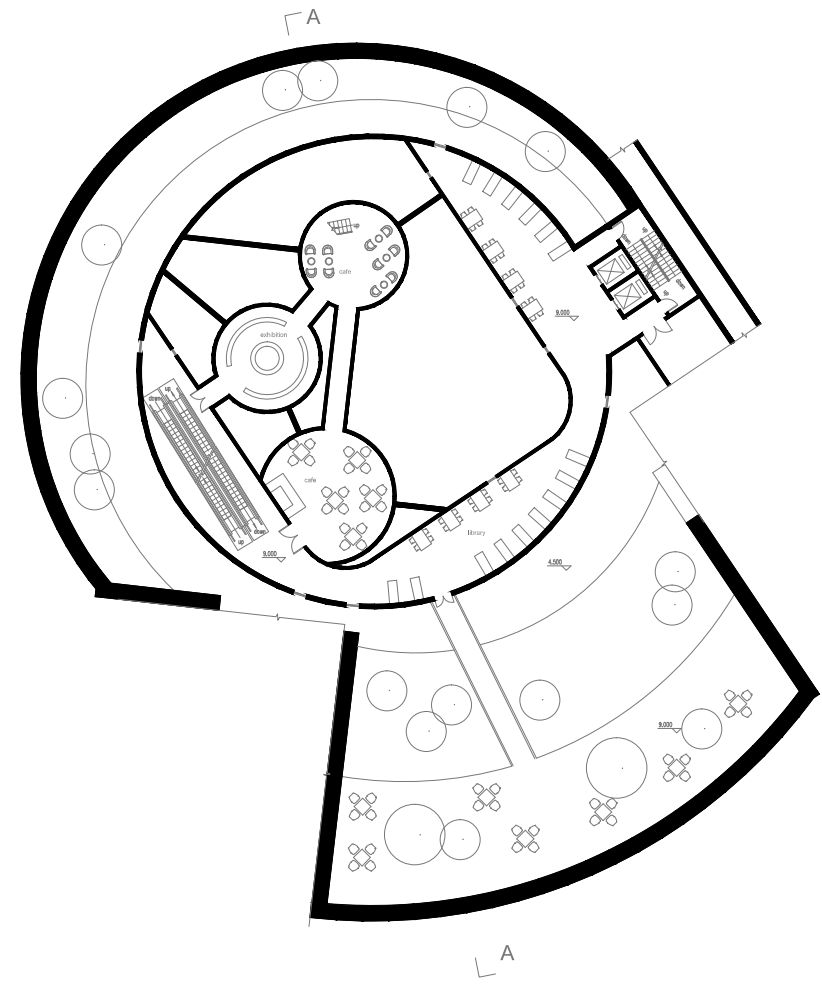
Fourth floor plan 1:500



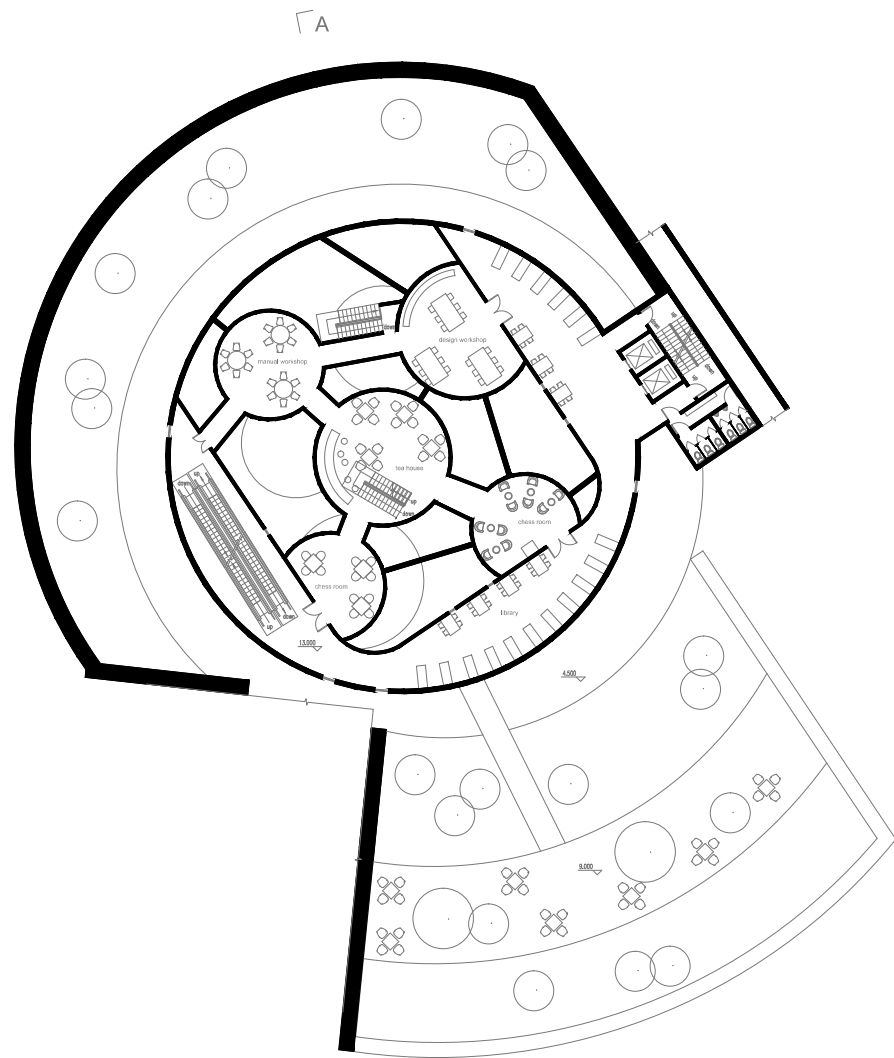
Underground floor plan 1:500



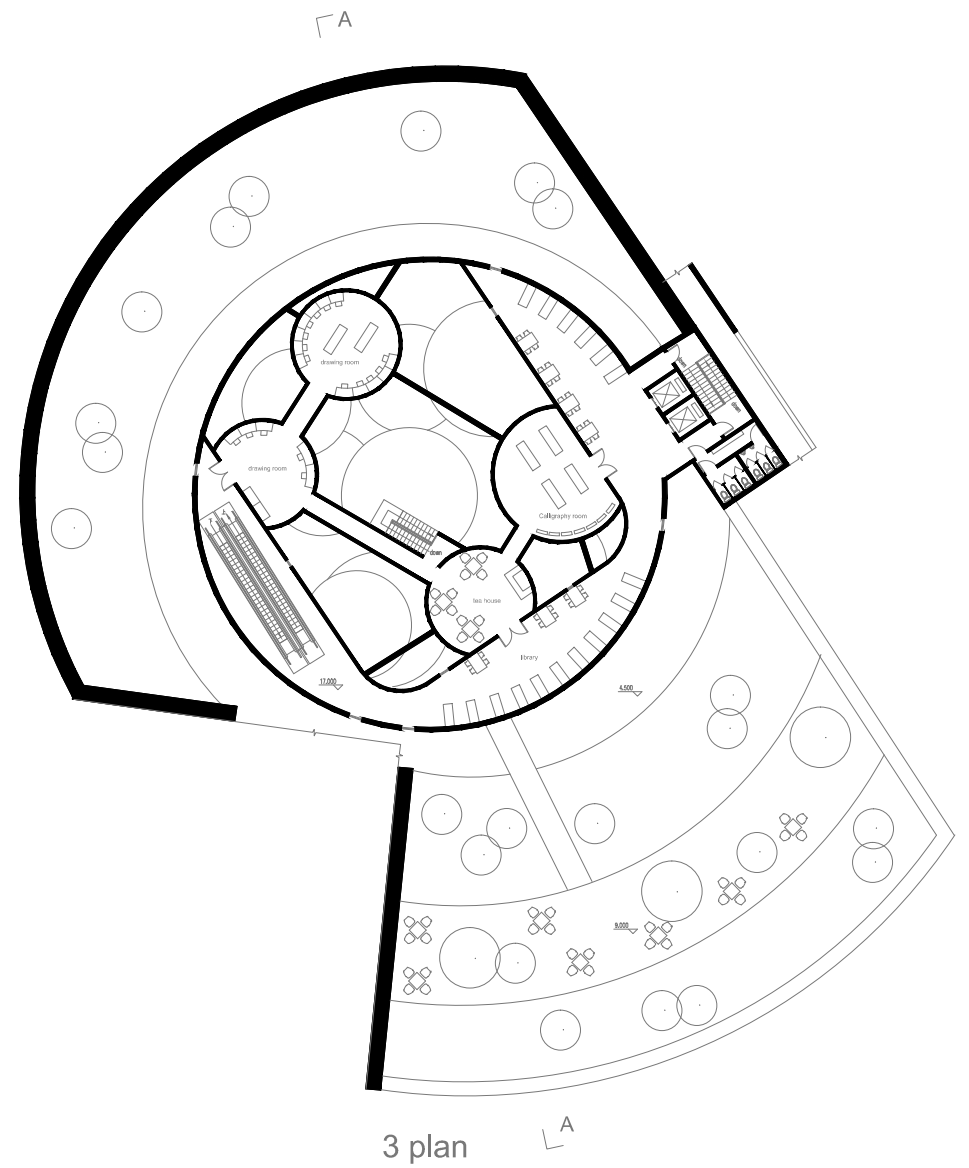
Ground floor plan 1:500



First floor plan 1:500

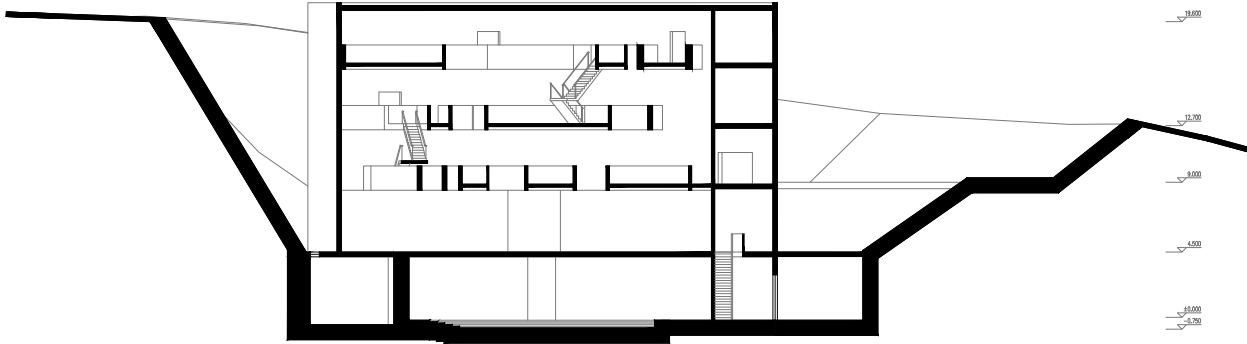


Second floor plan 1:500

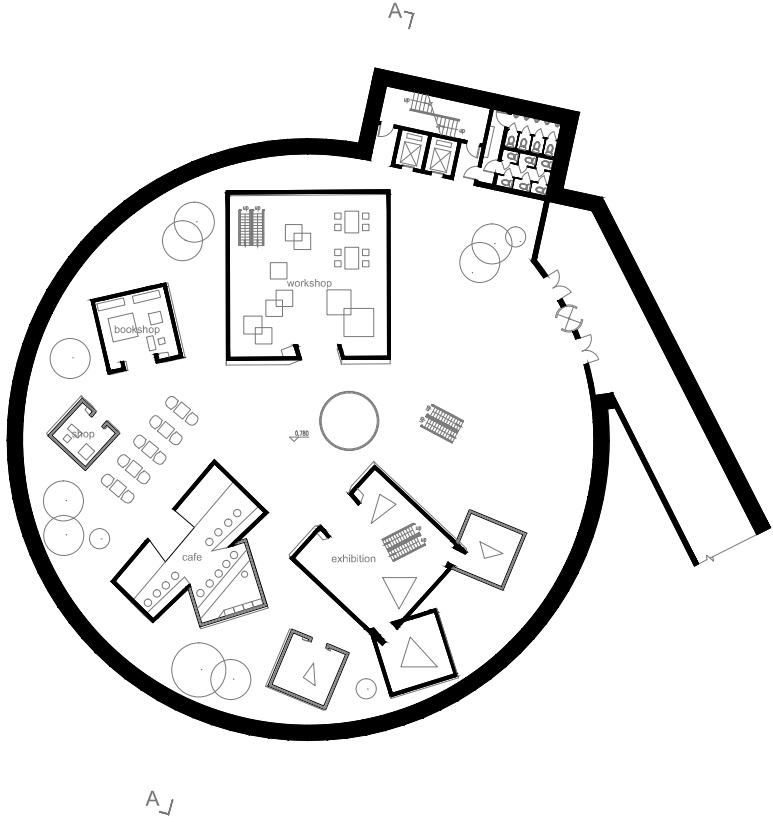


Third floor plan 1:500

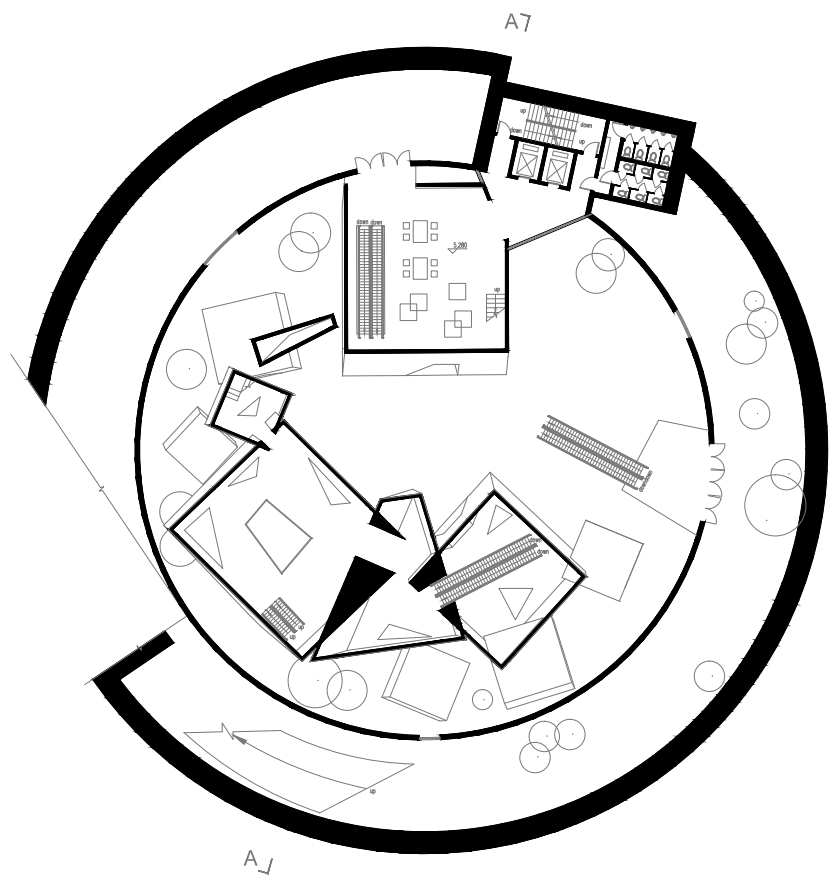
Tank 4 - EXHIBITION



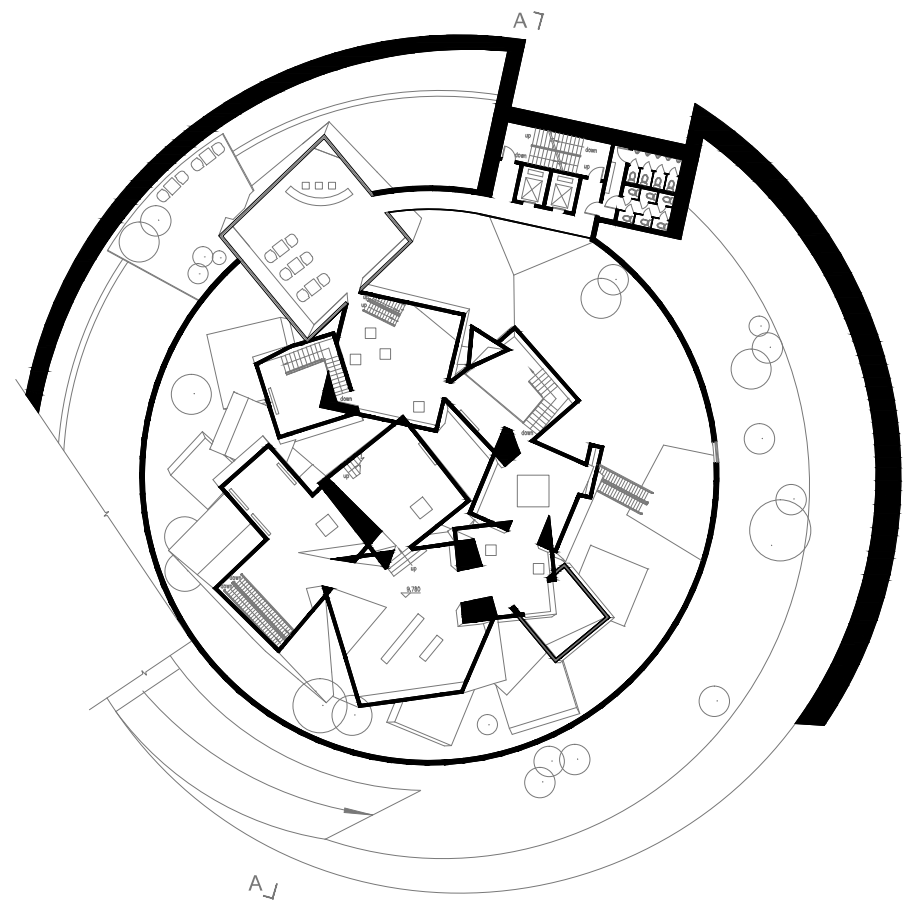
Section A-A 1:500



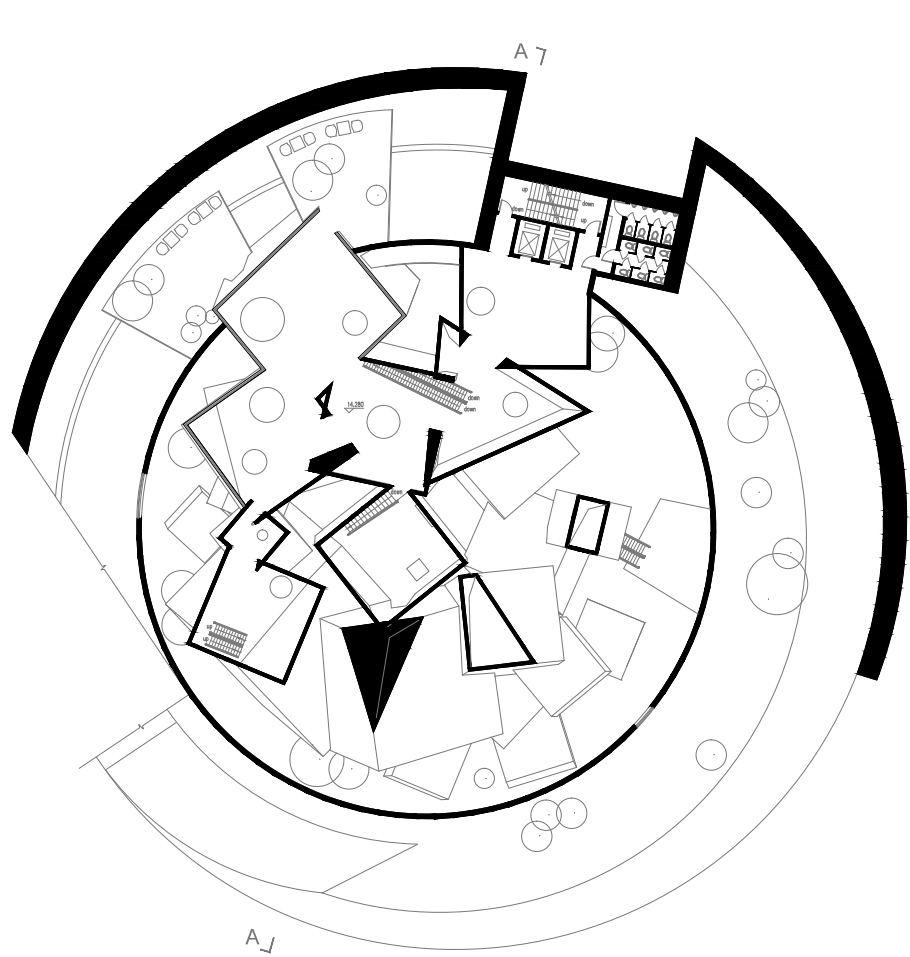
Underground floor plan 1:500



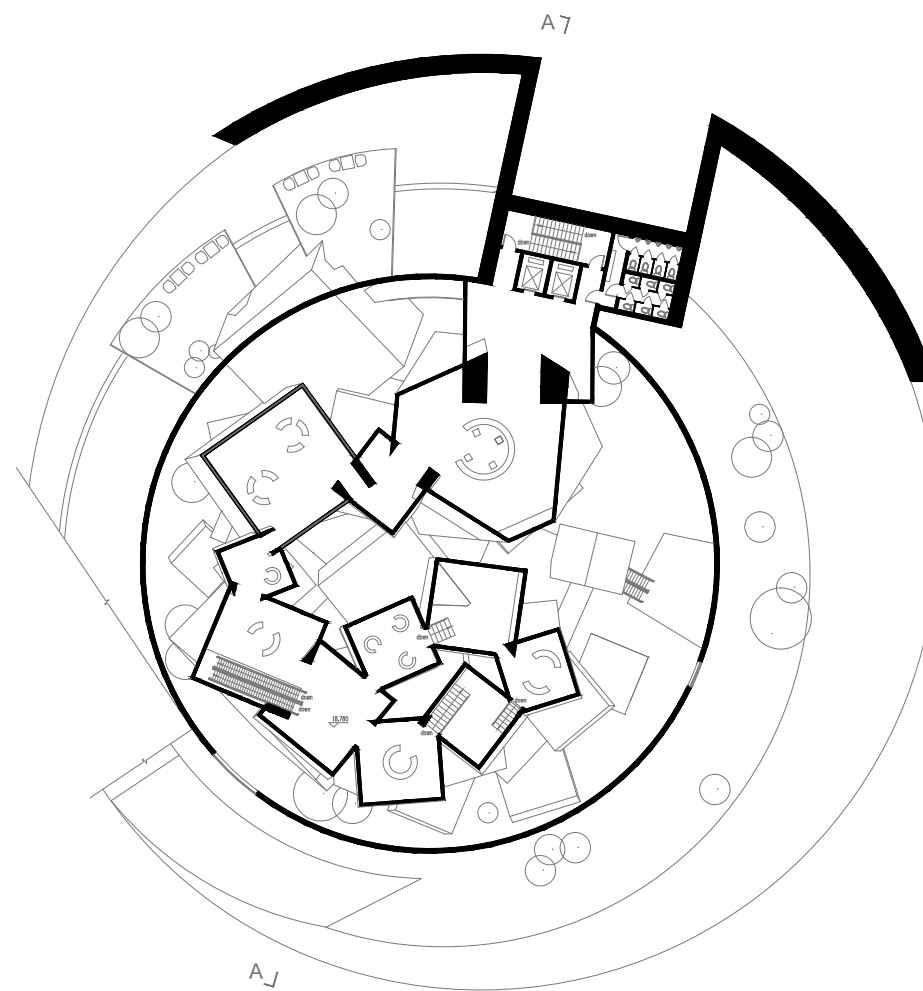
Ground floor plan 1:500



First floor plan 1:500

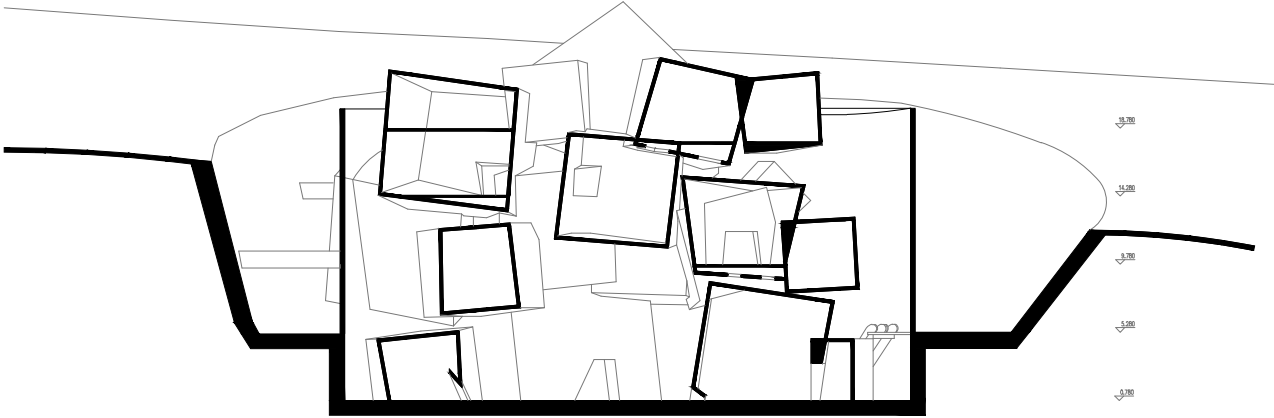


Second floor plan 1:500

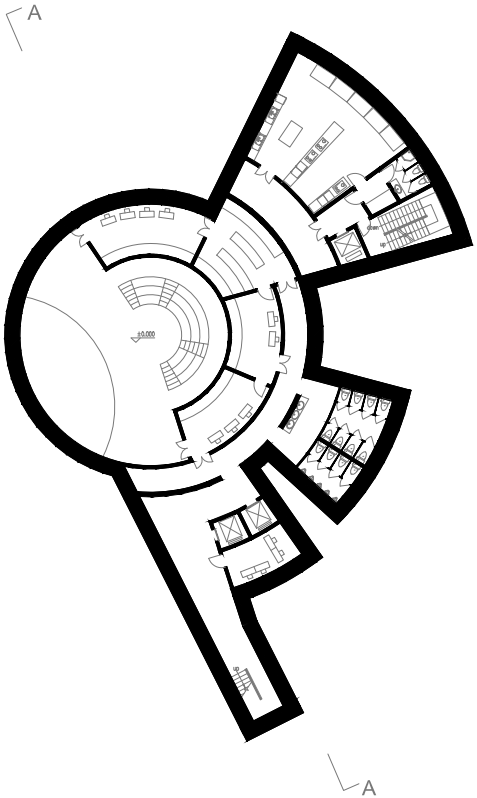


Third floor plan 1:500

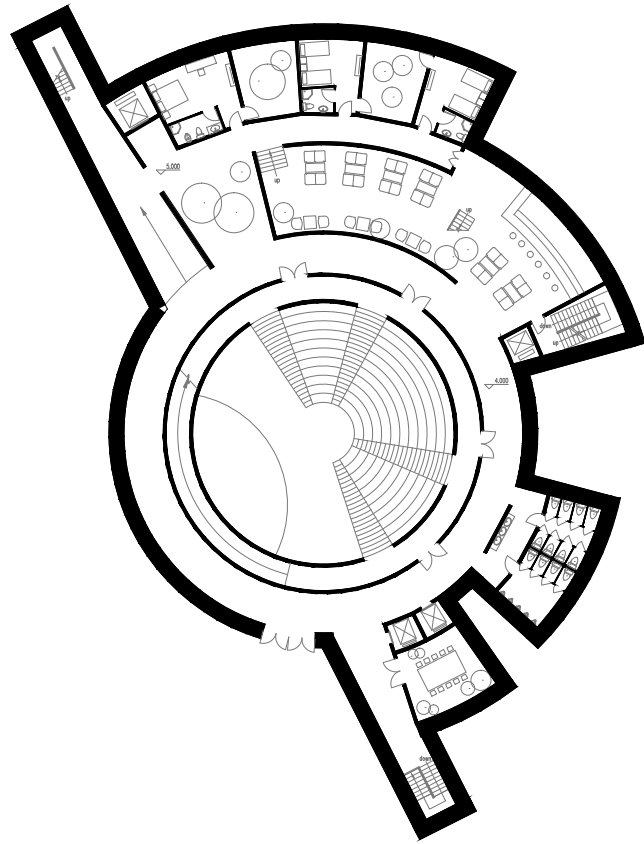
Tank 4 - CONFERENCE CENTER



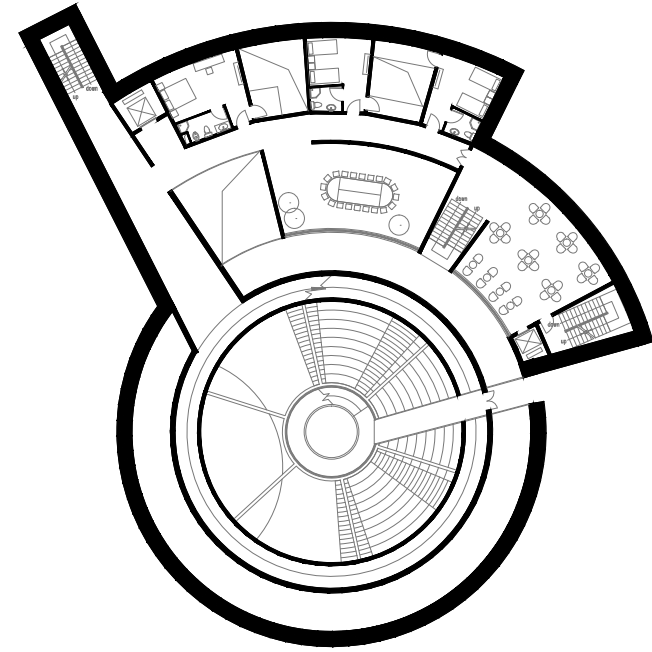
Section A-A 1:500



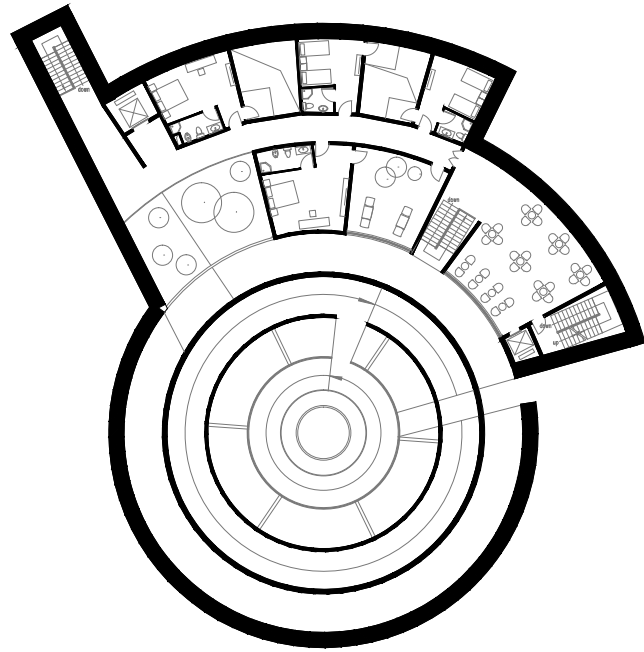
Underground floor plan 1:500



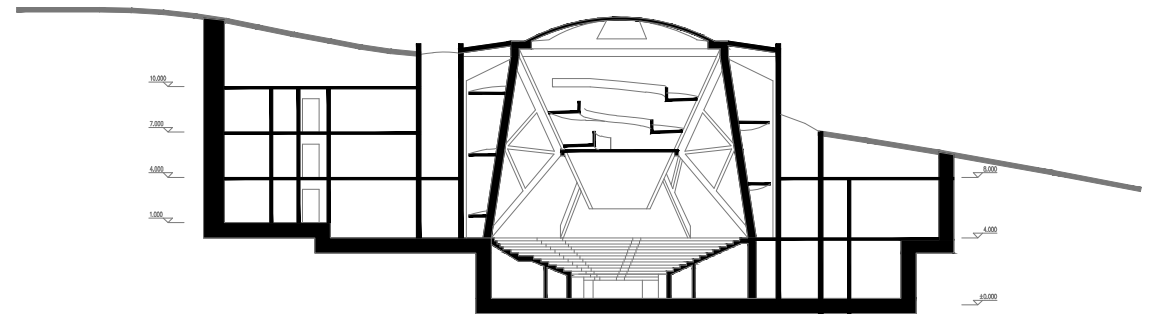
Ground floor plan 1:500



First floor plan 1:500

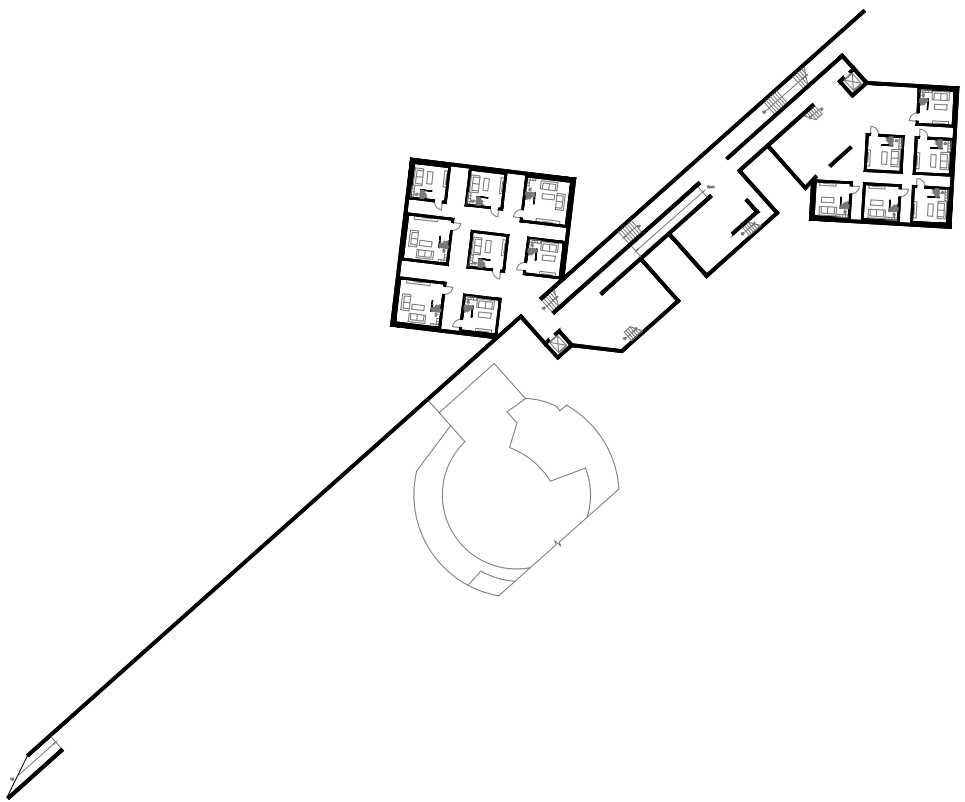


Second floor plan 1:500

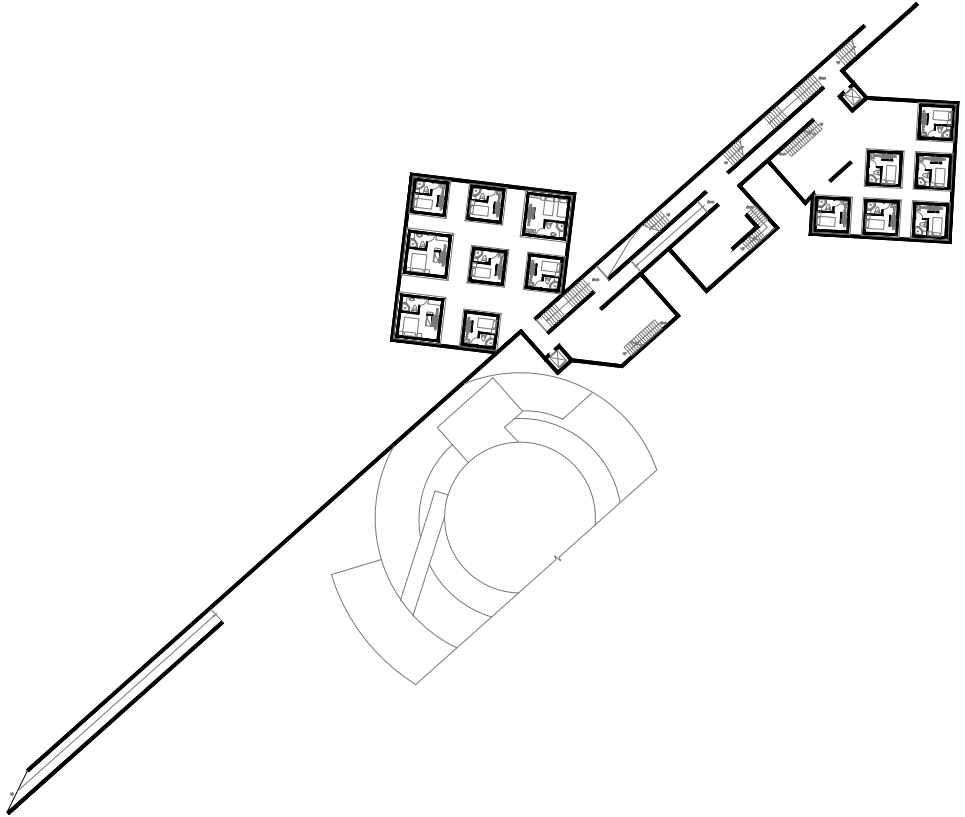


Section A-A 1:500

CONNECTION 1

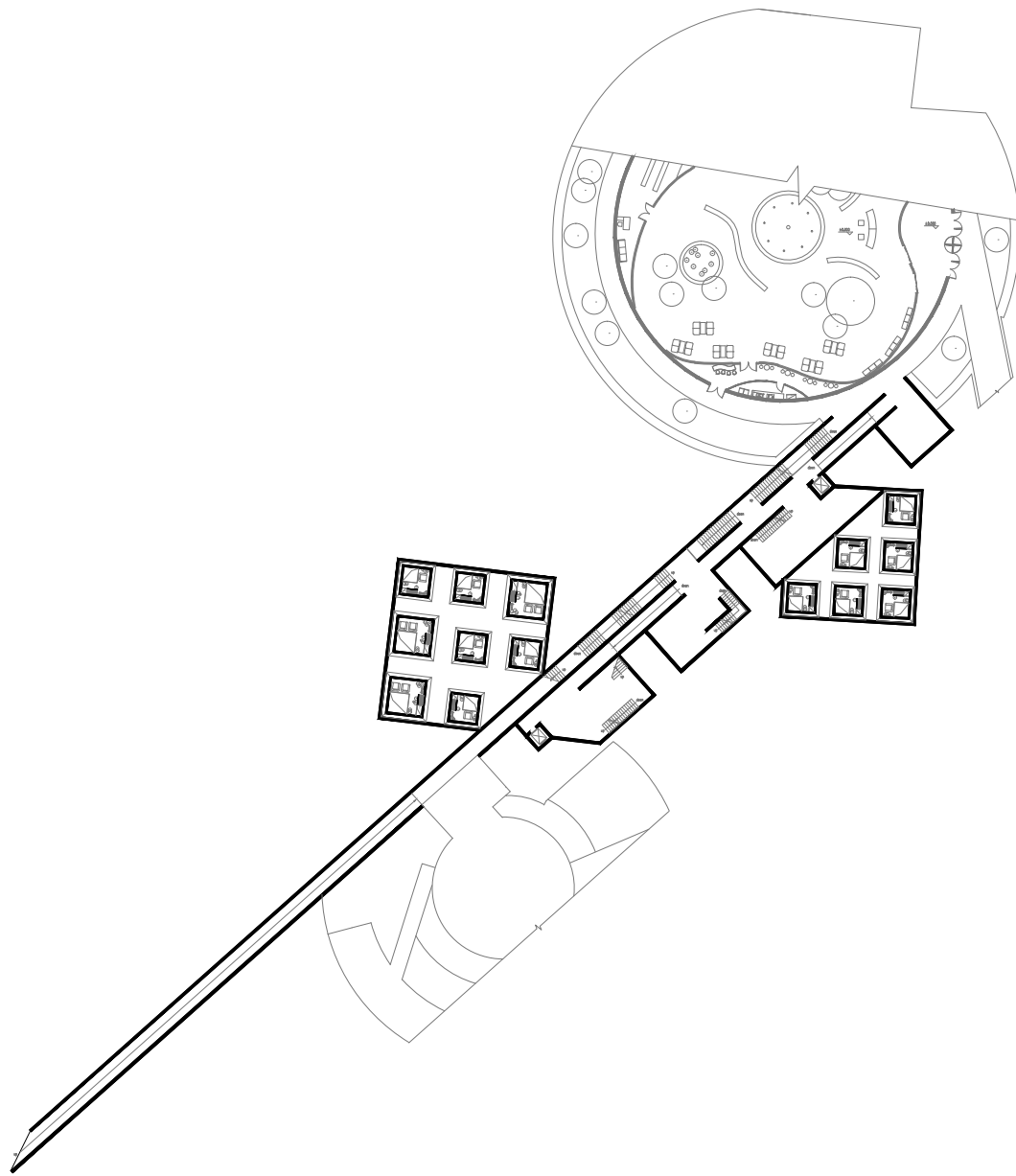


-3 floor plan 1:800



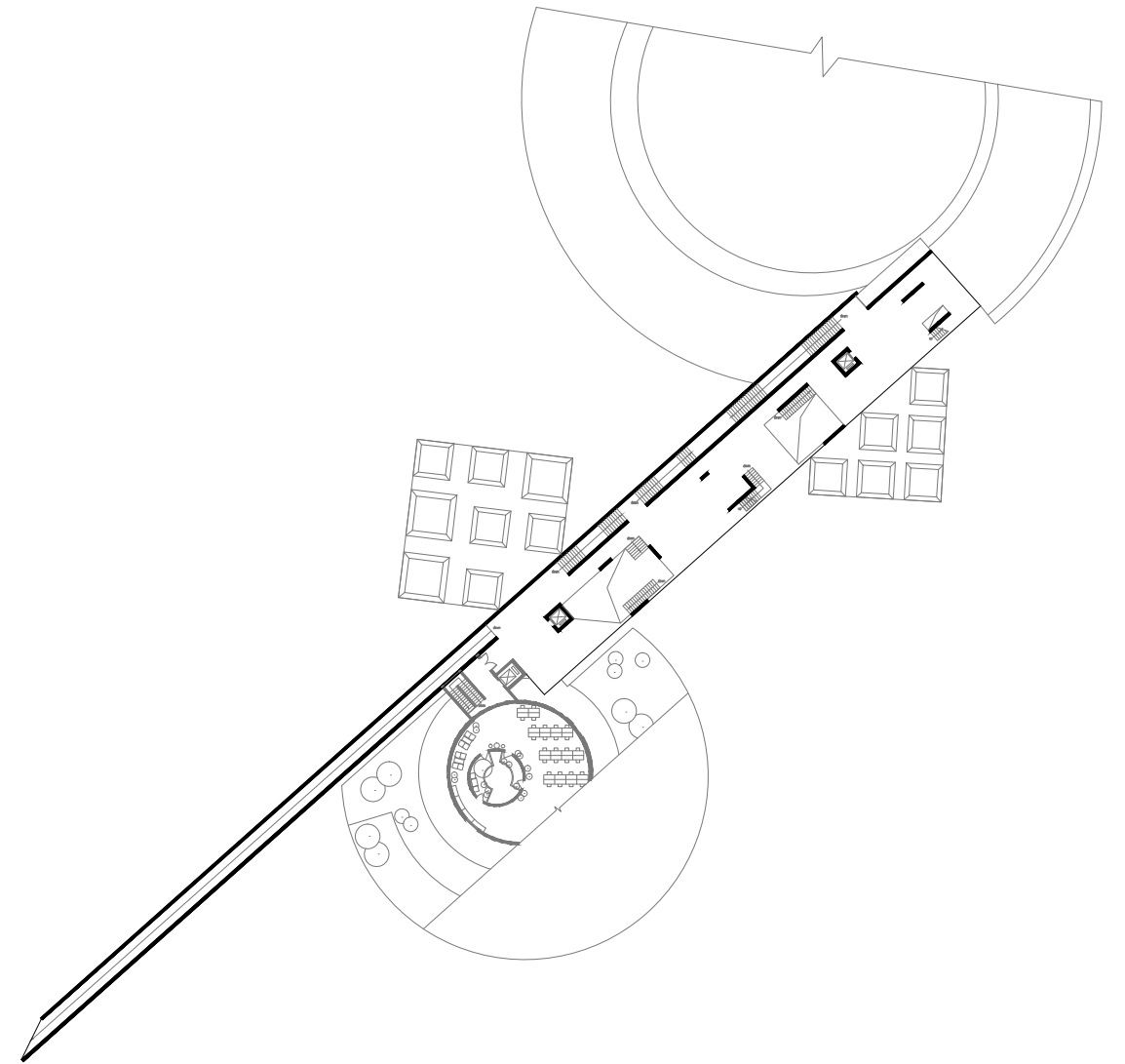
-2 plan

-2 floor plan 1:800



-1 plan

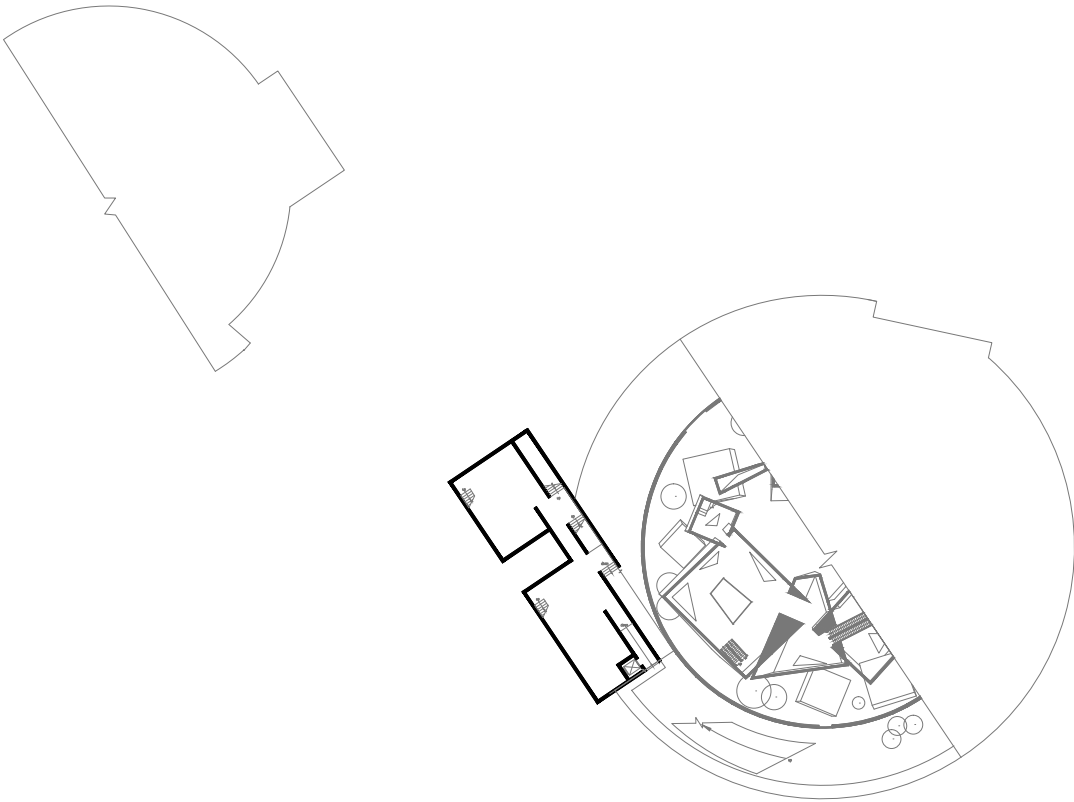
-1 floor plan 1:800



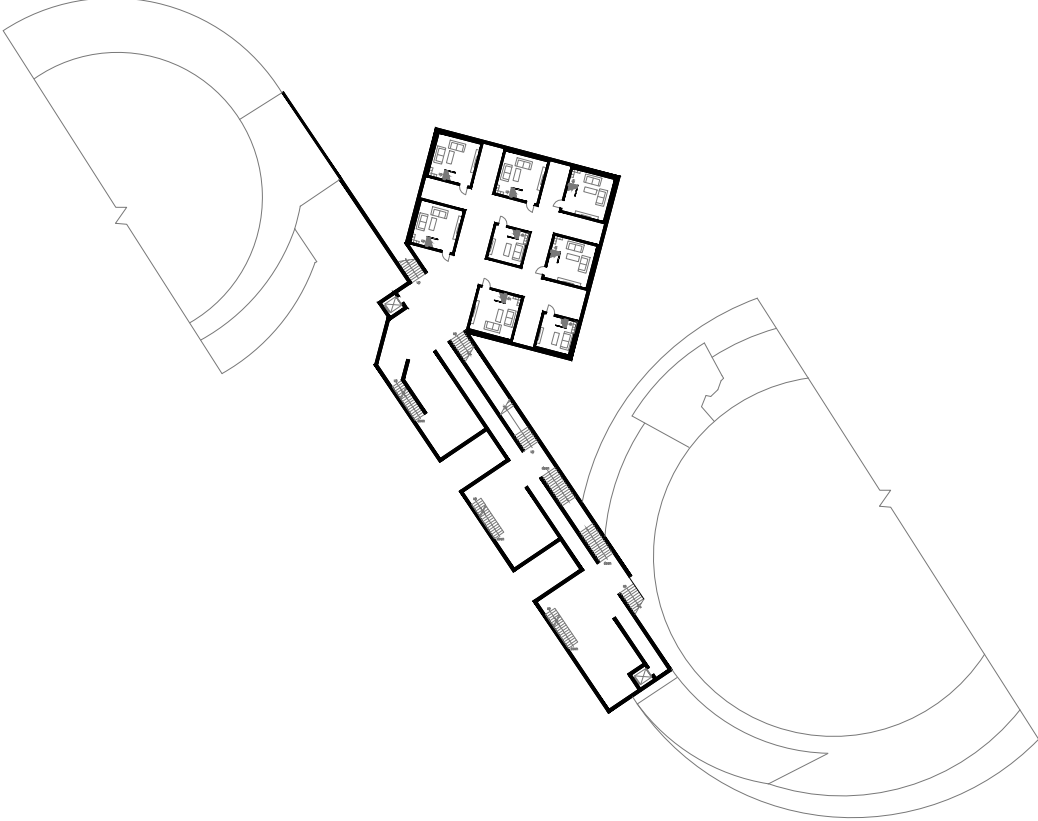
0 plan

0 floor plan 1:800

CONNECTION 2

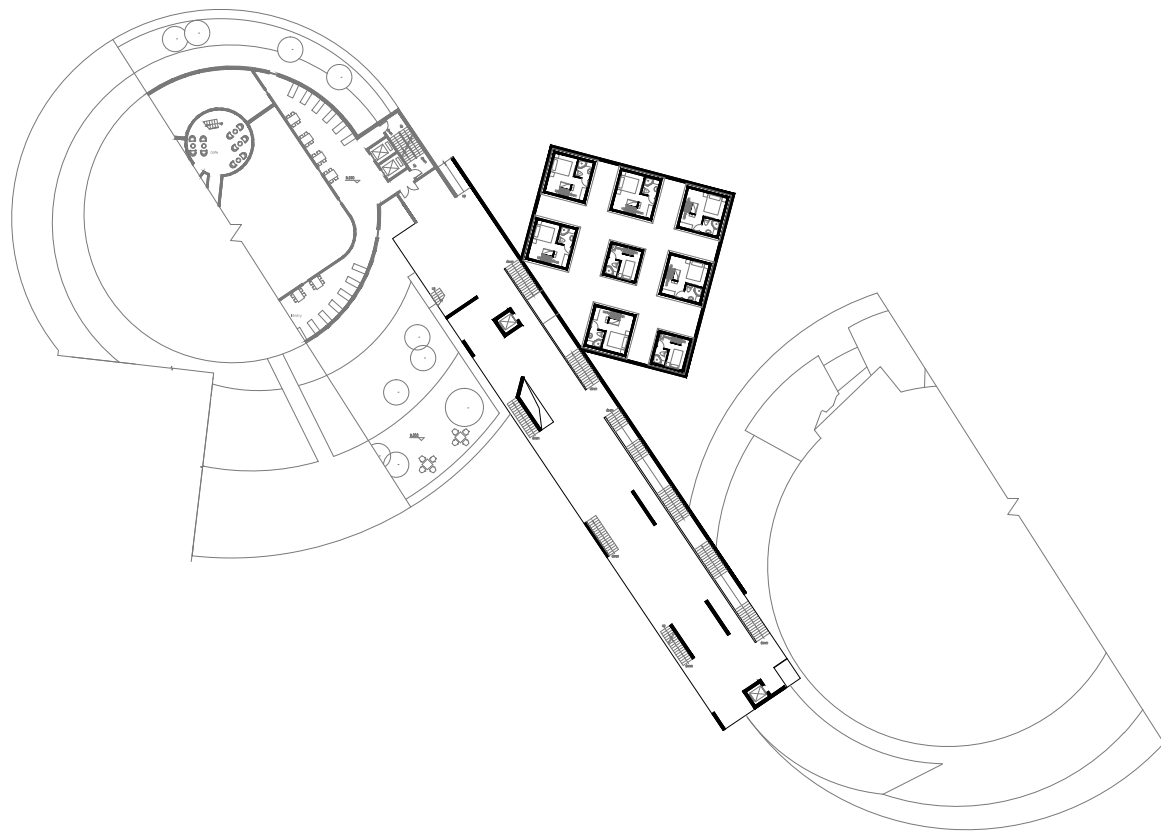


-3 floor plan 1:800



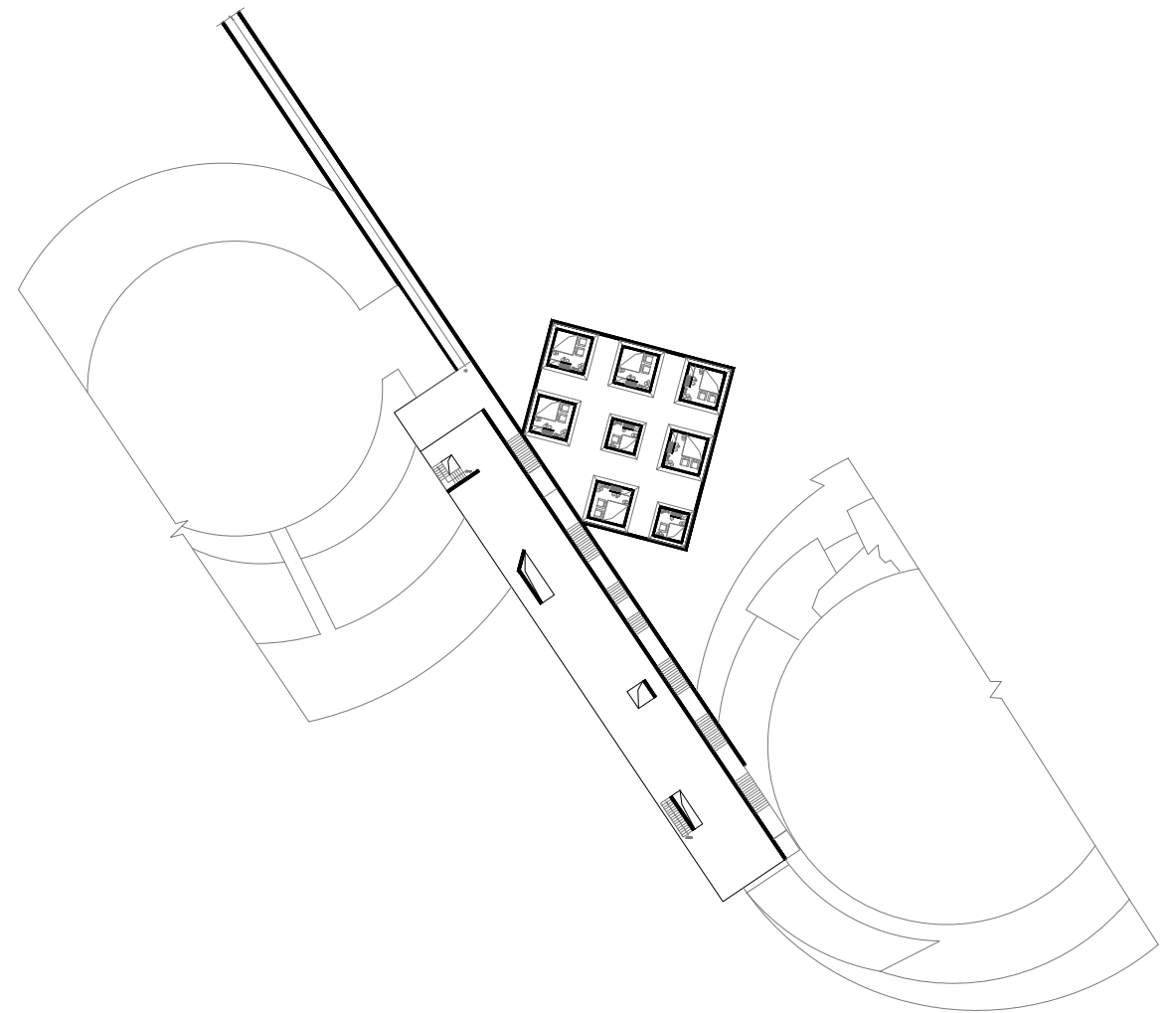
-2 plan

-2 floor plan 1:800



-1 plan

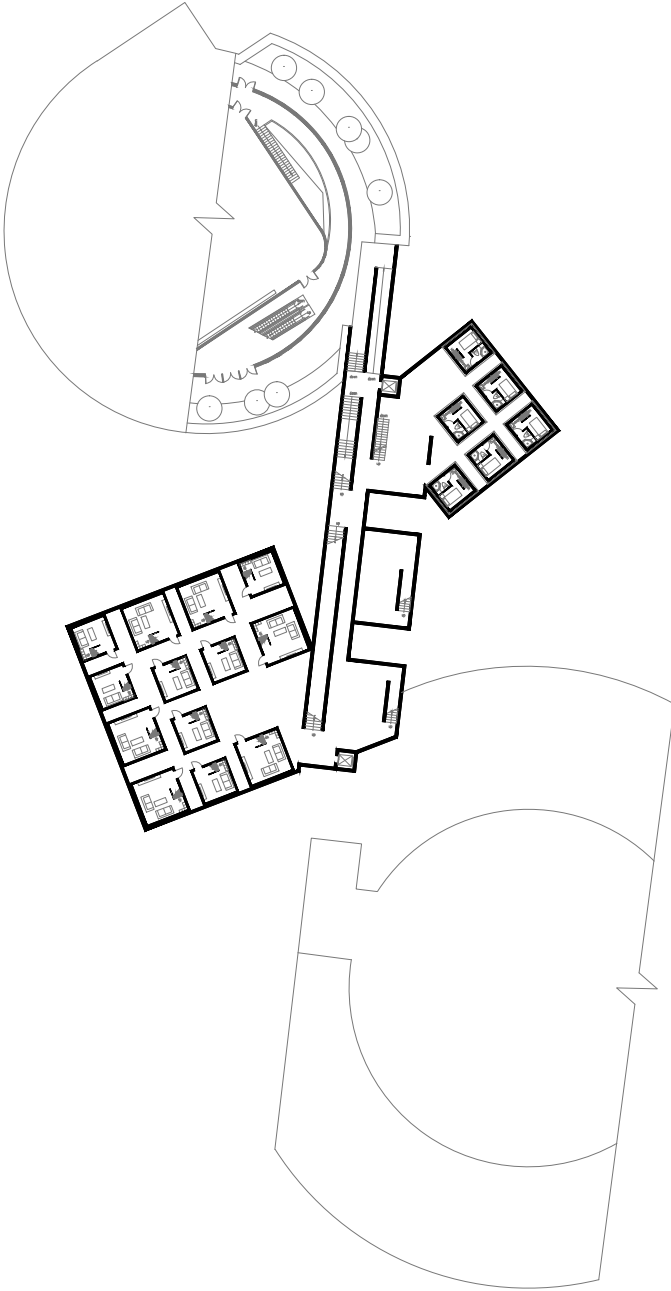
-1 floor plan 1:800



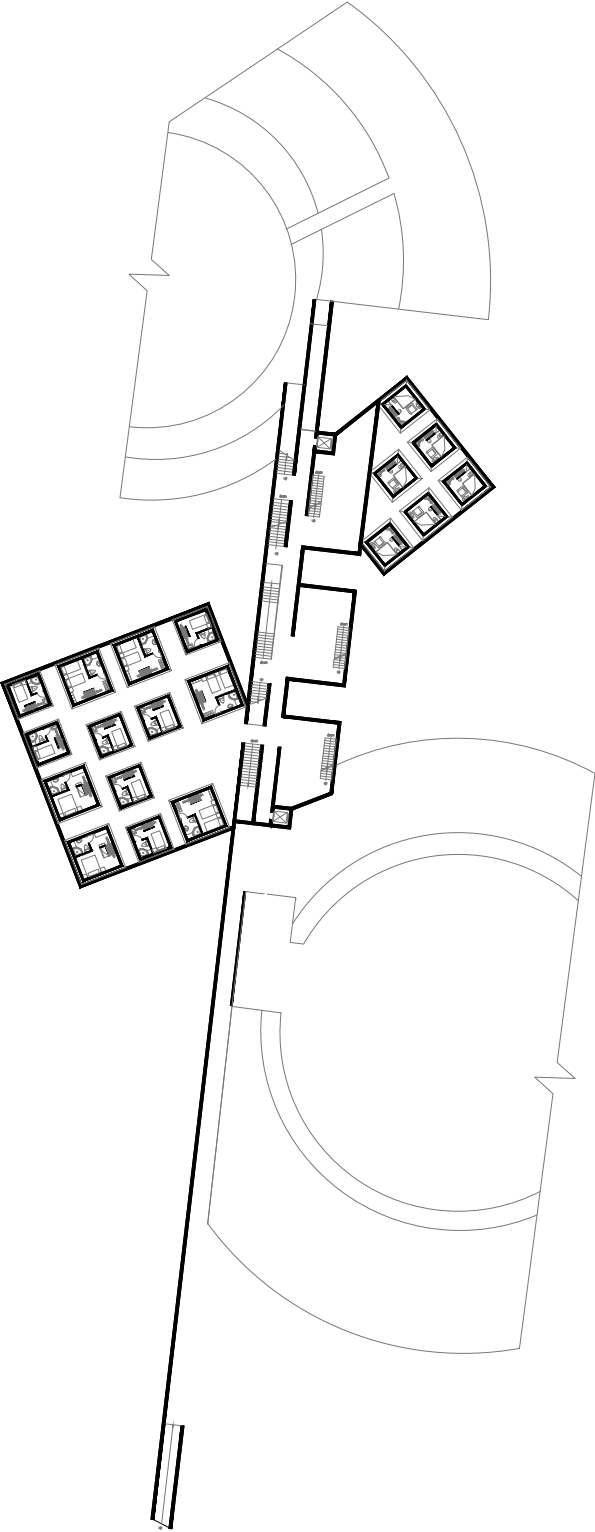
0 plan

0 floor plan 1:800

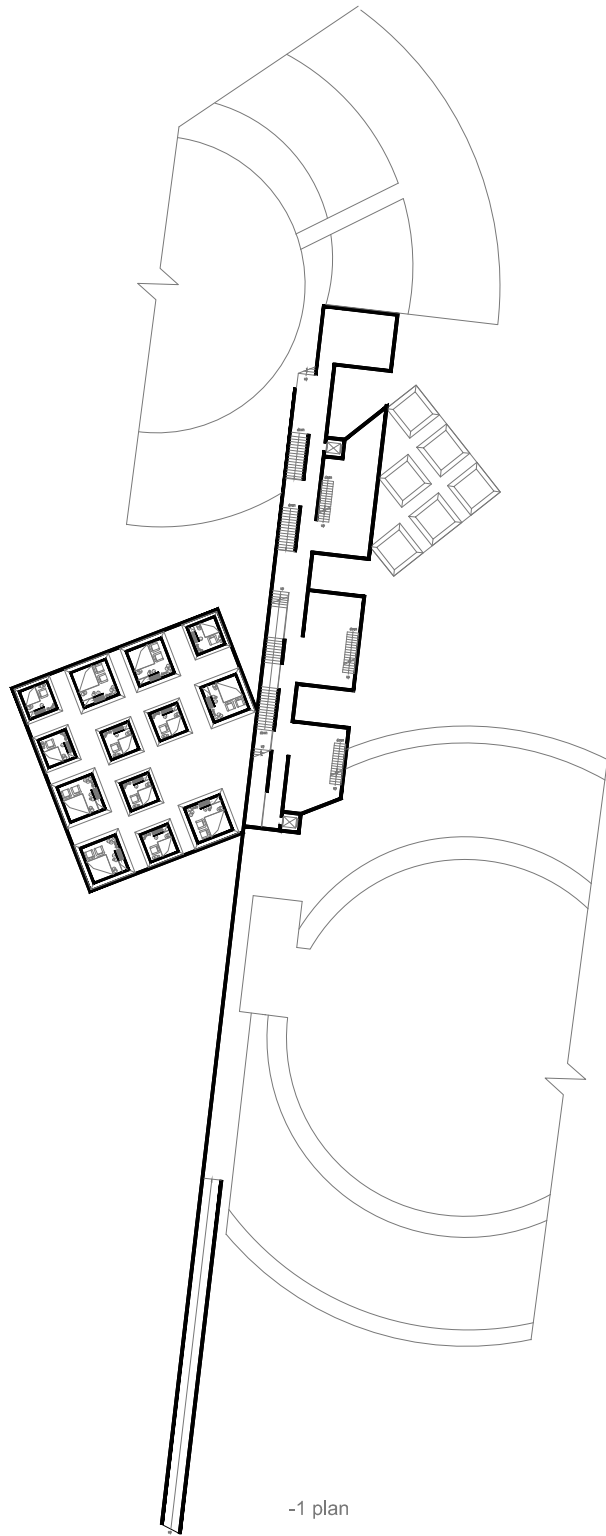
CONNECTION 3



-3 floor plan 1:800

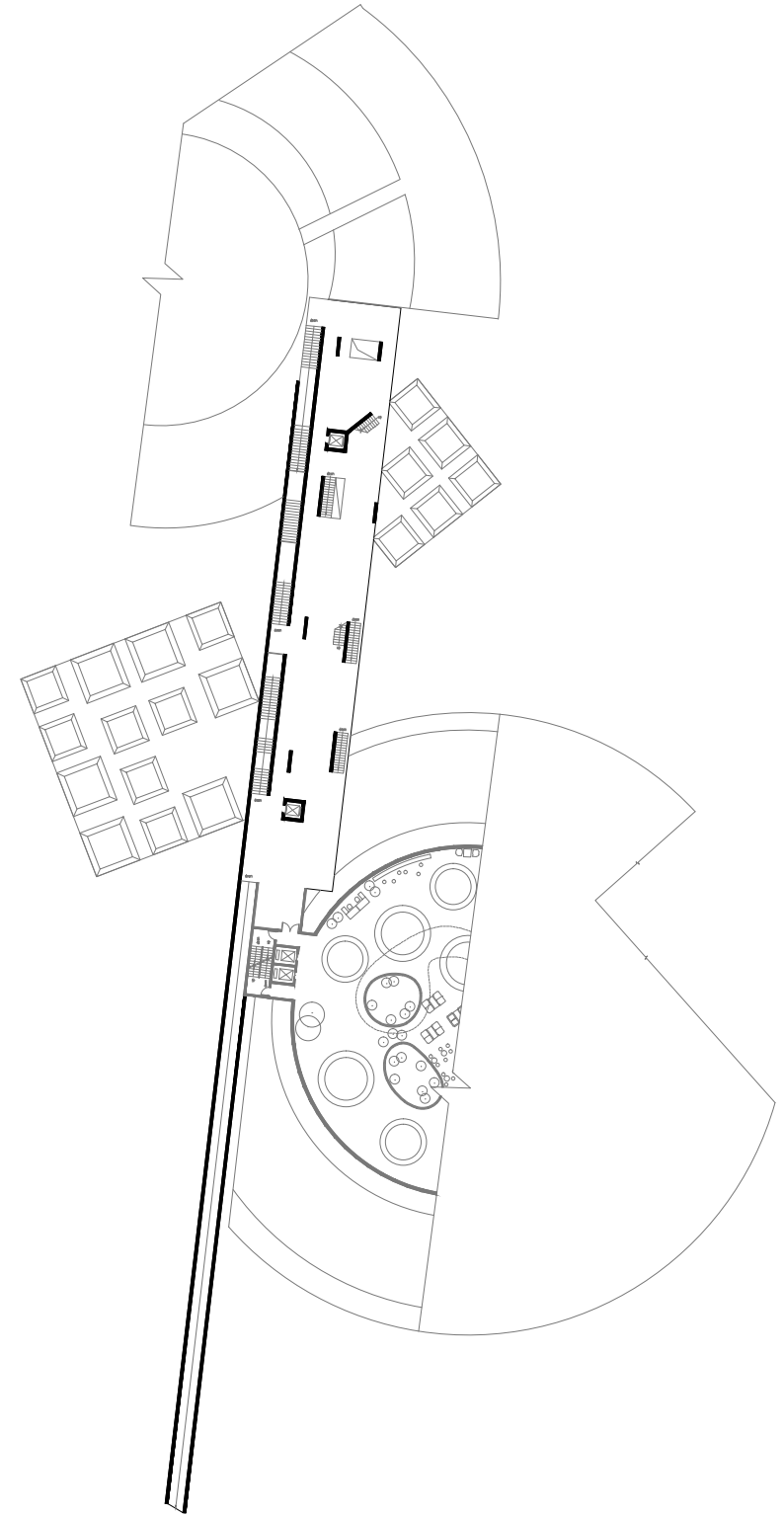


-2 floor plan 1:800



-1 plan

-1 floor plan 1:800



0 floor plan 1:800