

SKOLKOVO

ACTIVE PARK - FOREST OFFICE - SUN FLOWER BUILDING



THE SUN FLOWER PARK

The Sun Flower Park compound project forms an integral part of the Skolkovo innovation centre - a new high technology business area near Moscow. It will serve as a leading project for the area, attracting visitors to the area, serving as a beacon to the latter development stages and creating a media platform for Skokovo. The Sun Flower Park project incorporates three project parts: the Sun Flower building, the Forest Office building the Active Park master plan and landscape.

Each project part was designed as a unique entity and as a part of a complex at the same time.

Sustainability in all three project parts is the key design element. The message behind the Sun Flower Park project states, that only by working together and combining forces can the vast nature and resources be preserved and replenished for the generations to come.

The Skolkovo science park is the ecosystem itself, where each innovation teams has to develop unique ideas, but only working together and combining forces with other innovation teams, can the science park invent and implement sustainable ideas to create a New Russia.

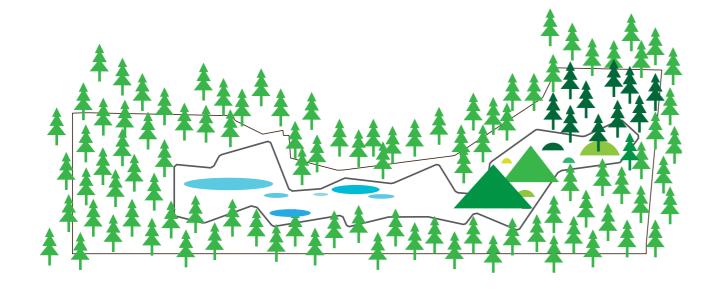






ACTIVE PARK LANDSCAPE CONCEPT

Waterscape, Hillscape and Forestscape activity zones situated in a forest setting



PEDESTRIAN / BIKE PATHWAY



WATERSCAPE



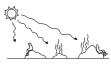
SHOWER & STEPPING STONES







WATER ATOMIZERS











VIEW TOWER



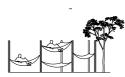


HILLSCAPE



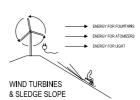
RUBBER HILLS & TRAMPOLINES

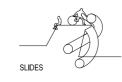




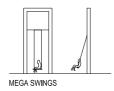
HAMMOCK GARDEN













FORESTSCAPE

CANOPYWALK & WINDCHIMES





TREE SWINGS & CLIMBING NETS



FOREST FITNESS

ACTIVE PARK

The Active Park is a dynamic parkland that works as a soft buffer around the Sun Flower Park development and as a green playground for children and adults of all ages. The Active Park houses the Forest Office building and the Sun Flower building, providing a picturesque environment and setting for the building, as well as housing both "Smirnovo" and "Skolkovo" UTUs.

The whole development will serve as a leading project for the Skolkovo innovation center, a new high technology business area near Moscow.

Concept

The Active Park represents sustainable thinking as a way of increasing the recreational potential of green spaces.

This is carried out through local rainwater management that purifies rainwater for streams, lakes and wetlands in the park while stimulating biotopes for plant and animal life. Clean underground water is pumped up and used for water atomizers, showers and small fountains. The electricity to drive the installations is generated by wind turbines, while park lights have built-in solar panels. The trees used are native to the Russian climate and reflect the natural variety of species found around the Moscow area. Only local Russian materials are used for construction. Making sustainable solutions a visible part of the design helps to inform and educate users, hopefully stimulating further learning and inspiring sustainable alternatives in everyday life.

The Active Park

Named after the many activities found in the park, the Active Park is a lush parkland filled with fun, active and sensory experiences that stimulate movement, play and discovery while also providing space for recreation and relaxation in a landscape setting.

The park consists of a main Arrival Square and three Activity Zones: Waterscape, Hillscape and Forestscape. The arrival square connects the Forest Office and Sun Flower buildings and is the formal entry to the park. The three active zones have various landscape typologies, dramatic topography and a broad spectrum of active and sensory experiences. The arrival square and the activity zones are a connected by a combined pedestrian and bike pathway looping the entire park.

Arriving from the access road you drive through a light, but somewhat dense, birch forest without knowing what lies at the end of the avenue. Turning right, you see The Sun Flower through high grass across the reflection pool with a mixed forest backdrop, before revealing the Forest Office which is slightly retracted from the road and framed by a rural pine forest environment.

The Arrival square is made up by large Russian granite slabs in various formats ranging from 60x60cm to 200x200cm. The surface connects the two buildings in a shared space, with the reflection pool creating a square suitable for most uses. The surface extends around the sunflower and turns into a sun terrace with tables and chairs. Here, people can enjoy a view deep into the parkland framed by forest on the sides and wind turbines in the horizon. Solitary trees break the surface around the Sun Flower



and round benches create social spots in the shade. A cultivated employee garden is close by, and provides recreational space for office workers during lunchtime, and people during weekends. Bikes are located next to the Forest Office. Here you can grab a bike and ride in the park using the looped pathway.

The combined pedestrian and bike pathway is a 0,2x5m wide concrete path that loops around the entire park connecting the Waterscape, the Hillscape and the Forestscape. The pathway is best described as a large bendable piece of furniture that models and adapts itself according to the landscape it touches. This allows for various features and elements (pocket squares, benches etc) to morph out of the main structure. Benches morph out of the surface and provide resting and scenic views. Small pocket squares create space for bike parking, meeting friends and small social gatherings and are spread out along the route next to the active zones.

The Waterscape activity zone expands south from the Sun Flower down to the Hillscape. Water is collected on the hard surfaces around the buildings and transported to the reflection pool. From here water is led into a large bio reed bed that purifies the water before sending it further into the park. A large wooden boardwalk structure lets you walk out onto the reed bed and take a closer look and experience the park from a different angle. After purification water is led through a series of collection ponds before ending in small lake and wetland area. In the center of the waterscape a small island is shaped by the main water bodies and accessible by steppingstones and boardwalks. Banks are planted with reed, bulrush and other wetland vegetation. A large water atomizer shrouds the island in a hazy mist waiting to be explored. In the mist you find big rocks spread throughout and a stone garden with huge boulders that absorb heat from the sun and function as the main hangout spot. In the other end two fountains respond to movement and interact with the users according to how they act. Wooden decks work as viewpoints and relaxing spots, while showers will cool runners and others who have not gotten enough water yet.

Ending in a small lake the waterscape gives room to a small wetland and meadow area. Here sheep graze and keep the wild grass in check. Birdhouses and beehives are set up to attract animals, help pollination and the general adaption of flora and fauna. The meadow edges are lined by small intimate picnic spots with tables, benches and grills.

At the end of the meadow a large 12m hill rises to the sky and marks the start of the Hillscape activity zone.

The Hillscape activity zone combines sharp slopes, rolling organic hills and geometric mirco hills covered in high grass and wildflowers. The central hill is marked by ten 12m tall wind turbines and also serves as the main slope for sledging in the wintertime. The hill morphs with the adjacent hill in a more organically sloped landscape where a vast climbing structure controls the hillsides. Using nets, ropes, beams, concrete rocks, slides and angled wooden plates the structure creates endless opportunities for going up and down the hill. Taking one of the tree slides you ride down and through the hill before ending up in a small sand area which cut into the side of the hill. Here you can climb the wall or use one of the fitness trees.





Away from the main Hillscape activities another hill is situated with smaller geometric forms and cutouts breaking up the slopes. A plateau with a hammock garden and flowering trees, creates the perfect lookout point to the rest of the active zone. A path of dark orange rubber runs on and along the slopes and connects the climbing structure to the mega swing park with artificial hills and trampolines, with the iconic 6 m tall mega swings working as a portal for the Forestscape.

The Forestscape activity zone in the south-east corner of the parkland is tucked away in a deep pine and spruce forest setting. Not readily visible the activities and wooden structures wrap around and embrace the trees camouflaging them partly from outside view, though small teasers indicate activity and invite users to explore hiding places below and in the trees.

The central activity is a large wooden canopy walk structure that lets users walk around the treetops of the pine trees. At various point the walk end in a viewpoint either inside or just outside the forest area giving the user a wide selection of views. The canopy walk is accessed by three large staircases surrounding large trees. Suspended from the canopy walk are swings, climbing ropes, nets and hammocks. This comes together in a larger do-not-touch-the-ground with a dense web of nets, ropes and small trunks in the ground.

Running through the undergrowth is a 165 m obstacle course utilizing forest elements and ending up in a forest fitness area. Forest fitness is an outdoor gym using nature and the forest setting for basic workout and training.

A small distance from the main part of the forestscape, a 50m climbing pole reaches up to the sky through a clearing in the pine forest. Climbing to the top will give the perfect overview of the park and the Skolkovo area.

The edge of the park is created by a forest environment consisting of various trees and undergrowth. The design uses local Russian species and specifically trees native to the Moscow area like Birch, Pine, Sprouce, Aspen and, to a minor extent, Oak. These and other minor species collectively make up the surrounding edge ranging from light birch and pine forest to more thick mixed forest with a wider selection of species and wild undergrowth.

View towers are spread out through the edge and give a different perspective of the park. The wooden structures rise up through the canopy giving views of the park, birdlife and activity in the undergrowth. A central idea in the plant design is to have the forest grow over time and let it evolve and adapt like a normal forest would, using normal forestry methods. This connects well with the concept of an active park as the surrounding edge itself is an active element that grows, changes and adapts over time. The experience of the landscape slowly and continually transforms and makes the growing forest a feature in itself.

Creating an entire forest setting takes time so to compensate for the time aspect 100 large character trees are planted throughout the edge and in the park. The character trees are planted in key locations and spots to stimulate life in the park in the early stages.





FOREST OFFICE

The Forest Office building frames and creates a single ensemble with the Sun Flower building in the center of the Sun Flower Park development. The Sun Flower Park development also incorporates the Sun Flower building, the "heart" of the place and the Active Park, the one surrounding both buildings, providing a picturesque environment and also housing both "Smirnovo" and "Skolkovo" UTUs.

The whole development will serve as a leading project for the Skolkovo innovation center, a new high technology business area near Moscow.

The Forest Office building is situated on top of the Underground Transformer Unit "Smirnovo", thus providing a unique combination of different functions with creating a sustainable symbiosis between the two, using the heat power, which would be commonly vented to the outside. The excess heat power from the transformers here is used to heat up the Forest Office in winter and cool down in summer.

There is a number of other sustainable points in the building, starting with internal circular courtyards, delivering natural sunlight and outside fresh air to the core areas on the Forest Office. These courtyards are an integral part of a system of circular atriums of various sizes, penetrating all the levels of the building. The atrium not exposed to the outdoor climate serve as visual connection between the levels with openings to below, housing the main stair, providing vertical connection between all the levels.

Another sustainability feature – a solar panel triangle of the roof collects sunlight and help to feed internal LED lighting system. Roof garden, occupying most of the roof area, is accessible through a staircase from the building, and through the roof terrace at the third floor, giving a magnificent view of the Sun Flower and adjacent landscape from above.

The Forest Office elaborates a concept of a sustainable office, where the workspace is tightly connected to the nature outside thus delivering all the benefits of outdoor living to the work desk. Similar to an iceberg, most of the complex is situated under surface.

Building program is very special, given the combination of the underground transformer with on-the-ground visitors, control and maintenance centre, and high standard offices over the ground.

The underground transformer unit placed on level -04.00 to -19.00, following the project designed by the third party. It includes a main chamber of 30 m in diameter, and overall octagon shape. Another critical UTU feature – access hatch on the ground level, used for servicing and replacement of the transformer.

The UTU premises are separated from the ground floor with the Technical floor. The technical floor has 3 major functions. It serves as load bearing structure that allows placement of the Forest Office building with its own structural system on top of the already planned UTU.

It contains all supporting and technical spaces for both the U.T.U

and the office building.

It allows for the shift of all necessary MEP networks, from the UTU plan layout, to the Forest Office plan layout.

Over-ground program, for both UTU and The Forrest Office is designed as an ultra modern office building of 6300 sq. m. in structural symbiosis with the technical floor.

Main entrance to the complex happens through the south facade facing the sunflower building and the reflection pool.

The first floor slab is shaped to create a double height arrival space that naturally leads one to the Forrest Office above ground or directly into the UTU facilities, with a separate access through the secured corridor.

Control centre for both "Smirnovo" and "Skolkovo" UTUs is located on the ground floor of the building.

Visitor centre, including the museum and special elevator for visiting of the main transformer chamber, is included within the floor

Other necessary rooms, including truck garage, electrical car storage, maintenance teams rooms, etc., are planned within the ground floor.

All other over-ground floors are occupied by office areas. They are designed according to idea to create a feeling of openness and transparency in the building. Being able to reach the facade and have visual contact to the outdoor connects one to the surroundings.

A number of courtyards serve as light wells, that cut through the building to bring light deep inside. The light wells make a great variation of open / closed within the building. In a way one can compare it with the feeling of walking through the forest - suddenly entering a glade.

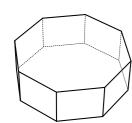
Project proposes a dynamic landscape of office spaces that will inspire the people working or visiting the Forest Office. By making the dynamic structure of walls "light" the flexibility of building is kept on the high level.

The structure could be changed over time along with the development of the occupying company.

The roof is bent down to create a unique terrace and roof-land-scape situation. From here one can overlook the entire Sun Flower Park.

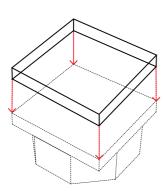
The complex has two separated systems for vertical communication. Starting at the ground floor level one can move downwards into UTU facilities or upwards into the Forrest Office

Natural materials will be used for the interior of the Forest Office, including glazed partition walls, wooden and stone floors, acoustic ceilings and built-in furniture from an artificial marble. The external facade of the Forest Office is glazed, allowing for the maximum openness to the surrounding nature, while horizontal wooden louvers filter direct sunlight without blocking the view towards all the main features of the Sun Flower Park ensemble. LED lighting system will be implemented with daytime, sunset/sunrise and night scenarios. It would also include external facade illumination.



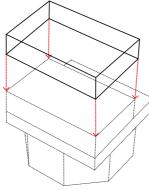
1 - U.T.U.

The underground transformer unit placed on level -04.00 to -19.00



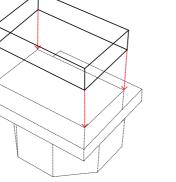
2 - Technical floor

The technical floor has 2 primary functions. It serves as loadbearing structure that allowes placement of an office building with its own structural system on top of the already planned U.T.U. It contains all supporting and technical spaces for both the U.T.U and the office building.



3 - Office areas

Office areas for both UTU and The Forrest Office is designed as an ultra modern office building of 6300 sqm in structural symbiosis with the technical floor.



4 - Complex

A:

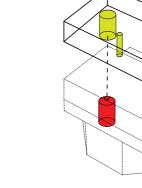
B: C:

Similar to an iceberg most of the complex is situated under surface.

UTU Office / Forest Office

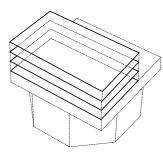
Technical floor

U.T.U.



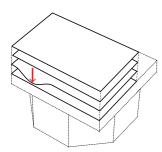
5 - Seperate logistics

The complex has to seperated systems for vertical movements. Starting af groundfloor level one can move downwards into UTU facilities (red system) or upwards into the Forrest Office (green system)



6 - Building above ground

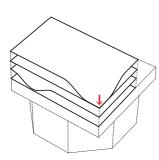
The visible part of the building is builiding of 4 storeys. Ground floor contains officespaces for UTU and 1st to 3rd holds The Forrest Office.



7 - Main entrance

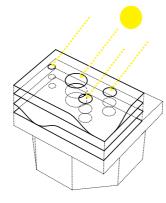
Main entrance to the complex happens through the south facade facing the sunflower building and reflection pool.

The 1st floor slap is shaped to create a double height arrival space that naturally leads you to the Forrest office above ground or directly into the UTU facilities on groundfloor level.



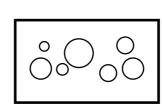
8 - Terrasse & rooflandscape

The roof is bend down to create a unique terrasse and rooflandscape situation. From here one can overlook the entire Skolkovo Park.



9 - Bringing in light

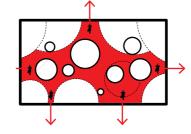
A number of light wells cuts through the building to bring light deep into the building.



10 - Basic elements

The basic floor of the forrest office is a surface of 35x60 meter. The basic structure is created by 2 elements: -service cores -light wells / atrium.

Arround these elements the office landscape can be created in a number of different ways.

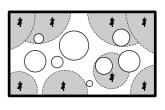


11 - Transparency

The idea is to create a feeling of openess and transparency in the building. Being able to reach the facade and have visual contact to the surroundings connects one to the surroundings.

The light wells makes a great variation of open / closed within the building. In a way one can compare it with the feeling of walking through the forrest -

suddenly entering a glade.

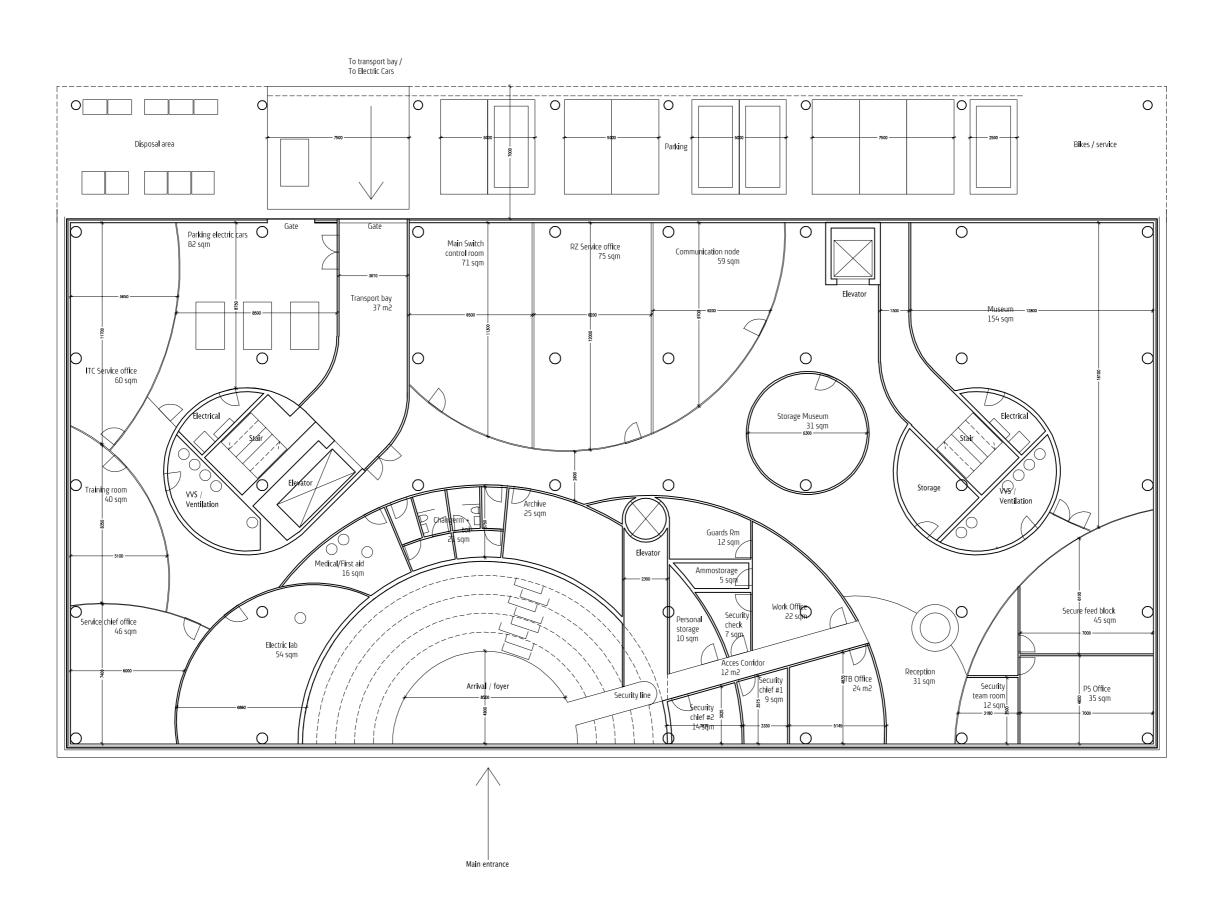


12 - Dynamic structure

We propose a dynamic landscape of office spaces that will inspire the people working or visiting here.

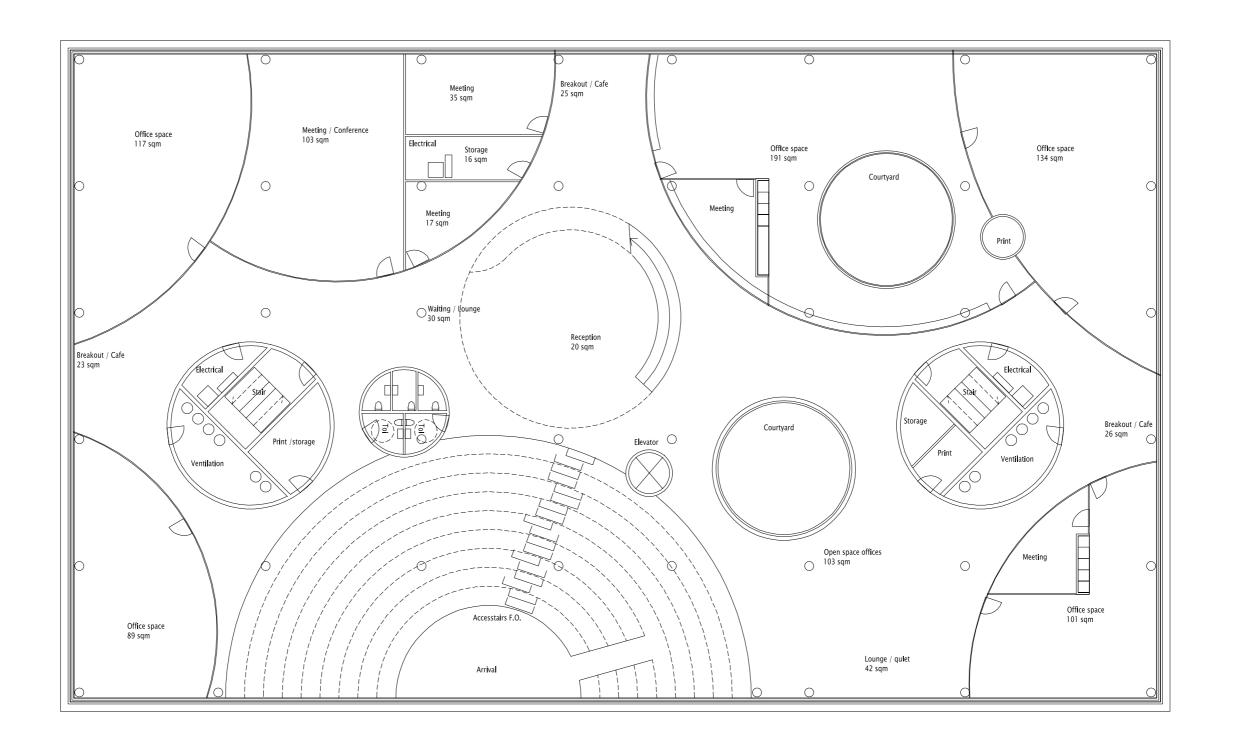
By making the dynamic structure of walls "light" - we keep it the flexibility of building.
The structure can change over time along with the development of the occupying company.



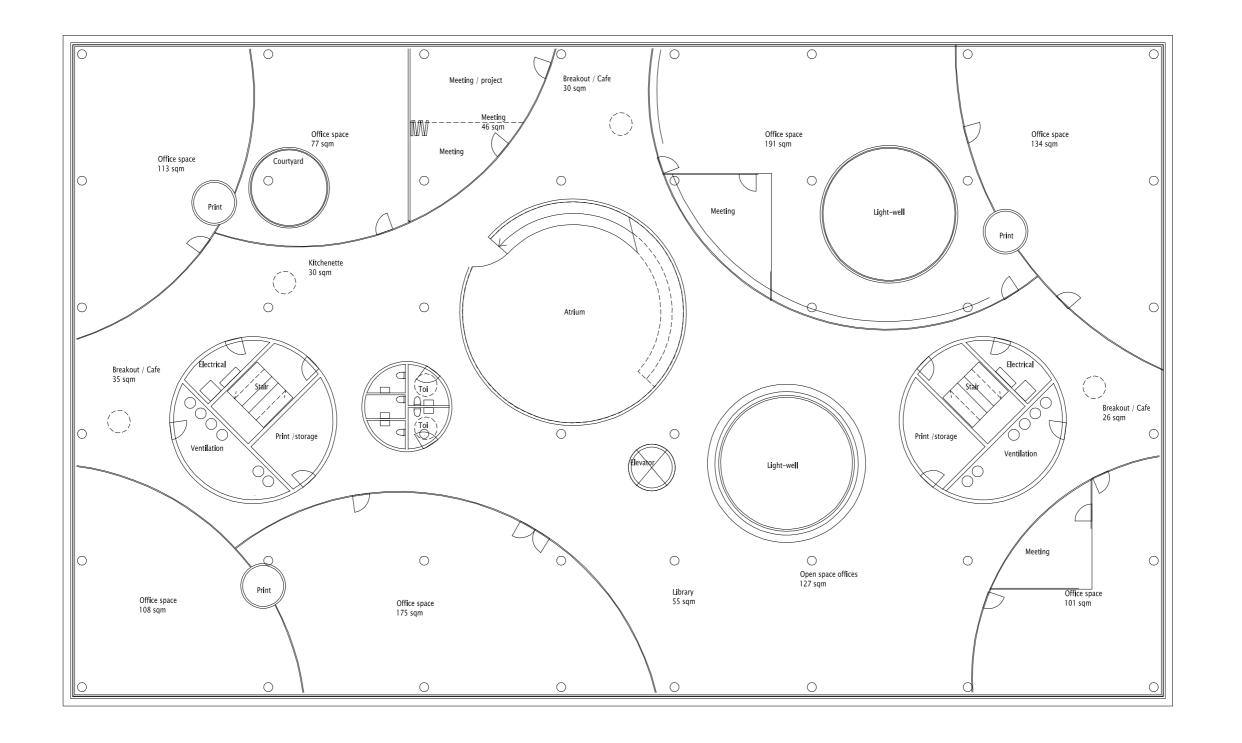




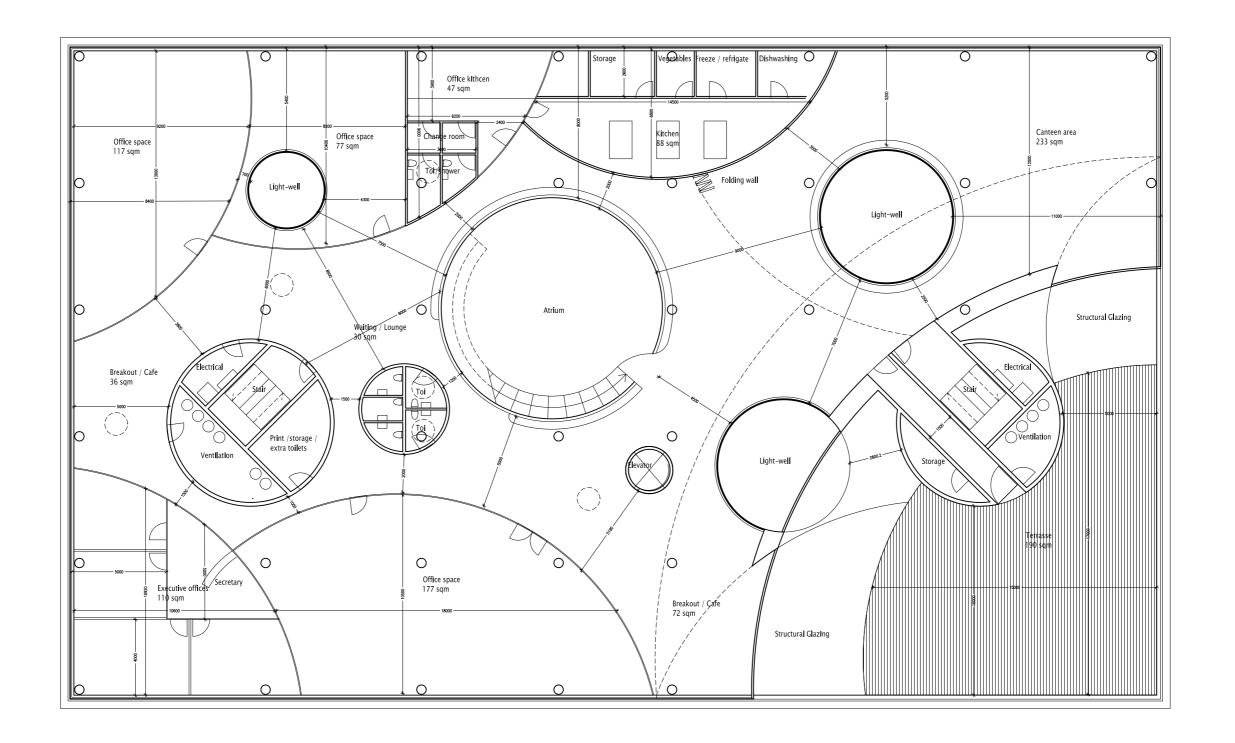




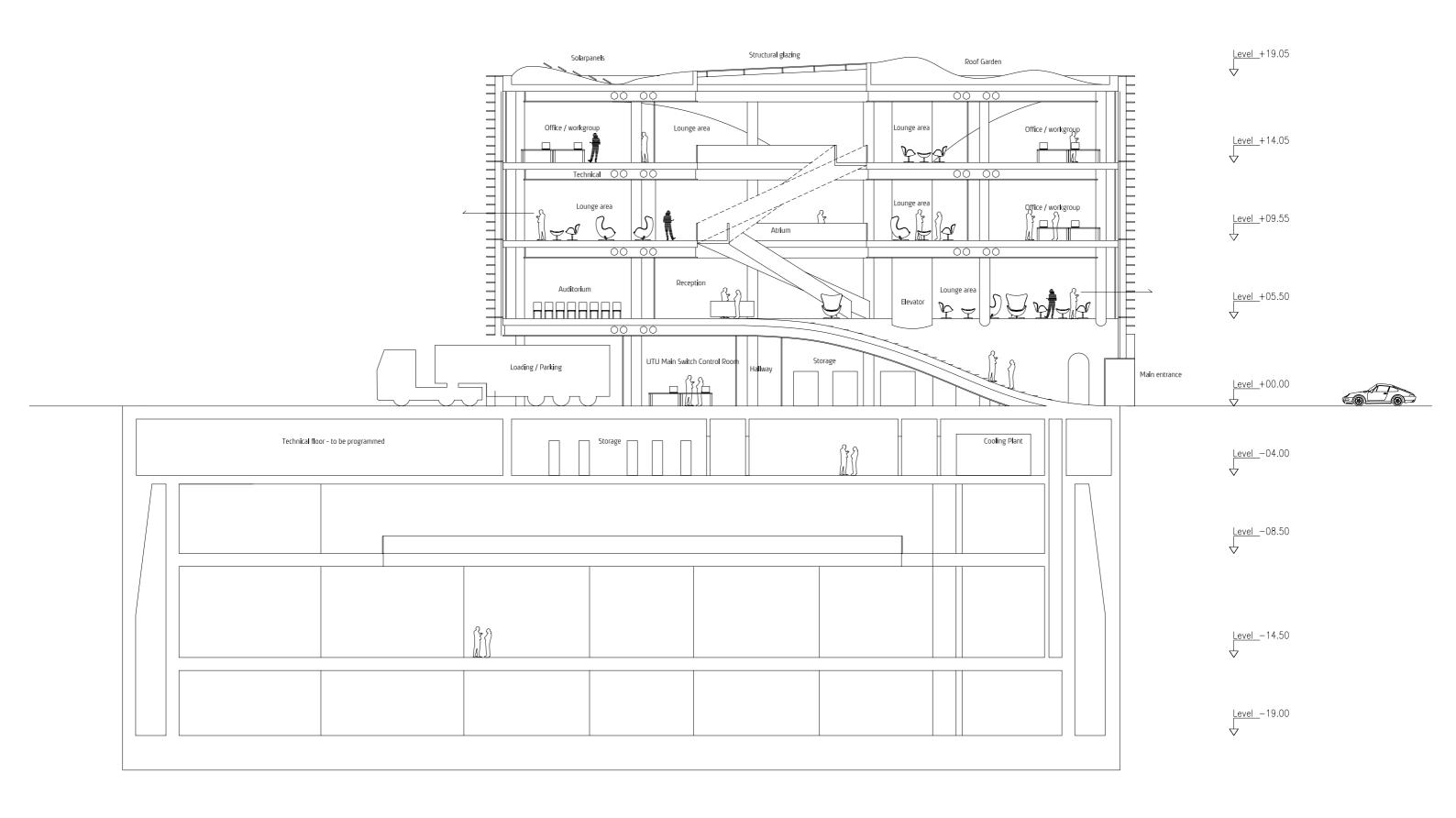


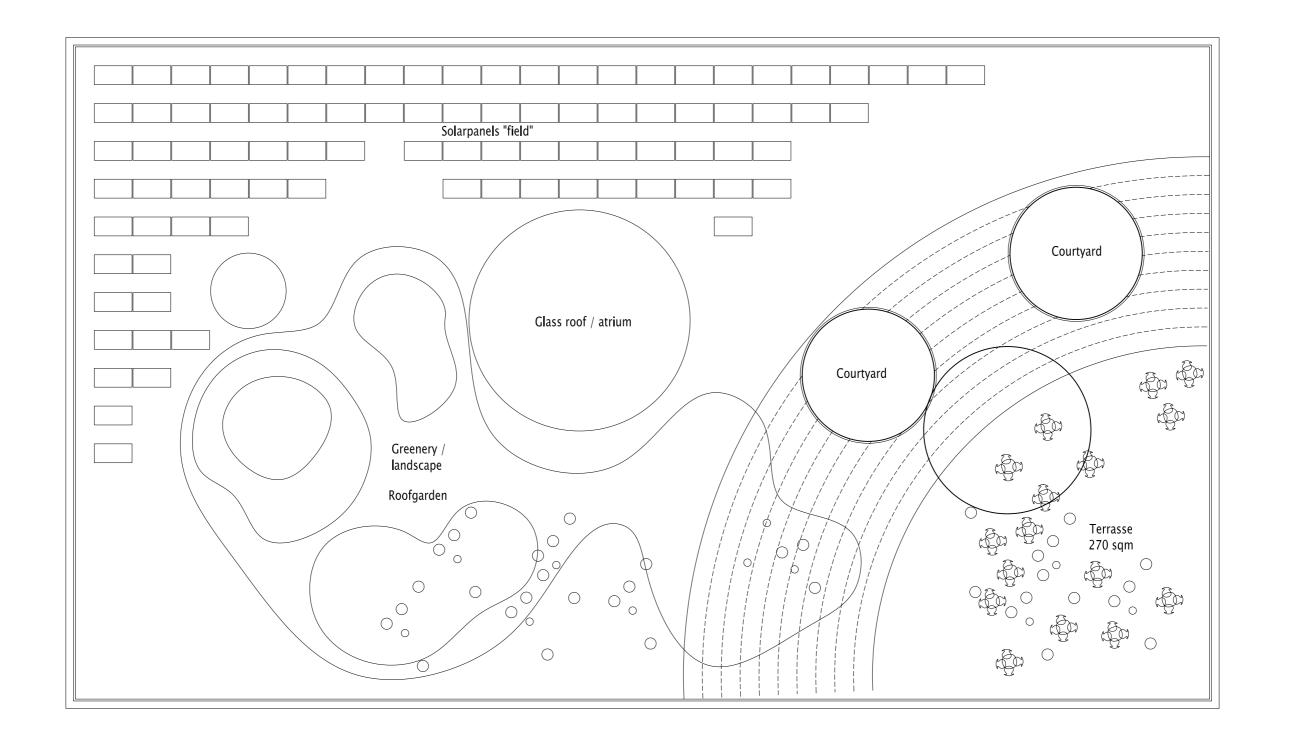




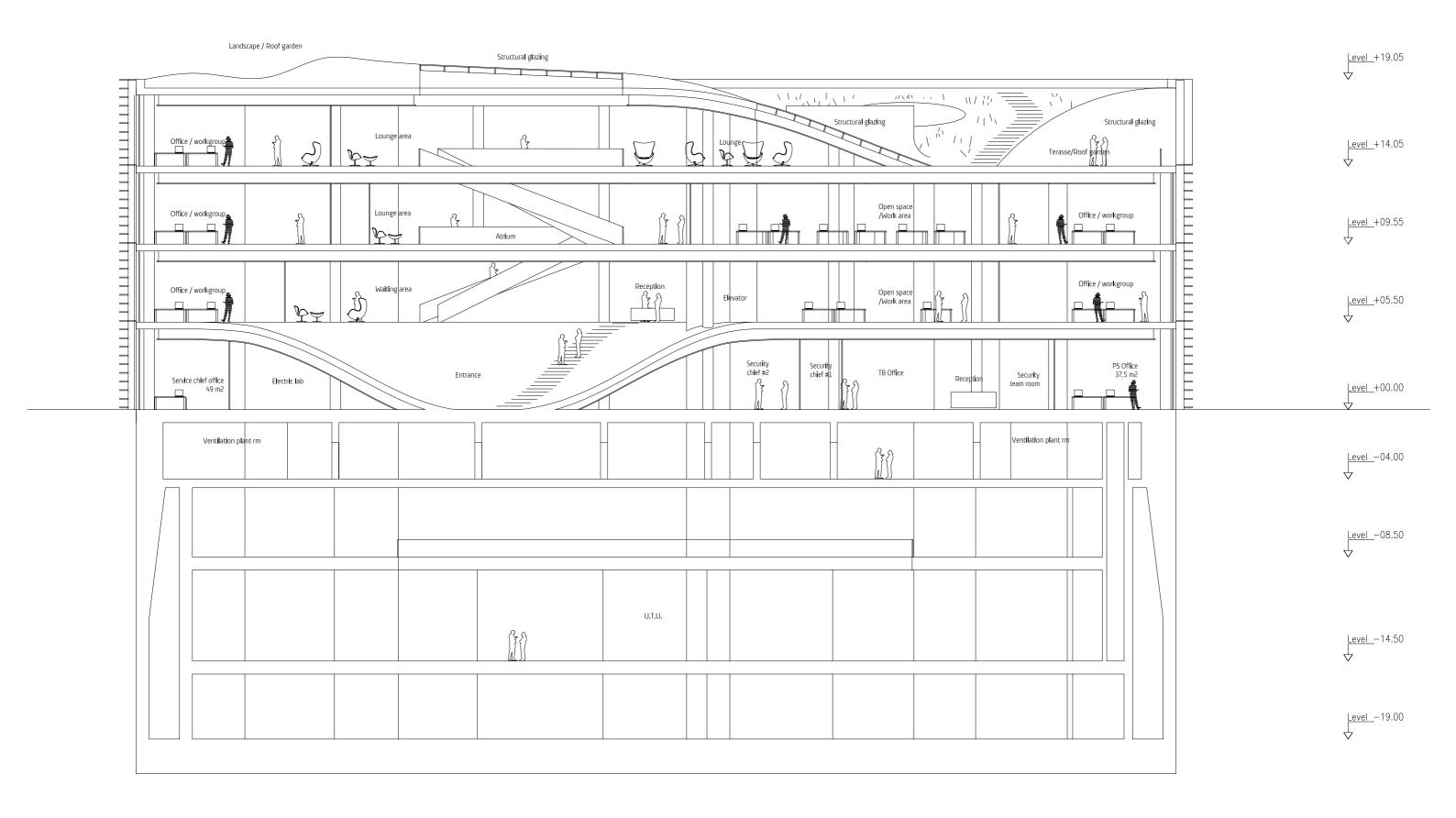


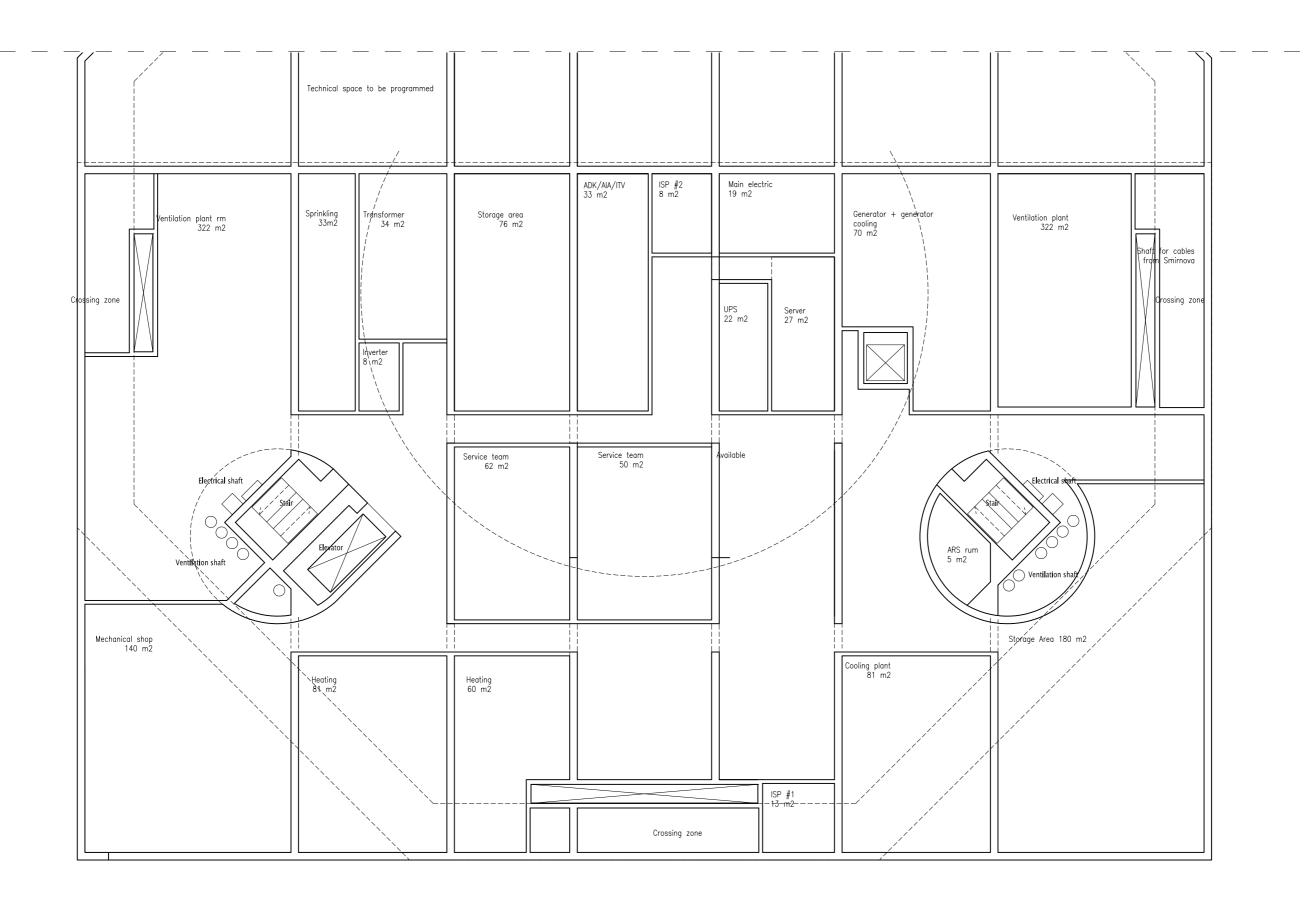




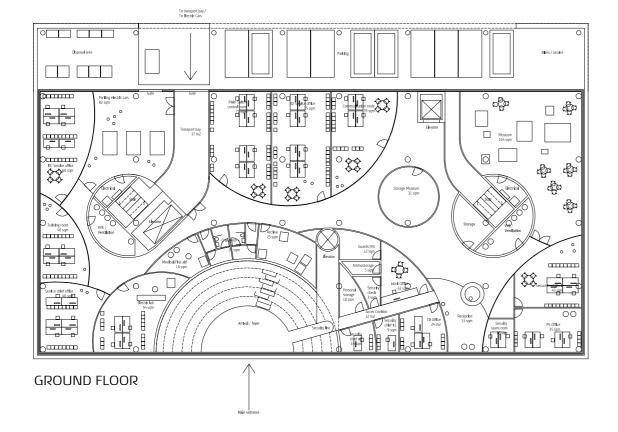


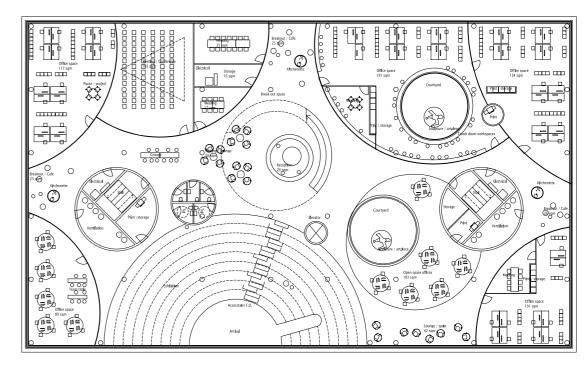




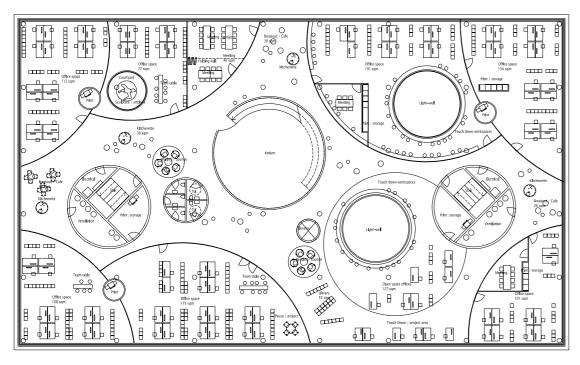




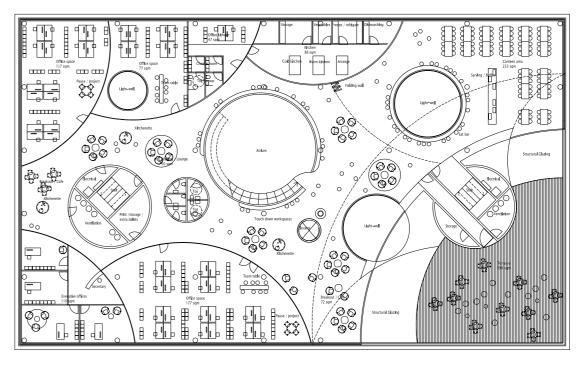




1_{ST} FLOOR



2_{ND} FLOOR

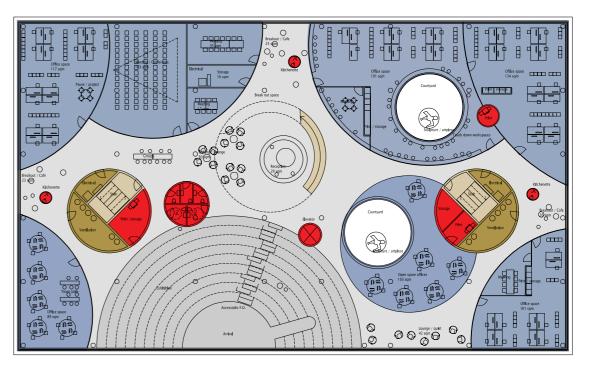


3_{RD} FLOOR

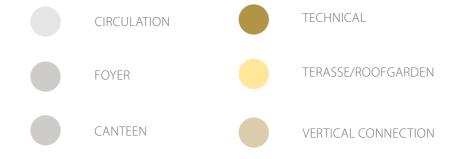


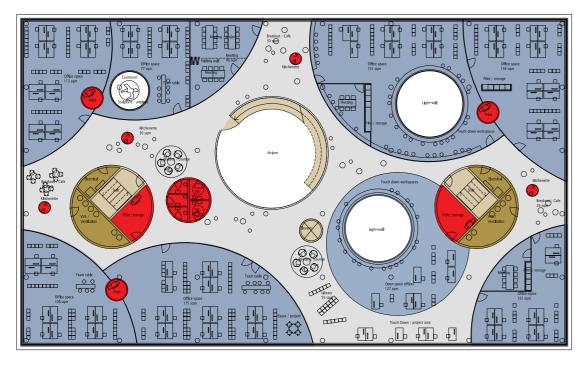
ARKITEMA DOT RAMBOLL FOREST OFFICE



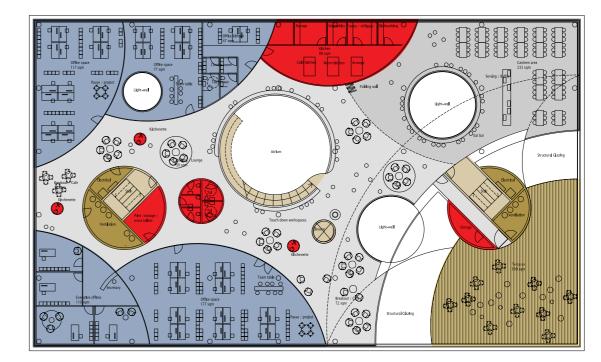


 $1_{\text{ST}}\,\text{FLOOR}$





2_{ND} FLOOR



3_{RD} FLOOR

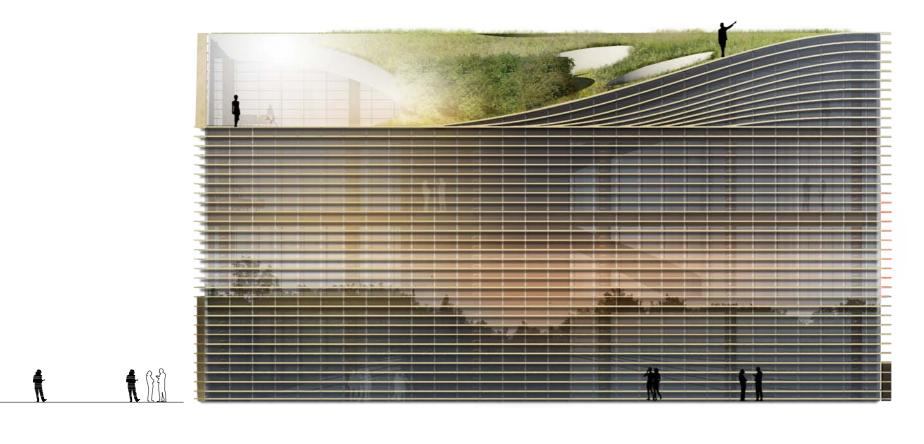
MUSEUM

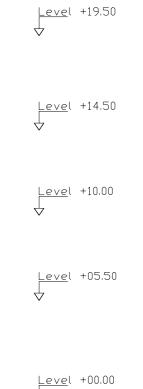
PARKING

TRANSPORT BAY

SERVICE
(WASHROOM, STORAGE, PRINTING, KITCHEN)

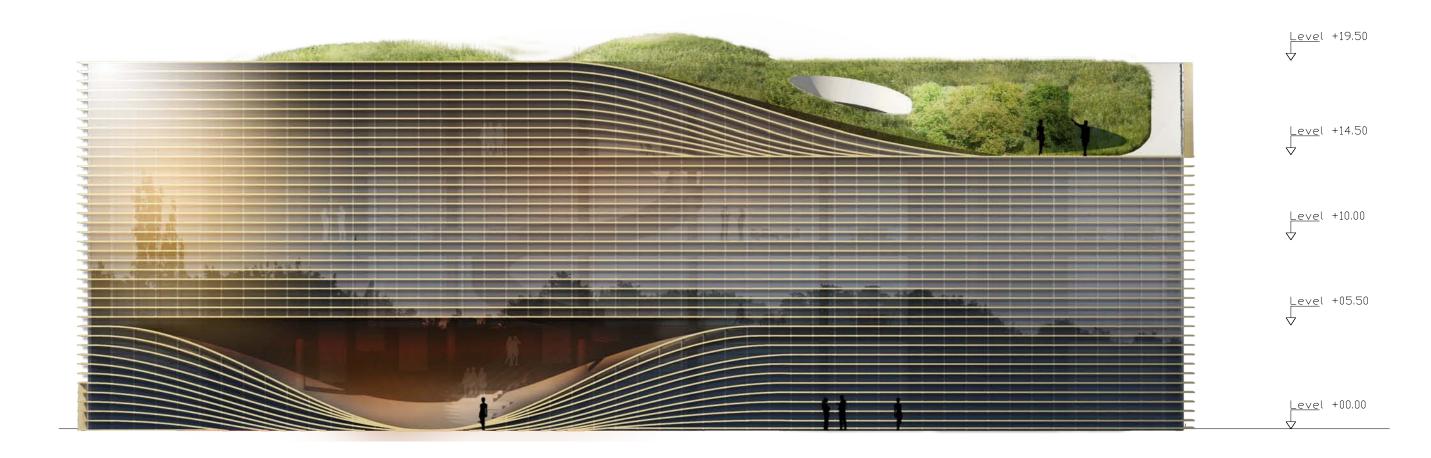






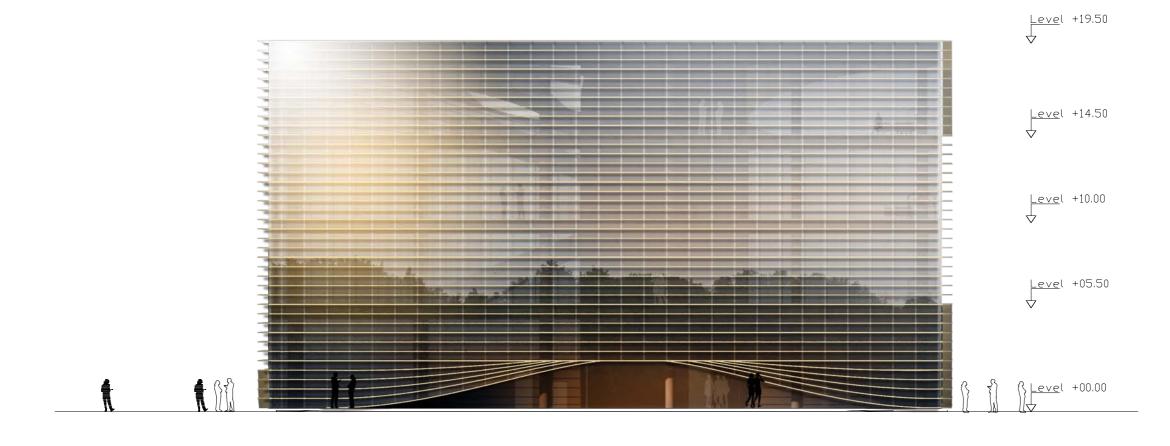
<u>Leve</u>l -09.50

<u>Leve</u>l −15,50



<u>Leve</u>l -09.50

Level -15.50



<u>Leve</u>l -09.50

<u>Leve</u>l -15.50

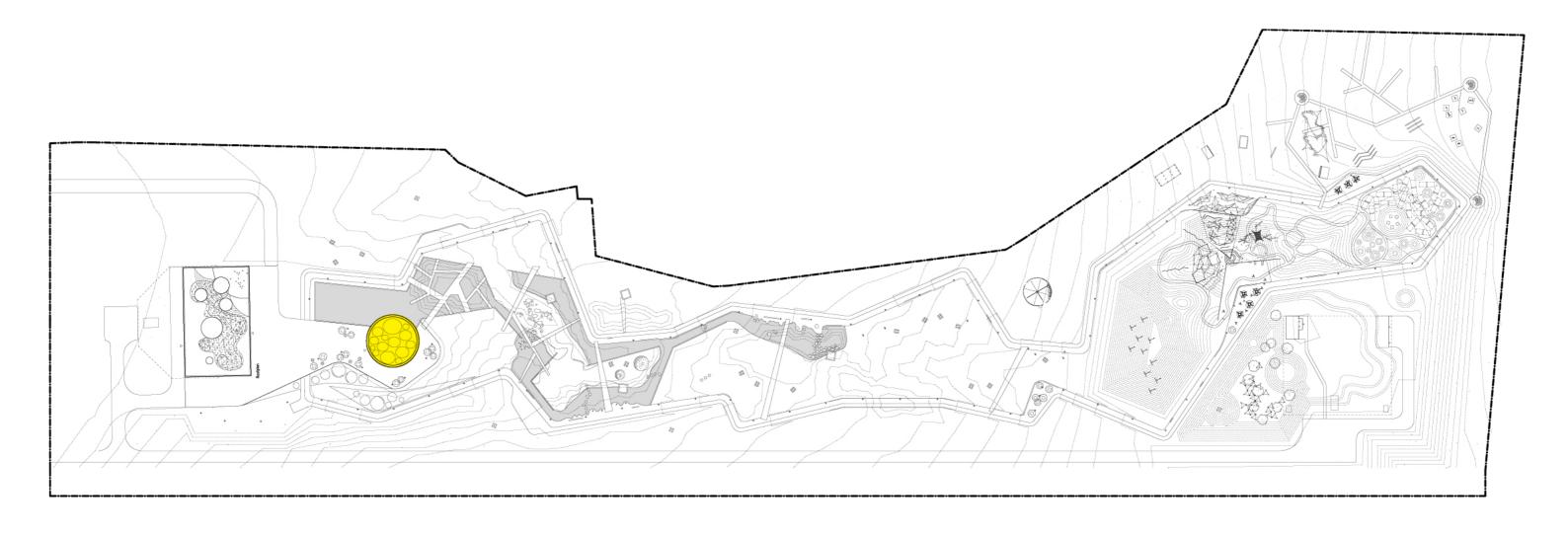


<u>Leve</u>l -09,50

<u>Leve</u>l -15.50







SUNFLOWER BUILDING

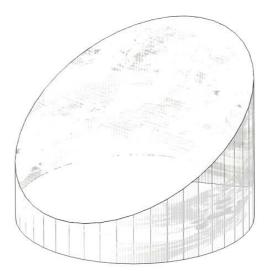
The Sunflower Building creates the center of gravity for the whole area of the Sun Flower Park development. The Sun Flower Park development also incorporates the Forest Office building, situated on top of the Underground Transformer Unit "Smirnovo" and the Active Park, the one surrounding both buildings, providing a picturesque environment and also housing both "Smirnovo" and "Skolkovo" UTUs.

The whole development will serve as a leading project for the Skolkovo innovation center, a new high technology business area near Moscow.

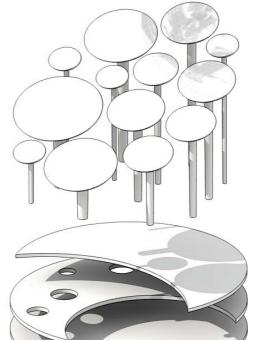
The Sun Flower Building is among the pioneers of carbon-neutral buildings in Russia and an example of modern day sustainability approach to architecture.

Fully furnished, it becomes a one-to-one scale model showcase for proven methods and techniques of sustainable housing, energy efficiency and healthy office lifestyle. It is at the same time designed to serve as a comfortable and efficient office space and is ready for a dynamic company to move in.

Deriving its name from a flower that follows the sun, Sun Flower Building is filled with sunflower shaped structural elements, called 'eco flowers', that work as 'veins', exchanging hot and cold air, bringing rainwater down to the basement chilling reservoir, and up for heating with solar panels.



DOUBLE SKIN GLAZING



STRUCTURAL ECO FLOWERS

OVERLAPPING CONCRETE SLAB



The roof is tilted and turned to face the sun path, and solar panels provide electricity, while skylights bring natural heat and daylight into the building. All the floors are interconnected with an atrium and smaller openings along the columns, letting daylight reach every single spot in the building. Atrium is outfitted with natural greenery, so live flowers clean the air and provide higher oxygen level.

Together with the double skin façade, atrium provides full cycle of natural ventilation, where heated air rises along the façade, and downs in the atrium cooled.

Double skin façade prevents the building from overheating in summer, and keeps cold away in winter. Vertical lamellas, subdividing the skin in square chambers, serve as blinds, limiting direct sunlight. The project comprises architectural spacial solutions and efficient engineering facilities in a balanced blend allowing for pure carbon neutrality.

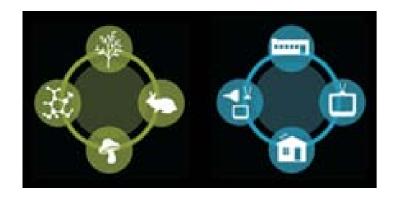
The Sunflower reaching for the sky

Worldwide architects are incorporating sustainability into their design, but sustainability is a mere minimum if we want to make a difference for the future generations.

We believe that the new industrial revolution cradle to cradle (C2C) is the direction we should take this project.

Cradle to cradle is a concept where you are accountable for all the materials and energy used. It is based on the natural circuits where everything is part of a cycle and nothing is useless waste.

The cradle to cradle philosophy



The philosophy consist of 2 circuits, a biological and an industrial, which at the end of their use can be part of a new circuit and thereby have a lifecycle of infinity.

The biological circuit: Use materials which at the end of their lifespan can be a contribution to new circuits.

The industrial circuit: Here the components are part of a closed industrial circuit where each component can be recycled. To do this it is very important that the products are designed in a way where they can be taken apart and reassembled without loss of energy or material waste. That is without losing value.



The Sunflower project is inspired by the Russian nature and should use any possible means to ensure the preservation of both nature and the pioneering culture of Skolkova innovation center. By using the cradle to cradle philosophy the Sunflower C2C is on the cutting edge of innovation in the construction field. If you incorporate 3 or more cradle to cradle initiatives the building will be awarded.

There are several ways to do this, for example:

- Use the natural resources like wind, sun and water
- The building should benefit to the surroundings for example by offering surplus heating to the neighbors or the surroundings.
- The subcontractors should give information on their products from the main material and down to chemical contents. This way you can optimize the recycling process when new knowledge is gained. The point is that you do not need all the answers from the beginning but it is important to make a strategy.
- Choose a part of the building, for example the double glazing facade and make sure that the system is easy to take apart and be replaced by another and better product. That way you enhance the lifespan of the building
- When choosing materials it is important to consider the biological and industrial circuits.
- The furniture used in the building could be certified cradle to cradle furniture with a leasing period. That way it is the furniture manufacture that has the responsibility of maintaining and recycled the furniture. By given more responsibilities to the manufacturer he's incentive to reuse and innovate new and better solutions are heightening.
- Renting the window/ glass facades from the manufacturer. Thereby the client has the rights to the use of the windows but it is the manufacturers who has the responsibility of maintaining and replace the windows and reuse the old material.

In the Sunflower project we already have several features of the building which could easily be adapted to the cradle to cradle philosophy.

- The use of natural resources
- The double glazing facade
- Subcontractors information on materials
- Sharing green energy whit neighbors and surroundings, heating/cooling
- Recycled materials
- The furnishing

Four floors of the Sun Flower building, underground one and the three above ground, encompass all the necessary building program:

Underground floor houses most of the MEP installations and facilities and technical rooms.

All above ground floor are connected with an atrium, reaching to the sky-screen of the Sun Flower building. The atrium houses the main stair, which is open and wide, and flows from floor to floor with a continuous motion of flights.

Second enclosed stair and a glazed elevator add to the vertical communication system of the building.

Ground floor has covered entry zone, large reception area, a café with outdoor capability, a permanent and temporary exhibition areas and a tiny library. Permanent exhibitions describes sustainability principles and systems, used in the building, where the structural eco flowers house an information stand each, with text and diagrams of its purpose. Temporary exhibitions are displayed in special show-cases, allowing flexibility and security of exhibits. A circular shape of sanitary and supplementary facility includes two toilets, wardrobe, small kitchenette, and a technical shaft in one volume.

First floor serves as a meeting space and office area. Two types of meeting are planned – formal, with detached rooms, where conference tables, conference equipment allow for various types of meetings, and informal – touch- down area with free space tables and chairs for more relaxed and flexible use. Office area designed as an open space layout. Same circular shaped volume houses all necessary facilities.

Second floor is a conference and lounge space. With circular volumes of facilities, second staircase, elevator glazed shaft, service point and the eco flower's bodies, is form a flexible and free flowing space with will encompass all the relevant events in the Sun Flower building – from gatherings and small conferences to parties and celebrations. In between the events, second floor will be used as a lounge space for the building inhabitants and guests. All building premises and features are impaired-friendly. Elevator helps to reach all the floors. Every floor has one special toilet facility. All exhibition elements, doors, signage designed to meet these special requirements.

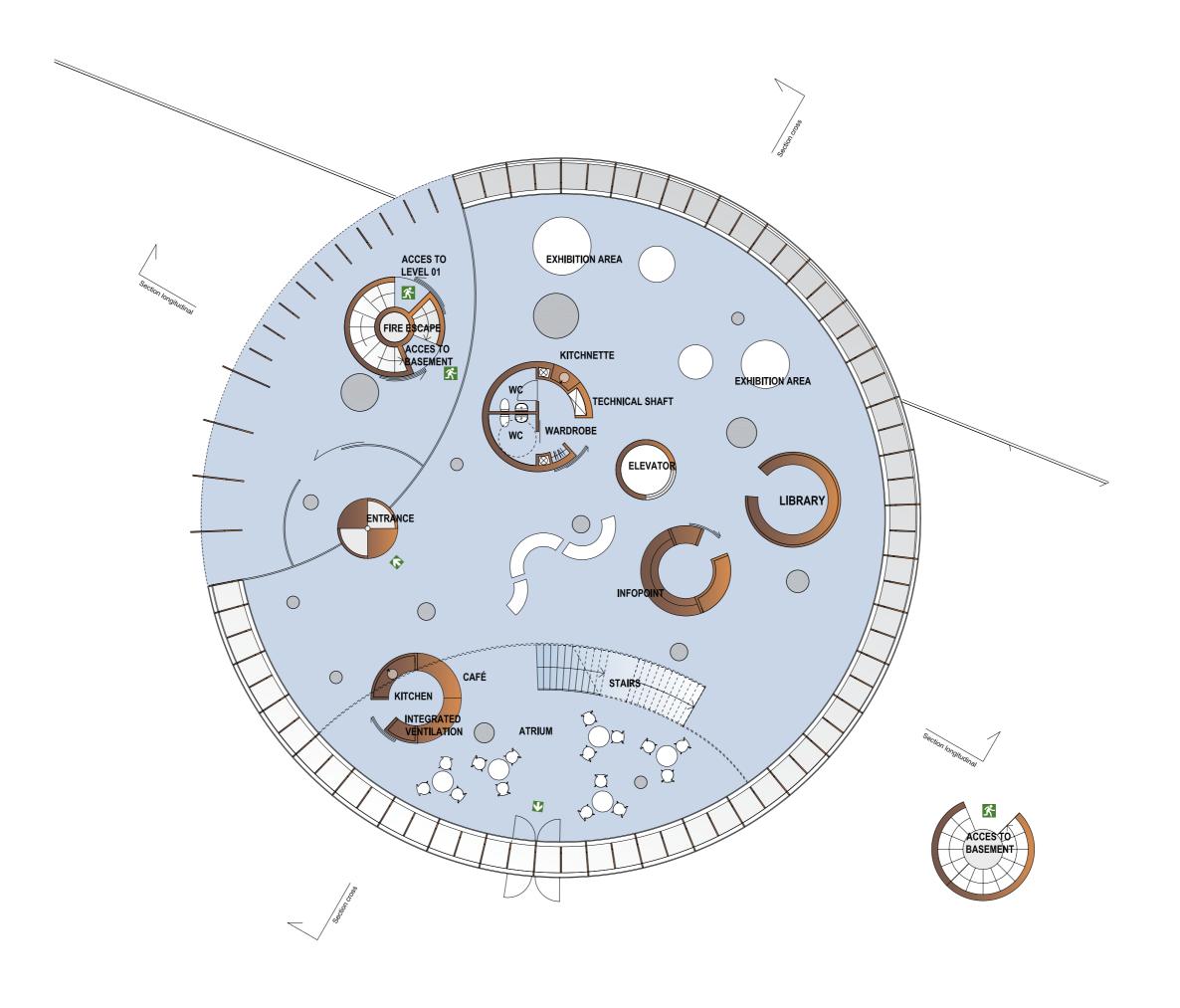
The multi-purpose double skin façade serves as a sun shade, where façade louvers, made from opaque thermal glass panels, are automatically rotated to follow the sun.

Heated floors are laid with recyclable rubber tiles. Ceilings are fitted with acoustic seamless material. All structural elements, like eco flowers and stairs, are left with exposed polished concrete. Built-in furniture is artificial marble. Openings guards are glazed, with elements in stainless steel.

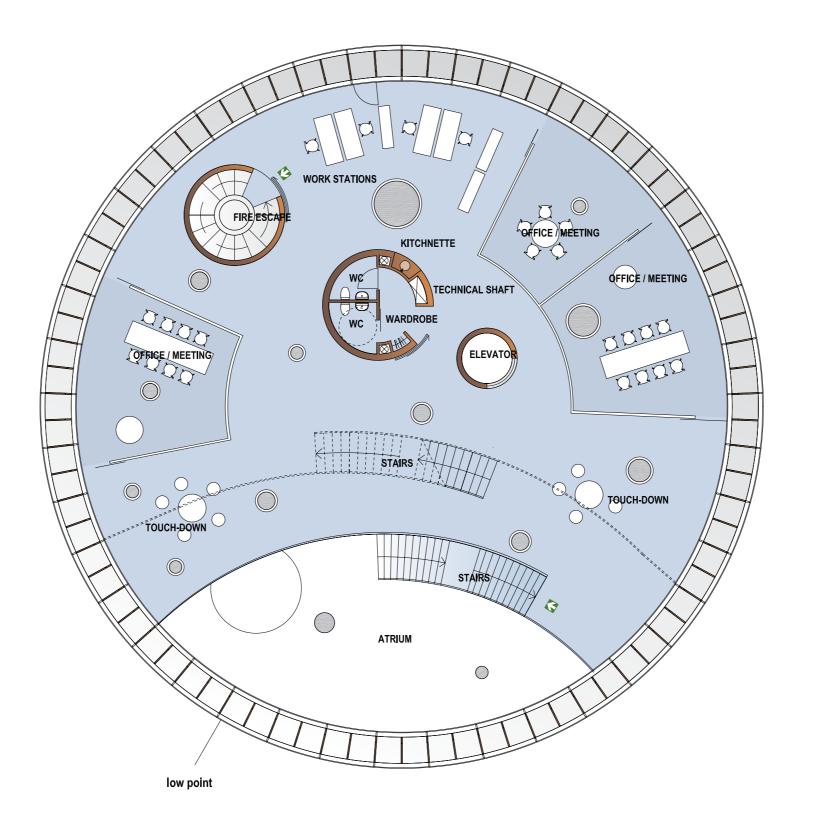
Whole building is equipped with intelligent light system. LED lights are installed throughout the building, providing additional lighting at necessary areas. LED light are also used to lighten up the louvers inside of the double skin façade.

ARKITEMA DOT RAMBOLL THE SUN FLOWER



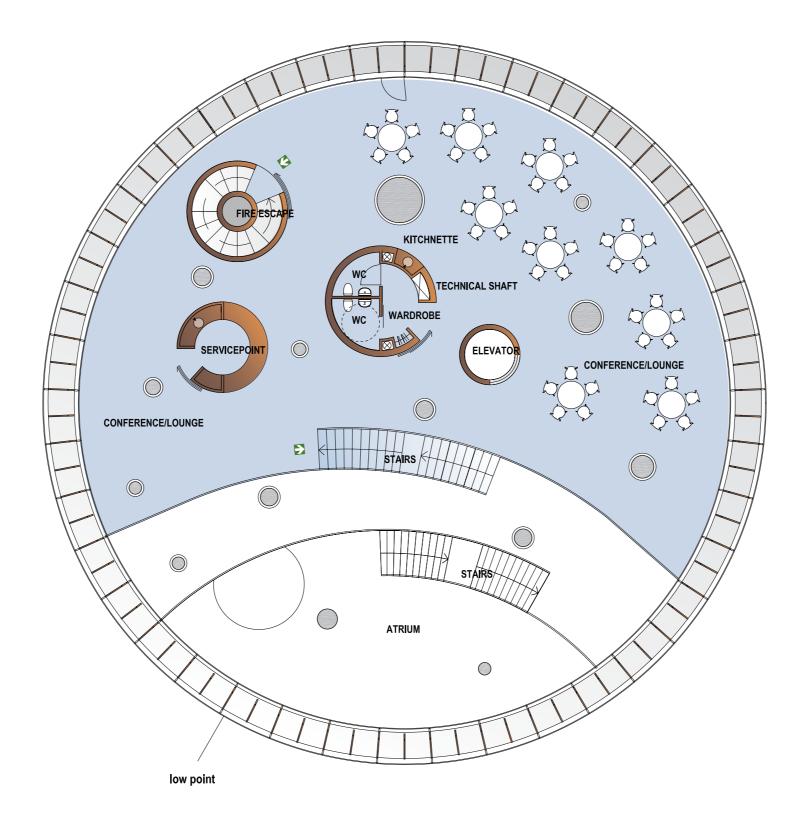


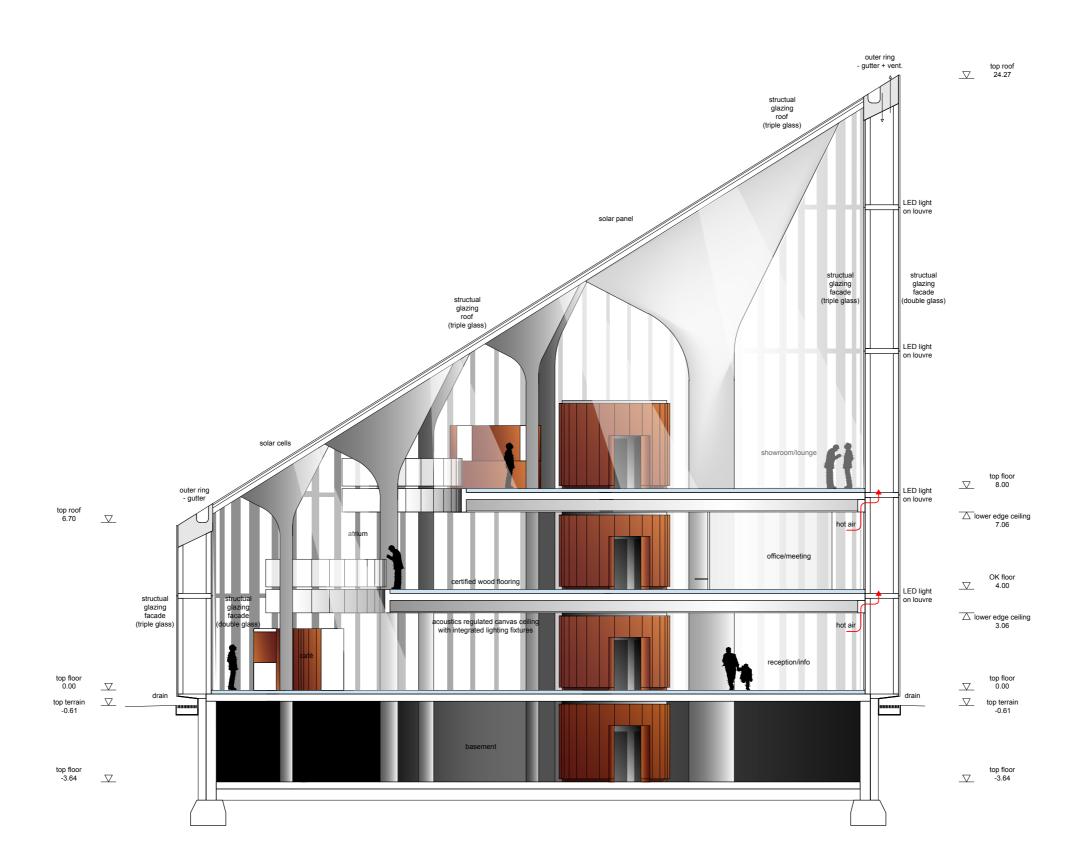


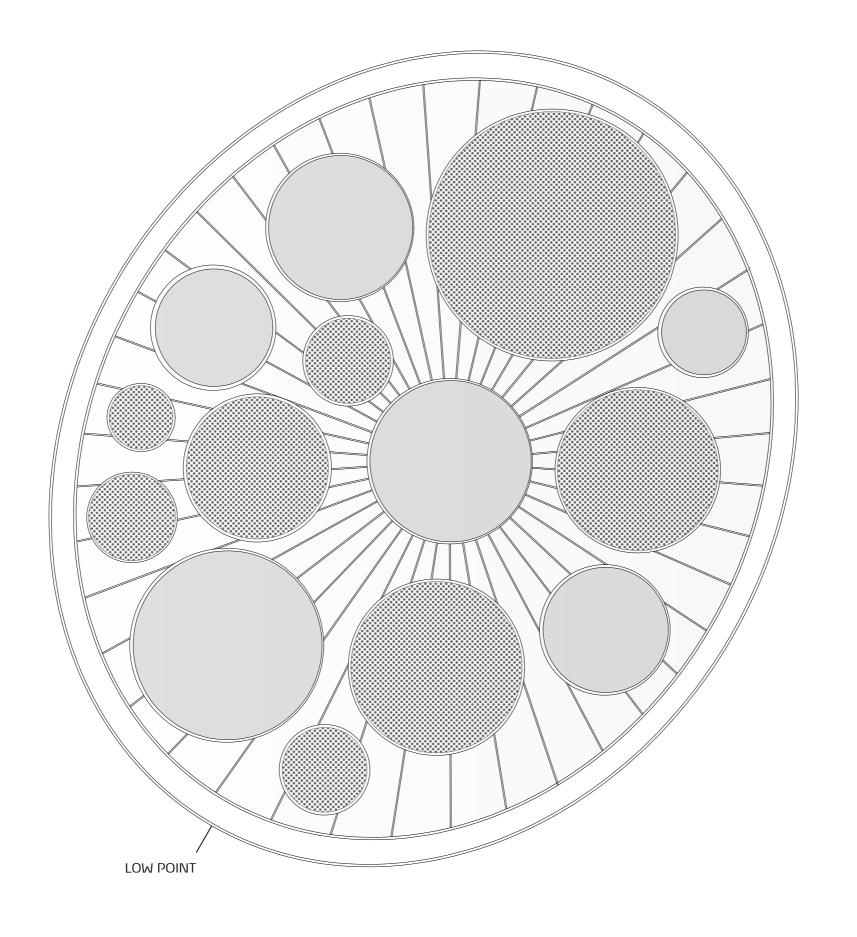






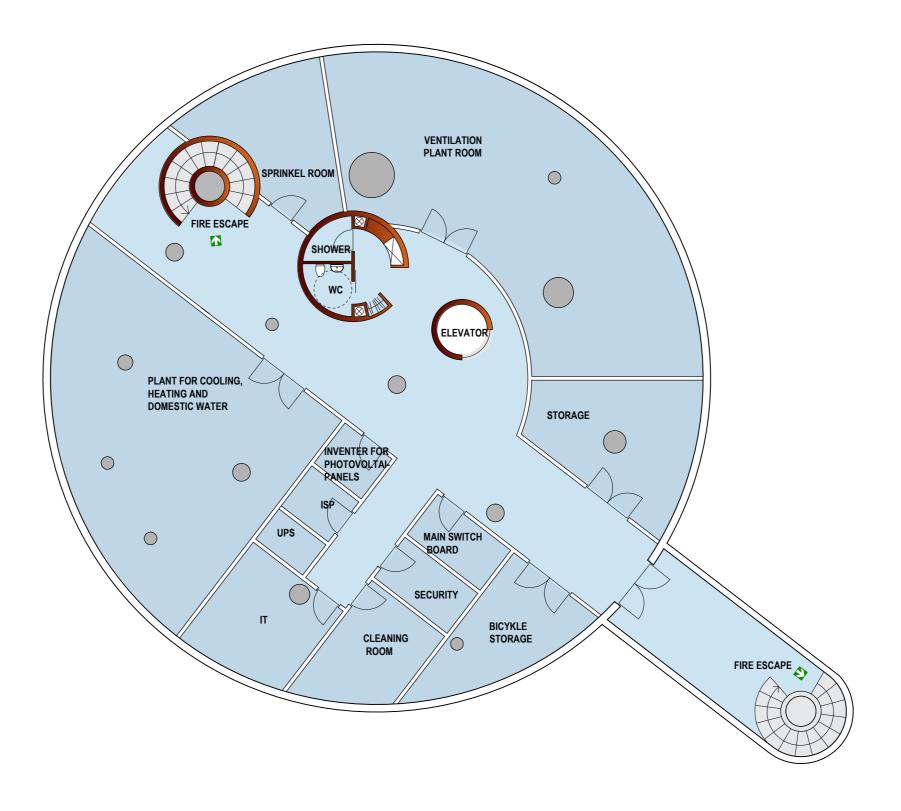




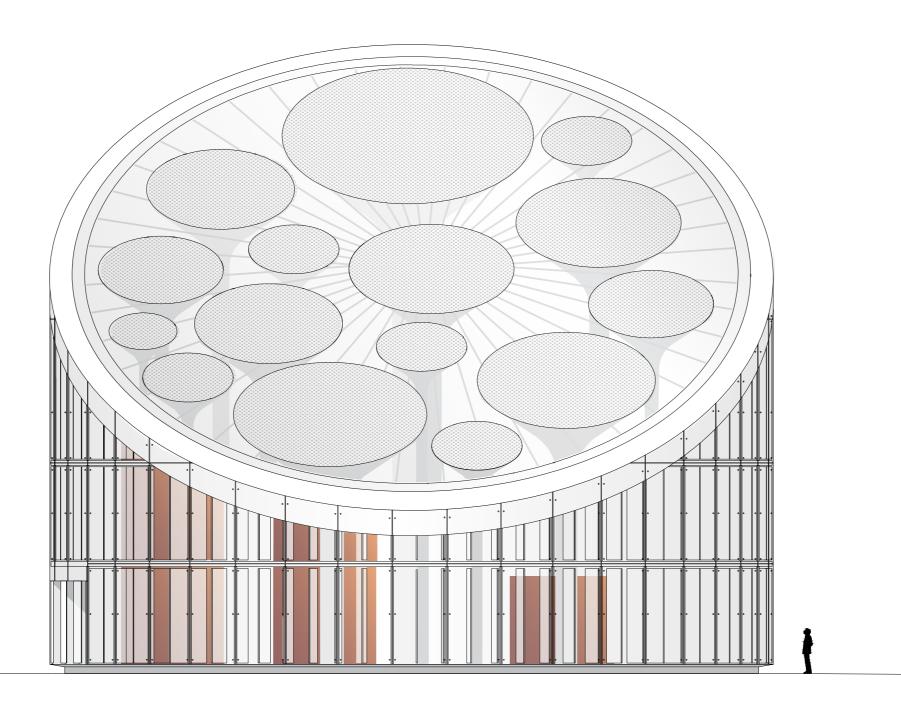


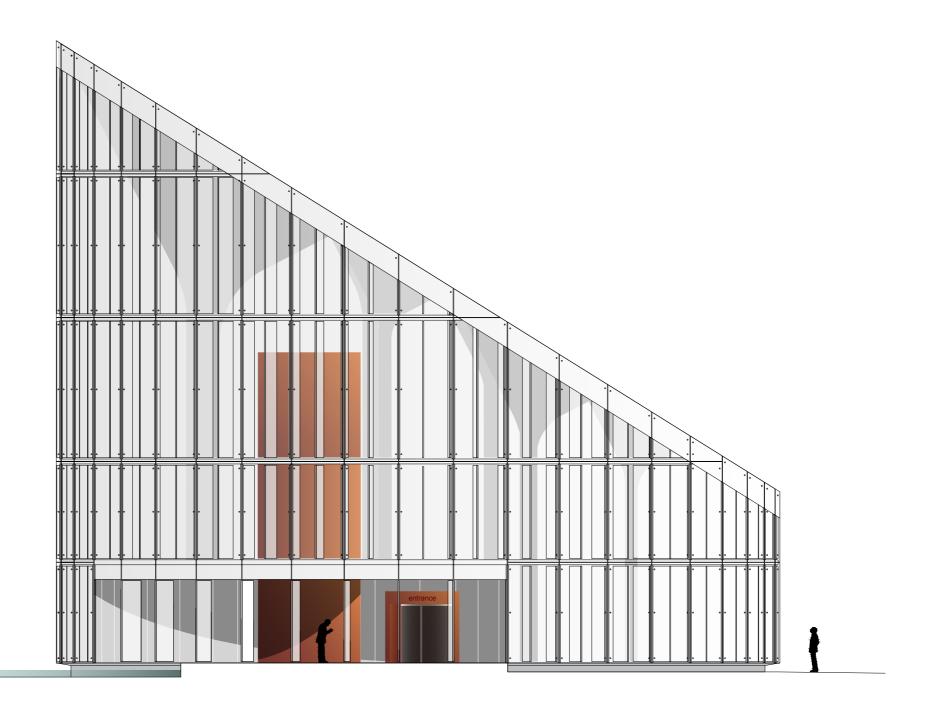


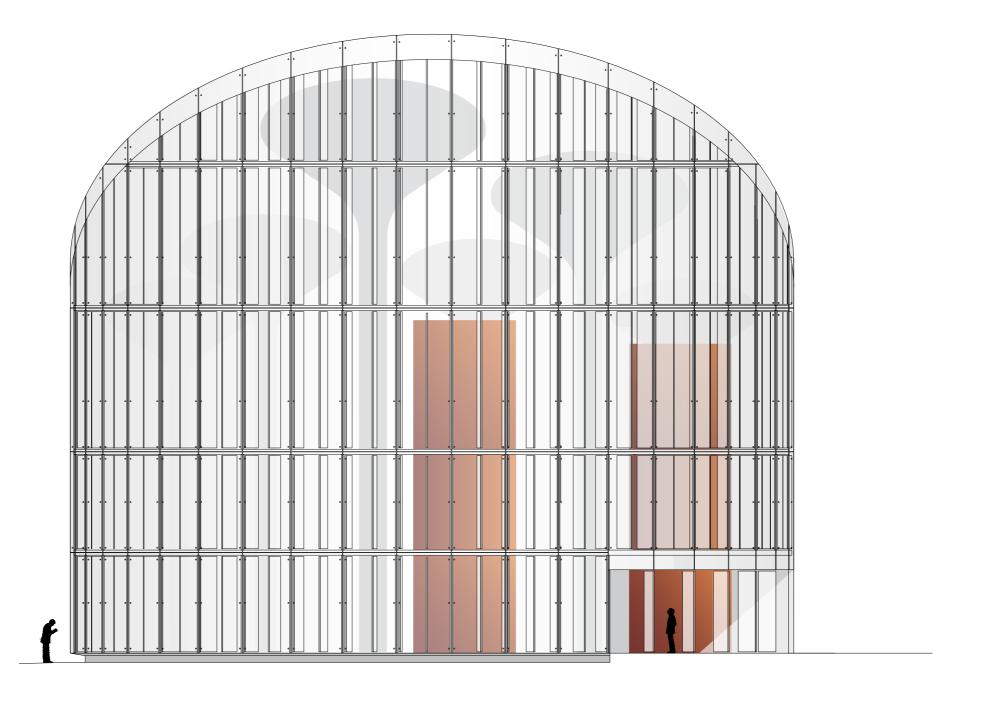


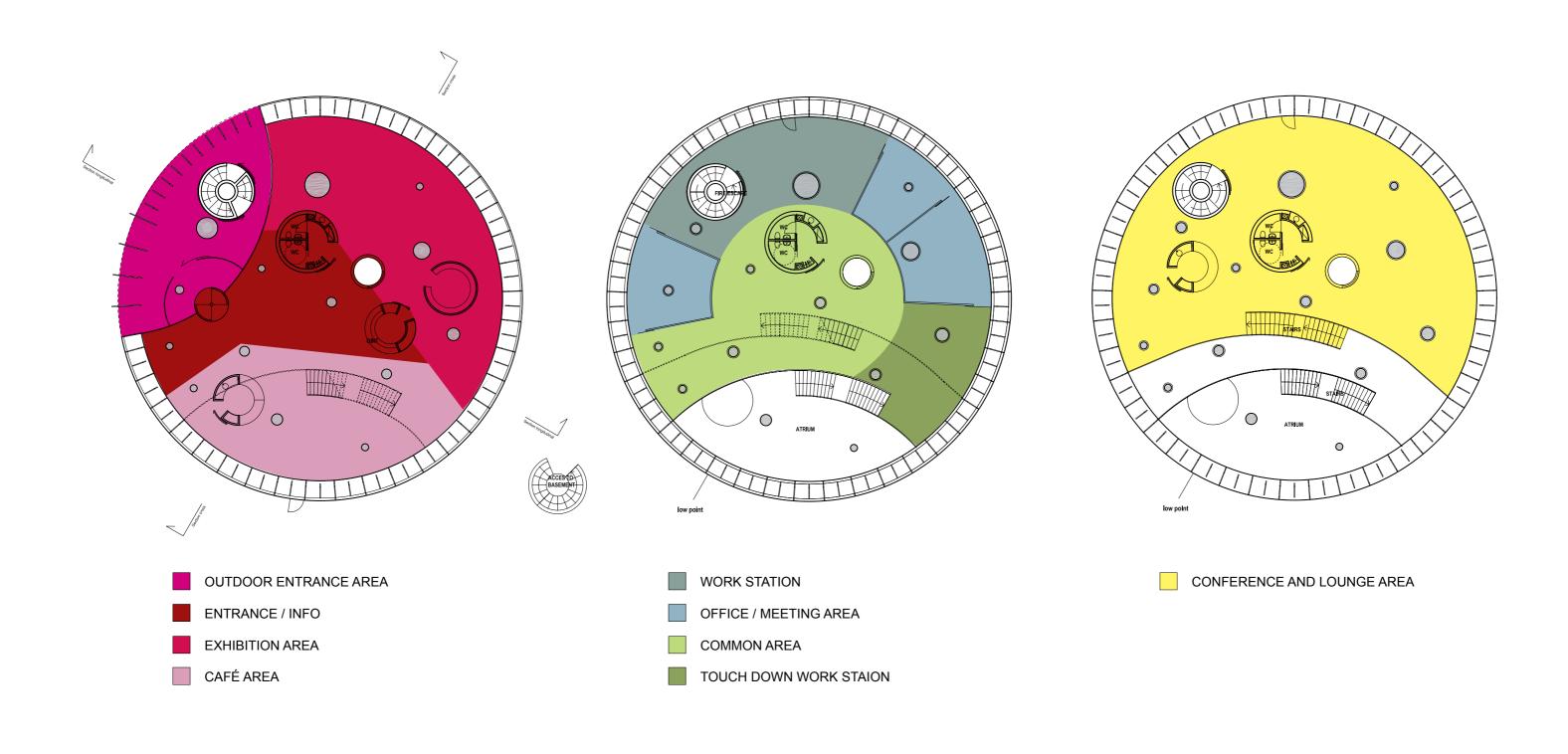












ACTIVE ARK

Total area	136.468 sq. m.
Total greenery area, including lawns	104.000 sq. m.
Total waterscape area	5.000 sq. m.
Total paved area	19.700 sq. m.

FOREST OFFICE

Total Over-ground Area	6,268 sq.m.
Total Underground Area	3,203 sq. m.
Ground Level Footprint	1,438 sq. m.
Number of Floors	4

THE SUNFLOWER BUILDING

Total Over-ground Area	1,270 sq. m.
Total Underground Area	551 sq. m.
Ground Level Footprint	647 sq. m.
Number of Floors	3