EXISTING

1. METRO STATION
2. AAMTH
3. MMCA
4. ESSO PAPPAS
5. YMCA ARCH
6. OTE TOWER

BUSINESS CENTER

1. HOTEL
2. OFFICE
3. COMMERCIAL
4. MULTIPURPOSE HALL : PAVILION 1
5. COMMERCIAL STRIP

EXHIBITION CENTER

1. HALL A
2. HALL B
3. HALL C «Luxury Hall»
4. HALL D

CONGRESS CENTER

1. CONGRESS CENTER

PARK

1. PLAYGROUND
2. CAFE
3. EVENT SPACE
4. SCULPTURE GARDEN

UNIVERSITY CAMPUS

YMCA PARK

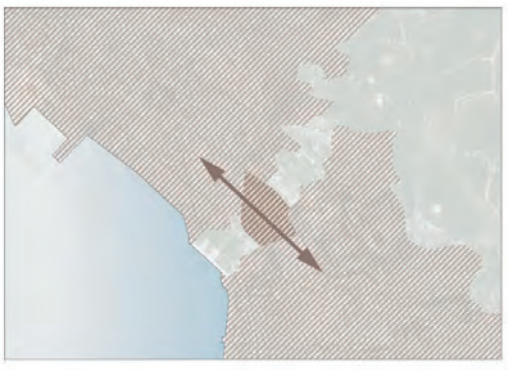
ARCHAEOLOGICAL MUSEUM

BYZANTINE MUSEUM

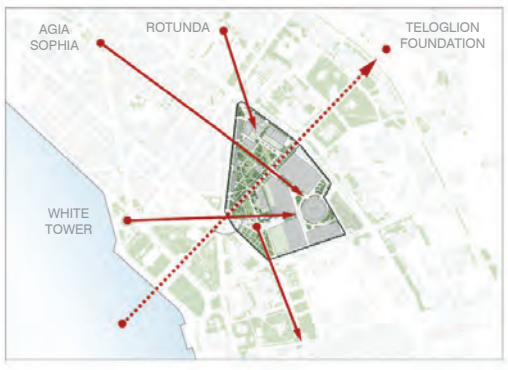
MILITARY ZONE

The ConfEx Park project is a unique opportunity for Thessaloniki to reconquer a “lost” land and redefine a true urban continuity between the historic centre and the central Eastern parts of the city, as well as rewriting the history along the classical axis between the Thermaic gulf and the Seikh Sou Mountain.

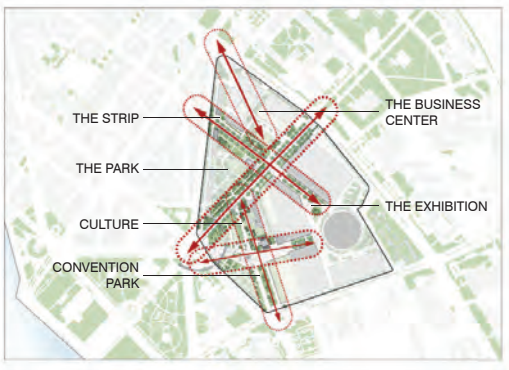
GREEN ‘HEART’ AND CONTINUITY
From the Thermaic Gulf to the Seikh Sou Forest



URBAN LINK
Between the city center and the eastern part of the city

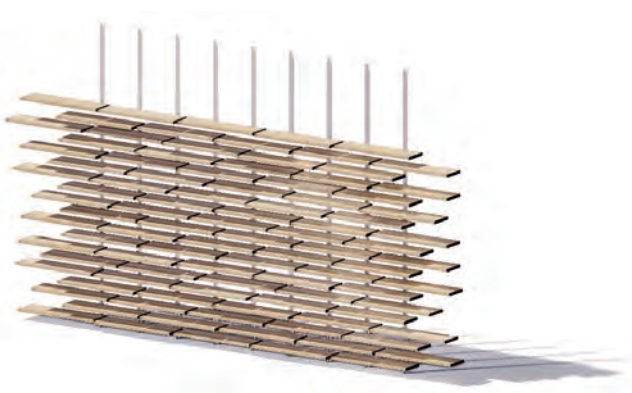


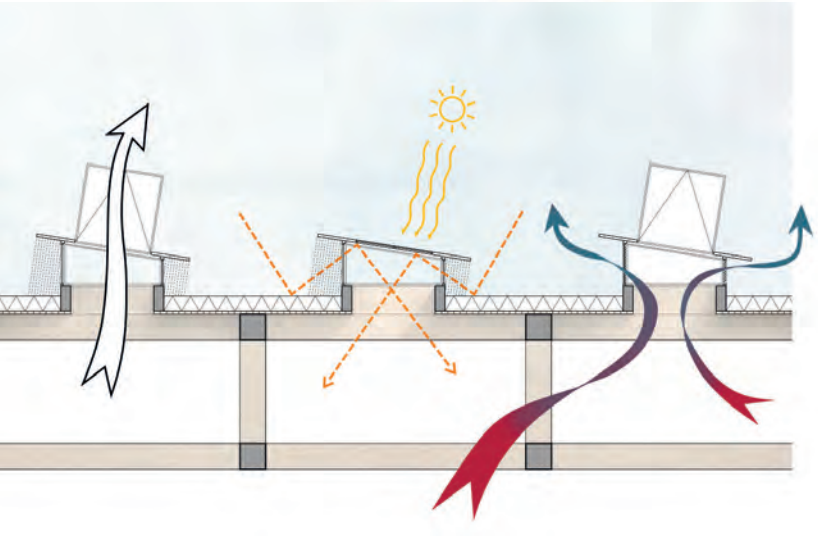
INTEGRATION & CONTINUITY
Spatial and Visual Connections and Transparencies



URBAN SCENOGRAPHY
Spatial Continuity - Urban Narratives - Destinations, Spaces and Mixed Use

ENHANCING URBAN IDENTITIES AND LOCATIONS
Different Characters of the Sectors





VISION AND PHILOSOPHY OF THE DESIGN

Our vision is to reveal the **hidden qualities of the place** and turn them into a truly **local and sustainable identity** anchored in the heart of Thessaloniki.

Our aim is to create **new urban landmark** and green destination for the Thessalonians and a national and international reference of exhibitions and congresses for the region and Greece.

The EXISTING HERITAGE and the continuity of the URBAN FABRIC - origin of a unique identity

Based on the proposed urban strategies of the city, we will sensitively create a **continuity** between past and future, by preserving and reconverting **additional architectural treasures** like the Pavilion 1 as a modernist milestone in the history of the ConfExPark history and the buildings along Aggelaki Street.

We will extend the city fabric by adding **new urban episodes** in prolongation of the existing axes reaching out into the site thus creating a visual and physical link with the surrounding city and a new functional, spatial and urban experience.

Each new sector of the project will show a **unique character** enhancing the position of the existing heritage and adding richness to the urban experience of the site:

The **Congress Sector** and the **Central Park** frame the new **Cultural Sector** radially arranged around the YMCA Square, enhance the integration of the MMCA building, the OTE Tower, the Pappas Pavilion and the YMCA Arch.

The **Hotel and Business Sector** radially arranged around the Syntrivani Square forms the Northern entrance from the future Underground Station.

The new **Strip Park** animates the link from YMCA Square to Syntrivani Square along Agelakki Street also forms a natural sound barrier to the Central Park with its reconverted buildings.

The entrances of the **Exhibition Sector** visually and physically linked across the adjacent sectors along the axes to Hagia Sophia, the White Tower and Syntrivani Square reinforce, along theses axes, the synergies between the different sectors and the city.

The CENTRAL PARK - green lung and destination

The **Central Park** will be the green heart of the project spreading out to embrace all other sectors. More than 50 % of the surface of the site will be reconverted into greenspaces and parks to become **the new green lung** of the city. It will offer a much-needed place for leisure and relaxation to the habitants as well as having a significant impact on the quality of the **microclimate**, the **biodiversity** and the **air** of Thessaloniki.

The LOCAL MATERIALS and the BIOCLIMATIC DEISGN – source of a local identity

The architecture is marked by its **bioclimatic design** and the use of **natural materials** in local tradition. The design of the new buildings avoids directly exposed transparent facades and filters the sunlight through semi-transparent brick facades and creates zones of shading around the buildings with canopies and balconies generating a passive bioclimatic skin to the buildings.

The use of bricks, terracotta and rammed earth excavated on site will link the appearance of the buildings directly to its site.

SUSTAINABILITY AND FRUGALITY – ZERO Carbon

The bioclimatic design, local materials and constructive traditions as well as the maximum use of renewable structural materials such as wood to reduce the use of concrete and steel to the strict minimum are the basis of the sustainable concept. This concept to achieve a carbon neutral design is enhanced by the maximum recourse to local energy sources like geothermal, sunlight and wind available on site.

The architectural design is also guided by **efficiency** and **functionality** and avoids any excess of materials, reducing on the one side any unnecessary use of materials but offering on the other side a cost-effective design and an overall **frugal** approach.

The phrase by Dieter Rams '***LESS BUT BETTER***' resumes this approach in just a few words.

A strong LOCAL CHARACTER to become an ICONIC LANDMARK

Our goal is to create an ICONIC LANDMARK that reveals the strengths of the site in all its dimensions and generate, on the basis of its DNA, a **durable local character** and strong identity:

The Conservation of local landmarks which marked the history of the site and the integration of the axes reconnecting historic and new reference points visually and physically are the **urban dimensions**.

The use of local materials, colours and traditions, the bioclimatic design respecting the local meteorological conditions are the **architectural dimensions**.

The use of local materials and natural forces as source of energy are the **sustainable dimension**.

The creation of green areas and parks with local species is the **biodiverse dimension** which can only be achieved locally.

All these dimensions shaped the architecture of the project to become a unique project for Thessaloniki.

OVERALL DESCRIPTION OF THE PROJECT

Business Center

Zone 3's urban scale is comparable to the surrounding city blocks. The commercial podium is complemented by vegetation, creating an outdoor business quarter, mixing cafes, restaurants with shops and offices.

The existing commercial buildings on Aggelaki Street are simplified and enhanced with a shading structure and accompanied by parkside terrasses thus creating a commercial lining to the park, and letting urban uses seep into the green side while being protected from the street side.

We propose to preserve and refurbish Pavillion 1, and give it its 1956 façade back, now facing the new Exhibition halls. This pavilion hosts the multipurpose rooms as well as cafes, and a bookshop; it now relates to a new plaza connected to the commercial district.

A flower market will line the axis from Svolou avenue to the entrance of the exhibition park, a shaded structure amongst the trees.

Exhibition Center

The exhibition center is composed of 4 halls, A to D. Hall C is the luxury hall attached to the congress center. They all share the same free floor height at grade, 8m under any obstacle. They are characterized by the use of wooden structures spanning 36 or 63m for double and single level halls respectively.

The first floor of the double level halls is composed of 36x36m double-vaulted modules that offer a central free height of approximately 7m. Hall A, the deepest, is made of two rows of 36m-wide strips that are separated by a slot letting light and air penetrate the center of the building.

Main vertical circulations are linking ground and first floor via outside space or wide balconies that are enclosed by Moucharabieh or Claustra envelopes shielding the building from direct solar heat, while promoting natural ventilation.

All circulations along the facades of the exhibition halls are protected by 6m projecting shading, thus protecting visitors and façade from direct sunlight.

Glazed portions of the façade are located where the main entrances of the halls are situated, and let the view through towards the vegetation or outdoor exhibition spaces, in an inside-outside relationship.

Congress Center

The congress center is imagined as a part of the ConEx Park landscape.

As a signal, it is steps forward to the west to display its layers of ceramic and wood, and generously opens its foyer towards the park and Stratou Avenue.

The access of the Congress Center is located along with the south entrance of the Exhibition Center and allows a strong and direct link between the modular congress rooms and the luxury exhibition center to the north.

The foyer's double height façade, set back from the sun, is largely glazed and offers a direct view to the south side of the park, bringing nature inside the building, as well as the west side, link it strongly with the entrance of the Exhibition Park, and the preserved architectural heritage.

Upstairs, a panoramic terrace gives the restaurant two main spectacular views, onto the sea to the west, and looking towards the new park to the north-west, a perspective looking towards the new face of the city.

Park

The landscaping of Sector V is the unifying force of the renewed ConfEx Park. It is a binder between the preserved heritage, newly built environment, uses and functions, and the population, whether visiting of local.

Our aim with the design is to allow the natural landscaping to spread as far and deeply as possible throughout the site, and to allow a genuine link and continuation of the vegetation from the YMCA Garden on the sea side, to the Aristotle University, and further up Cara Tepe Hill to the north-east.

The Park proposes a variety of spaces, from aromatic garden, to cafes, sculpture garden, playground for children, outdoor cinema, a place for concerts; and a diversity of paths and ways to reach one's destination

Ground - Shared spaces, soft surfaces, water games and reuse of the byzantine brick patterns

Grass - Large open and shaded spaces

Shrubs - Structuring and drought resistant vegetation

Alignment trees - Organization and structuring of urban spaces

Groves - Natural transposition of surrounding forests

Small ornamental trees - Small fragrant flowering trees resistant to the urban environment

BRINGING THE GREATER LANSCAPE INTO THE CITY

The exhibition center is a central point for Thessaloniki between **Seikh Sou hill and forest** and the **Thermaic gulf**.

The purpose of the landscaping project is to bring nature back into the city and create a new attractive green central location in the city, by **bringing the greater landscape vegetal morphology into ConfEx Park**.

DESIGN

Our project will be part of the **city's vegetal heritage**. It becomes a constitutive element of the landscape and the green structure of the territory.
We propose at first to make the site more **permeable by planting 8 Ha of shrubs and grass area.**

The herbaceous layer is mostly represented by lawn surfaces. However, occasional plantations complete it with bases, transition spaces between mineral and vegetal volumes. They are mostly evergreen, flowering and fragrant like Myrthus communis, Cistus creticus, Rosmarinus officinalis…

Secondly we propose to organise the center by lining the **structuring axes** with about 230 units of alignment trees like Sophora japonica or Celtis australis.
We then propose to create masses organised as a **flexible and natural form** with various species of small ornamental trees, Melia azedarach, Koelreuteria paniculata, Morus alba, representing about 890 units.

We are creating **new concentric pathways** based on the existing structure and the **historical Park entrance** in order to relax our main axes with Cypress that will redefine the horizon.

The trees of the project are mostly evergreen, they are part of the extension of existing wooded masses. The trees will be mostly in raised stems in order to **clear the views towards the horizon**.

Ground	**6,4 ha**
Grass	**5,1 ha**
Shrubs	**2,8 ha**
Trees	**1120 u**

NATURAL MATERIALS

The construction materials of our proposal have been chosen both for their aesthetic appeal as well as their natural provenance, meaning a reduced carbon footprint and impact on our environment.

The use of **wood** is central in our design.

Expressed as part of the architectural identity, a 'wooden horizon' will span across the exhibition and congress centers, as a backdrop to the park. This structural element is the link between the exhibition halls and conference center, through its use as an extensive canopy lining the façades accessible to the public, providing sun protection to the visitors as well as the building façades.

The use of European-managed forest wood ensures the quality and sustainability of the resource.

Brick has a special place in the built heritage of Thessaloniki, as it is predominant in its Byzantine period architecture.

Through a reinterpretation of the specific proportions of the byzantine brickwork patterns, a recurring element is used throughout the project: protecting from the direct sunlight while allowing inside-outside views, clay Moucharabiehs or Claustras will provide additional comfort and performance to the buildings while echoing the rich local built history.

Along with the brick, we propose to make use of the **rammed earth** technique, in a non-structural fashion, to create thick solid walls that will be protected from direct solar influence, and thus provide thermal inertia to cool the large inside volumes of the exhibition halls during the day.

FRUGALITY

The careful choice of natural materials is associated with a **rational design**, made of **repetitive and reproducible sub-elements**, that will be sourced from a **local** provenance.

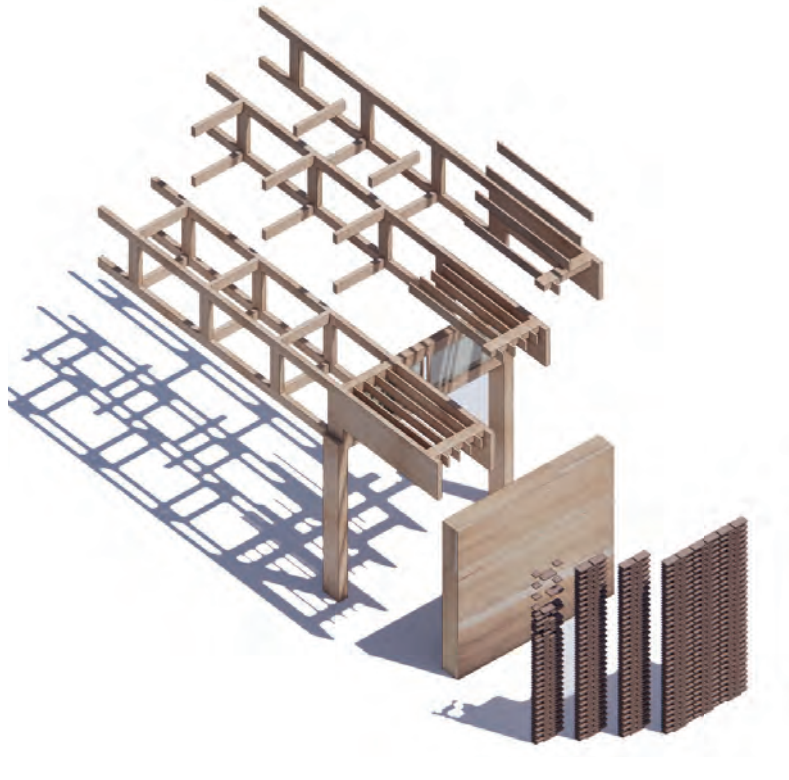
The materials used in the project require mostly little transformation, which, as well as giving them a sustainable aspect, also tends to reduce their cost.

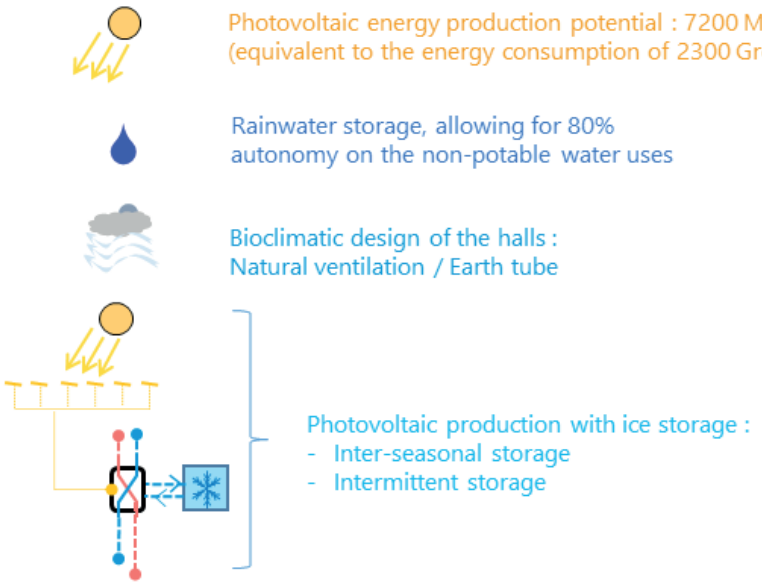
The bioclimatic design of the project and the design and choice of MEP solutions will also **reduce the running costs** of the complex, an investment for years to come.

Overall, about 8 500m^2 of existing buildings will be **additionally preserved**, with the refurbishment of **Pavilion 1** and **Aggelaki Str. buildings A,B and C**. This, as well as having positive impact in terms of carbon consumption, will decrease the overall cost of the project.

Finally, all necessary deliveries and operation of the exhibition halls will be made from grade, with trucks being able to penetrate the **ground floor** of the halls.

Although underground storage is required by the programme, we did not make underground deliveries to Halls A, B, C and D mandatory, and propose to **greatly reduce the underground footprint** of the project in the next phase.



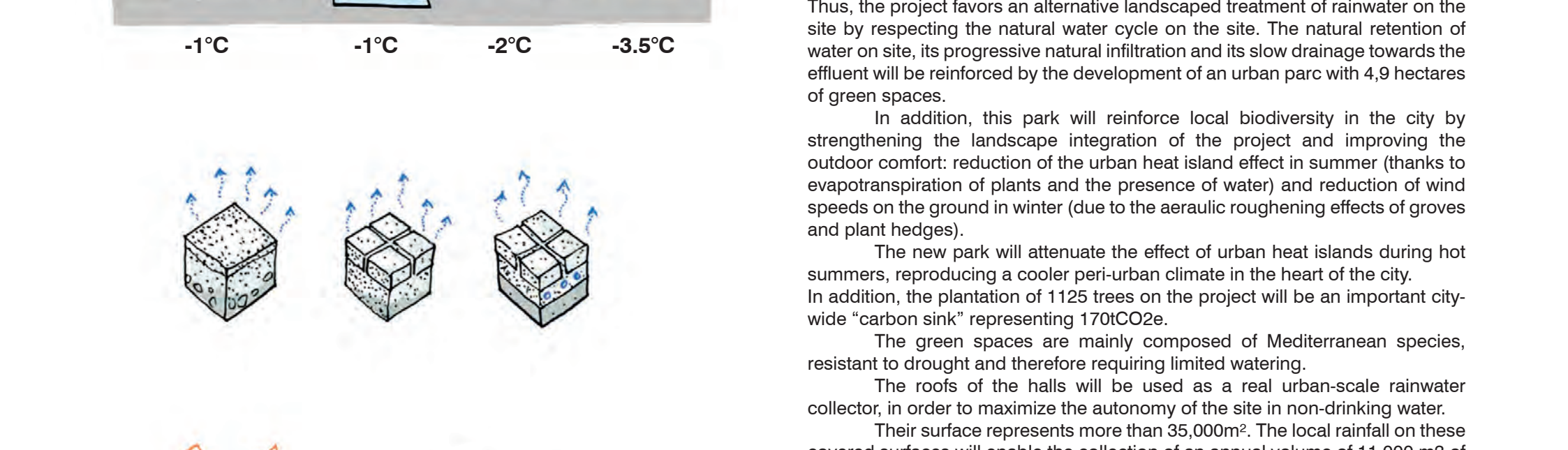


SUSTAINABILITY STRATEGY AND BIOCLIMATIC DESIGN: CLIMATE - WATER – ENERGY - CARBON

Our goal is to place ecology and sustainability in the heart of the urban renewal project. In order to achieve that, the site will be designed as an active infrastructure, contributing to users' comfort, promoting biodiversity and producing renewable energies. It will pave the way for the energy transition by limiting its impact both locally and globally on the consumption of natural resources, energy, water and on global warming.

Key points of the sustainability strategy of the project:

- Creation of an "urban biodiversity well" and a "green lung" for the city of Thessaloniki.
- Restoration of the natural water cycle on the plot.
- Bioclimatic design of the halls and associated buildings.
- Production of renewable solar energy integrated in the building roofs.
- Frugal design focused on reducing the carbon footprint of the project.



WATER MANAGEMENT, BIODIVERSITY AND REDUCTION OF THE OF THE URBAN HEAT ISLAND EFFECT

The ambition of the project to create a new urban park encourages us to put water management at the center our environmental strategy.
Thus, the project favors an alternative landscaped treatment of rainwater on the site by respecting the natural water cycle on the site. The natural retention of water on site, its progressive natural infiltration and its slow drainage towards the effluent will be reinforced by the development of an urban parc with 4,9 hectares of green spaces.

In addition, this park will reinforce local biodiversity in the city by strengthening the landscape integration of the project and improving the outdoor comfort: reduction of the urban heat island effect in summer (thanks to evapotranspiration of plants and the presence of water) and reduction of wind speeds on the ground in winter (due to the aeraulic roughening effects of groves and plant hedges).

The new park will attenuate the effect of urban heat islands during hot summers, reproducing a cooler peri-urban climate in the heart of the city.
In addition, the plantation of 1125 trees on the project will be an important city-wide "carbon sink" representing 170tCO2e.

The green spaces are mainly composed of Mediterranean species, resistant to drought and therefore requiring limited watering.

The roofs of the halls will be used as a real urban-scale rainwater collector, in order to maximize the autonomy of the site in non-drinking water.

Their surface represents more than 35,000m². The local rainfall on these covered surfaces will enable the collection of an annual volume of 11 000 m3 of water, the equivalent of 4 Olympic-sized swimming pools!

This water will be stored and used for the sites non-potable water needs : the maintenance and cleaning of the halls, the toilets and the limited watering requirements of the park.

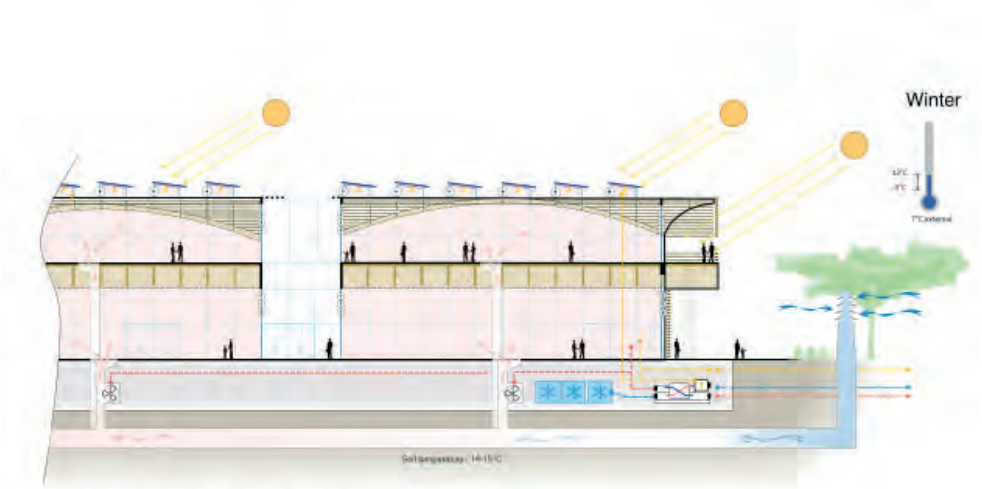
The rainwater harvesting of the 35000m² of the roofs would allow for 80% autonomy on the non-potable water uses including toilets used by 8000 daily visitors (one week per month) and watering of 1.8 hectares of green space (Mediterranean species).

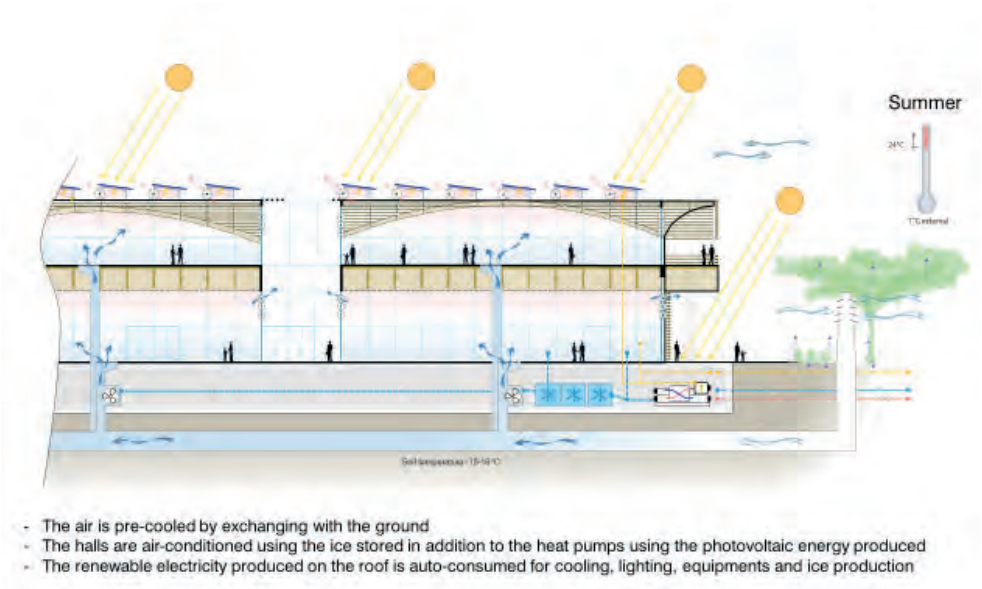
BIOCLIMATIC DESIGN AND PASSIVE THERMAL COMFORT OF THE EXHIBITION HALLS

The bioclimatic design of the indoor and outdoor spaces of the site is a key strategy to our project. The exhibition halls are designed based on passive design principles, the illustrations below present the passive design strategies adopted on hall A and replicated to the other buildings :

- A compact building design, reducing heat losses
- A north to south orientation, allowing for better natural ventilation assisted by the prevailing winds
- A roof overhang of 6m shielding the facades from the solar irradiation
- A large balcony on the first floor protecting the south facades of the ground floor and offering comfortable outdoor spaces to the exhibition halls
- A facade design using geo-sourced materials (a perforated rammed earth façade) protecting the glazed façades, increasing the thermal mass and host of natural ventilation openings

When unoccupied or during the mid-season, the halls operation will be 100% passive, benefiting from the natural elements of the site: sun, wind, water and the thermal mass of the concrete floor and rammed earth façade. The natural ventilation strategy allows for the halls to be naturally cooled, the thermal mass of the concrete ground floor keeps the temperature low during daytime.
During the events, the passive design strategies are combined with a series of renewable energy systems in order to provide resilient user comfort and energy savings.





RENEWABLE ENERGIES INTEGRATED IN THE BUILDING DESIGN

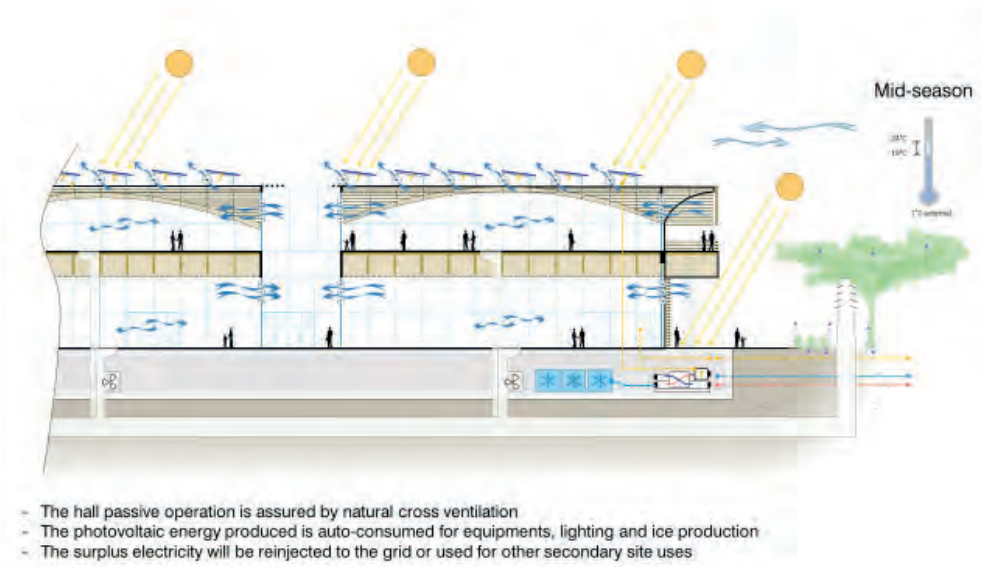
The city of Thessaloniki presents an annual solar potential of 1600kWh/m² for production of solar thermal and photovoltaic energy. Renewable energy production is usually limited in dense urban environments, due to lack of surfaces or suitable exposure. The large roof surfaces deployed on the project therefore present a unique opportunity to produce renewable energy simply and efficiently on site, in proximity to the neighborhood energy demands.

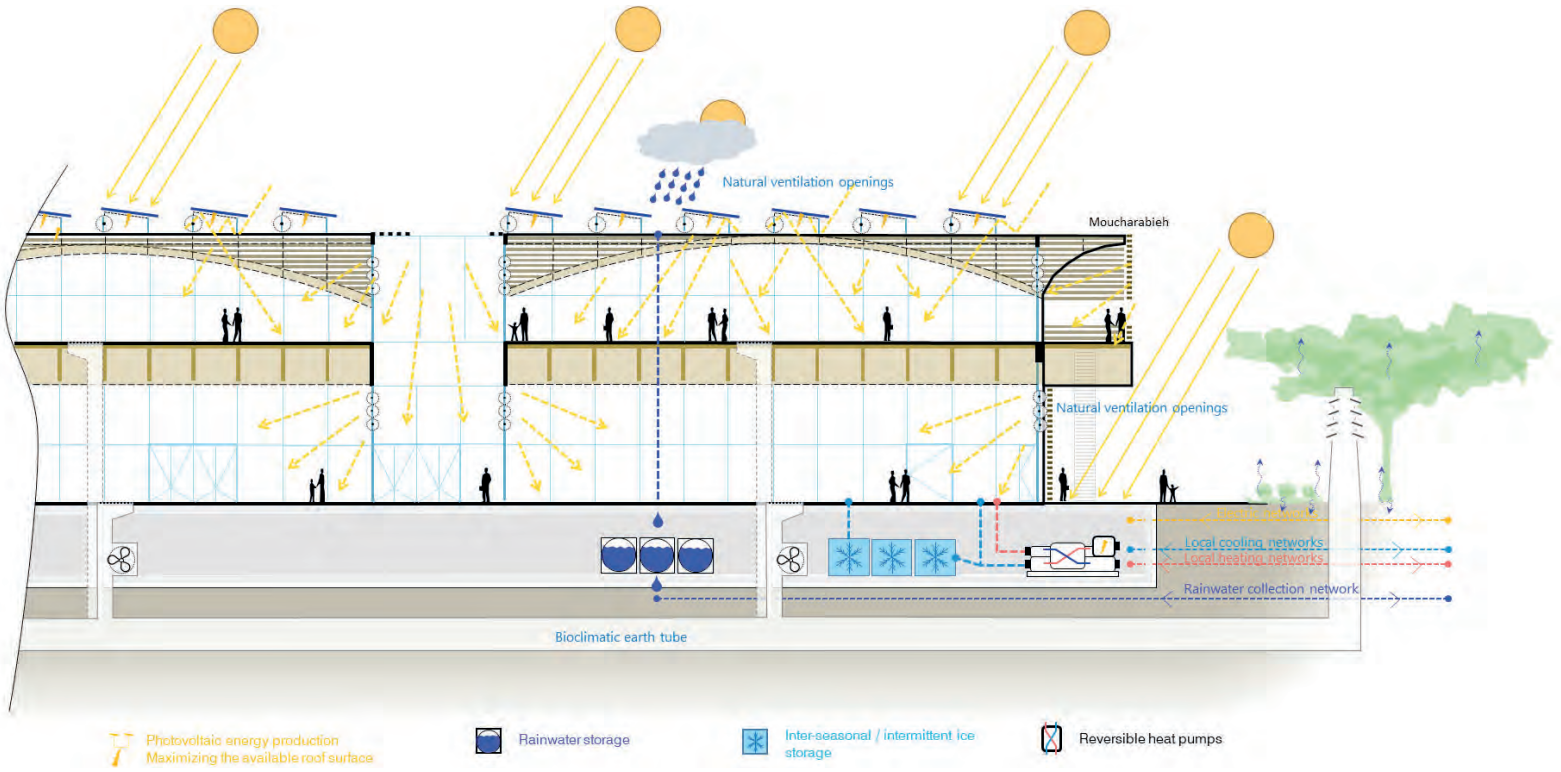
- An urban solar farm installed on top of the roof of the halls protects the buildings from the excess solar irradiation, while harvesting the sun power for the energy needs of the site.
- The solar panel modules allow indirect natural daylight to penetrate to all exhibition spaces; this design will produce significant energy savings both for lighting and cooling

In Greece the part of renewable energy production has significantly increased during the last years, representing today 20 % of the country's energy consumption. Aligned with the targets of further development of the renewable energy sector, the halls roofs will be widely used to produce photovoltaic and solar thermal energy.

At this stage around 20% of the roof surface is covered by PV panels. This represent an installation of 1MWc in total for the 4 halls. This production would be dedicated to the direct electricity needs of the halls and the ice production for the cooling systems. During longer unoccupied periods the surplus energy will be reinjected to the grid or used for other secondary uses, such as recharging electric vehicles in the car parks.

A large surface of the roof is still available for a creation of a "city solar farm". With an 80% PV roof coverage, the site will be able to eventually host a 4MWc installation producing up to 7200 MWh/year. The surplus electricity can be exported to the grid, offering a renewable energy source for the neighboring community, covering the energy needs of 2300 residents of the city.





100% SOLAR AIR CONDITIONING POWERED BY ICE STORAGE

To compensate for the intermittent occupation of the exhibition halls, the project provides for the implementation of an ice storage system. It includes a closed circuit water loop which will be frozen and stored in large insulated containers located in the basement. The electricity produced by the photovoltaic panels on the roofs will be used in priority for the ice production, using reversible heat pumps.

During summer events, ice will be the primary and renewable cooling source, which will also allow for a reduced sizing of the remaining chillers by up to -70%.

Ice can also be produced in winter using the waste energy produced by the reversible heat pumps while heating the halls. In summer, the waste heat can used for the DHW needs of the site's hotel.

The advantages of ice storage:

- Reliable and proven technology
- Low cost, compact energy storage system
- Simple underground integration
- Cold storage possible over several consecutive months as well as over a few days
- Adapted to intermittent occupancy
- Adapted to programs with high cooling demands
- Allows to greatly optimize the cooling equipment sizing
- Great flexibility of operation (instantaneity and variability of power)

FREE AIR PRE-HEATING OR PRE-COOLING BY GEOTHERMAL TUBE

The soil temperature remains stable all year round; it is approximately 15°C in a depth of 3m. By exchanging with the ground using simple ducts circulating under each hall, the air can easily be warmed up by several degrees in winter before being blown at slow speed into the hall. In the same way, the air can be pre-cooled during the summer.

Furthermore, depending on the season, the hall will benefit from a free pre-heating or pre-cooling of the air thanks to a simple and effective «earth tube» system using the temperature difference between the medium depth soil and the outside air.

In winter, free air preheating will significantly limit heating consumption. In summer, this free pre-cooling of air will be supplemented by the production of solar cooling using the ice storage.

The advantages of the earth tube:

- Simple and proven low tech system: network of air tubes embedded in the foundations under each hall
- Reversible summer / winter mode
- Shallow depth of the system
- Renewable energy (surface geothermal energy)

LOW ENERGY CONSUMPTION BUILDINGS

The above mentioned strategies will generate significant energy savings and therefore reduced carbon emissions for the operation of the site: saving in artificial lighting, energy for DHW, heating and cooling needs and a significant production of renewable energy.

In addition, the rest of the site buildings (commercial, conference center, hotel and offices) will use innovative technical solution aiming at reducing their energy demand and consumption.

The following design principles will be further developed in the next design stages:

- Energy efficient envelopes: reinforced insulation and waterproofing, daylight and active control of solar gains according to the season, natural ventilation etc.
- Modular indoor climate control: Centralized management of the indoor climate ambiences based to occupancy. Thermal and lighting zoning, mechanical ventilation modulated according to needs and occupancy.
- Waste heat recovery systems: mechanical ventilation with heat recovery, waste heat recovery from heat pumps...
- Decentralized production for each building with an energy exchange network connecting the different buildings and enabling for pooling of needs between different programs: for example, the cooling production by heat pumps allows the recovery of waste heat to be used either for another space within the building or another building at the site.

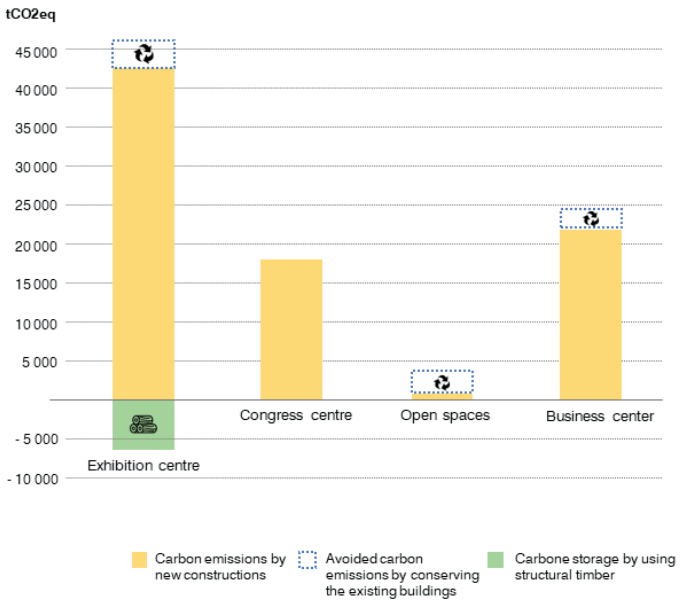
OUR LOW-CARBON CONSTRUCTION APPROACH

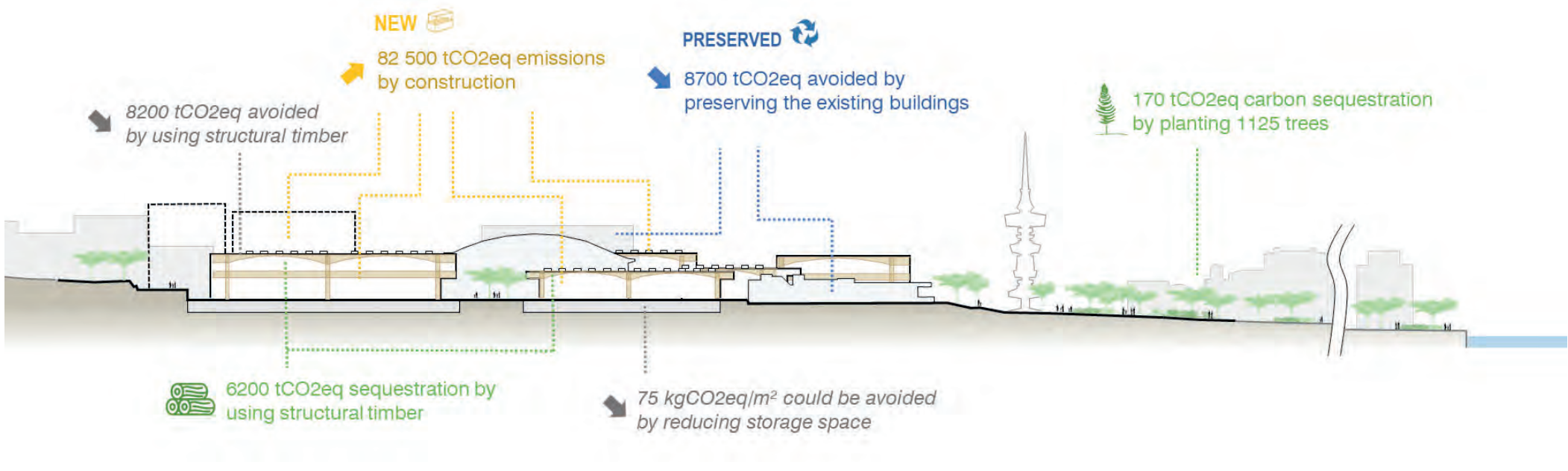
Our project has an integrated approach to energy and carbon savings.

On top of the originally preserved buildings, we have chosen to preserve 4000 m² of existing commercial spaces on the site and the original Pavilion 1. In total, the buildings preserved contribute to avoiding the emission of almost 9000 tons of CO2e.

We have also identified potential carbon saving strategies to be developed in the future project phases, for example the construction of the 12000 m² of storage space represents a total of 900 tons CO2e. A review of the sites storage needs could allow for a significant reduction of this post, each m² non-built would account for a potential savings of 75kg CO2e.

The use of structural timber in the halls reduces the carbon footprint by 8200t CO2e (compared to a metal/concrete structure). In addition, the timber structure represents a carbon sequestration of 6200t CO2e.





STRUCTURE : LOW CARBON CONSTRUCTION

Moreover, in order to achieve an exemplary of environmental design, our intention is to work on the optimization of the embodied carbon footprint of the construction by selecting bio-sourced or “low carbon” materials whenever possible and by aiming at structural and material economy:

- Material economy and structural efficiency: lightweight structure, efficient structural design and elegant construction principles without excess material use with precast element and fast on site construction.
- When required, the use of low carbon concrete will be studied during the project as an alternative construction solution for the building structure.
- “Less is more”. We will optimize cross sections and schematic diagram in order to improve structural efficiency and reduce overall carbon footprint.
- Timber, and other bio-sourced material, will be used to replace concrete or steel in primary or secondary structures whenever compatible with the use, technical requirements and durability of the structure:

Buildings A & D – Two-dimensional vaults with 36x36 m span:

Timber is a traditional building method that allows the construction of the lightest long-span structures with short planning requirements. Buildings A & D are 2-storey buildings composed of:

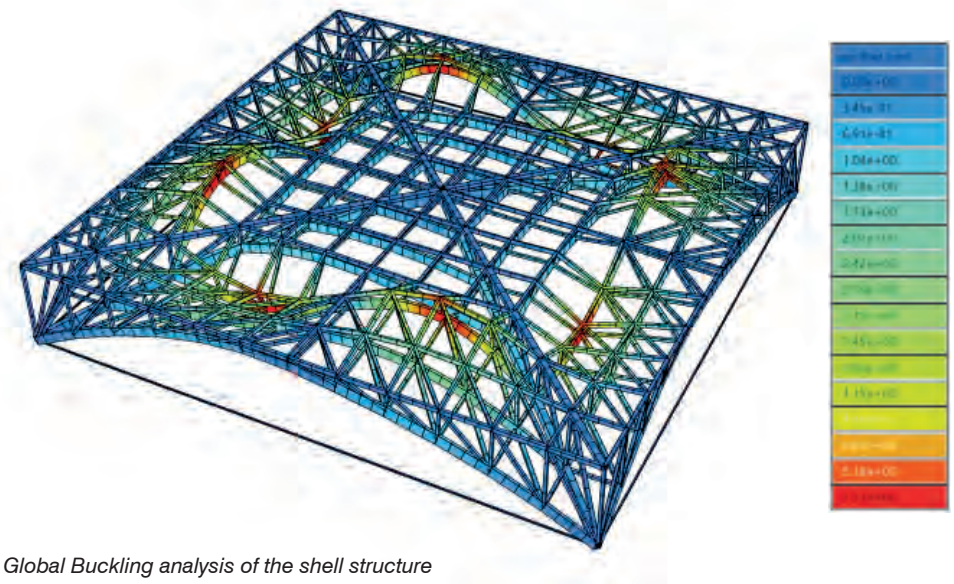
- The intermediate accessible floor made of 9m span mixed timber/concrete slabs which are supported by transversal steel welded profiles of 36m length. The concrete and timber mixed slab represents an optimal solution to meet technical requirements (static, dynamic & comfort), fire issues, lightweight structures and reduced carbon footprint.
- A lightweight roof made of two dimensional timber vaults. The vaults have a typical span of 36x36m in order to support the roof and photovoltaic panels. Prestressed peripheral tie (in facades plane) allow to stabilize the overall roof, control deflection of the gridshell and free up the internal space of exposition.

The overall stability under dead, live and seismic loads are given by:

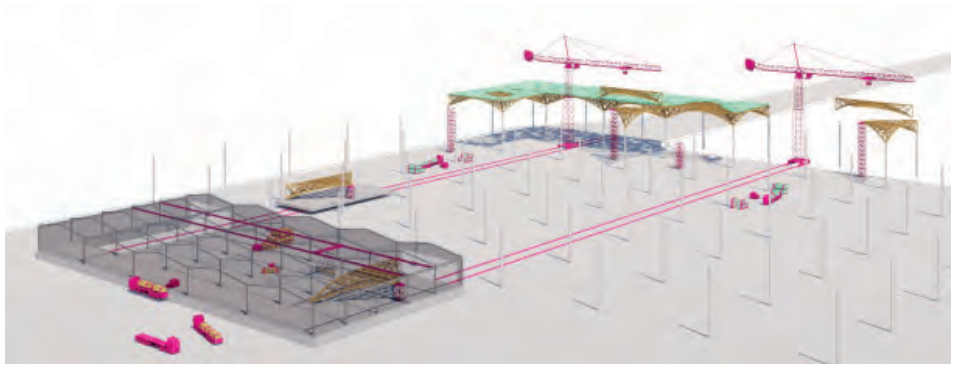
- The 36x36m upper frame and 9x36m lower structural frame are aligned. So under vertical loads the vaults and the intermediate mixed slabs transfer loads to peripheral columns. Then, vertical loads are applied to the foundations. Further studies based on soil properties will defined foundations typology (shallow, piles etc.).
- Under horizontal loads, the geometry of the vaults assures natural in-plane bracing of the roof. The roof is connected to concrete cores on the side and braced frame on opaque façade to transfer horizontal loads to the foundations. The continuous concrete slab of the intermediate level constitute horizontal rigid diaphragm connected to vertical concrete cores and braced frames.
- The lightweight upper structure and stability by diagonal bracing and concrete cores allow an efficient and ductility behavior under seismic loads.

The efficiency of the overall design have been checked by:

- Analysis of the designed structure has been made in order to confirm the overall stability, dimensioning and optimize wood volume and structural weight. Calculations for deflection criteria regarding structural and roof compatibility, ultimate state including local and global buckling for the 36x36m module was performed (see figures beside)



Global Buckling analysis of the shell structure

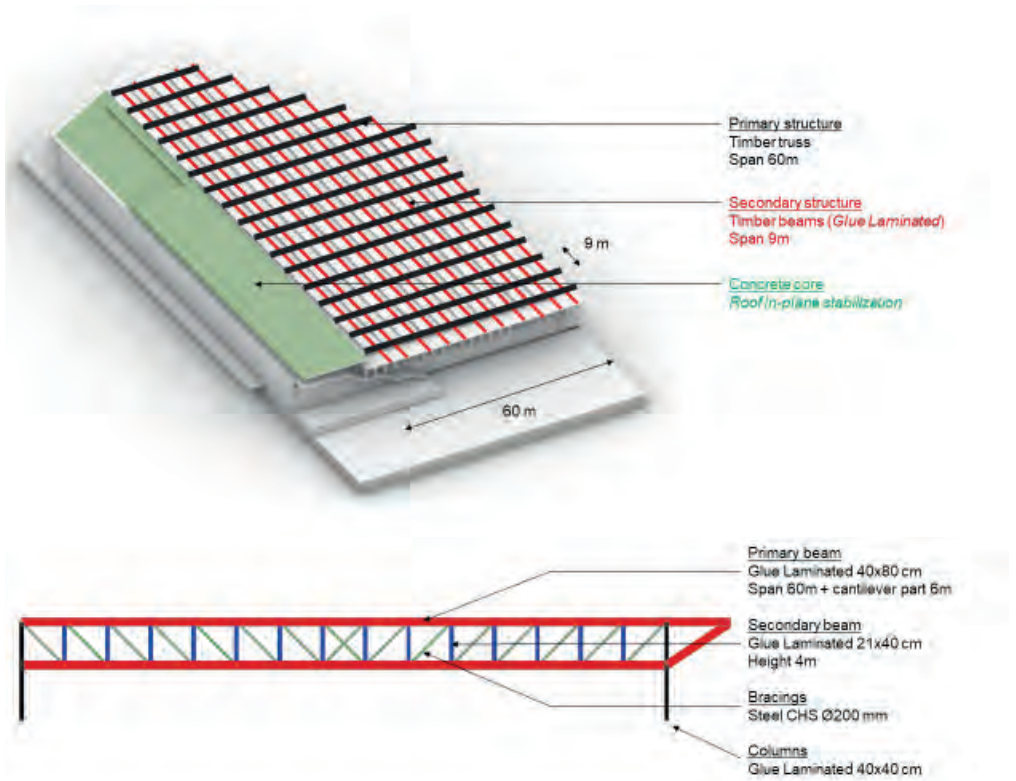


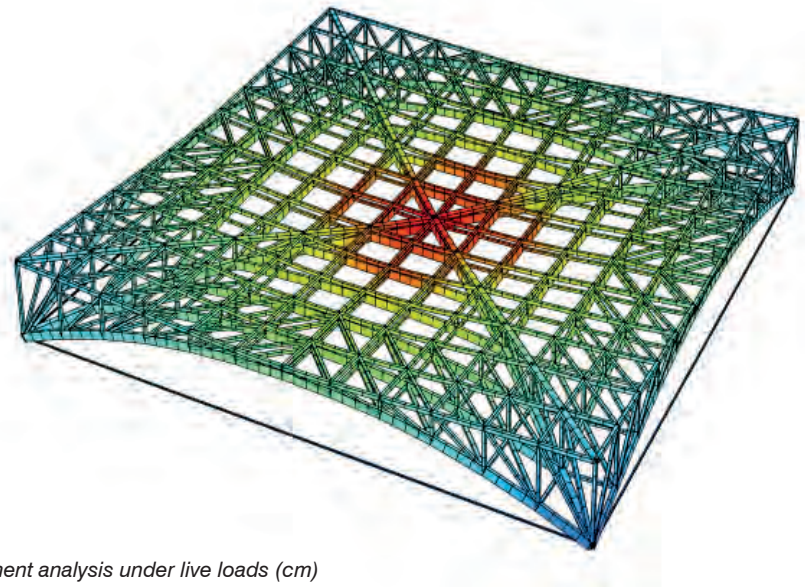
- In order to optimize material use and embodied carbon footprint, we studied different schematic diagram and structural orientations.

For example, an orientation for secondary structures of 45° allows a global timber weight reduction of 7%. Those parametric studies (geometry form-finding an topology) would be made in further phase to achieve the best project according to client’s requirement.

Buildings B & C – One-dimensional trusses with 60 m span:

Buildings B and C are designed on a second schematic diagram to best meet the structural efficiency requirements. Primary timber trusses support the roof with a 60m span, from the concrete core on one side to the façade with a 6m cantilever part to the other. Orthogonally, secondary glue laminated beams with a 9m span support the photovoltaic panels.
Both buildings are stabilized in-plane for both wind and seismic loads thanks to bracings in the roof’s plane. The bracings connect the roof to the lateral concrete core in order to transfer lateral loads to the foundations. If needed, complementary bracings in the façade can be added punctually to limit torsional effects due to core eccentricity.
Both primary and secondary structures are designed and optimized for static (dead loads, living loads, wind) and seismic load cases in order to estimate precisely the material use and the carbon savings induced by the design.





Displacement analysis under live loads (cm)

International Architectural Design Competition for the Thessaloniki ConfEx Park

Data Sheet for the evaluation of the Economy of the Project

No	Description	SECTORS I & II Plot Area (I) = 39.397,11 m² Plot Area (II) = 16.339,68 m²			SECTOR III Plot Area = 20.034,00 m²		SECTOR IV Plot Area = 13.971,22 m²		SECTOR V Plot Area = 58.900,71 m²		TOTAL Plot Area = 161.769,04 m²	
		Proposed by Competitor (SECTOR I)	Proposed by Competitor (SECTOR II)	Programme Requirements (SECTOR I & II)	Proposed by Competitor	Programme Requirements	Proposed by Competitor	Programme Requirements	Proposed by Competitor	Programme Requirements	Proposed by Competitor	Programme Requirements
A. General Metrics												
A1	Above Ground GFA (m²)	35.600	12.900	max 48.500	23 800 *	max 26.750	17 300	max 16.500	250	max 250		max 92.000 excl. preserved bldgs
A2	Below Ground Parking use GFA (m²)	16 800	-	-	24 300	-	6 490	-	0	-		-
A3	Below Ground other Aux uses GFA (m²)	-	10 800	-	3 500	-	4 800	-	0	-		-
A4	Net Floor Area NFA (m²)	34.700	12.500	-	22 830	-	16 435	-	250	-		-
A5	Building Coverage ratio (%) & Area (m²)	47% - 18.690	66% - 10.777	-	53% - 10.700	max 60% - 12.020,40	93% - 13.067	-	0.004% - 250	-	37% - 53.484	max 45% - 64.000 excl. AAMTH – pres.bldgs
A6	Gross Volume above Ground (m³)	335.000	129.400	-	121 420	-	205 485	-	1000	-		-
A7	Foundations Footprint (m²)	23 114	15 200	-	10 350	-	13 745	-	N/A	-	-	-
A8	Façade (m²)	13 300	5 160	-	15 230	-	5 393	-	280	-	-	-
A9	Exterior Openings (m²)	5 015	2 600	-	10 149	-	814	-	140	-	-	-
A10	Accessible Roof surface (m²)	0	1.000	-	2 270	-	-	-	0	-	-	-
A11	Inaccessible Roof surface (m²)	21.200	11.000	-	8 990	-	7831	-	250	-	-	-
A12	Green Roof surface (m²)	0	400	-	920	-	6895	-	250	-	-	-
A13	Balconies / Open Covered Areas (m²)	2.600	0	-	6 425	Hotel: max 40% of GFA	762	-	0	-	-	-
B. Programme Area												
B1	Exhibition Center Area (m²)	35 600	11.500	47.000	-	-	-	-	-	-	-	-
B2	Administration Offices Area (m²)	0	1.400	1.500	-	-	-	-	-	-	-	-
B3	Hotel (m²)	-	-	-	7 600	7.250	-	-	-	-	-	-
B4	Commercial Complex / Retail–Recreation (m²)	-	-	-	9 300	9.000	-	-	-	-	-	-
B5	Commercial Complex / Offices (m²)	-	-	-	7 500	7.000	-	-	-	-	-	-
B6	Multi-purpose Hall (m²)	-	-	-	3 700	3.500	-	-	-	-	-	-
B7	Conference Center Area (m²)	-	-	-	-	-	11 000	10.500	-	-	-	-
B8	Luxury Exhibition Hall Area (m²)	-	-	-	-	-	6 300	6.000	-	-	-	-
B9	Cafeteria (m²)	-	-	-	-	-	-	-	250	250	-	-
B10	Underground Parking Area (m²)	16 800	-	12.500	24 300	25.000	15 000	15.000	-	-	-	-
B11	Underground Storage Area (m²)	-	10 800	12.000	3 500	3.500	4 800	2.000	-	-	-	-
C. Open Areas												
C1	Provide Area of Roadways (m²)	-	-	-	-	-	-	-	6 200	-	-	-
C2	Provide Area of Pedestrian Pathways (m²)	-	-	-	-	-	-	-	60 000	-	-	-
C3	Provide Area of other Hardscape (m²)	-	-	-	-	-	-	-	15 000	-	-	-
C4	Provide Area of green Landscape without underground buildings (m²)	-	-	-	-	-	-	-	31 000	-	-	-
C5	Provide Area of green Landscape over underground buildings (m²)	-	-	-	-	-	-	-	2 000	-	-	-
C6	Provide Area of other Landscape (m²)	-	-	-	-	-	-	-	18 000	-	-	-
C7	Provide Area of Water Features (m²)	-	-	-	-	-	-	-	500	-	-	-
C8	Provide Area of other structures (m²)	-	-	-	-	-	-	-	1 500	-	-	-

*Note : Aggelaki Street buildings A,B,C are being refurbished and used as commercial surface outside sector III

SINTRIVANI SQUARE

UNIVERSITY CAMPUS

WHITE TOWER

YMCA PARK

ARCHAEOLOGICAL MUSEUM

BYZANTINE MUSEUM

MILITARY ZONE

EXISTING

1. METRO STATION
2. AAMTH
3. MMCA
4. ESSO PAPPAS
5. YMCA ARCH
6. OTE TOWER
- ADDITIONAL PRESERVED BUILDINGS

BUSINESS CENTER

1. HOTEL
2. OFFICE
3. COMMERCIAL
4. MULTIPURPOSE HALL : PAVILLION 1
5. COMMERCIAL STRIP

EXHIBITION CENTER

1. HALL A
2. HALL B
3. HALL C «Luxury Hall»
4. HALL D

CONGRESS CENTER

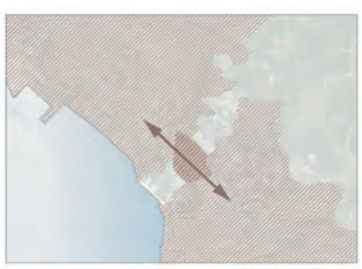
1. CONGRESS CENTER

PARK

1. PLAYGROUND
2. CAFE
3. EVENT SPACE
4. SCULPTURE GARDEN

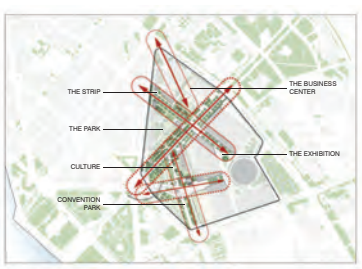
CITY SCALE
1:1500

GREEN 'HEART' AND CONTINUITY
From the Thermaic Gulf to the Seikh Sou Forest



URBAN LINK
Between the city center and the eastern part of the city

INTEGRATION & CONTINUITY
Spatial and Visual Connections and Transparencies



URBAN SCENOGRAPHY TO CREATE URBAN EXPERIENCES
Spatial Continuity - Urban Narratives - Destinations, Spaces and Mixed Use

ENHANCING URBAN IDENTITIES AND LOCATIONS
Different Characters of the Sectors

PENETRATION OF SPACE
Redefining the Urban Space

EGNATIA
CAR PARK
DELIVERIES
DROP-OFF
METRO STATION
SINTRIVANI SQ.
HOTEL
SHOPS
MULTI PURPOSE HALL
BOOKSHOP
CAFE
PAVILION 1
OFFICES
SHOPS
SHOP
SERVICE
FLOWER MARKET
AL. SVOLOU
CAFE
SHOP
CAFE
AGGELAKI
SHOP
CAFE
MMCA
YMCA ARCH
GEOR. THEOTOKA

BUSINESS CENTER

1. The metro access leads to a diversity of paths: towards the Exhibition Center's entrance, down Aggelaki Street and its commercial strip, or across the business centers shop, hotel, or offices and the Park
2. A new commercial district entirely accessible from the outside, and at grade, the anti-shopping mall
3. The existing structures on Aggelaki Street are refurbished and form an **urban buffer** to the Park
4. A flower market lines the transition between the heart of the city towards the entrance of the Exhibition Center
5. **Pavilion 1** is refurbished and now hosts the mutipurpose hall as well as shops and a restaurant.
   HELEXPO's heritage looks over the new exhibition center

EXHIBITION CENTER

1. Three pedestrian visitor's entrances to the Exhibition Center allow for a modular operation, depending on the simultaneity of any given exhibition
2. Shaded open spaces are available for outdoor exhibition
3. The back façades of Halls A and D are accessible to deliveries during visitor's presence
4. Semi trucks have access to the inside of the exhibition halls at grade
5. Preserved access to administration offices located at mezzanine level of Hall B

CONGRESS CENTER

1. The entrance of the Congress Center, located to the north, allows for a fluid distribution between the Congress rooms and the luxury Exhibition hall C
2. The conference hall's foyer is largely open towards the park to the south west

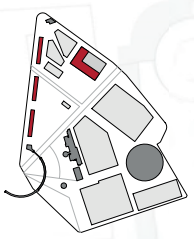
PARK

1. The Park hosts programmes open to all Thessalonians such as cafes and children playgrounds, easily accessible through a multitude of new linking paths
2. A shaded outdoor cinema can also welcome other various events
3. The transversal path linking the Congress Center side to the Historical axis serves the MMCA, ESSO Pappas, the outdoor cinema along an axis of culture
4. Within the park, the historical axis is a visual link between Sea and Mountain, along which the varied characters of the site unite
5. Restaurant and cafe terraces spread towards the park, softening the border between nature and city
6. Threshold between city and park

- Pedestrian Access
- Vehicular Access
- Deliveries
- Cycle Paths

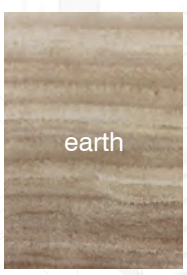
THE LOCAL HERITAGE

PRESERVING AND SHOWCASING TIF HELEXPO'S ARCHITECTURAL HISTORY - REVITALISING ARCHITECTURAL TREASURES, SAVING CARBON



THE COLOURS OF THE EARTH

A SUSTAINABLE PALETTE OF MATERIALS, A FRUGAL CONSTRUCTIVE APPROACH INSPIRED BY LOCAL CULTURE AND HISTORY




Use of Natural Materials

SITE SCALE
1:500

EGNATIA

HALL A

HALL B

HALL C
(luxury hall)

CONFERENCE
HALL

HALL D

KONITSIS

DELIVERIES

DELIVERIES

DELIVERIES

CAR PARK

31is SEPTEMVRIOU

MMCA
SCULPTURE GARDEN

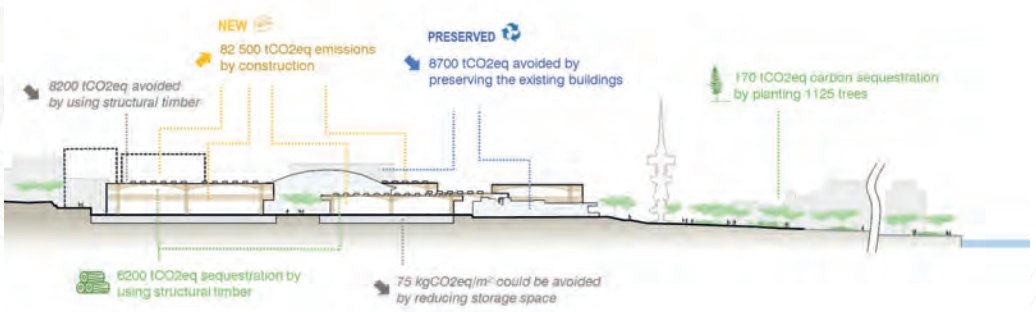
ESSO
PAPPAS

OTE

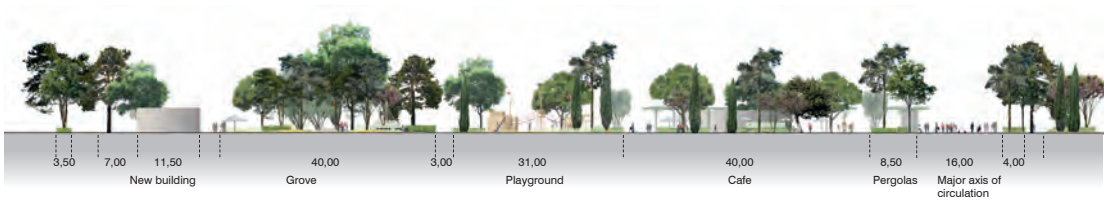
LEOF. STRATOU

ZERO CO²

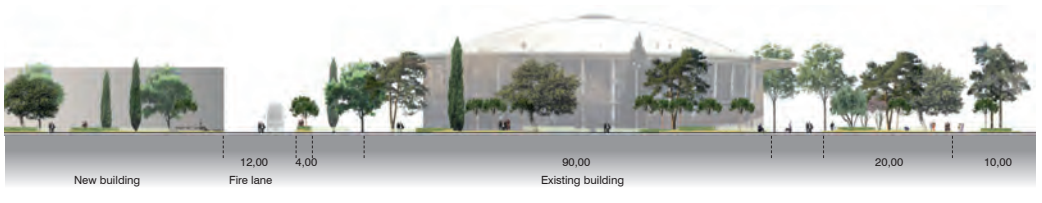
A CONCEPT BASED ON SITE-SPECIFIC RENEWABLE ENERGY SOURCES AND WATER MANAGEMENT TO REDUCE THE CARBON FOOTPRINT



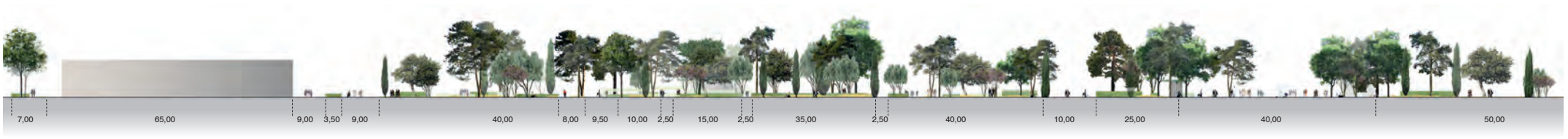
LANDSCAPE



CROSS SECTION AA



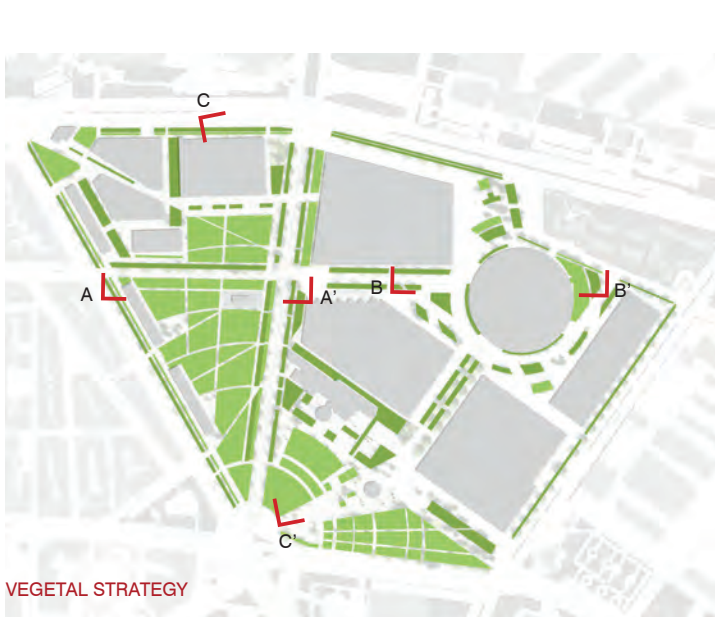
CROSS SECTION BB



CROSS SECTION CC

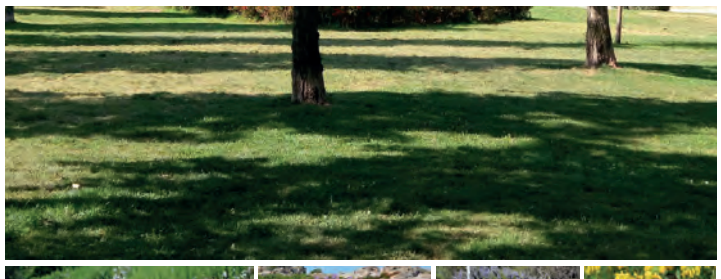

Sea-side open space coming from the south west


The greater lanscape flows into the city from the Sheik Sou hills



VEGETAL STRATEGY

The park is a permeable space of 8 hectares.




Myrtus communis

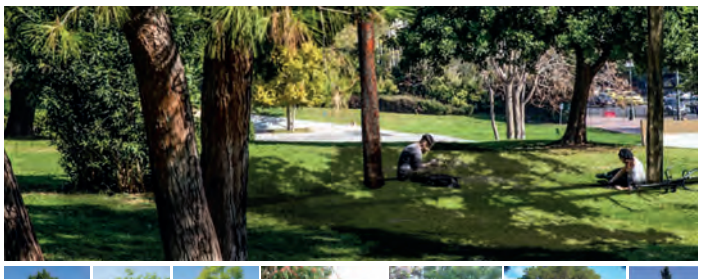

Cistus creticus


Rosmarinus officinalis


Phlomis

The herbaceous layer is mostly represented by lawn surfaces. However, occasional plantations complete it with bases, transition space between mineral and green volumes. They are mostly evergreen, flowering and fragrant.

Groves, flexible and natural organization, various species, 890 units.




Quercus suber


Morus alba


Koelreuteria


Albizia julibrissin


Melia azedarach


Pinus pinea


Cupress

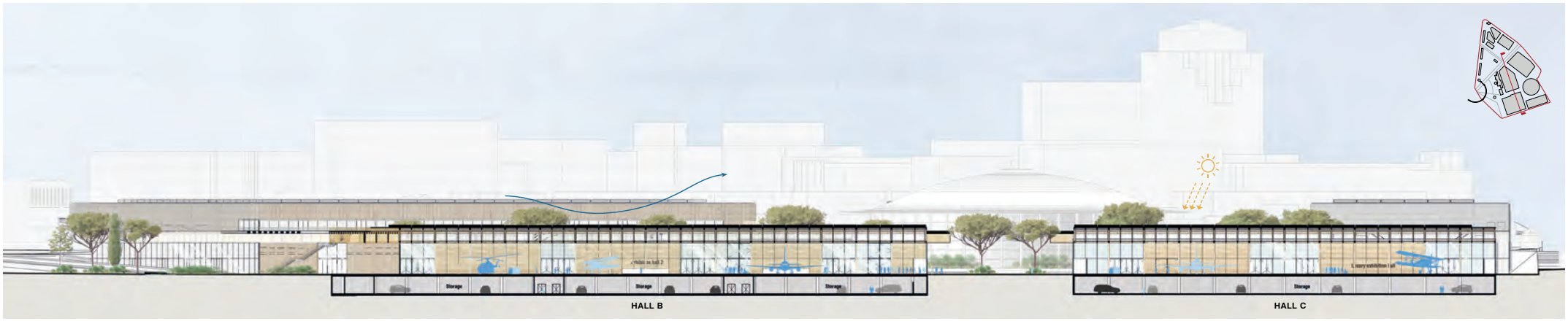
The trees of the project are mostly evergreen, they are part of the extension of existing wooded masses. The trees will be mostly in raised stems in order to clear the views towards the horizon.

Structuring axes, alignment of trees, 235 units.

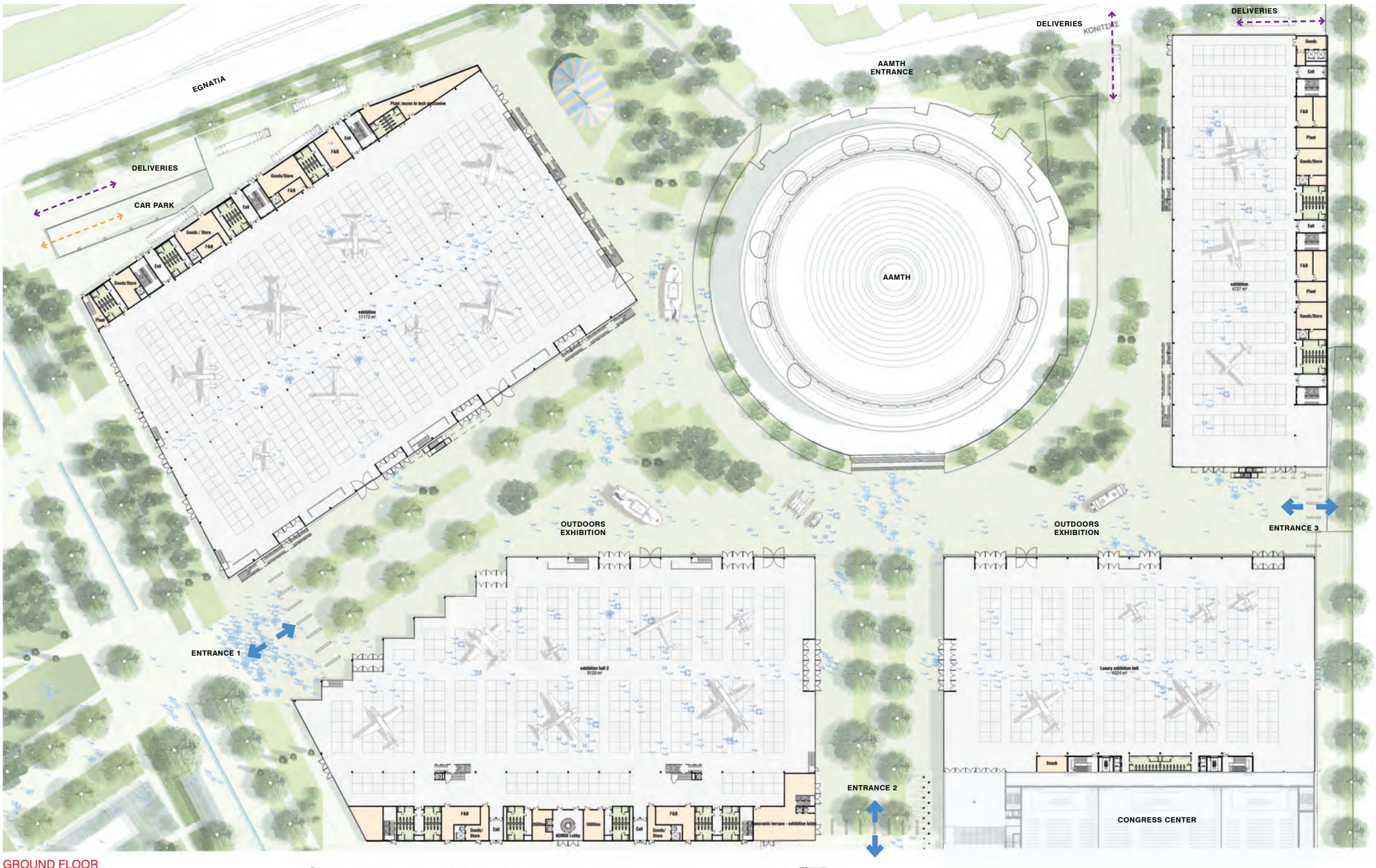

Styphnolobium japonicum


Celtis australis

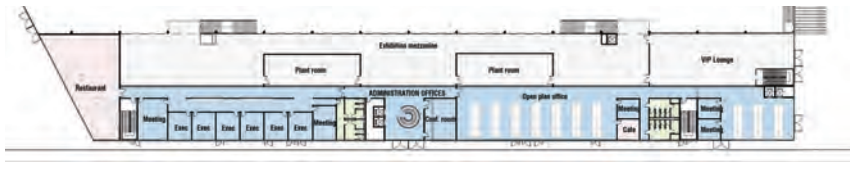
EXHIBITION BUILDINGS



SECTION THROUGH HALLS B AND C
1:500

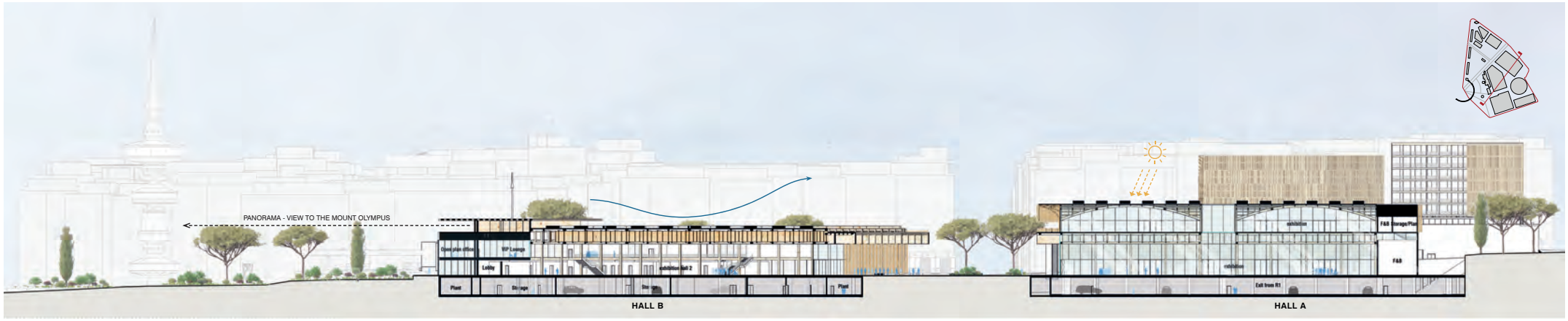


GROUND FLOOR
1:500

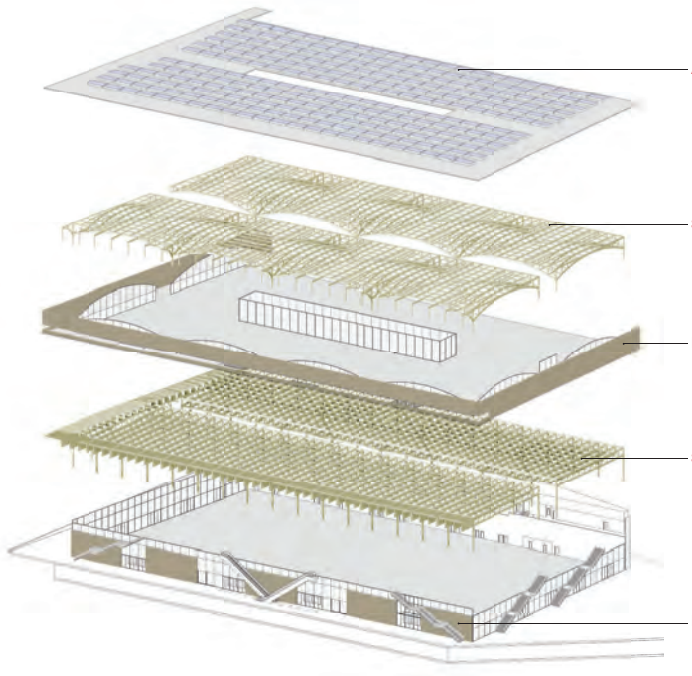


MEZZANINE HALL B
1:500

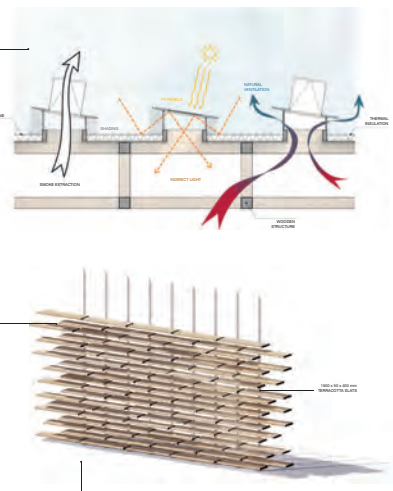
EXHIBITION BUILDINGS

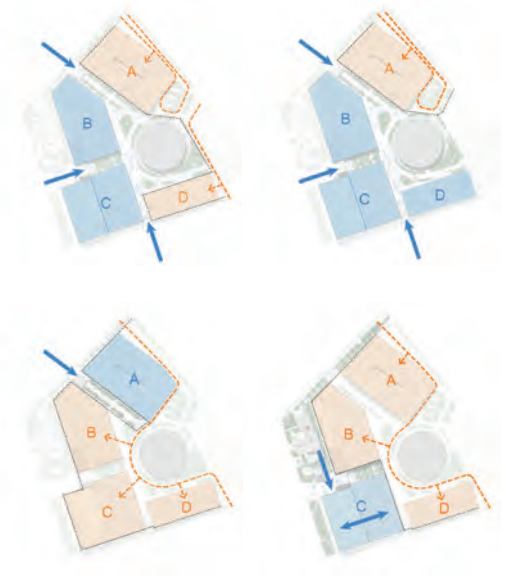


SECTION THROUGH HALLS A AND B
1:500

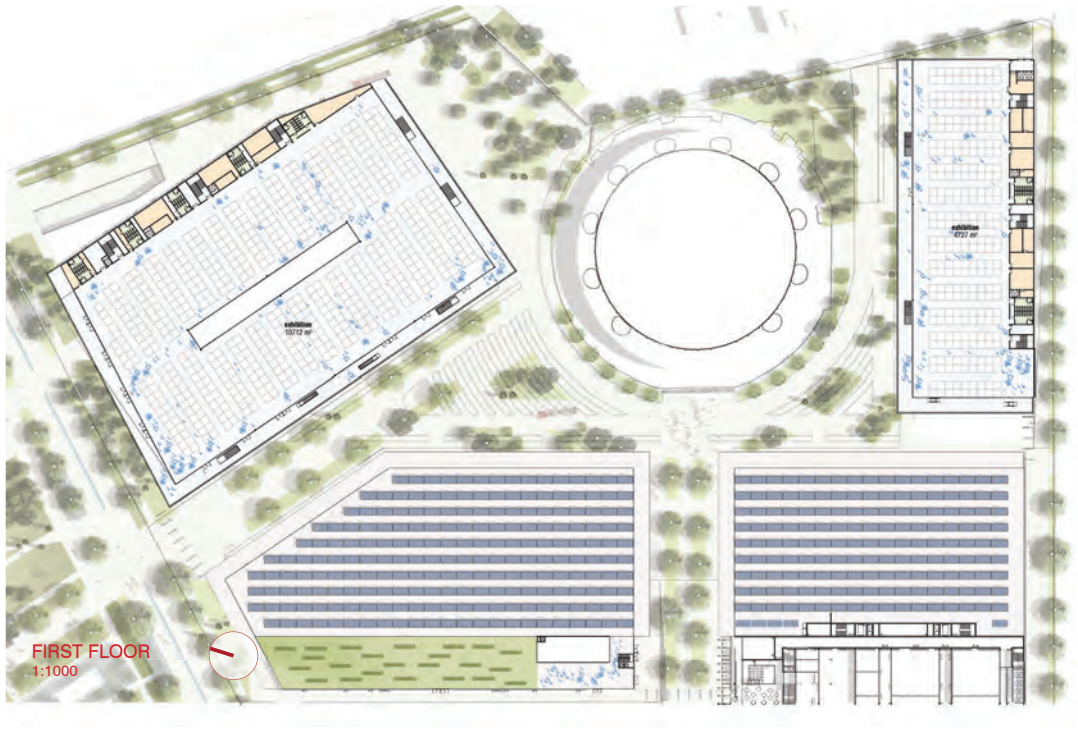


EXPLODED HALL A DIAGRAM

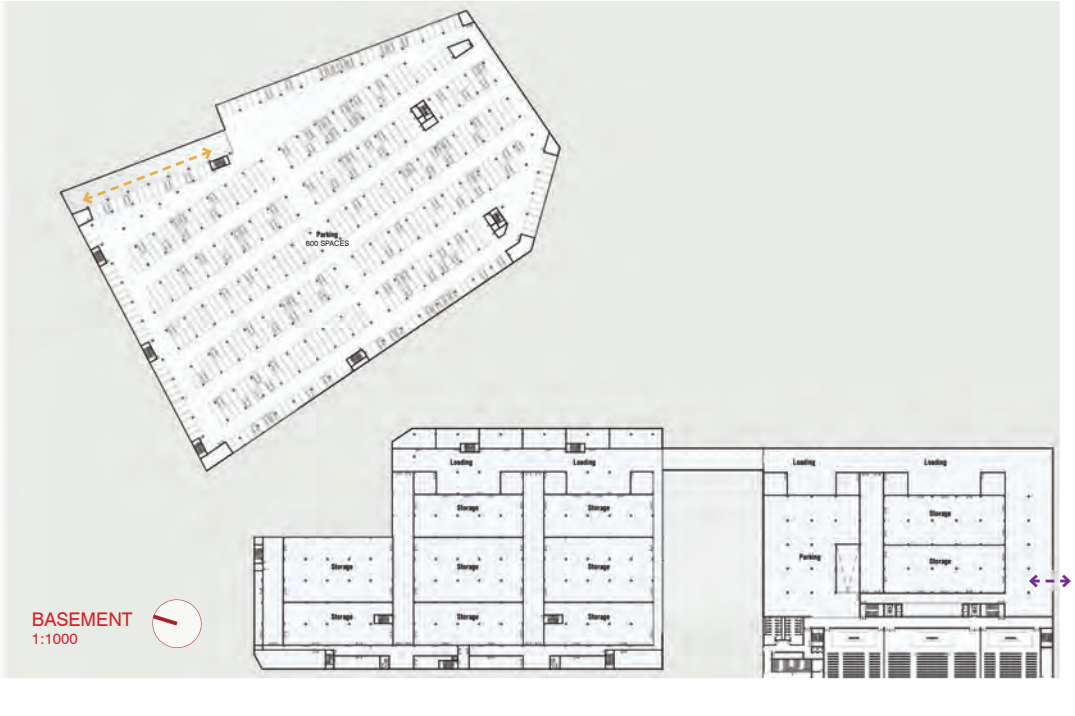




MODULAR USAGE

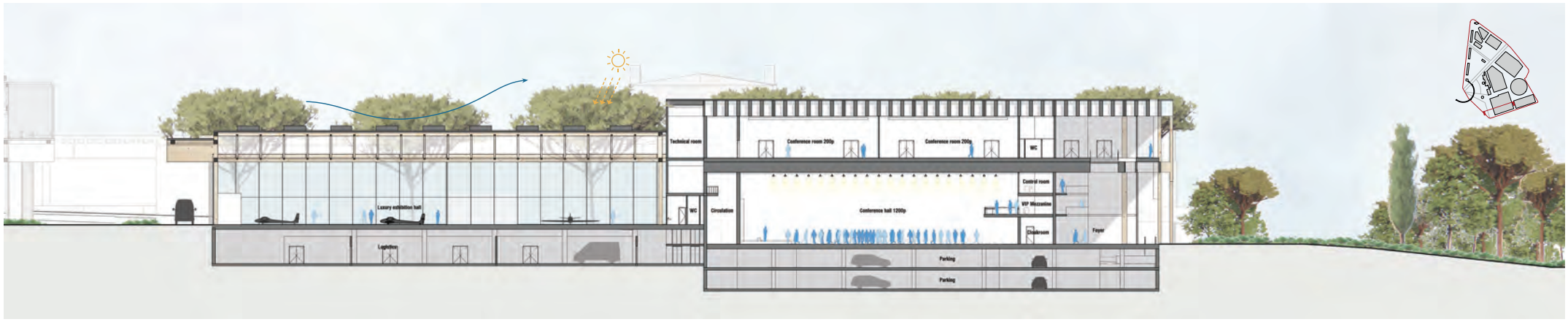


FIRST FLOOR
1:1000



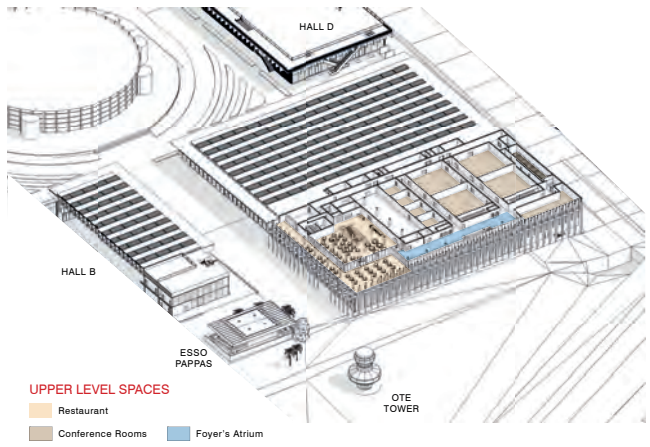
BASEMENT
1:1000

CONGRESS CENTER

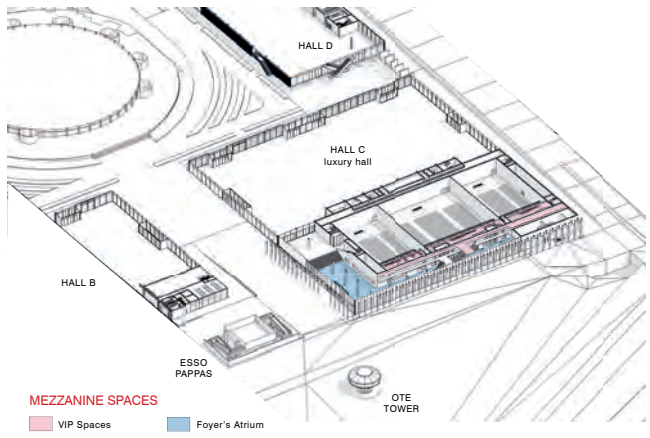


SECTION THROUGH THE CONGRESS CENTER
1:250

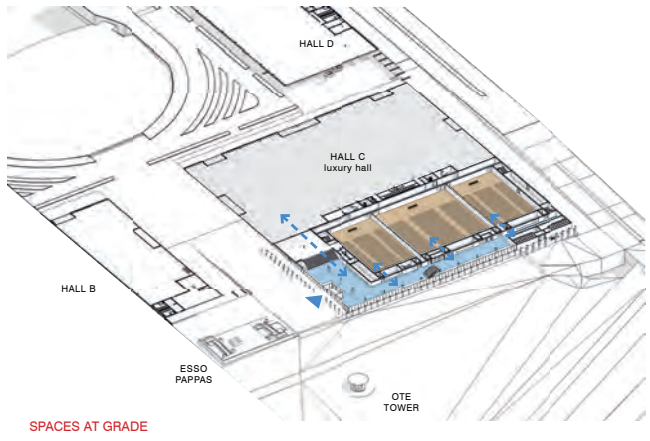
GROUND FLOOR
1:250



UPPER LEVEL SPACES
Restaurant
Conference Rooms
Foyer's Atrium

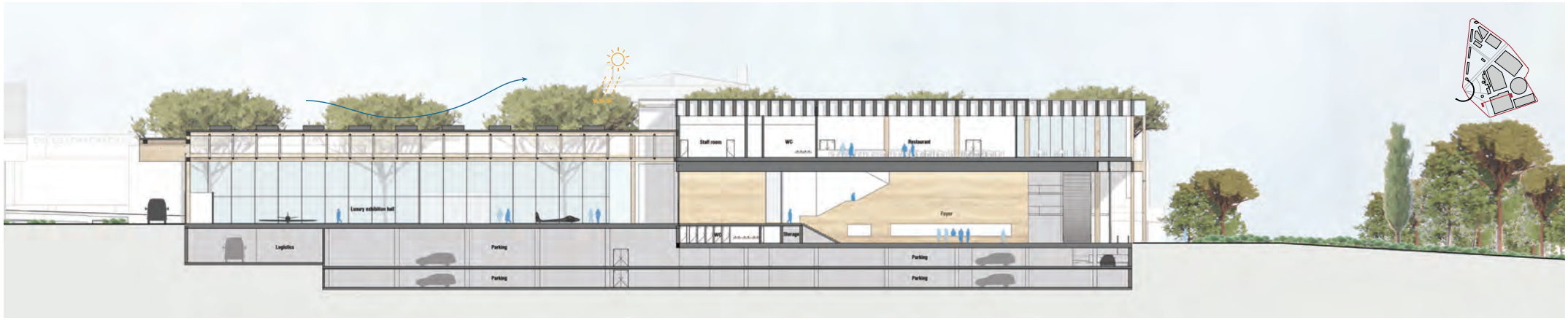


MEZZANINE SPACES
VIP Spaces
Foyer's Atrium

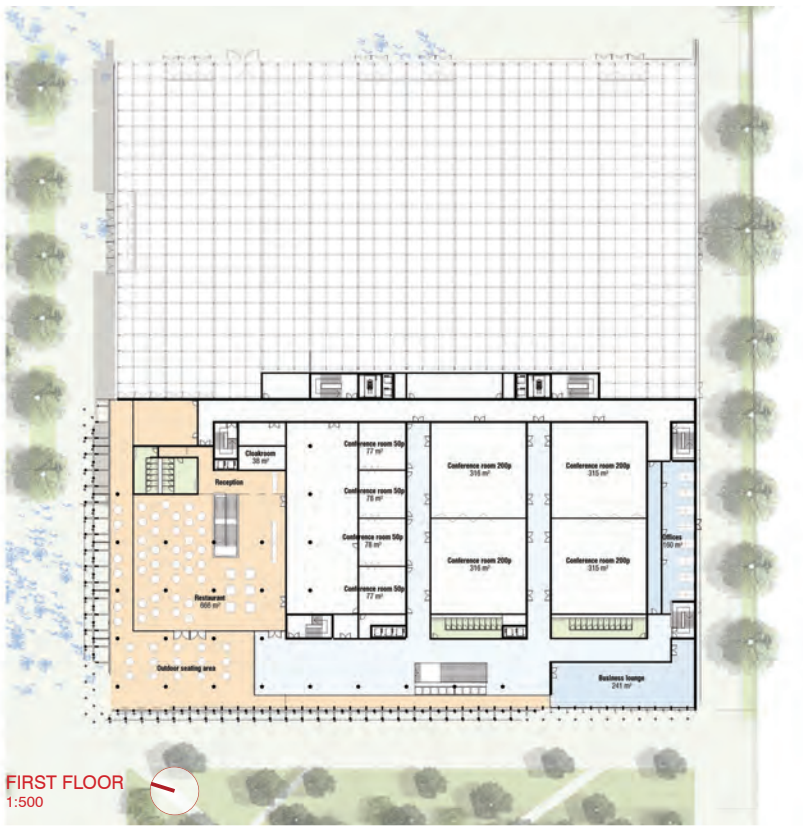


SPACES AT GRADE
Exhibition Hall
Conference Halls
Foyer's Atrium

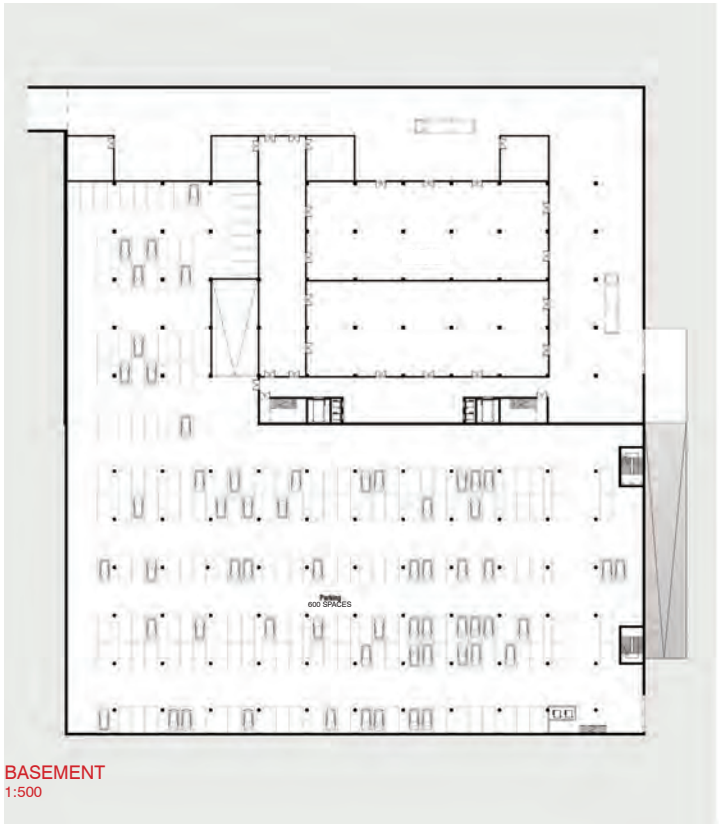
CONGRESS CENTER



SECTION THROUGH THE CONGRESS CENTER
1:250

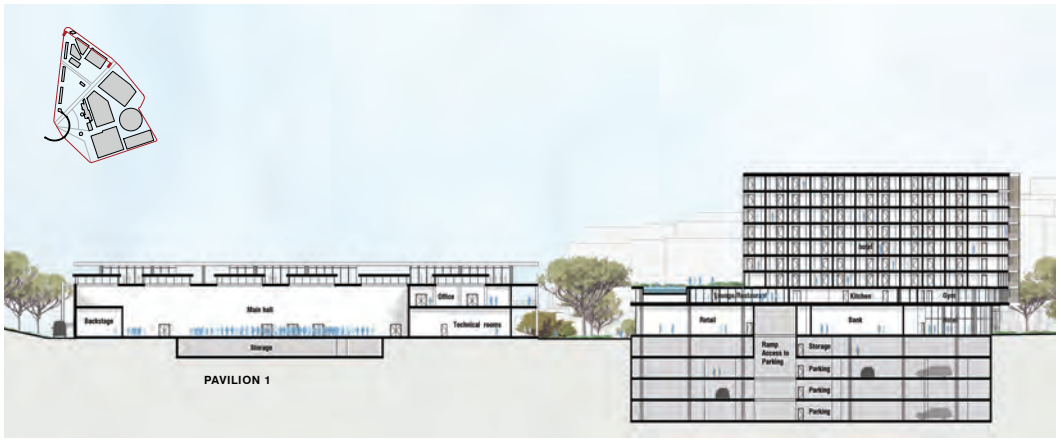


FIRST FLOOR
1:500



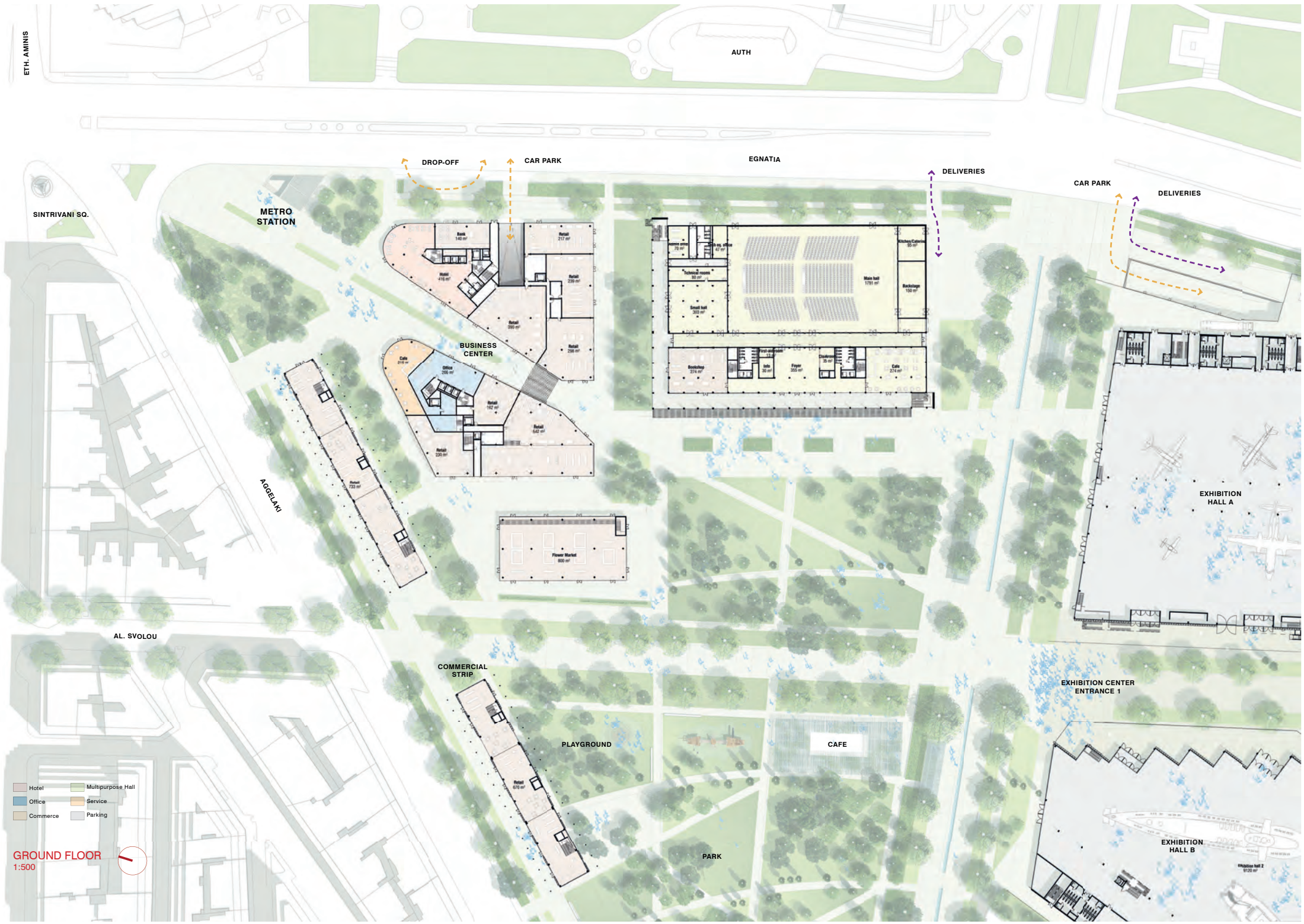
BASEMENT
1:500

BUSINESS CENTER



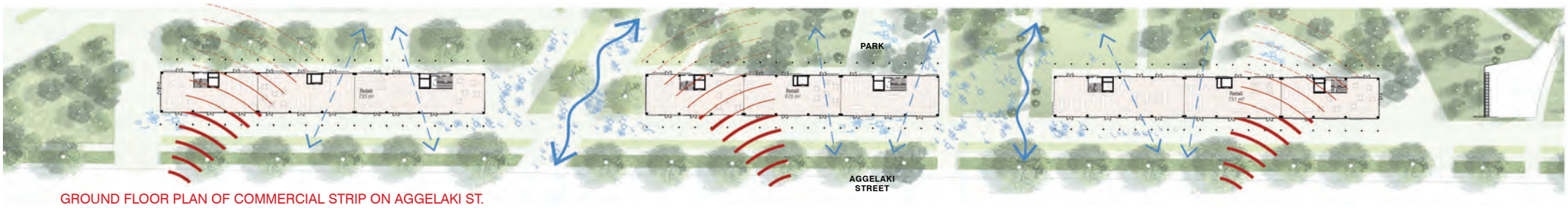
SECTION THROUGH BUSINESS CENTER
1:500

SECTION THROUGH PAVILION 1
1:500

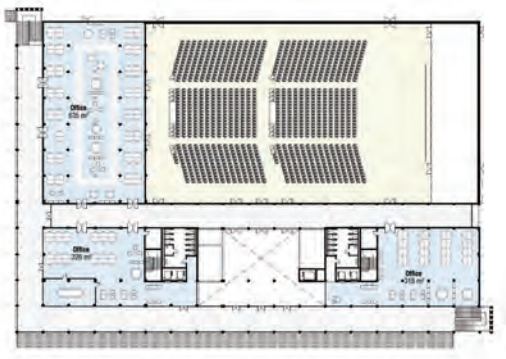


GROUND FLOOR
1:500

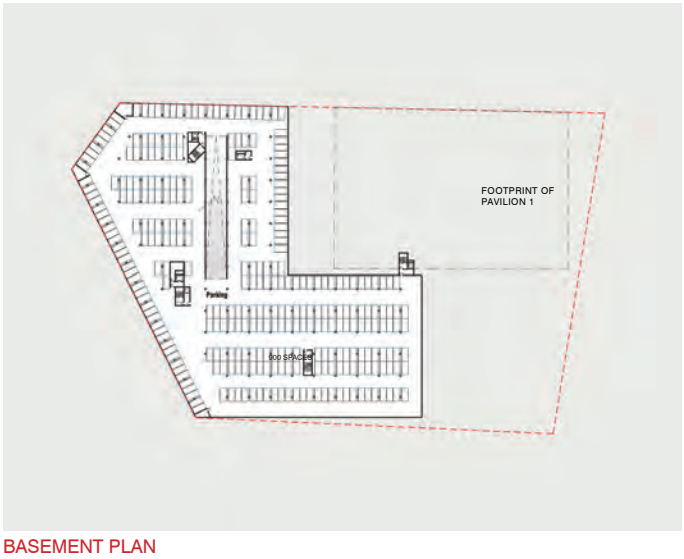
SECTION THROUGH COMMERCIAL STRIP ON AGGELAKI STREET
1:500



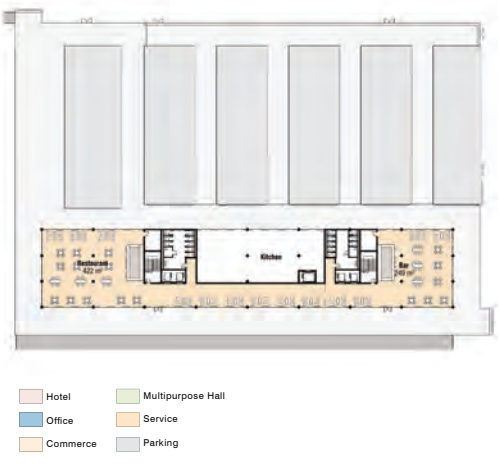
GROUND FLOOR PLAN OF COMMERCIAL STRIP ON AGGELAKI ST.
1:500



SECOND FLOOR PLAN OF THE BUSINESS CENTER
1:500



BASEMENT PLAN
1:1000



TYPICAL FLOOR PLAN OF THE BUSINESS CENTER
1:500