

**Re-designing the new  
Headquarter of the  
Supreme Court and School  
of Magistrates**

**Ideas Competition**

Tirana, Albania

**Design Report**

**Asymptote**  
Design Group

SdARCH Trivelli&Associati, Milan Italy  
X Plan Studio, Tirana Albania  
Florian Nepravishta Prof. Arch., Tirana  
Albania

## Design Team

### Architecture

Alessandro Trivelli, Arch. - Team Leader  
SdARCH Trivelli&Associati  
Milan, Italy  
trivelli@sdarch.it

Ornela Mucaj Eng.  
X Plan Studio  
Tirana, Albania

### Landscape Architecture

Silvia Calatroni, Arch.  
SdARCH Trivelli&Associati  
Milan, Italy  
sc@sdarch.it

### Historian - Conservation Expert

Florian Nepravishta, Prof. Arch.  
Tirana, Albania  
f\_nepravishta@yahoo.com

### Structural Engineering

Dimitri Papa, Eng.  
Tirana, Albania  
dimitri.papa@gmail.com

### Design Coordination Architecture

Alessandro Trivelli, SdARCH Trivelli&associati, Milano  
Ornela Mucaj, X Plan Studio, Tirana

### Design Coordination Engineering

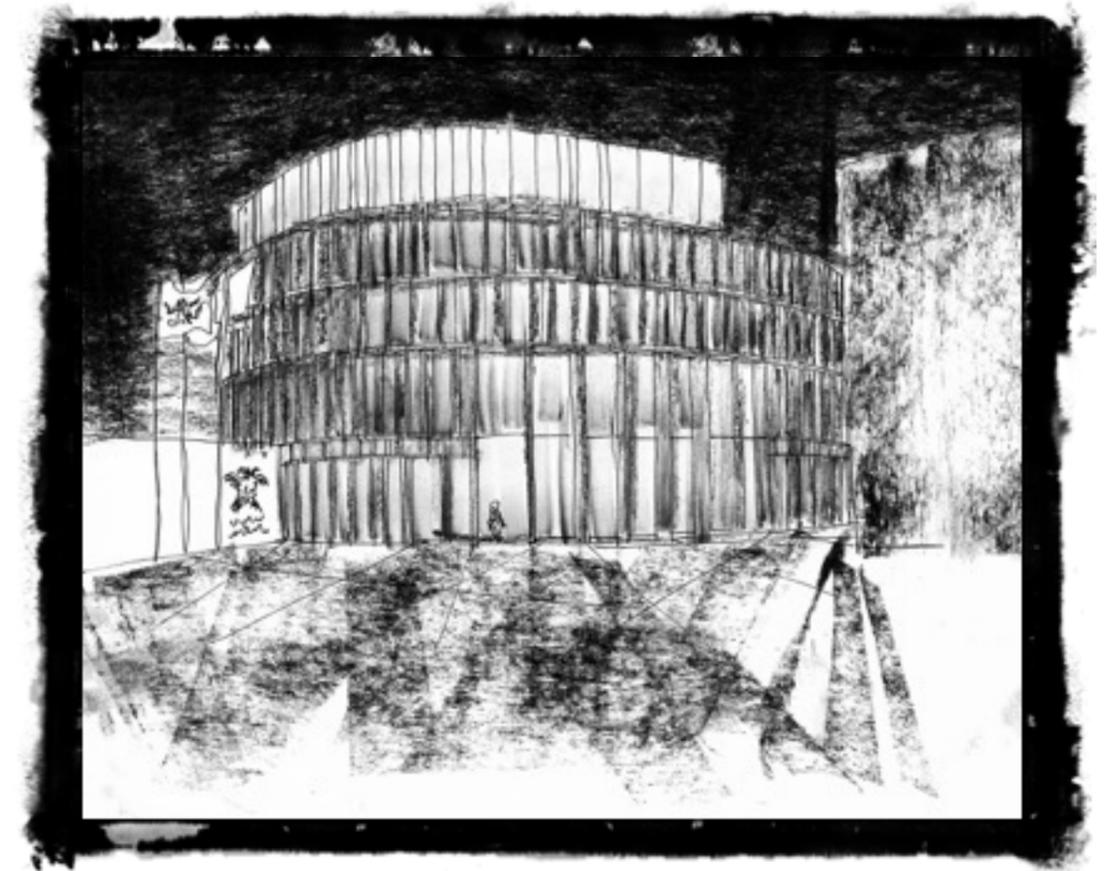
Ardit Jonuzi, SdARCH Tirana



## SUPREME COURT AND SCHOOL OF MAGISTRATES IDEAS COMPETITION. Tirana Albania

### Executive summary

1. Urban context and landscape
2. Design approach and concept
3. Building conservation concept
4. Integrated landscape
5. School of Magistrates Building
6. Supreme Court Building
7. Structural concepts
8. MEP concepts, energy and environmental strategies
9. Parametric cost estimation



**+ SUBTRACTION**  
**- ADDITION**  
**ABSTRACTION**

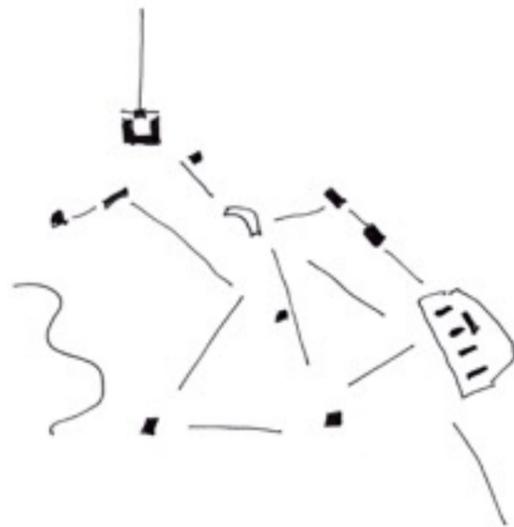
## 1. Urban context and landscape

The site project is located in the south of the city of Tirana in the park "Parku i Madh Kodrat and Liqenit", the access is from the street "Rruga General Nikolos" which is mainly pedestrian street with limited car traffic. It ranks in the center of gravity position than some urban elements significant to some future functions that are references in the city (Sheraton Hotel, the University Politeknik Tiranes, future Student City and Academic). The continuity of the paths is broken inside the park and to the urban system of Sheshi Nene Tereza closed to the building for the discontinuity with Skerdilajd Llagami.

The existing buildings of the competition belong to the architectural history of Tirana, the building designed by Valley in 1939/40 is listed as 2nd class building, while the bridge connection and the building shaped straight is not subject to any protection.

The competition area is located inside a park system as one of the architectural emergencies that belong to a single conceptual idea (Presidential Palace, restaurants, ...). The park is designed as a natural place with some parts more formal, essentially crossed by pedestrian paths that connect the nodes of a network, single parts and elements of different architectural quality and different functions, but also belonging to the urban memory.

The complex of buildings subject to competition have previously had different destinations and different "reputation" until came to us as school, and today, as buildings with a memory file that have hosted teachers and students.



The site project is therefore on a constant broken paths but stil recognizable, are readable in the weak footpaths in the nature trails and composed of different hierarchies. The current buildings are characterized, in the arrangement, shape and firmness, with a strong hierarchical relationship between them, in which the curvilinear building designed by Valley prevails on the rest, thus defining a strong back and a main. The same back is a service space with a terminal point.

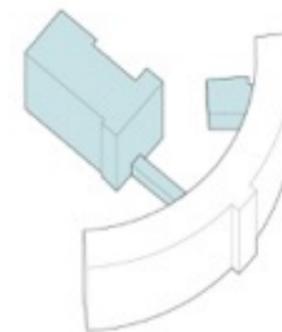
This characteristic weakens its function as a node of the network, since the same by definition can not have a "front side and rear", should not be oriented.

The project proposal modifies this hierarchy bringing greater balance in the spatial arrangement of architectural and enhancing the urban void so the buildings themselves are scene and backdrop of the open space.

The landscape becomes a place to cross and where to stop, extension of the architecture and architecture itself. The access is confirmed by the current path and the historic building is the focus of two systems: in one between the two buildings becomes more urban, to caliber and dimensions and the other, between the building and the park, defines the continuity with the Supreme Court, to and from the network-city park, characterized more as a public realm with the design of green rooms "in between" the park facing the porch of the historic building, as in-between architectural space.

We designed four different landscape systems related one to each other, the porch as outdoor space but inside the building, the central area as a space for passageways and, the crown of green rooms that define the transition between the park and built system.

## 2. Design Approach and Concept



### REDUCE

The building complex is reduced to the main historical building.

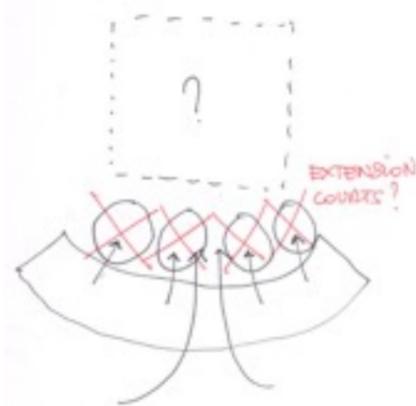
The brief of the competition initially requested for the maintenance of the linear building, which was supposed to be protected. The update of the Brief allowed to alter, demolish or replace part of the whole.

This new perspective and functional analysis and activities covered in the future school and in future the Court to reconsider the initial concept and to develop an alternative strategy that would be able to accommodate the needs expressed in Brief and to equip the two buildings of the required efficiency.

We have developed design strategies / action that are resumed in keywords (Reduce, Do Not, Redefine - Efficiency - Image, Linked Surface, Heritage contemporary, Identity - Landmark, Urban-Park, Renew, Abstraction).

The result of the analysis of the required surface, the links and the relationships between the activities had not confirmed the real need to allocate one specific function in one of the buildings.

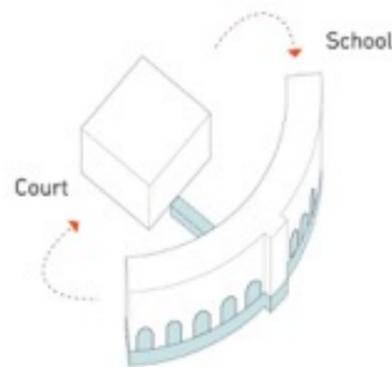
The maintenance of the Supreme Court in the historic building would have required, but for functional needs, the combination of spaces connected to accommodate Courtrooms would otherwise not have been able to find adequate size and shape inside of the semi-circular building.



**DO NOT vs DO**

Additional buildings vs organic system.

The Valle building also has a clear architectural features: the use of architectural language inspired by a kind of regionalism (rustic basement and roof structures) on a floor plan of type "Community".



**REDEFINE | EFFICIENCY | IMAGE**

Best building shape for best flux diagrams

The curvilinear building was not reflected the emphasis of the monumental public buildings of Italian design of the time, the same porch while being symmetrical stems a asymmetrical plan.

Adding extensions built today would confirm this contradiction.

Characterization and use of this historic building has assigned to the same precise connotation: a building for education.

We took the opportunity to confirm the intended use of the building completely redefining the functional diagram, confirming the historical memory of what it was delivered to us. The project proposes a more significant degree of **conservation oriented** not so much the subject material itself but to the preservation of the **historical memory** of the use of the building.

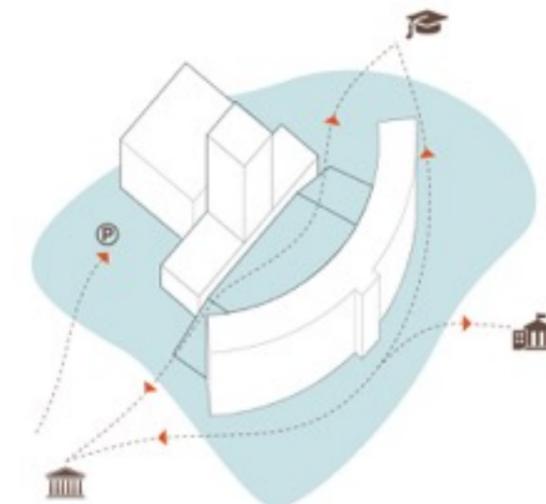
The memory of the user, and citizens; thus defining an intervention strategy:

- keep the school in the current building for education, renovating it;
- design a new building that has the **new contemporary features** to accommodate the Supreme Court.

The two structures form a new node of the network city-park.

This approach has enabled us to provide high efficiency at both planimetric features and delivering an architectural image, already congruent, to the two buildings that dialogue by establishing a joint relationship between them and in the relationships with the landscape.

The new Supreme Court building is a new building that solves all the problems and complexities of internal spatial distribution of a building of its kind presenting itself as a **repeatable diagram**.

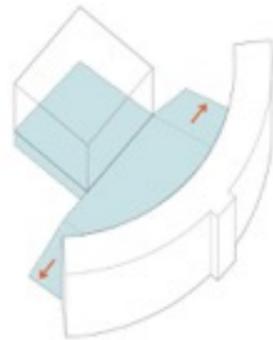


**URBAN | PARK**

Outside space integrated in the city, in the park as dot of a urban network.

The School of Magistrates will be a building in a highly integrated system of walkways and related to the new building with a new landscaping project in the park to create **identity and recognition**, but also host different ways of use of the space.

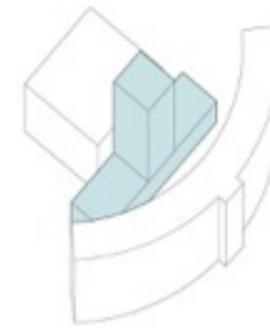
The two buildings are characterized by a functional independence mediated by the shape of the landscape.



### LINKED SURFACE

Merging surfaces and connections in a new urban space.

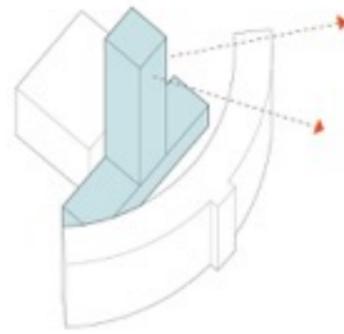
The landscape design concept is developed to create an integrated system of relations between the buildings and the park. With the merged plans elevation and the elimination of differences in elevation between the south and north facing, due the passage under the existing bridge. no longer essential, will deliver a pedestrian access to the ground floor/hall of the future School of Magistrates making it fully accessible. The connection between the outdoor spaces of the School of Magistrates will be in continuity with the indoor space of the two buildings. The merged plans give continuity of access to the Common Conference Room, located within the building of the Supreme Court. The car and pedestrian access to the area remains as the existing one, with the removal of the embankment in the west of the building curved in order will give continuity to the paths around the future School.



### HERITAGE | CONTEMPORARY

Heritage and contemporary architecture in dialogue.

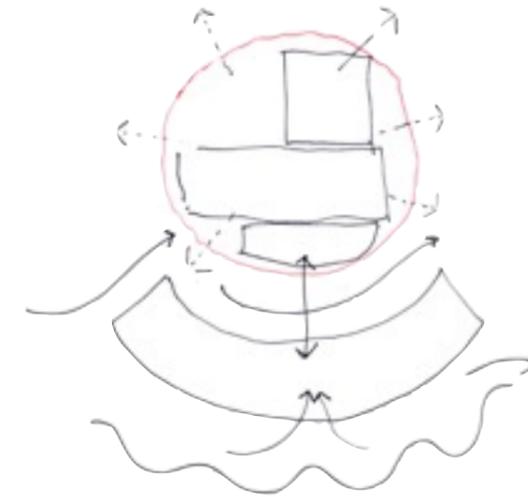
Two buildings and two stories. Both buildings will communicate the dialogue between the new contemporary space hosting the Supreme Court and the historical building hosting the School of Magistrates. The dialogue is in term of architectural language, morphology of the buildings, materials and immaterial memory.



### IDENTITY | LANDMARK

Strong relation with the site and the urban culture.

"Landmark's key physical characteristics was singularity some aspect that is unique or memorable in the context. Some landmarks – towers, spires, hills are distant and are typically seen from many angles and from distance, over the top of smaller elements. Other landmarks – sculptures, signs and trees are primarily local being visible only in restricted localities and from certain approaches....they are frequently used clues of identity and even structure..."(K.Lynch)  
Our design proposal will point out the need to have a clear urban reference in term of identity of the people and representative of the public building referring the local culture with an international perspective.



### RENEW

New functional building program to put in evidence the heritage building and to optimize the space requests for the Supreme Court

The Supreme Court space diagram is condensed in one single building with a strong image but a visual relationship between inside and outside. With the building of the School of Magistrates finds out the links in the landscape design.



### ABSTRACTION

Image memories and kinetic art inspiration.

The kinetic art and the works of Genetulio Alviani and Aldo Biasi in the '70s influences the image of building "Supreme Court" as a dynamic space where the role of the natural light is fundamental to change the perception of users of the space during the different time of the day.

## 3. Building conservation concept

### 3.1 Evaluation of the appropriate method of design for adaptive re-use of ex "Convitto femminile - Tirana"

Before describing the different stages of intervention design in unfinished work of Cesare Valle for "Convitto femminile - Tirana" it is good to reflect on the concept of restoration of an object with historic value, which has undergone changes. Reflections on these kinds of topics have always been the major subject of debate by researchers, academics or supervisory.

We can briefly summarize some discussions with various hypotheses and conflicting opinions, such as:

1. **Opposing or denial of the historic original building.**

Demolition of a large part to rebuild in another language.

2. **Imitation and citation historic original building.**

Reconstruction in the same way, creating often fake elements.

3. **Continuity with the existing building.**

The hypothesis of the intervention of which we can call "continuity and dialogue" with the existing one, is used in both projects, and creates a legitimate conviction of coexistence between what was and what will be. This is the main architectural approach. All this is a guarantee for the survival of the existing facility, which is deteriorated. Thus, the building, even by the competition brief, is defined as 2nd category monument of culture, which will be restored and re-used.

It should also specify the concept of conservation to be used, that there was not only meant collecting details to preserve, but also had a vision of unity, that make up substitution of parts already irreversible damaged, with the new, to make possible the coexistence of the whole.

This kind of approach demonstrates that the whole project will become not only the space, but also the interpretation of the characteristic time through space. To prove again what was said above, it is worth adding a further interpretation of the concept of conservation and / or protection. Undoubtedly, that any building is the constant change in time (in our case in the current state of degradation, it has a negative sense), so maintain no means "to stick intervention", but to intervene with conviction that existing buildings is an irreplaceable communication tool in the past, and is an equilibrium factor of our existence.

Things that are left untouched remain stopped. To preserve and revitalize you should intervene by modifying reality, without losing the original nature and character of the work, having always a balance between formal and functional elements. But turn these last two factors is contrary to what is done in new construction.

Finally, the project that follows will be present basic concept that accompanies all the action, it is worth to say, compatibility between existing and innovation, where modernity lies in the fact that the relationship is always created with the logic of historic cities stratifications as from ancient times.

### 3.2 Historical background of ex "Convitto femminile - Tirana".

The work of Cesare Valle for "Convitto femminile - Tirana" (1940 - 1941) was situated in the south of the "Viale dell'Impero", on the hill, near the Villa Luogotenenziale. The project of the "Convitto femminile - Tirana", today Faculty of Geology and Mines, has combined the design method of rationalism with the suggestions of organic architecture. Valle played with four main volumes proposing a five-story tower clad in stone as the center than the other three bodies. The lowest three bodies, have different functions:

the first curved body, is dedicated to the study rooms, the second to the bedroom and the third living areas.

The system of terraces sloping down follows the curves level of the park and at the same time, the curved shape of the building of the study rooms, serves to optimize exposure to sunlight. The base of the curvilinear body is composed of a rhythm of arches, clad with the same stone of the tower. The same coating is using the shell for the bases of the other two bodies, creating a strong visual impact. Treatment of such prospectuses was inspired by local building traditions. The extensive use of rustic stone, the monumental portico with round arches and the volume of the tower evoke characteristics of the rural housing.

The focus of the connections between the various interior spaces, and these with the park, is the lobby of the main building, connecting the three distinct volumes that extend into the surrounding landscape. In line with this hall it grows the volume of the sleeping area features a basilica plan with three naves separated by two rows of columns. The basement floor comprises, in addition to services, the kitchen, the pantry and the dining hall for the staff, has a service entrance on the side of the car park and is connected to a fourth body factory in orthogonal, intended to staff accommodation, while the ground floor is intended for the canteen. In orthogonal position with atrium is placed a volume of one floor, in which there are the direction, the music room and two living rooms communicating with each other.

Of these large complex was built only the study rooms, which was became the Communist Party, in 1949, school Marxist-Leninist. Today it houses the Fakulteti Gjeologji Mine and is subject of reuse accordind to the competition brief.

### 3.3 Method of analyzes of the building complex.

Any kind of design action to be pursued in a building with historical value cannot bypass a fundamental architecture topic that has to do with dialogue among historical building and innovative intervention needed to apply in order to make building survive.

Such a **dialogue** should not only be the recovery of all the elements that make a building considered as historic, but also provide accurate and correct modifications. Necessarily this is done through the introduction of new facilities, which should have a continuation character with original chronology.

This concept of continuity will be taken into account consistently in the design stages for each new insertion. At this point, the first of imminent action to proceed with the design is that of collecting and analyzing as much documentation that can be provided. Such documents are summarized in the following points:

1. Bibliographic research
2. Research in public and private archives
3. Photographic research and evidence
4. Historical context
5. Architectural and language analysis of the author's historical period.

At the moment the data collection should combine all the results derived from them, and finally succeeded in reclaiming the memory and culture, aspects and events forgotten long time ago.

Only then, at the end of these searches can be done a series of assessments to give value to those who are left, what would have priority, based on available economic feasibility and the hierarchy of intervention in continuity. In this way, to approach as much as possible a correct revitalization and restoration design, certainly in the most objective way possible, as it would appear from the results of the illustrated method.

### 3.4 Existing situation of the building.

The building Faculty of Geology and Mining is located South-East of the National Stadium "Qemal Stafa" and South-West of the Faculty of Philology at the University of Tirana. Location of the building from the main road Tirana-Elbasan and above all dense greenery of the National Park make it appropriate for learning environments.

The terrain where the existing building is located is flat with small quota differences. The building has four floors with a total surface of 4470 m2. Ground floor and half basement have each 1112 m2 surface, while the first floor and second have each 1,123 m2.

### 3.5 Condition of the existing building.

The first part of this phase consisted in gathering information on the **existing situation** of the building and territory. Professionally analyzing potential problems stemming from the confrontation of expectancy for the realization of the design task and the real situation on the ground which is included under the existing state of the building and the fact that the building is in use.

These information are provided directly and indirectly and information needed are, meeting in two ways: First, the design team has observed the detail design of the building to form a clear opinion on its existing situation. In this direction have been provided the necessary preliminary information:

- The topographic data of site and the building
- The engineering infrastructure data of the building
- The network data of electrical and telephone network
- Collecting information on the existing condition of the building structure
- Collecting information on the use of the building by the functional point of view and the inventory space by surveying the existing building and the sharing of spaces.

Second, the design team has observed that current **physical condition** of the building are as follows:

1. The supporting construction of the building in terms of static and the supporting ability appear in good shape. There are no problems in retaining walls, between floors and the construction cover (roof). Yet at the stage of project implementation with detailed analysis the depth will be made to verify the static, especially to the pillars that show signs of deformation.
2. The cover is made of metal construction (trusses with metal profiles) and cover with tiles La Marseillaise after the existing one burned. In the lower band of the trusses was built with metal mesh ceiling. The cover is damaged and must be rebuilt with the same materials used in the original project.
3. Suspended ceilings in metal trusses in classes and second floor corridor are amortized. The ceilings of other facilities in the building are amortized.
4. Existing building floors are laid with tiles of different types; cement tiles, granulated stone, granulated poured in place, marble, etc., which constitute an amortized conglomerate that needs complete renovation. This renewal must be made also at the premises where there are laid ceramic tiles because they are outside the standard.
5. Plastering of the interior walls are amortized from humidity, bad maintenance, demolition of amortized engineering networks, especially that of the heat, which makes it an inappropriate internal environment.
6. Plastering of the external walls are full of humidity. Wearing stone is damaged by moisture
7. A section of wooden doors (from the time when the premises were built), are fully amortized. (do not even have gloves and sheets and also have damaged frames). The replacement of some old doors with new during partial reconstructions has made to have a more heterogeneous image.
8. Duralumin windows with single glass mounted from several years, are presented in no better condition. There isn't full facilities insulation, which reduces the efficiency of their thermal and acoustic.
9. The system of rainwater removal from the roof is amortized. Gutters and pipes discharge water in places. There is also amortized system of sewage disposal and white water inside the square.
10. Inner courtyards of the building have amortized layers and therefore humidity enters in the half basement. They need to be collated.

11. In terms of thermal the building loses more energy due to poor isolation of the basement floor, of the roof cover, windows d / al with single glass, doors amortized and height of the room ceiling.
12. The electricity network is extremely overused, where u can see almost all sockets and keys destroyed and taken off the wall which also constitutes a danger to users. Artificial lighting is not incompatible with economic and illuminating part where lights do not function at all.
13. Boiler heating system is fully amortized and out of order.
14. Sanitarians Network is completely amortized as in sanitation, which do not meet the necessary standards for the user, as well as through the laboratories of the faculty.
15. Other engineering networks in this building have not been installed.

The internal organization of the building appeared having problems regarding vertical movement and adaptation for disable people. Number of toilets does not comply with the regulations in force.



#### 4. Integrated landscape design.

The landscape design is focused on four themes:

- public realm
- identity
- urban space
- off space



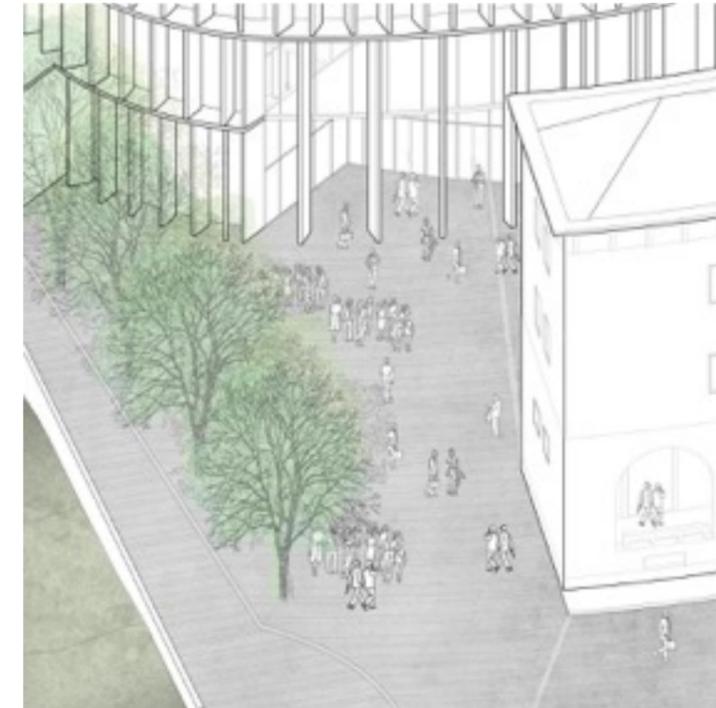
Public Realm. The edge of the park facing the north elevation of the future School.

The green room broken the continuity of the edge of the space in front the School of Magistrates building a shaped and more formal space inside the natural aspect of the park.



Identity. The entrance the complex area have a y shape.

From the car and pedestrian entrance to the complex there is a clear image of which building regulates the external space. The identity of each space is merged but different. The whole area is like a "whoonerf", where the pedestrian pathway are mixed to the car way but the pedestrian have more rights.



Urban space. The in-between space of the buildings.

The space between the School of Magistrates and the Supreme Court became a pedestrian urban street where citizen, students and people can meet themselves.



### Off Space. The continuity of the space in the park.

The park is strictly connected with the landscaped area of the Court with pathways and green rooms with different type of trees (Liquidambar, Acer campestre, Quercus robur). These spaces are public and also external space for the people that work in the office space. The public distribution of the Courtrooms floor is facing to the park.

## 5. The School of Magistrates Building

The project of restoration and rehabilitation of the Faculty of Geology and Mining, was conducted through a series of design phases, which brought not only the development of an accurate architectural survey and the historical-bibliographic analysis, but the adaptation of the existing building with the new use destination of School of Magistrates.

A. First phase has to do with a thorough review of the design duty, based mainly in key documents and drawings that emerged from the research conducted by a group of design in archives and libraries as well as on-site inspections.

This research made possible the development of various compliance tests of use compatibility of the new functions in two buildings provided for the development of the whole complex. From the analysis it turned out that the best use to be housed in the building of the Faculty of Geology and Mining was the use for the School of Magistrates. This solution from one side has complied with all the requirements of the design brief and on the other hand respect the methodological criteria of restoration and redevelopment widely described in the first part of this report.

B. Second phase served for the preparation of all necessary drawings for the destruction of some walls not brace for adapting the use of new, as well as demolition of some structural elements to prepare the intervention of strengthening and adoption of anti-seismic norms.

Interventions were made mainly on the upper floors and dealing with:

- Total or partial breach of several divisions (areas bathrooms, corridors, etc.)
- Demolition of some deteriorating floors and ceilings.
- Demolition of some internal dead color and some clothing material pottery.
- Demolition of structural elements will be continuously specified and defined in the details of the preparation of project implementation, which will be reported accurate dimensions, also in connection with new structures and consequently not breaking the previous elements holder.

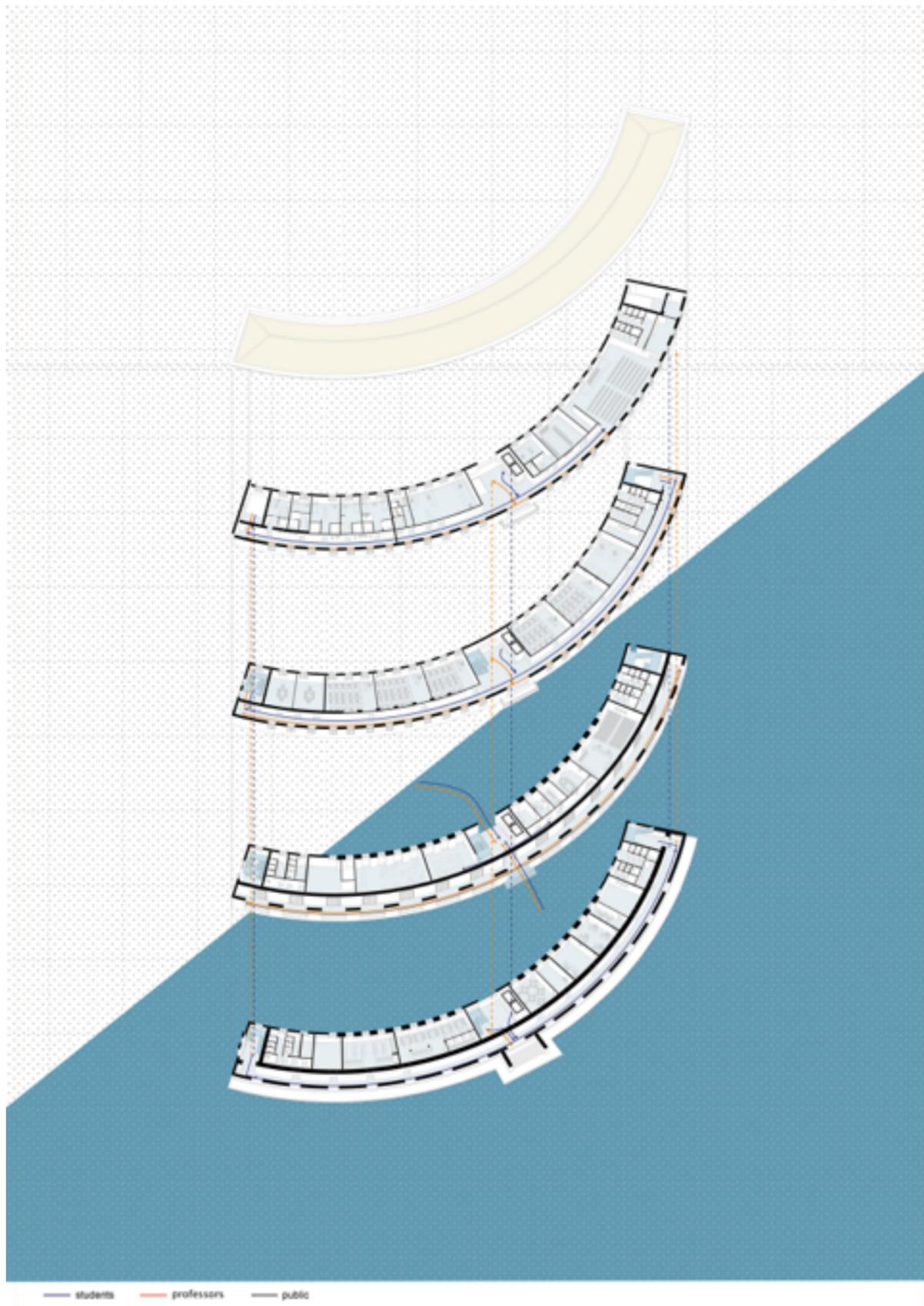
A series of structural investigations and geo-technical were crucial to assess the physical condition of the building.

C. Third phase defines the architectural project with all its component parts and in two parts. The first part provides accommodation of the School of Magistrates with all new uses required by the design tasks, which are distributed within the existing building of the Faculty of Geology and Mining. Intervention in the existing building consists of:

- formulate the main corpus of open lobby and stairs are located two elevators.
- Construction of emergency stairs in the east wing of the building that will be used and placed bedrooms on the second floor of the building.
- Reconstruction of roofs
- thermal insulation of walls with internal bonnet system with high thermal performance.
- Establishment of thermal window according to the original model
- Restoration of wooden doors and replacing damaged ones.

The second has to do with the placement of the external connection to the new building of the High Court.

- A platform connecting the new building with the old one through Pandus on both sides made it possible to access by persons with disabilities. This platform connects to the existing building in the central part of the hall. It is placed at a distance of 2 meters from the wall perimeter.



## 6. The Court Supreme Building

The Supreme Court Building is among a 6.500 m<sup>2</sup> building in 5 stories with 29 parking place, in one floor.

All the previewed activities of the Brief are included in the building with the optimization of the surface of the Courtrooms and an optimized diagram of fluxes.

The core of the building is the "Judge lobby" at the center of the Courtroom floor where the team of the judges and the judges pass trough before enter in the ante room of the Courtroom.

It is a common space of the Jury Panels.

The entrance to the building is in the north facade facing the main entrance to the complex, in the same side there is the reserved car entrance to the parking placed in the basement.

The defendant will enter, by car, in the basement and will follow a separate way to the defendant area placed at the first floor near the Penal Courtroom.

The public entrance is at the ground floor from where the users can reach also the common (with the School of Magistrates) conference hall, the distribution, horizontal and vertical is separate in public area and private (judges and employees of the Court) or under gate control access.

The space diagram is divided in the following main rooms:

**Basement:** Parking, entrance of defendant area, defendant area

**Ground Floor:** Entrance, Common Conference Room, services to the Conference Room, staircases and elevators.

**First Floor:** Public area/ Distribution and restroom; Reserved area/ Defendant ante room, 4 Courtrooms with anterooms and meeting rooms, Judge Lobby.

**Second floor:** Public area/ Meeting area fo public and office - exchange area. Reserved area/ offices.

**Third floor:** Public area/ PR office space and Media and Relation division - exchange area (public/ reserved). Reserved area/ offices

**Fourth floor:** Public area/ Library, bar restaurant and roof garden; Reserved area/ Judges lounge.

### Greenscape

In the middle of the both office floors there some small gardens to allow the entrance the natural light and to achieve a more presence of the nature inside the building.

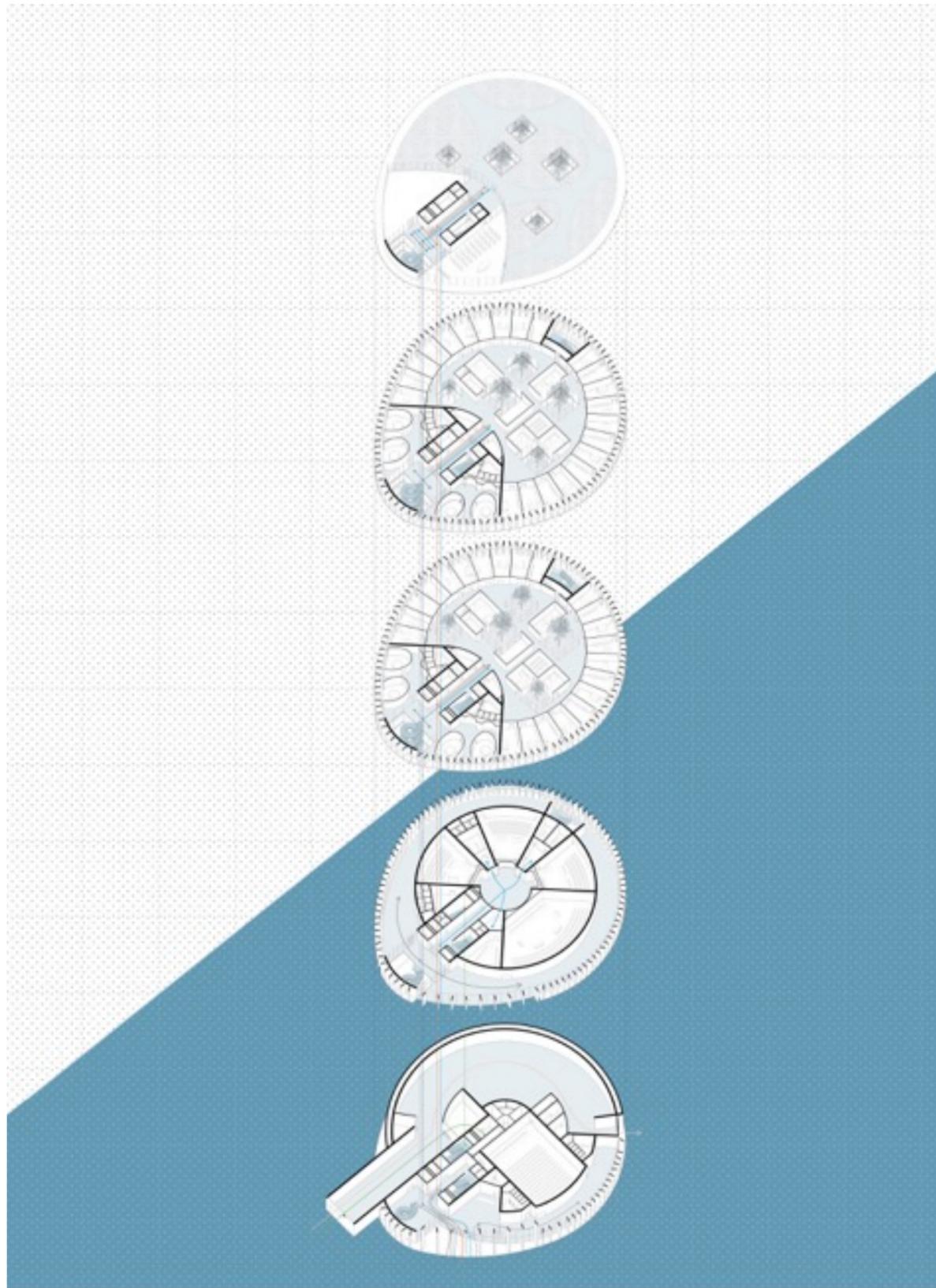
The roof garden is a public space directly connected to the bar and library from where is possible to have a spectacular view of the city and allows the citizen to spend their time in a public building or to allow

### Facade Materials

The whole building have two cladding materials a metal brushed bronze for the opaque vertical elements and a kapilux glass (transparent white insulated glass) for the main staircase and the facade of the fourth floor.

### Sustainability and quality of the indoor environment

The transparent envelope behind the vertical bronze elements is protected by the direct sun by the geometry and depth of the opaque elements to optimize the building performance during the summer time and the winter time. The natural light is present in all the office spaces.



## 7. Structural concept. EXISTING BUILDING

The existing structure is represented by vertical masonry elements and horizontal reinforced concrete slab with joist supported in one direction with ceramic fillings. The separating walls are also in masonry. The project of the existing structure consist in the remodeling of the stairs cage, the creation of a suitable room for setting of two cages of elevators, the demolition of some division walls and the two upper floors slab with the total removal of the retaining wall in the existing hall.

Due to structural interventions will be the replacement of slabs of the two upper floors and of the ground floor and the basement floor which will be rebuilt because of differences of destination what makes a difference in structure and other parameters.

The evaluation of the condition and seismic risk of the building with a mixed structure will be done with the help of Eurocodes 1,2 and 6. Also we will evaluate the existing building and its behaviour taking in consideration the new geologic seismic studies done in our country and especially in the building site.

Once the evaluation of the existing condition is done the study suggest and will give the necessary reinforced provisions to bring the structure in the right parameters. The study and the project of the reinforcement will be done also in the context of the protection of such a building with aim of the protection of the human life and the cultural heritage of our country.

It will also study in detail the possibility of redesign the plan of the structures through methods of kinematic analysis and the use of micro elements.

Methods that will use for reinforcement are:

1. The addition of new elements such as belts and monolithic columns
2. Homogenization of the walls
3. Composite materials with carbon
4. The metal element in the form of slide.

As the building comes under the category of monuments of cultures that are protected, it noted that the use of the above methods will be done in accordance with the Charter of Venice and Amsterdam.

## The new Supreme Court

The building is designed with one floor underground and three floors above ground and will have as main functions office facilities and Courtrooms..

Floor heights are as follows:

Basement: 03.20 m

Ground floor: 6 m

First floor: 5 m

Second Floor: 4 m

Third Floor: 4 m

Fourth Floor: 4 m

The building is designed and calculated with 3D frames, giving priority to both directions of the object to guarantee the displacement allowed by external loads, mainly seismic.

The object type is based on fundamentals as 'knock plates', under columns. Plates have a height of 100 cm, with two grills and steel bars up and down respectively.

The columns have square cross-sectional shape, rectangular or circular with size in view of the charges they face.

Horizontal structures, the cover of the basement and on the ground floors are monolithic, type of slabs with thickness of 25cm or 30cm untensioned, because of the short length they cover.

Moldings beams are selected mainly deep with different dimensions in function of load.

In the calculations of the beams are placed trapezoidal or triangular loads coming from the slab and uniform loads coming from the walls.

COMPUTERIZED ANALYSIS AND CALCULATION

Static and dynamic analysis to determine the structural response to different types of loading of the structure is carried out with 14.8 V tomography program. Modeling the structure as a whole and each element is made on the basis of methods of finite element method (Finite Element Method - FEM) which is a method of approximate and practical by finding wide use today in terms of superiority that creates use of computer programs .

The dynamic analysis has to base its analysis of the modal response spectrum method. Dynamic charges (seismic) accounted are accepted as equivalent static loads and exercised in place of concentrated masses. As for the method of calculation based in dynamic response spectrum method serves its own analysis values and the vector itselfes. Through this method of oscillation are determined individual format and free oscillation frequencies. The own values and vectors undoubtedly provide a clear and complete review for the behavior of the structure under the action of dynamic loads.

**8. MEP concept, energy and environmental strategies.**

**8.1 Project and well being air Conditions**

The Design buildings areas are constituted from different typologies of activity and have together the same commune objective assuring the well-being of much demanding people & employers, usually in way direct proportional for them regarding the category life and the cost of building.

Environments and the structures of offices and classes are different in function of the dimensions and location and the conditions of thermoigrometric comfort (physiological well – being) that must maintained enter of them are based on the calculations concerning the reference table for the technical data for projecting.

The conditions of thermoigrometric comfort (physiological well – being) that must maintained enter of the building vary based on the destination of usage of several environments. The reassumes table give reference technical data for projecting.

Locality: Tirane  
Latitude: 42 ° N

Winter  
External air temperature                    0 °C U.R = 90 %  
Ambient temperature                        (22-24) °C, U.R = 30/70 %

Summer  
External air temperature                    35 °C U.R = 60 %  
Indoor temperature                         26-28 °C, U.R = 30/60 %

H (eight from sea level): 56 mt

The careful analysis of the heat loss conditions should be considered all the factors in relation that will be the subject to the sky –line orientation of the ambient , to the greater one or smaller vicinity of surrounding other buildings , to the characteristics of heat- transmission of walls, windows ,floors, roofs etc.

The heat loss influenced from surrounding structure ( walls ,windows .doors etc) the population, lights, forced ventilated air etc and must be considerate for all the inputting data can serve for specific software calculation for winter/summer heat loss determinations and equipment specifications

**8.2 MEP Design proposal.**

The typology and the characteristics of the HVAC system must depend from flexibility according to ambient destinations that means system capacity to provide variable performances during the day and in the various seasons, low noise level and low cost of using and of maintenance.

For all building will be used VRF system

The characteristics of the system must depend from the following criteria:

- Using flexibility all the time that means system capacity to provide variable performances during the day and in the various seasons.
- Using flexibility according to ambient destinations
- To be enables to obtain conditions of advanced level to the norm well-being
- Low cost of using and of maintenance save energy
- geothermal heating pump with doble water well

New developments that have accompanied the new situation of our planet , the Earth, leads our attention to the contribution to improve the situation of the planet EARTH and to improve the conditions of our lives .

During this years the increasing the level of carbon dioxide has led to an increase of the average temperature of the regional, which has an impact on the nature and civilian life .

In this sense VRF systems (Variable refrigerant flow) present the technologies of the heating / cooling power consumption and absolute maximum comfort multifunctional ideal balance .

These systems are classified as " built- on- site systems " systems where equipment so foreign and domestic manufacturers are combined according to their number, capacity , tube connection and their distances .

VRFs are typically installed with an Air conditioner inverter which adds DC inverter to the compressor in order to support variable motor speed and this variable refrigerant flow rather than simply on/off operation. By operating at varying speeds VRF units work only at the needed rate allowing for substantial energy savings at partial-load conditions. Heat recovery VRF technology allows individual indoor units to heat or cool as required, while the compressor load benefits from the internal heat recovery. Energy savings of up to 55% are predicted over comparable unitary equipment.

VRFs come in two system formats, two pipe and three pipe systems. In a heat pump 2 pipe system all of the zones must either be all in cooling or all in heating. Heat Recovery (HR) systems have the ability to simultaneously heat certain zones while cooling others; this is usually done through a 3 pipe design, with the exception of Mitsubishi which is able to do this with 2 pipes. In this case the heat extracted from zones requiring cooling is put to use in the zones requiring heating. This is made possible because the heating unit is functioning as a condenser, providing sub-cooled liquid back into the line that is being used for cooling. While the heat recovery system has a greater initial cost, it allows for better zoned thermal control of a building and overall greater efficiencies.

**8.3 Electrical Installation**

The electrical project will be designed according to the architectural plan. It includes the installation of the lighting system, the power plug, UPS plug, telephone network, computer network (LAN) , fire protection system, security camera system, acces-controll etc.

The lighting consists basically of led lighting fixture with electronic switch. The electric lighting is respectively designed according to the architectural plan of the indoor ambient. Lighting level respects the standards of the European Committee providing an aesthetic and high level of natural and artificial lighting and glare control.

9. Parametric cost estimation.

School of Magistrates

Description	Unit	Quantity	Price	Value
<b>Demolition</b>				
Brick walls	m3	971,00	1.114	1.082.107
Demolition concrete layers	m3	947,00	2.973	2.815.857
Demolition concrete slabs	m2	4290,00	4.001	17.164.236
<b>Excavation works</b>				
Excavation works	m3	620	600	372.000
<b>Construction</b>				
Reinforced Concrete slabs	m2	4290	9.800	42.042.000
Masonry works	m3	520	7.800	4.056.000
Reinforced Concrete Stairs	m3	120	24.500	2.940.000
Roof	m2	1350	9.000	12.150.000
Waterproof	m2	875	2.400	2.100.000
Lifts	pcs	2	2.240.000	4.480.000
<b>Electric installations (wiring)</b>				
Electrical works	m2	5200	6.000	31.200.000
<b>Hydro-sanitary installations</b>				
Hydro-sanitary works	m2	5200	4.800	24.960.000
<b>Construction-Finishing works</b>				
Internal plastering works	m2	15900	1.600	25.440.000
External plastering works	m2	2500	1.800	4.500.000
Thermal insulation	m2	1500	2.500	3.750.000
Suspended ceiling	m2	3900	2.200	8.580.000
Flooring works	m2	4200	6.000	25.200.000
Painting	m2	18400	630	11.592.000
Finishing works	m2	4500	16.000	72.000.000
Facade Restoration	m2	2582	3.500	9.037.000
<b>Heating and Cooling system</b>				
forced air system with	m2	4290	17.000	72.930.000
<b>TOTAL</b>				<b>378.391.200</b>

The new Supreme Court

Description	Unit	Quantity	Price [LEK]	Value [LEK]
<b>Demolition</b>				
Demolition, Brick walls	m3	571,00	1.114	636.337
Demolition concrete structures	m3	589,00	2.973	1.751.362
Demolition concrete slabs	m2	2800,00	4.001	11.202.765
<b>Excavation works</b>				
Excavation works	m3	14318	600	8.590.800
<b>Construction</b>				
Reinforced Concrete Structure	m3	7300	12.000	87.600.000
Masonry works	m3	2170	7.800	16.926.000
Reinforced Concrete Stairs	m3	420	24.500	10.290.000
Waterproof	m2	2475	2.400	5.940.000
Lifts	pcs	4	2.510.000	10.040.000
<b>Electric installations (wiring)</b>				
Electrical works	m2	7300	6.000	43.800.000
<b>Heating and Cooling system</b>				
forced air system with	m2	7300	17.000	124.100.000
<b>Hydro-sanitary installations</b>				
Hydro-sanitary works	m2	7300	4.800	35.040.000
<b>Construction-Finishing works</b>				
Internal plastering works	m2	21900	1.600	35.040.000
Thermal insulation	m2	3800	2.500	9.500.000
Suspended ceiling	m2	7300	2.200	16.060.000
Flooring works	m2	6700	6.000	40.200.000
Painting	m2	21900	630	13.797.000
Finishing works	m2	6800	16.000	108.800.000
Curtain Walls	m2	3750	35.000	131.250.000
Facade panels	m2	3353	17.000	57.001.000
<b>Landscape</b>				
Landscape	m2	9317	13.000	121.121.000
<b>TOTAL</b>				<b>888.686.264</b>

