

22644-001\_ALB\_EU4C\_RFP\_01 - “Provision of Consultancy for Design services for EU4CULTURE Project - Support for revitalization of cultural heritage sites and monuments affected by Earthquake in Albania.”

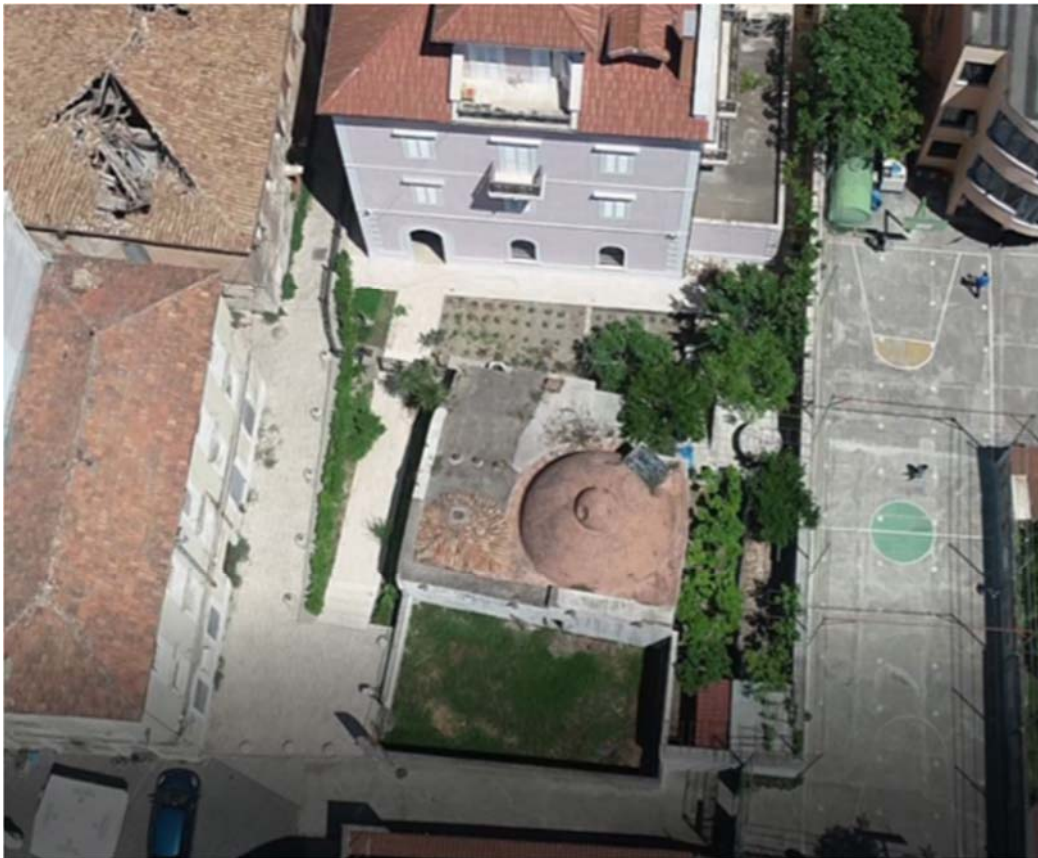
22644-001\_ALB\_EU4C\_RFP\_01 - “Sigurimi i Konsulencës për Shërbimet e Projektimit për Projektin EU4CULTURE - Mbështetje për ringjalljen e vendeve të trashëgimisë kulturore dhe monumenteve të prekura nga Tërmeti në Shqipëri.”

---

## HAMMAM OF DURRES

### 1. EXISTING CONDITION

Hammam of Durres is located 100m in the north of the Venetian tower of Durres, near the Ethnographic Museum. The access to this monument is made by streets “Anastas Durrsaku” dhe “Kolonel Thomson”. Rehabilitation of museum will be done by all the standarts regarding the electrical infrastructure.



**Fig. Hammam of Durres location**

In this hammam, we will intervene in the external and internal parts of the building. We will make partial intervention in the structure of the building, in the walls or by camouflaging them according to the architecture, we will intervene in the garden also to make general layout without spoiling the value that may have a cultural heritage.

**22644-001\_ALB\_EU4C\_RFP\_01 - “Provision of Consultancy for Design services for EU4CULTURE Project - Support for revitalization of cultural heritage sites and monuments affected by Earthquake in Albania.”**

22644-001\_ALB\_EU4C\_RFP\_01 - “Sigurimi i Konsulencës për Shërbimet e Projektimit për Projektin EU4CULTURE - Mbështetje për ringjalljen e vendeve të trashëgimisë kulturore dhe monumenteve të prekura nga Tërmeti në Shqipëri.”

## 1. POWER SUPPLY

Hamмам will be supplied by the nearest cabin in 400 V. The previous interventions do not seem to be made according to the standards that these monuments should be installed. Cables are outside the wall without any standart. Those can be seen in the following photos, cables laying outside the decorative bricks, wires outside the walls.



**Fig. Electrical installation**

## 2. Lighting System

Hamмам lighting system does not seem to be installed according to the standards that these kind of monuments require, does not work as shown in photos below. Is the same thing for both, internal and external lighting.

22644-001\_ALB\_EU4C\_RFP\_01 - "Provision of Consultancy for Design services for EU4CULTURE Project - Support for revitalization of cultural heritage sites and monuments affected by Earthquake in Albania."

22644-001\_ALB\_EU4C\_RFP\_01 - "Sigurimi i Konsulencës për Shërbimet e Projektimit për Projektin EU4CULTURE - Mbështetje për ringjalljen e vendeve të trashëgimisë kulturore dhe monumenteve të prekura nga Tërmeti në Shqipëri."



**Fig. Hamam existing lighting**



**22644-001\_ALB\_EU4C\_RFP\_01 - “Provision of Consultancy for Design services for EU4CULTURE Project - Support for revitalization of cultural heritage sites and monuments affected by Earthquake in Albania.”**

**22644-001\_ALB\_EU4C\_RFP\_01 - “Sigurimi i Konsulencës për Shërbimet e Projektimit për Projektin EU4CULTURE - Mbështetje për ringjalljen e vendeve të trashëgimisë kulturore dhe monumenteve të prekura nga Tërmeti në Shqipëri.”**

---

This hammam does not have any info point in the entrance, data transmission is also missing. There is no security system applied in the building like robber-proof system, fire detection or public speaking that serves for evacuation in case of fire, CCTV system etc. For this reason we propose the interventions that should be made in this hammam while preserving the values of the cultural heritage that it carries.

## 2. PROPOSED VARIANT

The way we propose to make the electrical installations in the hammam is to intervene through architectural part in hidden works where we are allowed by the structure of the wall. In places where there is furniture we will intervene through metallic pipes or metallic cable trays only by camouflaging them in colors and looks like the place we are intervening.

We propose to remake all of the necessary systems (power, lighting, emergency lighting, atmospheric protection) but the security systems also (fire, robbery proof, voice announcement and hammam monitoring) as mentioned above conform every standard. We propose to have a turn style and info panels at the reception.

### 1. Rrjeti i fuqisë

The entire power network of the building will be provided new, by ensuring a secure power network, according to the European standards about this category.

The power network will include:

- The supply from the normal power, will be from the local operator OSHEE of the area.
- For reservation of the electrical energy will be predicted the diesel generator which feeds the emergency low voltage panel.
- The UPS is supplied from the emergency low voltage panel and supplies security and alarm system.

Low voltage distribution starts from the main distributional board on the power center, to the low voltage installation for each socket, switch and light. The low voltage distribution will be done by means of rails or cables as mentioned above, inside the walls or camouflaged in furniture.

- General low voltage panel

The main low voltage panel will be placed in the technical room, supplied with low voltage by OSHEE etc.

The main low voltage panel will be metal, painted, corrosion resistant, and sealed. Its dimensions are depending on the electrical equipment to be installed which are dependent on the electrical load of the building.



**22644-001\_ALB\_EU4C\_RFP\_01 - “Provision of Consultancy for Design services for EU4CULTURE Project - Support for revitalization of cultural heritage sites and monuments affected by Earthquake in Albania.”**

22644-001\_ALB\_EU4C\_RFP\_01 - “Sigurimi i Konsulencës për Shërbimet e Projektimit për Projektin EU4CULTURE - Mbështetje për ringjalljen e vendeve të trashëgimisë kulturore dhe monumenteve të prekura nga Tërmeti në Shqipëri.”

---

The main low voltage panel must contain at least:

- Main circuit breaker with 4 phases 400V, with amperage depending on the load
- Three-phase circuit breaker
- Earthing clamp connected to the earthing system

Mounted together with the components, must be done by an electrical specialist under the supervision of the engineer. All connection of conductors and cables inside the panel will be done by means of separate capicords for each type of section and with nastro and glue.

- *Wires and cables:*

All wires and cables must have the approval certificate from the approval authorities and the factory certificate. Will be realized with multi-polar cable FG16-OR16 resistant to combustion and emission of toxic gases. For safety light circuits the cables will be with double insulation of fire resistant type FTG-OM1.

- *Socket:*

A complete system of outlets should be provided in the position shown in the drawings made by the electrical engineer of the project. All plugs mounted on will be of the earthed.

## 2. Lighting system

The type of lighting fixtures we propose depends on the purpose of a room and given the purpose for which the area serves. We will choose the type of the lighter according to the architecture, the object it lights or the special obligative needs for the light intensity of these kind of objects. The intensity of illumination must meet the requirements of the particular room.

We propose to use camouflage for installing lighters in the outside part of the building, so we will prevent the destruction of the wall's structure, also preserve the cultural heritage or by using already created channels for the previous installations.

We also propose the outside lighting, entrance and exit parts of the building, by providing a bright and secure itinerary for the visitors inside the building, normally by preserving the identity of this object as a part of the cultural heritage.



**ATELIER 4**  
ARCHITECTURE • ENGINEERING • CONSULTING



**UNOPS**



22644-001\_ALB\_EU4C\_RFP\_01 - “Provision of Consultancy for Design services for EU4CULTURE Project - Support for revitalization of cultural heritage sites and monuments affected by Earthquake in Albania.”

22644-001\_ALB\_EU4C\_RFP\_01 - “Sigurimi i Konsulencës për Shërbimet e Projektimit për Projektin EU4CULTURE - Mbështetje për ringjalljen e vendeve të trashëgimisë kulturore dhe monumenteve të prekura nga Tërmeti në Shqipëri.”



**Fig. Exsample of Hammam lighting**

### 3. Protection against the atmospheric discharges system

As mentioned above, this building does not have a lightening system. We propose this building to be necesarily protected by a lightening system.

On all outer edges of the tops of the building a lightning catching band made of a galvanized zinc band 30x3 mm will be mounted. This steel bands will be connected together to build a mash of bands on the tops of the building (maximum mash wide 20x10m).

All metallic devices, components longer than 1m will be connected to the lightning protection system. All things higher than the surface of the roof have to be saved indirect by vertical rods. A component is indirect save if it is inside a 45° cone of the rod or band.



All electrical devices on the roof, or metallic components which connected with an electrical device inside the building have to be connected to the lightning protection system with a discharger and must be indirect saved.

The connected between the lightning meshes on the roof and the grounding system will be realised by vertical arrestor band (galvanized steel band 30x3mm) situated at the edges of the building (normally camouflaging among the wall) according to the design, and additional around the building all 1m.

The realised grounding resistance should be lower than 4 ohm. Measurements have to verify the necessary resistance. Each fix mounted metal equipment nearer than 2.m to an arrestor on earth level must be connected to the grounding system.

A grounding system is additional to realise for equipotential bonding system. This grounding system is to connect to copper main equipotential bar situated in the low tension room. The equipotential bonding network is a star topology and never connected to one another systems of earthing.

#### 4. Data transmission network

We will provide a transmission data system which will enable the communication of active devices such as information screens, central computer etc, with the main server to which all the necessary information will be exchanged upon request. The transmission data system must begin from the main server BD. Besides the attesting modules, it must be equipped with the following components for the transmission data:

- Attesting module of lines toward the transmission data users
- Rack for assembling active equipment.
- SWITCH Ethernet with 24 doors RJ4 Cat. 6E
- Outlet module for active equipment supply
- Cooling ventilators
- Wiring accessories and patch cord.

#### 5. Fire Alarm System

The other system that we propose to do is that of a fire alarm to protect the personnel, the protection of the furniture as well as of the structure of the building. In case of the fire in the object fire alarm system works to make possible the evacuation of people. Directly taken measures to localize the fire using fire resistant materials, automatic smoke detection systems. Evacuation is initially done for people who may be closer to the hearth, then for remote areas. They are notified with a previously recorded voice message.



**22644-001\_ALB\_EU4C\_RFP\_01 - “Provision of Consultancy for Design services for EU4CULTURE Project - Support for revitalization of cultural heritage sites and monuments affected by Earthquake in Albania.”**

22644-001\_ALB\_EU4C\_RFP\_01 - “Sigurimi i Konsulencës për Shërbimet e Projektimit për Projektin EU4CULTURE - Mbështetje për ringjalljen e vendeve të trashëgimisë kulturore dhe monumenteve të prekura nga Tërmeti në Shqipëri.”

---

The materials and required components for this system must comply with the required standards and the working code:

- *Execution*

The transmission of the fire alarm is carried out by means of alarm sirens. The notification panel will be installed in front of the main entrance. This panel can also be used to expand the system.

- *Alarm devices*

Alarm devices will be optical smoke and temperature detectors which will be automatic detectors. Also will be manual push buttons which will be mounted at a height of 1.4m from the ground. They will be in red color and labeled in English. The installation shall be surface mounted, normally without spoiling the architecture or the appearance that this object has as part of cultural heritage.

- *Installation*

The way of installing the cables will be the same as for all systems, where it is possible to on the walls, the the installation will become internal and where we can not install will be done by means of pipes or ducts masking them according to the architecture. The installation of the fire systems is separate from the installation of electricity. Fire cables should be labeled on their ends to clearly identify as fire alarm cables.

-We forecast the realization of a fire alarm system according to the ICE UNI 979 standart with these characteristics:

The building will have a programmable electronic analog fire detection plant (as standart EN 4-2) fully compatible (for both the communication and usage typology and the program interface) with the existing unit in the surveillance room of the building.

## 6. Sistemi CCTV

To have a monitoring af the whole hammam we propose to make the surveillance system with cameras through a monitor which gives the possibility to have direct images of certain areas covered by this service. We think that this monitor should be placed at the point of information that we forecast to be in the hammam or at the reception.

A digital recorder (NVR) should also be installed to be able to record images in the central unit and the ability to return them in case of verification of possible events. In each surveillance room we will install PVC pipes d=20 mm normally installed in the walls or camouflaged.

- *Equipments*

- Indoor IP Cameras

The indoor IP cameras containing a multifocal and several fixed focal models. The camera is equipped with a Super Low Lux CMOS image sensor which allows the camera to provide a colour



**22644-001\_ALB\_EU4C\_RFP\_01 - “Provision of Consultancy for Design services for EU4CULTURE Project - Support for revitalization of cultural heritage sites and monuments affected by Earthquake in Albania.”**

**22644-001\_ALB\_EU4C\_RFP\_01 - “Sigurimi i Konsulencës për Shërbimet e Projektimit për Projektin EU4CULTURE - Mbështetje për ringjalljen e vendeve të trashëgimisë kulturore dhe monumenteve të prekura nga Tërmeti në Shqipëri.”**

---

live view in near darkness. The camera features a mini USB port which supports wireless connection through a Wi-Fi Adapter and images register will be made in its relevant NVR.

#### - Outdoor IP Cameras

The outdoor camera should be IP66 and IK10 and designed for environments with extreme temperatures. Being a day-and-night camera, it must also be equipped with a Super Low Lux CMOS sensor with which the camera is capable of providing a colour live view in near darkness.

## 7. Voice announcement system

The voice notification system will be implemented based on the requirements of security systems and will be integrated with them. This plan will perform these functions:

- Communication of notifications or evacuations in case of alarms given by the fire plant
- Various announcements
- To broadcast background music in environments where permitted
- To transmit various integrated with the calling system, etc

In particular the hammam will be equipped with 6w sound boxes and a microphone which will be installed in the positions that will be shown in the drawing and will be placed in a suitable area where the central unit will be placed through fire cables according to the standards CEI 20-45, type FG100M1 0.6 / 1kV 2x4 mm<sup>2</sup>, lying in ducts or pipes that are separate and unrelated to electrical installations.

The system must be designed and structured to minimize possible breakdowns or malfunction. According to the norm EN 60849 (NEQ 100-55), this system should enable monitoring of the operation and conditions of the system, in order to check if problems may occur later or if the system does not work.

## 8. Alarm system

We propose a alarm system to control the access of the entire building.

The alarm system anti-theft involves the installation of a centrally controlled programmable electronic anti-theft unit, controlled by a microprocessor capable of managing alarms coming from any environment.

The central unit must allow the alarm to be deactivated independently for each stored environment. The control of rooms should be done through the installation of volumetric sensors and magnetic contacts in each door of the stored room.

The central alarm unit must be installed in the server room and must be ready for remote control via a personal computer.

**22644-001\_ALB\_EU4C\_RFP\_01 - “Provision of Consultancy for Design services for EU4CULTURE Project - Support for revitalization of cultural heritage sites and monuments affected by Earthquake in Albania.”**

22644-001\_ALB\_EU4C\_RFP\_01 - “Sigurimi i Konsulencës për Shërbimet e Projektimit për Projektin EU4CULTURE - Mbështetje për ringjalljen e vendeve të trashëgimisë kulturore dhe monumenteve të prekura nga Tërmeti në Shqipëri.”

## 9. Information system

We propose to install a digital information system at the entrance of the hammam, which will enable visitors to receive immediate information about the areas to visited. It will offer the possibility of immediate communication with the visitor in general, but will also serve as a virtual visit for people with disabilities who I the inability to access the information and impressions through the electronic screen.

If it is necessary, screens will be provided at the exhibitors who will provide information for the relevant exhibitors and not only for this.

The projection of digital screens creates the possibility for visitors to receive information not only for this museum but also for the others of the area or the country, increasing the interest of the visitors to visit the museums or other objects of cultural heritage of our country.



**Fig. Digitalization on screens or in hammam applications**