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## VILLA'S PROJECT-RUGOVE

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University for Business and Technology  
Architecture and Spatial Planning

Villa's Project-Rugove  
Bachelor Degree

Agnesa Kastrati

October/2012  
Prishtine



University for Business and Technology  
Architecture and Spatial Planning

Bachelor Thesis  
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Student: Agnesa Kastrati

VILLA'S PROJECT-RUGOVE

Supervisor: Dr.Sc.Binak Beqaj

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Prishtine

## ABSTRACT

Title of thesis: Villa's Project-Rugove

Thesis directed by: Dr.Sc. Binak Beqaj

This project includes the main stages during the construction of the Villa. The dynamics of today's modern man lives requires however a place that he will be able to rest away from the noise and daily routine, without missing the necessary spaces. Each ville is based on the customer's request for vacation, the number of residents and how he spends days. Adaptation of the external appearance of Villa and combining them with rocks creates a connection with wild nature that crosses the mountains of Rugova, making a flexible suitability for the human eye. Materials in the project are carefully selected distinct predicted climate, weather conditions and its rational use in all seasons of the year. Besides the necessary space, the project also envisages other supplements such as swimming pools, sauna, garden, balcony ... that would allow a break vacationers as recreation. Villa are separated on the basis of category A, B, C and D. For each of them has created special access while maintaining the privacy of each and at the mean time enabling rational use of shared spaces such as restaurant, sports fields, fitness, ski equipment, etc ... In this project is envisaged space that provides food supply services, lavandery and a patient medical service. All these are made with a specific purpose to enable more efficient use of space, to develop tourism and to make interactions between modern architecture and nature, without destroying it.

## ACKNOWLEDGMENT

I would like to thank Dr.Sc. Binak Beqaj for advising and supporting me. He has always been considerate to me, and encouraging me to find better ways on the degree course. I could complete this work with his help and understanding.

His interests and constructive discussions on my research were helpful to me.

It is my pleasure to thank the University for Business and Technology(UBT). The study experience in UBT deepened my knowledge and competence in the field architecture and spatial planning

The life of a student in the University of Business and Technology was the most valuable as the educational aspect as well as social.

However, I would like to believe that it is a present from life and a result of all those professors who contributed to our development and our greatest reward that life will bring us in the future.

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*Figure 1*.....*UBT Logo*

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**Technical specification**

**Villa's Project**

**Location:Rugovë-Pejë**



**Fig.2- Rugova region**

## 1.LOCATION ANALYSE

Mountains represent for sure a fascinating place to spend a holiday or simply a day off.

Rugova Valley is located in the heart of Dukagjini, in north-western Kosovo. It covers an area of 32.000 hectares. Its highest peak is Courshed Mountain, with an altitude of 2560 meters.

Among several characteristics that distinguish this valley, following are the most important ones

- Bistrica River, which passes throughout 12 kilometres of the valley
- Waterfalls that fall from a height of 30 meters
- Two lakes at an altitude of 1 800 meters above sea level and
- A number of caves

Rugova Valley is considered as an ideal place to spend a day or a couple of days, when you need to relax and get away from the daily routine and dynamic life in the city. It is a quiet preserved and unexplored region, and this offers a unique entertainment opportunity for the lovers of eco and rural tourism.

Rugova is approximately 20 km long in the east - west direction and 10 km wide in the north - south direction. There are 13 settlements in Rugova. The majority of them are located on the southern slopes of Hajla.

Some of these villages are in altitudes of 1,600m or above which is the above upper forest line

Rugova regions has a view of the amphitheater surrounded by high mountains, to the sides of the mountain and end touches in the alluvial plains of the river of Peja, which sometimes narrows to form the canyon, especially at the exit of the river in the area . Left side of the basin is wider, southern exposition is lower and found villages of Rugova, while the right side is narrow, steep, northern exposition.

In the upper parts are glacial erosion forms (circuses, stall, mountain lakes) and below encountered moraine material. Rugova limestone formations prevail above and underground karsts forms. Left side of the basin is wider, southern exposition is lower and found villages of Rugova, while the right side is narrow, steep, northern exposition. In the upper parts are glacial erosion forms (circuses, stall, mountain lakes) and below encountered moraine material. Rugova limestone formations prevail mezozoikut, above and underground karsts forms.

The climate of this area is mountainous, cold winters with snow, fresh wine, with over 1100 mm rainfall during (Kuqishtë). In physiognomy dominate pastures, forests, coniferous and leaf downward and around settlements fields planted with corn and potatoes and a tree. Once this area was significantly inhabited, but since the late 60's the population of this area begins to migrate and placed in Peja, or villages not far from the city.

### **Morphology**

Rugova region consists of river Lumnardhi derived in the south, at the foot summit of Jelenkut, continues to flow until Kuqishtë to join the flow that comes in Hagjaj.. So here is Rugova Canyon or as otherwise called "Rugova Gorge" (about 6 km typical canyon) starting 3km away from Peja to the 9-kilometer cure slowly begins to open.

Average quota of the valley is 650-1000m which is predominantly on the left side but also thanks to the right, especially during the summer months mountain sites are with slope 15-30-degrees, but there roasted that slopes arrives from 45-90 degrees (red Stone Hajlë) but also inside the terrain as releasing in Dukagjin etc..

## **Water network**

The region consists of a dense networking. In general the whole region except the mountain waters of Lumbardh that is totally dry. From southern side elevation occurred glacial lake region of Kuqishte 1900m filled with water during all seasons and lake Drelajve 1800m, which dry up during the hot summer.

River Lumbardhi is main source of which is in two wells: one comes in village Haxhaj (Vrella more attractive), and the other at the foot of the summit of Jelenkut .These two flow by collecting the water of springs meets in Kuqishtë creating Mbushtria River .

## **Climate**

Rugova region has a humid continental climate with mountain impact, short and hot summers while the winter is long and wild. Spring is late, hot summer average but the temperature varies widely during the day, and sun hours depend of exposure in general are not long..Rains are more common during the fall and in winter .Snow is present in the mountain peaks of the northern and southern side of the region until August, gold snow height from 30-50cm to 2m. Average spring temperatures 4-7 degrees Celsius

Due to the these fact I see tourism as both a way to contribute to the local economy and as a chance to let know Kosovo around Europe.

Building a complex of villas in this place must be the main point to develop tourism in this area , and offering to them all of facilities on that beautiful place would fulfill all the request that e tourists can have.

## 2. PROJECT TASKS

Rugova valley is planned and designed as a high quality and medium density residential enclave. This gated community has been envisaged to form a harmonious and wholesome living environment with superior villas placed fittingly among large green areas of elegantly designed communal green spaces.

Roads within the layout have been planned in a grid system. One main primary tree lined avenue road gives access into the layout and runs west to east linking the 2 entrances into the layout. Secondary roads give access to the plots and keep away general and thorough traffic. Consequently smaller and quieter neighborhood blocks are formed to augment the living experience.

The urban scope of the development has been enhanced with large welcoming greens at the entrance which continues to extend itself to the northern side as a large green space. These multifunctional green spaces of entertainment, recreation, play, repose and varied landscaped textures enhances the urban environment within along with a state of the art club house made easily accessible to all. On the whole the development caters to providing a complete and nurturing living experience.

The villas are designed to provide a luxurious experience for the proud owner. Landscaped courts within the villa, space for a private gym, meditation pools, terrace gardens and even intimate open-to-sky sleeping areas adorn even the basic unit of the development. Master bedrooms are integrated with private courts, thus creating a sense of intimacy and a connection to nature even at the upper floor levels. Ample light and ventilation combined with every modern amenity are intrinsic to the designs of every one of these exclusive villas.

### **3.ARCHITECTURE AND MATERIALS**

#### **1.Concrete works**

The shell of the building is to be built with an Insulating Concrete Forms (I.C.F.) system, which consists of 20-cm concrete walls (grade 20/25) throughout, sandwiched between two 5-cm layers of expanded polystyrene of grade “EPS-30”. The reinforcement consists of  $\Phi 10$  steel rods spaced at 20-cm intervals vertically, and connected with  $\Phi 8$  rods horizontally, with the same spacing. The slabs are supported with DOCA I-beams and consist of a plasterboard-polystyrene bottom layer and 20-cm grade 20/25 concrete, reinforced with dense zones of  $\Phi 8$  steel rods.

#### **2.Interior Walls**

All interior walls of the building are to be brick.

The layer on the exterior concrete walls is screwed directly onto the polystyrene, as the ICF system provides special plastic drilling points for such works. All other interior separation walls are built with 5-cm wide steel studs and a double layer of boards either side, the first of which is OSB compressed chipboard and the second layer plasterboard , with an interior layer of rock-wool to augment acoustic resistance. In moist areas like bathrooms, the moisture-resistant green plasterboard will be used.

#### **3.Exterior Finishes – Thermal Insulation**

The exterior façade of the building is completely covered by the ICF 5-cm polystyrene layer in order to ensure the thermal insulation of the building without any thermal bridging, reinforced with a 1-mm layer of plastic net and special acrylic glue. Wherever this insulating layer is not covered by masonry walls, it will be finished in coloured acrylic plaster, in a shade of white approved by the Client.

All roofs are also thermally insulated with EPS-30 polystyrene, water-proofed and then covered in gravel stone. Some of the roofs, especially the ones at the back of the house that are in close proximity to the natural environment, could be “brown” roofs, i.e. filled with earth and allowed to develop a natural vegetation.

#### **4. Insulation & Waterproofing**

All retaining walls and concrete tanks, as well as all roof-tops and terraces will be insulated with polyurethane membrane coatings and further protected by EPDM drainage membranes wherever there will be fillings. Interior wet surfaces such as bathrooms and kitchens will also be insulated with polyurethane membrane coatings.

#### **5. Floor Finishes**

Three following floor finishes are to be used throughout the property:

- Interior lounge areas and bedrooms will be finished in either solid-timber adhered to screed with elastic bonding glues (expensive option), or moisture-resistant floating laminate flooring (less expensive option).
- Interior and exterior circulation areas, as well as bathrooms are to be finished in large slabs of beige composite stone, with a tumbled finish for slip-resistance and imperceptible joints without any grouting.
- Exterior circulation areas like pathways and stairways are to be finished in slabs of local stone with cement joints.
- The driveway to the garage is to be finished in flamed-granite cobble-stones.

#### **5. Wall Finishes**

Four different wall finishes be used throughout the property:

- Painted matte smooth finishes on dry wall surfaces, using water-based and solvent free ecological acrylic paints.
- Veneered wooden panels in the same tone as the timber flooring, to be used in bedrooms and living rooms.
- Large slabs of beige composite stone, with a tumbled finish, in bathrooms.
- Decorative masonry wall with solid timber architraves on large surfaces neighboring exterior windows, libraries and in the sitting area, next to the fireplace.



## **6. Doors**

The main driveway gate to the property is to be sliding into the perimeter masonry wall, and built of a heavy-weight aluminum frame with inset joists, and paneled with Neowood planks in order to ensure longevity and harmonization with the surrounding environment. The opening mechanism is to be a heavy-duty sliding mechanism with, controlled by a turn-key protected lock and tele-commander.

The main entrance door to the villa is to be a top-quality SCHUCO aluminum frame with heavy-duty (150-kg each) recessed hinges, and a fingerprint auto-lock mechanism.

Hinges are spring-powered to ensure the door always closes behind a user exiting the premises. It is to be finished in solid Iroko timber screwed into its plywood-aluminum sandwiched factory face.

## **7. Windows and Balcony Doors**

All windows, whether fixed-frame, pivoting, sliding or opening, will be built out of high quality aluminum with thermal gaps between interior and exterior frames, and will be electrostatically painted in wood color matching the flooring. The living room and two dining room balcony doors are to be by German maker SCHUCO, while all others are to be by ELVIAL with mechanisms by GU, or equivalent.

All such openings are to be equipped with an electric roller aluminum shutter in wood color, and all are to come equipped with retractable mosquito netting in the same color finish of the frame as all others.

## **8. Joinery**

All joinery, whether shelving, closets, or walk-in closets will be bespoke and built locally with high-quality medium-density fiberboard with factory-varnished veneers throughout, matching the shades of the flooring. All hinges will be heavy-duty with softly closing mechanisms. All hanger rails will be illuminated, while those in the higher closets will be pull-down, so as to allow for easy access. The design will include a variety of compartments for different clothing types, shoes, accessories, etc.



## **9. Kitchen (countertops, fittings, and equipment)**

The kitchen design will be contemporary, with a wall-mounted unit on one side and an “island” unit between the kitchen and dining room. The island also serves as a bar on one side. The colors of the cabinets and countertops are to be approved by the client prior to costing.

All countertops are to be by composite stone, etched and molded to fit exactly with the stainless-steel wash basins and other equipment. The kitchen stoves and ancillary electrical inset equipment are to be provided by the Client.

## **10. Bathrooms (countertops, fittings, and equipment)**

The bathroom design will be contemporary, with all surfaces finished in tumbled composite stone. All bathroom equipment is to be Grohe or Hans Grohe, or equivalent approved by the Client. All fittings are to be stainless-steel, as approved by the Client, and will include towel heaters, towel hangers, make-up mirrors, paper holders, tissue holders, bathrobe hangers, trash bins, etc.

## **11. Fireplaces**

The fireplaces will be two types:

- One traditional stone fireplace is to be built in the living room, with a traditional chimney on the terrace of the main living room.
- Glass-enclosed fireplaces with closed air circulation, particularly energy-efficient and with minimal flue requirements of just a 200-mm diameter insulated pipe will be installed in the two main bedrooms. Burning materials can either be dried wood or coal, while the front face of the fireplace is to be clad in grey flamed granite.

## **12. Service Areas**

Service area will be located in the entrance of the complex.

Market, SPA, Lavandery, a small ambulance, main storage and a housekeeper are some of the facilities that offers this area. All of them will be wooden construction .

### **13. Landscaping**

The landscaped areas of the villa extend over the front porch (roughly 220m<sup>2</sup>), with a lawn in front of the swimming pool and decorative planting around the pathways and stairways. The back of the house is suggested to be planted with high trees and dense bushes, but few decorative flowers, so as to minimise the irrigation requirements and emphasize the “rough” character of those areas.

## **MECHANICAL AND ELECTRICAL WORKS**

### **1. Plumbing:**

- Fresh water supply: The villa will be supplied with fresh water from the municipal mains. The consumption will be measured by a volumetric appropriate device in the purpose built water tank.

- Hot water supply: Hot water will be produced locally with a dual energy water heater. First option will be the hot water from the villa’s solar panels and the back-up option will be an electric heating coil. All hot water will be recirculated. This way, hot water will reach the faucet within very few seconds.

- Water-supply network: The network is constructed by multilayer flexible pipes of the latest technology. Specifically the pipes will be flexible CU (copper) with a PE-AL-PE (polyethylene-aluminium-polyethylene) shield. Both the hot-water and recirculation pipes will be insulated with tubes of elastomeric foam based on synthetic rubber.

- Sewage piping network: The sewage network is constructed of PPR (polypropylene) pipes with elastic rings.

- Rainwater piping network: The rainwater pipes will be of standard 6-atm PVC (polyvinylchloride), and will be concealed from view and sound-insulated, guiding the water outside the building envelope.

### **2. Heating/Ventilation**

As the ICF building system provides 70% energy saving for heating and cooling due to superior heat insulation without thermal bridging, very little heating and ventilation is required in the house. The most important outcome of this is that the house no longer

requires a hot-water boiler, while small local air-conditioning units are more than enough to provide the cooling effect required on the hottest summer days.

Heating in all areas will be accomplished with local electrical heating units of contemporary design, while the option also exists of using infrared heating panel such as Redwell.

Especially in bathrooms, heating apparatus also serve as towel warmers, built out of stainless steel in contemporary designs. All such heaters will be thermostat-controlled, in order not to waste energy on unnecessary heating.

Air-conditioning in all public and private areas (living room, dining room, bedrooms) is to be achieved by highly-efficient units by DAIKIN (or equivalent, approved by Eurovent) with a very low noise level (22dB at the lowest operating setting). Units will be either floorstanding (such as in the living room) or concealed within false ceilings (such as in the bedrooms). Each unit will be autonomous, and controlled by an automatic thermostat, which will allow selection of temperature as well as fan speed.

Where air diffusers are required for the concealed units, this will be achieved with a arrangement of rectangular and flexible ducts. The ducts will arrive at plenums and thence supply aesthetic slot diffusers of two or three slots, depending on room size and architectural limitations. All ducts will be insulated with polyethylene foam, 0.5cm thick. All flexible ducts are self insulated with glass-mineral wool.

### **3. Electrical**

- Power supply: The villa is supplied with standard European 400V/50Hz electricity mains, locally distributed to 230V/50Hz power circuits throughout the premises, except where high-power rated machinery is to be operated (such as kitchen stoves or water pumps).

- Lighting: All lighting will be by low-power LED and Fluorescent fixtures. Every room will have its own power lines. All lighting cables will be single-phase 3x1.5mm<sup>2</sup> protected with 1x10Amp fuses. Cables to the external areas, bathrooms, or in general to areas of moist environments will be protected with 2x10Amp fuses, therefore isolating the neutral pole as well as the phase. Dimmers will be used throughout in order to achieve the optimal lighting effect according to the users' preferences.

- Power sockets: The power sockets will be distributed according to operational standards. Typical examples are: at each side of the beds, multiple sockets in the kitchen working

surfaces and TV & home-cinema areas. No power line will supply more than one room.

- Electric curtains (whether rolling or sliding) will be installed according to the Client's requirements.

## **21. Electronics**

- Fire detection: Fire detectors are positioned according to Greek regulations and automatic alarm connections with the local fire department can also be installed.
- Telephony: Telephone lines will connect to the villa's own telephone relay terminal and thence to an ISDN outside line. Telephone lines are distributed throughout the building and are terminated at standard RJ11 sockets.
- Internet: Wireless internet and local area network is distributed throughout the villa and its garden and will be encrypted to prevent external intrusions.
- Television: All bedrooms and living rooms have television outlets. The SKY satellite network (or another network, at the client's choice) shall also be installed. A 7+1 home cinema will also be installed at the main television area.
- Alarm: All electric roller blinds and all doors to the exterior will be connected to an integrated alarm system that both closes down the house automatically and arms when ready.
- Lighting control: Exterior lighting will be connected to light-sensors and timers, so that no energy is wasted on unnecessary lighting but with the option of changing the lighting effects if the client so requires (e.g. During a party).
- If the client so requires, some chosen systems in the home (eg. Alarm, Heating, swimming pool condition, exterior lighting etc.) can be connected to a system that will provide SMS notifications to the mobile telephones, and could even receive commands through SMS.

## **SWIMMING-POOL**

As no swimming pool was originally designed for the house, it is not included in the building permit and will thus require an additional permit for its construction. Additional space will be required in the building's basement for the positioning of the pool's filters

and water tanks, and this space will need to be adjacent to the pool.

The swimming pool is to be built in front of the house, with a size of 14-by-5 meters and ranging in depth between 1.2m and 1.5m, with comfortable steps positioned at the south end of the pool. The pool will have an infinity edge at its far end, where water will overflow into a lined concrete gutter below and then be piped to the overflow tank for treatment.

The swimming pool's interior surfaces will be finished in the Client's chosen material, which could range from glass-mosaic tiles to composite stones, and from polyurethane paint to a polyethylene membrane liner.

Swimming pool water treatment will consist of a sand-filter and an coronation device, which will reduce the amount of synthetic chemicals required to treat the water but will not eliminate them entirely. A pH-lowering acid-injection dosing pump will also be needed for keeping the water clear. Additional treatment will chlorine dosing could be done in the form of a solid-chlorine tablet (cyanuric base) whenever required.

## **AMENDMENTS - IMPROVEMENTS**

All finishing materials are to be presented prior to the commencement of works and will be subject to the client's approval. Materials that will be sourced and provided by the client must be on-site well in advance of their use by the technicians, so that any special needs can be anticipated. The Developers reserve the right to request a change in cost for the use of materials that fall outside the original specifications as far as the for their installation craftsmanship is concerned.

If the Client wishes to bring about alterations to the designs, whether these are in their opinion improvements to the space-planning or to the construction materials, it will remain their obligation to do so promptly and well in time to allow these alterations to be incorporated in to the project by the Developers without upsetting the progress of works. Obviously, alterations that will affect the structural integrity of the building, or that potentially endanger and jeopardize the proper organization and function of the structures, will not be directly approved but will require approval by the building authorities.

## PROJECT CONCLUSION

### Discussion!

The first part of the project was, for me, the most challenging.

I had never considered the number of design decisions that were required to create and implement an instruction set architecture. However, being the most challenging part also meant that I learned the most from this part. I found that creating an instruction set architecture requires an inherent understanding of processor operation.

The next three parts control units were also challenging. However, having taken the mindset of 'not reinventing the wheel', I was able to accomplish these steps without too many setbacks. Again, I learned a great deal about the overall operation of processors and the intricacies associated therewith.

### Conclusion

Growing up, always assumed I'd have a Summer house – weekend house, second house, whatever you want call it. It would like to be small, simple, clear and clean, airy and welcoming, easy to maintain and to come to and go from. All the miscellaneous accouterments of daily living would be pared down and simplified, clutter-free.

The holiday house sits as walk able sculptural building in the strong landscape with a square ruin, old retaining walls, large rocks. In the south houses have a spectacular terrace with a great view on and with a low ,broad parapet. Area in the houses in such a way that everyone has privacy, the most frequented rooms like kitchen and living area are larger and you can modify as you want. But if I was able to work on this project again probably will do even more changes, but taking into account the evolution of architectural methods and materials expansion would be inevitable changes in each project.

Taking into account the probable that architects are seen as liaison between art and science, and have a tremendous influence in the creation of life for citizens, architects need besides the shape and space to create a social environment as the promotion of values in a world where the polarization is growing.