

-INTRODUCTION-

The present essay concerns the specifications of the construction of a house with swimming pool. The frame of the building will be of Reinforced Concrete and steel structure.

The project will take place in Evia island near the town of Karistos. In the following you find a general description of the main techniques, materials of the villas and the surrounding areas. All the constructions will be made based on the Permit of the urban planning of Karistos.



-A. BUILDING WORKS

-1. GROUNDWORKS

LANDSCAPE WORKS & ENVIRONMENTAL DEVELOPMENT

The configuration of the surrounding area will be done using both mechanical and manual means, under the supervision of experienced personnel in order to achieve a quality result following the architectural requirements, in a safe way.

EXCAVATIONS

The excavation of the perimeter of the foundations and retaining walls of the building will be made using mechanical means. One and a half meters offset from any external concrete surface will be left, in order to allow the necessary space for appropriate installation and removal of the formworks.

The excavation of the buildings and the swimming pools will be done mechanically in depth and dimensions defined by the approved studies.

BACKFILLS

All the surroundings of the foundations will be backfilled (after the formworks removal and the completion of any remaining works e.g. insulations). It will be used exclusively inert ground materials, obtained from the excavations or acquired, if necessary, in order to reduce the forces against the load-bearing members and the sealing system.

DRAINAGE

In specific areas of need, according to the environmental considerations, a rainwater draining and guiding system will be prepared and installed, including a perforated drainage pipe enchased in a geotextile sheet, laid in proper grain size cobbles.



-2. STRUCTURAL WORKS

FOUNDATIONS-STRUCTURAL FRAMES OF THE VILLAS

Reinforced concrete specialists and carpenters will set the construction site in order to allow an organized and hazardless workflow.

The soil surface in contact with the structure will be prepared and a 10cm layer of blinding concrete will be laid, in order to keep the foundation and the structure members intact from natural agents. The material and methods that are going to be used will adhere to the structural engineer's design and the quality requisites.

THE FOUNDATIONS

The foundation of the house consists of a reinforced concrete solid slab raft, the thickness of which will adhere to the structural engineer's design. The retaining walls will be constructed in combination with the slab raft, in order to achieve a better water impermeability and structural solidity. The swimming pools will be made using the same methods, wall and foundation thickness according to the structural engineer. Will be used concrete type C_{25/30} and iron reinforcement S₅₀₀.

EXTERNAL PERGOLA

The external pergola in the front court of each house and the parking lots (wherever is required) will consist of a steel frame structure and appropriate shading parts (wood or textile).

-3. INSULATIONS

WATERPROOFING-SEALING OF THE VILLAS

In this phase of construction, the constructor should follow combined techniques and hire specialized subcontractors to achieve the proper result - a lifetime sealing of the villa structure and all liquid holding tanks (including swimming pools and septic tanks where required). For external walls, touching the villa, and the roof, will be used an anti-root membrane of Sika.

For the supporting walls, should be used 2 layers of waterproofing cementitious materials of Sika.

In the shower, should be used special plastic net and cement materials, for the waterproofing Sika.

WATERPROOFING OF RESIDENTIAL WALL SURFACES

Cleaning and clearing of all concrete surfaces from formwork residuals with mechanical means, where waterproofing is required and restoring any voids with epoxy paste and cementitious resin mortar. Primer wetting of the walls and application of a two-component gray mortar. The material is applied in two layers with a 24-hour gap between them. Application of an asphalt sealing ointment, suitable for the protection and sealing of underground building structures.

Finally, a 400gr/m² drainage membrane is installed, suitable for protection and drainage of external walls and foundations.



Indicative example

WATERPROOFING OF ROOF SURFACES

A complete waterproofing system for sealing with two layers of SBS elastomeric asphalt, suitable for insulating roofs will be applied. Cleaning surfaces with mechanical means - rinsing.

THERMAL INSULATION OF THE OPAQUE PARTS OF THE VILLAS

Expanded and extruded polystyrene and mineral wool will be applied on floors, roofs, the external masonry and perimeter retaining walls in contact with the internal of the houses for insulation (where required), in order to reduce the thermal conductivity of the building, adhering to the E.U. standards and the environmental engineer's specifications.

-4. MASONRY

INTERNAL WALLS

The internal walls will be made of double plasterboard sheets on metal frame with an inside insulation of mineral wool 5cm wide. The vertical elements of the frame structure will be positioned every 60cm, in full height up to the ceiling (75kg/m³).

The walls of the bathrooms will be made of –blue type - double plasterboard sheets in order to protect against moisture, with an inside insulation of mineral wool 5cm wide (75kg/m³).

The bathroom and kitchen walls will be reinforced with a wood frame in specific places, in order to allow heavy-body fixings like sinks, drawers etc.

External walls

The external walls masonry consists of perforated bricks laid with a suitable mortar mix.

A perimeter reinforced concrete beam with a minimum height of 10cm and the width of the brick wall will be installed, in line with the sill of the windows and the header of both windows and doors for structural reasons.

5. WALL COVERINGS/CLADDING

PLASTERING

There will be used fiberglass mesh for the correct application of the plaster, followed by a resin-content cementitious base plaster and then silicon-acrylic content plasters available in various colors.

The external insulation of the building on the main opaque parts consists of Contact Facade system.

STONE CLADDING (Karistos stones)

Stone cladding will be applied on part of the external retaining walls as indicated by the architectural study. It will be anchored with special fixings and appropriate mortar mixtures.

The stone surfaces will be applied with hidden joint technique and the selection of the color and texture will be by the architect. **Stone retaining walls and stone cladding are not included in the offer.**

The additional cost is 180 euro per square meter plus VAT



Examples of stone cladding

INTERNAL PAINTINGS

All bathrooms from the tiles and above, walls and ceilings, are going to be painted with mold - repellent special materials.

All plasterboard walls in the internal of the rooms, living room and common spaces, will be painted in color and paint quality in accordance with the architect and clients, till perfect finish.
(VIVECHROM / KRAFT / VITEX)

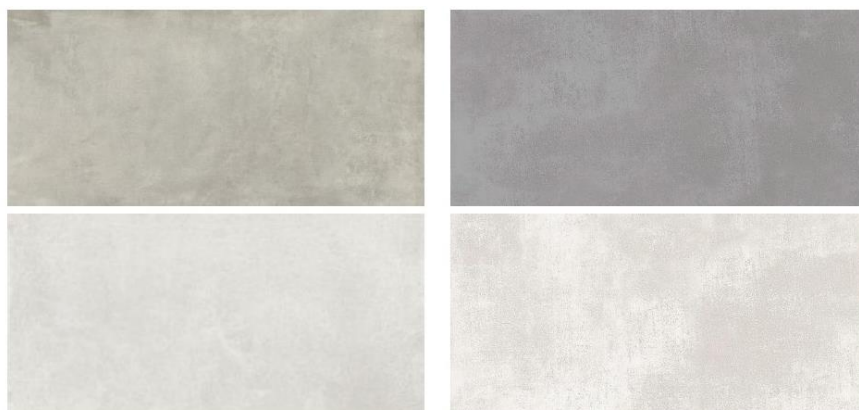
The external arches will be made of fiber cement boards with thermal façade and forged cement finish according to the architectural plans.

-6. FLOORS AND CEILINGS

INTERNAL FLOORING

The floors of the internal spaces of the houses are going to be filled with lightweight concrete of 8,00 cm and sandblast layer 2,00 cm and then porcelain tiles of sorting and quality of size 120*60 cm. **(up to 20€/per sqm)**.

All the above tiles will be matched with identical 7 cm panel, attached to the walls.



60/120 tiles

FLOORS AND WALLS OF BATHROOMS

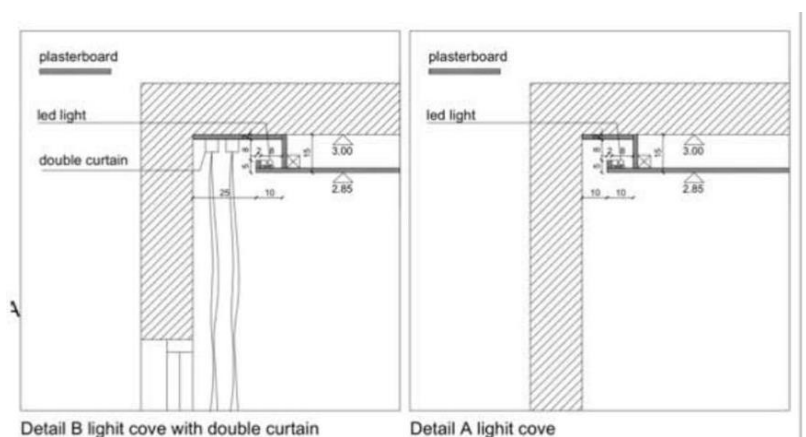
The walls and the pavements of all bathrooms will be covered with porcelain tiles according to the architectural design.

The vertical tiling is going to cover the walls up to the height of 2,20m. Vertical edges will be fixed with the role to protect the corners, made in aluminum profiles. **(up to 20€/per sqm)**

The floor of the shower will be formed with a proper slope for draining the water.

INTERNAL CEILINGS

All ceilings in the villas, always according to the architectural study, will be lowered with plasterboard to host installations (Air-Conditioning, lighting, ventilation) and will have a perimetrical channel for hidden lighting and curtain.



EXTERNAL FLOORING

The front yard of the house (space in front of the swimming pool) will be made of stamp concrete according to the architectural study.

STAIRCASES PAVING

- The internal staircase for the first floor will be steel with wood steps

-7. BATHROOMS

BATHROOM EQUIPMENT

TOILET

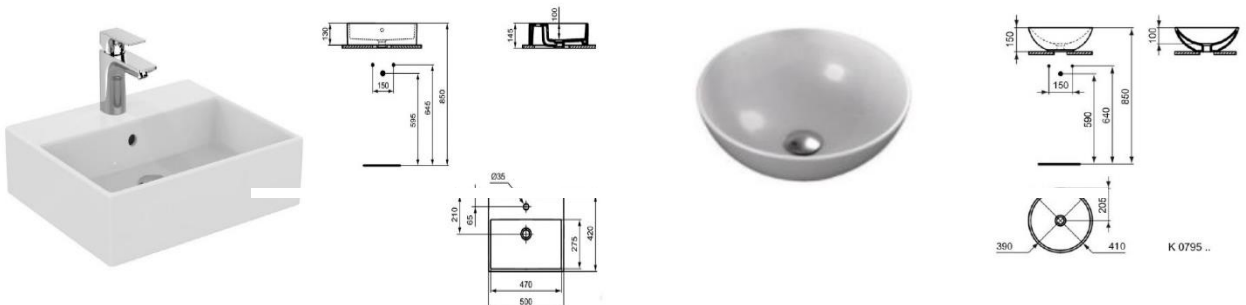
In all the bathrooms, an IDEAL STANDARD toilet bowl will be placed.
(set 180€)



Toilet bowl with pre-wall system and flush plate example

SINKS

In all the bathrooms of the villas will be placed a wash basin from IDEAL STANDARD company in size according to the architect's description.
The wood in which the wash basin will be placed will be made of Swedish panel-type wood according to the architect's study.
A mirror will be on the wall up to the basin. **(sink up to 70 €)**



BATHROOM ACCESSORIES

The accessories that will be placed in each bathroom are towel hanger, double towel hook and towel handle, toilet paper handle, shower soap dish, brush holder and liquid soap holder.



3 Hooks in each shower



1 Towel hanger in each shower



Toilet roll holder



Indicative examples

-8. KITCHEN-

KITCHEN FURNITURE

The kitchen furniture will be made of melamine box inside, with thickness of 18mm, 8.0mm thickness at the cabinet back. There will be a gap of 2.90cm at the back side of the cabinets for hygiene reasons.

The cabinet doors will be of oak wood.

The drawers will have metal box system with brakes and hinges blum.

The surface of the kitchen will be of forged cement, resistant to solvents, acids and household reagents with amazing intensity and depth of color.

- Accessories such as cutlery dresser, aluminum base and inox trashcan, are included.
- There will also be placed a double inox sink and an inox battery and absorber vent.
- The dimensions of the kitchen will be according to the architecture study.



Indicative examples

NOTE: The electrical equipment is not included.

KITCHEN LINING

The kitchen wall, in the space between the bench and the cabinets, will be covered with tiles.

-9. EXTERNAL AND INTERNAL OPENINGS-

Kavala marble A - B, 0.03m thick, will be placed on the sills of the windows and all the openings. The type of the marble will be in coordination with the architects.

INTERNAL DOORS

The internal doors will be of laminate type, their envelope and the sill will be of marine plywood and the door leaf will be pressed in a white tint.



Laminate Door

Up to 370€/ per pcs

EXTERNAL OPENINGS

The openings of the villas will be PVC Kommerling 76 MD series and they will all be placed according to the architect's plans.

The system offers high thermal insulation and watertightness performances, which in combination with high sound

Advantages:

- Highly energy saving thanks to the exceptional thermal performance
- Ease of use and high functionality
- High security level
- Exceptional sound insulation
- Modern design (colors to chose 5 options)



EXTERNAL DOORS

The external doors of the villas will be a part of the aluminum structure

-10. CARPENTRY

Wardrobes

The wardrobes are made of melamine boxes (16.00 mm thick) internal white or beige color and the drawers are metal type METABOX. The doors will be made of melamine , colors and design based in the architectural

study.



Sliding wardrobes door



Opening wardrobes door

Bathrooms cabins

All bathrooms will have an open wooden cabinet as in the example:



Indicative example

HOUSE INSTALLATIONS & EQUIPMENT

Each house will have a small pillar, that incorporates all the systems that belong to the house (electrics and hydraulics). The pillar will be made of plastered concrete and enclosed in an aluminum gate. Each home will have a private electricity and water connection with its own gauge.

ELECTRICAL INSTALLATIONS

Central connection for the complex will be at the main entrance from the public road, this is a requirement by the law for the provider to have access to the meter clocks. There will be one separate energy meter for every Villa in appropriately protected space made with concrete.

The exact position will be in accordance with the landscape design and the necessities of the plot, so it is not marked yet.

All the electrical installation will be done according to electromechanical study and the architect's specifications.

- Each house will have a mini pillar for the electrical meter.
- Each house will have a private electricity and water connection.
- Main electricity board will be placed on the ground floor (exact place will be determined by the architect).
- Installation of all internal and external cables for indoor and outdoor lighting (the supply of the luminaires is not included in the offer, but the installation is included).

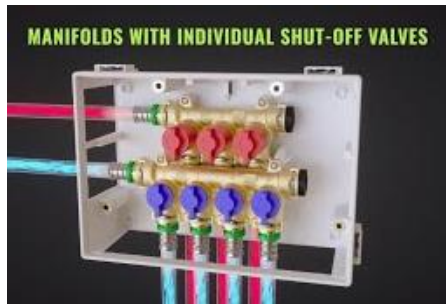
Remarks:

- A two-way switch will be installed at the beginning and end of each corridor.
- In the bedrooms a two-way switch will be placed on each side of the bed and autonomous lighting on each nightstand.
- Installation for TV-SAT line, telephone line and internet line in the living room and every bedroom.
- There will be external lighting at every exit

HYDRAULICS AND DRAINAGE INSTALLATIONS

- Heiztech pipes will be used for water supply, while the components will be Valsir type.
- The connection from the hydrometer to the water supply panels will be made using a $\Phi 22$ pipe. The water pressure in the villa will be between 4-6 atmospheres.
- The drainage will use Valsir piping for pipettes as well as 6,1tm F100 pipes. Vertical gutters will be 6atm F63 pipes.
- The septic tank of each villa will be absorbent, consisting of concrete rings F 150 to a depth of 2.00 m. The pipe of the sewerage will be in size of 4 inch" (11 cm) minimum.
- A stainless-steel concealed drainage channel will be installed at every place that will be needed to drain the water.

- Each villa will have a central water distribution manifold with separate shut-off valves. This allows each outlet to be isolated independently, for example in the event of a malfunction. The installation will be done according to the architect's plan.



- Garden's faucets will be placed at (Quantity):
 - 1* At the balcony of the 1st floor
 - 1* Next to the swimming pool
 - 1* At the surrounding area(According to the architectural study)

COOLING AND HEATING SYSTEM

There will be installed split units TCL (Inverter) for heating and cooling based in the study and heating Boiler (160 lt) for hot water

B. LANDSCAPE DESIGN AND EXTERNAL OF THE VILLAS-

-11. SWIMMING POOL AREA

- The size of the pool will be according to the architectural study.
- The swimming pool will be skimmer with all the necessary mechanical equipment



-12. MAIN GATE, PARKING AREA & SECONDARY SPACES

The parking area will be made from stamp concrete suitable for car access, there will be prepared the necessary surface water draining system for the rainwater

- The entrance gate will be from steel.