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mechanical and electrical consulting engineers

SAKYRCO

# ARIADNE

## *Mechanical and Electrical Specifications*

## *SAKYRCO ARIADNE Limassol*

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# 1. Mechanical Systems

**1.1 Sewage System:**

All sewage pipes on the apartment floors and vertical risers will be Upvc Pipes.
All sewage Pipes from the building risers and the sewage pipes from the other areas of the plot will run in ground floor with manholes in between until the building connection on the Limassol Sewage public system. The underground pipes will be Upvc Pipes.[2]

**1.2 Rain Water System:**

The Rain water will be drain trough gutter drains on roof, and apartment verandas. From the gutter drains and in the vertical risers the rain water pipes will be Upvc Pipes.
All Rain water pipes from the building risers and the rain water pipes from the other areas of the plot will run in ground floor with manholes in between until Rain water pits. The underground pipes will be Upvc Pipes.

**1.3 Passenger elevator**

Machine room less elevator with low energy consumption will be installed with 1 m/s velocity and passengers disengage system with batteries in case of power failure. Brand: KONE

**1.4 Plumping System**

The central pipes from the mains until the Solar system on the Roof and from there to the manifolds in the flats will be made from Pex Pipes. The manifolds will be bronze made. After the manifolds there will be Pex Pipes (pipe in pipe system) to the sanitary fittings

**1.5 The Solar System consists:**

Hot water Cylinder with storage of 160 Liters, suitable for high pressure Copper made. Thermally insulated, with stainless steel finish and 3kw secondary electric heater.

Cold Water tank made from Polyethylene with UV protection suitable for drinking water.

Solar Panels made of aluminum frame fully thermally insulated at the back and on the sides, 4mm special glass in front and copper inside. Pressure unit suitable for 3 bar pressure for cold and hot water.

**1.6 Central Heating System**

The central heating system for flats 201, 202, 301, 302, 401, 402 will be according to mechanical requirements (Daikin Altherma Monobloc or similar). The central heating system will consist of:

Underfloor Heating system with water (heat pump) for all 2-bedroom apartments.

All Pipes under the floor and the central pipes from the floor heating manifolds to the mechanical area on the Roof of the building will be installed and connected to compressors on the roof. The heat source will be a low temperature heat Pump system that is the more efficient in running cost of all systems. The Heat pump has the potential for savings in energy consumption of minimum 3.5 times less in comparison with the electric floor heating system.

**1.7 Air conditioning System split Units wall type**

Split units of Daikin Air-conditions (or similar brand) will be installed. One for each bedroom and one for the living room. The location of the external compressors will be on the roof excluding first floor a/c units for which the compressors will be on ground floor.

**1.8 Air Extraction for toilets.**

All WC rooms with no window will have a concealed ceiling exhaust fan connected to the light switch with time delay for taking out the steam and odors.

**1.9 Photovoltaic System for each apartment**

A total of 13 photovoltaic panels with 550 W each, generating a total electrical power of 7.15 kW will be installed on the roof, according to the mechanical engineer's study for energy performance certificate.

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## 2. Electrical Systems

### 2.1 Commons Lighting

The drive way in and out of the building will be illuminated via motion detector sensors, in order to aid the driver in entering & exiting of the building.

The external lighting of the buildings will been design to activated/deactivated automatically during the evening hours without the need of adjustment required due to the daylight saving and time changing, also could the working hours could be programmed to provide energy saving of the commons electric energy.

During the late midnight hours, the parking area lights will be switched "ON" via motion detectors with the ability to extend the time "ON" via local push buttons switches when it is required.

There will be some of cosmetic lighting around the building which will emphasize the beauty of the building. At the stairs of building and the lobby lights of each floor are automatically activated. Also, in those two areas there will be emergency lighting and illuminated exit signs in case of emergency building evacuation. At rooftop there is a typical lighting serving that area only for maintenance purpose.

The system will utilize a built-in time clock to regulate the exterior lighting based on sunrise and sunset, and provide centralized lighting management and control from the concierge.

### 2.2 Electric Gates

At the car entrances of the development there will be electric gates, activated by remote control, allowing only to the owners enter or leave the premises.

### 2.3 Video intercom system

A video intercom system consists of a camera and speaker/microphone at the building entrance, along with a monitor inside apartments that allows occupants to see and talk to visitors. It is also integrated with a door release button to remotely unlock the main entrance, and clients are provided with entrance fobs for secure access.

### 2.3 Centralized Multiple access TV System

The system will be consisted by one terrestrial antenna for the local terrestrial digital channels and one or more satellite dishes for the satellite channels and a multi switch in order to combine amplitude & split the Radio Frequency signal in quality to any apartment

### 2.4 Apartments internal lighting

The lighting of each apartment will be design to provide ease of use with conventional lighting control (no automation). The lighting points will be selected carefully to satisfy as much as possible and have been separated into sub circuits in order to provide separation (a fault to a luminary will trip only the respective circuit, not all the lighting of the apartment).

### 2.5 Apartments Small Power

Small power distribution system will be carefully designed according to the needs of each area and have a number of conventional 13A BS1363 switched socket outlets and the separate supplies to any fixed installed appliance such as air conditioning units, electric cooker, electronic oven, dish washer, tumbler dryer, washing machine etc.

### 2.6 Apartments Telephone and Structural Cabling System

Ethernet network using CAT6 cable, will allow access to the Internet. (Router is not provided). The same cable will be used for telephone service. Sockets will be distributed around the apartment in appropriate locations and can be used for both data and voice.

### 2.7 Apartments Intruder Alarm System

Provision for each room, power supply and structural cabling point to main intruder alarm panel for voice and/or data for communication.

### 3. Building envelope thermal insulation

The building Envelope will be thermally insulated according to the Cyprus Energy Department. The external walls and roof will be thermally insulated with 8cm extruded polystyrene.

All openings will be made from thermal aluminum with double glazing. The exterior glass will be with low e coating.

### 4. Energy Performance Category of the Apartments:

Each apartment will have its own energy Performance Certificate **Category A**

**Building's Energy Performance: A** (Highest performance grade – Minimised operational costs)

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# TECHNICAL SPECIFICATIONS – SAKYRCO ARIADNE

## 1. FOUNDATIONS & STRUCTURE

- Reinforced Concrete Frame with high yield strength steel reinforcement, comprising of footings, columns, roof flat slab and external walls in compliance with Anti-Seismic Eurocodes and according to civil engineering design by ASD Sotiriou advanced structural design office.

## 2. WALLS - PLASTERING

- EXTERNAL WALLS - 20cm + 25cm clay bricks as shown in architectural plans produced according to European Standard CYS EN 771-1:2011 (Category II). The building envelope will be thermally insulated according to the Cyprus Energy Department. The external walls will be thermally insulated with 8cm polystyrene and according to the study of the Mechanical engineer of the project.
- INTERNAL WALLS - 10cm clay bricks as shown in architectural drawings, produced according to European Standard CYS EN 771-1:2011 (Category II) with 2 layers of plaster, 2 layers spatula and 3 layers of high-quality emulsion paint.
- CEILING – fair-faced concrete treated with 3 layers of spatula & finished with high quality of emulsion paint (3 Coats) in all areas except corridors where there is a false ceiling with spot lights.
- EXTERNAL RETAINING / BOUNDARY WALLS - fair-faced concrete with high yield strength steel reinforcement.

## 3. INSULATION / WATERPROOFING

- Foundations: 3 coats bitumen emulsion
- Bathrooms: 2 coats of polyurethane based membrane "PU coating"
- Balconies and Slabs: waterproofing membrane LOTUS 4/20 or equal, with "non-woven" polyester reinforcement of 200gr/$m^2$ weight and with sand silicate finish.

## 4. TILING, FLOORING & WORKTOPS

- LIVING & DINING AREAS –high quality porcelain rectified tiles of size 60cm x 120 cm. Price €38.00/$m^2$
- KITCHEN AREAS –high quality porcelain rectified tiles of size 60cm x 120cm. Price €38.00/$m^2$
- BATHROOMS –high quality porcelain rectified tiles of size 60cm x 120cm. Price €38.00/m2
- BEDROOMS – high quality laminate parquet flooring AC4 grade made for heavy commercial use. Selection from a preselected range of different colours. Price €25.00/m2
- VERANDAS & ROOF GARDEN AREAS - quality heavy-duty none-slip external porcelain rectified tiles of Price €32.00/$m^2$.
- INTERNAL STAIRCASE – Marble or Granite tiles according to architect's choice.
- WORKTOPS – Granite material. Selection from a preselected range of different materials. €170.00/m

    - (All floors will be finished with matching skirting)
    - All above prices are showroom prices from **suppliers of our choice**

## 5. WARDROBES AND KITCHEN CABINETS

- High quality design Kitchens – *laminate finish* with a total height of 2.20m above finish floor level
- High quality design built-in wardrobes – *laminate finish*

## 6. DOORS AND WINDOWS (BY MUSKITA)

(1) External sliding doors and windows “MU 114” double glazing and exterior glass with low e coating.
(2) Opening aluminium doors “MU 2075” with double glazing and exterior glass with low e coating.
(3) Storage room doors in accordance to architect’s drawings
(4) Marble window sill (plinth) – Type KAVALAS or similar

- INTERNAL DOORS - High quality Medium Density Fibreboard – laminate matte finish. Complete with metal door handle, lock, doorstop and hinges.
- EXTERNAL MAIN DOOR OF FLATS – High security armoured door with steel frame and according to the European standards of fire resistance regulations.

## 7. RAILINGS / BALUSTRADES

- BALCONIES –Glass balustrades as per architect’s design with aluminium base.
- EXTERNAL – Colour coated metal railings as per architect’s design.
- STAIRCASE – Aluminium railings.

## 8. SANITARY WARE AND MIXER TAPS

- Choice of High-quality Sanitary Fittings in white porcelain complete with chrome plated accessories, vanity unity, mirror, soap holders & towel ring.
- Grohe Chrome finish single lever taps.
- High-quality stainless-steel sink for kitchen.

## 9. PLUMPING & WATER SUPPLY

- According to attached Mechanical and Electrical specifications document.

## 10. ELECTRICAL INSTALLATION

- According to attached Mechanical and Electrical specifications document.

## 11. HEATING & COOLING

- According to attached Mechanical and Electrical specifications document.

## 12. ELEVATOR

- Elegant high speed KONE elevator according to Mechanical and Electrical specifications.
- Load bearing capacity: 8 persons Elevators are designed for use by disabled persons.
- Elevator Doors are certified for Fire protection for 120 mins.