
1A
PUŠKINOVA

Facility:

Residence - City villa

Location:

Puškinova 1A, Belgrade

Cadastral municipality:

Savski venac

Cadastral plot:

11468/1

PURPOSE, FUNCTION AND CONCEPT OF THE FACILITY

The facility contains 4 residential units, a spa centre, the Residents Club, 8 parking spaces (plus 8 auxiliary parking spaces).

Residential units on all floors are designed as an open space, so that without major construction interventions, the formation of partition walls and all installations with finishing crafts within the interior can be customized for use according to specific needs of future owners.

The Basement Level includes:

- space for car parking with maneuvering, technical and space for resident's storage $P = 289.17 \text{ m}^2$
- spa center $P = 87.32 \text{ m}^2$
- staircase with elevator $P = 25.58 \text{ m}^2$
- room for IT equipment
- toilet
- boiler room

Total net usable area of the Basement Level:
 $P = 87.32 \text{ m}^2$

Total net area of the Basement Level:
 $P = 402.07 \text{ m}^2$

The Ground Floor includes:

- Residence 1, four-bedroom apartment $P = 261.74 \text{ m}^2$
- Concierge apartment, one-bedroom apartment $P = 41.4 \text{ m}^2$
- Residents Club, one-bedroom apartment $P = 30.0 \text{ m}^2$
- staircase with elevator $P = 25.58 \text{ m}^2$

Total net usable area of the Ground Floor: $P = 351.46 \text{ m}^2$
Total net area of Ground Floor: $P = 377.04 \text{ m}^2$

The Upper Ground Floor includes:

- Residence 2, five-bedroom apartment $P = 350.82 \text{ m}^2$
- staircase with elevator, hallway and windshield $P = 30.21 \text{ m}^2$

Total net usable area of the Upper Ground Floor:
 $P = 350.82 \text{ m}^2$

Total net area of the Upper Ground Floor:
 $P = 381.03 \text{ m}^2$

The First Floor includes:

- Residence 3, four-bedroom apartment $P = 272.77 \text{ m}^2$
- staircase with elevator $P = 25.58 \text{ m}^2$

Total net usable area of the First Floor: $P = 272.77 \text{ m}^2$
Total net area of the First Floor: $P = 298.35 \text{ m}^2$

The Penthouse includes:

- Residence 4, four-bedroom apartment $P = 290.34 \text{ m}^2$
- staircase with elevator $P = 25.58 \text{ m}^2$

Total net usable area of the Penthouse: $P = 290.34 \text{ m}^2$
Total net area of Penthouse: $P = 315.92 \text{ m}^2$

Total net usable area of the building:
 $P = 1352.71 \text{ m}^2$

Total net area of the building:
 $P = 1,774.41 \text{ m}^2$

STRUCTURE

The entire building structure has been constructed from reinforced concrete MB 30, including foundations, walls, slabs, pillars, beams and other structural elements. The gutter block $d=19$ cm is built only in places of the parapet under the window, together with the horizontal and vertical circles $d=19$ cm.

The structure made of reinforced concrete walls MB 30, thickness $d=15$ cm (elevator shaft), $d=16$ cm (transverse walls), $d=19$ cm (facade walls) and slab $d=16$ cm for the rigidity of the system, in accordance with seismic regulations.

The structural grid is rational and dimensioned so as to enable the unhindered application of regulations for vehicle garage in the underground part of the building. The construction of the stair space with an elevator and the construction of arched roof planes is reinforced concrete.

The foundation of the building was made according to the conditions from the geomechanics study, the thickness of the foundation slab is $d=40$ cm.

Floor Heights:

- Basement level with spa centre, according to the conditions for parking vehicles in the basement car park: 300cm
- Ground floor / Upper ground floor / First floor: 320cm
- Penthouse: 320 cm (within the arched slab)

TREATMENT OF FACILITY EXTERIOR

Main Entrance

The entrance staircase to the building is from Puškinova Street. The access path, staircase, landing, as well as the entrance hall are treated with granite anti-slip stone equipped with Sika type waterproofing and underfloor heating. The entrance door to the building is made of quality materials according to the technical characteristics of the manufacturer. The elevator is high quality, noiseless, manufactured and installed completely according to the technical regulations and the manufacturer's instructions.

Facade Carpentry

The facade carpentry is made of a combination of aluminum and wood with thermal insulation triple glazing 4 + 12 + 4 + 12 + 4 mm. Aluminum and wood are finished in color and equipped with hardware of the investor's choice.

Facade Fence

The facade fence is made of black hardware. The fence is installed on all French balconies and terraces and is painted with basic and protective paint in two coats, in black anthracite paint.

Facade

The facade of the building is treated with thermal insulation mortar type Rofix d = 3.5 cm, over the thermal insulation of hard pressed mineral wool d = 20 cm and installed steam dam. The facade of the building is made of 3d Rabic mesh fixed over the installed thermal insulation, which is fixed with special screws for AB walls. The facade was painted with Italian 'Oikos' type facade paint in three different techniques using thermal insulation plaster.

The Ground Floor facade is cladded with Italian travertine stone over a sandwich wall made of reinforced concrete structure d = 19 cm, brick d = 12 cm and thermal insulation made of mineral wool d = 10 cm.

Above the ground floor there is a terrace on the Upper Ground Floor with planters for greenery based on the building landscaping design. The slab on which the mentioned terrace was formed is protected four times by waterproofing (detail attached). The first layer of the 'Condor-4' type is made of a steam dam with aluminum foil, which is also a waterproofing. The second layer of the 'Condor-4' type was made in the direction perpendicular to the existing steam dam. Over it, thermal insulation made of Styrofoam d = 20 cm was placed, which was then protected with a fall layer, with an average thickness of 6 cm. The fall layer is double waterproofed with 'Sika' and 'Mapei' type

insulation, as a base for high-quality built-in Italian 'RAGNO' ceramics (exclusive line of the 'MARAZZI' brand) in Ceresit 16 adhesive for non-slip ceramics resistant to frost and atmospheric conditions.

AB planters are waterproofed on the inside with 'Sika' type insulation, over which stainless steel planters are installed and covered with 'travertine' lids, i.e. on the outside with 'Oikos' type facade technique.

Roof Construction

A steam dam was made over the arched slab d = 16 cm. The roof structure is formed of wooden planks d = 5cm, 30cm high, which are placed at a distance of 60 cm and fastened with corner profiles to the arch plate. Between them a thermal insulation of hard pressed mineral wool d = 30cm was placed, protected by PVC foil. Longitudinal slats of 5 / 2.5 cm were placed over the wooden planks, to which the PVC foil was attached, and above them, the entire roof surface was covered with OSB panels, which formed an air layer for roof ventilation. Along the ridge of the roof, a ventilation house was formed from the thorns for roof ventilation. OSB boards are covered with vapor-permeable and waterproof foil - waterproofing.

Roof cover

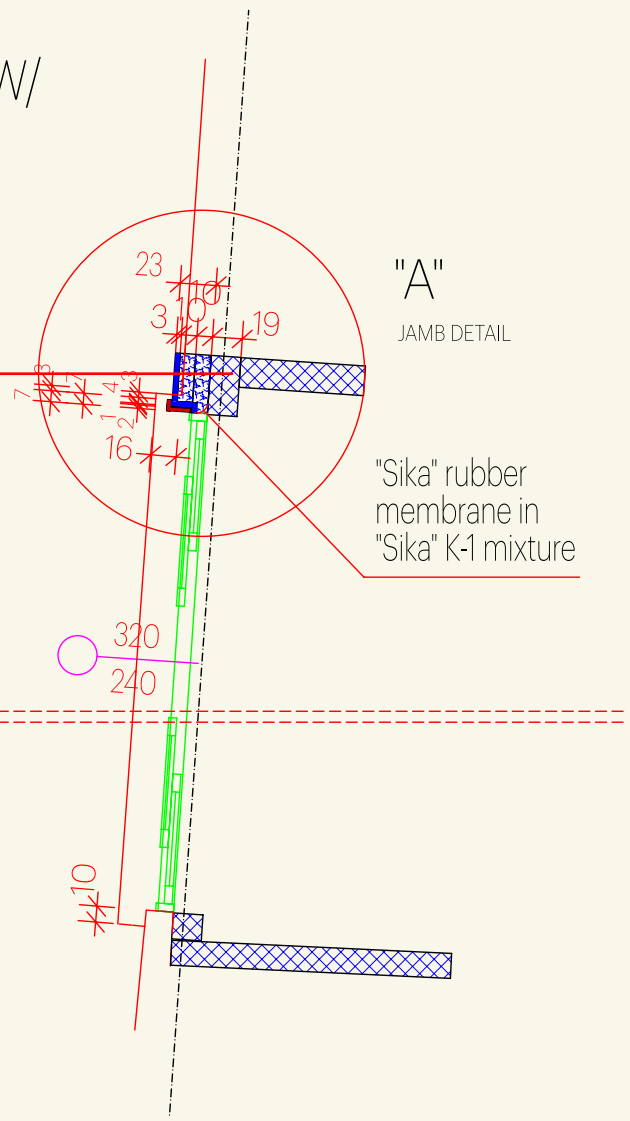
The roof covering is made of galvanized sheet metal, together with horizontal gutters and all cladding. Lying gutters were made both on the perimeter beams around the attic, and at the end of the arched flat roof between the badges. Sheet metal cladding was done over the attic badge, over the perimeter beams to the gutters lying on them, over the masonry ventilation openings on the roof. All connections are made according to the technical regulations for this type of work. Galvanized sheet metal is painted with a protective black anthracite paint.

TRAFFIC FLOW AREAS

The entrance to the basement car park, containing 8 parking spaces and 8 auxiliary parking spaces, is from Župana Časlava Street. There is an existing sidewalk next to building from Puškinova and Župana Časlava Streets. Within the plot, there is a ramp for vehicles with a light slope (6%) and electrical installation for night lighting from the car park to the sidewalk of Župana Časlava Street. The width of the existing sidewalk is determined by urban planning regulations and the position and width of the sidewalk in front of the neighboring plots.

TYPICAL DETAIL OF A WINDOW/ DOOR JAMB BASE

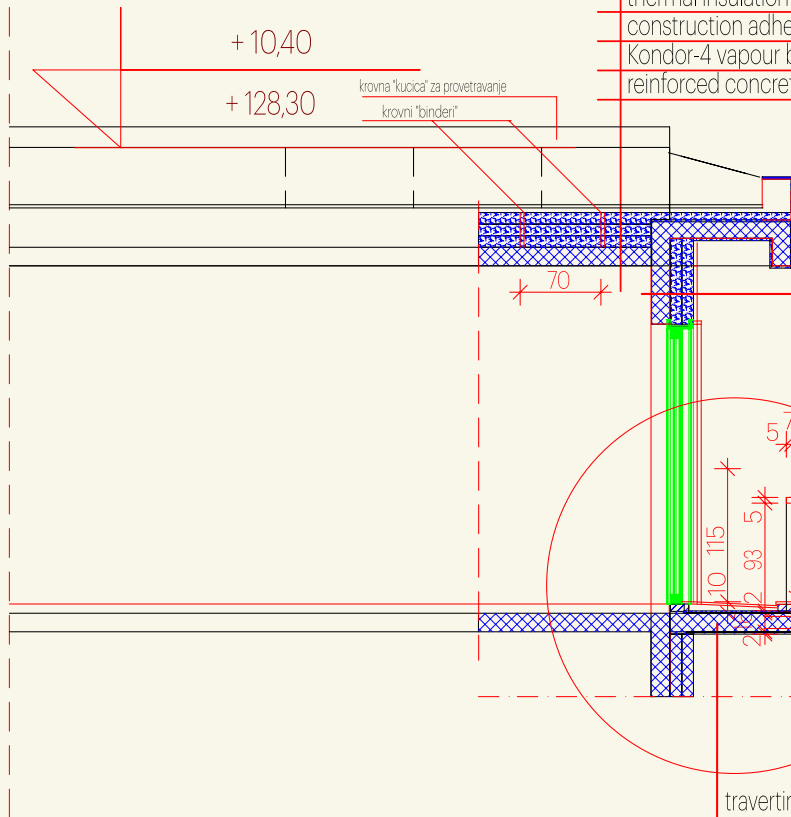
- facade reinforced concrete wall d=19 cm
- construction adhesive for mineral wool 2 cm
- thermal insulation mineral wool 20 cm
- 3D facade mesh
- "Rofix" mortar 3 cm
- construction adhesive for stone 1 cm
- travertine flagstone 2 cm



TYPICAL DETAIL OF ROOF, BALCONY AND TERRACE CROSS SECTION

"C" ROOF DETAIL

- _____ painted galvanized zinc sheet
- _____ "Knauf" vapour barrier
- _____ OSB sheets
- _____ air layer
- _____ "Knauf" vapour-permitting waterproof foil
- _____ thermal insulation 30 cm
- _____ construction adhesive 1 cm
- _____ Kondor-4 vapour barrier
- _____ reinforced concrete arc plate d=16 cm



"A"

FACADE DOOR CROSS SECTION DETAIL

- _____ reinforced concrete facade wall d=19 cm
- _____ construction adhesive for mineral wool 2 cm
- _____ thermal insulation mineral wool 20 cm
- _____ 3D facade mesh
- _____ "Rofix" mortar 3 cm
- _____ facade paint "Oikos"

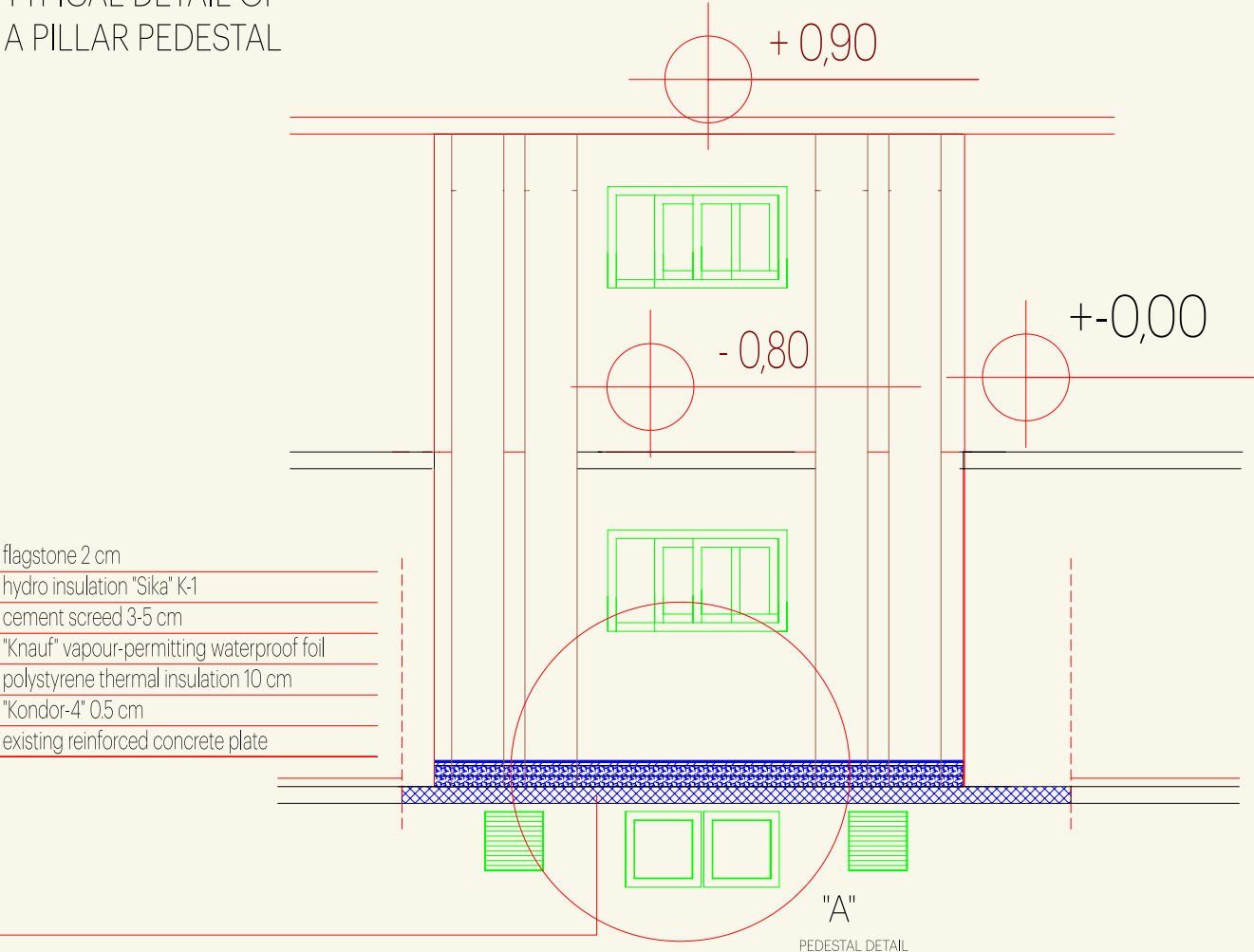
"B"

BALCONY DETAIL

- _____ fence 50/20 mm
- _____ PILLARS 50/20 mm

- _____ travertine flagstone 2 cm
- _____ hydro insulation "Sika" K-1
- _____ cement screed 3-5 cm
- _____ thermal insulation styrodur 2 cm
- _____ "Kondor 4" 0.5 cm
- _____ reinforced concrete console base d=16 cm
- _____ construction adhesive 0.5 cm
- _____ thermal insulation styrodur 2 cm
- _____ mesh, construction adhesive 0.5 cm
- _____ "Oikos" facade paint

TYPICAL DETAIL OF
A PILLAR PEDESTAL

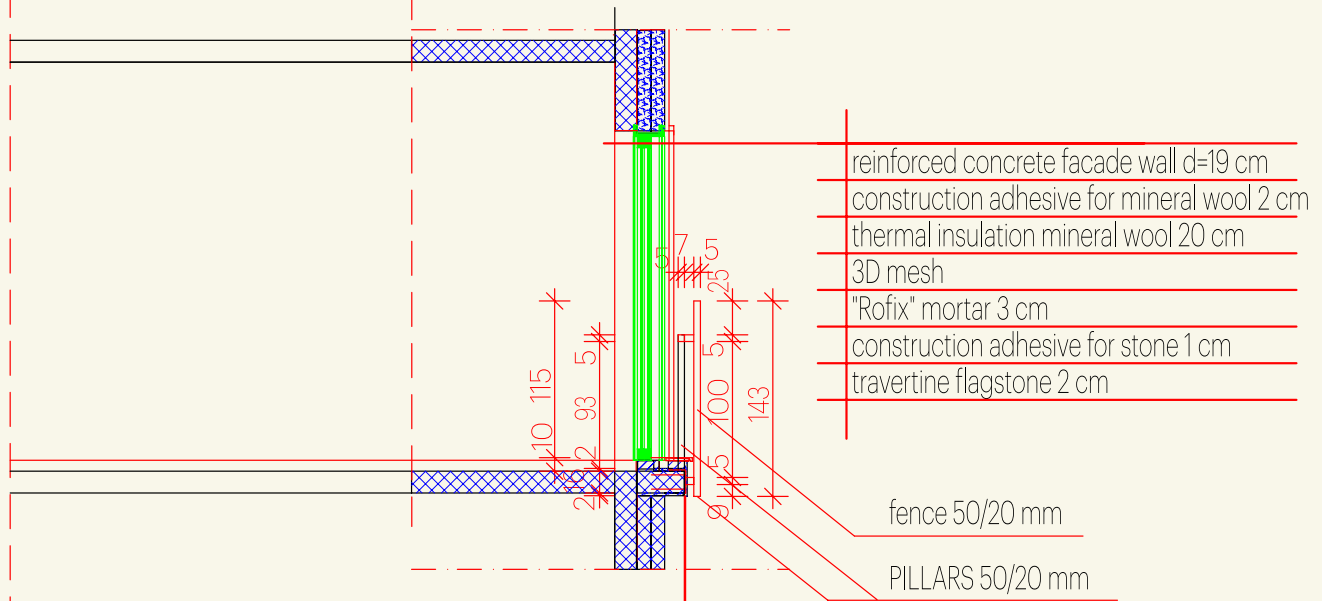


- flagstone 2 cm
- hydro insulation "Sika" K-1
- cement screed 3-5 cm
- "Knauf" vapour-permitting waterproof foil
- polystyrene thermal insulation 10 cm
- "Kondor-4" 0,5 cm
- existing reinforced concrete plate

TYPICAL DETAIL OF A FRENCH BALCONY CROSS SECTION

"A"

JAMB DETAIL



- reinforced concrete facade wall d=19 cm
- construction adhesive for mineral wool 2 cm
- thermal insulation mineral wool 20 cm
- 3D mesh
- "Rofix" mortar 3 cm
- construction adhesive for stone 1 cm
- travertine flagstone 2 cm

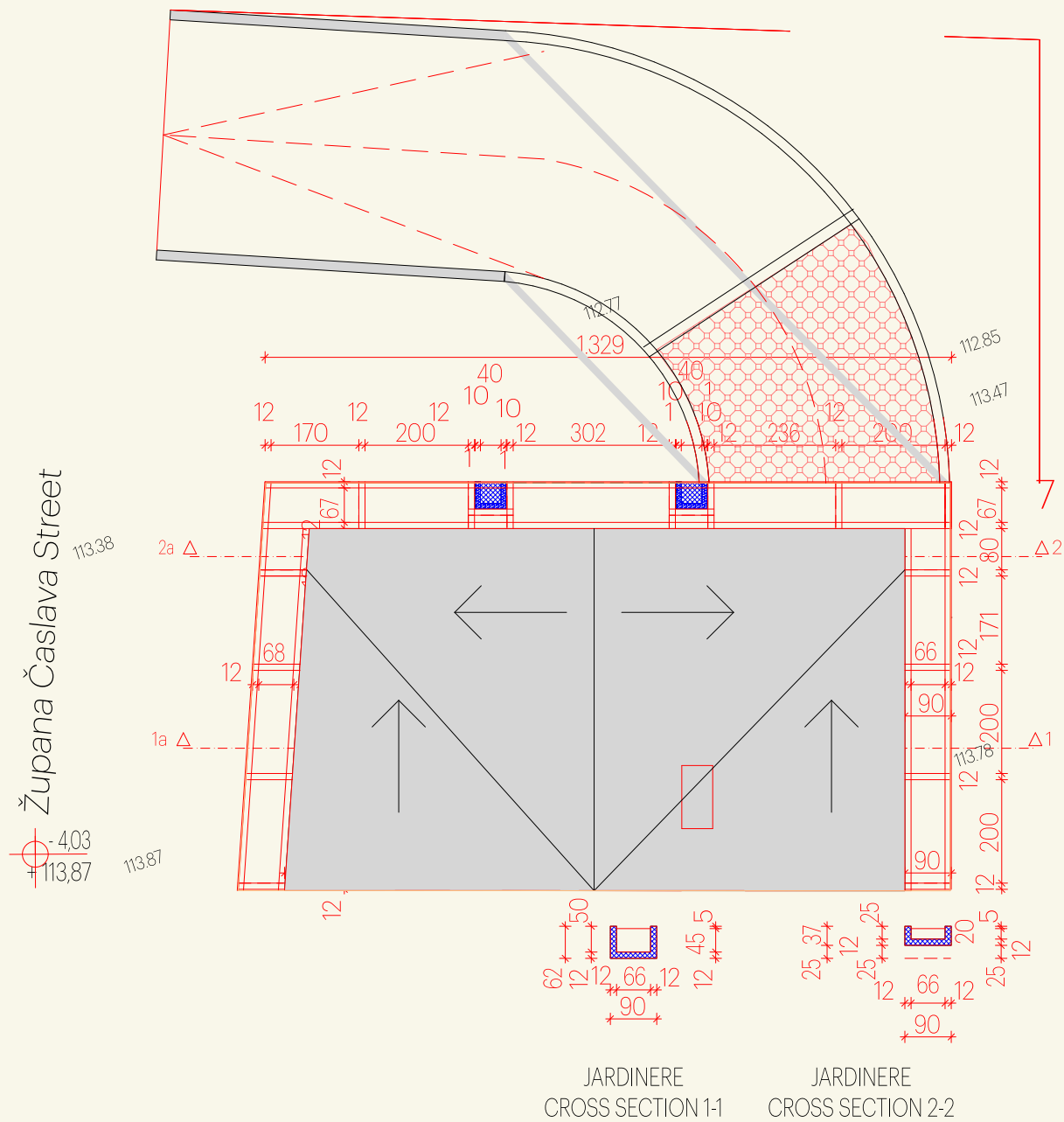
fence 50/20 mm

PILLARS 50/20 mm

"B" BALCONY DETAIL

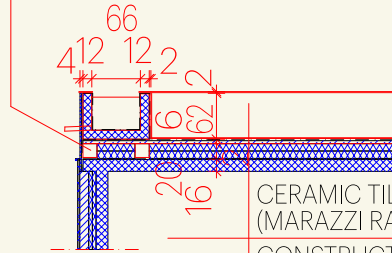
- travertine flagstone 2 cm
- hydro insulation "Sika" K-1
- cement screed 3-5 cm
- styrodure thermal insulation 2 cm
- "Kondor-4" 0.5 cm
- reinforced concrete console base d=16 cm
- construction adhesive 0.5 cm
- styrodure thermal insulation 2 cm
- mesh, construction adhesive 0.5 cm
- "Oikos" facade paint

GROUND FLOOR JARDINIERE



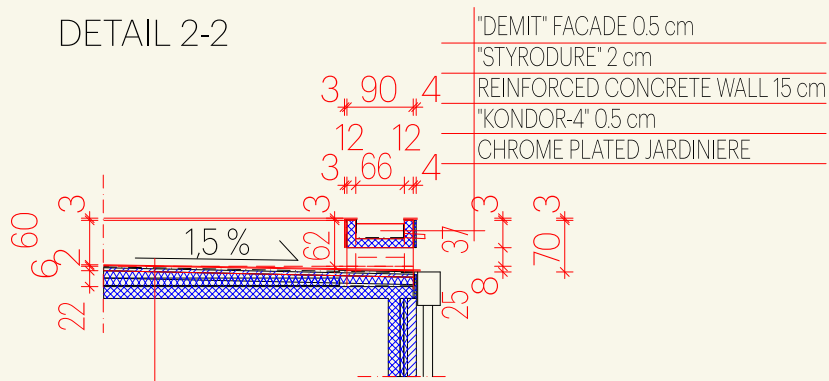
"DEMIT" FACADE 0.5 cm
 "STYRODURE" 2 cm
 "KONDOR-4" 0.5 cm
 GITER BLOCK 19 cm

DETAIL 1a-1a



CERAMIC TILES 0.5 cm
 (MARAZZI RAGNO)
 CONSTRUCTION ADHESIVE 0.5 cm
 HYDRO INSULATION 0.5 cm ("SIKA K-1,
 MAPEI MAPE PLASTIK TURBO)
 CEMENT SCREED WITH ARM. 6cm
 THERMAL INSULATION HARD-PRESSED
 POLYSTYRENE 17-20 cm
 HYDRO INSULATION ALU "KONDOR-4" 0.5 cm
 VAPOUR BARRIER "KONDOR-4" 0.5 cm
 REINFORCED CONCRETE PLATE 16 cm

DETAIL 2-2



"DEMIT" FACADE 0.5 cm
 "STYRODURE" 2 cm
 REINFORCED CONCRETE WALL 15 cm
 "KONDOR-4" 0.5 cm
 CHROME PLATED JARDINIERE

CERAMIC TILES 0.5 cm
 (MARAZZI RAGNO)
 CONSTRUCTION ADHESIVE 0.5 cm
 HYDRO INSULATION 0.5 cm ("SIKA K-1,
 MAPEI MAPE PLASTIK TURBO)
 CEMENT SCREED WITH ARM. 6cm
 THERMAL INSULATION HARD-PRESSED
 POLYSTYRENE 17-20 cm
 HYDRO INSULATION ALU "a-4" 0.5 cm
 VAPOUR BARRIER "KONDOR-4" 0.5 cm
 REINFORCED CONCRETE PLATE 16 cm

AIR CONDITIONING INSTALLATIONS

1. For residences in Puškinova 1A building, the following systems have been installed:

- air conditioning with a two-pipe convector fan system (fan coil apparatus)
- partial floor panel heating
- towel dryers
- monoblock design inverter heat pumps energy system
- forced ventilation of residences

2. For the pool in the spa centre, forced ventilation and heating are provided, as well as heating of the pool water (first heating and reheating).

1. APARTMENTS

For the entire facility (all apartments), independent year-round air conditioning is provided, with residential type parapet fan coils. In the bathrooms, heating via towel dryers and underfloor panel heating is provided.

As the main source of heat and cooling energy for heating and cooling of residences, 6 independent systems with inverter air / water heat pumps in monoblock design are provided.

In addition to the above, gas condensing boilers are installed for backup heating of 4 large residences, and as additional security, pellet heating boilers.

A special heat pump in a monoblock design and a condensing gas boiler as additional security are provided for heating the pool water, the pool room and the floor heating of the pool.

1.1 INSTALLATION OF CONVECTOR FAN (FC APPLIANCES)

For heating and cooling, parapet fan coil devices with tangential fans and a metal mask are provided. They are residential type, 13 cm thick and attached to the wall. Piping and electrical connections are provided from the back of the fan coil, from the wall.

In the bathrooms, tubular heating bodies (towel dryers) and floor panel heating are provided for heating. The fan coil system is two-pipe with winter / summer switching options.

It is envisaged that the main distribution of hot / cold water inside the residences will be in the floors of the residences.

Temperature regulation in the building is done through

the water infrastructure for each room individually. The thermostat that operates on the control valve opens / closes the valve as needed.

The temperature in the premises is $22-24^{\circ}\text{C} \pm 2^{\circ}\text{C}$ (winter / summer).

The bathrooms are equipped with radiators (towel dryers) and underfloor panel heating, which can be selected based on the temperature in the room and the temperature of the distribution water for the winter operation of the fan coil apparatus.

1.2 INSTALLATION OF FLOOR PANEL HEATING

Underfloor panel heating covers the bathroom areas in 4 large apartments and the pool beach. The task of this heating is to neutralize part of the heat loss, as well as the feeling of coldness via the legs.

It is envisaged that in the operation of underfloor heating (according to the room thermostat), the temperature (maximum) of the floor will be maintained by switching off the same valve.

1.3 ENERGY

For the supply of cold water in summer and hot water in winter, monoblock heat pumps are provided for each apartment. They are equipped with a remote control panel for each residence separately.

For backup heating, gas condensing boilers are provided for each residence separately, as well as pellet boilers as an additional backup solution. This way, the danger of interruption in the heating system as a result of heat pump failures, as well as of gas supply interruption has been eliminated. The installation is filled with glycol, which prevents possible freezing.

All necessary equipment required for the operation of the system is located in the Energy Block on level “-1”.

1.4. FORCED VENTILATION

For the needs of ventilation of each of the 4 large residences, compact ventilation units with recuperators are provided, thus providing (with closed windows) the required amount of fresh air. They are located in the bathroom area.

Duct air distribution is provided by spiro ducts in accordance with the interior. The network is divided into two branches: one for the ventilation of the living room, kitchen and dining room space, and one for the ventilation of bedrooms. This solution enables normal ventilation of the entire residence or forced ventilation of one of the two listed parts (residential and sleeping).

PV valves are provided in the toilet area, while the kitchen is ventilated through kitchen hoods with filters that serve to remove grease from the air.

In two small apartments on the ground floor, forced exhaust ventilation is provided via centrifugal duct fans from the toilet and kitchen areas.

2. COMMON USE SPACE

2.1 GARAGE VENTILATION

Level -1 comprises a car park for passenger vehicles, for parking of up to 16 cars. Drainage ventilation from the car park through duct fans is planned, so that the possible concentration of carbon monoxide remains within the permitted limits.

With reduced car park use, fans can be turned off if detectors measure low values.

Car park ventilation air is compensated by bringing fresh air through the entrance ramp and through construction manholes.

2.2 VENTILATION AND HEATING OF POOLS AND POOL AREAS

A special monoblock inverter heat pump is provided for heating the pool water and the pool area, as well as a gas condensing boiler.

They heat: fresh ventilation air, swimming pool with underfloor heating, and pool water.

Ventilation of the pool is provided through two duct fans that serve to supply and exhaust air from the pool area.

The air is brought to one side of the pool and drained from the other side, and in that way quality ventilation, heating and drainage of moisture is enabled.

The supply and exhaust of air is done through spiro channels with nozzles which achieve a favorable current image.

For fast first heating of pool water, it is possible to use a gas condensing boiler instead of a heat pump, which serves as the main heat source for heating and reheating pool water.

All planned air-conditioning equipment is of high quality (heat pumps TERMA-V, LG (South Korea), gas condensing boilers HOVAL (Liechtenstein), electronic pellet boilers TOBY B17-Termomont (Serbia), smoke system SCHIEDEL (Germany), electronic water pumps GRUNDFOS (Germany), duct air-conditioning equipment SYSTEMAIR (Sweden), etc....

WATER SUPPLY AND SEWERAGE

Water and sewage installations will be performed in accordance with the applicable regulations and standards for the purpose of functional use of sanitary facilities in newly designed residences. The facility is equipped with a central filter for water purification and softening to eliminate limescale.

WATER SUPPLY

Since these are new sanitary groups in the new apartments of the residential and commercial building, a new horizontal water supply network with one water supply vertical for the apartments has been designed. The intended pipes for domestic water are PVC with appropriate diameters. The pipes are laid in the walls and will be buried in them so that they are not visible. Appropriate valves are provided on the water supply network in all necessary places. All horizontal water pipes are planned to fall slightly towards the water meter in order to drain the water from the network. In the places and in the length envisaged by the project, the water pipe is thermally protected from possible freezing during the winter period.

Before putting the water supply system into operation, test it at a pressure higher than 5 bar than the working one for 24 hours, and then send it and disinfect it.

Preparation and distribution of hot water is provided by electric water heaters with a capacity of 80 liters in the bathrooms and 10 liters in the kitchen.

The hydrant network is constructed from the shaft with a separate water meter to the penthouse of the new facility in all respects according to the fire regulations for this type of work.

The new horizontal water supply network was also constructed from the shaft with a separate water meter to the engine room and the indoor pool with appropriate diameters.

SANITARY DEVICES

All sanitary devices envisaged by the project are first class with water closures and appropriate tap fittings in front of which check valves are provided. Sanitary groups have a floor drain. The planned sanitary accessories are nickel-plated. All sanitary devices and accessories are chosen by the new apartment owners or the designer, and according to the architectural project.

SEWERAGE

Since these are sanitary facilities in a new residential / commercial building, the sewerage system has been designed with a new horizontal network and new fecal verticals Ø110.

The horizontal distribution of the sewerage in the sanitary facilities is designed in a continuous drop of 1.5% and is connected to the derived faecal verticals Ø110 that end at least 1 m above the plane of the roof with appropriate ventilation caps. In the sanitary groups, new sanitary devices are installed, which are connected with PVC pipes of appropriate diameters in the upper distribution according to the valid regulations and standards. The lower sewer distribution is designed so that the verticals are lowered to the garage slab to a certain height and the shortest way is taken outside the building to the lower horizontal sewer distribution Ø160. In certain places, masonry inspection descents with metal covers and climbers are planned with a concrete block. In the places and in the length where it is foreseen by the project, the sewer pipe Ø160 is thermally insulated in order to protect it from possible freezing in the winter period.

The project also shows a pit 3.0 m wide and a certain depth for the newly designed building with a metal cover on the upper side for the necessary access in cases of emptying and maintenance.

Atmospheric water from the roof is drained through the new gutter verticals Ø125 into the horizontal distribution of the sewer Ø160 and further towards the street collector, around the underground floor of the building whose disposition is determined by the architectural project.

The horizontal distribution of the sewerage in the pool was designed and constructed from galvanized pipes 2 inches to the entrance to the shaft, and then from PVC pipes Ø160 to the street collector.

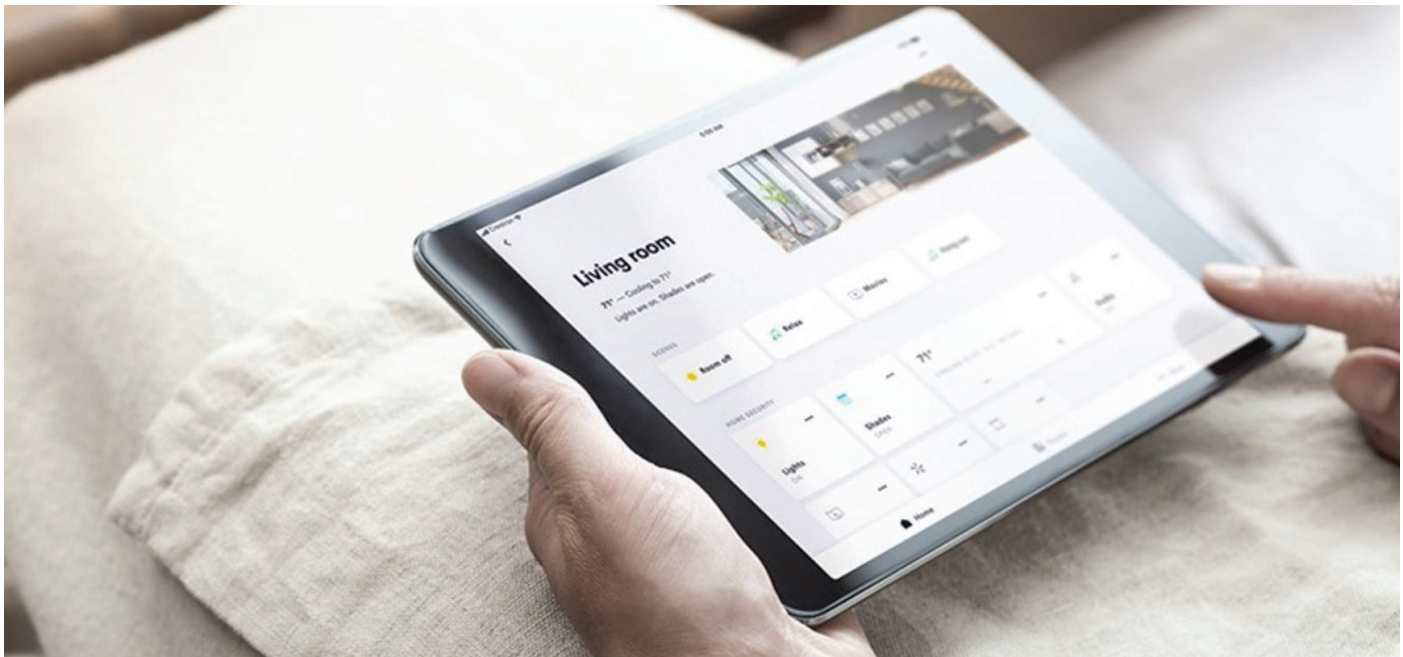
INFORMATION REGARDING TECHNICAL SYSTEMS

Common use systems that have been installed:

- 1.** FFTH network (Telecommunications network realized via optical cables) with the possibility of connecting several operators and all the latest services (high speed internet, TV, tel, IPTV, etc.)
- 2.** Intercom installation realized with Mobotix high resolution camera system. Provides remote control and video surveillance of all entrance gates.
- 3.** Video surveillance system with the possibility of remote monitoring and connection of several types of alarm sensors (sound, motion detection, temperature sensors, etc.).
- 4.** Automatic gate opening
- 5.** Smart home systems in residences
(please see specially dedicated chapter)
- 6.** Wi Fi system for remote control of common use systems

Energy Supply Systems:

- 1.** Power cables for power supply of residential units
- 2.** Unit power supply (unit with automatic switching on in case of power failure)
 - a. Stairs and pool, fitness and other common use areas
 - b. Car park and heating resident substations
 - c. Apartments (part of lighting and sockets)
- 3.** Melting snow and ice of the entrance staircase
- 4.** Melting snow and ice gutters
- 5.** Shared consumption management
- 6.** Intelligent lighting
- 7.** Automatic car park ventilation



CRESTRON "SMART HOME" SYSTEM AND ITS FEATURES

Crestron equipment, the world's leading manufacturer of "Smart Home" systems, has been installed in each residence of this technologically advanced and modern residential building. This advanced system of the latest generation aims to make everyday life easier for tenants and raise their level of comfort, thus making life easier and more enjoyable. This equipment allows tenants to easily, comfortably and centrally manage the following systems:

Lighting

The tenant can remotely set the level of lighting in certain rooms (smoking), to automatically turn off and turn on selected lamps in the rooms and define certain automatic scenes, which make daily stay in the apartment more comfortable. For example, by pressing a button, it is possible to simultaneously turn off all the lights in the apartment, or turn on certain predefined scenes, or with one push of a button, some lights can be turned on and others turned off, or set to the desired lighting level.

Air-conditioning

All air-conditioning functions can be controlled via the same remote control or phone used to control other systems. Air-conditioning control can be added to various predefined scenes;

Blinds

Centralized raising or lowering of blinds, as well as defining certain scenes that are easily activated at the touch of a button. For example, all blinds can be lowered to a certain level at the touch of a button;

Power

For electrical devices in the residence (stove, water heater...) there is also the possibility of a simple centralized shutdown;

Parking

Inside the residences, there is a centralized management option for this system via mobile phone or control unit.

Video Intercom

This system is also part of the integrated system and can be easily controlled from a mobile device. Each intercom call is automatically forwarded to the tenant or household, and mobile devices take control of the intercom call. You can see who is in front of the door and open it if you wish...

If there is a desire or need to expand control and management in the residence, it is possible to integrate the following services:

- control of multimedia systems in the living room (TV, projector, audio)
- control of motorized interior curtains
- execution of a distribution audio system in all premises