



RFQ 03/2012

RE-Announcement of RFQ 02/2012

**Services for
Technical Supervision for construction of the fire fighting station in Makedonska Kamenica**

UNDP would hereby like to invite interested certified companies for supervision to submit offers in MKD (VAT exempted) **for Technical Supervision for construction of the fire fighting station in Makedonska Kamenica** not later than 23rd January 2012 by 17:00 at the address of UNDP, as per the TOR below.

Interested Applicants may obtain further information and clarifications only in writing to procurement.mk@undp.org

The status of the tender from ongoing to closed will be indicated at the web site and only the successful bidder will be officially notified.

TERMS OF REFERENCE

National Consultancy Services – Technical Supervision Company

**Services for
Technical Supervision for construction of the fire fighting station in Makedonska Kamenica**

Project: 00078215 "Disaster and Climate Risk Reduction"
Location: Field work – Makedonska Kamenica
Duration of the contract: 25 working days in period of 4 months (25 January – 25 May 2012)

BACKGROUND

UNDP in partnership with the Crisis Management Center is implementing the project "Disaster and Climate Risk Reduction". One of its components is directed to strengthening of the disaster risk management on local level through preparation of plans for disaster risk and climate risk management and implementation of small scale demonstration and/or pilot measures.



In the case of the Municipality of Makedonska Kamenica, the small scale demonstration works is for construction of the fire fighting station for three fire fighting vehicles, personnel rooms and offices. This is the municipal priority and is stated in its development planning documentation. Implementation of the component will be in partnership with the Public Communal Enterprise and will provide support for execution of direct municipal competence – fire fighting protection.

In order to support the implementation of the small scale demonstration work, UNDP seeks to engage qualified Supervision Company with extensive experience in supervision of similar scale construction projects and with appropriate certification referred to further in this document. This company shall play the role of a Supervising Engineer of the planned construction works during the entire duration of the activities for construction of the facility.

SCOPE OF WORK

The main objective of the assignment is **Technical Supervision of the construction of the Fire Fighting Station in Makedonska Kamenica** in accordance with the valid Law on Construction. The Supervision of construction works shall be carried out by the Supervisor (Engineer), a legal entity completely according to the existing national regulations (Law on Construction and respective amendments to the law).

All the works for construction of the Fire Fighting Station in Makedonska Kamenica are expected to be completed in a period of 4 months after start of the construction works (by May 2011). The construction works shall be carried out as per the reviewed Main Design for the Construction of the Fire Fighting Station in Makedonska Kamenica, RFQ ITB 35/2011 and the signed Contract for the civil construction works with the Contractor. Technical Specification and Bill of Quantities for the construction of the Fire Fighting Station in Makedonska Kamenica are presented in Annex I of this Terms of Reference.

TASKS (EXPECTED ACTIVITIES AND OUTPUTS):

The Supervisor (Engineer) shall:

- Verify and recommend preparation of technical studies and technical documentation to be prepared in line with the framework of the project activities;
- Certify any changes of bills of quantities specifying items, description of items, estimated quantity, price/unit and estimated quantity price;
- Certify proposed implementation activities and ensure implementation in accordance to the proposed work plan and time schedule;
- Ensures maintenance of daily records and measurement book that provides evidence of timing and quantities of materials used;



- Ensures and certificates for the quality of material used (in accordance with the Technical specifications) are provided;
- Supervise proper organization of the transport of project related material, tools, equipment, etc.;
- Endorse and certify the completion of the works on monthly bases stated in the financial documents submitted by the Contractor;
- Facilitate certification of the completed works (from the Commission of Technical Approval or other certified body) that the works have been completed in accordance to the approved contract;
- Participate in the decision making process on alternate technical solutions (if any) during the implementation of the project;
- Advise the Employer on resolving technical issues as required;
- Inform the Project Manager on any problem during the implementation of project activities;
- Ensure maximum level of transparency through implementation of works and reporting;
- Daily communication with the Project Manager and as required;
- Prepare and submit monthly progress reports, Interim reports (if necessary) and Final report;

DELIVERABLES

The main output of the assignment is Technical Supervision of the construction of the fire fighting station in Makedonska Kamenica. The following deliverables shall be produced:

- Minutes of the Weekly Meetings on site;
- Monthly Reports on progress of construction works as compared with the approved work plan and the schedule of payments;
- Interim Reports upon finalization of each substantial phase/part of the works under Contract;
- Final report on completion of works

All reports must be prepared in accordance with the National Law on Construction.

QUALIFICATIONS AND SKILLS

Company requirements

- Registered company in accordance with the relevant national legislation;



- Relevant experience in Supervision of reconstruction of buildings from the 2nd category as per the Law on construction (O.G. of RM No. 59/2011)
- Evidence of at least 4 successfully completed Supervision on relevant projects of a nature and complexity comparable to this requirement (including name/contact details of clients who can be contacted for reference);
- Minimum **License B** for Supervision of construction works issued by the Ministry of Transport and Communications for companies registered/based in the host country (according to the law on Construction, O.G. of RM No. 59/2011) or valid **License C** for Supervision of Construction Works issued by the Ministry of Transport and Communication for companies registered/based in the host country (according to the law on Construction, O.G. of RM No. 51/2005 and Amendments of the Law, O.G. of RM No. 82/2008 and 106/2008).

QUALIFICATIONS OF THE PROPOSED PERSONNEL

CVs of proposed Team Leader - Main Supervisor for construction works and 1 Supervising Engineer for specific installation/works (1 Electrical Engineer) and Letter of Acceptance duly signed by the proposed engineer if he/she is not employed by the bidder shall be submitted. In addition, copies of appropriate certificates/diplomas of the proposed personnel shall be provided.

Team Leader – Main Supervisor

- Relevant educational background (Civil Engineering or Architecture);
- Minimum 4 years of professional experience in relevant assignments (relevant experience in Supervision of construction works on the buildings from the 2nd category as per the Law on construction);
- At least 3 successfully completed Supervisions of relevant projects of a nature and complexity comparable to this requirement
- Certification B for Supervision of construction works.

One (1) Supervising Engineer

- Relevant educational background (Electrical Engineering accordingly);
- Minimum 4 years of professional experience in relevant assignments (relevant experience in Supervision of construction works on the buildings from the 2nd category as per the Law on construction);
- At least 3 successfully completed Supervisions of relevant projects of a nature and complexity comparable to this requirement;
- Certification B for Supervision of construction works.



TERMS AND CONDITIONS FOR PROVISION OF SERVICES

➤ Report submission

The Periodical (monthly), Interim and Final Report shall be submitted in Macedonian and English language. It has to be submitted in 2 hard copies and 1 electronic copy on CDs. Final Report will be prepared in English language.

➤ Timeframe

Assignment shall be completed during the period of 4 months (25 January – 25 May 2012) of which at least 25 days of visit to the site, or in total 25 (twenty five) working days as it will be calculated for successful completion of the assignment). The Assignment shall follow the logical sequences of implementation of activities. The Team Leader - Main Supervisor shall be engaged for the whole period of the assignment, whether the Supervising Engineer shall be engaged for the period of execution of the relevant works/installation – Electrical Engineer shall calculate 5 working days.

➤ Reporting plan

The Supervising Engineer shall regularly report to the UNDP Project Manager. The Interim reports shall be produce and submitted in cases of extraordinary events or conditions during implementation. The Final report shall be produced within 7 (seven) working days upon completion of the Project activities and issuing of Certificate for Substantive completion.

➤ Communication

During the fulfillment of his/her works, the Supervising Engineer will ensure regular communication and exchange of findings with UNDP and the beneficiary – Municipality of Makedonska Kamenica prior to the delivery of expected results. The Supervisor shall ensure quality and timely deliver the expected results and will inform the Project Manager for the processes and the expected result. Expected results have to be accepted and approved by the Project Manager. Organization of the planned activities and events (meetings etc), collection of the required documentation shall be responsibility of the Supervisor and logistical support has to be envisaged.

➤ Legal and other requirements

The content of the technical documentation and the preparation process will have to conform to the pertaining relevant regulations in the country, Law on Construction. All required legislation and technical standards shall be conformed.

➤ Additional costs

The Supervisor shall calculate the possible costs such as costs for site visits, insurance, costs for producing copies of the documents, reporting requirements, travel, logistics costs etc. to be reflected in the financial offer.

UNDP will not accept any additional expenses which are not included in the Supervisor's financial offer.

➤ Payment schedule

The contract amount will be processed in installments based on the milestones and deliverables defined below:

- 10% upon signing of the contract;



- 70% of the amount will be divided in several installments as per the percentage of the finalization of the interim works and submission and verification of the Interim Payment Certificates;
- 20% upon finalization of the works, preparation, submission and approval of the Final Report.

REQUIRED DOCUMENTS / MANDATORY REQUIREMENTS

- Short description of the Company (company profile) showing relevant experience in supervision and/or review of construction relevant assignments (relevant experience in Supervision of construction of 2nd category of buildings);
- Copy of the registration in the Central Registry of the Republic of Macedonia defining the constitution or legal status, place of registration, and principal place of business;
- Minimum valid **License B** for Supervision of construction works issued by the Ministry of Transport and Communications for companies registered/based in the host country (according to the law on Construction, O.G. of RM No. 59/2011) or **License C** for Supervision of Construction Works issued by the Ministry of Transport and Communication for companies registered/based in the host country (according to the law on Construction, O.G. of RM No. 51/2005 and Amendments of the Law, O.G. of RM No. 82/2008 and 106/2008);
** Copy of the original document stamped by an authorized Notary verifying that the copy is the same as the original document, no translation required.*
- Reference list/evidence of at least 4 successfully completed Supervision on relevant projects of a nature and complexity comparable to this requirement (including name/contact details of clients who can be contacted for reference). The value of projects to be expressed in MKD;
- Work Plan for implementation of the assignment – supervision of construction works;
- CV of the Team Leader – Main Supervisor clearly stating his/her relevance and qualifications for the assignment and relevant licenses B for supervision of construction works issued by the Macedonian Chamber of Authorized Architects and Authorized Engineers;
- CVs of the One (1) Supervising Engineer clearly stating his/her relevance and qualifications for the assignment and relevant licenses B for supervision of construction works issued by the Macedonian Chamber of Authorized Architects and Authorized Engineers. Letter of acceptance duly signed by the proposed staff if he/she is not employed by the bidder;
- Financial offer (lump sum for the assignment including all organizational/logistical costs) in MKD (VAT excluded)

Bids failing to provide the mandatory documentation shall not be taken into consideration.



Evaluation criteria

Selection method: Lowest of the responsive offers.

Data and information requirements

Copies of all documents/reports referred to in this document shall be made available to the selected Supervision Company.

The financial proposal

The financial proposal shall be submitted in MKD, VAT excluded.

Breakdown of costs should be submitted for information purposes only, expressing at least, but not limited to the professional services, and all other associated, such as travel costs, insurance, costs for producing copies of the documents, reporting requirements etc.



ANNEX I

Technical Specification and Bill of Quantities for the construction of the Fire Fighting Station in Makedonska Kamenica

1. Technical Description

- Location

The location of the facility is on Rudarska street in Makedonska Kamenica, construction parcel no.5.07, cadastre parcel no.4429, Makedonska Kamenica. It is located within the central zone of the city and the access is planned to be from Rudarska street, both for pedestrians and vehicles. The facility shall be constructed as per the valid regulations and standards for this kind of facilities.

The terrain is with small inclination with calculated load capacity of the soil from 2kgr/cm². Underground waters are on the depth of 5-7m and dominant winds are from North.

- Functionality

Conceptually, the facility is organized in two main parts divided horizontally (garage for trucks and auxiliary space and space for fire fighters – with completely separated accesses). Therefore, the facility is consisted of: Ground floor (parking lot for three trucks, auxiliary space for warehousing of equipment in two levels, stairs and place with metal rod for quick descending from the first floor) and First floor (stairs from the ground floor, space for the metal rod, shower booth, sanitary facility, storage, mini kitchen, living room, bed room, balcony and an office. The height of the rooms is 473cm-garage and 220, 238cm two auxiliary rooms, and the floor is 270 cm.

- Construction

Due to the configuration of the terrain, on the location it is necessary to execute preparatory works with planning and cleaning of the location. The foundation is on strip foundations 50/75cm connected with reinforced concrete contra beams with MB concrete as per the static calculation.

The plinth shall be from reinforced concrete MB30 in double framework. External walls shall be 25 cm thick with rough mortar and thermo insulation of 5cm, fasadex and rizla. Internal walls shall be with thickness of 20, 16 and 10cm, constructed with ceramic blocks in extended mortar, smoothing and painted with policolor in white.

All internal surfaces shall be processed with materials as per their purpose (mortar, policolor, ceramic tiles etc) and as per the requirement of the Investor.

Structural system shall be constructed from reinforced concrete construction with monolith reinforced concrete slab, reinforced concrete beams and poles.

Exact height of the facility shall be 473cm in the ground floor and 270cm on the floor (double height in the ground floor for auxiliary space – 220cm+238cm.



The roof in basis is multiline with cover from roof shingles placed on wooden roof construction. The roof is ventilated with laths in directions, boards, vapor barrier, horns, beams and poles from timber braced on the reinforced concrete inter-floor construction.

The locksmith shall be PVC with thermo pan glass.

The floor shall be processed with materials as per the purpose of the rooms and as per the requirement of the Investor.

For the facility a seismic analysis was done for attainment of all required seismic parameters. Since the building shall be located in the territory of Makedonska Kamenica, the seismicity shall be 9⁰ as per the MKY grade.

- Earth Works

Excavation of soil in broad and tight scope, filling and transport of the soil shall be executed as per the valid technical regulations and standards for this kind of works.

- Concrete and Reinforced Concrete Works

Preparation, transport and placement of the concrete shall be executed as per the valid technical regulations and standards for concrete works. It is required constant monitoring of works and quality control of the placed concrete to be implemented, both on the site of the production of the concrete and on the construction site during the placement of the concrete. During the reinforcement works on the bottom slab it is necessary distancers to be placed. The concrete shall be carefully treated after its bracing. It is not recommended concrete works to be performed during low temperatures, but if that is a case, than adequate supplements has to be added to the concrete.

Bottom slabs are reinforced with Q 188.

During the construction of the facility, the Contractor is obliged to respect the regulations for funding of the architectural buildings. It is required to have a constant supervision of civil construction works during the construction of the facility, in terms of quality control of the installed materials and proper construction of the structural elements.

Protection sidewalk around the facility shall be constructed and shall be 1m wide (MB30, with final surface parget and covering of the fugues with bitumen max on each 2m; basis from gravel with d=10cm).

All concrete and reinforced concrete elements shall be executed as per the valid technical regulations and standards for execution of that kind of works. Dimensions, armature and the type of concrete shall be executed as per the valid calculations from the static part of the Main Design.

- Insulation Works



Horizontal hydro and thermal insulation under the building shall be placed between the layer of reinforced concrete slab and concrete slab. In the sanitary facilities a vertical hydro insulation shall be performed on the walls around the shower booth. All insulation works shall be performed in accordance with valid technical regulations and standards for this kind of works.

- Walls

- a) **External Walls** - External walls are constructed with ceramic block – 25, placement of mortar – rough and thermo insulation façade, “demit” system, with thickness of the Styrofoam d=5cm and final layer of fasadex.
- b) **Internal Walls** – Internal walls are constructed with ceramic blocks – 20, 16 and 10cm in extended mortar, smoothing and painted with policolor in white. Walls in the sanitary facilities shall be covered with ceramic tiles up to the height of 180cm, policolor will be placed until the ceiling.

All walls shall be performed in accordance with valid technical regulations and standards for this kind of works.

- Floorings

They shall be performed as following:

- a) Ground floor – cement base, reinforced concrete slab, hydro insulation 2+1, thin concrete, sand
- b) First floor – laminat, ceramic tiles, cement base, reinforced concrete “monta fert” slab, mortar, policolor.

All floorings shall be performed in accordance with valid technical regulations and standards for this kind of works.

- Ceramic Works

All floors marked in the scheme in the Main Design, shall be performed by ceramic and not polished granite tiles 1st class 33/33cm, on first class glue. Tiles shall be place with 2mm fugues, filled with waterproof mixture for fugues. On the stair’s plates it is necessary aluminum battens to be placed.

All walls in the sanitary facilities shall be covered with 1st class ceramic tiles 33x33cm, with 2mm fugues, from the bottom up to the ceiling. Fugues shall be covered with white cement.

All ceramic works shall be performed in accordance with valid technical regulations and standards for this kind of works.

- Painting Works

Painting shall be performed on quality processed, flat and smooth walls that shall be painted with white policolor. Walls at the entrance shall be processed in final, smooth layer and painted with eco colors.



All painting works shall be performed in accordance with valid technical regulations and standards for this kind of works.

- Doors and Windows

Doors and windows shall be performed by PVC eco profiles with white color in accordance with the valid technical regulations and standards for this type of works. Before the production of the doors and windows all measures shall be controlled on the site.

Installed glass shall be thermo pan with three layers 4+12+4. It shall be first quality, clean, without bubbles and inclusions. Placement of the glass shall be performed in accordance with all valid technical regulation and standards for this kind of works.

- Locksmith Works

All locksmith works shall be executed in accordance with the valid technical regulation and standards and as per the scheme for the locksmith works in the Main Design. Before production, it is necessary all measures to be controlled on the site, and to be protected from corrosion with application of red lead coating.

- Water Supply

Water supply of the facility will be through existing water supply network in that part of Makedonska Kamenica. The water supply also will be done with HDPE PE pipes presented in the main design and as per the valid technical regulation and standards. The connection to the existing network shall be performed with pipes $\varnothing 2''$. Outside of the facility the pipes will be placed in the ground with min. 0.80m depth in order to prevent freezing. Under the pipes a protection layer of sand will be placed. In the courtyard it is planned to install one street hydrant 2'' for supply of water to the fire trucks.

Placement of the pipes within the facility will be done under the floor in the Ground floor and/or in the slot holes in walls on the Ground floor and on the 1st floor on the height 0.3m from the flooring. From this distribution points, pipes will be vertically guided to the required places, placed on height as per the technical regulations and standards: lavatory – 1.10m from the floor; WC toilet seat with low flush box – 0.91m; sink – 1.10m and high placed flush box – 2.10m.

For the purpose of exact placement of the intakes, the Investor prior to the start of the Water and Sanitation Works shall provide a list with standard models of sanitary facilities and exact measures as per the technical specifications and technical instructions.

Before each water supply place it is necessary a cap to be placed with the same diameter as the pipe. The diameter for the internal water network is following: for verticals – $\frac{3}{4}''$ and for network $\frac{1}{2}''$. Also, it is planned to install two internal hydrants complete with equipment $\varnothing 2''$. After the completion of the installation of the water supply installation, a testing of the water supply network for pressure max 10ba shall be performed.



All water supply works shall be performed in accordance with valid technical regulations and standards for this kind of works.

- Sewage and Atmospheric Waters

For the collection of the sewage, a network of PVC pipes is planned. The profiles and the dimensions of the pipes are presented in the design. Pipes are placed under the flooring in the Ground floor and under the ceiling of the Ground floor. A layer of sand will be placed on the external parts of the pipes. The sewer is 1m underground and the pipe verticals finish with ventilation box on the roof construction. The sewage network is guided to a concrete revision manhole, Ø80cm MB20 with thickness of walls 10cm and with concrete shutter.

For the purpose of exact placement of the sewers and profiles, the Investor prior to the start of the Water and Sanitation Works shall provide a list with standard models of sanitary facilities and exact measures as per the technical specifications and technical instructions.

All works shall be performed in accordance with valid technical regulations and standards for this kind of works.

- Sanitary Works

The sanitary facilities for the toilet shall be made from faience and with complete equipment and parts. All supplied and placed sanitary facilities shall be 1st class and in accordance with international quality standards ISO 9001, as described in the Technical Drawings from designer.

- Atmospheric Waters

Due to the fact that there is no separate collection of the atmospheric waters, the water will discharge in the yard, as much as possible far from the building. The roofs shall be equipped with gutters, which collect the water and send it to the vertical pipes for discharge. The gutters shall have a slope gradient of 1 – 2 % up to the connection point with the vertical pipes. They will be produced from laminating flat sheet metal with brown metal holders.

All works shall be performed in accordance with valid technical regulations and standards for this kind of works.

- Electrical Works

Electric installation in general needed to be complete (mounting and materials) as is it shown in sketches and Main Design, described with technical specifications. In addition, the electrical works shall be performed in accordance with the valid technical regulations and standards for this kind of works.

As per the Main Design following electrical installation is planned: for lighting, for connection of mobile and fixed devices for normal functioning of the facility and thermic installation with one-phase and three-phase "SUKO" connectors for connection of devices for water heating, air-conditioning and



ventilation of the facility. Electrical lighting installation and thermic electrical installation in all rooms shall be placed in the walls, under the mortar.

Lighting installation is divided in three groups depending on the purpose of the rooms: all auxiliary rooms, corridors, sanitary facilities, kitchen, storage room and access paths will have right armature with milky white opal light (ball); office, living room and the bedroom will have fluorescent light armatures, whether the garage will have lights with mercury bulbs with high pressure.

Power supply of the facility will be from the nearest low-voltage network as per the Power Supply Agreement issued by EVN – Delcevo. The feeder cable will be dimensioned as per the requirement for this kind of facilities and will end in the connection box PK 1/3. This cable from the PK to the RT – distribution boards will be placed in wall, under the mortar, like all other electrical installation. Distribution boxes will be placed on the ground floor and on the first floor and will include required number of automatic fuses for each separate power circuit, as well as FID switch for additional protection.

It is planned also to install panic signalization that shall be placed on the exit from the premises, above the doors, especially at the exits for rapid evacuation. The panic lights are complete, with battery for own power and they shall be switched on in case of discontinuation of power supply.

For the protection of the high voltage it is planned through placement of third and fifth protection wire. In the sanitary facilities an equipotential installation shall be placed. The equipotential cabinet shall be mounted on the wall in the vicinity of the connection box, from where with the flexible wire f25mm² one-potential copper bar 20x3mm that will be connected with the protection wire in the distribution board. Through the testing electric coupling with the foundation grounding of the facility.

The classical lightning installation consisted of reception leads, runs and grounding. For the reception leads galvanized tape FeZn25x4mm shall be placed on the roof of the building with galvanized hangers on every 1m and connected with all metal parts. Runs shall be mounted from the same type of tape and they will be placed on the poles during the pouring of concrete and shall be welded or attached to the reinforcement on each 2m or placed on the façade. They shall finish with measurement boxes on each pole that shall be connected with the lightning grounding. As required, they could be detached for periodical testing of the lightning installation and periodical measurement of the resistance of the spreading of the lightning grounding. Grounding shall be placed in the foundations with galvanized tape FeZN30x4mm with welding of each meter and connection from the ground to the GRT with single-acting cable PP001x25mm², connection to the measurement terminal box, ready for use, with measurement of resistance of the ground and preparation of attest of the ground.

- Heating Works

The building shall be connected to the central heating network through separate connection to the Health Centre of Makedonska Kamenica. Supply shall be done with aluplast hoses which characteristics are given in the Main Design and they are in accordance with the technical regulation.

Connection for hot water for the heating shall be done with aluplast hose with profile of f1" connected to the central network and to the distribution board on the floor. Supply hose shall be



placed under the floorings in ribbed protection hose – System hose in hose. Distribution of the pipes f16 within the building on the floor, from the distribution board to each separate heating body – radiator shall be place under the final surface of the flooring in ribbed hoses. From there vertical pipes shall be placed and connected to the radiators, placed on the height as per the technical regulations. After the finalization of the heating works and before the operation of the heating system, an official test shall be conducted with pressure in the system up to 5 bars.

All heating works shall be executed in accordance with the valid technical regulation and standards for this kind of works and as per the scheme for the heating works in the Main Design.

- All Works shall be in accordance with the valid technical regulations and standards and the Main Design for the construction of the Fire Fighting Station in Makedonska Kamenica.



Bill of Quantity – “Construction of the Fire Fighting Station in Makedonska Kamenica”

No.	Type of works	Unit	Qty	Unit rate MKD	Amount MKD
A	PREPARATORY WORKS				
1.	Cleaning of the location, loading, transport and unloading of material on the landfill 2km. away	Lump sum	1		
2.	Supply of materials, transport, preparation and erection of protective fence from network reinforcement around the construction site h=2,20m R131	m2	101.2		
3.	Marking, placing of poles and securing of basis and spots of the building	m2	100.00		
SUB-TOTAL A: PREPARATORY WORKS:					
B	EARTH WORKS				
1.	Mechanical cleaning of the location from humus and other waste material d=20cm, loading to trucks, transport and unloading on a site 1 km away	m3	28.80		
2.	Mechanical excavation of soil 3 rd category, for strip foundations with manual finalization of the excavation, loading, transport and unloading of the soil to a site 2-3 km away	m3	75.60		
3.	Supply, transport and placement of sand under the strip foundations and bottom slabs, manual finalization of the excavation and spreading and compression with “vibro frog”, until the requested strength in layers with d=10cm	m3	5,70		
4.	Supply, transport and placement of gravel around the plinth of bonding beams and beneath the bottom slabs with manual mounding and spreading and compression with “vibro frog”, until the requested strength in layers with thickness of d=20cm	m3	29.27		
5.	Supply, transport and placement of sand under sidewalks and access paths and ramps, manual mounding and spreading and compression with “vibro frog” until the requested strength in layers with thickness of d=20cm	m3	15.32		
SUB-TOTAL B: EARTH WORKS:					
C	CONCRETE WORKS				
1.	Supply of concrete, transport and placement with machine vibration in layers 15-20 cm on strip foundations on placed armature as per the static calculation and treatment of the placed concrete MB 20	m3	27.00		
2.	Supply of concrete, transport and placement with machine vibration in layers 15-20 cm in plinths with double formwork and placed on armature as per the static calculations and treatment of the placed concrete MB 30	m3	13.30		



No.	Type of works	Unit	Qty	Unit rate MKD	Amount MKD
3.	Supply of concrete, transport, placement with machine vibration, final surface parget and treatment of the placed concrete in the bottom slab with thickness of d=10 cm – thin concrete MB 20	m2	82.00		
4.	Supply of concrete, transport, placement on placed armature network Q 188 in two zones with machine vibration, final surface parget and treatment of placed concrete in bottom slab with thickness of 10 cm – MB 30	m2	100.00		
5.	Supply of concrete, transport, placement in columns 25cmx25cm in formwork and placed armature with machine vibration and treatment of placed concrete MB 30 – level 000 height of columns 4.58m, level 4.93m height of columns 2.52m	m3	7.48		
6.	Supply of concrete, transport, placement in beams 35cmx25cm in formwork and placed armature with machine vibration and treatment of placed concrete MB 30	m3	17.10		
7.	Supply of concrete, transport, placement in tightening concrete beams, transoms and above windows complete with installed armature – constructive 4f10 uz f6/20cm in planking with machine vibration and treatment of placed concrete MB 30	m3	7.20		
8.	Supply, transport, unloading, transfer, placement, preparation of formwork, bracing, placement of small beams and fill with monta fert 14+5 with placement of concrete in already placed armature network, vibrating with vibro machine, final surface parget and treatment of placed concrete MB 30 level 4.93m	m2	89.50		
9.	Supply, transport, unloading, transfer, placement, preparation of formwork, bracing, placement of small beams and fill with monta fert 14+4 with placement of concrete in already placed armature network, vibrating with vibro machine, final surface parget and treatment of placed concrete MB 30 level 7,80m	m2	81.28		
10.	Preparation of formwork, supply of concrete, transfer, unloading, placement with machine vibration, final surface parget and treatment of placed concrete in platform, stairways arms thickness = 12cm and steps				



	17/29cm in already placed armature MB 30	m2	13.77		
11.	Preparation of formwork, supply of concrete, transfer, unloading and placement with machine vibration, final surface parget and treatment of placed concrete in terraces, balconies and concrete roofs d=10cm MB 30	m2	49.60		
12.	Supply, transport and placement of concrete in aligned layer d=4-5cm, MB 30 – only floor	m2	89.00		
13.	Supply of concrete, transport and placement with concrete vibrator and treatment of placed concrete in sidewalks and access paths d=10cm with dilatation fugue on every 1.5m watered with bitumen MB 30	m2	36.20		
SUB-TOTAL C: CONCRETE WORKS:					
D	MASONRY				
1.	Supply of materials, transport and building of a wall d=25cm with ceramic blocks (16/40/25cm) with extended mortar, complete with filling up of fugues and verticals	m2	470.56		
2.	Supply of materials, transport and building of a wall d=20cm with ceramic blocks with extended mortar, complete with filling up of fugues and verticals	m2	16.05		
3.	Supply of materials, transport and building of a wall d=16cm with ceramic blocks with extended mortar, complete with filling up of fugues and verticals	m2	78.50		
4.	Supply of materials, transport and building of a wall d=10cm with ceramic blocks with extended mortar, complete with filling up of fugues and verticals	m2	53.50		



5.	Supply of material, transport and building of a chimney from ceramic blocks with cement mortar 25x25cm	m1	6.50		
6.	Supply of materials, transport, preparation of extended mortar, sprinkling with cement wash of inner walls, placement of the first layer of mortar – rough and placement of the second layer of mortar – fine, on the height of the wall 4.58m – ground floor	m2	191.00		
7.	Supply of material, transport, preparation of extended mortar, sprinkling with cement wash of inner walls, placement of the first layer of mortar – rough and placement of the second layer of mortar – fine, on the height of the wall 2.52m – first floor	m2	291.33		
8.	Supply of material, transport, preparation of extended mortar, sprinkling with cement wash of inner ceilings, placement of the first layer of mortar – rough and placement of the second layer of mortar – fine, on the height of the wall 4.58m	m2	88.41		
9.	Supply of material, transport, preparation of extended mortar, sprinkling with cement wash of inner ceilings, placement of the first layer of mortar – rough and placement of the second layer of mortar – fine, on the height of the wall 2.52m	m2	96.21		
10.	Supply of material, transport, preparation of extended mortar, sprinkling with cement wash of walls, oriel windows and roofs from (outside), placement of the first layer of mortar – rough, on the height of the wall 7.5m	m2	325.00		
SUB-TOTAL D: MASONRY:					



No.	Type of works	Unit	Qty	Unit rate MKD	Amount MKD
E	REINFORCEMENT				
1.	Network Q188	pcs.	19.00		
2.	f6R	kgr	1,290.00		
3.	F10R	kgr	950.00		
4.	F12R	kgr	3,150.00		
5.	F8R	kgr	180.00		
SUB-TOTAL E: REINFORCEMENT:					
F	ROOF AND CARPENTRY WORKS				
1.	Supply and transport of material, processing and production of roof from carved timber – first class and roof slater				
	Roof shingles "BRAMAK"	pcs	1.990		
	Boards 2,5/12,5(25)cm	m3	5.52		
	Horizontal and vertical laths 2,5/3cm	m1	1,100		
	Vapor barrier	m2	221.00		
	shutters	pcs	150		
	Horns 8/16cm	m3	8.2		
	Columns, podrozenici, grbini and uvali 16/16cm	m3	2.2		
	Vencanica and Brackets 14/16	m3	1.4		
	Pliers, bracings 2,5/2,5	m3	0.18		
SUB-TOTAL F: ROOF AND CARPENTRY WORKS:					



G	SHEET METAL WORKS				
1.	Supply, transport and assembly of horizontal hanging gutters from laminating flat sheet metal, complete with holders 12x12 – thickness=0.55mm, color to be selected by the Investor	m1	50.00		
2.	Supply, transport and assembly of vertical gutters from laminating flat sheet metal, complete with holders 12x12 – thickness=0,55mm, color to be selected by the Investor	m1	28.00		
3.	Braids of inlets – 70cm and chimney from laminating flat sheet metal – thickness = 0,55mm color – same like the roof shingles	m2	15.00		
4.	Preparation and placement of braids for windows – 22cm form laminating flat sheet metal – thickness=0,55mm	m2	15.00		
SUB-TOTAL F: SHEET METAL WORKS:					
H	DOORS AND WINDOWS				
1.	Complete – supply, transport and installation of PVC doors – complete with fittings, locks and keys for entrance in the garage – sliding on the surface of the ceiling, without engine, 290/460	pcs	3		
2.	Complete, supply, transport and installation of PVC doors, complete with fittings, locks and keys – decorative panel, thickness 2,5mm, $U_w = 1,7 \text{ W/m}^2\text{K}$ 91/210+40 – entry door	pc	1		
3.	Complete, supply, transport and installation of PVC doors, regular profile, complete with fittings, locks, keys with regular panel – thickness 2,5mm 81/210 91/210 - sliding 2x81/210 - sliding 71/210	pcs	1 2 1 1		



	61/210		2		
	2x40x210		1		
4.	Complete, supply, transport and installation of PVC windows, 5 chambers profile 70mm, complete with fittings, thermo pane glass 4+12+4 Uw = 1,7 W/m²K. 60/60 100/140	pcs	9 10		
SUB-TOTAL H: DOORS AND WINDOWS:					
I	LOCKSMITH WORKS				
1.	Supply, transport and installation of stairs railing h=1m with handrails from aluminium profile with three horizontals	m1	10.00		
2.	Supply, transport and installation of inox bars f70	m1	7.50		
SUB-TOTAL I: LOCKSMITH WORKS:					
J	CERAMIC WORKS				
1.	Supply, transport and placement of ceramic tiles (40x20cm) on walls, first class, glue, fugue – 4mm, filling with waterproof mixture for fugues h=180cm	m2	55.80		
2.	Supply, transport and placement of floor ceramic tiles 34x34cm, first class with fugue 2mm in waterproof glue	m2	66,43		
3.	Supply, transport and placement of floor not polished granite tiles 30x30cm with fugue 2mm, first class glue, incl. with processing of plinth and placement of battens from aluminium on the stair's plates	m2	14.40		
SUB-TOTAL J: CERAMIC WORKS:					



No.	Type of works	Unit	Qty	Unit rate MKD	Amount MKD
K	PAINTING WORKS				
1.	Supply of materials, transport, preparation of basis, smoothing, painting of the walls with policolor in white – height of the walls – 4.58m	m2	191.00		
2.	Supply of materials, transport, preparation of the basis, smoothing, painting of the walls with policolor in white – height of the walls up to 2.52m	m2	291.60		
3.	Supply of material, transport, preparation of basis, smoothing, painting of the ceilings with policolor in white h=2.52m	m2	96.23		
4.	Supply of material, transport, preparation of basis, smoothing, painting of ceilings with policolor in white h=4.58m	m2	88.41		
SUB-TOTAL K: PAINTING WORKS:					
L	INSULATION WORKS				
1.	Preparation of the floors for placement of the hydro insulation and placement of hydro insulation voal 30, based on the basis from Bitulit	m2	100.00		
2.	Supply, transport and placement-smearing of the material (in three hands) for installation of the floor hydro insulation in sanitary facilities – hydromal flex, plinth – 20cm (floor openings to be filled silicone	m2	9.37		
SUB-TOTAL L: INSULATION WORKS:					
M	FLOORING WORKS				
1.	Supply, transport and installation of laminate d=8mm on felt – 1mm, on the previously prepared layer 4-5cm of cement mortar 1:2 and mixture for alignment 0,5-1mm 32AC4, complete with battens, in the office	m2	14,40		
2.	Supply, transport and installation of the floor from epoxy, placed in two layers with d=350...with adhesive strength min 4MPa, with processed working fugues with adequate kit and plinth 15cm	m2	95.00		
3.	Supply of material and construction of an accession path form behaton tiles d=8cm in front of the garage entrance (complete with excavation, sand layers 20+10 and firming of sand with load 50MPa	m2	30.00		
SUB-TOTAL M: FLOORING WORKS:					



No.	Type of works	Unit	Qty	Unit rate MKD	Amount MKD
N	FAÇADE				
1.	Supply of material, transport and construction of a thermo insulated facade based on rough mortar walls and ceilings, with glued Styrofoam d=5cm, placement of network with glue, preparation of alignment coating, smeared with basis and preparation of the final mortar in colour	m2	188.22		
SUB-TOTAL N: FACADE:					
O	WATER SUPPLY AND SEWAGE				
A.	Water Supply				
a)	Earth Works				
1.	Excavation of soil IIIrd category for placement of water pipes with average depth 1.2m width=0.6m	m3	10.80		
2.	Supply, Transport and spreading of a sand d=10cm	m3	0.90		
3.	Filling of the trenches with firming of sand layers d=20cm	m3	9.90		
4.	Construction of a complete concrete water manhole 80/80 MB20 with thickness of walls 20cm and with cast iron shutter Ø600mm 40KN	pcs	1		
b)	Installation Works				
1.	Supply and Installation of HDPE-PE80 pipes for horizontal and vertical placement, with connection and sealing.				
	2"	m'	10		
	3/4"	m'	5		
	1/2"	m'	18		
2.	Supply and installation of pass valves, caps – normal 3/4"	pcs	1		
3.	Supply and installation of pass valves, caps – normal 1/2"	pcs	3		
4.	Supply and installation of EK valves	pcs	1		
5.	Supply and placement of thermo-insulation hose for protection of freezing of pipes	m'	20		
6.	Testing of the water supply network	Lump sum			
7.	Supply, transport and installation of exterior surface hydrant complete with equipment Ø2"	pcs	1		
8.	Supply, transport and installation of internal hydrant complete with equipment Ø2"	pcs	2		
B.	Sewage and Atmospheric Water				
a)	Earth Works				
1.	Excavation of soil – IIIrd category for placement of sewage pipes with average depth of 1.2m	m3	12.96		



No.	Type of works	Unit	Qty	Unit rate MKD	Amount MKD
2.	Supply, transport and placement of layer of sand with d=10cm	m3	1.20		
3.	Filling of the trenches with firming of sand layers d=20cm	m3	10.80		
4.	Construction of a complete revision manhole, concrete Ø80cm MB20 with thickness of walls 10cm and with concrete shutter.	pcs	1		
b)	Installation Works				
1.	Supply and Installation of PVC sewage pipes for horizontal and vertical placement. Ø50 Ø70 Ø100 Ø125	m' m' m' m'	3 5 10 15		
2.	Supply and installation of floor grids - vertical	pcs	4		
3.	Supply and installation of vent heads Ø125	pcs	1		
c)	Sanitary Works				
1.	Supply and installation of faience lavatory, standing with boot, siphon, plug and chain, mirror, soap box and towels holder 70cm	pcs	1		
2.	Supply and installation of faience toilet seats, complete, silent toilet flush, flexible hose from EK valve to toilet flush, plastic outlet pipe, seal rubber, sock, and toilet seat cover – 1 st category with all necessary elements.	pcs	1		
3.	Supply and installation of shower stall, complete, 1 st category with all necessary elements with Plexiglas curtain placed on rails.	pcs	1		
4.	Supply and installation of shower battery for shower stall	pcs	1		
5.	Supply and installation of battery for lavatory with hot and cold water	pcs	1		
6.	Supply and installation of battery for kitchen lavatory with hot and cold water	pcs	1		
SUB-TOTAL O: WATER SUPPLY AND SEWAGE:					



No.	Type of works	Unit	Qty	Unit rate MKD	Amount MKD
P	ELECTRICAL WORKS				
1.	Supply and installation of connection box with one inlet for feeder cable and three stands for bridge duplex system fuses up to 100A. In the box three bridge duplex system fuses (NVO00 100/63A) will be placed.	pcs	1		
2.	Supply and installation of distribution board, from PVC material, for placement on the wall and with possibility for installation of <ul style="list-style-type: none"> - Three-phase automatic fuse ST68B 25A – 3 pieces - One-phase automatic fuse ST68 25A – 9 pieces - One-phase automatic fuse ST68 16A – 3 pieces 	pcs	2		
3.	Supply and installation of PPY conductors (wires) and placement in the wall, under the mortar and partially in plastic motional "juvidur" hose in the floor. <ul style="list-style-type: none"> - PPY 2x1.5mm² - PPY 3x1.5mm² - PPY 3x2.5mm² - PPY 5x2.5mm² - PPY 5x4mm² - PPY 5x10mm² 	m' m' m' m' m' m'	150.00 230.00 280.00 120.00 60.00 30.00		
4.	Supply and installation of switches 10A for placement in wall: <ul style="list-style-type: none"> - Regular - Serial - Alternating 	pcs pcs pcs	9 4 2		
5.	Supply and installation of "SUKO" connectors 16A for placement in wall: <ul style="list-style-type: none"> - Mono phases - Three phases 	pcs pcs	16 5		
6.	Supply and installation of signal device "sigma" for the bathroom	pcs	2		
7.	Supply and installation of fluorescent light armature with parabolic grids type FSU 2 4 36 with 4 bulbs, complete with starters and chokes	pcs	2		
8.	Supply and installation of light armatures with mercury bulbs 125 W, with high pressure, type VTF 125, complete with one bulb and choke	pcs	12		
9.	Supply of materials and manufacturing of an equipotential cabinet from twice pickled sheet for placement in wall. In the cabinet it is necessary a copper bar to be installed with dimensions (300x30x5) mm, placed on low-voltage bracket insulators.	pcs	1		



No.	Type of works	Unit	Qty	Unit rate MKD	Amount MKD
10.	Supply of PP-Y cable and placement on wall and ceilings (under mortar) on Bakelite priming clamp (complete with auxiliary material for connection with metal parts in the sanitary facilities), as well as connection with OG distribution boards and directing to the board with one potential bar. - PP-Y 1x4mm ² - PP-Y 1x6mm ² - PP-Y1x16mm ²	m' m' m'	15 20 10		
11.	Supply and installation of an equipotential cabinet type "1981"	pcs	1		
12.	Supply and installation of right armature with milky white opal light (ball), with adequate bulb 100W type LP F250 for placement on wall	pcs	12		
13.	Supply and installation of panic light LP16 with battery for own power supply with milky white opal cover with sign "EXIT" and bulb 16W	pcs	17		
14.	Supply and installation of galvanized tape FeZn30x4mm – 60m, in the foundation of the building with welding of each meter in the lower zone of the armature on the foundation for preparation of a foundation ground for lightning and protection grounding and connection from the ground to the GRT with single-acting cable PP001x25mm ² , connection to the measurement terminal box, ready for use, with measurement of resistance of the ground and preparation of attest of the ground.	complete			
15.	Placement of tape FeZN25x4mm from the foundations to the measurement coupling in the concrete poles before concreting and from the measurement to the lightning installation (reception leads), the same has to be welded each meter, with complete material, tape with measurement box in the wall, with four boxes for measurement leads.	complete			
16.	Supply and installation of tape FeZN 20x3mm for the reception leads on the roof, with adequate handlers and additional fitting material for execution of all other types of connections with welding or special elements for connection of all metal elements from the roof to the reception leads with measurement of the resistance of all loops from the lightning installation and issuance of document for validity of the installation.	complete			
SUB-TOTAL P: ELECTRICAL WORKS:					



No.	Type of works	Unit	Qty	Unit rate MKD	Amount MKD
R	HEATING WORKS				
1.	Panel radiator 1m	pcs	6		
2.	Panel radiator 1.6m	pcs	2		
3.	Panel radiator 0.6m	pcs	1		
4.	Couplings, valves and distributors	compl ete	1		
5.	Aluplast hose f1"	m'	200.00		
6.	Installation	pcs	10		
SUB-TOTAL R: HEATING WORKS:					