	05.01. PRICED BILL OF QUANTITIES FOR THE CONSTRUCTION AND SPECIALIST WORKS				
BUILDING: Social housing building for multiple families, KP 1457/1 KO Obrenovac, Obrenovac					
INVESTOR: City of Belgrade, Obrenovac Municipality, 74 Vuka Karadžića St, Obrenovac					
0,0	**GENERAL CONDITIONS FOR PERFORMANCE OF CONSTRUCTION AND SPECIALIST WORKS**				
0,1	All paragraphs of the priced bill of quantities imply that every work item shall be performed proficiently, precisely and professionally in line with the approved design, specifications and descriptions in this priced bill of quantities, technical requirements and the details from the building physics report, statistical calculations, project details as well as additional project details, valid technical regulations, JUS regulations and instructions of the supervisor and the designer, unless specific requirements exist for a specific item.				
0,2	All the provisions of these general conditions, as well as other general descriptions shall be an integral part of the contract signed by the Investor and Contractor.				
0,3	All works and materials cited in the descriptions of individual items in this Bill of Quantities must be covered by the price offered by the Contractor.				
0,4	The contracted prices shall be the Contractor's selling prices covering: all work related expenses, materials and the usual waste (unless the Investor provides the material for specific items), external and internal transport, scaffolding and forms for performance of works (unless they are already covered by this Bill of Quantities for specific items), water, lights, fuel and energy for the machines, the digging and the filling of the maturing pit, storage facilities, temporary construction rooms, Contractor's overhead expenses, Contractor's profit, as well as all other expenses determined by the valid regulations for the calculation of the selling price of construction products, and all expenses stemming				
0,5	Calculation and the classification of performed works shall be done in line with the Average Construction Norms, which shall be mandatory for both Investor and Contractor, unless it is otherwise stated in the descriptions of specific items in the Bill of Quantity.				
0,6	Also, all the descriptions provided in the aforementioned norms shall be obligatory for the Contractor, unless it is otherwise stated in the description of a specific item or in the general description.				

0,7	The general description provided for one type of works or materials shall oblige the Contractor to perform all such works in individual items in accordance with that description, regardless of whether the said item refers to general description, unless the description of works provided in that item is different.				
0,8	The Contractor shall use the appropriate workforce and high-quality materials for all construction and specialized works, and these shall align with the existing technical regulations, standards and descriptions provided in the Bill of Quantity items.				
0,9	The Contractor shall provide a test certificate to the Supervisor for every material that is to be installed. In case of disputes on quality, the samples shall be delivered to the Institute for Materials Testing whose findings are deemed as valid both by the Investor and the Contractor.				
0,10	In case the Investor discovers that specific materials differ from what was defined by the Bill of Quantity and from agreed quality requirements, the Contractor shall be obligated to immediately remove the said materials from the construction site, and if the Contractor attempts to use the said materials, the Investor shall stop the work.				
0,11	Before the beginning of works, the Site Manager shall be obligated to ask the representative of the Investor in a timely manner for clarification concerning the plans, as well as all the works that have been insufficiently defined by the Project Plan.				
0,12	The Contractor shall keep the building as well the whole construction site tidy and completely clean, and after the end of works, before the building is delivered, all holes, toilets, pits and scaffolding holes shall be filled and evened by the Contractor in such a manner that no subsidence can occur.				
0,13	The Contractor shall clean the whole building as well as the construction site from all the detritus, surplus materials, all tools and auxiliary buildings before the technical review and the delivery of the building.				
0,14	All the accesses to the building, plateaus, stairways and paths, as well as floors in all the rooms shall be kept pristine, as well as all the finishings, metalwork, as well as all glass and roof surfaces.				
0,15	Roadways and sidewalks damaged due to works or transport shall also be repaired and cleaned for the technical review and delivery of the building, All the aforementioned finishing works shall not be charged separately, but shall be included in the contracted price				

0,16	In case of a need for works the price of which has not been determined by the priced Bill of Quantity, the Contractor shall be obligated to obtain a permission for the said works from the representative of the Investor, determine the appropriate price, and record everything in the construction log. The price of these works is identified on the basis of a price list for all the materials and the workforce that the Contractor shall attach to the offer.				
0,17	Along with all the auxiliary buildings required by the Contractor for the performance of works, the Contractor shall also provide a room for the Supervisor's office. This room shall be regularly maintained by the Contractor during the construction, who shall also provide lighting, heating, cleaning services, as well as the necessary office materials.				
0,18	If, for the needs of construction site organization and material storage, the Contractor needs to use the land and sidewalks adjoining the lot, they shall ask for the approval of the competent bodies, i.e. the proprietors. The related costs shall be covered by the Contractor and the Investor shall not be charged for them.				
0,19	The contractor shall be obligated to produce a report on the occupational safety at the construction site, in line with the "Code on Occupational Safety and Health in the Construction Industry".				
0,20	The Contractor shall keep the Measurement Book and the Construction Log in line with the existing legal regulations, and daily enter the required data, which shall be daily reviewed by the representative of the Investor and verified by their signature on every page of these documents.				
0,21	Apart from these general conditions, the Investor's special requirements, existing technical and legal regulations, as well as the complete technical documentation shall constitute an integral part of the contract.				
0,22	All the works shall be performed with all the necessary construction components and completely in line with the details provided by the designer.				
0,23	The Contractor shall appoint a highly qualified and experienced expert on the construction site during the construction who shall be responsible for the expert supervision and precise performance of all obligations undertaken by the Contractor.				
0,24	In case of all the works listed in the priced Bill of Quantity that require forms and scaffolding, the Contractor shall obtain and solidly construct them, which shall not be charged separately, but shall be included in the offered price of the relevant work.				

0,25	The Contractor shall drill all the openings and grooves in walls and ceiling required for installations and different devices precisely according to the details and disposition plans, and after the pipe laying they shall wall-up and plaster the pipes and grooves. This shall not be charged separately, but shall be included in the price of individual items.				
0,26	The Contractor shall accept all the obligations provided by these general descriptions as an integral part of the Contract signed with the Investor, and shall undertake the obligation of receiving them without any limitations and performing them without objection or complaint.				

A.	CONSTRUCTION WORK				
ITEM No.	ITEM DESCRIPTION	UNIT OF MEASUREMENT	QUANTITY	PRICE	TOTAL
I	PREPARATORY WORK				
1.1.	Cleaning of the lot with the cutting and disposal of branches and bushes which will be transported to a landfill in the 15 km perimeter. Calculation per m2 of cleaned surface.				
	0.2*1159				
	TOTAL	m2	1,159.00		
1.2.	Manual felling of trees with trunk diameter up to 10cm, digging up of roots and stumps. The trunk should be felled, branches chopped, soil around the tree dug up, and roots and stumps removed. Tree trunks, branches and root should be loaded on a truck and transported to a landfill in the 15 km perimeter. Calculation per piece.				
	TOTAL	kom	3.00		
1.3.	Mark the buildings at the lot in the presence of the Supervisor and install necessary profiles with the required geodetic measurements, i.e. transfer data from the project document to the lot. Calculation per lump sum.				
	TOTAL	paušalno	1.00		
1.4.	Construct and place the board announcing that the construction works with sub-construction are in progress, with the basic data on the building, contractor, investor and designer. The board dimensions are 200 x 300 cm. Calculation per piece.				
	TOTAL	kom	1.00		
1.5.	Mount and dismount the protective 2 metres high PVC wire fence. At every 2 metres set 2m high posts for mesh fencing. Set an entrance gate, and place a warning board for passers-by on the fence. The fence is to be used for the whole duration of works. Calculation per 1m of fence.				
	TOTAL	m1	164.57		
1.6.	Mount and dismount a metal facade scaffolding for works in line with the valid regulations and OSH measures. The scaffolding has to be statically stable, anchored to the building and properly earthed. At every 2 m of elevation set work platforms made out of planks. At the outer side of the platforms planks should be laid as shiners. Cover the whole surface of the scaffolding with PVC or jute curtains. The scaffolding is received and approved by the statics professional who records that in the log. It should be used for the whole duration of works. Calculation per m2 of the total facade surface.				
	TOTAL	m2	2075		

	PREPARATORY WORK IN TOTAL				

II	**EARTHWORK**				
Perform all earthworks with appropriate professional workforce, with the full implementation of relevant modern machinery. Earthworks should be performed with adequate professional supervision.					
All the works have to be performed properly, have to have the proscribed geometrical shape, i.e. they have to completely align with the technical documentation requirements, namely the Geomechanical Study with respect to terrain category, and the Digging and Filling Plan, which is an integral part of technical documentation.					
If the works are performed during unfavourable weather conditions, the Contractor has to undertake all necessary protection measures for all the earthworks. Protective measures have to be maintained as long as the need for them exists. Protective measures implemented in this manner do not impact the previously contracted price of works. Calculation is performed per unit of measurement identified in every item. Unit price of works covers the completion of the work item (procurement of material, external and internal transport, installation, OSH measures and measure for protection of works, all horizontal and vertical transfers, the necessary scaffolding, strutting formworks, as well as strutting and maintenance of the landfill during the unloading of soil, and other operations necessary for the high-quality performance of works).					
This description is an integral part of every individually described work item, and does not exclude the application of the provisions of general norms and valid construction regulations in this area.					
Bill of Quantities covers earthworks only in the framework of the building outline, only for the needs of the construction of building foundations, as well as of the access plateau, ramps and stairs. Geotechnical supervision is mandatory during the digging and building of foundations.					
ITEM No.	**ITEM DESCRIPTION**	**UNIT OF MEASUREMENT**		**PRICE**	**TOTAL**
2.1.	Mechanical removal of the 30 cm thick surface layer of humus from the relevant part of the lot. Calculation per m2 with the transport of soil to the city landfill, loading and unloading, and disposal of soil at the landfill.				
	TOTAL	m2	1,159.00		
2.2.	Mechanical excavation of II category soil for foundation strips, pad foundations and foundation slabs for elevators, 90% mechanical and 10% manual. Excavation should be performed completely in line with the Main design. The depth of the excavated pit is 100 cm in relation to the cleared terrain with the removed layer of humus intended for strips and pad foundations, and 60 cm in the case of elevator foundation slab. Lateral sides should be evenly cut, and the bottom levelled. The soil should be loaded and transported to a landfill within a 15 km perimeter. Calculation per m3, in autochthone state.				
	do kote74.26: (146.78+152.82+10.24+8.06)*1=317.9*1				
	do up to level 74.66: 9.24*0.6				
	TOTAL	m3	356.00		
2.3.	Procurement, transport, dumping, spreading and compaction of the natural mixture gravel ('dirty gravel") in the height of 103 cm to 20 cm below the floor. Perform dumping in layers, with mechanical compacting at every 30 cm gravel layer. Calculation per m3.				
	Below the floor 1.03*239.52				
	below the ramp 6.89*1.5				
	above the foundation strips 0.26*(317.9-55.21)				
	TOTAL	m3	358.88		

2.4.	Procurement, transport, dumping, spreading and compacting of the subbase beneath the foundations comprised of clean gravel with 0-31 fraction, in the 20 cm thick layer. Mechanically compact the gravel until the necessary compactness of 25 Mpa. Gravel layer has to be completely clean, without any organic ingredients. Calculation per m2.				
	TOTAL	m2	255.00		
2.5.	Procurement, transport, dumping, spreading and compacting of the subbase beneath the foundations comprised of clean gravel with 0-31 fraction, in the 20 cm thick layer which will be fine levelled with a height tolerance of +-1 cm. Mechanically compact the gravel until the necessary compactness of 30 Mpa. Gravel layer has to be completely clean, without any organic ingredients. Calculation per m2.				
	TOTAL	m2	250.00		
2.6.	Measure the compactness of the terrain beneath the foundation strips. The required compactness is 25 Mps. Compactness needs to be measured once at every axis of a foundation strip, and if any changes in the ground are detected, measurements need to be performed at each of them. Measurements should be performed after the excavations and after the gravel subbase is formed, and the compactness will be proven by the certificates of licensed laboratories. Calculation per number of measurements.				
	TOTAL	kom	19.00		
2.7.	Measure the compactness of the terrain beneath the flooring. The required compactness is 30Mps. Measure compactness once per every 50m2 of the flooring, and if any changes in the ground are detected, measurements need to be perfumed at each of them. Measurements should be performed after the excavations and after the gravel subbase is formed, and the compactness will be proven by the certificates issued by licensed laboratories. Calculation per number of measurements.				
	239.52/50				
	TOTAL	kom	5.00		
2.8.	Use the sludger to drain the water that can potentially flood the excavations made for stripped foundations due to groundwater. Since the excavations are performed close to a detected level of groundwater, foresee the draining of the water from foundation pits with a sludger if the need arises (according to the Geomechanical survey the detected level of groundwater in March was 74.56m). The Contractor will identify the need for draining in cooperation with the Supervisor. Calculation per working hour.				
	TOTAL	h	150.00		
	EARTHWORK TOTAL				

III CONCRETE AND REINFORCED CONCRETE WORK

All concrete works need to be performed by adequate professional workers with the full implementation of relevant modern machinery.

The quality of concrete has to respond to the requirements listed in the technical documentation as well as valid regulations relevant for this type of works. Only the concrete that satisfies the identified requirements can be used. The sample for quality testing has to be taken at the construction site - at the same time the concrete is being poured. The Contractor has to provide the conditions for proper use of concrete, i.e. it can not free-fall from a height of more than 2.00 m. A concrete poker vibrator has to be used when pouring the concrete, and the poured layers can not be thicker than 50 cm.

After forms are removed, concrete has to be cured for at least three days , as well as watered if the external temperatures demand it. In case the temperature drops below or rises above the proscribed values, protective measures have to be undertaken. The protective measures will be implemented as long as the need for them exists. Protective measures especially relate to mixing, transport, pouring and curing of concrete. These protective measures do not impact the previously contracted price of works.

While the concrete is in the form, during the setting phase, it has to be protected against any tremors or shaking.

Concrete surfaces have to be flat, without any lumps or segregations, and have the required shape. If, nevertheless, smaller imperfections and irregularities are detected in the concrete surfaces, they have to be immediately protected with cement mortar with a 1:3 ratio made from sifted gravel.

When concreting surfaces that will be visible, or only painted (not plastered), those surfaces should be smooth, and concrete must be made with the same type of cement. Breaks in concreting of one element are not allowed.

Formwork has to be clean, completely stable, and have the required dimensions. it also has to have a geometrical shape, and be horizontal, vertical, slanted or circular, as requested by technical documentation. Formwork should be shored and brace in line with its purpose and the existing regulations.

Formwork for openings must be in line with technical documentation, and should allow for unobstructed pouring of concrete. Scaffolding required for formwork and concreting must enable free and unobstructed circulation of workers, i.e. must be in line with the existing regulations.

Calculation is done per unit of measurement identified in every work item (procurement of material, exterior and interior transport, mounting, protective measures, all horizontal and vertical transport, necessary scaffolding, required framework and other operations required for high-quality performance of works). Calculation does not include reinforcements**, which are**

3.1	Procurement of material and concreting of foundation beams and reinforced concrete pad foundations a C25/30 (MB 30) without formwork in the previously prepared excavation on a grave subbase 25MPa. Reinforcement mesh MA Q188 should be mounted in the foundation beams at foundation wall axis, at the height of 105cm, in order to connect the foundation wall and beams. Excavation, subbase and reinforcements are included in a separate item. Concrete must be poured and cured in line with the regulations. Calculation per m3.				
	TG 90x50, TG 160x50, TS 250x50:	m3			
	(152.82+146.78)*0.5	m3			
	TOTAL:	m3	157.00		
3.2.	Procurement of material and pouring of concrete on the elevator foundation slab made of reinforced concrete C25/30 (MB 30) d=50cm with the necessary bilateral board form and dead shores. The slab partially reclines on the foundation beams, and partially on the previously prepared base of gravel 25MPa subbase, which is included in a separate item. The price includes the necessary additive which makes the concrete waterproof and which needs to be added in line with producer's instructions. Calculation per m3.				
	0.5*8.73				
	TOTAL:	m3	4.37		

3.3.	Procurement of the material and pouring of concrete on the foundation strips that will carry the external plain concrete ramps C25/30 (MB 30) without forms, in the previously prepared excavation pit on the gravel subbase (25MPa). Manufacture a 20/20cm foundation ring beam at the top of the foundation strip. Excavation, subbase and reinforcements are calculated in a separate item. Pour and cure the concrete in line with regulations. Calculation per m3.				
	(9.64+8.06)*0.4				
	TOTAL:	m3	7.08		
3.4.	Procurement of the material and concreting of foundation walls made of plain concrete C25/30 (MB 30) in double form. The walls are d=20cm, at the level of 143 cm below the building, and 58cm (in axis A), 66cm (in axis B) and 82 cm (in axis C) below the road level. At the spots where rounded pillars are suspended the foundation wall should be widened by 40/40cm. Calculation per m3.				
	H=143: (18.28+17.99-30*0.04)*1.43		50.15		
	H=58, 66, 82: (8.79+9.2)*(0.58+0.66+0.82)*0.2		7.40		
	TOTAL:	m3	57.55		
3.5.	Procurement of materials and concreting of oversight concrete for chimneys and ventilation shafts made of plain concrete C25/30 (MB 30). The concrete is poured from the striped foundations to the lower level of the floor slab, at the height of 143 cm. The necessary trihedral form is included in the price. Calculation per m3.				
	1.37*1.43				
	TOTAL:	m3	1.96		
3.6.	Procurement of materials and concreting of elevator shaft walls made of reinforced concrete d=16cm C25/30 (MB 30)in two-sided formwork. The walls are concreted from one from one floor to another due to a horizontal break by inter-floor ring beams. Walls under the floor slab are widened to 20cm. Calculation per m3.				
	up to floor slab, d=20cm h= 93cm				
	(1.53+1.50)*0.93				
	between the ground floor and the first floor, d=16cm h=278				
	(1.19+1.17)*2.78				
	between floors , d=16cm h=268				
	(1.19+1.17)*2.68				
	roof on the elevator 8*0.16				
	TOTAL:	m3	17.20		
3.7.	Procurement of materials and concreting of reinforced concrete pillars with rectangular and square cross-sections, in the four-sided form C25/30 (MB 30). Calculation per m3.				
	25x20, 20x20, 20x33				
	H=4.6, 0.2*0.2*4.6*2				
	H= 16.2, 1.51*16.2				
	H=19, 0.56*19				
	H=11.52, 0.2*0.2*11.52*4				
	TOTAL:	m3	43.00		

3.8.	Procurement of materials and concreting of round reinforced concrete pillars of the open parking lot at the ground level, with the radius of 40cm C25/30 (MB 30) in the cylinder forms, from the level of foundation ring to the level of the beam above the ground floor. Calculation per m3.				
	0.2*0.2*3.14*3.42*2		0.86		
	0.2*0.2*3.14*3.18*2		0.80		
	TOTAL:	m3	1.66		
3.9.	Procurement of materials and pouring of concrete C25/30 (MB 30) for horizontal and vertical reinforced concrete elements with small cross-sections in the necessary board form. The procurement and placing of forms is included in the price. Calculation per m3.				
	foundation wall, 20x20 : 54.37*0.2				
	Beams 20/20				
	Beams 20/40				
	Beams 20/30				
	TOTAL:	m3	160.00		
3.10.	Procurement of materials and pouring of concrete C25/30 (MB 30) for horizontal and vertical reinforced concrete elements with small cross-sections in the necessary board form for the walls siffering. The procurement and placing of forms is included in the price. Calculation per m3.				
	Vertical ring beams, 0.2*0.2*2.48*4*16+0.2*0.2*7*2.58				
	door lintels				
	horizontal on the parapet, 11.12*0.2				
	on the scarp parapet				
	ramp				
	TOTAL:	m3	19.70		
3.11.	Procurement of material and manufacturing of a semi prefabricated ceiling made of fert beams and fillers, similar to LMT type, thickness 16+4cm. The slab and the rib should be reinforced in line with the project and reinforcement details. Pour the C25/30 (MB 30) concrete. The price includes all the necessary formwork, supporting structure and the reinforcement for the beams, while the pressed slab's wire mesh and additional reinforcements are included in a separate item. Calculation per m2.				
	TOTAL:	m2	2,280.00		
3.12.	Procurement of material and pouring of C25/30 (MB 30) concrete for the ground floor slab(d=10cm), on the previously prepared gravel subbase with 30MPa compactness. The price includes all the necessary materials, apart from the mesh which is calculated in a separate item. Calculation per m2.				
	TOTAL:	m2	239.53		

3.13.	Procurement of material and concreting of solid balcony slabs with reinforced concrete type C25/30 (MB 30), all in line with the project, static calculations, and reinforcement related details. Dpl=15cm. The price includes all the necessary materials, apart from the reinforced elements which are calculated in a different item. Calculation per m2, with the required smooth form and dead shores.				
	2.42*17				
	TOTAL:	m2	41.14		
3.14.	Procurement of material and pouring of reinforced C25/30 (MB 30) concrete on sloped stair slabs in the building with simultaneous manufacturing of stairs. The thickness of the crank slab is 15cm, and the stairs have the following dimensions: 18/28. All works should be performed in line with the project, static calculation and details related to reinforced elements. Calculation per m2 with the required smooth form and dead shores.				
	Stairway 16x18/28: 8.27*4+8.76*5				
	TOTAL:	m2	76.88		

3.15.	Procurement of material and pouring of reinforced C25/30 (MB 30) concrete on sloped stair slabs in the building with simultaneous manufacturing of stairs. The thickness of the crank slab is 15cm,and the stairs have the following dimensions: 18/28. All works should be performed in line with the project, static calculation and details related to reinforced elements. Calculation per m2 with the required smooth form and dead shores.				
	2 stairways 6x18/28				
	staircase in substation				
	TOTAL:	m2	14.80		
3.16.	Procurement of material and concreting of the external ramp with C25/30 (MB 30) reinforced concrete. All works should be performed in line with the project, static calculations and details related to reinforcement elements. The ramp should have side curbs (10/10 cm) in line with the accessibility regulations. Slab's D equals 10cm. Calculation per m2 with the required smooth form and dead shores.				
	26.55+26.51				
	TOTAL:	m2	53.06		
3.17.	Procurement of materials and concriting of the lean concrete d = 5cm below the foundation beams and elevator foundation slab. Calculation per m2.				
	TOTAL:	m2	320.00		
	CONCRETE WORK TOTAL:				

IV REINFORCEMENT WORK

All reinforcement works have to be performed by appropriate professional workers with the full implementation of relevant modern tools and machinery. All the used materials, rebar, bonding agents, etc. have to be the proscribed quality, i.e. they have to possess appropriate test certificates. Rebar has to mechanically manufactured, processed and without major traces of corrosion or any other materials. Works have to be top quality, 100 percent connected, rebar has to take the appropriate shape, has to be appropriately distanced from formwork and base, in order to have an adequate protective layer. To this end, the Contractor must use the approved spacer bars - supports. The rebar appearance and arrangement has to be completely in line with the technical documentation requirements. Calculation is done per theoretical weight unit identified for every item. The unit price covers the manufacturing of the complete item (procurement of the basic and binding materials, bar supports, external and internal transport, installation - connecting, all horizontal and vertical transport to the place of installation, the required scaffolding, and other activities necessary for high-quality performance of works). This description shall be an integral part of every individually described works item, and it does not exclude the implementation of existing construction regulations and norms related to this area.

4.1	Procurement, transport, cutting, bending and installation of reinforcement elements. The number of elements is provided in the reinforcement related details. The price should include the spacer bars maintaining the distance between the reinforcement elements and the form. Calculation per kilogram.				
	mesh MA 500/560 (B500B)	kg	11,382.00		
	RA 400/500	kg	44,083.00		
	GA 240/360	kg	1,192.00		
	TOTAL:				

4.2.	Procurement, transport, cutting, bending and installation of blinders made of bars with fi 10mm in the reinforced horizontal ring beams carrying the wall plates. Place the blinder in the width of 12cm, in line with the relevant details, at every 1.5m of the ring beam, in order for the wall plates to fit. Calculation per piece.				
	0.617*40*0.82	kg	21.00		
	REINFORCEMENT WORK TOTAL:				

V BRICKLAYING WORK					
All bricklaying works should be preformed by appropriate professional workers. All used materials, elements and binding agents have to adhere to a defined quality. The performed works have to be flat, to have the required geometrical shapes, i.e. they have to align with the requirements provided in technical documentation. The surfaces that are being treated have to be cleaned of any foreign ingredients. The treated surfaces have to be levelled, clean, and have regular corners and edges. Treatment materials must be applied strictly to the properly prepared base. The calculation is done per unit of measurement identified for every work item. Unit price covers the completion of the whole item (material procurement, external and internal transport, installation, protective measures, all horizontal and vertical transports, the required scaffolding, necessary formwork, and other operations necessary for quality performance of works).					
5.1	Procurement of material and building of walls by laying hollow brick blocks (giter block), dimensions 19x19x25 cm in flexible mortar 1:2:6. Walls should be 19 cm thick. Blocks should be watered before they are laid. Auxiliary scaffolding is included in the price. Calculation per m3.				
	groundfloor		44.69		
	1. floor		57.54		
	2. floor		57.54		
	3. floor		57.54		
	4. floor		57.54		
	5. floor		14.00		
	parapet		22.17		
	TOTAL:	m3	311.02		
5.2	Procurement of materials and building of internal walls between apartments, and stairs and apartments out of thermal blocks similar to Zorka Klimabloc 20, with dimensions 200/380/238mm, laid in in flexible mortar 1:2:6. Wall thickness = 20cm. Calculation per m3.				
	groundfloor		29.67		
	1. floor		26.37		
	2. floor		26.37		
	3. floor		31.80		
	4. floor		31.80		
	5. floor		6.66		
	TOTAL:	m3	152.67		
5.3	Procurement of materials and building of partition walls out of hollow bricks with d=12cm laid in flexible mortar 1:2:6. Pour concrete on the the whole length of the 12/20 ring beam (reinforced ±2RΦ12) at the level of lintel beam. This is included in the item price. Calculation per m2.				
	groundfloor		32.00		
	1. floor		219.83		
	2. floor		219.83		
	3. floor		193.02		
	4. floor		188.69		
	5. floor		25.33		
	ramp fence:		20.45		
	TOTAL:	m2	899.15		
5.4	Procure the materials and build a solid shiner brick wall with d=6,5cm in the cement concrete ratio 1:3. Calculation per m2.				

	Venac 52.58*0.22		11.57		
	ventilation shafts		60.00		
	TOTAL:	m2	71.57		
5.5	Procurement and mounting of "Schiedel" UNI plus chimney block, with the diameter of 20 cm, which is mounted with all the purpose made elements. The chimney consists of the following elements: -Chimney shroud made of pumice concrete with outer dimensions of 36/36cm, with channels for ventilation of insulation and openings for reinforcement elements. - Insulation - stone wool mounted in the whole length of the chimney shaft The manufacturing of concrete flaunching is included in the price. Calculation per m¹.				
	3*16.44+13.21+13+16.33+7.23+4.68+4.9				
	TOTAL:	m1	109.00		
5.6	Procurement of materials and casing of chimney and ventilation shafts above the last inter-storey construction with solid brick d=12 cm, laid in flexible mortar with the ratio of 1:2:6, with simultaneous concreting of reinforced concrete rings, according to regulations. Calculation per m² of extended surface.				
	5.94+9.28+9.36+12.99+22.92+19.44				
	TOTAL:	m2	80.00		
5.7	Procurement of materials and building of a ventilation shaft out of concrete elements laid in flexible mortar in the ratio of 1:2:6, with all the necessary elements, in line with producers instructions. Calculation per m1.				
	three channels ventilation block 410x250x190	m1	145.52		
	4*2.97+9*2.88+9*2.88+10*2.88+8*4.68+2*2.88+2*4.9				
	single-row vertical shaft250/250	m1	46.28		
	2*2.88+2*2.88+3*2.88+3*4.68+2.28+2*4.9				
	gas transition bricks 410x250x190	kom	5.00		
5.8	Procurement of material and plastering of internal walls with flexible mortar in the ratio 1:3:9, in two layers. The first layer (thickness d=1.5 cm) should be a rough coat made with unsifted sand, and the second layer should be made with sifted sand (d=0,5 cm). Before the plastering the surfaces should be dusted, washed and sprinkled with cement milk with the addition of sifted sand. Calculation per m2 of the plastered surface, with all necessary previous works, material and scaffolding.				
	groundfloor		504.74		
	1. floor		941.23		
	2. floor		941.23		
	3. floor		901.31		
	4. floor		917.18		
	5. floor		119.52		
	TOTAL:	m2	4,325.21		

5.9	Procurement of materials and plastering of ceiling with flexible mortar in the ratio of 1:3:9, in two layers. The first layer (thickness d=1.5 cm) should be a rough coat made with unsifted sand, and the second layer should be made with sifted sand (d=0,5 cm). Before the plastering the surfaces should be dusted, washed and sprinkled with cement milk with the addition of sifted sand. Calculation per m2 of the plastered surface, with all necessary previous works, material and scaffolding.				
	groundfloor		130.18		
	1. floor		419.40		
	2. floor		419.40		
	3. floor		410.30		
	4. floor		388.53		
	5. floor		84.99		
	beams		123.00		
	TOTAL:	m2	1,975.80		
5.11	Procurement of materials and manufacturing of a cement screed in the ratio of 1:3, which is poured as a floor base. The screed should be made with an addition of polypropylene fibres, fibrins, which improve its mechanical qualities. The amount of added fibres will depend on the specifications provided by the producer. The screed should be separated from the walls by styrofoam d=3 cm which is a part of a separate item. The top surface will be meticulously floated and prepared for the laying of flooring . In sanitary blocks creed should be poured as a base for hydro insulation, in inclination. Cement screeds at the borders of balconies should be extended by the thickness of styrofoam in the width of 30 cm, and in accordance with the detailed design. An inclination of 2% should be foreseen at balconies. Calculation per m2.				
	ground floor flooring d=5 cm, reinforced with Shultz steel mesh	m2	230.00		
	ground floor flooring with the inclination of d=5 cm, reinforced with Shultz steel mesh	m2	25.00		
	- appartmats, corridors, d= B267	m2	1,700.00		
	- bathrooms, with the inclination d=min4cm	m2	105.00		
	- balcony, with the inclination d=min 4cm, max 6cm	m2	78.00		
	- ramp and substation floor	m2	73.00		
	TOTAL:				
5.12	Procure the materials and build a solid shiner brick wall with d=12cm in the cement concrete ratio 1:3. Calculation per m2.				
	-protection of hydro insulation of elevator walls 1.53*(8.68+8.54)	m2	26.35		
	BRICKLAYING WORK TOTAL:				
VI CARPENTRY WORK					

	All works have to be performed by appropriate professional workers with the full implementation of relevant modern tools and machinery				
	Timber has to be aligned with technical regulations and JUS. Timber quality has to be tested and submitted to the required stress, and the testing costs will be covered by the Contractor if the test results differ from what is identified by regulations. Roof construction timber has to be made precisely according to measures presented in the design for specific roof construction parts, and potential compositions have to be made in accordance with relevant regulations.				
	Calculation is performed per unit of measurement identified in every work item. The unit price cover the complete item (procurement of materials, external and internal transport, installation, protective measures, all horizontal and vertical transports, as well as all other operations necessary for quality performance of works).				
	During the performance of works, i.e. until the building is delivered, the Contractor is obligated to undertake all necessary measures in order to avoid damage to works. And if damage does occur, the Contractor will repair the works at their own expense (and with the approval of the Supervisor) until they reach the state identified in the project.				
	This description is an integral part of every specific work item and does not exclude the implementation of existing construction regulations and norms relevant for this area.				
6.1	Procurement of the material and the manufacturing of wooden roof construction for a single-pitch roof in accordance with the static calculation and the detailed design. Roof construction is made out of 2nd class dry coniferous timber, and it is constituted of wooden rafters placed at every 80 cm on purlins and wall plates. Purlins are on pillars which lean on inter-floor structure by means of wooden bolsters. Construct all the required carpentry joints between roof elements, and install reinforcements made of flat-bar iron, anchors, bolts, clamps and such which are included in the agreed price. The price should include the coatings protecting the construction from insects and rot. Calculation per m2 of horizontal roof projection.				
	K1, inclination 7°, rafters 10/14cm, pillars 12/12, bolsters 12/12/100, 2 wall plates 12/12, 3 purlins 12/16cm, collar beams 10/12		102.77		
	K2, inclination 10°, rafters 10/12cm, pillars 12/12, bolsters 12/12/100, 2 wall plates 12/12, 4 purlins 12/16cm, collar beams 10/12		119.95		
	K3, inclination 7°, rafters 10/14cm, pillars 14/14, bolsters 14/14/100, 1 wall plates 12/12, 2 purlins 14/18cm, collar beams 10/12		114.20		

	K4, inclination 7°, rafters 10/12cm, pillars 14/14, bolsters 14/14/100, 2 wall plates 12/12, 3 purlins 14/16cm, collar beams 10/12		105.85		
	K5, inclination 7°, rafters 10/12cm, pillars 12/12, bolsters 12/12/100, 2 wall plates 12/12, 1 purlin 12/16cm, collar beams 10/12		63.22		
	TOTAL:	m2	505.99		
6.2	Procurement of materials and placing of a sheathing for the roof made of 24 mm wooden boards. The works need to be performed in line with the design, general description and technical requirements relevant to this type of works. The price should include the coating protecting boards from insects and rot. Calculation per m2 (of the actual surface).				
	roof				
	103.80+122.40+115.35+106.90+63.85		512.30		
	cornice				

	9.13+10.68+15.94+10.55+8.78		55.06		
	TOTAL:	m2	567.36		
6.3	Procurement of materials and placing of a sheathing for the balcony roofs made of OSB/3 slabs. The works need to be performed in line with the design, general description and technical requirements relevant to this type of works. Calculation per m2.				
	(1.1*0.15*2+2.2*0.15+1.3+2.2)*17				
	TOTAL:	pcs.	65.45		
6.4	Procurement of materials and manufacturing of an inspection roof shutter providing access to the roof. It should be made of 24 mm boards attached to the rafters and a wooden cover (cover dimensions 70/70 cm) which rise 20 cm above the roof level. The cover should be made out of wooden boards, with Izolim hydro insulation and a covering made od galvanized plasticized steel sheets in line with the detailed design. Calculation per piece.				
	TOTAL:	pcs.	2.00		
6.5	Procurement of materials and manufacturing of a subconstruction on the cornice made of 5/8cm wooden scantlings placed between the rafters in line with the detailed design. Wooden boards, which are a part of another item, are placed on top of scantlings. Calculation per m2.				
	TOTAL:	m2	55.06		
	CARPENTRY WORK TOTAL:				
VII INSULATION WORK					

All insulation works have to be performed by appropriate professional workers with the full implementation of relevant modern tools and machinery. All the used materials, bonding and protective agents have to be the proscribed quality, i.e. they have to possess appropriate certificates. Works have to be performed completely in line with the existing regulations, standards and technical documentation. The base has to be firm, smooth, dry and perfectly level. Binding agents must not damage the base nor the materials with which they are in direct contact. The manufactured surfaces have to take correct geometrical positions. All installations and previous works have to be performed and inspected prior to insulation works. Interruptions and continuations of work on insulation is allowed only in extraordinary cases, and when objective reasons exist. If the temperature rises above or drops below the determined levels during the performance of works, measures should be undertaken to protect basic materials and bonding agents. Protective measures will not impact the already agreed price of works. In the duration of works, i.e. before the building is delivered, the Contractor is obligated to undertake all the necessary measures to avoid damage to works. If the damage still occurs, the Contractor will provide the necessary repairs, with the approval of the Supervisor, in order for works to align with design specifications. While performing their works, the Contractor is obligated to protect all other works from damage. Calculation is performed per unit of measurement identified in every specific item. The unit price covers the manufacturing of the whole item (procurement of basic and protective materials and bonding agents, external and internal transport, manufacturing, protective measures, all vertical and horizontal transports, the necessary scaffolding, cleaning and all other activities required for high-quality performance of works). This description shall be an integral part of every individually described works item, and it does not exclude the implementation of existing construction regulations and norms related to this area.

7.1	Procurement of material and placement of horizontal hydro insulation of the floor slab to protect against underground moisture in the form of a single layer of plastomer bitumen strips with a polyester felt cartridge, similar to IZOTEM P-4. Bitumen insulation should be done over a completely clean and dry base. Use brush for sealing compound bitulite "A", on a temperature above 10 degrees. Bitumen strips should be heated with an open flame burner, and bitumen mass softened so it sticks to the base. The strips should be pasted in such a manner that they adhere to the base completely with overlaps of min.10 cm. Strips should be pasted beneath the face walls and folded 50 cm up the external side of the face wall. Calculation per m2.				
	285.21+89.74*0.3				
	TOTAL	m2	312.13		
7.2	Procurement of material and placement of horizontal hydro insulation in the elevator shaft to protect it against groundwater under pressure. Insulation should be placed in the form of two-layer hydro insulation strips with a polyester felt cartridge and plastomer bitumen similar to IZOTEKT P4, over a completely dry and clean base. Use brush for sealing compound bitulite "A", on a temperature above 10 degrees. Bitumen strips should be heated with an open flame burner, and bitumen mass softened so it sticks to the base. The strips should be pasted in such a manner that they adhere to the base completely with overlaps of min.10 cm. The second layer should be placed a half of the strip's width apart, and in accordance with producer's instructions. Calculation per m2.				
	2*(8.43*2+4.5)				

	TOTAL:	m2	42.72		
7.3	Procurement and placement of horizontal hydro insulation of the floor slab on the ground, prior to placing of bitumen insulation on the vertical ring beams entry points, in the form of two-component polymer cement coatings similar to AQUAMAT ELASTIC. The base should be meticulously cleaned from any dilapidated parts, grease and dust. Two layers of coating should be applied to the base, in accordance with producer's instructions. Coating should be painted 20 cm over the surface of vertical entry point. Calculation per m2 .				
	37*0.36				
	TOTAL:	m2	13.32		
7.4	Procurement and placement of horizontal hydro insulation of the toilet floor in the form of elastic two-component polymer cement coatings similar to AQUAMAT ELASTIC. The base should be meticulously cleaned from any dilapidated parts, grease and dust. Two layers of coating should be applied to the base, in accordance with producer's instructions. At the points where the hydro insulation is folding up the walls (which is an integral part of the item), make 30 cm covings. All covings and other critical points should be additionally reinforced by glass fleece mesh, in line with producer's instruction. Calculation per m2 .				
	20.13+47.76+47.76+50.73+54.79+12.06				
	TOTAL:	m2	233.23		
7.5	Procurement and placement of horizontal hydro insulation of balconies in the form of elastic two-component polymer cement coatings similar to AQUAMAT ELASTIC. Hydro insulation should be placed in two layers, over the inclined cement screed and over the concrete slab. The base should be meticulously cleaned from any dilapidated parts, grease and dust. Two layers of coating should be applied to the base, in accordance with producer's instructions. At the points where hydro insulation folds up the walls, covings should be placed up to the height of the door parapet. All covings and other critical points should be additionally reinforced by glass fleece mesh, in line with producer's instruction. Calculation per m2 in two layers over the AB slab and the cement screed.				
	1.2*2.2*17+4*3.76*1.2+4*3.86*1.2				

	TOTAL:	m2	81.44		
7.6	Procurement of material and placing of a PVC foil over the thermal and sound insulation, and beneath the cement screed in floors. Calculation per m2.				
	1960.52+267.10				
	TOTAL:	m2	1,960.62		
7.7	Procurement of material and placement of vapour permeable waterproof foil over the glass wool in the attic, in accordance with producer's instructions. Calculation per m2.				
	93.68+109.67+57.47+54.14+94.05+56.58				
	TOTAL:	m2	465.59		
7.8	Procurement of material and placement of a vapour check beneath the thermal insulation, and over the AB slab. Vapour check should be in the form of a bitumen strip with a aluminium foil cartridge similar to IZOTEKT Al V4 over a cold bitumen coating similar to IBITOL. Calculation per m2.				
	93.68+109.67+57.47+54.14+94.05+56.58				
	TOTAL:	m2	465.59		
7.9	Procurement of material and placement of hydro insulation over a wooden board base on the roof in the form of a hydro insulation strip with a polyester felt cartridge and elastomer bitumen. Calculation per m2 of actual roof surface.				
	103.80+122.40+115.35+106.90+63.85				
	TOTAL:	m2	512.30		
7.10	Procurement of material, manufacture and placement of a single-layer roof TPO membrane d=1.5mm over a base made of OSB slabs at balcony roofs. The price includes both membrane floor and geotextile. Calculation per m2.				
	17*(2.2*1.2+2.2*0.3)				
	TOTAL:	m2	56.10		
7.11	Procurement of material and placement of thermal insulation over the slab in the form of mineral glass wool withe d=14cm, similar to KNAUF INSULATION CLASSIC 040. Calculation per m2.				
	93.68+109.67+57.47+54.14+94.05+56.58				
	TOTAL:	m2	465.59		
7.12	Procurement of material and placement of sound insulation in the floors. Insulation is similar to *AUSTROTHERM EPS T 650* with d = 3 cm. The placed sound insulation had to possess characteristics listed in the energy efficiency document. Calculation per m².				
	TOTAL:	m2	1,693.52		
7.13	Procurement of material and placement of thermal insulation in the insulated floor panel. Thermal insulation is made out of extruded polystyrene similar to *Austoterm XPS 30,* and is placed over a reinforced concrete slab. The placed thermal insulation has to posses the thermal and mechanical characteristics identified in the energy efficiency document. Calculation per m².				
	balconies d=3cm	m2	71.66		

	Floor on the ground d = 12 cm	m2	267.10		
7.14	Procurement of material and placing the thermal insulation on building facade. Thermal insulation should be in the form of extruded polystyrene similar to *Austoterm EPS AF,* and is placed on face wall. The placed thermal insulation has to posses the thermal and mechanical characteristics identified in the energy efficiency document. Insulation blocks are additionally anchored with plastic anchors 6pcs/m2) which need to be included in the price. PVC trim strips need to be placed at all corners for the purposes of fine finishing of edges. Calculation per m².				
	Face walls d=12cm	m2	1,250.00		
	Face walls, roof walls, beams d=5cm	m2	290.00		
	ceiling jut windows d=16cm	m2	195.00		
	beneath the window sills d=1cm	m2	20.20		
7.15	Procurement and placement of expanded polystyrene panels similar to *Austoterm EPS Af* between dilatation walls d=5cm. Panels should be placed simultaneously with the building of walls, in accordance to the general design. Calculation per m2 of placed panels				
	7.78*16.12+(7.78*1.7)/2				
	TOTAL:	m2	132.02		
7.16	Procurement of material and placement of stone wool similar to KANUF FKD-S d=12cm on horizontal and vertical firestopping gaps on the facade. The horizontal gaps should be placed at interfloor ceiling level in the width of 25 cm, and vertical ones at every 20 m in the width of 50 cm. Calculation per m2.				
	4*0.25*138.60+6*0.5*11				
	TOTAL:	m2	171.60		
7.17	Procurement of material and placement of stone wool similar to KANUF FKD-S d=5cm on the internal corridor walls towards appartments, and on the walls and ceiling in the appartments. Calculation per m2.				
	- walls in corridor	m2	343.60		
	-elevator wall	m2	175.00		
	-ceiling corridor-appartments, substation-appartments	m2	85.80		
	INSULATION WORK TOTAL:				
B.	**SPECIALIST WORK**				
VIII-JOINERY					

All joinery works should be performed by appropriate professionals, with full implementation of relevant modern tools and machines. All the used materials, bonding and protective agents have to be the proscribed quality, i.e. they have to possess appropriate test certificates. The windows need to be mounted in such a manner that on the outer side they are at the same level as the previous windows. They should be anchored at a maximum distance of 70 cm. After the mounting, the space between the window frame and the wall needs to be sealed with appropriate sealing agents (polyurethane foam and similar substances) and appropriate covering trims need to be placed. Points where different materials are joined need to be protected - sealed, external and internal linings need to be placed, appropriate designed hardware for opening and closing (that allows locking) needs to be mounted. Calculation is done per measurement unit identified in every works item. The unit price covers the manufacturing and mounting of the whole item with complete glazing (procurement of basic and protective materials and bonding agents, external and internal transport, mounting, protective measures, all vertical and horizontal transports, the necessary scaffolding, sealing, hardware, protection and final painting -varnishing, as well as all other activities required for high-quality performance of works). This description shall be an integral part of every individually described works item, and it does not exclude the implementation of existing construction regulations and norms related to this area.
Prior to manufacturing of any joinery item measurements need to be inspected at the sight.
Facade joinery certificates that the Contractor is obligated to deliver are as follows:
- Window test certificate
- Air permeability test certificate in line with SRPS EN 1026 which should comply with quality standards from SRPS EN 12207, minimum 2nd class
- Water resistance test certificate in line with SRPS EN 1027 which should comply with quality standards from SRPS EN 12208, minimum 2nd class
- Sound protection test certificate (SRPS U.J6.201, 2nd class)
- Heat transfer coefficient test certificate (in line with SRPS U.J5.060 which should comply with quality standards from SRPS U.J5.600)
- Glass test certificate (SRPS B.E1.011)
- Hardware test certificate.

	VIII STOLARSKI JOINERY WORKS				
8.1	Procurement of material, manufacturing and mounting of interior double plywood door with 4 mm plywood skins on both sides, cardboard honeycomb filling and fir frame. The door wing is flat with sharp edges. Door jambs (in the width of wall) and door casing trims with mitre-cut joints are made out of medium-density fibreboards with even edges. Wing, jambs and trims are veneered with two layers of white polyurethane matte finish. White Rubber seal should be placed along the edges of the wing. The door should open around end vertical axis. Hardware should be made of anodized aluminium, three mortise hinges per wing, mortise lock with three keys similar to "agb" standard type, aluminium door handle.				
	D 81/205 cm	pcs	37.00		
	C 91/205 cm	pcs	52.00		
	A 101/205	pcs	1.00		

8.2	Procurement of material, manufacturing and mounting of interior double plywood door at the entrance to common room with 4 mm plywood skins on both sides, cardboard honeycomb filling and fir frame. The door wing is flat, with sharp edges, glazed with PAMPLEX glass. 1.3.1. Door jambs (in the width of wall) and door casing trims with mitre-cut joints are made out of medium-density fibreboards with even edges. Wing, jambs and trims are veneered with two layers of white polyurethane matte finish. Rubber seal should be placed along the edges of the wing. The door should open around end vertical axis. Hardware should be made of anodized aluminium, three mortise hinges per wing, mortise lock with three keys similar to "agb" standard type, aluminium door handle.				
	B 101/205 cm				
	TOTAL	pcs	2.00		
	TOTAL JOINERY:				
	IX PVC JOINERY				
9.1	Procurement of material, manufacturing and mounting of PVC windows. Window frame and sashes are made out of white coloured five-chambered PVC profiles similar to type Vujić s-7000, Uf=1.2w/m2k. Profiles should have metal reinforcement protected against corrosion and appropriate white coloured seals for frame and pane. Standard PVC profile (50x40.6mm) similar to type Vujić should be mounted beneath the lower window frame profile. Windows should be glazed with double low-emission ("low e") glass 4+9+4mm, filled with argon with a metal coating. A 2 cm thick white PVC window board should be mounted on the interior side. Exterior sills are a part of separate sheet metal work item. Calculation per piece.				
	single window 1 91/144cm	kom	45.00		
	double window 2 181/144cm	kom	49.00		
	single window 3 61/85cm	kom	20.00		
	single balkony door 4 91/233	kom	9.00		
	double door 5 181/233cm	kom	21.00		
	single balcony door with window 6 91+181/144-233	kom	4.00		
	TOTAL:				
	PVC JOINERY TOTAL:				

X METAL WORK					
	All metal work should be performed by appropriate professionals, with full implementation of relevant modern tools and machines.				
	All the used materials, bonding and protective agents have to be the proscribed quality, i.e. they have to possess appropriate test certificates. Before the start of item manufacturing, the Contractor is obligated to produce workshop details and deliver them to the designer for approval.				
	The works have to be done properly and in accordance with regulations, standards, technical documentation and approved workshop details. Metalwork should be made out of profiled metal, flat and profiled sheet metal in combination with other materials, as defined by the technical documentation and approved workshop details.				
	Points where different materials are joined need to be protected - sealed, external and internal linings need to be placed, appropriate designed opening and closing hardware that allows locking needs to be mounted				
	In the duration of works, i.e. before the building is delivered, the Contractor is obligated to undertake all the necessary measures to avoid damage to works. If the damage still occurs, the Contractor will provide the necessary repairs, with the approval of the Supervisor, in order for works to align with design specifications.				
	Calculation is done per measurement unit identified in every works item. The unit price covers the manufacturing and mounting of the whole item with complete glazing (procurement of basic and protective materials and bonding agents, external and internal transport, mounting, protective measures, all vertical and horizontal transports, the necessary scaffolding, sealing, hardware, protection and final painting -varnishing, as well as all other activities required for high-quality performance of works).				
	This description shall be an integral part of every individually described works item, and it does not exclude the implementation of existing construction regulations and norms.				
	NOTE: All measurements must be checked at the site.				

10.1	Procurement of material, manufacturing and mounting of a steel door made of galvanized steel sheet metal with a cardboard honeycomb filling. Doorframe is made out of galvanized Z steel profiles. Doorframe and wing are plasticized white. A ventilation grill (dimensions 8/20 cm) with protective netting should be placed in the bottom zone of the door wing. The door of boiler room with overlight, single glazed with sandblasted The door opens on its end vertical axis. Hardware: plasticized steel door latch on both sides of the door, three part adjustable wing steel hinges with ball bearings, cylinder lock. Calculation per piece.				
	Boiler room double door wih overlight 1 181/260	pcs	1.00		
	Tool room single door 2 91/205	pcs	2.00		
10.2	Procurement of material, manufacturing and mounting of double entrance door made of aluminium profiles with thermo-breaking, Uf=2,6-3,3 W/m2K, plasticized in white. The door is glazed with safety pamplex glass 3+1+3mm. The door opens on its end vertical axis. The bigger wing presents the entrance door, while the smaller one is opened if necessary. The hardware is comprised of matte finish inox steel handrail on the exterior side and Al doorknob from the interior side, interfon lock with a button on the interior side of the door, hydraulic latch and hinges. Calculation per piece.				
	1 145/245cm	pcs	2.00		
10.3	Procurement of material, manufacturing and mounting of double windscreen door made out of aluminium profiles without thermo-breaking, plasticized in white. The door is glazed with pamplex glass 3+1+3 mm. The door opens on its end vertical axis. he bigger wing presents the entrance door, while the smaller one is opened if necessary. The hardware is comprised of matte finish inox steel handrail on the exterior and interior side of the door. Calculation per piece.				
	2 145/240 cm	pcs	2.00		
10.4	Procurement of material, manufacturing and mounting of safety doors at apartment entrances where the wings are constructed out of metal profiles lined on both sides with sheet metal plate plasticized in white. Sound insulation is in the door sandwich. The door should have 1st class soundproofing Rw = 30 to 34 dB. Doorframe steel box section is lined with medium-density fibreboard on interior and exterior side. The doorstep metal profile is lined with wood. A double row of rubber sealing strips is placed on doorframe and door wing. A wide-angle peephole will be placed on the door wing. The door open on its end vertical axis. The door possesses all the necessary hardware: a safety lock with a coded cylinder, latch and three-part locksmith hinges with ball bearings. Calculation per piece.				
	4 101/205 cm	pcs	24.00		

10.5	Procurement of material, manufacturing and mounting of safety doors at apartment entrances where the wings are constructed out of metal profiles lined on both sides with sheet metal plate plasticized in white. Fire resistant filler d= 50mm is placed in the door sandwich. The door should have the fire resistance class F30. Doorframe steel box section is lined with medium-density fibreboard on interior and exterior side. The doorstep metal profile is lined with wood. A double row of rubber sealing strips will be placed on doorframe and door wing. A wide-angle peephole will be placed on the door wing. The door opens on its end vertical axis. The door possesses all the necessary hardware: a safety lock with a coded cylinder, latch and three-part locksmith hinges with ball bearings. Calculation per piece.				
	fire resistant door 5 101/205 cm	pcs	8.00		
10.6	Procurement of material, manufacturing and mounting of a skylight and windows in the common hallways, where they are made of aluminium profiles with thermo-breaking with heat conductivity Uf=2,6-3,3 W/m2K, and plasticized in white. Glazing is done with float insulated glass 4+12+4mm. These are tilt and turn skylight and windows which open on their vertical end axis. As far as hardware is concerned, the will have a aluminium plasticized latch. Calculation per piece.				
	Skylight 2 91/1075cm	pcs	1.00		
	Skylight 3 260/1075cm	pcs	1.00		
	Skylight 4 91/1369cm	pcs	1.00		
	Skylight 5 241/1369cm	pcs	1.00		
	single fixed window 6 181/144cm	pcs	1.00		
	double window (sash+fixed part) 7 241/144cm	pcs	1.00		
	double window (sash+fixed part) 8 260/144cm	pcs	1.00		
10.7	Procurement of material, manufacturing and mounting of interior staircase railing. The railing consists of a top horizontal rectangular steel seam pipe 40/100/2, bottom horizontal steel flat bar 5/40mm and vertical flat bars 5/40mm at axis distance of 12,5mm which are welded to the top and bottom horizontal bearers. The bottom horizontal flat bar should be welded to the previously mounted tiles laid on the concrete slab 80/80/2mm with a vertical flat bar 5/40mm. All steel elements need to be coated 2 times with anticorrosion coating and 2 times with the finishing paint for metal chosen by the designer. The bottom horizontal flat bar should be welded to the previously mounted tiles laid on the concrete slab 80/80/2mm with a vertical flat bar 5/40mm. Visible welds should be additionally grinded and another 2 anti-corrosion coating should be applied, as well as another 2 coatings of finishing paint. Calculation per piece.				
	staircase railing IIIa 4292/110cm	pcs	1.00		

	staircase railing IIIb 5750/110cm	pcs	1.00		
10.8	Procurement of material, manufacturing and mounting of the skylight railing on the interior side. The railing consists of a top horizontal rectangular steel seam pipe 40/100/2, bottom horizontal steel flat bar 5/40mm and vertical flat bars 5/40mm at axis distance of 12,5mm which are welded to the top and bottom horizontal bearers. Railing anchoring elements consist of: 2 tiles 80/160/2mm for the top horizontal profile with a welded box 40/100/2, and 2 tiles 80/160/2mm with horizontal flat bar 5/40mm for anchoring of horizontal flat bar, which need to be mounted before styrofoam is placed on the facade. All steel elements need to be coated 2 times with anticorrosion coating and 2 times with the finishing paint for metal chosen by the designer. Visible welds should be additionally grinded. Calculation per piece.				
	skylight railing IV 260/67cm	pcs	1.00		
	skylight railing IV' 260/93cm	pcs	3.00		
	skylight railing V 91/67cm	pcs	2.00		
	skylight railing V' 91/93cm	pcs	7.00		
	skylight railing VI 241/67cm	pcs	1.00		
	skylight railing VI' 241/93cm	pcs	4.00		
10.9	Procurement of material, manufacturing and mounting of the exterior staircase railing, as well as the railing on the pedestrian and wheelchair ramp. The railing consists of a top horizontal rectangular steel seam pipe 60/20/2, a filler of horizontal steel pipes 40/20/2mm and 13/13/2mm, and posts 40/40mm. A railing made of 2 steel bars Ø4cm should be mounted on the ramp at the height of 60 and 90cm, on posts Ø4cm, all in line with the details. The railing is anchored to the wall with steel L profiles. All steel elements need to be coated 2 times with anticorrosion coating and 2 times with the finishing paint for metal chosen by the designer. Visible welds should be additionally grinded. Calculation per piece.				
	Exterior staircase and ramp railing I 4000/90-110cm	pcs	1.00		
	Exterior staircase and ramp railing II 4000/90-110cm	pcs	1.00		

10.10.	Procurement of material, manufacturing and mounting of railings on French balconies and loggias, where they are made of perforated flat sheet metal on the steel profile subconstruction. Railing filler should be made out of plasticized, galvanized, perforated steel sheet metal 2 mm thick. Perforated sheet metal should be anchored by M8 bolts with decorative nuts to the metal shims welded to the basic construction. The railing construction consists of steel rectangular profiles 70/50/3mm anchored to the wall by steel L profiles. Joints and welds should be done perfectly, cleaned and grinded. Before the construction is mounted, it needs to be cleaned from corrosion and dust, painted with two coatings of impregnation agent and finishing paint, and after the mounting it needs to be repaired. The price includes anchors, bolts, shims, scaffolding, as well as test certification of the construction and the welds. All steel elements need to be coated 2 times with anticorrosion coating and 2 times with the finishing paint for metal chosen by the designer. Visible welds should be additionally grinded. Calculation per piece.				
	loggia railing VIII 357/120cm	pcs	4.00		
	loggia railing IX 373/120cm	pcs	4.00		
	French balconies railing X 91/90cm	pcs	2.00		
10.11	Procurement of material and manufacturing of a steel construction for covering of balconies. One balcony roof consists of four steel pillars HOP 50/70/3 carrying the roof bearer next to the building KN2 HOP 50/100/3 and the end roof bearer KN1 50/80/3. Purlins are placed between bearers at a distance of 50cm HOP 30/50/2.5 diagonally, and one purlin is placed lengthwise in the middle, all in line with the design, details and designer's instructions. Purlin should be welded to the main bearer with a 3 mm weld, and the pillar should be welded to the main bearer in the same way. The pillar should be attached to AB balcony slab by a base plate 100/100/8mm with anchors 2M12. Railing filler should be made out of plasticized, galvanized, perforated steel sheet metal 2 mm thick. Sheet metal should be connected to railing construction with M8 bolts over a steel shim 30x30x3mm welded to railing construction. Perforated sheet metal is calculated within a separate item. Joints and welds should be done perfectly, cleaned whole item with complete glazing (procurement of basic and protective materials and bonding agents, external and internal transport, mounting, protective measures, all vertical and horizontal transports, the necessary scaffolding, sealing, hardware, protection and final painting -varnishing, as well as all other activities required for high-quality pe				

		pcs	17.00		
10.12	Procurement of material, manufacturing and mounting of a single steel attic door with the wing (cover) made of plasticized steel sheet metal, and hardware of steel square seem pipes. Door frame is made out of steel seam pipes with rectangular cross-section 40x100mm. A steel pipe handle for opening should be mounted on the cover. Door frame, cover and the handle should be plasticized in the colour chosen by the designer. hardware consists out of two metal door hinges and a safety lock with a coded cylinder. Aperture for the door should be 70x70cm large. Calculation per piece.				
	attic door 3 70/70	pcs	2.00		
10.13	Procurement of material and mounting of rain shutters on the façade which are made out of anodized aluminium with wide thin plates and wire protection against insects (dimesnions:250/250mm). Calculation per piece.				
		pcs	13.00		
	METALWORK TOTAL:				
XI FLOORING WORK					
	All flooring works should be performed by appropriate professionals, with full implementation of relevant modern tools and machines.				
	All the used materials, bonding and protective agents have to be the proscribed quality, i.e. they have to possess appropriate test certificates. Works have to be performed in a high-quality manner and in line with the existing regulations, standards and technical documentation.				
	The base has to be firm, and completely flat. Compounds must not damage the base nor the materials that are being placed. The constructed surfaces must take regular geometrical positions.				
	During the works, insulation strips will be placed where necessary. All installations that are on the floor have to be inspected prior to flooring. Any deviations from the aspect of colour and shade are not allowed.				
	If the temperature rises above or drops below the determined levels during the performance of works, measures should be undertaken to protect basic materials and bonding agents. These measures should last as long as the need for them exists. Protective measures will not impact the already agreed price of works.				
	In the duration of works, i.e. before the building is delivered, the Contractor is obligated to undertake all the necessary measures to avoid damage to works. If the damage still occurs, the Contractor will provide the necessary repairs, with the approval of the Supervisor, in order for works to align with design specifications.				

	During the performance of their works, the Contractor is obligated to protect all other types of works against damage.				

	Calculation is done per measurement unit identified in every works item. The unit price covers the manufacturing and mounting of the whole item with complete glazing (procurement of basic and protective materials and bonding agents, external and internal transport, manufacturing, polishing, protective measures, all vertical and horizontal transports, the necessary scaffolding, placing of insulation strips, mounting of plinth coving strips, cleaning and other activities required for high-quality performance of these works). This description shall be an integral part of every individually described works item, and it does not exclude the implementation of existing construction regulations and norms.				
11.1	Procurement of material and laying of 8 mm thick laminate floor covering chosen by the designer. Laminated floor covering is laid as a floating floor. Strong, durable, high-pressure laminate must be used, as well as a high density plate bearer, HDF, and edges need to be impregnated. Floor covering must be carried inside, unpacked and left for 24 hours to adjust to room temperature. Felt should be placed over the prepared base. Expansion joints (10 mm wide) should be placed next to walls. The floor covering should be carefully laid and put together, with completely closed joints. The price includes the mounting of finished decorative oak coving strips at the floor and wall joints, which have been previously varnished and smoothened. Quoins need to be mitre-cut. Place coving strips next to walls and attach them to those walls at every 80 cm. Calculation per m3.				
	84.86+314.61+314.61+278.15+289.68+42.34				
	TOTAL	m2	1,450.00		
	FLOORING WORKS TOTAL:				

XII TILING WORK

All tiling work should be performed by appropriate professionals, with full implementation of relevant modern tools and machines. All the used materials, bonding and protective agents have to be the proscribed quality, i.e. they have to possess appropriate test certificates. Works have to be performed in a high-quality manner and in line with the existing regulations, standards and technical documentation. Class, purpose and quality of tiles are determined by technical documentation. The colour and manner of tiling are chosen by the designer. All non-visible installations have to be laid and inspected before the tiling. In order to fix tiles with an adhesive, the base surface has to be clean, firm and level, with sharp, even edges. The tiled surfaces must have regular geometrical shapes. During the work place insulation strips if necessary. If the temperature rises above or drops below the determined levels during the performance of works, measures should be undertaken to protect basic materials and bonding agents. Protective measures will not impact the already agreed price of works. In the duration of works, i.e. before the building is delivered, the Contractor is obligated to undertake all the necessary measures to avoid damage to works. If the damage still occurs, the Contractor will provide the necessary repairs, with the approval of the Supervisor, in order for works to align with design specifications. While performing their works, the Contractor is obligated to protect all other works from damage. Calculation is performed per unit of measurement identified in every specific item. The unit price covers the manufacturing of the whole item (procurement of basic and protective materials and bonding agents, external and internal transport, manufacturing, protective measures, all vertical and horizontal transports, the necessary scaffolding, placing of insulation strips, cleaning and all other activities required for high-quality performance of works). This description shall be an

integral part of every individually described works item, and it does not exclude the implementation of existing construction regulations and norms related to this area.

12.1	Procurement of material and laying of ceramic tiles which should be glued to the walls. The base surface has to be clean, firm, level, with sharp, even edges. Ceramic I class tiles should glued to the wall with closed joints. If necessary, tile edges should be manually smoothened. The tiled surfaces have to be flat and vertical. Angle joints should be mitre-cut. The placed tiles should be pinted in an appropriate shade chosen by the designer. The price includes the required work and material, as well all unnecessarily damaged tiles which shall be charged to the Contractor on the basis of Supervisor's log. The full height of walls should be tiled, except in the case of kitchen where the tiles will be fixed up to the level of 150 cm. Calculation per m2 of placed tiles.				
	bathrooms	m2	663.30		
	kitchens	m2	174.68		
	TOTAL:	m2	837.98		
12.2	Procurement of material and laying of ceramic tiles which should be glued to the floors. I class tiles shall be fixed using tile adhesive, in style chosen by the designer. The base surface shall previously be prepared and the laying of the tiles performed straight. The placed tiles should be pinted in an appropriate shade chosen by the designer. The price includes the required work and material, as well all unnecessarily damaged tiles which shall be charged to the Contractor on the basis of Supervisor's log. Calculation per m2 of placed tiles.				
	bathrooms				
	kitchens				
	TOTAL:	m2	255.00		

12.3	Procurement of materials and laying of floor granite ceramics fixed with glue in the common room and common communications. The placed tiles should be pinted in an appropriate shade chosen by the designer. Skirting (which is included in the price) should be place at the height of 10 cm. The price includes the required work and material, as well all unnecessarily damaged tiles which shall be charged to the Contractor on the basis of Supervisor's log. Calculation per m2 of placed tiles.				
	113.27+43.4*2+48.61+54.09+22.09				
	60x30cm:7*0.91*0.50+7*2.60*0.50				
	TOTAL:	m2	435.00		
12.4	Laying of exterior anti-slip granite tiles fixed with glue. I class tiles shall be fixed using tile adhesive, in style chosen by the designer. The base surface shall previously be prepared and the laying of the tiles performed straight. The placed tiles should be pinted in an appropriate shade chosen by the designer. Skirting (which is included in the price) should be place at the height of 10 cm. The price includes the required work and material, as well all unnecessarily damaged tiles which shall be charged to the Contractor on the basis of Supervisor's log. Calculation per m2 of placed tiles.				
	Incoming plateau 8.25*1.1				
	Balcony 71.66				
	TOTAL:	m2	88.00		
12.5	Procurement of material and laying of anti-slip granite floor tiles in the cement mortar d= 2 cm on the interior staircase. I class tiles shall be fixed using tile adhesive, in style chosen by the designer. The base surface shall previously be prepared and the laying of the tiles performed straight. The placed tiles should be pinted in an appropriate shade chosen by the designer. Aluminium coving strips should be placed at edges of stair treads. The price includes the required work and material, as well all unnecessarily damaged tiles which shall be charged to the Contractor on the basis of Supervisor's log. Calculation per m2 of tiled staircase surface.				
	9*16*1.3*(0.16+0.28)*1.1	m2	90.60		
	TOTAL:				
12.6	Laying of exterior anti-slip granite floor tiles frost resistant in the cement mortar d= 2 cm on the exterior staircase, ramp and heating substation floor. I class tiles shall be fixed using tile adhesive, in style chosen by the designer. The base surface shall previously be prepared and the laying of the tiles performed straight. The placed tiles should be pinted in an appropriate shade chosen by the designer. The price includes the required work and material, as well all unnecessarily damaged tiles which shall be charged to the Contractor on the basis of Supervisor's log. Calculation per m2 of tiled staircase surface.				
		m2	85.00		

	TILING WORK TOTAL:				

XIII PLASTER BOARDS WORK

All dry installation work should be performed by appropriate professionals, with full implementation of relevant modern tools and machines. All the used materials, bonding and protective agents have to be the proscribed quality, i.e. they have to possess appropriate test certificates. Works have to be performed in a high-quality manner and in line with the existing regulations, standards and technical documentation. The suspended ceiling should be mounted in a manner and direction that is in line with the description and details of the general plan, with mandatory approval by the designer. The celling and coving strip samples have to be delivered to the designer in order to receive their approval. In the duration of works, i.e. before the building is delivered, the Contractor is obligated to undertake all the necessary measures to avoid damage to works. If the damage still occurs, the Contractor will provide the necessary repairs, with the approval of the Supervisor, in order for works to align with design specifications. Calculation is performed per unit of measurement identified in every specific item. The unit price covers the manufacturing and mounting of the whole item (procurement of basic and protective materials and bonding agents, external and internal transport, mounting , protective measures, all vertical and horizontal transports, the necessary scaffolding, and all other activities required for high-quality performance of works). Calculation is performed per unit of measurement identified in every specific item. The unit price covers the manufacturing of the whole item (procurement of basic and protective materials and bonding agents, external and internal transport, manufacturing, grinding, all vertical and horizontal transports, the necessary scaffolding, placing of insulation strips, mounting of plinth coving strips, cleaning, and all other activities required for high-quality performance of works). This description shall be an integral part of every individually described works item, and it does not exclude the implementation of existing construction regulations and norms related to this area.

13.1	Procurement of material and one-sided lining of sewer pipes with moisture-resistant plaster boards similar to type “Rigips”. Lining construction UW and CW profiles 50mm, and the lining of single moisture-resistant plaster board d= 12.5 mm. The space between sewer pipes and the construction should be filled with mineral wool d= 5 cm. Calculation per m2 of lining.				
	TOTAL	m2	10.00		
13.2	Procurement of material and manufacturing of a suspended ceiling in thesome of the bathrooms and kitchens (installation covering) out of plaster boards similar to type “Rigips”. Lining construction UW and CW profiles 50mm, and the lining of single moisture-resistant plaster board d=12.5 mm. Calculation per m2 of lining.				
	Kupatila + kuhinje 80+7				
	TOTAL	m2	87.00		
13.3	Procurement of material and manufacturing of a suspended ceiling in the hallways out of plaster boards similar to type “Rigips”. Lining construction UW and CW profiles 50mm, and the lining of single moisture-resistant plaster board d=12.5 mm. Calculation per m2 of lining.				
	TOTAL	m2	26.00		
13.4	Procurement of material and manufacturing of a suspended ceiling at balconies roofs out of plaster boards similar to type “Rigips”. Lining construction UW and CW profiles 50mm, and the lining of single moisture-resistant plaster board d=12.5 mm. Calculation per m2 of lining.				
	2.42*17				

	TOTAL	m2	41.14		
13.5	Procurement of materials and doublesided leaning of the installation blocks - plumbing, heating and power supply out of plaster boards similar to type “Rigips”. Lining construction UW and CW profiles 50mm, and the lining of single moisture-resistant plaster board d=12.5 mm. Calculation per m2 of lining.				
	TOTAL	m2	87.00		
	PLASTER BOARD WORK TOTAL:				

XIV PAINT WORK

All paint works should be performed by appropriate professional workers, with full implementation of relevant modern tools and machines. Works have to be performed in a high-quality manner and in line with the existing regulations, standards and technical documentation. The base has to be firm, and completely flat. Before receiving the final coating, the base surface has to be prepared in line with the existing regulations and instructions by the material producer. Covering coatings must completely cover the base surface. In case of surfaces where the base is not specifically prepared, smaller uneven spots need to be filled. Applied materials need to adhere well, to be resistant and harmless to human health. They also shouldn't react violently with elements they come in contact with and edges of treated surfaces that come into contact with other elements need to be sharp. Any deviations in colour or shade are not allowed. If the temperature rises above or drops below the determined levels during the performance of works, measures should be undertaken to protect basic materials and bonding agents. Protective measures will not impact the already agreed price of works. In the duration of works, i.e. before the building is delivered, the Contractor is obligated to undertake all the necessary measures to avoid damage to works. If the damage still occurs, the Contractor will provide the necessary repairs, with the approval of the Supervisor, in order for works to align with design specifications. While performing their works, the Contractor is obligated to protect all other works from damage. Calculation is performed per unit of measurement identified in every specific item. The unit price covers the manufacturing of the whole item (procurement of basic and protective materials and bonding agents, skimming and impregnation materials, external and internal transport, manufacturing, sanding protective measures, all vertical and horizontal transports, the necessary scaffolding, cleaning, and all other activities required for high-quality performance of works). This description shall be an integral part of every individually described works item, and it does not exclude the implementation of existing construction regulations and norms related to this area.

14.1	Procurement of material and skimming of finely plastered walls and plasterboard walls with dispersive putty. Surfaces need to be sanded, cleaned and neutralized. They need to be inspected for fractures and smaller imperfections which should then be filled with putty. They need to be impregnated and coated three times with emulsion putty. Calculation per m2 of skimmed wall surface.				
	TOTAL	m2	4,425.00		
14.2	Procurement of material and skimming of ceiling with dispersive putty. Surfaces need to be grinded, cleaned and neutralized. They need to be inspected for fractures and smaller imperfections which should be then filled with putty. They need to be impregnated and coated three times with emulsion putty. Calculation per m2 of skimmed ceiling surface.				
	Ground floor and upper floors		2,129.94		
	bottom view of star flights		64.00		
	lateral sides of the stairways 2*0,72*2		10.80		
	TOTAL	m2	2,204.74		

14.3	Procurement of material and painting of skimmed walls with semi-dispersive paints chosen by the designer. Walls need to be prepainted and corrected with toned emulsion putty, and then painted twice with a dispersive paint in the shade chosen by the designer. Calculation per m2 of painted surface.				
	TOTAL	m2	4,425.00		
14.4	Procurement of material and painting of skimmed ceilings with semi-dispersive paints chosen by the designer. Ceilings need to be prepainted and corrected with toned emulsion putty, and then painted twice with a dispersive paint in the shade chosen by the designer. Calculation per m2 of painted surface.				
	TOTAL	m2	4,425.00		
	PAINT WORK TOTAL:				

XV FAÇADE WORK

All facade works should be performed by appropriate professionals, with full implementation of relevant modern tools and machines. All the used materials, bonding and protective agents have to be the proscribed quality, i.e. they have to possess appropriate test certificates. Works have to be performed in a high-quality manner and in line with the existing regulations, standards and technical documentation. The base has to be firm, and completely flat. Before receiving the final coating, the base surface has to be prepared in line with the existing regulations and instructions by the material producer. Covering coatings must completely cover the base surface. in case of surfaces where the base is not specifically prepared, smaller uneven spots need to be filled. Applied materials need to adhere well, to be resistant and harmless to human health. They also shouldn't react violently with elements they come in contact with and edges of treated surfaces that come into contact with other elements need to be sharp. If the temperature rises above or drops below the determined levels during the performance of works, measures should be undertaken to protect basic materials and bonding agents. Protective measures will not impact the already agreed price of works. In the duration of works, i.e. before the building is delivered, the Contractor is obligated to undertake all the necessary measures to avoid damage to works. If the damage still occurs, the Contractor will provide the necessary repairs, with the approval of the Supervisor, in order for works to align with design specifications. While performing their works, the Contractor is obligated to protect all other works from damage. Calculation is performed per unit of measurement identified in every specific item. The unit price covers the manufacturing of the whole item (procurement of basic and protective materials and bonding agents, skimming and impregnation materials, external and internal transport, manufacturing, sanding, protective measures, all vertical and horizontal transports, the necessary scaffolding, cleaning, and all other activities required for high-quality performance of works). All facade offsets are covered in individual item and are not calculated separately. When making pipe scaffolding , the calculation should cover all auxiliary works, as walls transport to 40m' horizontally and 20m' vertically. This description shall be an integral part of every individually described works item, and it does not exclude the implementation of existing construction regulations and norms related to this area.

15.1	Procurement of material and painting of the facade and all the ventilation shafts and chimneys above the roof level with decorative two-component mineral facade mortar similar to type "Bavalit“. It is first necessary to coat the styrofoam with layer of glue and glass netting that are included in the item price. The base surface needs to be flat, clean and dry. Calculation per m2.				
	vertical façade planes colour 1	m2	815.00		
	vertical façade planes colour 2	m2	635.00		
	ventilation shafts and chimney	m2	47 40		
	horizontal planes	m2	220.00		
	TOTAL		1,670.00		
15.2	Painting of plinth with coloured exposed aggregate concrete (colour will be chosen by the designer). Calculation per m2 of the painted surface.				
	TOTAL	m2	45.50		
	FAÇADE WORK TOTAL:				

XVI SHEET METAL WORK

All sheet metal works should be performed by appropriate professionals, with full implementation of relevant modern tools and machines. All the used materials, bonding and protective agents have to be the proscribed quality, i.e. they have to possess appropriate test certificates. Sheet metal works have to be performed perfectly in line with the technical documentation and approved details, with mandatory implementation of modern methods for joining/splicing. Thermal insulation in the sheet metal sandwich panel needs to have an adequate distancer appropriate for sandwich's purpose. Sheet metal has to be protected (galvanized plasticized, painted) as it is required by technical documentation. The sides and surfaces of completed works have to maintain regular geometrical shapes. All performed sheet metal works must completely serve their designated purpose. In places where sheet metal comes in direct contact with different materials (concrete, brick, etc.), it has to be protected by coatings, paper coverings etc. Sheet metal bearers which are in direct contact with sheet metal have to be made out of same kind of material. In the duration of works, i.e. before the building is delivered, the Contractor is obligated to undertake all the necessary measures to avoid damage to works. If the damage still occurs, the Contractor will provide the necessary repairs, with the approval of the Supervisor, in order for works to align with design specifications. Calculation is performed per unit of measurement identified in every specific item. The unit price covers the manufacturing of the whole item (procurement of basic and protective materials and bonding agents, skimming and impregnation materials, external and internal transport, manufacturing and mounting, protective measures, all vertical and horizontal transports, the necessary scaffolding, protection at the joints with other materials, thermal insulation in sandwich panels, and all other activities required for high-quality performance of works). This description shall be an integral part of every individually described works item, and it does not exclude the implementation of existing construction regulations and norms related to this area.

16.1	Procurement of material and covering of roof surfaces with galvanized steel plasticized sheet metal, thickness 0.60 mm. Covering should be performed by strip flanging, where the strips are connected with interlocked double standing clincks in the floor inclination axis, and with double laying clinck in the horizontal axis, half staggered. Covering should be performed in line with the design, details and designer's instructions.				
	103.77+121.16+59.17+56.18+102.57+63.85+4.34				
	TOTAL	m2	511.07		
16.2	Procurement, manufacture and mounting of circular, vertical spout pipes made out of galvanized steel plasticized sheet metal, cross section Ø 14 cm, thickness d=0,6 mm. Vertical gutter ends with an elbow that allows for rainwater to flow to the outside terrain. All bonding agents have to be typical, and be selected form the producer's catalogue. Plasticization in the shade chosen by the designer. Calculation per m2.				
	-Ew=40 cm, vertical gutters				
	6*14.55+2*15.85				
	TOTAL	m1	119.00		
16.3	Procurement, manufacture and mounting of a semi-circular, suspended, horizontal gutter made out of galvanized steel plasticized sheet metal, extended width 400mm, thickness d=0,6 mm. All bonding agents have to be typical, selected from the producer's catalogue. Plasticization in the shade chosen by the designer. Suspended gutter clamps made of galvanized flat iron bar 25x5 mm Ew 400mm shall be delivered with the gutters. Calculation per m¹ of mounted vertical gutters.				
	-Ew=400 mm, horizontal gutters				
	9.04+15.14+10.51+8.78+1.24+1.24+10.89+1.08+1.18				
	TOTAL	m1	59.10		

16.4	Procurement of material and mounting of flat sheet metal plate on the roof, where the plate is made of galvanized steel plasticized steel sheet metal d=0,6 mm, e.w.25cm. Sheet metal is placed under the gutter. Calculation per m1.				
	-Ew=25 cm, flat sheet metal				
	9.04+15.14+10.51+8.78+1.24+1.24+10.89+1.08+1.18				
	TOTAL	m1	59.10		
16.5	Procurement, manufacture and flashing of chimneys and ventilation shafts with galvanized steel plasticized sheet metal, extended width 50 cm, thickness 0,6 mm. Sheet metal needs to be placed on chimney walls up to the height of at least 20 cm, completely in line with the details. Joints must be made by soldering or by making rabbet joints, and they should be additionally treated with elastic hydro insulation mixture. Calculation per m1.				
	-Ew=50 cm, flashing of chimneys				
	2*3.52+2*2.4+5.09+3.81		20.74		
	-Ew=50 cm, flashing of ventilation shafts				
	7*2.28+4*1.96+2.88		26.68		
	TOTAL	m1	47.42		
16.6	Procurement, manufacture and mounting of a drip cap made of galvanized plasticized steel sheet metal e.w.=50 cm, thickness d=0,6 mm at balconies edges. Sheet metal should be plasticized in the colour chosen by the designer. Calculation per m1.				
	-Rš= 50 cm, drip cap at balconies edges				
	17*(2.2+2*1.1)+4*3.86+4*3.76				
	TOTAL	m1	105.28		
16.7	Procurement, manufacture and mounting of a drip cap made of galvanized plasticized steel sheet metal on the roof of the balconies. Ew=50 cm, thickness d=0,6 mm. Sheet metal should be plasticized in the colour chosen by the designer. Calculation per m1.				
	-Rš= 25 cm,drip cap roof of the balcony				
	17*(2.2+2*1.1)				
	TOTAL	m1	74.80		
16.8	Procurement, manufacture and mounting of a drip cap made of galvanized plasticized steel sheet metal on the facade, connection with balcony roof with facade wall, Ew = 25 cm, thickness 0,6 mm. Sheet metal should be plasticized in the colour chosen by the designer. Calculation per m1.				
	-Ew= 25 cm, facade drip cap				
	17*2.5				
	TOTAL	m1	42.50		
16.9	Procurement, manufacture and mounting of a drip cap made of galvanized plasticized steel sheet metal Ew=100 cm, thickness d=0,6 mm, on the parapet on the place of dilatation. Dripline leave for 3 cm. Flashing should be done in line with details and designer's instructions.Beneth the metal sheet set the insulation strip which is included in the price. Sheet metal should be plasticized in the colour chosen by the designer. Calculation per m1.				
	-Ew= 100 cm, parapet				

	1*7.54				
	TOTAL	m1	7.54		
16.10	Procurement, manufacture and mounting of a drip cap made of galvanized plasticized steel sheet metal Ew=50 cm, thickness d=0,6 mm, on the parapet on the place of dilatation. Dripline leave for 3 cm. Flashing should be done in line with details and designer's instructions.Beneth the metal sheet set the insulation strip which is included in the price. Sheet metal should be plasticized in the colour chosen by the designer. Calculation per m1.				
	-Ew= 50 cm, parapet				
	16.23+2.79				
	TOTAL	m1	19.02		
16.11	Procurement of material, manufacture and flashing of sill with plasticized galvanized sheet metal d=0,60mm extended width 25cm. Price includes all required preparatory works and material, fixing the sheet metal to the sub window profile with screws, gluing with polyurethane glue, and manufacture of the drip cap. Sill should be mounted in inclination from the window with the drip cap 2 cm from the facade level, precisely in line with the detailed design. Calculation per m'.				
	-Ew= 25 cm, sill				
	0.95*45+1.85*49+0.65*20+2.65+0.95+0.95+2.45+3.7+2.45+2.65+7.4				
	TOTAL	m1	169.60		
16.12	Procurement, manufacture and mounting of a drip cap made of galvanized plasticized steel sheet metal el=50 cm, thickness d=0,6 mm, on the cornice and on the top of gable walls. Flashing should be done in line with details and designer's instructions. Sheet metal should be plasticized in the colour chosen by the designer. Calculation per m1.				
	-Rš= 50 cm, drip cap on the cornice				
	21.35+33.75+30.65+15.85				
	TOTAL	m1	101.60		
16.13	Procurement, manufacture and mounting of a drip cap made of galvanized plasticized steel sheet metal Ew=25 cm beneath the styrofoam on gable thickness d=0,6 mm. Flashing should be done in line with details and designer's instructions. Calculation per m2.				
	-Ew= 25 cm, drip cap on gables				
	10.54+2.78+23.33+22.35+7.33				
	TOTAL	m1	66.33		
16.14	Procurement, manufacture and mounting of a drip cap made of galvanized plasticized steel sheet metal Ew=33 cm on the argin ramp wall, thickness d=0,6 mm. Flashing should be done in line with details and designer's instructions. Sheet metal should be plasticized in the colour chosen by the designer. Calculation per m1.				
	-Rš= 33 cm, okapnica nazidovima rampe				
	2*10.20				
	TOTAL	m1	20.40		

16.15	Procurement of material and manufacture of pipe snow guards made of galvanized, plasticized steel bars in two rows which are mounted with the help of galvanized plasticized steel flat bars on the standing roof covering rabbet. Snow guards should be mounted in two alternating rows. Calculation per m1.				
	11*3.15+3*2.15+2*1.2				
	TOTAL	m1	43.50		
	SHEET METAL WORK TOTAL:				
XVII MISCELLANEOUS WORK					
17.1	Procurement and installation of dry fire extinguishers class S-9. One extinguisher should be placed in every hallway on both floors and in the common storeroom at the ground floor. Calculation per piece.				
	TOTAL	pcs	13.00		
17.2.	During the works, the construction site should be several times roughly cleaned from detritus which should then be transported to the site landfill. This is paid once, regardless of the number of cleanings. Calculation per m2 of the construction site.				
	TOTAL	m2	1,159.00		
17.3.	Final cleaning of the building before the technical acceptance: cleaning of floors, ceramic wall tiles, sanitary equipment, windows, doors and all corridors and common rooms. Calculation per m2 of gross building surface.				
	TOTAL	m2	2468.69		
17.4.	Procurement and installation of benchmarks for monitoring of building settlement.				
	TOTAL	pcs	6.00		
17.5.	Procurement and installation of post boxes on wind shield. Calculation per piece.				
	TOTAL	pcs	32.00		
17.6.	Procurement and mounting of a steel grating used for shoe cleaning in front of the building entrance. Grating dimensions 90/60cm. Calculation per piece.				
	TOTAL	pcs	2.00		
	MISCELLANEOUS WORK TOTAL:				

RECAPITULATION OF CONSTRUCTION AND SPECIALIST WORK					
A.	**CONSTRUCTION WORK**				
I	**PREPARATORY WORK**				
II	**EARTHWORK**				
III	**CONCRETE AND REINFORCED CONCRETE WORK**				
IV	**REINFORCEMENT WORK**				
V	**BRICKLAYING WORK**				
VI	**CARPENTRY WORK**				
VII	**INSULATION WORK**				
	CONSTRUCTION WORK TOTAL:				
B.	**SPECIALIST WORK**				
VIII	**JOINERY**				
IX	**PVC JOINERY**				
X	**METAL WORK**				
XI	**FLOORING WORK**				
XII	**TILING WORK**				
XIII	**PLASTER BOARD WORK**				
XIV	**PAINT WORK**				
XV	**FAÇADE WORK**				
XVI	**SHEET METAL WORK**				
XVII	**MISCELLANEOUS WORK**				
	SPECIALIST WORK TOTAL:				
	CONSTRUCTION AND SPECIALIST WORK TOTAL:				

PRICED BILL OF QUANTITIES

for traffic routes, pavements and parking lots
for the social housing building - Obrenovac

Item No.	Type of works	UoM	No. of Units	Unit Price	Total RSD
	1. Preparatory works				
1.1.	Geodetic marking and route improvement.	m²	1,100.00		
1.2.	Clearing the terrain including removing grass and weeds and transport to town landfill - lumpsum.	m²	1,000.00		
1.3.	Manual excavation of soil to determine the exact position of the underground installation including loading it and transporting to a landfill.	m³	5.00		
1.4.	Positioning cable ducts for future installations PVC Ø200mm in a layer of sand, the price shall include excavation and backfilling - lumpsum.	m'	20.00		
				Total 1:	
	2. Substructure				
2.1.	Mechanically excavate III and IV category soil with a trencher 80% and manually 20% including loading and transport to landfill. The landfill shall be provided by the Contractor.	m³	330.00		
2.2.	Sublevel (Ms=20MPa or 100% according to standard Proctor)	m²	450.00		
	Make a fill of sand and gravel, Ms=40MPa.	m³	135.00		
2.3.	Subgrade (Ms=40MPa or 100% according to Proctor experiment)	m²	1,100.00		
2.3.	Change the subgrade using broken stone 60-100mm, d=30cm, Ms=40MPa. The price shall include all excavation, testing, transport and installation - lumpsum.	m³	20.00		
2.4.	Mechanical distribution of excavated material (soil) on landfill, no rolling, increased by kr=1.275.	m³	420.75		
				Total 2:	
	3. Superstructure				
3.1.	Mechanical installation of buffer layer using crushed stone aggregate 0-63mm; d=25cm including purchase and transport, Ms=50MPa	m³	175.50		
3.2.	Mechanical installation of buffer layer using crushed stone aggregate 0-31.5mm; d=15cm with purchase and transport, Ms=70MPa	m³	105.30		
3.3.	Manual installation of buffer layer using crushed stone aggregate 0-63mm; d=20cm, with purchase and transport, Ms=50MPa on the parking areas and the pavement.	m³	72.00		
3.4.	Manual installation of buffer layer using crushed stone aggregate 0-31.5mm; d=10cm, with purchase and transport, Ms=70MPa on the pavement and the parking areas.	m³	36.00		
3.5.	Purchase, transport and install grey concrete kerbs on concrete base MB20.				
a.	- 8/20 to separate parking spaces	m'	32.50		
b.	- 18/12.	m'	81.00		
b.	- mountable 12/18.	m'	40.00		
3.6.	Purchase, transport and install behaton pavers with quartz finishing layer, compressive strength 40 MPa. The price shall include planning and levelling sand (2-4 mm fraction) in compacted state, d=5 cm.				
a.	- d=6.0cm, on pedestrian walks, red	m²	6.50		
b.	- d=8.0cm, on parking lots, green.	m²	337.00		
				Total 3:	
	4. Asphalt and concrete works				
4.1.	Make and mechanically install asphalt layers including transport of asphalt and aggregate.				
a.	Upper loadbearing layer BNHS16 d=6.0 cm	m²	345.00		
b.	Asphalt concrete made with limestone aggregate AB11 d=4.0 cm	m²	345.00		
4.2.	Make AB wall with L profile and foundation. The price shall include: excavation and transport of material, installation of clean layer d=10 cm, reinforcement and formwork. All purchases and transport. MB 30, GA 240/360 - 32.0kg/m of the wall	m³	10.00		
				Total 4:	

Item No.	Type of works	UoM	No. of Units	Unit Price	Total RSD
	5. Landscaping				
5.1.	Purchase seeds and plant strengthened lawn including all agro-technical operations, entirely in accordance with the general description.	m²	22.50		
5.2.	Purchase, transport and install humus soil for grassy surfaces in a layer d=10-15 cm. The price shall include: filling in smaller depressions, rough levelling and fine levelling of the soil +/-2cm. The backfilled soil shall be levelled providing superelevation for the temporary volume increase coefficient of 20%.	m³	3.50		
5.3.	Mark driveways for parking spaces for persons with disabilities in yellow. The price shall include all preparations, purchase, transport and installation.	m²	6.75		
				Total 5:	

Summary:

1. Preparatory works----------	
2. Substructure ----------	
3. Superstructure----------	
4. Asphalt and concrete works----------	
5. Landscaping and equipment----------	
Total RSD without VAT:	

In Valjevo, August 2015

Responsible Designer
Svetozar Klajić, Civil Engineer

I - WATER SUPPLY SYSTEM CONNECTION

A. CONSTRUCTION WORKS

1. Channel excavation:
   Excavate a channel in III category soil for the water supply and sewer installation up to 2.0 m deep.

Machine excavation	m^3	93.20	x	=
Manual excavation	m^3	4.80	x	=

2. Asphalt works:
   Perform two-sided asphalt driveway, plateau and pavement cutting, breaking, loading and transporting the material to the provided landfill. After setting the installations and backfilling, install driveway bedding using a layer of broken stone d=20 cm thick, with the necessary compacting in accordance with SRPS. In the end pour asphalt on the driveway, using BNS 22 C or BNS 32 C

	m^2	13.00	x	=

3. Sand:
   Purchase and pour sand in the channel around the pipe in a 10-cm layer.

	m^3	4.80	x	=

4. Channel backfilling:
   Backfill the channel using gravel or grit in layers of 30 cm each with compacting.

	m^3	74.40	x	=

5. Transport of excess soil:
   Transport excess soil to a landfill, including loading onto the vehicle, unloading and rough levelling.

	m^3	98.00	x	=

6. Buffer layer:
   Purchase, transport, spread and compact natural granulation gravel or grit in a 10-cm layer in stable condition under the manhole slab.

	m^3	1.80	x	=

7. Concreting the bottom manhole slabs:
   Concrete the bottom manhole slabs entirely in accordance with the design. The slab shall be AB MB 30, V4, 20 and 30 cm thick.

	m^3	3.62	x	=

8. Concreting manhole walls:
   Concrete manhole walls in double formwork entirely in accordance with the design. The wall shall be AB MB 30, V4 25-cm thick.

	m^3	3.90	x	=

9. Concreting the top manhole slab:
Concrete the top manhole slab in formwork entirely in accordance with the design. The slab shall be AB MB 30, V4 25 and 20-cm thick. The price shall include the necessary formwork and reinforcement shall be calculated separately.

	m^3	3.20	x	=

10. Building manhole walls:
Build the manhole walls using concrete blocks in cement mortar. Form vertical ring beams on the corners entirely in accordance with the design. The wall shall be 20-cm thick.

	m^3	2.20	x	=

11. Reinforcement:
Purchase, cut, bend and build in reinforcement entirely in accordance with the specification and assembly plans.

MAG 50/56	kg	355.00	x	=
GA 24/36	kg	52.00	x	=
RA 40/50	kg	315.00	x	=

12. Concrete bolster:
Make concrete bolster for pipe PEHD Ø 630 mm, entirely in accordance with the project. The bolster shall be made of non-reinforced compacted concrete V = 0.25 m3 in formwork.

	pcs	1.00	x	=

13. LG covers for water meter manhole:
Purchase and install LG covers with light opening frame of 630 mm, for load class D400.

	pcs	2.00	x	=

TOTAL A.

B. WATER SUPPLY SYSTEM

1. Dismounting of the existing water supply connection:
Carefully excavate and dismount the existing water supply connection Ø1" to the pipe AC DN 80 according to the conditions and with supervision of the competent PUC. Also demolish the existing water meter manhole, which is covered and out of operation.

lumpsum calculation	lump	1.00	x	=

2. Water supply connection:
Purchase and install the complete material for the water supply connection to the pipe PEHD Ø 630 mm with all the necessary connecting material and fittings.

Electrofusion fittings:

saddle Ø 630 / 90 mm	pcs	1.00	x	=
branch Ø 90 mm / 90°	pcs	1.00	x	=
transition fitting with flange Ø90/80	pcs	3.00	x	=

	oval valve Ø 80	pcs	1.00	x	=
	valve mount UNP 80.45.6	m^1	1.50	x	=

3. PE pipes:
Purchase and install PE water pipes with all the necessary connecting material and fittings.

Ø 90 mm (3")	m^1	20.00	x	=

4. Water meter:
Purchase and install water meter with gate valve and discharge gate valve and with all the necessary connecting material and fittings.

DN 50 mm	pcs	1.00	x	=
DN 40 mm	pcs	2.00	x	=

5. Magnet shutoff valve:
Purchase and install safety shutoff valve with magnetic key and all the necessary connecting material and fittings.

DN 50 mm	pcs	1.00	x	=
DN 40 mm	pcs	2.00	x	=

6. Shutoff valve:
Purchase and install shutoff valve with ring and all the necessary connecting material and fittings.

DN 50 mm	pcs	1.00	x	=
DN 40 mm	pcs	2.00	x	=

7. Dirt trap:
Purchase and install dirt trap for water supply installation with all the necessary connecting material and fittings.

DN 50 mm	pcs	1.00	x	=
DN 40 mm	pcs	2.00	x	=

8. Water supply grid testing:
Perform hydraulic testing of the water supply grid as given in the design and draft a report.

	m^1	20.00		

9. Water supply grid disinfection and flushing:
Disinfect the installed water supply grid entirely in accordance with technical regulations and flush the pipeline and test water quality in a certified lab.

lumpsum calculation	lump	1.00	x	=

TOTAL B.

SUMMARY

A. EARTH WORKS
B. WATER SUPPLY SYSTEM

TOTAL

II - WATER SUPPLY AND SEWER SYSTEMS

A. CONSTRUCTION WORKS

1. Channel excavation:
   Excavate channel in III category soil for water supply and sewer installation up to 2.0 m deep.

Machine excavation	m^3	176.00	x	=
Manual excavation	m^3	14.50	x	=

2. Sand:
   Purchase and install sand in the canal around the pipe in a 10-cm layer.

	m^3	45.30	x	=

3. Channel backfilling:
   Backfill the channel using excavated soil in 30-cm layers with compacting.

	m^3	135.60	x	=

4. Transport of excess soil:
   Transport excess soil to a landfill, including loading onto the vehicle, unloading and rough levelling.

	m^3	54.90	x	=

5. Sewer inspection manhole:
   Purchase and install inspection manholes using pre-fabricated concrete rings 1000 mm with cone ending 1000 / 600 mm. The first ring shall be placed on the concrete slab d=15 cm, finished as half-round gutter. All the connections shall be waterproof. The price shall include complete works on the manhole including steps spaced at 30 cm.

	m^1	13.50	x	=

6. Sewer ramp:
   Make sewer ramp using pipes Ø 150 mm in accordance with the project details, complete with branch, arch and pipe up to 1.0 m of length.

	pcs	2.00	x	=

7. Sewer manhole LG covers:
   Purchase and install LG covers with frame, weight 54 kg for 250 KN load on the sewer manhole.

	pcs	9.00	x	=

8. Geodetic survey:
   Perform geodetic survey of underground water and sewer installations and register with the RGI for underground installation cadastre.

lumpsum calculation	lump	1.00	x	=

TOTAL A.

B. WATER SUPPLY SYSTEM

1. PE pipes:
Purchase and install PE water supply pipes with all the necessary connecting material and fittings.

Ø 90 mm (3")	m^1	78.00	x	=
Ø 63 mm (2")	m^1	84.00	x	=
Ø 32 mm (1")	m^1	1.00	x	=

2. Galvanized steel pipes:
Purchase and install galvanized steel water supply pipes with all the necessary connecting material and fittings.

DN 65 mm (2½")	m^1	35.00	x	=
DN 50 mm (2")	m^1	16.00	x	=

3. PP pipes - cold water verticals:
Purchase and install PP water supply pipes class SDR11 with all the necessary material and fittings. The price shall include all the works necessary for this item, including breaching a hole on the inter-floor structure and closing it after pipe installation. The pipes shall be fastened to the structure in accordance with the product manual, which shall be included in the price.

Ø 63 mm (2")	m^1	14.00	x	=
Ø 50 mm (6/4")	m^1	12.00	x	=
Ø 40 mm (5/4")	m^1	6.00	x	=
Ø 32 mm (1")	m^1	10.00	x	=

4. PP pipes: cold water distribution to water supply verticals:

Purchase and install PP water supply pipes, class SDR11, with all the necessary connecting material and fittings. The price shall include all the works necessary for this item, including breaching a hole on the inter-floor structure and closing it after pipe installation. The pipes shall be fastened to the structure in accordance with the product manual, which shall be included in the price.

Ø 32 mm (1")	m^1	4.00	x	=
Ø 25 mm (3/4")	m^1	298.00	x	=
Ø 20 mm (1/2")	m^1	58.00	x	=

5. PP pipes - cold water distribution:
Purchase and install PP water supply pipes, class SDR11, with all the necessary connecting material and fittings. The price shall include all the works necessary for this item, including wall chiselling and patching after pipe installation. The pipes shall be fastened to the structure in accordance with the product manual, which shall be included in the price.

Ø 25 mm (3/4")	m^1	219.00	x	=
Ø 20 mm (1/2")	m^1	212.00	x	=

6. PP pipes - hot water distribution:
   Purchase and install PP pipes for hot water class SDR7.4, thermally stable (composite), with all the necessary connecting materials and fittings. The price shall include all the works necessary for this item, including wall chiselling and patching after pipe installation. The pipes shall be fastened to the structure in accordance with the product manual, which shall be included in the price.

Ø 20 mm (1/2")	m^1	170.00	x	=

7. Pipe thermal insulation:
   Purchase and install pipe thermal insulation of conductivity L = 0.040 W/(mK) armaflex - tubolit or similar with the same specifications and all the necessary connecting material.

22 x 4 (1/2")	m^1	440.00	x	=
28 x 4 (3/4")	m^1	517.00	x	=
35 x 4 (1")	m^1	14.00	x	=
42 x 4 (5/4")	m^1	6.00	x	=
54 x 4 (6/4")	m^1	12.00	x	=
68 x 4 (2")	m^1	14.00	x	=

8. Water meter:
   Purchase and install water meter with safety magnetic shutoff valve before and discharge gate valve after, as well as all the necessary connecting material and fittings.

DN 20 mm	pcs	32.00	x	=
DN 15 mm	pcs	3.00	x	=

9. Valves:
   Purchase and install valves on verticals with cap and fixing bracket and all the necessary connecting material and fittings.

DN 20 mm	pcs	34.00	x	=
DN 15 mm	pcs	6.00	x	=

10. Gate valves:
    Purchase and install gate valves with chrome-plated cap and fixing bracket and all the necessary connecting material.

DN 15 mm	pcs	170.00	x	=

11. EK valves:
    Purchase and install EK valves with all the necessary connecting material.

DN 15 mm	pcs	70.00	x	=

12. Water supply grid testing:

Perform hydraulic testing on the water supply grid as given in the design and draft a report.

	m^1	1217.00	x	=

11. Water supply grid disinfection and flushing:
Disinfect the installed water supply grid entirely in accordance with technical regulations and flush the pipeline and test water quality in a certified lab.

lumpsum calculation	lump	1.00	x	=

12. Indoor hydrants:
Purchase and install fire hydrant cabinet wall-mounted, with stainless steel doors, entirely in accordance with the project with all the necessary connecting material. The contents of the cabinet shall be the following:

Trevira pressure hose Ø 52, 15 m
Nozzle with valve Ø 52
Connection valve Ø 2"
Connection nut

	pcs	11.00	x	=

13. Water meter cabinet:
Purchase and mount metal water meter cabinet partially built in the wall. The cabinet shall contain water meter and installation mounts, openings for the passage of the installations, and door with key. Calculation complete with all the works and material necessary for this item.

120 x 85 x 25 cm	pcs	1.00	x	=
100 x 85 x 25 cm	pcs	2.00	x	=
800 x 85 x 25 cm	pcs	6.00	x	=
60 x 85 x 25 cm	pcs	2.00	x	=

14. Grille under the water meter cabinet:
Purchase, transport and install pre-fabricated line drains for draining discharge water under the water meter cabinet. The drains shall be built in the concrete slab entirely in accordance with the product technical conditions. The drains shall be finished in a galvanized steel grille chosen by the Investor. The drain shall be connected to near-by gutter vertical. Calculation per m1 of completely built in drain with all the necessary connections.

ACO drain V100, low-profile, length 1.0 m, b/h = 10/10, built-in gradient 0.5 %, load class A15 with Ø 50 mm discharge at one end

	pcs	11.00	x	=

15. Gypsum cardboard ducts:
Make gypsum cardboard ducts, horizontal and vertical, to hide water supply installations. The ducts shall be made on the necessary structure with finishing towards the wall they are on. Calculation per completely finished duct with all the necessary material and works.

16 + 30 + 16 cm (three-sided)	m^1	33.00	x	=

16 + 25 + 16 cm (three-sided)	m^1	33.00	x		=
10 + 10 cm (two-sided angular)	m^1	40.00	x		=

TOTAL B.

C. SEWER

1. Existing connection reconstruction:
   Carefully excavate the existing sewer connection, clean it and make completely functional.

lumpsum calculation	lump	1.00	x		=

2. PVC pipes:
   Purchase and install PVC sewer pipes with all the necessary connection material and fittings. The pipes shall be connected using rubber rings. An inspection eye must be on the bottom of the verticals. The price shall include all the works necessary for this item, including breaching the opening on the inter-floor structure and closing after pipe mounting, walls chiselling and patching after pipe installation.

pipes in the ground					
Ø 160 mm	m^1	93.00	x		=
verticals					
Ø 110 mm	m^1	159.00	x		=
Ø 75 mm	m^1	3.00	x		=
sewer distribution					
Ø 160 mm	m^1	41.00	x		=
Ø 110 mm	m^1	52.00	x		=
Ø 75 mm	m^1	37.00	x		=
Ø 50 mm	m^1	225.00	x		=

3. Bathroom drain:
   Purchase and install drain with 'dry' siphon (odour trap), with chrome-plated grille class K3 and lateral connection for shower tub.

Ø 50 mm	pcs	38.00	x		=

4. Floor drain:
   Purchase and install floor LG drain with vertical discharge and 'dry' siphon (odour trap).

Ø 100 mm	pcs	3.00	x		=

5. Ventilation:
   Purchase and install a PVC ventilation cap with flange on the roof surface breach.

Ø 150 mm	pcs	9.00	x		=

6. Cover:
   Purchase and install copper cover 150 x 150 mm on the vertical breach on the building façade.

	pcs	1.00	x		=

Dish washer and washing machine

7. drain:
   Purchase and install PP in-wall siphon drain for the machine and completely connect to the sewer system.

	pcs	32.00	x	=

8. Sewer grid testing:
   Test the sewer grid as given in the design and draft a report.

	m^1	445.00	x	=

TOTAL C.

D. SANITARY WARE

1. Toilet for disabled persons:
   Install set of ware adjusted to persons with disabilities and special needs:

a. console toilet bowl with seat and mountable water tank,	pcs	1.00	x	=
b. wall seat for shower, foldable	pcs	1.00	x	=
c. shower tub, floor level	pcs	1.00	x	=
d. wash basin with easy access	pcs	1.00	x	=
e. mirror with movable hinge and handle for moving it	pcs	1.00	x	=
f. wall-mounted movable handle	pcs	1.00	x	=
g. wall-mounted fixed handle	pcs	2.00	x	=
h. alarm set	pcs	1.00	x	=

2. Toilet bowl:
   Purchase and install faience toilet bowl with seat and low-mount silent water tank with flush pipe and all the necessary connecting material, including connecting it to the water supply and sewer grids.

	pcs	37.00	x	=

3. Wash basin:
   Purchase and install faience wash basins with stand, siphon and all the necessary installation material.

size 580x460	pcs	37.00	x	=
size 500x400	pcs	3.00	x	=

4. Washbasin tap:
   Purchase and install single lever wash basin tap combined for hot and cold water including wall-mounting.

	pcs	37.00	x	=

5. Tub:

Purchase and install steel tub with all the necessary material for connection to the sewer grid, i.e. discharge and overflow pipe with horizontal siphon.

size 80 x 80 cm - shower tub	pcs	31.00	x	=

6. Floor-level grille:
Purchase and install floor-level grille for shower 80-cm long with vertical spheroidal drain at one end Ø 50 mm with all the necessary accessories for connection to the sewer grid.

	pcs	1.00	x	=

7. Bath tap:
Purchase and install single lever wall shower tap with shower handle and flexible hose, combined for hot and cold water including all the necessary installation material.

	pcs	32.00	x	=

8. Electric water heater:
Purchase and install electric water heater and connect it complete to the water supply and electrical installation.

V = 80 lit	pcs	32.00	x	=

9. Kitchen sink:
Purchase and install single kitchen sink with siphon and all the necessary connecting material.

	pcs	32.00	x	=

10. Instantaneous water heater:
Purchase and install instantaneous water heater, volume 10 lit with combination tap for hot and cold water for the kitchen sink.

Install above the sink	pcs	32.00	x	=

11. Nickel-plated tap:
Purchase and install nickel-plated hose cock for washing machine and dish washer, with all the necessary connecting and sealing material.

	pcs	32.00	x	=

12. Nickel-plated wash basin tap:
Purchase and install nickel-plated wall tap for wash basin for cold water with all the necessary connecting and sealing material.

	pcs	3.00	x	=

13. Accessories:
Purchase and install sanitary accessories:

mirror with frame 50x40cm	pcs	40.00	x	=
towel holder	pcs	41.00	x	=
soap holder	pcs	41.00	x	=
toilet paper holder	pcs	38.00	x	=

TOTAL D.

SUMMARY

A. EARTHWORKS
B. WATER SUPPLY SYSTEM
C. SEWER
D. SANITARY WARE

TOTAL

SUMMARY W&S

I. CONNECTION
II. W&S

Town: Obrenovac
Building: Social Housing
Location: Obrenovac

ELECTRICAL INSTALLATIONS

PRICED BILL OF QUANTITIES

NOTE: This BoQ shall include the delivery of all the necessary material and equipment, installation as described under individual items, testing and putting in operation, as well as repairs to all the damages to works already carried out. All the material used shall be of first class quality. All the works shall be performed by skilled manpower, fully in compliance with the valid regulations and standards for this type of works. The price shall include all the material described under individual items and all accessories needed for the given item, transport, as well as the cost of manpower, including taxes and contributions. The price shall include testing and putting in operation of all installation parts described under individual items.

The contractor shall perform all the works fully in compliance with the attached technical description, technical specifications, Bills of Quantities and drawings, and study the received documentation well before commencing works and give a timely warning of any conflicts with existing regulations. The contractor shall not be exempt from performing certain works envisaged by the BoQ, but perhaps not mentioned in the technical description or any other attachment to this project, which they are to perform in compliance with the valid regulations applicable to the installations for this type of building.
The prices stated serve as information only. For the delivery of equipment, material and works performed, the prices given in the Contractor's offer shall apply.

No.	DESCRIPTION	UoM	NoU	Unit Price	TOTAL
	I. ELECTRICAL POWER INSTALLATIONS				
	I.1 POWER SUPPLY, KPK, GRO and POWER SUPPLY LINES				
1	Deliver and lay cable pipeline made of yuvidur pipes Ø110 mm from the cable connection box (KPK) to the green free area. The works shall include digging the trench, placing the pipe in sand or small-grain soil, backfilling the trench and returning the route to its original state. The works shall be performed fully in accordance with the regulations and recommendations of the Power Distribution Company (ED). The works shall be performed simultaneously with the construction works.	m.	10	x	=
2	Deliver and install complete cable connection box (KPK), fully protected from moisture and dust, protection level IP-54. The price shall include all construction finishing works including chase cutting to the wall if necessary, closing the opening after placing the KPK and returning everything to its original state. KPK shall have the following equipment built in: 3 pcs - HRC (high rupturing capacity) fuse 400/100 A.	pcs	2	x	=

No.	DESCRIPTION	UoM	NoU	Unit Price		TOTAL
3	Deliver and install complete cable connection box (KPK) for elevator, fully protected from moisture and dust, protection level IP-54, to be mounted in the wall. The price shall include all construction finishing works including chase cutting to the wall if necessary, closing the opening after placing the KPK and returning everything to its original state. KPK shall have the following equipment built in: 3 pcs - HRC (high rupturing capacity) fuse 400/100 A.	pcs	2	x	=	
4	Deliver and lay power cable from KPK1 to the main distribution cabinet MRO1 type XP00(Cu), 1 kV, cross-section 4x50mm2. The cable shall be laid in pre-made ducting in the façade wall of the building and in PVC pipes Ø110mm installed before the concrete works on the walls. Complete with PVC pipes, all the necessary construction works and complete wiring.	m.	2	x	=	
5	Deliver and lay power cable from KPK2 to the main distribution cabinet MRO2 type XP00(Cu), 1 kV, cross-section 4x50mm2. The cable shall be laid in pre-made ducting in the façade wall of the building and in PVC pipes Ø110mm installed before the concrete works on the walls. Complete with PVC pipes, all the necessary construction works and complete wiring.	m.	2	x	=	
6	Deliver and lay power cable from KPK1 to KPK2, type XP00-A, 1 kV, cross-section 3x150+70mm2 according to EDB requirements. The cable shall be laid in pre-made ducting in the façade wall of the building and in PVC pipes Ø110mm installed before the concrete works on the walls. Complete with PVC pipes, all the necessary construction works and complete wiring.	m.	45	x	=	
7	Deliver and lay power cable from KPK L1 to measuring distribution cabinet MRO L1, type XP00(Cu), 1 kV, cross-section 4x6mm2. The cable shall be laid in pre-made ducting in the façade wall of the building and in PVC pipes Ø110mm installed before the concrete works on the walls. Complete with PVC pipes, all the necessary construction works and complete wiring.	m.	3	x	=	
8	Deliver and lay power cable from KPK L2 to measuring distribution cabinet MRO L2, type XP00(Cu), 1 kV, cross-section 4x6mm2. The cable shall be laid in pre-made ducting in the façade wall of the building and in PVC pipes Ø110mm installed before the concrete works on the walls. Complete with PVC pipes, all the necessary construction works and complete wiring.	m.	3	x	=	
9	Connect KPK1(2) and KPK L1(L2) using cable XP00 4x6 mm2.	m.	4	x	=	
10	Deliver and mount a measuring distribution cabinet MRO1 type A18 on the wall in the ground floor. The cabinet shall be made of two times pickled sheet 2-mm thick, protected from corrosion and painted using base and protective grey coat for indoor use. The cabinet shall be entirely in accordance with the unipolar schematic. The cabinet shall be horizontally divided into three sections: rail distribution (connection area) with power limiters (NN switches), and in two parts vertically: individual consumption and community consumption. The doors shall be equipped with serial locks. The cabinet dimensions shall be adjusted to the built-in equipment. The equipment shall be mounted on metal and pertinax sheets. The following equipment shall be built in the cabinet: **In the bottom left part of the cabinet:** Single busbar system made of 5 copper rails: 30x5 mm					

No.	DESCRIPTION	UoM	NoU	Unit Price	TOTAL
	1x Automatic fuse Un=400/231 V; 50 Hz; In=6 A; type B; Iks=6 kA, 1P 1x Load-Break Switch 100 A 16x Automatic fuse Un=400/231 V; 50 Hz; In=25 A; type C; Iks=6 kA, 1P **In the middle left part of the cabinet (part for measuring):** 17x single-phase double tariff active power meter: 230 V, 10-40 A, class 2 **In the upper left part of the cabinet (distribution part):** Serial screw terminals Label tags **In the lower right part of the cabinet:** 1x Automatic fuse Un=400/231 V; 50 Hz; In=6 A; type B; Iks=6 kA, 1P **In the middle right part of the cabinet (part for community consumption):** 1x single-phase double tariff active power meter: 230 V, 10-40 A, class 2 1x MTK device **In the upper right part of the cabinet (distribution part):** Serial screw terminals Label tags Complete with all the wiring and all the necessary material and works				

No.	DESCRIPTION	UoM	NoU	Unit Price		TOTAL
	Installation under the jurisdiction of the Power Distribution Company.					
		pcs	1	x	=	
11	Deliver and mount a measuring distribution cabinet MRO2 type A18 on the ground floor wall. The cabinet shall be made of two times pickled sheet 2-mm thick, protected from corrosion and painted using base and protective grey coat for indoor use. The cabinet shall be entirely in accordance with the unipolar schematic. The cabinet shall be horizontally divided into three sections: rail distribution (connection area) with power limiters (NN switches), meters and vertical riser fuses, and in two parts vertically: individual consumption and community consumption. The doors shall be equipped with serial locks. The cabinet dimensions shall be adjusted to the built-in equipment. The equipment shall be mounted on metal and pertinax sheets. The following equipment shall be built in the cabinet: **In the bottom left part of the cabinet:** Single busbar system made of 5 copper rails: 30x5 mm 1x Automatic fuse Un=400/231 V; 50 Hz; In=6 A; type B; Iks=6 kA, 1P 1x Load-Break Switch 100 A 20x Automatic fuse Un=400/231 V; 50 Hz; In=25 A; type C; Iks=6 kA, 1P **In the middle left part of the cabinet (measuring part):** 16x single-phase double tariff active power meter: 230 V, 10-40 A, class 2 **In the upper left part of the cabinet (distribution part):** Serial screw terminals Label tags **In the lower right part of the cabinet:** 1x Automatic fuse Un=400/231 V; 50 Hz; In=6 A; type B; Iks=6 kA, 1P **In the middle right part of the cabinet (part for community consumption):** 1x single-phase double tariff active power meter: 230 V, 10-40 A, class 2 1x MTK device **In the upper right part of the cabinet (substation part):** 1x direct measurement group: 3x400/230 V, 10-40 A **In the upper right part of the cabinet (distribution part):** Serial screw terminals Label tags Complete with all the wiring and all the necessary material and works Installation under the jurisdiction of the Power Distribution Company					
		pcs	1	x	=	

No.	DESCRIPTION	UoM	NoU	Unit Price		TOTAL
12	Deliver the material, make and mount - install community consumption distribution cabinet RO-ZP located near the MRO, made of two times pickled sheet, in mechanical protection IP54, plastic-coated, with door, 'elzet' lock, key, pertinax panel, serial screw terminals, label tags, bus burs and other material necessary to complete the cabinet. Cabinet dimensions and the distribution of equipment within shall be provided by the equipment Supplier based on unipolar schematic and the equipment itself. In the separate part of the cabinet (second part), separated from the rest of electrical equipment (first part) by a steel longitudinal partition and with a separate door, fire alarm equipment shall be installed. The following equipment shall be built in the cabinet:					
	Part 1 1x rotary cam switch 2G40-90-U 2x Automatic fuse Un=400/231 V; 50 Hz; In=6 A; type B; Iks=6 kA, 1P 9x Automatic fuse Un=400/231 V; 50 Hz; In=10 A; type B; Iks=6 kA, 1P 2x Automatic fuse Un=400/231 V; 50 Hz; In=16 A; type B; Iks=6 kA, 1P 2x staircase automatic unit 2x rotary cam switch 4G10-51-PK 2x contactor CN 16 **Part 2** 1x Automatic fuse Un=400/231 V; 50 Hz; In=6 A; type B; Iks=6 kA, 1P 1x deliver and mount a fire alarm central unit, similar to model SPU-01, produced by FITIŠ-YU that shall include: rectifier sub-unit, timing sub-unit for activating siren and accumulator battery for backup power supply (1.2 Ah) Copper bus bars, serial screw terminals, label tags - other material necessary for completing. Total for work, material and transport.	pcs	2	x	=	
13	Deliver the material and make the entire installation of feeders from MRO to distribution boards (RT) in homes and building community consumption distribution boards (RTZP), with power lines type PP-Y, 1 KV, with a corresponding number of conductors and cross-sections placed in PVC installation pipes under the mortar in the walls or appropriate PVC pipes in the concrete. PVC pipes in the concrete shall be installed timely, simultaneously with construction works. Complete including entire wiring in the GMRO and distribution boards and distribution cabinets.					
	PP-Y 3x6 mm^2 / Ø36mm	m.	650	x	=	
	PP-Y 3x4 mm^2 / Ø36mm	m.	40	x	=	

No.	DESCRIPTION	UoM	NoU	Unit Price		TOTAL
14	Same as item 13, only referring to signalization circuit for second tariff, type PP 2x1.5mm2 in PVC installation pipe Ø16mm.	m.	640	x	=	
15	Same as item 13, but referring to power supply cable for elevator RO (elevator 1, elevator 2) PP00 5x4 mm2 in PVC installation pipe Ø16mm.	m.	70	x	=	
16	Deliver the material, make and install complete box with equipotential bus bars - SIP (single potential earthing) made of Cu strip 30x5x650 mm with at least 8 holes for bolts N10. Complete box shall be placed near the GMRO.	pcs	2	x	=	
17	Deliver the material and connect the main distribution cabinet to the equipotential busbar SIP using cable type XP00 1x50mm2.	m.	4	x	=	
18	Deliver the material and bypass the water meter using braided-type copper bonding jumpers Cu Ø16 mm, with appropriate accessories, spacer clips with lead washer and bolts with nuts.	pcs	2	x	=	
19	Purchase, deliver and install measuring distribution cabinet MRO L1 and MRO L2 on the ground floor wall for elevators 1 and 2. The cabinet shall be made entirely in accordance with the unipolar schematic.					
	The following equipment shall be built in the cabinet: 3x NV00 Un=400/231 V; 50 Hz; In=32 A; in accordance with the equipment Supplier conditions 1x three-phase double-tariff active power meter: 400/230 V, 10-40 A, class 2 Serial screw terminals Label tags Complete with all the wiring and all the necessary material and works Installation under the jurisdiction of the Power Distribution Company	pcs	2	x	=	
20	Test the MRO1 and MRO2 for functionality and put in operation, including the visit of the ED representative on site and technical approval by ED.	pcs	1			
	TOTAL under I.1:					
I.2	**ELECTRICAL INSTALLATIONS FOR BUILDING COMMUNITY CONSUMPTION**					
1	Complete distribution board (RT) for homes (RTZP), made of shockproof self-extinguishing material with protective cover, protection level IP43, serial, shall be positioned above the entrance to the homes or in the corridors. The distribution board shall be wired according to unipolar schematic separately and all equipment on the board shall be labelled using clear and durable signs. The following equipment shall be installed in the distribution board: 1 pcs - casing 1 pcs - protective current differential circuit breaker FID 25/0.3A 4 pcs - set of NN automatic switches - fuses, type B, 6 kA, different nominal value currents (6A and 10A) as per the unipolar schematic Copper busbars, serial screw terminals, sign plates - other material necessary for full completion Total for work, material and transport	pcs	2	x	=	

No.	DESCRIPTION	UoM	NoU	Unit Price		TOTAL
2	Deliver the material and perform the entire installation of lighting for the staircase and the wind protection area to be turned on using the staircase automatic unit, through the cable PP-Y 3x1.5 mm2, 1 kV, installed under the mortar in the wall and in the ceiling. Distribution boxes shall be placed on the concrete form before pouring the concrete. Distribution boxes must be type TICINI, INDE or similar.	m1	385	x	=	
3	Deliver the material and perform the entire installation of lighting in the common rooms, using cable PP-Y 3x1.5 mm2, 1 kV, placed under the mortar in the wall and the ceiling, including the purchase and installation of suitable distribution boxes. Average spacing between light outlets shall be 15 m.	pcs	10	x	=	
4	Same as item 3, only using cable PP-Y 2x1.5 mm2 placed in the wall under the mortar, including purchase and installation of suitable distribution boxes, diameter Ø60mm and push button 6A, 250V, to switch on the staircase light, with glow lamp or fluorescent coating and embossed light sign and entire wiring completed. Average length shall be 11 m.	pcs	32	x	=	
5	Deliver the material and perform complete installation for single-phase earthed socket PP-Y 3x2.5 mm2 placed in the wall under the mortar with suitable built-in distribution boxes and single-phase earthed socket, protection level IP20, 16A, 250V and entire wiring completed. Average length shall be 12 m.	pcs	5	x	=	
6	Same as item 5, only with single-phase double socket 16A, 250V. The socket shall be placed at 0.5 m above the floor in the common rooms. Average length shall be12 m.	pcs	3	x	=	
8	Deliver the material and install the entire single-phase outlet using PP-Y 3x2.5mm2 cable, power supply unit for interphone installation and RO-TV in the wind protection area, without procuring switches and devices. Average length shall be 8 m.	pcs	4	x	=	
9	Deliver and assemble white micro switches with box for installation (regular and serial) 6/10A, 250V, protection level IP20.					
	a) regular	pcs	2	x	=	
	b) serial	pcs	2	x	=	
10	Deliver the material and install manual fire alarms, connections using conductor PP-y 3 x 1.5 mm2 laid in the wall entirely as given in the graphic documents. Average length shall be 10 m.	pcs	11	x	=	
11	Deliver material and install electrical sirens, make connections using PP-y 3 x 1.5 mm2 conductor laid in the wall entirely as given in the graphic documents. Average length shall be 10m.	pcs	6	x	=	
12	Purchase, deliver and install optical detectors with own battery, alarm indicator (red), push button for checking the functionality of the detector and siren, equivalent to type GB 2188. Optical detectors shall be placed on the ceiling in each room (bedroom) and in the living space in the kitchen zone, as well as in the common living room.	pcs	88	x	=	
	TOTAL I.2:					

I.3 SUBSTATION ELECTRICAL INSTALLATIONS

1	Purchase, deliver and install metal distribution cabinet RO POD on the substation wall. The cabinet shall be made entirely according to the unipolar schematic. The following equipment shall be built in the cabinet: 3x NV00 In=25 A; Un=400/231 V					

No.	DESCRIPTION	UoM	NoU	Unit Price		TOTAL
	2x Automatic fuse Un=400/231 V; 50 Hz; In=16 A; type B; Iks=6 kA, 1P 1 pcs - protective current differential circuit breaker FID 250.5A,4p 1xswitch 1-0-2 25A, for the pump operation selection (main-auxiliary) 2x contactor 230V,9A 1x Automatic fuse Un=400/231 V; 50 Hz; In=6 A; type B; Iks=6 kA, 1P Serial screw terminals Label tags Complete with all the wiring and all the necessary material and works	pcs	1	x	=	
2	Deliver the material and perform complete installation for single-phase OG shucko socket with cover using cable line PP-Y 3x2.5 mm2 placed in the wall under the mortar with appropriate built-in distribution boxes and single-phase OG shucko sockets, protection level IP44, 16A, 250V and entire wiring completed. Average length shall be 12 m.	pcs	2	x	=	
3	Deliver and install serial switch in PVC protective casing made of hard plastics or bakelite, protection level IP44.	pcs	1	x	=	
4	Deliver the material and perform complete installation for three-phase OG shucko socket with cover using cable line PP-Y 5x2.5 mm2 placed in the wall under the mortar with appropriate built-in distribution boxes and single-phase OG shucko sockets, protection level IP44, 16A, 400V and entire wiring completed. Average length shall be 12 m.	pcs	1	x	=	
5	Deliver the material and make complete single-phase outlet using cable line PP-Y 3x2.5mm, to supply power to the main and auxiliary pump. Average length shall be 10 m.	pcs	2	x	=	
	TOTAL I.3:					

No.	DESCRIPTION	UoM	NoU	Unit Price		TOTAL
I.4	**ELECTRICAL INSTALLATIONS IN HOMES**					
1	Complete distribution board (RT) for homes, made of shockproof self-extinguishing material with protective cover, protection level IP43, serial, shall be positioned above the entrance to the homes or in corridors. The distribution board shall be wired according to the unipolar schematic separately and all the equipment on the board shall be labelled with clear and durable signs. The following equipment shall be installed in the distribution board: **RT-A01,RT-B01** 1 pcs - casing 1 pcs protective current differential circuit breaker FID 25/0.03 A 15 pcs - set of NN automatic switches - fuses, type B, 6 kA, various nominal value currents (4A, 10A and 16A) as per the unipolar schematic 1 pcs - electric ding-dong bell connected to 230V 1 pcs light indicator 5 W, 230 V, indicating second tariff Copper busbars, serial screw terminals, label tags - other material necessary for full completion Total for work, material and transport	pcs	2	x		=
2	Complete distribution board (RT) for homes, made of shockproof self-extinguishing material with protective cover, protection level IP43, serial, shall be positioned above the entrance to the homes or in the corridors. The distribution board shall be wired according to the unipolar schematic separately and all the equipment on the board shall be labelled with clear and durable signs. The following equipment shall be installed in the distribution board: **RT-B.02, RT-A.44** 1 pcs - casing 1 pcs protective current differential circuit breaker FID 25/0.03A 16 pcs - set of NN automatic switches - fuses, type B, 6 kA, various nominal value currents (4A, 10A and 16A) as per the unipolar schematic 1 pcs - electric ding-dong bell connected to 230V 1 pcs light indicator 5 W, 230 V, indicating second tariff Copper busbars, serial screw terminals, label tags - other material necessary for full completion Total for work, material and transport	pcs	2	x		=
3	Complete distribution board (RT) for homes, made of shockproof self-extinguishing material with protective cover, protection level IP43, serial, shall be positioned above the entrance to the homes or in the corridors. The distribution board shall be wired according to the unipolar schematic separately and all the equipment on the board shall be labelled with clear and durable signs. The following equipment shall be installed in the distribution board: **RT-A.13, RT-A.23, RT-A.34, RT-A.42** 1 pcs - casing 1 pcs protective current differential circuit breaker FID 25/0.03A 18 pcs - set of NN automatic switches - fuses, type B, 6 kA, various nominal value currents (4A, 10A and 16A) as per the unipolar schematic 1 pcs - electric ding-dong bell connected to 230V 1 pcs light indicator 5 W, 230 V, indicating second tariff Copper bus bars, serial screw terminals, label tags - other material necessary for full completion					

No.	DESCRIPTION	UoM	NoU	Unit Price		TOTAL
	Total for work, material and transport	pcs	4	x	=	
4	Complete distribution board (RT) for homes, made of shockproof self-extinguishing material with protective cover, protection level IP43, serial, shall be positioned above the entrance to the homes or in the corridors. The distribution board shall be wired according to the unipolar schematic separately and all the equipment on the board shall be labelled with clear and durable signs. The following equipment shall be installed in the distribution board: **RT-B.11, RT-B.12, RT-B13, RT-B.21, RT-B22, RT-B.23** 1 pcs - casing 1 pcs protective current differential circuit breaker FID 25/0.03 A 17 pcs - set of NN automatic switches - fuses, type B, 6 kA, various nominal value currents (4A, 10A and 16A) as per the unipolar schematic 1 pcs - electric ding-dong bell connected to 230V 1 pcs light indicator 5 W, 230 V, indicating second tariff Copper bus bars, serial screw terminals, label tags - other material necessary for full completion Total for work, material and transport	pcs	6	x	=	
5	Complete distribution board (RT) for homes, made of shockproof self-extinguishing material with protective cover, protection level IP43, serial, shall be positioned above the entrance to the homes or in the corridors. The distribution board shall be wired according to the unipolar schematic separately and all the equipment on the board shall be labelled with clear and durable signs. The following equipment shall be installed in the distribution board: **RT-A.31, RT-A.41, RT-A.45, RT-B.41, RT-B.42** 1 pcs - casing 1 pcs protective current differential circuit breaker FID 25/0.03 A 15 pcs - set of NN automatic switches - fuses, type B, 6 kA, various nominal value currents (4A, 10A and 16A) as per the unipolar schematic 1 pcs - electric ding-dong bell connected to 230V 1 pcs light indicator 5 W, 230 V, indicating second tariff Copper busbars, serial screw terminals, label tags - other material necessary for full completion Total for work, material and transport	pcs	5	x	=	
6	Complete distribution board (RT) for homes, made of shockproof self-extinguishing material with protective cover, protection level IP43, serial, shall be positioned above the entrance to the homes or in the corridors. The distribution board shall be wired according to the unipolar schematic separately and all the equipment on the board shall be labelled with clear and durable signs. The following equipment shall be installed in the distribution board: **RT-A.32** 1 pcs - casing 1 pcs protective current differential circuit breaker FID 25/0.03 A 17 pcs - set of NN automatic switches - fuses, type B, 6 kA, various nominal value currents (4A, 10A and 16A) as per the unipolar schematic 1 pcs - electric ding-dong bell connected to 230V 1 pcs light indicator 5 W, 230 V, indicating second tariff Copper bus bars, serial screw terminals, label tags - other material necessary for full completion					

No.	DESCRIPTION	UoM	NoU	Unit Price		TOTAL
	Total for work, material and transport	pcs	1	x	=	
7	Complete distribution board (RT) for homes, made of shockproof self-extinguishing material with protective cover, protection level IP43, serial, shall be positioned above the entrance to the homes or in corridors. The distribution board shall be wired according to the unipolar schematic separately and all the equipment on the board shall be labelled with clear and durable signs. The following equipment shall be installed in the distribution board: **RT-B.31,RT-B.32, RT-B.33** 1 pcs - casing 1 pcs protective current differential circuit breaker FID 25/0.03A 17 pcs - set of NN automatic switches - fuses, type B, 6 kA, various nominal value currents (4A, 10A and 16A) as per the unipolar schematic 1 pcs - electric ding-dong bell connected to 230V 1 pcs light indicator 5 W, 230 V, indicating second tariff Copper busbars, serial screw terminals, label tags - other material necessary for full completion Total for work, material and transport	pcs	3	x	=	
8	Complete distribution board (RT) for homes, made of shockproof self-extinguishing material with protective cover, protection level IP43, serial, shall be positioned above the entrance to the homes or in corridors. The distribution board shall be wired according to the unipolar schematic separately and all the equipment on the board shall be labelled with clear and durable signs. The following equipment shall be installed in the distribution board: **RT-A.33** 1 pcs - casing 1 pcs protective current differential circuit breaker FID 25/0.03A 19 pcs - set of NN automatic switches - fuses, type B, 6 kA, various nominal value currents (4A, 10A and 16A) as per the unipolar schematic 1 pcs - electric ding-dong bell connected to 230V 1 pcs light indicator 5 W, 230 V, indicating second tariff Copper busbars, serial screw terminals, label tags - other material necessary for full completion Total for work, material and transport	pcs	1	x	=	
9	Complete distribution board (RT) for homes, made of shockproof self-extinguishing material with protective cover, protection level IP43, serial, shall be positioned above the entrance to the homes or in corridors. The distribution board shall be wired according to the unipolar schematic separately and all the equipment on the board shall be labelled with clear and durable signs. **RT-A.43** 1 pcs - casing 1 pcs protective current differential circuit breaker FID 25/0.03 A 19 pcs - set of NN automatic switches - fuses, type B, 6 kA, various nominal value currents (4A, 10A and 16A) as per the unipolar schematic 1 pcs - electric ding-dong bell connected to 230V 1 pcs light indicator 5 W, 230 V, indicating second tariff Copper busbars, serial screw terminals, label tags - other material necessary for full completion Total for work, material and transport	pcs	1	x	=	

No.	DESCRIPTION	UoM	NoU	Unit Price		TOTAL
10	Complete distribution board (RT) for homes, made of shockproof self-extinguishing material with protective cover, protection level IP43, serial, shall be positioned above the entrance to the homes or in the corridors. The distribution board shall be wired according to the unipolar schematic separately and all the equipment on the board shall be labelled with clear and durable signs. The following equipment shall be installed in the distribution board: **RT-B.51, RT-B.52** 1 pcs - casing 1 pcs protective current differential circuit breaker FID 25/0.03 A 14 pcs - set of NN automatic switches - fuses, type B, 6 kA, various nominal value currents (4A, 10A and 16A) as per the unipolar schematic 1 pcs - electric ding-dong bell connected to 230V 1 pcs light indicator 5 W, 230 V, indicating second tariff Copper busbars, serial screw terminals, label tags - other material necessary for full completion Total for work, material and transport	pcs	2	x	=	
11	Complete distribution board (RT) for homes, made of shockproof self-extinguishing material with protective cover, protection level IP43, serial, shall be positioned above the entrance to the homes or in corridors. The distribution board shall be wired according to the unipolar schematic separately and all the equipment on the board shall be labelled with clear and durable signs. The following equipment shall be installed in the distribution board: **RT-A.11, RT-A.21** 1 pcs - casing 1 pcs protective current differential circuit breaker FID 25/0.03 A 21 pcs - set of NN automatic switches - fuses, type B, 6 kA, various nominal value currents (4A, 10A and 16A) as per the unipolar schematic 1 pcs - electric ding-dong bell connected to 230V 1 pcs light indicator 5 W, 230 V, indicating second tariff Copper busbars, serial screw terminals, label tags - other material necessary for full completion Total for work, material and transport	pcs	2	x	=	
12	Complete distribution board (RT) for homes, made of shockproof self-extinguishing material with protective cover, protection level IP43, serial, shall be positioned above the entrance to the homes or in the corridors. The distribution board shall be wired according to the unipolar schematic separately and all the equipment on the board shall be labelled with clear and durable signs. The following equipment shall be installed in the distribution board: **RT-A.12, RT-A.22** 1 pcs - casing 1 pcs protective current differential circuit breaker FID 25/0.03 A 18 pcs - set of NN automatic switches - fuses, type B, 6 kA, various nominal value currents (4A, 10A and 16A) as per the unipolar schematic 1 pcs - electric ding-dong bell connected to 230V 1 pcs light indicator 5 W, 230 V, indicating second tariff Copper busbars, serial screw terminals, label tags - other material necessary for full completion. Total for work, material and transport	pcs	2	x	=	

No.	DESCRIPTION	UoM	NoU	Unit Price		TOTAL
13	Complete distribution board (RT) for homes, made of shockproof self-extinguishing material with protective cover, protection level IP43, serial, shall be positioned above the entrance to the homes or in the corridors. The distribution board shall be wired according to the unipolar schematic separately and all the equipment on the board shall be labelled with clear and durable signs. The following equipment shall be installed in the distribution board: **RT-B.43** 1 pcs - casing 1 pcs protective current differential circuit breaker FID 25/0.03 A 19 pcs - set of NN automatic switches - fuses, type B, 6 kA, various nominal value currents (4A, 10A and 16A) as per the unipolar schematic 1 pcs - electric ding-dong bell connected to 230V 1 pcs light indicator 5 W, 230 V, indicating second tariff Copper busbars, serial screw terminals, label tags - other material necessary for full completion Total for work, material and transport	pcs	1	x	=	
14	Deliver the material and perform the entire installation of light positions in the homes using cable PP-Y 3x1.5 mm2, installed under the mortar in the wall and in the ceiling, including purchase and installation of appropriate distribution boxes to be mounted in the walls and the concrete and complete wiring. Distribution boxes shall be placed on the concrete form before pouring the concrete. Distribution boxes must be type TICINI, INDE. Average length shall be 7 m.	pcs	267	x	=	
15	Same as item 14, only with the complete installation for the axial fan up to 30 W, using PP-Y 3x1.5 mm2 cable. Average length shall be 8 m. The price shall include delivery and installation of the axial fan.	pcs	18	x	=	
16	Deliver material and complete installation of electric doorbell, using cable PP 2x1.5 mm2, placed under mortar in the wall with white bakelite push button with embossed bell symbol, light indicator or glow lamp and all the wiring. Average length shall be 8 m.	pcs	32	x	=	

No.	DESCRIPTION	UoM	NoU	Unit Price		TOTAL
17	Deliver the material and perform complete installation for single-phase shucko socket PP-Y 3x2.5 mm2 placed in the wall under the mortar with appropriate built-in distribution boxes and single-phase shucko sockets, protection level IP20, 16A, 250V and entire wiring completed. The socket shall be placed at 0.5 m above finished floor. Average length shall be 10 m.	pcs	209	x	=	
18	Same as item 17, only with single-phase socket 16A, 250V, built-in with protective cover, in the kitchen and the bathroom, protection level IP44. The socket shall be placed at 1.1 m above the floor in the kitchen and 1.5 m above the floor in the bathroom. Average length shall be 12 m.	pcs	154	x	=	
19	Same as under item 17, only "double" single-phase socket to be installed in the living room and bedrooms. Average length shall be 10 m.	pcs	67	x	=	
20	Same as under item 17, only "double" single-phase socket with cover to be installed in the kitchen. Average length shall be 10 m.	pcs	30	x	=	
21	Same as under item 17, only "triple" single-phase socket to be installed in the living room. Average length shall be 14 m.	pcs	32	x	=	
22	Same as under 17, only making single-phase outlet using cable PP-Y 3x2.5mm2 for the water heater in the bathroom, and water heater and extractor hood in the kitchen, without the purchase of switches or appliances. Average length shall be 10 m.	pcs	96	x	=	
23	Deliver the material and install bathroom appliances operation indicators with 3 switches (three locking switches), with light indicators (or light bulbs) and built-in distribution box and complete wiring. Total for work, material and transport.	pcs	18	x	=	
24	Deliver the material and install bathroom appliances operation indicators with 2 switches (two locking switches), with light indicators (or light bulbs) and built-in distribution box and complete wiring. Total for work, material and transport.	pcs	14	x	=	
25	Deliver and assemble white micro switches with built-in box (regular, serial I) 6/10A, 250V, protection level IP20.					
	a) regular	pcs	158	x	=	
	b) serial	pcs	65	x	=	
	TOTAL under I.4:					

No.	DESCRIPTION	UoM	NoU	Unit Price		TOTAL
I.5	**INSTALLATION OF ANTI-PANIC LIGHTING**					
1	Deliver the material and perform complete installation for anti-panic lights using cable PP-Y 3x1.5 mm2, placed under the mortar in the wall and in the ceiling, including purchase and installation of appropriate built-in distribution boxes and complete wiring. Distribution boxes in the concrete shall be placed on the concrete form before pouring the concrete. The type of distribution boxes to be built in the concrete must be TICINI, INDE. Anti-panic light installations shall be spaced from other installations at a minimum of 5 cm, and the distribution boxes shall be painted red inside. Average length shall be 10m.	pcs	36	x	=	
2	Deliver the material and install wall and ceiling fluo anti-panic lighting, with one 8-W fluo light, casing, protective glass, assembly equipment and EXIT sign over the lights or arrow sign with own power source (NiCD batteries with 6-hour duration).	pcs	36	x	=	
	TOTAL under I.5:					
I.6	**LIGHTING EQUIPMENT**					
1	Deliver and install completely equipped incandescent decorative light with opaline, square or round, white glass, 100-W light bulb, E-27 socket and equipment for installation on the ceiling, protection level IP20, to be installed in homes.	pcs	126	x	=	
2	Deliver and install completely equipped incandescent waterproof light with metal framework, opaline white glass, up to 100-W light bulb, rubber seal, E-27 socket and equipment for installation on the ceiling in the bathrooms and toilets, protection level IP65.	pcs	70	x	=	
3	Deliver and install completely equipped incandescent waterproof light with metal framework, opaline white glass, up to 100-W light bulb, rubber seal, E-27 socket and equipment for installation on the wall in the hall, staircase, corridors, protection level IP44.	pcs	81	x	=	
4	Deliver and install complete waterproof "ship" light with protective mesh, diffuser, up to 100-W light bulb, rubber seal, E-27 socket and equipment for installation on the ceiling in the ground floor storage room, and on the balconies, protection level IP65.	pcs	29	x	=	
5	Deliver and install complete fluo grill ceiling lamp, protection level IP40. The price shall include delivery and installation of the entire light fixture with double connection, with four 18-W fluo light bulbs, starters and the necessary equipment for installation in the common rooms.	pcs	10	x	=	

No.	DESCRIPTION	UoM	NoU	Unit Price		TOTAL
6	Deliver and install and make all the necessary adjustments in the waterproof halogen spotlight, with halogen light bulb up to 300 W, R7s socket and motion sensor - infrared switch. The light shall be with complete accessories and pre-connected devices. The protection level shall be IP44.	pcs	6	x	=	
7	Deliver and install incandescent decorative light with opaline, square or round, white glass, 100-W light bulb, 2 E-27 sockets and equipment for installation on the ceiling, protection level IP20 in the living rooms.	pcs	64	x	=	
8	Deliver and install fluo light 2x36 W, IP65, equivalent to type Titan, for installation in the substation.	pcs	2	x	=	
	NOTE: The lights have been chosen based on free design principles. The Investor shall choose the type of light fixture and manufacturer on their own accord, respecting the level of protection (IP) and power used by the given light (light bulb). The quantities are given for the entire building.					
	TOTAL under I.6:					
	TOTAL under I:					

II. FOUNDATION EARTHING AND LIGHTNING PROTECTION INSTALLATION

1	Deliver and lay galvanized steel FeZn strips 25x4mm sidelong in the building foundations in the lower concrete reinforcement zone and weld it electronically to the foundation reinforcement, whereas the welded joint needs to be protected with two layers of anti-corrosion coating. The joints with the reinforcement shall be spaced at 1-2 m, with the required number of lightning earthdown conductors, gutter downspouts, SIP, etc. Strip for connecting the earthing on different levels shall also be included.	m.	130	x	=	
2	Deliver and lay galvanized steel strip Fe Zn 25x4 mm as outlet from foundation earthing to test joint, gutter downspouts, SIP, partly laid in the foundation and partly in the façade wall or concrete pillar. Outlets shall be made with 0.6 m of free strip.	m.	38	x	=	
3	Deliver crossrun clamps JUS N.B4.936 in casing K-U-K, resume and crossrun the galvanized steel strip where necessary in the building foundation and pour liquid hot lead over the crossrun clamp and on the building roof.	pcs	45	x	=	
4	Deliver and lay galvanized steel strip FeZn 20x3mm, as lighting rod along the length of 0.5 m from the highest roof point, i.e. the chimney.	pcs	6	x	=	
5	Deliver and lay galvanized steel strip FeZn 20x3mm along strip support on the chimney of the building.	m.	18	x	=	
6	Deliver and lay galvanized steel strip FeZn 20x3mm along the building roof complete with appropriate mounts.	m.	135	x	=	
7	Deliver and lay galvanized steel strip FeZn 20x3mm as lightning earthdown conductor in concrete pillar or under façade lining in PVC tube all the way to the test joint box.	m.	140	x	=	
8	Deliver and lay galvanized steel strip FeZn 20x3mm to join holders and earthdown conductor to balcony metal fence and large metal masses and two levels of roof metal covers, set in concrete pillar or under façade lining and in the protection tube in the balcony floor all the way to the metal mass.	m.	70	x	=	
9	Deliver clamp for horizontal gutter JUS N.B4.908 and join the gutter to the lightning rod clamp.	pcs	10	x	=	

No.	DESCRIPTION	UoM	NoU	Unit Price		TOTAL
10	Deliver clamp for gutter downspout JUS N.B4.914 and join the gutter to the foundation earthing outlet.	pcs	3	x	=	
11	Deliver and install test joints JUS N.B4.932 in the test joint casing JUS N.B4.912 on the building façade at 1.6-1.7 m above terrain level.	pcs	10	x	=	
12	Measure earthing resistance of the foundation earthing, as well as impact resistance of the lightning installation and issue certification for the tests performed.	complet	1	x	=	
	TOTAL under II:					

SUMMARY

I. ELECTRICAL POWER INSTALLATIONS
II. FOUNDATION EARTHING AND LIGHTNING PROTECTION INSTALLATION
T O T A L:

Responsible Designer: Radivoj Bosiljčić, Electrical Engineer _____

Town: Obrenovac
Building: Social Housing
Location: Obrenovac

ELECTRICAL INSTALLATIONS

PRICED BILL OF QUANTITIES

NOTE: This BoQ shall include the delivery of all the necessary material and equipment, installation as described under individual items, testing and putting in operation, as well as repairs to all the damages to works already carried out. All the material used shall be of first class quality. All the works shall be performed by skilled manpower, fully in compliance with the valid regulations and standards for this type of works. The price shall include all the material described under individual items and all accessories needed for the given item, transport, as well as the cost of manpower, including taxes and contributions. The price shall include testing and putting in operation of all installation parts described under individual items.

The contractor shall perform all the works fully in compliance with the attached technical description, technical specifications, Bills of Quantities and drawings, and study the received documentation well before commencing works and give a timely warning of any conflicts with existing regulations.
The contractor shall not be exempt from performing certain works envisaged by the BoQ, but perhaps not mentioned in the technical description or any other attachment to this project, which they are to perform in compliance with the valid regulations applicable to the installations for this type of building.
The prices stated serve as information only. For the delivery of equipment, material and works performed, the prices given in the Contractor's offer shall apply.

PRICED BILL OF QUANTITITES

No.	DESCRIPTION	UoM	NoU	Unit Price	Total Price
1.	**Telephone installation**				
1.1	Telephone distribution cabinet ITO-S1-A, made of twice-pickled sheet metal with door, lock and key, dimensions 260x260x145 mm, with the necessary equipment inside, such as the disconnecting and connecting terminal boxes IDC Cat 5 with connector elements 2+2x(10x2). All terminal blocks boxes must correspond to class 2 or 3 DSL cables. The cabinets shall be earthed by laying 16-mm2 P/F cable.				
	Purchase, delivery, mounting and wiring.	pcs	2		
1.2	Built-in telephone socket for the installation of module RJ-12, complete with mount, mask, adapter and socket.				
	Purchase, delivery, mounting and wiring.	pcs	32		
1.3	Telecommunication cable type:				
	Ti DSL 2x2x0.6 mm	m1	650		
	Purchase, delivery, laying along the cable tray, inserting in the installation tube and connecting.				
1.4	Installation tube:				
	Ø16	m1	600		
	Ø32	m1	100		
	Purchase, delivery and installation.				
1.5	PE tube Ø50, placed from ITO cabinet to building exit, for subsequent insertion of the incoming main telephone cable.				
	Purchase, delivery and installation.	m1	12		

PRICED BILL OF QUANTITITES

1.6	Perform final electrical measurements (insulation resistance, attenuation, crosstalk and testing each pair of wires for cut-off and short circuit), issue certification, train users, develop technical documentation of the final installation status and put in operation.	lumpsu	1
1.7	Other unforeseen expenses and miscellaneous consumables.	lumpsu	1

TOTAL 1:

PRICED BILL OF QUANTITITES

2. Interphone installation

Equipment shall be manufactured by TCS Germany or similar

2.1	PES20-EN call unit with 16 push buttons, manufactured by TCS Germany or similar. Speaker privacy module Integrated microphone loudspeaker combination with own amplifier Wall surface mounting Made of aluminium, only 19-mm thick. Purchase, delivery, mounting and wiring.	pcs	2
2.2	BVS20-SG, power supply unit, manufactured by TCS Germany or similar. Without central amplifier Purchase, delivery, mounting and wiring.	pcs	2
2.3	96 EADLAJ, electromagnetic door lock electric strike plate 12V AC, manufactured by MCM Spain or similar. Purchase, delivery, mounting and wiring.	pcs	2
2.4	Push button for opening the door. Mount on the inside of the building entrance door. Purchase, delivery, mounting and wiring.	pcs	2
2.5	TTS22-RW, door telephone, manufactured by TCS Germany or similar. Speaker privacy module Own audio signal amplifier Purchase, delivery, mounting and wiring.	pcs	32
2.6	Telecommunication cable type: J-Y(St)Y 1x2x0.8mm	m1	410
	J-Y(St)Y 2x2x0.8mm Purchase, delivery, insertion in the installation tube and connecting.	m1	30
2.7	Power supply installation cable type: PPL 2x0.75 mm2 Purchase, delivery, insertion in the installation tube and connecting.	m1	25

PRICED BILL OF QUANTITITES

2.8	Distribution box 100x100 with serial terminals. Purchase, delivery, mounting and connecting.	pcs	10
2.9	Installation tube: Ø16 Purchase, delivery and installation.	m1	320
2.10	Perform final electrical measurements (insulation resistance, attenuation, crosstalk and testing each pair of wires for cut-off and short circuit), issue certification, train users, develop technical documentation of the final installation status and put in operation.	lumpsu	1
2.11	Other unforeseen costs and miscellaneous consumables.	lumpsu	1

TOTAL 2:

PRICED BILL OF QUANTITITES

3 Installation for RTV signal distribution

3.1	Type RO-2 distribution cabinet with built-in equipment for the distribution of RTV signal. To be mounted on the wall of the entrance hall. Cabinets need to be earthed by laying 16 mm2 P/F cable.		
	Purchase, delivery, mounting and wiring.	pcs	2
3.2	Type-IEC RTV end socket.		
	Purchase, delivery, mounting and wiring.	pcs	34
3.3	RTV signal splitter:		
	1/3	pcs	2
	1/8	pcs	4
3.4	Coaxial cable RG-6.		
	Purchase, delivery, laying and connecting.	m1	680
3.5	Installation tube:		
	Ø16	m1	620
	Ø32	m1	100
	Purchase, delivery and installation.		
3.6	Wide-band UHF antenna receiving DVB-T2 signal. To be mounted on the roof on a metal pole, 50 mm in diameter and 3 m tall, to be anchored to the roof substructure.		
	Purchase, delivery and installation.	pcs	2
3.7	PE tube Ø50 between the GRO TV cabinet and the building entrance to connect the cable operator for the two entrances.		
	Purchase, delivery and installation.	m1	16
3.8	Perform final electrical measurements (insulation resistance, attenuation, crosstalk and testing each pair of wires for cut-off and short circuit), issue certification, train users, develop technical documentation of the final installation status and put in operation.	lumpsu	1
3.9	Other unforeseen costs and miscellaneous consumables.	lumpsu	1
	TOTAL 3:		

SUMMARY

1. Telephone Installation
2. Interphone Installation
3. Installation for RTV signal distribution

TOTAL:

RESPONSIBLE DESIGNER

Radivoj Bosiljčić, Electrical Engineer

PRICED BILL OF QUANTITIES FOR MACHINE INSTALLATIONS

I. HEATING SUBSTATION - DELIVERY AND INSTALLATION:

1	***.***	**Plate heat exchanger:**														
		Manufacturer: EUROHEAT or similar														
		Type: D570														
		dPprim/dPsec ; 7,17kPa/13,84kPa														
		Pprim/Psec ; 25/6bar														
		Capacity: 180kW										***pcs***	***1***	***x***		
2	***.***	**Circulation pump:**														
		Manufacturer: GRUNDFOS or similar														
		Type: MAGNA 1 40-80F														
		Flow/strain: 7.36m3/h/0.59bar										***pcs***	***2***	***x***		
3	***.***	**Closed expansion vessel:**														
		Manufacturer: ELBI Italy or similar														
		Type: ERE - ERCE 150														
		Volume: 150l										***pcs***	***1***	***x***		
4	***.***	**Safety valve:**														
		Valve with spring, calibrated to op						DN25				***pcs***	***1***	***x***		
		of 3 bar						DN32				***pcs***	***1***	***x***		

5	**.**	**Ball valve:**					D	NP6			***pcs***	***8***	***x***			
6	**.**	**Check valve:**					D	NP6			***pcs***	***2***	***x***			
7	**.**	**Rubber compensator:**					DN50				***pcs***	***4***	***x***			
8	**.**	**Manometer: 1/2", range 0-10bar**									***pcs***	***3***	***x***			
9	**.**	**Thermometer: range 0-100*C**									***pcs***	***5***	***x***			
10	**.**	**Regulation valves:**					D	NP6			***pcs***	***2***	***x***			
11	**.**	**Dirt trap:**					D	NP6			***pcs***	***2***	***x***			
12	**.**	**Tap for discharging water out of the installation**														
		and for filling the installation DN15:									***pcs***	***5***	***x***			
13	**.**	**Hot water collector and distributor made of steel seamless**									***pcs***	***2***	***x***			
		dimensions fi88.9x3.2mm, length 800 mm, with three connections:														
		2xfi60.3x2.9mm and 1x21.3mm														
								TOTAL I. *RSD* :								

	II. HEATING UNITS AND ACCESSORIES - DELIVERY AND INSTALLATION					
1	***.*** **Steel panel radiators JUGOTERM or similar:**					
	Type 22/600					
	300 mm	***pcs***	***3***	***x***		
	400 mm	***pcs***	***19***	***x***		
	500 mm	***pcs***	***14***	***x***		
	600 mm	***pcs***	***18***	***x***		
	700 mm	***pcs***	***4***	***x***		
	800mm	***pcs***	***8***	***x***		
	900mm	***pcs***	***6***	***x***		
	1.000 mm	***pcs***	***5***	***x***		
	1.100 mm	***pcs***	***1***	***x***		
	1.200 mm	***pcs***	***2***	***x***		
	1.400 mm	***pcs***	***4***	***x***		
	1.600 mm	***pcs***	***1***	***x***		
	1.800 mm	***pcs***	***1***	***x***		
2	***.*** **Pipe radiators JUGOTERM or similar:**					
	type - 400/788 (442W)	***pcs***	***30***	***x***		
	type - 400/1.010 (557W)	***pcs***	***2***	***x***		
3	***.*** **Mounts for steel panel and pipe radiators:**	***pcs***	***242***	***x***		
4	***.*** **Radiator valve for double-piped heating system, with**					

		ascending pipe (600 mm) and thermostat option, HERZ or similar					
		with outl ### 1/2 "	***pcs***	***118***	***x***		
5	***.***	**Adapter for AL-Pex pipes:**	***pcs***	***236***	***x***		
6	***.***	**Valve for filling and discharging the installation**					
		to be mounted on heating units:	***pcs***	***118***	***x***		
7	***.***	**Air bleeding valves to be mounted on**					
		heating u DN15	***pcs***	***118***	***x***		
		TOTAL II. *RSD* :					
	III. PIPELINE AND REINFORCEMENT - DELIVERY AND INSTALLATION						
1	***.***	**Black seamless pipes:**					
		f 33.7 x 2.6	***m1***	***55***	***x***		
		f 42.4 x 2.6	***m1***	***25***	***x***		
		f 48.3 x 2.9	***m1***	***20***	***x***		
		f 60.3 x 3.2	***m1***	***105***	***x***		
2	***.***	**Al-Pex pipes:**					

		f 16 x 2 mm	*m1*	*2850*	*x*	
		f 18 x 2 mm	*m1*	*700*	*x*	
		f 20 x 2 mm	*m1*	*200*	*x*	
3	*.*	**Copper pipes:**				
		f 22 x 1 mm	*m1*	*50*	*x*	
4	*.*	**Connecting and sealing material, street elbows,**				
		clamps, couplings, consoles, welding wire oxygen,				
		acetylene and other accessories shall be calculated as				
		50% of pipe value:	*pcs*	*0.5*	*x*	
5	*.*	**Floor distributor and collector fi1" for 2 circuits, connectio**	*pcs*	*2*	*x*	
		complete with:				
		balancing valves fi1/2", TA STAD (2 pcs)				
		ultrasound calorimeter fi3/4", (2 pcs)				
		ball valve with hose cock fi3/4" (4 pcs)				
		ball valve with hose cock fi1" (2 pcs)				
		automatic air bleeding valve (2 pcs)				
		drain valve fi1/2" (2 pcs)				
		dirt trap fi3/4" (2 pcs)				
		galvanized coupling fi3/4" (4 pcs)				
		galvanized plug fi3/4" (4 pcs)				
6	*.*	**Floor distributor and collector fi1" for 3 circuits, connectio**	*pcs*	*7*	*x*	
		complete with:				

		balancing valves fi1/2", TA STAD (3 pcs)						
		ultrasound calorimeter fi3/4" (3 pcs)						
		ball valve with hose cock fi3/4" (6 pcs)						
		ball valve with hose cock fi1" (2 pcs)						
		automatic air bleeding valve (2 pcs)						
		drain valve fi1/2" (2 pcs)						
		dirt trap fi3/4" (3 pcs)						
		galvanized coupling fi3/4" (6 pcs)						
		galvanized plug fi3/4" (6 pcs)						
7	**.**	**Floor distributor and collector fi1" for 4 circuits, connectio**	***pcs***	***1***	***x***			
		complete with:						
		balancing valves fi1/2", TA STAD (4 pcs)						
		ultrasound calorimeter fi3/4" (8 pcs)						
		ball valve with hose cock fi3/4" (8 pcs)						
		ball valve with hose cock fi1" (2 pcs)						
		automatic air bleeding valve (2 pcs)						
		drain valve fi1/2" (2 pcs)						
		dirt trap fi3/4" (4 pcs)						
		galvanized coupling fi3/4" (8 pcs)						
		galvanized plug fi3/4" (8 pcs)						
8	**.**	**Floor distributor and collector fi1" for 5 circuits, connectio**	***pcs***	***1***	***x***			
		complete with:						
		balancing valves fi1/2", TA STAD (5 pcs)						
		ultrasound calorimeter fi3/4" (5 pcs)						

		ball valve with hose cock fi3/4" (10 pcs)						
		ball valve with hose cock fi1" (2 pcs)						
		automatic air bleeding valve (2 pcs)						
		drain valve fi1/2" (2 pcs)						
		dirt trap fi3/4" (5 pcs)						
		galvanized coupling fi3/4" (10 pcs)						
		galvanized plug fi3/4" (10 pcs)						
9	**.**	**Home distributor and collector for 1 circuit,**		***pcs***	***2***	***x***		
		complete with:						
		collector fi1" (2 pcs)						
		ball valve with hose cock MF fi5/4" (2 pcs)						
		automatic air bleeding valve fi3/8" (2 pcs)						
		filling and drain valve fi1/2" (2 pcs)						
		brass double nipple fi1/2" (2 pcs)						
		ball valve with hose cock MF fi1/2" (2 pcs)						
		Alu/PEX coupling fi15(fi18) - fi1/2" (2 pcs)						
10	**.**	**Home distributor and collector for 2 circuits,**		***pcs***	***6***	***x***		
		complete with:						
		collector fi1" (2 pcs)						
		ball valve with hose cock MF fi5/4" (2 pcs)						
		automatic air bleeding valve fi3/8" (2 pcs)						
		filling and drain valve fi1/2" (2 pcs)						
		brass double nipple fi1/2" (4 pcs)						
		ball valve with hose cock MF fi1/2" (4 pcs)						

		Alu/PEX coupling fi15(fi18) - fi1/2" (4 pcs)						
11	**.**	**Home distributor and collector for 3 circuits,**		***pcs***	***5***	***x***		
		complete with:						
		collector fi1" (2 pcs)						
		ball valve with hose cock MF fi5/4" (2 pcs)						
		automatic air bleeding valve fi3/8" (2 pcs)						
		filling and drain valve fi1/2" (2 pcs)						
		brass double nipple fi1/2" (6 pcs)						
		ball valve with hose cock MF fi1/2" (6 pcs)						
		Alu/PEX coupling fi15(fi18) - fi1/2" (6 pcs)						
12	**.**	**Home distributor and collector for 4 circuits,**		***pcs***	***18***	***x***		
		complete with:						
		collector fi1" (2 pcs)						
		ball valve with hose cock MF fi5/4" (2 pcs)						
		automatic air bleeding valve fi3/8" (2 pcs)						
		filling and drain valve fi1/2" (2 pcs)						
		brass double nipple fi1/2" (8 pcs)						
		ball valve with hose cock MF fi1/2" (8 pcs)						
		Alu/PEX coupling fi15(fi18) - fi1/2" (8 pcs)						
13	**.**	**Home distributor and collector for 5 circuits,**		***pcs***	***1***	***x***		
		complete with:						
		collector fi1" (2 pcs)						
		ball valve with hose cock MF fi5/4" (2 pcs)						

		automatic air bleeding valve fi3/8" (2 pcs)							
		filling and drain valve fi1/2" (2 pcs)							
		brass double nipple fi1/2" (10 pcs)							
		ball valve with hose cock MF fi1/2" (10 pcs)							
		Alu/PEX coupling fi15(fi18) - fi1/2" (10 pcs)							
14	**.**	**Home distributor and collector for 6 circuits,**		***pcs***	***2***	***x***			
		complete with:							
		collector fi1" (2 pcs)							
		ball valve with hose cock MF fi5/4" (2 pcs)							
		automatic air bleeding valve fi3/8" (2 pcs)							
		filling and drain valve fi1/2" (2 pcs)							
		brass double nipple fi1/2" (12 pcs)							
		ball valve with hose cock MF fi1/2" (12 pcs)							
		Alu/PEX coupling fi15(fi18) - fi1/2" (12 pcs)							
15	**.**	**Wall-mount cabinet for distributors and collectors**		***pcs***	***34***	***x***			
		placed in flats, dimensions: 600 x 800							
17	**.**	**Wall-mount cabinet for distributors and collectors**		***pcs***	***11***	***x***			
		placed in hallways, dimensions: 1000 x 1400							
18	**.**	**Air bleeding valve, dimensions fi108x200mm**		***pcs***	***2***	***x***			
		complete with overflow pipe (fi21.3mm, length 30m) and DN15 valve							

								TOTAL III. *RSD* :								
	IV. INSULATION AND PAINTING															
1	**.**	**Insulation of pipeline using ARMAFLEX or equivalent type of pipe insulation:**														
Al - Pex pipes		16x2mm(2800m)				Insulation 16x4mm(2800m)					**lumpsum**	**1**	***x***			
Al - Pex pipes		18x2mm(700m)				Insulation 18x4mm(700m)					**lumpsum**	**1**	***x***			
Al - Pex pipes		20x2mm(50m)				Insulation 20x4mm(50m)					**lumpsum**	**1**	***x***			
Black pipes						Insulation 30x4mm(55m)					**lumpsum**	**1**	***x***			
						Insulation 40x4mm(25m)					**lumpsum**	**1**	***x***			
						Insulation 50x4mm(20m)					**lumpsum**	**1**	***x***			
						Insulation 60x4mm(105m)					**lumpsum**	**1**	***x***			
2	**.**	**Insulation: mineral wool, d=40 mm, Al sheet d=0.6 mm**									***m1***	***10***	***x***			
		all pipes in the boiler room and outside.														
3	**.**	**Paint all the metal parts in the heating substation as well a**									**lumpsum**	**1**	***x***			
		the complete pipeline installation made of black seamless pipes														
		Way of painting: clean rust mechanically and coat														
		the surface twice with metal primer.														

								TOTAL IV. *RSD* :								
	V. PREPARATORY AND FINAL WORKS															
1	**.**	**Preparatory works**										**lumpsum**	**1**	***x***		
2	**.**	**Testing the installation for pressure**										**lumpsum**	**1**	***x***		
3	**.**	**Flushing the pipeline installation**										**lumpsum**	**1**	***x***		
4	**.**	**Testing air permeability and thermal insulation quality**										**lumpsum**	**1**	***x***		
		of the exterior walls and perform cold and hot water testing														
5	**.**	**Carry out works on setting and positioning**										**lumpsum**	**1**	***x***		
		the balancing valves														
6	**.**	**Carry out works on setting radiator valves**										**lumpsum**	**1**	***x***		
		to planned regulation positions														
7	**.**	**Transport of tools and material**										**lumpsum**	**1**	***x***		
8	**.**	**Final works**										**lumpsum**	**1**	***x***		
								TOTAL V. *RSD* :								
		SUMMARY:														
		I. HEATING SUBSTATION														

		II. HEATING UNITS AND ACCESSORIES														
		III. PIPELINE AND REINFORCEMENT														
		IV. INSULATION AND PAINTING														
		V. PREPARATORY AND FINAL WORKS														
											TOTAL RSD :					
NOTE: The prices shall include delivery and installation, as mentioned for each item.																
									Created by:							

PRICED BILL OF QUANTITIES FOR WORKS

ELEVATORS

Multi-family social housing building - Obrenovac

Item No.	Type of Works	UoM	NoU	Unit Price	Total RSD
	1. Deliver the equipment and install elevator mechanism according to the defined BoQ				
	L1				
1.1.	Type of elevator: passenger elevator, type I, Loading capacity Q=630 kg Drive speed: v=1 m/s, Number of stops/access points: N=6/6 Lift height: H=14.35 m Drive unit: ZIEHL-ABEGG SM 200.15C 2:1Electromotor N=4.4KW, n=159min-1, s Position – in the top of the elevator shaft. Space in the top of the shaft in accordance with the regulations for machine rooms. Carrier cables: 6xΦ6.5. Pulley at the top of the plunger D=240 mm Elevator control: Simplex, convergence point in the downward direction, with call and register boxes for 8 stops, call confirmation, occupancy control, with adequate electrical installation – Sec – Slovenia. Additional: device for automatic emergency drive Signalling: At the main stop, digital indication of car position and light signal of direction of movement toward other stops, light signal of movement in the car, digital indicator of car position, light indicator of overload, door opening button, alarm button, emergency light. Electrical connection: Drive voltage 3x380 / 220 V, 50 Hz on the main elevator switch in the machine room, with meltable fuses 3x25A, the lighting in the elevator shaft with alternating switch in the machine room and the elevator shaft, with car light switch, shucko socket with safety contact in the machine room and elevator shaft pit. Electrical installation: For dry area in the machine room and the elevator shaft, final limit switches in the elevator shaft, stop switches and high and low speed switches, electrical safety contact, car cable, plastic ducts for laying electrical conductors. Car guiderails: T75x62x9, with appropriate fastening equipment Counter-weight guiderails: T 50x50x5, with appropriate fastening equipment Elevator shaft doors: Automatic, telescopic, two-panel, 800x2000mm, with appropriate equipment – Selcom – Italy Panels and frames, plastic-coating finishing. Cars: Made of metal, set in steel frame, with immediate break device, cable load equalization device and electrical tension control. Base: 1100x1400mm, Height: 2200mm Interior finishing: laminate with onox skirtings Exterior finishing: anti-corrosion protection coat Floor: granite tiles Lighting: indirect in suspended ceiling Handrail on the side, mirror above the handrail Alarm and emergency light Car doors: Automatic, telescopic, two-panel, 800x2000mm, with appropriate equipment – Selcom – Italy Panels – plastic coating Elevator shaft: Made of concrete, base width 1600 mm, depth 1750 mm, height 19250 mm, pit depth 1300 mm, last floor height: 3600 mm NOTE: Join together metal elements in the top of the elevator shaft and connect to the potential equalizing system in the machine room.	pcs	1.00		

2. Deliver the equipment and install elevator mechanism according to the defined BoQ

1.2.	Type of elevator: passenger elevator, type I, Loading capacity Q=630 kg Drive speed: v=1 m/s Number of stops/access points: N=6/6 Lift height: H=11.48 m Drive unit: ZIEHL-ABEGG SM 200.15C 2:1Electromotor N=4.4KW, n=159min-1, s Position – in the top of the elevator shaft. Space in the top of the shaft in accordance with the regulations for machine rooms. Carrier cables: 6xΦ6.5. Pulley at the top of the plunger D=240 mm Elevator control: Simplex, convergence point in the downward direction, with call and register boxes for 8 stops, call confirmation, occupancy control, with adequate electrical installation – Sec – Slovenia. Additional: device for automatic emergency drive Signalling: At the main stop, digital indication of car position and light signal of direction of movement toward other stops, light signal of movement in the car, digital indicator of car position, light indicator of overload, door opening button, alarm button, emergency light. Electrical connection: Drive voltage 3x380 / 220 V, 50 Hz on the main elevator switch in the machine room, with meltable fuses 3x25A, the lighting in the elevator shaft with alternating switch in the machine room and the elevator shaft, with car light switch, shucko socket with safety contact in the machine room and elevator shaft pit. Electrical installation: For dry area in the machine room and the elevator shaft, final limit switches in the elevator shaft, stop switches and high and low speed switches, electrical safety contact, car cable, plastic ducts for laying electrical conductors. Car guiderails: T75x62x9, with appropriate fastening equipment Counter-weight guiderails: T 50x50x5, with appropriate fastening equipment Elevator shaft doors: Automatic, telescopic, two-panel, 800x2000mm, with appropriate equipment – Selcom – Italy Panels and frames, plastic-coating finishing. Cars: Made of metal, set in steel frame, with immediate break device, cable load equalization device and electrical tension control. Base: 1100x1400mm, Height: 2200mm Interior finishing: laminate with onox skirtings Exterior finishing: anti-corrosion protection coat Floor: granite tiles Lighting: indirect in suspended ceiling Handrail on the side, mirror above the handrail Alarm and emergency light Car doors: Automatic, telescopic, two-panel, 800x2000mm, with appropriate equipment – Selcom – Italy Panels – plastic coating Elevator shaft: Made of concrete Base width 1600 mm, depth 1750 mm Height 16380 mm Pit depth 1300 mm NOTE: Join together metal elements in the top of the elevator shaft and connect to the potential equalizing system in the machine room. Join together metal elements in the pit with connection to the building earthing protection installation.	pcs	1.00

Total RSD without VAT:

Responsible Designer:
Aleksandar Nestorović,Mechanical Engineer

	SUMMARY RECAPITULATION OF WORK				
	BUILDING: Social housing building for multiple families, KP 1457/1 KO Obrenovac, Obrenovac				
	INVESTOR: City of Belgrade, Obrenovac Municipality, 74 Vuka Karadžića St., Obrenovac				
	CONSTRUCTION AND SPECIALIST WORK				
	ROADWORK				
	WORK ON WATER SUPPLY AND SEWAGE INSTALLATIONS				
	WORK ON ELECTRICAL INSTALLATIONS				
	WORK ON TELECOMMUNICATIONS INSTALLATIONS				
	WORK ON HEATING INSTALLATIONS				
	ELEVATORS				
	TOTAL				