

TOTAL Bill of quantities of equipment and works on the reconstruction of HVAC instalations in Local Elementary School "Sveti Sava" in Ševarlije near Doboj

1. MECHANICAL INSTALLATIONS

A. Design Execution

No	DESCRIPTION OF WORKS	Unit	Quantity	Unit price	Total [CZK]
1	Works on preparation of the Execution design, visiting site, scaling and marking	L.S.	1	165 000,00	165 000,00 Kč
2	Elaboration of the Main design in the Execution design after additional adjustment with the Investor	L.S.	1	80 000,00	80 000,00 Kč
A. Design Execution [CZK]:					245 000,00 Kč

B. Installation of radiator heating

No	DESCRIPTION OF WORKS	Unit	Quantity	Unit price	Total [CZK]
1	Works on preparation of radiator heating instalation, visiting site, scaling and marking	L.S.	1	75 000,00	75 000,00 Kč
2	Dismantling pipeline network and radiators of the existing installation of central heating	L.S.	1	42 000,00	42 000,00 Kč
3	Delivery and installation of panel radiators for two-pipe heating system, type Radik Classic 22, product of "Korado" or equiv., following dimensions:				
	- 500 x 1200 mm	pcs	1	8 000,00 Kč	8 000,00 Kč
	- 500 x 1400 mm	pcs	1	8 500,00 Kč	8 500,00 Kč
	- 500 x 1600 mm	pcs	4	9 000,00 Kč	36 000,00 Kč
	- 500 x 1800 mm	pcs	3	9 125,00 Kč	27 375,00 Kč
	- 600 x 1100 mm	pcs	3	9 480,00 Kč	28 440,00 Kč
	- 600 x 1400 mm	pcs	4	9 670,00 Kč	38 680,00 Kč
	- 600 x 1600 mm	pcs	3	9 890,00 Kč	29 670,00 Kč
	- 600 x 1800 mm	pcs	14	9 987,00 Kč	139 818,00 Kč
	- 600 x 2000 mm	pcs	3	10 012,00 Kč	30 036,00 Kč
	- 600 x 2300 mm	pcs	12	10 231,00 Kč	122 772,00 Kč
	- 700 x 900 mm	pcs	1	7 123,00 Kč	7 123,00 Kč
4	Delivery and installation of accessories for mounting the radiator on the wall	set	49	850,00 Kč	41 650,00 Kč
5	Delivery and installation of radiator vent tap R1/2"	pcs	24	312,00 Kč	7 488,00 Kč
6	Delivery and installation of taps for filling/draining R1/2"	pcs	49	268,00 Kč	13 132,00 Kč
7	Delivery and installation of thermostatic radiator valves R 1/2"	pcs	49	362,00 Kč	17 738,00 Kč
8	Delivery and installation of radiator lockshields R 1/2"	pcs	49	237,00 Kč	11 613,00 Kč
9	Delivery and installation of thermostatic heads type "Herzcules" product "Herz" or equivalent	pcs	39	437,00 Kč	17 043,00 Kč

No	DESCRIPTION OF WORKS	Unit	Quantity	Unit price	Total [CZK]
10	Delivery and installation of seamless steel pipes and fittings made according to DIN 2448 for producing pipeline				
	- Ø 21.3 x 2 mm (Ø1/2")	m	54	489,00 Kč	26 406,00 Kč
	- Ø 26.9 x 2 mm (Ø3/4")	m	54	501,00 Kč	27 054,00 Kč
	- Ø 33.7 x 2 mm (Ø1")	m	42	598,00 Kč	25 116,00 Kč
	- Ø 42.4 x 2 mm (Ø5/4")	m	42	609,00 Kč	25 578,00 Kč
	- Ø 48.3 x 2.3 mm (Ø6/4")	m	126	813,00 Kč	102 438,00 Kč
	- Ø 60.3 x 2.3 mm (Ø2")	m	54	911,00 Kč	49 194,00 Kč
11	Additional material such as arches, material reliance and suspension of tubes, oxygen, acetylene, wire and welding electrodes, etc. is taken to be 50% of pipe price	set	1,0	ΣNo10 * 0,5	127 893,00 Kč
12	Painting of pipeline in white color resistant to high temperatures. Before painting the pipes must be cleaned of grease and corrosion and coated with two layers of primary colors.	L.S.	1	16 000,00	16 000,00 Kč
13	Installation rinsing with cold water to get completely clear water	L.S.	1	7 230,00	7 230,00 Kč
14	Cold test pressure P=Pworking+2 at least for period of 6 h, with observation at least of 24 hours	L.S.	1	8 000,00	8 000,00 Kč
B. Installation of radiator heating [CZK]:					1 116 987,00 Kč

C. Machine room

No	DESCRIPTION OF WORKS	Unit	Quantity	Unit price	Total [CZK]
1	Preparation works, visiting site, scaling and marking	L.S.	1	30 000,00	30 000,00 Kč
2	Delivery and installation of "water to water" heat pump, type "WPF 66" product "Stiebel Eltron" or equivalent, designed for indoor installation. Technical performances for design conditions: - heating capacity: 77 kW - water temperature in the primary circuit 60 /50°C - water temperature in the secondary circuit: 11/8°C - Refrigerant: R410 A or equivalent Technical performances for nominal conditions: - Nominal heating capacity: 66 kW - temperature of the entering water 0°C - temperature of the leaving water 35°C	set	1	761 000,00	761 000,00 Kč
3	Delivery and installation of separable plate heat exchanger, following performances: - capacity: Qmax = 92 kW - water flow: 18 m ³ / h - fluid in primary circuit: cold water 13/10 ° C - pressure drop in the primary circuit Δpmax = 25 kPa - fluid in secondary circuit: cold water 11/8 ° C - pressure drop at the secondary circuit Δpmax = 25 kPa; REFLEX CZ	set	1	85 000,00	85 000,00 Kč

No	DESCRIPTION OF WORKS	Unit	Quantity	Unit price	Total [CZK]
4	Delivery and installation of hot water accumulator "SBP 1500 E", volume 1500 liter, complete with thermal insulation, type " WHD SBP 1500", product "Stiebel Eltron" or equiv.	pcs	1	90 000,00	90 000,00 Kč
5	Delivery and installation of the boiler in enamelled steel with fixed heat exchanger and electrical heater 2 kW for DHW preparation, volume V = 120 liters; TATRAMAT VTH120	set	1	15 890,00	15 890,00 Kč
6	Delivery and installation of fixed bladder expansion vessel, volume 100 liters, type ERCE 100, product "Elbi" or equivalent; AQUAFILL HS	pcs	1	7 800,00	7 800,00 Kč
7	Delivery and installation of fixed bladder expansion vessel, volume of 5 liters, the type of ER 5, product "Elbi" or equivalent; AQUAFILL HS	pcs	1	4 860,00	4 860,00 Kč
8	Delivery and installation of the threaded safety valve DN 20 with spring, P _{opening} = 4 bar ; AQUAFILL HS	kom	2	425,00	850,00 Kč
9	Manufacture, delivery and installation of hot water collector and splitter, made of steel pipe DN 100 (108 x 2.9 mm), length 1000 mm	set	2	8 900,00	17 800,00 Kč
10	Delivery and installation of the circulation pump for pumping water from wells, type SP17-1, product "Grundfos" or equivalent.	pcs	1	47 500,00	47 500,00 Kč
11	Delivery and installation of the circulation pump in the secondary circuit of the heat exchanger, type UPS 50-120 F 200 Series, product "Grundfos" or equivalent.	pcs	1	36 250,00	36 250,00 Kč
12	Delivery and installation of the circulation pump in heat pump primary circuit, type UPS 40-60 F 200 Series, product "Grundfos" or equivalent.	pcs	1	34 375,00	34 375,00 Kč
13	Delivery and installation of the circulation pump in radiator heating circuit, type 1 MAGNA 40-60, product "Grundfos" or equivalent.	pcs	1	31 250,00	31 250,00 Kč
14	Delivery and installation of circulation pump in DHW preparation circuit, type UPS 25-60 130 Series 100, product "Grundfos" or equivalent.	pcs	1	31 000,00	31 000,00 Kč
15	Delivery and installation of PE pipes (so-called. OKITEN, made of polyethylene) for making pipelines for ground water transport: - Ø 90 x 3.3 mm	m	100	398,00	39 800,00 Kč
16	Delivery and installation of seamless steel pipes and fittings according to DIN 2448 for making of the pipelines - Ø 21.3 x 2 mm (Ø1/2")	m	12	415,00 Kč	4 980,00 Kč
	- Ø 26.9 x 2 mm (Ø3/4")	m	12	468,00 Kč	5 616,00 Kč
	- Ø 60.3 x 2.3 mm (Ø2")	m	30	814,00	24 420,00 Kč
	- Ø 88.9 x 2.9 mm (Ø3")	m	18	987,00	17 766,00 Kč
17	Connecting and sealing materials such as arches, brackets and retainers, push-fit pipe clips, hangers, tubes, acetylene, oxygen, klingerit, welding wire and other materials is taken to be 50% of pipe price	set	1,0	ΣNo16 * 0,5	26 391,00 Kč

No	DESCRIPTION OF WORKS	Unit	Quantity	Unit price	Total [CZK]
18	Delivery and installation of pipe insulation, product "Armocell" or equiv. Before installing pipe insulation, pipeline must be cleaned of grease and corrosion and coated with two layers of primary colors. Pipe insulation is available in the following sizes:				
	- Ø 26.9 x 2 mm (Ø3/4")	m	12	140,00 Kč	1 680,00 Kč
	- Ø 60.3 x 2.3 mm (Ø2")	m	30	186,00 Kč	5 580,00 Kč
	- Ø 88.9 x 2.9 mm (Ø3")	m	18	199,00 Kč	3 582,00 Kč
19	Delivery and installation of flanged regulating valve, with flanges and fittings				
	- DN 80	pcs	1	14 375,00 Kč	14 375,00 Kč
20	Delivery and installation of flanged shut-off valve, with flanges and fittings				
	- DN 50	pcs	1	7 375,00 Kč	7 375,00 Kč
	- DN 80	pcs	7	9 375,00 Kč	65 625,00 Kč
	- DN 100	pcs	1	10 750,00 Kč	10 750,00 Kč
21	Delivery and installation of flanged strainers for, with flanges and fittings				
	- DN 80	pcs	2	9 375,00 Kč	18 750,00 Kč
22	Delivery and installation of flanged irreversible valve:				
	- DN 100	pcs	1	11 125,00 Kč	11 125,00 Kč
23	Delivery and installation of threaded regulating valve for pipeline balancing, product "Herz", or equivalent:				
	- R 3/4"	pcs	1	900,00 Kč	900,00 Kč
	- R 2"	pcs	1	2 375,00 Kč	2 375,00 Kč
24	Delivery and installation of shut-off valve, with holender, product "Kovina", or equivalent:				
	- R 1/2"	pcs	8	320,00 Kč	2 560,00 Kč
	- R 3/4"	pcs	3	390,00 Kč	1 170,00 Kč
	- R 1"	pcs	2	575,00 Kč	1 150,00 Kč
	- R 6/4"	pcs	4	775,00 Kč	3 100,00 Kč
	- R 2"	pcs	3	1 175,00 Kč	3 525,00 Kč
25	Delivery and installation of threaded strainers:				
	- R 3/4"	pcs	1	550,00 Kč	550,00 Kč
	- R 2"	pcs	1	862,00 Kč	862,00 Kč
26	Delivery and installation of threaded irreversible valve:				
	- R 1"	pcs	1	650,00 Kč	650,00 Kč
27	Delivery and installation of manometer for temperature ranges: 0 ÷ 6 bar	pcs	5	560,00 Kč	2 800,00 Kč
28	Delivery and installation of thermometers in brass cartridge cases, for temperature ranges: 0 ÷ 120°C	pcs	8	490,00 Kč	3 920,00 Kč
29	Delivery and installation of valve with tap for filling and emptying, with cap and chain, R 1/2"	pcs	4	487,00 Kč	1 948,00 Kč

No.	DESCRIPTION OF WORKS	Unit	Quantity	Unit price	Total [CZK]
30	Delivery and installation of air vents with faucet for air releasing, R 1/2"				
	- Ø 100 x 300 mm	pcs	6	737,00	4 422,00 Kč
31	Installation rinsing with cold water. After tests, installation has to be cleaned.	L.S.	1	1 750,00	1 750,00 Kč
32	Testing installation on hydraulic pressure $p = p_{\text{radno}} + 2 \text{ bar}$, 6 hour duration, with the observation of at least 24 h.	L.S.	1	3 125,00	3 125,00 Kč
33	Pressure nitrogen testing of installation, vacuuming of instalation, filling with freon R410A or equivalent regarding to Manufacture Manual and Putting system operational by authorized service provider. Make a report about commissioning and testing functionality.	L.S.	1	3 750,00	3 750,00 Kč
34	The final works on the installation of heat pump, control and final regulations installations, clearing the building from waste and excess material.	L.S.	1	25 000,00	25 000,00 Kč
C. Machine room [CZK]:					1 514 947,00 Kč

D. Boiler room

No.	DESCRIPTION OF WORKS	Unit	Quantity	Unit price	Total [CZK]
1	Dismantling of the existing equipment and installation in the boiler room.	L.S.	1	20 000,00 Kč	20 000,00 Kč
2	Delivery and installation of hot water boiler for solid fuel, type TKV-100, product by "Topling-Prnjavor" or equivalent, with the following characteristics: - fluid: hot water 80/60 °C - heat capacity: $Q_k = 100 \text{ kW}$ - connectors: DN 50, PN 6 - flue vent connector: Ø 230 mm	set	1	175 000,00 Kč	175 000,00 Kč
3	Delivery and installation of insulated flue pipe Ø230 mm	m	2	2 500,00 Kč	5 000,00 Kč
4	Delivery and installation of insulated flue knee Ø230 mm	pcs	1	2 830,00 Kč	2 830,00 Kč
5	Delivery and installation of fixed bladder expansion vessel, volume 200 liters, type ERCE 200, product "Elbi" or equivalent; AQUAFILL HS	pcs	1	14 375,00 Kč	14 375,00 Kč

No.	DESCRIPTION OF WORKS	Unit	Quantity	Unit price	Total [CZK]
6	Delivery and installation of safety valve DN 25 with spring, P _{opening} = 3 bar	pcs	2	690,00 Kč	1 380,00 Kč
7	Delivery and installation of preinsulated steel pipe in accordance with the requirements of standards EN 253/2009: Steel pipe, with or without seam, material P 235 GH, with guaranteed mechanical properties at elevated temperature consistent standards SRPS EN 10216-2, SRPS EN 10217-2 i SRPS EN 10271-5. The shape and measures according to the standards EN 10220 of technical requirements for manufacturing and delivery steel pipes by the standards EN 10216-2, EN 10217-2 SRPS EN 10271-5. The pipes are insulated with polyurethane foam. The insulation is covered with high-density polyethylene-PEHD/HDPE protection layer. Preinsulate pipes have built-in signaling and alarm copper wire, for moisture detection:				
	- Ø 60.3 x 2.9 mm (DN 50)	m	12	1 580,00 Kč	18 960,00 Kč
8	Network supports and network fittings, oxygen, acetylene, wiring and welding electrodes etc.30% of pipes item.	%	0,3	6 250,00 Kč	1 875,00 Kč
9	Delivery and installation of heat shrink coupler and connecting elements: - Ø 60.3 x 2.9 mm (DN 50)	pcs	8	1 231,00 Kč	9 848,00 Kč
10	Delivery and installation of pre-insulated knees with coupling and connecting elements: - Ø 60.3 x 2.6 mm (DN 50)	pcs	6	2 980,00 Kč	17 880,00 Kč
11	Delivery and installation of closing cap, with coupling and connecting elements: - Ø 60.3 x 2.9 mm (DN 50)	pcs	4	1 384,00 Kč	5 536,00 Kč
12	Passage through a wall, sealing bushing, with coupling and connecting elements: - Ø 60.3 x 2.9 mm (DN 50)	pcs	4	1 750,00 Kč	7 000,00 Kč
13	Delivery and installation of sealing gum:	m	60	436,00 Kč	26 160,00 Kč
14	Delivery and installation of plastic strip for pipeline marking	m	24	100,00 Kč	2 400,00 Kč
15	Delivery and installation of elements for connecting moisture detection system to the pipeline, following length 12 m and to the number of coupler:	pcs	8	321,00 Kč	2 568,00 Kč
16	Delivery and installation of circulation pump in boiler circuit, type UPS 32-80 130 Series 100, product "Grundfos".	pcs	1	14 320,00 Kč	14 320,00 Kč
17	Delivery and installation of circulation pump for boiler cold-end protection, type UPS 25-60 130 Series 100, product "Grundfos".	pcs	1	9 000,00 Kč	9 000,00 Kč

No.	DESCRIPTION OF WORKS	Unit	Quantity	Unit price	Total [CZK]
18	Delivery and installation of seamless steel pipes and fittings DIN 2448 for pipeline network				
	- Ø 33.7 x 2 mm (Ø1")	m	12	573,00 Kč	6 876,00 Kč
	- Ø 60.3 x 2.3 mm (Ø2")	m	12	828,00 Kč	9 936,00 Kč
19	Network supports and network fittings, oxygen, acetylene, wiring and welding electrodes etc.50% of pipes item.	set	1,0	ΣNo18 * 0,5	8 406,00 Kč
20	Delivery and installation of mineral wool insulation sleaved in aluminium sheet. Before insulation instalation, pipeline must be cleaned of grease and corrosion and painted with base color in two coats	m ²	10	712,00 Kč	7 120,00 Kč
21	Delivery and installation of shut-off valve with threaded connections, included with union, product "Kovina", or equivalent. :				
	- R 1"	pcs	2	575,00 Kč	1 150,00 Kč
	- R 5/4"	pcs	2	775,00 Kč	1 550,00 Kč
	- R 2"	pcs	2	1 175,00 Kč	2 350,00 Kč
22	Delivery and installation of thermometers in brass cartridge cases, for temperature ranges: 0 ÷ 120°C	pcs	1	430,00 Kč	430,00 Kč
23	Delivery and installation of air vents with faucet for air releasing, R 1/2"				0,00 Kč
	- Ø 100 x 300 mm	pcs	2	737,00 Kč	1 474,00 Kč
24	Delivery and installation of fire protection equipment: - fire extinguisher S9 i S50 - fire extinguisher CO ₂ - 5 kg	set	1	2 500,00 Kč	2 500,00 Kč
25	Installation rinsing with cold water in the boiler room.	L.S.	1	2 340,00 Kč	2 340,00 Kč
26	Testing installation on hydraulic pressure $p = p_{\text{radno}} + 2 \text{ bar}$, 6 hour duration, with the observation of at least 24 h.	L.S.	1	3 125,00 Kč	3 125,00 Kč
27	Testing the functionality of the boiler. Putting system operational by authorized service provider, hot system test, adjusting operating parameters on automation of boiler and measuring the combustion products. Make a report about commissioning and measurement.	L.S.	1	6 000,00 Kč	6 000,00 Kč
28	Production and framing of system functional scheme with instruction manuals	L.S.	1	3 125,00 Kč	3 125,00 Kč
29	Preparation of as-built design, three copies with all reports necessary for Technical acceptance.	L.S.	1	7 500,00 Kč	7 500,00 Kč
D. Boiler room [CZK]:					398 014,00 Kč

RECAPITULATION 1. MECHANICAL INSTALLATIONS

	A. Design Execution [CZK]:	245 000,00 Kč
	B. Installation of radiator heating [CZK]:	1 116 987,00 Kč
	C. Machine room [CZK]:	1 514 947,00 Kč
	D. Boiler room [CZK]:	398 014,00 Kč
Total 1. MECHANICAL INSTALLATIONS [CZK]:		3 274 948,00 Kč

2. ELECTRICAL INSTALLATIONS

NOTE: The subject of the Bill of Quantities (BoQ), as defined in the project task, is delivery, transport to the site and installation of the necessary materials and equipment for the implementation of electrical installations in the mechanical rooms and its equipment related to the operation of the heating system, all in accordance with the attached text and graphic documentation of the project, with all necessary auxiliary materials and skilled labor and in accordance with the applicable standards.

- Materials and equipment must have first-class quality and must be purchased from the reputable manufacturers. All of the noticed equipment manufacturers in the BoQ have been specified as referenced and the investor can buy and deliver the equipment with the same characteristics but from other manufacturers.
- Before making an offer the contractor must fully consider the scope of work and technical solutions and include possible corrections in the BoQ, examining the accompanying technical documentation, and include possible corrections in the BoQ. Subsequent requests for price adjustments will not be considered. When creating bid, the bidder is required to indicate the manufacturer whose equipment will be installed.
- After finishing and commissioning of the installations and equipment in proper operation, the contractor is required to provide a guarantee for the works and installed equipment and materials, under the contract, then handed over certificates for installed equipment and materials, measurement protocols and the final design project including all changes between main project and implemented installation, all in accordance with the applicable standards.

All electrical works must be carried out in close cooperation with the supervisory authorities and the representatives of other teams and investors.

Especially emphasize that: considering the balance of the object electric power defined by the project (significantly higher than the former one), existing power line between the measuring equipment at the pole of the distribution network to the main panelboard in the ground floor of the school must be changed. The new power line construct the user in agreement with the relevant Distribution company, while this project predicted that the power line runs in one piece, without interruption, according to the "Regulations on the connection to the low voltage distribution network" defined by the Holding "ELEKTROPRIVREDA REPUBLIKE SRPSKE" from June 2011. The same applies to possible modifications of the distribution line from the pole mounted transformer station to the measuring point as well as all the interventions on the transformer station and belonging LV panelboard. The obligation of the contractor of the electrical installations together with the supervisory authorities, is to draw user attention to immediately solve this issue with the relevant Distribution company with the aim of the smooth running of the school.

No.	DESCRIPTION OF WORKS	Unit	Quantity	Unit price	Total [CZK]
1	Dismantling of the existing power cable, internal power line, passing from the main panelboard, mounted on the ground floor of the school, to the connection point of the outer and inner power line in the attic.	m1	25	160,00	4 000,00 Kč
2	Supply and laying of the cable type N2XH-J 5x16mm ² for the supply of the panelboard of the mechanical installations. The cable is laying from the main panelboard to the panelboard in the machine room. The average length per feeder is 16m.	pcs	1	7 400,00	7 400,00 Kč

No.	DESCRIPTION OF WORKS	Unit	Quantity	Unit price	Total [CZK]
3	Supply and installation of the fuse disconnectors with NV fuses of sizes NVOO 3x63A, ISFT 100, "Schneider Electric" or equivalent in the main panelboard, for supply of mechanical room panelboard. All including buses, bushings, main feeders, fuse carriers and masks, nameplates, and other materials. On the inside of the door put a copy of the final three-line diagram of the cabinet.	pcs	1	5 900,00 Kč	5 900,00 Kč
4	Supply and installation of the panelboard RO-MS in machine room, according to the three line diagram, prepared from twice pickled sheet, equipped with a lock with a key for locking, in the embodiment IP-54 which contains the following equipment:				
	thermal-magnetic circuit breaker type NSX 100B, TM100D, 100A, 25kA, 380/415VA, "Schneider" or equivalent.	pcs	1	1 150,00 Kč	1 150,00 Kč
	set of the fuse kit EZN63/63A	pcs	3	844,00 Kč	2 532,00 Kč
	quadropole surge arrester class "C", 20/40kA per phase for current wave 8/20µs, Uc=320 VAC, similar to PROTEC CR 160/320	pcs	1	3 280,00 Kč	3 280,00 Kč
	green signal bulb, 230V, 2W, mounted on the cabinet door.	pcs	3	600,00 Kč	1 800,00 Kč
	transformer 230/24V, 100VA	pcs	1	844,00 Kč	844,00 Kč
	transformer 230/24V, 300VA	pcs	1	2 812,00 Kč	2 812,00 Kč
	automatic single pole breaker „Schneider„, 230/400V, B2A, 6kA, or equivalent	pcs	3	3 120,00 Kč	9 360,00 Kč
	Automatic single pole fuse C60N/6A, 10kA, type "C", similar to those of "Schneider Electric"	pcs	4	582,00 Kč	2 328,00 Kč
	Automatic two pole fuse C60N/6A, 10kA, type "C", similar to those of "Schneider Electric"	pcs	3	1 162,00 Kč	3 486,00 Kč
	Automatic single pole fuse C60N/16A, 10kA, type "B", similar to those of "Schneider Electric"	pcs	3	525,00 Kč	1 575,00 Kč
	Automatic single pole fuse C60N/16A, 10kA, type "C", similar to those of "Schneider Electric"	pcs	2	582,00 Kč	1 164,00 Kč
	Automatic two pole fuse C60N/6A, 10kA, type "C", similar to those of "Schneider Electric"	pcs	1	1 200,00 Kč	1 200,00 Kč
	Automatic two pole fuse C60N/10A, 10kA, type "C", similar to those of "Schneider Electric"	pcs	1	1 275,00 Kč	1 275,00 Kč
	Automatic three pole fuse C60N/20A, 10kA, type "C", similar to those of "Schneider Electric"	pcs	1	1 856,00 Kč	1 856,00 Kč
	Automatic three pole fuse C60H/50A, 15kA, type "C", similar to those of "Schneider Electric"	pcs	1	1 856,00 Kč	1 856,00 Kč
	Three pole contactor 9A, 400V similar to the type LC1 D09 B7, 24VAC, "Schneider Electric"	pcs	7	2 625,00 Kč	18 375,00 Kč
	Motor protection breaker 0.25-0.4A, 400V similar to type GV2-ME03, "Schneider Electric"	pcs	2	1 500,00 Kč	3 000,00 Kč
	Motor protection breaker 0.63-1A, 400V similar to type GV2-ME05, "Schneider Electric"	pcs	2	1 684,00 Kč	3 368,00 Kč
	Motor protection breaker 1-1.6A, 400V similar to type GV2-ME06, "Schneider Electric"	pcs	1	3 750,00 Kč	3 750,00 Kč
	Motor protection breaker 1.6-2.5A, 400V similar to type GV2-ME07, "Schneider Electric"	pcs	2	2 625,00 Kč	5 250,00 Kč

No.	DESCRIPTION OF WORKS	Unit	Quantity	Unit price	Total [CZK]
	electric button mounted on the cabinet door, 10A, 230V, blue, 1NO	pcs	1	555,00 Kč	555,00 Kč
	Swing switch 1-0-2, 1-pole 10A, mounted on the door, "Schneider Electric" or equivalent	pcs	7	590,00 Kč	4 130,00 Kč
	Led signal lamp for 24VAC, green	pcs	7	300,00 Kč	2 100,00 Kč
	Led signal lamp for 24VAC, red	pcs	7	300,00 Kč	2 100,00 Kč
	Block with LED lamps for light bulb checking 24VAC.	pcs	14	581,00 Kč	8 134,00 Kč
	Mounting of the controller type WPMS3 or equivalent to the DIN rail. Controller is delivered by the machine phase.	pcs	1	5 437,50 Kč	5 437,50 Kč
	Mounting of the display of the controller type WPMS3 or equivalent to the cabinet door. Display is delivered by the machine phas.	pcs	1	4 687,50 Kč	4 687,50 Kč
	All components including buses, feeders, the major clamps in feeders, carriers and masks of the fuses, nameplates, stranded conductors for grounding of the doors, toothed washers and corresponding bolts and other materials. On the inside of the door put a copy of the final three-line diagram of the cabine.	pcs	1	9 375,00 Kč	9 375,00 Kč
5	Supply and installation of the panelboard RO-K in boiler room, according to the three line diagram, prepared from twice pickled sheet, equipped with a lock with a key for locking, in the embodiment IP-54 which contains the following equipment:				
	thermal-magnetic circuit breaker type NSX 100B, TM25D, 25A, 25kA, 380/415VA, "Schneider" or equivalent.	pcs	1	2 890,00 Kč	2 890,00 Kč
	set of the fuse kit EZN63/63A	pcs	3	1 500,00 Kč	4 500,00 Kč
	quadropole surge arrester class "C", 20/40kA per phase for current wave 8/20 μ s, Uc=320 VAC, similar to PROTEC CR 160/320	pcs	1	4 560,00 Kč	4 560,00 Kč
	green signal bulb, 230V, 2W, mounted on the cabinet door.	pcs	3	600,00 Kč	1 800,00 Kč
	transformer 230/24V, 100VA	pcs	1	843,00 Kč	843,00 Kč
	automatic single pole breaker „Schneider,, 230/400V, B60N/2A, 10kA, or equivalent	pcs	3	2 970,00 Kč	8 910,00 Kč
	Automatic single pole fuse C60N/6A, 10kA, type "C", similar to those of "Schneider Electric"	pcs	1	581,00 Kč	581,00 Kč
	Automatic single pole fuse C60N/6A, 10kA, type "B", similar to those of "Schneider Electric"	pcs	3	1 162,00 Kč	3 486,00 Kč
	Automatic single pole fuse C60N/16A, 10kA, type "B", similar to those of "Schneider Electric"	pcs	1	525,00 Kč	525,00 Kč
	Automatic single pole fuse C60N/16A, 10kA, type "C", similar to those of "Schneider Electric"	pcs	3	581,00 Kč	1 743,00 Kč
	Automatic two pole fuse C60N/6A, 10kA, type "C", similar to those of "Schneider Electric"	pcs	1	1 200,00 Kč	1 200,00 Kč
	The socket mounting with a lid, (mounting on the left side cabinet housing), 250 V, 16A, 1P + N + PE, IP54, aluminum alloy.	pcs	1	768,00 Kč	768,00 Kč
	The socket mounting with a lid (mounting on the left side cabinet housing), 400V,16A,3P+N+PE, IP54, aluminum alloy.	pcs	1	1 031,00 Kč	1 031,00 Kč
	The low voltage socket mounting with a lid, (mounting on the left side cabinet housing), 24V,16A, 2P, IP54, aluminum alloy.	pcs	1	675,00 Kč	675,00 Kč
	All components including buses, feeders, the major clamps in feeders, carriers and masks of the fuses, nameplates, stranded conductors for grounding of the doors, toothed washers and corresponding bolts and other materials. On the inside of the door put a copy of the final three-line diagram of the cabine.	pcs	1	4 687,00 Kč	4 687,00 Kč
6	Delivery, installation and connection of the following types of lamps and switches:				
	Ceiling lamp, line with housing and transparent diffuser made of injected, UV stabilized, V2 self-extinguishing, non-halogen polycarbonate, polyurethane waterproof seal and parabolic, shiny reflector, 2x28W , T16, G5, EB, 230V, IP65, complete with light sources. manufacturer "Intra" or equivalent.	pcs	9	2 300,00 Kč	20 700,00 Kč
	Ceiling lamp, with housing and transparent diffuser made of injected, UV stabilized, V2 self-extinguishing, non-halogen polycarbonate, polyurethane waterproof seal, type ETEA TR , 22W, T16, G5, 230V, IP54, complete with light sources. manufacturer "Intra" or equivalent.	pcs	3	1 298,00 Kč	3 894,00 Kč

	An emergency lamp, a wall-mounted or a ceiling lamp, DESIGN KC type, 8W / 3h, LL, EVG, 30m, IP65, with pictograms included, "Schrack" manufacturer or equivalent. The corresponding "EXIT" mark or direction of movement should be affixed to the lamps as shown in graphic part of the documentation.	pcs	3	2 430,00 Kč	7 290,00 Kč
	Installation on the wall 1p, One-Way light switch, 16A, 250V, IP55.	pcs	6	412,00 Kč	2 472,00 Kč
	Installation on the wall 1p, Two-Way light switch , 16A, 250V, IP55.	pcs	2	518,00 Kč	1 036,00 Kč
7	Delivery, assembly and connection of the following electrical installation material:				
	The socket mounting with a lid, 250 V, 16A, 1P + N + PE, IP54, aluminum alloy.	pcs	6	768,00 Kč	4 608,00 Kč
	The socket mounting with a lid, 400V,16A,3P+N+PE, IP54, aluminum alloy.	pcs	2	798,00 Kč	1 596,00 Kč
	The low voltage socket mounting with a lid, 24V,16A, 2P, IP54, aluminum alloy.	pcs	1	723,00 Kč	723,00 Kč

No.	DESCRIPTION OF WORKS	Unit	Quantity	Unit price	Total [CZK]
8	Supply and installation of cables, for power supply of general and technological consumers, laying partly on the PPC carriers, partly on the clamps and partly in PVC pipes:				
	PPOO, 2x1.5 mm ²	m1	35	30,00 Kč	1 050,00 Kč
	PPOO-Y, 3x1.5 mm ²	m1	185	32,00 Kč	5 920,00 Kč
	PPOO-Y, 4x1.5 mm ²	m1	28	40,00 Kč	1 120,00 Kč
	XPOO, 5x4 mm ²	m1	21	108,00 Kč	2 268,00 Kč
	PPOO-Y, 3x2.5 mm ²	m1	78	54,00 Kč	4 212,00 Kč
	PPOO-Y, 5x2.5 mm ²	m1	17	72,00 Kč	1 224,00 Kč
	XPOO, 2x1.5 mm ²	m1	35	30,00 Kč	1 050,00 Kč
	XPOO, 3x1.5 mm ²	m1	42	32,00 Kč	1 344,00 Kč
	XPOO, 4x1.5 mm ²	m1	35	40,00 Kč	1 400,00 Kč
	N2XH-J, 5x10 mm ²	m1	9	201,00 Kč	1 809,00 Kč
9	Design of a grounding ring for bonding within the boiler room, a ribbon Fe/Zn 25x4 mm mounted on a supporters at a height of 20-30 cm from the floor. The ring must be connected on the foundation grounding of an object. Total lenght of the ribbon is 14m. NOTE: Connection of the boiler room equipotential ring on the foundation grounding coordinate with other stages of the construction process.	pcs	2	5 980,00 Kč	11 960,00 Kč
10	Delivery and mounting of the wall carriers for the grounding ring, from the above item.	pcs	46	161,00 Kč	7 406,00 Kč
11	Making connections of consumer technological equipment (pipes, boilers, collectors, expansion vessel and similar) metal parts to the grounding ring (connections between the tape and metal housing of the equipment must be defined on-site with the supervisor and the mechanical engineer). The average length of the conductors is 1.5 m. All together with connection accessories (joints crosspoints, welding ...).	pcs	14	715,00 Kč	10 010,00 Kč
12	Making connections of metal parts of the window and door frames with P/F line 16 mm ² , to the grounding ring in the boiler room (must be defined on-site with the supervisor). The average length of the conductors is 1m. All together with fitting.	pcs	6	487,00 Kč	2 922,00 Kč
13	Purchase and installation of the cable tray PNK 100/50, with standard length of 3 m, and with the supporting carriers for the wall mounting, joints and fine-mounts equipment.	pcs	4	980,00 Kč	3 920,00 Kč
14	Small installation materials, measurements, certificates, commissioning etc.	L.S.	1	8 000,00 Kč	8 000,00 Kč
Total 2. ELECTRICAL INSTALLATIONS [CZK]:					270 213,00 Kč

3. CIVIL WORKS AND WATER SUPPLY SYSTEM

A. Boiler room upgrade

A.1 The preparatory and earthworks

No.	DESCRIPTION OF WORKS	Unit	Quantity	Unit price	Total [CZK]
1	Manual excavation of earth for the foundations of the boiler room upgrade and depositing of the ground near the trench inside the foundation.	m ³	3	1 200,00 Kč	3 600,00 Kč
2	"Demolition" of part of the existing AB foundation structures in order to create "healthy" blend of old and new concrete extension of the boiler room.	m ³	2	6 680,00 Kč	13 360,00 Kč
2a	- destruction of the existing chimney and partition walls d= 12,0 cm and shipping construction waste and transfer to the landfill near the building. Calculation per m ³	set	1	10 000,00 Kč	10 000,00 Kč
2b	- "demolishing", punching of the existing walls in the machine room for the installation of new double-leaf metal doors Calculation per m ³	m ³	1	6 500,00 Kč	6 500,00 Kč
3	Supply and filling of gravel under the floor and the new foundations of boiler room upgrader, in layers with compacting to the required density.	m ³	2	2 100,00 Kč	4 200,00 Kč
4	Works on the excavation of the ground for hot water and well water, plumbing of pipes after laying with fine-grained sand and only then the soil. Asphalt cutting and re-shrinking after the passage of the PE pipe to which the water flows into the river Bosna. At the point of passage below the pavement, it is necessary to reinforce the layer above the pipe in accordance with the details of the Project	set	1	82 000,00 Kč	82 000,00 Kč
5	Cleaning the site after the completion of all the works, shipping construction waste and material and transfer to the landfill 10,0 km distance, shoveling waste on landfill.	m ³	6	2 500,00 Kč	15 000,00 Kč
A.1 The preparatory and earthworks [CZK]:					134 660,00 Kč

A.2 Concrete and reinforced-concrete works

No.	DESCRIPTION OF WORKS	Unit	Quantity	Unit price	Total [CZK]
1	Concreting a new AB foundations of the boiler room upgrader, concrete MB30, with the necessary shuttering and compacting concrete.	m ³	3	7 890,00 Kč	23 670,00 Kč
1a	Concreting of new beams of the boiler room upgrader, concrete MB30, with the necessary shuttering, brackets and compacting concrete.	m ³	1,20	7 500,00 Kč	9 000,00 Kč
2	Concreting of the reinforced concrete beams, vertical and horizontal cerclage, beams of lintels and doorposts, concrete MB 30. The price includes shutterings, supports and auxiliary scaffold.	m ³	1,30	7 700,00 Kč	10 010,00 Kč
3	Concreting of AB floor board of the boiler room upgrader, concrete MB30 , thickness of the board d= 10,0cm.	m ³	1	6 890,00 Kč	6 890,00 Kč
A.2 Concrete and reinforced-concrete works [CZK]:					49 570,00 Kč

A.3 Reinforcement works

No.	DESCRIPTION OF WORKS	Unit	Quantity	Unit price	Total [CZK]
1	Supply, delivery, unloading, correcting, cutting, cleaning and installation reinforcement of reinforced steel, according structural analysis, reinforcement detailing and technical conditions for the reinforcement steel. Calculation per kilogram embedded reinforcement .	kg	485	105,00 Kč	50 925,00 Kč
A.3 Reinforcement works [CZK]:					50 925,00 Kč

A.4 Masonry works

No.	DESCRIPTION OF WORKS	Unit	Quantity	Unit price	Total [CZK]
1	Masonry of new wall of the boiler room upgrader, "giter" blocks, dimensions 19x19x25 cm in the composition mortar, proportions 1: 2: 6th Wall thickness is 20 cm.	m ³	5,50	6 870,00 Kč	37 785,00 Kč
2	Internal and external rough and fine plastering by "produžni" mortar of the boiler room upgrader of lime mortar proportions a 1: 2: 6, on the previous "thrown" rare cement "špric" mortar. The price includes the partial repair of the connection school and the boiler room upgrader.	m ²	37,75	928,00 Kč	35 032,00 Kč
3	Procurement of materials, transportation and creating a new chimney, type like "ŠIDL", fireclay pipes, concrete mantle, diameter Ø250 mm, all in accordance with the technical standards and the manufacturer's instructions, with all equipment and fittings (chimney doors and "rosette" for connecting the furnace)	m ¹	12,50	7 530,00 Kč	94 125,00 Kč
4	Making of new dilation of the connection of boiler room upgrader and outer wall of the school, "stirodurom" d = 2.0 cm., starting from the foundation up to the full height and width of a connection.	m ²	13,20	7 360,00 Kč	97 152,00 Kč
A.4 Masonry works [CZK]:					264 094,00 Kč

A.5 Carpentry and roofing works

No.	DESCRIPTION OF WORKS	Unit	Quantity	Unit price	Total [CZK]
1	Create a new classic roof construction made by dry fir timber. The roof make according to design and details. Calculation per m ² horizontal projection of the roof.	m ²	13,50	3 703,00 Kč	49 990,50 Kč
2	Supply and installation of a board base over the existing roof construction. Set and nail boards (thickness of board 24 mm). The price includes the installation of roofing foils across the board	m ²	15	2 700,00 Kč	40 500,00 Kč
3	Fixing the roof battens and "cons battens" 24/48 mm, with a corresponding distance. Battens should be the optimal length and made by fir wood.	m ²	15	3 169,00 Kč	47 535,00 Kč
4	Roofing by new interlocking tiles on already prepared subconstruction.	m ²	15	1 219,00 Kč	18 285,00 Kč
A.5 Carpentry and roofing works [CZK]:					156 310,50 Kč

A.6 Sheet metal works

No.	DESCRIPTION OF WORKS	Unit	Quantity	Unit price	Total [CZK]
1	Material procurement, transport production and installation of new steel painted sheet metal on the building (chocolate) in all as follows:				
	- gutter "horizontale"	m ¹	3	845,00 Kč	2 535,00 Kč
	- gutter "vertikale"	m ¹	5	768,00 Kč	3 840,00 Kč
	- Wide wind "frontal" batten	m ¹	3	730,00 Kč	2 190,00 Kč
	- "iksna" (on connection school building and existing roof) width to 45,0cm.	m ¹	9,70	578,00 Kč	5 606,60 Kč
	- vertical dilatation batten on both sides of the building on dilatation connection with school width to 50,0cm.	m ¹	7,40	606,00 Kč	4 484,40 Kč
	- flue pipe	pcs	1	5 890,00 Kč	5 890,00 Kč
	- a chimney cap - type "Q" with a casserole on the top of the concrete cap	pcs	1	6 200,00 Kč	6 200,00 Kč
	- chimney flashing off the roof with the installation of mineral wool insulation	m ²	8	1 450,00 Kč	11 600,00 Kč
	- window sills	m ¹	1,40	1 150,00 Kč	1 610,00 Kč
	- snow guards "punctate" - in two rows	m ¹	6	1 200,00 Kč	7 200,00 Kč
	- "mesh" on the edge of the roof for birds	m ¹	3	831,00 Kč	2 493,00 Kč
A.6 Sheet metal works [CZK]:					53 649,00 Kč

A.7 Locksmith works

No.	DESCRIPTION OF WORKS	Unit	Quantity	Unit price	Total [CZK]
1	Material procurement, transport production and installation of new steel and painted corrosion protected locks on the building with all the necessary fittings and fixing material, in all as follows:				
	- double leaf, thermally insulated doors at the entrance to the boiler room dim. 140/210	pcs	1	32 000,00 Kč	32 000,00 Kč
	- double leaf doors at the entrance to the machine room dim. 180/210 with a ventilation grid in the first third of the larger (main) door wing	pcs	1	38 900,00 Kč	38 900,00 Kč
	- single door at the entrance to the storage room from boiler room dim. 100/210	pcs	1	20 300,00 Kč	20 300,00 Kč
	- two-wing window on the outer wall with V and H opening, all in accordance with the scheme, glazed flat "wired" glass, d = 6,0mm. Dim. 140/80	pcs	1	27 980,00 Kč	27 980,00 Kč
A.7 Locksmith works [CZK]:					119 180,00 Kč

A.8 Facade works

No.	DESCRIPTION OF WORKS	Unit	Quantity	Unit price	Total [CZK]
1	Material procurement and preparation of final facade layer - "fasadex" or equivalent - color optional, on the plastered outer walls of boiler room upgrader. Calculation per m ²	m ²	17,50	2 815,00 Kč	49 262,50 Kč
A.8 Facade works [CZK]:					49 262,50 Kč

Recapitulation A. Boiler room upgrade:

A.1 The preparatory and earthworks [CZK]:	134 660,00 Kč
A.2 Concrete and reinforced-concrete works [CZK]:	49 570,00 Kč
A.3 Reinforcement works [CZK]:	50 925,00 Kč
A.4 Masonry works [CZK]:	264 094,00 Kč
A.5 Carpentry and roofing works [CZK]:	156 310,50 Kč
A.6 Sheet metal works [CZK]:	53 649,00 Kč
A.7 Locksmith works [CZK]:	119 180,00 Kč
A.8 Facade works [CZK]:	49 262,50 Kč
Total A. Boiler room upgrade [CZK]:	877 651,00 Kč

B. Hydro installations

B.1 Hot water supply from the boiler to the poured places

No.	DESCRIPTION OF WORKS	Unit	Quantity	Unit price	Total [CZK]
1	Procurement, transport and installation of electrical water heater - "boiler", volume V = l 120.0., In the designated place in the machine room, with all the "fitting", fine wiring and fixing material, a non-return valve, reinforced hoses for hot and cold water, all completely assembled and put into operation.	set	1	12 854,00 Kč	12 854,00 Kč
2	Procurement, transport and installation of PE Ø20 pipe for hot water from the boiler to the poured places, pipes are installed on the ceiling of the ground floor next to the existing installations. Installation of ceiling mounted perforated metal strip or adequate PE or PVC clamps on the need distance. Include insulation ("plamaflex" or equivalent) d = 9,0mm., which coated	m ¹	80	1 328,00 Kč	106 240,00 Kč
3	Procurement, transportation and installation of the taps for hot and cold water above the washstands in the sanitary facilities and toilet in the school, installation on wall, at the ground floor, including small, connecting and fixing materials. Price includes the dismantling of existing old fountain of cold water and disposal in the place determined by Investor.	pcs	4	3 100,00 Kč	12 400,00 Kč
4	Procurement, transportation and installation of the taps for hot and cold water above the sinks in the	pcs	1	2 086,00 Kč	2 086,00 Kč
B.1 Hot water supply from the boiler to the poured places [CZK]:					133 580,00 Kč

RECAPITULATION 3. CONSTRUCTION WORKS AND WATER SUPPLY SYSTEM

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A. Boiler room upgrade [CZK]:

B. Hydro installations [CZK]:

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Total 3. CIVIL WORKS AND WATER SUPPLY SYSTEM

4. OTHER WORKS

No.	DESCRIPTION OF WORKS	Unit	Quantity	Unit price	Total [CZK]
1	Elaboration of operating manual	L.S.	1	15 000,00 Kč	15 000,00 Kč
2	Training of operators	L.S.	1	20 000,00 Kč	20 000,00 Kč
3	Press release & conference	L.S.	1	85 000,00 Kč	85 000,00 Kč
4	Information leaflets	L.S.	1	25 000,00 Kč	25 000,00 Kč
5	Information panel >60x60cm	pcs	1	5 000,00 Kč	5 000,00 Kč
6	Information panel >100x100cm	pcs	1	7 500,00 Kč	7 500,00 Kč
Total 4. Other works [CZK]:					157 500,00 Kč

FINAL RECAPITULATION:

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1. MECHANICAL INSTALLATIONS [CZK]:

2. ELECTRICAL INSTALLATIONS [CZK]:

3. CIVIL WORKS AND WATER SUPPLY SYSTEM [CZK]:

4. OTHER WORKS [CZK]:

.....
Total [CZK]:

