

## Materials' technical specifications

<b>Construction works</b>	<b>Rehabilitation of Youth training center in Ramadi</b>
<b>Company name</b>	

No.	Material	Item	Description	Acceptable range of quality	Brand offered
1	Aluminum	A - 11	Supply materials and install new aluminum windows in different sizes and shapes (side opener casement and fixed panels). Total profile depth should be not less than 4.5 cm, and the aluminum thickness not less than 1.8 mm. Samples and catalogues should be officially approved by the supervising engineer prior to implementation. Price includes installing double glass 6 mm each face with a void width of not less than 10 mm for the fixed panel, and not less than 16 mm for the side opener. Price also includes handles, hinges, anti-insect mesh, and all required accessories for the proper insulation of heat, damp, sound, and dust. All works should be done according to the drawings and the instructions of the supervising engineer	<b>Alumex, Asistal, Amco, or equivalent</b>	
		A - 12	Supply materials and install new aluminum doors size (0.8*2.1) m with aluminum thickness of 2 mm. Samples and catalogues should be officially approved by the supervising engineer prior to implementation. Price includes knobs, lock hardware with keys, handles, hinges, and all accessories of the best quality. All works should be done according to the specifications and instructions of the supervising engineer.	<b>Alumex, Asistal, Amco, or equivalent</b>	
2	Ceramic	A - 15	Supply materials and Clad the walls with ceramic tiles (approved sample) using cement sand mortar with SBR with all necessary works according to instructions of site engineer. Price includes filling the joints with white Cement and ensure curing for all the applied Ceramics. Works of Cermaics should be leveled Horizontantly and Vertically. All works should be dome according to the specifications and instructions of the supervising engineer.	<b>Itaca, Argenta, Luna tile, or equivalent</b>	

		A - 16	Supply materials and remove the damaged ceramic floors of the WCs with the mortar and dispose the rubble to the locations specified by the municipality. Then apply new ceramic tiles (30*30) cm, rough surface with all necessary works by a layer of sulphate resisting cement: sand mortar with mix ratio 1:3 according to instructions of site engineer. Price includes filling the joints with white cement and ensure curing for all the applied ceramics. Samples must be submitted by the construction company and approved by the supervising engineer prior to implementation.	<b>Itaca, Argenta, Luna tile, or equivalent</b>	
3	Wooden doors	A - 21	Supply materials and install new interior wooden doors, size (1*2.1)m. The door leaf should be made of 5cm thick solid wooden frame connected by finger joint technique, a hollow core sheet with 3.5cm thickness, 4mm thick HDF cover on both sides, CPL (Continuous Pressure Laminate) surface cover of thickness not less than 0.6mm, frame of the door should be made of solid wood not less than 4cm thick and not less than 14 cm width with extension cover not less than 2 cm thickness, and a wall covering frame not less than 7 cm width fixed on both sides. Samples and catalogues should be submitted by the construction company and approved by the supervising engineer prior to implementation. Price includes knobs, lock hardware with keys, handles, hinges, and all accessories of the best quality. All works should be done according to the specifications and instructions of the supervising engineer.	<b>Kian doors, Ikra doors, Zandoors, or equivalent</b>	
4	Handwash basin	C -6	Supply materials and install wall mounted cabinet handwash basin with mirror, basin size 0.6 m x 0.45 m and sink height should be 0.8 m from the floor. The work includes high pressure connection steel hose, chromium plated stop valves, two angle valves, flex drain hose and all related accessories, and including connecting to the water and sanitary networks. With all needed works, Paper towel dispenser out of stainless steel. All works should be done according to the instructions of the supervising engineer. Sample must be submitted by the construction company and approved by the supervising engineer prior to implementation.	<b>Gerzo, Badella, Teko plus, or equivalent</b>	

5	Mixer tap	C - 7	<p>Supply and install basin mixer tap with the following specifications:</p> <ul style="list-style-type: none"> <li>- handle should be valve handle at a height of 0.90 m from the floor</li> <li>- chrome color</li> <li>- single hole installation</li> <li>- not less than 35 mm ceramic cartridge</li> <li>- not less than 120 mm between water outlet center and the mixer's body centerline</li> <li>- Water Saving mousseur 5.7 l/min</li> <li>- flexible connection hoses</li> <li>- 55o lever rotation in each direction</li> </ul> <p>All works should be done according to the instructions of the supervising engineer. Sample must be submitted by the construction company and approved by the supervising engineer prior to implementation.</p>	<p><b>Grohe, Milano, Gerzo, or equivalent</b></p>	
6	Sockets	D - 2	<p>Supply, connect and operate electrical switch socket with the following specifications:</p> <ul style="list-style-type: none"> <li>- Rated current: 13 A at 250 V AC</li> <li>- Outlet poles configuration: 2P + E</li> <li>- 1 gang</li> <li>- Clamping connection capacity: 3 x 2.5 mm<sup>2</sup> / 2 x 4 mm<sup>2</sup></li> <li>- Warranty: 18 months</li> <li>- no visible screws</li> <li>- Environmental characteristic: Indoor use</li> </ul> <p>connection should be done using single copper wires (3x2.5) mm<sup>2</sup>, price includes pulling wires inside the PVC conduits and connecting it to the distribution board with all installation and connection accessories. All works should be done according to the drawings and the instructions of the supervising engineer. Samples must be submitted by the construction company and approved by the supervising engineer prior to implementation.</p>	<p><b>Schneider, Nextlite, Ozen, or equivalent</b></p>	
		D - 3	<p>Supply, connect and operate electrical switch socket with the following specifications:</p> <ul style="list-style-type: none"> <li>- Rated current: 15 A at 250 V AC</li> <li>- Outlet poles configuration: 2P + E</li> </ul>	<p><b>Schneider, Nextlite, Ozen, or equivalent</b></p>	

		<ul style="list-style-type: none"> <li>- 1 gang</li> <li>- Clamping connection capacity: 2.5 mm<sup>2</sup></li> <li>- Warranty: 18 months</li> <li>- Standards: SS 145 - MS 589 - BS 1362-2</li> <li>- no visible screws</li> <li>- Environmental characteristic: Indoor use</li> </ul> <p>connection should be done using single copper wires (3x4) mm<sup>2</sup>, price includes pulling wires inside the PVC conduits and connecting it to the distribution board with all installation and connection accessories. All works should be done according to the drawings and the instructions of the supervising engineer. Samples must be submitted by the construction company and approved by the supervising engineer prior to implementation.</p>		
	D - 4	<p>Supply, connect and operate electrical switch with the following specifications:</p> <ul style="list-style-type: none"> <li>- Rated current: 45 A at 250 V AC</li> <li>- Switch function: 2-pole 1-way</li> <li>- 1 gang 1 rocker</li> <li>- Clamping connection capacity: 4 x 4 mm<sup>2</sup> - 1 x 10 mm<sup>2</sup> - 1 x 16 mm<sup>2</sup> (for stranded cables)</li> <li>- Warranty: 18 months</li> <li>- IP degree of protection: IP20</li> <li>- Brass terminals</li> <li>- Standards: BS EN 60669-1 / SS 227-1 / IEC 60669-1 / MS IEC 60669-1</li> <li>- no visible screws</li> </ul> <p>connection should be done using single copper wires (3x4) mm<sup>2</sup>, price includes pulling wires inside the PVC conduits and connecting it to the distribution board with all installation and connection accessories. All works should be done according to the drawings and the instructions of the supervising engineer. Samples must be submitted by the construction company and approved by the supervising engineer prior to implementation.</p>	<p><b>Schneider, Nextlite, Ozen, or equivalent</b></p>	

		D - 5	<p>Supply, connect and operate electrical switch with the following specifications:</p> <ul style="list-style-type: none"> <li>- Rated current: 16 AX at 250 V AC</li> <li>- Switch function: 1-pole 1-way</li> <li>- Number of gangs: 1 to 4 gangs (according to the site needs instructions of the supervising engineer)</li> <li>- Clamping connection capacity: 3 x 2.5 mm<sup>2</sup> - 4 x 1.5 mm<sup>2</sup> (for solid and stranded cables)</li> <li>- Warranty: 18 months</li> <li>- IP degree of protection: IP20</li> <li>- Brass terminals</li> <li>- Standards: BS EN 60669-1 / SS 227-1 / IEC 60669-1 / MS IEC 60669-1</li> <li>- no visible screws</li> </ul> <p>connection should be done using single copper wires (3x2.5) mm<sup>2</sup>, price includes pulling wires inside the PVC conduits and connecting it to the distribution board with all installation and connection accessories. All works should be done according to the drawings and the instructions of the supervising engineer. Samples must be submitted by the construction company and approved by the supervising engineer prior to implementation.</p>	<p><b>Schneider, Nextlite, Ozen, or equivalent</b></p>	
		D - 6	<p>Supply, connect, and operate RJ 45 single data socket. connection should be using Ethernet LAN cables which must be protected against high temperatures, physical stress and electromagnetic induction caused by power lines or any other source. The entire Ethernet cable link (cables, and socket) must meet the criteria for operation at 1Gbit/s (Cat 6 standard). The maximum length for any individual link should not exceed 90 m. Price includes drawing up documentation of the cabling, including floor maps with LAN outlet labels and measurement records of the individual links and handover the documentation officially to the end user.</p>	<p><b>Schneider, Nextlite, Ozen, or equivalent</b></p>	
7	Lights	D - 7	<p>Supply materials and install LED panel light, 60*60 cm, for mounting in false ceiling, 60 W, AC 220-240 V, 50-60 Hz, white color, IP20. Price includes connection using single copper wires (3x2.5) mm<sup>2</sup>, and pulling wires inside the PVC conduits and connecting it to the</p>	<p><b>Nextlite, BG, Raja, or equivalent</b></p>	

			switches with all installation and connection accessories. All works should be done according to the drawings and the instructions of the supervising engineer. Samples must be submitted by the construction company and approved by the supervising engineer prior to implementation.		
		D - 9	Supply materials and install LED round downlight, for mounting in false ceiling, diameter not less than 210 mm, 18 W, AC 220-240 V, 50-60 Hz, 135 mA, white color, IP40, 25000 hours lifetime. Price includes connection using single copper wires (3x2.5) mm <sup>2</sup> , and pulling wires inside the PVC conduits and connecting it to the switches with all installation and connection accessories. All works should be done according to the drawings and the instructions of the supervising engineer. Samples must be submitted by the construction company and approved by the supervising engineer prior to implementation.	<b>Nextlite, BG, Ozen, or equivalent</b>	
8	Exhaust fans	D - 10	Supply materials and install a 6-inch exhaust fan, round shape, auto shutter, 15 W, air discharge not less than 2.8 m <sup>3</sup> /min, 100% copper coil. Price includes connection using single copper wires (3x2.5) mm <sup>2</sup> , and pulling wires inside the PVC conduits and connecting it to the switches with all installation and connection accessories. All works should be done according to the instructions of the supervising engineer. Samples and catalogues must be submitted by the construction company and approved by the supervising engineer prior to implementation.	<b>Nextlite, BG, Shami, or equivalent</b>	
		D - 11	Supply materials and install a 12-inch exhaust fan, round shape, auto shutter, high speed, 40 W, air discharge not less than 18 m <sup>3</sup> /min, 100% copper coil, dual ball bearing motor. Price includes connection using single copper wires (3x2.5) mm <sup>2</sup> , and pulling wires inside the PVC conduits and connecting it to the switches with all installation and connection accessories. All works should be done according to the instructions of the supervising engineer. Samples and catalogues must be submitted by the construction company and approved by the supervising engineer prior to implementation.	<b>Nextlite, BG, Shami, or equivalent</b>	

9	MCCB MCB EL.CB	D - 18	<p>Supply, connect, and check the main distribution board (M.D.B). The board must contain:</p> <ul style="list-style-type: none"> <li>- one main MCCB of 300 A capacity 3PH</li> <li>- one sub MCCB of 150 A capacity 3PH</li> <li>- 3 sub MCCB of 100 A capacity 3PH</li> <li>- copper bus bars (3PH+N+E) of 400 A capacity</li> <li>- 3 signal lamps for the phases</li> <li>- 3 ammeters</li> <li>- one voltmeter</li> <li>- electrical interlock</li> <li>- Automatic transfer switch (ATS) not less than 300 A capacity, 3 lines</li> </ul> <p>All MCCBs should have the following specifications:</p> <ul style="list-style-type: none"> <li>- Standards: EN/IEC 60947</li> <li>- IP degree of protection: IP40 conforming to IEC 60529</li> <li>- Mechanical durability: not less than 20000 cycles</li> <li>- Electrical shock protection class: Class II</li> </ul> <p>Price includes fixing 80x120 cm box with tight front door, insulators, and all accessories according to the instructions of the supervising engineer. All works should be done according to the drawings and the instructions of the supervising engineer. All the components must be the best quality available in Iraqi market, samples must be submitted by the construction company and approved by the supervising engineer prior to implementation.</p>	<b>Schneider, ABB, Legrand, or equivalent</b>	
		D - 19	<p>Supply, connect, and check the sub distribution board (D.B.1). The board must contain:</p> <ul style="list-style-type: none"> <li>- one main MCCB of 150 A capacity 3PH</li> <li>- 3 MCCB of 30 A capacity 3PH</li> <li>- 4 MCB of 30 A capacity 1PH</li> <li>- 8 MCB of 20 A capacity 1PH</li> <li>- 4 EL.CB of 16 A capacity 1PH</li> <li>- 6 MCB of 16 A capacity 1PH</li> <li>- 1 EL.CB of 20 A capacity 1PH</li> <li>- 1 EL.CB of 30 A capacity 1PH</li> <li>- copper bus bars (3PH+N+E) of 200 A capacity</li> </ul>		

		<ul style="list-style-type: none"> <li>- 3 signal lamps for the phases</li> <li>- 3 ammeters</li> <li>- one voltmeter</li> </ul> <p>All MCBs should have the following specifications: Standards: IEC 60898-1 / IP degree of protection: IP20 conforming to IEC 60529 / Mechanical durability: not less than 10000 cycles / Electrical durability: not less than 4000 cycles</p> <p>All MCCBs should have the following specifications: Standards: EN/IEC 60947 / IP degree of protection: IP40 conforming to IEC 60529 / Mechanical durability: not less than 20000 cycles / Electrical shock protection class: Class II</p> <p>All EL.CBs should have the following specifications: Standards: EN/IEC 61008-1 / Earth-leakage sensitivity: 30 mA / Earth-leakage protection time delay: Instantaneous / Mechanical durability: 20000 cycles / IP degree of protection: IP20 conforming to IEC 60529</p> <p>Price includes fixing suitable box with tight front door, insulators, and all accessories according to the instructions of the supervising engineer. All works should be done according to the drawings and the instructions of the supervising engineer. All the components must be the best quality available in Iraqi market, samples must be submitted by the construction company and approved by the supervising engineer prior to implementation.</p>		
	D - 20	<p>Supply, connect, and check the sub distribution board (D.B.2). The board must contain:</p> <ul style="list-style-type: none"> <li>- one main MCCB of 100 A capacity 3PH</li> <li>- 3 MCB of 30 A capacity 1PH</li> <li>- 8 MCB of 20 A capacity 1PH</li> <li>- 3 EL.CB of 16 A capacity 1PH</li> <li>- 9 MCB of 16 A capacity 1PH</li> <li>- 1 EL.CB of 20 A capacity 1PH</li> <li>- 2 EL.CB of 30 A capacity 1PH</li> <li>- copper bus bars (3PH+N+E) of 150 A capacity</li> <li>- 3 signal lamps for the phases</li> <li>- 3 ammeters</li> </ul>	<p><b>Schneider, ABB, Legrand, or equivalent</b></p>	

		<p>- one voltmeter</p> <p>All MCBs should have the following specifications: Standards: IEC 60898-1 / IP degree of protection: IP20 conforming to IEC 60529 / Mechanical durability: not less than 10000 cycles / Electrical durability: not less than 4000 cycles</p> <p>All MCCBs should have the following specifications: Standards: EN/IEC 60947 / IP degree of protection: IP40 conforming to IEC 60529 / Mechanical durability: not less than 20000 cycles / Electrical shock protection class: Class II</p> <p>All EL.CBs should have the following specifications: Standards: EN/IEC 61008-1 / Earth-leakage sensitivity: 30 mA / Earth-leakage protection time delay: Instantaneous / Mechanical durability: 20000 cycles / IP degree of protection: IP20 conforming to IEC 60529</p> <p>Price includes fixing suitable box with tight front door, insulators, and all accessories according to the instructions of the supervising engineer. All works should be done according to the drawings and the instructions of the supervising engineer. All the components must be the best quality available in Iraqi market, samples must be submitted by the construction company and approved by the supervising engineer prior to implementation.</p>		
	D - 21	<p>Supply, connect, and check the sub distribution board (D.B.AC). The board must contain:</p> <ul style="list-style-type: none"> <li>- one main MCCB of 100 A capacity 3PH</li> <li>- one sub MCCB of 60 A capacity 3PH</li> <li>- one sub MCCB of 40 A capacity 3PH</li> <li>- one sub MCCB of 30 A capacity 3PH</li> <li>- copper bus bars (3PH+N+E) of 150 A capacity</li> <li>- 3 signal lamps for the phases</li> <li>- 3 ammeters</li> <li>- one voltmeter</li> </ul> <p>All MCCBs should have the following specifications:</p> <ul style="list-style-type: none"> <li>- Standards: EN/IEC 60947</li> <li>- IP degree of protection: IP40 conforming to IEC 60529</li> <li>- Mechanical durability: not less than 20000 cycles</li> </ul>	<p><b>Schneider, ABB, Legrand, or equivalent</b></p>	

			<p>- Electrical shock protection class: Class II Price includes fixing suitable box with tight front door, insulators, and all accessories according to the instructions of the supervising engineer. All works should be done according to the drawings and the instructions of the supervising engineer. All the components must be the best quality available in Iraqi market, samples must be submitted by the construction company and approved by the supervising engineer prior to implementation.</p>		
10	Water heater	D - 24	<p>Supply materials and install a wall mounted electrical vertical water heater, 45 L capacity, structure of 2 mm thick galvanized plate, double foam insulation, up to 8 bar pressure capacity. Price includes connecting to the switches using copper wires (3x4) mm<sup>2</sup> according to the instructions of the supervising engineer, all necessary water pipes, safety valves, and shut valves for warm and cold water. the heater should be fixed according to the instruction and location selected by the supervising engineer. Samples must be submitted by the construction company and approved by the supervising engineer prior to implementation.</p>	<b>Proline, Heatex, Thermex, or equivalent</b>	
11	Water pump	D - 25	<p>Supply materials and install automatic domestic water pump, 1 Hp, 50 lit/min, 1 inch size for inlet and outlet, with ball valve and all fittings according to the instructions of the supervising engineer (with steel box for protection) and all accessories. The price includes connecting the pump with electrical source using wire 3*2.5 mm<sup>2</sup>. Samples must be submitted by the construction company and approved by the supervising engineer prior to implementation</p>	<b>Ingco, Shimge, Libronic, or equivalent</b>	
12	Generator	D - 28	<p>"Supply, install, connect, and check a complete Diesel Generator set with the following specifications:                      - 50 Hz at 1500 rpm                      - Standby Power: 110 kVA, 88 kW                      - Prime Power: 100 kVA, 80 kW                      - Power Factor: 0.8                      - Noise: not more than 72 dB at 7m                      - built-in fuel tank capacity: 160 lt</p>	<b>Teksan, CAT, Cummins, or equivalent</b>	

			<ul style="list-style-type: none"> <li>- engine should be compliant with ISO 8528, ISO 3046, BS 5514, DIN 6271 standards</li> <li>- alternator should be compliant with EC 60034-1; CEI EN 60034-1; BS 4999-5000, VDE 0530, NF 51-100,111, OVE M-10, NEMA MG 1.22. standards</li> <li>- Control Panel should have the following functions: AMF unit with uninterrupted transfer, ATS unit with uninterrupted transfer, Remote start controller, Manual start controller, Engine controller</li> <li>- Canopy should have the following features: Hidden exhaust inside the canopy, Emergency stop button, Amplified paint system against corrosion and rust</li> </ul> <p>Price includes the starter batteries, connection cables, and a warranty of one year or 1000 hours run."</p>		
13	AC	D - 31	<p>supply, install, connect, and check split type air conditioner, wall mounted, cooling and heating, 18000 BTU cooling capacity, T3 class, single phase, inverter compressor, R410 Refrigerant, self cleaning function, turbo button, multi fan speeds, LED display, intelligent defrosting. Price includes fixing 1" diameter PVC or PPR pipes inside the walls for AC condensate dewatering and connecting it to the nearest sewer, connecting the AC to the switches using single copper wires 3x4 mm<sup>2</sup>, and an electrical protection device. All works should be done according to the instructions of the supervising engineer. Sample must be submitted by the construction company and approved by the supervising engineer prior to implementation.</p>	<p><b>GE, Gree, Tosot, or equivalent</b></p>	
		D - 32	<p>supply, install, connect, and check split type air conditioner, wall mounted, cooling and heating, 24000 BTU cooling capacity, T3 class, single phase, inverter compressor, R410 Refrigerant, self cleaning function, turbo button, multi fan speeds, LED display, intelligent defrosting. Price includes fixing 1" diameter PVC or PPR pipes inside the walls for AC condensate dewatering and connecting it to the nearest sewer, connecting the AC to the switches using single copper wires 3x4 mm<sup>2</sup>, and an electrical protection device. All works should be done according to the instructions of the supervising engineer.</p>		<p><b>GE, Gree, Tosot, or equivalent</b></p>

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			Sample must be submitted by the construction company and approved by the supervising engineer prior to implementation.		
		D - 33	supply, install, connect, and check split type air conditioner, floor stand, cooling and heating, 36000 BTU cooling capacity, T3 class, single phase, inverter compressor, R410 Refrigerant, self cleaning function, turbo button, multi fan speeds, LED display, intelligent defrosting. Price includes fixing 1" diameter PVC or PPR pipes inside the walls for AC condensate dewatering and connecting it to the nearest sewer, connecting the AC to the switches using single copper wires 3x4 mm <sup>2</sup> , and an electrical protection device. All works should be done according to the instructions of the supervising engineer. Sample must be submitted by the construction company and approved by the supervising engineer prior to implementation.	<b>GE, Gree, Tosot, or equivalent</b>	

### Notes:

- 1- Bidders must submit origin of manufacture for all materials in the above list.
- 2- Bidders must submit brand with full product name and model number (ex: Schneider ComPact NSX100F)
- 3- Bidders must submit all catalogues (when applicable)
- 4- Samples should be provided by the bidders for physical checking (upon request of GIZ). In case of awarding, the samples will be kept in GIZ storage and released back to the company after completion of works.

Signature		Company's Stamp	
Date			
Name			