



Chinese Ministry of Commerce - Beijing



وزارة الشؤون الخارجية
Ministry of Foreign Affairs



United Nations Development Programme
Programme of Assistance to the
Palestinian People

Ministry of Foreign Affairs Building Project
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ممول من قبل
وزارة التجارة الصينية من خلال
مكتب الممثلة الصينية
لدى السلطة الوطنية الفلسطينية

Implemented by
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Programme of Assistance to the Palestinian People

ومنفذ من خلال
برنامج الامم المتحدة الانمائي
برنامج مساعدة الشعب الفلسطيني

Package # 2: Finishing & Electromechanical Works

Designer: Safarini & Associates

Preambles of the Bill of Quantities

September, 2011

DIVISION 1 –FINISHING WORKS

PREAMBLES

1. HOLLOW CONCRETE BLOCKS WORKS

All works of this bill shall be of Concrete blocks Grade 35 of high quality standards and as per specifications.

Block works shall be measured in meter square. The net measurement of the complete elevations, excluding all openings and voids more than 0.1 M. S. in area. No allowance for thickness used other than those shown in the drawings.

Rates of Block works include:-

- Vertical and horizontal joints.
- Cement and mortar,
- Galvanized angles butter fly ties (at joints and between walls in cavity walls.
- Concrete filling at all ends including reinforcing steel to cavities at quoins and door and window openings, reveals, sills for windows and the like.
- R.C. Door Walls and jambs for classroom doors AND others as per detailed drawings
- Lintels and bond beams to the full length of the wall, min 20 cm. High and in the same wall thickness of reinforced concrete grade B-200 with due reinforcement steel, on top of doors and windows or as specified per drawings.
- Window jambs of min. 20 cm width and in same wall thickness to full height of window.
- And all needed to complete job as per drawings and specifications.

2. PLASTERING WORKS

Plastering to all areas shall be measured net, including openings, which are less than 0.25 Meter Sq.

The price shall include for running rules , all narrow widths, for taking out joints on block walls or backing concrete face for key, for making good to frames around pipes and other fittings , plastering to jambs and reveals of openings, side of columns, window sills; all of which shall be measured as plastering .

Price shall also include Expanded metal lath, angle beads at all appeared corners for the entire height, and plaster stops at opening edges, expansion joints, sills, labor, curing, erecting and dismantling of scaffoldings, additives, pigments and all incidentals required as specified and / or detailed on the Drawings.

3. TILING WORKS

1. All tiling works (terrazzo, ceramics and marble) shall be measured net in square meters. Deducting all opening and voids more than 0.25 M.S.
2. Marble works for steps and treads of stairs shall be measured in linear meter. The tread, the riser, flight skirting and water stop shall all be measured as a single unit in linear meter.
3. Marble works for window sills and other openings shall be measured in linear meter.

4. Parapet coping shall be measured in linear meter.
5. Rate shall include preparation of surfaces under tiles, Finish to falls and cross falls, special tile pieces for edges and the like, tile surface finishing, Plastic spacers. Pointing with approved material and cleaning and all incidentals as per specifications.
6. Rates shall include also providing and mounting in place “ Title Marble Plate” of white Carrara marble polished, finished and engraved in the design provided by MOFA (dimensions 70cm high x100cm wide).
7. Bedding should be white cement.

4. FALSE CEILING AND GYPSON BOARDS WORKS

The contractor shall, when pricing the rates of this bill, take into consideration including and allow for the costs or expenses of all requirements stipulated in the preambles, drawings and technical specifications of the contract. Rates for all materials, workmanship, samples, surface preparation, protections, scaffolding, application to all heights as required and other requirements to complete the works. suspended ceiling works includes suspension system with anchors to the structure, L & Z profiles, heavy duty USG or equivalent main and sub main sections, omega profile, frames, adjustable clips, and all necessary fittings in accordance to the manufacture technical data and related standards covering this type of works, the rate includes also cutting and preparation for installing lighting fixtures, ceiling recess, maintenance openings, grills , ceiling utilities ...etc

5. CARPENTRY WORKS

Sizes of carpentry works given in the Bills of Quantities are finished sizes and shall be as per Drawings.

Sizes of doors and other items mentioned in the Bills of Quantities shall allow for tolerance to suit the structural openings shown in the Drawings.

Wooden doors and pair of doors shall be measured in number for each structural opening, unless stated otherwise in the Bills of Quantities.

Wall protection wooden rubbing rails shall be measured in linear meter.

Cloth hangers and hanger wooden base shall be measured in number or in linear meter as stated in the Bills of Quantities.

Rates for carpentry and joinery work shall include :

- a) Working details and coordinated drawings.
- b) Frames, sub frames, grills, hinges, rubber strip, anchors, architrave, high “U” shape kick plates.
- c) Allowance for plastering, modifications or adjustments for existing site openings to match the dimensions for described doors, tiling and the like.
- d) Cutting and fitting around obstructions, bedding and painting.
- e) Grounds, blocking and backings.
- f) Plugging concrete, block work, and stone work, and making well.
- g) Ironmongery including "Union" or equivalent cylinders, cylindrical locks with master key for all the doors and master key for each unit, handles type stainless steel model TH104 from "Domicile" or equivalent with cylinder cover model IY, stainless steel stoppers type "Domicile" ARCHIDH 003 or equivalent , screws, hinges, temporary fixing, re-fixing, oiling and adjusting. All to be silver color.
- h) Providing three keys for each lock including tagging.
- i) Providing and fixing wall mounted wooden keys cabinet, (70*70*10) cm. varnish finished with all ironmongery including cylindrical lock.

- j) Providing and fixing Room Title Plate, aluminium (30*20) cm. mounted on wooden plate (35*25) with varnish finish.
- k) Steel legs, brackets, bearers and other supports including painting.
- l) Glass and glazing including cutting to size and putty.
- m) Fly screening including cutting to size.
- n) Preparing surfaces to receive finishes.
- n) Preparing surfaces to receive finishes.
- o) Painting, varnishing, polishing, oiling, and the like, to any area or width in any location including work in multicolour and cutting in edges and putty.

6. METAL WORKS

Metal works shall include supplying materials, fixing, assembling, labours, scaffolding...etc to the required dimensions as specified in the contract.

Rates also includes:

Preparing working details, cutting, drilling, counter sinking, screwing, bolting and riveting. lugs, plugs, holdfasts and the like

Gaskets, sashes, double weather strips and external and internal silicon filling around frames.

Ironmongery including cylinders, cylindrical locks (Union or equal), stoppers, handles, hinges, temporarily fixing, re-fixing, oiling and adjusting.

Providing three keys for each lock and padlock including tagging and a master key for all doors.

Hardware including cramps, dowels and the like.

Glass and glazing to be 6mm thick with color as directed by the engineer, including cutting to size, putty, sealant and rubber.

Preparing surfaces for painting one coat of primer before fixing, trimming, patching & finishing, adjustments for existing openings to suite the described dimensions.

Sealing and Painting to any area or width in any location including work in multicolor and cutting in edges.

Price includes the supply and installation of painted galvanized steel sheets size 25x25cm fixed on 16mm ply wood to be installed next to each door. Price also includes the supply and installation of the directory plates size as shown in the attached form.

All other accessories and incidentals required to execute the work.

7. ROOFING AND WATERPROOFING

All finishes shall be measured superficially net unless other wise stated clearly.

All finishes, include triangular shaped fillets except cement and sand lining to gutters, shall be measured on the slab surface only, parapets and column stubs to be included in the price and not to be measured.

Cement and sand lining to gutters shall be measured in linear meter, unless otherwise stated clearly.

Rates for cement and sand work shall include for :

Hacking concrete, applying cement slurry or raking out joints of block work to form key. Application to any surface.

Finish to surface, to falls, cross-falls and currents.

Forming bays including joints. Finish to edges and arises.

Making good around steel sections, pipes, tubes, bars, brackets, outlets, and the like.

Measurement for concrete screed and waterproofing membrane shall be for horizontal projection of roof area as calculated on roof plan between plastered surfaces of parapets and walls only. Corner chamfers and vertical waterproofing shall not be measured. Expansion joint waterproofing shall not be measured, and is included in expansion joint unit prices.

Rates for waterproofing and roof sheeting shall include for Preparation of surface, cutting in edges. Overlaps priming and treatment at the corners and floor drains.

Dressing over parapets and stub columns including forming groove to receive edge of plasticized bitumen membrane and sealing with elastic sealer.

Side and end laps, Fittings including bolts, hook bolts, screws and washers, Sheets of any width or length.

8. PAINTING

The materials shall be of high quality and shall be supplied to the site in sealed container. The paint works shall be performed by provisional labors supervised/ directed by the manufacturer or supplier of paints.

The rates shall include supply of all materials , painting of different colures ,workmanship, samples primers, surface preparations, protections of painted surfaces, applications to all heights as required of woks, repair of all damaged surfaces at the contractor expenses, and all other requirements as stated in the specifications.

All paints types should be approved and having a supervision certificate from the PSL

9. EXTERNAL WORKS

Measurement, rates and specification of all external works shall comply with the works stated in previous sections.

Curb stone shall be measured in linear meter.

Asphalt works shall be in net square meter.

Base course works shall be in net square meter for each layer.

Play yards fixtures and things shall be measured in number whereas painting of play yard shall be as lump sum.

Rates of Curb stone works shall include:-

Excavation in all kinds of soils including rocks, concrete and asphalt,

Supply and cast of blinding concrete as per Specifications,

Struts,

Laying curb stones including mortar,

Backfilling, levelling, watering and compacting,

Pointing and grouting,

Lowering curbs at entrances and ramps and where requested by the Engineer.

BILL OF QUANTITIES

DIVISION 2 -MECHANICAL INSTALLATIONS

PREAMBLES

A. GENERAL

Each section referred to in the Bills of Quantities shall be read in conjunction with the corresponding technical specifications stipulated in the Specifications Books.

The Bills of Quantities, Particular and General Specifications, Schedule of Equipment and Drawings and all other Contract documents are complementary to each other.

It is the responsibility of the Contractor to check the locations and quantities of the materials and equipment to be executed in accordance with the contract drawings.

The unit rate of the materials and equipment shall be based on the Specification, all components as required and specified under each item concerned in the Specifications, Technical Data and Notes on the Schedules of Equipment Sheet, Contract Drawings, and all other Contract documents.

In addition to the above mentioned requirements, the Unit Rates of all items in the BOQ shall include also the following requirements, efforts, ancillaries, tools, instruments, pre-requisites, etc:

1. Supply of materials and equipment
2. Unloading and handling from trucks on site to place of installation. The contractor is fully responsible for keeping the materials safe on site and to store them properly according to the manufacturers' recommendations the Engineer's instructions.
3. Installation of materials and equipment.
4. All civil work required and connected with the mechanical installations, such as; equipment concrete bases and supports, cutting through walls and slabs for passage of pipes and conduits and ducts, pipe sleeves, patching, fixing of pipe and duct hangers and supports to structure, wooden frames for air outlets and louvers and wall mounted fans, excavation and backfilling, riggings, hoisting, water proofing, cleaning, protection and painting.
5. All testing, balancing, adjusting, commissioning and handling to client complete operational systems and equipment.
6. Allowance for cleaning and for proper protection of all equipment plants, electrical installations and structures during insulation and paintings.

7. Disinfection, flushing and water treatment.
8. All labour, materials, tools, instruments, electric power supply fuel and water required for installation, testing, balancing, adjusting, disinfection, flushing, operation and commissioning.
9. Thermal insulation for all equipment, valves, trimming and accessories.
10. System identifications, tags, labels, nameplates, and charts.
11. Shop-drawings and record drawings.
12. Operation and maintenance manuals.
13. Training
14. Samples as required by the Engineer.
15. Inspection, testing and rejection of all materials and workmanship.
16. Maintenance of all items supplied by contractor as per Contract Conditions
17. The contractor shall price the chillers and fan coils according to the three categories.
18. The contractor is fully responsible for all safety and security matters the site, especially for workmanships and engineers.
19. The contractor shall be responsible for commissioning the Works, including the supply of fuel, water and electricity required for conducting all kinds of testing, adjusting, balancing and commissioning of all involved systems.

B. MATERIALS AND EQUIPMENT

1. Pipe work: Such as but not limited to steel, iron, copper, stainless steel, HDPE, CPVC, UPVC for all services.

The unit price shall include all pipe fittings and joints such as elbows, bends, tees, reducers, unions, expansion joints, flanges, anchoring, sleeves, floor plates, puddle flanges, sockets and all joining materials, and pipe hangers and supports, and expansion bellows loops and joints, fire retardant and protection sealants for all pipes crossing fire rated structures, automatic air vents with isolating valves, pipe cleanouts, drain cocks at bottom of risers and main pipes for drainage system, adapters and dielectric unions for connecting dissimilar materials, excavation and back-filling, chasing in walls, painting, pipe protection against corrosion, pipe coating, pipe insulation and cladding as required per specifications and drawings. Pipe work shall be measured in meter run (MR).

2. Ductwork for Ventilation:

The unit price shall include GI sheet and/or pre-insulated panels ducting with all joints, sealant compound, fire retardant sealants for all ductwork passing through fire rated structures, hangers and supports and brackets, acoustic liners, reinforcing angles, flexible connections, volume access doors and panels, all vanes, volume damper, splitter damper, volume control and regulating damper, fire dampers, smoke dampers, screws, coating, painting all joints plenum boxes volume damper adapter and coupling and all accessories as specified and as shown on drawings. Duct shall be measured in m² for the installed duct work.

3. Pumps: All kinds of pumps for all services.

The unit price shall include two isolating valves, check valves, strainers, pressure gauges, air release valves, flexible connections, vibration isolators, concrete base, anti vibration pad, and suction and discharge headers as shown on the drawings and as called for in the specifications.

A-Fire Fighting Pumps:

The unit price of fire pump set shall also include complete pumps unit with interconnecting pipe work, OS&Y valves with tamper switch, pressure relief valves, check valves, air release valves, drain outlets, pressure switches, control panel, wiring connections to main power supply and all cables from control panel to the pumps and all components and accessories as called in specifications and shown on the drawings. The integrated fire fighting system shall be commissioned by a third party employed by the main contractor upon completing the erection and testing of the piping, power and control networks comprising the system.

The commissioning party should be approved by the Supervising Engineer prior to recruiting their services.

B-Cold Water Pumps:

The unit price shall also include two pumps with all components, supports, base, gate valves, check valves, strainers, pressure gauges, collectors, pressure vessel and frequency invertors in each control panel for each pump. The pumps assembly should be factory assembled.

C-Submersible Pumps:

The unit price shall also include isolating valves, control panel including four floats, controllers, manhole openings and cover.

4. Chillers:

The unit price shall include supply and installing, and shall also include the expansion tank, all related valves, gate valves, , flexible connections, flow switch, pressure gauges, thermometers, vibration isolators on factory skid and on the chiller base anti vibration pad, supply & return collectors and all other components as shown on the Drawings and as called for in the Specifications.

5. Fan coil Unit:

The unit price shall include flexible connection on fan discharge, vibration isolators and hangers, two gates, thermostats, one strainer, automatic air vent, three-way on/off valve, digital push button thermostats and flexible connections on pipes, drain connection.

6. AHU

The unit price shall include vibration isolators and hangers, two gate valves, thermostats, one strainer, automatic air vent, double regulating valve, three-way modulating valve, digital push button thermostats and flexible connections on pipes, drain connection with U trap, fire damper. The price should include the rubber pads underneath the AHU.

7. Split unit:

The unit price shall include the decorative wall type indoor unit and the R407 refrigerant outdoor unit with scroll type compressor, all with complete electrical connections, remote controller, supports, builder's work, copper pipes with insulation, cables and wires, galvanised steel hanger for external unit. The length of copper pipes is in accordance with the manufacturer requirements and specifications.

8. Exhaust Fans:

The unit price shall include vibration isolators, resilient mountings, skids and hangers, flexible connections on fan inlet and outlet, filters where required, insect screen, back draft dampers or automatic shutter, maintenance isolating switch (IP protection as needed), one set of spare belt drives per each fan (if belt driven), and all other accessories as shown on drawing and as called in specifications.

9, Expansion Tank (closed type):

The unit price shall include gate valve, double check valve, safety valve, drain valve.

10. Heating Water Boilers:

The unit price shall include the expansion tank, all accessories, control panel, thermostats and thermometers on the supply and return pipes, gate valves, safety valves, oil filter, mechanical fire valve, flexible connections on fuel pipes, and ball valve, supply & return collectors and sand tray underneath the burner and where needed.

11. Domestic Water and Heating Manifold Cabinets:

The unit price shall include the manifolds cabinet 2mm thickness oven painted, isolating valves, all pipe fittings and joints including sockets, nipples, compression fittings, nuts, O rings, hangers and supports, fixing bands, automatic air vents with isolating valves, adapters and dielectric unions for connecting dissimilar materials, excavation and back-filling, chasing in walls, painting, pipe protection.

In addition to the above, the unit price shall include sleeves ,(all pipe fittings and joints such as the brass elbows with its UPVC housings, compression fittings, nuts, O rings, nipples and sockets, hangers and supports, fixing bends, tees, unions, expansion joints, and all joining materials, pipe hangers, supports, loops and joints, automatic air vents with isolating valves, adapters and dielectric unions for connecting dissimilar materials, excavation and back-filling, chasing in walls, painting, pipe protection, testing, cleaning, flushing and commissioning system. For heating cabinets, the price shall also include thermometers on supply and return manifolds.

12. Fuel Oil Tank:

The unit price shall include: the tank, air vents, overflow line, filling lines and valves, dislodge drain line and valve, main feeding suction line with isolating valves, return lines from served equipment with isolating valves, return line to main tank with isolating valves, oil content gages, one access opening with covers, two oil storage low level sensors, two high level sensors, all painting, and corrosion resist coating, earthing, anchoring and steel base frame and support.

13. Supply Diffusers:

The unit price shall include making holes in false ceiling, adapters, flexible connection, fixing properly as per manufacturer recommendations.

14. Motor Control Centres :

The unit price shall include the enclosure complete with all components and accessories required for manual and automatic operation as specified; such as: circuit breakers, bus-bars, push buttons, indication lamps, contactors, relays, over-load protection, interlocking devices, alternators,

selector switches, 3 phase isolating switch, phase failure, phase reversal, earth leakage protection, voltmeters, ammeters, hour meter for each equipment, visible and audible alarms, interconnecting wiring, labels for wiring terminals, equipment served and for enclosure.

Refer to electrical drawings and specifications for the details of the MCC's.

15. Control and Operation Panels:

The unit price shall include the enclosure complete with all components and accessories required for manual and automatic operation as specified; such as: circuit breakers, bus-bars, push buttons, indication operation and fault lamps, contactors, relays, over-load protection, interlocking devices, alternators, selector switches, 3 phase isolating switch, earth leakage protection, interconnecting wiring, labels for wiring terminals, equipment served and for enclosure.

Refer to electrical drawings and specifications for further details of the CP's.

16. Electrical Installations:

The price shall include all electrical wiring, steel conduits, earthing, cables, cables trays, cables ladder, fixation, complete with all accessories for the connections from the nearest panel-erected isolating switch to the equipment (isolating switches on fans and other equipment meant for maintenance purposes are not considered as measurement datum) .

17. Sanitary Fixtures:

The unit price shall include the off-loading, storing, preparing engineering drawings for all related services, installing, testing, disinfecting, complete with all trimmings and accessories such as mixers, angle valves, traps, flexible connections as called for in the specifications.

18. Manholes:

The unit price shall include all materials and works for the construction of manhole such as reinforced concrete, blinding, base, walls, cast iron heavy duty cover, benching, iron steps, plastering, caulking, framework shuttering etc. as specified and shown on drawings. The price shall also include the excavation and backfilling.

19. Water Tanks:

The unit price shall include water tank with float valves, isolating valves, drain valves, base, overflow pipe, and all accessories as called for in the specifications.

20. Water Softener:

The unit price shall include twin softener, brine tank, isolating valves, check valves, pressure relief valve, anti vacuum valves and all accessories as called for in the specifications.

21. Water Filter:

The unit price shall include, isolating valves, check valves, pressure relief valve, automatic back wash and all accessories as called for in the specifications.

22. Smoke Pipes (Chimney Stack and Breaching):

Steel chimney ,4mm thick for heating boiler, the price includes all flue sections in room, concrete base fittings, supports, hangers, cleanout, etc...., plus the horizontal steel section between boiler and shaft, including coating and painting and all other accessories as specified and as shown on drawings.

Height up to 1.5m above roof parapet, price includes insulation with 2” rockwool insulation, and by 0.4mm galvanized sheet metal gladding.

Fixing of chimney to wall shall be through flexible rings to avoid transmission of noise to rooms, the weight of chimney shall be supported from the bottom only.

23. OS&Y Valve:

The unit price shall include the valve, lock and tamper switch

24. Sequence of Operation

A. Chillers:

Each chilling unit has four pumps working in an alternating sequence according to the cooling load demand.

The chilling system operation is interlocked with the operation of the pumps and is protected against no-flow by means of water flow switch.

B. Boiler:

Boiler 600KW has three circulating pumps; maximum two working at one time and one stand-by with an alternating sequence programme.

The boiler operation mode is interlocked with the operation of the shunt pump and the activation of the flow switch.

C. AHU'S & Fans

Water side of the HVAC system, as well as fresh air intake and exhaust system, are energized from the remote control panel on the ground floor; ON mode onset of the day and OFF mode end of the day.

D. Commissioning the HVAC

A licensed air conditioning works commissioning party should be employed by the main contractor upon completing his TAB works on the HVAC system.

The commissioning party should be approved by the Supervising Engineer prior to recruiting their services. Meanwhile, all TAB instruments, whether used by the contractor in his TAB process or the commissioner in his verification process, should have valid calibration certificates.

Names of Manufacturers of Materials and Equipment offered by the bidders Form

The Tenderer shall fill herein under the names of companies, manufacturing, country of origin, catalogue number, and details of materials & equipment mentioned here, and shall enclose, with his submitted tender for construction, completion and maintenance of the project.

The contractor shall propose the material and equipment from the specified list of approved manufacturers, any deviations from the said list shall be clearly mentioned.

Item	Description		
		Manufacturer	Attached Catalogue No / Date
1.1	Sewage and Drainage Parts:		
a	Floor Drains: Selection according to the application		
b	Clean Outs: Selection according to the application		
c	Parking Decks and Mechanical Rooms Drains:		
e	Roof Drains:		
f	Vent Caps:		
g	Cast Iron Gutters and Gratings for Trenches:		
h	UPVC Pipes		
i	CPVC Pipes		
j	HDPE Pipes		
1.2	Sanitary Fixtures		
a	Wash Basin with Semi Pedestal		
b	Wash Basin for Countertop		
c	Toilet Bowl		
d	Bathtub		
1.2	Recessed Flush Tanks		
1.3	Submersible Pumps		
2	DOMESTIC WATER SYSTEMS:		
2.1	Cold and Hot Water Steel pipes & Line Valves		
2.2	Pex Pipes		
2.3	Water Mixers & Faucets:		
a.	Mixers for Wash Sinks		
b.	Mixers for Kitchen Sinks		
c.	Mixers for Bath Tubs		
2.4	Angle Valves		
2.5	Brass Fittings and Manifolds		
2.6	Dometric Water Booster Pumps and Assemblies		
2.7	Electric Boilers		
2.1	Cold and Hot Water Steel pipes & Line Valves		

2.2	Pex Pipes		
Item	Description	Manufacturer	Attached Catalogue No / Date
2.3	Water Mixers & Faucets:		
a.	Mixers for Wash Sinks		
b.	Mixers for Kitchen Sinks		
3	HVAC SYSTEMS:		
3.1	Hot/Chilled Water Pipe Insulation		
3.2	Hot/Chilled Water Valves and Accessories		
3.3	Hot/Chilled Water Pumps		
3.4	On-Off & Modulating Actuators/ Temperature/ Humidity & Pressure Control / all Measuring and Control Gadgets		
3.5	Air Terminals/V Dampers/S Dampers/F Dampers		
3.6	Boilers and Calorifiers		
3.7	Burners		
3.8	Cast Iron Radiators		
3.9	Water Softners and Filters		
3.10	Fans		
3.11	Air Conditioning Equipment		
3.12	Sound Attenuators & Vibration Isolators		
3.13	Pressure and Expansion Tanks		
4	FIRE FIGHTING SYSTEMS:		
4.2	Fire fighting pump set included valves, headers, control system		
4.3*	Fire fighting cabinets		
4.4*	Portable fire extinguishers		

BILL OF QUANTITIES
DIVISION 3 -ELECTRICAL INSTALLATIONS

PREAMBLES

1. The Bills of Quantities shall be read in conjunction with the Instructions to Bidders, General and Special Conditions of Contract, Local Standards Organization; other Particular Specifications listed hereunder, Appendixes and Drawings. The documents are to be taken as mutually explanatory and inter-related to one another.
2. Unless otherwise mentioned, all quantities of works shall be measured “Net” in accordance to the drawings or/as ordered by the engineer, and generally, according to method of payment mentioned in the tender documents.
3. In the case of discrepancy in quantities of works performed by the contractor and those shown on the drawings, and should such discrepancy be acceptable to the employer, then the quantities agreed by the Engineer shall be taken into account in the measurement of quantities.
4. All quantities shown in the Bill of Quantities are approximate, and the purpose of such quantities is to obtain a close estimate of the value of the works. However, the contractor shall be paid for the actual amount of work carried out in accordance with the contract, as determined by direct measurement during the progress of the works whether the actual quantities are more or less than those shown in the Bills of Quantities. Those quantities are not intended to be used by the contractor for the materials take-off and ordering.
5. The Unit Price and the rates inserted in the Bills of Quantities respectively shall be comprehensive and shall include for complying in all respects with the requirements of the project technical specifications, covering all the obligations under the contract and all matters and things necessary for the proper construction, completion of and remedy of defects in the works. No claims for additional payment will be allowed for any error, or misunderstanding of the work involved by the contractor.
6. In the Bills of Quantities, a unit price or rate shall be inserted against items with quantities only. The value of any item left un-priced shall be deemed to be covered by other rates and prices entered in the Bills of Quantities.
7. All measurements of the executed works called for in the Contract shall be based on the unit price stated in the Bills of Quantities and made according to the specifications. Any work done by the Contractor, but not called for in the Contract or not requested in writing by the Engineer, shall not be included in the measurement.
8. The unit rate of the materials and equipment shall be based on the contract drawings, specifications, all components as required and specified under each related item concerned, technical data, manufacturers requirement and recommendations and Notes on, and all other Contract documents.

In addition to the above-mentioned requirements, the Unit Rate shall include the following:

(The following requirements are complementary to the mentioned items in the B.O.Q.),

1. Supply of materials and equipment
2. Off loading and handling from trucks on site to place of installation (including carnage, Unpacking, erecting in place).
3. Installation of materials and equipment.
4. All civil work required and connected with the electrical installations, such as: equipment, concrete bases and supports, cutting and chasing through block and concrete walls and slabs for passage of conduits, sleeves, trays, trunking and ladders, re-patching, fixing of conduits, trunking, cable trays/ladders and supports to structure, excavation and back-fillings, riggings, hoisting, waterproofing, cleaning, protection and painting, fire sealant materials to ensure the compartmentation integrity .
5. All testing, commissioning and operation by independent company (if applicable), including all expenses of tests ordered by the engineer, and all costs of repairs to damage caused by the Contractor
6. All labor, materials, tools, instruments, electric power supply, fuel and water required for installation, testing, operation and commissioning.
7. Installation identifications, tags, labels, nameplates, and charts.
8. Shop-drawings and record drawings.
9. Operation and maintenance manuals.
10. Training
11. Samples as required by the Engineer.
12. Maintenance as per the Contract Conditions
13. Coordination with other specialty contractors, such as special equipment supplier(s) and contractor(s) etc.
14. All final tie-in connections to all mechanical, special systems and machines, all as per the approved workshop drawings prepared by the specialty contractor.

Note:-

- a. The unit rate shall also include supply, install, and commission of all equipment related to trimmings and accessories as shown on drawing or called for in specification.
- b. Provisional sum items to be priced by the bidder as for supply, install, test and commission item. Bidders shall allow for attendance and profit for these item if supplied, installed and commissioned by others.

Names of Manufacturers of Materials and Equipment offered by the bidders

Form

The Tenderer shall fill herein under the names of companies, manufacturing, country of origin, catalogue number, and details of materials & equipment mentioned here, and shall enclose, with his submitted tender for construction, completion and maintenance of the project.

The contractor shall propose the material and equipment from the specified list of approved manufacturers, any deviations from the said list shall be clearly mentioned.

Item	Description	Manufacturer		Attached Catalogue No / Date
1	Main Distribution Boards			
2	Distribution Boards			
3	Isolating Switch			
4	Contactors and controls			
5	Circuit Breakers			
6	Wires and Cables			
7	Wiring Accessories, Sockets & switches			
8	PVC Conduits & Accessories			
9	Wiring for Fire Alarm System			
10	Wiring for Data System			
11	Data Outlet & Patch Panel			
12	Public Address System			
13	Fire Alarm System			
14	Communication System			
15	Access Control System			
16	CCTV System			
17	Lighting Fixtures			
18	Cable Glands & Accessories			
19	IP-PXB System			
20	Data Switch			
21	Floor Boxes			
22	UPS			
23	Automatic Hand Dryers			
24	SMATV System			
25	Stand by Diesel Generator			
26	Lightning Protection			
27	Power Factor Correction			
28	Cable Trays, Ladders & Metallic Cable Trunking			
29	Language Distribution System & Digital Discussion System			