



Regional Office, Hassan Main Branch, N R Circle, Hassan-573201

**LIMITED TENDER FOR ENGAGING CONTRACTOR FOR
ELECTRICAL WORK FOR REGIONAL OFFICE, SECOND FLOOR OF
LIC BUILDING, KUVEMPUNAGAR, HASSAN.**

**PREQUALIFICATION CUM
TECHNICAL BID**

Date of issue of Tender : 17.06.2023 to 26.06.2023 during office hours

Last date for submission of tender : 26.06.2023 up to 3.00 PM

Opening of Bids : 26.06.2023 AT 3.30 PM.

<u>Owner:</u> Union Bank of India Hassan Main Branch (RO) N.R. Circle, Hassan 573201	<u>Consultant:</u> M/s Kanamadi & Associates Architects & Engineers No.58, First Floor, 6th Cross S.P.Extension, 11th Cross, Malleswaram, Bangalore.
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NOTICE FOR INVITING TENDER FOR ELECTRICAL WORK FOR REGIONAL OFFICE, SECOND FLOOR OF LIC BUILDING, KUVEMPUNAGAR, HASSAN.

Union Bank of India invites Tenders in two-bid systems i.e. Technical Bid and Commercial/Price Bid from eligible contractors for Electrical work at Regional Office, Second Floor of LIC Building, Kuvempunagar, Hassan. The estimated cost of work is **Rs.19,56,000.00** Completion period is 30 DAYS . Tender forms (prequalification bid & Price Bid) can be collected against payment of Rs.1500/- (non-refundable) by way of Demand Draft from a Nationalized Bank in favour of “Union Bank of India” payable at Hassan during working hours from **17.06.2023 to 26.06.2023** . The tenders are also available on Bank’s website www.unionBankofindia.in. & Government portal www.tenders.gov.in. Tenderer downloading documents from website, must submit demand draft for document cost while submitting the tender in a separate envelope super scribing “tender cost” else tender will not be considered for opening. The last date of submission of tender is **26.06.2023** up to **3.00 PM**. The Bank reserves the right to reject any or all applications without assigning any reasons whatsoever.

Asst. General Manager & Regional Head

Chapter-I

NOTICE INVITING TENDER

To

Dear Sir,

SUBJECT: ELECTRICAL WORK OF REGIONAL OFFICE, LIC BUILDING, KUVEMPUNAGAR, HASSAN

- 1) Sealed, Item Rate, tenders are invited in the prescribed format from interested bidders/contractors for execution of Electrical Works as per the details mentioned here under:-

Estimated Cost of the Work	: Rs.19,56,000.00
Application / Tender document Fee	: Rs.1,500/-
Earnest Money Deposit	: Rs.40,000/- by way of Demand Draft draw in Favor of on Bank of India, payable at Hassan.
Period of Completion of work	: 30 DAYS
Validity of Tender	: 120 days
Date of Issue of Tender	: From 17.06.2022 TO 26.06.2023 during office hours
Pre-bid Meeting	: 22.06.2023 AT 11.00 AM
Last date of submission of Tender	: Up to 3.00 PM on 26.06.2023
Date & Time of opening the Technical bid	:26.06.2023 at 3.30 PM

- 2) The tender document can be obtained from Union Bank of India, Regional Office, LIC Building, Kuvempunagar, Hassan on payment of Rs.1,500/- (non-refundable) being application / Tender document fee in the form of DD in favour of Union Bank of India, payable at Hassan.
- 3) Applicants registered as MSME/NSIC/Udyog Aadhaar under Single Point Registration Scheme are exempted from depositing cost of RFP / EMD provided they attach self-attested copy of the relevant certificate clearly mentioning specified capacity & monetary limit from the concerned Government Department to this effect with technical bid. The certificate should be duly valid as on date of opening of the RFP. However, exemption is only for Tender document fees & EMD. Security Deposit in the form of Demand Draft/Bank Guarantee as per the RFP document shall be submitted by the successful bidder.
- 4) The Item Rates under the contract include for full, final & entire completion of all works in all respects described in contract & as shown in drawings forming part of the contract. Contractor must quote Item Rates **on estimated cost**. Tenders will be opened in the presence of bidders or their authorized representatives.
- 5) The tenders shall be submitted in two envelopes. **The envelope No. 1** shall be marked as **Technical Bid** and shall contain Technical Bid of the tender, EMD in the form of Demand Draft/ Pay Order, Prequalification application and any other matter.

The envelope No. 2 shall be marked as **Price Bid**.

- 6) **Envelope No. 1**. Will be opened on the due date of opening. **Envelope No. 2** of the contractors will be opened at later date (to be intimated subsequently) and of those whose prequalification application meets with eligibility criteria of the advertisement and the requirement of EMD and the terms/ conditions submitted, acceptance of technical bid, etc.
- 7) Tenders are to be submitted in one sealed Envelope cover enclosing therein the Envelope No.1 and Envelope No.2 Duly Super scribed **“Tender for interior / furnishing works of Regional Office, LIC Building, Kuvempunagar, Hassan.**
- 8) The tenderer must use only the tender forms issued for the purpose to fill in the rates. Intimation of tender quote by letter/mail will not be acceptable. The tender must be dropped in the tender box kept for the purpose. Tenderers are advised not to make any alteration/modification in the tender documents, Item of work or in any respect whatsoever. Violation of this requirement will make the Tender Liable for rejection.
- 9) In case of post/ courier delivery, the tenderer has to ensure that tender is reached before the due date and time and dropped in the tender box. The Bank will not be

responsible for damage in the transit and delay of receipt of tender, if any or sent by a special messenger. Tender received late shall be rejected.

- 10) Every page of the tender documents should be signed by the person or persons submitting the tender in token of his/their having acquainted himself/themselves with the General and Special Conditions of Contract, Specifications etc. as laid down. Any tender with any of the documents not so signed will be subjected to rejection.
- 11) No consideration will be given to a tender received after the time stipulated above and no extension will be allowed for submission of the tender.
- 12) The Union Bank of India shall not be bound to accept the lowest tender and reserves the right to accept or reject any or all the tenders without assigning any reason whatsoever.
- 13) This notice inviting tenders, the conditions of tender and the duly completed form of tender etc. will form part of the Agreement to be executed by the successful tenderer with the Bank.
- 14) Tender submitted without EMD will be treated as incomplete and the same will be rejected outrightly. The EMD shall be strictly in the form of Demand Draft. No Cheques will be accepted on account of EMD. Tenders submitted with the cheque as EMD will be treated as incomplete and will be rejected.

ASST. GENERAL MANAGER & REGIONAL HEAD

TECHNICAL SPECIFICATION

ELECTRICAL WORK

1 POINT WIRING:-

1.1. DEFINITION:-

A point (other than socket outlet point) shall include all work necessary in complete wiring to the following outlets from the controlling switch or MCB. The scope of wiring for a point shall, however, include the wiring work necessary in tapping from another point in the same distribution circuit.

- i. Ceiling rose or connector (in the case of points for ceiling/exhaust fan points, pre wired light fittings and call bells).
- ii. Ceiling rose (in the case of pendants except stiff pendants)
- iii. Back plate (in the case of stiff pendants).
- iv. Lamp holder (in the case of goose neck type wall brackets, batten holders and fittings which are not pre wired).

1.2. SCOPE:-

Following shall be deemed to included in point wiring.

- i. Conduit/casing and capping as the case may be, accessories for the same and wiring cables between the switch box and the point outlet.
- ii. All fixing accessories such as clips, nails, screws, Phil plug, rawl plug etc as required.
- iii. Metal switch boxes for control switches, regulators, sockets etc, recessed or surface type, and phenolic laminated sheet covers over the same.
- iv. Outlet boxes, junction boxes, pull-through boxes etc, but excluding metal boxes if any, provided with switchboards for loose wires/conduit terminations.
- v. Any special block required for neatly housing the connector.
- vi. Control switch or MCB, as specified.
- vii. 3 pin or 6-pin socket, ceiling rose or connector as required.
- viii. Connections to ceiling rose, connector, socket outlet, lamp holder, switch etc.
- ix. Interconnecting wiring between points on the same circuit, in the same switch box or from another.
- x. Protective (loop earthing) conductor from one metallic switch box to another in the distribution circuits, and for socket outlets. (The length of protective conductor run along with the circuits/sub mains is excluded from scope of points)
- xi. Bushes conduit or porcelain tubing where wiring cables pass through wall etc.

1.3 **MATERIAL :-**

The system of wiring shall consist of ISI marked single core PVC insulated flexible copper conductor wires as per IS: 694 amended up to date.

2. **MEASUREMENT:-**

- i. Contractor shall measure the work jointly with the site engineer and prepare measurement sheets in triplicate. Three copies of measurement sheets shall be submitted along with running account bills. Bills received without proper measurements of work shall not be considered submitted.
- ii. Should the contractor neglect to measure the work, then the measurement taken by Engineer/Architect or a person approved by the Bank shall be final and binding to him. Such measurements shall be taken in accordance with the mode of measurements wherever specified or as per actual executed quantities.
- iii. All authorized extra works, omissions and all variations made without the Engineer/Architect/Bank's knowledge, or subsequently sanctioned by him in writing (with the prior approval of the contractor in writing) shall be included in such measurement.
- iv. All bills for the work shall be submitted in the tender price bid format.

2.1. **POINT WIRING (OTHER THAN SOCKET OUTLET POINTS) :-**

- i. Unless and otherwise specified, there shall be no linear measurement for point wiring for light points, fan points, exhaust fan points and call bell points. These shall be measured on unit basis by counting.
- ii. No separate measurement will be made for interconnections between points in the same distribution circuit and for the circuit protective (loop earthing) conductors between metallic switch boxes.

2.2 **POINT WIRING FOR SOCKET OUTLET POINTS :-**

- i. The light plug (5A/6A) point and power (15A/16A) point wiring shall be measured on linear basis, from the respective tapping point of live cable, namely switch box, another socket outlet point, or the sub distribution board as the case may be, up to the socket outlet.
- ii. The metal box with cover, switch/MCB socket outlet and other accessories shall be measured and paid as a separate item.

- iii. The power point outlet will be 15A/5A or 16A/6A six-pin socket outlet.

2.3 GROUP CONTROL POINTS WIRING:-

- i. In the case of points with more than one point controlled by the same switch, such point shall be measured in parts i.e.(a) from the switch to the first point outlet as one point, and (b) for the subsequent points each shall be treated as separate point.
- ii. No recovery shall be made for non-provision of more than one switch in such cases.

2.4 TWIN CONTROL LIGHT POINT WIRING: -

- i. A light point controlled by two numbers of two way switches shall be measured as two points from the fitting to the switches on either side.
- ii. No recovery shall be made for non-provision of more than one ceiling rose or connector in such cases.

2.5 MULTIPLE CONTROLLED CALL BELL POINTS WIRING:-

- i. In the case of call bell points with a single call bell outlet, controlled from more than one place, the point shall be measured in parts i.e. (a) from the call bell outlet to one of the nearest ceiling roses meant for connection to bell push, treated as one point and (b) from that ceiling rose to the next one and so on, shall be treated as separate point(s)
- ii. No recovery shall be made for non-provision of more than one ceiling rose or connector for connection to call bell in such cases.

3. CIRCUIT AND SUBMAIN WIRING:-

3.1. CIRCUIT WIRING:-

Circuit wiring shall mean the wiring from the distribution board up to the tapping point for the nearest first point of that distribution circuit, viz. up to the nearest first switch box.

3.2. SUB MAIN WIRING:-

Sub main wiring shall mean the wiring from one main/distribution switchboard to another and from Distribution Board to Power Outlet/ AC Outlet.

4. MEASUREMENT OF CIRCUIT AND SUBMAIN WIRING:-

- i. Circuit and sub main wiring shall be measured on linear basis along the run of the wiring. The measurement shall include all length from end to end of conduit or casing and capping as the case may be, exclusive of interconnections inside the

switchboard etc. The increase on account of diversion or slackness shall not be included in the measurement.

- ii. The length of circuit wiring with two wires shall be measured from the distribution board to the first nearest switch box in the circuit irrespective of whether the neutral conductor is taken to switch box or not.
- iii. When wires of different circuits are grouped in a single conduit/casing and capping, the same shall be measured on linear basis depending on the actual number and sizes of wires run.
- iv. When circuit wires and wires of point wiring are run in the same conduit/casing and capping, circuit wiring shall be measured on linear basis depending on the actual number and sizes of wires run in the existing conduit/casing capping.
- iv. Protective (loop earthing) conductors, which are run along the circuit wiring and the sub main wiring, shall be measured on linear basis and paid for separately, if not included in item.
- v. Except as specified above for point wiring, circuit wiring and sub main wiring, other types of wiring shall be measured separately on linear basis along the run of wiring depending on the actual number and sizes of wires run.

5. SYSTEM OF DISTRIBUTION AND WIRINGS:-

- i. Main distribution board shall be controlled by the circuit breaker. Each outgoing circuit shall be controlled by a circuit breaker on the phase or live conductor.
- ii. The branch distribution board shall be controlled by a circuit breaker. Each outgoing circuit shall be provided with a MCB of specified rating on the phase or live conductor.
- iii. The load of the circuits shall be divided, as far as possible, evenly between the number of ways of the distribution boards, leaving at least one spare circuit for future extension.
- iv. The neutral conductors (incoming and outgoing) shall be connected to a common link (multi way connector) in the distribution board and be capable of being disconnected individually for testing purposes.
- v. Wiring shall be separate for essential loads (i.e those fed through stand by supply) and non-essential loads throughout.

6. BALANCING OF CIRCUITS:-

The balancing of circuits in three wire or poly phase installations shall be arranged up to the satisfaction of the Engineer-in-charge.

7. WIRING SYSTEM :-

- i. Unless and otherwise specified the wiring shall be done only by the “Looping system”. Phase or live conductors shall be looped at the switch boxes and neutral conductors at the point outlets.
- ii. Lights, fans and call bells shall be wired in the ‘lighting’ circuits. 15A/16A socket outlets and other power outlets shall be wired in the ‘Power’ circuits. 5A/6A socket outlets shall also be wired in the “Lighting” circuit both in residential as well as non-residential buildings.
- iii. The wiring throughout the installation shall be such that there is no break in the neutral wire except in the form of linked switchgear.
- iv. Surface wiring shall run, as far as possible, along the walls and ceiling so as to be easily accessible for inspection.
- v. In no case, the open wiring shall be run above the false ceiling without the approval of Engineer-in-charge.
- vi. In all types of wiring, due consideration shall be given for neatness, good appearance and safety.

8. PASSING THROUGH WALLS OR FLOORS:-

- i. When wiring cables are to pass through a wall, these shall be taken through a protection (steel/PVC) pipe or porcelain tube of suitable size such that they pass through in a straight line without twist or cross in them on either end of such holes. The ends of metallic pipe shall be neatly bushed with porcelain, PVC or other approved material.
- ii. Where a wall pipe passes outside a building so as to be exposed to weather, the outer end shall be bell mouthed and turned downwards and properly bushed on the open end.

9. JOINTS IN WIRING:-

- i. No bare conductor in phase and/or neutral or twisted joints in phase, neutral, and/or protective conductors in wiring shall be permitted.
- ii. There shall be no joints in the through-runs of cables. If the length of final circuit or sub main is more than the length of a standard coil, thus necessitating a through joint, such joints shall be made by means of approved mechanical connectors in suitable junction boxes.

iii. Termination of multi-stranded conductors shall be done using suitable crimping type thimbles.

10. CONFORMITY TO I.E. ACT, I.E. RULES AND STANDARDS:-

i. All electrical works shall be carried out in accordance with the provisions of the Indian Electricity Act, 1910 and Indian Electricity Rules 1956 amended up to date.

ii. The work shall also conform to relevant Indian Standard codes of practice for the type of work involved.

iii. In all electrical installation works, relevant safety codes of practice shall be followed.

iv. The complete wiring installation shall conform to IS: 732 amended up to date.

11. GENERAL REQUIREMENTS OF COMPONENTS:-

11.1 QUALITY OF MATERIALS :-

All materials and equipment supplied by the contractor shall be new. They shall be of such design, size and material as to satisfactorily function under the rated conditions of operation and to withstand the environmental conditions at site.

11.2 RATING OF COMPONENTS:-

i. All components in a wiring installation shall be of appropriate ratings of voltage, current and frequency, as required at the respective sections of the electrical installation in which they are used.

ii. All conductors, switches and accessories shall be of such size as to be capable of carrying the maximum current, which will normally flow through them, without their respective ratings being exceeded.

11.3 CONFORMITY OF STANDARDS:-

All components shall conform to relevant Indian Standard specification, wherever existing.

Materials with ISI certification mark shall be preferred. However for conduits, wiring cables,

piano/tumbler switches and socket outlets, ISI marked materials shall only be permitted.

11.4 INTERCHANGEABILITY: -

Similar parts of all switches, lamp holders, distribution fuse boards, switch gears, ceiling roses, brackets, pendants, fans and all other fittings of the same type shall be interchangeable in each installation.

SWITCHES & RECEPTACLES (Modular Type)

1. CONTROL SWITCHES FOR POINTS:-

- i. The switch box or regulator box shall be made of metal on all sides, except on the front. In the case of cast boxes, the wall thickness shall be at least 3 mm and in case of welded mild steel sheet boxes, the wall thickness shall not be less than 1.2 mm (18 gauge) for boxes up to a size of 20 cm x 30 cm, and above this size 1.6 mm (16 gauge) thick MS boxes shall be used. The metallic boxes shall be duly painted with anticorrosive paint before erection.
- ii. Where a large number of control switches and/or fan regulators are required to be installed at one place, these shall be installed in more than one outlet box adjacent to each other for ease of maintenance.
- iii. An earth terminal with stud & 2 metal washers shall be provided in each MS box for termination of protective conductors and for connection to socket outlet/metallic body of fan regulator etc.
- iv. Clear depth of the box shall not be less than 50 mm, and this shall be increased suitably to accommodate mounting of fan regulators in flush pattern.
- v. The fan regulators can also be mounted on the switch box covers, if so directed by the Engineer-in-charge.
- vi. Control switches (single pole switches) carrying not more than 16 A shall be of Modular type, as specified, and the switch shall be "ON" when the nob is down.
- vii. Only MCB's shall be used for controlling industrial type socket outlets.
- viii. Control switch shall be placed only in the live conductor of the circuit. No single pole switch or fuse shall be inserted in the protective (earth) conductor, or earthed neutral conductor of the circuit.
- ix. All switches, regulators, outlets & other accessories shall be white colour with matching white cover plate. In no case ivory or off-white switches shall be accepted.

2. SOCKET OUTLETS: -

- i. Socket outlet shall be of the same type, white Modular type as their control switches. These shall be rated either for 5A/6A or 15A/16A. Combined 5A/15A or 6A/16A six pin socket outlet shall be provided in Rs.power' circuits.
- ii. In an earthed system of supply, socket outlets and plugs shall only be of 3 pin type, the third pin shall be connected to earth through protective (loop earthing) conductor. 2 pin or 5 pin sockets shall not be permitted to be used.
- iii. Every socket outlets shall be controlled by a switch or MCB, as specified. The control switch/MCB shall be connected on the Rs.live' side of the line.
- iv. Outlet boxes for socket outlets (both 15A/16A and 5A/6A) points shall be of size 175 mm x 100mm.
- v. Unless and otherwise specified, the control switches for the 5A/6A and 15A/16A socket outlets shall be kept along with the socket outlets.

3. SWITCH BOX COVERS :-

Phenolic laminated sheets of approved white shade shall be used for switch box covers. These shall be of white 3 mm thick synthetic phenolic resin bonded laminated sheet as base material and conforming to grade P-I of IS:2036-1974, Secured to the box with counter sunk C.P. Brass Screws. The corners of cover plates shall be at right angle.

SWITCHES & BOXES (Modular Type)

- i. The switch box or regulator box shall be made of metal on all sides, except on the front. Since Modular type switches are to be used in the project, hence the boxes shall also be used of the same make and model. The size of box shall be governed by the number of switches/outlets/regulators on the respective board. The boxes shall be with zinc plating and yellow passivation to complies with the rust test as per IS 3854. The boxes should have slotted holes for level adjustments. The boxes shall be fitted with riveted brass earth terminals for earth connections.
- ii. Clear depth of the box shall not in a range of 50 mm to 65 mm depending upon the size of board and manufacturer.
- iii. Control switch shall be placed only in the live conductor of the circuit. No single pole switch or fuse shall be inserted in the protective (earth) conductor, or earthed neutral conductor of the circuit. The switches shall be provided with silver contacts. The neutral should make first and breaks last.
- iv. Socket outlet shall be rated either for 5A/6A or 15A/16A. 5/6 Amp sockets shall be of 5 pin type with shutters. Combined 5A/15A or 6A/16A six pin shuttered socket outlet shall be provided in Rs.power' circuits. The earth pin shall be connected to earth through protective (loop earthing) conductor. All sockets shall be provided with safety shutters to allow easy entry of two pin plugs without the need to force the earth terminal by unsafe means. All sockets shall confirm to IS: 1293.
- v. Every socket outlet shall be controlled by a switch, as specified. The control switch shall be connected on the Rs.live' side of the line.
- Vi. The switches and sockets shall be manufactured using engineering plastic to make it fire retardant and highly resistant to impact.
- vii. The fan speed regulators shall be of electronic and stepped type
- viii. The RJ-45 data socket shall be suitable for cat5/cat 6 data cables.
- ix. Gold plated contacts shall be provided in all communication jacks to enhance data and voice transmission.

SWITCHGEAR AND CONTROLGEAR

1. GENERAL ASPECTS:-

- i. All items of switchgear and distribution boards (DB's) shall be metal clad type.
- ii. The types, rating and/or categories of switchgear and protective gear shall be as specified in the tender schedule of work.
- iii. RCCB's, ELCB's and RCBO's where specified, shall conform to the requirements of current rating, fault rating, single phase or three phase configuration and sensitivity laid down in the tender documents.
- iv. While each outgoing way of distribution board (D.B.) shall be of miniature circuit breaker (MCB) as specified, and of suitable rating on the phase conductor, the corresponding earthed neutral conductor shall be connected to a common neutral terminal block and shall be capable of being disconnected individually for testing purpose.
- v. **Independent earth terminal block.**
Every distribution board (single phase as well as three phase) shall have an earth terminal block identical to, but independent from neutral terminal block, to enable termination of protective (loop earthing) conductors (incoming as well as out goings) individually by screwed connection and without twisting.
- vi. Earthing terminal (1 for single phase and 2 for three phase) shall be provided on the metal cladding of switches and D.B.'s for body earthing. These shall be suitably marked.
- vii. Knock out holes, with or without end plates as per standard design of manufacturers, shall be provided in the metal cladding of switches and D.B.'s for termination of conduits/cables.
- vii. Each distribution board shall be provided with a circuit list giving details of each circuit, which it controls, and the current rating of the circuit, and the size of the fuse element.

2. MCB TYPE DISTRIBUTION BOARDS (MCB DB):-

- i. MCB DB's may be of single phase, three phase (horizontal type) suitable for feeding single phase loads or 3 phase (vertical type) suitable for feeding single phase as well as three phase loads, each phase isolation type three phase DB in which each phase can be isolated by a separate circuit breaker or RCCB, as specified. These shall be complete with accessories, but without MCB's, which shall be specified as a separate item in the tender documents.
- ii. The current ratings and the number of ways shall be as specified. Blanking plates shall be provided to close unused ways. These shall be indicated as a separate item in the Schedule of work.
- iii. MCB DB's shall be of surface/flush mounting pattern according to the requirement of their location, and shall be suitable to accommodate MCB's

and MCB type isolators and RCCB (ELCB) at incoming in single pole or multi pole configuration, as required.

- iv. MCB DB's shall be double door type; dust and vermin proof conforming to IP 42, and shall be fabricated out of CRCA sheet steel, 1.6 mm thick, with stove enameled paint finish.
- v. In case of Concealed / Recessed D.B.'s, cutting of brick work, providing suitable lintel, making good the wall including plastering etc. with necessary civil work including all Civil material shall be included in contractor's scope for proper completion of work.
- vi. MCB DB's shall have removal type end plates with knockouts at the bottom and top, and shall have hinged covers with locking arrangement.
- vii. Only the knobs of the MCB's shall protrude out of the front covers through openings neatly machine made for the purpose.
- viii. The bus bars used shall be solid electrolytic copper of appropriate sections.
- ix. Din bar(s) shall be provided for mounting the MCB's.
- x. The complete board shall be factory fabricated and shall be duly pre-wired in the works, ready for installation at site.
- xi. The board shall be fully pre wired with single core PVC insulated copper conductors/insulated solid copper links, and terminated on to extended type terminal connectors, suitable for connections to the sizes of the respective conductors.
- xii. All incoming and outgoing wiring to the pre wired MCB DB's shall be terminated only in the extended terminal connectors to be provided within the DB. The terminal connectors shall therefore be so provided as to facilitate easy cable connections and subsequent maintenance.

3. MCCB TYPE DISTRIBUTION BOARDS (MCCB DB) :-

- i. All MCCB DB' s shall be of three phase suitable for feeding single phase loads or 3 phase loads through SP/TP MCB's, IP 42 enclosure, sheet steel, double door with tinned copper bus bar, neutral bar, earth bar, knock outs etc. The DB's shall be original factory fabricated of approved make.
- ii. The current ratings of Incomer MCCB shall be upto 250 amp and the number of ways shall be as specified. Blanking plates shall be provided to close unused ways.
- iii. MCCB DB shall be of surface/flush mounting pattern according to the requirement of their location, and shall be suitable to accommodate Four pole MCCB at incomer and SP/TP MCB's at outgoings, as required.

- iv. MCCB DB's shall be dust and vermin proof conforming to IP 42, and shall be fabricated out of CRCA sheet steel, 1.6 mm thick, with stove enameled paint finish.
- v. In case of Concealed / Recessed D.B.'s, cutting of brick work, providing suitable lintel, making good the wall including plastering etc. with necessary civil work including all Civil material shall be included in contractor's scope for proper completion of work.
- vi. MCCB DB' s shall have removal type end plates with knock-outs at the bottom and top, and shall have hinged covers with locking arrangement.
- viii. The bus bars used shall be solid electrolytic copper of appropriate sections.
- ix. Din bar(s) shall be provided for mounting the MCB's.

4. WORKMANSHIP:-

- i. Good workmanship is an essential requirement to be complied with. The entire work of manufacture/fabrication, assembly and installation shall conform to sound engineering practice.
- ii. The work shall be carried out under the direct supervision of a first class licensed foreman, or of a person holding a certificate of competency issued by the state Government for the type of work involved, employed by the contractor, who shall rectify then and there the defects pointed out by the Engineer-in-charge during the progress of work.

5. COMMISSIONING ON COMPLETION: -

Before the workman leaves the work finally, he must make sure that the installation is in commission, after due testing.

6. COMPLETION PLAN AND COMPLETION CERTIFICATE:-

- i. For all works completion certificate after completion of work shall be submitted to the Engineer-in-charge.
- ii. Completion plan drawn to a suitable scale in tracing cloth with ink indicating the following, along with three blue print copies of the same shall also be submitted.
 - a. General layout of the building.
 - b. Locations of main switch board and distribution boards, indicating the circuit numbers controlled by them.
 - c. Position of all points and their controls.
 - d. Types of fittings, viz. fluorescent, pendants, brackets, bulkhead, fans and exhaust fans etc.
 - e. Name of work, job number, accepted tender reference, actual date of completion, names of Division/Sub-Division and name of the firm who executed the work with their signature.

7. ADDITION TO AN INSTALLATION:-

An addition, temporary or permanent, shall not be made to the authorised load of an existing installation until it has been definitely ascertained that the current carrying capacity and the condition of the existing accessories, conductors, switches etc affected, including those of the supply Authorities, are adequate for the increased load.

CIRCUIT BREAKERS

A. MINIATURE CIRCUIT BREAKERS (MCB):-

Miniature Circuit Breaker shall comply with IS-8828-1996/ IEC898-1995 amended upto date.

Miniature circuit breakers shall be quick make and break type for 240/415 V AC, 50 Hz application with magnetic thermal release for over current and short circuit protection.

The breaking capacity shall not be less than 10kA at 415V AC.
MCBs shall be DIN mounted.

MCBs shall be current limiting type (class-3).

MCBs shall be C-curve.

MCBs shall have minimum power loss (watts) per pole defined as per the IS/IEC and the manufacturer shall publish the values.

MCBs shall be of self-extinguishing ULV0 grade thermoset plastic material. The housing shall be heat resistant and having high impact strength. The terminals shall be protected against finger contact to IP20 Degree of protection.

All DP, TP, TPN and 4pole MCBs shall have a common trip bar independent to external operating handle.

Mechanical Life shall be 20000 operations and Service life at rated load for In below 32A shall be 20000 and for In above 32A shall be 10000 operations.

B. Earth Leakage Circuit Breaker / Residual Current Circuit Breaker - Current Operated Type (ELCB / RCCB / RCBO)

- **System of operation**

ELCB/ RCCB/RCBO shall work on the principle of core balance transformer. The incoming shall pass through torroidal core transformer. As long as the currents in the phase and neutral shall be the same, no electro motive force shall be generated in the secondary winding of the transformer. In the event of a leakage to earth, an unbalance shall be created which shall cause a current to be generated in the secondary winding, this current shall be fed to a highly sensitive miniature relay, which shall trip the circuit if the earth leakage current exceeds a pre-determined critical value. ELCB/RCCB/RCBO shall be current operated independent of line voltage.

Current sensitivity shall be of 30mA at 240/415V AC or as specified in BOQ / drawings and shall have a minimum of 10000 electrical operations. The RCBO shall also provide over load and short circuit protection in addition to the earth leakage protection.

- **Mechanical Operation**

The moving contacts of the phases shall be mounted on a common bridge, actuated by a rugged toggle mechanism. Hence, the closing/opening of all three phases shall occur simultaneously. This also shall ensure simultaneous opening of all the contacts under tripping conditions.

- **Neutral Advance Feature**

The neutral moving contact shall be so mounted on the common bridge that, at the time of closing, the neutral shall make contact. First before the phases; and at the time of opening, the neutral shall break last after allowing the phases to open first. This is an important safety feature which is also required by regulations.

- **Testing Provision**

A test device shall be incorporated to check the integrity of earth leakage detection system and the tripping mechanism. When the unit is connected to service, pressing the test knob shall trip the ELCB/RCCB/RCBO and the operating handle shall move to the “OFF” position.

C. **MOULDED CASE CIRCUIT BREAKER (MCCB's)**

The rated normal current should be specified at 40° C

1. **General**

Moulded case circuit breakers shall be incorporated in the switchboard wherever specified. MCCB shall conform to IS: 13947 (Part-2): 1993 or IEC-60947-2 in all respects. MCCB shall be suitable either for single phase AC 230 Volts or three phase 415 volts \pm 10%. The rated insulation voltage shall be 600 volts. Suitable discrimination shall be provided between upstream and downstream breakers in the range of 10-20 milli seconds. The MCCBs will have earth fault module (if specifically asked) and front operated.

MCCB shall indicate its suitability for isolation and this should appear clearly on the MCCB with the symbol as specified in standard IS: 13947/IEC 60947

2. **Construction**

The MCCB cover and case shall be made of high strength heat-resistant and flame retardant thermosetting insulating material; operating handle shall be quick

make/quick break. The operating handle shall have suitable 'Rs.ON' 'Rs.OFF' and 'Rs.TRIPPED' mechanical indicators notable from outside. Three phase MCCBS shall have a common operating handle for simultaneous operation and tripping of all the three phases.

Suitable arc extinguishing device shall be provided for each contact. **Tripping unit shall be thermal-magnetic type upto 250A and Microprocessor based above 250A (or as specified specifically in Bill of Quantities and drawings)** provided on each pole and connected by a common trip bar such that tripping of any one pole operates all three poles to open simultaneously. Tripping device shall have IDMT characteristics for sustained over load and short circuits.

3. **Contact tips** shall be made of suitable arc resistant, sintered alloy for long electrical life. Terminals shall be of liberal design with adequate clearances.

4. **Accessories**

All the accessories shall be mounted from the front and shall be adjustment free. MCCBs shall have the electrical accessories fitted even without removing the circuit breaker from the switchboard so that site changes, if any, can be carried out easily. MCCB shall be provided with the following accessories, if specified in schedule of quantities, such as Under voltage trip, Shunt trip, Alarm switch, auxiliary switches, Rotary and motorized operating mechanism, Plug in and with draw able mechanism etc.

5. **Interlocking**

Moulded case circuit breakers shall be provided with the following interlocking devices for interlocking the door of a switchboard.

- a) Handle interlock to prevent unnecessary manipulations of the breaker.
- b) Door interlock to prevent the door being opened when the breaker is in ON position.
- c) Defeat-interlocking device to open the door even if the breaker is in ON position.

6. **Rupturing capacity**

The moulded case circuit breaker shall have a rupturing capacity as mentioned against each in Schedule of Quantity at 415 volts. Wherever required, higher rupturing capacity breakers to meet the system short circuit fault shall be used. In absence of any capacity specifically mentioned in the bill of quantities and drawings, following rupturing capacities shall be used -

100 / 125 Amp	: 25 KA
160/200/250 Amp	: 35 KA
300/400/630/800 Amp	: 50 KA

7. The MCCB shall be **current limiting type** and comprise of quick make - break switching mechanism. MCCBs shall be capable of defined variable overload adjustment. For thermal magnetic protection the O/L adjustment should be 75%-100% and for microprocessor-based release the adjustment should be 40%- 100%

and S/c for 2 to 12 times .All MCCBs rated 200 Amps and above shall have adjustable magnetic short circuit pick-up.

8. Electrical Features

All MCCB's & shall be selected on the basis of rated current. Four poles MCCBs shall be always supplied with neutral protection. The MCCBs having 400A & should have category B as per the IEC standards to ensure the selectivity. Minimum Electrical & Mechanical Endurance of MCCB Shall be as follows

Rating of MCCB	Electrical Endurance	Mechanical Endurance
Upto 160 A	7000 Opns	25000 Opns
Above 160 A	4000 Opns	15000 Opns

9. The trip command shall override all other commands. The manufacturer shall provide both the discrimination tables (with test certificates) and let-through energy curves. Line and Load connections shall be interchangeable.

10. Installation

It should be possible to terminate Aluminium cable of required size for the defined current carrying capacity. The requisite size should be made available by means of extended terminals (as a standard offer) in case the direct terminals are not of adequate size. Adequate phase to phase clearance has to be ensured in case of extended terminations. The circuit breaker should provide the flexibility of terminating line and load from any direction. Manufacturers should test the circuit breaker for this condition and requisite test certificate should be available. Phase barrier should be provided as a standard feature.

11. Testing

- a) Original test certificate of the MCCB as per BS 3871 or JS-C-8370 shall be furnished.
- b) Pre-commissioning tests on the switchboard panel incorporating the MCCB shall be done as per standard specifications.

D. AIR CIRCUIT BREAKER

1. General

Air circuit breakers shall be incorporated in power control center and motor control centers wherever specified. ACB shall conform to **IEC60947 / IS: 13947 Part-2 1993** in all respects. ACBS shall be suitable for operation on 660 volts, 3 phase, 50/60 Hz, AC supply. The rated insulation voltage shall be equal to or greater than 1000V. The rated impulse withstand voltage shall be equal to 12kV, so that the device can be used for every installation category, in compliance with the international standards CEI IEC 664-1.

2. Type and construction

Air circuit breakers shall be of enclosed pattern, dead front type with trip free operating mechanism. Air Circuit breakers shall be **withdraw able type with horizontal draw out carriage**. The mechanism shall be mechanical if not specifically mentioned for electrical. The ACBs shall be strong and robust in construction with suitable arrangement for anchoring when in fully engaged or fully drawn out positions. The carriage or cradle on which the breaker is mounted shall be of robust design made of fabricated steel, supported on rollers. Cradle shall also comprise of main and secondary separable contacts and all draw out mechanisms in a completely fig welded assembly short circuit on top. There shall be no dependence upon the panel board frame for any critical alignment. The withdrawal arrangement shall be such as to allow smooth and easy movement.

The draw out operation shall be possible through a closed door. Three positions of the moving part shall be possible:

- 1 - Connected / service position - all auxiliary and main circuits engaged
- 2 - Test position - all auxiliary circuits engaged all main circuits disconnected
- 3 - Isolated position - all circuits disconnected.

All three positions should be indicated discreetly on the cradle. Safety shutter to be provided as standard

All the current carrying parts of the circuit breakers shall be silver-plated. Suitable arcing contacts shall be provided to protect the main contacts. The contacts shall be of spring-loaded design. The sequence of operation of the contacts shall be such that arcing contacts 'make' before and 'break' after the main contacts. Arcing contacts shall be provided with efficient arc chutes on each pole. The arc chutes shall be suitable for ready replacement. Self-aligning isolating contacts with automatic shutters to screen the live parts shall be provided. The design of the breaker shall be such that all the components are easily accessible to inspection, maintenance and replacement. The ACB at its rated current shall be suitable for operation in extremely tropical humid climate at 50°C ambient temp. The manufacturer shall declare ideal de-rating charts.

There should be total segregation between the power circuit and control circuit, thus making double insulation and ensuring fitting of accessories while the circuit breaker is in the ON position. It shall be possible to inspect the arcing chamber and main contacts. The ACB shall have metal load bearing structures. The main contacts shall be separate from the arc-breaking contacts. It shall be possible to check the wear of the main contacts with the ACB in its racked-out position, removing the arcing chambers. No mechanical junctions in the main contact shall be there so that losses are minimal.

3. Operating Mechanism

Air circuit breaker shall be provided with a **quick-make, trip-free** operating mechanism. The operating mechanism shall be strain-free spring operated. The operating shall be "handle front of the panel" type. The design shall be such that the circuit breaker compartment door need not be opened while moving the breaker from completely connected, through test, in to the disconnected position. The spring shall be charged automatically during the closing operation. Mechanical Indication of the position of the spring charge shall be provided.

4. Interlocking and safety arrangement

Air circuit breakers shall be provided with the following safety and interlocking arrangements:

- i) It shall not be possible for breaker to be withdrawn when in Rs.ON" position.
- ii) It shall not be possible for the breaker to be switched on until it is either in fully inserted position or for testing purposes it is in fully isolated position.
- iii) The breaker shall be capable of being raked in to Rs.testing' isolated and maintenance positions and kept locked in any of these positions.
- iv) A safety latch to ensure that the movement of the breaker, as it is withdrawn is checked before it is completely out of the cubicle.
- v) If under voltage release is provided then circuit breaker will close only if it is energized. Under voltage release should have time delay to avoid nuisance tripping for transient voltage failure
- vi) The operating mechanism shall provide for raking the breaker in to connect, test and disconnected positions without opening the compartment door.
- vii) Mechanical interlocks shall be provided between the operations of different breakers (if specified in Bill of Quantities).

The circuit breaker shall provide as a standard feature, the following mechanical indicator in the front Panel

- 1 Contact portion indicator (on/off)
2. Stored energy status indicator
3. Trip indicator on fault

5. Rating

The CTs range from 250A to 6300A: all the CTs shall have a structure made of self-extinguishing thermoplastic material. The breaking capacity of the ACB shall be greater than or equivalent to 50kA. The Breaking Capacity of the circuit breaker shall be as indicated in the BOQ with minimum of 50kA for

upto 1250A, 65kA for 1600 to 2000A and 80kA for 2500 to 3200A. **Icu=Ics for all ACBs.** Icw rating at 1 sec/3sec should be declared. The minimum Electrical & Mechanical Life of ACB at 415/440V shall be as follows:

Rating of ACB	Electrical Endurance	Mechanical Endurance
Upto 1600 A	10000 Opns	20000Opns
2000-4000 A	5000 Opns	15000 Opns
Above 4000 A	1500 Opns	10000 Opns

6. Accessories

All the accessories like U/V, shunt opening, shunt closing shall be accessible from the front.

Circuit breakers shall be provided with the following Accessories: -

- i) Under-voltage relay for the incoming ACB.
- ii) Microprocessor based Overload releases with IDMT characteristics.
- iii) Microprocessor based Instantaneous earth fault release.
- iv) Alarm switches (if specifically asked for)
- v) Auxiliary switches
- viii) NO and NC auxiliary contacts rated for 10 Amps at 415 V AC and 6 Amp at 48V DC, in addition to ones already in use for the operation of the breaker and will be used in subsequent interlocks to be incorporated in future.

8. Mechanical indicators

Mechanical indication on the front of the air circuit breaker shall be provided to indicate the following:

- main contacts closed "ON"
- main contacts open "OFF"
- springs charged
- springs discharged
- circuit breaker in "service" position (drawout only)
- circuit breaker in "test" position (drawout only)
- circuit breaker in "isolated" position (drawout only)

9. Mounting

Circuit breakers shall be mounted as per the standard specification of power control centers.

10. Testing

Testing of each circuit breaker shall be carried out at the works as per IEC:60947 and the original test certificate shall be furnished in triplicate. The tests shall incorporate atleast the following:

- i) Impulse withstand test
- ii) Insulation test

- iii) Di-electric rigidity /Insulation test
- iv) Mechanical operation checking
- v) Thermal protection with a current of 3ith starting from cold conditions.

11. Protection

The ACB shall be with an integral self-powered **microprocessor based current release** for Overload, Short-Circuit and Earth Fault protection which works on true rms values for ensuring accurate protection, if specifically asked for. The protection unit should meet the EMI/EMC requirement as per latest standard. Online Test Fault shall be provided to test healthiness of release and ACB.

12. Setting range of protection release

- a) Overload protection shall have adjustable setting from 40% to 100% of the ACBs rated current in steps of 10% and adjustable time setting from 3-18m sec.
- b) Short circuit protection shall have adjustable current setting from 100% to 1000% of the overload setting and adjustable time delay setting for fault discrimination from 50-500 m sec.
- c) E/F protection if specified will have adjustable current setting from 40% to 100% of ACB rated current and adjustable time setting from 100-800m sec. It shall be possible to charge the release setting on load.

PVC CONDUIT WIRING SYSTEM

1. SCOPE:-

This chapter covers the detailed requirements for wiring work in non-metallic conduits. This chapter covers both surface and recessed types of wiring work.

2. APPLICATION:-

- 1. Recessed conduit work is generally suitable for all applications. Surface conduit work may be adopted in places like workshops etc. and where recessed work may not be possible to be done. The type of work shall be as specified in individual works.
- 2. Flexible non-metallic conduits shall be used only at terminations, wherever specified.
- 3. Special precautions:-

- i. If the pipes are liable to mechanical damages, they should be adequately protected.
- ii. Non-metallic conduit shall not be used for the following applications:-
 - a) In concealed/ inaccessible places of combustible construction where ambient temperature exceeds 60°C.
 - b) In places where ambient temperature is less than 5°C.
 - c) For suspension of fluorescent fittings and other fixtures.
 - d) In areas exposed to sunlight.

3. **MATERIAL:-**

3.1 **CONDUITS:-**

- i. All non-metallic conduit pipes and accessories shall be of suitable material complying with IS : 2509-1973 and IS : 3419-1988. for rigid conduits and IS : 9537(V)-2000 for flexible conduits. The interior of the conduits shall be free from obstructions. The rigid conduit pipes shall be ISI marked.
- ii. The conduit shall be circular in cross-section. The conduit shall be designated by their nominal outside diameter. The dimensional details of rigid non-metallic conduits are given in **Table-3**.
- iii. No non-metallic conduit less than 20 mm in diameter shall be used.
- iv. **WIRING CAPACITY:-**

The maximum number of PVC insulated aluminum/copper conductor cables of 650/1100 V grade conforming to IS: 694-1990 that can be drawn in one conduit of various sizes is given in **table-4**. Conduit sizes shall be selected accordingly.

3.2 **CONDUIT ACCESSORIES:-**

- i. The conduit wiring system shall be complete in all respect including accessories.
- ii. Rigid conduit accessories shall be normally of grip type.
- iii. Flexible conduit accessories shall be of threaded type.
- iv. Bends, couplers etc. shall be solid type in recessed type of works, and may be solid or inspection type as required, in surface type of works.

- v. Saddles for fixing conduits shall be heavy gauge non-metallic type with base.
- vi. The minimum width and the thickness of the ordinary clips or girder clips shall be as per **Table-5**.
- vii. For all sizes of conduit, the size of clamping rod shall be 4.5mm (7 SWG) diameter.

4. **INSTALLATION:-**

1. **COMMON ASPECTS FOR BOTH RECESSED AND SURFACE CONDUIT WORKS.**

- i. The erection of conduits of each circuit shall be completed before the cables are drawn in.

ii. **CONDUIT JOINTS :-**

- a) All joints shall be sealed/cemented with approved cement. Damaged conduit pipes / fittings shall not be used in the work. Cut ends of conduit pipes shall have no sharp edges or any burrs left to avoid damage to the insulation of conductors while pulling them through such pipes.
- b) The Engineer-in-charge, with a view to ensuring that the above provision has been Carried out, may require that the separate lengths of conduit etc. after they have been prepared, shall be submitted for inspection before being fixed.

iii. **BENDS IN CONDUITS:-**

- a) All bends in the system may be formed either by bending the pipes by an approved method of heating, or by inserting suitable accessories such as bends, elbows or similar fittings, or by fixing non-metallic inspection boxes, whichever is most suitable. Where necessary, solid type fittings shall be used.
- b) Radius of bends in conduit pipes shall not be less than 7.5 cm.
- c) Care shall be taken while bending the pipes to ensure that the conduit pipe is not injured, and that the internal diameter is not effectively reduced.

iv. **PAINTING:-**

After installation, all accessible surfaces of metallic accessories shall be painted.

5. **ADDITIONAL REQUIREMENTS FOR SURFACE CONDUIT WORK:-**

- i. Conduit pipe shall be fixed by heavy gauge non-metallic saddles with base, secured to suitable approved plugs with screws in an approved manner, at an interval of not more than 60 cm, on either side of

couplers or bends or similar fittings, saddles shall be fixed at a closer distance from the center of such fittings. Slotted PVC saddles may also be used where the PVC pipe can be pushed in through the slots.

- ii. Where the conduit pipes are to be laid along the trusses, steel joists etc. the same shall be secured by means of saddles or girder clips as required by the Engineer-in-charge. Where it is not possible to use these for fixing, suitable clamps with bolts and nuts shall be used.

6. ADDITIONAL REQUIREMENTS FOR RECESSED CONDUIT WORK:-

i. **MAKING CHASE:-**

- a) chase in the wall shall be neatly made, and of ample dimensions to permit the

conduit tube fixed in the manner desired.

- b) In the case of buildings under construction, the conduits shall be buried in the wall

Before plastering, and shall be finished neatly after erection of conduit.

- c) In case of exposed brick/rubble masonry work, special care shall be taken to fix

the conduit and accessories in position along with the building work.

ii. **FIXING CONDUITS IN CHASE:-**

- a) The conduit pipe shall be fixed by means of staples, or by means of non-metallic saddles, placed at not more than 40 cm apart, or shall be fixed by any other approved means of fixing.

- b) At either side of the bends, saddles/staples shall be fixed at a distance of 15 cm from the center of the bends.

iii. **ERECTION IN RCC WORK :-**

- a) The conduit pipes shall be laid in position and fixed to the steel reinforcement bars by steel binding wires before the concreting is done. The conduit pipes shall be fixed firmly to the steel reinforcement bars to avoid their dislocation during pouring of cement concrete and subsequent tamping of the same.

- b) Fixing of standard bends or elbows shall be avoided as far as practicable, and all Curves shall be maintained by bending the conduit pipe itself with a long radius which will permit easy drawing of conductors.

- c) Location of inspection/junction boxes in RCC work should be identified by suitable means to avoid unnecessary chipping of the RCC slab subsequently to locate these boxes.

iv. **FIXING INSPECTION BOXES:-**

- a) Suitable inspection boxes to the minimum requirement shall be provided to permit inspection, and to facilitate replacement of wires, if necessary.
- b) These shall be mounted flush with the wall or ceiling concrete. Minimum 65 mm
Depth junction boxes shall be used in roof slabs.
- c) Suitable ventilating holes shall be provided in the inspection box covers.

v. **FIXING SWITCH BOXES AND ACCESSORIES:-**

Switch boxes shall be mounted flush with the wall. All outlets such as switches, socket outlets etc. shall be flush mounting type, unless otherwise specified in the additional specification.

vi. **FISH WIRE:-**

To facilitate subsequent drawing of wires in the conduit, GI fish wire of 1.2 mm (18 SWG) shall be provided along with the laying of the recessed conduit.

7. **BUNCHING OF CABLES :-**

- a) Cable carrying alternating current, installed in metal conduit, shall always be bunched so that the outgoing and return cables are drawn into the same conduit.
- b) Where the distribution is for single phase loads only, conductors for these phases shall be drawn in one conduit.
- c) In case of three phase loads, separate conduits shall be run from the distribution boards to the load points, or outlets as the case may be.

8. **EARTHING REQUIREMENTS:-**

- i. A protective (earth) conductor shall be drawn inside the conduit in all distribution circuits to provide for earthing of non-current carrying metallic parts of the installation. These shall be terminated on the earth terminal in the switch boxes, and/or earth terminal blocks at the DB's.
- ii. Protective conductors of large size which may not be possible to be carried inside the conduits (as in the case of some sub mains etc.) may be laid external to the conduits and clamped thereto suitably.
- iii. Gas or water pipes shall not be used as protective conductors (Earth medium).

TABLE - 3
DIMENSIONAL DETAILS OF RIGID NON-METALLIC CONDUITS.
(All dimensions in mm)

S.No.	Nominal outside diameter (In mm)	Maximum outside diameter (In mm)	Minimum inside diameter (In mm)	Maximum permissible eccentricity (In mm)	Maximum permissible ovality (In mm)
1.	20	20 ^{+0.3}	17.2	0.2	0.5
2.	25	25 ^{+0.3}	21.6	0.2	0.5
3.	32	32 ^{+0.3}	28.2	0.2	0.5
4.	40	40 ^{+0.3}	35.8	0.2	0.5
5.	50	50 ^{+0.3}	45.0	0.4	0.6

TABLE - 4
MAXIMUM NUMBER OF PVC INSULATED 650/ 1100 VOLT GRADE COPPER CONDUCTOR CABLE THAT CAN BE DRAWN INTO RIGID PVC CONDUIT

Nominal cross sectional area of conductor in Sqmm.	20 mm	25 mm	32 mm	40 mm
1.50	5	10	14	-
2.50	5	8	12	-
4.00	3	8	10	-
6.00	2	5	8	-
10.00	-	3	5	6
16.00	-	-	3	6
25.00	-	-	2	4

Note :-

The above table shows the maximum capacity of conduits for a simultaneous drawing of cables.

TABLE - 5
ORDINARY CLIPS OR GIRDER CLIPS.

S.No.	Size of conduit	Width	Thickness
1.	20 mm & 25 mm	19 mm	20 SWG (0.9144 mm)
2.	32 mm & above	25 mm	18 SWG (1.219 mm)

EARTHING

1. SCOPE:-

This chapter covers the essential requirements of earthing system components and their installation. For details not covered in these

specifications. IS code of Practice on earthing (IS: 3043-1987) shall be referred to.

2. INSTALLATION:-

1. ELECTRODES:-

- i. Plate electrode shall be buried in ground with its faces vertical, and its top not less than 3 m below the ground level. The installation shall be carried out as per standard drawing.
- ii. When more than one electrode is to be installed, a separation of not less than 2 m shall be maintained between two adjacent electrodes.
- iii. a) The strip or conductor electrode shall be buried in trench not less than 0.5 m deep.

b) If condition necessitate the use of more than one strip or conductor electrode, they shall be laid as widely distributed as possible, in a single straight trench where feasible, or preferably in a number of trenches radiating from one point.
- iv. Earth Electrodes shall be kept clear of the building foundation & in no case shall it be nearer than 2 meters from the outer surface of the wall.

3. WATERING ARRANGEMENT:-

- i. In the case of plate earth electrodes, a watering pipe 20mm dia. medium class pipe shall be provided and attached to the electrodes. A funnel with mesh shall be provided on the top of this pipe for watering the earth.
- ii. The watering funnel attachment shall be housed in a masonry enclosure of size not less than 30cm*30cm*30cm.
- iii. A cost iron/MS frame with MS cover, 6 mm thick, and having locking arrangement shall be suitably embedded in the masonry enclosure.

4. EARTHING CONDUCTOR (Main earthing lead):-

- i. The earthing conductor shall be securely terminated on to the plate with two bolts, nuts, check nuts and washers.
- ii. A double C-clamp arrangement shall be provided for terminating tape type earthing conductor with GI watering pipe coupled to the pipe earth electrode. Galvanised "C" shaped strips, bolts, washers, nuts and check nuts of adequate size shall be used for the purpose.

- iii. The earthing conductor from the electrode up to the building shall be protected from mechanical injury by a medium class 15 mm dia GI pipe in the case of wire, and by 40 mm dia, medium class GI pipe in the case of strip. The protection pipe in ground shall be buried at least 30 cm deep (to be increased 60 cm in case of road crossing and pavements). The portion within the building shall be recessed in walls and floors to adequate depth in due co-ordination with the building work.
- iv. The earthing conductor shall be securely connected at the other end to the earth stud/earth bar provided on the switchboard by:
 - a) Soldered or preferably crimped lug, bolt, nut and washer in the case of wire, and,
 - b) Bolt, nut and washer in case of strip conductor.
 - c) Earthing Terminal/ neutral point/ earth bus in case of equipment's/ sub stations.

5. PROTECTIVE (Loop earthing/earth continuity) CONDUCTOR:-

- i. Earth terminal of every switchboard in the distribution system shall be bonded to the earth bar/terminal of the upstream switchboard by protective conductor(s).
- ii. Two protective conductors shall be provided for a switchboard carrying a 3 phase switch gear thereon.
- iii. All the mountings of industrial type switchboards shall be bonded to the earth stud/earth bar using a protective conductor looping from one to another. Loop earthing of individual units will not be however necessary in the case of cubical type switchboards.
- iv. The earth connector in every distribution board (DB) shall be securely connected to the earth stud/earth bar of the corresponding switchboard by a protective conductor.
- v. All metallic switch boxes and regulator boxes in a circuit shall be connected to the earth connector in the DB by protective conductor (also called circuit protective or loop earthing conductor), looping from one box to another up to the DB.
- vi. The earth pin of socket outlets as well as metallic body of fan regulators shall be connected to the earth stud in switch boxes by protective conductor. Where the switch boxes are non-metallic type, these shall be looped at the socket earth terminals, switch or at an independent screwed connector inside the switch box. Twisted earth connections shall not be accepted in any case.
- vii. Double earthing strips in rising mains, bus trunking etc. shall be securely connected to the earth bar/earth stud at the sending end switchboard. In the case of overhead bus bar systems, protective

conductors shall be provided in addition to feeder cable armouring connection.

6. EARTH RESISTANCE:-

- i. The earth resistance at each electrode shall be measured. No earth electrode shall have a greater ohmic resistance than 5 ohms as measured by an approved earth testing apparatus. In rocky soil the resistance may be up to 8 ohms.
- ii. Where the above stated earth resistance is not achieved, necessary improvement shall be made by additional provisions, such as additional electrode(s), different type of electrode, or artificial chemical treatment of soil etc., as may be directed by the Engineer-in-charge.
- iii. If the earth resistance is too high and the multiple electrode earthing does not give adequate low resistance to earth, then the soil resistivity immediately surrounding the earth electrodes shall be reduced by adding sodium chloride, calcium chloride, sodium carbonate, copper sulphate, salt and soft coke or charcoal in suitable proportions.

7. MARKING: -

- i. Earth bars/terminals at all switchboards shall be marked permanently either as "E".
- ii. Main earthing terminal shall be marked "SAFETY EARTH - DO NOT DISCONNECT".

**COMPUTER NETWORKING
SECTION - I INTRODUCTION
1.0 GENERAL REQUIREMENTS:**

Computer Net Working System should adhere to relevant and recognized standards.

- 1.1 The Structural Cabling System shall be a hierarchical star topology utilizing CAT 6 copper cable in horizontal sub system and multi mode fiber optic cable in the backbone subsystem.
- 1.2 All components within the cabling system shall be from a single manufacture and shall be covered by the manufacturer's system performance warranty. The warranty shall be independent of application and will support all ratified protocols, and the warranty shall be minimum of 25 years.

2.0 DATA CABLING - UNSHIELDED TWISTED PAIR

- 2.1 Unshielded Twisted pair (UTP) CAT 6 cable shall be used for LAN connectivity to the Desktop. To enable increased performance UTP-CAT 6 cabling should support 100/1000 Mbps Ethernet and ATM 155 Mbps as per IEEE 802.3ab connectivity standards.

- 2.2 Unshielded Twisted Pair (UTP) CAT 6 cable and other relevant products shall be in accordance with EIA/TIA 568 standards.
- 2.3 Unshielded Twisted Pair (UTP) CAT 6 cable shall meet developments in applications technology and shall perform for a worst case four-connector channel to support applications that utilize full-duplex transmission schemes, such as Gigabit Ethernet.
- 2.4 All cables shall be fitted with strain relief boots.
- 2.5 Contractor shall furnish 25 Year warranty certificate to cover Bandwidth of the specified and installed cabling system and installation costs.
- 2.6 Cable shall be manufactured by using 24 AWG solid bare coppers with polyethylene insulation and Flame retardant PVC jacket.
- 2.7 Cable shall be suitable in operating temperature of -20° C to 60° C.
- 2.8 The cable shall be tested up to 350 MHz frequencies.
- 2.9 Delay skew should not be more than 25ns/100m.
- 2.10 Impedance of the cable shall be 100 Ω +/- 15 Ω .
- 2.11 Following installation practice shall be followed by the Contractor While laying the cable.
 - a. Do not place cable near equipment that may generate high levels of electromagnetic interface.
 - b. Place cabling at a sufficient distance from equipment.
 - c. Do not over tighten cable ties, use staples or make sharp bend with cables.
 - d. Tie and dress horizontal cables neatly and with a minimum bend radius of 4 times the cable diameter.
 - e. Maintain the twist of horizontal and backbone cable pairs up to the point of termination. Do not leave any wire pairs untwisted.
 - f. Do not create multiple appearances of the same cable at several distribution points (called Bridging Taps)
 - g. Do not use connecting hardware that is of lower category than the cable being used.
 - h. Terminate each horizontal cable on a dedicated telecommunications outlet.
 - i. Use connecting hardware that is compatible with the installed cable.

The contractor shall note that the above installation practices are not exclusive. It is the responsibility of the contractor to ensure that the installation is compliant to required specifications. Installation Practices shall also meet all applicable local and national codes, standards and ordinances. Where a conflict exists between these standards, it is the responsibility of the contractor to detail these conflicts to the consultant prior to installation commencing.

3.0 CAT 6 RJ 45 MODULAR JACK

- 3.1 Copper outlets shall be presented into work area as an RJ45 connector. The outlet shall have a shuttered cover to prevent the ingress of dust and other contaminants.
- 3.2 One outlet/Double outlet of required color and type should be provided to each workstation as per the final approval of the consultant.
- 3.3 All outlets shall be modular type and made out of ABS plastic.
- 3.4 The outlet shall be provided with icons or circuit identification and labels for port identification.
- 3.5 All outlets should include cable management facilities as per standards.
- 3.6 The modular outlets shall be factory assembled.

- 3.7 The termination of the installed horizontal cable shall be by insulation displacement connectors.
- 4.0 UTP JACKS
- 4.1 UTP Jacks shall be suitable for CAT 6 cable, PCB Based and as per TIA/EIA 568 standards.
- 4.2 The durability of Modular jack shall be minimum 750 mating cycles and minimum 200 termination cycles for wire terminals.
- 4.3 Housing of UTP Jack shall be made out of Polyphenylene oxide rated for 94V and wiring block shall be of Poly Carbonate rated for 94 V.
- 5.0 UTP JACK PANELS
- 5.1 UTP Jack Panels shall be suitable for CAT 6 cable with 24 port, modular type, PCB based, 1 U height and as per the EIA/TIA 568-B2 standards.
- 5.2 UTP Jack panel shall have Icons on each of 24 Ports.
- 5.3 9mm or 12mm labels on each of 24 ports shall be provided as per the final approval of the consultant.
- 5.4 The durability of Modular jack shall be minimum 750 mating cycles and minimum 200 termination cycles for wire terminals.
- 5.5 The UTP Jack Panel shall be made out of Powder Coated Sheet Steel with UTP Jack shall be made out of Polyphenylene oxide rated for 94V and wiring block shall be of Poly Carbonate rated for 94 V.
- 6.0 WORK AREA CABLING
- Work area equipment and cables shall be as per ANSI/TIA/EIA-568-A and ISO/IEC 11801.
- Equipment Cords are assumed to have the same performance as patch cords of the same type and category.
- To ensure consistency of performance, the same manufacturer as the installed cabling shall provide all the work area cables (patch/mounting cords) throughout this project.
- The patch cord shall be manufactured out of 24 AWG 7/32, Stranded copper conductor, with PVC insulation, Flame retardant polyethylene jacket and shall have length as mentioned in schedule of quantities as per the standards of CAT 6.
- The patch cord shall be provided with matching colored snag-less, elastomer polyolefin boot.
- Housing of the plug shall be of Clear Polycarbonate and the Load Bar shall be of PBT polyester.
- Terminals shall be made out of Phosphor Bronze, 50 micron gold plating over selected area and gold flash over remainder, over 100 micron nickel under plate.
- All cables shall be fitted with strain relief boots.
- The onsite fabrication of work area cabling shall not be permitted.
- 7.0 DATA RACKS
- 7.1 The contractor shall also examine the location of the Data Rack to Ensure the Air Flow around the same and sufficient clearance is available to allow access for inspection and maintenance.
- 7.2 The specification for patching frames shall match that detailed in UTP cabling.
- 7.3 The patch panels shall meet or exceed the transmission Performance requirements of ANSI/EIA/TIA 568-A5.

8.0 TERMINATION AND CONNECTORS

- 8.1 The wiring schedule used at the point of termination should be Complete with ANSI/EIA/TIA 568-A.
- 8.2 All termination shall be made using CAT 6 connectors and Panels.
- 8.3 When terminating both ends of the connection should be tested, Labeled and documented according to the requirement of the OEM and site practices.
- 8.4 All termination should be made by an approval installer so as to Meet warranty.

9.0 LABELING AND COLOR CODING CONVENTIONS

- 9.1 All Cables shall be labeled so as to ultimately and the end user in The maintenance and administration of the installed cabling system.
- 9.2 Contractors shall make allowance for labeling of all cables at both Ends and for the full labeling of all patch panels and outlets with a unique circuit identifier.

10.0 INSTALLATION ACCEPTANCE TESTING SPECIFICATIONS

- 10.1 Installed UTP Cabling system shall be tested with TIA/EIA 568 Level IIE/Level III hand held testers. Each installed UTP drop shall be tested as per the latest revisions of TIA/EIA 568 CAT5e specifications.
- 10.2 The contractor shall after completion of the installation, submit a Detailed documentation of the cable plant. The documentation shall cover minimum following:
 - a. As built diagrams of the Network.
 - b. Test results for UTP
 - c. Consolidated Bill of Materials with manufacturer's part Nos. and quantities used.
 - d. Warranty certificate from OEM Supplier.

SECTION - II SUBMISSION

1.0 SUBMISSIONS

Contractor to note that the following Minimum Documents shall be furnished along with the Bid.

1.1 UTP CABLING SYSTEM

- a. ETL verification of the Cable as per TIA/EIA 568 B.1 standards.
- b. Performance characteristics for Attenuation, Pair to Pair and PS NEXT, ELFEXT and PSELFEXR, Return Loss, ACR and PS ACR for 4 - Connector Channel.
- c. Certificate of UL listing.

1.2 UTP JACKS

- a. Certificate of UL listing.
- b. Performance characteristics for Attenuation, NEXT, PS NEXT, FEXT and Return Loss.

1.3 UTP JACK PANELS

- a. Certificate of UL listing.

- b. Performance characteristics for Attenuation, NEXT, PS NEXT, FEXT and Return Loss.
 - c. Certificate for termination pattern as per TIA/EIA 568 A and B.
- 2.0 After the system is fully supplied, installed, tested, Commissioned, successfully handed over and such certified by the Employer, the contractor should carry out his defects liability responsibilities as specified for a period of one year. During this period the Contractor shall carry out all repairs to the equipment and replace all defective components at his own cost.
- 3.0 TELEPHONE WIRING
Telephone Wiring should be carried out with 0.5 Sqmm Tinned Copper flexible wire through PVC Casing Capping / Conduit. And terminated in the Jack on workstation and on the kronen in the Krone Junction Box place at Server Room.
The Krone Junction Box should be joint less type.

APPROVED LIST OF ELECTRICAL MATERIAL

Description	Brand
11 KV CIRCUIT BREAKER PANEL	ABB / SEIMENS / AREVA
11 KV / 0.4 KV TRANSFORMERS	CROMPTON / KIRLOSKER / AREVA / SEIMENS
BATTERY CHARGING PANEL	KELTRON / NELCO
BATTERIES	EXIDE / AMCO / STANDARD
L T PANEL	NEPTUNE (INDIA) LTD. / ZETA SWITCH GEARS / KRYPTON POWER CONTROL INDIA PVT LTD. / ADLEC SYSTEM / N E C
11 KV Isolator and D O Fuses	AMEI / ELLPRO / STERLING
Capacitor	L & T / DUCATI / EPCOS
APFC relay	L & T KHATAU / DUCATI / SYNTRON
M.C.B. / RCCB / RCBO	LEXIC / HAGER / ABB
Distribution Boards	LEXIC / HAGER / ABB
Switch Fuse Units With HRC fuses	GE / L&T / ABB
Moulded Case Circuit Breaker (MCCB)	ABB (T max) / L & T (D sine)
Air Circuit Breakers	ABB (EMEX/L&T(C POWER)
Current Transformer / Meters / Voltage Transformers / Relays / Starters /	L & T / SIEMENS / AUTOMATIC ELECTRIC / CONTROL & SWITCH GEARS / ABB

Contactors / Selector Switch / Indicating Lamps	
Change Over Switches	GE / L&T / HH ELCON
Cable Glands and Sockets	SIEMENS
PVC insulated Copper conductor wires	FINOLEX / RR / POLYCAB
Telephone Wires and cables	FINOLEX / (RPG/BIRLA ERICSSON POLYCAB
Television Coaxial cable	FINOLEX / RR /RPG / L&T
PVC / XLPE Insulated 11 KV / 1.1 KV Cables	UNIVERSAL /FORT CLOSTER / NICCO / FINOLEX/POLYCAB
Switches and Sockets outlets (Conventional piano type)	ANCHOR
Switches and Sockets outlets (Modular type)	LK Fuga / MK / MDS-MOSAIC
Industrial outlet	LEXIC / HAGER / ABB
MIS Conduits and Accessories	B.E.C./AKG/MK
PVC Conduits and accessories	AKG/BEC/CAP/SEIKO / [POLYCAB
Fluorescent Tube Fitting	PHILIPS /WIPRO
Incandescent Light Fitting	DECON/PHILIPS / BAJAJ / WIPRO
Hpmv/hpsv/ halogen Lamp	PHILIPS / WIPRO
Ceiling Fans / Exhaust Fans	CROMPTON / BAJAJ
Floor / Wall Raceways to date	MK/ LK/ MDS
Computer networking - outlet	AMP/SYSTEMAX / LUCENT
Electronic Energy Meters	SECURE / L&T
UPS	EMERSON / POWERWARE / TATA LIBERT
Ceiling Rose holders	ANCHOR
Buzzers/Bell Push bell	ANCHOR
MCB Distribution Board	MOS/LEGRAND/SIEMENS /HAGER
HRC Switch Fuse nits	SIEMENS ABB/GE/L&T
Cable Glands/Lugs	SIEMENS/DOWELLS
Electronic Regulator	MK/ANCHOR/ROMA/DEGRAND/MDS
Contractors	SIEMENS/L&T/ABB/SCHNIEDER
Geysers/water/heater	SPHERE HOT /RACOLD/USHA

Chapter-III

PRE-QUALIFICATION /ELIGIBILITY CRITERIA:

The interested bidder shall mandatorily have registration for PAN /VAT / TIN / GSTN as per applicable laws.

The interested parties who meet the following eligibility criteria shall only apply:

Sr. No.	Criteria
1	Should have executed One similar work costing not less than the amount equal to 80% of estimated cost of tender OR Two similar works costing not less than the amount equal to 50% of estimated cost of tender OR Three similar works costing not less than the amount equal to 40% of estimated cost of tender during last 5 years ending 31.03.2023
2	Average turnover for the last three years shall be 30% of estimated cost of tender and above.
3	Should have submitted solvency certificate of 30% of estimated cost of tender (not older than 6 months).
4	Should have made profit at least in two years during last three years.
5	The Bidder should have their main office/Regd. Office / Branch office/ in Karnataka

NOTE:

1. The value of work executed will be enhanced by 5% per year to ascertain current value of the work done.
2. The similar work means, work as specified in the scope of work covered in this tender document.
3. Those of the bidders who are not meeting the above requirement /criteria will not be eligible and shall be disqualified.
4. The bidder should furnish documents evidencing all the above points.

CHAPTER - IV

Evaluation of Technical Bids :

1. After preliminary scrutiny of bids regarding the eligibility criteria, the bids meeting the eligibility criteria will be taken up for Technical Evaluation.
2. Technical Evaluation will involve the following parameters with weightages as shown below :

Sl.No.	Parameter	Total Weightage
1.	Constitution of the Bidder	10
2.	Experience of the bidder /contractor in similar activity	20
3.	Similar project executed during the last 5 years	20
4.	Timely Completion of Projects as per agreement	20
5.	Experience in executing similar works of more than Rs,. 10 lacs in the last 3 years for Central Govt Dept/ State Govt Dept/ PSBs/MNCs /Educational Institutions	10
6.	Executed at least 1 similar project of Rs. 10.00 lakhs and above in Bengaluru during the last three years	05
6.	INSPECTION OF PROJECTS EXECUTED BY THE BIDDER	20
	TOTAL	100

3. The bidders who score 80 and above marks in the Technical Evaluation only will be eligible for opening of commercial bids.
4. The detailed technical evaluation sheet is enclosed as Annexure_____

CHAPTER -V

Evaluation of Commercial Bids

1. The Bank will open and scrutinize the commercial bids of the technically qualified bidders (those of the bids scoring 80 or more marks).
2. The commercial bid will have to submitted in the format as per Anenxure_____.
3. The price should be quoted item-wise . The commercial bid should not have any alterations or overwriting . The calculation amount arrived by the Bank will be final and will be binding on the bidders.
4. The bidders should quote for all the works under the Tender and no column of the price bid should be left blank.
5. Commercial Bid not meeting the above criteria / requirement shall be disqualified.
6. The total price quoted will be basis for arriving at the L-1.
7. The price quoted for supply items shall include all packing, crating, excise duty, sale tax / Works Contract tax, insurance, freight, loading/ unloading, handling & all other charges.
8. The price quoted for erection & commissioning shall include cost of all consumables, taxes & duties. (if any). No additional taxes/duties shall be payable by Owner.
9. Prices quoted shall be firm and no variation shall be allowed during contract period.

CHAPTER -VI

INSTRUCTIONS WITH REGARD TO SUBMISSION OF TENDER

- 1) Rates should be quoted both in figures and words in columns specified. All erasures and alterations should be duly authenticated by the authorized signatory. Overwriting is not permitted. Failure to comply with either of these conditions will render the tender invalid and it will be the option of Union Bank of India to accept or reject the tender. No request of any change in rate or conditions after opening of the tender will be entertained.
- 2) In the case of figures, the word Rs. should be written before the figures of rupees and the word 'P' written after the decimal figures e.g. Rs. 3.25 P. In the case of words, the word Rupee should similarly precede and the words "Paise only" should be written at the end, closely following each the Item rate. The word "only" should not be written in the next line unless the rate quoted is in whole Rupees closely followed by the word "only". The amount should invariably be up to two decimal places.
- 3) The different Schedules should be filled as follows:
 - (a) The "Rate" Column wherever applicable to be legibly filled in ink in both figures and words.
 - (b) The "Amount" Column also to be legibly filled in ink in both figures and words.
 - (c) All corrections to be initialed.
 - (d) No over writing is allowed.
 - (e) The figure of Item of rate shall be legibly filled in ink in both figure and words.
- 4) Errors in the bill of quantities shall be dealt with in the following manner.
 - a. In the event of any discrepancy between the rates quoted in words and the rates in figures the former shall prevail.
 - b. In the event of an error occurring in the amount column of the bills of quantities as a result of the wrong extension of the unit rate and the quantity, the unit rate shall be regarded, as firm and extension shall be amended on the basis of the rates.
 - c. All the errors in totaling in the amount column and in carrying forward the totals shall be corrected.
- 5) The tender shall be signed and dated at all places provided therein. Also all pages, drawings and corrections/ alterations shall be initialed. The tender submitted on behalf of a firm shall be signed by all the partners of the firm or by a partner who has the necessary authority on behalf of the firm to enter into the proposed contract. Otherwise the tender may be rejected by Union Bank of India.
- 6) The time allowed for completion of works is **30DAYS** from the date of commencement of the work which is as mentioned in the Agreement. Time shall be considered the essence of contract.

- 7) Every tender shall be accompanied by earnest money of **Rs.40,000 (Rupees Forty Thousand only)** by way of Demand Draft/Pay Order only favoring UNION BANK OF INDIA, payable at Bengaluru. Tender submitted without earnest money shall be summarily rejected. The contractor whose tender is accepted will have to deposit as security deposit a further sum to make up 5% of the value of the accepted tender including the earnest money(EMD + security deposit should be 5% of the contract value which will be treated as Performance Security). The security deposit will have to be made within 14 days from the date of work order, failing which the Bank at his discretion may revoke the letter of acceptance and forfeit the earnest money deposit furnished along with the tender.
- 8) The Earnest Money will be retained in the case of the successful tenderer as part of the security for due fulfillment of the Contract. No interest shall be paid on this deposit. Failure to enter into the Contract agreement within the stipulated time of 20 days from the date of acceptance of work order shall entail the forfeiture of the Earnest money Deposit. The Earnest money of unsuccessful tenderers will be released after issue of work order, without any interest.
- 9) The tenderer shall submit his tender after carefully examining the whole of the tender document and the terms and conditions of contract, the drawings and specifications, the schedule of quantities etc., and also after examining the site and conditions prevailing in and around site.
- 10) The Bank does not bind himself to accept the lowest or any tender and reserve to them the right of accepting the whole or any part of the tender and tenderer is bound to perform the same at the rates quoted. The Bank will not be bound to accept the lowest tender and reserves the right to accept or reject any or the entire tender without assigning any reasons whatsoever. The work may also be divided among the contracting agencies depending on the exigencies of the Bank.
- 11) Tenders shall remain valid for a period of 120 days from the date of opening of the tender which period may be extended by mutual agreement and the tenderer shall not cancel or withdraw the tender during the initial validity period of 120 days.
- 12) The successful tenderer shall be bound to implement the Contract and mobilize and sign specified agreements **within 15 days** from the date of acceptance of work order.
- 13) Tenderers must indicate in their rates separately the GST (State & Central Govt.), applicable on the date of submitting tender. Applicable TDS will be deducted while making the payment from the Contractor's interim and final bills Bills . Due to change in taxes structure by orders from Central Govt. / State Govt. after opening of tenders shall be reimbursed to the contractor as per actual and upon verifying the proof of having made the payment.

- 14) This contract shall be an Item Rate contract. The Contractor shall be paid for actual quantity of work done, as measured at site including any deviation plus or minus. The rate of any non-schedule items of work shall be decided as mentioned in the conditions of contract.
- 15) The tender drawings exhibited/enclosed are preliminary drawings intended for the guidance of the Contractor only. They may be subject to revision and alteration without vitiating any of the terms of the contract and the Contractor shall be bound to execute the works as shown on the final drawings without claiming any extra payment.
- 16) No correspondence will be entertained in respect of this tender other than any clarifications strictly pertaining to this tender.
- 17) The tender price quoted by a tenderer shall be kept strictly confidential and shall not be divulged to any other party even approximately before the time limit for delivery of tender. The only exception be for obtaining an insurance quotation, contractor may give insurance company or agent any essential information they ask for, so long as it is done in strict confidence. No information about other's tender price should be obtained and no arrangement with anyone else should be made whether or not he submits the tender.
- 18) Tenderers must possess respective valid licenses from the competent authority of the area where the site is located for electrical and any other related works which require such licenses.
- 19) Contractor should sign at the end of every page prior to submitting the tender.
- 20) Conditional tenders will be summarily rejected.
- 21) COMPLETION PERIOD OF THE PROJECT WILL BE 30days.
- 22) On the acceptance of his tender, the contractor will be required to execute an Indemnity Bond with-in 10 days of issue of work order in favour of the Bank against third party claims, civil or criminal complaints, site mishaps and other accidents or disputes, against any damages, loss or expenses due to or resulting from any negligence or breach of duty on the part of the contractor, his subcontractors or his employees and agents etc., as per the appropriate Indemnity Bond format attached. It will also be covered by labour laws of the Govt. of India.

CHAPTER -VII

GENERAL INSTRUCTIONS TO CONTRACTORS AND SPECIAL CONDITIONS

- 1) Canvassing in connection with tenders is strictly prohibited and the tenders submitted by the contractors who resort to canvassing will be liable to rejection.
- 2) The Tender Form must be filled in English and all entries must be made by the hand and written in ink. If any of the documents is missing, or unsigned, the Tender may be considered invalid by the Bank in its discretion.
- 3) 50% of retention money and initial security deposit will be returned against submission of Bank Guarantee valid for a period of 12 months of Defect Liability Period and after I) issue of virtual completion certificate by the Consultant of the work. II) Contractor's removal of his material, equipments, labour force, temporary sheds/ stores, etc. from the site (excepting for small presence required, if any, for defect liability period and approval by the Bank).

Balance 50% of retention money and security deposit shall be released to the contractor fourteen days after the end of completion of defect liability period provided he has satisfactorily carried out all the works and attended to all the defects in accordance with the conditions of contract including site clearance.

- 4) The contractor shall not assign the contract. He shall not sub-let any portion of the contract except with the written consent of the Bank. In case of breach of these conditions, the Bank may serve a notice in writing on the contractor rescinding the contract whereupon the Security Deposit shall stand forfeited to the Bank, without prejudice to his other remedies against the contractor. Central Govt./ State Govt. organization will not be allowed to sublet the work on back to back basis.
- 5) The contractor shall carry out of all the work strictly in accordance with Drawings, details and instructions of the Architect, Consultant and the Bank. If in the opinion of the Architect, consultant or the Employer, changes have to be made in the design and with the prior approval in writing of the Employer, they desire the contractor to carry out the same, the contractors shall carry out the same without any extra charge. The Bank's decision in such cases shall be final and shall not be open to arbitration.
- 6) A Schedule of probable quantities in respect of each work and specifications accompany these special conditions. The Schedule of probable quantities is liable to alteration by omission, deductions or additions at the discretion of the Architect/ Bank. No claim will be entertained from the contractor on account of loss of profit over revising the tender rates.
- 7) The Tenderer must obtain for himself on his own responsibility and at his own expenses all the information which may be necessary for the purpose of filling

of Tender and for entering into a contract and must examine the drawings and must inspect the site of the work and acquaint himself with all local conditions, means of access to the work, nature of the work and all matters pertaining thereto. No compensation will be paid on account of not getting proper information.

- 8) The rates quoted in the Tender shall be inclusive of all charges for clearing of site before commencement as well as after completion, water, electrical consumption, meters, double-scaffolding, centering, boxing, staging, planking, timbering and pumping out water, including bailing, fencing, planking, timbering and pumping out water, including bailing, fencing, hoarding, plant and equipment, storage sheds, watching and lighting by night as well as day, including Sundays and Holidays, temporary plumbing and electric supply, protection of the public and safety of adjacent roads, streets, cellars, vaults, open pavements, walls, houses, buildings and all other erections, matters or things and the contractor shall take down and remove any or all such centering, scaffolding, staging, planking, timbering, strutting, shoring, etc. as occasion shall require or when ordered so to do, and fully reinstate and make good all matters and things disturbed during the execution of the work and to the satisfaction of the Bank / Consultant.
- 9) Time allowed for carrying out the work as mentioned in the Memorandum shall be strictly observed by the contractor and its shall be reckoned from the 10 days after acceptance of order to commence the work or the date of handing over the site to the contractor whichever is later. The work shall throughout the stipulated period of the contract be proceeded with all due diligence and if the contractor fails to complete the work within the specified period i.e. 30days, he shall be liable to pay compensation as defined in the conditions of contract.
- 10) The contractor shall not be entitled to any compensation for any loss suffered by him on account of delays in commencing or executing the work, whatever the case of delays may be, including delays arising out of modifications to the work entrusted to him or in any sub-contract connected therewith or delays in awarding contracts for other trades if the project or in commencement or completion of such works or in procuring government controlled or other building materials or in obtaining water and power connections for construction purposes or for the other reasons whatsoever and the Employer shall not be liable for any claim in respect thereof. The Employer does not accept liability for any sum besides the Tender amount, subject to such variations as are provided for herein.
- 11) The successful Tenderer is bound to carry out any items of work necessary for the completion of the job even though such items are not included in the quantities and rates. Schedule of instructions in respect of such additional items and their quantities will be issued in writing by the Architect/ consultant with the prior consent in writing of the Bank.
- 12) The successful Tenderer must co-operate with the other contractors appointed by the Employer so that the work shall proceed smoothly with the least possible delay and to the satisfaction of the Architects/ Consultant.

- 13) The contractor must bear in mind that all the work shall be carried out strictly in accordance with the specifications made by the Architect/ Consultant and also in compliance of the requirements of the Authorities concerned and no deviation on any account will be permitted.
- 14) (i) The rates quoted in the Schedule rates also include the expenditure for providing all the water required for the work and the contractor shall make his own arrangements for the supply of good quality water including obtaining Municipal connection for his labour as well as for construction purpose and all charges shall be borne by him. If Municipal water connection is not available and should it become necessary for the contractor to drill a bore well for obtaining water for construction purposes or to bring water from outside by Tankers, The Bank shall not be liable to pay any charges in connection therewith.
- (ii) The rates quoted in the Tender shall also include Electric consumption charges for Power. If no power is available at site, the contractor shall have to make his own arrangement to obtain electric power connection and maintain at his own cost an efficient service of electric light and power and shall pay for the electricity consumed.
- (iii) For water and power, the contractor to whom the work is allotted shall maintain the same in good working conditions.
- (iv) Contractor for other trades appointed by the Bank shall also be allowed to use water and power available by fixing reasonable charges mutually agreed.
- (v) Any dispute regarding payment for water and power charges by the other contractor and or by subsidiary agencies appointed by the Bank to the contractor, who has obtained the temporary connections and allowed sub-connections, will be settled by the Bank / Consultant and the decision taken by the Bank / Consultant shall be final and shall be that of the contractor.
- (vi) The Bank as well as the Consultant shall give all possible assistance to the Contractor to obtain the requisite permission from the various authorities, but the responsibility for obtaining the same shall be that of the contractor.
- (vii) If no such facility is available at the site of work and if available found inadequate, it shall be the responsibility of the contractor to make his own arrangement for obtaining water and power at his cost.
- 15) The contractor will have to obtain completion / clearance certificate in respect of services such as water supply, sewerage, etc. The contractor will also obtain permanent water connection for the entire project. The Bank will pay necessary fee to be made to Govt. authorities.
- 16) The Contractor shall strictly comply with provision of safety code annexed hereto.

- 17) The contractor shall indemnify Union Bank of India, against any claim or legal action arising out of the said Act due to the failure of non-compliance of the provisions of the said Act and the penalty or any other amount levied by the authorities, shall be recoverable from the payments due to the contractors.
- 18) The Contractor shall comply with the provision of the Apprentices Act, 1961, and the Rules and Orders issued there under from time to time. Failure to do so will be in a breach of the contract and the Architect / consultant and the Bank may in their discretion cancel the contract. The contractor shall also be liable for any pecuniary or other liabilities arising on account of any violation by him of the provisions of the Act.
- 19) The Security Deposit of the successful Tender will be forfeited if he fails to comply with any of the conditions of the contract.
- 20) The contractor shall be responsible for the observance of all Central Rules and Regulation framed by the Central Government under the Contract Labour (Regulation and Abolition) Act, 1970. The Bank shall be entitled to deduct all damages, which it might suffer on account of non-observance of these rules by the Contractor, from the amount payable to the Contractor.
- 21) Contractors are not allowed to remove materials brought at Site against which advances have been paid.
- 22) The Contractor is to provide at all times during the progress of the works and the maintenance period / defect liability period proper means of access, with ladders, gangways, etc., and the necessary attendance to move and adopt as directed for the inspection or measurement of the works by the Consultant or their representatives.
- 23) Materials shall be of approved quality and the best of their kind available and shall generally conform to I.S. Specifications. The Contractor shall order all the materials required for the execution of work as early as necessary and ensure that such materials are on site well ahead or requirement for use in the work. The work involved calls for approved standard of workmanship combined with speed and to the entire satisfaction of the Architect/ consultant. All the material shall be approved by the Consultant / Bank before use. Contractor to arrange samples well in time.
- 24) The Contractors shall after completion of the work clear the Site of all debris and left over materials at his own expenses to the entire satisfaction of the Bank / Consultant and Municipal or other public authorities.
- 25) The contractor herewith agrees that in respect of inspection of works by the Chief Technical Examiner of the works, a wing of Central Vigilance Commission and the bills of the contractor including all supporting vouchers, abstract etc. to be made after payment of the bills and if as a result of such audit and technical examination any sum is found to have been over paid in respect of any work done by the contractor under the contract of any work claimed by him to have been done by him under the contract and found not to have been executed or any work is found not to have been executed in accordance with the contract, the contractor shall be liable to refund the

amount of over payment made already and it shall be lawful for the Bank to recover the same from him in any manner the Bank deems fit either from any payments due and / or becoming due to the contractor or from the security deposit or retention money or through any further bills and / or final bill or in any other manner whatsoever not excluding through recourse to legal action. The certification of bills / measurements by consultant / Architect and Engineer will be scrutinized by the Bank's Central Office / Audit / Vigilance and any deficiency will be corrected accordingly. Contractor cannot insist for payment just because it is signed by consultant / architect / engineer. The contractor herewith agrees to co-operate with the Bank / Consultant while such examinations of works and redo the things without any extra cost to the Bank. It is essential and agreed condition of the contract that any such action taken by the Bank shall deemed to be the fully legal and valid and binding on the contractor.

- 26) Contractors are requested to note that no extra item or deviated item of work to be executed without taking prior permission, the Bank shall not be held responsible for the payment of such works executed. Contractors will have to submit all the particulars including purchase bills/price list for the materials along with the rate analysis for verification of Item Rates.
- 27) If it is observed the existing compound wall, gates railings are damaged then the contractors will have to make good the same at their own cost.
- 28) If contractors fail to pay the taxes/royalties to the Authorities concerned, the Bank reserve their rights to recover the said amount from the amount payable to the contractor and pay the same to the Authorities concerned.
- 29) Work is to be executed & measurements are to be paid as per the detail specification & description of item given in the Standard Specification Book except for the items which are specifically mentioned in the tender for which the details of item and mode of measurements to be followed as indicated separately in the conditions of contractors.
- 30) If there are any contracting clauses mentioned in the tender, the interpretation of the same will be done by the Architect / consultant. However, the decision of the Bank will be final and binding.
- 31) After awarding the work, contractor shall get registered with the office of the Labour commissioner and inform Bank accordingly. Contractors shall follow all rules and regulations stipulated by the Labour Commissioner strictly.
- 32) Contractors shall quote consistent rates for the items of similar nature or analogous in specifications for the sections in schedule of quantities. If it is observed that the rates quoted for similar nature of items or analogous in specification under different sections, are inconsistent, then the Bank reserves his right to consider the lowest of rates for all such items and work out the final amount for payment, unless the competent authority finds that there is justifications for such inconsistent rates.

- 33) The contractor shall give a list of his relatives working with the Bank along with their designations and addresses.
- 34) No employee of the Bank is allowed to work as a contractor for a period of two years of his retirement from Bank service, without the previous permission of the Bank. The contract is liable to be cancelled if either the contractor or any of his employees is found at any time to be such a person who had not obtained the permission of the Bank as aforesaid before submission of the tender or engagement in the contractor's service.

CONTRACTOR'S RESPONSIBILITY

The Contractor shall carry out and complete the said work in every respect in accordance with this contract and with the directions of and to the satisfaction of Consultant/Bank. The Consultant may in his absolute discretion and in consultation with the Bank (with prior approval from the Bank) and from time to time issue drawings and/or written instruction, details directions and explanations which are hereafter collectively referred to as "Consultant/Bank's Instruction".

In regard to:-

- a. The variations or modifications of the design, quality or quantity of works or the additions or omission or substitution of any work.
- b. Any discrepancy in the drawings or between the schedule of quantities and/or drawings and or drawings and or specification.
- c. The removal from the site of any defective materials brought thereon by the contractor and the substitution of any other materials thereof.
- d. The removal and/or re-execution of any works executed by the contractor.
- e. The dismissal from the works of any person employed thereupon.
- f. The opening up for inspections of any work covered up.
- g. The amending and making good of any defects under clauses 19 hereof and those arising during the maintenance/ defect liability period.

The contractor shall forthwith comply with and duly execute any work comprised in such Consultant/Bank instructions, provided always that the verbal instructions, directions, and explanations given to the contractor or his representative upon the works by the Consultant/Bank shall, if involving a variation, be confirmed in writing by the contractor within seven days, and if not dissented from in writing within a further seven days by the Consultant, such shall be deemed to be Consultant /Bank instructions within the scope of the Contract.

4. VISIT TO SITE

The contractor shall visit the site and make himself thoroughly acquainted with the local site condition, nature and requirements of the works, facilities

of transport condition, effective labour and materials, access and storage for materials and removal of rubbish. The tenderer shall provide in their tender for cost of carriage, freight and other charges as also for any special difficulties and including police restriction for transport, etc. for proper execution of work as indicated in the drawings. The successful tenderer will not be entitled to any claim of compensation for difficulties faced or losses incurred on account of any site condition which existed before the commencement of the work or which in the opinion of the Bank or Consultant might be deemed to have reasonably been inferred to be so existing before commencement of work.

5. AGREEMENT

The successful contractor is required to sign agreement as may be drawn up to suit local conditions and shall pay for all stamps and legal expenses, incidental thereto.

6. PERMITS AND LICENSES

Permits and licenses for release of materials which are under Government control will be arranged by the contractor. The Bank will render necessary assistance, sign any forms or applications that may be necessary.

The contractor shall at his own cost arrange for storage shed adequate for taking delivery and storing of the quantity of controlled materials released by the authorities or supplied by the Bank. The costs of storing, transporting, etc. of all materials including those under Government control are to be included by the tenderer in his quoted rates.

The Bank / Consultant shall be indemnified against all Government or legal actions for theft or misuse of any controlled materials in the custody of the contractor.

7. GOVERNMENT AND LOCAL RULES

The contractor shall conform to the provisions of all local Bye-laws and Acts relating to the work and to the Regulations etc. of the Government and Local Authorities and of any company with whose system the structure is proposed to be connected. The contractor shall give all notices required by said Act, Rules, Regulations and Bye-laws, etc. and pay all fees payable to such authority / authorities for execution of the work involved. The cost, if any, shall be deemed to have been included in his quoted rates, taking into account all liabilities for license, fees for footpath encroachment and restorations etc. and shall indemnify the Bank against such liabilities and shall defend all actions arising from such claims or liabilities.

8. QUANTITY OF WORK TO BE EXECUTED

The quantities shown in the schedule of quantities are intended to cover the entire new structure indicated in the drawings but the Bank reserves the right to execute only a part or the whole or any excess thereof without assigning any reason therefore. The quantity may vary to any extent and even the same

will be omitted. No separate payment/ compensation/ revision in the rates will be entertained.

9. VARIATIONS TO BE APPROVED BY THE BANK/ CONSULTANT

Notwithstanding anything herein contained, the Consultant or his representative shall not, without prior concurrence in writing of the Bank, issue any instructions, verbal or in writing, the Consultant can get the work done up to an amount of **Rs. 10,000.00 (Rupees Ten thousand only)** and all instruction issued to the contractor should forthwith be brought to the notice of the Bank. The contractor shall submit through the Consultant, a statement of variations giving rise quantity and rates duly supported by analysis of rates, vouchers, etc. The rates on scrutiny and final acceptance by the Bank shall form a supplementary tender. The Bank shall not be liable for payment of such variations until these statements are sanctioned by the Bank.

10. DRAWINGS AND SCHEDULE OF QUANTITIES AND AGREEMENT

The contractor on the signing hereof shall be furnished by the Consultant free of cost one copy of each of the said drawings and of the specifications and one copy of all further Drawings issued during the progress of the works. Any further copies of such drawings required by the contractor shall be paid by him. The contractor shall keep one copy of all drawings on the works and the Consultant/ Bank or their representatives shall at all reasonable times have access to the same.

11. CONTRACTOR TO PROVIDE EVERYTHING NECESSARY

The contractor shall provide everything necessary for the proper execution of the works according to the intent and meaning of the Drawings, Schedule of quantities and Specification taken together whether the same may or may not be particularly shown or described therein provided that the same can be reasonably be inferred there from, and if the contractor finds any discrepancies therein, he shall immediately and in writings, refer the same to the Bank/ Consultant whose decision shall be final and binding. The contractor shall provide himself for ground and fresh water for carrying out of the works at his own cost. The Bank shall on account be responsible for the expenses incurred by the contractor for hired ground or fresh water obtained from elsewhere.

- (i) The rates quoted against individual items will be inclusive of everything necessary to complete the said items work within the contemplation of the contract, and beyond the unit price no extra payment will be allowed for incidental or contingent work, labour and /or materials inclusive of all taxes and duties whatsoever except for specific items, if any, stipulated in the tender documents.
- (ii) The contractor shall supply, fix and maintain at his own cost, for the execution of any work, all tools, tackles, machineries and equipment and all the necessary centering, scaffolding, staging, planking, timbering, strutting, shoring, pumping, fencing, boarding, watching and lighting by night as well as by day required not only for the proper execution and protection of the

said work but also for the protection of the public and safety of any adjacent roads, streets, walls, houses, buildings, all other erections, matters and things and the contractor shall take down and remove any or all such centering, scaffolding, plumbing, timbering, strutting, shoring etc., as occasion shall be required or when ordered so to do, and shall fully reinstate and make good all matters and things disturbed during the execution or when ordered so to do, and shall fully reinstate and make good all matters and things disturbed during the execution of works to the satisfaction of the Bank / Consultant.

- (iii) The Contractor shall also provide such temporary road on the site as may be necessary for the proper performance of the contract and for his own convenience but not otherwise. Upon completion, such roads shall be broken up and leveled where so required by the drawings unless the Bank shall otherwise direct.
- (iv) The contractor shall at all times give access to workers employed by the Bank or any men employed on the buildings and to provide such parties with proper sufficient and if required, special scaffolding, hoists and ladders and provide them with water and lighting and leave or make any holes, grooves etc., in any work, where directed by the Bank as any be required to enable such workman to lay or fix pipes, electrical wiring, special fittings etc. The quoted rates of the tenderers shall accordingly include all these above-mentioned contingent works.

12. AUTHORITIES NOTICES AND PATENTS

The contractor shall confirm to the provisions of any Act of the legislature relating to the works, and to regulations and bye-laws of any authority, and or any water electric supply and other companies and/or authorities with and whose the systems the structures is proposed to be connected, and shall, before making any variations from the drawing or specifications that may be associated to so confirming, give to the Architect written notice, specifying the variations proposed to be made and the reason for making it and apply for instructions thereon. In case the contractor shall not within ten days receive such instructions he shall proceed with the work confirming to the provisions, regulations, or byelaws in questions, and variations so necessitated shall be dealt with under clause 13 hereof.

The contractor shall bring to the attention of the Consultant/ Bank all notices required by the said Acts, regulations or bye-law to be given to any authority and pay to such authority, or to any public office, all fees that may be properly chargeable in respect of the said work, and lodge the receipt with the Consultant/ Bank.

The contractor shall indemnify the Bank against all claims in respect of patent rights, royalties, and damages to buildings, roads or members of public in course of execution of work and shall defend all actions arising from such claims and shall keep the Bank saved harmless and indemnified in all respects from such actions, costs and expenses.

13. CLEARING SITE AND SETTING OUT WORKS

The site shall be cleared of all obstructions, loose stone, and material rubbish of all kind. All holes or hollows either originally existing or produced by removal of loose stone or material shall be carefully filled up with earth, well rammed and leveled of as directed at his own cost. The contractor shall set out the works and shall be responsible for the true and perfect setting out of the work and for the correctness of the positions, dimensions, levels and the alignment of all the parts thereof. If at any time any error in this respect shall appear during the progress of any part of work or within the period of one year from the completion of the works, the contractor shall at his own expenses rectify such error to the satisfaction of the Consultant / Bank.

17. CONTRACTOR IMMEDIATELY TO REMOVE ALL OFFENSIVE MATTERS

All soil, filth or other matters of any offensive nature taken out of any trench, sewer, drain, cesspool or other place shall not be deposited on the surface but shall be at once carted away by the contractor to place provided by him.

The contractor shall keep the foundations and works free from water and shall provide and maintain at his own expenses electrically or other power driven pumps and other plant to the satisfaction of the Bank for the purpose, until the building is handed over to the Bank. The contractor shall arrange for the disposal of the water so accumulated to the satisfaction of the Bank and local authority and no claims will be entertained afterwards if he does not include in his rates for the purpose.

18. MATERIALS, WORKMANSHIP, SAMPLES, TESTING OF MATERIALS:

All the works specified and provided for in the specifications or which may be required to be done in order to perform and complete any part thereof shall be executed in the best and most workman like manner with materials of the best and approved quality of the respective kinds in accordance with the particulars contained in and implied by the specifications and represented by the drawings or according to such other additional particulars and instructions as may from time to time be given by the Bank/ Consultant during the execution of the work, and to his entire satisfaction.

The contractor shall have to carry out test on materials and workmanship in approved materials testing laboratories or as prescribed by the Bank/ Consultant at own cost to prove the materials quality and test sample, confirm to the relevant I.S. Standard or as specified in the specifications. The necessary charges for preparation of mould (in case of concrete cube) transporting testing etc. shall have to borne by the contractors. No extra payment on this account should in any case be entertained.

All the materials (except where otherwise described) store and equipment required for the full performance of the work under the contract must be provided through normal channels and must include charges for import duties, sales tax, octroi and other charges and must be the best of their kind available and the contractors/must be entirely responsible for the proper and efficient carrying out the work. The work must be done in the best workman like manner. Samples of all materials to be used must be submitted to the

Bank/ Consultant when so directed by the Engineer/ Consultant and written approval from Bank/ Consultant must be obtained prior to placement of order.

The Contractor shall set up a field laboratory with necessary equipment for day to day testing of material like sand, brick, aggregate etc.

19. INCLEMENT WEATHER

During the inclement weather the contractor shall suspend concreting and plastering for such time as the Bank / consultant may direct and shall protect from injury all work when in course of execution. Any damage (during construction) to any part of the work for reasons due to rain, storm, or neglect of contractor shall be rectified by the contractor in an approved manner at no extra cost.

Should the work be suspended by reason of rain, strike, lockouts or any other cause, the contractor shall take all precautions necessary for the protection of work and at his own expenses shall make good any damage arising from any of these causes. The contractor shall cover up and protect from damage, from any cause, all new work and supply all temporary doors, protection to window, and any other requisite protection for the execution of the work whether by himself or special tradesmen or sub-contractor and any damage caused must be made good by the contractor at his own expenses.

20. MATERIALS AND WORKMANSHIP TO CONFORM TO DESCRIPTIONS:

All materials and workmanship shall so far as procurable be of the respective kinds described in the schedule of quantities and/ or specifications and in accordance with the Consultant's instructions, and the contractor shall upon the request of the Consultant furnish him with all invoices, accounts, receipts and other vouchers to prove that the materials comply therewith. The contractor shall at his own cost arrange for and/ or carry out any test of any materials which the architects may require from Government approved laboratories.

21. CONTRACTOR'S SUPERINTENDENCE & REPRESENTATIVE ON THE WORKS.

The contractor shall give all the necessary personal superintendence during the execution of the works, and as long thereafter as the Bank/ Consultant may consider necessary until the expiration of the defects liability period stated in the Appendix hereto. The contractor shall also during the whole time the works are in progress employ;

a) An experienced qualified Civil Engineers (1 Nos., graduate engineer having experience of 3 years or more in field + 1 diploma holder having experience of 7 years) as required who shall be in constantly attendance at work while the men are at work. Any directions, explanations, instructions, or notices given by the Bank/ Consultant to such representative shall be held to be given to the contractor.

For non-compliance an amount of Rs.20,000/- pm/ per Engineer shall be deducted from the contractor for the period required engineers are not

provided. However, deduction of payment shall not exonerate contractor for his responsibility for executing quality work.

22. DEPLOYMENT OF LABOURS

No labourer below the age of eighteen years shall be employed on the work. Any labourer supplied by the contractor to be engaged on the work on day-work basis either wholly or partly under the direct order or control of the Bank or his representative shall be deemed to be a person employed by the contractor.

23. FACILITIES TO BE PROVIDED TO WORKERS

The contractor shall comply at his own cost with the order of requirement of any Health Officer of the State or any local authority or of the Bank regarding the maintenance of proper environmental sanitation of the area where the contractor's labourers are housed or accommodated, for the prevention of small pox, cholera, plague, typhoid, malaria and other contagious diseases. The contractor shall provide, maintain and keep in good sanitary condition adequate sanitary accommodation and provide facilities for pure drinking water at all times for the use of men engaged on the works and shall remove and clear away the same on completion of the works. Adequate precautions shall be taken by the contractor to prevent nuisance of any kind on the works or the lands adjoining the same.

The contractor shall arrange to provide first-aid treatment to the labourers engaged on the works. He shall within 24 hours of the occurrence of any accident at or about the site or in connection with execution of the works, report such accident to the Bank and also the competent authority where such report is required by law.

24. DISMISSAL OF WORKMEN

The contractor shall at the request of the Bank/ Consultant immediately dismiss from the works, any person employed thereon by him who may in the opinion of the Bank/ Consultant incompetent or misconduct himself and such person shall not be engaged again. Such discharges shall not be the basis of any claim for compensation or damages against the Bank or any of their officer or employee.

25. ACCESS TO WORK

The Bank/ Consultant and their responsible representative shall at all reasonable times have free access to the works and/ or to the workshops, factories or other places where materials are being prepared or constructed for the work and also to any place where the materials are lying or from where they are being obtained the contractor shall give every facility to the Bank, the Consultant and their representative necessary for inspection and examination and test of the materials and the workmanship. No. persons not authorized by the Bank or the Consultant except the representatives of Public Authorities shall be allowed on the works at any time.

26. ASSIGNMENT/ SUB-LETTING

The whole of the works included in the contract shall be executed by the contractor and the contractor shall not directly or indirectly transfer, assign, or under-let the contract or any part share there of or any interest therein without the prior written consent of the Bank and no undertaking shall relive the contractor of the full and entire responsibility of the contract or from active superintendence of works during their progress. Central Govt./ State Govt. companies shall not be allowed to sublet the work on back to back basis/ labour basis without approval from the Bank. In case, in case contractor sub-let the work, the Bank will be entitled to deduct 10% of cost of work executed besides initiating other measures provided in the contract.

27. VARIATIONS

No alterations, omissions or variations shall vitiate this contract, but in case the Architect thinks proper at any time during, the progress of the works to make any alterations in, or additions to or omissions from, the work or any alteration in the kind or quality of materials to be use therein and shall give notice thereof in writing under his hand to the contractor, the contractor shall alter, add to, or omit from, as the case may be, in accordance with such notice, but the contractor shall not do any work extra to or make any alterations or additions to or omissions from the works or any deviations from any of the provisions of the contract, stipulation specifications or contract drawings without the previous consent in writing of the consultant /Architect / Bank and the values of such extras, alternations, additions or omissions shall in all cases be determine by the Consultant with the prior approval in writing of the Bank in accordance with the provision of the Clause hereof, and the same shall be added to, or deducted from the contract amount, as the case may be accordingly.

28. SCHEDULE OF QUANTITIES

The Schedule of quantities, unless otherwise stated shall be deemed to have been prepared in accordance with the standard method of quantity measurement.

Any error in description or in quantity or in omission of items from the Schedule of quantities shall not vitiate this contract but shall rectified and the value thereof shall be added to or deducted, from the contract amount (as the case may be), provided that no rectification of errors, if any, shall be allowed in the contractor's Schedule of rates.

The contractor shall be deemed to have satisfied himself before tendering as to the correctness and sufficiency of this tender for the works and the prices stated in the Schedule or quantities and or the schedule of rates and prices which rates and prices shall cover all his obligations under the contract and all matters and things necessary for the proper completion of works.

The quantities of work may vary to any extent or may be omitted, the contractor cannot claim loss of profit/ overhead on this account.

29. MEASUREMENT OF WORKS

(i) The Consultant may from time to time intimate to the contractor and the Bank that he requires works to be measured, and the contractor shall forth with attend or send a qualified agent to assist the Consultant in taking such measurements and calculations and to furnish all the particulars or to give all assistance required by any of them.

(ii) The Engineer will take measurement of the work jointly with the contractor and enter the same in measurement books. Based on these measurements the contractor will raise the bill as per the prescribed format. Consultant to verify the bill/measurement and issue certificate stating that the work completed is as per the specifications and the measurement claimed for the works are actually executed at site. This certificate shall be issued within 14 days after bill submission by the Contractor. The Bank will release bill amount within 21 days. If for some reason checking of the bill/measurement is not completed, 75% of the bill amount at least shall be released within 21 days and the balance within 30 days.

(iii) Should the contractor not attend or neglect or omit to send such agent then the measurement taken by the Architect or a person approved by him shall be final and binding on the contractors.

(iv) The contractor or his also supply without charge the requisite number of persons with means and materials necessary for the purpose of measurements or examinations at any time and from time to time of the work or counting weighting of the materials, etc.

(v) All authorized extra works, omissions and all variations made without the Consultant's knowledge, if subsequently sanctioned by him in writing (with the prior approval in writing of the Bank) shall be included in such measurement.

(vi) Measurements shall be recorded as per IS 1200 mode measurement and in metric system. Measurement shall be recorded in 100 pages bounded measurement book to be supplied by Union Bank of India. Such measurement shall be recorded by the Engineer or Bank's officer and not by contractor. M.B. shall be kept in the custody of the consultant / Bank.

30. PROCEDURE FOR MEASUREMENT AND BILLING OF WORK IN PROGRESS:

The Contractors will have to submit the bills for the materials purchased, in triplicate, to verify the cost of the materials purchased and brought at Site.

The Contractors will have to keep the materials at Site under their safe custody and at their risk and cost.

The Bank is not responsible for damages and losses of such materials brought at site.

b. Running Account Payments to be regarded as Advances:

All running account payments shall be regarded as payments by way of advance against the final payment only and not as payments for work actually done and completed and accepted and shall not preclude the requiring of bad, unsound and imperfect or unskilled work to be removed and taken away and reconstructed or re-erected or be considered as an admission of the due performance of the contract, or any part thereof, in this respect, or the accruing of any claim, nor shall it conclude, determine or effect in any way the powers of the Bank/ consultant under these conditions or any of them as to the powers of the Bank/ consultant under these conditions or any of them as to the final settlement and adjustment of the accounts or otherwise, or in any other way vary/affect the contract. The final bill shall be submitted by the contractor within two months of the date fixed for completion of the work; otherwise the Consultant/ Engineer-in-charge's certificate of the measurement and of the total amount payable for the work accordingly shall be final and binding on all parties.

31. COMPLETION CERTIFICATE

(i) APPLICATION FOR COMPLETION CERTIFICATE

The Consultant /Engineer-In-Charge shall normally issue to the contractor the completion certificate within one month after receiving, an application thereof from the contractor and after verifying from the completion documents and satisfying himself that the work has been completed in accordance with and as set out in the construction and erection drawing and contract documents.

The contractor, after obtaining the completion certificate, is eligible to present the final bill for the work executed by him under the terms of contract.

(ii) Completion Certificate

Within one month of the completion of the work in all respects, the Contractor shall be furnished with a certificate by the Consultant/ Engineer-In-Charge of such completion but no certificate shall be given nor shall the work be deemed to have been completed until all scaffolding, surplus materials and rubbish is cleared of the site completely. The work will not be considered as complete and taken over by the Bank, until all the temporary works, labour and staff colonies etc., constructed, are removed and the works site cleared to the satisfaction of the Consultant/ Engineer.

If the Contractor shall fail to comply with the requirements of this clause on or before the date fixed for the completion of the work, the Consultant/ Engineer-In-Charge may at the expenses of the contractor remove such scaffolding, surplus materials and rubbish and dispose off the same as he thinks fit and clean up the site and the contractor shall forthwith pay the employer for all expenses so incurred and shall have no claim in respect of any such scaffolding or surplus materials as aforesaid except of any sum actually realized by the sale thereof.

(iii) CERTIFICATE (to be issued by the consultant/ engineer)

It is certified that various items of works claimed in the RA Bill by Contractor has been completed to the extent claimed and at appropriate rates and that the items are in accordance with and fully confirming to the standard and/or prescribed specifications and drawings. Quality and rates verified. The material supplied and work done conform tender specifications. We further certify that we have checked the measurement to the extent of 100 per cent of each item claimed in this bill. As net amount of Rs..... (Rupees) is recommended to be paid to the contractor making the total upto date payment of Rs.....
 (Rs.)

Quality and rates verified. The material supplied and work done confirm with the tender specifications.

DATE : SITE ENGINEER / CONSULTANT

The above certification shall be endorsed in the relevant Measurement Books also by the Consultant.

iv. FORMAT FOR RUNNING BILL

ON LETTER HEAD OF CONTRACTOR

Running Bill No.		
Tender Amount		Rs.
Value of work done		Rs.
Less rebate	(-)	Rs.
		<hr/>
Net Value of work done		Rs.
Extra variation items after settlement @100%		Rs.
Extra variation items without settlement @75%		Rs.
.....		
Total		<hr/>
Add : Cost of material on site @ 75%		Rs.
		<hr/>
	Total payable	Rs.
Deductions		
1. Retention money		Rs.

2. Recovery of advance if any Rs.
3. Income-tax / TDS Rs.
4. Any other Rs.
5. Total bill paid till last bill Rs.

Total deductions Rs. Rs.

Net payable Rs.

Amount certified for payment Rs.

Note : This page shall be signed and stamped by the Site Engineer, Contractor and Project Architect.

vi. FORMAT FOR RUNNING BILL (To be submitted by the contractor)

I	Name of the Contractor / Agency	:	
II	Name of the Work	:	
III	Sr.No. of the Bill	:	
IV	Sr.No. of the Previous Bill	:	
V	Reference to Agreement No.	:	
VI	Date of written order to commence	:	
VII	Date of Completion as per Agreement	:	
VIII	Date of Measurements	:	
XI	Present status of work	:	

Sno.	Items Description	Unit	Rate	Qty. as per measurement	Tender Amount Rs.
1	2	3	4	5	6

Up to previous RA Bill		Up to date gross		Present bill		remark
qty	Amt.	Qty.	Amt.	Qty.	Amt.	
7	8	9	10	11	12	13

Note :

1. If part rate is allowed for any item, it should be indicated with reasons for the allowing such a rate.
2. If adhoc payment is made, it should be mentioned specially.
3. The above format as also the format of Running Bill can be modified as per the Bank's requirement.

32. ENGINEER

The Site Engineer or any representative of the Architect/ Consultant, or the Bank shall have power to give notice to the contractor or to his representative, of non-approval of any work or materials and such work shall be suspended or the use of such materials shall be discontinued until the decision of the Architect is obtained. The work will be from time to time be examined by the Architect/ the Bank's Engineer or the Architect's representative, but such examination shall not in any way exonerate the contractor from the obligations to remedy any defects which may be found to exist at any stage of the works or after the same is complete. Subject to the limitations of this clause, the contractor shall take instructions only from the Architect/ Bank.

33. DUTIES OF ENGINEER

- i. To make a thorough study of contract documents, Architectural/Structural drawings and other details so as to bring out ambiguities/discrepancies between them and to obtain clarification from the Competent Authority well in time to avoid delays.
- ii. To render a certificate to the Competent Authority to the effect that he has studied the contract documents, drawings and specifications.
- iii. To approve the centerline layout of building pegged out on site by the contractor and the benches for ground floor and other levels.
- iv. To take charge of objects of value and antiquity found on site or in excavations, immediately, after their discovery, to hold them in safe custody and to hand them over to the Competent Authority of the Bank for further action.
- v. To approve the foundation strata when the appropriate depth of excavation is reached in consultation with the architects.
- vi. To ensure that the quality of materials and workmanship as laid down in the contract is maintained and the accuracy of dimension shown on drawings is attained in the construction.
- vii. To watch the validity of the building permission issued by the Local Authority and to ensure that the revalidation, if necessary, is obtained well in time.

- viii. To arrange periodical reconciliation of cement and steel account and ensure that proper recoveries are effected from contractor's running account bills.
- ix. To maintain the undernoted records at the site of work, in addition to normal routine requirements of an office:
 - a. Daily Progress Record
 - b. Work Site Order Book.
 - c. Instruction by Bank's Officers.
 - d. Contract Pour Reports including Slump Test Record.
 - e. Test Registers of other materials/fittings, fixtures, equipments as stipulated in the tender.
 - f. Register of Drawings and Working Details.
 - g. Log Book of Defects.
 - h. The Site Engineer should maintain in a Hindrance Register giving details of commencement and removal of each hindrance.
 - i. Dismantled Materials Account Register.
 - j. Supply and consumption register of scarce/costly materials like bitumen, lead, laminates, special paints etc.
- x. To study the quality of approved coarse and fine aggregate and get the design of the concrete mix in accordance with modern practice. The Site Engineer shall ensure that the mix design for RCC work shall be carried out by the Architect/Structural Consultant, if applicable.
- xi. To record measurements of completed work jointly with the Contractor and to process them in running account bills.
- xii. To receive running account bills from the contractor and to forward them after checking, to the Competent Authority with his comments and recommendations and accompanied by all supporting documents.
- xiii. To submit to the Competent Authority the Progress Report fortnightly.
- xiv. To watch that the concerned contract does not lapse for want of extension of time. Therefore, to keep it alive and in operation from point of consideration that "Time is the essence of contract".
- xv. To ensure that progress on every contract is in accordance with the appropriate stage of its Time and Progress Chart.
- xvi. To prevent contractor from proceeding with any work on which the contractor has got intentions of raising claims of extra/deviated items, until the Competent Authority approves the work to continue.
- xvii. To receive the Final Bill from the contractor, to check it, and forward it with his comments and recommendations to the Competent Authority with all the supporting documents duly attached.
- xviii. To submit the final summary of costs for the project to the Competent Authority.
- xix. To submit the Competent Authority authentic information on and the under noted records pertaining to the completed work in order to enable the Competent Authority to finalize them in the due course:
 - a) Record i.e. as completed drawings.
 - b) Record of Standard Measurements for periodical services.
 - c) Inventory of fittings and fixtures.

To hand over to the Competent Authority a "first draft" of "A Note of Comprehensive Information to the User" containing detailed instructions on

how to use and maintain the completed building to the best advantage of the Bank.

34. PRICES FOR EXTRAS ETC. ASCERTAINMENT OF NON-TENDER ITEMS

The contractor may, when authorized, and shall, when directed in written by the Architect / Consultant with the approval of the Bank, add to, omit from, or vary the works shown upon the drawings, or described in the specification or included in the schedule of quantities, but contractor shall make no addition, omission or variation without such authorization or direction. A verbal authority or direction by the Architect / Consultant shall, if confirmed by them in written seven days, be deemed to have been given in writing.

Any such extra is herein referred to as authorized extra and shall be made in accordance with the following provisions.

- (a) (i) The net rates or prices in the original tender shall determine the valuations of the extra tender shall determine the valuation of the extra work where such extra work is of similar character and executed under similar conditions as the work priced therein.

(ii) Rates for all items, wherever possible, should be derived out of the rates given in the priced schedule of quantities.

- (b) The net prices of the original tender shall determine the value of the items omitted, provided if omissions vary the conditions under which any remaining items of works are carried out, the prices for the same shall be valued under sub-clause C hereof.

- (c) Where the extra works are not of similar character and /or executed under similar conditions as aforesaid or where the omissions vary the conditions under which any remaining items of works are carried out or if the amount of the whole of the contract works or to any part thereof shall be such that in the opinion of the Architect the net rate or price contained in the priced schedule of quantities or tender or for any item of the works involves loss or expense beyond that reasonably contemplated by the contractor or is by reason unreasonable or inapplicable, the Architect shall fix such other rate or price as in the circumstances he shall feel reasonable and proper, with the prior approval in writing of the employer.

- (d) Where extra work cannot be properly measured or valued the contractor shall be allowed days work prices as the priced schedule of quantities or, if not so stated, then in accordance with the local day work rates and wages for the district; provided that in either case vouchers specifying the daily time (and if required by the Architect, the workman's name) and materials employed to be delivered for verification to the Architect, or his representative at to the Architect or his representative at or before the end of the week following that in which the work has been executed.

Actual cost of materials Rs.
Add for Labour chargesRs.

Add for Taxes, Transportation, If any.Rs.
Add for Wastage of Materials (Upper Limit 5% wherever applicable).....Rs.	
Add for water and electricity Charges if any required, upper limit 2% of basic cost of materials. Rs.
Add for 15% towards contractor's overheads and profit. Rs.
Final rate arrived.	Rs

35. UNFIXED MATERIALS WHEN TAKEN INTO ACCOUNT TO BE THE PROPERTY OF THE BANK

Where in any certificate (of which the contractor has received payment), the Architect has included the value of any unfixed materials intended for and/or placed on adjacent to the works, such materials shall become the property of the Bank and they shall not be removed except for use upon the works, without the written authority of the Architect/Bank. The contractor shall be liable for any loss of or damages to such materials.

36. REMOVAL OF IMPROPER WORKS

The Architect/Bank shall, during the progress of the works, have power to order in writing from time to time the removal from the work within such reasonable time or times as may be specified in order, of any materials which in the opinion of the Architect/Bank are not in accordance with the specifications or the instructions, the substitution of proper materials, the removal and proper re-execution of any work executed with materials or workmanship not in accordance with the drawings and specification instruction and the contractor shall forthwith carry out such order at his own cost. In case of default on the part of the contractor to carry such order, the Bank shall have the power to employ and pay other persons to carry out the same and all expenses consequent thereon, or incidental thereto, shall be deducted by the Bank from any money due or that may become due, to the contractor.

No certificate, which may have been issued by the Architect, shall relieve the contractor from his liability in respect of unsound work of bad materials.

37. DEFECTS AFTER COMPLETION

The contractor shall make good at his own cost and to the satisfactions of the Bank all defects, shrinkage, settlements or other faults, which may appear within 12 months after completion of the work. In default the Bank may employ and pay other persons to amend and make good such damages, losses and expenses consequent thereon or incidental there to shall be made good and borne by the contractor and such damages, loss and expenses shall be recoverable from him by the Bank or may be deducted by the Bank, in lieu of such amending and making good by the contractor, deduct from any amount due to the contractor, a sum equivalent to the cost of amending such work and in the event of the amount retained being insufficient, recover that

from the contractor from the amount retained as retention money together with any expenses the Bank may have incurred in connection therewith.

38. CONCEALED WORK:

The contractor shall give due notice to the Bank/ architects whenever any work is to be buried in the earth, concrete or in the bodies of walls or otherwise becoming inaccessible later on, in order that the work may be inspected and correct dimensions taken before such burial, in default whereof the same shall, at the opinion of the Bank/ architect be either opened up for measurement at the contractor's expense or no payment may be made for such materials. Should any dispute or differences arise after the execution of any work as to measurements etc., or other matters which cannot be conveniently tested or checked, the notes of the employer/ architects shall be accepted as correct and binding on the contractor.

39. CERTIFICATE OF VIRTUAL COMPLETION & DEFECTS LIABILITY PERIOD

The work shall not be considered as completed until the Architect has certified in writing that they have been virtually completed. The defects Liability Period shall commence from the date indicated in the virtual completion certificate issued by the Architect.

40. NOMINATED SUB-CONTRACTORS

All specialist, Merchants, Tradesmen and others executing any work of supplying and fixing any goods for which prime cost prices or provisional sums are included in the Schedule of Quantities and/or Specifications who may be nominated or selected by the Architect/ Bank are hereby declared to be Sub-Contractors employed by the Contractors and are herein referred to as nominated Sub-Contractors.

No nominated Sub-Contractor shall be employed on or in connection with the works against whom the Contractor shall make reasonable objection or (save where the Architect and Contractor shall otherwise agree) who will not enter into a Contract providing:-

a. That the nominated Sub-Contractor shall indemnify the Contractor against the same obligations in respect of the Sub-Contract as the Contractor is under in respect of this contract.

b. That the nominated Sub-Contractor shall indemnify the Contractor against claims in respect of any negligence by the Sub-Contractor, his servants or agents or any misuse by him or them of any scaffolding or other plant, the property of the Contractor or under any workmen's Compensation Act in force.

c. Payment shall be made to the nominated Sub-Contractor within fourteen days of his receipt of the Architect's Certificates provided that before any certificate is issued, the contractor shall upon request furnish to the architect proof that all nominated Sub-Contractor's accounts included in the previous Certificate have been duly discharged; in default whereof the

Employer may pay the same upon a Certificate or the Architect and deduct the amount thereof from any sums due to the Contractor. The exercise of this power shall not create privacy of Contract as between Employer and Sub-Contractor.

41. OTHER PERSONS ENGAGED BY THE BANK

The Bank reserves the right to execute any part of the work included in this contract by other agency or persons and contractor shall allow all reasonable facilities and use of his scaffolding for the execution of such work. The main contractor shall extend all co-operations in this regard.

42. INSURANCE

(A) IN RESPECT OF DAMAGE TO PERSONS AND PROPERTY

- (i) The contractor shall be responsible for all injury to the work or to persons, animals or things, and for all damages to the structural and / or decorative part of the property which may arise from the operation or neglect of himself or of any nominated sub-contractor or any of his / sub-contractor's employee, whether such damage/ injury arises from carelessness, accident or any other cause whatsoever in any way connected in the carrying out of this contract. This clause shall be held to include inter alias, any damage to buildings, whether immediately adjacent or otherwise, and any damage to the roads, streets, foot-paths, bridge or ways as well as damage caused to the building and work forming the subject of this contract by rain, wind or other inclement of the weather. The contractor shall indemnify the Bank and hold it harmless in respect of all and any expense arising from such injury or damage to persons or property as aforesaid and also in respect of any claim made in respect of injury and damage under any Act of any Legislature or otherwise and also in respect of any award of compensation or damage consequent upon such claims.
- (ii) The contractor shall reinstate all damage of every sort mentioned in this clause, so as to deliver up the whole of the contract works complete and perfect in every respect and so as to make good or otherwise satisfy all claims for damage to the property or third parties.
- (iii) The contractor shall indemnify the Bank against all claims which may be made against the Bank by any member of the Public or third party in respect of anything which may arise in respect of the works or in consequence thereof and shall at his own expense arrange to effect and maintain, until the virtual completion of the contract, with an approved office, a Policy of Insurance in the name of the Bank and the contractor against such risks and deposit such policies with the Bank from time to time during the currency of this contract. The contractor will also similarly indemnify the Bank of all claims which may be made upon the Bank whether under the Workmen's Compensation Act or any other statute in force during the currency of this contract or at common law in respect of any employee of the contractor or any sub-contractor and shall at his own expense effect and maintain, until the virtual completion of the contract, with an approved office, a Policy of Insurance in the joint name

of the Bank and the Contractor against such risks and deposit such policy or policies with the Bank from time to time during the currency of the contract.

- (iv) The contractor shall be responsible for any liability which may be excluded from the Insurance Policies above referred to and also for all other damages to any person animal or property arising out of incidental or defective carry in out of this contract. He shall also indemnify the Bank in respect of any cost, charges or expenses arising out of claims or proceeding and also in respect of any award of composition and damages arising therefrom.
- (v) The Bank shall be entitled to deduct the amount of any damage, compensation, cost, charges and expenses arising from or accruing from, or in respect of, any such claims or damage from any or all sums due or to become due to the contractor without prejudice to the Bank's other rights in respect thereof.

(B) FIRE INSURANCE

- (i) The Contractor shall, within fourteen days from the date of commencement of works, insure the works at his cost and keep them insured until the virtual completion of the contract, against loss or damage by fire and/ or earthquake, flood with an office to be approved by the Architect in the joint name of the Bank and the Contractor (the name of the former being placed first in the policy), for the contract amount only. The Contractor shall deposit the policy and receipts for the premium with the owner within 21days from the date of issue of work order, unless otherwise instructed by commencement of the works, unless otherwise instructed by the Architect. In default of the Contractor insuring as provided above, the Bank or the Architect on his behalf, may so insure the works and may deduct the premium paid from any money due or which may become due to the Contractor without prejudice to the other rights of the Bank in respect of such default. In case it becomes necessary to suspend the works, the Contractor shall as soon as the claim under the policy is settled, or work reinstated by the Insurance office should they elect to do so, proceed with all due diligence with the completion of the works in the same manner as though the incident had not occurred and in all respects under the same conditions of the Contract. The contractor in case of rebuilding or reinstatement after fire, shall be entitled to such extension of time for completion as the Bank/ Architect deemed fit.
- (ii) The amount so due as aforesaid shall be the total value of the works duly executed and of the contract materials and goods delivered upon the site for use in works upto and including a date not more than seven days prior to the date of the said Certificate less the amount to be retained by the Employer (as hereinafter provided) and less any installments previously paid under this clause. Provided that such Certificate shall only include the value of the said materials and goods as and from time to time as they are reasonably, properly and not prematurely brought upon the site and then only if properly stored and/or protected against weather.

(C) The Contractors will have to take out following Insurance Policies:

- 1) Contractors All Risks Insurance Policy to cover-
Earthquake- Fire & Shock
Landslide/Rockslide/Subsidence.
Flood/Inundations.
Storm/Tempest/Hurricanes/Typhoon /Cyclone Collapse.
Theft/Burglary.
Damage to material brought at Site and to be subsequently used in the work.
- 2) Third party Insurance Policy
 - a. For accidental loss or damage caused to the property of other persons.
 - b. For fatal or non-fatal injury to any person other than insured own employees or work men of employees of the owner of the works any other construction work thereon, or member of the Insured's family or of any of the aforesaid; directly consequent upon of solely due to the construction of any property described in the Schedule.
- 3) Workmen's Compensation Insurance.

43. ACCOUNTS RECEIPTS & VOUCHERS:

The contractor shall, upon the request of the employer furnish them with all the invoices, accounts, receipts and other vouchers that they may require in connection with the works under this contract. If the contractor shall use materials less than what he is required under the contract, the value of the difference in the quantity of the material he was required to use and that he actually used shall be deducted from his dues. The decision of the Bank shall be final and binding on the contractor as to the amount of materials the contractor is required to use for any work under this contract.

44. LIQUIDATED DAMAGES/ DAMAGES FOR NON-COMPLETION

If the Contractor fails to complete the works by the date stated in the Appendix or within any extended time and the Architect certifies in writing that in his opinion, the same ought reasonably to have been completed, the Contractor shall pay the Bank liquidated damages @ 0.5% of the contract amount per week of delay subject to maximum deduction of 7.5% of the contract amount.

45. TOOLS, STORAGE OF MATERIALS, PROTECTIVE WORKS AND SITE OFFICE REQUIREMENTS

- i) The contractor shall provide, fix up and maintain in an approved position proper office accommodation for the contractor's representative and staff which offices shall be open at all reasonable hours to receive instruction notices or communications and clear away on completion of the works and make good all work disturbed.
- ii) All drawings maintained on the site are to be carefully mounted on Boards of appropriate size and covered with a coat of approved varnish. They are to be protected from ravages of termites, ants and other insects.

- lii) The contractor shall provide at his own cost all artificial light required for the work and to enable other contractors and sub-contractors to complete the work within the specified time.
- iv) The contractor shall provide a suitable temporary hut for the watchmen and clear away the same when no longer required and to provide all necessary attendance, lights, etc. required.
- v) The contractor shall arrange for temporary latrines for the use of workers and field staff and keep the same in a clean and sanitary condition to the satisfaction of the Public Health Authorities and shall cause such latrines and soil to be cleared away whenever necessary and shall make good all the works disturbed by these conveniences,.
- vi) Every precaution shall be taken by the contractor to prevent the breeding of mosquitoes on the works during the construction and all receptacles, cisterns, water tanks, etc., used for the storage of water must be suitably protected against breeding of mosquitoes. The contractor shall indemnify the Employer against any breach of rules in respect of anti-malarial measures.
- vii) The contractor shall not fix or place any placards or advertisement of any description or permit the same to be fixed or placed in or upon any boarding, gantry, building structure other than those approved by the Bank.

46. PROTECTIVE MEASURES

The contractor from the time of being placed in possession of the site must make suitable arrangements for watching, lighting and protecting the work, the site and surrounding property by day, by night, on Sundays and other holidays.

Contractor shall indemnify the Bank against any possible damage to the building, roads or members of the public in course of execution of the work.

The contractor shall provide necessary temporary enclosures, gates, entrances, etc. for the protection of the work and materials and for altering and adoption the same as may be required and removing on completion of the works and making good all works disturbed.

Storage of materials: The contractor shall provide and maintain proper sheds for the proper storage and adequate protection of the materials etc. and other work that may be executed on the site including the tools and materials of sub-contractors and remove same on completion.

All measuring tapes shall be of steel and suitable scaffolding and ladders that may be required for safely taking measurement shall be supplied by the contractor.

The mistries and the supervisors on the works shall carry with them always a one meter or two meter steel tape, a measuring tape of 30 meters, a spirit level, a plum bob and a square and shall check the work to see that the work

is being done according to the drawing and specifications. The Site Engineer will use any or all measuring instruments or tools belonging to the contractors as he chooses for checking the works executed or being executed on the contract.

The contractor should cover in his rates for making provisions for all reasonable facilities for the use of his scaffolding, tools and plant etc. by sub-contractors for their work.

47. DATE OF COMMENCEMENT & COMPLETION

The Contractor shall be allowed admittance to the Site on the “Date of Commencement” stated in the Appendix hereto, or such later date as may be specified by the Architect / Consultant and he shall there upon and forthwith begin the works and shall regularly proceed with and complete the same (except the painting or other decorative works the Architect / Consultant may desire to delay) on or before the “Date of Completion” stated in the Appendix subject nevertheless to the provision for extension of time hereinafter contained.

48. TIME OF COMPLETION, EXTENSION OF TIME & PROGRESS CHART

- (i) Time of completion: The entire work is to be completed in all respects within the stipulated period i.e. **30 days**. The work shall be deemed to be commenced within 10 days from the date of acceptance of work order or date of handing over of site, whichever is later. Time is the essence of the contract and shall be strictly observed by the contractor. The work shall not be considered as complete until the Bank / Architects have certified in writing that this has been completed and the Defects Liability Period shall commence from the date of such certificate.
- (ii) Extension of time: If in the opinion of the Architect / Consultant the work has been delayed
 - (a) By force majeure; or
 - (b) By reason of any exceptionally inclement weather or
 - (c) By reason of proceedings taken or threatened by or dispute with adjoining or neighboring owners or public authorities arising otherwise than through the Contractor's own default or
 - (d) By the works or delay or the other Contractors or tradesmen engaged or nominated by the Bank or the Architect and not referred to in the Schedule of Quantities and/or specification or
 - (e) By reasons of the Architect's instructions as per clause 2 hereof or
 - (f) By reason of any combination of workmen or strike or lock-out affecting any of the building trades or
 - (g) in consequence of the Contractor not having received in due time necessary instructions from the Architect for which he shall specifically apply in writing or
 - (h) From other cause which the Bank may consider as beyond the control of the Contractor or

- (i) In the event, the value of work exceed the value of the Priced Schedule of Quantities owing to variation, the architect may with the previous approval in writing of the Bank make a fair and reasonable extension of time for the completion of the Contract works.

In case of such strike or lockout, the Contractor shall as soon as give written notice thereof to the Architect / Consultant, but the Contractor nevertheless constantly use his endeavor to prevent delay and shall do all that may be reasonably required to the satisfaction of the Architect/Bank to proceed with the work and on his doing so that it will be ground of consideration by the Bank for an extension of time as above provided. The decision of the Bank as to the period to be allowed for an extension of time for completion hereunder (which decision shall be final and binding on the contractor) shall be promulgated at the conclusion of such strike or lock-out and the Bank shall then, in the event of an extension being granted, determine and declare the final completion date. The provision in clause with respect to payment of liquidated damages shall, in such case, be read and construed as if the extended date fixed by the Bank were substituted for and the damage shall be deducted accordingly.

- (iii) **PROGRESS OF WORK:** During the period of construction the contractor shall maintain proportionate progress on the basis of a Programme Chart submitted by the contractor immediately before commencement of work and agreed to by the Bank / Architects. Contractor should also include planning for procurement of scare material well in advance and reflect the same in the Programme Chart so that there is no delay in completion of the project.

49. FAILURE BY CONTRACTOR TO COMPLY WITH ARCHITECT / CONSUSLTANT’S INSTRUCTION

If the Contractor after receipt of written notice form the Architect / Consultant requiring compliance within ten days fails to comply with such further drawings and/or Architect’s instructions, the Bank may employ and pay other persons to execute any such work whatsoever the may be necessary to give effect thereto, and all costs incurred in connection therewith shall be recoverable from the Contractor by the Bank on the Certificate of the Architect / Consultant as a debt or may be deducted by him from any moneys due to the Contractor.

50. Idle labour:

Whatever the reasons may be no claim for idle labour, additional establishment cost of hire and labour charges of tools and plants would be entertained under any circumstances.

51. Suspension:

If the contractor except on account of any legal restraint upon the Bank preventing the continuance of the work or in the opinion of the employer shall neglect or fail to proceed with due diligence in the performance of his part of the contract or if he shall more than once make default, the Bank

shall have the power to give notice in writing to the contractor requiring the work to be proceeded within a reasonable manner and with reasonable dispatch, such notice purport to be a notice under this clause.

After such notice shall have been given the contractor shall not be at liberty to remove from the site of the works or from any ground contiguous thereto any plant or materials to subsist from the date of such notice being given until the notice shall have been complied with. If the contractor fails to start the work within seven days after such notice has been given to proceed with the works as therein prescribed, the employer may proceed as provided in clause Termination of Contract by employer.

52. TERMINATION OF CONTRACT BY THE BANK

If the Contractor being a individual or a Firm, commits any “act of insolvency” or shall be adjudged an Insolvent or being an Incorporate company, shall have an order for supervision of the court and the official Assignee or the Liquidator in such acts of insolvency and winding up, as the case may be, shall be unable within seven days after notice to him requiring him to do so, to show the reasonable satisfaction of the Architect that he is able to carry out and fulfill the Contract and to give security therefore, if so required by the Architect / Consultant.

OR if the Contractor (whether an individual, Firm or Incorporated Company) shall suffer execution or other process of court attaching property to be issued to the Contractor.

OR shall suffer any payment under this Contract to be attached by or on behalf of any of the creditors of the Contractors.

OR shall assign or sublet this Contract without the consent in writing of the Bank first obtained.

OR shall charge or encumber this Contract or any payment due or which may become due to the Contractor hereunder.

OR if the architect / consultant shall certify in writing to the Bank that the contractor:

- i. Has abandoned the Contract, or
- ii. Has failed to commence the works, or has without any lawful excuse under these conditions suspended the progress of the works for fourteen days after receiving from the Architect notice to proceed, or
- iii. Has failed to proceed with the works with such due diligence and failed to make such due progress as would enable the works to be completed within the time agreed upon, or
- iv. Has failed to remove materials from the Site or to pull down and replace work within seven days after receiving from the architect written notice that

the said materials or work were condemned and rejected by the Architect under these conditions or,

- v. Has neglected or failed persistently to observe and perform all or any of the acts, matters or things by this Contract to be observed and performed by the contractor to observe or perform the same.

Then and in any of the said cases the Bank may, notwithstanding any previous waiver, after giving seven days notice in writing to the Contractor, determine the Contract but without thereby affecting the powers of the Architect/Bank or obligations and liabilities of the Contractor, the whole of which shall continue in force as fully as if the contract has not been so determined, and as if the work subsequently executed had been executed by or on behalf of the Contractor, And further, the Bank by his agent or servants may enter upon and take possession of the work and all plant, tools, scaffoldings, shed, machinery, steam and other power utensils and materials lying upon the premises or on the adjoining land or roads and use the same as his own property or may employ the same by means of his own servants and workmen in carrying on and completing the works or by the employing any other contractor or person or persons to complete the works and the contractor shall not in any way interrupt or do any act, matter or thing to prevent or hinder such other contractor or other person or persons employed for completing or finishing or using the materials and plant for the work. When the work shall be completed or as soon as thereafter as convenient the Architect shall give a notice to the Contractor to remove his surplus materials and plant, and should the Contractor fail to do so within the period of fourteen days after receipt thereof by him, the Bank may sell the same by public auction, and give credit to the Contractor for the net amount realized. The architect shall thereafter ascertain and certify in writing under his hand what (if anything) shall be due or payable to, or by the employer, for the value of the said plant and materials so taken possession of by the Bank and the expense or loss which the Bank shall have been put to in procuring the works to be completed and the amount, if any, owing to the Contractor and the amount, which shall thereupon be paid by the Bank to the Contractor or by the Contractor to the Bank, as the case may be and the certificate of the architect shall be final and conclusive between the parties.

53. Certificates & payments:

The Contractor shall be paid by the Bank from time to time by installments under Interim certificates to be issued the Architect / Consultant to the Contractor on account of the works executed when in the opinion of the Architect, work to the approximate value named in the appendix as value of work for Interim Certificates (or less at the reasonable discretion of the Architect / Consultant has been executed in Accordance with this contract, subject, however, to a retention of the Item of such value named in the appendix hereto as “retention Item from Interim Certificate”, until the total amount retained shall reach the named in the Appendix as “Total Retention Money”, after which time the installments shall be upto the full value of the work subsequently so executed and fixed in the building. The Architect / Consultant may in his discretion include the Interim Certificate, such amount, as he may consider proper on accounts of material delivered upon

the site by the contractor for use in the works. And when the works have been virtually completed and the Architect/ Consultant shall have certified in writing that they have been completed, the contractor shall be paid by the Bank in accordance with the certificate to be issued by the Architect / Consultant the sum of money named in the Appendix “Installment after virtual completion” being a part of the said Total Retention Money. And the contractor shall be entitled to the payment of the Final Balance in accordance with the Final Certificate to be issued in writing by the Architect at the expiration of the period referred to as “The Defects Liability Period” in the appendix hereto from the date of virtual completion, or as soon after the expiration of such period as the works shall be finally completed and all defects made good according to the true intent and meaning and hereof whichever shall last happen, provided always that the issue of the Architect / Consultant of any certificate during the progress of the works or at or after the completion shall not relieve the contractor from his liability under clause 2 and 20 nor relieve the Contractor from his liability in case of fraud, dishonesty or fraudulent concealment relating to the works or materials or to any matter dealt with in the certificate, and in case of all the defects and insufficiencies in the works or materials which is a reasonable examination would not have disclosed. No certificate of the Architect shall of itself be conclusive evidence that any works or materials to which it relates are in accordance with the contract, neither will the contractors have a claim for any amounts which the Architect / Consultant might have certified in any interim bill and paid by the Bank and which might subsequently be discovered as not payable and in this respect the Bank’s decision shall be final and binding.

The Architect/ Consultant shall have power to withhold any Certificate if the works or any parts thereof are not being carried out to his satisfaction.

The Architect/ Consultant may by any certificate make any correction in any previous certificate, which shall have been issued by him.

No certificate of payment shall be issued by architect if the contractor fails to insure the works and keep them insured till the issue of Virtual completion certificate.

All the interim payments shall be regarded as payments by way of advance against the final payment only and not as payments for work actually done and completed and shall not preclude the requiring of bad, unsound and imperfect or unskilled work to be removed and taken away and reconstructed or re-erected or be considered as an admission of the due performance of the contract, or any part thereof in any respect or the accruing of any claim nor shall it conclude determine or affect in any way the power of the Bank under these conditions or any of terms as to the final settlement and adjustment of the accounts or otherwise or in any other way vary or affect the contract.

54. EXCEPTED MATTERS / MATTERS TO BE FINALLY DECIDED BY THE BANK:

The decisions, opinion, direction, certificate with respect to all or any of the matters under this tender shall be final and conclusive and binding on the

contractor and shall be without appeal. Any other decision, opinion, direction, certificate or valuation of the architect or any refusal of the architect to give any of the same, shall be subject to the right of arbitration and review. The Architect/ Consultant to give recommendations/ opinion in respect of interpreting the various clauses. However, the decision from the competent authority of the Bank shall be final and binding.

55. SETTLEMENT OF DISPUTES BY ARBITRATION

Wherever, in any of the documents forming part of the Contract, the Bank has been vested with the final powers, his decision, opinion, certificate or any other discretion shall be final conclusive and binding on the contractor and shall be without appeal. All other matters shall be subject to the right of arbitration.

All disputes or differences of any kind whatsoever save and except matters referred to in clause 1) arising out of or in connection with the Contract, whether during the progress of Work or after Completion and shall after written notice by either party to the contract to the other of them and to the Bank hereinafter mentioned be referred for adjudication to two Arbitrator, one each to be nominated by the Contractor and the Bank, who shall thereafter appoint an Umpire. The provisions of Indian Arbitration and Conciliation Act 1996 shall apply for the purposes.

The Work under the Contract shall, however, continue during the arbitration proceedings and no payment due or payable to the Contractor shall be withheld on account of such proceedings.

The Arbitrator shall be deemed to have entered on the reference on the date he issued notice to both the parties fixing the date of the first hearing.

The Arbitrator may from time to time, with the consent of the parties, enlarge the time for making and publishing the award.

The Arbitrator shall give a separate award in respect of each dispute or difference referred to him. The Arbitrator shall decide each dispute in accordance with the terms of the contract and give a reasoned award. The venue of arbitration shall be such place as may be fixed by the Arbitrator in his sole discretion.

The fees, if any, of the Arbitrator shall, if required to be paid before the award is made and published, be paid half and half by each of the parties. The cost of the reference and of the award including the fees, if any, of the Arbitrator who may direct to and by whom and in what manner, such costs or any part thereof shall be paid and may fix or settle and amount of costs to be so paid.

The award of the Arbitrator shall be final and binding on both the parties.

Subject to aforesaid the provisions of the Arbitration & Conciliation Act 1996 or any statutory modification or re-enactment thereof and the rules made thereunder, and for the time being in force, shall apply to the arbitration

proceeding under this clause.

The Bank and the Contractor hereby also agree that arbitration under clause shall be a condition precedent to any right to action under the contract with regard to the matters hereby expressly agreed to be so referred to arbitration.

The Bank and the contractor hereby also agree that arbitration under clause shall be a condition precedent to any right to action under the contract with regard to the matters hereby expressly agreed to be so referred to arbitration.

Jurisdiction: All matters arising out of or in any way connected with this contract shall be deemed to have arisen in Bengaluru and only the courts in Bengaluru shall have jurisdiction to determine the same.

56. RIGHT OF TECHNICAL SCRUTINY OF FINAL BILL

The Bank shall have right to cause a technical examination of the works and the final bill of the works and the final bill of the contractor including all supporting vouchers, abstracts, etc., to be made at the time of payment of the final bill. If as a result of this examination or otherwise any sum is found to have been overpaid or over certified, it shall be lawful for the Bank to recover the sum. The Bank reserves the right to alter / reduce amount certified by Consultant / Engineer, if noticed that certification is not proper.

The subject work will be scrutinized by the Chief Technical Examiner's Office, a technical wing of Central Vigilance Commission and other Vigilance and Audit Authorities of the Bank. Decision of this Authority shall be binding on the contractor. Any discrepancy noted defected shall be rectified by the contractor free of cost or appropriate amount will be recovered from the contractor's payment.

57. BANK ENTITLED TO RECOVER COMPENSATION PAID TO WORKMEN:

The Bank is obliged, by the virtue of the provisions of the workmen's compensation Act, 1923, or any statutory modification or re-enactment thereof to pay compensation to a workman employed by the contractor in execution of the works, the Bank shall be entitled to recover from the contractor the amount of compensation so paid, and without prejudice to the rights of the Bank under said Act. The Bank shall be at liberty to recover such amount or any part thereof by deducting it from the security deposit or from any sum due to the contractor under this contract or otherwise. The Bank shall not be bound to contest any claim made against it under the said Act, except on written request of the contractor and upon his giving to the Bank full security to the satisfaction of the Bank for all costs for which the Bank might become liable in consequence of contesting such claim.

58. ABANDONMENT OF WORKS:

If at any time after the acceptance of the Tender, the Employer shall for any reasons whatsoever not require the whole or any part of the works to be carried out, the Architect/ Bank shall give notice in writing to the contractor who shall have no claim to any payment of compensation or otherwise whatsoever on account of any profit or advantage which he might have derived from the execution of the whole works but which did not derive in consequence of the foreclosure of the whole or part of the work.

59. RETURN OF SURPLUS MATERIALS:

Notwithstanding anything to the contrary contained in any or all the clauses of this contract, where any material for the execution of the contract is procured with the assistance of the Bank by purchase made under orders or permits or licenses issued by the Government, the contractor shall hold the said materials economically and solely for the purpose of the contract and not dispose of them without the prior written permission of the Bank, if required by the Bank, at the price to be determined by the Architect having due regard to the condition of the materials, the price to be determined not to exceed the purchase price thereof inclusive of Sales Tax, Octroi Duty and other such levies paid by the contractor in respect thereof. In event of the breach of the aforesaid condition, the contractor shall, in addition to being liable to action for contravention of the terms of license or permit and /or criminal breach of trust, be liable to Bank for all such moneys, advantage or profits resulting or which in the usual course would have resulted to him by reason of such breach.

60. RIGHT OF BANK TO TERMINATE CONTRACT IN THE EVENT OF DEATH OF CONTRACTOR IF INDIVIDUAL.

Without prejudice to any of the rights or remedies under this contract, if the contractor, being an individual dies, the Bank shall have the option of terminating the contract without incurring any liability for such termination.

61. Materials Having Basic Price

For materials for which a basic price has been stipulated in the tender, the variation in the actual cost of purchase from the basic price will be considered for adjustment (payment / recovery) in the tender cost due to incorporation of required quantity of such material in the works over different periods of time as per construction schedule. Rates should be however fair and competitive and verified by market enquiry by the Bank/ Consultant and the quantity purchased in every period should be reasonable and advantageous, if any due to bulk purchase may be also taken into account.

The amount of difference in actual price and basic cost will be paid by the Bank if the increase is on higher side or the amount will be recovered if there is decrease in the prices. The clause will be operated irrespective of any ceiling in terms of time frame as stipulated for price variation adjustment wherein the contractor is supposed to complete specific value of work during first six months within which they are not entitled for PVA relief.

62. Office accommodation for Site Engineer.

The contractor shall provide, erect, and maintain at his cost a separate simple watertight office accommodation for the Site engineer/ PMC. This accommodation shall be well lighted and ventilated and provided with windows, door with lock. The site engineer's / PMC office shall be minimum of 150 Sq.Ft. and the contractor shall provide a desk, chairs, drawers, for keeping drawing, a cupboard having proper lock and a tack board for displaying drawings. The accommodation shall be demolished when directed. The contractor has to provide one peon for the said office who shall keep the office neat and tidy. The contractor shall also make arrangement for toilet facilities and drinking water. The office shall be provided with fan / air-cooler / air-condition as required.

63. TOOLS FOR HANDLING AND ERECTION :-

All tools and tackles required for handling of equipment and materials at site of work as well as for their assembly and erection and also necessary test instruments shall be the responsibility of the contractor.

64. CO-ORDINATION WITH OTHER AGENCY: -

The contractor shall co-ordinate with all other agencies involved in the building work so that the building work is not hampered due to delay in his work. Recessed conduit and other works, which directly affect the progress of building work, should be given priority.

65. CARE OF BUILDINGS :-

Care shall be taken by the contractor to avoid damage to the building during execution of his part of the work. He shall be responsible for repairing all damages and restoring the same to their original finish at his cost. He shall also remove at his cost all unwanted and waste materials arising out of his work from the site, from time to time as designed by the Engineer-in-charge.

66. STRUCTURAL ALTERATIONS TO BUILDINGS :-

- i. No structural member in the building shall be damaged/altered, without prior approval from the competent authority through the Engineer-in-charge.
- ii. Structural provisions like openings, cutouts if any, provided by the department for the work, shall be used. Where these require modifications, or where fresh provisions are required to be made, such contingent works shall be carried out by the contractor at his cost.

- iii. All such openings in floors provided by the department shall be closed by the contractor after installing the cables/conduits/rising mains etc. as the case may be, by any suitable means as approved by the Engineer-in-charge without any extra payment.
- vi. All chase required in connection with the electrical works shall be provided and filled by the contractor at his own cost to the original architectural finish of the buildings.

67. WORK IN OCCUPIED BUILDINGS: -

- i. When work is executed in occupied buildings, there should be minimum of inconvenience to the occupants. The work shall be programmed in consultation with the Engineer-in-charge and the occupying department. If so required, the work may have to be done even before and after working hours.
- ii. The contractor shall be responsible to abide by the regulations or restrictions set in regard to entry into, and movement within the premises.
- iii. The contractor shall not tamper with any of the existing installations including their switching operations or connections there to without specific approval from the Engineer-in-charge.

68. STATUTORY REGULATION AND APPROVALS :-

All electrical works shall be carried out only by those Contractors who are licensed by the concerned local authorities to execute this type of work. Only "A" Class government approved electrical contractor shall execute the job.

It shall be the responsibility of the Contractor to comply with the regulations laid down by the Indian Electricity Rules and local authorities. The Contractor shall also be responsible for obtaining all the statutory approvals/certificates for the work from the concerned Departments and these certificates shall be handed over to the Architects/Clients at the completion. All coordination with the local electric supply authorities, submitted of application, getting the desired load sanctioned shall be in the scope of contractor. The fees required to obtain the desired load sanctioned and other legal and miscellaneous charges by local electric supply authority / undertaking shall be given by the client but all follow-ups etc. shall be the contractor's responsibility.

On completion of the work, the contractor shall obtain the certificates of final inspection and approval by the local electric supply authority and deliver these certificates to the Owner/Architects in original. The contractor shall bear all expenses and fees required to obtain these certificates without which the work shall not be taken over and shall not be considered complete.

69. STANDARDS AND CODE OF PRACTICE:-

The work shall be carried out as per the enclosed Specifications of work and the construction drawings to be issued from time to time. These specifications shall be read in conjunction with National Building Code, National Electrical Code 1985, Relevant Codes of Practices and Standards as issued by ISI and Indian Electricity Rules, CPWD specifications for electrical works (all with the latest amendments). The installation shall confirm in all respects to Indian Standard code of Practices. Following BIS codes shall be referred -

- a) National Electrical Code
- b) IS: 694 - 1977: PVC insulated cables for working voltage up to and including 1100 volts
- c) IS: 732 -1989: Electrical wiring installation
- d) IS: 1225 -1938: Installation and Maintenance of power Cables up to and including 33 KV Rating
- e) IS: 1554: PVC insulated heavy-duty electrical cables.
- f) IS: 1860: Installation operation and maintenance of passenger and goods elevator.
- g) IS: 2309 -1989: Protection of building and allied structures against lightning.
- h) IS: 3043 -1987: Earthing
- i) IS: 3646 (Part-1) -1992: Interior Illumination
- j) IS: 3661 (Part-2) -1967: Current rating for cable
- k) IS: 3661 (Part-5) -1968: Current rating for cable
- l) IS: 5216 (Part-1) -1982: Recommendations on safety procedures and practices in electrical work.
- m) IS: 7098 (1 & 2): XLPE insulated cables
- n) IS: 10028 (Part-1) -1985: selection, Installation and Maintenance of Transformers
- o) IS: 10118 (Part-1) -1982: Selection, Installation and Maintenance of switchgear and Control gear

70. MATERIAL SAMPLES AND SHOP DRAWINGS:-

It shall also be the responsibility of the Contractor to submit without any extra charge the samples of the materials/equipment as and when asked by the Architect/Consultant. If the Contractor wishes to use an alternative make due to non-availability of the approved one, he should take the prior approval

of the Architect/Consultant. Under such situations the Contractor shall show such promptness as not to hamper the progress of the work.

The Contractor shall submit for Architect/Consultant's approval the shop drawings at approved scale indicating the custom built equipment, L.T. Panels, run of cables and conduits he proposes to install.

71. GUARANTEE

At the close of work and before issue of final certificate of virtual completion by Owner / Consultant, the contractor shall furnish a written guarantee indemnifying the owner against defective materials and workmanship for a period of one year after commissioning. The contractor shall hold himself fully responsible for reinstallation or replacement of defective material free of cost to the owner.

72 .TAKING OVER

After completion of the installation and satisfactory commissioning of the system, the same shall be taken over by the Employer.

CHAPTER -VIII

ADDITIONAL CONDITIONS

1. **Tenderer to inspect Site:** The tenderer shall visit and examine the construction site and satisfy himself as to the nature of the existing roads or other means of communications, All expenses incurred by the contractor in connection with obtaining information for submitting this tender including his visits to the site or efforts in compiling the tender shall be borne by the Tenderer and no claim for reimbursement thereof shall be entertained.
1. **Access to Site:** The tenderer is to include in his rates for forming access to the Site with all temporary roads gangways required for the works.
2. **Treasure Trove:** Should any treasure, fossils, minerals, or works of art of antiquarial interest be found during excavation or while carrying out the works, the tenderer shall give immediate notice to the Architects of any such discovery and shall make over such finds to the Employer.
3. **Attendance upon all Trades :** The general tenderer shall be required to attend on all the Tradesman or Sub-contractor/ contractors appointed by the Bank for Water-Supply & Sanitary, Electrical installation, Air-conditioning, Security Equipment, Hardware, Telephone and other special contactors. The rates quoted shall be inclusive of attendance and also allow the contractors and retain until such times the relevant Sub-contract works are completed.
4. **Cost of transporting:** The tenderer shall allow in his cost for all transporting, unloading stacking and storing or supplies of goods and materials for this work on the site and in the places approved from time to time by the Architects. The tenderer shall allow in his price for transport of all materials controlled or otherwise to the site.
5. **Materials, Workmanship & Samples:** Materials shall be of approved quality and the best of their kind available and shall generally conform to I.S. Specifications, The Contractor shall order all the materials required for the execution of work as early as necessary and ensure that such materials are on site well ahead of requirement for use in the work. The work-involved calls for high standard of workmanship combined with speed and to the entire satisfaction of the Architects.
6. **Rates for Non-Tender Items:** Rates of items not included in Schedule of Quantities shall be settled by the Architects as mentioned in the variation clause of the Contract Conditions.
7. **Rate to include:** The rates quoted shall be for all heights and depths and for finished work.

The contractor shall ascertain from other contractors as directed by the Architects all particulars relating to their work with regard to the order of its execution and the position in which cases, holes and similar items will be

required, before the work is taken in hand as no claims for extras will be allowed for cutting away work already executed in consequence of any neglect by the contractors to ascertain these particulars beforehand.

Before ordering materials, the contractors shall get the samples approved from the Architects well in time.

8. Testing of work and material:

Cost of testing and transport will be borne by contractors.

- Any other materials will be tested by contractors at his own cost as per the instruction of Architect and Bank from time to time.
- Frequency stated above is minimum and the Contractor may have to test materials with any frequency or as instructed by Bank/Architects without any cost.

If after any such test the work or portion of works is found in the opinion of the Architect to be defective or unsound, the contractor shall pull down and re-do the same at his own cost. Defective materials shall immediately be removed from the site.

- 9. Foremen and Tradesmen:** All tradesmen shall be experienced men properly equipped with suitable tools for carrying out the work of carpentry and joinery and other specialist trades in a first class manner and where the Architects deemed necessary, the contractor shall provide any such tools, special or ordinary which are considered necessary for carrying out the work in a proper manner.

All such tradesmen shall work under an experienced and properly trained foremen, who shall be capable of reading and understanding all drawings, pertaining to this work and the contractor shall also comply with other conditions set out in Clause 9 of the conditions of the contract.

15. Work Programme/ weekly progress report:

The contractor shall prepare and submit to architects for approval, a bar chart showing the programme of construction of various items, fitted within the period stipulated for completion, within 15 days of the communication of the acceptance of the tender. The contractor shall also furnish necessary particulars to the site engineer for compiling weekly progress reports in the form furnished by the architects.

- 16. Photographs:** The contractor shall at his own expense supply to the architects with triplicate copies of large photographs not less than 25cm x 20cm (10"x8") of the works taken from two approved portions of each building, at intervals of not more than three months during the progress of the work, or at every important stage of construction.

- 17. Clearing of Site:** The contractor shall after completion of the work clear the site of all the debris and left over materials at his own expense to the entire satisfaction of the Architects and Municipal or other public authorities.

The whole of the work shall be thoroughly inspected by the contractor and all deficiencies and defects put right. On completion of such inspection, the contractor shall inform the Architects in writing that he has finished the work and it is ready for the Architects inspection.

18. **Vouchers:**The contractor shall furnish the Architects with vouchers on request, to prove that the materials are as specified and to indicate the rates at which the materials are purchased in orders to work out the rate analysis of the non-tender items which he may be called upon to carry thereafter.

19. **Consultant's decisions are final & binding on both the parties:**

For all matters not specifically provided for herein the provisions of General and Special Tender Documents shall apply and the rights and liabilities of the parties shall be decided accordingly. The decision of the Consultant in this regard shall be final and binding, provided that decision is based on contract clauses executed.

20. **Settlement of dispute:**

Wherever, in any of the document forming part of the contract, the Consultant has been vested with final powers, his decisions, opinion, certificate or any other discretion shall be final, conclusive and binding on the parties and shall be without appeal. All other matters shall be subject to the right of arbitration.

21. **TYPE OF CONTRACT:**

The Contractor shall be paid for the actual quantity of Work done, as measured at Site, at the Item quoted by him in the Contract Bills.

22. **Schedule of Quantities:**

The schedule of Quantities given in the Contract Bill are provisional and are meant to indicate the intent of the Work and to provide a uniform basis for tendering. The Bank reserves the right to increase or decrease any of the quantities or to totally omit any item of Work and the Contractor shall not claim any extras or damages on these grounds.

23. **Contract Sum (Consideration):**

The rates and Items quoted by the Contractor in the priced bill of quantities (Contract Bills) shall be treated as firm and the contract sum shall be deemed to have been calculated with reference to the cost of execution of Works as set out in price bid of Contract Documents and shall not be adjusted or altered for any reason.

24. **Idle Labour/ Machinery:**

Whatever the reason may be, **no claim** for idle labour, additional establishment cost of hire and labour charges of tools & plants would be

entertain under any circumstances, even if the work is delayed / abandoned for any reason.

25. **Provisional Completion of works:**

The Works shall be deemed to have been provisionally accepted after fulfillment of all the following by the Contractor:

26. **Non-compliance of instructions:**

If within seven days after receipt of a written notice from the Consultant, requiring compliance with an instruction the Contractor does not comply therewith, then the Bank may employ and pay other persons to execute any Work whatsoever which may be necessary to give effect to such instructions and all cost incurred with such employment shall be recoverable from the Contractor by the Bank as a debt or may be deducted by him from any monies due or to become due to the Contractor under this Contract.

Upon receipt of what purports to be instruction issued to him by the Consultant the Contractor may request the Consultant to specify in writing the provision of these conditions which empowers the issue of the said instruction. The Consultant shall forthwith comply with any such request, and if the Contractor shall thereafter comply with the said instruction, then the issue of the same shall be deemed for all purposes of this Contract to have been empowered by the provision of these Conditions specified by the Consultant in answer to the Contractor's request.

27. **Certification of Bills in absence of 'Claimant's Engineer:**

If the Contractor fails to attend or neglects or omits to send his agent at the time of taking measurement or for examining the records or drawings then the measurements so taken by the Consultant, the records and drawings as prepared by the Engineer shall be taken to be correct, final and conclusive.

28. **Interim payment as adhoc against final bill:**

All the interim payments shall be regarded as payments by way of advance against the final payment only and not as payments for Work actually done and completed, and shall not preclude the requiring of bad, unsound, and imperfect or unskilled Work to be removed and taken away and reconstructed, or re-erected or be considered as an admission of the due performance of the contract, or any part thereof in any respect or the accruing of any claim, nor shall, it conclude, determine or affect in anyway the power of the Bank under these conditions or any of them as to the final settlement and adjustment of the accounts or otherwise or in any other way vary or affect the contract. The final bill shall be submitted by the Contractor within one month of the date fixed for completion of the Work or of the date of certificate of completion furnished by the Engineer and payment shall be made within six (6) weeks from the date of receipt of final Certificate from the Consultant.

29. **Cessation of Bank's liability:**

The Bank shall not be liable to the Contractor for any matter or thing arising out of or in connection with the Contract or the execution of the Works, unless the Contractor shall have made a **claim in writing** before the giving of Certificate of Final Completion.

30. **In respect of building cleaning:**

On completion the Contractor shall clean inside and outside, all floors, staircases, and every part of the building. He will leave the entire building neat and clean and ready for immediate occupation and to the satisfaction of the Bank.

31. **In respect of extension and claims of contractor:**

The Contractor, in his application for grant of time shall clearly bring out the **financial effect** of extension of time requested by him. In case no financial effect is stated in the request for grant of extension of time, the same shall be taken as zero and it shall be presumed that the Contractor has mitigated whole of the losses due to the delays of all kinds.

32. **In respect of contractor cannot claim extra cost:**

Provided that the Contractor shall **not be entitled to recover** any such extra cost unless he gives written notice to the Consultant of his intention to claim within twenty-eight days of the Consultant's order. The Consultant shall in consultation with the Bank settle and determine such extra payment and/or extension of time to be made to the Contractor in respect of such claim as shall, in the opinion of the Consultant, be fair and reasonable, and provided the Contractor has taken all steps to mitigate the losses.

33. **In respect of no compensation to contractor for increasing work progress:**

If for any reason, we doesn't entitle the contractor to an extension of time, the rate of progress of the works or any section is at any time, in the opinion of the Consultant, too slow to ensure completion by the prescribed time or extended time for completion. The Consultant shall so notify the contractor in writing and the contractor shall thereupon take such steps as are necessary and the Consultant may approve to expedite progress so as to complete the works or such sections by the prescribed time or extended time. The contractor shall **not be entitled to** any additional payment for taking such steps.

34. **In respect of no additional cost for scheduling and programming:**

The contractor shall mobilize or remobilize or adjust his resources according to the priorities set by the Employer **at no extra cost** to the Employer.

PROFORMA FOR APPLICATION FOR EXTENSION OF TIME PERIOD

1.	Name of Contractor	:	
2.	Name of the work as given in the Agreement	:	
3.	Agreement No.	:	
4.	Estimated tender amount	:	
5.	Date of Commencement of work as per Agreement	:	
6.	Period allowed for completion of work as per Agreement.	:	
7.	Date of Completion stipulated in Agreement.	:	
8.	Period for which extension of time has been give previously	:	
a)	1st extension vide Architect's /Bank's letter	:	
	No. Dated Month Days		
b)	2 nd extension vide Architect's /Bank's letter	:	
	No. Dated Month Days		
c)	3 rd extension vide Architect's /Bank's letter	:	
	No. Dated Month Days		
d)	4 th extension vide Architect's /Bank's letter	:	
	No. Dated Month Days		
	Total extension previously given	:	
9.	Reason's for which extensions have been previously given (Copies of the previous applications should be attached)	:	
10.	Period for which extension is applied for	:	
11.	Hindrances on account of which extension is applied for with dates on which hindrances occurred and the period for which these are likely to last.	:	

a)	Serial No.		
b)	Nature of Hindrance		
c)	Date of occurrence		
d)	Period for which it is likely to last.		
e)	Period for which extension required for this particular hindrance		
f)	Over lapping period if any, with reference to item (e) above		
g)	Net extension applied for		
h)	Remarks, if any		
12.	Extension of time required for extra work	:	
13.	Details of extra work and the amount involved	:	
a)	Total value of extra work		
b)	Proportionate period of extension of time on estimated amount put to tender.		
14.	Total extension of time required for 11 & 12	:	

Submitted to the Architect/Bank

Date:

Signature of Contractor

SUBMITTALS

The contractor shall submit the following to the architect for review and approval well before the commencement of work.

- Proposals for temporary works to partition and protect adjacent or nearby areas in use, including dust control and clean up procedures.
- Proposal for temporary storage of salvaged material and for debris to be transformed off site.

CONTROL OF PROCEDURES AND SAFETY

The contractor shall devise and be responsible for all procedures to ensure the safety of the building, the workers and the other occupants during the demolition and dismantling work. The work shall at all times be under the direct supervision of experienced foremen under the overall supervision of the contractor's site engineer.

HANDLING, STORAGE, TRANSPORTATION AND DISPOSAL

Store debris and salvaged material separately in designated places approved by the submittals procedure described above. All salvaged material shall be classified and stored separately by categories agreed upon prior to commencement of demolition.

Do not pile up material in a manner that will cause the structure to be over loaded. Stack material so that the stacks are stable and do not cause obstruction to movement.

Do not allow debris to accumulate beyond the capacity of the approved area for temporary storage. Do not dump debris in public rights-of-way, in private property without owners consent, in municipal garbage receptacles etc. The contractor shall dispose of debris only at dumping grounds approved by the local authority in manner not objectionable to the authority.

Transport debris to the approved dumping grounds at times permissible by law and acceptable by local practice. Take precautions to avoid spillage of debris from the transport vehicle en-route.

MECHANICAL EQUIPMENT

Do not use mechanical equipment without the prior approval of the architect.

Do not use gas cutting and electric welding or cutting without the prior approval of the architect. Take special precautions to prevent fire if permission is granted for gas and electrical cutting and welding.

EXECUTION

GENERAL

Proceed with work only in the presence and under control of skilled supervisors.

Maintain in a journal with serially numbered pages, inventories of all items as the work proceeds.

ELECTRICAL

Dismantling of electrical installation shall be carried out under the supervision of a licensed electrical contractor, employing competent certified electricians.

Shut off and isolate electric supply to the demolition and dismantling area. Take precautions to ensure that the disconnected circuits may not be accidentally re-energized.

- Have a skilled electrician on standby.

The contractor shall be responsible for the quality of materials supplied by him and all workmanship. The work shall be executed under the direct supervision of competent foreman and the quality control staff of the contractor. All defective work shall be replaced by the contractor.

COORDINATION WITH OTHER TRADES AND CONTRACTORS

The contractor shall schedule and coordinate the work under this specification with other trades and contractors to prevent avoidable cutting and patching after installation.

MATERIALS AND PRODUCTS

ADHESIVES AND FASTENERS

Adhesives shall be synthetic resin adhesive complying with IS: 851

Screw shall be of brass.

Copper wire nails shall be in compliance with IS:725

TREATMENT AGAINST DECAY AND INSECT ATTACK

Treatment against and insect attack shall be by means of an approved proprietary product, proven to have outstanding durability under any conditions of exposure, to provide long-lasting protection against decay producing fungi and insects.

The material used for treatment shall be clean, oil-free. Odorless and harmless to people, planes and animals, evens when exposed to fire.

The material shall be spray or brush applied for deep-penetration, fiber- fixed to prevent leaching. The treated wood shall be capable of being subsequently painted or stained without being discolored.

No coal -tar based products shall be used for preservative treatment.

The material used for preservative treatment shall be compatible with the material used for fire retardant treatment.

CHAPTER IX

1. Definition of terms/ interpretation:

In construction these conditions, the specification schedule of quantities and contract agreement, the following words shall have the meanings herein assigned to them except where the subject or context otherwise requires.

- (a) “Employer/ owner / Bank” shall mean ”Union Bank of India, Government of India undertaking” having Central Office at 239, Vidhan Bhawan Marg, Nariman Point, Mumbai - 400 0021 and any of its employees’ representatives authorized on their behalf.
- (b) “Architect / consultant” - shall mean “M/s. M/s Kanamadi & Associates, having their registered office at H.O. No.58,1st Floor, 6th Cross, S.P.Extension, 11th Cross, Malleshwaram, Bengaluru - 560003 or in the event of his or their ceasing to be Architect/ Consultant for the purpose of this Contract such other person as the Bank shall nominate for the purpose.
- (c) “Contractors” (in case of partnership) shall mean.....andtrading as partners in the name and style ofand shall include partners for the time being of the said firm and the legal representatives of a deceased partner.
- “Contractors” (in case of individuals) shall mean.....andtrading in the name and style ofand shall include his / their heirs, legal representative assigns or successors.
- “Contractors” (in case of company) shall mean.....a company incorporated under19.....and having its registered office atand shall include its successors and assigns.
- (d) “Site” shall mean “Work Place located at _____ include any building and erections thereon and any other land (inclusively), as aforesaid, allotted by the Bank for the contractor’s use.
- (e) Site Engineer / Engineer: The Engineer appointed by the Bank/ Architect/ Consultant for the management of the project.
- (g) “The works” shall mean the work or works to be executed or done under this contract.
- (h) “This Contract” shall mean Articles of Agreement, the special conditions, the general conditions of contract, the appendix, the schedule of quantities and specifications, attached hereto and duly signed.
- (i) “Notice in writing” or written notice shall mean a notice in written, typed or printed characters sent (unless delivered personally or otherwise proved to have been received), by registered post to the last known private or business address or registered office of the addressee and shall be deemed to have

been received when in the ordinary course of post, it would have been delivered.

- (j) "Act of Insolvency" shall mean any Act of Insolvency as defined by the Presidency Towns Insolvency Act, or the Provincial Insolvency Act or any amending such original.
- (k) "The Schedule of Quantities" shall mean the schedule of quantities as specified and forming part of this contract.
- (l) "Priced Scheduled of Quantities" shall mean the schedule of quantities duly priced with the accepted quoted rates of the contractor.
- (m) "Net Prices" If in arriving at the contract amount, the contractor shall have added to or deducted from the total of the items in the Tender any sum either as a Item or otherwise, then the net price of any item in the Tender shall be the sum arrived at by adding to or deducting from the actual figure appearing in the Tender as the price of that item a similar Item or proportion of the sum so added or deducted of the sum so added or deducted by the contractor the amount of any Prime Cost items and provisional sums of money shall be deducted from the total amount of the Tender. The expression "net rates" or "net prices" when used with reference to the contract or accounts shall be held to mean rates or prices so arrived at.

CHAPTER -X

APPENDIX / MEMORANDUM TO CONDITIONS OF CONTRACT

Estimated cost	Rs. 19,56,000.00
EMD	EMD shall be Rs.40,000.00 payable in form of Demand Draft/ Pay Order favouring Union Bank of India payable at Bengaluru.
Initial security deposit	The amount of ISD shall be 5% of the accepted value of the tender including EMD.
Date of commencement	10 th day from the date of acceptance of work order OR date of site possession, whichever is later.
Time for completion of work	As per time schedule given in tender document i.e. 30days.
Retention money to be deducted from the bills.	8% of the certified gross value of each running bill, till accumulating total security deposit including ISD.
Total Security Deposit	8 % of Contract amount / value of final bill whichever is maximum.
Defect Liability Period	Twelve months from the virtual completion. However, if all the works or more than one works awarded to one contractor the defects liability period will be reckoned from the date of virtual completion of last work.
Period of Final Measurement	15days.
Liquidated damages	Shall be 0.5% of contact amount per week of delay subject to ceiling of 7.5% of the accepted contract amount.
Value of works for Interim Certificates	Value not less than Rs.3.00 lacs (Rs.Three Lacs only) or as decided by the Bank.
Payment after virtual completion	50% of total security deposit will be returned after (i) issue of virtual completion certificate by the project architect. (ii) Contractor's removal of his material, equipments, cleaning of site and against Bank Guarantee. Balance 50% of retention money shall be released 21 days after satisfactory completion of defect liability period.
Period for honouring interim certificate.	75% of the bill amount shall be honoured within 14 days after getting certificate from project architect and submitting to the Bank. Balance 25% bill amount payable within 30 days after checking by the Bank.
Recovery towards taxes.	As per rules applicable from time to time.

CHAPTER -XI

SAFETY CODE

1. Safety Measure

Adequate precautions shall be taken to prevent danger from electrical equipment. No materials on any of the sites of work shall be so stacked or placed as to cause danger or inconvenience to any person or the public.

2. Personal Safety Equipments

- xii. All necessary personal safety equipment as considered adequate by the Engineer should be kept available for the use of the person employed on the site and maintained in a condition suitable for immediate use, the contractor should take adequate steps to ensure proper use of equipment by those concerned.
 - a. Workers employed on mixing asphaltic materials, cement and lime mortars shall be provided with protective footwear and protective goggles.
 - b. Those engaged in white washing and mixing or stacking of cement bags or any material which is injurious to the eyes shall be provided with protective goggles.
 - c. Those engaged in welding works shall be provided with welder's protective eyesight lids.
 - d. The contractor shall not employ men below the age of 18 years and women on the work of painting with products containing lead or any toxic material in any form. Wherever men above the age 18 are employed on the work of such painting the following precautions should be taken:
 - e. Notwithstanding the above clause from (i) to (xviii), there is nothing in these to exempt the contractor from the operation of any other Act or Rule in force in India.

Chapter - XII

Integrity Pact (IP)

The interested Bidders will have to submit signed Integrity Pact along with the Technical Bid.

Vendors/bidders/sellers, only those who commit themselves to Integrity Pact (IP) with the Bank, would be considered competent to participate in the bidding process. In other words, entering into this pact would be the preliminary qualification. In case of bids for value of Rs.1.50 Crore and above not accompanied with signed IP by the bidders along with the technical bid, the offers shall be summarily rejected.

IP shall cover all phases of contract i.e. from the stage of Notice Inviting Tenders (NIT)/Request for Proposals (RFP) till the conclusion of the contract i.e. final payment or the duration of warrantee/guarantee. Format of IP is attached as Annexure _____ for strict compliance.

The following Independent External Monitors (IEMs) have been appointed by the Bank, who will review independently and objectively, whether and to what extent parties have complied with their obligation under the pact.

“PRICE BID”



INTERIOR WORK FOR OF REGIONAL OFFICE, SECOND FLOOR
OF LIC BUILDING, KUVEMPUNAGAR, HASSAN.

TENDER FOR INTERIOR FURNISHING WORKS

PART-II

TENDER SPECIFICATION AND BILL OF QUANTITIES

PRICE BID

Date of issue of Tender	: From 17-06-2023 To 26-06-2023 During office hours.
Last date for submission of tender	26-06-2023 upto 3.00 pm.

<u>Owner:</u> Union Bank of India Hassan Main Branch (RO) N.R.Circle, Hassan 573201	<u>Consultant:</u> M/s Kanamadi & Associates Architects & Engineers No.58, First Floor, 6th Cross S.P.Extension, 11th Cross, Malleswaram, Bangalore.
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ABSTRACT OF COST

**SUBJECT: ELECTRICAL WORK
FOR OF REGIONAL OFFICE, SECONDF FLOOR LIC BUILDING,
KUVEMPUNAGAR, HASSAN.**

Details of tender amount quoted by the contractor:

Sr.No	Particulars of works	Amount
1	ELECTRICAL WORKS	Rs.
2	GST-18%	RS.
3	GRAND TOTAL (1+2) =	RS.

(Total Quoted Amount in Words)= _____

Rate inclusive of all Material charges, Transportation, Local levies as applicable, Loading, Unloading, Lifting-Shifting, Erection, Testing , Commissioning, Scaffolding, etc. as applicable.

Signature of Contractor with Seal

Consultants
Kanamadi and Associates
Architects & Engineers
Mallechwaram, Bangalore -03

PROPOSED ELECTRICAL WORK OF UNION BANK OF INDIA, REGIONAL OFFICE AT 2ND FLOOR LIC BUILDING, KUVEMPUNAGAR, HASSAN

Bill of Quantity: Electrical

Sl No	Description	unit	Qty	Rate	Amount
1	LIGHTING - Make: Anchor Roma, Crab Tree, Legrand				
	Supplying and wiring light point using 2run of 1.5 sq mm wire in a pvc conduct pipe/ casing caping modular type 6A switch				
1	a) One light controlled by single switch	Point	133.00		
2	b) Two lights controlled single switch	Point	30.00		
3	C) Exast fan point controlled single switch.	Point	12.00		
4	d) Ceiling fan point controlled single switch with regulator	Point	3.00		
5	e) Wall Mounted fan point controlled single switch	Point	33.00		

6	Supplying and fixing 5A socket dependent switch point	Nos	70.00		
7	Supplying and fixing 5A socket independent switch point	Nos	55.00		
8	Supplying and fixing 5A socket 3 nos and 6/10A SP switch for UPS point for Modular type	Nos	119.00		
9	Supplying and fixing 15A socket combined socket point	Nos	30.00		
10	Supplying and fixing 20 A Socket and 32 A DP Switch for Split AC	Nos	17.00		
11	Supplying and fixing 40A 4 Pole MCB For Casset AC	Nos	0.00		
12	Supplying and fixing 4 Pole MCB For DUCT AC	Nos	0.00		
13	Supplying and fixing 63 A 4 POLE Isolator for Master Control Switch For Lighting & Fans	Nos	5.00		
II	CIRCUIT WIRING - Make: Finolex, Havels, Polycab				
14	Supplying and wiring using 2R 2.5 sqmm + 1R 1.5 sq mm in a pvc pipe/ casing capping.				
a)	UPS	Mtrs	1348.00		
b)	Lighting	Mtrs	700.00		
c)	Raw Power	Mtrs	800.00		
15	Supplying and wiring using 4R 6.0 sqmm + 1R 2.5 sqmm in pvc pipe/ casing capping				
a)	Lighting Main	Mtrs	130.00		

16	Supplying and wiring using 2R 4.0 sqmm + 1R 1.5 sqmm in pvc pipe/ casing capping for				
a)	Single Phase AC	Mtrs	900.00		
17	Supplying and wiring using 4R 4.0 sqmm + 1R 1.5 sqmm in pvc pipe/ casing capping for				
a)	Three Phase AC - Branch	Mtrs	0.00		
18	Supplying and wiring using 4R 6.0 sqmm wire for Duct AC	Mtrs	0.00		
III	DISTRIBUTION BOARD				
19	Supplying and fixing UPS DB consisting 63 A/ 40A MCB 1 no and 12 no 10/6A SPMCB	Nos	6.00		
20	Supply and fixing 63 A 4PMCB ups Input & out put	Nos	4.00		
21	Supply and fixing 40A 2PMCB in SPDB	Nos	2.00		
21	Supply and fixing 63 A 4 P ISOLATOR	Nos	4.00		
22	Supply and fixing 6 way TPNDDB with 63 A MCB 1 Nos 10/16 A SPMCB 18 Nos - Lighting	Nos	2.00		
23	Supply and fixing 8 way / 12 way VTPNDDB with 100 A MCCB Incoming and 63/ 10 A 3 P MCB for AC's and Lighting	Nos	2.00		
IV	L. T MAIN PANEL				

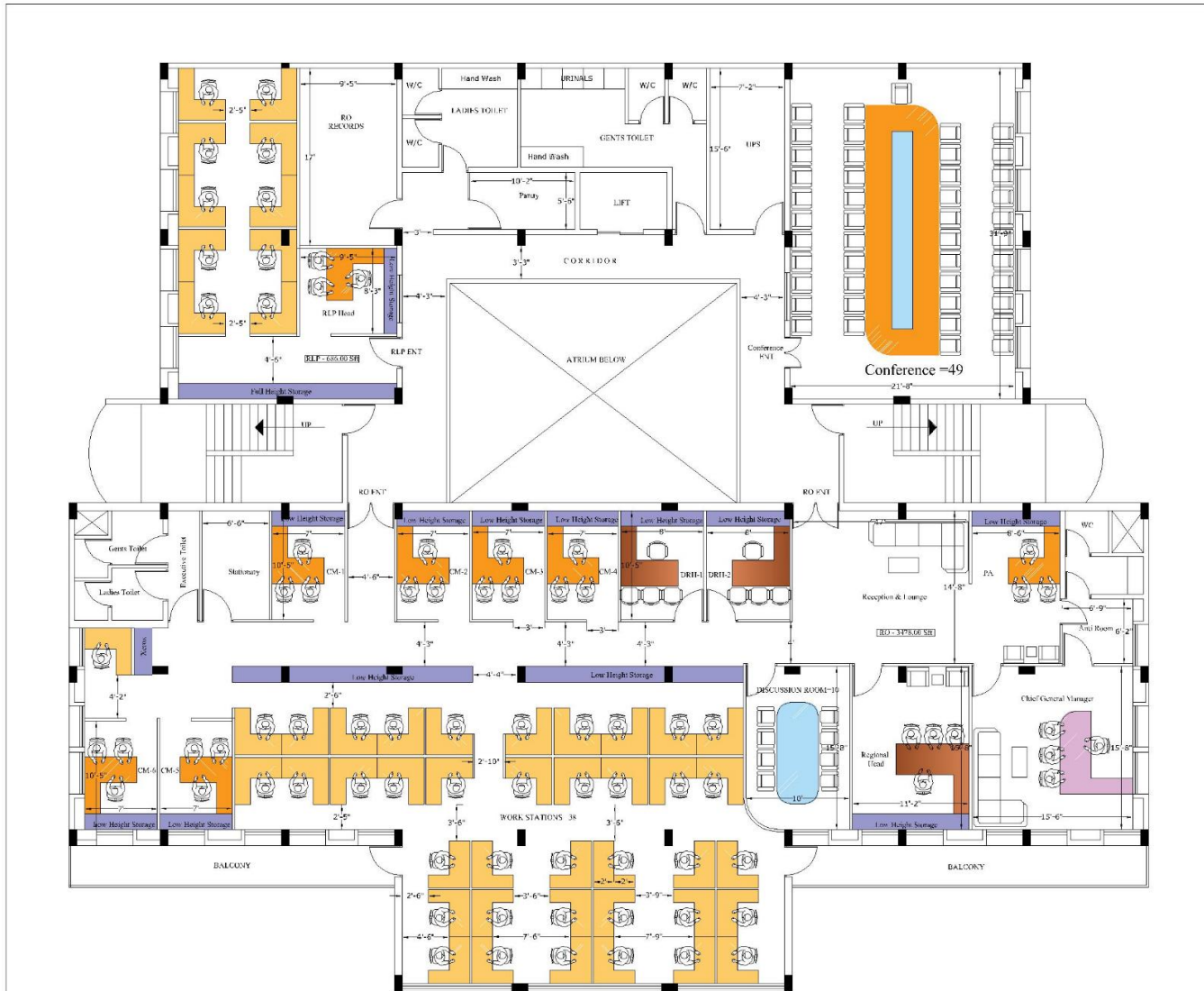
	<p>Supply, Erection, Testing and Commissioning of L T PANEL BOARD weather and water proof, conforming to the specification fabricated out of 2mm thick CRCA sheet/insulating material with cable gland plate & conduit knockouts at the top, bottom and sides and provided with hinged lockable glazed door. The DBs shall have insulated fork type phase bus bars, insulated earth bus. Independent neutral bus bar for each phase and interconnecting wiring for 430/ 220V, 25/10kA breaking capacity current limiting type MCBs / ELMCBs with 'C' curve characteristics for A.C , lighting ,Raw power distribution and 'D' curve characteristics for all UPS power distribution. The circuit breaker shall be din rail mounting type. The terminal shall be finger touch proof and conforming to IP-42 protections.</p>				
	<p>Incomer</p>				
	<p>200A 4 pole Micro processed 25KA MCCB with short circuit and earth fault trip arrangement complete 1 set</p>				
	<p>200A 4 pole Changeover switch 1 nos</p>				
	<p>RYB Indicating lamps</p>				
	<p>VOLT METER & Ameter with Selector Switch indicating Lamps Etc.,</p>				
	<p>250A aluminum bus bars</p>				
	<p>Outgoings</p>				
	<p>100A 4pole MCCB for AC control 4no AC DB</p>				
	<p>63A 4pole MCCB for lighting control 6No</p>				

	63A 4pole C curve MCB 4 no for Raw power				
	40A 4 pole C curve MCB 4 nos Spare				
	25/32A 4 pole C curve MCB 4 Nos spare				
24	Supply installation	Set	1		
25	Supply & Laying 3.5 x 120 Sq mm Aluminium Armed UG Cable polycab / Havels	Mtrs	180		
V	FIXTURES				
26	Supplying and fixing 2' x 2' LED Fitting with a warm white light manufactured as per IS Standard including waranty period of not less than 2 years and burning hrs of Min 50,000 hrs. Make: Wipro, Philips oR equalient fitting to be got approved before procurement.	Nos	88.00		
27	Supplying & fixing 12w LED Down Lights Make: Wipro, Philips oR equalient fitting to be got approved before procurement.	Nos	58.00		
28	Supplying & fixing 15w LED Down Lights Make: Wipro, Philips oR equalient fitting to be got approved before procurement.	Nos	20.00		
29	Supplying and fixing 1x28 W (4' Length) fitting box type LED tube light Make: Wipro, Philips oR equalient fitting to be got approved before procurement.	Nos	20.00		
30	Supplying and fixing 1x18 W (2' Length) fitting box type LED tube light Make: Wipro, Philips oR equalient fitting to be got approved before procurement.	Nos	15.00		

31	Supplying and fixing 1x12 W bracket LED light	Nos	8.00		
32	Supplying and fixing Strip Light of LED with approved colour and connector	Mtrs	150.00		
33	Supplying and fixing 1400mm swipeceling fan including necessary hock, wiring etc. Make: Crompton/Bajaj/ Usha approved make only with regulator.	Nos	3.00		
34	supplying and fixing wall mounted fan Make: Crompton/Bajaj/ Usha approved make only	Nos	33.00		
35	Supplying and mixing 12" exast fan Make: Crompton/Bajaj/ Usha approved make only	Nos	12.00		
VI	TELEPHONE WIRING				
36	Supplying and wiring using 2 pair telephone point wiring in a PVC pipe/ casing and caping	Mtrs	1350.00		
i)	20 pair	Mtrs	300.00		
37	Supplying and fixing RJ-11 telephone socket in a PVC box with modular type of plate	Nos	65.00		
38	100 Pair Crone Box	Nos	1.00		
VII	EARTHING				

39	Supply and fixing of GI pipe earth electrode for meter board / equipment using 40 MM dia 2.9 mm thick 2.5 Mtr long GI pipe buried in pit. The pit shall be filled with equal proportion of salt and charcoal 150 mm all round the pipe to complete depth. The connection from the pipe to the conduit etc., to be established through GI wire of size as per IS 3043 using 12 mm dia bolts nuts washers and check nuts	Nos	2.00		
40	Supply and running of 6sq.mm copper wire for grounding using with necessary suitable size clamps bolt, and washers including inter connectors.	mtrs	180.00		
41	SITC Maintenance Free chemical pits using Artificial (chemical) earth enhancing compound of 50 kg kits (GEEGEL).chem. rod 50mmx 2mtr. inspection chamber made of C I cover etc. .	Nos	2.00		
42	Supply & Fixing 25x3 GI Strip earth pit to panel board	Mtrs	150.00		
43	Supply & Fixing 25x6 Coper strip - 1Mtr Length - For Earth Busbar	Nos	2.00		
VIII	DATA CABELLING				
44	Supply and laying CAT 6 d-link cabel computer net work cable in PVC conduit pipe /trench/cable duct etc	Mtrs	2650.00		
45	Supply & fixing RJ 45 Conector (Telephone and Data)	Nos	250.00		
46	Supply and fixing information out let CAT 6 Cabel	Nos	125.00		
47	Supply and fixing 19U rack , 3nos-24 port patch panel and 3 nos-power strip connector etc.	set	1.00		
48	Supplying and fixing 24 port D-Link Network Switch	Nos	3.00		

49	supply and fixing 1mtr patch card	Nos	250.00		
50	supply and fixing 2 mtr patch card	Nos	125.00		
54	Supply & laying of 300X200x50 mm size ALUMINIUM race ways including junction box With Necessary Openings as required	Rmt	20.00		
TOTAL ELECTRICAL COST EXCLUDING GST					



OPTION-B REVISED ON 11.05.2023 (1)

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PROPOSED INTERIOR LAYOUT FOR UNION BANK OF INDIA , REGIONAL OFFICE
UNION BANK OF INDIA REGIONAL OFFICE AT HASSAN



Drawn By: KAVYA Checked By: SSX
 SCALE: NTS DATE: 26.04.2023
 DRAWING No:

KANAMADI AND ASSOCIATES
 ARCHITECTS & ENGINEERS
 #58, FIRST FLOOR, 11th CROSS , VYALKAVALI
 HALLESWARMA, BANGALORE-560 003
 Ph:080-2334 7210, E-mail: kanamad_sankar@rediffmail.com




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PROPOSED ELECTRICAL LAYOUT FOR UNION BANK OF INDIA , REGIONAL OFFICE

UNION BANK OF INDIA REGIONAL OFFICE AT HASSAN



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Drawn By: KAVYA	Checked By: SSK
SCALE: NTS	DATE: 26.04.2023
DRAWING No:	

KANAMADI AND ASSOCIATES
ARCHITECTS & ENGINEERS
#58, FIRST FLOOR, 11th CROSS , VYALIKAVAL
HALLESWARI, BANGALORE-560 003
Ph:080-2334 7210, E-mail:kanamad_lakshmi@rediffmail.com