

## Upgradation of Existing AC System with HVAC and Electrification works for Various ICU's at SMIMER Hospital Governing by Surat Municipal Corporation(3rd Attempt)



### E-Notice No.: DMC/P.I.Cell/ 02/2026-27, W.NO. 02

Initial date of uploading of tender documents	16.06.2026, up to 16:00 Hrs
Last date of downloading online tenders	29.06.2026, up to 16:00 Hrs
Last date of uploading of online bids	29.06.2026, up to 18:00 Hrs
On line Query	On or before 19.06.2026, up to 12:00 Hrs
Submission of tenders in hard copy	On or before 07.07.2026, up to 18:00 Hrs
Tenders shall be submitted to	The Chief Accountant, Accounts Department, Surat Municipal Corporation, Muglisara, Surat.
Mode of submission	Govt. Speed Post or RPAD



**Invited by:**  
**Deputy Commissioner,**  
**Surat Municipal Corporation**  
**C/o Public Infrastructure Cell,**  
**1st Floor, Public Library Building**  
**Soham Circle to VIP Road, Althan, Surat. Gujarat**

# Up gradation of Existing AC System with HVAC and Electrification works for Various ICU's at SMIMER Hospital Governing by Surat Municipal Corporation (3rd Attempt)

Sr.No.	Description	Pg.No.
1	Notice inviting tenders	3
2	Instructions to the bidders	4-10
3	INFORMATION REGARDING THE APPLICANT / CONTRACTOR	11-12
4	Qualification criteria	13
5	CHECKLIST BEFORE SUBMITTING THE TENDER	14
6	GST Clause	15
7	Payment terms	16
8	Affidavit 1 & 2	17-18
9	Submission of tender	19
10	INSTRUCTION TO TENDERERS	20-28
11	General Condition Of Contract	29-53
12	Memorandum	54
13	Penalty Criteria for AMC work	55
14	Detailed Technical Specifications (HVAC)	56-66
15	Detailed Technical Specifications (Electrical)	67-80
16	Penalty Criteria for Capital work	81
17	HVAC Approved Make List	82-83
18	ELECTRICAL Approved Make List	84
19	ANNEXURE-I & II	85-86
20	INSTRUCTION TO TENDERER	87
21	TENDERER'S/ CONTRACTOR'S CERTIFICATE	88
22	Bill of Quantity	89-97
	Total Pages	97

## NOTICE INVITING TENDERS

### SURAT MUNICIPAL CORPORATION



Public Infrastructure Cell  
Surat Municipal Corporation,  
1st floor, Public Library Building, Soham circle to VIP road, Althan,  
Surat

**E-Tender Notice No.:DMC/P.I.Cell/02/2026-27, W.NO. 02**



Bids for **Upgradation of Existing AC System with HVAC and Electrification works for Various ICU's at SMIMER Hospital Governing by Surat Municipal Corporation** are invited online on <https://smctender.nprocure.com> from the bidders meeting the basic eligibility criteria as stated in bid documents.

<b>Bid Fee (Non refundable)</b>	:	Rs.2,832/- (Rs.2400/- + GST), through DD or banker's cheque only
<b>EMD</b>	:	Rs.95,,000/-, through DD or banker's cheque only
<b>Initial date of uploading of tenders online</b>	:	<b>Dt.16.06.2026</b> up to 16:00 hrs.
<b>Last date of downloading of online tenders</b>	:	<b>Dt.29.06.2026</b> up to 17:00 hrs.
<b>Online queries</b>	:	<b>On or before Dt.19.06.2026</b> up to 18:00 hrs. Queries shall be submitted to <a href="mailto:exen.electrical.PIC@suratmunicipal.org">exen.electrical.PIC@suratmunicipal.org</a>
<b>Last date of submission of tenders online</b>	:	To be submitted online only on <a href="https://smctender.nprocure.com">https://smctender.nprocure.com</a> on or before <b>Dt.29.06.2026 up to 18:00 hrs.</b>
<b>Availability of tender documents</b>	:	<a href="https://smctender.nprocure.com">https://smctender.nprocure.com</a>

The right to accept/reject any or all bid(s) received is reserved without assigning any reason thereof.

**Executive Engineer(workshop/mech.)**  
**Public Infrastructure Cell**  
**Surat Municipal Corporation**

### 2.1. Availing Bid Documents

Blank bid documents can be downloaded from the web site <https://smc.nprocure.com> up to the date and time mentioned in the Online Bid Invitation Notice **DMC/P.I.Cell/02 /2026-27, W.NO. 02**

### 2.2. Addenda & Corrigenda

If required, the Addenda and Corrigenda will be issued and the same will form the part of the original bid documents and shall override any contradicting effects in the original bid document.

### 2.3. Submission of Price Bid and Technical BID

The price bid and the technical bid containing all the relevant supporting documents must be submitted online only on <https://smc.nprocure.com> on or before the last date of submission of the bid. No documents except the Bid Fee, EMD, Affidavit or declaration as directed in tender documents to be accepted in hardcopy. It is advised to keep the softcopy of the relevant documents ready and upload the same in advance on <https://smc.nprocure.com> with respect to this tender to avoid issues if any.

All the relevant softcopy should invariably follow the (n)Code portal's specific requirements pertaining to file types, file size, file name length, etc.

- o **File Types** : Files with only .pdf, .doc, .txt, .xls, .ppt, .pps, .png, .gif, .jpg, .zip, .rar extension can be uploaded.
- o **File name:** It should not be more than 70 characters. Special Characters Like ('% @ <>: \*? | & ~ ^) are not permitted.
- o **File size:** Single file size should not be more than 3 MB. The bid document (duly signed and stamped) in hard copy shall be submitted by the successful bidder upon intimation from /SMC.

The bid document (duly signed and stamped) in hard copy shall be submitted by the successful bidder upon intimation from SMC.

### 2.4. Pre-bid Queries / Pre-bid Meeting

Tenderer shall mail their queries only on E-mail [address@suratmunicipal.org](mailto:address@suratmunicipal.org) on or before last date of queries mentioned elsewhere.

### 2.5. Bid Fee & Earnest Money Deposit (EMD)

The bidder should pay **non-refundable Bid Fee of Rs. 2,832/- (Rs. 2400/- + GST)** and **EMD of Rs. 95,000/-** each by separate Demand Draft or Banker's Cheque of any scheduled/nationalized bank payable at Surat in favour of Commissioner, Surat Municipal Corporation. Failure to submit Bid Fee, EMD as required shall lead to the bid being rejected summarily.

2.6. The bid should be filled in legibly, clearly indicating the figures and its value in words too.

### 2.7. Online Submission of the Technical Bid:

The bidder will be required to upload the duly signed, stamped and notarized colour scanned copy of below mentioned documents in the same order of sequence online on [smc.nprocure.com](https://smc.nprocure.com) during e-tendering process.

Please note that following list is purely indicative. Bidders are at independence to add more relevant documents for realization of each category mentioned below or as in Pre Qualification, Technical Qualification, Financial Qualification and scope of work elsewhere in tender documents:

sr.	Documents to be submitted	For criteria
1.	Work completion certificates issued from head of the office (Signed by Min. Executive Engineer or Equivalent Post).	1. Experience of firm in the field measured in years 2. Similar work experience / similar work completed
2.	Certificate from auditor / chartered accountant showing average annual financial turnover of the firm for at least last three financial years	Average Annual Financial turn over
3.	Solvency certificate from approved bank as mentioned in this tender elsewhere	For solvency capacity
4.	PAN card copy	PAN registration
5.	GST registration certificate	GST registration
6.	Profile of the company with main personnel and contact numbers / email etc.	Overview of the bidder
7.	Valid electrical contractor's license or MOU with any electrical contractor issued with the name of firm /organization who is quoting the tender.	To carry out electrical works
7-a	If MOU with electrical contractor, submit his electrical contractor's license	
8.	Firm's registration showing nature of the work	Establishment of the firm
9.	Partnership Deed	Details of partner
10.	Scan copy of EMD	Earnest money deposit
11.	Scan copy of tender fee	Tender fee
12	Soft copy of signed and Stamped (on each page) tender documents of this technical bid with Addenda if any	Soft copy of signed and Stamped (on each page) tender documents of this technical bid with Addenda if any
13.	Power of attorney in favor of person filling the tender as per format and instructions	Authorization of power for participation
14	Provident Fund registration Certificate	
15	Income tax returns for the last three financial years.	
16	Passport size photographs of all the partners (in case of partnership firm)to be fixed on relevant Page (Instruction to tenderer) of the tender documents. asper instruction to tenderer.	
17	Certified copies of experience, namely Work Orders, Certificates of satisfactory completion.	
18	Authority letter issued in favor of the person (with color photograph and specimen signature) if tender is not signed by owner/partner.	
19	Bidder shall have to submit the make, model number and detailed technical specifications of different items offered. Detailed technical specifications, duly certified can be furnished on separate sheets and submitted online.	To carry out HVAC & Electrical works
20	Letter issued by the Refrigeration system's manufacturer (AS LISTED IN VENDOR LIST) for assuring the Spare parts and service support for the next 07 years from satisfactory work completion	To carry out HVAC works
21	Tenderer/ Contractor's certificate as per relevant Page of tenderdocuments.	To carry out HVAC & Electrical works
22	All the Addenda-Corrigendum, if any	

**2.8.** Demand Draft for E.M.D. & Tender (Bid) fee shall be submitted in electronic format through online mode (by scanning) while uploading the bid. This submission shall mean that E.M.D. & tender fee are received for purpose of opening of the bid. Accordingly offer of those shall be opened whose E.M.D. & tender (bid) fee is received electronically. However, for the purpose of realization of D.D. bidder shall send the D.D. in original through RPAD / Speed post so as to reach to Chief Accountant, SMC as per schedule from the last date of online submission of the bid as per tender notice.

**Following Penalty based actions for not submitting D.D. in original shall be initiated by SMC.**

biding	If Situation arise	Relaxation / Punitive action
<b>Tender's First Time</b>	If bidder fails to submit the original D.D. (For tender fee and E.M.D.) within stipulated time mentioned in published tender notice for this work, in this situation.....	<p><b>Relaxation:</b> Bidder shall pay Penalty as per following table within 10 Days from the last date of the hard bid submission as mentioned in published tender notice.</p> <p><b>If bidder fails</b> to deposit the penalty amount (as per following table) Punitive action will be taken as below.</p> <p><b>Punitive action :</b> Abeyance of registration for 06 (six) months with cancelation of E-tendering code for 06 (six) months</p>
<b>Tender's Second Time</b>	If bidder fails to submit the original D.D. (For tender fee and E.M.D.) within stipulated time mentioned in published tender notice for this work, in this situation.....	<p><b>Punitive action :</b> Abeyance of registration for 06 (six) months with cancelation of E-tendering code for 06 (six) months</p>
Tabel for Penalty		
Sr.No.	Tender Amount in Rs.	Penalty Amount in Rs.
1	Up to Rs. 1.00 Cr.	10,000/-
2	More Than 1.00 Cr. And Up to 10.00 Cr	20,000/-
3	More Than 10.00 Cr. And Up to 50.00 Cr	30,000/-
4	More Than 50.00 Cr. And Up to 100.00 Cr	70,000/-
5	More Than 100.00 Cr	1,00,000/-

Any documents in supporting of bid shall be in electronic format only through online (by scanning) & hard copy will not be accepted separately.

**2.9.** All documents must be colour scanned to be seen as original. Scanning in black and white or grey shall not be acceptable.

**2.10.** All documents must be notarized/ self-attested with clearly-displaying stamp, number and name of the notary.

**2.11.** Sealing, marking and submission of the Bid Fee, EMD: Following documents shall only be submitted in Hard Copy to SMC by the bidder:

**2.11.1 Earnest Money Deposit (EMD)**

**2.11.2 Bid Fee**

**2.11.3 Affidavit on 300 Rs. stamp paper**

EMD/Bid fee and documents as above shall be sealed in a cover and submitted to **The Chief Accountant, Accounts Department, Surat Municipal Corporation, Muglisara, Surat. 395003. Gujarat.**

IndiathroughGovernment Postal Speed Post or Registered Post A.D. only. Submission through any other mode (Physical, Courier etc.) is not allowed. Moreover, SMC shall not be responsible for any postal delay.

**Following information must be furnished / written on sealed cover:**

1. Tender Notice: **DMC/P.I.Cell/02/2026-27, W.NO. 02**
2. Name of the work: **Up gradation of Existing AC System with HVAC and Electrification works for Various ICU's at SMIMER Hospital Governing by Surat Municipal Corporation**
3. Last date of submission: **Dt. 07.07.2026(Or as ADDENDA/amended)**
4. Name & address of the bidding agency: --As actual--

**Price Bid and every other document asked in tender must be submitted online on [www.smctender.nprocure.comonly](http://www.smctender.nprocure.comonly).**

**2.12.** The bidder will be bound by the details furnished to SMC, while submitting the bid or at subsequent stage. In case, any of such documents furnished by the bidder is found to be false at any stage, it would be deemed to be a breach of terms of contract making him/her liable to legal action besides termination of contract.

**2.13. Late Bids:** Bids not reaching on or before the specified time limit will not be accepted.

**2.14. Conditional Bids:**

All the terms and conditions mentioned herein must be strictly adhered to by all bidders. Conditional tenders shall not be accepted on any ground and shall be subject to rejection without assigning any reason.

**2.15. Withdrawal of Bids:**

Bid once filled in, submitted shall not be allowed to be withdrawn till the validity of the bid remains in force or else the EMD shall be liable for forfeiture.

**2.16. Period of Validity:**

The offer shall be valid for acceptance for a minimum period of (120) Calendar days from the last date of tender submission in hard copy. If required, SMC may request the bidder to have it extended for a further period.

**2.17. Language of Bids:**

The bids prepared by the bidder shall be in the English language. The supporting documents in language other than English/Hindi/Gujarati must have its English translation (which is to be duly attested by the bidder), for purposes of interpretation of the bid, the English translation shall govern.

**2.18. Right to Accept or Reject Any Bid or All Bids:**

SMC reserves the right to accept or reject any bid and annul the bidding process and reject all bids at any time prior to award of contract, without thereby incurring any liability to the affected bidder or bidders or any obligation to inform the affected bidder or bidders of the ground for SMC's action.

**2.19. Firm Prices & Bid Currency:**

Prices quoted must be firm and final and shall not be subject to any upward modifications, on any account whatsoever. Prices shall be expressed in Indian Rupees (INR) only.

**2.20. Costs to be borne by Bidder:**

All costs and expenses (whether in terms of time or money) incurred by the bidder in any way associated with the development, preparation and submission of the bid, including but not limited to attendance at meetings, discussions, demonstrations, etc. and providing any additional information required by SMC, will be borne entirely and exclusively by the bidder.

#### 2.21. Acceptance of Terms & Conditions:

The bidder will, by taking participation in the bidding process and submitting the bid documents, be deemed to have thoroughly read, studied and understood the bid documents including scope of work, the terms and conditions, instructions, etc. referred there in and the same are acceptable to the bidder.

- 2.22. All entries in the bid form should be legible and filled clearly. If the space for furnishing information is insufficient, a separate sheet duly signed by the authorized signatory may be attached.
- 2.23. It is to be ensured that the complete information as required by this office may be furnished by the bidders in the prescribed format. Formats submitted with incomplete information and not conforming to the requirements are liable to be rejected.
- 2.24. The agency will be bound by the details furnished by him/her to SMC, while submitting the bid or at subsequent stage. In case, any of such documents furnished by the agency is found to be false at any stage, it would be deemed to be a breach of terms of contract making him/her liable to legal action besides termination of contract.
- 2.25. The participation in the online tendering process implies that the bidder have thoroughly read, studied and understood the instructions of the Bid documents, Scope of work, formats as well as the terms and conditions referred there in and the same are acceptable to the bidder.

#### 2.26. Authorized Signatory:

If the Tender is made **by an individual** it shall be signed with his full name above his current address.

If the tender is made **by a Proprietary firm** it shall be signed by the proprietor above his name and the name of his firm with his current address.

If the tender is made **by a firm in partnership** it shall be signed by all the partners of the firm above their full names and current addresses, or by a partner holding the power of attorney for the firm signing the Tender in which case a certified copy of the power of attorney shall accompany the Tender. A certified copy of the partnership deed, current addresses of all the partners of the firm shall also accompany the tender.

If the tender is made by a **limited company or a limited Corporation**, it shall be by a duly authorized person holding the power of attorney for signing the Tender in which case a certified copy of the power of attorney shall accompany the Tender. Such limited company or Corporation may be required to furnish satisfactory evidence of its existence before the contract is awarded.

All witnesses and sureties shall be persons of status and probity and their full names, occupations and addresses shall be stated below their signatures. All signatures in the Tender document shall be dated.

**2.27. Arithmetical errors** will be rectified on the following basis. If there is a discrepancy between the unit price and the total price that is obtained by multiplying the unit price and quantity, the unit price shall prevail and the total price shall be corrected. If the supplier does not accept the correction of the errors, its bid will be rejected. If there is a discrepancy between words and figures, the amount in words will prevail.

**2.28. Disqualifications:** A Bidder shall be disqualified and Bids will not be considered if ,

- a) Hardcopy envelop does not show on it the reference of bid number and description as denoted and thus gets opened before due date(s) of opening specified in Notice Inviting Bids.
- b) The Price Bid and Technical Bid are submitted physically which leads to revelation of prices before the due date of opening of the Price Bid.
- c) The Earnest Money Deposit (EMD) & Bid fee is not deposited in the manner described earlier.
- d) The Bid documents are not in a language as described earlier.
- e) The Bid documents are not signed and stamped by the authorized signatory.
- f) The Bid documents submitted are incomplete and/or ambiguous in any respect.
- g) Non-compliance of provisions and requirements of the Bid documents.
- h) Any or all correction(s) or pasted slip(s) is/are not initialled, authenticated by the Bidder.
- i) The Bid documents are not submitted in the manner specified in the bid document.
- j) Eligibility criteria are not met with.
- k) Any form of canvassing/lobbying/influence/query regarding short listing, status, etc. will result in a disqualification.
- l) Conditional Tender

EMD will be forfeited with approval of competent authority) and agency will be debarred from SMC, if

1. Made misleading or False representation in the forms, statement and attachments submitted



2. If tenderer withdraws his tender within validity period or deny to accept award/ work order or deny to submit security deposit and enter in to contract agreement within validity period of tender.

## 2.29 Security Deposit

### Security Deposit for SITC Work:(Total 2 % of order value for SETC)

**100% of SD amount** shall be in form of cash or pay order / demand draft. If mode through Demand Draft is opted, DD must be issued in favor of "**Commissioner, Surat Municipal Corporation**", issued through approved banks listed below and shall be **payable at Surat only**.

As per the GR No. FD/MSM/e-file/04/2025/2712/DMO dated 1st april 2026 from Finance Department, wherein the Government has decided that the banks and as given below are the approved Banks whose Bank Guarantees would be accepted for the period up to March 31, 2027.

Guarantees issued by following banks will be accepted as SD/EMD on permanent basis.

1) All Nationalized Banks.

Guarantees issued by following Banks will be accepted as SD/EMD for period up to March 31, 2027. The validity cut-off date in GR is with respect to date of issue of Bank Guarantee irrespective of date of termination of Bank Guarantee.

- 1) AU Small Finance Bank
- 2) DBS Bank India Limited
- 3) AXIS Bank
- 4) City Union Bank
- 5) CSB Bank
- 6) DCB Bank
- 7) Equitas Small Finance Bank
- 8) Federal Bank
- 9) HDFC Bank
- 10) ICICI Bank
- 11) IndusInd Bank
- 12) The Kalupur Commercial Co-Op. Bank
- 13) Kotak Mahindra Bank
- 14) NutanNagrikSahakari Bank Ltd.
- 15) Rajkot NagarikSahakari Bank Ltd.
- 16) RBL Bank
- 17) Saraswat Co-operative Bank Ltd.
- 18) The Cosmos Co-op Bank Ltd.
- 19) Standard Chartered Bank
- 20) Tamilnad Mercantile Bank
- 21) The Gujarat State Co-operative Bank
- 22) SVC Co-Operative Bank Ltd.
- 23) The Surat District Co-operative Bank
- 24) The Surat Peoples Co-Operative Bank Ltd.
- 25) Ujjivan Small Finance Bank
- 26) Dhanlaxmi Bank
- 27) Bandhan Bank
- 28) HSBC Bank
- 29) IDBI Bank
- 30) IDFC First Bank
- 31) Jammu and Kashmir Bank
- 32) Jana Small Finance Bank
- 33) Karnataka Bank
- 34) KarurVysya Bank
- 35) South Indian Bank
- 36) YES Bank
- 37) Ahmedabad Mercantile Co-op. Bank
- 38) Gujarat Gramin Bank
- 39) SBPP Co-operative Bank Ltd.
- 40) The Banaskatha Mercantile Co-op. Bank
- 41) The Rajkot Commercial Co- operative Bank

- 42) The Panchmahal District Co-operative Bank
- 43) The Baroda Central Co-operative Bank

All the eligible banks are instructed to collect the original documents/papers of guarantee from the concerned tendering authority.

If the Security Deposit is not paid within 15 days from the date of "Work Order", then the penalty at the rate of 0.065% of SD amount per day, per day of the amount of Security Deposit shall be charged. If the Security Deposit is not paid within one month from the date of "Work Order", necessary action as per the Conditions of Contract shall be taken.

#### **2.30 Withdrawal of tenders**

If, during the "Tender Validity Period", the Tenderer withdraws his Tender, the Earnest Money Deposit shall be forfeited and the Tenderer may be disqualified from tendering for further Work under the jurisdictions of S.M.C.

#### **2.31 Addenda**

Addenda form part of the Contract Documents & full consideration shall be given to all addenda in the preparation of the Tender. Tenderer shall verify the number of addenda issued, if any, and acknowledge the receipt of all Addenda in the Tender. Failure to so acknowledge may cause the Tender to be rejected.

- A. The Engineer-in-Charge of the authority may issue Addenda to advise Tenderers of changed requirements. Such addenda may modify previously issued Addenda.
- B. No Addendum may be issued after the time stated in Notice Inviting Tenders.

#### **2.32 Change in present civil structure**

During implementation of Electrical Works, any minor/major changes made in existing / present civil work making holes, creating channel, wall cutting, etc. shall be carried by contractor and finally shall be brought to original position / repaired / completed before the end of execution. No extra payment shall be made by SMC to the contractor for such civil works. All the changes required in present civil structure for this work shall be in scope of the contractor and no extra payment shall be made. Scaffolding / ladder etc. required to execute the work shall also be in scope of contractor.

#### **2.33 Discrepancy**

When any discrepancy is found between two conditions in the tender then most stringent condition shall be considered and bound to the contractor.

**Executive Engineer(Workshop/Mech.)  
Public Infrastructure Cell  
Surat Municipal Corporation**

Seal & Signature of the bidder

## INFORMATION REGARDING THE APPLICANT / CONTRACTOR

- A. Name of the applicant / contractor :
- B. Address of the applicant / contractor :
- C. Phone nos. :  
Mobile no. :  
Fax no. :  
E-mail :
- D. Registration no., date & authority :
- E. Name & particulars of the authorized representative for the details furnished here under :
- F. Type of organization, including particulars of Proprietor / Partners / Directors: ( Sole Proprietorship, Partnership, Private Ltd., Co-Operative Body, etc. )  
(Attested copy of deeds of Memorandum of Association shall be enclosed.)  
01.  
  
02.  
  
03.  
  
04.  
  
05.
- G. P.F. Registration Certificates :
- H. I. T. PAN no. :
- I. Name and address of the bankers :

### 1. Bank Facilities available

- Overdraft :
- Guarantees :
- Letters of Credit

- Solvency Certificate\*

:

:

\*(Solvency Certificate of any Nationalized or Schedule bank shall only be valid, and considered for the evaluation).

- Others

:

## J. Experience

:

The applicant / contractor shall provide evidence that his firm has been actively engaged in similar works during the last 07 years in the role of prime contractor / partner. **The work completed as sub-contractor shall not be considered for evaluation.**

### Particular Experience

:

The applicant / contractor shall provide evidence that he has successfully completed required works within the last 07 years. The works shall have been executed by the applicant / contractor as the prime contractor. Satisfactory performance of the applicant / contractor and any other relevant information shall be forwarded in the enclosed statements.

## QUALIFICATION CRITERIA

**A.** The contractor shall have an active experience of at least 07 (Seven) years in similar works.

Experience of having successfully completed similar works during the last 07 years, ending on the last day of the month previous to the one, in which applications are invited, i. e. **01.06.2019 to 31.05.2026**, shall be either of the following:

- i. 03 similar completed work costing not less than the amount equal 40% of the estimated cost, i.e. of Rs. **38,00,000/-**
- OR
- ii. 02 similar completed work costing not less than the amount equal 50% of the estimated cost, i.e. of Rs. **47,50,000/-**
- OR.
- iii. 01 similar completed work costing not less than the amount equal 80% of the estimated cost, i.e. Of Rs. **76,00,000/-**

Similar work means: Supplying, erection, testing and commissioning of HVAC& Electrical work in Govt. / Semi Govt. / Local Govt. / PSUs etc.

**NOTE -The experience of Joint Venture / experience as a Subcontractor and as joint venture shall not be considered.**

**B.** Average Annual Financial Turnover during the last 03 years, ending 31st March of previous financial year, Shall be at least 30% of the estimated cost, i.e. **Rs.28,50,000/-** A separate certificate from concern chartered accountant shall be submitted.

**C.** Solvency certificate from bankers of Nationalized/Scheduled bank for the 20% of total estimated amount i.e. **Rs. 19,00,000/-**. Considered 01 Year validity from the date of issue. Validity shall be least up to last date of online price bid submission (If solvency expires during validity period, it shall be renewed/ fresh solvency shall be submitted to department immediately.) Tenderer has to submit higher Amount of bank solvency if so desired by Commissioner.

**D.** List of the works already completed in last 7 years in prescribed Performa as per Annexure-I and attested copies of work completion certificates from head of the office (Min. Executive Engineer or Equivalent Post) concerned for completion of the works.

**E.** Declaration regarding the work on hand with the tenderer shall also be given in prescribed Performa as per Annexure-I. Attested copies of work orders, interim certificates if any shall also be attach as supporting documents..

**F.** Scan copy of partnership deed, power of attorney etc.

**G.** Scan copy of Electrical contractor licensed issued with the name of firm / organization who is quoting the tender.

**H.** Following enhancement factors will be used for the cost of works executed and financial figures to common base for the value of the works completed in India

sr.no	Financial Year	Multiplying factor
1	2025-26	1.10
2	2024-25	1.21
3	2023-24	1.33
4	2022-23	1.46
5	2021-22	1.61
6	2020-21	1.77
7	2019-20	1.95

Stamp & Signature of the Contractor :

**Executive Engineer (Workshop/Mech.  
Public Infrastructure Cell  
Surat Municipal Corporation**

## CHECKLIST BEFORE SUBMITTING THE TENDER

Bidders are advised to ensure the submission of following documents of their part before finally uploading their offers. However, following documents are only indicative and bidders are advised to go through entire tender for any other document left for uploading which is not listed below.

Sr	Description	Online	Hard Copy
1.	Work completion certificates issued from head of the office (Signed by Min. Executive Engineer or Equivalent Post).	√	
2.	Certificate from auditor / chartered accountant showing average annual financial turnover of the firm for at least last three financial years	√	
3.	Solvency certificate from approved bank as mentioned in this tender elsewhere	√	
4.	PAN card copy	√	
5.	GST registration certificate	√	
6.	Profile of the company with main personnel and contact numbers / email etc.	√	
7.	Valid electrical contractor's license or MOU with any electrical contractor.	√	
8.	If MOU with electrical contractor, submit his electrical contractor's license	√	
9.	Firm's registration showing nature of the work	√	
10.	Partnership Deed	√	
11.	Scan copy of EMD	√	√
12.	Scan copy of tender fee	√	√
13.	Affidavit 1-2 on a non-judicial stamp paper of Rs.300/- as per the format given elsewhere in the tender documents	√	√
14.	Soft copy of signed and Stamped (on each page) tender documents of this technical bid with Addenda if any	√	
15.	Power of attorney in favour of person filling the tender as per format and instructions	√	
16.	Provident Fund registration Certificate		
17.	Income tax returns for the last three financial years.	√	
18.	Passport size photographs of all the partners (in case of partnership firm) to be fixed on relevant Page (Instruction to tenderer) of the tender documents. as per instruction to tenderer.	√	
19.	Tenderer/ Contractor's certificate as per relevant Page of tender documents.	√	√
20.	All the Addenda-Corrigendum, if any	√	√
21.	Details of Work Completed in last 7 years as per Annexure-I	√	
22.	Details of Work Order on Hand as per Annexure-II	√	
23.	Data sheet / brochure / catalogues of VRF system	√	
24.	Power consumption details of I/D units at different conditions	√	
25.	Spares/Service support letter of O.E.M. for 07 years	√	

**NOTE: (1) All the documents issued by third party must be scan of original document. If not photo copy must be notarized displaying sign and stamp of notary.**  
**(2) Only original draft of DD of EMD, Tender Fee, affidavit 1-2 & Tenderer/ Contractor's certificate are to be submitted in hard copy.**

**FOR CONSTRUCTION / ERECTION / COMMISSIONING / INSTALLATION / REPAIRS MAINTENANCE / RENOVATION / FABRICATION OF STRUCTURE INCLUDING BUILDING (MEANS ALL WORKS CONTRACT / TURN KEY PROJECT / SUPPLY OF MATERIAL / GOODS)**

1. GST (GOODS & SERVICE TAX) has come in existence from 1st July, 2017. Contractor / Successful Bidder are bound to pay any amount of GST prescribed by the Govt. of India as per the Terms of Contract agreed upon during the course of execution of this Contract. However all the quoted rates must be exclusive of GST.
2. During the course of execution of Contract, if there is any change in rate of GST (Goods & Service Tax) by the Government the same shall be reimbursed / recovered separately by SMC/SSCDL, subject to the submission of original Receipt / Proof for the amount actually remitted by the successful Tenderers/ Contractor to the competent Authority along with a certificate from chartered Accountant of Contractor/ Successful Bidder certifying that the amount of GST paid to the Government and the same shall be intimated /submitted / claimed within 30(Thirty) Days from the date of payment Remittance of GST within stipulated period shall be the sole responsibility of the Successful Bidder /Contractor ,failing which, SMC/SSCDL may recover the amount due, from any other payable dues with SMC and decision of Municipal commissioner shall be final and binding on the Contractor / Successful Bidder in this regard. Further the non-payment of the GST to the Government may lead to the termination of contract and forfeiture of Security Deposit /Performance Guarantee Amount.
3. If any other new taxes / Duties /Levies / Cess or any other incidentals etc. or any increase in the existing taxes / Duties /Levies / Cess or any other incidentals etc. ( Excluding GST) are imposed during the course of the contract, the same shall be borne by contractor / successful Bidder only, in no case SMC/SSCDL shall be liable for the same.
4. The Contractor will submit the invoice to the SMC having GSTIN of SMC mentioned therein and the taxes shall be shown separately on the face of the invoice so as to claim as ITC by SMC.

**Executive Engineer (Workshop/Mech.)  
Public Infrastructure Cell  
Surat Municipal Corporation**

Seal & Signature of the bidder

**No advance payment shall be made to contractor****Payment shall be made as per actual work done at site.**

70% of total amount may be payable after supply of material at site.

20% of total amount shall be payable after installation

5% of total amount shall be payable after testing and commissioning

5% of total amount shall be paid in final bill

7% from each bill shall be kept as retention and shall be paid in final bill

1% amount from each payment shall be deducted as construction cess

**AMC work payment condition:**

95% of bill amount shall be paid at every running bill

5% of amount shall be paid in final bill

2% amount from each running bill shall be kept as retention and shall be released in final bill

1% from each bill shall be deducted as construction cess

**NOTES:**

- (1) Quoted rate must be exclusive of GST. And Inclusive all tax, levies, duties, other expenses shall be borne by contractor. No extra payment shall be made apart than quoted rates. Decision of accounts department of SMC for any kind of levy from contractor's bill shall be final and binding to contractor.
- (2) Please note that all the payment shall be made according to prevailing rules of Surat Municipal Corporation as well as Center/State government. If any changes in rules occur during the contract period, then it shall be binding both to SMC as well as contractor.
- (3) Payment shall be made as per actual work done. Deduction from running bills shall also be as per prevailing norms and conditions of SMC.
- (4) Opinion of the consultant of SMC for the construction/labor cess shall be final and binding to the contractor. The rates are invited considering inclusion of 1% construction/labor cess. If the construction/labor cess is not applicable as per the opinion of the consultant on later stage, then 1% construction cess will not be deducted from the contractor's bill. Although additional 1% from the total work done amount of each running bill shall be deducted and that shall be binding to the contractor.

**Executive Engineer(Workshop/Mech.)**

**Public Infrastructure Cell**

**Surat Municipal Corporation**

Signature of the bidder :



**AFFIDAVIT-1(Anti-Blacklist):**

**NAME OF WORK:** “Up gradation of Existing AC System with HVAC and Electrification works for Various ICU’s at SMIMER Hospital Governing by Surat Municipal Corporation(3rd Attempt)”

I/We ..... Address ..... Solemnly affirm and state that on oath that (Name of Tenderer) has not been black listed by any Government/ Semi Government/ Public Sector Undertaking/Public limited and not has been banned/suspended business dealings with the said firm.

The information given above is true to the best of my knowledge.

I/We agree that if any notice in future, my/our bid/tender shall be rejected/terminated.

\_\_\_\_\_  
Signed by an Authorized Officer of the Firm

\_\_\_\_\_  
Title of Officer

\_\_\_\_\_  
Name of Firm

\_\_\_\_\_  
Date

**\* To be given on Non-judicial stamp paper or Rs. 300/- duly signed by authorized notary.**

**\* It is mandatory to submit the above Affidavit through online (by scanning) and in hard copy.**

## AFFIDAVIT-2

**NAME OF WORK:**“Up gradation of Existing AC System with HVAC and Electrification works for Various ICU’s at SMIMER Hospital Governing by Surat Municipal Corporation(3rd Attempt)”

1. I, the undersigned, do, hereby, certify that all the statements made in the required attachments are true and correct. I also understand that in case of wrongful/false information, corporation is entitled to take any civil & criminal punitive action against me/us.
2. The undersigned also, hereby, certifies that neither our firm M/s. \_\_\_\_\_ nor any of its constituent partners, have abandoned any work of any Government or Semi-government organization in India, no any contract awarded to us for such works has been rescinded, during the last 05 years prior to the date of this Bid.
3. The undersigned hereby authorize(s) and request(s) any bank, person, authorities, government or public limited institutions, firm or corporation to furnish pertinent information deemed necessary and requested by the SMC to verify our statements or our competence and general reputation.
4. The undersigned understands and agrees that further qualifying information may be requested, and agrees to furnish any such information at the request of the project implementing unit.
5. The SMC and its authorized representatives are hereby authorized to conduct any inquiries or investigations to verify the statements, documents, and information submitted in connection with this application and to seek clarification from our bankers and clients regarding any financial and technical aspects. This Affidavit will also serve as authorization to any individual or authorized representative of any institution referred to in the supporting information, to provide such information deemed necessary and requested by you to verify statements and information provided in the Tender or with regard to the resources, experience and competence of the Applicant.

\_\_\_\_\_  
Signed by an Authorized Officer of the Firm

\_\_\_\_\_  
Title of Officer

\_\_\_\_\_  
Name of Firm

\_\_\_\_\_  
Date

\_\_\_\_\_  
\* To be given on Non-judicial stamp paper or Rs. 300/- duly signed by authorized notary.

\* It is mandatory to submit the above Affidavit through online (by scanning) and in hard copy.

(Following condition shall supersede relevant condition mentioned elsewhere in the bidding document)

- **E.M.D & Tender fee shall be submitted in electronic format also through online**

As mentioned in tender documents page no.6 (2.8).

- All Documents must be **colored scanned** to be seen as original. **Scanning in Black and White or gray shall not be acceptable.**
- If original copy is not available, the photo copy of the documents to be uploaded must be notarized with clearly displaying stamp, number and name of the notary. Photo copy of notarized documents will not be considered.
- Price Bid shall have to be quoted strictly online only. No hard copy of price bid shall be accepted.
- Addenda/corrigendum to these tender documents, if issue must be signed and submitted online only.

**“Following Documents shall only be submitted in HARD COPY to Surat Municipal Corporation by all bidders”**

- Earnest Money Deposit as mentioned in the Tender. (i.e. DD/Bank Guarantee)
- Tender fees as mentioned in the tender
- Affidavit 1 & 2 on Non judicial Stamp Paper of Rs. 300/-

Technical bid and qualification documents mentioned in the tender and price bid are not to be submitted in physical form. Please note that Non – Submission of Hard Copies of technical Bid as well as price Bid does not absolve the bidders from any liability created from the bid condition and bidding process. Price bid shall have to be quoted strictly online only. Technical –Bid in Hard copy shall be submitted only by successful bidders upon intimation from SMC.

Executive Engineer(Workshop/Mech.)  
Public Infrastructure Cell  
Surat Municipal Corporation

SIGNATURE OF THE CONTRACTOR:-

**IT-01. GENERAL:**

The Contract documents may be secured in accordance with the Notice to the Contractors, Inviting Tender for the Work. The Work shall include supply, erection, testing and commissioning of materials, equipment, and machinery necessary for the construction of the work.

**IT-02. INVITATION TO TENDER :**

The Surat Municipal Corporation hereinafter referred to as the Corporation shall receive tenders for *Upgradation of Existing AC System with HVAC and Electrification works for Various ICU's at SMIMER Hospital Governing by Surat Municipal Corporation(2nd Attempt)* as per the specifications in the tender documents. The Corporation reserves the right to reject the lowest or any other or all tenders or part thereof which, in the opinion of the Corporation, does not appear to be in its best interest, and the Tenderer shall have no cause of action or claim against the Corporation or its officers, employees, successors or assignees for rejection of his tender.

**IT-03. LANGUAGE OF THE TENDER:**

Tender shall be submitted in English, and all information in the tender shall also be in English, Information in any other language shall be accompanied by its translation in English. Failure to comply with this may make the tender liable to be rejected.

**IT-04. QUALIFICATIONS OF THE TENDERER:**

Tenderer shall be registered in its category and shall be experienced.

**IT-05. TENDER DOCUMENT:**

Printed documents and set of drawings shall comprehensively be referred to as "Tender Document". The several sections forming the document are the essential parts of the Contract, and a requirement occurring in one shall be binding as though occurring in all. They are to be taken as mutually explanatory, and they describe and provide for complete Works.

**IT-06. EXAMINATION BY THE TENDERER :**

- A. Prior to submitting his tender, each Tenderer at his own expenses, shall ( a ) examine the Contract Documents, ( b ) visit the site and determine local conditions, which may affect the Work, including the prevailing wages and other pertinent cost factors, ( c ) familiarize himself with all Central, State and local laws, ordinances, rules, regulations and codes, affecting the material supply, including the cost of permits and licenses required for the Work, and ( d ) co-relate his observations, investigations, and determinations with the requirements of the Tender Document.
- B. The tender quantity is approximate and may increase or decrease. Any increase or decrease in quantity shall not entitle the Tenderer to claim any extra over the quoted price.
- C. Tender Document shall be completed legible in ink, checked in a responsible manner, signed, stamped and submitted online only.

All the pages, in which entries are required to be made by the Tenderer, are contained in the Tender Document, and the Tenderer shall not take out or add to or amend the text of any of the documents, except in so far as may be necessary to comply with any addenda issued pursuant to relative clause hereof.

**IT-07. EARNEST MONEY DEPOSIT :**

- A. The Earnest Money Deposit of **RS. 95,000/-** EMD shall be deposited by Pay Order / Demand Draft, issued in favour of "**Commissioner, Surat Municipal Corporation**", **Surat**. The Earnest Money Deposit in the form of FDR or cheque shall not be accepted. The Tenderer shall have to mention details of Earnest Money Deposit online too. EMD received beyond stipulated time limit shall be rejected.

The instrument for the Earnest Money Deposit shall be issued by or payable / encashable at Surat Branch of respective bank.

- B. The Earnest Money Deposit shall be forfeited in the event the successful Tenderer fails to accept the Contract, and fails to submit the Security Deposit (S. D.) to the Owner as stipulated in this tender document within 10 days after receipt of notice of award of Contract. In such a case, the Owner may disqualify the Tenderer from tendering for further Works, under the jurisdictions of the Corporation (S.M.C.).
- C. The Earnest Money Deposit of the successful tender shall be returned after the Security Deposit (S. D.), as required, is furnished by the Contractor.
- D. No interest shall be paid by the Owner on any tender guarantee.

**IT-08. SECURITY DEPOSIT :**

As a contract security the tenderer to whom the award is made shall furnish a performance guarantee (Security Deposit) for amount equal to Two percent (2 %) of the contract price to guarantee the faithful performance completion of the works of the contract in accordance with all the conditions and terms specified herein and to the satisfaction of the Engineer and ensuring the discharge of all obligations arising from the execution of contract, in one of the forms as mentioned below:-

**Up to 2.0 Crore Tender Amount :**

**2% of ordered value in form of a Demand draft / Pay order acceptable to owner on the Surat Branch in favour of Municipal Commissioner, Surat Municipal Corporation, Surat.**

**Above 2.0 Crore Tender Amount:**

**2% of ordered value in form of a Demand draft / Pay order acceptable to owner on the Surat Branch in favour of Municipal Commissioner, Surat Municipal Corporation, Surat.**

**OR**

**FDR any Scheduled Nationalized Bank, Private Commercial Bank (like IDBI, AXIS, YES, HDFC, ICICI or Scheduled Bank The Surat Peoples Co-Op. Bank Ltd, Kalupur&Mehshana urban, Surat Branch only) securities duly, located at Surat endorsed in favour of Municipal Commissioner, Surat Municipal Corporation, Surat.**

Security deposit shall be paid in time and if it is paid after FIFTEEN (15) days from the date of preliminary work order then the penalty of 0.065 % per day of the amount of security deposit shall be recovered from the contractor while receiving the security deposit. On due performance and completion of the contract in all respects, the performance guarantee (security deposit) will be returned to the contractor after the defect liability period and on completion of audit related procedure. As initial Security Deposit Two percent (2%) of the tendered amount accepted by the competent authority shall have to be paid towards security deposit at the time of execution of agreement. This will be known as initial security deposit which will be released after the total completion of defect liability period.

Another Two percent (2%) shall be deducted from running bills as retention money and shall be released in Final Bill for SETC work.

**Note : Main work order shall be for SETC job and Operation and Maintenance job. Bidder is required to submit S.D for SETC work and O&M Work separately within 10 Days from the main work order. However, Separate sub work order shall be placed for O&M at appropriate time to start the work. Bidder is required to execute separate agreement related procedure for SETC work O&M work at appropriate time.**

**APPROVED LIST OF BANKS**

--As listed on previous page---

**IT-09. SUBMISSION OF TENDER DOCUMENT:**

Tenderer is requested to submit the tender as per the following:

- A. The Tenderer shall submit demand draft of E.M.D., Tender fees and affidavit to "The Chief Accountant", Surat Municipal Corporation, Muglisara, Surat by Registered Post / Speed Post A.D. through Government postal authority only, up to 18.00 hrs., on or before the stipulated date in the tender.
- B. The full name & address of the Tenderer shall be written at the bottom left hand corner of the said sealed envelope. The name of the Work shall be clearly mentioned on the sealed envelope.

The time limit for receipt of the completed tender shall apply strictly in all the cases. The Tenderer shall, therefore, ensure that this tender is received by the Chief Accountant, Surat Municipal Corporation, Surat before the expiry of the time limit. No delay on account of any cause for receipt of tender shall be entertained. Tenders received or due to be received after the time limit is over, shall not be accepted, and if inadvertently accepted, shall not be opened and shall be returned unopened. Tenders, who may get opened before the due date because of improper superscription of the envelope, are liable to be rejected.

Mailed tenders (EMD & Tender Fees only) must be sent in a covering envelope by Registered Post / Speed Post A.D. The return receipt shall be endorsed to show the date and time of receipt, Mailed tenders, not received at the required place before the date and time set for the receipt of tenders, shall be rejected.

Tenders, submitted by a partnership firm, must be furnished with the full name and addresses of all the partners and be signed with the name of the partnership firm by one of the partners or by its legally authorized representative, followed by the signature and designation of the person or persons signing. Tenders by Corporations / Companies must be signed with the legal name of the Corporation / Company by the President / or by the Secretary, or other person or persons, legally authorized to sign on behalf of the Corporation / Company in the matter.

- C. Tenders shall be opened by the **Competent Authority, Surat Municipal Corporation**, Surat on the due day & time.

#### **IT-10. TENDER VALIDITY PERIOD:**

The validity period of the tender submitted for this Work shall be of one **hundred & twenty ( 120 ) calendar days from the last date of Submission of the Tender in Hard copies**

The Tenderer shall not be allowed to withdraw or modify the tender offer on his own during the validity period. The Tenderer shall not be allowed to withdraw the tender, or make any modifications or additions in the terms and conditions of his own in his tender. If this is done, the Owner shall, without prejudice to any right or remedy, be at liberty to reject the tender and forfeit the Earnest Money Deposit in full.

#### **IT-11. SIGNING OF TENDER DOCUMENT :**

If the Tender is submitted by an individual, it shall be signed with his full name above his current address/seal on each page.

If the tender is submitted by a Proprietary Firm, it shall be signed by the Proprietor above his name and the name of his firm with his current address/seal on each page.

If the Tender is submitted by a Firm in Partnership, it shall be signed by all the partners of the firm above their full names and current addresses, or by a partner holding the power of attorney for the firm to sign the Tender, in which case, a certified copy of the power of attorney shall accompany the Tender. A certified copy of the partnership deed, current addresses of all the partners of the firm shall also accompany the tender.

If the Tender is submitted by a Limited Company or a Limited Corporation, it shall be signed by a duly authorized person holding the power of attorney for signing the Tender, in which case, a certified copy of the power of attorney shall accompany the Tender. Such Limited Company or Corporation may be required to furnish satisfactory evidence of its existence before the Contract is awarded.

If the Tender is submitted by a "group of firms", the "sponsoring firm" shall submit complete information pertaining to each firm in the group and state along with the Tender, as to which of firm shall have the responsibility for tendering and for completion of the Contract Document, and furnish evidence admissible in law in respect of the authority to such firm on behalf of the group of firms for tendering and for completion of Contract Documents.

The full information and satisfactory evidence, pertaining to the participation of each member of the group of firms in the tender, shall be furnished along with the tender.

All witnesses and sureties shall be persons of status and probity, and their full names, occupations and addresses shall be stated below their signatures. All signatures in the Tender Document shall be dated.

**IT-12. WITHDRAWAL OF TENDERS:**

If, during the "Tender Validity Period", the Tenderer withdraws his Tender, the Earnest Money Deposit shall be forfeited and the Tenderer may be disqualified from tendering for further Work under the jurisdictions of S.M.C.

**IT-13. INTERPRETATIONS OF THE TENDER DOCUMENT:**

Tenderer shall carefully examine the "Tender Document", and fully familiarize himself with all the conditions and matters, which may, in any way, affect the Work, or the cost thereof. Should a Tenderer find discrepancies or commission from the Specifications or other documents, or should be in doubt as to their meaning, he shall at once address query to **Executive Engineer** as the "concerned authority" as referred to in the Tender Document in Clause GC-01 ( Definitions and Interpretations ) of the General Conditions of Contract. Any resultant interpretation of the Tender Document shall be issued to all the Tenderers as an addenda corrigendum. Verbal clarification and / or information given by the Consulting Architect & / or Engineer shall not be binding on the S.M.C.

**IT-14. ERRORS AND DISCREPANCIES IN THE TENDER:**

In case of conflict between the figures and words in the rates, the rates expressed in words shall prevail and apply in such cases. The contractor shall particularly note the units on which the rates are based. In case the amount shown in the last column as worked out by the tenderer differ from that worked out from the quantity & the rates, the amount based on the rates will be taken as correct. In case the rate in word differs from that in figure, the former will be taken as correct. No changes in units shall be allowed.

**IT-15. MODIFICATION OF DOCUMENTS:**

Modification of Specifications and extension of the closing date of the tender, if required, shall be made by an addendum. Copies of each addendum shall be posted online. These shall be signed and shall form a part of the tender. The Tenderer shall not add to or amend the text of any of the documents, except in so far as may be necessary to comply with any addendum.

**IT-16. ADDENDA :**

Addenda form part of the Contract Documents & full consideration shall be given to all addenda in the preparation of the Tender. Tenderer shall verify the number of addenda issued, if any, and acknowledge the receipt of all Addenda in the Tender. Failure to so acknowledge may cause the Tender to be rejected.

- A. The Engineer-in-Charge of the authority may issue Addenda to advise Tenderers of changed requirements. Such addenda may modify previously issued Addenda.
- B. No Addendum may be issued after the last day of online price submission.

**IT-17. TAXES AND DUTIES ON MATERIAL :**

Quoted rate must be exclusive of GST.

Present tender is all inclusive and any taxes/duties/levies etc. Shall be borne by contractor. All the charges, on account of Terminal Tax or Sales Tax, etc., and any other duty / duties/Levy/Freight/Transportation/Loading/Unloading/Storage on material/s obtained for the Work from any source, shall be borne by the Contractor. No 'D' or 'C' Form shall be supplied by the S.M.C. Moreover, the Contractor shall have to bear any revision of the taxes and / or duties implemented by the Authority from time to time, and no extrapayment shall be made for the revision of taxes and / or duties on materials / work.

**IT-18. EVALUATION OF THE TENDERS :**

In comparing the tenders, S.M.C. shall consider such factors as the time of completion, efficiency and reliability of construction method proposed, compliance with the Specifications, relative quality, the operation, maintenance and replacement cost of structure and plant.

**IT-19. POLICY FOR “TENDER UNDER CONSIDERATION” :**

Tenders shall be termed to be “under consideration” from the date of opening of the Tender, until such time when an official announcement of award is made.

While the tenders are under consideration, the Tenderers and their representative or other interested parties are advised to refrain from connecting by any means with the representative of S.M.C. on matters related to the tenders under study. The Engineer-in-Charge’s Representative, if necessary, shall obtain clarification on tenders on behalf of the Tenderers by requesting information from any or all the Tenderers, either in writing or through personal contact, as may be necessary. The Tenderers shall not be permitted to change the substance of his submitted Tender after price revision. Non-compliance with this provision shall make the tender liable for rejection.

**IT-20. PRICES AND PAYMENTS :**

The Tenderer must understand clearly that the price quoted are for the total Work or the part of the total Work quoted for, as the case may be, and include all costs due to Materials ; labor, equipment, supervision, other services, royalties and if any, etc. and to include all extras to cover the cost. No claim for additional payment, beyond the prices quoted shall be entertained and the Tenderer shall not be entitled subsequently to make any claim on any ground, except for the condition laid down in concern clause of Price Adjustment.

**IT-21. PAYMENT TERMS :**

The terms of payment are defined separately elsewhere in tender documents. The Municipal Corporation shall not, under any circumstances, relax these terms of payment, and shall not consider any alternative payment terms. Tenderer shall, therefore, in his own interest, note this provision to avoid rejection of his tender.

**IT-22. AWARD :**

Award of the Contract or the rejection of tenders shall be made during the Tender Validity Period stated in the “Instructions to the Tenderers” :

- A. After all Contract contingencies are satisfied and the Notice of Award is issued, the successful Tenderer shall execute the Contract Agreement within the time stated in the “Instructions to the Tenderers”, and shall furnish the “Security Deposit” as required herein. The Contract Agreement shall be executed in the form stipulated by the Owner. A copy of the required form is included in the Contract Document.
- B. If the Tenderer, receiving the Notice of Award, fails or refuses to execute the Contract Agreement within the stated time limit, or fails or refuses to furnish the “Security Deposit” as required herein, the S.M.C. may annul his Award, and declare the E.M.D. forfeited.
- C. A Private / Public Limited Corporation, Partnership firm or other Consortium, acting as the Tenderer and receiving the Award, shall furnish evidence of its existence, and evidence that the person, signing the Contract Agreement & other documents for the Private / Public Limited Corporation, Partnership Firm or other Consortium acting as the Tenderer, is duly authorized to do so.

**IT-23. SIGNING OF THE CONTRACT :**

The successful Tenderer shall be required to execute the Contract within fifteen days of receipt of notice of award of the Contract & / or to execute the Contract, failing which the Municipal Corporation shall be entitled to annul the award and forfeit the Earnest Money Deposit. The person to sign the Contract Document shall be the person as detailed elsewhere.

**IT-24. DISQUALIFICATION**

A tender may get disqualified and shall not be taken for consideration, if

- A. The outer envelope does not show on the outside the reference of tender and, thus, gets opened before the due date of opening as per Article - Submission of Tender Document.
- B. The tender Earnest Money Deposit and Tender Fees are not deposited in full and in the manner



- C. The tender is in a language other than English, or does not contain its English Translation in case of other language being adopted for tender preparation.
- D. The tender does not meet any of the essential eligibility criteria
- E. The Tender Document are not signed by an authorized person
- F. The general performance data for qualification is not submitted
- G. The submitted Tender is a Conditional Tender.
- H. Price bid is submitted in hard copy.
- I. Technical Bid is submitted in hard copy.
- J. Qualifying and other documents are submitted in hard copy.
- K. Price Variation, proposed by the Tenderer, is on principles other than provided in the Tender Document.
- L. Completion Schedule offered is not consistent with the completion schedule defined and specified in the Tender Document.
- M. The validity of the tender is less than the mentioned.
- N. Any of the page or pages of the tender is / are removed / replaced.
- P. All corrections or pasted slips are not initialed by the Tenderer.
- Q. Any erasure is made in the tender.
- R. Any other criteria demanded elsewhere in tender and not fulfilled by contractor
- S. Single participation is submitted in multiple covers on multiple dates.

**IT-25. SECURITY DEPOSIT & RETENTION MONEY :**

As described previously.

**IT-26. STAMP DUTY :**

The successful Tenderer shall have to enter into an Agreement within 15 ( Fifteen ) days on a non-judicial stamp paper of Gujarat State of required value as per the form of the Agreement and surety bond approved by the Municipal Corporation, Surat.

***If security deposit is in form of Cash/DD:*** Contractor has to submit three number of Non judicial stamp paper of Government of Gujarat each of Rs.100/- for agreement, surety and undertaking respectively. Stamp papers must not be older than 6 months from the date of submission to SMC.

***If security deposit is in form of FDR:*** Contractor shall have to submit two stamp papers each of Rs.300/- for surety and undertaking, plus stamp papers costing 4.90% of security deposit amount for agreement.

**IT-27.BRAND NAMES :**

Specific references in the Specifications of any Materials : by manufacturer's / supplier's name / or catalog number, shall be constructed as establishing a standard or quality and performance, and not as limiting competition and the Tenderer, in such cases, may at his option, freely use any other product, provided that it ensures equal or higher quality than the standard mentioned and meets approved by Municipal Corporation.

**IT-28. NON-TRANSFERABLE :**

Tender Document are not transferable.

**IT-29. COST OF TENDERING :**

The Owner shall not defray expenses incurred by Tenderers in tendering.

**IT-30. DEFECT OF TENDER :**

The Tender for the Work shall remain open for a period of **(120) Calendar days from the last date of tender submission in hard copy** for this Work, and that the Tenderer shall not be allowed to withdraw or modify the offer on his own during this period. If any Tenderer withdraws or makes any modifications or additions in the terms and conditions on his own, the Municipal Corporation, shall without prejudice to any right or remedy, be at liberty to reject the tender and forfeit the Earnest Money Deposit in full.

**IT-31. VARIATION IN A QUANTITY & / OR ORDERED VALUE :**

The Surat Municipal Corporation reserves the right to waive any informality in any tender and to reject one or all tenders without assigning any reasons for such rejections, and also reserves the right to vary to quantity / quantities of item/s or group, as specified in the Schedule of Quantities & Rates as may be necessary, but such variation shall be limited to within plus or minus ( 30 % ) Thirty Per cent of the Contract price. However SMC reserves every right to execute or not execute any item listed in BOQ.

**IT-32. NEW EQUIPMENT AND MATERIAL ;**

All Materials: equipment and spare parts thereof shall be new, unused and originally coming from manufacturer's plant to the Corporation. The rebuilt or overhauled equipment / Materials : shall not be allowed to be used on Work.

**IT-33. RIGHTS RESERVED :**

The S.M.C. reserves the right to reject any or all tenders, to waive any informality or irregularity in any tender, without assigning any reasons. The S.M.C. further reserves the right to withhold issuance of the notice to proceed, after execution of the Contract Agreement, for the period of time stated in the Invitation to the Tender and no additional payment shall be made to the successful Tenderer on account of such withholding. The S.M.C. is not obliged to give reasons for any such action.

**IT-34. DELETED**

**IT-35. MOBILIZATION ADVANCE :**

No mobilization advance or advance on machinery shall be given

**IT-36.CONDITIONAL TENDER :**

The scope of Work is clearly mentioned in the Tender Document. The Contractor shall have to carry out the Work in accordance with the detailed Specifications. No conditions shall be accepted. The conditional tender shall be liable to be rejected.

**IT-37 CANCELLED**

**IT-38. WORK IN ACCORDANCE WITH SPECIFICATIONS GIVEN IN GUJARAT P. W. D. HANDBOOK -  
GENERAL TECHNICAL SPECIFICATION FOR BUILDING WORKS (LATEST EDITION) :**

The Work shall be carried out strictly according to the Specifications given in Gujarat Public Works Department Hand Book – General Technical Specification for Building Works ( The latest edition ) whenever applicable as directed by Engineer-in-Charge.

**IT-39. THE WORK TO START AT MULTIPLE PLACES :**

The Work shall have to be started by the Contractor at as many places as ordered by the Engineer-in-Charge.

**IT-40. THE TENDERER LIABLE TO BEAR THE COST OF ANY DAMAGES TO ANY UTILITIES :**

If during excavation or carrying out of any item of the Work, any electric pole, electric cable, telephone cables, telegraph cable, gas line, drain connection pipeline, water service pipeline, sewer main, water mains, etc. is / are damaged by the Contractor, he shall be liable to pay the full expenditure required to repair the same or charges for the same as decided by the concerned utility company namely The Electric Company, The Gas Company, Government Authority or the MahanagarSevaSadan, as the case may be.

**IT-41.WORKMANSHIP :**

The Work shall be carried out in workmanlike manner, and only the best skilled workers shall be employed. If any defect in the Work is found out, the Contractor shall have to rectify within the time fixed by Engineer-in-Charge. If he fails to rectify the defect Engineer-in-Charge, after giving due notice, shall rectify the defect at the risk and cost of the Contractor.

**IT-42. THE WORK IN ACCORDANCE TO THE INSTRUCTIONS OF ENGINEER-IN-CHARGE :**

All the Work shall be done strictly according to the instructions of Engineer-in-Charge.

**IT-43. NO COMPENSATION FOR STOPPAGES DUE TO DEFECTIVE WORK :**

No compensation shall be paid, if the Work is stopped due to either defective work, or as per the instructions from Engineer-in-Charge due to any reasons.

**IT-44. DELETED****IT-45.**

The Contractor is particularly directed to observe from the Specifications as to what is to be included in the items and accordingly, the rates for several portions of the Work shall be worked out.

**IT-46. THE DATE OF COMMENCEMENT OF THE WORK :**

The date of commencement of the Work is considered to be the date Specified in the “Work Order”.

**IT-47. NO ARBITRATION :**

If any clause of Arbitration is there in the tender document, it is deleted here with.

**IT-48. EXECUTION UNDER STRICT SUPERVISION OF THE SMC/CONSULTANT :**

The project under this tender shall be executed under strict supervision and instructions of the SMC/ Consultant deployed by S.M.C. The Contractor shall carry out the instructions of the Consultant.

**IT-49. DISPUTES :**

Any dispute arising out of this Contract shall be subject to SURAT JURISDICTION only.

**IT-50. CHANGE IN EXISTING / PRESENT CIVIL STRUCTURE :**

All the civil works required to complete this work shall be in scope of the agency and no extra payment shall be made thereof. Further, during implementation of Electrical Works, any minor/major changes made in existing / present civil work [making holes, creating channel, wall cutting, etc. ]by contractor shall be brought to original position / repaired / completed before the end of execution. No extra payment shall be made by SMC to the contractor for such civil works. All the changes required in present civil structure for this work shall be in scope of the contractor and no extra payment shall be made. Scaffolding required to execute the work shall also be in scope of contractor.

**IT-51 COMPENSATION AGAINST INJURY/ACCIDENT**

No compensation by SMC shall be given to the contractor/contractor's staff if any injury, accident or death occurs during implementation of the contract.

**IT-52 Follow BOQ**

If there's a difference between the item demanded in BOQ and detailed specification in scope of work, detailed specifications shall be considered as authentic and final.

**IT-53 Deduction**

Latest and prevailing deduction rules and regulations for running/final bills of Surat Municipal Corporation shall be applicable to contractor.

**IT-54 Drawings**

The drawings attached with these tender documents are only for consideration for bidding.

**IT-55 WATER SUPPLY AND ELECTRICITY:**

- A. Water and electricity required for the job shall be supplied free of cost to the contractor. in this case It shall be provided at one point at site. Contractor shall make arrangements like piping, cock, switches, wires etc. required / necessary for the job at its own cost/expense.

Contractor has to make all arrangement to get power supply safely through cable as per electrical rules regulation from the point of supply shown by engineer in charge.

B- Other items

Any other item, which is required to make the system complete, shall be deemed to have included by the bidder.

Signature of the Contractor :

**Executive Engineer(Workshop/Mech.)**

Public Infrastructure Cell

Surat Municipal Corporation

**GC-01 DEFINITIONS AND INTERPRETATIONS :**

- 01.0 In the Contract documents, as herein defined, the following words and expression used shall, unless, repugnant to the subject or context thereof, have the following meanings assigned to them.
- 01.1 The "Owner / Municipal Corporation, Surat, shall be represented by Municipal Commissioner / City Engineer or any officer authorized by the Municipal Corporation.
- 01.2 The "Contractor" shall mean the person or the persons, firm or company, whose tender has been accepted by the Owner and includes his legal representative successors and permitted assignees.
- 01.3 The "Engineer-in-Charge" shall mean the person designated as such by the Owner from time to time, and shall include those, who are expressly authorized by the Municipal Corporation to act for and on its behalf for the operation of this Contract.
- 01.4 "Engineer-in-Charge's Representative" shall mean any Engineer or assistant to the Engineer-in-Charge designated from time to time by the Engineer-in-Charge to perform duties set forth in the Tender Document whose authority shall be notified in writing to the Contractor by the Engineer-in-Charge.
- 01.5 "Tender" shall mean the offer or proposal of the Tenderer, submitted in the prescribed form, setting forth the prices for the Work to be performed, and the details thereof.
- 01.6 "Contract Price shall mean total money payable to the Contractor under the Contract Documents.
- 01.7 "Addenda" shall mean the written or graphic notices prior to submission of the tender, which modify or interpret the Contract documents.
- 01.8 "Contract Time" shall mean the number of consecutive calendar months for the completion of the Work, as stated in the executed Contract Agreement.
- 01.9 "Contract" shall mean Agreement between the parties for the execution of the Work, including all Contract Documents therein.
- 01.10 "Tender Document" shall mean drawings, Specifications, agreed variations, if any, and such other documents constituting the tender, and acceptance thereof.
- 01.11 "The Sub-Contractor" shall mean any person, firm or company other than the Contractor, to whom any part of the Work has been entrusted by the Contractor with the written consent of the Engineer-in-Charge, and the legal personnel, representative, successors and permitted assignees of such person, firm or company.
- 01.12 "The Specifications" shall mean all directions, the various technical Specifications, provisions and requirements attached to the Contract, which pertain to the method and manner of performing the Work to the quality of the Work and the Materials : to be furnished under the Contract for the Work and any order/s or instruction/s thereunder. It shall also mean the latest Indian Standards Institution Specifications for or relative to the particular Work or part thereof, so far as they are not contrary to the Tender Specifications or I.S.I. Specifications, and in absence of any tender Specifications, the Specifications of any other country applied in India as a matter of Standard Engineering practice and approved in writing by the Engineer-in-Charge with or without modifications.
- 01.13 The "Drawings" shall include maps, plans, tracings or prints thereof with any modifications approved in writing by the Engineer-in-Charge and such other drawings, as may, from time to time, be furnished or approved in writing by the Engineer-in-Charge in connection with the Work.
- 01.14 The "Work" shall mean the Work to be executed in accordance with the Contract or the part thereof as the case may be, and shall include extra, additional, altered or substituted Work as required for the purpose of the Contract. It shall mean the totality of the Work by expression or implication envisaged in the Contract, and shall include all material, equipment and labor required for or relative or incidental to or in connection with the commencement, performance and completion of any Work and/or for incorporation in the Work.
- 01.15 The "Permanent Work" shall mean Works, which shall be incorporated in, and form part of the Work to be handed over to the Owner by the Contractor on completion of the Contract.
- 01.16 The "Temporary Work" shall mean all temporary Work of every kind required in or about the execution, completion and maintenance of the Work.
- 01.17 "Site" shall mean the land and other place on, under, on or through which the Work is to be carried out and any other lands or places provided by the Municipal Corporation for the purpose of the Contract, together with any other places designated in the Contract as forming part of the site.

- 01.18 "The Construction Equipment" shall mean all appliance / equipment of whatever nature required in or for execution, completion or maintenance of the Work or temporary Work as here under defined, but does not include Materials : or other things intended to form or forming part of the permanent Work.
- 01.19 "Notice in Writing or Written Notice" shall means a notice in written, typed or printed form, delivered personally or sent by Registered Post to the latest known private or business address of the registered office of the Contractor.
- 01.20 The "Alteration / Variation Order" shall mean an orders given in writing by the Engineer-in-Charge to effect additions to or deletion from / or and alterations in the Work.
- 01.21 "Final Test Certificate" shall mean the Final Test Certificate, issued by the Owner within the provisions of the Contract.
- 01.22 The "Completion Certificate" shall mean a certificate to be issued by the Engineer-in-Charge when the Work has been completed to his satisfaction.
- 01.23 The "Final Certificate" shall mean the final certificate issued by the Engineer-in-Charge after the Work is finally accepted by the Owner.
- 01.24 "Defect Liability Period" shall mean the specified period between the issue of "Completion Certificate" and the "Final Certificate" as specified in the tender.
- 01.25 "Approved"& "Approval" shall mean approved in writing, including subsequent modification/s in writing of previous verbal approval and "Approval" shall mean approved in writing, including as aforesaid.
- 01.26 "Letter of Acceptance" shall mean an intimation by a letter to the Tenderer that the Tender has been accepted in accordance with provisions contained therein.
- 01.27 "Order" and "Instruction" shall respectively mean any written order or instruction given by the Engineer-in-Charge, within the scope of his powers in terms of the Contract.
- 01.28 "Running Account Bill" shall mean a Bill for the payment of "On Account" money to the Contractor during the progress of Work on the basis of Work done and the non-perishable Materials : to be incorporated in the Work supplied by the Contractor.
- 01.29 "Security Deposit" shall mean the deposit to be held by the Owner as security for the due performance of Contractual obligations.
- 01.30 Retention Money shall mean the money retained from R. A. Bill for due completion of "Net Work".
- 01.31 Unless otherwise Specifically stated, the masculine gender shall include the feminine and natural genders and vice versa and the singular shall include the plural and vice-versa.

#### **GC-02 LOCATION OF SITE AND ACCESSIBILITY :**

The site of the Work is within the limits of Surat Municipal Corporation. The city is served by all weather roads and Western Railway Broad Gauge line. The intending Tenderer shall inspect the site and make himself familiar with site conditions and available communication facilities. Non availability of access / roads shall in no case be the cause to condone any delay in the execution of the Work or be the cause for any claims or extra compensation.

#### **GC-03 SCOPE OF WORK :**

The scope of Work is defined broadly in the Special Conditions of Contract and Specifications. The Contractor shall provide all necessary Materials : equipment and labor etc. for the execution and of the Work till completion. All Materials : required for the Work shall be approved by the Engineer-in-Charge prior to procurement and use.

#### **SECURITY :**

Contractor shall have to make his own arrangement of security for any material / machine / equipment supplied/installed till it is handed over to SMC. SMC shall not be responsible for any theft/loss/damage of work/component of work till it is successfully handed over to SMC. Handing over the site to SMC shall mean a certificate issued from an officer equivalent or above than the post of Deputy Engineer.

#### **LAND FOR CONTRACTOR'S FIELD OFFICE, GODOWN & WORKSHOP:**

The Owner shall not be in a position to provide land required for the field office, godown, Workshop, etc. of the Contractor. The Contractor shall have to make his own arrangement for the same. No land shall be provided by the Owner to the Contractor for constructing his labor and supervisory camp and other service facilities.

**GC-04 RULING LANGUAGE :**

The language according to which the Contractor shall be instructed and interpreted shall be English. All entries in the Contract Document and all correspondence between the Contractor and the Municipal Corporation or the Engineer-in-Charge shall be in English. All dimensions for the Materials : shall be given in metric units only.

**GC-05 INTERPRETATION OF CONTRACT DOCUMENT :**

- 05.01. The provisions of the General Conditions of Contract and Special Conditions of Contract shall prevail over those of any other documents of the Contract, unless Specifically provided otherwise. Shall there be any discrepancy, inconsistency error or omission in the several documents forming the Contract, the matter may be referred to the Engineer-in-Charge for his instructions and decision. The Engineer-in-Charge's decision in such case shall be final and binding to the Contractor.
- 05.02. Works, shown upon the drawings but not described in the Specifications, or described in the Specific Specifications, without showing the same on the drawings, shall be taken as described in the Specifications and shown on the drawings.
- 05.03. The heading and the marginal notes to the clauses of those General Conditions of Contract or to the Specifications or to any other part of Tender Document are solely for the purpose of giving a concise indication and not a summary of contents thereof or be used in the interpretation or construction thereof of the Contract.
- 05.04. Unless otherwise stated Specifically, in this Contract Document, the singular shall include the plural and vice versa, wherever the context so requires. Work implementing persons shall include relevant corporate companies / registered associations / body of individual/ firm of partnership.
- 05.05. Notwithstanding the sub-divisions of the documents into separate sections and volumes, every part of each section shall be supplementary to and complementary of every other part, and shall be read with and into the context so far as it may be practicable to do so.
- 05.06. Where any portion of the General Conditions of Contract is repugnant to or at variance with any provisions of the Special Conditions of Contract, then, unless a different intention appears, the provisions of the Special Conditions of Contract shall be deemed to override the provisions of General conditions of Contract, and shall to the extent of such repugnancy or variance prevail.
- 05.07. The Materials : design and Workmanship : shall satisfy the relevant I. S. S. and Codes referred to. If Additional requirements are shown in the Specifications, the same shall be satisfied over and above I.S.S. and Codes.
- 05.08. If the Specifications mention that the Contractor shall perform certain Work or provide certain facilities, it shall mean that the Contractor shall do so at his own cost.
- 05.09. The correctness of the details given in the Tender Document is not guaranteed. The Contractor shall independently obtain all necessary information while preparing and submitting the tender. The Contractor shall be deemed to have examined the Contract Documents, to have generally obtained his own information in all matters which may affect the carrying out of the Work or the tendered rates. Any error in description of quantity or commission therefrom shall not vitiate the Contract or release the Contractor from executing the Work comprised in the Contract according to the Drawings and Specifications at the tendered rates. He is deemed to have known the scope, nature and magnitude of the Work, and the requirements of Materials : and labor involved and as to the total Work he has to complete in accordance with the Contract, what so ever be the defects, omissions, or errors that may be found in the Contract documents. The Contractor shall be deemed to have visited the site and the surroundings, to have satisfied himself to the nature of all existing structures, if any, and also as to the nature and the conditions of railways, roads, bridges and culverts, means of transport and communications, whether by land, air or water and as to possible interceptions thereto and the access and egress from the site, to have made inquiries, examined and satisfied himself as to the locations of sources for obtaining sand, stones, bricks and other required Materials :, the sites for disposal of surplus Materials :, the available accommodation as to whatever required, the depicts and such other buildings as may be necessary for executing and completing the Work, to have local independent inquiry as to the subsoil, subsoil water and variation thereof, storms, prevailing winds, climatic conditions and all other similar matters affecting the Work. He is deemed to have acquainted himself as to his liability for payment of government taxes, customs duty and other charges.

Any neglect or failure on the part of the Contractor in obtaining necessary and reliable information about the forgoing or any other matter affecting the Contract shall not relieve him from any risks or liabilities or the entire responsibility from completion of the Work at the tendered rates and time in strict accordance with the Contract Document.

No verbal Agreement or inference from conversation with any officer or employee of the Owner, either before or after the execution of the Contract Agreement shall, in any way effect or modify any of the terms of obligations herein contained.

**GC-06 CONTRACTOR TO UNDERSTAND HIMSELF FULLY :**

The Contractor by tendering shall be deemed to have satisfied himself, as to consideration and circumstances affecting the tender price, as to the possibility of executing the Work as shown and described in the Contract and to have fixed his prices according to his own view on these matters and to have understood that no additional allowances except as otherwise expressly provided, shall be made beyond the Contract Price. The Contractor shall be responsible for any misunderstanding or incorrect information given in writing by the Engineer-in-Charge.

**GC-07 ERROR IN SUBMISSION :**

The Contractor shall be responsible for any errors or omissions in the particulars supplied by him. Whether such particulars have been approved by the Engineer or not, provided that such discrepancies, errors or omissions be not due to inaccurate information or particulars furnished in writing to the Contractor by the Owner or the Engineer-in-Charge.

**GC-08 SUFFICIENCY OF TENDER :**

The Contractor shall be deemed to have satisfied himself before tendering as to the correctness of the tender rates, which rates shall, except as or otherwise provided for, cover all the Contractor's act liabilities and obligations set forth or implied in the Contract for the proper execution of the Work for compliance with requirements of relative GC thereof.

**GC-09 DISCREPANCIES :**

The drawings and Specifications are to be considered as mutually explanatory of each other, detailed drawings being followed in preference to small scale drawings and figures dimension/s in preference to scaled and Special Conditions in preference to general conditions. Special direction or dimensions given in the Specifications shall supersede all else shall any discrepancies, however, appear or shall any misunderstanding arise as to the meaning and intent of the said Specifications or Drawings, or as to the dimensions or the quality of the Materials ;, or the due and proper execution of the Work, or as to the measurement or quality and valuation of the Work executed under this Contract, or as extra there upon, the same shall be explained by the Engineer-in-Charge, and his explanation shall, subject to the final decision of the **Executive Engineer / Commissioner**, in case reference be made to him, be binding upon the Contractor, who shall execute the Work according to such explanation subject to aforesaid, and without addition to or deduction from the Contract and shall also do all such Work and things necessary for the proper completion of the Work as implied by the Drawings and Specifications, even though such Work and things are not specially shown and described in said Specifications. In cases where not particular Specifications are given for any article to be used under the Contract, relevant Specifications of the Indian Standard Institution shall apply.

**GC-10 SECURITY DEPOSIT :**

- 10.01. The total Security Deposit is sum of 2 % of the accepted Tender Contract Price shall be deposited by the Tenderer, hereinafter called the Contractor, while tender is accepted as Security Deposit with the Owner, for the faithful performance, completion of the Work in accordance with the Contract Document and to the satisfaction of the Engineer-in-Charge, and assuring the payment of all obligations arising from the execution of the Contract. The mode of security deposit will be same as mentioned in this tender elsewhere.
- 10.02. If the Contractor, Sub – Contractor/s or his / their employee/s shall break, deface or destroy any property belonging to the Owner or other agency during the execution of the Contract, the same shall be made good by the Contractor at his own expenses and in default thereof, the Engineer-in-Charge may



cause the same to be made good by other agencies and recover the actual expenses with administration charges from the Contractor, for which the certificate of the Engineer-in-Charge shall be final. These expenses can be recovered from the Security Deposit, if recovery from other sources is not possible. The amount so reduced in Security Deposit shall be made good by deduction from the next R.A.Bill of the Contractor.

- 10.03. All compensation or other sums of money payable by the Contractor to the Owner under terms of this Contract may be deducted from or paid by the sale of sufficient part of his Security Deposit or from any sums which may be due or become due to the Contractor by the Owner on any account whatsoever and in the event this Security Deposit being reduced by reasons of any such deductions or sale of security deposit or part thereof as aforesaid, the Contractor shall within 15 days thereafter, make good the same in cash, bank drafts or Government Securities endorsed as aforesaid. No interest shall be payable by the owner for sum deposited as Security Deposit.
- 10.04. The Security Deposit shall be extendable up to the date as decided by Engineer-in-Charge in accordance with Requirement of Contractual obligations under the Contract.
- 10.05. The Security Deposit less any amounts due shall be returned to the Contractor without any interest after the Defects Liability Period is over, and subject to the Engineer-in-Charge certifying that no liability has remained attached to the Contractor.
- 10.06. The performance guarantee shall be delivered to the Owner within 15 days of the notice of award / L.O.I. Security Deposit shall be paid in time and if it is paid after 15 days from the date of Work order then the penalty of 0.065 % per day of the amount of the Security Deposit shall be recovered from the Contractor while receiving the Security Deposit. It is also clarified that the amount of the Security Deposit shall be calculated on the basis of Contract Value and not on the basis of estimated amount put to tender.

#### **GC-11 INSPECTION OF THE WORK :**

- 11.01. The Engineer-in-Charge shall have full power and authority to inspect the Work at any time, wherever in progress, either on the site or at the Contractor's any other manufacturers Workshop/s or factories wherever situated, and the Contractor shall afford for Engineer-in-Charge every facility and assistance to carry out such inspection. Contractor or his authorized representative shall, at all time during the usual Working hours and all other times when so notified, remain present to receive orders and instructions, orders given to the Contractor's representative shall be considered to have the same force as if they had been given to the Contractor himself. Contractor shall give not less than seven ( 7 ) days' notice in writing to the Engineer-in-Charge before covering up or otherwise placing beyond reach of inspection and measuring any Work in order that the same may be inspected and measured. In the event of breach of the above, the same shall be reopened& its cost shall be recovered at the Contractor's expense for carrying out such inspection or measurement.
- 11.02. No material shall be dispatched from Contract Store on site of the Work before obtaining approval in writing of the Engineer-in-Charge, Contractor shall provide at all time, during the progress of Work and maintenance period proper means of access with ladders, gangways, etc. and the necessary attendance to move and adopt as directed for inspection or measurement of the Work by Engineer-in-Charge.

#### **GC-12 DEFECT LIABILITY :**

- 12.01 **Unconditional Defect liability period shall be counted as 12 months after handing over the site** to SMC However, a certificate from competent authority of the department must be received by the contractor. Any damage or defect that may arise or that may remain undiscovered at the time of issue of completion certificate connected in any way with the equipment or Materials : supplied by him or in the Workmanship : be rectified or replaced by the Contractor at his own expense as desired by Engineer-in-Charge or in default may cause the same to be made good by other agency and deduct actual expenses with administration charges, of which the certificate of Engineer-in-Charge shall be final from any sums that may then or any time thereafter become due to Contractor of sale thereof or of a sufficient portion thereof. The replaced material shall be brand new. Second hand material shall not be allowed in any case.

12.02. From the commencement to completion of Work Contractor shall take full responsibility for the case of the Work including all temporary Work and in case any damage, loss or injury shall happen to Work or any part thereof or to any temporary Work from any cause whatsoever and shall at his own cost repair and make good the same so that at completion Work shall be in good order and in conformity in every respect with the requirements of Contract and as per the instructions of the Engineer-in-Charge.

12.03. If at any time before the Work is taken over, the Engineer-in-Charge shall -

12.03.a. Decide that any Work done or Materials : used by the Contractor are defective or not in accordance with Contract or that Work of any portion thereof is defective or do not fulfill the requirements of Contract (all such Materials : being hereinafter called defects in this clause and (b) as soon as reasonably practicable given to Contractor notice in writing of the said defect specifying particulars of the defects alleged to exist or to have occurred, then Contractor shall at his own expenses and with all speed make good the defects so specified

12.03.b. In case, the Contractor fails to do so, the Owner may take, at the cost of the Contractor, such steps as may in all circumstances, be reasonable to make good such defects. The expenditure so incurred by the Owner PULS administration charges, shall be recovered from the amount due to the Contractor. The decision of Engineer-in-Charge with regard to the amount to be recovered from the Contractor shall be final and binding on the Contractor.

#### **GC-13 POWER OF ENGINEER TO GIVE FURTHER INSTRUCTIONS :**

The Engineer-in-Charge shall have the power and authority, from time to time and at all times, to give further instructions and directions as may appear to him necessary or proper for the guidance of the Contractor and the Work and efficient execution of the Work according to the terms of the Specifications, and the Contractor shall receive, execute, obey and be bound by the same, according to the true intent and meaning thereof, as fully and effectually, as though the same had accompanied or had been mentioned or referred to in the Specifications. No Work which radically changes the original nature of the Contract, shall be ordered by the Engineer-in-Charge and in the event of any deviation being ordered, which in the opinion of the Contractor changes the original nature of the Contract, shall, nevertheless, carry it out and any disagreement as to the nature of the Work & the rate to be paid thereof shall be resolved. The time of completion of the Work, in the event of any deviations, resulting in additional cost over the Contract sum being ordered, then be extended or reduced reasonably by the Engineer-in-Charge. The Engineer-in-Charge's decision in the cases shall be final and binding to the Contractor.

#### **GC-14 PROGRAMME :**

The time allowed for execution of the Work shall be of essence of the Contract. The Contract Period shall commence from the date of Notice of Intimation to proceed. The Tenderer at the time of submitting his tender shall indicate the Construction Schedule Programme, the month wise Programme required for the execution of the Work and shall confirm the same within fourteen (14) days of the acceptance of his Tender. The Contractor shall provide to the Engineer-in-Charge a detailed Programme of time Schedule for execution of the Work accordance with the Specifications & the date of completion. The entire Programme to be finalized by the Contractor, has to confirm with the Execution period mentioned along with the Bill of Quantities in the Tender Document. The Engineer-in-Charge upon scrutiny of such submitted Programme by Contractor, shall examine suitability of it to the requirement of the Contract and suggest modifications, if found necessary.

#### **GC-15 SUBLETTING OF WORK**

:

**DELETED**

#### **GC-16 SUB-CONTRACTORS FOR TEMPORARY WORK, ETC. :**

**DELETED**

#### **GC-17 TIME FOR COMPLETION :**

17.01. The Work covered under this Contract shall be commenced from the Date mentioned in the of Contract is served with a Notice to Proceed with the Work and shall be completed before the date of completion, as mentioned in the Programme / Construction Schedule of Work. The time is the essence of the Contract and unless the same is extended as mentioned in clause No. GC-18, Extension of Time, the Contractor shall be penalised for the delay.

17.02. The general Programme / Execution Schedule is given in the Tender Document. Contractor shall prepare a detailed weekly or monthly Programme for Execution in consultation with the Engineer-in-Charge soon after the Agreement, and the Work shall be strictly executed accordingly. The time for execution given includes the time required for testing, rectification if any, retesting and completion in all respects to the entire satisfaction of the Engineer-in-Charge.

#### **GC-18 EXTENSION OF TIME :**

Time shall be considered as the essence of the Contract. If, however, the failure of the Contractor to complete the Work as per the stipulated dates referred to above arises from delays on the part of the Owner in supplying the Materials : or equipment, it has undertaken to supply under the Contract or from delays in handing over sites or from increase in the quantity of the Work to be done under the Contract, or Force Majeure an appropriate extension of time shall be given. The Contractor shall request such extension within one month of the cause of such delay and in any case, before expiry of the Contract Period. In case of extension of time limit, decision of the Competent Authority shall be considered final & binding upon the Contractor.

#### **GC-19 CONTRACT AGREEMENT :**

The successful Tenderer shall when called upon to do so, enter into and execute the Contract Agreement within fifteen (15) days of the Notice of Award, in the form shown in Tender Document with such modifications as may be necessary in the opinion of the Municipal Commissioner. It shall be incumbent on the Contractor, to pay the stamp duty and the legal charges for the completion of the Contract Agreement.

#### **GC-20 A PENALTY FOR DELAY :**

If the Contractor fails to complete the Work within the stipulated completion date for the Work or he shall pay liquidated damages at 0.2% of unexecuted work per day of delay in completion and handing over the Work or part thereof as the case may be to the Owner. The amount of liquidated damages shall, however, be subjected to a maximum of ten ( 10 ) per cent of the Contract Value. Delays in excess of one hundred days shall be a cause for termination of the Contract and forfeiture of all security for performance. In case of penalty for delay, decision of Municipal Commissioner shall be considered final & binding upon the Contractor.

#### **GC-21 FORFEITURE OF SECURITY DEPOSIT :**

Whenever any claim arises against the Contractor for the payment of a sum of money out of or under the Contract, the Owner shall be entitled to recover such sum by appropriating in part or whole, the Security Deposit of the Contractor. In case the Security Deposit is insufficient, the balance recoverable shall be deducted from any sum then due or which at any time thereafter, may become due to the Contractor, the Contractor shall pay to the Owner on demand any remaining balance due.

#### **GC-22 ACTION OF FORFEITURE OF SECURITY DEPOSIT :**

In any case, in which under any clause or clauses of the Contract, the Contractor shall have forfeited the whole of his Security Deposit or have committed a breach of any of the terms contained in this Contract, the Owner shall have power to adopt any of the following courses as he may deem best suited to his interest :

22.01. To rescind the Contract of which Rescission Notice in writing to the Contractor under the hand of the Owner shall be conclusive evidence. In which case, the Security Deposit of the Contractor shall stand forfeited and be absolutely at the disposal of the Owner.

22.02. To employ labor and to supply Materials : to carry out the balance Work debiting Contractor with the cost of labor employed and the cost of Materials : supplied for which a certificate of the Engineer-in-Charge shall be final and conclusive against the Contractor, and an additional amount equal to Ten per cent ( 10 % ) of the above costs shall be recovered to cover all departmental charges, and crediting him with the value of Work done at the same rates as if it has been carried out by the Contractor under the terms of his Contract. The certificate of Engineer-in-Charge, as to the value of the Work done shall be final, conclusive & binding to the Contractor.

22.03. To measure up the Work of the Contractor and to take such part hereof as shall be unexecuted out of his hand to give it to another Contractor to complete. In this case, the excess expenditure incurred than what whole have been paid to the original Contractor, if the Work would had been executed by him, shall be deducted from any money due to him by the Owner under the Contract for the excess expenditure, the certificate of the Engineer-in-charge shall be final and would conclusive & binding to the Contractor.

In the event any of the above course being adopted by the Owner, the Contractor shall have no claim to compensation for any loss sustained by him by reason of his having purchased or procured any Materials : or entered into any agreement so or made by advance on account of or with a view to the execution of the Work for the performance of the Contract. In such case the Contractor shall not be entitled to recover or be paid by sum for any Work actually performed under this Contract unless the Engineer-in-Charge shall certify in writing the performance of such Work and the value payable in respect thereof and the Contractor shall only be entitled to be paid the value so certified. In the event of the Owner putting in force the powers as stated in a, b, c, above vested in him under the preceding clause, he may, if he so desire, take possession of all or any tools and plant, Materials : and stores in or upon the Work or the site thereof belonging to the Contractor, or procured by him and intended to be used for the execution of the Work or any part thereof paying or allowing for the same in account at the Contract rates to be certified by the Engineer-in-Charge whose certificate thereof shall be final otherwise the Engineer-in-Charge may give notice in writing to the Contractor or his representative requiring him to remove such tools plant Materials : or stores from the premises within the time specified in the notice and in if the Contractor fails to comply with any such notice, the Engineer-in-Charge may remove them at the Contractor's expenses or sell them by auction or private sale on account of the Contractor and his risks in all respects without any further notice as to the date, time to place of the sale and the certificate of Engineer-in-Charge as to the expenses of any such removal and the amount of the proceeds and the expenses of any such sale shall be final and conclusive against the Contractor.

#### **GC-23 NO COMPENSATION FOR ALTERATION IN OR RESTRICTION OF THE WORK :**

If at any time from the commencement of Work, the Owner shall for any reasons whatsoever not require the whole or part thereof as specified in the tender to be carried out, the Engineer-in-Charge shall give notice in writing of the Contractor, who shall have no claim to any payment or compensation whatsoever on account of any profit or advantage which he might have derived from execution of Work in full, but which he did not derive in consequence of the full amount of the Work not having been carried neither shall he have any claim for compensation by reason if any alterations having been made in original Specifications, drawings, designs and instructions which shall involve any curtailment of the Work as originally contemplated. When the Contractor is a partnership firm, the prior approval in writing of the S.M.C. shall be obtained before any change is made in the constitution of the firm, where the Contractor is an individual or a Hindu Undivided Family business concern, such approval as aforesaid shall, likewise be obtained before sub-Contractor enters into any Agreement with other parties where under the reconstituted firm would have the right to carry out the Work hereby undertaken by the Contractor. In either case if prior approval as aforesaid is not obtained, the Contract shall be deemed to have been allotted in contravention of sub-letting clause hereof and the same action may be taken and the same consequence shall ensue as provided in the sub-letting clause.

#### **GC-24 IN EVENT OF DEATH OF CONTRACTOR :**

Without prejudice to any of the right or remedies under the Contract, if the Contractor dies, the Owner shall have the option of terminating the Contract without compensation to the Contractor.

**GC-25 MEMBER OF THE OWNER NOT INDIVIDUALLY LIABLE :**

No official or employee of the Owner shall in any way be personally bound or liable for the acts or obligations of the Owner under the Contract or answerable for any default or omission in the observance or performance of the acts, matters or things which are herein contained.

**GC-26 OWNER NOT BOUND BY PERSONAL REPRESENTATIONS :**

The Contractor shall not be entitled to any increase on the Schedule of rates or any other rights or claims whatsoever by reason of representation, explanation or statement or alleged representation, promise or guarantees given or alleged to have been given to him by any person.

**GC-27 CONTRACTOR'S OFFICE AT SITE :**

The Contractor shall provide and maintain an office cum store at the site for the accommodation of his agent and staff and such office shall be opened at all reasonable hours to receive instructions, notice or other communications.

**GC-28 CONTRACTOR'S SUBORDINATE STAFF AND THEIR CONDUCT :**

1. The Contractor on award of the Work shall name and depute a qualified Engineer, having experience of carrying out Work of similar nature, to whom equipment, Materials :, if any, shall be issued and instructions for Work given. The Contractor shall also provide to the satisfaction of Engineer in-charge sufficient and qualified staff to superintend the execution of the Work, competent sub-agents, foremen and leading hands including those specially qualified by previous expeditions to supervise the type of Work comprised in the Contract in such manner as shall ensure Work of the best quality and expeditions Working, it, in the opinion of the Engineer- in-charge, additional properly qualified supervision staff is considered necessary, if shall be employed by the Contractor without additional charge on account thereof. The Contractor shall ensure to the satisfaction of the Engineer-in-Charge that sub - Contractors, it any shall provide competent and efficient supervision over the Work entrusted to them.
2. If and whenever any of the Contractor 's or sub-contractor agents, sub-agents, assistance, foremen or other employees shall, in the opinion of Engineer-in-Charge, be guilty of any misconduct or be incompetent or insufficiently qualified or intelligent in the performance of their duties or that in opinion of the Owner or Engineer-in-Charge, it is undesirable for administrative or any other reason for person or persons to be employed in the Works, the Contractor, if so directed by the Engineer-in-Charge, shall at once remove person or persons from employment thereon. Any person or persons so removed shall not again be employed in connection with the Work without the written permission of the Engineer-in- charge. Any person so removed from the work shall be immediately replaced at the expenses of the Contractor by a qualified and competent substitute. Shall the Contractor be required to repatriate any person removed from the Work he shall do so and shall bear all costs in connection therewith.
3. The Contractor shall be responsible for the proper behavior of all the staff, foremen, Workmen and others shall exercise proper control over them and in particular and without prejudice to the same. Generally, the Contractor shall be bound to prohibit, and prevent any employee from trespassing or acting in any way detrimental or prejudicial to the interest of the community or of the properties or occupiers of land and properties in the neighborhood and in the event of such employees so trespassing, the Contractor shall be responsible therefore and relieve the Owner of all consequent claims, actions for damages or injury or any other grounds whatsoever. The decision of the Engineer-in- charge upon any matter arising under this clause shall be final.
4. If and required by the Owner, the Contractor's personnel entering upon the Owner's premises shall be properly identified by badges of a type acceptable to the S.M.C. which must be worn at all times on Owner's premises.

**GC-29 TERMINATION OF SUB-CONTRACTOR BY OWNER :**

**DELETED**

**GC-30 POWER OF ENTRY :**

If the Contractor shall not commence the Work in the manner previously described in the Contract documents or if he shall, at any time, in the opinion of Engineer-in-Charge.

- (i) Fail to carry out Work in conformity with the documents or
- (ii) Fail to carry out the Work in accordance with the time schedule or

- (iii) Substantially suspend Work or the Work for a period of fourteen days without authority from Engineer-in-Charge or
- (iv) Fail to carry out and execute the Work to the satisfaction of the Engineer-in-Charge or
- (v) Fail to supply sufficient or suitable construction plant temporary Works, labor Materials : or things or
- (vi) Commit breach of any other provisions of the Contract on his part to be performed or observed or persist in any of the above mentioned breached of the Contract for fourteen days after notice in writing shall have been given to the Contractor by the Engineer-in-Charge requiring such breach to be remedied or
- (vii) Abandon the Work or
- (viii) During the continuance of the Contract becomes bankrupt, make any arrangement or compromise with his creditors, or permit any execution to be levied or go into liquidation whether compulsory or voluntary not being merely a voluntary liquidation for the purpose of amalgamation or reconstruction then in any such case.

The Owner shall have the power to enter upon the Work and take possession thereof and of the Materials :, temporary Works, constructional plant and stock therein, and to r evoke the Contractor's license to use the same and to complete the work by his agents, other Contractor or Workman or to relate the same upon any terms and to such other person, firm or corporation as the Owner in his absolute discretion may think proper to employ, and for the purpose aforesaid to use or authorize the use of any Materials :, temporary Works, constructional plant, and stock as aforesaid, without making payment or allowance to the Contractor for the said Materials : other than such as may be certified in written by the Engineer-in-Charge to be reasonable and without making any payment or allowance to the Contractor for the use of said temporary Works, constructional plant and stock or being liable for any less or damage thereto. If the Owner shall be reason of his taking possession of the Work or of the Work being got completed by other Contractor incur excess certified by the Engineer-in-Charge shall be deducted from any money which may be due for the Work done by the Contractor under the Contract and not paid for. Any deficiency shall forthwith be made good and paid to the Owner by the Contractor and the Owner shall have power to sell in such manner and for such price as he may think fit all or any of the constructional plant, Materials: etc. constructed by or belonging to and recoup and retain the said deficiency or any part thereof out of the proceeds of the sale.

#### **GC-31 CONTRACTOR'S RESPONSIBILITY WITH THE OTHER CONTRACTOR AND AGENCIES :**

Without repugnance to any other condition, it shall be the responsibility of the Contractor executing the Work to work in close co-operation and co-ordinate the Work with other Contractors or their authorized representative and the Contractor shall put a joint scheme with the concurrence of other Contractors showing the arrangements for carrying his portion of the Work to the Engineer-in-Charge and get the approval. The Engineer-in-Charge before approving the joint scheme shall call the parties concerned and modify the scheme if required. No claim shall be entertained on account of the above. The Contractor shall conform in all respects with the provisions of any statutory regulations, ordinances or by laws of any local or locally constituted authorities or public bodies which may be applicable from time to time to work or any temporary Works. The Contractor shall keep the Owner indemnified against all penalties and liabilities of every kind arising out of non-adherence to such statutes, ordinance, laws, rules, regulations, etc.

#### **GC-32 OTHER AGENCIES AT SITE :**

The Contractor shall have to execute the Work in such place and condition where other agencies shall also be engaged for other Works, such as site grading, filling and leveling, civil and mechanical engineering Works, etc. No claim shall be entertained for Work being executed in the above circumstances.

#### **GC-33 NOTICES :**

Any notice under this Contract may be served on the Contractor or his duly authorized representative at the job site or may be served by registered post direct to the official address of the Contractor proof of issue of any such notice could be conclusive of the Contractor having been duly informed of all contents therein.

#### **GC-34 RIGHT OF VARIOUS INTERESTS :**

The Owner reserves the right to distribute the Work between more than one Contractor. Contractor shall co-operate and afford reasonable opportunity to other Contractors for access to the Work for the carriage and storage of Materials : and execution of their Works.

Wherever the Work being done by any department of the Owner or by other Contractor employed by the Owner is contingent upon Work covered by this Contract, the respective rights of the various interests shall be determined by Engineer-in-Charge to secure the completion of various portions of the Work in general harmony.

**GC-35 PRICE ADJUSTMENT DUE TO VARIATION :**

Not applicable. **No Price Escalation shall be paid.**

**GC-36 TERMS OF PAYMENT :**

The payment of Bills shall be made progressively according to the rules and practice followed by the Municipal Corporation. The progressive payment unless otherwise provided in the Contract Agreement or sub-sequently agreed to by the parties, shall be made generally monthly or as required on submission of a bill in form of hard copy and soft copy by the Contractor through in prescribed form in an amount according to the value of the Work performed less the aggregate of previous progressive payments and as required by clause GC-10 herein.

All such progressive payment shall be regarded as payment by way of advance against final payment.

Payment for the Work done by the Contractor shall be based on the measurement at various stages of the Work, in accordance with the conditions at Clause GC-76 (Measurement of Work in Progress) Deposit).

**GC-37 PAYMENT DUE FROM THE CONTRACTOR :**

All costs, damages or expenses, for which under the Contract the Contractor is liable to the Municipal Corporation deducted by the MahanagarSevaSadan from any money due or becoming due to the Contractor under the Contract or from any other Contract with the Municipal Corporation or may be recovered by action at law or other-wise from the Contractor.

**GC-38 CONTINGENT FEE :**

38.01. The Contractor warrants that he has not employed any person to solicit or secure the Contract upon any Agreement for a commission, percentage, brokerage or contingent fee. Breach of this warranty shall give the Municipal Commissioner the right to cancel the Contract or to take any other measure as the Municipal Commissioner may deem fit. The warranty does not apply to commissions payable by the Contractor to establish commercial or selling agent for the purpose of securing business.

38.02. No officer, employer of the Municipal Corporation be admitted to any share or part of this Contract or to any benefit that may rise there from.

**GC-39 BREACH OF CONTRACT BY CONTRACTOR :**

If the Contractor fails to perform the Work under the Contract with due diligence or shall refuse or neglect to comply with instruction given to him in by the Engineer-in-Charge accordance with the Contract, or shall controverts the provisions of the Contract, the S.M.C. may give notice in writing to the Contractor to make good such failure, neglect or contravention. Shall the Contractor fail to comply with such written notice within twenty eight (28) days or receipt, if the Municipal Commissioner shall think fit, it shall be lawful for the Municipal Corporation, without prejudice to any other rights, the Contractor may have under the Contract, to terminate the Contract for all part of the Works, and to make any other arrangements it shall deem necessary to complete the Work outstanding under the Contract at the time of termination. In this event Article GC-15 (Subletting of Work) and GC-16 (Sub-Contracts for Temporary Work etc.) hereof shall be invoked and the performance Bond shall immediately become due and payable to the Municipal Commissioner the value of the Work done on the date of termination and not paid for shall stand forfeited to the Municipal Corporation and the Municipal Corporation shall have free use of any work which the Contractor may have at the site at the time of termination of the Contract.

**GC-40 DEFAULT OF CONTRACTOR :**

40.01. The Municipal Corporation may upon written notice of default to the Contractor terminate the Contract in circumstance detailed here under :

40.02. If in the judgment of the Municipal Corporation the Contractor fails to make completion of Work within the time specified in the completion schedule or within the period for which extension has been granted by the Municipal Corporation /Engineer to the Contractor.

40.03. If in the judgment of the Municipal Corporation the Contractor fails to comply with any of the provisions of this Contract.

40.04. In the event the Municipal Commissioner terminates the Contract in whole or in part as provided in Article GC-48 (Termination of Contract), the Municipal Corporation reserves the right to purchase upon such terms and in such manner as it may deem appropriate, plant similar to that terminated and the Contractor shall be liable to the Municipal Corporation for any additional costs for such similar and / or for liquidated damages for delay until such reasonable time as may be required for the final completion of Works.

40.05. If this Contract is terminated as provided in this paragraph GC - 30 Power of entry) (1) the Municipal Corporation in addition to any other rights provided in this clause, may require the Contractor to transfer title and deliver to the Municipal Corporation under any of the following cases in the manual and as directed by the Municipal Corporation.

40.06. Any partially completed information and Contract rights as the Contractor has specifically produced or acquired for the performance of the Contract so terminated.

40.07. In the event the Municipal Corporation does not terminate the Contract as provided in the paragraph GC-48 (Termination of Contract) the Contractor shall continue performance of the Contract, in which case the shall be liable to the Municipal Corporation for liquidated damages for delay until the works are accepted.

#### **GC-41 BANKRUPTCY :**

If the Contractor shall become bankrupt or insolvent or have a receiving order made against him, or compound with the creditors, or being the Municipal Corporation commence to be wound up, not being a member's Voluntary winding up for the purpose of amalgamation or reconstruction, or carry on its business under a receiver for the benefit of his creditors or any of them, the Owner shall be at liberty to either (a) terminate the Contract forthwith by giving notice in writing to the Contractor or to the receiver or liquidator or to any person or organization in whom the Contract may become vested and to act in the manner provided in Article GC-40 (Default of Contractor) as though the last mentioned notice had been the notice referred to in such Article of (b) to give such receiver liquidator or other person in Work the Contract may become vested the option of carrying out the Contract subject to his providing a satisfactory guarantee for the due and faithful performance of the Contract subject to his providing a satisfactory guarantee for the due and faithful performance of the Contract up to an amount to be agreed. In the event that the Municipal Corporation terminates the Contract in accordance with this article, the performance Bond shall immediately become due and payable on demand to Municipal Contractor.

#### **GC-42 OWNERSHIP :**

Work supplied pursuant to the Contract shall become the property of the Municipal Corporation from whichever is the earlier of the following times, namely, When the Work are completed pursuant to the Contract. (b) When the Contractor has been paid any sum to which he may become entitled in respect thereof pursuant to clause GC-36 (Terms of Payment). However, securing the installation/items shall be responsibility of contractor till handing over the site to SMC. SMC can not be made responsible for any damage/theft of material. In such cases, contractor shall have to produce/replace such items/works at his cost.

#### **GC-43 DECLARATION AGAINST WAIVER :**

The condonation by the Municipal Corporation of any breach of breaches by the stipulations and conditions contained in the Contract shall in no way prejudice or effect to the constructed as a waiver of the Municipal Corporation rights, powers and remedies under the Contract in respect of any breach or breaches.

#### **GC-44 LAWS GOVERNING THE CONTRACT :**

The Contract shall be constituted according to and Subject to the laws of India and the State of Gujarat and under the jurisdiction of the courts of Gujarat at Surat.

#### **GC-45 OVERPAYMENT AND UNDERPAYMENT :**

Whenever any claim for payment of a sum to the Municipal Corporation arises out of or under this Contract against the Contractor the same may be deducted by the Municipal Corporation from any sum then due or which at any time thereafter may become due to the Contractor under this Contract and failing that under any other Contract with the SMC or from any sum due to the Contractor with the Municipal Corporation (which may be available with Municipal Corporation), or from his retention money, or he shall pay the claim on demand. The SMC



reserves the right to carry out post payment audit and technical examination of the final bill including all supporting vouchers, abstracts, etc.

The Municipal Corporation further reserves the right to enforce recovery of any over payment when detected.

It as a result of such audit and technical examination any over payment is discovered in respect of any Work done by the Contractor or alleged to have been done by him under the Contract, it shall be recovered by the Municipal Corporation from the Contractor by way of all the means prescribed above or if any under payment is discovered by the Municipal Corporation any amount due to the Contractor under this Contract or under payment may be adjusted against any amount then due or which may at any time thereafter become due before payment is made to the Contractor from him to the Municipal Corporation on any other Contract account whatsoever.

#### **GC-46 SETTLEMENT OF DISPUTES :**

Except or otherwise Specifically provided in the Contract, all disputes concerning questions of fact arising under the Contract shall be decided by the Engineer, subject to a written appeal by the Contractor to the Engineer, and these decisions shall be final and binding on the parties hereto. Any disputes or difference including those considered as such by only one of the parties arising out of or in connection with this Contract shall be to the extent possible settled amicably between the parties. If amicable settlement cannot be reached then all disputed issues shall be settled as provided in (a).

##### **(a) DISPUTE OR DIFFERENCES TO BE REFERRED TO:**

If at any time, any question, disputes or differences of any kind whatsoever shall arises between Engineer and the Contractor upon or in relation to or in connection with this Contract, either party may forthwith give to the other, notice in writing of the existence of such question, dispute or difference as to any decision, opinion, instruction, direction, certificate or evaluation of the Engineer.

The question or difference shall be settled by the Divisional head of Public Infrastructure Cell who shall state his decision in writing and give notice of same to the Engineer and to the Contractor. Such decision shall be final & binding upon both parties to the Contract and Work on Contract if not already breached or abandoned shall proceed normally unless and until the same shall be revised (or upheld) due to any Judicial proceeding. Shall the Municipal Commissioner fail to give a decision within three (3) calendar months after issuance of notice of a question, dispute or difference or if the Contractor is dissatisfied with any such decision of the Municipal Commissioner, then the matter may be referred to court of law subject to SURAT JURIDICTION .

#### **GC-47 DELETION OF ARBITRATION CLAUSE :**

Arbitration word or clause shall be considered deleted, wherever written in the whole tender.

#### **GC-48 TERMINATION OF THE CONTRACT :**

- 48.01. If the Contractor finds it impracticable to continue operation owing to Force Majeure reasons or for any reason beyond his and/or the Municipal Commissioner find site impossible to continue operation when prompt notification in writing shall be given by the party affected to the other.
- 48.02. If the delay or difficulties so caused can not be expected to cease or become unavoidable or if operations can not be resumed within six(6) months the party shall have the right to terminate the Contract upon Ten (10) days written notice to the other. In the event of such termination of the Contract, payment to the Contractor shall be made as follows :
- 48.03. The Contractor shall be paid for all Work approved by the Engineer and for any other legitimate expenses due to him. b) If the Municipal Commissioner terminates the Contract owing to Force Majeure or due to any cause beyond its control, the Contractor shall additionally be paid for any Work done during the said Six (6) months period including any financial commitment made for the proper performance of the Contract and which are not reasonable defrayed by payment under (a) above;
- 48.04. The Municipal Commissioner also release all bonds and guarantees at its disposal except is cause where the total amount of payments made to the Contractor exceeds the final amount due to him in which case the Contractor shall refund the excess amount within Sixty (60) days after termination and the Municipal Commissioner thereafter shall release all bonds and guarantees, shall the Contractor fail to refund the amount received in excess within the said period such amounts shall be deducted from the bonds or guarantees provided.

48.05. On the termination of the Contract for any cause the Contractor shall see the orderly suspension and termination of operations, with due consideration to the interests of the Municipal Corporation with respect to completion, safeguarding or storing of Materials : procured for the performance of the Contract and the salvage and resale thereof.

**GC-49 CHANGES IN CONSTITUTION :**

Where the Contractor is a partnership firm, the prior approval in writing of the Municipal Commissioner shall be obtained any change is made in the constitution of the firm. Where the Contractor is an individual or an undivided family business concern such approval as aforesaid shall like wise be obtained before the Contractor enters into any partnership Agreement where under the partnership firm would have the right to carry out the Work hereby undertaken by the Contractor. If prior approval as aforesaid is not obtained the Contract shall be deemed to have been assigned in contravention of Article thereof.

**GC-50 SUB-CONTRACTUAL RELATIONS :**

All Work performed for the Contract by sub-Contractor shall be pursuant to an appropriate Agreement between the Contractor and sub-Contractor which shall contain provisions to :

- a) Protect and preserve the rights of the Municipal Corporation and the Engineer with respect to the Work to be performed under the sub-Contract so that the sub-Contractor thereof shall not prejudice such rights.
- b) Require that such Work be performed in accordance with requirements of the Contract documents.
- c) Require under such Contract of which the Contractor is a party, the submission to the Contractor of application for payment and claims for additional costs, extension of time, damages for delay or otherwise with respect to the sub Contracted portions of the Work in sufficient time, that the Contractor may apply for payment and comply in accordance with the Contract Documents for like claim by the Contractor upon the Municipal Corporation
- d) Waive all rights the Contracting parties may have against one another for damages caused by fire or other perils covered by the property insurance except such rights as they may have to the proceeds so such insurance held by the Municipal Corporation as trustee and,
- e) Obligate each sub-Contractor Specifically to consent to the provisions of this Article.

**GC-51 LIEN :**

If, at any time, there shall be evidence of any lien or claim for which Owner might have become liable and which is chargeable to the Contractor, the Owner shall have the right to retain out of any payment then due or thereafter to become due an amount sufficient to completely indemnify the Owner against such lien or claim or if such lien or claim be valid the Owner may be or become due and payable to the Contractor. If any lien or claims remaining, unsettled after all payments are made, the Contractor shall refund or pay to the Owner all money that the latter may be compelled to pay in discharging such lien or claim including all cost and reasonable expenses

**GC-52 EXECUTION OF WORK :**

The whole Work shall be carried out in strict conformity with the provisions of the Contract Documents, detailed drawings, Specifications and the instructions of the Engineer-in-Charge from time to time. The Contractor shall ensure that the whole Work is executed in the most substantial, proper and best Workmanship : using Materials : of best quality in strict accordance with the Specifications to the entire satisfaction of the Engineer-in- charge.

**GC-53 WORK IN MONSOON :**

When the Work continues in monsoon, the Contractor shall maintain minimum labor force required, for the Work and plan and execute the work and erection Work according to the prescribed schedule. No extra rate shall be considered for such Work in monsoon. During monsoon and entire constructing period the Contractor shall keep the site free from water at his own cost.

**GC-54 WORK CLOSED ON SUNDAYS & HOLIDAYS & BETWEEN SUNSET & SUNRISE :**

No Work shall be carried out on Sundays and Corporation Holidays and no Work shall be carried out between sunset and sunrise. Except with the special permission of Engineer-in-Charge in writing previously obtained and with holding such permissions shall be no ground of complaint on the part of Contractor or cause for compensation to them. Working period shall be maximum eight (8) hours per days.

**GC-55 DRAWING TO BE SUPPLIED BY THE OWNER :**

The drawings attached (if any) with the Tender Document shall be for general guidance of the Contractor to enable him to visualize the type of Work contemplated and scope of Work involved. Detailed Working drawings according to which the Work is to be done shall be furnished from time to time as the Work progresses. The Contractor shall study the drawings thoroughly in connection with other connected details and discrepancy if any bring to the notice of the Engineer-in-Charge before actually carrying out the Work.

**GC-56 DRAWINGS TO BE SUPPLIED BY THE CONTRACTOR :**

Where drawings, date are to be furnished by the Contractor they shall be as enumerated in special condition of Contract and shall be furnished within the specified time. Where approval of drawings has been specified it shall be the Contractor's responsibility to have these drawings got approved before any Work is taken up with regard to the same.

Any changes becoming necessary in these drawings during the execution of the Work shall have to be carried out by the Contractor at no extra cost.

All final drawings shall bear the certification stamp as indicated below duly signed by both the Contractor and Engineer-in-charge.

**GC-57 SETTING OUT WORK :**

The Contractor shall set out the Work on the site handed by the Engineer-in-Charge and shall be responsible for the correctness of the same. The Work shall be carried out to the entire satisfaction of Engineer-in-Charge. The approval thereof or partaking by Engineer-in-Charge in setting out Work shall not relieve Contractor of any of his responsibilities. The Contractor shall provide at his own cost all necessary level posts, pegs, bamboos, flags, ranging, rods, strings and other materials: and laborers required for proper setting out of the Work. The Contractor shall provide, fix and be responsible for the maintenance of all stakes, temples level marks profiles and similar other things and shall take and necessary precautions to prevent their removal or disturbance and shall be responsible for the consequence for such removal or disturbance. The Contractor shall also be responsible for the maintenance of all existing Survey Marks, Boundary Marks, Distance Marks and Center line marks either existing or fixed by the Contractor. The Center, longitudinal or face lines and cross lines shall be marked by small masonry pillars. Each pillar shall have distance mark at the center for setting up the theodolite. The Work shall not be started unless the setting out is checked by Engineer-in-Charge in writing but such approval shall not relive the Contractor of his responsibilities. The Contractor shall provide all Materials ;, labor and other facilities necessary for checking at his own cost.

**GC-58 RESPONSIBILITIES OF CONTRACTOR FOR CORRECTTNESS OF WORK :**

The Contractor shall be entirely and exclusively responsible for the correctness of every part of the Work and shall rectify completely and errors thereon at his own cost when so instructed by Engineer-in-Charge.

**1. Materials : to be supplied by Contractor :**

Contractor shall procure and provide all the Materials : required for the execution and maintenance of Work including all tools, tackle and equipment except the Materials : to be supplied by the Owner detailed in the Contract documents and for the transport thereof, Owner, shall made recommendations to the respective authorities if designed by the Contractor but assumes no responsibility or any nature. Owner shall insist for procurement of Materials : with ISI Marks supplied by reputed firms on the DGS & D List.

2. If however the Engineer-in-Charge feels that Work is likely to be delayed due to Contractor's inability to procure the Materials ;, the Engineer-in-Charge shall have the right to procure Materials : from the market and the Contractor shall accept these Materials : at the rates decided by Engineer-in-Charge

**GC-59 MATERIALS : TO BE SUPPLIED BY THE OWNER :**

1. If the Contract provides certain Materials : or stores to be supplied by the S.M.C. such Materials : and stores shall be transported by the Contractor at his cost from S.M.C.'s stores or Railway Station. The sum due from Contractor for the value of Materials : supplied by the Owner shall be recovered from the R.A.Bill on the basis of actual consumption of Materials : in the Work covered and for which R.A.Bill has been prepared. After completion of the Work Contractor has to account for the full quantity of Materials : supplied to him.
2. The value of store Materials : supplied by the S.M.C. to the Contractor shall be charged at rates shown in the Contract document and in case any other material not listed in the schedule of Materials : is supplied by the S.M.C., the same shall be charged at cost price including carting and other expenses incurred in procuring the same. All Materials : so supplied shall remain the property of the Owner and shall not be removed from the site on any account. Any material remaining unused at the time of completion of Work or termination of Contract shall be returned to S.M.C.'s store or any other place as directed by the Engineer-in-Charge in perfectly good condition at Contractor's cost.

**GC-60 CONDITIONS OF ISSUE OF MATERIALS : BY S.M.C. :**

- a) The Materials : specified to be issued by the Owner to the Contractor shall be issued by the S.M.C.'s store and all expenses for its shifting to site shall be borne by the Contractor. The Materials : shall be issued during Working hours and as per rules of S.M.C. from time to time.
- b) Contractor shall bear all expenses for storage and safe custody at site of Materials : issued to him before use in Work.
- c) Material shall be issued by the S.M.C. in Standard sizes as obtained from manufacturer.
- d) Contractor shall construct suitable godown at site for storing the Materials : to protect the same from damage due to rain, dampness, fires, theft etc.
- e) The Contractor shall take the delivery of the Materials : issued by the S.M.C. after satisfying himself that they are in good conditions. Once the Materials : are issued, it shall be the responsibility of the Contractor to keep them in good condition and in safe custody. If the Materials : get damaged or if they are stolen, it shall be the responsibility of the Contractor to replace them at his according to the instructions of the Engineer-in-Charge.
- f) For delay in supply or for non supply of Materials : to be supplied by the S.M.C., on account of natural calamities, act of enemies, other difficulties beyond the control of the S.M.C., the S.M.C. carries non-responsibilities. In no case the Contractor shall be entitled to claim any compensation for loss suffered by him on this account.
- g) None of the Materials : issued to the Contractor, shall be used by the Contractor for manufacturing items which can be obtained from manufacturer. The Materials : issued by the Owner shall be used for the Work only and no other purpose.
- h) Contractor shall be required to execute indemnity bond in the prescribed form for the same custody and account of Materials : issued by the Owner.
- i) Contractor shall furnish sufficiently in advance a Statement of his requirements of quantities of Materials : to be supplied by the S.M.C. and the time when the same shall be required for the Work, so as to enable Engineer-in-Charge to make arrangements to procure and supply the Materials :
- j) A daily account of Materials : issued by the Owner shall be maintained by the Contractor showing receipt, consumption and balance in head in the form laid down by Engineer-in-Charge with all connected paper and shall be always available for inspection in the site office.
- k) Contractor shall see that only the required quantities of Materials : are got issued and no more. The Contractor shall be responsible to return the surplus Materials : in good condition at S.M.C.'s store at his own cost.

**GC-61 MATERIALS : PROCURED WITH ASSISTANCE OF THE OWNER :**

Notwithstanding anything contained to the contrary in any of the clauses of this Contract, where any Materials : for the execution of the Contract are procured with the assistance of the S.M.C. either by issue from S.M.C. stock or purchase made under orders or permits or licenses issued by the Government, the Contractor shall hold the same Materials : as trustees for Owner and use such Materials : economically and solely for the purpose of

Contract and not dispose them off without the permission of S.M.C. and return, if required by Engineer-in-Charge, all surplus or not serviceable Materials : that may be left with him after the completion of the Contract or at its termination for any reason whatsoever on his being paid or credited such prices as Engineer-in-Charge shall determine having due regard to the conditions of the Materials : The price allowed to Contractor shall not exceed the amount charged to him excluding the storage charges if any. The decision of Engineer-in-Charge shall be final and conclusive in such matters. In the event of breach of the aforesaid condition, the Contractor shall in terms of license of permits and/or for criminal breach of trust be liable to compensate S.M.C. at double rate or any higher rates. In the event of these Materials : at that time having higher rate or not being available in the market then any other rate to be determined by the Engineer-in-Charge and his decision shall be final and conclusive.

**GC-62 MATERIALS : OBTAINED FROM DISMANTLING :**

If the Contractor, in the course of execution of Work is called upon to dismantle any part for reasons other than on account of bad or imperfect Work, the Materials : obtained from dismantling shall be the property of the S.M.C. and shall be disposed of as per instruction of Engineer-in-Charge in the best interest of the S.M.C.

**GC-63 ARTICLE OF VALUE OR TREASURE FOUND DURING CONSTRUCTION :**

All gold, silver and other minerals of any description and all precious stones, coins, treasures, relics, antiquities and other similar things which shall be found in under or upon site shall be the property of the Owner and the Contractor shall properly preserve the same to the satisfaction of Engineer-in-Charge and shall hand over the same to the Owner.

**GC-64 DISCREPANCIES BETWEEN INSTRUCTIONS :**

If there is any discrepancy between the various stipulations of the Contract documents of instructions to the Contractor or his authorized representative or if any doubt arises as in the meaning of such stipulation or instructions, the Contractor shall immediately refer in writing to the Engineer-in-Charge whose decision shall be final and conclusive and no claim for losses caused by such discrepancy, shall in any event be admissible.

In case there is any discrepancy in measurements showing drawing and Specifications, the same shown in drawing shall be considered as final and shall be binding upon the Contractor.

**GC-65 SCHEDULE OF QUANTITIES AND EXTRA ITEMS :**

**A. Schedule of Quantities :**

Variations in the quantities of Work in schedule of quantities shall not vitiate the Contract. The rates quoted for the individual items shall apply for the quantities of Work increased or decreased by not more than thirty percent for each of the items. If the quantities of Work actually involved under any item vary by more than thirty (30%) percent, the rate for such item of Work shall be revised in accordance with the procedures indicated under clause "Extra Items". The payment for the items shall, however, continue to be at the original rate till the revised rate decided.

**B. Extra Items :**

Extra Items of Work shall not vitiate the Contract. The Contractor shall be bound to execute extra items of Work as directed by the Engineer-in-Charge. The rates for extra items shall be as per the same rate mention in the electrical S.O.R. of R & B , year 23-24.

If the extra items are not available in said S.O.R., in such case ONLY, the rate of extra item shall be derived on prevailing market rate.

**GC-66 ACTION WHEN NO SPECIFICATION IS ISSUED :**

In case of any class of Work for which no Specification is supplied by the S.M.C. in the Tender Document, such Work shall be carried out in accordance with I.S.S. and if I.S.S. do not cover the same, the Work shall be carried out as per standard Engineering practice subject to the approval of Engineer-in-Charge.

**GC-67 ABNORMAL RATES :**

Contractor is expected to quote rate for each item after careful analysis of cost involved for the performance of the completed item considering all Specifications and conditions of Contract. This shall avoid loss of profit or gain in case of curtailment or change or Specification for any item.

**GC-68 ASSISTANCE TO ENGINEER-IN-CHARGE :**

Contractor shall make available to Engineer-in-Charge free of cost all necessary instruments and assistance in checking of any Work made by the Contractor for taking measurement of Work.

**GC-69 TEST OF QUALITY OF WORK :**

1. All Workmanship : shall be of the best kind described in the Contract document and in accordance with the instructions of Engineer-in-Charge and shall be subjected from time to time to such test at Contractor's cost as the Engineer-in-Charge may direct at the place of manufacture or fabrication or on site or at any such place. Contractor shall provide assistance, instruments labor and Materials : as are normally required for examining measuring and testing any Work Workmanship : as may be selected and required by Engineer-in-Charge.
2. All tests shall be necessary in connection with the execution of Work as decided by Engineer-in-Charge shall be carried out at an approved laboratory at Contractor's cost.
3. The Contractor shall furnish to Engineer - in - charge for approval when requested or if required by the Specification adequate samples of all Materials : and finished goods to be used in Work and sufficiently in advance to permit test and examination thereof. All Materials : furnished and finished goods applied in Work shall be exactly as per the approved samples.
4. All the testing charges shall be borne by the Contractor.

**GC-70 ACTION AND COMPENSATION IN CASE OF BAD WORKMANSHIP :**

If it shall appear to the Engineer-in-Charge that any Work has been executed with Materials : of inferior description, or quality or are unsound or with unsound imperfect or unskilled Workmanship : or otherwise not in accordance with the Contractor shall, no demand in writing from Engineer-in-Charge or his authorized representative specifying the Work, Materials : or articles complained of, notwithstanding that the same may have been inadvertently passed, certified and paid for forthwith rectify or remove and reconstruct the Work, specified and in the event of failure to do so within a period to be specified by Engineer- in-charge in his aforesaid demand, Contractor shall be liable to pay compensation at the rate of one (1) percent of the tendered cost of Work for every Ten (10) days limited to a maximum of Ten (10%) Percent of the value of Work while his failure to do so continue and in the case of any such failure the Engineer-in- charge may on expiry of the notice period rectify and remove and re-execute the Work or remove and replace with other at the risk and cost of the Contractor. The decision of the Engineer-in- charge as to any question arising under this clause shall be final and conclusive.

**GC-71 SUSPENSION OF WORK :**

Contractor shall, if ordered in writing by Engineer-in-Charge or his representative temporarily suspended the Work or any part thereof for such time (not exceeding two months) as ordered and shall not after receiving such written order proceed with the Work until he shall have received a written order to proceed therewith the Contractor shall not be entitled to claim compensation for any loss or damage sustained by him by reason of temporary suspension of Work as aforesaid. An extension of time for completion of Work shall be granted to the Contractor corresponding to the delay caused by such suspension of Work if the applied for the same provided the suspension was not consequent upon any default or failure on the part of the Contractor.

**GC-72 OWNER MAY DO PART OF THE WORK :**

When the Contractor fails to comply with any instructions given in accordance with the provisions of this Contract, the S.M.C. has the right to carry out such parts of Work as the S.M.C. may designate whether by purchasing Materials : and engaging labor or by the agency of another Contractor. In such case the S.M.C. shall deduct from the amount which otherwise might become due to Contractor the cost of such Work and Materials : with Ten (10%) percent added to cover all departmental charges and shall the total amount thereof exceed the amount due to Contractor, Contractor shall pay the difference to S.M.C.

**GC-73 POSSESSION PRIOR TO COMPLETION :**

The Engineer-in-Charge shall have the right to take possession of or to use any completed or partly completed Work or part of Work, such possession or use shall not be deemed to be an acceptance of any Work completed in accordance with the Contractor. If such prior possession or use by Engineer-in-Charge delays the progress of Work, equitable adjustment in the time of completion shall be made and the Contract shall be deemed to be modified accordingly.

**GC-74 SCHEDULE OF RATES :**

1. The price/rates quoted by the Contractor shall remain firm till the issue of final certificate and shall be subject to price ADJUSTMENT CLAUSE GC-35. Schedule of rates shall be deemed to include and cover all costs expenses and liabilities of every description and all risks of every kind to be taken in executing, completing and handing over the work to Owner by Contractor. Contractor shall be deemed to have known the nature, scope, magnitude and the extent of Work and Materials : required through Contract documents may not fully and precisely furnish them. He shall make such provision in the schedule of rates as he may consider necessary to cover the cost of such items of Work and Materials : as may be reasonable and necessary to completion Work. The opinion of Engineer-in-Charge as to the item of Work shall be final and binding on Contractor although the same may be not shown on or described Specifically in Contract documents.
2. The Schedule of rates shall be deemed to include and cover the cost of all temporary Work, Materials :, labor and all other Materials : in connection with each item in schedule of rates and the execution of Work or any portion thereof furnished complete in every respect and maintained as shown or described in the Contract document or as may be ordered in writing during the continuance of the Contract.
3. The Schedule of rates shall be deemed to include and cover the cost of all royalties and free for the articles and processes, protected by letters patent or otherwise incorporated in or used in connection with Work, also all royalties, and other payments in connection with Materials : of whatsoever kind for Work and shall include an indemnity to-Owner which Contractor hereby gives against all action, proceeding, claims, damages, costs and expenses arising from the incorporation in use of Work of any such articles, processes or Materials : Octroi of other Municipal or Local Board charges if levied on Materials : equipment of machineries to be brought to site for use on Work shall be borne by the Contractor.
4. No exemption or reduction of custom duties excise duties, sales-tax or any other taxes or charges of the Central or State Government any local body whatsoever shall be granted to obtained. All of such expenses shall be deemed to have been included in and covered by schedule of rates. Contractor shall also obtained and pay for all permits or other privileges necessary to complete Work.
5. The schedule of rates shall be deemed to include and cover risk on account of delay or interference with Contractor's conduct of Work which may occur from any cause including orders of S.M.C. in the exercise of his power and no account of extension of time granted due to various reasons.
6. For Work under unit rate basis no alteration shall be allowed in the schedule of rates by reason of Work or any part of them being field, altered extended, diminished or omitted.

**GC-75 PROCEDURE FOR MEASUREMENT OF WORK IN PROGRESS :**

1. All measurements shall be in metric system. All the Work in progress shall be jointly measured by the representative of Engineer-in-Charge and Contractor's authorized agent. Such measurements shall be got recorded in the measurement book by the Engineer or his authorized representative and signed by Contractor or his authorized agent in token of acceptance. If the Contractor or his authorized agent fails to be present when even required by the Engineer-in-Charge for taking measurements for any reasons whatsoever, the measurement shall be taken by the Engineer - in - charge or his authorized representative notwithstanding the absence of Contractor and these measurement shall be deemed to be correct and binding on Contractor.
2. Contractor shall submit a bill in approved proforma in duplicate to the Engineer-in-Charge of the Work giving abstract and detailed measurements of various items executed during a month as mutually agreed. The Engineer-in-Charge shall verify the bill and the claim, far as admissible, adjusted if possible, within 10 days of presentation of the bills.

**GC-76 RUNNING ACCOUNT PAYMENT TO BE RECOVERED AS ADVANCES :**

All running account payments shall be regarded as payments by way of advance against the final payment only and not as payment 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 to be considered as an admission of the due performance of Contract or any part thereof.

**GC-77 NOTICE FOR CLAIM FOR ADDITIONAL PAYMENT :**

If the Contractor considers that he is entitled to extra payment or compensation or any claim whatsoever in respect of Work, he shall forthwith give notice in writing to the Engineer-in-Charge about his extra payment and/or compensation. Such notice shall be given to the Engineer-in-Charge within Ten (10) days from the happening of any event upon which Contractor basis such claims and such notice shall contain full particular of the nature of such claim with full details and amount claimed. Failure on the part of the Contractor to put forward any claim with the necessary particulars as above within the time above specified shall be an absolute waiver thereof. No commission by S.M.C. to reject any such claim and no delay in dealing therewith shall be waiver by S.M.C. of any rights in respect thereof.

**GC-78 PAYMENT OF CONTRACTOR'S BILL :**

1. The price to be paid by the S.M.C. to Contractor for the Work to be done and for the performance of all the obligations under taken by the Contractor under Contract shall be based on the Contract price and payment to be made accordingly for the Work actually executed and approved by the Engineer-in-charge.
2. No payment shall be made for Work costing less than Rs.5,000.00, till the Work is completed and a certificate of completion given. But in case of Work estimated to cost more than Rs. 5,000.00, Contractor, on submitting the bill thereof, shall be entitled to receive a monthly payment, proportionate to the part thereof, approved and passed by Engineer-in-Charge whose certificate of such approval and passing of the sum so payable shall be final and conclusive against Contractor.

This payment shall be made after making necessary deductions as stipulated elsewhere in the Contract documents for Materials ;, security deposit, etc. The payment shall be released to the Contractor within Thirty ( 30 ) days of submission of the bill in case of running bill and with in two (02) months in case of final bill. Contractor shall present the bill in duly approved Performa in hard copy and soft copy through Project Management Consultant or directly Surat Municipal Corporation where Project Management Consultant is not appointed.

Payment due to Contractor shall be made by the by crossed Accounts payee cheque/ RTGS / ANY PREFREED ON LINE MODE in Indian currency forwarding the same to the registered office of the Contractor. Owner shall not be responsible if the cheque is mislaid or misappropriated by unauthorized person.

**GC-79 FINAL BILL :**

The final bill shall be submitted by the Contractor within two ( 02 ) months of the date of physical completion of Work, otherwise the Engineer-in-Charge certificate of the measurement and of total amount payable for the Work shall be finalized binding on all parties.

**GC-80 RECEIPT FOR PAYMENT :**

Receipt for payment made on account of Work when executed by a firm must be signed by a person holding power of attorney in this respect on behalf of Contractor except when described in the tender as a limited company in which case the receipt must be signed in the name of the company by one of its principal officers or by some other person having authority to give effectual receipt for the Company.

**GC-81 COMPLETION CERTIFICATE :**

1. When the Contractor fulfill his obligation as per terms of Contract he shall be eligible to apply for completion certificate. Contractor may apply for separate completion certificate in respect of each such portion of Work by submitting the completion documents along with such application for completion certificate.

The Engineer-in-Charge shall normally issue to Contractor the completion certificate within 3 ( Three) month after receiving an application thereof from Contractor after verifying from the complete



documents and satisfying himself that Work has been completed in accordance with and as set out in the construction and erection drawings and the Contract document. Contractor after obtaining the completion certificate is eligible to present the final bill for Work executed by him under the terms of Contract.

2. Within 3 (Three) month of completion of Work in all respect Contractor shall be furnished with a certificate by the Engineer-in-Charge of such completion but no certificate shall be given nor shall Work be deemed to have been executed, until all (1) scaffolding, surplus Materials : and rubbish is clearing off site completely (2) until Work shall have been measured by the Engineer-in-Charge whose measurement shall be binding and conclusive and (3) until all the temporary Works, labor and staff colonies etc. constructed are removed and the Work site cleaned to the satisfaction of the Engineer-in-Charge. If Contractors shall fail to comply with the requirements as aforesaid or before date fixed for the completion of Work, the Engineer-in-Charge may at the expenses of Contractor remove such scaffolding, surplus Materials : and rubbish and dispose of the same he thinks fit.
3. The following documents shall form the completion documents :
  - (a) Technical documents according to which Work was carried out.
  - (b) Construction drawings showing therein the modifications and corrections made during the course of execution signed by Engineer-in-Charge.
  - (c) Completion certificate for "Embedded" or "Covered" up Work.
  - (d) Certificate of final levels as set out for various Works.
  - (e) Material appropriation statement for the Materials : issued by Owner for Work and list of surplus Materials : returned to S.M.C.'s store duly supported by necessary documents.
4. Upon expiry of the period of defect liability and subject to Engineer-in-Charge being satisfied that Work has been duly maintained by Contractor during the defects liability period as fixed originally, or as external subsequently and the Contractor has in all respects made up by subsidence and performed all his obligations under Contract, the Engineer- in-charge shall (without prejudice to the rights of Owner in any way) give final certificate to that effect. The Contractor shall not be considered to have fulfilled the whole of his obligation until final certificate shall have been given by the Engineer-in-Charge notwithstanding previous entry upon and taking possession, Working or using of the same or any part thereof by Owner.

**Final Certificate only Evidence of Completion :**

Except the final certificate no other certificate or payments against a certificate or an general account shall be taken to be an admission by Owner of the due performance of Contract or any part thereof or of occupancy validity of any claim by the Contractor.

**GC-82 TAXES, DUTIES, OCTROI, ETC. :**

The quoted rate is exclusive of GST

The Contractor shall be liable to the payment of all the Central/ State/Local Bodie's Levies, taxes or duties etc. The S.M.C. shall neither bear it nor reimburse at any time but shall ensure deduction of Central/State/Local levies and taxes at Source at the rate provided under the relevant statutes from time to time in force. Further the Work Contract tax or sale tax shall be borne by the Contractor as per Rules and Regulations of Government.

Any increase or decrease in taxes/duties or imposition of any new taxes/duties shall be on account to the Corporation and such increase/decrease shall be paid/recovered to/from the Contractor on producing documentary evidences only. The Contractor shall be the sole responsible for payment of such incidentals to the concerned Government department which he has collected from the Corporation. This provision is limited for schedule-B of the tender.

If any service tax is levied by the Government during the course of execution of this Contract. It shall be reimbursed separately by S.M.C., provided the original receipt/proof for the amounts actually remitted by the successful tenderer to the competent authority which shall be intimated/submitted within 30 (Thirty) days form the date of payment.

**GC-83 INSURANCE :**

Contractor shall at his own expenses carry and maintain with reputable Insurance Companies to the satisfaction of Owner as follows :

**1. Employees State Insurance Act :**

Contractor agrees to and does hereby accept full and exclusive liability for compliance with all obligations imposed by the Employees' State Insurance Act 1948, and Contractor further agree to defend, indemnify and hold Owner harmless from any liability or penalty which may be imposed by the Central or State Government of Local authority by reasons of any asserted violation by Contractor or Sub-Contractor of the Employees' State Insurance Act, 1948 and also from all claims, suits or proceedings that may be brought against Owner arising tender, growing out of or by reasons of the Work provided for by this Contract whether brought by employees of Contractor, by third parties or by Central or State Government authority or any administrative Sub-division thereof.

Contractor agrees to fill in with the Employees State Insurance Corporation, the declaration from and all forms which may be required in respect Contractor's or Sub-Contractor's employees these aggregate remuneration is Rs. 400/- p.m. or less and who are employed in Work provided for or those covered by E.S.I from time to time under the Agreement. The Contractor shall deduct and secure the Agreement of the Sub-Contractor to deduct the employees' contribution as per the first Schedule of the Employees' State Insurance Act from wages. Contractor shall remit and secure the Agreement of Sub-Contractor to remit to the State Bank of India Employees' State Insurance Corporation Accounts, the employees contribution as required by the Act Contractor agrees to maintain all cares and record as required under the Act in respect of employees and payments and Contractor shall secure the Agreements of the sub-Contractors to maintain such records, any expenses incurred for the contributions or maintaining records shall be to Contractor's or sub- Contractor' account. Owner shall retain such sum as may be necessary from the Contract value until Contractor shall furnish satisfactory proof that all contribution as required by the Employees' State Insurance Act 1948 have been paid.

**2. Workman's Compensation And Employees Liability Insurance :**

Insurance shall be effected for all Contractors employees engaged in the performance of this contract. If any part of Work is sublet, Contractor shall require the sub-Contractor to provide Workman's' compensation and employer's liability insurance which may be required by Owner.

**3. Other Insurance required under law or regulation by Owner :**

Contractor shall also carry and maintain any and all other insurance which may be required under any law or regulation from time to time. He shall also carry and maintain any other insurance which may be required by Owner.

The contractor shall indemnify the corporation against all losses and claims in respect of ,

- a. Death of or injury to any person, or,
- b. Loss of or damage to any property (other than the work)
- c. Which may arise out of in consequent of the operation & maintenance of the facility and the rectifying of any defects therein and against all claims proceedings, damages, costs, and expenses whatsoever in respect thereof or in relation there to.

The corporation shall not liable for or in respect of any damages or compensation payable to any workman or other person in the employment of the contractor or any sub-contractor, resulting from any act or default of the contractor, his agents or servant.

The Contractor shall take "All contract risk insurance policy" for all workers & labourers of contractor & client working at site & Third Party throughout the contract period.

The Contractor shall take "Workmen Compensation Policy" for all workers & labourers of contractor & client working at site & Third Party.

"Insurance Policy" must fully cover of all type risk. The Insurance policy so taken by the contractor for such purposes shall be in the joint name of the contractor & the client & the policy shall be deposited with the client & it must be taken by contractor before the start of contract.

**GC-84 DAMAGE TO PROPERTY :**

1. Contractor shall be responsible for making good to the satisfaction of Owner any loss of and any damage to all structures and properties belonging to Owner or being executed or Procured by Owner or of other Agencies within the premises of all Work of Owner, if such loss or damage is due to fault and / or the negligence or shall full act or omission of Contractor, his employees, agent representatives or Sub-Contractors.
2. Contractors shall indemnify and keep Owner harmless of all claims for damage to properties other than S.M.C's property arising under or by reasons of this Agreement if such claims result from the fault and / or negligence or willful act of omission of Contractor, his employees, agents, representatives or sub-Contractors.

**GC-85 Labour LAWS AND REGULATIONS :**

1. The Contractor shall be responsible for the strict compliance of and shall ensure strict compliance by his sub Contractor employees and agents of all labors and others laws, rules or regulations having the force of law affecting the relationship of employer and employee between the Contractor/sub-Contractor and their respective employees.
2. No labor below the age of Fourteen (14) year be employed on Work.
3. Contractor shall pay to the labors engaged on Work according the law
4. The Contractor and sub-Contractors of the Contractor shall obtain proper authority designated in this behalf under any application law, rules or regulations (including but not restricted to the factories Act and Contract labor Abolition and Regulation Act 1970, ) in so far as applicable) any and all such licenses, consents, Registration and / or other authorization as shall from time to time be or become necessary for relating to the execution of Work or any part of portion thereof or the storage or supply of any Materials : or otherwise in connection with the performance of the Contract and shall at all times observance by the sub- Contractors, employees and agents of all terms and conditions of the said licenses, consents, regulation and other authorization and laws, rules and regulations applicable thereto.

**GC-86 CONTRACTOR TO INDEMNIFY OWNER :**

1. The Contractor shall indemnify and keep indemnified the Owner and every member, officer and employee of Owner from and against all action, claims, demands and liabilities whatsoever and in respect of the breach of any of the above clauses  
and/or against any claim, action or demand by any Workman/ employee of the Contractor or any sub-Contractor and or from any liability and way to any Workman / employee of the Contractor or any sub-Contractor under any law, rule or regulations having the force of law, including but not limited to claims against the Owner under the Workman compensation Act 1923. The employees' Provident Funds Act 1952 and/or the Contract labor (Abolition and Regulations) Act, 1970.
2. Payment of claims and damages :  
If Owner has to pay any money in respect of such claims or demands as aforesaid, the amount so paid and the cost incurred by the Owner shall be charged to and paid by Contractor without any dispute notwithstanding the same may have been paid without the consent or authority of the Contractor.
3. In every case in which by virtue of any provision applicable in the Workman's Compensation Act 1923 or any other Act, be obliged to pay compensation to Workman employed by Contractor the amount of compensation so paid, and without prejudice to the rights of S.M.C. under sec.(12) Sub-section (2) of the said Act, S.M.C. shall be at liberty to recover such amount from any surplus due to the Contractor or the Security Deposit. S.M.C. shall not be bound to contest any claim made under section (12) Sub-section (2) of the said Act except or written request of Contractor and upon the contesting of such claim.
4. The Contractor shall protect adjoining sites against structural decorative and other damages that could be caused to adjoining premises by the execution of these Work and made good at his cost, any such damage, so caused.

**GC-87 IMPLEMENTATION OF APPRENTICE ACT 1964 :**

The Contractor shall comply with the provisions of the Apprentice Act 1964 and the orders issued here under from time to time. If he fails to do so, it shall be a breach of Contract. Contractor shall also be liable for any particular liability arising on account of any violation of the provisions of the Act by him.

#### **GC-88 HEALTH AND SANITARY ARRANGEMENTS FOR WORKERS :**

The Contractor shall comply with all the rules and regulations of the local sanitary authorities or as framed by Owner from time to time for the protection of health and sanitary arrangements of all labor directly or indirectly employed on the Work of this Contract.

#### **GC-89 SAFETY CODE :**

##### **GENERAL :**

Contractor shall adhere to safe construction practice and guard against hazardous and unsafe Working conditions and shall comply with Owner's safety rules and set forth herein.

##### **1. First Aid and Industrial Injuries :**

- 1.1 The Contractor shall maintain first aid facilities for its employees and those of his sub-Contractor.
- 1.2 The Contractor shall make outside arrangements for ambulance service and for the treatment of industrial injuries. Name of those providing these services shall be furnished to Engineer-in-Charge prior to start of construction, and their telephone numbers shall be prominently posted in Contractor's field office.
- 1.3 All injuries shall be reported promptly to Engineer-in-charge, and a copy of Contractor's report covering each personal injury requiring the attention of a physician shall be furnished to Owner.

##### **2. General Rules :**

- 2.1 Carrying, striking, matches, lighters inside the project area & smoking within the job site is strictly prohibited. Violators of smoking rules shall be discharged immediately. Within the operation area, not hot Work shall be permitted without valid gas safety, fire permits. The Contractor shall also be held liable and responsible for all lapses of his sub-Contractors / employees in this regard.

##### **3. Scaffolding :**

- 3.1 Necessary scaffolding for the work shall entirely be in scope of contractor. And any changes made to present civil structure for scaffolding shall be brought in to original position by contractor after work is over.

##### **4. Maintenance of Safety Devices :**

- 4.1 All scaffolds, ladders and other safety devices mentioned or described herein shall be maintained in some conditions and no scaffold, ladder or equipment shall be altered or removed while it is in use. Adequate washing facilities shall be provided at or near place of Work.

##### **5. Display of Safety Instructions :**

- 5.1 These safety provisions shall be brought to the notice of all concerned by display on a notice board at a prominent place at the Work-spot. The person responsible for compliance of the safety code shall be named therein by the Contractor.

##### **6. Enforcement of Safety Regulations :**

- 6.1 To ensure effective enforcement of the rules and regulations relating safety precautions, the arrangements made by the Contractor shall be open to inspection by the welfare Officer, Engineer-in-Charge of safety Engineer of the Owner or their representatives.

##### **7. No Exemption :**

- 7.1 Notwithstanding the above clause 1.0 to 6.0 there is nothing to exempt the Contractor from the operations of any other Act or rules in force in the Republic of India.
- 7.2 In addition to the above, the Contractor shall adhere by the safety code provision as per C.P.W.D. Safety Code framed from time to time.

#### **GC-90 ACCIDENTS :**

It shall be the Contractor's responsibility to protect against accidents on the Work. He shall indemnify the Municipal Corporation against any claim for damage or for injury to persons or property resulting from, and in the course of Work and also under the provision of the Workman's Compensation Act. On the inception of an accident arising out of the Work which results in death or which is so serious as to be likely to result in death, the Contractor shall within twenty four hours of such accident, report in writing to the Engineer-in-Charge, the facts stating clearly and in sufficient details the circumstances of such accident and the subsequent action. All accidents on the Work shall be promptly reported to the Engineer-in-Charge stating clearly and in sufficient details and facts and circumstances of the accidents and the action taken. In all cases the Contractor shall indemnify the Municipal Corporation against all loss of damage resulting directly or indirectly from and in the course of Work. This includes penalties or fine consequently of failure to give notice under the Workman's compensation Act or failure to conform to the provisions of the said. Act in regard to such accidents.

In the event of an accident in respect of which compensation may become payable under the work men compensation Act including all modification thereof whether such compensation may become payable by the Contractor or by the Municipal Corporation as principal employer, the Engineer-in-Charge may retain out of money due and payable to the Contractor such sum or sums of money as may, in the opinion of the Engineer-in-Charge be sufficient to meet such liability. On receipt of award from the labour commission in regard to quantum of compensation, the difference in amount shall be adjusted. If any necessity arises to log a Police case at the time of such incidence of accidents, contractor shall be responsible to do so.

**GC-91 DELETED**

**GC-92 SECURED ADVANCES :**

No Secured advances shall be paid.

**GC-93 TESTING OF EQUIPMENTS/ACCESSORIES**

SMC shall ask for the testing/inspection of different items of the tender. Testing of these items shall be carried out in presence of representative(s) Min 02 person of SMC and/or 01 person Third Party Inspector. All the expense of testing including travelling, lodging, boarding etc. shall be borne by the contractor. Wherever testing is waived or not required, material or items shall be supplied with manufacturing test certificates.

**GC-96 SUBMISSION / COMPULSION BY CONTRACTOR:**

The Contractor registered with S.M.C. or any other Govt. organization is required to employ minimal technical staff as detailed in the certificate issued to him. If Contractor does not employ same technical staff over Work entrusted to him, shall submit photo-identity and education qualification of technical staff appointed at site.

"The Contractor shall have to keep the record of the laborers employed for the concerned Work. The Contractor shall provide attendance card, identification card, pay slip etc to the laborers employed. Further, the amount of E.S.I.& Provident Fund shall be deducted from the salary of the laborers employed and such amount shall invariably be deposited to the concerned Government Departments. In addition, the amount of social security under E.P.F. & M.P. act 1952 shall be recovered every month & such amount shall invariably be deposited directly to the concern Government Departments. In the same context, the details regarding such amount deposited to the concern Government Department and laborers employed shall be furnished to the office of Public Infrastructure Cell of S.M.C. every month. In case of failure, such amount shall be deducted/recovered from the running bill directly in accordance with the details given by Contractor regarding laborers employed and as per the prevailing rules of Government. In absence of detail, an adhoc suitable amount of the total amount of Work done shall be recovered directly from the running bills. On submission of evidence of recovery of such amount, the amount recovered/deducted shall be released in the next bill after due sanction of Competent Authority of S.M.C."

**Executive Engineer(Workshop/Mech.)**

Public Infrastructure Cell

Surat Municipal Corporation

Seal & Signature of the bidder

(1)	General Description of the Work	:	Up gradation of Existing AC System with HVAC and Electrification works for Various ICU's at SMIMER Hospital Governing by Surat Municipal Corporation
(2)	Estimated Cost	:	Rs.94,41,075.52(EXCL. GST)
(3)	Earnest Money Deposit	:	RS.95,000/-
(4)	Security Deposit		
	(i) Initial Security Deposit	:	Rs. 2% of the Tender Value.
	(ii) To be deducted from R. A. Bills	:	-----
	Total Security Deposit	:	Rs. 2% of the Tender Value.
(5)	Time allowed for the completion of the Work from date fixed in Work Order Letter to commence	:	SITC- 6 MONTHS Excluding Monsoon  C.AMC- 1 YEAR (DEFECT LIABILITY PERIOD) & 7 YEARS (AFTER DEFECT LIABILITY PERIOD)
(6)	Compensation for delayed Work	:	<b>Capital Works:</b> 0.2 % (Zero point Two percent ) of unexecuted work per day, maximum up to 10 % (Ten percent ) of the Tender Value for uncompleted portion of work  <b>AMC:</b> As defined elsewhere in penalty criteria, maximum up to 10% per year of the order value
(7)	The progress of the Work shall confirm to the following schedule	:	-----
(8)	Defect Liability Period	:-	1 (One) year from the date of handing over entire work to SMC
(9)	Electricity	:-	Shall be provided by SMC as mentioned in tender
(10)	AMC for HVAC system		After completion of 1 yr. defect liability period & 7 years comprehensive AMC work to be carried out.

## PENALTY CRITERIA for AMC work of HVAC system

The contractor is expected to keep the system in its best working condition. However, following incidences may attract penalty stated against each of them:

Sr	Description	Penalty Criteria (AMC)
1	If contractor fails to carry out routine maintenance activities as described in scope of work	Two times the actual expenditure incurred for getting the job/work done by any other source/agency or by any other mode.
2	If the ICU'S room stays out of operation due to technical fault	Rs.1000/- per day after 6th hour of non-operation.
3	If breakdown call is not attended within 4 hours from the intimation	Rs.100/- per hour.
4	If the replaced part is not original / genuine	Rs.1000/- per incidence.
5	If any machine / part is not re-installed after taken out for repairing	Rs.1000/- per day from the 8th day.
6	If the ICU'S is working but its sub part (temperature indicator / controller / light fitting etc.) is not working	Rs.300/- per day from the 3rd day.
7	If contractor fails to keep the system in healthy working condition due to reasons non availability of the spares / discontinued parts / machines / models	Entire expense to bring the system in the healthy condition by any other means / through any other agency + Rs.50, 000/- per incidence.

Exe. Engineer (Workshop/Mech.)  
Public Infrastructure Cell  
Surat Municipal Corporation

**SECTION-1 GENERAL SPECIFICATIONS OF VRF/VRV TYPE HVAC SYSTEM**

**1.0 EXECUTIVE SUMMARY:**

Air conditioning system for ICUs located on 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> floor of SMIMER Main building at SMIMER Campus is proposed with VRF/ VRV System.

**System Suggested:** Air Cooled Conventional VRF Cassette & high wall system is proposed for the comfort conditioning areas for Ground floor on 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> floor of SMIMER Main building at SMIMER Campus.

**2.0 SCOPE OF WORK AND BASIS OF DESIGN**

**2.1 BROAD SCOPE**

The scope of this Tender covers Design, Manufacturing / Fabrication, Shop testing, Supply, Installation (including dismantling, lifting, shifting, assembling etc.), Site testing, and Commissioning of the following system components (confirming to tender specifications, relevant ASHRAE codes and in accordance with the requirements of Bill of quantities and approved drawings) for **HVAC SYSTEM** proposed for ICUs at SMIMER Main building, SMIMER Campus.

**2.2 BUILDING RELATED AIR CONDITIONING SYSTEM INFORMATION**

Serving areas are on First, Second and Third floor divided into different Rooms/sections as mentioned in the Area Wise Heat Load Summary with drawings. From the view point of Air Conditioning, all these areas are catered by 4 way cassette & High wall split IDUs.

The Cassettes/High wall shall be catered by distributed ref. piping network. All the AC Unit outdoor units' positions are proposed on the side of the building as shown on drawings. The Bidder shall be required to quote for total system and guarantee performance in terms of inside conditions as well as power consumption for the application intended.

**2.3 BASIS OF DESIGN & EQUIPMENTS**

An integrated Air-conditioning system is designed / proposed to maintain the temperature, humidity within specified tolerance and indoor air quality, within desired and comfortable conditions with proper air distribution within the AC area.

Proposed system / system components offered shall have:

- ✓ Higher efficiency & Co-efficient of Performance.
- ✓ Minimum power consumption, efficient part load operation.
- ✓ Ease of operation and maintenance.
- ✓ Minimum vibration and noise level.
- ✓ Reliability, Simplicity, Compactness, Modularity and Interchange ability.
- ✓ Better Environmental protection and Indoor Air Quality.

**2.4 CONSIDERATIONS**

On the basis of architectural drawings, and details available, following actual site conditions and the assumptions made for the load estimation and subsequent system design.

**2.4.1 SITE PARAMETERS (INPUTS):**

- a. Unit : Building at Surat
- b. Client : SMC



- c. Location : Surat
- d. Application : Comfort Air-Conditioning
- e. Ambient Design conditions : DB 45 °C & RH 60-90%
- f. Inside Design Conditions : 24 ± 2 °C & RH 50-60%
- g. Occupancy: As per Design Requirement
- h. Equipment load – KW : As per Design Requirement
- i. Lighting load : As per Design Requirement
- j. Fresh Air standard : Through Frequent door openings.

## 2.4.2 AIR CONDITIONING SYSTEM DESIGN OUTPUT

Based on the above inputs, the Peak HVAC Design Figures for the building areas are as per Heat Load Summary.

## 3.0 VARIABLE REFRIGERANT FLOW SYSTEM EQUIPMENT:

### 3.1 SCOPE

The Scope of this section comprises the supply, erection, testing and commissioning of Variable Refrigerant Volume Air conditioning unit, conforming to these Specifications and in accordance with requirements of drawings and of the bill of Quantities.

### VRF / VRV SYSTEM

The system selected is a modular system, with number of indoors connected to centrally located outdoor units, as per detail designing given in the tender. The outdoor units for all the system shall be air cooled type and mounted on terrace of the building. Indoor units in various areas shall be as per enclosed drawings / Bill of Quantities.

All the VRF air conditioners shall be fully factory assembled, wired, internally piped & tested. The outdoor unit shall be pre charged with first charge of R 410A refrigerant. Additional charge shall be added as per refrigerant piping at site.

All the units shall be suitable for operation with 415 V + 10%, 50 Hz + 3%, 3 Phase supply for outdoor units & 220 V + 10%, 50 Hz + 3%, 1 Phase supply for indoor units. The VRF system shall provide stable, trouble free & safe operation, with flexibility of operating desired indoor units. The outdoor units must be capable of delivering exact capacity proportional to the number of indoor units switched on & the heat load in the air-conditioned area. The proportional operation shall be achieved by varying speed of the compressor in the outdoor units / change in compressor configuration or capacity as per load.

### Item 1 to 5

### VRF OUTDOOR UNIT

Supply Installation, Testing & Commissioning of modular type Variable Refrigerant Volume air cooled Outdoor units suitable for cooling and heating, having all hermetically sealed inverter type Scroll Compressor(s), microprocessor based Controller, top discharge type condensing unit(s), with R410 A Refrigerant (Or Eco Friendly Green Gas if any), vibration isolators, with suitable foundation, MS Stand for Unit with necessary paint etc. complete as required. The unit shall deliver the rated capacity at AHRI Conditions and work even at 50°C ambient temperature without tripping. The unit shall be suitable to work

on 400V +/- 10%, 3 Phase, 50Hz AC power supply. The unit shall be filled with first charge of the refrigerant and ready for use as required. The COP at AHRI conditions shall not be less than 3.1 and IEER not less than 6.5. (Design should be got approval before execution from engineer in charge)

## **AIR-COOLED VRF AIRCONDITIONING SYSTEM UNITS (ALL INVERTER COMPRESSORS)**

### **Air Cooled Condensing Unit:**

Air Cooled Condensing Units Set free Top Discharge Machine, with Refrigerant- R 410 A

Outdoor units of the VRF system shall be compact air cooled type. All the compressors of the outdoor units must be hermetically sealed scroll type. Each module of outdoor unit must have minimum 1# Inverter Scroll Compressor, suitable to operate at heat load proportional to indoor requirement / or by change in compressor configuration or capacity as per load. "Anti-Corrosive" treatment for Al fins of Condenser Coils is mandatory. The treatment should be suitable for areas of high pollution and salt laden air. Bidder has to furnish the rated / de rated capacity of the Indoor units, considering the refrigerant piping of respective outdoor units.

The VRF outdoor unit shall always be supplying at least 33% of back up operation, of the full load capacity. The outdoor units shall be suitable to operate within an ambient temperature range of +5°C to + 48 °C, in cooling mode.

The System Equipment Selection to match the higher ambient requirement of Surat. The entire operation of outdoor units shall be through remotes of indoor units.

No separate Start/ Stop function shall be required. Starter for the Outdoor Unit compressor shall "Direct on Line" type. Inverter compressor /or equivalent system of the unit shall start first & at the minimum frequency / capacity, to reduce the inrush current during starting.

Refrigerant control in the outdoor unit shall be through Electronic Expansion Valve. Complete refrigerant circuit, oil balancing/ equalizing circuit shall be factory assembled & tested

Outdoor units shall be complete with following safety devices:

**Casing:** Condenser casing shall be made of corrosion resistant heavy gauge steel finished with enamel paint. If specified it shall be epoxy painted or powder coated.

**Compressor:** Compressor shall be of the scroll/rotary type with suction and discharge valves, gas cooled motor, horizontal or vertical crank-shaft balanced and mounted on vibration absorbers to provide quiet, free floating operation. Compressor shall be protected against over load protection and single phasing protection. There are following specification for compressor.

- Voltage (Hz) 380-415V /3 PH / 50Hz

**Condenser Cooling Fans:** Fans shall be propeller axial type. One or more fans shall be provided for the required capacity.

**Condenser Cooling Fan Motor :** Fan motor shall be TEFC, squirrel cage, induction motor suitable to operate on 3 phase, 50 cycles, 400/440 volts, 50 cycles, AC supply and provided with pulley, v belt set or direct drive flexible coupling with guards. Motor shall have class "B" insulation and shall be provided with weather protection.

**Connections with valves:** Refrigerant gas inlet connection, Liquid refrigerant outlet connection. Pressure relief valve drain valve and air-vent valve.

#### **Item 6**

##### **VRF INDOOR UNITS**

Brief Features desired in Indoor (Fan-Coil) Unit Hi Gloss, finish all fibre body highly efficient 3 layered air purification system to remove dust/bacteria and odours from the return air. Four bend heat exchanger design for efficient heat transfer Noise level of Indoor Unit at operating speed shall not be exceeding 48 dB measured at a distance of 3 M from source. Operated through remote control having a large LCD display, temperature set-point, sleep mode operation, On/Off timer, Real time clock, Auto-restart, filter status warning, dry mode operation (reduces the humidity without the temperature when required)

##### **FOUR-WAY CASSETTE**

Supply, installation, testing and commissioning of following minimum capacity 4-way/2 way/radial flow as per approval VRF Cassette Type Indoor ceiling mounted unit equipped with synthetic washable media pre-filter, fan section with low noise fan/dynamically balanced blower, multispeed motor, coil section with DX Copper coil, electronic expansion valve, outer cabinet, drain pump, grill, necessary supports, vibration isolation, cord less remote control etc., suitable for operation on single phase 230 V  $\pm$  10%, 50Hz AC supply, max noise level 60dB @ 400 cfm per TR(minimum) complete, as required. The unit shall have automatic force shut down provision in case of fire on receiving signal from BMS System. The cooling capacity of indoor unit will be at air inlet conditions of 27 Degree C DB and 19 Degree C WB temperature fresh air provision compatible for Remote Operation System

#### **Item 7**

##### **HI-WALL**

Supply, installation, testing and commissioning of following minimum capacity VRF High wall type Indoor unit equipped with washable synthetic media pre-filter, fan section with noise level maximum 60 dB @min 400 cfm /dynamically balanced blower, multispeed motor, coil section with DX copper coil, electronic expansion valve, outer cabinet, cord less remote control, drain pan, necessary accessories etc., suitable for operation on 230 V  $\pm$  10%, 50 Hz, single phase AC supply, complete as required. The unit shall have automatic force shut down provision in case of fire on receiving signal from BMS System. The cooling capacity of indoor unit will be at air inlet conditions of 27 Degree C DB and 19 Degree C WB temperature.

Hi-Wall Mount/Four Way Cassette Units shall be remote control operated and shall be as per the ratings and quantities provided in the schedule of quantities. The units shall be ready-to-operate type and shall comprise of a Indoor type Fan-Coil unit (installed within the room) and connected to VRF Condensing unit connected through insulated refrigerant piping. The system shall be tested with nitrogen gas pressurised for 24-48hrs to ensure leakage free testing followed by refrigerant after proper precommissioning process. Single/Three phase connection wherever applicable shall be provided by user at one point near each Hi Wall/Four-Way Cassette unit. Rest of the electrical work including cabling from the power point up to the Unit's electrical panel including voltage stabilizer (if applicable) shall be supplied, laid and installed by vendor only. The units shall be of one among the Approved Makes mentioned elsewhere in this Tender

#### **Item 8**

##### **COPPER REFRIGERANT PIPING (VRV SYSTEM)**

The scope shall include supply, installation, testing, commissioning, vacuumization, and nitrogen pressure testing of specified nominal sizes of soft and hard drawn heavy gauge copper refrigerant piping for the VRV system. The piping shall be complete with fittings, brazed joints, accessories, and adjustable ring-type hanger supports. All joints shall be properly executed to withstand required refrigerant pressures, with the number of joints minimized and located only in accessible pipe runs. Continuous joint less pipes shall be used for concealed, buried, or inaccessible piping. All piping shall be insulated with Class-O closed-cell elastomeric nitrile rubber (XPLE Class-O) tubular sleeves of specified thickness for suction and liquid lines, including weather protection where required. Approval for insulation material and application methodology shall be obtained from the AC consultant prior to execution.

#### **UNIT ELECTRICAL & CONTROL FEATURES**

The unit shall be factory-wired internally and suitable for operation on 415V, 3-phase, 50 Hz AC power supply. Dual-circuited units shall have automatic logic for equal run-time distribution between compressors. Compressors and fan motors shall be provided with separate thermal and electrical overload protection. High and low pressure switches shall be installed to protect compressors from abnormal pressure conditions. Control voltage shall be 230 volts, and the control thermostat shall be located in the unit return air stream. The control circuit shall interlock the compressor with the fan to prevent compressor operation unless the fan is running. Interlocking between the condenser fan and compressor shall also be provided.

#### **REFRIGERANT PIPING INSULATION (INSIDE BUILDING)**

Refrigerant piping insulation shall comprise supply and application of closed-cell elastomeric nitrile rubber insulation conforming to specifications. For supply (liquid) lines inside the building, insulation thickness shall be 13 mm for 6 mm (1/4") ID pipes and 19 mm for all pipe sizes up to 48 mm (1 7/8") ID, using nitrile sleeves without bonded and without self-sleeve. For return (suction) lines, 13 mm thick nitrile sleeves without bonded and without self-sleeve shall be provided for all pipe sizes ranging from 6 mm (1/4") to 48 mm (1 7/8") ID.

#### **INSULATION MATERIAL TECHNICAL SPECIFICATIONS**

The insulation material shall be closed-cell elastomeric nitrile rubber with thermal conductivity not exceeding 0.035 W/m·K at a mean temperature of 0°C. The material shall comply with fire performance requirements, passing Class 1 surface spread of flame as per BS 476 Part 7 and fire propagation requirements as per BS 476 Part 6, meeting Class 'O' fire category requirements under applicable building regulations. The material shall be FM (Factory Mutual), USA approved, with a minimum moisture diffusion resistance factor ( $\mu$  value) of 7,000.

#### **INSULATION ADHESIVE SPECIFICATIONS**

The adhesive shall be supplied by the insulation manufacturer and shall be a modified chloroprene rubber adhesive in a solvent blend, free from benzene. It shall have low viscosity for ease of application and quick-drying characteristics suitable for tropical conditions. The cured adhesive shall maintain the required water vapour resistance and shall have a service temperature range of -40°C to +105°C, matching that of the insulation.

#### **MEASUREMENT OF PIPE INSULATION**

Pipe insulation measurement shall be based on centre-line measurements of the installed piping, taken prior to application of insulation. All accessories including valves, strainers, orifice plates, fittings, and

cladding shall be measured strictly by linear measurements along the pipe center line, with no separate measurement or additional rate applicable for insulation of accessories.

#### **MEASUREMENT OF DUCT INSULATION & ACOUSTIC LINING**

Duct insulation and acoustic lining shall be measured based on surface area calculated along the center line of insulation thickness. The perimeter shall be measured at the center line of insulation thickness (considering width and depth of the insulated or lined duct) and multiplied by the center-line length of the duct, including bends, tees, tapers, and branches, as measured for bare ducting.

#### **Item 9**

#### **EXTRA GAS CHARGING FOR VRF SYSTEMS**

Supplying colourless non inflammable refrigerant Gas R-410

#### **Item 10**

#### **ELECTRICAL WIRE**

#### **Communication Cable for VRF System**

Supply installation testing commissioning Control Cables for VRV System with necessary ISI mark Medium class rigid PVC pipes with necessary accessories with termination in machine and control equipment's..

#### **Item 11**

#### **DRAIN PIPE**

Drain piping using blue water quality UPVC pipe with UPVC fittings and 25mm insulation. Drain pipe sizes shall be as shown in the drawings and schedules. Slope to be provided with cleanouts at all bends.

**Drain Piping:** Condensate from the evaporator unit shall be drained through properly installed drain piping designed to prevent any accumulation of condensate in the drain pan. Drain piping shall be made of sizes listed in the Bill of Quantities. rigid UPVC pipe of 6 Kg/Sq cm. pressure rating with water tight threaded connections, leading from the room unit to a suitable drain point. Complete drain piping shall be made leak proof and water tight by means of precise installation and the use of leak proof sealant / adhesives. Insulation of drain piping shall be by insulation of approved makes closed cell-foam (like elastomeric and polyethylene) of 19mm thick.

#### **Item 12**

#### **OUTDOOR STAND**

Providing , erecting , fabricating the M.S. structure as per requirement on site incorporating proper size of M.S. angles,square,round, flats, bars, channels, sections complete with cutting, welding, grinding & finishing duly painted with one coat of red oxide with erection on site as per direction of engineer in charge with necessary grouting, cementing, plastering & finishing complete.

Fabricated stand should be of 6-8" height as specified by site engineer, outdoor unit must be installed over this stand with vibration dampers, such as rubber pads, dampers on wooden block. This scope of work shall be done by tenderer itself.

#### **Item 13**

#### **All Inclusive Maintenance Contract**

#### 4.0 INSPECTION AND TESTING:

**4.1 Inspection(pre-dispatch & site), testing & acceptance:**Pre-dispatch inspection shall be carried out for certain items. All the system equipment, parts shall be checked for physical damage, before commencing the installation work. Complete fabrication, installation and commissioning work shall be jointly supervised and shall be carried out as per the specifications and instructions.

Site EngineerIn Charge: All the rotating equipment shall be checked for static and dynamic balancing, minimum operating vibration and noise. All the system / equipment shall be checked before / after satisfactory commissioning, at manufacturer's works / site as may be required for the approved technical specifications, performance data provided by supplier / manufacturer. Actual capacity of each equipment shall be calculated based on the test readings, recorded jointly for design conditions / operating conditions. Performance acceptance is subject to comparison of test results with supplier / manufacturer's performance data and contract specification. Acceptance is subject to satisfactory installation, commissioning and performance testing with respect to technical specifications. Rejected items must be replaced or rectified for the defects. In case of system modification / rectification complete performance tests are to be repeated. Site test readings shall be jointly recorded.

**4.2 Methodology:**In general, following Inspection / tests are involved. Type of test, duration of test, testing procedure / parameters, will be as per the applicable BIS codes. However, the detail Inspection and test procedure shall be worked out jointly by the purchaser and the contractor along with the approval, within 30 days from the date of contact agreement.

1. Pre-dispatch Inspection (as per client/consultant's format)
2. Pre-dispatch testing at manufacturers shop / factory. (Material, performance, pressure, joints, etc.)
3. Physical Inspection – Pre-installation at site.
4. Brazing / welding joint inspection and testing at site.
5. Pressure and / or leak testing at site.
6. Performance testing at site (capacity, power consumption, pressure drop, vibration, etc.)
7. Calibration at site if required.

SR. NO.	ITEM / EQUIPMENT	INSPECTION / TEST INVOLVED.
1.	AC Units	1, 2, 3, 4, 5.
2.	Refrigerant Piping	3, 4, 5
3.	Insulation	3

#### 4.3 Test certificates and documents:

- Contractor shall furnish following Test certificates for Approval / Information of Client / Consultant.
- Material Test Certificates for items 1, 2, 3, 4, 5 under table mentioned above.
- Welder's / Brazer's qualification certificate.
- Performance test certificates and Calibration Certificates - carried out by manufacturer before Pre-dispatch inspection & testing.
- All equipment operation and maintenance manual.

**(A) Inspection Check List:**

SR. INSPECTION ITEM NO.	VRF SYSTEM	AIR DISTRIBUTION
1. Physical	- Body	- Indoor Units Panel - Four Way Cassette Panel
2. Fabrication, Installation & commissioning	- Compressor - Condenser	- Supports etc.
3. Vibration and noise.	- Cooling Coil - Refrigerant piping	
4. Insulation and painting.	- Accessories, fabrication stand.	

**(B) Testing:**

All the system / equipment shall be checked after satisfactory commissioning, for the tender specifications, performance/ technical data provided by supplier / manufacturer. Actual capacity all equipment shall be calculated based on the test readings, recorded jointly, for design conditions / operating conditions. Performance acceptance is subject to comparison of test results with supplier / manufacturer's performance data and contract specification. In case of system modification / rectification complete performance tests are to be repeated. Following test readings shall be jointly recorded.

**(C) Test Reading sheet:**

Hi Wall Split/ Cassette type Air conditioning Units.

Unit: Main volts / Amps

**Compressor:**

Refrigerant suction pressure (LP, Bar) / Temp. C.  
Refrigerant Discharge pressure (HP, Bar) / Temp. C  
Discharge cut-out pressure (Bar)  
Discharge cut in pressure (Bar)  
Suction cut-out pressure (Bar)  
Suction cut in pressure (Bar)  
Compressor motor Amp.

**Cooling Coil:**

Surface (Face) area - Sq. Mt.  
Return (entering coil) air Temp. DBT / WBT C  
Supply (leaving coil) air Temp. DBT / WBT C  
Air velocity across the cooling coil – Mt. / Min.  
Air volume -CMH capacity

**Air cooled Condenser:**

Air Temp. In - DBT C  
Air velocity across the coil - Mt. / Min.  
Air Temp. at Fan outlet - DBT C

**Room Conditions:**

Average reading of DBT / WBT DegC, at 12-00 PM, 14-00 PM, and 16-00 PM on a test (summer / monsoon) day, shall be recorded to check the inside / room design condition

## 5.0 COMMISSIONING

Commissioning shall be done before handover of system.

A Performance Quality (PQ) measurement document shall be issued by Vendor for consultant's review to follow the Commissioning procedure. Ensuring Inside conditions at peak load committed in designs

### TECHNICAL DATA

(List of Technical Information to be furnished by the Bidder)

Equipment:

Technical details:

#### Note:

Separate Technical data sheet shall be furnished for different type / model / configuration for any item.

All data sheets shall be endorsed with stamp and signature by bidder. Contractor has to provide minimum technical details as enclosed herewith, however shall also provide remaining / additional details for approval. All the Items shall be ordered only after Technical specification approval.

Attach Technical leaflets, performance curves, etc. for all products / system parts offered

### DATA SHEETS (SUBMIT AT THE TIME OF APPROVAL OF ITEMS)

#### A. DOCUMENT: TECHNICAL DATA SHEET FOR HIGH SIDE EQUIPMENTS

##### Variable Refrigerant System DATA SHEET

#### A Compressor Data by Bidder

- 1 Type
- 2 Make / Model
- 3 Quantity with TR
- 4 KW ( Connected )
- 5 KW ( Consumed )
- 6 Full Load Current
- 7 Refrigerant Capacity – At 4/5 °C  
Suction & 43 °C discharge
- 8 Refrigerant

#### B Condenser

- 1 Type
- 2 Air Quantity
- 3 Coil Face Area
- 4 No. of Rows



- 5 By pass Factor
- 6 Fan Motor KW / RPM
- 7 Full load Current of Fan Motor
- 8 Static Pressure of Fan
- 9 No. of speed for Fan
- 10 Copper Tube thickness / Diameter
- 11 Aluminium fins spacing / Gauge

**C Evaporator**

- 1 Type
- 2 Air Quantity
- 3 Coil Face Area
- 4 No. of Rows
- 5 By pass Factor
- 6 Fan Motor KW / RPM
- 7 Full load Current of Fan Motor
- 8 Static Pressure of Fan
- 9 No. of speed for Fan
- 10 Copper Tube thickness / Diameter
- 11 Aluminium fins spacing / Gauge

**D Overall Dimensional details**

- 1 Condensing Unit
- 2 Evaporating Unit

**E Salient Features**

- 1 Type of filter
- 2 Filter area
- 3 Filtration level
- 4 Any other details

**F Total power consumption of the unit**

- 1 For all condensing units at full capacity
- 2 For all indoor units at full capacity

**G Tolerances**

- 1 Voltage
- 2 Power Factor
- 3 Frequency

**Vendor Seal**

**Signature**

**Date**

**B. DOCUMENT: TECHNICAL DATA SHEET FOR INSULATION (AT THE TIME OF APPROVAL)**

SR. NO.	SPECIFICATION	DESCRIPTION
1.	Expanded polystyrene 'TF' quality/ Fiber Glass / Cross Linked Polyethylene	
2.	Make / Thickness /Density / Thermal conductivity / coating / covering/ finish etc.	
	For: Refrigerant Pipe Insulation	

Note:

- a. Technical brochures of following items to be enclosed with the bid Air Conditioning Units for capacities offered Ventilation Fans Insulation Materials.
- b. Actual makes considered in the bid shall be strictly indicated.

**General Notes:**

If additional supporting items are necessary during the project's implementation, the contractor is directed to refer to the current year's pricing information from the Schedule of Rates (SOR) or the prevailing market rates.

**NOTE:**

1. Bidders are instructed to take a note of the following specifications of each item. As product specifications of same capacity may vary from manufacturer to other, bidders are advised to offer the system with nearest specifications.
2. Product catalogues, brochures of relevant products must be submitted online along with other qualifying documents.
3. The bidder has to fill the specifications of the products in table below and submit it online along with other qualifying documents.

**Executive Engineer (Workshop/Mech.)**  
**Public Infrastructure Cell**  
**Surat Municipal Corporation**

Seal & Signature of the bidder

# Detailed SPECIFICATIONS FOR THE Electrical WORKS

## Internal Point wiring and Accessories

**NOTE:** All the Electrical wire main line shall be carried out with ZHFR/HRFR Copper wires only. Therefore, bidders are instructed to take a note of this point while quoting the rates. No dispute on later stage will be entertained.

### GENERAL SPECIFICATIONS FOR MATERIAL

#### **Scope:**

This section covers, definition of point wiring, system of wiring and supply, installation, connection, testing and commissioning of point wiring for light points, ceiling fan points, exhaust fan points, convenience socket outlet points, power socket outlet points, bell outlet points etc.

#### **Material specification & workmanship**

##### **Standards**

Code of practice for electrical wiring installation system voltage not exceeding 650: IS: 732

Code of practice for fire safety of buildings general) electrical installation : IS: 1646

Rigid steel conduits for electrical wiring : IS: 1653

Fittings for rigid steel conduits for electrical : IS: 2667

Flexible steel conduit for electrical wiring : IS: 3480

Accessories for rigid steel conduits for : IS: 3837

Pvc insulated cables (wires) : IS: 694

Rigid non-metallic conduits for electrical wiring : IS: 2509

Flexible (playable) non-metallic conduits for : IS: 6946

Three pin plugs and sockets : IS: 1293

Conductors for insulated electrical cables and : IS: 8180

Specification for conduit for electrical installation : IS: 9537--1980

Accessories for non-metallic conduits for electrical wiring : IS: 3419

Switches : IS: 3854

Plugs : IS: 6538

Shunt capacitors for power systems : IS: 2834-1954

HRC cartridge fuses and links up to 660 volts : IS: 2208

General and safety requirement for lighting fittings : IS: 1913-1969

Code of practice for lighting public thorough fares : IS: 2944-1981

3 pin plug sockets : IS -1293

Specification of conduits for electrical installation : IS -8130

Guide for electrical layout in residential building Indian electricity act and rules : IS-4648

#### **Rigid and flexible conduits:**

All conduits shall be rigid pvc pipe having minimum wall thickness of medium gauge 1.5 to 1.8 approved by fia. & ISI and shall confirm to IS 9537.

Up to 38 mm. Diameter - minimum 1.8 mm. Wall thickness

Above 40 mm. Diameter - minimum 2.2 mm. Wall thickness

20, 25, and 32 mm diameter- minium1.5 mm wall thickness

Flexible conduits shall be formed from a continuous length of spirally wound interlocked steel strip with a fused zinc coating on both sides. The conduit shall be terminated in brass adapters.

#### **Accessories:**

Pvc conduit fittings such as bends, elbows, reducers, chase nipples, split couplings, plugs etc. Shall be specifically designed and manufactured for their particular application. All conduit fittings shall conform to is: 2667-1964 and is: 3857-1966.

**Wires:**

All wires shall be single core multi-strand / flexible copper **ZHFR/HRFR WIRES** as per is: 694:2010 and shall be 660 v\1100 v grade.

All wires shall be colour coded as follows:

Phase	colour of wire
R	Red
Y	Yellow
B	Blue
N	Black
Earth	Green (insulated)Control (if any) Grey

**All off wires shall be same as phase wire**

**Switches & sockets:**

Switches shall be moulded plate type PVC / metallic/Wooden box, single mounting base frame covered with textured / metallic/white front. Combination of multiple switch units and sockets should be used to minimize the switch boxes. All screws shall be brass – chromium plated and shall be counter sunk type with half round head or flat headed. For heavy duty, metal clad sockets MCB/Isolator mounted in a galvanized steel box shall be provided.

**Workmanship**

The size of conduit shall be selected in accordance with the number of wires permitted under table given below. The minimum size of the conduit shall be 25 mm. diameters unless otherwise indicated or approved. Size of wires shall not be less than 1.5 sq mm copper.

Nominal dia of wires (mm)	Nominal cross sec. Area (mm <sup>2</sup> )	20 mm		25 mm		32 mm		38 mm	
		S	B	S	B	S	B	S	B
1/1.12	1.0	7		13	--	20	--	--	--
1/2.40	1.5	4		8	6	15	9	--	--
1/1.80	2.5	4		6	4	10	8	--	--
1/2.24	4	2		4	3	8	6	--	--
1/2.80	6	1		4	3	6	6	--	--
1/3.55	10	1	--	3	2	5	4	6	5

**Note:**

S: runs of conduits which have distance not exceeding 4.25 m. between draw boxes & which do not deflect from the straight by an angle more than 15 degree.

B: runs of conduits which deflect from the straight by more than 15°

**Lighting & power wiring:**

All final branch circuits for lighting and appliances shall be flexible copper wire of appropriate size run inside conduits. The conduit shall be properly connected or jointed into sockets, bends, and junction boxes.

Branch circuit conductor sizes shall be as shown in the schedule of quantities and or drawings.

All circuits shall preferably be kept in a separate conduit up to the distribution board. No other wiring shall be bunched in the same conduit except those belonging to the same phase. Each lighting branch circuit shall not have more than ten outlets or 800 watts whichever is lower. Each conduit shall not hold more than three branch circuits, of the same phase.

Flexible cords for connection to appliances, fans and pendants shall be 650/1100 v grade (three or four cores i.e. With insulated neutral wire of same size) with tinned stranded copper wires, insulated, twisted and sheathed with strengthening cord. Color of sheath shall be subject to the engineer's approval.

Looping system of wiring shall be used. Wires shall not be jointed. Where joints are unavoidable, they shall be made through approved mechanical connectors. No such joints shall be made unless the length of the sub-circuit, sub-main or main is more than the length of the standard coil.

Control switches shall be connected in the phase conductors only and shall be 'on' when knob is down. Switches shall be fixed in 3 mm. Thick painted or galvanized steel boxes with cover plates as specified. Cadmium plated brass screws shall be used.

Power wiring shall be distinctly separate from lighting wiring. Conduits not less than 25 mm. And wires not less than 2.5 sq.mm. Copper or as required shall be used.

Every conductor shall be provided with identification ferrules at both ends matching the drawings.

## **Section A(Electrical)**

### **Item No.14**

Point wiring for Light / Bell with 2-1.5 sq.mm & earth wire of 1.5 sq.mm (Green) both are of ISI marked 1.1 KV grade ZHFR/HRFR PVC insulated multi strand copper wires up to 10 mtr length , in below type of pipe erected with 6A Modular type switch / bell push & accessories and earth continuity of following type, erected on PVC / Metallic/Wooden box, single mounting base frame covered with textured/metallic/white front plate modules erected on / in wall / ceiling as per pipe erected, with necessary Lamp holder/ceiling rose / H.D.Connector as directed.CAT-III)

14.1with medium class Rigid PVC pipe and accessories erected concealed in wall/ceiling complete

### **Item No.15**

Point wiring for Modular secondary light point with 2-1.5 sq.mm & earth wire of 1.5 sq.mm (green) both are of ISI marked 1.1 KV grade ZHFR/HRFR PVC insulated multi strand copper wires, in below type of pipe to be erected complete with earth continuity and necessary connection with primary light with accessories erected on Metal / PVC / wooden box covered with 3 mm thick PC(Polycarbonate) / Acrylic sheet for open / concealed wiring. with necessary Lamp holder / ceiling rose / H.D.Connector as directed. Note:- Maximum up to 6 mtrs length, excess will be considered as Mains for Secondary Point.

15.1 with medium class Rigid PVC pipe and accessories erected concealed in wall/ceiling complete

### **Item No.16**

Point wiring for FAN with 2-1.5 sq.mm & earth wire of 1.5 sq.mm (Green) both are of .ISI marked 1.1 KV Grade ZHFR/HRFR PVC insulated multi strand copper wires up to 10 mtr length, in below type of pipe erected with 6A Modular type switch and hum free EME step type electronic fan regulator mounted and accessories with earth continuity of following type erected on PVC / Metallic/Wooden box, single mounting base frame covered with textured/metallic/white front plate modules erected on / in wall / ceiling as per pipe erected. with necessary ceiling rose / H.D.Connector as directed. (CAT III)

16.1 with medium class Rigid PVC pipe and accessories erected concealed in wall/ceiling complete

### **Item No.17**

Point wiring for Individual Plug with & earth wire of 1.5 sq.mm (Green) both are of ISI marked 1.1 KV grade FRLS PVC insulated multi strand copper wires up to 10 mtr length, in below type of pipe erected complete with Modular type switch & 5 pin Plug erected on PVC / Metallic/Wooden box covered with appropriate front plate modules erected on / in wall / ceiling as per pipe erected with following type of accessories (CAT III)

17.1 For 6A Plug and 6 a switch with 2-1.5 sq.mm Cu. Wire from nearby switchboard/mcbdb board

17.1.1with medium class Rigid PVC pipe and accessories erected concealed in wall/ceiling complete

17.2 For 16A Plug and 16 amp switch with 2-4 sq.mm Cu. Wire with 2.5 sq.mm ( green) earthing wire from mcb d b board.

17.2.1 with medium class Rigid PVC pipe and accessories erected concealed in wall/ceiling complete

#### **Item No. 18**

Providing and erecting ISI mark Medium class RIGID PVC PIPES of following size complete to be erected on/in wall or ceiling erected with necessary PVC fittings & Junction boxes fixed with adhesive solution & Clamps with following dia of pipes, in approved manner as directed

18.1 25mm

#### **Item No. 19**

Providing and erecting Mains with 1.1 KV grade FRLS PVC insulated ISI marked stranded Copper conductor wire in following type of pipe to be erected concealed in /flushed on wall/ceiling, with 1.5 sq. mm copper conductor FRLS PVC insulated stranded wire of green colour for earth continuity of following size

With medium class Rigid PVC pipe and accessories

19.1 2 wire 1.5 sq. mm

19.2 2 wire 2.5 sq. mm

## **Lamps and Luminaires**

### ***General material specifications:***

- This section relates to technical specification for indoor & outdoor lighting Equipments of the project.
- All fixtures shall be complete with accessories necessary for installation whether so detailed under fixture description or not.
- Fixture housing, frame or canopy shall provide a suitable cover for the fixture outlet box or fixture opening.
- Fixtures shall be installed at mounting heights as detailed on the drawings or instructed on site by the engineer in charge.
- Fixtures and/or fixture outlet boxes shall be provided with hangers to adequately support the complete weight of the fixture. Design of hangers and method of fastening other than shown on the drawings or herein specified shall be submitted to the engineer in charge for approval.
- Pendant fixtures within the same room or area shall be installed plumb and at a uniform height from the finished floor. Adjustment of height shall be made during installation as per engineer in charge instructions.
- Flush mounted and recessed fixtures shall be installed so as to completely eliminate light leakage within the fixture and between the fixture and adjacent finished surface.
- Fixture mounted on outlet boxes shall be tightly secured to a fixture stud in the outlet box. Extension pieces shall be installed where required to facilitate proper installation.
- Fixture shall be completely wired and constructed to comply with the regulations and standards for electric lighting fixtures, unless otherwise specified. Fixtures shall bear manufacturer's name and the factory inspection label unless otherwise approved.
- Wiring within the fixture and for connection to the branch circuit wiring shall not be less than
- 2.5 sqmm copper for 250 volt applications. Wire insulation shall suit the temperature conditions inside the fixture and wires bypassing the choke/ballast shall be heat protected with a heat resistant sleeve.
- Metal used in lighting fixtures shall be not less than 22 SWG or heavier if so required to comply with the specification or standards. Sheet steel reflectors shall have a thickness of not less than 20 SWG. The metal parts of the fixtures shall be completely free from burrs and tool marks. Solder shall not be used as mechanical fastening device on any part of the fixture.
- Ferrous metal shall be bowdlerized and given a corrosion resistant phosphate treatment or other

approved rust inhibiting prime coat to provide a rust-proof base before application of finish.

- Non-reflecting surfaces such as fixture frames and trim shall be finished in baked enamel paint.
- All parts of reflector shall be completely covered by finish and free from irregularities. After finish has been applied and cured, it shall be capable of withstanding a 6 mm radius bend without showing sign of cracking, peeling or loosening from the base metal. Finish shall be capable of withstanding 72 hours exposure to an ultraviolet sun lamp placed 10 cm from the surface without discoloration, hardening or warping and retain the same reflection factor after exposure. Test results shall be furnished for each lot of fixtures.
- Fixture with visible frames shall have concealed hinged and catches. Pendant fixtures and lamp holders shall be provided with ball type aligiers or similar approved means. Recessed fixtures shall be constructed so as to fit into an acoustic tile ceiling or plaster ceiling without distorting either the fixture or the ceiling plaster rings/flanges shall be provided for plaster ceiling. Fixtures with hinged diffuser doors shall be provided with spring clips or other retaining device prevent the diffuser from moving.
- Detailed catalogue cuts for all fixtures, or, if so required by the engineer in charge sample fixtures shall be submitted for approval to the architect/consultant before orders for the fixtures are placed. Shop drawings for non-standard fixture types shall be submitted for approval to the architect/consultant.
- Recessed fixtures shall be constructed so that all components are replaceable without removing housing from the ceiling.
- Contractor shall submit the LUX level reports & LPD calculations of the finalized Lighting fixtures to the E.I.C. and get them approved by the Architect & Green Building Consultant, prior to the purchase of the product. If the contractor fails to do so, all the unapproved fittings shall be rejected, if they are found to be non compliant.

#### GENERALNOTE:

LM-79&LM-80reportsshallbefromcompany'sownNABLapprovedlaboratoryor NABL approved third party laboratory. Reports submitted by the contractor must be certified by appropriateauthorityofrespective manufacturingcompany.Ifdesired,SMCmay send one or more fittings to a third party NABL laboratory for testing of light fittings and if fitting does not match with Test Certificatessubmittedbythecontractor,SMCwillnotonlyrejectsaid/allproductsofthatcompany butwillalsoinlibertytotakedisciplinaryactionsforsubmittingmisleadinginformation.Alldriversshall be constant current type only. All drivers shall IP20 for Indoor application and IP65 for outdoor application.HeatSinkcouldbeActiveand/orpassiveasperdesignofluminaries.CostofTesting should be borne by contractor.

#### Item No. 20

Supplying and erecting LED indoor fittings with LEDs of wattage 0.2 Watt to 0.5 Watt assembled on single MCPCB, with housing used as a heat sink shall be made of thick sheet Steel conforming to IS: 513/CRCA/ aluminium die cast powder coated and high U.V. & corrosion resistance with diffuser with company mark/name 160V to 270V, Power Factor more than 0.95, THD < 15%, CCT 3000 K to 6500K, Luminaire efficacy> 85 lumens/watt, LED driver efficiency > 85 % ( fitting required LM-79 & LM-80 Certificates) (NOTE: Below description have shown ranges of Wattage capacity of LED fittings.The Engineer incharge may select any wattage capacity between the ranges shown.) Cat-III

20.1 36 watts, 24" x 24", Surge- 2KV

Scope of Work: Supplying and erecting LED Panel Light with provision for Plane front frame with translucent cover fixed to housing complete.

Specification:

Watt : 36W  
Voltage : 140 to 270 V,  
Power Factor more than : 0.95,  
THD :< 10 %,  
CCT : 3000K to 6500K,

**Codes & Standards:**

IEC60529	: Degrees of protection provided by enclosures	
IEC60947-2	: Low voltage switchgear & control gear – part 2 Circuit breakers	
IEC60947-3	: Low voltage switchgear & control gear – Part 3 Switches, disconnectors, switch disconnectors & fuse combination units	
IEC60 947-4-1	: Contactors and motor starters IEC60044-1	
Current transformers	: IEC60186	: Voltage transformers
IEEE693	: Environmental testing/ Seismic Withstand Level	
IEC61140	: Protection against electric shock – Common aspects for installation and equipment –Basic safety publication	
IEC61641	: TR Internal Arc Test report	
IS 1248 & 3107	: Direct acting Electrical indicating instruments	IS 2959 : AC contactors up to 1000V
IS 13947 (Part I)	: Degree of protection for enclosure	
IS 2208 & 9224	: Specification for HRC fuses	
IS 5082	: Wrought Al. and aluminium alloys, bars, rods, tube and sections for electrical purposes.	
IS 4237	: General requirement for switchgear & control gear for voltage not exceeding 1000V	
IS 3231	: Electrical relays for power system protection	151
IS 375	: Marking and arrangement for switchgear bus bars, main connection and control aux. wiring	
IS 5578	: Guide for marking of insulated conductors.	

**MINIATURE CIRCUIT BREAKER**

Miniature circuit breakers shall be quick make and break and break type non-welding self-wiping silver alloy contacts for 10KA short circuit both on the manual and automatic operation, confirm with British standard BS:3871(Part-I)1965 and IS:8825 (1996) with facility for locking in OFF position.

The housing of MCB shall be heat resistant and having high impact strength. The fault current of MCB shall not be less than 10KA, at 230volts. The MCB shall be flush mounted and shall be provided with trip free manual operating mechanism with mechanical "ON" and "OFF" indications. 'C' characteristic current limiting type, 10 KA and having quick break with trip free operating mechanism. Each pole of the breaker shall be provided with inverse time thermal over load and instantaneous over current tripping elements, with trip-free mechanism. In case of multi-pole breakers, the tripping must be on all the poles and operating handle shall be common. Pressure clamp terminals for stranded/solid conductor insertion are acceptable upto 4sqmm Aluminum or

2.5sqmm copper and for high ratings; the terminal shall be suitably shrouded. Wherever MCB isolators are specified they are without the tripping elements.

The MCB contact shall be silver nickel and silver graphite alloy and tip coated with silver. Proper arc chutes shall be provided to quench the arc immediately. MCB's shall be provided with magnetic fluid plunger relay for over current and short circuit protection.

**SWITCH FUSE UNIT**

This unit shall be approved make triple pole metal clad switch fuse unit 415 volt, required ratings, with link type H.R.C. fuses and natural link confirming to I.S. erected on angle iron frame, double break type suitable for load break duty (AC23), quick make and break action. Separate neutral link shall be provided. The door of panel shall be duly interlocked with operating mechanism so as to prevent closing of the switch when



the door is not properly secured. It shall be provided with at least 2 auxiliary contacts. All contacts shall be silver plated and all live parts shall be shrouded. The incoming and outgoing terminals of switches shall be adequately sized to receive required size of XLPE Aluminium/Copper cables. High rupturing capacity of not less than 35 MVA at 415 volts HRC fuse links shall be provided with visible indicators to show that they have operated. The switch fuse unit shall be manufactured in accordance with IS: 4047-1967 as amended to date.

## **FUSE**

Fuses shall be of high rupturing capacity (HRC) fuse links and shall be in accordance with IS: 2000-1962 and having rupturing capacity of not less than 35 MVA at 415 Volts. The backup fuses rating as per site requirements/equipment. HRC fuses shall be of L&T/Siemens/G.E. make or approved equal.

## **MOULDED CASE CIRCUIT BREAKER**

The MCCB shall be air break type and having quick break with trip free operating mechanism confirmed to IS: 8825 and IEC-60947-1/2 standard.

It should have thermal magnetic trip unit, adjustable thermal protection from 0.8 - 1 In for 400 amp. And short circuit protection from 5 - 10 In for rating more than 400 amp. It should be of rated operational voltage of 690 VAC (50 Hz) and insulation voltage of 750 VAC. It should have electrical life of 4000 (2500) operations and mechanical life of 10000 (8000) operations for rating 400 amp. (>400 amp.) All the MCCB above 400 shall have breaking capacity of 50 KA. And 25 KA for MCCB

<400-amp rating

Housing of the MCCB shall be of heat resistant and flame retardant insulating material. Operating handle of the MCCB shall be in front and clearly indicate ON/OFF/TRIP positions. The electrical contact of the circuit breakers shall be of high conducting non-deteriorating silver alloy contacts. The MCCB shall be provided with thermal / magnetic type bi-metal over load release and electro-magnetic short circuit protection device. All the releases shall operate on common trip busbar so that in case of operation of any one of the releases in any of the three phases, it will cut off all the three phases and thereby single phasing of the system is avoided. The MCCB whenever called for in the appendix drawings shall provide an earth fault relay. The MCCB shall provide two sets of auxiliary contacts with connections for additional controls at future date. The electrical parameters of the MCCB shall be as per the descriptions given in the attached drawings.

## **CONTACTOR:**

Contactors shall be air break type, having 3 power contact and 4 nos. of auxiliary contact conforming to IS: 2959, Contactors provided shall be AC4 Duty type for capacitor and AC3 duty type for motor loads. It shall be suitable for minimum class II intermittent duty. It shall be capable of making and breaking starting current of motors and require capacity of capacitor load of corresponding rating. Auxiliary contacts shall be rated for at least 6A and shall be capable of carrying the maximum estimated current, also shall be break before make type. No-volt coil working voltage shall be 360V to 440V. It should be complete with overcurrent relay with single phasing protection.

## **MAIN BUS BAR:**

3 Phase and Neutral busbar shall be designed for minimum specified rated current. Busbar shall be high quality, air insulated, high conductivity, high strength, tinned copper with non-hygroscopic colored sleeve. Bus bar copper shall be electrolytic grade. Minimum bus bar size used must be derived by considering current density of busbar and shall be mounted with standard busbar SMC (Seat Moulded Compound)/DMC support at sufficient interval to avoid sag and effectively withstand electromagnetic stress in the event of short circuit capacity of 50 KARS symmetrical for 1 sec. and pick short circuit current of 105 KA. The busbar shall be housed in separate compartment and shall be isolated with at least 3mm thick Bakelite sheet or higher grade material. Busbar and panel board design shall be as per Indian Electricity Rule and CPRI norms and standards. Bus bar shall be extendible type for future expansion. Necessary cutout arrangements shall be provided for the same.

The size of neutral busbar shall be same as that of phase busbar for main panel and lighting panel.  
The busbar shall be arranged such that minimum distance between them does not remain lower than below.

Between phase	: 25 mm
Between phase and Neutral	: 25 mm
Between phase and Earth	: 25 mm
Between neutral and earth	: 20 mm.

The busbar and interconnection shall be insulated with heat shrinkable PVC sleeve with standard color identification codes. The busbar shall be connected by chromium plated or tinned plated brass bolts and nuts and washers shall be used for tightening. All connection between busbar and circuit breaker/switch and terminal shall be thoroughly insulated with aluminum strips of proper size to carry rated current.

#### TIME SWITCH:

Approved make ASTRONOMICAL TIME SWITCH with single pole air break contact suitable for 230 V/ 16A, complete with self-starting motor driven clock ON & OFF automatic arrangement at any predetermined time during each 24 hours, with nickel cadmium rechargeable battery backup erected as directed

Technical specification:

Operating Voltage	240 VAC
Supply Frequency	50-60 Hz
Power Consumption	Less Than 4W
Ambient Temperature	-100°C to 55°C
Clock Accuracy	+/- 1 Sec./day at 20°C
Switching contact	2C/O contact
Manual Override	Provided
Mounting	DIN rail

#### CONTACTORS:

Contactors shall be of the electromagnetic type for uninterrupted duty suitable for AC-3 utilization category.

Main contacts of contactors shall be of silver plated copper.

Each contactor shall be provided with minimum two NO and two NC auxiliary contacts.

Unless specified otherwise, the coil of the contactor shall be suitable for operation on 220V, 1-phase, AC supply and shall work satisfactorily between +/- 10% of rated voltage.

Contactors shall comply with all other requirements of applicable standards.

#### Item No. 21

Providing and erecting Miniature circuit breaker single pole 6A to 25A suitable to operate on 240 V A.C. system and having breaking capacity 10 KA to be erected in existing box. Confirming to IS 8828/1996 with ISI Mark Cat. III

**Item No. 22**

Providing and erecting Sheet Steel powder coated MCB distribution board - flush / surface mounted fitted with busbar, neutral link, earth bar and DIN rail, Conforms to IS 8623-1 & 3, IEC 61439-1 & 3 without MCB to house appropriate nos. of MCBs. (The DBs should be used of same company of MCB to be used) suitable for

22.1 single phase incoming and horizontal single phase outgoing

22.1.1 8 way

22.1.2 16 way

**Item No. 23**

Providing & erecting 415 V MCB Four Pole for Motor & Inductive Load (C Curve) having 10KA breaking capacity & confirms to IS :8828 in existing box having following capacity CAT III)

23.1 6 to 32 Amp.

23.2 40 Amp.

**Item No. 24**

Providing and erecting Sheet Steel powder coated Vertical MCB distribution board (VTPN) - flush / surface mounted double door (IP54) fitted with insulated copper busbar, isolated neutral link, earth bar and DIN rail, confirming to IS 13032 and BS 5486-1986, IP-54 suitable for 63/100 AMP TPN MCCB + RCCB as incomer and three phase outgoing as per following. (The DBs should be used of same company of MCB to be used)

24.1 6 way outgoing

**Item No. 25**

Supplying & erecting approved make RCCB + MCB (Electro magnetic type only) working on residual current device having 10 KA short circuit breaking capacity and 30 mAmp. Sensitivity & 30 mili sec. tripping time conforming to IS 12640 test knob facility trip free mechanism operating for rated leakage at nominal ten volt, complete erected including all materials lugs screws etc. completed.

25.1 [a] 6A / 10A / 16A / 20A / 25A 2 pole single phase

## Cabling Work

### GENERAL MATERIAL SPECIFICATION:

#### 1.1 KV GRADE L.T. CABLES:

#### SCOPE:

This section shall cover supply, laying, testing and commissioning of medium voltage XLPE Cables. This specification gives the general requirement of cables. However, it is the responsibility of the vendor to take the joint measurement, prepare the cable schedule and obtain client's (SMC) approval before the placement of orders to the main supplier / manufacturer. The quantity mentioned in the Schedule-B is tentative. Cut lengths will not be accepted.

#### STANDARDS:

The following standards and rules shall be applicable:

IS: 7098 Part I	XLPE insulated electric cables (heavy duty)
IS: 3961	Recommended current ratings for cables
IS: 8130	Aluminium conductors for insulated cables
Indian Electricity Act Rules.	

**GENERAL:**

The medium voltage cables shall be supplied, laid, connected, tested and commissioned in accordance with the drawings, specifications, relevant Indian standards specifications, manufacturer's instruction, all cables run in parallel between L.T. side of the existing transformer, L.T. incomer A.C.B.'S of L.T. switch board panel / outgoing of panel to motor terminal etc as required and as directed by the engineer-in-charge. Excavation and refilling using bricks, road crossing using RCC pipe, sand etc. Will be in the scope of contractor and shall be done as per relevant is standard.

The cable shall confirm to relevant is which should be specified and shall bear ISI mark. The quantities mentioned above are approximate only. The cables should be supplied after taking actual measurement jointly. No straight joint in any cables shall be permitted. Any piece or cut length shall have to be taken back by contractor. The contractor should plan and purchase the cable to avoid wastage / cut length / excess length as the client will not accept the same under any circumstances. The cable shall be genuine and of approved make only.

Root marker shall be provided for every 10 meter length of underground cable and cable identifier for every 20 meter length of cable not covered in underground.

RCC half round muff of standard make shall be provided for protection of underground cable. All above item should be got approved from engineer-in-charge before execution.

The cables shall be delivered at site in the original drums with manufacturer's name, size and type clearly written on the drums.

All cables shall be adequately protected against any risk of mechanical damage to which they may be liable in normal conditions of handling during transportation, loading, unloading etc.

The cable shall be supplied in single length i.e. Without any intermediate joint or cut unless specifically approved by the client. The cable ends shall be suitably sealed against entry of moisture, dust, water etc. With cable compound as per standard practice.

**CONDUCTOR:**

Uncoated, annealed copper / aluminium, of high conductivity, up to 4 mm<sup>2</sup> size the conductor shall be solid and above 4 sq. Mm, the conductor shall be concentrically stranded as per IEC: 228.

**INSULATION:**

Cross link polyethylene (XLPE) extruded insulation rated at 70oc.

**CORE IDENTIFICATION:**

Twocores	:redandblack
Threecores	:red,yellowandblue
Fourcore	:red,yellow,blueandblack
Singlecore	: green, yellow for earthing.

Blackshallalwaysbeusedforneutral.

**ASSEMBLY:**

Two, three or four insulated conductors shall be laid up, filled with non-hygroscopic material and covered with an additional layer of thermoplastic material.

**ARMOUR:**

Galvanized steel flat strip / round strips applied helically in single layers complete with covering the assembly of cores

For cable size up to 10 sqmm :armour of 1.4 mm diag.i. round wire

For cable size above 10 sqmm :armour of 4 mm wide 0.8 mm thick gi strip

**SHEATH:**

St -2 PVC along with polypropylene fillers to be provided. Inner sheath shall be extruded type and shall be compatible with the insulation provided for the cables. Outer sheath shall be of an extruded type layer of suitable PVC material compatible with the specified ambient temp. Of 50oc and operating temperature of cables. The sheath shall be resistant to water, ultra violet radiation, fungus, termite and rodent attacks. The colour of outer sheath shall be black. Sequential length marking along with size and other standard parameters shall be required at every 1.0 meter on the outer sheath.

#### **TESTING:**

The finished cables shall be tested at manufacturer's works for all the routine tests for all the length and size of cables to be delivered at site and the certificate for the same shall be furnished to client. If required, the cables shall be tested in presence of the client's representative.

#### **Voltage test:**

Each core of cable shall be tested at room temperature at 3 kv A.C. R.M.S. for duration of 5 minutes.

#### **CONDUCTOR RESISTANCE TEST:**

The D.C. resistance of each conductor shall be measured at room temperature and the results shall be corrected to 20 degree centigrade to check the compliance with the values specified in the is 8130 – 1976.

#### **Cable tests before and after laying cables at site:**

Insulation resistance test between phases, phase to neutral and phase to earth. Continuity test of all the phases, neutral and earth continuity conductor.

#### **Earth resistance test of all the phases and neutral.**

All the tests shall be carried out in accordance with the relevant is code of practice and INDIAN electricity rules. The vendor/contractor shall provide necessary instruments, equipment's and labour for conducting the above tests and shall bear all the expenses in connection with such tests. All tests shall be carried out in the presence of client and the results shall be prescribed in forms and submitted.

#### **SEALING DRUMMING AND PACKING:**

After tests at manufacturer's works, both ends of the cables shall be sealed to prevent the ingress of moisture during transportation and storage. Cable shall be supplied in length of 500 metres or as required in non-returnable drums of sufficiently sturdy construction. Cables of more than 250 meters shall also be supplied in non-returnable drums. The spindle hole shall be minimum 110 mm in diameter.

Each drum shall bear on the outside flange, legibly and indelibly in the english literature, a distinguishing number, the manufacturer's name and particulars of the cable i.e. Voltage grade, length, conductor size, cable type, insulation type, and gross weight. The direction for rolling shall be indicated by an arrow. The drum flange shall also be marked with manufacturer's name and year of manufacturing etc.

#### **L.T. CABLE TERMINATIONS:**

##### **CABLE TERMINATION:**

Cable terminations shall be made with aluminium crimped type solder less lugs for all aluminium cables and stud type terminals. For copper cables copper crimped solder less lugs shall be used. Crimping shall be done with the help of hydraulically operated crimping tool. For joints where cable is with aluminium conductor and bus bars are aluminium, bimetallic lugs shall be used with compound. Cupal type of washers, crimping tool shall be used for crimping any size of cable.

##### **CABLE GLANDS:**

Cable glands shall be of brass single compression type. Generally single compression type cable glands shall be used for indoor protected locations and double compression type shall be used for outdoor locations. Glands should be of

nickel-plated brass, with pvc shrouds over it. Before applying PVC shrouds, all bare metal shall be wrapped with pressure sensitive adhesive tape.

#### **FERRULES:**

Ferrules shall be of self-sticking type and shall be employed to designate the various cores of the control cable by the terminal numbers to which the cores are connected, for ease in identification and maintenance.

#### **CABLE JOINTS:**

Kit type joint shall be done and filled with insulating compound. The joint should be for this 1.1 kv grade insulation, cable termination for conductors up to 4 sqmm may be insertion type and all higher sizes shall have compression type lugs. Cable termination shall have necessary brass glands. The end termination shall be insulated with a minimum of six half-lapped layers of pvc tape. Cable armouring shall be earthed at both ends. Cable joints shall be done as per regular practice and check shall be carried out for loose connections and leakages. Insulation cutting shall be done properly taking care that no area of the conductor remains exposed. Crimping shall be done with the help of hydraulic tool. Proper insulation tape shall be applied at the cable and lug joint.

#### **SADDLES AND CLIPS:**

Saddles and clips shall be pvc covered or of g.i. fixing screws shall be round head brass, where screws are used. Nuts shall be or brass, square pressed type.

#### **JOINTING SLEEVES:**

Jointing sleeve shall be of brass with standard termination. Solder type cable connectors/cable sleeve shall be used to join the cable/conductors. The solder used shall comply with B.S.219 type non-corrosive flux only shall be used.

#### **Item No. 26**

Supplying & erecting XLPE (IS:7098)(I)-88 ISI unarmoured copper cable 1.1 KV grade to be erected as directed of following size.

26.1 3 core 4 Sq. mm

#### **Item No. 27**

Providing and erecting XLPE (IS:7098)(I)-88 ISI armoured cable multistrand / Solid Aluminium conductor for 1.1 KV. to be laid on wall with necessary clamps or in existing trench / pipe of following size of cables

27.1 4 core 6 Sq. mm

#### **Item No. 28**

Providing and erecting XLPE (IS:7098)(I)-88 ISI armoured cable multistrand Copper conductor for 1.1 KV. to be laid on wall with necessary clamps or in existing trench / pipe at road crossing or floor of following size of cables.

28.1 4 core 10 Sq. mm

#### **Item No. 29**

Providing and, fixing heavy duty flange type brass cable gland with rubber ring for PVC insulated armoured cable complete without going tails, insulating tape etc for following size of cables.

29.1 2 to 4 core 2.5 / 4 Sq. mm

**Item No. 30**

Solder less crimping type Copper lugs conforming to IS suitable for cable of following size evenly crimped with high pressure tool & connected to switchgear terminals with brass/cadmium plated nut bolts in an approved manner.

30.1 1.5/2.5 to 6 Sq.mm

**Item No. 31**

SITC of Galvanized Steel Flat 25x6 mm thickness from earth electrode directly in ground as required. Zinc coating: 500 g/m square (Approx:70 micron coating) tested and used exclusively for lightning protection earthing system and ring equipotential bonding.

**ITEM No. 32**

providing and erecting Mains with ISI marked, 1.5KV grade electrolyte multi stranded, annealed copper conductor with heat resistant PVC insulated conforms to IS 694, IEC - 227 erected in existing pipe of following size (Specifically for control panel, relays, power switchgears, motor starters & control wiring) with required size of copper lugs, nuts and bolts if required

**Fans and Accessories****ITEM No. 33**

Supply, Installation, Testing and Commissioning of suitable sweep, BEE 5 Star rated, Ceiling fan with Brush Less Direct Current (BLDC) permanent ferrite magnet Motor, class of insulation: B, Rust free 3 nos. Aluminium blades, 2 nos. canopies, shackle kit with earthing provision, copper winding, Power factor not < 0.9, Service Value (CMM/W) minimum 6.85, Air delivery minimum 215 CMM, 350 RPM, 230v (tolerance as per IS : 374-2019), THD < 10%, with remote unit for Speed Control and all remaining accessories including safety pin, nut bolts, washers, temperature rise = 75 degree C (Max.), suitable for 140 to 285 Voltage and rectifier circuit with surge, over current and overload protection, 50 Hz, Single phase AC Supply, earthing etc. Complete as required. [Make shall be approved by Engineer in Charge]

33.1 1200 mm Sweep (48")

**ITEM No. 34**

Supplying and erecting 19 / 20 mm. nominal bore Medium Class M.S. Pipe down rod erected duly painted for fan complete with proper insulation without leakage and earthing.

**ITEM No. 35**

Supplying & erecting fan hook box of 10 mm M.S. round bar bounded to the RCC bars up to 50mm length each side and pierced through a 16 Gauge M.S. box / Heavy Duty PVC box complete erected concealed in Ceiling with necessary finishing.

**ITEM No. 36**

Providing 2.5mm.thick laminated acrylic sheet to cover the fan hook or Fan box.

**NOTE: Any other wiring / electrification / accessories work apart than listed above shall be paid according to the prevailing SOR rates, if items are not in SOR than rate should be paid as per current market rate of respective item.**

**Executive Engineer (Workshop/Mech.)  
Public Infrastructure Cell  
Surat Municipal Corporation**

Seal & Signature of the bidder

## PENALTY CRITERIA

As SMIMER hospital offers emergency and essential medical services, the speedy transfer of patients, doctors, other staffs and related equipment, material is so vital. Because of this reason, the Electrical & HVAC installation at SMIMER shall be maintained and operated in an uninterrupted manner. SMC is looking for best services from the contractor, undertaking this work. The proposed work shall be carried out as per the site clearance obtained from the authority of the SMIMER. However, following are the penalty criteria, which shall be applicable, if scope of work is not followed correctly:

**SETC:** The completion period shall be 06 (Six) months as mentioned in the work order. Penalty of 0.2% of unexecuted work per day up to maximum 10% of the total contract value can be charged from the bill of the contractor if the work is not completed within stipulated time limit.

**Defect liability period:** The contractor is supposed to repair / replace the work / part of the work within 2 days from notice of any fault during the defect liability period. If the faulty part is not repaired / replaced within this time limit, SMC shall be at liberty to complete the work at the risk and the cost of the contractor. Expense behind this and a penalty of Rs.2,000/-per incidence shall be levied from the residual payment / security deposit of the contractor. Punitive actions against the contractor shall be taken on denial of completing the terms of the defect liability period for three times, which includes forfeit of residual payment / security deposit and preventing the contractor to participate in other works of SMC for a finite period.

**Executive Engineer (Workshop/Mech.)  
Public Infrastructure Cell  
Surat Municipal Corporation**

Signature of the bidder

## HVAC Approved Make LIST

Sr. No	Item	Make
1	DX/VRF TYPE AIR CONDITIONERS	DAIKIN / MITSUBISHI ELECTRIC / TOSHIBA / GENERAL / CARRIER / HITACHI / BLUE STAR



2	AIR HANDLING UNIT & AIR HANDLING UNIT FAN SECTION	ZECO / FLAKTWOOD / VTS / EDGETEC
3	COOLING COIL FOR AHU	ZECO / FLAKTWOOD / VTS / EDGETEC
4	FRESH / EXHAUST AIR UNITS	ZECO / FLAKTWOOD / VTS / EDGETEC
5	PROPELLER FAN	ALSTOM / CROMPTON / GEC
6	WATER COOLER	BLUE STAR / VOLTAS / USHA
7	G.I / AL.SHEETS	TATA / JINDAL / SAIL / NIPPON
8	GRILLES / DIFFUSERS / VOLUME CONTROL DAMPER / LOUVERS	AIRFLOW / CARYAIRE / COSMOS / SYSTEMAIR
9	AIR FILTER	PYRAMID / AAF / ANFILCO / SPECTRUM / THRERMADYNE
10	SELF ADHESIVE GASKET	BEARDSSELL / PRIMA COOL
11	FASTENERS	FISCHER / HILTI / CANNON
12	FIRE RETARDANT CANVASSES	ARMA DUCT / CLIMATECH
13	UPVC PIPING FOR DRAINAGE	SUPREME / PRECISION / EQUIVALENT
14	STATIC PRESSURE TRANSMITTER	TAC / JOHNSON / HONEYWELL
15	TEMP CONTROLLER	TAC / JOHNSON / HONEYWELL / SIEMENS
16	T + RH TRANSMITTERS (DUCT/WALL MOUNTED)	TAC / JOHNSON / HONEYWELL
17	AIR DP SWITCHES	TAC / JOHNSON / HONEYWELL
18	DEW POINT SENSOR	TAC / JOHNSON / HONEYWELL
19	DP TRANSMITTER	TAC / JOHNSON / HONEYWELL
20	COPPER PIPE	MANDEV / MEXFLOW / HARIOM/RR
21	CLOSED CELL ELASTOMERIC NITRILE RUBBER ALONG WITH ADHESIVE	ARMACELL / ALP AEROFLEX / AEROFOAM/SUPREME
22	PROTECTIVE COATING OVER CLOSED CELL NITRILE RUBBER (GLASS CLOTH)	ARMACELL / ALP AEROFLEX / AEROFOAM/SUPREME
23	ACOUSTIC INSULATION	ARMACELL / ALP AEROFLEX / AEROFOAM
24	UNDER DECK / SHAFT INSULATION	ROXUAL / ROCKWOOL / LLOYDS / BEARDSSELL
25	FIRE SEALANT	BIRLA 3 M / HILTI / PROMAT
26	ELECTRIC AC MOTORS	CROMPTON / ABB / SIEMENS / BB
27	ELECTRICAL CABLES / TERMINATIONS / TRAYS	KEI / POLYCAB / NICCO / FINOLEX/RR
28	ELECTRICAL CABLE GLANDS	HMI / COMET / EQ. APPROVED
29	ELECTRICAL STARTERS AND INTERNALS	L&T / SIEMENS / SCHNEIDER
30	MMI UNIT (REMOTE DISPLAY AND CONTROL) FOR DDC	TAC / JOHNSON / HONEYWELL
31	ON / OFF PUSH BUTTONS	RAS CONTROL / VAISHNAO / TEKNIK

Note:

The brands/ makes of the items would be executed as per the “List of Approved Makes” provided in the Tender Document.

In case of non-availability of the brand/ make specified in the approved list, the agency shall be allowed to use alternate equivalent brands of the material subject to approval of the same from Engineer-in-charge and Architect and their decision in this regard shall be final and binding.

The agency has to submit requisite catalogues and samples of the material to SMC before approval and ensure that the supply would only be taken by agency after the materials are duly approved by SMC.

The agency has to produce Manufacturer Test Certificates (MTC), Warranty Certificates/ /equipment supplied for certification and approval.

Submittals and samples before supply must be approved by Architect/ Engineer-in-charge.

If any material is not listed above, a brand for the same shall be suggested by Architect and Engineer-in-charge. The Contractor is bound to produce material from this specified brand.

**NOTE:**

**Contractor has to get approval of make with technical details prior to order the OEM/DEALERS/STOKIST/SUB DEALERS etc., even though mentioned in above list.**

**Prior approval for any other item apart than listed above shall be taken by the contractor and decision of Engineer-in-charge shall be final and binding to all.**

**Executive Engineer (Workshop/Mech.)  
Public Infrastructure Cell  
Surat Municipal Corporation**

**Signature of the bidder**

**Electrical Approved Make LIST**

Sr. No.	Item	Make
1	PVC pipe/Casing Caping/ Trunking	PRECISION / PRESTOPLAST / NIHIR /POLYCAB / ANCHOR /VRAJ / SUPREME / VINAY
2	Flexible Wires	CCI, UNIVERSAL, FINOLEX, INCAB, TORRENT, HAVELLS, BHARATCAB, GLOSTER, RR KABEL, KEI
3	Modular type Switch and accessories	ANCHOR ROMA / NORTH ERST CONVEX / CRABTREE SAPHIRE / SCHNEIDER / MK / NORRISIS
4	Angle holder/Ceiling rose/down holder	ANCHOR ROMA / POINTER /
5	Connector	ELMEX / WAGO / CONNECTWELL
6	LIGHT FITTINGS	PHILIPS / BAJAJ / HAVELLS/ CROMPTON / GE / OSRAM / WIPRO / KESELEC Schreder / NVC
7	COPPER / ALUMINUM LUGS	DOWELS / JENSON / HEX
8	CABLE GLANDS	3D / COMET / HMI/ DOWELS/POLYCAB
9	DISTRIBUTION BOARDS	L&T / SIEMENS / HAGER / ABB (All Double Door Type)
10	MCB, RCBO, RCCB	SIEMENS / MDS / L & T / MG / C&S/ INDOKOPP / SCHNEIDER / HAGER / HAVELLS /ABB / LEGRAND
11	L.T POWER CABLE	CCI / UNIVERSAL / FINOLEX /TORRENT / HAVELLS /RR KABEL / KEI / POLYCAB
13	UPS & Stabilizers	Socomec, Emerson, Schneider, Siemens, Merlin Gerin, APC, Numeric Legrand
14	ALL types of Fan	GEC / CROMPTON / BAJAJ / ORIENT/ KHETAN /ORTEM/HAVELLS /ATOMBERG / USHA

#### ANNEXURE-I

**STATEMENT SHOWING THE SIMILAR WORKS COMPLETED IN THE LAST SEVEN YEARS**

No	Name of Department/ Client	Type of work & cap.	Tender amount (in Rs.)	Date of award of contract	Schedule Date of completion	Actual Date of completion	Actual amount of work completed (Rs.)	Reasons for delay in completion of work	Remarks
1									
2									
3									

- Bidder is requested to refer to qualification criteria attached.
- Bidder shall give completion certificate from client.

In absent of such completion certificate, experience shall not be considered for evaluation. If completion certificate covers "Similar work with other work" then bidders shall have to submit copies of final bill indicating similar work or certificate of amount indicating "Similar work" from relevant authority.

## ANNEXURE-II

### STATEMENT SHOWING THE SIMILAR WORKS ON HAND

No	Name of Department/ Client	Type of work & cap.	Tender amount (in Rs.)	Date of award of contract	Schedule Date of completion	paid amount of work done (Rs.)	Reasons for delay ,if work delayed	Remarks
1								
2								
3								

- Bidder is requested to refer to qualification criteria attached.

## INSTRUCTION TO TENDERER

1.

Affix Latest Passport  
Size Photograph

-----  
Specimen Signature of the Contractor

2.

AFFIX LATEST PASSPORT SIZE PHOTOGRAPH OF ALL PARTNERS IN CASE OF PARTNERSHIP  
AGENCY

Specimen signature of all partners in case of partnership agency.

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

4. \_\_\_\_\_

Submission of Registered agreement is compulsory in case of partnership agency.

1. Submission of income tax clearance certificate of last three year is compulsory for tenderer submitting agency.
2. Submission of sale tax certificate, with proof of residence is compulsory for tenderer.
3. In case of Government royalty applicable to tenderer, it is compulsory to submit a receipt of royalty payment with tender.
4. The Photograph and specimen signature of contractor will be cross checked, whenever contractor receive payment in account section of SMC.
5. The specimen signature of contractor will be cross checked by Account Department of SMC, in Caesar of representative of Contractor along with letter of authority of a person who signed an agreement, receives payment.

### Signature & Seal of Contractor

### **TENDERER'S/CONTRACTOR'S CERTIFICATE**

I/We hereby declare that I/We have pursued in detail and have examined closely the specifications/general terms & conditions/special terms/important instructions/note described in the tender document. I/We hereby agree to be bound by and comply with all such specifications/terms conditions etc. I/We also certify that I/We have visited the site and inspected the locations of the proposed work before quoting my/our rates.

**Signature & Seal of Tenderer/Contractor,**

HVAC BOQ								
	SI. NO.	PARTICULARS	UNIT	QTY	SUPPLY RATE	INSTALLATION RATE	FINAL PRICE	AMOUNT
ITEM NO.	A	VARIABLE REFRIGERANT VOLUME SYSTEM						
	1	OUTDOOR UNIT						
1	8-6-1.	<b>(A) OBS GYNAC-ICU</b> Supply Installation, Testing & Commissioning of modular type Variable Refrigerant Volume air cooled Outdoor units suitable for cooling and heating, having all hermetically sealed inverter type Scroll Compressor(s), microprocessor based Controller, top discharge type condensing unit(s), with R410 A Refrigerant (Or Eco Friendly Green Gas if any), vibration isolators, with suitable foundation, MS Stand for Unit with necessary paint etc. complete as required. The unit shall deliver the rated capacity at AHRI Conditions and work even at 50°C ambient temperature without tripping. The unit shall be suitable to work on 400V +/- 10%, 3 Phase, 50Hz AC power supply. The unit shall be filled with first charge of the refrigerant and ready for use as required. The COP at AHRI conditions shall not be less than 3.1 and IEER not less than 6.5. (Design should be got approval before execution from engineer in charge)	Per Hp	20	17,461.00	1,060.00	18,521.00	3,70,420.0
2	8-6-1.	<b>(B) PICU &amp; MAIN ICU</b> Supply Installation, Testing & Commissioning of modular type Variable Refrigerant Volume air cooled Outdoor units suitable for cooling and heating, having all hermetically sealed inverter type Scroll Compressor(s), microprocessor based Controller, top discharge type condensing unit(s), with R410 A Refrigerant (Or Eco Friendly Green Gas if any), vibration isolators, with suitable foundation, MS Stand for Unit with necessary paint etc. complete as required. The unit shall deliver the rated capacity at AHRI Conditions and work even at 50°C ambient temperature without tripping. The unit shall be suitable to work on 400V +/- 10%, 3 Phase, 50Hz AC power supply. The unit shall be filled with first charge of the refrigerant and ready for use as required. The COP at AHRI conditions shall not be less than 3.1 and IEER not less than 6.5. (Design should be got approval before execution from engineer in charge)	Per Hp	40	17,461.00	1,060.00	18,521.00	7,40,840.0



3		<p><b>(C) NICU</b> Supply Installation, Testing &amp; Commissioning of modular type Variable Refrigerant Volume air cooled Outdoor units suitable for cooling and heating, having all hermetically sealed inverter type Scroll Compressor(s), microprocessor based Controller, top discharge type condensing unit(s), with R410 A Refrigerant (Or Eco Friendly Green Gas if any), vibration isolators, with suitable foundation, MS Stand for Unit with necessary paint etc. complete as required. The unit shall deliver the rated capacity at AHRI Conditions and work even at 50°C ambient temperature without tripping. The unit shall be suitable to work on 400V +/- 10%, 3 Phase, 50Hz AC power supply. The unit shall be filled with first charge of the refrigerant and ready for use as required. The COP at AHRI conditions shall not be less than 3.1 and IEER not less than 6.5. (Design should be got approval before execution from engineer in charge)</p>	Per Hp	16	17,461.00	1,060.00	18,521.00	2,96,336.0
4	8-6-1.	<p><b>(D) SICU-3 &amp; SICU-4</b> Supply Installation, Testing &amp; Commissioning of modular type Variable Refrigerant Volume air cooled Outdoor units suitable for cooling and heating, having all hermetically sealed inverter type Scroll Compressor(s), microprocessor based Controller, top discharge type condensing unit(s), with R410 A Refrigerant (Or Eco Friendly Green Gas if any), vibration isolators, with suitable foundation, MS Stand for Unit with necessary paint etc. complete as required. The unit shall deliver the rated capacity at AHRI Conditions and work even at 50°C ambient temperature without tripping. The unit shall be suitable to work on 400V +/- 10%, 3 Phase, 50Hz AC power supply. The unit shall be filled with first charge of the refrigerant and ready for use as required. The COP at AHRI conditions shall not be less than 3.1 and IEER not less than 6.5. (Design should be got approval before execution from engineer in charge)</p>	Per Hp	24	17,461.00	1,060.00	18,521.00	4,44,504.0
5	8-6-1.	<p><b>(E) MICU-3 &amp; MICU-4</b> Supply Installation, Testing &amp; Commissioning of modular type Variable Refrigerant Volume air cooled Outdoor units suitable for cooling and heating, having all hermetically sealed inverter type Scroll Compressor(s), microprocessor based Controller, top discharge type condensing unit(s), with R410 A Refrigerant (Or Eco Friendly Green Gas if any), vibration isolators, with suitable foundation, MS Stand for Unit with necessary paint etc. complete as required. The unit shall deliver the rated capacity at AHRI Conditions and work even at 50°C ambient temperature without tripping. The unit shall be suitable to work on 400V +/- 10%, 3 Phase, 50Hz AC power supply. The unit shall be filled with first charge of the refrigerant and ready for use as required. The COP at AHRI conditions shall not be less than 3.1 and IEER not less than 6.5. (Design should be got approval before execution from engineer in charge)</p>	Per Hp	24	17,461.00	1,060.00	18,521.00	4,44,504.0

<b>6</b>	<b>2</b>	<b>INDOOR UNIT (VRF)</b>						
		<b>FOUR WAY CASSETTE</b>						
	<b>8-6-2.</b>	Supply, installation, testing and commissioning of following minimum capacity 4-way/2 way/radial flow as per approval VRV Cassette Type Indoor ceiling mounted unit equipped with synthetic washable media pre-filter, fan section with low noise fan/dynamically balanced blower, multispeed motor, coil section with DX Copper coil, electronic expansion valve, outer cabinet, drain pump, grill, necessary supports, vibration isolation, cord less remote control etc., suitable for operation on single phase 230 V $\pm$ 10%, 50Hz AC supply, max noise level 60dB @ 400 cfm per TR(minimum) complete, as required. The unit shall have automatic force shut down provision in case of fire on receiving signal from BMS System. The cooling capacity of indoor unit will be at air inlet conditions of 27 Degree C DB and 19 Degree C WB temperature fresh air provision compatible for Remote Operation System						
<b>6.1</b>		( a ) 4 TR ( 5 HP )	No.	5	24,219.00	2,543.00	26,762.00	1,33,810.00
<b>6.2</b>		( b ) 3.2 TR (4 HP)	No.	2	23,829.00	1,865.00	25,694.00	51,388.00
<b>6.3</b>		( C ) 2.4 TR (3 HP)	No.	4	23,243.00	1,441.00	24,684.00	98,736.00
<b>7</b>		<b>HI WALL</b>						
	<b>8-6-3.</b>	Supply, installation, testing and commissioning of following minimum capacity VRV High wall type Indoor unit equipped with washable synthetic media pre-filter, fan section with noise level maximum 60 dB @min 400 cfm /dynamically balanced blower, multispeed motor, coil section with DX copper coil, electronic expansion valve, outer cabinet, cord less remote control, drain pan, necessary accessories etc., suitable for operation on 230 V $\pm$ 10%, 50 Hz, single phase AC supply, complete as required. The unit shall have automatic force shut down provision in case of fire on receiving signal from BMS System. The cooling capacity of indoor unit will be at air inlet conditions of 27 Degree C DB and 19 Degree C WB temperature.						
<b>7.1</b>		(a) 1TR (1.25 HP)	No.	1	13,907.00	678.00	14,585.00	14,585.00
<b>7.2</b>		(b) 1.2 TR (1.5HP)	No.	2	15,235.00	933.00	16,168.00	32,336.00
<b>7.3</b>		(c)1.6 TR ( 2 HP )	No.	4	15,235.00	933.00	16,168.00	64,672.00
<b>7.4</b>		(d)2 TR ( 2.5 HP )	No.	18	16,016.00	1,272.00	17,288.00	3,11,184.00
<b>7.5</b>		( e ) 2.4 TR (3HP)	No.	1	18,000.00	1,350.00	19,350.00	19,350.00
<b>8</b>	<b>B</b>	<b>COPPER PIPING</b>						

	8-6-5.	Supply, Installation, testing and commissioning including vaccumiazation and Nitrogen testing of following nominal sizes of soft/hard drawn copper refrigerant piping for VRV system, complete with fittings, with suitable adjustable ring type hanger supports, jointing/brazing including accessories, insulated with XPLE Class-0 tubular insulation/with Class-0 closed cell elastometric nitrile rubber tubular sleeves sections of specified thickness as given below for Suction and Liquid lines, all accessories as per specifications etc with necessary refrigerant joint as required :						
8.1	1	41.3 mm with 19mm thick insulation	RMT	250	984.00	246.00	1,230.00	3,07,500.0
8.2	2	38.1 mm with 19mm thick insulation	RMT	0	933.00	229.00	1,162.00	-
8.3	3	34.9 mm with 19mm thick insulation	RMT	0	924	204.00	1,128.00	-
8.4	4	31.8 mm with 19mm thick insulation	RMT	0	899	170.00	1,069.00	-
8.5	5	28.6 mm with 19mm thick insulation	RMT	0	865	153	1,018.00	-
8.6	6	25.4 mm with 19mm thick insulation	RMT	650	823	136	959.00	6,23,350.0
8.7	7	22.2 mm with 19 mm thick insulation	RMT	0	695.00	119.00	814.00	-
8.8	8	19.1 mm with 19 mm thick insulation	RMT	50	568.00	94.00	662.00	33,100.00
8.9	9	15.9 mm with 19 mm thick insulation	RMT	450	484.00	77.00	561.00	2,52,450.0
8.10	10	12.7 mm with 19 mm thick insulation	RMT	100	365.00	68.00	433.00	43,300.00
8.11	11	9.5 mm with 19 mm thick insulation	RMT	250	263.00	51.00	314.00	78,500.00
8.12	12	6.4 mm with 19 mm thick insulation	RMT	150	187.00	43.00	230.00	34,500.00
8.13	C	<b>EXTRA GAS CHARGING FOR VRF SYSTEMS</b>		0				-
9	8-7-2	Supplying colourless non inflammable refrigerant Gas R-410	Kg.	60	763.00		763.00	45,780.00
10	D	<b>ELECTRICAL WIRE</b>		0				
10.1	4-2-1.	3 core 2.5 Sq. mm	Mtr	1400	129.00	6.00	135.00	1,89,000.0
11	E	<b>DRAIN</b>		0				
		Drain Piping using blue water quality UPVC pipe with UPVC fittings and 25mm insulation. Drain pipe sizes shall be as shown in the drawings and schedules. Slope to be provided with cleanouts at all bends.		0				
11.1	8-8-4.	(a) 25mm	RMT	260	51.00	26.00	77.00	20,020.00
11.2		(b) 32mm	RMT	130	51.00	26.00	77.00	10,010.00
12	F	<b>OUTDOOR STAND</b>						
	3-16-4-A	Providing , erecting , fabricating the M.S. structure as per requirement on site incorporating proper size of M.S. angles,square,round, flats, bars, channels, sections complete with cutting, welding, grinding & finishing duly painted with one coat of red oxide with erection on site as per direction of engineer in charge with necessary grouting, cementing, plastering & finishing complete.						
12.1		Iron Welded Ductable Outdoor Stand 6" to 10" height or specified height by site engineer	Kg	820	57.00	20.00	77.00	63,140.00
		<b>TOTAL</b>						47,23,315.0
13	G	<b>AMC (FOR VRF SYSTEMS)</b>						
	M.R	Comprehensive AMC Contract with 1st year free coverage liability from the contractor/vendor	Per Hp					
13.1		AMC Cost for 1st Year after Warranty Period (Servicing as per NABH standards of indoor and outdoor units every 4-6months duration as required) After Defect Liability Period.	Per Hp	124	FREE		FREE	FREE

<b>13.2</b>		AMC Cost for 2nd Year after Warranty Period (Servicing as per NABH standards of indoor and outdoor units every 4-6months duration as required) After Defect Liability Period .	Per Hp	124	4,563.89		4,563.89	5,65,922.36
<b>13.3</b>		AMC Cost for 3rd Year after Warranty Period (Servicing as per NABH standards of indoor and outdoor units every 4-6months duration as required) After Defect Liability Period.	Per Hp	124	4,563.89		4,563.89	5,65,922.36
<b>13.4</b>		AMC Cost for 4th Year after Warranty Period (Servicing as per NABH standards of indoor and outdoor units every 4-6months duration as required) After Defect Liability Period.	Per Hp	124	4,563.89		4,563.89	5,65,922.36
<b>13.5</b>		AMC Cost for 5th Year after Warranty Period (Servicing as per NABH standards of indoor and outdoor units every 4-6months duration as required) After Defect Liability Period.	Per Hp	124	4,563.89		4,563.89	5,65,922.36
<b>13.6</b>		AMC Cost for 6th Year after Warranty Period (Servicing as per NABH standards of indoor and outdoor units every 4-6months duration as required) After Defect Liability Period.	Per Hp	124	4,563.89		4,563.89	5,65,922.36
<b>13.7</b>		AMC Cost for 7th Year after Warranty Period (Servicing as per NABH standards of indoor and outdoor units every 4-6months duration as required) After Defect Liability Period.	Per Hp	124	4,563.89		4,563.89	5,65,922.36
<b>13.8</b>		AMC Cost for 8th Year after Warranty Period (Servicing as per NABH standards of indoor and outdoor units every 4-6months duration as required) After Defect Liability Period.	Per Hp	124	4,563.89		4,563.89	5,65,922.36
		<b>GRAND TOTAL</b>					<b>86,84,771.52</b>	

Electrical BOQ								
ITEM NO.	SOR No	Tender Specification/ Item Description	Qty	Unit	SOR Rate	Market Rate		Amount
<b>PART-01</b>		<b>Internal Point Wiring</b>						
<b>14</b>	1-2-1.	Point wiring for Light / Bell with 2-1.5 sq.mm & earth wire of 1.5 sq.mm (Green) both are of ISI marked 1.1 KV grade FRLS PVC insulated multi strand copper wires up to 10 mtr length , in below type of pipe erected with 6A Modular type switch / bell push & accessories and earth continuity of following type, erected on PVC / Metallic/Wooden box, single mounting base frame covered with textured/metallic/white front plate modules erected on / in wall / ceiling as per pipe erected, with necessary Lamp holder/ceiling rose / H.D.Connector as directed.						
		(f) with medium class Rigid PVC pipe and accessories erected concealed in wall/ceiling complete cat-III	113	Pt.	445.00	-		50,285.00
<b>15</b>	1-1-4.	Point wiring for Modular secondary light point with 2-1.5 sq.mm & earth wire of 1.5 sq.mm (green) both are of ISI marked 1.1 KV grade FRLS PVC insulated multi strand copper wires, in below type of pipe to be erected complete with earth continuity and necessary connection with primary light with accessories erected on Metal / PVC / wooden box covered with 3 mm thick PC(Polycarbonate) / Acrylic sheet for open / concealed wiring. with necessary Lamp holder / ceiling rose / H.D.Connector as directed.						
		Note:- Maximum up to 6 mtrs length, excess will be considered as Mains for Secondary Point.						
		(f) with medium class Rigid PVC pipe and accessories erected concealed in wall/ceiling complete.	47	Pt.	150.00	-		7,050.00
<b>16</b>	1-2-2.	Point wiring for FAN with 2-1.5 sq.mm & earth wire of 1.5 sq.mm (Green) both are of .ISI marked 1.1 KV Grade FRLS PVC insulated multi strand copper wires up to 10 mtr length, in below type of pipe erected with 6A Modular type switch and hum free EME step type electronic fan regulator mounted and accessories with earth continuity of following type erected on PVC / Metallic/Wooden box, single mounting base frame covered with textured/metallic/white front plate modules erected on / in wall / ceiling as per pipe erected. with necessary ceiling rose / H.D.Connector as directed.						
		(f) with medium class Rigid PVC pipe and accessories erected concealed in wall/ceiling complete						
		Cat. III	42	Pt.	623.00	-		26,166.00

17	1-1-2.	Point wiring for independent PLUG with following size mains earth wire of 1.5 sq.mm (green) both are of ISI marked 1.1 KV grade FRLS PVC insulated multi strand copper wires upto 10 mt length, in following below of pipe erected complete with ISI marked 3 / 5 Pin socket and tissino type switch erected with earth continuity connection erected on Metal / PVC/Wooden box covered with 3 mm thick PC(Polycarbonate) / Acrylic/Laminated sheet.						
	(II)	[B] 6/16A Plug and 16 amp switch with 2-2.5 sq. mm Cu. Mains from mcb d b boards.						
		(f) with medium class Rigid PVC pipe and accessories erected concealed in wall/ceiling complete	80	Pt.	490.00	-		39,200.00
18	1-3-2.	Providing and erecting ISI mark Medium class RIGID PVC PIPES of following size complete to be erected on/in wall or ceiling erected with necessary PVC fittings & Junction boxes fixed with adhesive solution & Clamps with following dia of pipes, in approved manner as directed						
		(b) 25 mm	628	Mtr.	32.00	-		20,096.00
19	1-4-1.	Providing and erecting Mains with 1.1 KV grade FRLS PVC insulated ISI marked stranded Copper conductor wire in following type of pipe to be erected concealed in /flushed on wall/ceiling, with 1.5 sq. mm copper conductor FRLS PVC insulated stranded wire of green colour for earth continuity of following size						
		With medium class Rigid PVC pipe and accessories						
19.1		(a) 2 wire 1.5 sq. mm	50	Mtr.	59.00	-		2,950.00
19.2		(b) 2 wire 2.5 sq. mm	505	Mtr.	78.00	-		39,390.00
		<b>Sub Total</b>						<b>1,85,137.00</b>
<b>Part-02</b>		<b>Lamps &amp; luminaires</b>						
20	2-15-3	Supplying and erecting LED indoor fittings with LEDs of wattage 0.2 Watt to 0.5 Watt assembled on single MCPCB, with housing used as a heat sink shall be made of thick sheet Steel conforming to IS: 513/CRCA/ aluminium die cast powder coated and high U.V. & corrosion resistance with diffuser with company mark/name 160V to 270V, Power Factor more than 0.95, THD < 15%, CCT 3000 K to 6500K, Luminaire efficacy > 85 lumens/watt, LED driver efficiency > 85 % ( fitting required LM-79 & LM-80 Certificates) (NOTE: Below description have shown ranges of Wattage capacity of LED fittings.The Engineer incharge may select any wattage capacity between the ranges shown.)						
		LED Panel Light with provision for Plane front frame with translucent cover fixed to housing complete.IP20						
		36 watts, 24" x 24", Surge- 2KV, Cat-III	160	Ea	1,777.00			2,84,320.0
		<b>Sub Total</b>						<b>2,84,320.00</b>
<b>Part-03</b>		<b>MCB DB, Panel, Switchgears and Accessories</b>						

21	3-10-1.(B)	providing and erecting Miniature circuit breaker single pole 6A to 25A suitable to operate on 240 V A.C. system and having breaking capacity 10 KA to be erected in existing box. confirming to IS 8828/1996 with ISI Mark Cat.III	38	Ea.	111.00	-	4,218.00
22	3-11-5.	Providing and erecting Sheet Steel powder coated MCB distribution board - flush / surface mounted fitted with busbar, neutral link, earth bar and DIN rail, Conforms to IS 8623-1 & 3, IEC 61439-1 & 3 without MCB to house appropriate nos. of MCBs.(The DBs should be used of same company of MCB to be used) suitable for					
		(A) single phase incoming and horizontal single phase outgoing					
		(b) sheet steel double door (IP-43)					
22.1		(v)16 way	1	Ea.	1,664.00		1,664.00
22.2		(v)8 way	3	Ea.	1,141.00		3,423.00
23	3-10-5.	Providing & erecting 415 V MCB Four Pole for Motor & Inductive Load (C Curve) having 10KA breaking capacity & confirms to IS :8828 in existing box having following capacity					
23.1		(a) 6 to 32 Amp.				-	-
		Cat.III	6	Ea.	590.00	-	3,540.00
23.2		(b)40 Amp.					
		Cat.III	6	Ea.	662.00	-	3,972.00
		(For ODU OF all ICU'S)					
24	3-11-11	Providing and erecting Sheet Steel powder coated Vertical MCB distribution board (VTPN) - flush / surface mounted double door (IP54) fitted with insulated copper busbar, isolated neutral link, earth bar and DIN rail, confirming to IS 13032 and BS 5486-1986,IP-54 suitable for 63/100 AMP TPN MCCB + RCCB as incomer and three phase outgoing as per following .(The DBs should be used of same company of MCB to be used)					
		6 way outgoing (For ODU OF all First Floor ICU'S)	1	Ea.	12,061.00		12,061.00
25	3-12-3	Supplying & erecting approved make RCCB + MCB (Electro magnetic type only) working on residual current device having 10 KA short circuit breaking capacity and 30 mAmp. Sensitivity & 30 mili sec. tripping time conforming to IS 12640 test knob facility trip free mechanism operating for rated leakage at nominal ten volt, complete erected including all materials lugs screws etc. completed.					
		[a] 6A / 10A / 16A / 20A / 25A 2 pole single phase Cat. II	4	Ea.	1,798.00	-	7,192.00
		Sub Total					36,070.00
Part-04		Cabling Work					
26	4-2-1.	Supplying & erecting XLPE(IS:7098)(I)-88 ISI unarmoured copper cable 1.1 KV grade to be erected as directed of following size.					
		(F) 3 core 4 Sq. mm	200	Mtr.	185.00	-	37,000.00

27	4-3-4.	Providing and erecting XLPE (IS:7098)(I)-88 ISI armoured cable multistrand / Solid Aluminium conductor for 1.1 KV. to be laid on wall with necessary clamps or in existing trench / pipe of following size of cables						
		(B) 4 core 6 Sq. mm	175	Mtr.	123.00			21,525.00
		<b>(For ODU OF all ICU'S)</b>						
28	4-4-5.	Providing and erecting XLPE(IS:7098)(I)-88 ISI armoured cable multistrand Copper conductor for 1.1 KV. to be laid on wall with necessary clamps or in existing trench / pipe at road crossing or floor of following size of cables.						
		(A) 4 core 10 Sq. mm	50	Mtr.	667.00	-		33,350.00
29	4-6-1.	Providing and, fixing heavy duty flange type brass cable gland with rubber ring for PVC insulated armoured cable complete with out going tails, insulating tape etc for following size of cables.						
		(A) 2 to 4 core 2.5 / 4 Sq. mm	8	Ea.	33.00	-		264.00
30	4-7-2.	Solder less crimping type Copper lugs conforming to IS suitable for cable of following size evenly crimped with high pressure tool & connected to switchgear terminals with brass/cadmium plated nut bolts in an approved manner.						
		(A) 1.5/2.5 to 6 Sq.mm	40	Ea.	8.00	-		320.00
31	10-5-4	SITC of Galvanized Steel Flat 25x6 mm thickness from earth electrode directly in ground as required. Zinc coating: 500 g/m square (Approx:70 micron coating) tested and used exclusively for lightning protection earthing system and ring equipotential bonding.	180	Mtr	153.00	-		27,540.00
32	1-4-4	providing and erecting Mains with ISI marked, 1.5KV grade electrolyte multi stranded, annealed copper conductor with heat resistant PVC insulated conforms to IS 694, IEC - 227 erected in existing pipe of following size (Specifically for control panel, relays, power switchgears, motor starters & control wiring) with required size of copper lugs, nuts and bolts if required. <b>(FOR DB EARTHING)</b>						
		(c) One wire 2.50 sq. mm	40	Mtr	26.00	-		1,040.00
		<b>Sub Total</b>						<b>1,21,039.00</b>



Part-05		Fans and Accessories						
		Ceiling Fan And Accessories						
33	5-1-7.	Supply, Installation, Testing and Commissioning of suitable sweep, BEE 5 Star rated, Ceiling fan with Brush Less Direct Current (BLDC) permanent ferrite magnet Motor, class of insulation: B, Rust free 3 nos. Aluminium blades, 2 nos. canopies, shackle kit with earthing provision, copper winding, Power factor not < 0.9, Service Value (CMM/W) minimum 6.85, Air delivery minimum 215 CMM, 350 RPM, 230v (tolerance as per IS : 374-2019), THD < 10%, with remote unit for Speed Control and all remaining accessories including safety pin, nut bolts, washers, temperature rise = 75 degree C (Max.), suitable for 140 to 285 Voltage and rectifier circuit with surge, over current and overload protection, 50 Hz, Single phase AC Supply, earthing etc. Complete as required. [ Make shall be approved by Engineer in Charge]						
		(B) 1200 mm Sweep (48")	42	Ea.	2,857.00	-		1,19,994.0
34	5-2-1.	Supplying and erecting 19 / 20 mm. nominal bore Medium Class M.S. Pipe down rod erected duly painted for fan complete with proper insulation without leakage and earthing.	42	Mtr.	107.00	-		4,494.00
35	5-2-3.	Supplying & erecting fan hook box of 10 mm M.S. round bar bounded to the RCC bars up to 50mm length each side and pierced through a 16 Gauge M.S. box / Heavy Duty PVC box complete erected concealed in Ceiling with necessary finishing.	42	Ea.	107.00	-		4,494.00
36	5-2-5.	Providing 2.5mm.thick laminated acrylic sheet to cover the fan hook or Fan box.	42	Ea.	18.00	-		756.00
		<b>Sub Total</b>						<b>1,29,738.00</b>
		<b>TOTAL OF ELECTRIFICATION WORK (WITHOUT GST) Rs</b>						<b>₹ 7,56,304.00</b>
		<b>TOTAL OF HVAC WORK WITH C.A.M.C (WITHOUT GST)Rs.</b>						<b>86,84,771.52</b>
		<b>TOTAL OF ENTIRE WORK (WITHOUT GST) Rs.</b>						<b>94,41,075.52</b>