



**INVITATION TO TENDERERS**

**THIS DOCUMENT CONSISTS OF**

**INSTRUCTIONS TO TENDERER  
GENERAL CONDITIONS OF CONTRACT**

**NAME OF WORK: "Restoration of Fire Alarm system in BEL-Hyderabad".**

**BHARAT ELECTRONICS LIMITED  
(A GOVT. OF INDIA ENTERPRISE)  
I. E. NACHARAM, HYDERABAD – 500 076**

**REGISTERED OFFICE:**

**Nagavara, Outer Ring Road, Bengaluru – 560 045, INDIA**

**This is a Limited Tender restricted to only the vendor's pre approved by BEL. Subsequent to floating of the tender an official mail shall be issued only to the eligible vendors approved by BEL for the participation of tender.**

**Vendors who do not receive the official intimation mail shall be deemed ineligible to participate in bidding process. Any such bid shall not be considered for evaluation and shall be summarily rejected without any further correspondence. However, interested vendors may refer to the tender document and approach BEL for vendor registration for consideration in future tenders.**

**BHARAT ELECTRONICS LIMITED.  
I. E. NACHARAM, HYDERABAD – 500 076**

**No. BEL\_HYD/ES/2026/006**

**NAME OF WORK: "Restoration of Fire Alarm system in BEL-Hyderabad"**

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**BHARAT ELECTRONICS LIMITED**  
**I. E. NACHARAM, HYDERABAD-500 076**

**Invitation to Tender**

**No. BEL\_HYD/ES/2026/006**

Dt.: 28/05/2026

Dear Sir/ Sirs,

**NAME OF WORK: "Restoration of Fire Alarm system in BEL-Hyderabad."**

Ref: Tender Enquiry No. No. BEL\_HYD/ES/2026/006

Name of the Work	Estimated Cost of Work (Rs.)	EMD Amount (Rs.)	Duration of Contract Period
Restoration of Fire Alarm system in BEL-Hyderabad	49,44,915.00 /- (Excluding GST)	98,898.30 /-	180 days

1.0 Tender documents pertaining to the above mentioned work has been uploaded in the web site [www.eprocurebel.co.in](http://www.eprocurebel.co.in). Tenderers are advised to go through the instructions provided in NIT 'Instructions for Online Submission'. (To be formed based on type of tendering). This will be available on the net from **28/05/2026 to 05/06/2026**.

2.0 Tenderers are required to go through all the conditions and other details pertaining to the tender like General Conditions, Special Conditions, Detailed Technical Specifications, Drawings, SOQR etc. Tenderers are hereby requested to download the tender document from the website and quote for the same as mentioned below;

2.1 Upload the following documents online in "COVER-1" before submission of "COVER-2"

2.1.1 Scanned copy of "EMD or UDYAM Registration Certificate of current financial year (as applicable)" in ".pdf format"

2.1.2 Duly filled and signed scanned copy of "Tender Acceptance Letter" (Annexure -V) in ".pdf format"

2.2 Then, upload price bid in Cover-2 as follows:

2.2.1 "Price bid / SOQR / BOQ" online in 'Excel format'

3.0 Tenderers shall upload the relevant documents called for in the tender / website along with their quote. Tender of those tenderers who have not uploaded the relevant document in the website along with their quote is liable for rejection. Hard copy of tender documents will not be accepted.

4.0 **EMD for this work is Rs. 98,898.30/-** Separate EM is not collected from the tenderers for this work as the tenderers have already deposited one time EMD at the time of registration. In case the tenderer withdraws the offer, the EMD amount indicated above will have to be furnished by the tenderer by way of Demand Draft drawn in favor of BEL.

(Applicable where one time EMD has been collected at the time of Registration)

**OR**

5.0 **The EMD for this work is Rs. 98,898.30/-** The tender should be accompanied by an earnest money of **Rs. 98,898.30/-** either in the form of crossed demand draft drawn in favour of Bharat Electronics Limited or bank guarantee for the same amount (as per proforma at Appendix - I of GCC) from any Nationalised Bank or Scheduled Bank. **Cheques will not be accepted**. The tender is liable for rejection, if it is not accompanied with the earnest money deposit.

6.0 **EMD to be furnished shall be deposited in the tender box situated at BEL factory Reception on or before 05/06/2026 before 14:30 Hrs. Tenders submitted online without submitting the required EMD shall be liable for rejection.**

7.0 Earnest Money so paid or the Bank Guarantee furnished will be refunded or returned as the case may be, to the unsuccessful tenderers after the tenders are opened. In the case of successful tenderer, the Earnest Money paid through Demand Draft will be retained as part of the Initial Security Deposit and shall be refunded after successful completion of the contract. (Applicable wherein one time EMD has not been collected at the time of Registration)

8.0 No interest will be payable on Earnest Money Deposit

9.0 **Tender Schedule:-**

Sl. No	Particulars	Date	Time in Hrs (24 Hours format)
1	Tender e-publication Date and Time	<b>28/05/2026</b>	16:00
2	Tender Document download Start Date and Time	<b>28/05/2026</b>	16:30
3	Tender Document download End Date and Time	<b>05/06/2026</b>	14:30
4	Seek Clarification Start Date and Time (.pdf file to be uploaded)	<b>28/05/2026</b>	16:30
5	Seek Clarification End Date and Time	<b>05/06/2026</b>	10:30
6	Pre Bid Meeting Date and Time	<b>30/05/2026</b>	10:30
6	Online Tender Submission Start Date and Time	<b>28/05/2026</b>	16:30
7	Online Tender Submission End Date and Time	<b>05/06/2026</b>	14:30
8	Online Tender opening Date & Time	<b>05/06/2026</b>	16:30

If the date fixed for online opening of tenders is subsequently declared as holiday, the tenders will be opened on the next working day following the holiday but there will be no change in the time for opening as indicated above.

10.0 Tenderers are hereby advised to submit their offers online well before the closing hours as any delay in submission of tenders due to slow internet accessibility or for any other reason will not be accepted by the system.

11.0 In order to facilitate the tenderers to clearly understand scope of work and also terms and conditions of tender, a pre-bid meeting will be held as indicated above before the tenderers submit their tenders. All the tenderers are requested to attend the prebid meeting without fail. It will be presumed that, the tenderer who do not attend the prebid meeting, has made himself aware of the scope of work to be executed and terms and conditions of the tender and his quoted rates shall be deemed to include the points clarified in the prebid meeting. Proceedings of the prebid meeting shall form part of the contract and will be binding on the contractor (if applicable).

12.0 The tender will be opened online by the bid openers as per the schedule of tender mentioned above in the office of **SR.DGM (OPS)** in the presence of such of those tenderers or their representatives who may choose to be present.

13.0 Corrigendum, amendments etc., to the tender, if any, shall be issued online only. Prospective tenderers are requested to visit the website regularly.

14.0 Any particulars or information regarding the proposed work can be obtained from the office of the **SR.DGM (OPS)** on any working day during office hours from 9:30 Hrs. to 17:00 Hrs.

15.0 Tender Forms are not transferable.

16.0 The rates in the tender should remain valid for a period of Three (3) Months from the date of opening of the price bid.

17.0 Canvassing in any form will entail disqualification. And Conditional tenders are liable for rejection.

18.0 Detailed procedure for quoting is available in the website [www.eprocurebel.co.in](http://www.eprocurebel.co.in)(**Click on suppliers / e-Tenders / Hyderabad Unit**)

19.0 Your User ID and password shall be chosen by you during enrolment of DSC in the e-procurement Portal of BEL, [www.eprocurebel.co.in](http://www.eprocurebel.co.in). You are advised to change your password if required.

20.0 **All Corrigendum / Amendments / Changes, if any will be issued and made available on Website [www.eprocurebel.co.in](http://www.eprocurebel.co.in). Hence, prospective agencies are advised to keep visiting the Website [www.eprocurebel.co.in](http://www.eprocurebel.co.in) on regular basis**

**Note:** Any details regarding prices should not be mentioned in covers-1

Yours faithfully,

**For BHARAT ELECTRONICS LIMITED  
SR.DGM (OPS)**

### Instructions to Tenderers and Conditions for Submission of Tender

The Tenderers are requested to comply with the following Instructions and Conditions while submitting their tender for the work.

1. The Company reserves the right to accept or reject any or all the tenders without assigning any reason thereof.
2. The Company may, at its discretion, distribute the works among several tenderers and / or execute the works departmentally.
3. Proforma of the agreement required to be executed is at Appendix-2.
4. The tenderer shall quote for all items of the tender and any incomplete tender is liable for rejection.
5. Submission of tender by the tenderer implies that he has read the Instructions to Tenderers and all other Contract documents and has made himself aware of the scope and the specifications of the work to be executed after satisfying himself on due, inspection of Site as to the conditions of Site, availability of materials, local conditions and other relevant matters having a bearing on the execution of the works, including cost thereof.
6. No conditions or clarifications shall be entertained after opening of price bids. In such an event, the tender is liable for rejection and action will be taken as per sub clause 8.1 to 8.3 below.
7. The tenderer should quote his rate with respect to the description and specifications indicated against each item of work in the Schedule of Quantities and Rates.
8. If a tenderer withdraws his offer after opening of price bids or after communication of acceptance of his tender by the Company or fails to execute the Agreement within the time specified in the Letter of Intent issued by the Company or fails to Commence the work within the prescribed time specified in the Contract, the following action will be taken:
  - 8.1 The Earnest Money / Security Deposit paid by the tenderer shall be forfeited to the Company or recovered out of the Bank Guarantee furnished by the agency.
  - 8.2 The agency will not be allowed to participate, if the same work is re-tendered.
  - 8.3 The agency will be banned from participating in any of the future tenders of the Company for a period of two years from the date of withdrawal of offer.
9. The tenderer should ensure that he qualifies to quote for the work before submitting the tender. A mere issue of the tender document to the tenderer cannot be construed as his having the requisite entitlement to quote for the work.
10. The L1 tenderer shall obtain GST certificate registered at respective location and furnish to M/s. Bharat Electronics Limited at the time of preferring bills.
11. THE TENDERERS ARE REQUESTED TO QUOTE THEIR MINIMUM PRICE AND MAY NOTE THAT THERE WOULD BE NO NEGOTIATION EXCEPT WITH THE LOWEST TENDERER, IF NECESSARY.
12. Tenderers are requested to log on to the net till the date of submission of tenders for amendments (if any). Amendments will be uploaded on to the net up to the previous day of closing of tenders. The quote received will be deemed to have taken into account all the amendments uploaded from time to time.
13. The quotes shall be submitted online. The tenderers may please note that the quotes submitted online shall be valid for all the terms and conditions, specifications, drawings (If any) of the tender uploaded.

**NAME, ADDRESS AND  
SIGNATURE OF THE TENDERER**

**ACCEPTING AUTHORITY**

**APPENDIX – 1**

On a stamp Paper of appropriate value,  
(From any Nationalised or  
Scheduled Bank)

**BANK GUARANTEE**

(To cover payment of Earnest Money and conditions of Tender)

To,  
M/s. Bharat Electronics Limited,  
(A Government of India Enterprise)  
Registered & Corporate Office  
Outer Ring Road, Nagavara,  
Bangalore – 560 045.

Dear Sirs,

1. In consideration of your agreeing to accept Bank Guarantee for Rs.....in lieu of payment from M/s..... giving its / their Office/Registered Office at ..... (hereinafter called the Tenderer) towards the Earnest Money Deposit in respect of your Tender Notice No..... dated..... Calling for tender for ..... at .....and for the due fulfillment of the terms and conditions of the said tender notice we hereby undertake and agree to indemnify and keep you indemnified to the extent of Rs..... (Rupees.....only).

2. In the event of any loss or damages, costs, charges or expenses caused to or suffered by you by reason of any breach or non-observance on the part of the tenderer of any of the terms and conditions of the said tender notice, we shall on demand and without reference to the tenderer, irrevocably and unconditionally pay you in full satisfaction of your demand the amounts claimed by you; Providing that our liability under this guarantee shall not at any time exceed Rs..... (Rupees..... only).

3. The guarantee herein contained shall remain in full force and effect till you finalize the tender and select the tenderer of your choice and it shall, in the event of the said tenderer being selected entrusted with the said works, continue to be enforceable till the said tenderer executes the Agreement with you and commences the work as stipulated under the terms and conditions of the said tender and till you certify that the terms and conditions of the said tender have been fully and properly carried out by the said tenderer and accordingly discharges this guarantee.

4. We also agree that your decision as to whether the tender has committed any breach or non-observance of the terms and conditions of the said tender shall be final and binding on us.

5. We undertake to pay the company any money so demanded notwithstanding any dispute or disputes raised by the contractor(s) in any suit or proceeding pending before any court or Tribunal relating thereto, our liability under this present being absolute and unequivocal.

6. The payment so made by us under this bond shall be a valid discharge of our liability for payment there under and the contractor(s) shall have no claim against us for making such payment.

7. This guarantee shall continue to be in full force and effect for a period of six months form the date of issue. Notwithstanding the above limitation, we shall honor and discharge the claims preferred by you within thirty days of the expiry of this guarantee.

8. We shall not revoke this guarantee during its currency except with your previous consent in writing.

9. This guarantee shall not be affected by any change in the constitution of our Bank or of the tenderer firm.

10. Your neglect or forbearance in the enforcement of the payment of any money, the payment whereof is intended to be hereby secured or the giving of time for the payment hereto, shall in no way relieve us of our liability under this guarantee.

Dated this..... day of .....20

Yours faithfully,

For .....

Signature and Seal  
of the Bank

(AUTHORISED SIGNATORY)

**APPENDIX-2**

(On a Stamp Paper of Rs. 100/-)

**AGREEMENT**

THIS AGREEMENT made at ..... this ..... day of ..... two thousand ..... between Messrs. Bharat Electronics Limited having its Registered & Corporate Office at outer Ring Road, Nagavara, Bangalore – 560 045 and one its Units at ..... (Hereinafter called the Company) which expression where the context so admit shall include its successors and assign of the one part and Messrs ..... having its/their office / Registered Office at ..... (hereinafter called the Contractor) which expression where the context so admits shall include its / their successors and assign of the other part. THE COMPANY invited tenders for the ..... several firms submitted tenders in response to the invitation. After due consideration, the company has decided to entrust to the contractor the ..... (hereinafter called 'Works') at .....

FOR THE CONSIDERATION payable under this agreement, the contractor hereby agrees to complete the execution of works and handover the works in a satisfactory manner within the period specified in Annexure-IA to the General Conditions of Contract appended hereto. IT IS HEREBY AGREED between the parties as follows:

- (a) The instruction to tenderers and conditions for submission of Tender issued for the work.
- (b) The General Conditions of contract governing this Agreement shall be as contained in Annexure – I hereto.
- (c) The Special Conditions of contract governing this Agreement shall be as contained in Annexure – II hereto.
- (d) The detailed Technical Specifications relating to the works under this Agreement shall be contained in Annexure – III hereto.
- (e) The drawings relating to the work under this Agreement and issued so far shall be as contained in Annexure – IV hereto.
- (f) The items of works entrusted to the contractor, the detailed specification of each item of work, approximate quantities for each item of work to be executed with the required materials and labour, etc., and the rates payable in respect of each completed items of work shall be contained in Annexure – V hereto.
- (g) The Tender Acceptance Letter governing this Agreement shall be as contained in Annexure-VI hereto.
- (h) Letter of Intent No. .... Dt..... issued for the work.

THIS AGREEMENT has been executed in duplicate and a copy of each thereof has been kept by the contracting parties.

IN WITNESS WHEREOF the parties have executed this Agreement the day and year first above written:

For BHARAT ELECTRONICS LIMITED

For CONTRACTOR:

Witness:

- 1.
- 2.

Note:

1. Witness name and address to be indicated
2. Annexure no's. shall be indicated as applicable to the specific contract agreement.

**APPENDIX – 3**

On Stamp Paper of appropriate value  
(From any Nationalised or Scheduled Bank)

**BANK GUARANTEE**

(To cover payment of Security Deposit)

To  
Messrs Bharat Electronics Limited  
(A Government of India Enterprise)  
Registered & Corporate Office  
Outer Ring Road, Nagavara,  
Bangalore – 560 045.

Dear Sirs,

1. In consideration of your agreeing to accept Bank Guarantee for Rs..... in lieu of initial cash deposit and a recovery of 10% out of the individual bill value of the running account bill of Messrs..... having its / their Office/ Registered Office at ..... (hereinafter called the contractor) towards security deposit for the due performance of the contract entered into by them for the.....at..... in accordance with the terms and conditions agreed by the contractor and for the due fulfillment of the said contract or of the terms and conditions contained therein, we hereby undertake and agree to indemnify and keep you indemnified to the extent of Rs..... (Rupees.....only).

**OR**

**Applicable for works viz., mechanical, air-conditioning, air-cooling, electrical, communication & networks, fire alarm & public address systems etc**

1. In consideration of your agreeing to accept Bank Guarantee for Rs..... from Messrs.....herewith having its/their Office/Registered Office at ..... (hereinafter called the Contractor) towards Security Deposit for the due performance of the Contract entered into by them for the ..... at ..... in accordance with the terms and conditions agreed to by the Contractor and for the due fulfillment of the said Contract or of the terms and conditions contained therein, we hereby undertake and agree to indemnify and keep you indemnified to the extent of Rs.....(Rupees..... only).

2. In the event of any loss or damages, costs, charges or expenses caused or suffered by you by reason of any breach or non-observance on the part of the contractor of any of the terms and conditions contained in the said contract, we shall on demand and without reference to the contractor irrevocably and unconditionally pay you in full satisfaction of your demand the amounts claimed by you; Providing that our liability under this guarantee shall not at any time exceed Rs..... (Rupees..... only)

3. This guarantee herein contained shall remain in full force and effect till you certify that the terms and conditions of the said contract have been fully and properly carried out by the contractor, and that contractor has furnished necessary deposit or fresh guarantee towards his obligation during the Defect Liability period of the works or till this guarantee is duly discharged by you in writing.

4. We also agree that your decision as to whether the contractor has committed any breach or non-observance of the terms and conditions of the said contract shall be final and binding on us.

5. We undertake to pay to the company any money so demanded notwithstanding any dispute or disputes raised by the contractor(s) in any suit or proceeding pending before any court or Tribunal relating thereto, our liability under this present being absolute and unequivocal.

6. The payment so made by us under this bond shall be a valid discharge of our liability for payment there under and the contractor(s) shall have no claim against us for making such payment.

7. This guarantee shall continue to be in full force and effect up to and inclusive of ..... Notwithstanding the above limitation, we shall honour and discharge the claims preferred by you within sixty days of the expiry of this guarantee.

8. We shall not revoke this guarantee during its currency except with your previous consent in writing.

9. This guarantee shall not be affected by any change in the constitution of our Bank or of the contractor.

10. Your neglect or forbearance in the enforcement of the payment of any money, the payment whereof is intended to be hereby secured or the giving of time for the payment hereto shall in no way relieve us of our liability under this guarantee.

Dated this ..... Day of ..... 20

Yours faithfully

For .....

Signature and Seal  
Of the Bank

(AUTHORISED SIGNATORY)

The following note is applicable for civil works and composite tenders

Note: The above Bank Guarantee pro forma shall be adopted when the Contractor furnishes Bank Guarantee for total Security Deposit at the time of commencement of Contractor. In case the contractor chooses to furnish the Bank Guarantee for the total Security Deposit at any time during the run of the contractor, the Bank Guarantee pro forma as given in Appendix – 3 shall become applicable except the first para shall be read as follows:

"In consideration of your agreeing to refund the initial cash deposit and ten percent cash recovery made in the running account bills towards Security Deposit Messrs..... having its /their office/Registered office at ..... (Hereinafter called the contractor) towards Security Deposit for the due performance of the contract entered into by them for the .....

In accordance with terms and conditions agreed to by the contractor and for the due fulfillment of the said contract or of the terms and conditions contained therein we hereby undertake and agree to identify and keep you indemnified to the extent of Rs..... (Rupees..... only)".

**APPENDIX-4**

On a Stamp Paper of appropriate value  
(From any nationalized or Scheduled Bank)

**BANK GUARANTEE**  
(To cover defect liability)

To  
Messrs Bharat Electronics Limited,  
(A Government of India Enterprise)  
Registered & Corporate Office  
Outer Ring Road, Nagavara,  
Bangalore – 560 045

Dear Sirs,

1. In consideration of your agreeing to accept Bank Guarantee for Rs .....in lieu of cash deposit from Messrs.....(hereinafter called the contractor) being the deposit to be kept by you during the Defect Liability period in respect of ..... (hereinafter called works) executed and completed by the contractor on ..... and in accordance with the terms and conditions of the contract dated .....and for the due fulfillment of the said contract or of the terms and conditions therein, we hereby undertake and agree to indemnify and keep you indemnified to the extent of Rs..... (Rupees..... only).

2. In the extent of any loss or damages, costs, charges or expenses caused to or suffered by you by reason of any breach or non-performance by the contractor of the terms and conditions during the defect Liability period in respect of the works as stipulated under the said contract, we shall on demand and without reference to the contractor irrevocably and unconditionally pay you in full satisfaction of your demand the amounts claimed by you; provided that our liability under this guarantee shall not at any time exceeds Rs.....(Rupees..... Only).

3. The guarantee herein contained shall remain in full force and effect during the defect liability period stipulated by you. In the event of the contractor failing to rectify the defects and undertake repair work or to replace any material or bad workmanship carried out in the works under the said contractor arising out of defects or other faults which may appear within..... months from the date of handing over of the works to you, which in your opinion is due to use of defective or improper materials or bad workmanship and not in accordance with the drawings and specifications or instructions, then the amount demanded by you is payable under this guarantee.

4. We also agree that your decision as to whether the contractor has committed any breach or non-observance of the terms and conditions of the said contract shall be final and binding on us.

5. We undertake to pay to the company any moneys so demanded notwithstanding any dispute or disputes raised by the contractor(s) in any suit or proceeding pending before any court or Tribunal relating thereto, our liability under this present being absolute and unequivocal.

6. The payment so made by us under this bond shall be a valid discharge of our liability for payment there under and the contractor(s) shall have no claim against us for making such payment.

7. This guarantee shall continue to be in full force and effect for a period of ..... months from the date of issue. Notwithstanding the above limitation, we shall honour and discharge the claims preferred by you within thirty days of the expiry of this guarantee.

8. We shall not revoke this guarantee during its currency except with you previous consent in writing.

9. This guarantee shall not be affected by any change in the constitution of our Bank or of the Contractor.

10. You neglect or forbearance in the enforcement of the payment of any money, the payment whereof is intended to be secured or the giving of time for the payment hereto shall in no way relieve us of our liability under this guarantee.

Dated this ..... day of .....20

Signature and Seal  
Of the Bank

Yours faithfully,  
For .....

(AUTHORISED SIGNATORY)

**APPENDIX – 5**

**PROFORMA FOR GUARANTEE TO BE EXECUTED BY CONTRACTORS FOR REMOVAL OF DEFECTS AFTER COMPLETION IN RESPECT OF WATER PROOFING WORKS**

This agreement made this ..... day of ..... Two thousand ..... Between M/s..... (Hereinafter called the Guarantor of the one part) and M/s. Bharat Electronics Limited (hereinafter called the company of the other part).

Whereas this agreement is supplementary to a contract ..... (hereafter called the contract) dated ..... and made between the Guarantor of the one part and the Company of the other part whereby the Contractor inter-alia undertook to render the buildings and structures such as roof of the buildings, overhead water tanks, underground tanks, lift pits, basement, toilets etc., in the said contract recited completely water and leak proof.

AND WHEREAS THE GUARANTOR agreed to give a guarantee to effect that the said structure will remain water and leak proof for ..... years from the date of handing over of the building after completing the water proofing treatment.

NOW THE GUARANTOR hereby guarantees that waterproofing treatment provided by him will render the structures completely leak proof and the minimum life of such water proofing treatment shall be ..... years to be reckoned from the date of handing over the building on completion of water proofing treatment.

Provided that the Guarantor will not be responsible for leakage caused by earthquake or structural defects or misuse of roof or other structures or alternation and for such purpose.

- a) Misuse of roof shall mean any operation which will damage roofing treatment like chopping of fire wood and things of the same nature which might cause damage to the roof.
- b) Alternation shall mean construction of an additional storey or a part of the roof or construction adjoining to existing roof whereby water proofing treatment is removed in parts.
- c) Damaging or puncturing of the water proofing treatment provided to overhead tanks or basement or underground tank or lift pit for providing any Public Health/Electronic connection or any other reasons whatsoever.
- d) The decision of the Engineer with regard to cause of leakage shall be final.

During this period of guarantee, the Guarantor shall make good all the defects and incase of any defect being found, render the building waterproof to the satisfactory of the Engineer at the cost of the Guarantor and shall commence the work for such rectification within seven days from the date of issue of the notice by the Engineer calling upon him to rectify the defects, failing which the work shall be got done by the Company through some other contractor by the Guarantor shall be final and binding.

That if the Guarantor fails to execute the waterproofing or commits breach there under, then the Guarantor will indemnify the Principal and his successors against all loss, damage, cost, expenses or otherwise which may be incurred by the company by reason of any default on the part of the Guarantor in performance and observance of this supplementary agreement. As to the amount of loss and/ or damage and / or cost incurred by the company, the decision of the Engineer shall be final and binding on the parties.

IN WITNESS WHEREOF these present have been executed by the obligator..... and by..... for and on behalf of the Company on the day, month and year first above written.

SIGNED, sealed and delivered by (OBLIGATION) in the presence of

- 1.
- 2.

SIGNED FOR AND ON BEHALF OF THE COMPANY BY ..... in the presence of:

- 1.
- 2.

APPENDIX – 6

**PROFORMA FOR GUARANTEE TO BE EXECUTED BY CONTRACTORS FOR REMOVAL OF DEFECTS AFTER COMPLETION IN RESPECT OF ANTI-TERMITE TREATMENT WORKS**

This agreement made this ..... day of ..... Two thousand and ..... between M/s..... (hereinafter called the Guarantor of the one part) and M/s. Bharat Electronics Limited (hereinafter called the company of the other part.)

Whereas this agreement is supplementary to a contract .....(hereafter called the contract) dated .....and made between the Guarantor of the one part and the Company of the other part whereby the Contractor inter-alia undertook to render the buildings and structure in the said contract completely free from any infestation of termites.

AND WHEREAS THE GUARANTOR agreed to give a guarantee to effect that the said structure will remain free from any infestation of termites for maximum period of ten years from the date of handing over of the building after completion of anti-termite treatment.

NOW THE GUARANTOR hereby guarantees that anti-termite treatment provided by him will render the structures completely free from any infestation of termites and the minimum life of such anti-termite treatment shall be ten years to be reckoned from the date of handing over the building on completion of anti-termite treatment.

Providing that the Guarantor will not be responsible for damage caused due to structural defects or misuse of premises/area.

- a) Misuse of premises shall mean any operation which will disturb the chemical barrier like excavation under floors, breaking of walls at ground level disturbing the treatment already carried out
- b) The decision of the Engineer with regard to cause of damage shall be final

During this period of guarantee, the Guarantor shall make all the arrangements to de the post constructional anti-termite treatment in the buildings in case of any termite nuisance being found in the building, and such anti-termite shall be carried out to the satisfaction of the Engineer at the cost of Guarantor and shall commence the work for such treatment within seven days from the date of issue of notice be got done by the Company through some other contractor at the Guarantor's cost and risk. The decision of the Engineer as to the cost payable by the Guarantor shall be final and binding.

That if the Guarantor fails to execute the anti-termite treatment or commits breach there under, then the Guarantor will indemnify the Principal and his successors against all loss, damage, cost, expenses or otherwise which may be incurred by the Company by reason of any default on the part of the amount of loss and/ or damage and/ or cost incurred by the Company, the decision of the Engineer shall be final and binding on the parties.

IN WITNESS WHEREOF there presents have been executed by the obligator ..... and by ..... for and on behalf of the company on the day, month and year first above written.

SIGNED, sealed and delivered by (OBLIGATOR) in the presence of

- 1.
- 2.

SIGNED FOR AND ON BEHALF OF THE COMPANY BY ..... in the presence of:

- 1.
- 2.

**Appendix-7**

On a Stamp Paper of appropriate value according to the law applicable at the time & place of execution. (From any Nationalised or Scheduled Bank)

**BANK GUARANTEE**

(To cover payment of Additional Performance Guarantee)

To, M/s. Bharat Electronics Limited,  
(Registered Office), Nagavara,  
Outer Ring Road, BENGALURU – 560 045,

Dear Sirs,

1. In consideration of the terms and conditions of tender to accept Bank Guarantee for Rs.....from M/s..... herewith having its/their Office/Registered Office at ..... (hereinafter called the Contractor) towards Additional performance security for the due performance of the Contract entered into by them for the ..... at ..... in accordance with the terms and conditions agreed to by the Contractor and for the due fulfillment of the said Contract or of the terms and conditions contained therein, we hereby undertake and agree to indemnify and keep you indemnified to the extent of Rs..... Rupees..... only).

2. In the event of any loss or damages, costs, charges or expenses caused to or suffered by you by reason of any breach or non-observance on the part of the Contractor of any of the terms and conditions contained in the said contract, we shall on demand and without reference to the Contractor irrevocably and unconditionally pay you in full satisfaction of your demand the amounts claimed by you; Provided that our liability under this guarantee shall not at any time exceed Rs..... Rupees..... only).

3. This guarantee herein contained shall remain in full force and effect till you certify that the terms and conditions of the said contract have been fully and properly carried out by the Contractor, and that the Contractor has furnished necessary deposit or fresh guarantee towards his obligations during the Defect Liability period of the works or till this guarantee is duly discharged by you in writing.

4. We also agree that your decision as to whether the Contractor has committed any breach or non-observance of the terms and conditions of the said Contract shall be final and binding on us.

5. We undertake to pay to the Company any money so demanded notwithstanding any dispute or disputes raised by the contractor(s) in any suit or proceeding pending before any court or Tribunal relating thereto, our liability under this present being absolute and unequivocal.

6. The payment so made by us under this bond shall be a valid discharge of our liability for payment there under and the contractor(s) shall have no claim against us for making such payment.

7. This guarantee shall continue to be in full force and effect up to and inclusive of ..... Notwithstanding the above limitation, we shall honour and discharge the claims preferred by you within sixty days of the expiry of this guarantee.

8. We shall not revoke this guarantee during its currency except with your previous consent in writing. GENERAL CONDITIONS OF CONTRACT WORKS CONTRACT MANUAL - 2026 20 Quality, Technology, Innovation

9. This guarantee shall not be affected by any change in the constitution of our Bank or of the Contractor.

10. Your neglect or forbearance in the enforcement of the payment of any money, the payment whereof is intended to be hereby secured or the giving of time for the payment hereto shall in no way relieve us of our liability under this guarantee.

Dated this..... day of.....20

Yours faithfully, For.....

Signature and Seal Of the Bank

(AUTHORISED SIGNATORY)

**Appendix-8**

On a Stamp Paper of appropriate value according to the law applicable at the time & place of execution. (From any Nationalised or Scheduled Bank)

**BANK GUARANTEE**  
**(To cover Mobilization Advance)**

To,  
M/s. Bharat Electronics Limited,  
(Registered Office), Nagavara,  
Outer Ring Road, BENGALURU – 560 045.

Dear Sirs,

1. In consideration of your agreeing to accept Bank Guarantee for Rs..... in lieu of cash deposit from M/s..... (hereinafter called the Contractor) being the deposit to be kept by you for the Mobilization Advance in respect of ..... (hereinafter called works) which has been commenced by the Contractor on ..... and in accordance with the terms and conditions of the Contract dated ..... and for the due fulfillment of the said Contract or of the terms and conditions therein, we hereby undertake and agree to indemnify and keep you indemnified to the extent of Rs..... (Rupees..... only)

2. In the event of any loss or damages, costs, charges or expenses caused to or suffered by you by reason of any breach or non-performance by the Contractor of the terms and conditions during the Period in respect of the works as stipulated under the said contract, we shall on demand and without reference to the Contractor irrevocably and unconditionally pay you in full satisfaction of your demand the amounts claimed by you; Provided that our liability under this guarantee shall not at any time exceed Rs..... (Rupees..... only).

3. The guarantee herein contained shall remain in full force and effect during the Period stipulated by you. In the event of the Contractor failing to return the advance taken in the works under the said Contract before completing 80% of the works, then the amount demanded by you is payable under this guarantee.

4. We also agree that your decision as to whether the Contractor has committed any breach or non-observance of the terms and conditions of the said Contract shall be final and binding on us.

5. We undertake to pay to the Company any money so demanded notwithstanding any dispute or disputes raised by the contractor(s) in any suit or proceeding pending before any court or Tribunal relating thereto, our liability under this present being absolute and unequivocal.

6. The payment so made by us under this bond shall be a valid discharge of our liability for payment there under and the contractor(s) shall have no claim against us for making such payment.

7. This guarantee shall continue to be in full force and effect for a period of..... months from the date of issue. Notwithstanding the above limitation, we shall honour and discharge the claims preferred by you within thirty days of the expiry of this guarantee.  
GENERAL CONDITIONS OF CONTRACT WORKS CONTRACT MANUAL - 2026 22 Quality, Technology, Innovation

8. We shall not revoke this guarantee during its currency except with your previous consent in writing.

9. This guarantee shall not be affected by any change in the constitution of our Bank or of the Contractor.

10. Your neglect or forbearance in the enforcement of the payment of any money, the payment whereof is intended to be hereby secured or the giving of time for the payment hereto shall in no way relieve us of our liability under this guarantee.

Dated this..... day of.....20

Yours faithfully,

For.....

Signature and Seal Of the Bank

(AUTHORISED SIGNATORY)

**GENERAL CONDITIONS OF CONTRACT**

Applicable for all works like Civil, Electrical, Mechanical, Communication and Composite Tenders etc. (Except Term Contract and Annual Maintenance Contract works)

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## **1.0 Definitions and Interpretation:**

### **1.1 Definitions:**

1.1.1 In these General Conditions of Contract the following expressions shall have the definitions and interpretations given hereunder:

1.1.2 'Company' shall mean "Bharat Electronics Limited". The rights and obligations of the Company exercisable under the Contract, other than those exercisable by the Engineer or his representatives, shall be exercised by the Authority designated in Annexure-IA hereto. The said Authority shall be Accepting Authority for the purpose of the contract and shall have full powers to revise, amend, withdraw or cancel the actions taken by the Engineer in respect of the powers exercisable by the Engineer.

1.1.3 'Contractor' shall mean an individual or firm (Proprietary or Partnership) or Company whether incorporated or not, that has entered into Contract with the Company and shall include his / its heirs, legal representatives, successors and assigns, successors in interest of individuals or persons composing such firms or Company or successors of such firms or Company or the permitted assigns of such individual or firm or Company. Changes in the constitution of the firm or Company, if any shall be immediately notified to the Company, in writing, and approval obtained for continued performance of the Contract.

1.1.4 'Contract' shall mean, collectively all covenants, terms and stipulations contained in the various portions of the Contract Agreement and the Annexures thereto.

1.1.5 'Works' shall mean the works to be executed in accordance with the Contract.

1.1.6 'Engineer' shall mean the officer of the Company designated as such in Annexure-IA hereto or any other officer appointed by the Company from time to time and notified to the Contractor as authorised to act as Engineer for the purpose of the Contract.

1.1.7 'Drawings' shall mean, collectively all the drawings attached to the Contract and made a part thereof, and also altogether new drawings issued by the Engineer in terms of the Contract and / or such supplementary drawings as the Engineer may issue from time to time in order to elucidate the said contract drawings or to show details not shown thereon.

1.1.8 'Specification' shall mean, collectively all the terms and stipulations contained or referred to in the General Conditions of Contract, Special Conditions of Contract, Detailed Technical Specifications, Schedule of Quantities and Rates, and shall include all such amendments, revisions, removals or additions as may be made during the period of execution of the works and all written instructions to be issued by the Engineer in terms of the Contract, pertaining to the method and manner of performing the work or to the quantities and qualities of the work to be performed or materials to be furnished under this Contract.

1.1.9 Wherever in this Contract the words 'Directed', 'Required', 'Permitted', 'Ordered', 'Designed', 'Considered', 'Necessary' or like words are used, it shall be understood that the said directions, requirements, permission, order, design, etc., of the Engineer or the Company are intended. Similarly, words 'Approved', 'Acceptable', 'Satisfactory', or like words shall mean approved by or acceptable or satisfactory to the Engineer or the Company as the case may be, unless any other meaning is plainly intended.

1.1.10 'Site' shall mean the land (s) and other place (s) on, under, in, into or through which the works are to be executed and shall include any other land (s) or place (s) provided by the Company for the purposes of the Contract.

#### **1.1.11 'Contract value' shall mean :**

1.1.11.1 In the case of Lump sum Contracts, the price payable to the Contractor as mentioned in the Contract.

1.1.11.2 In the case of Item Rate Contracts, the cost of the Works arrived at after extension of the quantities shown in the Schedule of Quantities and Rates by the item rates quoted by the tenderer and accepted by the Company for the various items.

1.1.11.3 In the case of Percentage Rate Contracts, the estimated value of the Works computed at the rates in accordance with the schedule of Rates specified, adjusted by Contractor's percentage and as accepted by the Company.

1.1.12 'Deviation' shall mean an order given by the Engineer to effect an alteration in addition to, or deduction from or variation from the scope or nature of work to be done in terms of the original Contract.

1.1.13 'Final Bill' shall mean the actual quantum of work executed against each item in BOQ, extra and substituted Items and deviations.

1.1.14 'Notice in writing' or 'Written Notice' shall mean a notice in written, typed or printed characters sent (unless delivered personally or otherwise proved to have been received) by Registered Post to the last known private or business address or Registered Office of the addressee and shall be deemed to have been received when in the ordinary course of post it would have been delivered.

1.1.15 'Date of commencement of work' shall mean

(a) 14 days from the date of Letter of Intent or date of Agreement whichever is earlier or

(b) the actual date of handing over of the site to the Contractor, whichever is later. If the date of commencement of work is indicated in the letter of intent, this will prevail over other conditions indicated above.

1.1.16 'Equipment' shall mean and include any plant and equipment or parts thereof, including associated electricals, instruments, materials stores and goods to be provided under the contract for achieving completion of works as per specifications.

1.1.17 Unless otherwise specified, the latest IS Specifications and Code of Practice for respective items of Works shall be deemed to be applicable to this Work.

1.1.18 If there is anything inconsistent between these General Conditions of Contract and the Special Conditions of Contract attached hereto, the latter shall prevail.

## **1.2 Singular and Plural:**

1.2.1 Where the context so requires, words imparting the singular shall include the plural and viceversa.

## **1.3 Heading or Notes:**

1.3.1 Headings and marginal notes to these General conditions of contract shall not be deemed to form part thereof or be taken into consideration in the interpretation or construction thereof or of the contract.

## **2.0 General Obligation:**

### **2.1 Inspection of Site:**

2.1.1 The location of work is detailed in Annexure-IB enclosed. However, the exact location shall be got confirmed from the Engineer before taking up the execution of work. Scope of work is indicated in Annexure-IB enclosed. The scope of work indicated therein is only indicative of the probable nature of works and the entire scope of work is not limited to the information furnished therein. The Contractor shall be deemed to have quoted after having satisfied himself as to the nature of the sub-soil, the dimensions, levels, character and nature of all roads, existing drains, sewers, water and other main electrical and communication cables etc., and other things as regards any connections they may have with the works the subject matter of the Contract, and he shall be deemed also to have inspected the Site of the Works and surroundings, the means of access thereto and to have generally obtained his own information on all matters and things which can in any way influence his tender. No claims for extra works or otherwise will be allowed in consequence of any misunderstanding, error or incorrect information on the above mentioned points or of any other inaccuracies in the reference thereto which may appear on the drawings or in the specifications or other records nor shall the Contract be nullified in consequence of any such misunderstandings, incorrect information or inaccuracies.

## **2.2 Maintenance of Contract Documents:**

2.2.1 The Contractor shall be furnished, free of charge a certified true copy of the Contract Document and two sets of drawings (if applicable) which may be issued during the progress of the work. He shall keep these Documents at the site Office in good order and the same shall at all reasonable times be made available for inspection and use by the Engineer or his representatives or by other Inspecting Officers of the Company.

2.2.2 None of these documents shall be used by the Contractor for any purpose other than that of this Contract.

## **2.3 Daily Progress Report:**

2.3.1 A Daily Progress Report will be kept in the Engineer's Office or at the Site Office. The Contractor or his representative will furnish every day at 09:00 hours, details of work for the day preceding and the report will be written up by the contractor or its representative every day and jointly signed by the Engineer and the Contractor or their representatives in token of its correctness. A Works Instruction Book, serially numbered in the format to be prescribed by the Engineer will also be kept in the Engineer's Office or at Site Office and all day-to-day instructions to the Contractor will be written in that book. The Contractor or his representative shall report at 09.00 hours every day to see these instructions and sign them at the bottom in token of his having seen them. This shall be applicable for work costing more than Rs.50 Lakhs.

## **2.4 Monthly Progress Reports:**

2.4.1 The contractor or his representative shall submit monthly progress report in a format prescribed by Engineer-in-charge.

## **2.5 Contractor's Site Office and Amenities:**

2.5.1 The responsibility for providing any accommodation, feeding and sanitary necessities for the workmen employed by the Contractor shall be exclusively that of the Contractor and such facilities can be outside the Site provided by the Company. The Company may allot space for the Contractor to build his temporary site office and / or storage shed and the same should not be used for housing any labour or supervisory staff of the Contractor. Unless otherwise directed, the Contractor shall within two weeks of the completion of the Contract, remove the temporary constructions and hand over to the Company the space made available to him in a clean and tidy condition, failing which the Completion Certificate will not be issued.

2.5.2 The Contractor shall not allow his workmen to put up any unauthorised hutments, canteens or teashops etc., on the Company's property. These, if any, shall be with the knowledge and prior approval of the Engineer in writing.

2.5.3 It shall be very clearly understood that the Contractor shall not put up any structures for housing his labour or his supervisory staff on the Company's land without the specific prior consent of the Company.

## **2.6 Employment of Efficient and Competent Staff on Works:**

2.6.1 The Contractor shall provide and employ on the Site in connection with the works only such efficient and competent Engineers and Supervisors and other skilled, semi-skilled and unskilled labour as are necessary for the proper supervision and timely execution of the works. Orders given to the Contractor's Engineers / Supervisors shall be considered to have the same force as if these had been given to the Contractor himself. The Contractor shall engage obedient, honest and trust worthy labourers for work. If in the opinion of the Engineer, any labour and staff is found not suitable for work or is of doubtful character, he shall at once be removed from the work. The Contractor shall engage the following minimum Technical staff at site of work apart from the other staff / workers.

2.6.1 In the event of the Engineer being of the opinion that the Contractor is not employing on the Works sufficient number of staff and workmen as is necessary for the proper completion of the Works within the time prescribed, the Contractor shall forthwith on receiving intimation to this effect take additional staff

and labour (at his own expense) specified by the Engineer within seven days of being so required and failure on the part of the Contractor to comply with such instruction will entitle the Company to rescind the Contract under clause 8.1.1 of these conditions.

2.6.2 Notwithstanding any provisions contained in clauses 2.6.1, the Engineer shall be at liberty to object to and require the Contractor to remove forthwith from the works any person who, in the opinion of the Engineer misconducts himself or is incompetent or negligent in the performance of his duties and such person shall not be again employed upon the works without the written permission of the Engineer. Any person so removed from the works shall be replaced by the Contractor as soon as possible by a competent substitute.

2.6.3 The contractor shall supply required number of manpower with required qualification, experience etc., as stipulated in the tender. In the event of the contractor not providing manpower as stipulated in the agreement, the Engineer shall levy penalties. Applicable penalties are as under: (Applicability of the Penalty clauses 8.2.2 of Chapter 8-WCM to be checked before publishing)

## **2.7 Employment of Licensed Labour force:**

2.7.1 The Labour force employed for specialized works such as plumbing, Electrical, Welding etc., shall be possessing the valid licence issued by the appropriate authorities.

## **2.8 Identification Badges / Passes:**

2.8.1 The Contractor shall provide each of his employees including labour with identification badge at his cost. The employees shall display the badges on their person so that the badges are clearly visible for checking by the gateman as they enter the premises of the Company. The badges shall be serially numbered. The Contractor's initials shall be printed above with an identification number on the badge.

2.8.2 The Contractor should immediately notify the Company if any of the badges is lost and a new one issued in its place, or when badges are carried away by discharged labour. No employee of the Contractor without a badge will be permitted to enter the premises of work, except in such cases where special permission of the Company / Engineer is obtained.

## **2.9 Assignment and Sub-letting:**

2.9.1 The Contractor shall not assign or sub-let the whole or any portion or portions of the Contract or allow any person to become interested therein in any manner whatsoever without the prior written approval of the Company. Provided always that the provision of labour on a piece work basis shall not be deemed to be a sub-letting under this clause. The permitted sub-letting of work by the Contractor shall not establish any contractual relationship between the subcontractor and the Company and shall not relieve the Contractor from any liability or obligation under the Contract and he shall be responsible for the acts, defaults and neglects of any sub-contractor, his agents, servants or workmen as fully as if they were the acts, defaults or neglects of the Contractor, his agents, servants or workmen.

## **2.10 Contractor's Co-ordination:**

2.10.1 If during the course of the Contractors work, other works of the Company or of other Company's Contractors are also in progress within the same Plant / Site the Contractor is to use his best efforts to work in harmony with all the others and in the best overall interest of the Project / Work.

## **2.11 Security Deposit:**

**Clause 2.11.1 to 2.11.5 are applicable for civil and composite tenders. Clause 2.11.6 to 2.11.9 are applicable for works viz., mechanical, air-conditioning, air- cooling, electrical, communication & networks, fire alarm & public address systems etc., if tendered individually.**

2.11.1 For the due fulfilment of the Contract by Contractor, a Security Deposit shall be furnished by him as under:

2.11.1.1 An initial security deposit of 2% of the Contract value subject to a maximum of Rs.10 Lakhs shall be paid by the Contractor by way of Demand Draft payable in the name of the Company from any Nationalized / Scheduled Bank at the time of signing of the agreement. In case where the Contractor had

paid the Earnest Money by way of Demand Draft while submitting his tender for the work, the amount so deposited and lying with the Company will be adjusted towards this initial Security Deposit and the balance to make up 2% of the contract value or Rs.10 Lakhs whichever is less shall be payable by the Contractor at the time of signing of the Agreement. Where the Contractor had submitted Bank Guarantee towards Earnest Money, the same will be returned to the Contractor after the receipt of Initial Security Deposit as indicated above.

2.11.1.2 A recovery at the rate as mentioned below of the value of the bill shall be made from all running account bills towards security deposit and such recovery shall be continued until the amounts deposited in terms of sub-clause

2.11.1.1 above and the amounts recovered from the bills total for an amount mentioned below inclusive of Initial Security Deposit. The Security Deposit recovered including the Initial Security Deposit furnished at the time of concluding the agreement shall be returned along with the final bill at the end of contract period subject to satisfactory completion of the work and recoveries, if any.

2.11.1.2.1 Contract Value : Up to Rs.10 Crores Security Deposit : 10% of contract value.

2.11.1.2.2 Contract Value : Above Rs.10 Crores and upto Rs.25 Crores. Security Deposit : 10 % Upto 10 Crore + 8% of remaining contract value (above 10 Crore).

2.11.1.2.3 Contract Value : Rs.25 Crores and above Security Deposit: 10 % Upto 10 Crore + 8% above 10 Crore- Upto 25 Crore + 6% of remaining contract value (above 25 Crore).

2.11.2 If the Contractor so desires, he may furnish a Bank Guarantee as per proforma at Appendix-3 from a Nationalised / Scheduled Bank in lieu of payment by Demand Draft towards initial security deposit and deductions from the running account bills towards security deposit. Such a Guarantee could be furnished either at the commencement of the Contract or at any time during the period of the Contract. In the latter event, the Contractor may, after furnishing the Bank Guarantee according to sub clause

2.11.1.2 above, claim refund of the actual amount paid by Demand Draft and / or deducted from the running account bills.

2.11.3 In all cases, the bank Guarantee should be kept valid up to the date of completion of the Works or the extended period if any.

2.11.4 No interest shall be payable by the Company to the Contractor for the amount of the Security Deposit furnished in cash or demand draft or recovered from bills.

2.11.5 The Security Deposit or the Bank Guarantee furnished under this clause shall become due for refund or for discharge as the case may be, only after the completion of the Works and settlement of the dues to the Company and after the Contractor furnishes a fresh deposit or Bank Guarantee in accordance with clause 7.1.2 towards Defect liability.

OR

2.11.6 The successful tenderer shall give a Bank Guarantee as per proforma at Appendix-3 for an amount mentioned below as Security Deposit, at the time of signing of the agreement at Appendix-2 for satisfactory execution of the contract. This Bank Guarantee shall be kept valid till the completion of the works, final commissioning and issue of a Final Acceptance Certificate by the Engineer.

2.11.6.1 Contract Value : Up to Rs.10 Crores Security Deposit : 10% of contract value.

2.11.6.2 Contract Value : Above Rs.10 Crores and upto Rs.25 Crores. Security Deposit : 10 % Upto 10 Crore + 8% of remaining contract value (above 10 Crore).

2.11.6.3 Contract Value : Rs.25 Crores and above Security Deposit: 10 % Upto 10 Crore + 8% above 10 Crore- Upto 25 Crore + 6% of remaining contract value (above 25 Crore). 2.11.7 Earnest Money, if any paid by the successful tenderer will be returned after furnishing the Bank Guarantee for the Security Deposit.

2.11.8 If the successful tenderer fails to commence the work within the prescribed time specified in the contract the Security Deposit shall be forfeited to the Company and amount recovered from out of the Bank Guarantee furnished by him.

2.11.9 The Bank Guarantee furnished as Security Deposit under this clause shall become due for discharge only after the completion of the works, final commissioning and issue of a final acceptance certificate by the Engineer, settlement of dues to the Company and after the Contractor furnishes a Bank Guarantee in accordance with Clause 7.1.4 towards Defect Liability.

2.11.10 The Performance Security in respect of procurement of goods / consultancy services / non consultancy service shall be for an amount of five percent (5%) of the contract value.”

**2.11.11 Additional Performance Guarantee: (Applicability of the APBG clauses to be checked before publishing)**

2.11.11.1 In case, offer of the L1 tenderer is less than 90% of the estimated cost put to tender, such L1 tenderer shall furnish an irrevocable Additional Performance Guarantee. The additional performance guarantee shall be for an amount by which the bid falls short of 90% of the estimated cost, for the contractor's proper performance of the contract agreement (notwithstanding and/or without prejudice to any other provisions in the contract) at the time of executing the contract agreement. The guarantee shall be in the form of Bank Guarantee from any Scheduled / Nationalized Bank. The Company reserves the right to get the Bank Guarantee confirmed from the issuing bank.

2.11.11.2 The additional Performance Guarantee shall be initially valid up to the stipulated date of completion. In case the time for physical completion of work gets extended, the Contractor shall get the validity of additional Performance Guarantee extended to cover such extended time for completion of work. Additional Performance Guarantee shall be returned to the Contractor after recording of the “Completion Certificate” or “Provisional Certificate of Physical completion”. The Engineer-in-Charge of the work may return the additional Performance Guarantee earlier if, in his opinion, the unbalanced portion of the bid has been completed.

2.11.11.3 The Company shall not make a claim under additional Performance Guarantee except for amounts to which the Company is entitled under the Contract (notwithstanding and/or without prejudice to any other provisions in the Contract agreement) in the event of:

2.11.11.3.1 Failure by the Contractor to extend the validity of the additional Performance Guarantee as described herein above, in which event the Company may claim the full amount of the additional Performance Guarantee.

2.11.11.3.2 Failure by the Contractor to pay the Company any amount due, either as agreed by the Contractor or determined under any of the Clauses/ Conditions of the Agreement, within 30 days of the service of notice to this effect by Engineer-in Charge.

2.11.11.4 In the event of the Contract being determined or rescinded under provisions of any of the clause/condition of the Agreement, the additional Performance Guarantee shall stand forfeited in full and shall be absolutely at the disposal of the Company.

**2.12 Watching and Lighting:**

2.12.1 The Contractor shall at his own cost provide night watchmen at all parts of the work were necessary or required by the Engineer. He shall also keep all open trenches, excavations or other dangerous places properly and sufficiently lighted between sunset and sunrise and shall provide and fix proper fencing hoards and temporary bridges to protect and assist the normal traffic. The Contractor shall also at his own cost erect temporary fences on the Site where required by the Engineer.

2.12.2 The contractor shall specifically note that the site of work shall be maintained neat and tidy and no construction materials / debris are left lying haphazardly at the site of work. The site of work shall be cordoned off with temporary fencing / barricading with GI sheets / PVC sheets / or any other suitable materials as directed by Engineer-in-charge at his own cost

2.13.1 Unless otherwise provided in the Contract, the Contractor shall be responsible for all the arrangements needed to obtain supply of water and electricity necessary for the Work at his own cost.

## **2.14 Compliance with Local Laws etc.:**

2.14.1 The Contractor shall comply with all Acts, Rules, Bye-Laws, Regulations and all other statutory requirements local or other Authorities having jurisdiction over the site and shall be responsible for the payment of all fees and other charges and giving and receiving of all necessary notices, and keep the Engineer informed of the said compliance with such Act, Rules, Bye-Laws, Regulations, Statutory requirements, payments made, notices issued and received.

2.14.2 The following clauses shall be applicable for Electrical works:

2.14.2.1 The installation, testing and commissioning of all electrical works shall generally be in conformity by concerned State Electricity regulatory commission and Electricity Supply Companies, as amended up to date, relevant Indian Standard Code of Practices for Electrical Installation in Buildings (latest), National Electrical Code (latest) and Supply Regulations as stipulated.

2.14.2.2 The Contractor shall ensure that the electrical works shall be carried out by the agency holding valid electrical Contractor's License of appropriate class issued by the State Electrical Inspectorate and licensed wiremen.

2.14.2.3 Installation work shall be carried out under the supervision of a Supervisor holding the supervisory competency certificate issued by the State Electrical Inspectorate.

## **2.15 Statutory and other Obligations Regarding Workmen:**

2.15.1 The Contractor shall comply with Central / Local and State Regulations and Enactments pertaining to workmen and labour and the Engineer shall have the right to enquire into and decide all complaints on such matters.

2.15.2 The Contractor shall remain liable for the payments of all wages or other money to his employees or labourers under the Minimum Wages Act, Payment of Wages Act, Employees Liability Act, Workmen's Compensation Act, PF and ESI Act or any other enactments and rules made applicable from time to time. The Contractor shall also comply with the provisions of the Apprenticeship Act, Contract Labour (Regulation and Abolition) Act and the Rules and Orders issued there under from time to time.

2.15.3 The Contractor shall be liable to pay the wages directly to the workmen employed by him on the works without the intervention of any Jamedars or Thekadars and the Contractor shall ensure that no amount by way of commission or otherwise is deducted or recovered by the Jamedars / Thekadars from the wages of the workmen.

2.15.4 It is obligatory on the part of the Contractor to forward the declaration forms to the ESI authorities for issue of ESIC numbers, make timely contribution towards ESI and PF in accordance with the provisions of relevant acts from time to time in respect of labour engaged by him for all the works executed in the Company. The Contractor should contact the jurisdictional ESI and PF authorities and arrange to observe all formalities such as maintenance of muster rolls, opening of identification cards, making remittance etc. The proof of having remitted ESI and PF contribution as well as clearance obtained from the authorities will have to be given by the Contractor while preferring the bills.

2.15.5 The Contractor shall work only during the daylight hours as approved by the Engineer unless he obtains the prior written approval of the Engineer to do otherwise. If such approval is given, no liability in respect of any excess cost arising there from shall be borne by the Company.

2.15.6 The Contractor shall be solely liable for all the pecuniary and other consequences arising on account of any violation or default by him in respect of the provisions of the above mentioned Acts and Regulations and any other statutory obligations which may be in force regarding the conditions of employment of workmen from time to time. In addition, any such failure or violation or default will constitute a breach of the Contract conditions and is liable for action in terms of Clause 8.1.1.3.

2.15.7 In case of new workers not having ESI number, they will be allowed to the work site only after the declaration forms are filled and submitted to the Security / Personnel Department.

2.15.8 It is also obligatory on the part of the Contractor to make timely contribution towards PF in accordance with the provision of PF Act in respect of labour engaged by him for all works executed in the Company.

2.15.9 The Contractors / firms / establishments shall remit the PF and ESI contributions in their respective codes. However, in such cases, copies of muster roll, wage register, ESI / PF remittance, copies of the returns shall be furnished to the Engineer for verification and records while preferring bills

2.15.10 If the contractor gets any benefit from any scheme of any Govt. / agency, due to (or) during the execution of the contract, such benefit should be passed on to Company. If any claim, in lieu of any such benefit accrued (or) received by the contractor, is made by contractor and paid by Company, then Company reserves the right to recover such amount.

2.15.11 The Contractor's workers will be permitted to enter the work site only on production of documentary evidence in support of the Contractor in possession of valid license under Contract Labour (Regulation and Abolition) Act 1970; having remitted contribution promptly to PF and ESI with the declaration that, it covers for all the labourers working against this contract.

2.15.12 The Contractor is also required to furnish the data in respect of the workers engaged by him against the work order / job contract etc., including the details of PF, ESI No. etc., to Engineer / Executive-in-charge of work and CSO.

2.15.13 The Contractor shall be responsible for obtaining power sanction / approval from the State Electricity Board / Electrical Inspectorate etc., as required including licensing services unless otherwise specified. The statutory payments for arranging power supply shall be paid by the Contractor initially. All statutory payments paid by the Contractor to the Govt. Bodies in this regard will be reimbursed based on the proof of incurrence of such costs. The Contractor shall furnish the power sanction, approval etc., of the above agencies after arranging the power supply.

2.15.14 The inspection fee etc. shall be paid by the Company only for the first inspection. In case of defects being pointed out by the above agencies, the Contractor shall remove these defects at his own cost and arrange for re-inspection by the above agencies till such time the installation is finally approved and required certificate is issued. The Contractor shall bear all expenses and deposit the necessary fee for the second and subsequent inspection by the above agencies.

2.15.15 The Contractor shall be responsible for getting approval / permission for water Supply, sewage disposal connections including road cutting etc., unless otherwise specified as required from the concerned State Government authorities / agencies like Water Supply and Sewerage Board, Town Development Authority, Electricity Board etc. Only the initial fee paid by the Contractor to Government bodies will be reimbursed based on the proof of incurrence of such costs. Contractor shall be responsible for carrying out requisite works for water supply, sewerage connections and cable laying etc., including servicing the lines / cables and linking the same for main lines including requisite meters.

## **2.16 Safety Regulations:**

2.16.1 During the execution of work, unless otherwise specified, the Contractor shall at his own cost provide the materials for and execute all shoring, timbering and strutting work necessary for the stability and safety of all the structures, excavations and works and shall ensure that no damage, injury or loss is caused or is likely to be caused to any person or property.

2.16.2 The Contractor shall be responsible to take all precautions to ensure the safety of the public whether on public or Company property and shall post such lookout men as may in the opinion of the Engineer be required.

2.16.3 The Contractor must take sufficient care in moving his construction plants and equipments and other materials from one place to another so that they do not cause any damage to the property of the Company or the public, particularly to structures, overhead wires and cables (Laid underground or otherwise). In the event of any damages resulting to any property as aforesaid, the cost of such damages including eventual loss of working hours in any Plant as estimated by the Company, shall be borne by the Contractor.

2.16.4 The contractor shall, at his cost, provide all necessary facilities such as ladders, scaffolding, railing, platform, inspection lamps, safety ropes etc., for the safe working of his or his sub-contractor's workmen and also for the inspection of the Works by the Company's officials. The contractor shall provide safety footwear in the form of leather shoes for the workmen engaged for the work and insist them wear the same as safety point of view.

2.16.5 In case of dismantling / demolition, the Contractor shall take necessary care not to damage the existing structure / materials while executing the proposed work and any damage, if caused, should be rectified by the Contractor at his cost so as to restore the structure / materials, as they existed earlier.

2.16.6 The Contractor shall also comply with the safety code as detailed at Annexure-IC.

2.16.7 The Contractor shall report all accidents immediately to the Department who will make arrangement for forwarding of the reports to the concerned authorities.

2.16.8 As per the Factories Rule, permit to work system shall be followed. Contractors are therefore required to obtain the necessary work permit through the indenting department / division duly certified by the safety Engineering department before starting the work. Whenever such work permit is obtained for carrying out work on existing LT network, the Contractor should ensure that his authorised representative who avails work permit remain in the work spot till the completion of the work and give clearance to the Engineer or his authorised representative for charging the system.

### **2.17 Patent Rights and Royalties:**

2.17.1 The Contractor shall fully indemnify the Company and all agents, servants and employees of the Company against any action, claim or proceeding relating to infringement or the use of any patent or design or any alleged patent or design rights and shall pay any royalties or other charges which may be payable in respect of any article or part thereof included in the Contract. In the event of any claims being made or action being brought against the Company or any agent, or servant, or employee of the Company in respect of any of the matters aforesaid, the Contractor shall be notified thereof for taking necessary action at his cost.

### **2.18 Materials obtained from Excavation / Dismantling:**

2.18.1 All useful materials (obtained from dismantling / demolition) and all fossils, coins, articles of value etc., which are found during the excavation or any other work should be moved to Company's stores and stacked there neatly as directed at no extra cost to the Company.

2.18.2 All materials such as stones, boulders, wood, steel etc., obtained during excavation / dismantling shall become the property of the Company and the same if required and directed by the Engineer shall be stacked at site and or moved to Company's stores and stacked there as directed at no extra cost to the Company.

### **2.19 Nuisance:**

2.19.1 The Contractor shall not at any time do cause or permit anyone to do or cause any nuisance on the Site or do anything which shall cause unnecessary disturbance or inconvenience to the Company or to the owners, tenants or occupiers of other properties near the Site and to the Public generally.

### **2.20 Indemnity and Insurance:**

2.20.1 The Contractor shall indemnify and keep indemnified the Company against all losses and claims for injuries or damage to any persons or any property whatsoever which may arise out of or in consequence of the construction and maintenance of the works against all claims, demands, proceedings, damages, costs, charges and expenses whatsoever in respect of or in relation thereto.

2.20.2 The Contractor shall obtain at his expense an Insurance Policy in the joint names of the Company and the Contractor covering the following risks and lodge the policy with the Company.

2.20.2.1 Works including temporary structures, materials, tools, etc., on the Site against loss/ damage by fire, theft, strikes, riots and civil commotion and natural calamities like floods, earthquake, explosion etc.

2.20.2.2 The workmen employed by the Contractor and who have not been covered under ESI against Workmen Compensation Act and other statutory laws where compensation is payable by the Contractor.

2.20.2.3 Damages to property of third parties including neighbouring buildings etc. 2.

2.20.2.4 Damages to third parties including the visitors, neighbours and other passers-by against any claim that may arise due to accidents on account of the incidental risks, which may occur during the execution of works. The limit of insurance coverage to be taken under Clause 2.20.2.3 and 2.20.2.4 shall be 10% of the contract value.

2.20.3 In addition to the above, the Contractor shall at his expense obtain a personal accident policy either through LIC or GIC for himself and the partners of his Company concerned with the work.

2.20.4 The Company has insured its assets and risks with the Insurance Company indicated in Annexure-IA to the GCC. It is obligatory on the part of the Contractor that the comprehensive Insurance Policy to be obtained by him as mentioned in the above Clauses shall be necessarily taken from the said Insurance Company and the Contractor shall take special care to see that the above condition is fulfilled.

2.20.5 All claim amounts against the policy shall be payable to the Company and not to the Contractor. He shall keep the policy renewed from time to time even for the extended period of contract, if any, and at the contractors cost until the Company issues the certificate of completion. If at any time, the policy so obtained and kept with the Company expires; it shall be lawful for the Engineer to stop further payments until the duly renewed policy is lodged with the Company. For the extension period if delay is not attributable to the agency the premium shall be reimbursed by the company.

2.20.6 The Insurance policy shall be obtained for the total value of the work awarded and or any amendments issued including the cost of materials, if any that may be issued by the Company. Insurance Policy is not required to be obtained, if the value of work is less than Rs.5 Lakhs.

## **2.21 Compliance of Instructions:**

2.21.1 Whenever the Contractor fails to comply with the instructions of the Engineer, it shall be lawful for the Engineer to have the work done through other Contractors or departmentally or otherwise and the cost incurred thereon shall be deducted from any money due or becoming due to the Contractor.

## **3.0 Execution of Works:**

### **3.1 Issue of Working Drawings:**

3.1.1 Sufficient quantum of approved working drawings marked valid for construction shall be issued by the Company to the Contractor at the beginning to start with and further working drawings necessary to proper execution and completion of works will be issued progressively during the pendency of the Contract. The Contractor shall not be entitled to put forth any claim(s) whatsoever on account of delay in receipt of drawings.

3.1.2 The tender drawings have been evolved tentatively based on the information available, but the dimensions and details etc., are liable to changes. The Contractor shall not be entitled to claim any higher rate or compensation on this account. The Contractor, will therefore, be required to execute the work as per detailed approved drawings issued from time to time.

3.1.3 The tender drawings indicate the extent and general arrangement of various equipments, items and their wiring etc., and are essentially Diagrammatic. The work shall be carried out as indicated in the drawings and as directed / required. However, if any minor change is found essential to co-ordinate the installation of this work with other works, the same shall be made without any additional cost on this account.

### **3.2 Sufficiency of Information / Details:**

3.2.1 The Contractor shall from time to time check all drawings and specifications furnished to him on their receipt and shall promptly notify the Engineer of any omission or discrepancies thereof. In case of ambiguities or discrepancies between drawings and specifications or Schedule of Quantities and Rates

or any of them with each other, the case shall be referred to the Engineer in writing, and his decision shall be final and binding on the Contractor.

### **3.3 Access to Site:**

3.3.1 The contractor shall make temporary arrangements at his own cost for any approaches / accesses required for the movement of men and materials to his working places and material yard within the boundary of the site. If directed by the Engineer the contractor shall remove and make good temporary arrangements after completion of the works.

3.3.2 During the progress of work, the Contractor shall keep the Site reasonably free from all unnecessary obstructions. The existing roads or watercourses or pipes, electrical lines and conduits shall not be blocked, cut through, diverted or obstructed in any way by the Contractor, except with the permission of the Engineer in writing.

3.3.3 All operations necessary for the execution of the work and for the construction of any temporary work shall, so far as compliance with the requirements of the Contract permits, be carried on so as not to interfere unnecessarily or improperly with the convenience of the public or the access to the use and occupation of public or private roads, including approach roads from the main road and footpaths, and of properties whether in the possession of the Company or any person.

3.3.4 All compensation claimed for any unauthorised closure, cutting through, alteration, diversion or obstruction to such roads or water courses, etc., against the Contractor or his agent or his staff shall be recoverable from the Contractor by deduction from any sums which may become due to him in terms of the Contract or otherwise according to law.

### **3.4 Passage of Traffic:**

3.4.1 During progress of work in any street or thoroughfare, the Contractor shall make adequate provision for the passage of traffic, for securing safe access to all premises approached from such street or thoroughfare and for any drainage, water supply or means of lighting or telephones, etc., which may be interrupted by reason of the execution of the Works and shall erect and maintain at his own cost diversions, barriers, lights and other safeguards as prescribed by the Engineer for warning or regulation of traffic and shall provide the watchmen necessary to prevent accidents. The Works, shall in such cases, be prosecuted night and day if so ordered by the Engineer and with such vigour so that the traffic may be impeded for as short a time as possible. No claim for extra payment shall be entertained by the Company in this regard.

### **3.5 Setting-out of Works:**

3.5.1 The Contractor shall be responsible for the true and perfect setting out of the Works and for the correctness of the positions, levels, dimensions and alignment of all parts of the Works. All measurements shall comply with the dimensions noted on the drawings and / or as directed. If at anytime during the progress of Work, any error shall appear or arise in the positions, levels, dimensions or alignments of any part of the Work, the Contractor, on being required to do so by the Engineer, shall at his own expenses rectify such errors to the satisfaction of the Engineer notwithstanding that he may have been assisted by the Engineer in setting out the same earlier.

### **3.6 Care of Works:**

3.6.1 In the event of any accident or failure occurring or being likely to occur in or on the works which, in the opinion of the Engineer, required immediate attention either during the work period or the defect liability period, the Engineer may direct the Contractor by written notice to take necessary remedial action and if the Contractor fails to take action as directed by the Engineer within 3 days of such notice, the Company may, by its own workmen or employing any other agency, make the necessary repairs or precautionary works and recover the costs from the Contractor.

### **3.7 Site Drainage:**

3.7.1 All water, which may accumulate on the Site during the progress of the Works, or in trenches and excavations, shall be removed promptly from the Site to the satisfaction of the Engineer and at the Contractor's expense.

### **3.8 Schedule of Quantities and Rates:**

3.8.1 The Schedule of Quantities and Rates attached to the Agreement indicates the quantities to be executed. But it is to be clearly understood that these quantities are approximate and are liable to omission, variations, alterations by deductions or additions or deletions at the discretion of the Company. The Contractor shall neither be entitled for any revision of rates owing to variations in actual quantities of work done in relation to the quantities indicated in the Schedule of Quantities and Rates nor shall be entitled to any loss of consequential profits or for any other damages arising thereof. The Contractor shall be paid only for the actual quantities of work executed and according to the accepted tender rates.

3.8.2 The probable items envisaged have been indicated in the SOQR. It is not obligatory on the part of the Company to execute all the items and only the items as necessitated to suit the requirement of works will be operated. Also the quantum of work under each item is at the discretion of the Company.

3.8.3 The rates indicated against each item in the Schedule of Quantities and Rates shall be deemed to compensate for all minor constructional details which are not specifically mentioned, but are fairly and obviously intended and are essential for the full and final completion of the Works and the Contractor is not entitled to make any extra claims on this account.

3.8.4 The rates quoted by the Contractor under each item of work shall be for the complete finished work and shall be inclusive of all materials, labour, tools, plant, equipment, transport, hoisting, setting, fixing and including all royalties, insurance, PF and ESI contribution to labour as per the relevant acts and rules made applicable from time to time (except to the extent specifically excluded). Goods and Service Tax (GST) will be excluded from the above and will be paid separately to the contractor, based on the documents furnished by them. The quoted rates shall remain firm (except to the extent specifically excluded) during the entire period of Contract and shall not be subjected to any escalation either due to increase in cost of materials, labour, equipments, transport etc., or for any other reason whatsoever, during the entire period of the Contract. However, any change in statutory levies and introduction of new taxes, levies, duties, if any, imposed after the date of submission of tender will be reimbursed by the Company on production of documentary evidence by the contractor. Any decrease in the above will be passed on to the Company by the contractor. The reimbursement is applicable for the period of contract including extended period, if any, due to reasons not attributable to the contractor.

3.8.5 The tenderers shall note that 'C' form will not be issued by the Company.

### **3.9 Equipment needed for the Works:**

3.9.1 The contractor shall, at his own expense, provide all the Equipments required for the works.

3.9.2 All equipment to be provided by the contractor shall be in conformity with the specifications laid down or Referred to in the contract and the contractor shall, if requested by the engineer furnish proof to the satisfaction of the Engineer, that the equipment so comply.

3.9.3 The contractor shall, at his own expense and without delay, provide to the Engineer samples / details of Equipments proposed to be used in the works. The Engineer shall within a reasonable time after receipt of samples or within such further period as intimated to the contractor in writing, inform the contractor whether the samples are approved by him or not. If samples are not approved, the contractor shall forthwith arrange to procure fresh samples complying with the required specifications, for approval by the Engineer.

3.9.4 The Engineer shall be entitled to have tests carried out as specified or referred to in the contract for any Equipment provided by the contractor at the cost of the contractor and the contractor shall provide at his expense all facilities which the Engineer may require for the purpose. if no tests are specified in the contract but certain tests are considered necessary by the Engineer, the contract shall provide all facilities required for the purpose and the charges for these tests shall be borne by the contractor.

3.9.5 All equipment and parts thereof shall be of such design as to properly and satisfactorily function under all Conditions of loading and operation. All the components of equipment shall have proper factor of safety, maximum efficiency and minimum wear. They shall be able to withstand the environmental conditions encountered at the specific location whether specifically mentioned in the specification or not. Equipment shall be new free from defects and of best quality. All the equipments shall conform to the latest revised relevant Indian standards. Equipment which do not conform to either Indian standards or

any other international standards accepted in India shall be got approved by the Engineer by furnishing a sample and the same shall bear a test certificate and performance certificate from recognized test house.

3.9.6 All lifting and crane arrangements etc. required for erection and installation of equipment shall be the Responsibility of and be owned / hired by the contractor. These equipments shall have valid test certificates from the inspector of factories.

### **3.10 Work specification and Mode of Measurements:**

3.10.1 The specifications and mode of measurements to be followed for the building and other civil works / services shall be in accordance with CPWD specifications and relevant Indian standards (latest edition) for all other works as indicated in Annexure-IA unless otherwise clearly specified in the Schedule of Quantities and Rates and in Detailed Technical Specifications read together with the drawings issued under the contract.

3.10.2 The work specification and mode of measurement to be followed for all electrical works shall be in accordance with the relevant Indian Standards (latest edition) applicable for electrical installation in buildings unless otherwise clearly specified in the Detailed Technical Specifications or in the Schedule of Quantities and Rates of this contract.

3.10.3 In the absence of specifications and mode of measurements for the particular work in the said CPWD specifications the provisions contained in the relevant Indian Standard Code of Practice (latest edition) shall be followed. In case neither CPWD specification nor the relevant IS code of practice clearly indicate the specifications to be adopted for any particular type of work, the same shall be determined by the Engineer in accordance with the local specification, good engineering practice and manufacturer's recommendations. The decision of the Engineer shall be final and binding on the Contractor.

3.10.4 Notwithstanding the foregoing provisions, if there is any discrepancy / difference between the description of the standard specification and mode of measurement in the CPWD / IS and the description of the specification / mode of measurement for such items in the schedule of quantities and rates / detailed technical specification and drawings, the following order of preference shall be followed in all such cases.

3.10.4.1 Specification / description of items including mode of measurement specified (if any) in the schedule of quantities and rates.

3.10.4.2 Detailed Technical Specifications.

3.10.4.3 Drawings.

3.10.4.4 CPWD Specifications / IS code of practice as applicable under the provisions of clause 3.10.1 and 3.10.2 above.

### **3.11 Materials to be supplied by the Contractor:**

3.11.1 Unless otherwise specified, the Contractor shall at his own expense, provide all the materials required for the Work.

3.11.2 All materials to be provided by the Contractor shall be in conformity with the specifications laid down or referred to in the Contract and the Contractor shall if requested by the Engineer, furnish proof, to the satisfaction of the Engineer that the materials so comply.

3.11.3 The contractor shall procure all the materials required for the work from the approved manufacturers/ distributors /dealers only, as directed by the Engineer, and shall furnish, if demanded, a copy of purchase order for scrutiny of the Engineer-in-Charge.

3.11.4 The Contractor, shall, at his own expense and without delay, supply to the Engineer samples of materials proposed to be used in the Works. The Engineer shall within a reasonable time after supply of samples or within such further period as intimated to the Contractor in writing, inform the Contractor whether the samples are approved by him or not. If samples are not approved, the contractor shall

forthwith arrange to procure fresh samples complying with the required specifications, for approval by the Engineer.

3.11.5 All materials required for proper execution of work shall be procured and stored at site before taking up the day's work to ensure that the work is not suffered for want of any of the required materials. The Contractor will be permitted to start the work only when all the materials have reached the site of work and got approved by the Engineer. Further, as far as possible, materials shall be transported to working place just prior to their actual use and shall not be left lying around indefinitely. Instructions of the Engineer shall be followed strictly in this regard.

### **3.12 Reconciliation of Materials:**

3.12.1 The contractor shall maintain proper accounting and records for procurement, usage and balance availability of important materials like cement, paint, bitumen, anti-termite chemicals etc., on day-to-day basis and shall obtain the approval of the Engineer. The difference between the actual quantity of cement / paint / bitumen / anti-termite chemicals etc., brought by the contractor for use on the works and the theoretical quantity of materials to be used on the work calculated based on the final measurements of work and based on the coefficient given in CPWD / NBO analysis of rates will be compared. The under-utilization, if any, beyond the permissible 5% under usage shall be charged at the penal rate as specified in Annexure-IA and recovered from the bill of the Contractor. The penal recoveries are without any prejudice to the rights of the Company to take any other action under the Agreement.

### **3.13 Property in Materials / Equipments and Plant:**

3.13.1 The Contractor shall make at his own cost arrangements for all the necessary plant, equipment, tools and tackles required for the work. The Contractor must undertake to ensure that all tools and tackles are available at the site in perfect working order and properly maintained till the completion of contract. The Contractor shall submit the list of equipment, which he proposes to bring to the site. Tools and tackles shall not be removed from the site without the prior permission of Engineer-in-charge.

3.13.2 All materials / equipments and plant after immediately being brought by the Contractor upon the Site or on the land occupied by the Contractor in connection with the works shall be deemed to be the property of the Company and shall not be removed from the Site without the prior written approval of the Engineer. Such of them as during the progress of the Works are rejected by the Engineer or are declared by him not needed for the execution of the Works or such as on the grant of the Certificate of Completion remain unused shall, immediately on such rejection, declaration or grant, cease to be deemed as the property of the Company and the Contractor may then (but not before) remove them from the Site or the said land after obtaining written approval of the Engineer. This clause shall neither in any way diminish the liability of the Contractor nor shall the Company be in any way answerable for any loss or damage which may happen to or in respect of any such materials or plant either by the same being lost, stolen, injured or destroyed due to fire, tempest, floods or otherwise.

### **3.14 Storage of Materials:**

3.14.1 The Contractor shall at his own expense provide suitable sheds and storage yards in such places and in such numbers as in the opinion of the Engineer are needed for orderly and proper storage of materials either supplied by the Company or brought by the Contractor for the Works. He shall obtain approval in writing from the Engineer for the erection of such sheds and storage yards before undertaking construction thereof. Storage and safe custody of materials shall be the responsibility of the Contractor.

3.14.2 The Contractor shall take care to see that the materials such as timber, lime, cement and the like which are likely to deteriorate / cause damage by the action sun, wind, rain, dampness or other natural causes due to exposure shall be protected by providing suitable covered sheds at his own cost. The method of storing of materials shall be as described in the CPWD specifications and or as directed.

### **3.15 Workmanship and Testing:**

3.15.1 The work to be done under the contract or that may be necessary to be done in order to form and complete any part thereof shall be executed in the best and most substantial workman like manner, with material / equipments of the best and most approved quality of their respective kinds, and both the work and materials / equipments should conform to the particulars contained in or implied by the

specifications and as referred to and represented in the Drawings or in such other additional particulars, instructions and documents as may be found requisite to be given during the execution of the Works and to the entire satisfaction of the Engineer according to the instructions and directions which the Contractor may from time to time receive from the Engineer. The materials / equipments may be subjected to tests by means of such machines, instruments and appliances as the Engineer may direct and such tests shall be carried out by the Contractor wholly at his expense. The testing charges for conducting mandatory tests including the cost of materials to be tested and all other incidental charges such as carriage to the test laboratory etc., shall be borne entirely by the contractor. The testing shall be done in Govt. / NABL accredited / Govt. Approved laboratory only. It may be specifically noted that the tests to be conducted are not limited to the mandatory tests alone and additional tests if required and directed by the Engineer on any materials including the approved makes etc., shall be carried out by the Contractor.

3.15.2 The Engineer shall be entitled to have tests carried out as specified or referred to in the Contract for any materials supplied by the Contractor and the Contractor shall provide all facilities which the Engineer may require for the purpose. If no tests are specified in the Contract, but certain tests are considered necessary by the Engineer, the Contractor shall provide all facilities required for the purpose and the charges for these tests shall be borne as under:

3.15.2.1 If the results are in conformity with the contract specifications, then only the testing charges will be reimbursed by the Company subject to production of documentary evidence in support of the claim.

3.15.2.2 If the results are not in conformity with the contract specifications, then the testing charges shall be borne by the contractor.

3.15.2.3 The electrical installation executed shall be tested in accordance with standard testing procedures in the presence of Engineer or his authorised representative. The Contractor shall ensure that the test results are satisfactory and in conformity with the standard test results accepted for such works.

### **3.16 Inspection and Approval:**

3.16.1 All equipments and parts thereof shall be inspected and tested by the contractor before shipment. In addition, equipments or parts thereof shall be subjected to shop inspection and testing by the Engineer or his representative before shipment to ensure conformity with the accepted laid down specifications. No equipment shall be shipped without the prior written consent of the Engineer or his authorised representative. The contractor is responsible for providing all tools, instruments and other requirements for conducting such inspection and testing by the Engineer or his representative. The contractor shall also provide all facilities to the Engineer or his representative for inspecting and testing. However, the shop floor inspection of equipments by the Engineer or his representative before shipment shall not prejudice Company's claim for rejection of the equipments on final inspection at site and does not relieve the contractor from the responsibility that all equipments provided shall be free defects and suited in all respects for the purpose intended.

3.16.2 The Contractor shall provide at all times during the progress of Work and also during the defect liability period proper means of access with ladders, gangways etc., and the necessary attendants to move and arrange things as directed for the inspection or measurements of work by the Engineer or his representative.

3.16.3 All Works embracing more than one process shall be subject to examination and approval at each stage thereof and the Contractor shall give due notice in writing to the Engineer or his authorised representative when each stage is ready. In default of such notice, the Engineer shall be entitled to appraise the quality and extent thereof.

3.16.4 No Work shall be covered up or put out of view by the Contractor without the approval of the Engineer or his authorised representative and the Contractor shall afford full opportunity for examination and measurement of any Work which is about to be covered up or put out of view. Similarly, no work involving pre measurement shall be taken up without a specific authorisation by the Engineer. The Contractor shall give reasonable notice of not less than 2 days but not more than 4 days in any case, in writing to the Engineer or his representative whenever any work or materials are intended to be covered up in the earth, in bodies or walls or otherwise to be placed beyond the reach of measurement in order that the work may be inspected and approved by the Engineer or that correct dimensions may be taken before being so covered up. The Engineer or his representative shall, without unreasonable delay,

unless he considers it to be unnecessary and advises the Contractor accordingly, attend for the purpose of examining and measuring such work or materials intended to be covered up. In the event of the failure of the Contractor to give such notice, such work / materials shall be uncovered, if required by the Engineer or his representative at the Contractor's expense.

3.16.5 The Contractor shall uncover any part of the Works and / or make openings in or through the same as the Engineer from time to time directs for his verification and shall reinstate and make good such part to the satisfaction of the Engineer. If any such part has been covered up or put out of view after being approved by the Engineer and is subsequently found on uncovering to be executed in accordance with the Contract, the expenses of uncovering and or making openings in or through reinstating and making good the same shall be borne by the Company. In any other case all such expenses shall be borne by the Contractor.

3.16.6 The Contractor shall leave necessary holes / openings / recesses in the foundations, plinths, walls, R.C.C. roofs and similar Works where and as required by the Engineer for passage of pipes, cables, wires, etc., and make good later without any extra cost to the Company.

### **3.17 Removal of Improper Work and Materials / Equipments:**

3.17.1 The Engineer shall have power to check and reject at any stage such work which he considers to be defective in quality of materials / equipments or workmanship and nothing shall prevent him from rejecting wrought materials (i.e., materials made ready for use on works) which have been previously passed by him in an unworked condition. The Contractor shall immediately arrange to replace the defective materials / equipments by proper and suitable materials / equipments with the approval of the Engineer and carry out rework of the rejected work at his own cost and to the satisfaction of the Engineer. In the event of failure on the part of the Contractor to carry out his obligations under this clause, the Engineer shall have the right to get the work done through other agencies at the risk of the Contractor and to recover the cost in full from the Contractor.

3.17.2 All rejected materials / equipments will at once be removed from the Site by the Contractor to such distances as may be desired, failing which the Engineer after giving three day's notice in writing may do so and recover the cost of removal of the same from the Contractor.

### **3.18 Urgent Works:**

3.18.1 If any urgent work (in respect whereof the decision of the Engineer shall be final and binding) becomes necessary for safety of the Work or personnel and the Contractor is unable or unwilling to carry it out, the Engineer shall have right to employ departmental labour or other agencies as he may consider expedient. All expenses incurred on it by the Company shall be recoverable from the Contractor and be adjusted or set off against any sum payable to him.

### **3.19 Temporary Suspension of Works:**

3.19.1 The Engineer shall have the right to require the discontinuance of the work in whole or in part for such time as may be necessary, should the condition of work or weather or other contingencies make it desirable to do so in order that the works shall be well and properly executed. Extension of time shall be granted to the Contractor for discontinuance of work so required provided the suspension is for a period of at least one month in a single spell. No other claim in this respect for compensation or otherwise, however, shall be admitted.

3.19.2 During the inclement weather, the Contractor shall suspend concreting work for such time as the Engineer may direct and shall protect from damage all works and materials in the course of constructions / erection.

3.19.3 Should work be suspended by reason of rain, strike, lock outs or other causes, the Contractor shall take all necessary precautions for the protection of Works and shall at his own expense make good any damage arising from any of these causes.

### **3.20 Clearance of Site on Completion:**

3.20.1 As a part of the work included in this Contract, the Contractor shall completely remove and satisfactorily dispose off all temporary works to the extent directed. He shall tear down and dispose off

all temporary buildings, shall remove or grade to the extent directed all embankments made for construction purposes, shall satisfactorily dispose off all rubbish resulting from the operations under this Contract and shall do all work necessary to restore the territory embraced within the Site of his operations to atleast as good order and conditions as at the beginning of the Work under this Contract.

3.20.2 No final payment in settlement of the accounts for the Works will become due and shall be made to the Contractor till, in addition to any other conditions necessary for such final payment, site clearance has been effected by him. In the event of his failure to comply with this provision within fourteen (14) days after receiving notice to that effect, such clearance may be made by the Engineer at the expenses of the Contractor. Should it become necessary for the Engineer to have the Site cleared at the expense of the Contractor, the Company shall not be held liable for any loss or damage to such of the Contractor's property as may be made on the site and due to such removal there from, which removal may be effected by means of public sale of such materials and property or in any other way as deemed fit and convenient by the Engineer.

3.20.3 After completion of the work, the whole area should be left clean of all rubbish etc., before handing over the site.

#### **4.0 Variation in the Scope of the Contract:**

##### **4.1 Variations in the Scope of the Work:**

4.1.1 The Engineer shall have the power to make any alterations / variations /deletions / additions or substitutions from drawings, specifications, designs and instructions that may appear to him to be necessary or advisable during the progress of the Works and the Contractor shall be bound to carry out the work in accordance with any instructions which may be given to him by the Engineer in writing. Such alterations / variations / deletions / additions or substitutions shall form part of and be read as incorporated in the agreement itself.

##### **4.2 Valuation of Variations:**

4.2.1 If, in the opinion of the Engineer, the variation is minor in nature which does not call for any adjustment in price, the decision of the Engineer, will be final. In other cases, the rates of additional, altered or substituted work shall be determined by the Engineer in the following manner:

4.2.1.1 If the rate for additional, altered or substituted item of work is specified in the Schedule of Quantities and Rates, the Contractor shall carry out the additional, altered or substituted items at the same rate. In the case of composite tenders, where two or more Schedule of Quantities and Rates form part of the Contract, the applicable rate shall be taken from the Schedule of Quantities and Rates of that particular part in which the deviation is involved, failing that at the lowest applicable rate for the same item of work in the other Schedule of Quantities and Rates.

4.2.1.2 If the rate for any, additional, altered or substituted items of work is not specified in the Schedule of Quantities and Rates, the rate for such item shall be derived from the rate of the nearest similar item specified therein. In case of composite tenders where two or more Schedule of Quantities and Rates form part of the Contract, the rate shall be derived from the nearest similar item in the Schedule of Quantities and rates of that particular part of work in which the deviation is involved, failing that from the lowest or the nearest similar items in other Schedule of Quantities and Rates.

4.2.1.3 If the rate for any additional, altered or substituted item of work cannot be determined in any of the methods specified above, then such item of work shall be carried out at the rate as worked out and approved by the Engineer on the basis detailed in clause

4.2.1.4 plus 15% to cover overheads and profits of the Contractor.

4.2.1.4 The basis of arriving at the quantum of materials and labour to be used for the execution of additional, altered or substituted item of work shall be as per CPWD analysis of rates, Delhi (latest revision). In case the details of quantum of labour and materials are not available in the CPWD Standard for the entire item but the details for sub-heads of the items are available in the said standards, the same shall be taken for arriving at the rate of additional, altered or substituted items of work. In case the Engineer does not find any guiding details in the CPWD Standards, the same shall be taken as per actual observations made at the site of work by the Engineer. The cost of labour shall be as determined by the Engineer on the basis of labour rate indicated in Annexure-ID and considering the actual cost of

material. The Contractor shall on demand produce before the Engineer all such original GST invoices, vouchers, muster rolls, time sheets and other documents as in the opinion of the Engineer are necessary for the proper assessment of the rates. The entire responsibility in this respect devolves on the Contractor and in the event of the Contractor's failure to do so, the Engineer shall be entitled to assess the labour elements and other costs in the proposed rates. The Contractor shall inform the Engineer in writing immediately after coming across a substituted, altered or additional items as per working drawing and shall make all arrangements to furnish details for ascertaining the cost implications. The Contractor shall take up the item with the written consent of the Engineer pending finalisation of its rates.

4.2.1.5 The rates of extra / substituted items, which are yet to be approved by the competent authority, may be paid to the contractor, pending approval, in the running account bills at part rates to be termed as "Provisional Rates". The provisional rates to be paid should not exceed 80% of the rates assessed by the Engineer-in-charge.

4.2.2 The basic rate of materials to be considered for quote is mentioned in some of the items of SOQR shall be excluding of all taxes and duties. The cost difference in basic rate of materials only shall be added / subtracted to the quoted rate subject to submission of original GST bills and the same rate shall be verified by Engineer in charge. All wastages, carriages, transportation etc., shall not be considered for payment of cost difference in basic rates.

#### **4.3 Modifications to the Contract:**

4.3.1 There are no other understandings between the parties other than as set forth in these Contract documents.

4.3.2 In the event of any of the provisions of the Contract requiring to be modified after the Contract documents have been signed, except those directions and orders given by the Engineer under the Contract for the due execution of the Works, the modifications shall be made in writing and signed by both the parties before giving effect to such modifications.

#### **5.0 Time for Performance:**

##### **5.1 Commencement of Works:**

5.1.1 The Contractor shall commence the work within the period stipulated under clause 1.1.15.

5.1.2 The Engineer may direct the Contractor to use so much of the Site as may, in the Engineer's opinion, be required in order to enable the Contractor to commence and continue the work and shall from time to time as the work proceeds give the Contractor the use of such further portions of the Site as the Engineer may from time to time consider proper and adequate in that behalf. Phased delivery in the manner aforesaid of the use of Site or any other facilities to be afforded to the Contractor shall not entitle the Contractor to any claims whatsoever.

5.1.3 If the Contractor commits default in commencing the execution of the work as aforesaid, the Company shall, without prejudice to any other right or remedy, be at liberty to forfeit the Earnest money / Security Deposit absolutely.

5.1.4 The Contractor shall not be entitled to any compensation for any loss suffered by him on account of delay in commencing or executing the Works including delayed availability of Government controlled or other materials or of access to Site and other facilities or delayed receipt of instructions and decisions from the Engineer.

##### **5.2 Time for Completion:**

5.2.1 The Work shall be completed by the Contractor within the stipulated period indicated in Annexure-IA. The total time allowed for completion of all works under this contract is 180 days (Including monsoon period) from the date of commencement of work. The contractor shall complete the work in all respects within the above contract period of 180 days.

5.2.2 The completion period shall be inclusive of all the lead time required for Engineering, procurement of raw materials / items, manufacturing, inspection, testing, packing and any other activity whatsoever required including transportations and / or erection, testing and commissioning.

5.2.3 The Contractor shall within 15 days of acceptance of his tender or before commencement of work whichever is earlier shall furnish a Time & Progress Chart showing the order in which he proposes to carry out the Work and also indicating the probable dates of commencement and completion of various parts / section of the Works (for works of value more than Rs.30 Lakhs in general and for other works as directed by Engineer-in-charge) and got approved from Engineer. This Time & Progress Chart as approved and accepted by Engineer shall be binding on the Contractor. Failure on the part of the Contractor to furnish the chart and to seek approval of the Company for the same will entail withholding of payment against the bills preferred by him under the Contract. The Contractor shall also, whenever required by the Engineer, provide in writing a general description of the arrangements and methods which the Contractor proposes to adopt for the execution of the works. An amount equivalent to 0.01% of the awarded value of work subject to a minimum of Rs.5000/- will be recovered from the amounts payable to the Contractor for non-compliance of the stipulations in the above sub clauses, even though the Contractor gets the time and progress chart approved subsequently. The actual progress of the works shall be in line with the approved timeline chart. If, in the opinion of the Engineer that the actual progress of work at any stage of the contract tenure does not confirm to the approved program, the Contractor shall initiate the necessary corrective action to make up the progress in line with the approved Time & Progress Chart within 7 days failing which, the Company reserves the right to take over the works by determination of Contract in full or part as per the Clause 8.1 and will be executed as per the Clause 8.0.

5.2.4 If, at any time, it should appear to the Engineer that the actual progress of Work does not conform to the approved programme referred to in clause 5.2.3, the Contractor shall furnish, for the approval of the Engineer, a revised programme to ensure the completion of the Works.

5.2.5 The Contractor, if directed by the Engineer shall take such steps as may be necessary to improve the progress of work by resorting to overtime work, increase in labour force, increase in the day's quantum of work etc., without any extra cost to the Company.

5.2.6 All 'On Account' payments to be made to the Contractor shall be subject to a certificate to be furnished by the Engineer that the progress has been in accordance with the approved Time and Progress Chart or such modifications as have been approved by him.

### **5.3 Excepted Risks (Force Majeure):**

5.3.1 If at any time, the execution of this Contract is affected by War (declared or not), hostilities, invasion, Acts of Foreign Enemies, Civil War, rebellion, revolution, insurrection, riots and civil commotion (other than solely restricted to the Contractor's employees), Acts of State, Acts of God such as earthquake, massive floods and other Acts of Nature which an experienced Contractor could not have reasonably foreseen or reasonably made provision for or insured against, then the Contractor shall, within seven days of such occurrence, apply to the Company together with adequate evidence for obtaining such extension of time as may be warranted by the circumstances. After a careful examination of the circumstances, the Company may grant such extension of time as necessary without insisting on liquidated damages.

5.3.2 Any extension of time granted by the Company in terms of sub-clause 5.3.1 above shall neither entitle the Contractor to any claim for increase in price nor shall it release him from any of the obligations under the Contract. If the performance of the Contract as a whole is delayed by reason of the force majeure conditions continuing to persist for a continuous period exceeding six months, the Company and the Contractor shall discuss the matter and decide either to terminate the Contract without obligations on either side or to continue its execution on such terms as may be agreed upon.

5.3.3 The Company shall not be held responsible or be called upon to make good any losses / costs incurred by the Contractor consequent to the happening of any of the event under clause 5.3.1 above.

### **5.4 Extension of Time for Completion:**

5.4.1 The Contractor may seek extension of time for completing the work if such extension is required for reasons of exceptionally adverse climatic conditions and such other special circumstances which may occur (which are, however, not such as to constitute force majeure under clause 5.3.1 of the Contract). In such an event, the Contractor shall make a written request to the Engineer in the prescribed format as soon as possible after the reason for extension becomes apparent to him. The request shall give full details of the causes leading to the request and shall also indicate the manner in which the Work is

proposed to be regulated with the utmost expedition so as to cause minimum delay with reference to the original Time Chart.

5.4.2 The Company shall, taking into account the circumstances and the recommendations of the Engineer, determine the amount of extension of time to be granted, if any, and shall notify the Contractor accordingly.

5.4.3 Any extension of time granted under the provisions of this clause shall be without prejudice to other conditions of Contract and will not absolve the Contractor from the obligations of other clauses under the Contract.

5.4.4 Provided, however, the Company shall not be bound to grant any extension of time unless the Contractor had made the request for extension in due time after the circumstances which warrant such extension have arisen so as to enable the Engineer to investigate the circumstances as they have arisen or as soon thereafter as is practicable.

5.4.5 Where a Bank Guarantee has been furnished by the Contractor in pursuance of clause 2.11.2 (by way of Security Deposit), the Contractor shall immediately arrange to extend the validity of the Bank Guarantee at his cost to adequately cover the extended period of time for completion of work granted under this clause. In addition the contractor shall ensure that the Labour license, Insurance policy as stipulated in clause 2.15.10 and 2.20.2 are renewed from time to time at his cost during the extended period of contract till the completion of the project.

5.4.6 The Contractor shall not be entitled to increase in prices or for any compensation whatsoever on account of the extension of time allowed.

#### **5.5 Liquidated Damages:**

5.5.1 Should the Contractor fail to complete the Works and clear the Site on or before the stipulated time mentioned in Annexure-IA, he shall without prejudice to any other right or remedy of the Company in this behalf pay, as agreed Liquidated Damages and not as penalty, a sum equal to ½% of the total final bill value (excluding value of extra items, if any,) for every week's delay or part thereof subject to a maximum of 10% of the total final bill value of the Contract.

5.5.2 Where separate dates of completion have been specified for items or groups of items, the final bill value of the respective items or groups of items shall be applied.

5.5.3 The amount of Liquidated Damages may be adjusted or set off against any sum(s) payable to the Contractor under this or any other Contract with the Company.

#### **6.0 Measurements, Certificates and Payments: 6.1 Record and Measurements:**

6.1.1 Measurements shall be taken jointly by the Engineer or his authorised representative and by the Contractor or his authorised representative from time to time and at such intervals as in the opinion of the Engineer shall be proper, having regard to the progress of the Works. It shall be clearly noted that the responsibility of recording measurements and timely submission of bills rests with the contractor and any delay on this account will not be entertained.

6.1.2 The final bill must invariably be preceded by a thorough check of measurements of the whole of the Work performed.

6.1.3 Before taking final measurements of any Work, the contractor shall give a reasonable notice to the Engineer. If the Contractor fails to submit the final measurements and prolongs it unreasonably, then in any such event the measurements taken by the Engineer or by the person deputed by him shall be taken to be the correct measurement of the Work, and shall be final and binding on the Contractor and no claim whatsoever shall thereafter be entertained regarding the accuracy and classification of measurement.

6.1.4 The Contractor shall, without extra charges provide with every appliance, labour and things necessary for measurement.

6.1.5 If a dispute arises between the Engineer and the Contractor as to the quantity or quality of Work performed involving a sum larger than Rs.10,000/- the Contractor may appeal in writing to the Company for re-measurement or reappraisal as the case may be within one week from the date of joint measurement. If the Company considers the Contractor's dispute valid, it may appoint an Officer other than the Engineer to go into the matter and the Company's decision given thereupon shall be final and binding on the Contractor.

## **6.2 On Account Payment:**

**(Note: Clause 6.2.1 to 6.2.6 are applicable for works civil and composite tenders)**

6.2.1 100% payment against bills for the work done (Subject to the required deductions) shall be made to the Contractor based on detailed measurements and certification of bills by the Engineer.

6.2.2 75% payment against bills as Secured Advance on the cost of all non perishable materials brought by the Contractor to Site for use in the Works (excluding chargeable materials issued by the Company) as assessed and approved by the Engineer may be paid, provided the materials confirm to the specifications of the contract accepted by the Engineer. These materials shall be pledged by the Contractor to the Company. All the Secured Advance allowed will be deducted while making payment of any bill for the work done and a fresh Secured Advance on the materials remaining then at Site will be paid along with the same bill.

6.2.3 Bills shall be prepared and submitted by the contractor. Joint measurements shall be taken continuously and need not be connected with billing stage. Based on these joint measurements recorded in the register, the contractor shall submit the bills in both soft and hard copies (three copies) in the prescribed format along with the detailed measurements item wise. All the pages of the measurement sheets shall be serially machine numbered and signed by the contractor. The bills along with measurement sheet shall be computer generated and also suitably programmed for effecting the necessary corrections easily. The bills shall be accompanied with necessary documents such as abstract of quantities, variation statements, reconciliation of materials, part rate statements indicating the extent of work done, statement of secured advance claimed and fulfilling other statutory obligations such as ESI / PF / Insurance / labour license etc. Payment against bills for the work done (Subject to necessary deductions) will be made after the verification and certification by the Engineer of the bill submitted by the contractor.

6.2.4 50% of the amount admissible (after necessary deductions) will be paid by the Company within 3 days of presentation of the bill and the balance 50% shall be paid within 10 days of receipt of all clarifications, if any, on the bills submitted and after complying with all the statutory provisions by the contractor with respect to the bills.

6.2.5 Advance bills on the works carried out may be allowed by the Company between the running bills to facilitate the progress of work, at the discretion of Engineer in Charge.

6.2.6 Normally, bills will be entertained once in a month. However, if the progress of work is not satisfactory with reference to the approved Time and Progress Chart and where the progress of work since the last bill is less than 10% of Contract value, then the Engineer may reserve the certification of any bill submitted by the Contractor. On account payments made to the Contractor shall be without prejudice to the final making up of the accounts. On-account payment cannot by itself imply his having handed over any part of the Works and the liability of the Contractor shall continue to exist till the work is completed, inspected, approved and taken over by the Engineer. It is the sole responsibility of the Contractor to see that the Works are completed and handed over in a satisfactory manner. OR

### **6.2.7 The payment terms shall be as follows:**

6.2.7.1 70% against delivery of material and on acceptance, on prorata basis of the awarded rates.

6.2.7.2 20% against fabrication and erection on prorata basis of the awarded rates and based on the certification of the Engineer.

6.2.7.3 10% of the awarded rates against testing, commissioning and handing over after furnishing Bank Guarantee for 10% of final bill value towards Defect Liability Period as per GCC.

6.2.8 Payments made to the Contractor shall be without prejudice to the final making up of the accounts. It is the sole responsibility of the Contractor to see that the works are completed and handed over in a satisfactory manner. Any payment made to the Contractor cannot by itself imply his having handed over any part of the works and the liability of the Contractor shall continue to exist till the work is completed, inspected, approved and taken over by the Engineer.

**(Note-Clause 6.2.7 and 6.2.8 are applicable for mechanical, air-conditioning, aircooling, electrical, communication & networks, fire alarm & public address systems etc., if tendered individually).**

### **6.3 Payment of Part Rates:**

6.3.1 Payment at part rates against approved tendered rates for certain items may be made in the running account bill at the discretion of the Engineer.

### **6.4 Completion Certificate:**

6.4.1 The Works shall be deemed to have been completed in all respects on the day the Engineer certifies that the works have been so completed in accordance with this Contract, takes over the completed Works and issues a certificate to that effect. The Defect Liability Period will start from the said date of completion / handing over of the work.

#### **6.4.2 The following clauses shall be applicable for Electrical and Mechanical related works.**

6.4.2.1 On completion of work in all respects, the Contractor shall supply to the Company Two complete sets of drawings indicating the complete work as installed. These drawings shall clearly indicate the complete layout of light fittings, conduit runs, wiring diagrams, location of distribution boards, earthing layout, equipment and machine layout etc., as required by the Engineer. (This is applicable for works of value more than Rs.15 Lakhs in general and for other works as directed by the engineer).

6.4.2.2 A sum equivalent to zero point one percent of value of electrical / mechanical works executed subject to a minimum of Rs.500/- will be recovered from the amounts payable to the Contractor for non-compliance of the stipulations in the above sub clause.

### **6.5 Final Payments:**

6.5.1 Based on the measurement of Work performed, in accordance with clause 6.1.2 the Contractor shall submit his final bill for the Works within 3 months of completion of work. The bill shall be based only on Works as measured and at accepted tender rates including rates for any additional or extra work which might have been approved by the Company. All deductions due under the Contract shall be incorporated. The final bill shall be accompanied by:

6.5.1.1 A copy of the completion certificate issued by the Engineer.

6.5.1.2 A "No Claim Certificate" in the prescribed form or a list of claims if any, not included in the final bill with full details.

6.5.2 The Engineer shall examine and certify the final bill for payment after satisfying that the Works have been satisfactorily completed and that all properties, works and things removed or disturbed or damaged in consequence of the Work have been properly replaced and made good and all expenses and demands incurred or made by or on the Company or in respect of any damage or loss by, from or consequence of the Works have been satisfied, all materials have been returned and the site cleared. In respect of list of claims given by the Contractor, the Company shall examine and either accept or repudiate in whole or in part and convey its decision in writing to the Contractor.

### **6.6 Warranty:**

Note:- This clause is not applicable for civil and composite tenders.

#### **6.6.1 Warranty for Equipment:**

6.6.1.1 With respect to the equipment provided by the Contractor under this contract, the Contractor shall be deemed to have furnished to the Company warranties:

6.6.1.1.1 Of Title: "The contractor warrants that the equipments are not subject to any security interest, lien or other encumbrance".

6.6.1.1.2 Against Patent Infringements: "The Contractor shall at his own expense defend and save the Company harmless from the expenses and consequences of any suit or procedure brought against the user so far as the said suit or procedure is based on a claim that the equipment provided constitute an infringement of any patent in existence on the date of the contract". "In addition the Contractor shall secure at his own expense a fully paid up license or licenses that will permit the user to continue operation of the equipments provided, free of further claim for infringement".

6.6.1.1.3 Of Performance: "The Contractor warrants that the equipment provided are suitable for the purpose or the purpose for which such goods are used, conform to promise or affirmations made by the Contractor and conform to specifications stipulated in the contract".

6.6.1.1.4 Of Fitness: "The Contractor warrants that the equipments provided are suitable for the particular purpose stipulated in the contract. The Company affirms that it has relied on the Contractor's skills and judgments to select or provide equipment for a particular purpose".

6.6.1.1.5 Of Quality: "The Contractor warrants that the equipments are new and of best quality and that the equipment will be free of defects in design, workmanship or materials".

### **6.7 Breach of Warranty (Not applicable for civil and composite tenders)**

6.7.1 In the event of a breach of warranty, the Contractor shall be required to take all necessary action at his expense to correct the breach in the most expeditious manner dictated by the existing circumstances.

6.7.2 Upon oral or written notification of defects or malfunctioning of equipment during normal operation, which requires corrective action, the Contractor shall send the necessary personnel (with the required materials, tools, test equipments and such other items) to site to supervise and assume responsibility for repair. If the Contractor does not expeditiously take steps to correct the defects the Company may at its option do so. However, such action on the Company's part, will not release the Contractor of his responsibility and the Contractor inter alia shall reimburse all the expenses incurred by the Company to repair or replace malfunctioning or non-conforming equipments.

### **6.8 Deduction of Income Tax:**

6.8.1 Income Tax on the gross amount billed will be deducted from Contractor's bills as per Section 194 (C) of the Income Tax Act.

6.8.2 The successful contractor should inform the assessing Income Tax Officer concerned (within one month from the date of issue of work order) about the award of work to him. The successful contractor shall furnish their Income Tax Permanent Account Number (PAN) to BEL while furnishing their bills for payment.

### **7.0 Maintenance and Defects:**

7.1 Guarantee of Works and Liability for Damage, Defects etc.: Note:- Clause 7.1.1 to 7.1.3 are applicable for civil and composite tenders.

7.1.1 The Defect Liability Period in respect of the Works executed under this Contract is furnished in Annexure-IA. The Contractor shall guarantee the Work against defective materials and bad workmanship. This guarantee shall be valid for the duration of defect liability period. Any defects, shrinkage or other faults which may appear in the Works within the Defect Liability Period, which in the opinion of the Engineer are due to defective or improper materials or bad workmanship, or the Work not being in accordance with drawings and specifications or instructions shall be made good and / or repaired by the Contractor at his own cost.

7.1.2 As a security for the due performance of the above condition the Contractor shall deposit with the Company an amount as mentioned below. The Contractor may choose to pay this deposit by cash or by adjustment of the Security Deposit paid / recovered from him under the Contract or by furnishing a Bank

Guarantee as per proforma at Appendix-4 issued by any Nationalised or Scheduled Bank for the said amount.

7.1.2.1 Final Bill Value : Up to Rs.10 Crores Deposit Amount: 5% of final bill value or Rs.40 Lakhs whichever is less.

7.1.2.2 Final Bill Value : Above Rs.10 Crores and upto Rs.25 Crores. Deposit Amount: 4% of final bill value or Rs.75 Lakhs whichever is less.

7.1.2.3 Final Bill Value : Above Rs.25 Crores and upto Rs.50 Crores Deposit Amount : 3% of final bill value or Rs.125 Lakhs whichever is less.

7.1.2.4 Final Bill Value: Rs.50 Crores and above

Deposit amount: The tender committee with due justification shall fix the amount of deposit amount and obtain approval from the competent who approves the tender as per SDOP. However, deposit amount shall not be less than Rs.125 Lakhs.

7.1.3 The Contractor shall furnish separate guarantees to the Company in respect of Water Proofing and Anti-termite treatment jobs executed as per proforma at Appendix-5 and Appendix6 respectively. In addition to the Security Deposit mentioned in clause 7.1.2 above, the Contractor shall deposit with Company an amount equal to 5% of the value of waterproofing works executed as per Final Bill for a period of 5 years from the date of completion of work to guarantee the works against defective materials and workmanship. The contractor may choose to pay this deposit either by cash or furnishing a Bank Guarantee. In case, Bank Guarantee is furnished, the same shall be kept valid till the expiry of the Guarantee period.

**OR**

7.1.4 The Defect Liability Period in respect of the Works executed under this Contract is furnished in Annexure-IA. As a security for the due performance of the above condition, the Contractor shall furnish a Bank Guarantee separately for 10% of the final bill value as per proforma at Appendix-4 for the Defect Liability Period. The Contractor may choose to pay this deposit by cash/DD/online or by adjustment of the Security Deposit paid / recovered from him under the Contract or by furnishing a Bank Guarantee as per proforma at Appendix-4. The final payment towards the balance 10% of the final bill value shall be released only after the Contractor, furnishes the Bank Guarantee towards Defect Liability Period.

**Note:- Clause 7.1.4 is applicable for works viz., mechanical, air-conditioning, air-cooling, electrical, communication & networks, fire alarm & public address systems etc., if tendered individually.**

7.1.5 The Contractor shall initiate action to the notified defects, shrinkage or other faults which may appear in the Works during the Defect Liability Period within 7 days of written notice by the Engineer-in-charge, failing which the Engineer-in-charge will have full powers to rectify the defect by any means at the risk and cost of the Contractor.

## **7.2 After Sales Service:**

7.2.1 The contractor shall ensure that adequate and prompt After Sales Services in the form of maintenance personnel and spares as and when required with a view to minimize the break down period. Particular attention shall be given to ensure that all spares are easily available during the normal life of the installation.

## **7.3 Spare Parts and Tools:**

7.3.1 The contractor shall recommend from his experience, a set of the spare parts / tools required for routine maintenance / service / overhaul of equipment for a period of two years. The Contractor shall also indicate the unit prices for the recommended spare parts and tools.

## **8.0 Rights, Remedies and Powers:**

### **8.1 Determination of Contract due to Contractor's Default:**

### 8.1.1 If the Contractor:

#### 8.1.1.1 Abandons the Contract.

8.1.1.2 At any time defaults in proceeding with the works with due diligence and continues to do so even after 7 days of written notice from the Engineer; or

8.1.1.3 Commits default in complying with any of the terms and conditions of the Contract and does not remedy it or take effective steps to remedy it within 7 days after a notice in writing is given to him in that behalf by the Engineer; or

8.1.1.4 Persistently disregards the instructions of the Engineer or contravenes any provision of the Contract; or

8.1.1.5 Fails to remove materials from the Site or to pull down and redo the work after receiving from the Engineer notice to the effect that the said materials or works have been rejected; or

8.1.1.6 Fails to complete the works on or before the stipulated date (s) of completion, and does not complete them within the period specified in a notice given in writing in that behalf by the Engineer; or

8.1.1.7 Offers or gives or agrees to give to any person in the Company's service or to any other person on this behalf, any gift or consideration of any kind as an inducement or reward for doing or forbearing to do or for having done or forborne to do any act in relation to the obtaining or execution of this or any other Contract for the Company; or

8.1.1.8 Shall enter into a contract with the Company in connection with which commission has been paid or agreed to be paid by him or to his knowledge unless the particulars of any such commission and the terms of payment there of have previously been disclosed in writing to the Company / Engineer; or

8.1.1.9 Shall obtain a Contract with the Company as a result of ring tendering or other non-bonafide methods of competitive tendering; or

8.1.1.10 Being an individual or if a firm, any partner thereof, shall at any time be adjudged insolvent or have a receiving order for administration of his estate made against him or shall take any proceedings for liquidation or composition (other than a voluntary liquidation for the purpose of amalgamation or reconstruction) under any Insolvency Act for the time being in force or make any conveyance or assignment of his effects or composition or arrangement for the benefit of his creditors of purport so to do, or if any application be made under any Insolvency Act for the time being in force for the sequestration of his estates or if a trust deed be executed by him for benefit of his creditors; or

8.1.1.11 Being a Company, shall pass a resolution or the Court shall make an order for liquidation of its affairs, or a receiver or manager on behalf of the debenture holders shall be appointed or circumstances shall arise which entitle the Court or debenture holders to appoint a receiver or manager; or

8.1.1.12 Shall suffer an execution being levied on his goods and allow it to be continued for a period of 21 days; or

8.1.1.13 Assigns, transfers, sub-lets (engagement of labour on a piece-work basis or of labour with materials not to be incorporated in the work, shall not be deemed to be sub-letting) or attempts to assign, transfer or sub-let the entire works or any portion thereof without the prior written approval of the Company; the Company may, without prejudice to any other right or remedy which shall have accrued or shall accrue there after to the Company by written notice determine the Contract either as a whole or in part.

8.1.2 Upon such determination of the Contract either in whole or in part, the Security Deposit with the Company in respect of the Contract shall stand forfeited to the Company without in any way affecting the Rights of the Company under clause

### **8.2 Rights of the Company after determination of the Contract due to Contractor's Default:**

8.2.1 The Engineer shall on such determination of the Contract have powers to:

8.2.1.1 Take possession of the site and any materials, Constructional plant, implements, stores, etc., there on; and / or

8.2.1.2 Carry out the incomplete work by any means at the risk and cost of the Contractor.

8.2.2 On determination of the Contract in full or in part, the Engineer shall determine the quantum of amount, if any, that is recoverable from the Contractor for completion of the works or part of the works or in case the works or part of the works is not to be completed, the loss or damage suffered by the Company. In determining the amount, credit shall be given to the Contractor for the value of the work executed by him up to the time of cancellation or the value of Contractor's materials taken over and incorporated in the work. In order to measure the work completed till the date of determination and the Contractor's materials to be taken over, the Engineer shall give 7 days notice to the Contractor requiring him to be present so as to record the measurements in his presence. If the Contractor fails to be present in response to the notice, the recording of measurements shall be preceded with ex-parte and the measurements as recorded shall be binding on the Contractor.

8.2.3 The Company shall have the right to use Contractor's plant, machinery and material on the balance works but shall not in any way be responsible for any damage or loss of the same and the Contractor shall not be entitled to any compensation there for.

8.2.4 Any excess expenditure incurred or to be incurred by the Company in completing the works or part of the works or the excess loss or damages suffered or may be suffered by the Company as aforesaid after allowing necessary credits, shall be recovered from any moneys due to the Contractor on any account and if such moneys are not sufficient, the Contractor shall be called upon in writing to pay the same within 30 days.

8.2.5 If the Contractor shall fail to pay the required sum within the aforesaid period of 30 days, the Engineer shall have the right to sell any or all of the Contractor's unused materials, constructional plant, implements, temporary buildings, etc., and apply the proceeds of sale thereof towards the satisfaction of any sums due from the Contractor under the Contract and if there after there be any balance still outstanding from the Contractor, the Contractor shall, upon demand, pay the Company the money due and it shall be deemed as a debt due by the Contractor to the Company and shall be recovered accordingly.

8.2.6 Any sums in excess of the amounts due to the Company and unsold materials, constructional plant, etc., shall be returned to the Contractor; it is always understood that if the actual cost of completion by the Company of the balance works or part of the works is less than the amount which the Contractor would have become eligible had he completed the works or part of the works under the terms of Contract, the Contractor shall not be entitled to claim such benefit to his advantage.

### **8.3 Cancellation of Contract by the Company:**

8.3.1 If at any time after the commencement of work, the Company shall decide that the whole work or any specific part there of is not required to be carried out, necessary notice in writing shall be given to the Contractor. The Contractor shall take immediate action to stop all activity relating to the cancelled work. The Contractor shall have no claim to any payment of compensation or otherwise whatsoever on account of any profit or advantage which he might have derived from the execution of work in full but which he did not derive in consequence of the foreclosure of the whole or part of the work.

8.3.2 The Contractor shall be paid at Contract rates the full amount for the works executed at site (less any amount recoverable and due to the Company) and, in addition, a reasonable amount to cover the cost incurred on materials which will not be of any alternative use to the Contractor (which shall then become the property of the Company), transportation costs in respect of the tools, plant and materials retained by the Contractor from the work place to his permanent stores or any other works, which ever is less, and a reasonable proportion of the expenditure incurred on preliminary works such as access road, labour huts, site office, etc. All payments other than at Contract rates shall be based on a detailed claim to be submitted by the Contractor supported by cash vouchers or other documents covering the incurrence of such costs. If called upon by the Engineer, the Contractor shall also furnish his Books of Accounts and other documents which the Engineer may consider necessary to enable him to certify the reasonableness of the amount payable under this clause.

8.3.3 The materials if any, supplied by the Company, which are rendered surplus on account of the cancellation, shall be returned promptly by the Contractor subject to normal wastages allowed under the Contract. He shall be debited with the losses due to any deterioration or damage which might have been caused while the materials were in the custody of the Contractor. If so directed, he shall transport such materials to the Company's stores and shall be paid for such transport at a reasonable compensation.

#### **9.0 Packing, Marking, Protection and Despatch:**

**Note:-This Clause is not applicable for civil and composite tenders.**

9.1 Instructions regarding Packing, Marking, Protection and Despatch of Equipment.

9.1.1 Contractor shall take adequate care to suitable pack and protect the equipment before despatch in such manner that it can withstand rough handling during transit and receipt and long storage at site.

9.1.2 All fragile and exposed parts shall be packed with care and the package shall bear the words "HANDLE WITH CARE" in ENGLISH / HINDI.

9.1.3 All holes, openings as also all delicate surfaces shall be carefully protected against bad weather.

9.1.4 All manufactured parts / surfaces shall be painted with rust proof paint.

9.1.5 All threaded fittings shall be greased and provided with plastic caps.

9.1.6 All bright and machined parts shall be coated with appropriate protective materials suitable for tropical site conditions.

9.1.7 All small pieces shall be packed in cases.

9.1.8 All heavy packages shall have sling marking.

9.1.9 The Contractor shall be held liable for all damages or breakages to the equipment due to the defective or insufficient packing as well as for corrosion due to insufficient protections.

9.1.10 The Contractor shall arrange for despatch of the equipment by rail / road after proper packing protection as indicated above. The consignments shall be despatched after inspection or otherwise if agreed to, on freight paid basis, irrespective of the basis of price.

#### **10.0 Transit Insurance**

10.1 The Contractor shall arrange at his cost for transit insurance for the despatch of equipment or parts thereof. This Clause is not applicable for civil and composite tenders.

#### **11.0 Settle of Disputes:**

##### **11.1 Decision by the Company and Engineer:**

11.1.1 To prevent disputes and litigations, it shall be accepted as an inseparable part of the Contract that in matters regarding materials, workmanship, removal of improper work, interpretation of Contract, drawings and specifications, mode of procedure and carrying out the work, the decision of the Company shall be final and binding on the Contractor and if any technical question which may arise touching the Contract, the Engineer's decision shall be final and conclusive. The claim, if any, arising out of any decision given by the Engineer shall be sent in writing to the Engineer within 15 days from the date of such decision given by the Engineer and if the claim is not accepted and the Contractor is aggrieved by such non-acceptance, such dispute may be referred by him for Arbitration.

##### **11.2 Dispute Resolution:**

11.2.1 To the best possible extent dispute arising with the Contractors to be amicably settled by the concerned department heads. In the event the dispute does not get resolved, case to be referred to the Dispute Resolution Board.

11.2.2 If a dispute of any kind whatsoever arises between the Company and Contractor in connection with, or arising out of the Contract or the execution of the Works under the contract, whether during the execution of the Works or after their completion and whether before or after repudiation or termination of the Contract, including any dispute as to any opinion, instruction, determination, certificate or evaluation of the Engineer, the matter in dispute shall, in the first instance, be referred in writing to the Dispute Resolution Board (DRB) Management led by SBU / Unit Head, BEL. Within thirty (30) days of having received such notification Dispute Resolution Board shall give notice of decision to the Company and Contractor.

11.2.3 If either the Company or the Contractor is dissatisfied with any decision of the Dispute Resolution Board, or if the Dispute Resolution Board fails to give notice of his decision on or before the thirtieth (30th) day after having received notification by either party, then either the Company or Contractor, on or before the thirtieth (30th) day after the expiry of the thirtieth (30th) day give notice to the other party, with a copy for the information of the Dispute Resolution Board, of his intention to commence arbitration, as hereinafter provided, as a matter in dispute. Such notice shall establish the entitlement of the party giving the same to commence arbitration. No arbitration shall be commenced unless such notice is given.

11.2.4 If the Dispute Resolution Board has given notice of the decision as to a matter in dispute to the Company and the Contractor and no notice of intention to commence arbitration as to such dispute has been given by either the Company or the Contractor on or before the thirtieth (30th) day after the day on which the Dispute Resolution Board decision was made, the said decision shall become final and binding upon the Company and Contractor.

11.2.5 In case any dispute or difference shall arise between the Company (or the Engineer on their behalf) and the Contractor on any matter within the scope of this Contract except as to matters entirely left to the decision of the Company or the Engineer under the provisions of this Agreement, then either party shall forthwith give to the other written notice of such dispute or difference and such disputes or difference shall be referred to a sole Arbitrator to be selected by the Contractor from the panel of ICADR. The award of the Arbitrator shall be final and binding on both parties. The procedure laid down in accordance with the Indian Arbitration and Conciliation Act, 1996, or any statutory amendment thereof and the rules made there under from time to time shall apply in the matter of the reference. Only Courts at location near to the Company's office from where the order for the work has been issued shall have jurisdiction to entertain a claim or for enforcement of the award.

11.2.6 Notwithstanding reference of any matter for arbitration, the Contractor shall continue to execute the Contract in all respects except to the extent such execution itself is the subject matter for the arbitration.

11.2.7 It is a term of the Contract that the party invoking arbitration shall specify the dispute or disputes to be referred to arbitration under this clause together with the amount or amounts claimed in respect of each such dispute.

11.2.8 It is also a term of the Contract that if the Contractor does not make any demand for arbitration in respect of any claim(s) in writing within 180 days of receiving the intimation from the Company that the bill is ready for payment, the claim of the Contractor will be deemed to have been waived and absolutely barred and the Company shall be discharged and released of all liabilities under the Contract in respect of these claims.

### **11.3 Arbitration:**

11.3.1 In case any dispute or difference shall arise between the Company (or the Engineer on their behalf) and the Contractor on any matter within the scope of this Contract except as to matters entirely left to the decision of the Company or the Engineer under the provisions of this Agreement, then either party shall forthwith give to the other written notice of such dispute or difference and such disputes or difference shall be referred to a sole Arbitrator to be selected by the Contractor from among the panel of three nominees to be indicated by the Company at the time of reference of the disputes to arbitration. The award of the Arbitrator shall be final and binding on both parties. The procedure laid down in accordance with the Indian Arbitration and Conciliation Act, 1996, or any statutory amendment thereof and the rules made there under from time to time shall apply in the matter of the reference. Only Courts at location near to the Company's office from where the order for the work has been issued shall have jurisdiction to entertain a claim or for enforcement of the award.

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11.3.4 It is also a term of the Contract that if the Contractor does not make any demand for arbitration in respect of any claim(s) in writing within 180 days of receiving the intimation from the Company that the bill is ready for payment, the claim of the Contractor will be deemed to have been waived and absolutely barred and the Company shall be discharged and released of all liabilities under the Contract in respect of these claims.

11.3.5 In the event the contract is entered into between the Company and another Public Sector Enterprise, the following clause shall apply.

11.3.5.1 In the event any dispute or difference shall arise between the parties hereto, such dispute or difference shall be referred to the Arbitrator to be nominated by Law Secretary, department of Legal Affairs, Govt. of India. The Indian Arbitration and Conciliation Act 1996 or any statutory amendment thereof shall not be applicable to the arbitration under this clause. The award of the Arbitration shall be binding upon the parties to the dispute, provided, however, any party aggrieved by such award may make a further reference for setting aside or revision of the award to the Law Secretary, department of Legal Affairs, Govt. of India whose decision shall bind the parties finally and conclusively.

## **12.0 Over Payments / Under Payments Detected During Technical Audit:**

12.1 The Company reserves the right to carry out post-payment audit and technical examination of the running / final bill including all supporting vouchers etc. The Company also reserves the right to propose recoveries detected by CVC (Central Vigilance Commission) based on their audit and observations of works / bills etc. The Company further reserves the right to enforce recovery of any over payment when detected, notwithstanding the fact the amount of running / final bill may be included by one of the parties as an item of dispute before an arbitrator appointed and notwithstanding the fact that the amount of running / final bill figures in the arbitration award.

12.2 If as a result of such audit and technical examination any over payment is discovered in respect of any work done by the Contractor under the contract, the Company from the Contractor shall recover it, or if any under payment is discovered, the amount shall be duly paid to the Contractor by the Company.

## **13.0 Clauses Pertaining to Environmental Protection:**

13.1 The Contractor shall take utmost care to ensure that environment is protected and no such activity shall be carried out which may have a bearing on the environmental pollution during execution of work. The Contractor may specifically note the following:

13.1.1 The Contractor shall note that no paint drums either full or empty and paintbrushes are kept in open area that may lead to environmental pollution. The same shall be kept in a place specified by the Engineer-in-charge till the final disposal is done. Cleaning of paintbrushes shall be done strictly as per the instructions of Engineer-in-charge and residue collected after cleaning of brushes shall be disposed off as per the instruction of the Engineer-in-charge. After completion of the work, all empty paint containers, waste painting brushes, waste painting rollers etc., shall be deposited in the place identified by the Engineer-in-charge and the same will become property of the Company. At any point of time, if it is noticed that the stipulations are not followed, the Engineer-in-charge at his own discretion may take steps to remove the items at the risk and cost of the Contractor and such expenses will be recovered from the bills of the Contractor. The decision of the Engineer-in-charge in this regard is final and binding on the contractor.

13.1.2 The thinner used in painting works shall not contain banned chemicals viz., carbon tetra chloride / halogenated hydrocarbons etc. The thinner to be used in the works shall be brought from approved sources only that are conforming to the stipulations of the Pollution Control Board norms.

13.1.3 Welding rod bits after welding shall be collected and stacked in a container at a specified place till the completion of works. After completion of the work, the Welding rod bits shall be deposited in the place identified by the Engineer-in-charge and the same will become property of the Company. At any point of time, if compliance of the same is not observed, then the Engineer-in-charge at his discretion may take steps to remove the items at the risk and cost of the Contractor and such expenses will be recovered from the bills of the Contractor. The decision of Engineer-in-charge in this regard is final and binding on the contractor.

13.1.4 The contractor shall specifically note that construction materials shall not be stacked on the already developed lawn areas, and shall be stacked only at a place indicated by the Engineer-in-charge.

13.1.5 In case, at any point of time stacking of materials on the developed lawns is noticed (i.e., non-compliance of stipulations of clause 13.1.4 above) the same will be got removed by the Engineer-in-charge without any further intimation at the risk and cost of the contractor. Also the rework of development of lawns etc. if any will be done at the risk and cost of the Contractor. All such expenses will be recovered from the bills of the Contractor and the decision of the Engineer-in-charge in this regard is final and binding on the Contractor.

13.1.6 The contractor shall specifically note that no unwanted materials / debris are stacked at the site of work beyond a reasonable time and the same shall be removed from the site of work immediately as and when generated and disposed off as per the directions of the Engineer-in-charge.

13.1.7 In case, at any point of time non-compliance of clause 13.1.6 above is observed, the same will be removed from the area by the Engineer-in-charge without any further intimation to the Contractor and at the risk and cost of the Contractor. The decision of the Engineer-in-charge in this regard is final and binding on the Contractor.

13.1.8 The Contractor may specifically note that he shall be fully aware of the acts / rules and regulations pertaining to Environmental protection acts and relevant State Pollution Control Board (SPCB) norms, Central Pollution Control Board (CPCB) norms as well as the requirements of Ministry of Environment and Forests (MOEF). However the Engineer-in-charge will brief on the EMS Policy of the Company on the lines of ISO 14001 Standards (as per updated version from time to time) with regard to specific requirements. Subsequently it shall be the responsibility of the Contractor to educate / train his labour force deployed from time to time regarding the same.

13.1.9 The contractor may also note that special training shall be given to the personnel applying pesticides, herbicides, weedicides and the like with regard to the emergency preparedness (like spillage etc.) while transporting, application, stacking and disposal of empty cans.

#### **14.0 Applicability of Clauses:**

14.1 Clause 2.11.1 to 2.11.5, 6.2.1 to 6.2.6 and 7.1.1 to 7.1.3 of General Conditions of Contract are applicable for civil and composite tenders consisting of civil works and any one of the work among electrical, communication & networks, fire alarm & public address systems etc., or all the works. However, the above clauses may be adopted for the works with Mechanical, Electrical items but without major equipments.

14.2 Clause 2.11.6 to 2.11.9, 6.2.7, 6.2.8, 6.6, 6.7, 7.1.4, 7.2, 7.3, 9.0 and 10.0 of General Conditions of Contract are applicable for works viz., mechanical, air-conditioning, air-cooling, electrical, communication & networks, fire alarm & public address systems etc., if tendered individually.

**NAME, ADDRESS AND  
SIGNATURE OF THE TENDERER**

**ACCEPTING AUTHORITY**

**REFERENCE SHEET TO GENERAL CONDITIONS OF CONTRACT****Ref: Clause 1.1.2**

The Authority designated to exercise the rights and obligations under this Contract is General Manager BEL, Hyderabad -500 076

**Ref: Clause 1.1.6**

Deputy Engineer (Civil), Dy. Manager (Electrical), Dy. General Manager (ES) are the Engineers for the purpose of this Contract.

**Ref: Clause 2.20.4**

The **comprehensive Insurance Policy** to be taken by the contractor shall be from **United India Insurance** in which Bharat Electronics Limited has also insured its assets and risks or from any other Nationalized Insurance Company approved by IRDA (Insurance Regulatory Development Authority of India).

**Ref: Clause 3.10.1**

CPWD specifications **2021 Vol. 1 & 2** along with **updated correction slips** shall apply to this Contract.

**Ref: Clause 3.12.1**

Penal rate of recovery for underutilisation of materials are:  
(To be indicated both in figure and words)

(1) Cement per bag of 50 Kgs.	:	Rs.800/- per bag
(2) Paint	:	
(3) Oil bound distemper	:	Rs.800/- per Kg
(4) Synthetic enamel paint	:	Rs.800/- per Ltr
(5) Acrylic emulsion	:	Rs.800/- per Ltr
(6) Water proof cement paint	:	Rs.800/- per Ltr
(7) Bitumen	:	Rs.800/- per Kg
(8) Anti-termite chemicals	:	Rs.800/- Per Ltr

**Ref: Clause 5.2.1**

The time for completion of the works under this Contract is 180 days (including monsoon period) from the date of commencement of work.

**Ref: Clause 7.1.1/7.1.4**

The **Defect Liability** in respect of the works under this Contract is **Ten (10) Months and 5 Years** for Water Proofing, Anti-termite treatment jobs, etc (if applicable) from the date of issue of a completion certificate by the Engineer.

**Ref: Clause 14**

The type of Work is "**RESTORATION OF FIRE ALARM SYSTEM IN BEL-HYDERABAD.**"

**NAME, ADDRESS AND  
SIGNATURE OF THE TENDERER**

**ACCEPTING AUTHORITY**

## LOCATION OF WORK AND SCOPE OF WORK

### 1.0 Location of Work:

The work site is located at Nacharam Hyderabad. The exact location of works to be taken up shall be got confirmed from EIC before executing the works.

### 2.0 Scope of Work:

The scope of repair and modification works mainly involves the following:

- 2.1.0 Systematic replacement of all faulty or aged sensors with new Smoke Detectors with bases and Manual Call Points (MCPs) across all designated buildings to eliminate false alarms and ensure rapid detection.
- 2.1.1 Full replacement of the existing Battery Bank (12V-7Ah units) across all control panels to guarantee uninterrupted power backup during primary electricity failure.
- 2.1.2 Identification and replacement of defective SMPS units, Loop Cards, and Base Boards to restore the core processing power and communication stability of the building-wise panels.
- 2.1.3 Laying of approximately 2,000 meters of new 2Cx1.5sq.mm Armoured copper cable to replace degraded wiring, ensuring signal integrity across the detection network.
- 2.1.4 Comprehensive servicing and recalibration of all control panels. This includes clearing historical fault logs and optimizing zone configurations.
- 2.1.5 Installation and integration of RS-485 and TCP/IP cards to enable high-speed data transmission between building panels.
- 2.1.6 Integration of GSM Auto Dialers across all building-wise panels to provide real-time, fail-safe mobile alerts to the factory's emergency response team.
- 2.1.7 Installation of Isolator Modules to ensure that a single fault in one section of the loop does not disable the entire building's detection system.
- 2.1.8 "End-to-End" testing of every detector, hooter, and MCP to verify a unified detection network where alarms are synchronized and accurately reported.
- 2.1.9 Specialized troubleshooting and rectification to ensure legacy systems are fully compatible with the new revamp.
- 2.1.10 Drafting of updated System Layout Drawings mapped against the factory's CAD files. These will reflect the "As-Built" status of the revamped network for future maintenance.
- 2.1.11 Final commissioning and handover, confirming that the entire factory's fire alarm infrastructure is compliant with safety standards and ready for seamless 24/7 operation.

3.0 The scope of work detailed above are indicative of the probable nature of works only and the entire scope of work is not limited to the information furnished above.

**4.0 The vendor is requested to visit the site before submission of the tender.**

**NAME, ADDRESS AND  
SIGNATURE OF THE TENDERER**

**ACCEPTING AUTHORITY**

**SAFETY CODE****1.0 General:**

- 1.1 Contractor has to provide and maintain workplaces, plant, equipment, tools and machinery and organize the work so that, there is no risk of accident or injury to health of workers. Work should be planned, prepared and undertaken as under:
  - 1.1.1 Provide such supervision to ensure that workers perform their work with due regard to safety and health of theirs as well as that of others.
  - 1.1.2 Obtain the necessary clearance / work permits as required and specified by the Company.
  - 1.1.3 Dangers, liable to arise at the workplace, are prevented.
  - 1.1.4 Should take into account the safety and health of workers.
  - 1.1.5 Materials and products used are suitable from the safety and health consideration.
- 1.2 Working methods are adopted to safeguard workers against the harmful effects of chemical, physical and biological agents.
- 1.3 Only non-sparking tools are used near or in the presence of flammable or explosive dusts or vapours.
- 1.4 While working at a height of more than 3 meters, works permit should be obtained from competent person before commencement of the job.
- 1.5 Safety awareness to all sections of personnel ranging from site-in-charge to workmen employed shall be given by the contractor.
- 1.6 Contractor shall ensure that all workers are informed and instructed in the hazards connected with their work and environment and trained with regard to precautions necessary to be taken avoid accidents and injury to health.
- 1.7 Contractor shall ensure that buildings, plant, equipment, tools, machinery or workplaces in which a dangerous defect has been found should not be used until the defect has been rectified.
- 1.8 Contractor shall ensure that removal of scrap, inflammable material, surplus materials, waste and debris are carried out at appropriate intervals and as per the direction of Engineer-in-charge.
- 1.9 Contractor shall ensure that labour force and staff employed on the work do not operate or interfere with plant and equipment that they have not been duly authorised to operate, maintain or use.
- 1.10 Contractor shall ensure that all openings through which workers are liable to fall should be kept effectively covered or fenced and displayed prominently.
- 1.11 All necessary personal safety equipment such as helmet, footwear, gloves, goggles, welding shield etc., as considered adequate by the Engineer-in-Charge should be made available for the use to the persons employed on the site and maintained in a condition suitable for immediate use, and the contractor should take adequate steps to ensure proper use of equipment by those concerned.
- 1.12 Workers employed on mixing asphaltic materials, cement and lime mortars shall be provided with protective footwear and protective gloves.
- 1.13 Those engaged in painting and mixing or stacking of cement bags or any materials which are injurious to the eyes shall be provided with protective goggles.

- 1.14 Those engaged in welding and cutting works shall be provided with protective face and eye shields, and gloves, etc.

## **2.0 Civil Works:**

- 2.1 Suitable scaffolds should be provided for workmen for all works that cannot safely be done from the ground, or from solid construction except such short period work as can be done safely from ladders. When a ladder is used an extra mazdoor shall be engaged for holding the ladder and if the ladder is used for carrying materials as well, suitable footholds and handholds shall be provided on the ladder and the ladder, shall be given an inclination not steeper than  $\frac{1}{4}$  to 1 (1/4 horizontal and 1 vertical).

- 2.2 Scaffolding or staging more than 3.6m above the ground or floor, swung or suspended from an overhead support it erected with stationary support shall have a guard rail properly attached or bolted, braced and otherwise secured at least 30 cm high above the floor or platform of such scaffolding or staging and extending along the entire length of the outside and ends thereof with only such opening as may be necessary for the delivery of materials. Such scaffolding or staging shall be so fastened as to prevent it from swaying from the building or structure.

- 2.3 Working platform, gangways, and stairways should be so constructed that they should not sag unduly or equally, and if the height of the platform or the gangway or the stairway is more than 3.6 m above ground level or floor level they should be closely boarded, should have adequate width and should be suitably fastened as described in 2 above.

- 2.4 Every opening in the floor of a building or in a working platform be provided with suitable means to prevent the fall of persons or materials by providing suitable fencing or railing whose minimum height shall be 30cm.

- 2.5 Safe means of access shall be provided to all working platforms and other working places. Every ladder shall be securely fixed. No portable single ladder shall be over 9m in length while the width between side rails in rung ladder shall in no case be less than 29cm for ladder upto and including 3m in length. For longer ladders this width should be increased at least 6mm for each additional 30cm of length. Uniform step spacing shall not exceed 33cm. Adequate precaution shall be taken to prevent danger from electrical equipment. No materials on any of the sites of work shall be so stacked or places as to cause danger or inconvenience to any person or the public.

- 2.6 The contractor shall provide all necessary fencing and lights to protect the public from accident, and shall be bound to bear the expenses of defense of every suit, action or other proceedings at law that may be brought by any persons for injury sustained owing to neglect of the above precautions and to pay the damages and costs which may be awarded to any such persons or which, may with the consent of the Contractor, be paid to compromise any claim by any such person.

- 2.7 Excavation and Trenching: - All trenches 1.2m or more in depth shall at all times be supplied with at least one ladder for each 30m in length or fraction thereof. Ladder shall be extended from bottom of the trench at least 30cm above the surface of the ground. The sides of the trenches which are 1.5m or more in depth shall be stepped back to give suitable slope or securely held by timber bracing so as to avoid the danger of sides to collapse. The excavated materials shall not be placed within 1.5m of the edges of the trench or half of the depth of the trench whichever is more. Cutting shall be done from top to bottom. Under no circumstances undermining or undercutting shall be done.

## **3.0 Demolition:**

- 3.1 Before any demolition work is commenced and also during the process of the work:-

- 3.1.1 All roads and open areas adjacent to the work side shall either be closed or suitably protected.

- 3.1.2 No electric cable or apparatus which is liable to be a source of danger over a cable or apparatus used by the operator shall remain electrically charged.

3.1.3 All practical steps shall be taken to prevent danger to persons employed from risk of fire or explosion or flooding. No floor, roof or other part of the buildings shall be so overloaded with debris or materials as to render it unsafe.

4.0 All necessary employed personal safety equipment as considered adequate by the Engineer should be kept available for the use of the person employed on the Site and maintained in a condition suitable for immediate use, and the contractor should take adequate steps to ensure proper use of equipments by those concerned.

4.1 Workers employed on mixing asphaltic materials, cement and lime mortars shall be provided with protective footwear and protective goggles.

4.2 Those engaged in white washing and mixing or stacking of cement bags or any material which is injurious to the eyes shall be provided with protective goggles.

4.3 Those engaged in welding works shall be provided with welder's protective eye sight lids.

4.4 Stone breakers shall be provided with protective goggles and protective clothing and seated at sufficiently safe intervals.

5.0 When workers are employed in sewers and manholes, which are in active use, the Contractor shall ensure that the following safety measures are adhered to:

5.1 Entry for workers into the line shall not be allowed except under the supervision of the Engineer or his authorized representative.

5.2 At least 5 to 6 manholes upstream and downstream should be kept open for at least 2 to 3 hours before any man is allowed to enter into the manhole for working inside.

5.3 Before entry, presence of toxic gases should be tested by inserting wet lead acetate paper which changes colour in the presence of such gases and indicate their presence.

5.4 Presence of oxygen should be verified by lowering a detector lamp into the manhole and in case no oxygen is found inside the sewer line, workers should be sent only with oxygen kit.

5.5 Safety belt rope should be provided to the workers. While working inside the manhole such rope should handled by two men standing outside to enable him to be pulled out during emergency.

5.6 The area should be barricaded or cordoned off by suitable means to avoid mishaps of any kind. Proper warning signs should be displayed for the safety of the public whenever cleaning works are undertaken during night or day.

5.7 No smoking or open flames be allowed near the blocked manhole being cleaned.

5.8 The malba obtained on account of cleaning of blocked manhole and sewer lines should be immediately removed to avoid accidents on account of slippery nature of the malba.

5.9 Workers should not be allowed to work inside the manhole continuously. He should be given rest intermittently. The Engineer may decide the time upto which a worker may be allowed to work continuously inside the manhole.

5.10 Gas masks with oxygen cylinder be kept at site for use in emergency.

5.11 Air blowers should be used for flow of fresh air through the manholes, whenever called for. Portable air blowers are recommended for ventilating the manholes. The motors for these shall be vapour-proof and of totally enclosed type. Non sparking gas engine also could be used but they should be placed at least 2 meters away from the opening and on the lower side protected from wind so that they will not be source of friction on any inflammable gas that might be present.

- 5.12 The workers engaged for cleaning the manhole/sewers should be properly trained before allowing to work in the manhole.
- 5.13 The workers shall be provided with gumboots or non sparking shoes, bump helmets and gloves, non sparking tools, safety lights and gas masks and portable air blowers (when necessary). They must be supplied with barrier cream for anointing the limbs before working inside the sewer lines.
- 5.14 Workman descending a manhole shall try each ladder step or rung carefully before putting his full weight on it to guard against insecure fastening due to corrosion of the rung fixed to manhole wall.
- 5.15 If a man has received a physical injury he should be brought out by the sewer immediately and adequate medical aid should be provided to him.
- 5.16 The extent to which these precautions are to be taken depend on individual situation but the decision of the Engineer regarding the steps in this regard to be taken in an individual case will be final.
- 6.0 The contractor shall not employ men below the age of 18 years and women on the work of painting with products containing lead in any form. Wherever men above the age of 18 years are employed on the work of lead painting, the following precautions should be taken:-
- 6.1 No paint containing lead or lead products shall be used except in the form of paste or readymade paint.
- 6.2 Suitable face masks should be use by the workers when paint is applied in the form of spray or a surface having lead paint dry rubbed and scrapped.
- 6.3 Overalls shall be supplied by the Contractor to the workmen and adequate facilities shall be provided to enable the working painters to wash during the cessation of work.
- 6.4 White lead, sulphate of lead or product containing these pigments shall not be used in painting operation except in the form of pastes or painters or paint ready for use.
- 6.5 Measures shall be taken, whenever required in order to prevent danger arising from the application of paint in the form of spray.
- 6.6 Measures shall be taken, wherever practicable, to prevent danger arising out of from dust caused by dry rubbing down and scrapping.
- 6.7 Adequate facilities shall be provided to enable working painters to wash during and on cessation of work.
- 6.8 Overall shall be worn by working painters during the whole of working period.
- 6.8 Suitable arrangements shall be made to prevent clothing put off during working hours being soiled by painting materials.
- 6.9 Cases of lead poisoning and suspected lead poisoning shall be notified and shall be subsequently verified by medical man appointed by competent authority of the Company.
- 6.10 The company may require, when necessary medical examination of workers.
- 6.11 Instructions with regard to special hygienic precautions to be taken in the painting trade shall be distributed to working painters.
- 7.0 When the work is done near any place where there is risk of drowning, all necessary equipments should be provided and kept ready for use and all necessary steps taken for prompt rescue of any person in danger and adequate provision should be made for prompt first aid treatment of all injuries likely to be sustained during the course of the work.

- 8.0 Use of hoisting machines and tackle including their attachments, anchorage and supports shall conform to the following standards or conditions:
- 8.1 These shall be good mechanical constructions, sound material and adequate strength and free from patent defects and shall be kept in good working order.
- 8.2 Every rope used in hoisting or lowering materials or as a means of suspension shall be of durable quantity and adequate strength, and free from patent defects.
- 8.3 Every crane driver or hoisting appliance operator shall be properly qualified and no person under the age of 21 years should be in charge of any hoisting machine including any scaffolding which gives signals to operator.
- 8.4 In case of every hoisting machine and of every chain ring hook, shackle swivel and pulley block used in hoisting or as means of suspension, the safe working load shall be ascertained by adequate means. Every hoisting machine and all gear referred to above shall be plainly marked with the safe working load. In case of a hoisting machine having a variable safe working load and the conditions under which it is applicable shall be clearly indicated. No part of any machine or any gear referred to above in this paragraph shall be loaded beyond the safe working load except for the purpose of testing.
- 8.5 In case of departmental machines, the safe working load shall be notified by the Electrical Engineer-in-charge. As regards contractor's machines the contractors shall notify the safe working load of the machine to the Engineer whenever he brings machinery to site of work and get it verified by the Electrical Engineer concerned.
- 9.0 Motors, gearing, transmission, electric wiring and other dangerous parts of hoisting appliances should be provided with effluents safeguards. Hoisting appliances should be provided with such means as will reduce to the minimum the risk of accidental descent of the load. Adequate precautions should be taken to reduce the minimum risk if any part of a suspended load becoming accidentally displaced. When worker employed in electrical installations which are already energized, insulating mats, wiring apparel such as gloves, sleeves and boots as may be necessary should be provided. The workers should not wear any wrist watches and carry keys or other materials which are the good conductors of electricity.
- 10.0 All scaffolds, ladders and other safety devices mentioned or described herein shall be maintained in safe conditions and no scaffold, ladder or equipment shall be altered or removed while it is in use. Adequate washing facilities should be provided at or near places of work.
- 11.0 These safety provisions should be brought to the notice of all concerned by display on a notice board at a prominent place of work spot. The person responsible for compliance of the safety code shall be named therein by the Contractor.
- 12.0 To ensure effective enforcement of the rules and regulations relating to safety precautions, the arrangements made by the Contractor shall be open to inspection by the Labour Officer, Engineer or their representatives.
- 13.0 Notwithstanding the above clause from 1 to 15 there is nothing in these to exempt the contractor from the operations of any other Act or Rule in force in the Republic India.
- 14.0 Welding / Gas Cutting:**
- 14.1 Common hazards involved in welding / cutting are sparks, molten metal, flying particles, harmful light rays, electric shocks etc. the following precautions should be taken:-
- 14.1.1 Ensure that only approved and well-maintained apparatus, such as torches, manifolds, regulators or pressure reducing valves, and acetylene generators are used.
- 14.1.2 The work piece should be connected directly to Power supply, and not indirectly through pipelines / structures / equipments etc.

- 14.1.3 The welding receptacles shall be rated for 63A suitable for 415V, 3-Phase system with a scraping earth. Receptacles shall have necessary mechanical interlocks and earthing facilities.
- 14.1.4 All cables, including welding and ground cables shall be checked for any worn out or cracked insulation before starting the job. Ground cable should be separate without any loose joints.
- 14.1.5 An energised electrode shall not be left unattended.
- 14.1.6 The power source shall be turned off at the end of job.
- 14.1.7 All gas cylinders shall be properly secured in upright position.
- 14.1.8 Acetylene cylinder shall be turned and kept in such a way that the valve outlet points away from oxygen cylinder.
- 14.1.9 Acetylene cylinder key for opening valve shall be kept on valve stem, while cylinder is in use, so that the acetylene cylinder could be quickly turned off in case of emergency. Flash back arrestors shall be used to prevent back-fire in acetylene / oxygen cylinder.
- 14.1.10 when not in use, valves of all cylinders shall be kept closed.
- 14.1.11 All types of cylinders, whether full or empty, shall be stored at cool, dry place under shed.
- 14.1.12 Forced opening of any cylinder valve should not be attempted.
- 14.1.13 Lighted gas torch shall never be left unattended.
- 14.1.14 Store acetylene and oxygen cylinders separately.
- 14.1.15 Store full and empty cylinders separately.
- 14.1.16 Avoid cylinders coming into contact with heat.
- 14.1.17 Cylinders that are heavy or difficult to carry by hand may be rolled on their bottom edge but never dragged.
- 14.1.18 If cylinders have to be moved, ensure that the cylinder valves are shut off.
- 14.1.19 Before changing torches, shut off the gas at the pressure reducing regulators and not by crimping the hose.
- 14.1.20 Do not use matches to light torches, use a friction lighter.
- 14.1.21 Move out any leaking cylinder immediately.
- 14.1.22 Use trolleys for oxygen and acetylene cylinder and chain them.
- 14.1.23 Always use Red hose for acetylene and other fuel gases and Black for oxygen, and ensure that both are in equal length.
- 14.1.24 Ensure that hoses are free from burns, cuts and cracks and properly clamped.
- 14.1.25 Avoid dragging hoses over sharp edges and objects.
- 14.1.26 Do not wrap hoses around cylinders when in use or stored.
- 14.1.27 Protect hoses from flying sparks, hot slag, and other hot objects.
- 14.1.28 Lubricants shall not be used on Ox-fuel gas equipment.

14.1.29 During cutting / welding, use proper type goggles / face shields.

## **15.0 Electrical:**

15.1 Insulating mats, rubber gloves, electrical insulated shoes etc., shall be used while carrying out work at or near electrically live apparatus / Equipments etc.

15.2 Only insulated or non conducting tools should be used on or near live electrical apparatus / Equipment.

15.3 Low voltage portable electrical tools should generally be used.

15.4 All electrical tools used shall be "all insulated" or "double insulated" tools which do not require earthing.

15.5 All electrical tools should be got inspected and maintained on a regular basis by a competent electrician and complete records of fitness for use kept.

15.6 Only persons having valid licenses should be allowed to work on electrical facilities.

15.7 No person should be allowed to work on live circuit. The same, if unavoidable, special care and precautions need to be taken.

15.8 Treat all circuits as "LIVE" unless tested and made dead.

15.9 Electrical "Tag Out" lock out procedure "MUST" be followed for carrying out maintenance jobs.

15.10 Display voltage ratings prominently with "Danger" signs.

15.11 Put caution / notice signs before starting the repair works.

15.12 All electrical equipment shall have separate and distinct connections to earth grid.

15.13 Proper grounding to be ensured for all switch boards and equipment including portable ones prior to taking into service.

15.14 Make sure that electrical switchboards, portable tools, equipments (like grinding machine etc.) don't get wet during their usage. If it happens, stop the main supply, make the tools dry and then only use them. Check proper earthing. All temporary switch boards put up at work site should be suitably protected from rain and the level of same should be high enough to avoid contact with water due to water logging.

15.15 Don't work with wet hands / body on electrical system.

15.16 Don't overload the electrical systems.

15.17 Use only proper rated High Rupturing Capacity fuses or circuit breakers.

15.18 Industrial type extension boards and Plug sockets are only to be used.

15.19 ELCB for all temporary connections must be provided. Use insulated 3-pin plug tops.

15.20 All power supply cables should be laid properly and neatly so that they don't cause hindrance to persons working and no physical damage also takes place to the cables during various construction activities.

15.21 All Power cables shall be properly terminated using glands and lugs of proper size and adequately crimped.

15.22 Use spark-proof / flame proof type electrical fittings in Fire Hazard zones.

15.23 Never connect any earthing wire to the pipelines / structures.

15.24 Don't make any unsafe temporary connections, naked joints / wiring etc.

- 15.25 Ensure that temporary cables are free from cuts, damaged insulation, kinks or improperly insulated joints.
- 15.26 Check at periodic intervals that pins of sockets and joints are not loose.
- 15.27 Protect electrical wires / equipments from water and naked flames.
- 15.28 Insulating mats shall be provided in the front and back end of switch boards.
- 15.29 All parts of electrical installations should be so constructed, installed and maintained as to prevent danger of electric shock, fire and external explosion.

**15.30 Inspection and maintenance:**

- 15.30.1 All electrical equipment should be tested as per approved procedures and commissioning inspected before to ensure suitability for its proposed use.
- 15.30.2 At the beginning of every work, the person using the electrical equipment should make a careful external examination of the equipment and conductors, especially the flexible cables for any physical damage, which is likely to give electric shock or damages to the equipments.
- 15.30.3 Electricians should be provided with approved and tested tools, and personal protective equipment such as rubber gloves, mats etc.
- 15.30.4 All conductors and equipment should be considered to be live unless the same is tested and found dead.
- 15.30.5 When work has to be done in dangerous proximity to live parts the power supply should be cutoff. If for operational reasons this is not possible, the live parts should be fenced off or enclosed by qualified staff from the work area concerned.

**16.0 If Contractor fails to ensure safety, Engineer-In-charge has rights to suspend the work.**

**NAME, ADDRESS AND SIGNATURE OF THE TENDERER**

**ACCEPTING AUTHORITY**

**SCHEDULE OF LABOUR RATES**

**Ref: Clause 2.15.2 of GCC**

**1.0** The Contractor shall note that the wages to be paid to the workmen engaged by him for the work shall not be less than the minimum wages as published by Office of the Chief Labour Commissioner (C), Ministry of Labour & Employment, Government of India. It may also be noted that the minimum wages are being revised every six (6) months once i.e., during April and October month respectively. Increase in minimum wages will not be reimbursable by the Company. As such, the Contractor shall consider this aspect and quote accordingly. Applicable minimum wages shall be paid to the Contract workmen engaged for the work and same will be checked at the time of making payment.

**2.0** It may please be ensured that the workmen are paid minimum wages as stated in the contract. Any statutory variation in the rates as indicated by the government shall be implemented by the Contractor also and any violation in adhering to Minimum Wages Act, PF, ESI and insurance Act and / or any labour regulations will be viewed seriously and penal action as deemed necessary will be taken. Certificate as per **Annexure-IE** in this regard shall be furnished by the Contractor at the time of preferring bills.

**Ref: Clause 4.2.1.4 of GCC**

**0.0** The prevailing labour rates as published by Office of the Chief Labour Commissioner (C), Ministry of Labour & Employment, Government of India will be adopted to work out the labour cost of the additional / altered / substituted items of work during the time of execution.

**NAME, ADDRESS AND  
SIGNATURE OF THE TENDERER**

**ACCEPTING AUTHORITY**

**CERTIFICATE**

**Name of the Work: "RESTORATION OF FIRE ALARM SYSTEM IN BEL-HYDERABAD".**

**Ref: Annexure-ID**

1. I / We hereby certify that I / We, have disbursed the wages not less than the minimum wages to the workman employed by me for the work done by them during the wages period to which the present bill relates. A copy of the acquittance roll is herewith attached.
2. I / We, confirm that necessary contribution towards PF and ESI as per the statutory requirement have been remitted by me to the authorities concerned.
3. I / We, further certify that the wages earned by them have actually been paid without any unauthorized deduction to the person named in the acquittance, whose identity I / we hereby establish.
4. In the event of any complaints of non-payment or short payment of wages from any workman, I /we, hereby authorise the Company to effect necessary deduction from any amount payable to me by the Company.
5. I / We, are also aware that any statement made here in before is found to be false at a later date, the same would constitute an offense and I/we am/are liable for penal action as contemplated in the Contract Labour (Regulation and Abolition) Act 1970.

**DATE:**

**CONTRACTOR**

**NAME OF THE WORK: RESTORATION OF FIRE ALARM SYSTEM IN BEL-HYDERABAD.**

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**SPECIAL CONDITIONS OF CONTRACT**

The following special conditions pertain to the above work and shall form part of this contract. These special conditions shall be read in conjunction with the General Conditions of Contract (abbreviated as GCC here after). Where the provisions of these special conditions of contract are at variance with the provisions of GCC, the provisions of these special conditions of contract shall prevail.

**1.0 Definitions:**

- 1.1 "Engineer" / "Engineer-in-charge" shall mean the officer of the Company designated as such in **Annexure-IA** hereto or any other officer appointed by the Company from time to time and notified to the Contractor as authorized to act as Engineer / Engineer-in-charge for the purpose of the Contract.
- 1.2 "Site Engineer" means the person to whom the Engineer-in-charge entrusts as his authorized representative his responsibility to act on his behalf and perform any or all the functions of the Engineer-in-charge under the Contract.
- 1.3 "Project" means set of all activities required for creation / modernization / repair of infrastructure facilities at site for intended use.

**2.0 Employment of Efficient and Competent Staff on Works:**

- 2.1 The following Clause shall be read in lieu of Clause No.2.6.1 of GCC:

The Contractor shall provide and employ on the Site in connection with the works only such efficient and competent Engineers and Supervisors and other skilled, semi-skilled and unskilled labour as are necessary for the proper supervision and timely execution of the works. Orders given to the Contractor's Engineers / Supervisors shall be considered to have the same force as if these had been given to the Contractor himself. The Contractor shall engage obedient, honest and trust worthy labourers for work. If in the opinion of the Engineer, any labour and staff is found not suitable for work or is of doubtful character, he shall at once be removed from the work. The Contractor shall engage the following minimum Technical staff at site of work apart from the other staff / workers:

Sl. No.	Value of Work	Project Manager Graduate Engineer with min 10 Years Experience (Preferably BE in Civil)	Graduate Engineer with min 6 years Experience		Diploma Engineer with min 3 years Experience		Supervisor or /ITI with min 3 years experience
			*Civil	*Elect.	*Civil	*Elect.	
1	Upto Rs.50 Lakhs	-	-	-	1	-	1
2	Above Rs.50 Lakhs and upto Rs.100 Lakhs	-	1	-	-	1	-
3	Above Rs.100 Lakhs and upto Rs.200 Lakhs	-	1	-	1	1	-
4	Above Rs.200 Lakhs and upto Rs.500 Lakhs	-	1	1	1	-	-
5	Above Rs.500 Lakhs and upto Rs.1000 Lakhs	1	1	1	1	-	-

**Note: Applicable only if the scope of work involves this discipline of work.**

### 3.0 Workmanship and Testing:

The following Clauses shall be read in addition to Clause No. 3.15.1 and 3.15.2 of GCC.

- 3.1 Regular mandatory test and any additional tests, if required, shall be carried out in accordance with the procedure laid down in CPWD Specifications/ IS requirements/ as directed by the Engineer- in-charge.
- 3.2 A list of mandatory tests to be conducted is indicated below. It may be specifically noted that the tests to be conducted are not limited to the mandatory tests alone and additional tests if required and directed by the Engineer on any materials including the approved makes etc., shall be carried out by the Contractor.
- 3.3 The testing charges, including the cost of materials to be tested and all other incidental charges such as carriage to the testing laboratory etc., shall be borne entirely by the Contractor. Expenditure towards any additional tests will only be reimbursed subject to the material passing the test as per relevant IS Codes.
- 3.4 Contractor may specifically note that the testing shall be done in Govt./ Govt. Approved/ NABL accredited laboratory only.

### 4.0 TIME FOR COMPLETION:

4.1 The following Clause shall be read in lieu of No.5.2.1 of GCC:

- 4.1.1 The Work shall be completed by the Contractor within the stipulated period indicated in Annexure-IA. The total time allowed for completion of all works under this contract is 180 days (including monsoon period) from the date of commencement of work. The contractor shall complete the work in all respects within the above contract period of 180 days

- 4.1.2 The contractor in consultation with Engineer in charge (EIC) within 15 days of issue of work order shall submit Time and Progress chart with clear milestones. The Programme of works shall be strictly as per the milestone chart approved by the EIC. If the contractor fail to adhere to the individual milestone, persistently even after the notice, BEL reserves the right to determine the contract at any stage in line with Clause 8 of GCC.

#### **5.0 Extension of Time for Completion:**

- 5.1 The following Clauses shall be read in addition to Clauses 5.4.1 to 5.4.6:
- 5.2 The hindrance encountered during the execution of work shall be represented by the Contractor / his representative within 7 working days of hindrance encountered in site through letter, e-mail and fax only. The Site Engineer / Engineer-in-charge shall assess the represented hindrance and record the hindrance as assessed in the Hindrance Register, which is kept in the office of Site Engineer / Engineer-in-charge. Representing the hindrances after 7 working days of hindrance encountered in site shall not be entertained.
- 5.3 The Site Engineer may record the hindrances and he shall maintain the documentary evidences for the same. However, it is prime responsibility of the Contractor / his representative to represent the hindrance as and when arises during the execution of work which has impacted the progress of work. Representing the hindrances after completion of the Project shall not be entertained.
- 5.4 The hindrances recorded shall include only those hindrances which have impacted the progress of work. The Site Engineer shall record the date of expiry of hindrance and the no. of days from occurrence to expiry of hindrance. The Site Engineer shall ascertain the overlapping period of hindrance, if any, and calculate the net extension required for that particular hindrance.
- 5.5 During hindrance period, if work front is available on the other parts of the Project, the Site Engineer shall decide on the net extension to be granted after considering the work carried out on other front during that period and the overall impact of the hindrance on the progress of the Project.
- 5.6 The Site Engineer and the Contractor / his representative shall sign in the respective columns of Hindrance Register agreeing for the same and this shall be validated at regular intervals by Engineer-in-charge

Any Omissions and Commissions in the Hindrance Register should be supported by relevant authentic documents duly certified by the Engineer-in-charge of the Project.

**NAME, ADDRESS AND  
SIGNATURE OF THE TENDERER**

**ACCEPTING AUTHORITY**

**BHARAT ELECTRONICS LIMITED**  
**INDUSTRIAL ESTATE, NACHARAM, HYDERABAD-500 076**

**No. Annexure – III**

**NAME OF WORK: "Restoration of Fire Alarm system in BEL-Hyderabad".**

**DETAILED TECHNICAL SPECIFICATIONS, PART – I**

**1.0 GENERAL INSTRUCTIONS**

**1.1** These specifications apply to the systematic revamp, hardware replacement, and integration of the existing Fire Alarm System (FAS). Works shall conform to IS 2189 standards and NBC guidelines.

**1.2** The contractor shall submit samples of all replacement hardware, including Smoke Detectors, MCPs, and Cables, to the Engineer-in-charge for approval prior to installation.

**1.3** All new components must be 100% compatible with the existing legacy control panels to ensure seamless communication and system stability.

**2.0 SYSTEM-WIDE HARDWARE REVAMP & REPLACEMENT**

**2.1 Smoke Detectors & Bases:**

**2.1.1** Faulty or aged sensors shall be replaced with new Analogue Addressable Multi-Sensor/Smoke Detectors.

**2.1.2** New detectors must feature twin LED indicators for visibility and non-volatile memory for address storage.

**2.1.3** Replacement includes the base, ensuring a firm, electronics-free connection.

**2.2 Manual Call Points (MCP):**

**2.2.1** Existing MCPs shall be replaced with addressable, "press-to-break" resettable types (no glass replacement required).

**2.2.2** Protection must be at least **IP33**.

**2.3 Power Backup (Battery Bank):**

**2.3.1** All control panels shall have their battery banks replaced with new **12V, 7Ah Sealed Maintenance Free (SMF)** lead-acid units.

**2.3.2** The system must guarantee a minimum of 48 hours of normal backup and 30 minutes in full alarm condition.

**2.4 Core Component Replacement:**

**2.4.1** Defective **SMPS units, Loop Cards, and Base Boards** shall be identified via diagnostic testing and replaced to restore stable 24V DC power and loop communication.

**3.0 CABLING & WIRING RECTIFICATION**

**3.1 New Cable Laying:**

**3.1.1** Approximately 2,000 meters of **2C x 1.5 sq.mm Armoured copper cable** (650/1100V grade) shall be laid to replace degraded or grounded sections of the existing network.

**3.2 Installation Standards:**

**3.2.1** Armoured cables shall be laid straight, avoiding kinks. Where exposed, they must be protected by GI/PVC conduits with metallic saddles.

3.2.2 All joints are strictly prohibited within conduits; connections must be made only at terminal blocks or via crimped lugs at device bases.

#### 4.0 ADVANCED INTEGRATION & CONNECTIVITY

##### 4.1 Panel Servicing:

4.1.1 All building-wise Control Panels (FACP) shall be recalibrated, and historical fault logs cleared.

4.1.2 Internal wiring shall be dressed and checked for insulation resistance (minimum 1 Mega ohm for the whole installation).

##### 4.2 Network Integration (RS-485 / TCP-IP):

4.2.1 Installation of **RS-485 and TCP/IP cards** to enable high-speed data transmission between building-wise panels for centralized monitoring.

##### 4.3 GSM Auto Dialers:

4.3.1 Integration of GSM Auto Dialers to the FACP's. These must be capable of dialing at least 4 pre-set emergency numbers sequentially upon a fire trigger.

##### 4.4 Isolator Modules:

4.4.1 **Short Circuit Isolator Modules** shall be installed (ideally every 20 devices) to ensure that a single wire fault does not disable the entire loop.

#### 5.0 TESTING, COMMISSIONING & DOCUMENTATION

##### 5.1 End-to-End Testing:

5.1.1 Every replaced detector and MCP must be tested. Smoke detectors shall be tested using smoke aspiration at a 0.3m distance to verify programmed delay and priority queuing.

5.1.2 Hooters must be verified to provide a minimum sound output of **85 dB** at the source.

##### 5.2 As-Built Drawings:

5.2.1 Upon completion, the contractor shall provide 4 sets of **System Layout Drawings** mapped to the factory's CAD files.

5.2.2 Drawings must show the "As-Built" status, including updated zone configurations, cable routes, and isolator positions.

##### 5.3 Final Handover:

5.3.1 The system will be considered "commissioned" only after a successful 24-hour soak test without false alarms, witnessed by the BEL Engineer.

#### 6.0 LIST OF MAKES (FAS REVAMP)

Component	Preferred Makes
Addressable FACP / Detectors / MCP	Edwards / Morley / Ravel
Armoured Copper Cable	Finolex / Havells / KEI
SMF Batteries	Edwards / Amara Raja / Panasonic
GSM Auto Dialer	Visonic / Globe / Ravel

NAME, ADDRESS AND  
SIGNATURE OF THE TENDERER

ACCEPTING AUTHORITY

## DETAILED TECHNICAL SPECIFICATIONS, PART-II (FOR GENERAL ELECTRICAL WORKS)

### 1.0 GENERAL INSTRUCTIONS

1.1 The following detailed Technical Specifications are applicable to all Electrical, FAS&PAS works and the same shall be followed strictly. In addition to below specifications and for the items/works which are not covered under this specification, applicable CPWD/ NBC/ NEC/ MES/ SPWD/ specifications shall be followed for the same. In general all the items/materials shall be conforming to applicable ISI or IEC standards.

1.2 Samples of all materials like conduit, wires, cables, DB's, light fittings, switches, sockets, plug & sockets, MCB, MCCB etc., and any other electrical items shall be submitted to the Engineer-in-charge for obtaining approval prior to procurement.

1.3 GENERAL REQUIREMENT: ELECTRICAL SUPPLY SYSTEM:

- 415V AC - +10% to -10%
- Frequency - 50Hz +5% to -5%
- Combined Voltage & frequency - +10% to -10%
- Illumination/Space heater power supply - 240V +10% to -10% , 1Ph AC

### 2.0 APPLICABLE STANDARDS

The technical specifications shall conform to the latest applicable standards specified below. In case of conflict between standards and this specification, this specification shall govern.

SL. NO	DESCRIPTION	CODE
a	Specification for low voltage switchgear and control gear assemblies: Part 1 Requirements for type-tested and partially type tested assemblies (first revision).	IS 8623(Part 1):1993 (Reaffirmed in 2013)
b	Specification for low voltage switchgear and control gear assemblies: Part 2 Particular requirements for busbartrunking systems (busways)-(first revision)	IS 8623(Part 2):1993 (Reaffirmed in 2013)
c	Low-voltage switchgear and control ear assemblies: Part 3 Particular requirements for equipment where Unskilled persons have access for their use.	IS 8623(Part 3):1993 (Reaffirmed in 2013)
d	Composite units of air-break switches and rewirable type fuses for voltages not exceeding 650 volt ac Specification (first revision)	IS 10027:2000 (Reaffirmed in 2010)
e	Miniature circuit breaker boards for voltage up to and including 1000 Volt AC	IS 13032:1991 (Reaffirmed in 2011)
f	Miniature Circuit Breakers	IS 8828 : 1996 (Reaffirmed in 2006)

g	Low voltage Fuses	IS 13703: 1993 (Reaffirmed in 2004)
h	Control Switches / Push buttons	IS 13947 (Part-5) : 2004
i	Marking and Identification of Conductors and Apparatus Terminals	IS 11353: 1995 (Reaffirmed in 2007)
j	Selection installation and maintenance of switchgear and control gear	IS 10118 Part 1 to 4 : 1982 (Reaffirmed in 2006)
k	Danger Notice plates	IS 2551: 1982 (Reaffirmed in 2005)
l	Guide for Uniform System of Marking and Identification of Conductors and Apparatus Terminals	IS:11353 – 1985 (Reaffirmed in 2007)
m	Selection installation and maintenance of switchgear and control gear	IS 10118 Part 1 to 4 : 1982 (Reaffirmed in 2006)
n	Danger Notice plates	IS 2551: 1982 (Reaffirmed in 2005)
o	PVC insulated (heavy duty) electric cables: Part 1 For working voltages up to and including 1100 V (third revision)	IS 1554 (Part 1):1998 (Reaffirmed in 2010)
p	Cross-linked polyethylene insulated thermoplastic sheathed cables specification : Part 1 For working voltages up to and including 1100 V	IS 7098(Part 1):1988 (Reaffirmed in 2010)
q	Conductors for insulated electric cables and flexible cords	IS 8130:1984
r	Methods of test for cables	IS 10810:1984 (Reaffirmed in 2011)
s	Specification for PVC Insulation and Sheath of Electric cables	IS 5831:1984 (Reaffirmed in 2011)
t	Drums for electric cables	IS 10418 : 1982 (Reaffirmed in 2011)
u	Three pin plugs and socket outlets	IS 1293 : 2005 (Reaffirmed in 2010)

v	General Requirements for Enclosures for Accessories for Household and Similar Fixed Electrical Installations - Specification	IS 14772 : 2000 (Reaffirmed in 2010)
w	Rigid Steel conduits for electrical wiring	IS 9537 Part-2 : 1981 (Reaffirmed in 2012)
x	Accessories for rigid steel conduits for electrical wiring	IS 3837 : 1976 (Reaffirmed in 2012)
y	Fittings for rigid non-metallic conduits	IS 3419 : 1989 (Reaffirmed in 2012)
z	PVC insulated cables for working voltage up to and including 1100V	IS 694 : 1990 (Reaffirmed in 2010)
aa	Specification for copper rods and bars for electrical purposes	IS 613 : 2000 (Reaffirmed in 2006)
ab	Conduit Fittings for Electrical Installations	IS 14768 : 2000 (Reaffirmed in 2013)
ac	Switches for domestic and similar purposes	IS 3854 : 1997 (Reaffirmed in 2012)
ad	Three pin plugs and socket outlets	IS 1293 : 2005 (Reaffirmed in 2010)
ae	General Requirements for Enclosures for Accessories for Household and Similar Fixed Electrical Installations - Specification	IS 14772 : 2000 (Reaffirmed in 2010)
af	Rigid Steel conduits for electrical wiring	IS 9537 Part-2 : 1981 (Reaffirmed in 2012)
ag	Accessories for rigid steel conduits for electrical wiring	IS 3837 : 1976 (Reaffirmed in 2012)
ah	Fittings for rigid non-metallic conduits	IS 3419 : 1989 (Reaffirmed in 2012)
ai	Conduit Fittings for Electrical Installations	IS 14768 : 2000 (Reaffirmed in 2013)

### 3.0 INSTALLATION OF CONDUITS

3.1 All conduits and conduit accessories like bends, junction boxes etc., shall be made water tight at the joints. Suitable joint solutions shall be used for joining of PVC conduits.

- 3.2 Conduits recessed in wall shall be fixed by means of staples/ steel hooks at not more than 75cm intervals. Chasing in the walls shall be neatly made by using brick/cement cutting machine/ tools, refilled after laying/ fixing the conduit and brought to original finish. Conduit laying/ fixing shall be completed before the wall is plastered.
- 3.3 Wherever conduit terminates either at a junction box or switch gang box or distribution fuse board etc., suitable PVC bushings and check nut shall be used for the conduit ends.
- 3.4 After conduits, junction boxes, switch gang boxes etc., are fixed in position their outlets shall be properly plugged with PVC stopper or with any other suitable materials so that water, mortar, vermin or other any other foreign materials do not enter into the conduit system. Suitable fish wire (14 SWG GI wire) shall be inserted in all the conduits for drawing wires before they are embedded.
- 3.5 Cover for the conduit junction boxes shall be put in position, properly screwed. Oversized white plastic sheet shall be used to cover the conduit junction boxes in wall/ ceiling. Conduits shall be installed as complete continuous system and shall be mechanically and electrically connected to all boxes and fittings.
- 3.6 Conduit fittings shall not be used as substitute for bends. Where conduits run across expansion joints a suitable conduit expansion fitting shall be used. Thread less socket type bends and junction boxes shall not be used in MS conduit works.
- 3.7 The conduit run shall be as straight as practicable. Unnecessary crossing or bending of conduit shall be avoided.
- 3.8 Conduit run on surface shall be fixed with double screw type metallic saddles on walls/ ceiling/ equipment. Fixing screws shall be of either round or cheese head and oxidized. Single screw fitting saddles shall not be used.
- 3.9 All exposed screw threads or other bare parts of conduits shall be coated with rust proof paint. Conduits shall be placed in position in the switch boards/ DB's/ Junction boxes through holes and positioned by using check nuts.
- 3.10 Conduit recessed or surface laid shall be measured as per the actual length or conduits laid including width of junction box and length of bends.
- 3.11 Separate conduits shall be laid for mains wiring (i.e. DB to Switch box), Sub wiring (i.e. switch box to fittings/fixtures) and power circuit wiring.
- 3.12 Contractor shall furnish the conduit layout & circuit drawing in three copies to the engineer -in-charge. Work shall be taken up only after approval of the same by engineer in charge.

#### **4.0 WIRING IN CONDUITS AND INSTALLATIONS OF FITTINGS / FIXTURES**

- 4.1 The quoted rate for point wiring by agency/ contractor is deemed to be covered all the lighting/fans/call bell points shown in the drawing. (Hence the contractor/ agency has to study the lighting layout drawing and quote an average rate which is suitable to cover all the

Light/Fan/call bell points.) Mains wiring/ sub mains wiring/ circuit wiring shall be measured by linear measurement separately.

4.2 The following colour codes shall be followed for the wiring (3 phase – 4 wire, 1 phase – 2 wire)

- 'R' phase : Red colour
- 'Y' phase : Yellow colour
- 'B' phase : Blue colour
- 'Neutral' : Black colour
- 'Earth lead' : Green colour

4.3 No wiring conductor shall be drawn in the conduits until all the work of any nature that may cause damage to wires is completed.

4.4 Point wiring shall include all the work necessary in complete wiring to the light/fan/calling bell outlets from the controlling switch or MCB. This shall include suitable size conduits, single core cable/wires, control switch, connector terminals and accessories as required. Fan regulators, ceiling rose, 5A socket, MCBs if any shall be measured separately.

4.5 Size of wires used in wiring shall be as mentioned in drawing. In general, the Lighting/5A socket/ point wiring shall be made with 1.5sqmm PVC insulated copper wires with one run for earthing. Sub-main wiring from MCBDB to lighting Switch/socket board shall be made with 2.5sqmm copper wires with one run for earthing. 16A to 20A power socket wiring shall be made with 4.0sqmm copper wires with one run for earthing. Above 20A power wiring shall be made with adequate size copper wires/ armored power cables as required or as directed.

4.6 Wiring shall be completed as per the looping system where phase wires are looped at the switches and the neutral at the fittings.

4.7 **The jointing of wires either in conduit or in junction box is not permissible and strictly prohibited.** End connections of all the wires/cables shall be made by providing suitable terminal lugs with crimping.

4.8 French chalk shall be used for wiring in conduits to facilitate drawing of wires in conduit.

4.9 The switch gang boxes for lighting circuit shall be fixed flush with wall with the bottom edge of the box at a height as mentioned in the drawing or as directed.

4.10 All light fittings, fans etc., shall be controlled individually. However corridor lighting may be group controlled as required or directed. Emergency lighting shall be executed as per the instructions. In case occupancy sensors/ LMS is provided for lighting control, then suitable group control wiring shall be made as required.

4.11 The light fittings shall be mounted on ceiling/wall as specified. Wherever the fittings are to be mounted on walls, the same shall be mounted at a height of 2400mm from finished floor level and as directed. Lamp holders to be fixed below beam at a height of 2250mm from FFL.

4.12 The ceiling fans shall be fixed at a height of more than eight feet from the ground level and minimum 300mm below ceiling.

4.13 The fan hooks (with boxes) shall be fixed firmly to concrete /truss /any frame and shall be able to take around 250kgs of load or centrifugal force.

4.14 Maximum permissible number of 650/1100 volt grade PVC insulated wires that may be drawn into rigid nonmetallic or M.S Conduits are given below:

Size of wires Nominal Cross	Maximum number of wires within conduit size(mm)				
	20	25	32	40	50
Cross section Area (Sq. mm.)					
1.5	5	10	14	--	--
2.5	5	8	12	--	--
4	3	7	10	--	--
6	2	5	8	--	--
10	--	3	5	6	--
16	--	2	3	--	6
25	--	--	2	4	6
35	--	--	--	3	5

## 5.0 1.1 KV XLPE INSULATED ALUMINUM POWER CABLES

5.1 LT Power cables (above 2.5 Sq.mm) considered are of 1100V grade, 90oC rating, heavy duty stranded aluminum conductor, XLPE insulation, galvanized single round steel wire/strip armour for twin & multi core cables, PVC compound for overall sheathing.

5.2 The conductors shall be multi stranded for all cables.

5.3 Conductors of nominal area less than 16 mm<sup>2</sup> shall be circular only. Conductors of nominal area 16 mm<sup>2</sup> and above may be circular or shaped as per IS 8130.

5.4 Cables with reduced neutral shall have sizes as per Table 2 of IS 7098 (Part-1)

5.5 The core insulation shall be with XLPE. The thickness of insulation and the tolerance on thickness of insulation shall be as per Table 3 of IS 7098.

5.6 The inner sheath shall be applied over the laid up cores by extrusion and shall be of PVC conforming to the requirements of Type ST-2 PVC compound and as per IS 5831.

5.7 The minimum thickness of inner sheath shall be as per Table 5 of IS 7098 (Part-1).

5.8 All cables shall be provided with armour except those specifically specified as unarmoured. For multicore cables, the armour shall be by single round galvanized steel wires where the calculated diameter below armouring does not exceed 13 mm and by galvanized steel strips where this dimension is greater than 13 mm.

5.9 The other sheath for the cables shall be applied by extrusion and shall be PVC compound conforming to the requirements of type ST-2 compound as per IS 5831. The minimum thickness of outer sheath for armoured cables shall be as per Table 8 of IS 7098.

5.10 Cable cores shall be identified with red, yellow and blue PVC tapes.

## **6.0 LAYING OF ARMOURED POWER CABLES/ CABLING WORKS:**

- 6.1 All types of underground cables shall be laid below the ground (as indicated in Cable trench drawing). Necessary excavation, leveling etc. may be carried out as required and directed.
- 6.2 The details of excavation such as trench size, depth and laying shall be carried out as per drawing.
- 6.3 The cables shall necessarily be laid straight without any short bends etc. and manufacturers instruction shall be followed wherever required.
- 6.4 Wherever bends are required bending radius shall be provided as per recommendations of the manufacturer.
- 6.5 Cables shall be laid on a level ground after excavation and necessary cleaning of earth etc.
- 6.6 Clean Sand shall be filled up above/around the cable as shown in drawing or as required. Also, bricks can be laid on either side of each run of the cable if required or as directed. 25mm thickness protective slab of minimum 200mm width or Bricks shall be laid on the top of the sand & cable horizontally/ breadthwise for the entire length of the cable in trench wherever excavation is carried out complete as directed.
- 6.7 Wherever road crossings are encountered along the cable route necessary hume pipes of suitable diameter shall be provided as per specifications. Both sides of the hume pipes shall be sealed accordingly to prevent blockage of hume pipes at a later date.
- 6.8 Wherever cables are laid exposed on walls, column, truss etc., necessary conduit pipes/GI pipes shall be provided with clamping arrangements as required and directed. Suitable size of conduit pipe/GI pipe shall be provided depending on the size of the cable proposed to be laid.
- 6.9 Cables shall be terminated by providing suitable size of cable termination LUGS with necessary glands as required or as per recommendation of the manufacturer.
- 6.10 In case of terminations on H.T. cables, manufacturer's instructions shall strictly be followed.
- 6.11 Cable drums/ cable shall be transported to the site using all required tools & tackles and observing all safety norms. The cable shall be unbundled by using rotating cable wheels or appropriate method as directed.

## **7.0 EARTHING**

- 7.1 The earth electrodes shall not be situated less than 1.5 meters from any building. Care shall be taken that the excavation for earth electrodes shall not affect the foundation of the building. The location of the earth electrodes shall be such that there is reasonable chance of retaining moisture as far as practicable. Entries/ pavements and road crossings shall be avoided for locating earth electrodes.
- 7.2 All materials used for connecting the earth lead with earth electrode shall be of GI for GI earthing and copper for copper earthing as directed.
- 7.3 No individual earth electrode shall have a greater ohmic resistance than 10 ohms as measured by an approved earth testing apparatus and collective earth resistance of the mat with all the electrodes connected shall be not more than 02 ohms.
- 7.4 The earth lead from earth electrode onwards shall be buried in ground to a depth of 50 cm below ground level.

- 7.5 All conduits (whether recessed or surface) shall be permanently connected to earth by suitable earthing clamps fixed on the conduit near entry to switch gang boxes, light fittings and all electrical devices.
- 7.6 The body of all electrical devices like light fittings, ceiling fans, exhaust fans, fan regulators, switch gang boxes, 5 A sockets etc., shall be properly earthed by running 1.5sqmm size PVC insulated single core copper conductor cable/ as specified in the SOQR/ drawing. The earthing wire shall originate from Distribution Board.
- 7.7 All joints in earth mat or earth lead to earth mat shall be made by welding/ clamping or by bolts and nuts. No other type of joint is acceptable. All welded joints for earthing system shall be thoroughly cleaned and covered with epoxy compound, which is acid/ alkali resistant.
- 7.8 All Distribution boards shall be connected to earth grid/ earth electrode by running two numbers of required size earth leads.
- 7.9 The armor of the cables and cable glands shall be effectively earthen at both terminations.
- 7.10 Earth wire/ flat should never be used as Neutral. All the joints shall be overlapped at least for 100mm by joining with welding or by double bolt & nuts, spring washers etc.
- 7.11 The earth wire/ earth bus should not be laid over floor. They should be supported and protected against any probable mechanical damage.
- 7.12 All earth connections should be scooted as far as possible. Where more than one earth lead are connected, a single socket should be used for connection.
- 7.13 The earth electrodes should be minimum three meters apart from one another.
- 7.14 Each earth lead should be connected individually to the earth clamp. Each connection should always be visible for easy inspection.
- 7.15 Each earth electrode should be identified permanently by engraving on the inner side of the walls by wet cement with reference to earth leads connected to it.
- 7.16 Exothermic welding of copper / GI strip joints shall be carried out for low contact resistance and reduce contact failures.
- 7.17 **Technical Specification for Maintenance Free Chemical Earthing system.**
- 7.17.1 The earth pit shall be of Permanent and Maintenance Free (PMF) type. The earth pit shall include the components such as Earth rods, Compression couplers, Earth Enhancing Material and connecting wires, Earth Busbar and all accessories.
- 7.17.2 The earth electrode shall not rise the temperature, deform the chemical characteristic of Earth Enhancing Material and the soil under normal and during the flow of fault currents. It is also required that the earth resistance shall not vary during the flow of fault current and allow to drain the fault / leakage current.
- 7.17.3 Location for Earth: Close to the building or the location good for locating earth electrodes. Earthing rod should not be fixed on high bank or made-up soil.
- 7.17.4 Earth Rod: The Earth Rods shall have the following characteristics / specifications.
- 3.0 Meter (10 feet) long copper bonded stainless steel rods (nickel steel alloy) especially designed for electrical grounding.
  - Shall have a minimum dia as mentioned in SOQR.
  - Shall be corrosive resistant

- d) Shall be molecularly bonded with copper to high strength steel cores.
- e) Shall have a minimum copper bonding thickness of 250 microns (10 Mil) of hot dipped / electroplated.

7.17.5 Compression Coupler: Thread less coupler used to join two earth electrodes shall be made of copper alloy with sufficient strength.

7.17.6 Earth Enhancement Material: Earth Enhancing Materials shall be electrically conductive and non-soluble. It shall

- a) have high conductivity in the electronic ground contact area and it should improve earth's absorbing power and humidity retention capability.
- b) have a resistivity of less than 4.7 ohm meter.
- c) be non-corrosive in nature having low water solubility (0.2% max.) but highly hygroscopic: will not be eliminated by continuous treatments with water.
- d) be stable between  $-60^{\circ}$  to  $+60^{\circ}$  C temperatures.
- e) be possible to increase earth conductivity from 3-20 times.
- f) interact in homogeneous way when applied to the earth.
- g) be suitable for any kind of electrode and all kinds of grounds of different sensitivity through the simple spill of the proper solution to the ground, which surrounds the electrode.
- h) higher doses may be necessary for optimum results in high resistance soil or rocky areas.

7.17.7 Construction of unit earth: The earth pit shall be constructed as per enclosed typical installation drawings.

- a) A hole of 150 to 200mm dia shall be augured to a depth of about 3.0 mtrs
- b) The electrode of 3.0m length shall be inserted into the augured hole.
- c) It shall be penetrated into the soil by gently driving on the top of the rod using a hammer to reach to natural soil in such a way that 0.3m (one feet) of electrode shall be inserted in the natural soil.
- d) RDSO/ UL approved earth enhancing compound as required based on site condition shall be filled into the augured hole in slurry(semi solid) form and the resistance is measured.
- e) Remaining portion of the hole shall be covered by the soil, which is taken out during auguring.

7.17.8 Inspection chamber

- a) The inspection chamber (Brick /Concrete / Polymer / Steel Mould Compound (SMC)) with openable cover, smooth finish and painted, with pulling hooks, shall be provided to cover the earth pit as per typical installation drawing.
- b) Care shall be taken regarding level of the floor surrounding the earth so that the connector is not too deep in the chamber or projecting out of it.
- c) The pit shall be painted with green paint.
- d) The marking plate /pit marking space should be present on the cover. The date of testing and earth resistance value shall be written on the cover with black paint

7.17.9 Test: Acceptable consolidated earth resistance value for group connected Earth pits shall be less than 2.0 ohms. Earth resistance values should be mentioned for instant and for long period and tests should be carried out as per BIS code of practice for earthing IS : 3043:1987.

## 8.0 MCCB/ MCB Distribution Boards (MCCB/MCB DB):

8.1 Distribution boards shall be of totally enclosed sheet steel construction [16 SWG thickness] with hinged doors and shall be aesthetically designed. LDB/PCDB shall be of approved makes only.

- 8.2 Distribution boards shall be of dust and vermin proof enclosure and shall be suitable for 415 V/240 V 50 Hz AC supply.
- 8.3 Neoprene gasket between door/frame shall be provided.
- 8.4 Doors of distribution boards shall be of lockable type.
- 8.5 All live parts shall be fully shrouded. Incomer shall be segregated from outgoing.
- 8.6 The bus bars of tinned electrolytic copper of adequate current ratings shall be provided for distribution boards.
- 8.7 All bus bar support shrouds, barriers etc., shall be of SMC/DMC only. Separate bus bar chamber shall be provided, as required and directed.
- 8.8 Detachable top bottom plates and knockouts for conduit/cable entry as required shall be provided.
- 8.9 Distribution boards shall be provided with earth terminal. DB shall have enough space for cabling and wiring.
- 8.10 All control/ instrumentation/ metering/ inter connecting wiring inside distribution boards shall be carried out with 660V grade, single core, PVC insulated copper conductor cable/ wire.
- 8.11 Distribution boards shall be suitable for fully recessed/partly recessed or surface mounting on wall depending on site conditions.
- 8.12 All the MCB's offered shall be of minimum rupturing capacity of 9 KA at 415 V, 50 Hz AC at 0.75 PF. With 'C' curve.
- 8.13 All the MCCB's offered shall be of minimum rupturing capacity of 25 KA with thermal magnetic based release at 415 V, 50 Hz AC at 0.75 PF.
- 8.14 The rating of the incomer and outgoing and other requirements of DB shall be as per the single line diagram along with all accessories such as fuses etc required for the functioning of the system.
- 8.15 Legend plates suitably engraved shall be provided for identification of incoming and outgoing circuits.
- 8.16 Distribution boards shall be painted with electrostatic powder coated of approved colour and shade after necessary pre-treatment like tank process, degreasing, phosphating etc. as required. Outdoor panel shall have epoxy based weather proof painting.
- 8.17 The contractor shall furnish three copies of the general arrangement drawing of distribution boards with all dimensions, weight etc., after work is awarded. Only after obtaining the Company's approval of the drawing, the contractor shall take up fabrication of distribution boards.
- 8.18 All relevant safety standards, minimum creepages for live and metal parts to be observed as per relevant standards.

## **9.0 POWER DISTRIBUTION BOARDS (PDB/MDB/SDB/PCC/MCC):**

- 9.1 The PDB shall consist of identical unitized cubical compartments placed side by side to form a compact switch board assembly of compartments, floor mounted type with base frame.

- 9.2 The panel shall be extendable type with rigid angle iron frame work for body of the panel and complete. Internal components and cabling access shall be from the front/either sides of the panel.
- 9.3 PDB shall be designed for dust and vermin proof enclosure as per IP-52 for indoor applications and IP-55 for outdoor applications.
- 9.4 The outdoor type PDB shall be provided with suitable rain/weather protections such as canopy, additional double doors etc with suitable outdoor duty painting.
- 9.5 Each panel shall be formed of separate feeder compartments for each incoming and out goings in multi-tier non-draw out/draw out as required formation placed one above the other having one side cable alley and other, bus bar chamber.
- 9.6 The board shall be fabricated out of CRCA sheet steel thickness of not less than 16 SWG(1.5mm) for body and 14SWG(2.0mm) for load bearing points.
- 9.7 Each compartment door, cable alley, vertical bus bar chamber etc. shall be provided with non-deteriorating neoprene gasket without any discontinuity.
- 9.8 In general, the maximum operating height shall not exceed 1.80 meters, depth shall not be less than 350mm and size of each compartment for out goings shall not be less than 300 X 225mm.
- 9.9 Suitable mechanical door inter-locks shall be provided for all the compartments for safe operation.
- 9.10 The rating/ type of the incomer and outgoing feeders/switch gears shall be as per the single line diagram & DTS.
- 9.11 All feeder compartments shall be labeled with screwed nameplates of area / equipment / distribution board it controls. Name plates shall be of black Perspex sheet with white engraving and of minimum of 3mm thickness. A large nameplate of minimum 300mm x 75mm shall be provided on top of each distribution board to indicate its type & designation. Suitable 'DANGER' board as per relevant IS code shall be provided as required.
- 9.12 Horizontal and vertical runs of bus bars shall be located in separate chambers. The bus bars shall be rigidly supported at intervals of not more than 400mm.
- 9.13 The bus-bar supporting insulator shall be of ribbed construction and shall be of fiber glass/melamine / DMC /SMC/ FRP. The bus bar chambers shall be completely enclosed and unapproachable to accidental contact from feeder compartment. The connection from the bus bars to individual compartment units shall pass through a rubber grommet.
- 9.14 The connections from bus bars to individual feeders and from the feeders to terminal blocks at cable alley shall be made by PVC insulated flexible copper cables / strip upto 200A & for above 200A Aluminium/ copper or strip as given below:

Sl. No.	Switch Rating	Minimum cross-sectional area of power wiring (copper)	
		Phases	Neutral
1.	Up to 32 A	6.0 Sq mm	4.0 Sq mm
2.	32A to 63 A	16.0 Sq mm	6.0 Sq mm
3.	64A to 100 A	35.0 Sq mm	16.0 Sq mm
4.	101A to 200A	135 Sq mm or 100 Sq mm Strip PVC sleeved.	50.0 Sq mm
5.	Above 200A	Aluminum flat as required with PVC sleeve.	95.0 Sq mm

9.15 The incomer main feeder units shall have facility for locking in OFF position to prevent accidental closing while at work.

9.16 All live points shall be fully shrouded to prevent accidental contact when the doors are in open position. Sufficient space shall be provided at main incomer chamber for termination of the cable.

9.17 Main bus bars shall be made of flat aluminum of electrical grade with cross sectional area of one and half times of incoming MCCB/switch rating unless otherwise mentioned in single line diagram.

9.18 The joints in the main bus bars shall be made with minimum 2 bolts using spring washers. The bus bars shall be PVC sleeved. Main incomer terminals shall be extended from MCCB with bus bars suitably to terminate two or more cables.

9.19 Bus bars shall be provided with the minimum clearances in the air as specified in IS 4237 for a 500V, 3phase system.

9.20 Separate supports shall be provided for each phase of the bus bars. If a common support is provided for all 3 phases, anti-tracking barriers shall be incorporated and the mounting fasteners suitably insulated.

9.21 Bus bars shall be rated for rupturing capacity of 50KA.

9.22 One No. of earth bus bars of equal to that of neutral size of aluminum bars extending through out the length of the board shall be provided on the lower parts of the board . Two earth terminals connected to the internal earth bus consisting of electro-galvanized bolts and nuts and washers to be provided to connect external earth connections.

9.23 The metal parts of all outgoing feeders shall be earthed by connecting to the earth bus using suitable size earth leads.

- 9.24 Potential circuit wiring shall be carried out with minimum of 1.5 Sq mm 1100V grade PVC insulated copper conductor cable.
- 9.25 Current circuit wiring shall be carried out with minimum of 2.5 Sq mm single core 1100V grade PVC insulated copper conductor cable.
- 9.26 The PDB shall be electrostatic powder coated with light Grey of shade 631 of JS-5
- 9.27 Before starting the manufacture, dimensional general arrangement drawings, wiring diagrams etc., indicating all the relevant clearances and specifications shall be submitted in three copies. Only after obtaining the approval of Engineer-in-charge, fabrication shall be taken up.
- 9.28 The entire PDB shall be tested as per relevant IS/manufacturer instructions for type and acceptance tests and three copies of final test certificates shall be furnished.
- 9.29 BEL reserves the right to witness the routine tests at manufacturer's works or waive the based on submission of the test certificates. They shall give advance intimation of the date of testing at the manufacturers works.
- 9.30 Three copies of the following documents / drawings shall be furnished along with PDB/MCP
- 9.31 Complete assembly drawing of the PDB showing plan, elevation, typical sectional views and location of the terminal blocks for external wiring connection.
- 9.32 General arrangement drawing showing the equipment mounted on each compartment.
- 9.33 Complete wiring diagram including terminal wiring designation of each compartment.
- 9.34 All the components/ switch gears shall be of single make to establish full co-ordination among the switch gear. In the event of fault, the control gear and protection system should be inline with the protection required for safe operation.
- 9.35 Rating of Contactors, Relays, MPCBs, HRC Fuses for motor control outgoing feeders shall be as per manufacturers recommendations only. All these components shall be of single make to establish best type-II co-ordination among them.
- 9.36 The Incomer MCCB shall be suitable for TPN, 415V, 50HZ AC supply with 16/25/35/50/ 65KA R.M.S symmetrical breaking capacity at 0.25 PF with rotary handle and all protections as mentioned in single line diagram or as required.
- 9.37 The incomer side of main MCCB shall be provided with suitable rating tinned copper spreader bus bar and extension flat suitable for making connections of incomer cables.
- Testing:**
- 9.38 The completed electrical installation shall be tested in accordance with the standard testing procedures as per relevant IS and Manufacturer's Instructions in the presence of the Engineer before commissioning/ charging of power supply.
- 9.39 All distribution boards, meter boards, LDBs, switch boards etc., shall be tested as per the Manufacturer's Instructions before commissioning.
- 9.40 A test to earth of each installation shall be made with all fuse links in place, all switches on, and all lamps in position. The result must not be less than 50 Mega ohms divided by the number of outlets i.e., points and switch positions, except that is need not exceed 1 Mega ohm for the whole installation.
- 9.41 The insulation resistance shall also be measured between all the conductors connected to one pole or phase conductor of the supply and all the conductors connected to the neutral or the

other pole, of the supply. For this test all appliances should be removed and all switches ON. The result, again must be not less than 50 Mega ohm divided by the number of outlets i.e., points and switch positions, but need not exceed 1 Mega ohm for the whole installation

- 9.42 Test should be made to verify that all non/linked SP switches are on outer or phase conductor and not on the neutral or earthen conductor.
- 9.43 The continuity of earthing and resistance of each earth electrode shall be measured with earth merger as per relevant IS.
- 9.44 The result of the above tests shall be recorded and signed by the Contractor and Engineer. The Contractor shall ensure that the test results are satisfactory and in conformity with standard test results acceptable for such works.

## 10.0 PREFERRED LIST OF MAKE/BRAND

- 10.1 Any of the following make/brand are acceptable subject to the condition that the item/ material meets the specifications mentioned in the tender.

Sl. No.	DESCRIPTION	PREFERRED MAKES
<b>1.0</b>	<b>LIGHTING ACCESSORIES</b>	
1.1	FLUSH TYPE SWITCHES SOCKETS AND REGULATORS ETC	ANCHOR/LISHA/CONA/GM
1.2	MODULAR SWITCHES SOCKETS, SWITCH BOXES AND REGULATORS ETC.	M.K.(WRAP AROUND)/ LEGRAND / ANCHOR -WOODS/ SCHNEIDER/ ORIENT
1.3	INDOOR DUTY INDUSTRIAL TYPE METAL CLAD/ INSULATED PLUG & SOCKETS	BCH/ SCHNEIDER/ LEGRAND/ SIEMENS / / GERARD-SCAME/SCAME/ABB/NEPTUNE/ HENSEL/ HAVELLS/ C&S/ L&T
1.4	OUTDOOR DUTY INDUSTRIAL TYPE INSULATED PLUG & SOCKETS	HENSEL/SCAME/ LEGRAND/ABB/ L&T NEPTUNE/ SCHNEIDER/HAVELLS/ C&S/
1.5	OUTDOOR LIGHT FITTINGS SUCH AS STREET LIGHT, BULK HEAD, BAY LIGHT FITTINGS AND ACCESSORIES LIKE BALLAST, CAPACITOR, HOLDERS ETC.	PHILIPS/ C.G./BAJAJ/ WIPRO/ ORIENT K-LITE/ LIGHTING TECHNOLOGIES/ JAQUAR/ CROMPTON
1.6	INDOOR LIGHT FITTINGS AND ACCESSORIES SUCH AS BALLAST, CAPACITORS, HOLDERS ETC	PHILIPS/C.G./BAJAJ/ K-LITE/ JAQUAR WIPRO/ LIGHTING TECHNOLOGIES/ ORIENT/ CROMPTON
1.7	ELECTRONIC TIME SWITCHES /	L

	TIMERS	&T/LEGRAND/SIEMENS/EAPL/MINILEC/C&S
1.8	CEILING/PEDESTAL/WALL MOUNTING FANS	ORIENT/ CROMPTON/ USHA/ BAJAJ/ ALMONARD/ ATOMBERG
1.9	EXAUST FANS/AIR CIRCULATORS	ORIENT/ CROMPTON/ USHA/ BAJAJ/ ALMONARD/ ATOMBERG
1.10	GYSERS/WATER HEATERS/ROOM HEATERS	RACOLD/BAJAJ/C.G./USHA/ JAQUAR
1.11	LAMP SUCH AS FLUORESCENT, INCANDESCENT, HPSV, HPMV, METAL HALLIDE LAMPS ETC.	PHILIPS/OSRAM/GE/BAJAJ/WIPRO
1.12	COMPACT FLUORESCENT LAMPS	PHILIPS/OSRAM/GE/BAJAJ/WIPRO
1.13	OUTDOOR WEATHER PROOF ENCLOSURES SUCH AS POLE MOUNTING BOXES, JUNCTION BOXES, METAL CLAD BOXES, SWITCH BOARDS ETC.	HENSEL/SCAME/SINTEX/ABB/LEGRAND NEPTUNE/ SCHNEIDER/ HAVELLS/C&S
1.14	INSULATION TAPES, L.T./ H.T.	STEEL GRIP/ STANVAC/ PERMACEL/ JHONSON/ WONDER
1.15	MCB DISTRIBUTION BOARDS	SIEMENS/ LEGRAND/ ABB/ L&T/ SCHNEIDER/ C&S/ HAVELLS
1.16	FLAME PROOF FITTINGS, SWITCHGEAR AND ACCESSORIES	BALIGA /FCG/BAJAJ/ FLEXPPO
1.17	SPIKE BUSTERS, SURGE ARRESTORS	F.T.C./G.E./SEIMENS/SCHNEIDER/ DEHN L & T/CONA/OBO BETTERMANN/ LEGRAND
<b>2.0</b>	<b>WIRES, CABLES &amp; CONDUITS</b>	
2.1	PVC WIRES & CONTROL CABLES	FINOLEX/ ANCHOR/ RR KABLE/ HAVELLS/ KEI/ WALNA/ SBEE
2.2	H.T. POWER CABLES	CCI/ TORRENT/ ASIAN RPG/ UNISTAR/ KEI/ SBEE
2.3	L.T POWER CABLES	CCI/ TORRENT/ ASIAN RPG/ KEI/ UNISTAR/ GLOSTER/ HAVELLS/ SBEE/ FINOLEX/

		PRIMECAB
2.4	METAL CONDUITS	BHARAT/ GUPTA/ SUPREME/ BEC/ AKG / PRECISION
2.5	G.I. PIPES	JINDAL/ZENITH/APPOLO/SURYA PRAKASH / TATA
2.6	UPVC / PVC CONDUIT PIPES	UNIVERSAL/UNIPLAST/FINOLEX/ MODI/ AVON/ V.I.P / BEC/AKG/ SUPREME/ POLYPLAST/ PRECISION
2.7	PVC CASING & CAPING	MODI/ CLASSIC/ SUPREME /POLYPLAST/PRESSFIT/ PRECISION
2.8	BUS DUCT/CABLE TRUNKING SYSTEMS	L&T/ LEGRAND/ SCHNEIDER/ ABB/ GODREJ/ C&S/ OBO
2.9	INSECT KILLER	BAJAJ / WELLBERG / PADMINI / HOTLINE
<b>3.0</b>	<b>L.T. SWITCHGEAR &amp; CONTROL ACCESSORIES</b>	
3.1	TPN SWITCH FUSE UNITS/ ISOLATORS	SIEMENS/ G.E./ ABB/ SCHNEIDER/ C&S/ L&T/HAVELLS
3.2	MCCB's	SIEMENS/ G.E./ ABB/ SCHNEIDER/ LEGRAND/ L&T/ C&S/ HAVELLS
3.3	AL. BUSBAR	JINDAL/BALCO/INDALCO
3.4	MCB's/ELCB/RCCB/RCBO/ MPCB	SIEMENS/ G.E./ ABB/ SCHNEIDER/ LEGRAND/ L&T/ C&S/ HAVELLS
3.5	HRC FUSES, BASE AND CARRIER	SIEMENS/ G.E./ ABB/ SCHNEIDER/ C&S/ L&T/ LEGRAND BUSSMAN/ STANDARD COOPER
3.6	CHANGE OVER SWITCHES/ AUTO TRANSFER SWITCHES.	SIEMENS/ G.E./ ABB/ SCHNEIDER/ L&T LEGRAND/ ASCO/ HPL/ C&S/ HAVELLS
3.7	AIR CIRCUIT BREAKERS (ACB)	SIEMENS/G.E./ABB/ L & T/ SCHNEIDER/ C&S/ CG
3.8	SELECTOR SWITCHES & INDICATING LAMPS (LED TYPE)	SALZAR/KAYCEE/TEKNIC/SIEMENS/ SCHNEIDER/ L & T (ESBEE)/ VAISHNO
3.9	CONTROL & POWER CONTACTORS	SIEMENS/ABB/C & S/L & T/G.E./TELE MECHANIQUE/SCHNEIDER/ HAVELL'S

3.10	INDUCTION MOTORS	ABB/C.G/ BHARAT BIJLEE/SIEMENS/L&T/ KIRLOSKAR
3.11	MOTOR STARTERS	SIEMENS/ G.E./ ABB/ SCHNEIDER/ LEGRAND/ BCH/ CROMPTON
3.12	DIGITAL/ANALOG METERS SUCH AS VOLTMETERS, AMMETERS, FREQUENCY METERS, MULTIFUNCTION METERS, ENERGY METERS, POWER METERS	ENERCON/ MECO/ AE/ L&T/ HPL/ ELTRAC HAVELLS/ PROK DV'S/ SCHNEIDER- CONSERVE/ ELMEASURE/ C&S
3.13	SURGE PROTECTOR	SIEMENS/FTC/G.E/ MTC/LEGRAND/L&T/ FTC-TYCO/ LPI/ HAKEL/ LEGRAND/OBO
3.14	BUSBAR SUPPORTS, INSULATORS AND OTHER ACCESSORIES	POWER MAT/ELCO/MASCAT/ELECTRO FIBRES
3.15	CONNECTORS	ELEMEX/ CONNECT WELL/WAGO
3.16	GLANDS	COMET/LOTUS/BIMED/HMI/JAINSON
3.17	CABLE JOINT KITS (L.T./H.T.)	RAYCHEM-RPG/M-SEAL
3.18	CURRENT TRANSFORMERS(CT)	AE/KALPA/KAPPA/MECO/VOLTMPS/ INDCOIL
3.19	LUGS (TERMINALS)	DOWELLS/LOTUS/ JAISON/ HEX/ UMA/3D/ASCON
3.20	CABLE/WIRE-MANAGERS, CABLE TRUF & ACCESSORIES	SFX/EVEREST/CPS/NOVOFLEX/ SALZER/ ROLYFEX
3.21	ILLUMINATED PUSH BUTTONS	VAISHNO / SALZER / KAYCEE / TECHNIC
4.0	H.T. SWITCH GEARS	SIEMENS/ ABB/ CG/ ALSTOM/ AREVA/ SCHNEIDER / JYOTHI
5.0	TRANSFORMERS	ABB/ CG/ AREVA/ KERALA ELECTRICAL LTD / VOLTAMP / TRINITY ELECTRICALS
<b>6.0</b>	<b>CAPACITORS</b>	
6.1	POWER CAPACITORS AND ACCESSORIES	C.G/L&T/SIEMENS/DUCATI/FRACO/BARON/ EPCOS/SCHNEIDER-CONSERV/ C&S
6.2	CONTACTORS (CAPACITOR DUTY)	SIEMENS/ABB/SCHNEIDER/C&S/ L&T
6.3	POWER FACTOR CONTROL RELAY	L&T/SIEMENS/BARON/NEPTUNE/DUCATI

7.0	PROTECTIVE RELAYS	ABB/SIEMENS/G.E/MULTILIN/L&T/ ALSTOM/ ENERCON/PROK DV'S/C&S/ AREVA
8.0	<b>LED LUMINARIE</b>	
8.1	LED STREET LIGHT, POST TOP LANTERNS,LED INDOOR LIGHT FITTINGS	PHILIPS/ BAJAJ/ GE/ WIPRO/ OSRAM/ K- LITE/ LIGHTING TECHNOLOGIES/ JAQUAR/ ORIENT/ CROMPTON
8.2	DALI DIMMABLE BALLAST/LED DRIVER	PHILIPS/ OSRAM/ TRIDONIC/ LUTRON/BAJAJ/ CROMPTON
9.0	<b>UPS, BATTERIES &amp; BATTERY CHARGERS</b>	
9.1	MODULAR UPS	ABB/ EMERSON / APC/ SCHNEIDER/ EATON/ NUMERIC/ VERTIV
9.2	STANDALONE UPS	ABB/ EMERSON/ APC/ SCHNEIDER/ EATON/ NUMERIC/ VERTIV/ POWER ONE
9.3	SEALED MAINTENANCE FREE, MAINTENANCE LEAD ACID BATTERY, TRACTION BATTERIES	EXIDE/AMARARAJA/UNION/ ROCKET/ HBL AEGAN/MICROTEK/AMCO/GLOBAL YUVASA
9.4	BATTERY CHARGERS	AMAR RAJA/ LOTUS POWERGEAR
10.0	LIGHTING MANAGEMENT SYSTEM COMPONENTS	SCHNEIDER-CLIPSAL/ ABB/ WIPRO/ BAJAJ/ LUTRON/HELVAR/PHILIPS-DYNALITE/ LEVITON
11.0	SOLVENTS & SPRAYS FOR M	C.R.C./BHARAT BIJILEE/STANVAC
12.0	SOFT STARTERS/ VFD	SIEMENS/ ALLEN BRADLEY/ SCHNEIDER/ ABB
13.0	LIGHTNING PROTECTION SYSTEM	ABB/ ERICO/ LPI/ OBO-BETTERMAN/ JMV/ INDELEC/ DHEN
14.0	MAINTENANCE FREE CHEMICAL EARTHING	ERICO/ ASHLOK/ GALAXY/ JMV/ JK / INDELEC/ LPI/JEFF/OBO BETTERMAN/ DHEN
15.0	INSULATED RUBBER MATS	KANTA RUBBER/ DOZZ/ LAXMI RUBBER INDUSTRIES/ KAN POWER RUBBER
16.0	STREET LIGHT/ POST TOP LANTERN	METAL COAT / SUBHAM / BAJAJ / PHILIPS/

	POLES	CG/ SHUBHAM/ CROMPTON/ K-LITE
17.0	HAND DRIER	NOVATECH / DOLPHY / KR STORE / AAI-LUXURY/ EURONICS
18.0	OCCUPANCY PIR SENSOR	LEGRAND /SCHNEIDER / BAJAJ/ HONEYWELL/ LUTRON/ HAGER/ HELVAR
19.0	DG SET ENGINE	CUMMINS/ KIRLOSKAR/ GREAVES/ CATERPILLAR/ MAHINDRA/ ASHOK LEYLAND/ PERKINS/ MITSUBISHI
20.0	DG SET ALTERNATER	STAMFORD/ LEROYSOMER/ AVK/ CROMPTON/ KIRLOSKAR GREEN
21.0	PASSENGER/FREIGHT LIFT	OTIS / KONE / THYSSENKRUPP / SCHINDLER / JOHNSON / OMEGA / MITSUBISHI.
22.0	ISOLATION TRANSFORMER & SERVO VOLTAGE STABIZER	VOLINA/ AE/ SERVOMAX/ NEELKANTH/ STEPON POWERMAC/ SERVO POWER/ PUREVOLT/ POWER BANK OF INDIA

10.1 Any material/ item/ equipment/ make/ brand which is not listed above and the same which is required for the works shall have ISI or IEC approval/ mark for usage, subject to prior approval by the Engineer in charge of BEL for the project, based on performance & reliability of the same in previous usage at any organization.

10.2 In case the particular material/ equipment essentially required for the works has not been granted approval of the ISI /IEC approval/mark, make of such material/ equipment shall have prior approval of the Manager in charge of BEL for the project for usage, based on performance & reliability of the same in previous usage at any organization.

10.3 The Contractor shall purchase the items required for the works as mentioned in the list from the Manufactures/ Firm/ his Authorized main dealer only and produce the invoice/ cash bill/ delivery challan.

10.4 The reference model numbers given in the SOQ/BOQ are for easy/clear understanding of technical specifications of the required items. However the contractor can supply any make/brand from the list if the same meets the tender specifications.

10.5 The tenderer shall clearly indicate the name and address of the local fabricators for fabrication of distribution boards, meter boards, switch boxes etc., considered in his offer.

10.6 The local fabricators considered by the tenderer shall have sufficient previous experience in fabricating power distribution boards/ meter boards of similar specifications.

10.7 The previous experience of the fabricators along with testimonials of the users shall be furnished along with their offer.

10.8 The tenderer shall take prior approval of the Engineer in charge (BEL) for panel manufacturer / fabricator considered before placement of order for power distribution boards.

10.9 The company is free to accept or reject a particular local fabricator for obtaining a good quality of power distribution boards.

**11.0 AS BUILT DRAWINGS:**

On completion of work in all respects, the contractor shall supply to the company Three (3) complete sets of drawings indicating the complete work as installed **before submission of final bill**. These drawings shall clearly indicate the complete layout of light fittings, conduit runs, wiring diagrams, location of distribution boards, earthing layout, power distribution plan etc, as required by the Engineer.

**NAME, ADDRESS AND  
SIGNATURE OF THE TENDERER**

**ACCEPTING AUTHORITY**

**Annexure –IV****TENDER ACCEPTANCE LETTER**

Date: / /2026

**To,**

Sr. Deputy General Manager  
Engineering Services Division,  
Bharat Electronics Limited,  
I.E. Nacharam,  
Hyderabad- 500076

**Sub:** Acceptance of Terms & Conditions and BOQ of Tender.**Tender Reference No:** BEL\_HYD/ES/2026/006Name of Tender / Work: **Restoration of Fire Alarm system in BEL-Hyderabad.**

Dear Sir,

1. I / We have downloaded / obtained the tender document(s) for the above mentioned 'Tender/Work' from the web site(s) namely: [www.eprocurebel.co.in](http://www.eprocurebel.co.in) as per your advertisement, given in the above mentioned website(s).

2. I / We hereby certify that I / we have read the entire terms and conditions of the tender documents i.e Instructions to Tenderers and Conditions for Submission of Tender, General Conditions of Contract, Special Conditions Of Contract, Detailed Technical Specification, Drawings, SOQR (including all documents like annexure(s), schedule(s), etc.), which form part of the contract agreement and I / we shall abide hereby by the terms / conditions / clauses contained therein.

3. The corrigendum(s) issued from time to time by your department/ organizations too have also been taken into consideration, while submitting this acceptance letter.

4. I / We hereby unconditionally accept the tender conditions of above mentioned tender document(s)/ corrigendum(s) and description of BOQ items in its totality / entirety.

5. I / We do hereby declare that our Firm has not been blacklisted/ debarred by any Govt. Department/ Public sector undertaking.

6. I / We certify that all information furnished by the our Firm is true & correct and in the event that the information is found to be incorrect/untrue or found violated, then your department/ organization shall without giving any notice or reason therefore or summarily reject the bid or terminate the contract, without prejudice to any other rights or remedy including the forfeiture of the full said earnest money deposit absolutely.

Yours Faithfully,  
(Signature of the Bidder, with Official Seal)