

**MILITARY ENGINEER SERVICES****CONTENTS**

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\_\_\_\_\_  
SIGNATURE OF CONTRACTOR

Dated \_\_\_\_\_

AGE (Contracts)  
for Accepting Officer

**CA NO: GE (AF) BHUJ/**  
Tele - 02832-244024  
टेली - ०२८३२-२४४०२४  
Fax - 02832-244138  
फैक्स - ०२८३२-२४४१३८  
e-mail : afbhj4-mes@nic.in

**OF 2026-2027**

**SERIAL PAGE NO. 09**  
Military Engineer Service  
सैन्य इंजीनियर सेवाएँ  
Garrison Engineer (AF)  
दुर्ग अभियंता (वायु सेना)  
Bhuj – Kutch – 370 001  
भुज- कच्छ - ३७०००१

8899/V/ 02 / E8

28 Apr 2026

M/s \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**NAME OF WORK: REPAIRS TO AREA DRAINS, CULVERTS PATHS, DRAIN COVERS, COMPOUND WALL FENCING, HARD STANDING AND APPROACH PATHS AND MISC ITEMS OF WORKS IN TECH AREA AND KHAVDA AREA AT AF STN BHUJ**

Dear Sir,

1. Tender documents in respect of above work are uploaded on the site [www.defproc.gov.in](http://www.defproc.gov.in). The tender is on single stage two cover e-tendering system. The contents of Cover I & Cover II are specified in NOTICE OF TENDER.
2. Bids will be received online by ACCEPTING OFFICER upto date and time mentioned in the **NOTICE INVITING TENDER (NIT)**. No tender/bid will be received in physical form and any tender/bid received in such manner will be treated as non bonafide tender/bid.
3. Bid will be opened on due date and time fixed for opening in the presence of tenderers/bidders or their authorised representatives, who have uploaded their quotation bid and who wish to be present at the time of opening the bids.
4. Your attention is also drawn to instruction on filling and submission of tender attached herewith. You may forward your points on tender documents and/or depute your technical representative for discussion on tender/ drawings and to clarify doubts, if any, on or before \_\_\_\_\_2026. You are requested not to write piece meal points and forward your points duly consolidated before due date viz \_\_\_\_\_2026.
5. Unenlisted contractors are required to submit the scanned copies (in pdf file) of documents required as per eligibility criteria mentioned in instructions for filling the tender documents and Appendix 'A' to **NIT** alongwith EARNEST MONEY DEPOSIT (EMD) and tender fee on e-procurement portal and submit the physical documents in the office of GARRISON ENGINEER (AF) BHUJ-KUTCH-370 001 within time limit specified in **NIT**. Inadequacy/deficiency of documents shall make the bid liable for rejection resulting in disqualification for opening of finance bid.
6. Tenderer is advised to cross check his quotation in BOQ after uploading and before the Bid closing time and date. If he fails to quote the rate for any item, in terms of amendment 21(c)(ii) to condition 6-A(A) of IAFW-2249, his overall quotation shall deem to include cost of execution of these items for the quantity mentioned in BOQ. No representation on this account shall be entertained.

7. Enlisted contractors of MES shall submit the scanned copies (pdf file) of enlistment letter, tender fee and such other documents as mentioned in Appendix 'A' to **NIT** on e-procurement portal and submit physical documents in the office of GARRISON ENGINEER (AF) BHUJ-KUTCH-370 001 before date & time fixed for this purpose.
8. The contractor must ensure that the tender/bid on the proper form is uploaded in time as the Accepting Officer will take no cognizance of any quotations/offer received in any other electronic or physical form like email/fax/by hand/ through post from tenderer/bidder even if they are received in time.
9. In view of delays due to system failure or other communication related failures, it is suggested that the tender/bid be uploaded, if necessary, sufficiently in advance of the last due date and time fixed.
10. General Conditions of Contracts (IAFW-2249) (1989 Print) and errata and amendments thereto, Schedule of minimum fair wages and MES SSR (Part-I and Part-II) are not enclosed with these documents. These are available for perusal in the Office of GARRISON ENGINEER (AF) BHUJ-KUTCH-370 001.
11. ANY TENDERER, WHICH PROPOSES ALTERATIONS TO ANY OF THE CONDITION, SPECIFICATIONS LAID DOWN IN THE TENDER DOCUMENTS OR ANY NEW CONDITION, WHATSOEVER, IS LIABLE TO BE REJECTED.
12. (a) Contractor having not executed standing security bond and standing security deposit in any MES formation shall upload scanned copy of EARNEST MONEY DEPOSIT (EMD) mentioned in Notice of Tender and shall ensure receipt of hard copy of EMD in the office of tender issuing authority before date & time fixed for this purpose. In case of failure to abide by any of these two requirements, the finance bid will not be opened.
- (b) Contractor having not executed standing security bond and standing security deposit in any MES formation would be required to deposit individual security deposit on acceptance of tender which will be calculated with reference to the tendered cost as per scales laid down by MES for calculation of "EARNEST MONEY" enhanced by 25% subject to maximum of Rs 18,75,000 (Rupees Eighteen Lakhs seventy five thousand Only).

Yours faithfully,

AGE (Contracts)  
For Accepting Officer

**Encls:-** (As above)

Signature of Contractor

**INSTRUCTIONS ON FILLING AND SUBMISSION OF TENDER****1. EARNEST MONEY DEPOSIT (EMD)**

Contractor(s) who are not enlisted with MES/who are enlisted but have not executed the Standing Security Bond shall submit Earnest Money Deposit as detailed in Notice of Tender in one of the following forms, alongwith their tender/bid :-

(a) Deposit at Call Receipt from a Scheduled Bank in favour of Garrison Engineer (AF) Bhuj.

(b) Receipted Treasury Challan, the amount being credited to the Revenue Deposit of Garrison Engineer (AF) Bhuj.

It is advisable that Earnest Money is deposited in the form of deposit call receipt from an approved Schedule Bank for easy refund. In case the tenderer/bidder wants to lodge 'EARNEST MONEY DEPOSIT' in any other form allowed by MES, a confirmation about its acceptability will be obtained from the Accepting Officer well in advance of the bid submission end date and time. Earnest Money Deposit shall be submitted in the name of Garrison Engineer (AF) Bhuj.

**NOTES :** Earnest Money Deposit (EMD) in the form of cheque/Bank Guarantee etc will not be accepted. NON-SUBMISSION OF EARNEST MONEY DEPOSIT (EMD) (scanned copy alongwith Technical Bid & hard copy before the date & time fixed for opening of BOQ) WILL RENDER THE BID DISQUALIFIED FOR OPENING OF COVER II (FINANCE BID).

2. **PERFORMANCE SECURITY** : In case the tender / bid submitted by such contractor who is not enlisted with MES is accepted, the contractor will be required to lodge with the Accepting officer, a performance security calculated with reference to 5% of contract sum. The amount is required to be lodged within 28 (Twenty-Eight) days of the receipt of letter of Acceptance. In case the successful contractor fails to deposit Performance Security within stipulated time his Earnest Money shall be forfeited also it shall constitute sufficient grounds for cancellation of contract.

3. **MES ENLISTED CONTRACTORS (ENLISTED WITH CHIEF ENGINEER SOUTHERN COMMAND AND WHO HAVE EXECUTED STANDING SECURITY BOND AND DEPOSITED STANDING SECURITY DEPOSIT / ENLISTED IN MES FORMATIONS OTHER THAN CE SOUTHERN COMMAND):** In case of tender, bid is accepted the performance security as mentioned and calculated in Para 2 above shall be deposited in favor of Accepting Officer The amount is required to be lodged within 28 (Twenty-Eight) days of the receipt of letter of Acceptance. In case the successful contractor fails to deposit Performance Security within stipulated time his Earnest Money shall be forfeited also it shall constitute sufficient grounds for cancellation of contract.

**4. CONTRACTORS ENLISTED IN MES FORMATIONS OTHER THAN CE SOUTH WESTERN COMMAND**

Contractors whose names are on the approved list of any MES formation i.e. other than CE SOUTH WESTERN Command and who have deposited Standing Security and have executed Standing Security Bond may tender/bid without depositing Earnest Money with the tender and if the Accepting Officer decides to accept the tender/bid, such tenderers will be required to lodge Security Deposit as notified by the Accepting Officer. The amount is required to be lodged within 30(Thirty) days of the receipt by the contractor of notification of acceptance of tender/bid, failing which the sum shall be recovered from the 1<sup>st</sup> RAR payment or from the Final bill.

**INSTRUCTIONS ON FILLING AND SUBMISSION OF TENDER (CONTD...)****5. GENERAL INSTRUCTIONS FOR COMPLIANCE**

5.1 The bids received only in the electronic form will be considered. All bids shall be submitted on 'eprocuremes.gov.in' portal. Documents should be scanned and forwarded in 'pdf' form and 'xls' form as indicated.

5.2 Bids shall be uploaded on 'eprocuremes.gov.in' portal on or before the bid closing date mentioned in the tender. No tender/bid in any other electronic or physical form like email / fax / by hand/ through post will be considered.

5.3. Bid should be DIGITALLY signed using valid DSC. All pages of tender documents, corrections/ alterations shall be signed/ initialed by the lowest bidder after acceptance.

5.4 Drawings, if issued in physical form, must be returned duly initialed by the tenderer/bidder in separate envelope indicating his name and address.

5.5 The tender shall be signed, dated and witnessed at all places provided for in the documents after acceptance. All corrections shall be initialed. The Contractor shall initial every page of tender and shall sign all drawings forming part of the tender. Any tender/bid, which proposes alterations to any of the conditions whatsoever, is liable to be rejected.

5.6 In the technical bid, a scanned copy of Power of Attorney in favour of the person uploading the bid using his/her DSC shall be uploaded. In case the digital signatory himself is the sole proprietor, scanned copy of an affidavit on stamp paper of appropriate value to this effect stating that he has authority to bind the firm in all matters pertaining to contract including the Arbitration Clause, shall be attached in 'pdf' form. In case of partnership concern or a limited company, digital signatory of the bid/tender shall ensure that he is competent to bind the contractor (through partnership deed, general power of attorney or Memorandum and Articles of Association of the Company) in all the matters pertaining to the contracts with Union of India including arbitration clause. A scanned copy of the documents confirming of such authority shall be attached with the tender/bid in 'pdf' form, if not submitted earlier. The person uploading the bid on behalf of another partner(s) or on behalf of a firm or company using his DSC shall upload with the tender/bid a scanned copy (in 'pdf' form) of Power of Attorney duly executed in his favour by such other or all of by the Partner(s) or in accordance with constitution of the company in case of company, stating that he has authority to bind such other person of the firm or the Company, as the case may be, in all matters pertaining to the contract including the Arbitration Clause.

5.7 Even in case of Firms or Companies which have already given Power of Attorney to an individual authorizing him to sign tender in pursuance of which bids are being uploaded by such person as a routine, fresh Power of Attorney duly executed in his favour stating specifically that the said person has authority to bind such partners of the Firm, or the Company as the case may be, including the condition relating to Arbitration Clause, should be uploaded in 'pdf' form with the tender/bid; unless such authority has already been given to him by the Firm or the Company. It shall be ensured that power of attorney shall be executed in accordance with the constitution of the company as laid down in its Memorandum & Article of Association.

5.8 Hard copies of all above documents should be sent by the contractor to the Tender issuing authority well in advance to be received before the date & time fixed for the same.

5.9 Bid (cover 1 & 2) shall be submitted online well in time.

5.10 The contractor shall employ Indian Nationals after verifying their antecedents and loyalty. Attention is also drawn to special condition 3 referred hereinafter and also conditions 24 & 25 of IAFW 2249 (General conditions of contract).

5.11 Tenderers /bidders/ who uploaded their priced tenders/bids and are serious of being present at the time of opening of the tenders/bids, may do so at the appointed time.

5.12 The tenderer/bidder shall quote his rate on the BOQ file only. No alteration to the format will be accepted, else the bid will be disqualified and summarily rejected.

**INSTRUCTIONS ON FILLING AND SUBMISSION OF TENDER (CONTD...)**

5.13 In case the BOQ is revised by the department and bidder failed to quote in revised BOQ (i.e., he has quoted in previous BOQ), such bid shall be treated as wilful negligence by bidder and his quotation shall be considered non-bonafied. In such cases the lowest tender shall be determined by lowest amount amongst the valid/bonafide bids only. Accepting Officer may decide whether to retender or otherwise.

**6. REVOKATION / REVISION OF OFFER UPWARD/OFFERING VALUNTARY REDUCTION, AFTER CLOSING OF BID SUBMISSION DATE & TIME BY LOWEST BIDDER**

In the event of lowest tenderer/bidder revoking his offer or revising his rates upward/offering voluntary reduction, after closing of bid submission date & time, his offer will be treated as revoked and the Earnest Money deposited by him shall be forfeited. In case of MES enlisted Contractors, the amount equal to the Earnest Money stipulated in the Notice of tender, shall be notified to the tenderer/bidder for depositing the amount through MRO. Bids of such Contractors/bidders shall not be opened till the aforesaid amount equal to the earnest money is deposited by him in Govt Treasury. In addition, bids of such tenderer/bidder and his related firm shall not be opened in second call or subsequent calls. Reduction offered by the tenderer/bidder on the freak high rates referred for review shall not be treated as voluntary reduction.

**7. C P M (Critical Path Method):**

7.1 The project planning for work covered in the scope of tender is based on CPM.

7.2 The tenderer/bidder is expected to be fully conversant with the CPM technique and employ technical staff who can use the technique in sufficient details. Sufficient books and other literature on the subject are widely available in the market which the tenderer/bidder may make use of.

7.3 The tenderer's/bidder's attention is drawn to special condition of the tender regarding preparation of the detailed network analysis and time schedule for the work and his liability for employing sufficient resources to adhere to this schedule. Any inability on the part of the tenderer/bidder in using the technique will be taken as his technical inefficiency and will affect his class of enlistment and future prospect/invitation to tenders for future works.

7.4 Department may issue amendments/errata in form of **CORRIGENDUM** to tender /revised BOQ to the tender documents. The tenderer/bidder is requested to read the tender documents in conjunction with the errata/ amendments/corrigendum, if any, issued by the department.

8. These instructions shall form part of the contract documents.

**INSTRUCTIONS ON FILLING AND SUBMISSION OF TENDER (CONTD...)****APPENDIX 'A'****FORMAT FOR AFFIDAVIT OF CONTAINING LIST OF WORKS (LAST FIVE YEARS) IN HAND  
PERIOD OF COMPLETION, DATE OF COMMENCEMENT AND COMPLETION OF WORK  
AND REMAINING WORKS TO BE COMPLETED AS ON DATE OF APPLICATION DULY  
SIGNED ON AN AFFIDAVIT ON NON-JUDICIAL STAMP PAPER OF RS.200.00 DULY  
NOTARIZED**

Sr No	CA No. & Name of work	CA Amount	Period of completion in months	Value of work completed	Date of commencement	Date of completion	Concerned GE executing the work

**FORM OF SOLVENCY CERTIFICATE FROM A SCHEDULED BANK**

This is certified to the best of our knowledge and information M/s/Shri/Smt. \_\_\_\_\_ having address \_\_\_\_\_, a customer of our bank are / is respectable and can be considered solvent/financially sound for any engagement upto Rs. \_\_\_\_\_ (Rupees \_\_\_\_\_). This certificate is issued without any guarantee or responsibility on the bank or any of the officers.

Signature of Bank Manager  
Place: Name, No. & Seal of Bank  
Date:

**Note:-** In case of partnership firm, certificate to include names of all partners as recorded with the bank.

**INSTRUCTIONS ON FILLING AND SUBMISSION OF TENDER (CONTD...)****INDEMNITY BOND**

1. This bond of indemnity is executed on this \_\_\_\_\_ day \_\_\_\_\_ by M/s/ S'Shri \_\_\_\_\_ having registered office at \_\_\_\_\_ to indemnify the Government of India of the following:-

(a) We undertake to pay the Government of India any damages that may be found to be recoverable on order of our contracts.

(b) We undertake that in case Government is put to pay any loss or disadvantage in monetary of contract by the firm which shall indemnify the government for each loss or disadvantage.

(c) This bond of indemnity is executed by M/s \_\_\_\_\_ and has signed before me. Whatever stated above is true and correct to the best of my knowledge and belief.

Signature of Contractor/ Notary

Signature of contractor

(Grijesh Singh Chauhan)  
AE (QS&C)  
AGE (Contracts)  
For Accepting Officer

**INSTRUCTIONS ON FILLING AND SUBMISSION OF TENDER (CONTD...)****WORKING CAPITAL CERTIFICATE**

This is certified that M/s/Shri/Smt \_\_\_\_\_ having address \_\_\_\_\_ has/have been maintaining a saving bank account /current account / fixed deposit account with this branch of bank since \_\_\_\_\_ and an amount not less than Rs. \_\_\_\_\_ (Rupees \_\_\_\_\_) has been available to the credit in his/her/their account Nos \_\_\_\_\_ for the last three months. The firm is enjoying overdraft/credit facility upto limit of Rs. \_\_\_\_\_.

Signature of Bank Manager  
Place: Name, No. & Seal of Bank  
Date:

**TO BE USED IN CONJUNCTION WITH GENERAL  
CONDITIONS OF CONTRACTS (IAFW 2249)**

Tele - 02832-244024  
टेली - ०२८३२-२४४०२४  
Fax - 02832-244138  
फैक्स - ०२८३२-२४४१३८  
e-mail : afbhj4-mes@nic.in

**www.defproc.gov.in**  
Military Engineer Service  
सैन्य इंजीनियर सेवाएँ  
Garrison Engineer (AF)  
दुर्ग अभियंता (वायु सेना)  
Bhuj – Kutch – 370 001  
भुज- कच्छ - ३७०००१

8899/V/ /E8

28 Apr 2026

M/s.....  
.....  
.....

**NAME OF WORK: REPAIRS TO AREA DRAINS, CULVERTS PATHS, DRAIN COVERS, COMPOUND WALL FENCING, HARD STANDING AND APPROACH PATHS AND MISC ITEMS OF WORKS IN TECH AREA AND KHAVDA AREA AT AF STN BHUJ**

1. Shri/S'shri.....  
of..... is /are hereby authorized to tender for the  
above work. The tender is to be uploaded in the e tendering portal  
www.defproc.gov.in.

2. THE PRESIDENT OF INDIA DOES NOT BIND HIMSELF TO ACCEPT THE LOWEST OR ANY TENDER.

SIGNATURE OF OFFICER ISSUING  
THE DOCUMENTS  
APPOINTMENT: AGE (CONTRACTS)

**SCHEDULE 'A' (BOQ) NOTES****NAME OF WORK: REPAIRS TO AREA DRAINS, CULVERTS PATHS, DRAIN COVERS, COMPOUND WALL FENCING, HARD STANDING AND APPROACH PATHS AND MISC ITEMS OF WORKS IN TECH AREA AND KHAVDA AREA AT AF STN BHUJ****Notes:-**

1. Description of items given in various items of Schedule 'A' is in brief. Unit rates shall be deemed to allow for provision of materials, labour, process, operations and all special requirements and tests etc. detailed in the tender documents and shall be amplified and read in conjunction with special conditions, particular specifications, specifications of materials and workmanship and conditions in relevant trade specifications of MES Standard Schedule of rates Part-I & II and working conditions, contract drawings and other documents forming part of the contract documents.
2. The contractor shall calculate his own details, insert unit rates in the BOQ (Excel Sheet) as prescribed therein.
3. The quantities shown in BOQ are approximate and are inserted as guide only. These shall, however not be varied beyond the limits as laid down in condition 7 of IAFW-2249 (General conditions of Contracts) forming part of this contract.
4. Unit rate quoted by the contractor against various items of Schedule 'A' shall, interlia, be deemed to include for any minor details of construction which are obviously and fairly intended and which may not have been specifically included in the tender documents but which are essential for the execution and completion of works. In case of difference of opinion between the contractor and the GE as to whether or not, any item of work constitutes 'Minor details of construction, the decision of Accepting Officer shall be final, conclusive and binding.
5. Method of measurement of all works shall be as in MES Schedule, unless otherwise specified in these documents.
6. The entire work under this contract shall be run for **09 (Nine) Months** from the date of commencement as ordered by GE in the work order No. 1.
7. Preparatory works, collection of materials, and all such preliminary works and site clearance after completion shall be deemed to be included in the period of completion stated in Para 6 above.
8. Unit rates quoted shall be deemed to be inclusive of all taxes and levies of Govt. Certain taxes such as central excise duty, service tax, additional custom duty, state level value added tax, octroi and other levies which were applicable on interstate transportation of goods are subsumed by GST. Special Condition as per Condition 24 for Reimbursement / refund on variation in prices in taxes directly related to contract value of tender shall be deemed to be amended incorporating GST in lieu of taxes mentioned in the condition but subsumed by GST. etc and nothing extra shall be paid on this account. Necessary deduction at source shall be made by the GE as applicable as per the mandatory statutory requirement of Central, State Government and local bodies.
9. The rate quoted by the tenderer shall be inclusive of all type of taxes, levies, including GST, labour welfare cess, etc as prevailing on date of submission of tender, GST at the rate as notified by Govt of India shall be deducted at source
10. In the event of the tender become lowest and revoke his offer, after opening of bids, the following actions shall be taken:-
  - (a) If the tenderer is an un-enlisted contractor with MES, the Earnest Money deposited by him shall be forfeited.
  - (b) If the tenderer is an enlisted contractor with MES, the amount equal to the earnest Money stipulated in the notice of tender, shall be notified to the tenderer for depositing the amount through MRO, failing which the amount shall be recovered from payment due to such contractor or shall be adjustable from his standing security deposit. In addition, such tender and his related firm shall not be issued the tender in second call or subsequent calls.

**SCHEDULE 'A' (BOQ) NOTES(CONTD/---)**

11. Mode of Payment. The payments shall be made into AADHAAR linked bank account of the employees by the contractor. Where the employee insists on being paid in coins or currency notes or by cheque, the same will not be denied. An undertaking may be obtained from such employees. However, efforts shall be made to educate the employees on benefits of bank/ digital payments and pursue with the individual(s) to shift towards banking system/ digital modes.

12. Description of items given in the BoQ are in brief. These are deemed to be amplified and read in conjunction with special conditions, particulars specifications, specifications for materials and workmanship and conditions in relevant sections of MES Standard Schedule of Rates Part I specifications 2009 and MES Standard Schedule of Rates 2020 (Part II) and the work is to be carried out as per standard engineering practice.

13. The work lies in various area and location under the jurisdiction of GE (AF) Bhuj. The tenderer has to visit site work to ascertain quantum of work at different locations with prior meeting with GE. No claim whatsoever shall be entertained at a later date on account of any misunderstanding on this aspect, or any variation in quantities at different locations. The site will be handed over in piece meal manner being in occupied condition.

14. The list of buildings/locations/site under which or where work has to be executed is/are available with the Engineer-in-charge. Contractor's attention is invited to condition 4 of IAFW-2249- General conditions of Contracts. The contractor should keep in mind while quoting their/his tender, the fact that the buildings/site where the repair/work is to be carried out are under occupation and shall remain under occupation while carrying out the work. The contractor will carry out the work in phased manner in consultation with Engineer-in-Charge. It will be the responsibilities of the contractor to submit in writing his planning programme of work seven days in advance to take over site/commence the work or any other requirements. No compensation or extra shall be admissible for any misunderstanding or loss of man-hours. No claim whatsoever, for not giving the entire site or work on acceptance of tender & for giving the site gradually will be tenable.

15. The contractor is required to submit the original purchase vouchers/cash memos duly machine numbered and dated in respect of purchase of the Cement, steel etc., showing excise duty, gate pass number, all taxes, make and numbers as required. The purchase vouchers shall be produced to the Engineer-in-Charge for his verification of materials /equipments after obtaining the approval/permission of GE for release of payment/incorporation in the work. On approval, the Engineer-in-Charge shall deface the purchase vouchers etc and defaced original purchase voucher with two zerox copies therefore shall be submitted by the contractor to the engineer-in-charge for reference and record.

16. Quoted rate against dismantling item considered under Schedule 'A' and items covered under Schedule of credit shall deemed to be inclusive of removal of serviceable material to stores and removing debris outside the MD land.

17. If rate quoted for similar/identical items in same part of Sch 'A' is at variance, the lowest rate quoted shall only be considered for payment to the contractor.

18. Labour welfare tax/ Cess: Labour welfare tax/ cess shall be deducted from the contractor's dues as indicated in special condition. The contractor is deemed to have verified this aspect from the concerned authorities while quoting his rates. No claim of contractor on this account shall be entertained at later stage.

19. Production of purchase Vouchers: The contractor shall produce purchase vouchers in respect of Water proofing compound, Paints, Distemper and cement base paint, Cast iron pipes and fittings, Sanitary fittings, Steel windows/ventilators, Floor/Wall Tiles, Cement, Reinforcement steel/ structural steel, GI tubing/NP2, concertina coil, Galvanised, Interlocking tiles, Chain link to the Engineer-In- Charge for the verification purpose.

**SCHEDULE 'A' (BOQ) NOTES (CONTD)****20. PERFORMANCE SECURITY AND ITS REFUND (Refer condition 19 & 68 of IAFW 2249):-**

20.1 Within 28 days of receipt of the letter of Acceptance, the successful contractor shall deliver to the Accepting Officer a performance security in any of the forms given below for an amount equivalent to 5% of the contract sum:-

- (a) A Bank Guarantee Bond in the prescribed form issued by Nationalized/ Indian Scheduled Bank valid upto the last date of defects liability period.
- (b) Government Security/Insurance Surety Bonds, FDR

20.2. If the performance security is provided by the successful contractor in the form of a Bank Guarantee it shall be issued by Nationalized/Scheduled Indian Bank but its confirmation shall be done only from the Head Office of the Bank.

20.3 Failure of the successful contractor to comply with the requirements of sub-clause 2.1 shall constitute sufficient grounds for cancellation of the award of work and forfeiture of the Earnest Money. In case of MES enlisted contractor, amount equal to the Earnest Money stipulated in the Notice Inviting Tender, shall be notified to the tenderer for depositing the amount through MRO issue of tender to such tenderers shall remain suspended till the aforesaid amount equal to the Earnest Money is deposited in Government Treasury.

20.4. All compensation or other sums of money payable by the contractor to the Government under the terms of this contract or under any other contract with Government may be deducted from, or paid by the sale of a sufficient part the Performance Security or from the interest arising there from or from any sums which may be due or become due to the contractor by the Government on any account whatsoever and in the event of his Performance Security being reduced by reason of any such deduction, or sale as aforesaid, the contractor shall within ten days thereafter make good in cash or securities endorsed as aforesaid , any sum or sums which may have been deducted from or realized by the sale of his Performance Security or any part thereof. Government shall not be responsible for any loss of securities or any depreciation in the value of securities while in their charge nor for loss of interest thereon.

20.5. In the event of contract being cancelled, under condition 52, 53 & 54 of General Conditions of Contract, the Performance Security shall be forfeited in full and shall be credited into consolidated fund of India.

21. **RELEASE OF PERFORMANCE SECURITY/INSURANCE SURETY BONDS.** The Performance Security deposit mentioned above may be refunded to the contractor after the expiration of Defect Liability Period (Condition 49 of 2249, General conditions of Contracts) provided always that the contractor shall first have been paid the final bill and have rendered a No-demand Certificate (IAFW-451).

22. **COMPLETION OF DEFECT LIABILITY PERIOD:-** The work shall be treated as completed within the provisions of condition 49 of IAFW-2249 only after the whole work is completed under the contract and taken over by the GE. The defects liability period mentioned in condition 46 of IAFW-2249 shall be 01 (One) Yrs and shall commence from the date of completion for as mentioned in completion certificate issued by the GE.

23. If rate quoted for similar / identical items in different items of BOQ, the lowest rate quoted shall only be considered.

SIGNATURE OF CONTRACTOR  
DATE:

AGE (Contracts)  
For ACCEPTING OFFICER

**SCHEDULE OF CREDIT****REPAIRS TO AREA DRAINS, CULVERTS PATHS, DRAIN COVERS, COMPOUND WALL FENCING, HARD STANDING AND APPROACH PATHS AND MISC ITEMS OF WORKS IN TECH AREA AND KHAVDA AREA AT AF STN BHUJ**

1	The quantity covered under this schedule are for the items obtained from dismantling covered under Schedule 'A'.
2	The quantity given under Column 4 are provisional and may be varied as per the actual quantity obtained at site as per measurement.
3	The rates inserted are firm and the amount of Schedule is directly deductible from the amount of Schedule 'A' to arrive at contract sum.
4	None of the item listed under this Sch shall be incorporated in the work unless specifically mentioned under description of item under Sch 'A'
5	Items listed under this Sch shall be removed from site by contractor under his own arrangement immediately after the same is inspected and accounted for by the EIC.
6	The contractor is advised to inspect the site the quality and quantity of items considered under this Sch before quoting his tender.
7	If any item dismantled under Sch 'A' whose qty found surplus after reuse in this work but not considered or taken in account under Sch of credit shall be removed to MES store yard and unit rates quoted by the contractor are deemed to include this provision.
8	While dismantling/demolition items obtained from other than those mentioned in Sch of credit shall be government property and deposited to MES store.

Ser No	Description of item	Unit	Qty	Rate	Amount
1	2	3	4	5	6
1	PCC block	CUM	30.00	150.00	4500.00
2	Old stone slabs/tiles	SQM	265.00	10.00	2650.00
3	Old steel obtained from site	KG	1600.00	20.00	32000.00
4	Old u/s barbed wire/concertina coil	RM	600.00	5.00	3000.00
5	Old u/s rcc/steel posts	RM	175.00	20.00	3500.00
6	Old u/s chainlink fencing	SQM	300.00	35.00	10500.00
7	Old U/s RCC Pipe 300mm Dia	RM	12.00	10.00	120.00
<b>Total</b>					<b>56,270.00</b>

SCHEDULE OF CREDIT (Contd...)

SUMMARY

- |     |   |                     |
|-----|---|---------------------|
| (a) | Total B/F from BOQ                                    | Rs _____            |
| (b) | Deduct amount of Sch of Credit B/F from SI page No 21 | <b>Rs 56,270.00</b> |

CONTRACT SUM Rs \_\_\_\_\_

(Rupees \_\_\_\_\_ only)

(SIGNATURE OF CONTRACTOR)

AE (QS & C)  
For Accepting Officer

In lieu of IAFW-1779-A (Revised 1955)

**SCHEDULE 'B'**  
**ISSUE OF MATERIALS TO THE CONTRACTORS**  
**(See Condition 10 of IAFW 2249)**

Srl No	Description	Rate at which materials will be issued to the Contractor	Place of issue ( by name)	Remarks	
1	2	Unit 3	Rate 4	5	6

---NIL---

\_\_\_\_\_  
SIGNATURE OF CONTRACTOR

AGE (Contracts)  
for Accepting Officer

**SCHEDULE 'C'**

**LIST OF TOOLS AND PLANTS (OTHER THAN TRANSPORT WHICH WILL BE HIRED TO THE CONTRACTOR)**  
**(See Condition 15, 34 and 35 OF IAFW-2249)**

Sl No.	Quantity	Particulars	Details of MES crew supplied.	Hire charges per unit Per working day	Standby charges per unit (by off name)	Place of issue	Remarks
				Rs. Ps.	Rs. Ps.		

----- NIL -----

\_\_\_\_\_  
(SIGNATURE OF CONTRACTOR)

AGE (Contracts)  
FOR ACCEPTING OFFICER

**SCHEDULE 'D'**

**TRANSPORT TO BE HIRED TO THE CONTRACTOR (SEE CONDITIONS 16 AND 35 OF IAFW-2249)**

Sl No.	Qty	Particulars of MES	Details for unit Supplied	Hire charges per working day	Stand by charges per unit per off day	Place of issue (by name)	Remarks
--------	-----	--------------------	---------------------------	------------------------------	---------------------------------------	--------------------------	---------

-----NIL-----

\_\_\_\_\_  
(SIGNATURE OF CONTRACTOR)

AGE (Contracts)  
FOR ACCEPTING OFFICER

DATED \_\_\_\_\_

In lieu of IAFW-1779-A (Revised 1955)

**T E N D E R**

To,

THE PRESIDENT OF INDIA,`

Having examined and perused the following documents :-

1. Specifications signed by Garrison Engineer (AF) Bhuj.
2. Drawings detailed in particular specifications.
3. Schedule 'A', 'B', 'C' & 'D' attached thereto.
4. MES Standard Schedule of Rates Part-I (Specifications) – 2009 and Part-II (Rates) – 2020 together with amendment No **1 to 3** for Part-I and amendment No **1 to 122 and Section No 30** for Part-II hereinafter referred to the MES schedule.
5. General Conditions of Contracts IAFW-2249 (1989 Print) together with amendment No 1 to 49 and errata 1 to 20 and Schedule of Minimum Fair Wages as applicable.
6. **Water: Refer condition 31 of IAFW 2249 (GCC) Water will be supplied by MES (Refer condition 8 of Special Conditions).**
7. Should this tender be accepted

I/We agree :-

\* (a) That the sum of **Rs 89,910.00 (Rupees Eighty Nine Thousand Nine Hundred Ten Only)** forwarded as Earnest money shall either be retained as cost of Security Deposit to be refunded by the Government on receipt of the appropriate amount of security deposit all as per Condition 22 of IAFW-2249.

(b) To execute all the works referred to in the said documents upon the terms and conditions contained or referred to therein at the **item rates** contained in the aforesaid Schedule 'A' or at such other rates as may be fixed under the provisions of Condition 62 and to carry out such deviation as may be ordered vide Condition 7 of IAFW-2249 upto maximum of **07 % (Seven) percent** and further agree to refer all disputes as required by Condition 70 & 71 of IAFW – 2249 to the Sole Arbitrator of Serving Officer to be appointed by Chief Engineer (AF) Gandhinagar or in his absence the officer officiating as Chief Engineer (AF) Gandhinagar, whose decision shall be final conclusive and binding.

\* To be deleted whichever is not applicable.

Contd.....

(In lieu of IAFW-1779A)

SIGNATURE \_\_\_\_\_ Name \_\_\_\_\_

in the capacity of ----- duly authorized to sign the tender for on behalf of

M/s \_\_\_\_\_

Witness

Postal Address :

\_\_\_\_\_  
(Name )

TELEGRAPHIC :  
ADDRESS

TELEPHONE NO :

Address :-

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**ACCEPTANCE**

\_\_\_\_\_ alteration(s) have/has been made in this tender documents and as evidence that/these alteration(s) was/were made before the execution of the contract agreement, it/they has/have been initialed by the contractor and **Shri Grijesh Singh Chauhan, AGE (Contract)**.

The said officer(s) is/are hereby authorized to sign and initial on my behalf the documents forming part of this contract.

The above tender is accepted by me on behalf of the President of India in respect of Schedule 'A' attached hereto at the prices quoted therein on this \_\_\_\_\_ day of \_\_\_\_\_ 2026.

Dated: This ..... day of .....

Appointment  
EE  
Garrison Engineer (AF)  
Bhuj-Kutch – 370 001  
(FOR AND ON BEHALF OF THE PRESIDENT OF INDIA)

**GENERAL CONDITIONS OF CONTRACTS**

**(IAFW-2249 PRINT 1989) FOR LUMP SUM CONTRACTS (IAFW-2159)**

**AND**

**(IAFW – 2249 PRINT 1989) FOR MEASUREMENT CONTRACTS (IAFW 1779-A)**

**AND**

**SCHEDULE OF MINIMUM FAIR WAGES**

1. A copy of the MES GENERAL CONDITIONS OF CONTRACT (IAFW-2249 Print-1989) with errata and amendments has been supplied to me/us and is in my/our possession. I/We have read and understood the provisions contained in the aforesaid GENERAL CONDITIONS OF CONTRACTS before submission of this tender and I/We agree that I/We shall abide by the terms and conditions thereof.

2. It is hereby further agreed and declared by me/us that the MES General Conditions of Contracts (IAFW-2249 of Print 1989) including condition 70 thereof pertaining to settlement of disputes by Arbitration containing 33 pages (Serial Page No. **26 to 59** ) with errata 1 to 20 and Amendment Nos 1 to 49 containing 17 pages (Srl Page Nos. **60 to 76**) form part of these tender documents.

3. It is hereby agreed that the "Schedule of minimum Fair wages" (SMFW) as published vide Government of India Notification up to the last date of receipt of tender documents forms part of these tender documents. My/Our signature hereunder amounts to my/our having read and understood the provisions contained therein and I/We agree that I/We shall abide by the same and that aforesaid documents form part of this tender.

**NOTE :-**

- (i) The documents mentioned above can be seen in the office of the Garrison Engineer (AF), Air Force, Bhuj-Kutch or in any other MES GE's offices during working hours.
- (ii) In case of difference in interpretation due to wordings of English and Hindi versions, the English version will prevail as per Article 348 of constitution of India.

\_\_\_\_\_  
SIGNATURE OF CONTRACTOR

AGE (Contracts)  
for ACCEPTING OFFICER

**SCHEDULE OF MINIMUM FAIR WAGES**

1. It is hereby agreed that the "Schedule of minimum fair wages" (SMFW) as published vide Government of India Notification upto the last date of receipt of tender documents forms part of these tender documents. My/our signature hereunder amounts to my/our having read and understood the provisions contained therein and I/We agree that I/We shall abide by the same and that aforesaid documents form part of this tender.

SIGNATURE OF CONTRACTOR  
DATED :

AGE (Contracts)  
FOR ACCEPTING OFFICER

Note : -

Schedule of Minimum fair wages "referred to above is available for reference in the Office of Accepting Officer"

**PARTICULAR SPECIFICATIONS : PART - I**  
**SPECIAL CONDITIONS**

**1. GENERAL.**

1.1 The following special conditions shall be read in conjunction with the General Conditions of Contracts IAFW-2249, IAFW-2159 and IAFW-1779 – A including Errata and Amendments thereto. If any provision in these special conditions is at variance with that of the above mentioned documents, the provision in these special condition to take precedence there over.

1.2. The work under this contract shall be carried out in accordance with Schedule 'A', the Particular Specifications, drawings and other provisions in MES Schedule.

1.3. The term General Specifications referred to hereinbefore as well as referred to in IAFW-2249 (General Conditions of Contracts), shall mean the specifications contained in the MES Schedule.

1.4. General Rules, Specifications, special Conditions and all preambles in the MES Schedule shall be deemed to apply to the works under this contract. In case of any discrepancy, the provisions in these documents shall take precedence over the provisions in the MES Schedule.

**2. ADMISSION TO SITE BY CONTRACTORS AND RESPONSIBILITY TO ASCERTAIN HIS OWN INFORMATION.**

(i) The tenderer shall contact the Garrison Engineer for the purpose of inspection of site(s) and relevant documents other than those sent herewith, who will give reasonable facilities for this purpose. The tenderer shall also make themselves familiar with working conditions, accessibility of site(s), availability of materials and other cogent conditions, which may affect the entire completion of work under this contract.

(ii) The tenderer shall be deemed to have visited the site(s) and made themselves familiar with the working conditions, whether they actually inspect the site(s) or not.

**3. SECURITY AND PASSES.**

3.1. Refer condition 25 of IAFW-2249. The contractor shall employ only Indian Nationals as his representatives, servants and workmen and verify that their antecedents and loyalty before employing them for the works. He shall ensure that no person of doubtful antecedents and Nationality is in any way, associated with the work. If for reasons of technical collaboration or other consideration, the employment of any foreign national is unavoidable, the contractor shall furnish full particulars to this effect to the Accepting Officer at the time of submission of his tender.

3.2. The contractor shall, on demand by the Engineer-in-Charge, submit a list of his agents, employees and work people concerned and shall satisfy the Engineer-in-Charge as to the bonafides of such people.

3.3. The Engineer-in-Charge shall at his discretion have the right to issue passes as per rules and regulations of the Installation/Area in force to control the admission of the contractor, his agents, employees and work people to the site of the work or any part thereof. Passes should be returned at any time on demand by the Engineer-in-Charge or the authorities concerned and in any case on completion of the work.

3.4. The contractor and his agents, employees and work people shall observe all the rules promulgated by the authority controlling the installation/area in which the work is to be carried out, eg., prohibition of smoking and lighting, fire precautions, search of persons on entry and exit, keeping to specific routes, observing specified timing etc. Nothing extra shall be admissible for any man hours etc lost on this account.

**4. CONDITIONS OF WORKING.**

**4.1. CONDITIONS FOR WORKING IN RESTRICTED AREA.**

4.1.1. Visit to site within the Restricted Area : - Permission to enter the restricted area at the time of submission of tenders can be obtained through Garrison Engineer. Tenderers are advised to send prior intimation of their agents, representatives, etc., if any dates and time of their proposed visit so that necessary arrangements may be made by GE to secure admission. Whether a tenderer visits the site or not he shall be deemed to have full knowledge of the restriction of entering into/exit from the site and working within the Restricted Area.

**PARTICULAR SPECIFICATIONS : PART - I**  
**SPECIAL CONDITIONS (CONTD)**

4.1.2. **ENTRY/EXIT** : - The contractor, his agent(s), representatives, workmen etc will be allowed to enter through and leave only from such gate or gates and at such times as the GE or the authorities in charge of the Restricted Area may at their sole discretion permit to be used. The contractor's authorized representative is required to be present at the place of entry and exit for the purpose of identifying his carts, trucks etc. to the personnel in charge of the Security of Restricted Area.

4.1.3 It is responsibility of contractor to submit the police verification of all workmen before processing for passes/token for entry in restricted area.

**4.2 THE WORK LIES IN UNRESTRICTED AREA**

4.2.1 The contractor and his agents employees and work people shall observe all rules promulgated by the authority controlling the area in which the work is to be carried out, e.g. prohibition of smoking, lighting and fire precautions, search of persons at entry and exit keeping to specified routes, restricted hours of working etc. Any person found violating the security rule laid down by the authority shall be immediately expelled from the area without assigning any reason whatsoever and the contractor shall have no claim on this account. Nothing shall be admissible for any man-hours lost on this account.

4.2.3. **IDENTITY CARDS OR PASSES** : - The contractor, his agents and representatives are required individually to be in possession of an identity card or pass duly verified by the Garrison Engineer. The identity card or pass will be examined by the Security Staff at the time to entry into or exit from the Restricted Area and also at any time or number of times inside the Restricted Area.

4.2.4. **IDENTITY OF WORKMEN** : - Every workmen shall be in possession of an Identity Card. The identity card will be issued after thorough investigation of the antecedents of the labourers by the contractor and attested by the Officer-in-Charge of the unit concerned in accordance with the standing rules and regulations of the units.

4.2.4.1. Contractor shall be responsible for the conduct and action of his workmen, agents or representatives.

4.2.5 **SEARCH** :- Thorough search of all persons and transport shall be carried out at each gate and for as many times as a gate used for entry or exit and may also be carried out any time or any number of times at the work site within the Restricted Area.

4.2.6. **FEMALE SEARCHER** : - If the contractor desires to employ female labourer on works to be carried out inside the area of a Factory, Depot, Park etc and a female searches is not borne on the authorized strength of the Factory, Depot, Park etc., at the time of submission of the tender he shall be deemed to have allowed in his tender for pay and allowances etc, for Female Searchers (Class IV servants/Gp 'D' Servants) calculated for the period, female labourer is employed by him inside the area. If more than one contractor has/have to employ female searcher in addition to the authorized strength of the Factory, Depot, Park etc., the salary and allowance paid to the additional female searcher(s) shall be distributed on an equitable basis between the contractors employing female labour taking into consideration the value and period completion of their contracts. The GE's decision in regard to the amount recoverable on this account from any contractor shall be final and binding.

**4.2.7. WORKING HOURS.**

4.2.7.1 The units controlling the restricted area, usually, work during six days in the week and remain closed on the 7th day. The working hours available to contractor's labour and staff however, accordingly get reduced because of the time taken in security checks observed at the time of entry, exit and during working hours.

4.2.7.2. The exact working hours, days and non working days observed for the restricted area, where works are to be carried out shall be deemed to have been ascertained by the contractor before submitting his tender. The tenderer's attention is invited to the fact that the total number of working hours for a unit are prescribed in regulations and they cannot be increased by the Garrison Engineer.

**PARTICULAR SPECIFICATIONS : PART - I**  
**SPECIAL CONDITIONS (CONTD)**

4.2.7.3. Contractor's materials, transport etc., shall normally be permitted to come in/go out of the area between 9 AM to 5 PM only.

4.2.7.4. Contractor may also be allowed to carry out the work beyond 5 PM and upto 6 AM (day and night) at with prior approval of GE but no movements of materials and transport to out of site of work shall be permitted during night unless special permission is obtained from the Factory/Unit authorities.

4.2.8. **WORKING ON HOLIDAYS**. The contractor shall not carry out any work on Gazetted Holidays, weekly holidays and other non working days except when he is specially authorized in writing to do so by the GE. The GE may at his sole discretion declare any day, as holiday or non working day without assigning any reasons for such declaration.

4.2.9. **ACCESS TO RESTRICTED AREA AFTER COMPLETION OF WORKS**. After the works are completed and surplus stores etc., removed, the contractor, his agents, representatives or workmen etc, may not be allowed to have access to the Restricted Area except for attending any rectification of defects pointed out to him by the GE.

4.2.10 **FIRE PRECAUTIONS**.

4.2.10.1. The contractor, his agents, representatives, workmen etc. shall strictly observe the orders pertaining to fire precautions prevailing within the restricted area.

4.2.10.2. Motor Transport Vehicles, if any allowed by authorized to enter the restricted area, must be fitted with serviceable fire extinguishers.

5. **MINIMUM WAGES PAYABLE**.

5.1. Refer Condition 58 of IAFW-2249. The schedules of minimum fair wages as published vide Govt of India Notification upto the date of receipt of tender documents shall forms part of the tender documents and are given at pages of tender documents. The contractor shall not pay wages lower than minimum for labour as fixed by the Govt of India/State Govt/Union Territory under minimum wages act or contract labour (Abolition and Regulation Act) whichever is higher.

5.2. The fair wages referred to in Condition 58 of IAFW-2249 will be deemed to be same as the minimum wages payable as referred to above.

5.3. The contractor shall have no claim, whatsoever, if on account of local factors and or regulations, he is required to pay the wages in excess of minimum wages as described above during the execution of work.

6. **ROYALTIES**. (Reference Condition 14 of General Conditions of Contracts (IAFW-2249). No quarries on Defence Land are available.

7. **LAND FOR TEMPORARY WORKSHOP, STORES ETC**. Delete the following from lines 5 to 9 of sub para 1 of Condition 24 of IAFW-2249 reading "In the event of area of land \_\_\_\_\_ and allotted to him and insert as under :-

"The contractor shall be allotted free of charge, the area as marked on the lay out plan for the purpose of erection of temporary workshop, stores, etc. No M of D Land is available for accommodation of labour and canteen in the restricted area for which the contractor shall make his own arrangement at his own expense. However, land for accommodation of labour and canteen in unrestricted area may be allotted to him. Separate land will be allotted to the contractor for the storage of materials, temporary workshop and offices, for which he shall pay the nominal rent of Rs. 1/- per year or part of a year as mentioned in Condition 24 of IAFW-2249. The land/open space available within vicinity of site of work as directed by GE may also be used by the contractor for these purposes but free of charge".

**PARTICULAR SPECIFICATIONS : PART - I**  
**SPECIAL CONDITIONS (CONTD)**

8. **WATER.**

8.1.A. **REFER CONDITION 31 OF GENERAL CONDITIONS OF CONTRACTS IAFW-2249 AND CLAUSE 1.13 OF MES SCHEDULE.**

8.1.B. Water will be supplied by the MES. The tenderer is advised to visit the site of works to ascertain availability of water from civil sources or from nearby natural sources outside Ministry of Defence land. The contractor shall be allowed, if he so desires to install pump, tube well at site of work at places approved by Engineer-in-Charge and nothing extra shall be charged from the contractor. The contractor shall remove the hand pumps, tube wells as and when asked to do so by Engineer-in-Charge/GE and in any case on completion of work and before issue of completion certificate, unless GE desires that these hand pumps, tube wells be left in position and contractor agrees to do so without claiming cost thereof from department. No compensation whatsoever shall be admissible to the contractor, if he is required to remove the pump(s), tube wells before completion of work. Use of water from such sources shall only be permitted if, found after testing, potable and fit for use in h work. The water from such sources shall be got tested by the contractor from the laboratory approved by GE who shall after satisfying himself permit the contractor to use the water from such sources, testing charges shall be borne by the contractor

9. **CO-OPERATION WITH OTHER AGENCIES** : - The contractor shall permit free access and generally afford reasonable facilities to other agencies or department workmen engaged by the Govt to carry out their part of the work, if any, under separate arrangement.

10. **ELECTRIC SUPPLY.** : - Electric supply required for the work upto a maximum of 5 KV Single Phase shall be made available by the MES at points shown on site plan. The location of electric point(s) will be shown by GE. KWH meters to register the electric energy supply supplied and main switch shall be provided and installed by the MES. Contractor shall provide all necessary cable fittings etc from the tapping point in order to ensure a proper and suitable supply of electricity for execution of work. All contractor installations shall conform strictly in accordance with Indian Electricity Act and Rules.

10.1 Contractor will be charged for the electric energy consumed for execution of works at the following rates :-

- (i) At Rs. 8.33 - per unit for lighting.
- (ii) At Rs. 8.33 - per unit for power.

10.2. MES do not guarantee continuity of supply and no compensation whatsoever shall be allowed for supply becoming intermittent or for breakdown in the system.

10.3. GE or his representative shall be free to inspect all the power consuming devices or any electric lines provided by the contractor or any devices or any electric lines provided by the contractor, which is not to the satisfaction of the GE shall be disconnected from the supply, if so directed by him.

11. **NET WORK ANALYSIS.** :- The time and progress chart to be prepared as per Condition 11 of General Conditions of Contracts (IAFW-2249) shall consist of detailed network analysis and a time schedule. The critical path network will be drawn jointly by the GE and the contractor soon after acceptance of tender. The time scheduling of the activities will be done by the contractor so as to finish the work within the stipulated time. On completion of the time work schedule a firm calendar date schedule will be prepared and submitted by the contractor to the GE who will approve it after due scrutiny. The schedule will be submitted in four copies within two weeks from the date of handing over the site.

**PARTICULAR SPECIFICATIONS : PART - I**  
**SPECIAL CONDITIONS (CONTD)**

11.1. During the currency of the work, the contractor is expected to adhere to the time schedule and this adherence will be a part of his/their performance under the contract. During the execution of the work, the contractor is expected to participate in the reviews and updating of the network undertaken by the GE. These reviews may be undertaken at the discretion of the GE either as a periodical appraisal measure or when the quantum of work ordered on the contractor is substantially changed through deviation orders or amendments. Any revision of the time schedule as a result of the review will be submitted by the contractor to the GE within a week for his approval after due scrutiny.

11.2. The contractor shall adhere to the revised time schedule thereafter. In case of contractor disagreeing with revised schedule, the same will be referred to the Accepting Officer, whose decision shall be final, conclusive and binding. GE's approval to the revised schedule resulting in a completion date beyond the stipulated date of completion shall not automatically amount to a grant of extension of time. Extension of time shall be considered and decided by the Appropriate authority mentioned in Condition 11 of IAFW-2249 and separately regulated.

11.3. Contractor shall mobilize and employ sufficient resource to achieve the detailed schedule within the broad time frame work of the accepted method of work and safety. No additional payment will be made to contractor for any multiple shift work or other intensive methods contemplated by him in his schedule, even though the time schedule is approved by the department.

**12. SAMPLE OF MATERIALS.**

12.1. Refer Condition 10 of IAFW-2249 and clause 1.6 and 1.7 of MES Schedule.

12.2. Materials provided by the contractor for incorporation in the work shall unless otherwise specified in the particular specifications be ISI marked. IS means Indian Standards as issued by the Bureau of Indian Standards. Wherever in the specifications IS is referred to, it means the edition with all amendments, current on the due date of receipt of the tender documents. The materials listed in Particular Specifications Part-II shall be of the make as specified therein.

12.3. The tenderer is advised to inspect other materials which are displayed in the office of the GE, before submitting his tender. The tenderer shall be deemed to have inspected the samples and satisfied himself as to the nature and quality of materials, he is required to incorporate in the work irrespective of whether he has actually inspected them or not. The materials to be incorporated actually in the work by the contractor shall be ISI marked or shall be equal or superior in quality to samples displayed and shall comply with the specifications given in tender documents.

12.4. The contractor shall not procure materials unless the samples are first got approved by the Garrison Engineer.

13. **RECORD OF CONSUMPTION OF CEMENT.** Refer Particular specification Part-II here-in-after.

14. **PERIOD FOR KEEPING THE TENDER OPEN.** The tender shall remain open for the acceptance for a period of 60 (SIXTY) days from the date on which the tenders are due to be submitted. Period of sixty days shall be counted excluding the date of submission of tender.

**15. ADVANCE ON ACCOUNT OF MATERIALS WHICH DOES NOT LOSE IDENTITY**

15.1 The contractor may be paid advance on account of the full value of the under mentioned materials only, brought on the site, on his furnishing guarantee Bonds from a Schedule Bank for the amount of retention money which should be otherwise be recoverable from him under the contract :-`

(a) Paving Bitumen.

(b) All other non-perishable materials as decided by GE.

15.2 The Bank Guarantee Bonds shall be executed for a period on a form as directed by the Accepting Officer. The contractor shall further arrange to extend the period of Guarantee Bond if and when necessary, as directed by the Accepting Officer or shall furnish fresh guarantee bond of similar value.

15.3 It will be noted that advance on account to the full value to materials brought on the site is permissible only in respect of fittings and fixtures and other manufactured items which do not lose their identity. Materials like bricks, aggregate precast concrete and similar items shall not be taken in the list.

**PARTICULAR SPECIFICATIONS : PART - I**  
**SPECIAL CONDITIONS (CONTD)**

15.4 Advance on account for Bitumen shall be allowed only after furnishing necessary insurance of material against loss due to fire, spillage, theft etc

16. **SECURITY OF CLASSIFIED DOCUMENTS.** Contractor's special attention is drawn to Conditions 2-A & 3 of IAFW-2249 (General Conditions of Contracts). The contractor shall not communicate any classified information regarding the work either to subcontractors or others without the prior approval of the Engineer-in-Charge. The contractor shall also not make copies of the design/drawings and other documents furnished to him in respect of the work, and shall return all documents on completion of the works or earlier on determination of the contract. The contractor shall along with the final bill, attach a receipt of his having returned the classified documents as per Condition 3 of IAFW-2249 (General Conditions of Contracts).

17. **RECORD OF MATERIALS.** The quantity of materials such as paints, water proofing compound chemical for anti-termite treatment and the like as directed by the Engineer-in-Charge (the quantity of which can not be checked after incorporation in the works), shall be recorded in measurement books and signed by the contractor and the Engineer-in-Charge as a check to ensure that the required quantity has been brought to site for incorporation in the work.

17.1. Materials brought to site shall be stored as directed by the Engineer-in-Charge and those already recorded in measurement book shall be suitably marked for identification.

17.2. The contractor shall, on demand, produce to the GE, original receipted vouchers/invoices in respect of the supplies. The vouchers/invoices shall be defaced and stamped by Engineer-in-Charge indicating contract number, name of work, under his dated signature. The contractor shall ensure that the materials brought to site in original sealed containers/packing, bearing manufacturer's marking except in the case of the requirement of material(s) being less than smaller packing.

17.3. Contractor shall produce vouchers/invoices from the manufacturers and/or their authorized agents for the full quantity of the following materials, as applicable as a pre-requisite before submitting claims for payment for advances on account of the work done and/or materials collected in accordance with Condition of Contracts IAFW-2249.

- (a) Water proofing compound.
- (b) Paints, Distemper and cement base paint.
- (c) Cast iron pipes and fittings.
- (d) Sanitary fittings.
- (e) Steel windows/ventilators.
- (f) Floor/Wall Tiles.
- (g) Cement
- (h) Reinforcement steel/ structural steel
- (j) GI tubing/NP2
- (k) concertina coil
- (l) Galvanised
- (m) Interlocking tiles
- (n) Chain link
- (o) Other materials not specified above but specified in Contract and as directed by EIC.

**PARTICULAR SPECIFICATIONS : PART - I**  
**SPECIAL CONDITIONS (CONTD)**

18 **ACCEPTANCE QUALITY OF WORK AND FINISHES**

18.1 To determine the acceptable standard of materials and workmanship/final finishes and layout of fittings etc, the contractors shall execute stages of work viz excavation, foundation concrete walling up to plinth, lintel, roof levels, roofing, flooring, joinery built-in-items finishes and the like and services i.e. Internal Electrification, water supply plumbing sanitary fitting of work under the close supervision of Engineer-in-Charge and shall get it approved by the GE. The workmanship of various trades and finishes as such shall serve as guiding samples for the work in remaining works.

19. **CONTRACTOR'S PLANT/EQUIPMENT AT SITE.**

(a) The contractor shall furnish to the Engineer-in-Charge every morning distribution return of his plants/equipments on the site of work stating the following particulars :-

- (i) Particulars of plants/equipments, their make, manufacturer's Model No. if any, Registration No if any, capacity, year of manufacture and year of purchase etc.
- (ii) Total No (Quantity) on site of work.
- (iii) Location, indicating No (Quantity) at each location on the site of work.
- (iv) Purchase value on the date of purchase. For the purpose of the condition plant/equipment, vehicle No. ie., of trucks and lorries but neither the workman's tools/equipment shall be given. The Engineer-in-Charge shall record the particulars supplied by the contractor in the works diary and send the return to the GE for record in his office.

(b) Loss or damage on account of enemy action. If as a result of enemy action the contractor suffers any loss or damage the Government shall reimburse to the contractor such loss or damage to the extent and in the manner hereinafter provided:-

- (i) The loss suffered by him on account of any damage or destruction of his plant/equipment (as defined in special conditions) above or materials or any parts thereof. (The amount of loss assessed by the Accepting Officer of the Contract or the CWE in case contracts accepted by GE, on this account shall be final and binding).
- (ii) The compensation paid by him under any law for the time being in force to any workmen employed by him for any injury caused to him or the workmen's legal successors for loss of the workman's life.
- (iii) Payment of compensation for loss or damage to any work or part of work carried out (The amount of compensation shall be determined in accordance with Condition 48 of General Conditions of Contracts IAFW-2249).

No reimbursement shall be made nor shall any compensation be payable under the above provision unless the contractor had taken Air Defence Precautions ordered in writing by the GE/OC concerned or in the absence of such orders, reasonable precautions. No reimbursement shall be payable nor shall any compensation be payable for any plant/equipment or materials not lying on site of work at the time of enemy action.

20. **RELEASE OF PERFORMANCE SECURITY DEPOSIT.**

20.1. Refer Conditions 22 and 68 of IAFW-2249.

20.2. The Performance Security Deposit may be refunded to the contractor after expiration of Defect Liability Period (Condition 49 of IAFW-2249) by th GE provided always that the contractor shall first have been paid the final bill and have rendered No-Demand Certificate (IAFW-451).

21. **OFFICIAL SECRET ACT.** The Contractor shall be bound by the Official Secret Act 1923.

**PARTICULAR SPECIFICATIONS : PART - I**  
**SPECIAL CONDITIONS (CONTD)**

22. **CLEANING DOWN**. Refer Condition 49 of IAFW-2249, General Conditions of Contracts. The Contractor shall clean all floors, walls, remove cement/lime/paint marks/drops, etc., clean the joinery glass panes etc., touch up all painters work and carry out all other necessary items of work in connection therewith and leave the whole premises clean and tidy before handing over the building.

23. **DAMAGES TO EXISTING STRUCTURES**. Any damage done to existing structure and existing pavements etc during the execution of the work shall be made good by the contractor at his own expense. Rectification, reinstatement, replacement, making good and touching up etc, shall be carried out to conform to the materials and workmanship originally provided and to the satisfaction of the Engineer-in-Charge. In case of any dispute on this account, the decision of the GE shall be final and binding.

24. **VALUATION OF DEVIATION**. The Deviation Orders shall be priced as per Condition 62 of IAFW-2249 General Conditions of Contracts.

25. **OTHER AGENCIES AT SITE**. The contractor's attention is invited to the fact that during the currency of the contract, work or other services, which are outside the scope of this contract, may be entrusted for execution to other agencies. The contractor shall afford all facilities for such agencies to work contemporaneously at the site of the work.

26. **REQUIREMENT OF ELECTRICAL LICENSE**.

26.01 For execution of electrical works/electrical component of works requiring Electrical Licence in accordance with Rule 29 mentioned above, the contractor shall have valid Electrical Licence issued by the concerned State/Union Territory in the name of the firm or get the work executed through an agency having valid Electrical License. Items of works under category (c) [including its sub-categories (i) to (vii)] and category (d) (v) shall also be executed in this manner to the extent Rule 29 mentioned above is applicable to such items.

26.02 Prior to commencement of electrical work/electrical component of works and other works as mentioned in Para 26.01 above, copy of valid Electrical License in the name of the contractor or copy of agreement with agency having valid Electrical License along with agency's Electrical License shall be submitted by the contractor to the Accepting Officer through AGE E/M with copy to CWE, as applicable. In case contractor does not possess valid Electrical License and he intends to get such work executed through agency having valid Electrical License and with whom he has agreement, prior approval of such agency in all contracts shall be got done from competent authority, who shall be concerned CWE (concerned CE Zone/CCE in case there is no CWE). Copy of License shall be kept on record by GE /AGE (I)/PM as well as CWE/CE Zone/CCE for future reference.

26.03 GE and concerned AGE/Engineer-in-Charge shall ensure that electrical work/electrical component of works and other works as mentioned in Para 26.01 above required to be executed in accordance with Rule 29 mentioned above are executed by contractor/agency having valid Electrical License, as applicable. In addition, Supervisor for execution of electrical works/electrical component of works employed by the contractor shall possess Supervisor Certificate of Competency issued by concerned State Govt/Union Territory and the worker/tradesmen for execution of electrical works/electrical component of work shall hold necessary permit issued by concerned State Govt/Union Territory.

26.04 Reference of Electrical License and details of Supervisors Certificate of competency and permit of tradesmen employed for execution of electrical work/ electrical component of works shall be duly incorporated in the Work Dairy and relevant site documents respectively for the whole period during which such work is executed.

**PARTICULAR SPECIFICATIONS : PART - I**  
**SPECIAL CONDITIONS (CONTD)**

**27. REIMBURSEMENT/ REFUND VARIATION IN TAXES DIRECTLY RELATED TO CONTRACT VALUE OCTROI, SALES TAX, GST (Goods & Service Tax) & OTHER DUTIES**

27.1. The rates quoted by the Contractor shall be deemed to be inclusive of all taxes (including GST, Labour Welfare Cess/tax etc.), duties, Royalties, Octroi & other levies payable under the respective Statutes. No reimbursement/refund for variation in rates of taxes, duties, Royalties, Octroi & other levies, and/or imposition/abolition of any new/existing taxes, duties, Royalties, Octroi & other levies shall be made except as provided in sub-Para 26.2.1 here-in-below.

27.2.1. The taxes which are levied by Govt at certain percentage rates of Contract Sum/Amount shall be termed as "taxes directly related to Contract value" such as GST, Labour Welfare Cess/tax and like but excluding Income Tax. The tendered rates shall be deemed to be inclusive of all taxes directly related to Contract value" with existing percentage rates prevailing on last due date for receipt of tenders. Any increase in percentage rates of "taxes directly related to Contract value" with reference to prevailing rates on last due date for receipt of tender shall be reimbursed to the Contractor and any decrease in percentage rates of "taxes directly related to Contract value" with reference to prevailing rates on last due date for receipt of tenders shall be refunded by the Contractor to the Govt. / deducted by the Govt. from any payments due to the Contractor. Similarly imposition of any new "taxes directly related to Contract value" after the last due date for receipt of tenders shall be reimbursed to the Contractor and abolition of any "taxes directly related to Contract value" prevailing on last due date for receipt of tenders shall be refunded by the Contractor to the Govt./deducted by the Govt. from the payment due to the Contractor.

27.2.2 The contractor shall, within a reasonable time of his becoming aware of variation in percentage rates and/or imposition of any further "taxes directly related to Contract value", give written notice thereof to the GE stating that the same is given pursuant to this Special Condition, together with all information relating thereto which he may be in a position to supply. The contractor shall submit the other documentary proof/ information's as the GE may require.

27.2.3. The Contractor shall, for the purpose of this condition keep such books of account and other documents as are necessary and shall allow inspection of the same by a duly authorized representative of Govt, and shall further, at the request of the GE furnish, verified in such a manner as the GE may require, any documents so kept and such other information as the GE may require.

27.2.4. Reimbursement for increase in percentage rate/imposition of "taxes directly related to Contract value" shall be made only if the Contractor necessarily & properly pays additional "taxes directly related to Contract value" to the Govt. without getting the same adjusted against any other tax liability or without getting the same refunded from the concerned Govt. Authority and submits documentary proof for the same as the GE may require.

27.3 Any other condition stipulated by the tenderer regarding sales tax on works contracts will not be considered and such tender shall be liable for rejection.

28. Bidders must abide by the Code of Integrity for Public Procurement (CIPP) as mentioned in Para 7.2 of Ministry of Finance Manual for Procurement of Works 2022. The bidders shall sign declaration about abiding by the Code of Integrity for Public Procurement (CIPP). Transgression of this code may result in removal from list of enlisted contractors and also will be liable for cancellation of contracts, banning and blacklisting or action in competition Commission of India, and so on.

Signature of Contractor

AGE (Contract)  
For Accepting Officer

**PARTICULAR SPECIFICATIONS : PART - II****1. GENERAL**

1.1. Work under this contract shall be carried out as detailed in Schedule `A' and in accordance with drawings (where applicable), Particular Specifications, General Specifications, and other provisions given in MES Standard schedule of rates (here in after called MES schedule) Part – I of 2009 and Part – II of 2020 read in conjunction with each other.

1.2. Term `General Specifications' referred to in these documents as well as referred to in IAFW-2249 (General Conditions of Contracts) shall mean the specifications contained in the MES Schedule. Part –I of 2009.

1.3. General Rules, Specifications, Special Conditions and all preambles in the MES Schedule shall be deemed to be applicable to the work under this contract, unless specifically stated otherwise in these documents. In case of variance between provisions in these documents and those given in MES Schedule, the provisions in these documents shall take precedence over the aforesaid provisions in the MES Schedule. The term “as specified” wherever appears in tender documents and drawings (where applicable), relates to relevant particular specifications and in its absence general specifications.

1.4. All references to MES Schedule (Standard Schedule of Rates) in these specification relate to Part-I of MES Schedule unless otherwise mentioned. References to only some paragraphs/preamble of MES Schedule has been made in these particular specifications but other paragraphs/preamble and provisions as applicable are also to be followed for all sections/parts of Schedule `A' even though not particularly mentioned hereinafter.

1.5. Where specification for any item of work is not given in MES Schedule or in these particular specifications, specifications as given in relevant Indian Standard or Code of Practice shall be followed.

1.6 Any drawing which is mentioned in the drawings forming part of the tender or mentioned elsewhere in the tender documents, but not specifically mentioned in the list of drawings shall be deemed to be forming part of the tender. The tenderer shall see such drawings/details in the office of Accepting officer.

1.7. (a) Item Rate quoted by the tenderer shall be deemed to include for any minor details/items of work which are obviously and fairly intended and which may not have been included in these documents but which are essential for the execution and entire completion of the work.

(b) Decision of the Accepting Officer as to whether any minor details of work and/or construction are obviously and fairly intended to be included or not in the contract shall be final, conclusive and binding.

1.8. While executing the work it may be necessary to dismantle the existing items like pelmet boxes, etc., contractor shall make good and refix the disturbed items as if these were in original position. Any damage caused to existing items shall be made good by the contractor at his cost.

**2. SCOPE OF WORK**

2.1. The scope of work under this tender shall include the full, final and entire completion of the work described in Schedule `A' and as specified in particular specifications.

**3. GENERAL REQUIREMENT.**

3.1 The requirement pertaining to materials, conformity with Indian Electricity Act and Rules, Workmanship, Testing, record of installations, safety procedures and practices and fire safety shall be all as specified in MES Schedule Part-I clause 19.2.

3.2. The contractor is deemed to have included in his rates, cost of making holes/chases where required through Roads, masonry or concrete work for taking in cables/ conduits and conductor etc; and making good the same to match the existing work.

**PARTICULAR SPECIFICATIONS : PART-II (contd..)**

3.3 The work shall be carried out in a workman like manner all as per latest/ IE rules by fully qualified Licensed Electrician. The contractor shall produce the proof regarding the qualifications and experience of each tradesmen employed by him to the GE/Engineer-in-Charge on demand.

3.4 Any damages caused to any equipment/appliances/installation as a result of faulty workmanship or due to negligence in repairs in the opinion of GE, the contractor shall make good such damages/loss to the Government at his own cost and the decision of GE as regards the faulty workmanship/ negligence/assessment of loss to the Government shall be final and binding.

3.5 The contractor shall take all the precautions regarding safety of his workman. No extra cost on this account shall be admissible to the contractor. Any accident/injury in performance of this contract shall be at the sole risk and cost of the contractor and no compensation claim of whatsoever kind shall be entertained by the department.

3.6 The term "assessing the repairs in presence of Engineer-in-Charge" referred to in Schedule 'A' shall mean the inventory of works to be carried out by the contractor for repairs and shall form the basis of payment and shall be prepared and recorded jointly in triplicate.

3.7 Contractor shall ensure engagement of labourers and workmen for day to day only after getting shut down for safety purpose from Engineer-in-Charge.

**3.8 CONFORMITY WITH INDIAN ELECTRICITY ACT, RULES ETC.**

3.8.1 All electrical work shall be carried out in conformity with the requirement of Indian Electricity Act 1910 and Indian Electricity Rules 1956 framed there under and fire insurance Act as applicable.

**4. SAMPLES OF MATERIALS.**

4.1. The materials to be incorporated in the work by the contractor shall conform to relevant IS wherever applicable and also to the clauses of MES Schedule Part-I and shall also comply with the specifications particularly given hereinafter.

4.2. Samples of all materials to be incorporated in the work shall be approved by GE before incorporation in the work. The contractor shall when required by the GE produce paid vouchers of all the items to verify their correctness in respect of quality and genuinely.

**5. EXCAVATION AND EARTH WORK.**

5.1 Excavation and earthwork shall be carried out as specified in clause 18.42 and section 3 of MES Schedule Part-I.

5.2 Surplus soil after filling shall be removed to a distance of 50M as directed by Engineer-in-Charge.

5.3 Unless otherwise specified useful earth as directed by Engineer-in-Charge shall be used in back filling the excavation made.

**6.0 CEMENT**

6.1 Cement required for the work under the contract shall be procured, supplied and incorporated in the work by the contractor under his own arrangement. Cement shall be of tested quality and shall comply with the requirements mentioned in the SSR, IS specifications and particular specifications given hereinafter

**6.1.1 TYPE OF CEMENT**

Cement shall be Ordinary Portland Cement (OPC) Grade 43 conforming to IS 8112-2013 (Second revision) or Portland Pozzolana Cement (PPC) conforming to IS-1489-2015.

6.1.2 The checks and procedures for procurement and testing as specified hereinafter shall be followed before the cement supplied by the contractor is accepted and is approved for incorporation in the works.

**PARTICULAR SPECIFICATIONS : PART-II (contd..)**

6.1.3 **PROCUREMENT**: Cement shall be procured from the manufacturers /main producers as mentioned in Appendix 'B'.

6.1.3.1 The contractor shall furnish the particulars of the manufacturers of cement alongwith the date of manufacture to the GE for every lot of cement separately. The documents in support of the purchases of cement shall be verified by the site staff and GE. The cement so brought shall be fresh and in no case older than 60 days from the date of manufacture. Before placing the order for cement by the contractor, he shall obtain written approval from the GE regarding name of manufacturer, quantity of cement etc. Cement shall be procured for requirement of not more than two months at a time. The cement shall be consumed in the work within three months after receipt. Cement shall conform to the requirements of IS specification and each bag of cement shall bear relevant ISI mark. The weight of each consignment shall be verified by the GE and recorded. The content of cement shall be checked at random to verify the actual weight of cement per bag.

6.1.4 **USE OF PPC**: For using PPC, the following requirements should be met:-

- (a) PPC should meet the strength criteria of 43 Grade OPC as laid down in IS 8112-2013
- (b) In cold climate regions, where temperature is lower than 15°C, only OPC shall be used.
- (c) In under ground sump, overhead reservoir and building with span 10 metre and more, only OPC shall be issued.
- (d) Mixing of OPC & PPC shall not be allowed in a work. However with strict control of the ground executives, different buildings can have different types of cement.
- (e) While procuring PPC the following requirements are to be ensured and certificate to the effect is to be obtained by the contractor for each batch from the manufacturer and the same shall be submitted to the GE for approval to procure PPC.
  - (i) The quality of fly ash is strictly as per IS 1489 (Part I) – 2015
  - (ii) Fly ash is inter-ground with clinker not mixed with clinker.
  - (iii) Dry fly ash is transported in closed containers and stored in silos. Only pneumatic pumping should be used.
  - (iv) The fly ash has been received from thermal power plants using high temperature combustion above 1000°C should be issued.
  - (v) The fly ash content in PPC does not exceed 25% to ensure consistency.
- (f) Contractor may at his discretion use "OPC" or "PPC" in the work without any extra cost to the department.

6.1.5 **TESTING OF CEMENT**:

(a) The manufacturer/main producer shall carry out inspections and testing of cement in accordance with the relevant BIS provisions. The contractor shall submit the manufacturer's Test Certificate in original alongwith the Test sheet giving the result of each physical test as applicable in accordance with relevant IS provisions and the chemical composition of the cement or authenticated copy thereof, duly signed by the manufacturer with each consignment.

(b) The Engineer-in-Charge shall record these details in the Cement supply and Acceptance Register given here in below, after due verification: -

**PARTICULAR SPECIFICATIONS PART-II (Contd.....)**

**CEMENT SUPPLY & ACCEPTANCE REGISTER**

1. CA No & Name of Work
2. Control No/Consignment No.\*
3. Name of Manufacturer/Brand Name/Gde of Cement (a) Manufacturer \_\_\_\_ (b) Brand\_\_\_\_ (c) Grade\_\_\_\_\_
4. Qty of cement & Lot No./Week No.(in Bags): (a) Qty \_\_\_\_ (b) Lot No./Week No.\_\_\_\_
5. Manufacturer’s test certificates No.\_\_\_\_\_
6. Random Test Details
  - (a) Physical Test Report from \_\_\_\_ vide their letter No.\_\_\_\_ (Name of approved lab/Engr College)
  - (b) Chemical test report from \_\_\_\_\_ vide their letter No.\_\_\_\_\_ (Name of approved lab/College)
7. Details of Physical & Chemical properties:-

1	Physical Requirements (As per IS-4031)								Chemical Requirements (As per IS 4032)									
	2 Specific Surfaces area	3 Le by Chateliar	4 Soundness by Auto Clave	5 Initial setting time	6 Final setting time	7 Compressive Strengths (Mpa)			9 Temp during testing	10 Standard consistency(%)	11 Lime saturation factor(Ratio)	12 Alumina Iron Ratio	13 Insoluble Residue (%)	14 Magnesium (%)	15 SulphuricAnhydride(%)	16 Loss on ignition (%)	17 Alkalies (%)	18 Chlorides (%)
						03 days	07 days	28 days										
As per relevant IS																		
As per manufacturers test																		
As per random test																		

Remarks with Signature

Accepted/Rejected

Contractor

Junior Engineer

Engineer-in-Charge

GE

Remarks of BOO/Inspecting Officer/CWE

\*To be allotted serially by the GE consignment wise

**PARTICULAR SPECIFICATIONS PART-II (Contd.....)**

- (c) The GE shall also organize independent physical testing of random samples of cement drawn from each lot if sample fails in 7 days compressive strength from the NATIONAL TEST HOUSE, SEMT WING CME, REGIONAL RESEARCH LABORATORIES, GOVERNMENT APPROVED LABORATORIES, ZONAL LABORATORIES as per IS 3535-1986 (Method of sampling hydraulic cement) IS-4031 (Method of physical test for hydraulic cements) and IS-4032 1985 (Method of chemical analysis of hydraulic cement) and record the results in the relevant portion of Cement supply and Acceptance Register. In order to undertake departmental testing, requisite facilities alongwith materials, conveyance etc shall be organized by the contractor without any extra cost to the Govt. The random samples of cement to be tested shall be drawn as per Quality Assurance Manual. The contractor shall be required to set up adequate testing facilities at site to the entire satisfaction of Garrison Engineer for conducting setting time test and compressive strength test as per IS codes referred to hereinbefore for the samples collected from the lot brought at site. These tests shall be carried out within 7 days of receipt of cement at site. The tests can alternatively be carried out at the Zonal laboratory, or any other recognized Government laboratory so designated by GE. The contractor shall allowed to use the cement only after satisfactory compressive strength of 7 days. 7 days strength will relied up on to accept the lot of cement. 28 days compressive strength test will be the final criteria to accept/reject the lot.
- (d) The cost of materials for testing, samples, conveyance etc shall be borne by the contractor irrespective of the test result. However the cost of testing charges shall be governed in terms of condition 10(A) of IAFW-2249. In case as per the result of independent test, the cement is found to be not of requisite standard despite manufacturer's test certificate, the contractor shall remove the total consignment from the site within 24 hours at his own cost after written rejection order of consignment by the GE.
- (e) The record of random samples selected by the GE for testing shall be properly maintained in the cement testing register giving cross reference to relevant consignment of cement and quantity received etc.

**6.1.6 STORAGE/ACCOUNTING /PRESERVATION OF CEMENT**

- 6.1.6.1 Cement shall be stored in covered godown over dry platform at least 20cm high in such a manner as to prevent deterioration due to moisture or intrusion of foreign matter. In case of storeroom, the stack should be at least 20cm away from floors and walls. The stacking of cement shall be done as specified in relevant IS. The storage accounting and preservation of cement supplied by the contractor shall be done as per standard engineer practice till the same is incorporated in the work and the cost of the same shall be deemed to be included in the unit rate/ amount quoted by the tender. The EIC shall inspect once a day to verify that cement lying at site is stored, accounted, preserved and maintained as per the norms. The cement shall be stored so as to differentiate each tested and untested consignment separately with distinct identification. If the GE is not satisfied with the storage/preservation of cement, he may order for any test(s) of cement as applicable for that consignment to ensure its conformity to the quality mentioned in the manufacturer's test certificate. The contractor shall bear the cost of necessary testing(s) in this regard and no claim whatsoever shall be entertained.
- 6.1.6.2 Stacking of cement shall be done as per relevant IS and as under: -
- (a) Each cement consignment shall be stacked separately and removal shall be made on the basis of 'First in First out'.
- (b) Adequate top cover will be provided.
- (c) Stacks in no case shall be higher than 10 bags. The maximum width of each stack shall be 3.00m. If the stack is to be more than 7 or 8 bags high, the bags shall be arranged in header and stretcher fashion, i. e. alternatively lengthwise and crosswise so as to tie the piles together and avoid danger of toppling over.
- (d) Adequate space shall be kept between two stacks.

**PARTICULAR SPECIFICATIONS PART-II (Contd.....)**

- 6.1.6.3 Cement godown shall be provided with two locks on each door. The key of one lock of each door shall remain with the EIC or his representative and that of the other lock with the contractor's authorized agent at site or works so that cement is removed from the godown only according to daily requirement with the knowledge of both the parties. During the period of storage, if any cement bag(s) found to be in damaged condition due to what so ever reason the same shall be removed from the cement godown on written orders of the GE and suitable replacement for the cement bags so removed shall be made and no claim what so ever shall be admissible on this account.
- 6.1.6.4 Cement shall be removed from the store only according to daily requirement with the knowledge of both the parties and daily consumption of cement shall be recorded in cement consumption register which shall be signed by Engineer-in-Charge and the contractor. Cement constants given in Appendix 'A' to E-in-C's Branch letter No. 19280/E8 dated 03 May 1976 shall form the basis of consumption of cement for various items of works unless specifically indicated otherwise.
- 6.1.6.5 In case the consumption of cement as per cement consumption register is found to be more than the estimated quantity of cement due to what so ever reason, the contractor shall not have any claim what so ever for such excess consumption of cement.
- 6.1.7 **SCHEDULE OF SUPPLY:-**  
The contractor shall procure the cement timely as required in accordance with CPM chart agreed between GE and the contractor. The contractor will forfeit his right to demand extension of time if the supply of cement got delayed due to his failure in placing order in time to the manufacturer.
- 6.1.8 **DOCUMENTATION:**  
The contractor shall submit original vouchers from the main producer/manufacturer for the total quantity of cement supplied under each consignment to be incorporated in the work. All consignments received at the work site shall be inspected by the GE alongwith the relevant documents before acceptance. The original vouchers and the Test Certificates shall be defaced by the Engineer-in-Charge and kept on record in the Office of GE duly authenticated and with cross reference to the Control Number recorded in the Cement Supply and Acceptance Register. The Cement Supply and Acceptance Register will be signed by JE (Civil), Engineer-in-charge, GE and the contractor. The Accepting Officer may order Board of Officers for random check of cement and verification of connected documents.
- 6.1.8.1 Identification of cement bags by the manufacturer shall be as per relevant BIS codes.
- 6.1.9 **MEASUREMENT AND PAYMENT OF CEMENT: -**
- 6.1.9.1 Random samples of 5 bags per 100 bags shall be got weighed by Engineer-in-Charge in presence of representative of contractor from each consignment to arrive at average weight per bag for calculating total quantity of cement brought at site for incorporation in the work. All arrangement for weighing of cement bags including labouretc shall be provided by the contractor at his own cost.
- 6.1.9.2 The quantity of cement arrived at as aforesaid shall be considered for payment as applicable in accordance with IAFW-2249, General Conditions of Contracts.
- 6.1.9.3 The entire quantity of cement shall also be suitably recorded in the Measurement Book for record purposes as 'Not to be abstracted' before incorporation in the work and shall be signed by the Engineer-in-Charge and the contractor.
- 6.1.9.4 The payment shall only be allowed after production of original purchase vouchers, certified copies of test certificates from manufacturer for each consignment and result of testing carried out in laboratory on receipt of cement (7 days compressive test) are found satisfactory after testing as specified here in before. Cement shall be paid as material lying at site as per Condition 64 of IAFW-2249. Rate of cement given in SSR shall be applicable for cement irrespective of grade of

**PARTICULAR SPECIFICATIONS PART-II (Contd.....)**

7.0 **CONCRETE WORK:** All Plain cement and Reinforced cement concrete shall comply the requirement of IS-456.

7.2.1 **CEMENT:** Refer Particular specifications clause 6.0 given here-in-before.

7.2.2. **COARSE AND FINE AGGREGATE:**

7.2.2.1 Aggregate shall conform to IS 383 and shall be from the source (s) mentioned in Appx 'C' to this particular specification. Aggregate shall be non porous, hard ,strong, durable clean and free from various impurities and adherent coating and shall not contain any deleterious materials exceeding the limits specified in the above referred IS. The contractor shall at his own expense carry out all tests to verify that the aggregate comply with the requirement of IS. The tests shall be carried out in any laboratory approved by GE.

7.2.2.2 Coarse aggregate shall consist of crushed broken stone aggregate. The size and grading of the aggregate shall be as specified in clause 4. 4. 7 of MES SSR Part I

7.2.2.3 Fine aggregate shall consist of naturally occurring coarse sand. Fine aggregate shall conform to zone II or zone III of table IV of IS-383 and shall be from the source(s) mentioned in Appendix 'C' to particular specifications.

7.2.2.4 Samples of the aggregate proposed to be used shall be approved by the GE, prior to bulk delivery of the same at site of work. Field tests for determining the contents of loam, clay etc, for fine aggregate shall be carried out by the Engineer-in-Charge from time to time to ensure that the materials brought to site are in conformity with the samples approved by the GE.

7.2.2.5 **GRADING OF AGGREGATE:** The grading of coarse and fine aggregate shall be as per MES Schedule. Grading of coarse and fine aggregate shall be checked as frequently as possible. The frequency for a given job shall be determined by Engineer-in-Charge to ensure that the specified grading is maintained.

7.2.2.6. **VIBRATORY TYPE SAND SCREENER:**

The sand to be used in the work shall be screened by using vibratory type sand screener of capacity (dry sand) 6 cum/ hour driven by 1 H.P. single-phase motor. The screener will have eccentric vibrator having capacity 1500 vibrations per minute. The screener will have two M.S. wheels for easy mobility. Vibratory type sand screener manufactured by M/S Universal Sales Corporation, Universal House, Warje Jakat Naka, Kothrud, PUNE 411029. (Tele No 25231150) or a similar equipment manufactured by any other company capable of giving rated output will be acceptable.

7.2.2.7 **GRADING OF COARSE AGGREGATE.** Graded Aggregate of nominal sizes given hereunder, shall be used:

(a) Plain or reinforced cement concrete except in foundation of walls/pillars, floors and sub base to floors

(i) For structural elements of depth/thickness 100 mm and more =20mm.

**Note:** - However in no case the nominal size of aggregate shall be greater than one fourth of the minimum thickness of the member.

(b) **PLAIN CEMENT CONCRETE IN FOUNDATION OF WALLS, PILLARS, FLOORS AND SUB BASE TO FLOORS**

- |       |                          |   |        |
|-------|--------------------------|---|--------|
| (i)   | Under 30mm thickness     | : | 12.5mm |
| (ii)  | 30 to 80 mm thickness    | : | 20mm   |
| (iii) | Exceeding 80mm thickness | : | 40mm   |

**PARTICULAR SPECIFICATIONS PART-II (Contd.....)**

7.3 The type and mix of cement concrete will be as indicated on drawings. Where it is not indicated on drawings following grade will be considered by the contractor for working out of the tender : -

- |                              |   |  |
|------------------------------|---|--|
| (a) Lean concrete work below | : | 1:4:8 Type D2 (using 40mm aggregate) at respective location. |
| (b) PCC other than (a) above | : | 1:2:4 Type B1 (using 20mm aggregate) at respective location. |
| (c) All RCC works            | : | M-25 (Design Mix)  |

The work in such situation will be executed as per the written order of GE who will obtain prior approval of Accepting Officer before execution of such works. In case any other grade of mix is decided to be used, variation will be regularized through a deviation order.

7.4 **WATER**

Quality of water to be used for mixing and curing of concrete work shall conform to the requirement of clause No 5.4 of IS-456. GE and contractor will ensure that testing of water is carried out at three months intervals to comply with the requirement. Cost of testing of water will be borne by the contractor. The CWE will monitor the quality of water through test results to ensure that the water used for making concrete or mortar and for curing conform to IS-456.

7.5 **IMPORTANT REQUIREMENT OF REINFORCED CEMENT CONCRETE/PLAIN CEMENT CONCRETE.**

7.5.1 (i) All the materials, workmanship, inspection and testing for cement concrete of Grade mentioned above shall be as per the requirement given in IS-456, IS 10262 and SP-23.

(ii) For the purpose of pricing unit rates of Schedule 'A' and for valuation of deviations, the plain cement concrete of nominal mix concrete/ volumetric mix concrete shall be priced at applicable rates of relevant grade and type of concrete as indicated in MES SSR Part-II in accordance with preamble 4.2.8 on serial page No. 33 of MES SSR Part-II.

(iii) For the purpose of pricing unit rates of Sch 'A' and for valuation of deviation, the reinforced cement concrete of design mix concrete shall be priced at applicable rates of relevant grade and type of concrete as indicated in MES SSR Part II in accordance with preamble Nos. 4.2.8 & 4.2.9 on serial Page No. 33 of MES SSR Part II. No adjustment for variation in cement/aggregate ratios shall be made.

(iv) The rates of various grades of cement concrete (design mix) irrespective to whether prepriced by the depts or quoted by the tenderer are deemed to be based on mix designed as per IS 456 for applicable Parameters required for design of the particular grade of concrete mix including applicable environmental exposure conditions.

7.5.2 All cement concrete, both plain and reinforced shall be mixed in mechanical mixer of approved type in accordance with IS 456:2000 (Clause 10. 3).

7.5.3. All concrete for RCC work shall be consolidated/compacted by mechanical vibrators of approved type. Precast/cast-in-situ, plain cement concrete may however, be transported, deposited rammed and consolidated by tamping and rodding as specified in MES Schedule Part-I.

7.5.4. All RCC beams resting on masonry work shall be provided with PCC bed blocks cast in PCC 1:2:4 type B1. Bed blocks shall be twice the width of beams in length covering the entire thickness and have depth 150mm, unless otherwise shown on drawings.

7.5.5. All flat surfaces exposed to weather shall be given adequate slope for smooth run of rainwater all as shown on drawing.

**PARTICULAR SPECIFICATIONS PART-II (Contd.....)****7.6. BATCHING**

- 7.6.1 The mixing of cement & aggregate for cement concrete for all grades and type of RCC work shall be done by weigh batching.
- 7.6.2 The batching shall be as per clause 10.2 of IS 456:2000 and clause No. 4. 11.3 (excluding provision vide sub clause 4. 11. 3. 1) of MES Schedule part I.

**7.7. PARAMETERS FOR DESIGN MIX CONCRETE****7.7.1 MIX PROPORTION AND STRENGTH**

(i)	Strength to be achieved	As per IS-456-2000
(ii)	Type of cement	As per clause 4.1.1 herein before
(iii)	Target mean strength of cement concrete	To be taken as per mix designed as per IS-10262 clause 2.2
(iv)	Aggregate/cement ratio by weight	As per mix design based on IS 10262 and IS-456-2000
(v)	Workability	As per clause 7.1 of IS-456-2000 slump shall be 25 mm to 75 mm
(vi)	Water cement ratio	As per mix design based on IS-10262 and IS-456-2000
(vii)	Degree of quality control	Good (Refer Appendix `A' of IS-10262)
(viii)	Durability	Exposure - severe
(ix)	Cement content	As per IS-456-2000
(x)	Type of aggregate	Crushed stone aggregate
(xi)	Max nominal size of aggregate	20mm or as specified.
(xii)	Grade of concrete	M-25 (Design mix)

**Notes:-**

- (i) The rates given in MES schedule for design mix shall be applicable irrespective of the quantity of cement approved/used in the execution of design mix work. The contractor is required to keep this aspect in mind while quoting his rates.
- (ii) Mix design shall be prepared based on SP-23, handbook on concrete mixes and IS-10262. Recommended guide lines for concrete mix design. No element of wastage of cement shall be allowed while working out the cement consumption details for design mix concrete work.

**PARTICULAR SPECIFICATIONS PART-II (Contd.....)****7.7.2 APPROVAL OF DESIGN MIX**

(a) Soon after commencement of work, contractor shall arrange the design mix for M-30 grade concrete. Design mix concrete shall be got carried out from National Test House, SEMT, CME, and Regional Research Laboratories or from any Government approved labs such as Government Engineering Colleges and shall be got approved from GE before implementation in the work. In case contractor fails to submit the samples of design mix soon after commencement of work, the delay shall solely be attributable to the contractor and no claim of whatsoever nature shall be admissible on this account.

(b) As soon as possible after receiving the design mix from the above agency it shall be verified at site by casting & testing the final cubes by GE.

(c) For each design mix seven numbers of preliminary test cubes of size 15x15x15 cm shall be made as per clause 2.8, 2.9 and 2.10 of IS-516. The concrete cube shall be tested as per IS-516 at site laboratory. Out of seven cubes three will be tested after seven days (on 8<sup>th</sup> day) from the date of casting, three cubes after 28 days from the date of casting and remaining one cubes shall be preserved by the GE for one year after certified date of completion of the work for any subsequent check.

(d) The test after seven days (i.e. on 8<sup>th</sup> days) is intended only to give an early indication of the strength likely to be achieved. The strength thus achieved should be comparable with the above design mix report with specified design parameter as specified in hereinbefore.

(e) Frequency of sampling shall be as per clause 15 of IS-456. On the result of the above test the mix actually to be used shall be agreed to and approved by the GE. The approval of the GE shall not relieve the contractor of his responsibility for obtaining the required minimum strength of quality concrete in the works test cubes.

**7.7.3 ACCEPTANCE CRITERIA.**

(a) The contractor shall be deemed to comply with the strength requirement as per clause 16 of IS-456.

(b) Whenever there is any change in the type of grading of material, the mix should be rechecked and modified suitably to the desired compressive strength.

(c) Actual standard deviation for each grade of concrete is to be calculated after collecting the test results of actual concrete work (compressive strength actually achieved at site for 1<sup>st</sup> 30 samples) as laid down in IS-456 (Table-II) to review the Design Mix.

**7.8 HOT WEATHER CONCRETING**

Para 14.1 of IS-459 specifies that during hot and cold weather, the concreting should be done as per the procedure set out in IS 7861 (Part-I) & IS 7861 (Part-II). Provision contained in IS 7861, reaffirmed 1990 shall be taken in to account and nothing extra on this account shall be paid by the Dept. The procedure/combination of procedures to be followed for bringing down the temperature of concrete shall be decided by the GE as per site requirement.

7.9 **TESTING CHARGES:** Sampling and testing shall be carried out as per requirement given in respective IS.

**7.10 MIXING AND COMPACTION OF CEMENT CONCRETE**

7.10.1 All cement concrete shall be mixed in an approved mechanical mixer. The mixer must also have a water container with a water meter for adding measured quantity of water in each batch. Mixing of concrete shall be all as per clause 4.11.5 of MES SSR Part I.

7.10.2 All concrete shall be consolidated with approved mechanical vibrators except where not practicable in the opinion of the Engineer-in-Charge. RCC in slab shall be compacted with plate/surface vibrators & in beam/columns with, needle/pin vibrators.

**PARTICULAR SPECIFICATIONS PART-II (Contd.....)****8.0 STEEL AND IRON WORK:**

8.1 All type of steel to be used in the work shall be procured by the contractor from main manufacturers/secondary producers/BIS marked manufacturers as specified in clause 10.2 hereinafter and shall be of quality and grade as specified in drawing and hereinafter (Also refer clause 10.2).

**8.1.1 REINFORCEMENT STEEL:**

(a) Reinforcement steel shall be high strength deformed steel bars produced by Thermo Mechanical Treatment (TMT) process. TMT Steel bar shall be of grade Fe-500/Fe-500(d) or Fe-550/Fe-550(d) as shown on drawing, meeting all other requirement of IS:1786 and elongation shall be more than 18 percent. Unless otherwise mentioned elsewhere or if not mentioned grade of reinforcement steel shall be Fe-500/Fe-500(d) or Fe-550/Fe-550(d)

(b) Fabric reinforcement for concrete shall be ISI marked (IS-1566).

(c) In the event of deviation, for pricing of reinforcement steel using High strength deformed steel bars produced by Thermo Mechanical Treatment process (TMT steel bars of grades Fe-500/Fe-500D and Fe-550/Fe-550D), the rate shall be applicable as for TMT bars given in SSR Part II adjusted by applicable percentage for respective parts of schedule 'A'. In case TMT bars of grade Fe-500/Fe-500D and Fe-550/Fe-550D is not readily available with the manufacturers specified in the tender documents, Contractor may use TMT bars of grade Fe-500S without any extra cost to the department subject to the condition that the same shall conform to IS-1786

**8.1.2 STRUCTURAL STEEL:**

(a) (i) Definition of structural steel as given in clause 10.4 of SSR Part I shall be applicable. Steel for general structural purpose shall be Gde Fe-410WA ISI marked (IS-2062) for all types of steel structures including those subjected to dynamic loading.

(ii) In the event of deviation, for pricing of steel for general structural purpose Gde Fe-410WA, the rate shall be applicable as per Gde Fe-410-S given in SSR Part II adjusted by applicable percentage for respective parts of Schedule 'A'.

(b) (i) Low tensile structural steel Fe-290 ISI marked (IS-2062-2006) shall be used for frame of panelled/gauged doors, windows guard bars, hold fasts, steel gate, lugs, grills, hand railing, fencing posts etc.

(ii) In the event of deviation, for pricing of steel for low tensile structural purpose Gde Fe-290, the rate shall be applicable as per Gde Fe-310-O given in SSR Part II adjusted by applicable percentage for respective part of Schedule 'A'.

**8.1.3. GI SHEETS:**

GI sheets (plain and corrugated) shall be ISI marked (IS: 277) and grade of coating shall be as specified in para 7.3 of IS: 277.

**8.2 PROCUREMENT:****8.2.1 REINFORCEMENT STEEL:**

8.2.1.1 Reinforcement steel bars of all sizes shall be procured directly from SAIL/RINL/ TISCO/Other Primary Producers as approved by E-in-C's Branch.

8.2.1.2 Reinforcement steel of grade Fe-500 or Fe-550 shall not be permitted to be procured from any of the secondary producers.

**PARTICULAR SPECIFICATIONS PART-II (Contd.....)****8.2.2 STRUCTURAL STEEL:**

8.2.2.1 Structural steel sections shall be procured directly from SAIL/RINL/TISCO/ Other primary producers as approved by E-in-C's Branch. In case of non availability of structural steel sections with primary producers, the same can be procured from approved Secondary Producers as given in Appendix 'B' with a reduction of 5% (Five percent) of the accepted rates of structural steel. In case the desired section of structural steel is not rolled/ manufactured by primary producer, there shall be no price adjustment in use of structural steel procured from approved secondary producers.

8.2.2.2 Before allowing the structural steel from secondary producers GE shall verify that the same is fabricated from billet of ISI marked. Also the valid BIS certification and valid ISO license will be verified by the GE before acceptance and CTC copies thereof will be kept on record.

**8.2.3 GALVANISED STEEL SHEETS & FABRIC REINFORCEMENT FOR CONCRETE:**

8.2.3.1 These shall be procured directly from main producers i.e. SAIL, Rashtriyaspat Nigam Limited, TISCO/BIS marked manufacturers at the option of contractor without any price adjustment.

**8.2.4 LOW TENSILE STRUCTURAL STEEL:**

Low Tensile Structural Steel of Gde Fe-290 ISI marked [IS-2062-2006] as in railings, gates, fencing, guard bars, grills, steel chowkats, holdfasts, lugs, nosing bars, fan hooks, dowel bars etc., which do not constitute structural members, can be procured from main producers/ secondary producers/ BIS marked manufacturers or their authorized dealers at the option of contractor without any price adjustment.

**8.3 SCHEDULE OF SUPPLY:**

8.3.1 The contractor shall place his demand/requisition of steel by giving adequate lead time as agreed in the CPM chart. The schedule of supply of steel shall be vetted by CWE from time to time.

8.3.2 All finished steel shall be well and clearly rolled to the dimensions, sections and weights specified. The finished material shall be reasonably free from cracks, surface flaws, laminations, rough, jagged and imperfect edges and any other harmful defects and shall be finished in a proper manner. Tolerance on size and weight of reinforcement bars shall not be more than that specified in clause 8.17.4 and 8.17.5 of MES SSR Part I and as specified in relevant IS codes.

8.3.3 For each consignment of steel brought by the contractor before acceptance of the steel, the following actions shall be taken by GE and Engineer-in-Charge :-

8.3.3.1 Physical verification of steel received to confirm the actual quantity of steel as well as to verify aspects brought out hereinbefore.

8.3.3.2 GE shall obtain original machine numbered paid vouchers of manufacturer from contractor.

8.3.3.3 The GE shall obtain the manufacturer's test certificate (IN ORIGINAL) along with the test sheet giving results of each mechanical test and the chemical composition of steel (as per IS-1786) or authenticated copy thereof duly signed by manufacturer with each consignment. The test sheet should interlia include results of the tests as enumerated in steel supply/Acceptance form stated hereinafter in clause 10.4.1 (c). The GE/CWE shall also organize independent testing of random samples of steel drawn from various lots from National Test House, SEMT CME, Regional Research Labs, Government and BIS approved labs, with following frequency as enumerated in steel supply/Acceptance form stated here in after in clause 6.4.1 (c): -

**PARTICULAR SPECIFICATIONS PART-II (Contd.....)****STEEL FOR REINFORCEMENT:**

- |     |                           |  |
|-----|---------------------------|--|
| (a) | Bars size less than 10 mm | 1 samples (3 specimen) for each test for every 25 tonne or part thereof. |
| (b) | Bar size 10mm to 16 mm    | 1 sample (3 specimen) for each test for every 35 tonne or part thereof   |
| (c) | Bar size more than 16 mm  | 1 sample (3 specimen) for each test for every 45 tonne or part thereof   |

**STRUCTURAL STEEL**

- |     |              |   |
|-----|--------------|---|
| (a) | Tensile test | 1 test for every 25 tonne of steel or part thereof. |
| (b) | Bend test    | 1 test for every 10 tonne of steel or part thereof. |

**NOTE**

- (i) For various test, acceptance criteria, tolerances etc refer to relevant BIS codes and steel supply/acceptance form.
- (ii) Samples from each lot should be tested for quality and elongation. The elongation shall not be less than 18%.

8.3.3.4. High strength deformed TMT bars which are brought at site in coils shall be got checked by a board of officers appointed by GE in the presence of contractor to determine the actual weight per unit length by getting a suitable length ( not less than three meter) from each coil of respective section which shall be recorded in the MB.

8.3.3.5. Verify the documents listed in 6.3.3.2 & 6.3.3.3 hereinbefore given by the contractor from the manufacturer.

8.3.3.6 No consignment or part thereof shall be allowed to be incorporated in the work until and unless the tests results are obtained and the consignment is passed by GE. Schedule of procurement shall be prepared keeping in view the time lost for testing etc.

8.3.3.7 Three samples of pieces (3.0 metre long) of each section of each consignment shall be retained at the project site till completion of the work. These samples shall be suitably marked and properly preserved.

**8.4 DOCUMENTATION**

8.4.1 The following documents shall be maintained in addition to the routine documents maintained as per contract provisions: -

- (a) All original vouchers shall be kept in a file serially numbered and to be kept in GEs office.
- (b) Test certificate shall be kept in a file serially numbered and to be kept in GEs office.
- (c) Steel Acceptance Register, as under shall be maintained by the GE: -

**PARTICULAR SPECIFICATIONS PART-II (Contd.....)**

**STEEL SUPPLY AND ACCEPTANCE REGISTER**

1. Contract No & Name of Work :
2. Contract No. :
3. Name of Manufacturer's TC NO. :
4. Manufacturer :
5. Random Test Details :
  - (a) Physical Test Report from ..... vide letter No. ....  
(Name of NABL approved Lab/Govt.Engg College)
  - (b) Chemical Test Report from ..... vide letter No. ....  
(Name of NABL approved Lab/Govt.Engg College)
4. Type of steel, dia & quantity
  - (a) Type : TMT/CRS
  - (b) Dia : mm
  - (c) Actual Weight : MT
  - (d) Conversion : MT

	CHEMICAL TEST							MECHANICAL TEST						
	Carbon %	Sulphur %	Phosphorous %	Sulphur + Phosphorous %	Manganese %	Silicon %	Corrosion resistant element	Weight per meter	Yield Stress (N/mm <sup>2</sup> )	Tensile Strength (N/mm <sup>2</sup> )	Percent elongation (Min 18%)	Bend Test	Rebend test	Remarks
As per IS 1786-2008														
As per Manufacturer test certificates														
As per independent test														

Remarks with Signature

Accepted/Rejected

Contractor

Junior Engineer

Engineer-in-Charge

Garrison Engineer

Remarks of BOO/Inspecting Officer/CWE

(d) In/Out Register for details of receipt, acceptance/rejection and consumption of steel shall be maintained as under: -

Sl. No.	Date	Steel In			Steel Out			Qty Balance
		Qty (Tons)	Section	Control No.	Qty (Tons)	Section	Reasons *	
1	2	3	4	5	6	7	8	9

\* **NOTE:** - The following reasons may be mentioned for taking out steel from storage: -

- (i) For testing purpose.
- (ii) For use in work.
- (iii) Rejected Steel taken out of site.
- (e) Register containing results of independent and additional testing by GE.
- (f) Register containing records of surprise Checks.
- (g) Inspection register.

**PARTICULAR SPECIFICATIONS PART-II (Contd.....)**

\* **NOTE:** - The following reasons may be mentioned for taking out steel from storage: -

- (i) For testing purpose.
- (ii) For use in work.
- (iii) Rejected Steel taken out of site.

- (e) Register containing results of independent and additional testing by GE.
- (f) Register containing records of surprise Checks.
- (g) Inspection register.

8.4.2 In addition to the above documents, the following points shall be kept in view while maintaining the documents: -

8.4.2.1 The original vouchers and the test certificate shall be defaced by the Engineer-in-Charge indicating the contract agreement number and other particulars of work for which used and certified true copies of all such documents shall be maintained by the Engineer-in-Charge with cross reference to the control No. recorded in the steel Acceptance register as referred hereinbefore.

8.4.2.2 All entries in steel Acceptance Register shall be signed by JE (Civil), Engineer-in-Charge and the contractor.

8.4.2.3 The entire quantity of steel shall also be suitably recorded in the measurement Book (MB) for record purpose as not to be abstracted before incorporation in the work and shall be signed by the Engineer-in-Charge and the contractor duly checked by the GE.

8.5 **ACCEPTANCE/REJECTION OF STEEL:**

8.5.1 The contractor will keep a separate stack of steel brought at site for inspection, away from the accepted stack of steel. In case, the consignment does not meet any of the requirements of the relevant IS codes, the GE shall reject the steel, and it shall be removed from the site within 24 hours at the cost of the contractor.

8.6 **PROCEDURE FOR MAKING PAYMENTS FOR STEEL INCLUDING MEASUREMENTS CONVERSION WEIGHT ETC.**

8.6.1 The requirement of steel shall be worked out section wise and shall be recorded in separate Register jointly maintained by contractor and Engineer-in-Charge. Day to day record shall also be signed by the contractor as well as Engineer-in-Charge. The register should contain different sheets for each steel sections indicating reference to drawing number, location, number of bars, sketch of each length of bar with dimensions, length of bars with the conversion factors given in MES Schedule Part II. For section not listed in MES Schedule, the IS conversion table shall be followed. The contractor shall not have any claim in case the actual weight of steel items works out to be more than the weight obtained by the standard conversion factor.

8.6.2 On completion of work, the Register will be in the custody of the Engineer-in-Charge and contractor may keep a copy for his record if he so desires.

8.7 **PAYMENT OF STEEL BROUGHT BY CONTRACTOR:**

8.7.1 Payment of the steel brought by the contractor shall only be released by the GE after taking action on points enumerated above and completing the documents as specified hereinbefore.

8.7.2 Before procurement of steel, contract specification and structural drawings shall be read thoroughly and various grades/types of steel to be incorporated in the work shall be identified and got approved by the contractor from the Garrison Engineer. No over payment shall be made on this account in the RAR. Steel shall be procured sufficiently in advance.

**PARTICULAR SPECIFICATIONS PART-II (Contd.....)**

8.7.3 (i) For payment of steel material laying at site brought by the contractor shall be regularized as under: -

S. No.	Type of steel	Rate as applicable in relevant MES Schedule
(a)	High strength deformed steel bars produced by Thermo Mechanical Treatment (TMT) process (TMT steel bars of grades Fe-500/Fe-500D and Fe-550/Fe-550D) meeting all requirements of IS: 1786.	TMT bars
(b)	Steel for general structural purpose Gde Fe 410-WA, Grade-250 (quality-A), ISI marked (IS-2062)	Structural Steel Fe 410-WA, Grade-250 (quality-A).
(c)	Low tensile structural steel Fe-290(grade E-165) ISI marked (IS-2062-2006)	Structural Steel Fe-290(grade E-165)

8.7.3 (ii) The above rates shall be adjusted by applicable percentage for respective parts of schedule 'A'.

8.8 **COST OF ADDITIONAL AND INDEPENDENT TESTS:**

8.8.1 **REINFORCEMENT STEEL:**

8.8.1.1 The GE will also organize independent testing of random samples of steel drawn from various lots from National Test House, SEMT Wing CME, Regional Research Labs, Government approved Labs. Independent tests for steel procured from producers with BIS certification shall be carried out.

8.8.1.2 In case of procurement of steel from main producers, the cost of sample and transportation shall be governed as per condition 10 [A] of IAFW-2249 [General Conditions of contracts] i.e. testing charges shall be borne by the Department if the test results are found in order otherwise these shall be borne by the contractor.

8.8.1.3 In both the cases as referred in Clause 8.8.1.2 and 8.8.1.3 above, the contractor at his own cost shall provide all facilities required for the testing and cost of materials consumed in tests shall also be borne by the contractor.

8.8.1.4 For checking nominal mass, tensile strength, bend test, rebend test, test specimen at random shall be selected by the GE at frequency mentioned in Clause No. 8.3.3.3 hereinbefore. For TMT bars bend dia shall be 2D and rebend dia 4D.

8.8.2 **STRUCTURAL STEEL, GI SHEET & FABRIC REINFORCEMENT:**

8.8.2.1 The GE will also organize independent testing of random samples of steel drawn from various lots from National Test House, SEMT Wing CME, Regional Research Labs, Government approved Labs. Independent tests for steel procured from producers with BIS certification shall be carried out.

8.8.2.2 In case of procurement of steel from main producers, the cost of sample and transportation shall be governed as per condition 10 [A] of IAFW-2249 [General Conditions of contracts] i.e. testing charges shall be borne by the Department if the test results are found in order otherwise these shall be borne by the contractor.

8.8.2.3 In case of procurement of steel from secondary producers, independent testing is mandatory and testing charges shall be borne by the contractor.

8.8.2.4 In both the cases as referred in Clause 8.8.2.2 and 8.8.2.3 above, the contractor at his own cost shall provide all facilities required for the testing and cost of materials consumed in tests shall also be borne by the contractor.

**PARTICULAR SPECIFICATIONS PART-II (Contd.....)**

- 8.8.2.5 For checking nominal mass, tensile strength, bend test, rebend test, test specimen at random shall be selected by the GE at frequency mentioned in Clause No. 8.3.3.3 hereinbefore.
- 8.9 **STORAGE :**
- 8.9.1 Steel of different grades and sizes shall be stacked separately. For each classification of steel separate areas shall be earmarked. Steel shall be marked with distinct painting marks for easy identification.
- 8.9.2 Steel will be stored in a manner that, it is always at least 15cm above the GL so as to prevent distortion and corrosion. Any section that has deteriorated and corroded or if considered defective for any other reason the same shall be removed from the site by contractor under his arrangement and cost.
- 8.9.3 Steel sections which are not likely to be used before onset of monsoon shall be given cement slurry wash so as to ensure steel free from scale and rust. Also steel sections, which are procured during monsoon and are not likely to be used within a week from the date of procurement, shall be given cement slurry wash immediately.
- 8.10 **SAFETY OF STEEL:**
- 8.10.1 It will be responsibility of contractor to make sure that all possible arrangements are made for safe custody of the steel. In case of any loss of steel, contractor will only be responsible and the loss will be made good without any delay or claim what so ever.
- 8.11 **UTILISATION OF SEMT WING, CME PUNE:**
- 8.11.1 SEMT Wing, CME Pune is well equipped BIS accredited lab. All test facilities are available there. Testing facilities of SEMT wing shall be fully utilized wherever possible.
- 8.12 **GENERAL:**
- 8.12.1 The details as above incorporated in tender documents is for implementation by the Department as well as by the Contractor.
- 8.13 Wherever 6mm and 8 mm MS bars are shown in drawings. It shall be amended to read as 8 mm dia high strength deformed TMT steel bars. Number and spacing of bars shall remain unchanged. Cost of buildings to be quoted against Sch 'A' Part-I shall be deemed to include the cost of 8 mm dia high strength deformed TMT steel bars in lieu of 6mm and 8mm dia round bars.
- 8.14 **STEEL FOR REINFORCEMENT:**
- 8.14.1 Steel for reinforcement for RCC shall be all as indicated in the drawings. The provision of MES SSR Part-I clause 10.18 that ends of deformed bars are not bent to form hooks is not applicable to this contract. 'L' shaped bends shall be provided to deformed bars all as per RCC notes on drawing No CEAA/TD/109 Sheet No. 1/4 to 4/4.
- 8.14.2 The overlaps for reinforcement given in drawings No CEAA/TD/109 Sheet No. 1/4 of 4/4 (as applicable) shall take precedence over provisions given in Para 10.19 of MES SSR Part-I.
- 8.14.3 For making adjustment arising out of deviation involving reinforcement bars, the length of each bar for the purpose of calculation of laps shall be taken as 10 meters.

**PARTICULAR SPECIFICATIONS PART-II (Contd.....)**

8.14.4 Adequate numbers of chairs as given in drawing No CEEA/TD/141 Sheet No. 1/1 sheet shall be provided in all reinforced sections to prevent top layer of reinforcement from sagging and the cost of the same shall be deemed to be included in lump sum quoted for schedule 'A' Part-I.

**9.0 DEMOLITION AND DISMANTLING**

9.1 Demolition/Dismantling/taking down shall be carried out all as specified in section 21 of SSR Part-I and preambles contained in SSR Part-II for respective items schedule 'A' item rates shall be inclusive for the same.

9.2 Contractor shall take every precaution to prevent damage to any part of the structure and also to the adjacent structure which are to be left intact any damage caused to the structures due to carelessness and negligence of contractor, the same shall made good to the entire satisfaction of GE without extra cost to the Government.

9.3 The rates quoted in respective items of demolition/ dismantling/taking down in schedule 'A' includes for:-

9.3.1 All the precautionary measures to be taken including sorting of serviceable materials/temporary shoring for the safety of portion not required demolition/ dismantling or of adjacent portion where considered necessary by the Engineer-in-Charge.

9.3.2 All materials other than to be incorporated in the work and listed in Schedule of Credit, which shall become the property of contractor balance materials shall be removed to the MES Store yard of GE .

9.4 The rates quoted for incorporation of old materials obtained out of dismantling shall be deemed to include for all elements of work involved i.e. (for example cutting out defective portion if any, carefully taking out nails, screws etc all as/if directed by Engineer-in-Charge.

9.5 All dismantled materials other than specified to be incorporated in the work and for which schedule of credit does not include shall be removed to MES store yard of GE as directed by Engineer-in-Charge.

9.6 All rubbish obtained from demolition shall be disposed off at a place as directed by Engineer-in-Charge. Contractors rate quoted in BOQ shall include for the disposal of rubbish as stated above.

9.7 The contractor shall take adequate precaution by providing sufficient props/bracing as a support to the existing structure/buildings to protect the structure/building from damage/falling. The unit rate quoted shall include this provision also. Nothing extra shall be admissible on this account.

**10.0 STAINLESS STEEL WIRE CLOTH :**

Stainless Steel Wire Cloth fly proofing to aluminium windows and vents shall be shall be provided with Wire cloth shall be regularly woven with a number of equally spaced parallel wires in both warp and weft directions to produce uniformly square meshes or openings. The wire cloth shall be properly selvaged by one or more wires in each edge. These shall be of 0.36 mm nominal diameter stainless steel wire and average width of aperture shall be 1.40mm unless otherwise indicated

**PARTICULAR SPECIFICATIONS PART-II (Contd.....)****11.0 WHITE WASHING, COLOUR WASHING AND DISTEMPERING:****11.1 MATERIALS:**

(a) All synthetic enamel paint shall be of 1<sup>st</sup> quality manufactured by the standard firms of make as per Appx 'A' attached to this PS.

(b) Paints for priming coat under and finishing coat shall be of same manufacturer, type of paint for under coat and finishing coat shall be synthetic enamel paint unless otherwise specified.

(c) All paint and allied materials shall be of quality not inferior to that require by the relevant IS specifications and as specified in clause No. 17.2 of SSR 2009 Part-I.

(d) The contractor shall inform the Garrison Engineer (I) within 01 week of the acceptance of the tender, the names of the manufacturers and brand of paints he will use in the works submit samples, there of and obtain prior written approval of Garrison Engineer (I) before their use in works.

(e) The contractor shall when so required by the GE (I), produce certificate from the manufacturer or their representative to establish that the brands of paints purchased by the contractor from them satisfy the requirements the quality specified in the relevant IS specification.

**11.2 STORAGE OF PAINTS :**

All containers of paints thinners and allied materials shall be stored a terrace above materials and disposed of after verification of Engineer-In-Charge as specified in clause No. 17-2.5 on serial page No. 17.2 of SSR Part-I.

**11.3 WORKMAN SHIP :**

(a) Painting work shall be carried out as specified in clause No. 17.3.1 to 17.3.12 on Serial Page No. 17.2 and 17.3 of SSR Part-I.

(b) Brush application shall be carried out all as specified clause No. 17.5.1 to 17.5.4 on Serial Page No. 17.3 of SSR Part-I

(c) Preparation of surfaces prior to painting shall be carried out as specified in section 17 of MES Schedule Part-I

(d) All painting as far as possible shall be carried out in dry weather.

(e) The contractor shall ensure that the paints used are actually those that have been approved by the GE.

(f) Tint of paint shall be approved by the GE.

**11.4 WHITE WASHING :**

11.4.1 White washing shall be as specified in clause No.15.2 of SSR Part-I. Preparation of surfaces shall be carried out as per clause No. 15.12.1 of MES schedule Part-I.

11.4.2 White wash shall be prepared as per clause No. 15.12.3 and applied as specified in clause 15.12.5 of MES schedule Part-I.

**11.5 OIL BOUND DISTEMPER:**

12.5.1 Oil Bound distemper as mentioned in Sch 'A' shall be provided all as specified in clauses No. 15.7 & 15.14 of MES Part-I 1991 as applicable.

11.5.2 At places where no finish is shown in drawing for internal walls & ceiling , same shall be provided with three coat of white wash.

**PARTICULAR SPECIFICATIONS PART-II (Contd.....)****11.6 CEMENT BASE PAINT:**

11.6.1 Cement base paint shall be applied with proper brushes as specified in clause 15.12 and 15.15 of MES SSR Part I 2009. Contractor may at his discretion carry out the same by means of spray pumps without any extra cost to the Government.

11.6.2 Where snowcem paint/cement paint / cement based paint is specified shall consist of two coats of cement paint. The tint shall be approved by Engineer-in-Charge. Preparation, application and other instructions shall be followed as stipulated in clause 15.15 of SSR Part I. Cement paint shall be as per clause 15.7 of SSR Part I.

11.7 **PLASTIC EMULSION PAINT:** : Refer Para-17.16 of MES Schedule Part-I 2009 and all as mentioned in Schedule 'A'

11.8 **WHITE CEMENT PUTTY:** Refer Para 14.11A of MES schedule Part-I 2009 and all as mentioned in Schedule 'A'

11.9 **PAINTING TO WOOD WORK:** Refer Para – 17.6 of MES Schedule Part-I 2009 and all as mentioned in BOQ.

**11.10 PAINTING TO IRON & STEEL WORK**

11.10.1 The surface shall be thoroughly cleaned from oil, grease, dirt and other foreign matter & surface cleaned with wire brush, steel wood screener and surface rubbed with sandpaper to remove small scale and rust so as to obtain a clean surface to the satisfaction of the Engineer-In-Charge. The surface shall then be given one coat of primer, one under coat and one finishing coat after EACH coat is completely dry.

11.10.2 The contractor shall inform GE within four week of the acceptance of the tender, the names of manufacturers and brands of paints will be used in the work and submit sample there of and obtain prior written permission of the GE before their use in the work. The contractor shall when so required by the GE produce certificate from them manufacturers or their representative establish that the brands of paints purchased by the contractor from whose stating the requirement of relevant IS specification or the superior to the quality specified in the relevant IS. The contractor shall use the paint, which are approved by GE.

**12.0 GLAZING:-**

12.11.1 Plain sheet glass (ordinary) shall of thickness as specified in BOQ.

12.11.2 The tinted glass shall be 5 mm thick (nominal)

12.11.3 Each pane glass shall be one whole square piecing shall not be allowed broken or damaged glass shall be hacked and replaced.

12.11.4 Glazing shall be carried out as specified in clause No. 16.10.1 and 16.10.2 of SSR Part-I.

12.11.5 Preparation for glazing shall be carried out as per clause 16.7 to 16.7.5 of SSR Part-I.

**PARTICULAR SPECIFICATIONS : PART-II (Contd.....)****13.0 PLASTERING AND POINTING:****13.1 GENERAL :**

- 13.1.1 Plaster (even if external wall face is pointed) and/or skirting/dado shall be returned in jambs, soffits of lintels and window cills etc. Internal plaster shall be provided above skirting/dado level.
- 13.1.2 Where plaster on concrete surfaces is shown to match the adjacent wall surfaces, the mix of the plaster shall be the same as for the masonry surface.
- 13.1.3 All internal plastered surfaces shall be trowelled to a even and smooth surfaces without using extra cement and external plastered surfaces shall be finished even and fair only.
- 13.1.4 All external plaster shall be carried out upto 15cm below ground level.
- 13.1.5 Thickness of the cement plaster mentioned hereinafter shall be finished thickness exclusive of dubbing. Dubbing may however be done in one operation with plaster.
- 13.1.6 All corners, angles, junctions and edges shall be truly vertical or horizontal as the case may be and shall be carefully finished. Corners around jambs of opening and junction of walls shall be rounded to minimum radius of 5mm. Provide 150mm chicken wire mesh fixed with nails at the junction of RCC columns/walls/beams/lintels and PCC block masonry at external faces before plastering.
- 13.1.7 Particular attention of the contractor is invited to take note of local practices and local availability of materials like bricks, stone, form work etc for any extra quantity of mortar required for rendering smooth, extra dubbing required, touching up properly and achieving smooth and even surfaces. This shall be deemed to have been included in the lump sum or the item rate quoted for plasterwork, as applicable.

**13.2 MATERIALS:****13.2.1 CEMENT:**

Refer clause 6. herein before.

**13.2.2 SAND :**

Refer clause 14. 5 of MES SSR Part I and conform to IS 1542.

**13.3 CEMENT PLASTERING TO SURFACES:**

13. 3.1. Internal surface of masonry work as mentioned in Sch 'A' including inside masonry surface of built in furniture, loft etc shall be plastered with 10mm thick cement mortar (1:6) for masonry surfaces, finished even and smooth without using extra cement.
13. 3.2. Soffits of roof slab/ceiling/chajjas/fins/roof projection/waist slab/landing etc shall be provided with cement and sand mortar (1:3), 5 mm thick even and smooth finished.
- 13.3.3. Plastering of external surface for masonry including parapet walls shall be in two layers, first layer 10mm thick in CM (1:6) and second layer (setting coat/finishing) 5mm thick in CM (1:4) finished even and smooth with approved water proofing compound all as per manufacturers instructions. In case of deviation, the quantity of water proofing compound shall be taken as 3% by weight of cement.

14 TO 20 ---BLANK---

**21.0. FLOOR FINISHES AND PAVINGS:****21.1 GENERAL:**

- (a) Provisions contained in clause 13.25, 13.32, 13.38, 13.36, 13.39 and 13.47 of MES Schedule are to be adopted for laying floors and pavements.
- (b) Floors shall be laid to levels or to falls as directed by the Engineer-in-Charge.
- (c) Sub floors need not be laid in panels.

**PARTICULAR SPECIFICATIONS : PART-II (Contd.....)****21.2 KOTA STONE FLOORING:**

(a) The slabs shall be selected quality, hard, sound, dense and homogeneous in texture, free from cracks, decay, weathering and flaws. They shall be hand or machine cut to the requisite thickness as indicated and they shall be uniform colour.

(b) The slabs shall have the top (exposed) face polished before being brought to site. Before starting the work, contractor shall get the samples slabs approved by Engineer-in-Charge.

(c) Dressing of slabs, preparation of surface and laying, curing polishing and finishing shall be as per clause 13.47 of SSR Part – I.

(d) Whether mentioned are not kota stone flooring shall be of mirror polished nothing extra shall be paid on this account.

**21.3 CERAMIC / GLAZED EARTHENWARE TILES:**

(a) Glazed Earthenware tiles white shall conform to IS-777-1970 and specified in clause 13.17, 13.39.1 to 13.39.3 of MES SSR Part – I.

(b) The size and thickness shall be as specified in Sch 'A' and of Grade B II (a) for floor & Grade B III for vertical surfaces, Premium quality. Colour and shade of the tiles shall be got approved by Engineer-in-charge before incorporation in the work.

(c) These shall be laid as specified in clause No. 13.40.1, 13.40.2 & 13.40.3 of MES schedule Part-I.

**21.4 NON SKID CERAMIC TILES :**

(a) Non skid ceramic tiles in flooring, dado, skirting shall be provided as under wherever directed by Engineer-in-charge.

(b) Non skid ceramic tiles of size shall be provided as mentioned in Schedule 'A' and of Grade B II (a), Premium quality

(c) Tiles shall be laid over bedding layer as specified in Sch 'A' & clause No. 13.40, 2 of SSR Part-I.

(d) The size and thickness shall be as specified in Sch 'A'. Colour and shade of the tiles shall be got approved by Engineer-in-charge before incorporation in the work.

**21.5 VITRIFIED CERAMIC TILES:**

(a) Vitrified ceramic tiles shall conform to IS-777-1970 and specified in clause 13.17, 13.39.1 to 13.39.3 of MES SSR Part – I.

**21.5 VITRIFIED CERAMIC TILES:**

(b) Vitrified ceramic tiles in flooring, dado, skirting shall be provided as under wherever directed by Engineer-in-charge.

**21.5 VITRIFIED CERAMIC TILES:**

(c) Tiles shall be laid over bedding layer as specified in Sch 'A' & clause No. 13.40, 2 of SSR Part-I

**21.5 VITRIFIED CERAMIC TILES:**

(d) The size and thickness shall be as specified in Sch 'A'. Colour and shade of the tiles shall be got approved by Engineer-in-charge before incorporation in the work

**21.6 GRANITE STONE FLOORING:**

**PARTICULAR SPECIFICATIONS : PART-II (Contd.....)**

- 21.6.1 The slabs shall be selected quality, hard, sound, dense and homogeneous in texture, free from cracks, decay, weathering and flaws. They shall be machine cut to the requisite thickness as indicated and they shall be uniform colour.
- 21.6.2 The slabs shall have the top (exposed) face machine polished. Before starting the work, contractor shall get the samples slabs approved by Engineer-in-Charge.
- 21.6.3 Dressing of slabs, preparation of surface and laying, curing polishing and finishing shall be as per clause 13.47 of SSR Part – I.

**21.7 MARBLE WORK:**

- 21.7.1 Marble Stone Slab and Tile Marble stone slab and tile shall be as per requirement listed in the section 6-Stone Masonry. The slab shall not be less than 0.21 Sqmetre in area. The slab/tile used in any one room shall be uniform. The thickness shall be as specified with permissible tolerance of + 3%.
- 21.7.2 The compressive strength and water absorption of stones are given below:-  
Type of stone : Marble  
Water absorption percentage by weight Max: 0.40  
Compressive Strength Kg/Sq cm. Min : 500
- 21.7.3 Test for compressive strength shall be carried out as laid down in IS : 1121 Part I - 1974, Methods of test for Determination of Strength Properties of Natural Building Stone - Part I : Test for water absorption shall be carried out as laid down in IS : 1124 - 1974, Method of Test for Determination of Water Absorption, Apparent Specific Gravity and Porosity of Natural Building Stones.

**21.8 PRECAST INTERLOCKING PAVER BLOCK:**

Precast concrete Paver blocks shall conform to IS 15658 : 2006, Specification for Precast concrete blocks for paving. Paver blocks shall be sound and free from cracks or other visual defects. The tolerance on length or breadth of paver blocks shall be +2mm and tolerance on thickness of tiles shall be +3mm . Water absorption shall not be more than 6 percent by mass. Shapes shall be triangular, Zigzag, Hexagon or other shape as indicated. Colour of paver blocks shall be as indicated or as decided by GE. Thickness and grade of paver block shall be as mentioned in Schedule 'A' Test certificate of paver block shall be produce to Engr-in-Charge prior to incorporated in the work.

**21.9 CHEQUERED CEMENT CONCRETE FLOORING TILES**

- 21.9.1 Chequered cement concrete tiles, coloured chequered cement concrete tiles and chequered terrazzo tiles shall conform to IS 13801-1993 specification for Chequered cement concrete tiles. Chequered tiles shall be with the centre to centre distance of chequers not less than 25mm and not more than 50mm, the groove in chequers being uniform and straight with the depth of grooves not less than 3mm. Tiles shall be manufactured by pressure process. Thickness of wearing layer measured from top of the chequers shall not be less than 6mm.
- 21.9.2 Unless otherwise directed, the tiles shall be supplied with initial grinding and grouting of the upper layer. The upper layer of the tiles shall be free from projections, depressions and cracks, holes, cavities and other blemishes. The edges of the tiles may be rounded. All angles shall be right angles and all arises shall be sharp and true. The colour and texture of the wearing layer shall be uniform throughout its thickness. The size of Chequered Tiles shall be 200mm x 200mm x 22mm thick or 250mm x 250mm x 22mm thick or 300 x 300mm x 25mm thick as indicated. The tolerance on length or breadth of tiles shall be +1mm and tolerance on thickness of tiles shall be +5mm. In addition the difference in thickness between the thickest and thinnest tile in the sample shall not exceed 3mm

**22.0. PRECAST PCC SOLID BLOCK MASONRY.**

22. 1. Cement shall be as specified hereinbefore.
22. 2. The precast PCC solid block masonry where indicated shall be PCC 1:5:8. The concrete shall be mixed as laid down in IS-456.

**PARTICULAR SPECIFICATIONS: PART-II (Contd.....)**

22. 3. The size of blocks shall be any of the following as directed :-

Size Designation	Length cm	Nominal Breadth cm	Height cm	Length cm	Actual Breadth cm	Height cm
A	40	30	20	39	30	19
B	40	20	20	39	20	19
C	40	10	20	39	10	19
D	20	20	20	19	20	19
E	20	20	10	19	20	09

Size other than those specified above may also be used with the approval of EIC.

**22. 4. AGGREGATES:**

22. 4.1 Coarse aggregate shall be crushed or natural aggregate 20mm and below size conforming to IS-383.

22.4.2. Fine Aggregate (Sand) shall be free from dust and well graded having fineness modulus 3.5 to 4 of combined aggregate conforming to IS-383.

**22.4.3. MANUFACTURE OF BLOCKS.**

22.4.4. The block shall be machine made. The process of concrete mixing, fabric, casting of blocks, curing and drying shall be in accordance with IS-2185 all as specified in MES Schedule. In case where quantity is less, manual mixing, and casting shall be allowed after approval of Engineer-in-Charge.

22.4.5. Faces of the blocks shall be flat and rectangular.

**22.4.6 PLACING AND COMPACTION**

(i) In case of mechanical compaction, the mould shall be filled upto over flow, vibrated or mechanically tamped and struck of level.

(ii) After de-moulding the block shall be protected until they are sufficiently hardened to permit handling.

22.4.7 Curing: The block hardened as mentioned shall then be cured in a curing water tank or in curing yard and shall be kept continuously moist for at least 14 days. When the blocks are cured in an emergent tank, the water of tank shall be changed at least every 4 days.

Note: Curing yard is a paved yard sub divided by shallow drains 4 to 5 Sqm platform which are provided with water fountain in the center. The blocks are stacked on the platform around the fountain, which work continuously. The fountains are connected to an elevated water storage tank.

22.4.8 Drying: After curing the blocks shall be dried for a period of 4 weeks before being used in the work. They shall be stacked with voids horizontal to facilitate thorough passage of air. The dimensioned stability of concrete block is greatly affected by variation in their moisture content. Since the shrinkage of the block is much greater at the time it dries for the first time than due to subsequently wetting and re-drying. It is necessary to ensure that the blocks are dried so that initial shrinkage is completed before they are delivered to use. Further their maximum water absorption capacity. If the blocks are to be used in situation where the relative humidity of air average more than 60% the blocks can be dried to a moisture content of 40% of their maximum water absorption capacity.

**23. PHYSICAL REQUIREMENT:**

23.1 General: All blocks shall be sound and free from cracks or other defects which interfere with proper placing of the block or impair the strength or performance of the construction. Minor chipping resulting from the customary methods handling during delivery shall not be deemed ground for rejection.

23.2 TOLERANCE: The maximum of variation in dimension shall not be more than +/- 3mm for length.

23.3 BLOCK DENSITY: The block density shall be as per para 4 of IS-2185 for solid PCC blocks. It shall not be less than 1800 Kg/M3.

**PARTICULAR SPECIFICATIONS : PART-II (Contd.....)**

23.4 **COMPRESSIVE STRENGTH**: The average compressive strength of eight blocks when determine in the manner described in IS-2185 shall not be less than 50 Kg/Sqcm of gross area. The strength of lowest individual block shall not be less than 75% of the average compressive strength of eight blocks.

23.5 **WATER ABSORPTION**: The water absorption shall be as per IS-2185.

36.6 Drying shrinkage and moisture movement shall be as per IS-2185.

23.7 **TESTS** : Test as described in appendices 'A' to 'F' of IS-2185 shall be conducted on samples of block selected according to the sample procedure given in para 1 © of IS-2185 to ensure conformity with the physical requirement laid down in para 8 of IS-2185. Cost of testing such as transportation, casting of block, testing fee & other expenses shall be borne by the contractor. The contractor may at his desecration carry out test himself or arrange such test from other institution or laboratory as approved by GE.

23.8 **SAMPLING CRITERIA FOR CONFORMITY** : The blocks required for carrying out the test laid down in the standard shall be taken by one of the method given in para 10 of IS-2185 & shall be considered as conforming to the requirement of the specifications if the conditions mentioned in para 11.2 to 11.5 of IS-2185 are satisfied.

**23.8. PRECAST PCC SOLID BLOCK WALLING**

23.8.1 Mortar for walling 20 cm thick PCC solid block wall shall be in cement mortar 1:6 and 10cm thick PCC solid block walling shall be build in cement mortar 1:4.

23.8.2 **LAYING**: - The block shall be slightly wetted before and/or during laying in the wall. The blocks shall be laid with joints completely filled without any void left in the masonry. The thickness of the horizontal and vertical joints shall not exceed one cm. The 1/2, 1/3 and 2/3 block shall be used for breaking the joints. The face joints shall be raked to a depth of 1cm by raking tool during the progress of the work when the mortar is still green, so as to provide proper key for plaster or to facilitate points to be done later. Where plaster or pointing is not required, the joints shall be struck flush and finished side by side.

23.8.3 **CURING OF WALLING**. Masonry work shall be kept constantly moist on all the face for a minimum period of 7 days

23.8.4 **SCAFFOLDING FOR WALLING**: - Only double scaffolding shall be used. The scaffolding shall be strong and sound. No holes in the masonry for supporting scaffolding will be allowed.

23.8.5 Irrespective of what is shown on drawings, 7 cm thick partition walls in Ground floor (Floor-I) shall rest on sub base floor and 7 cm thick partition walls on upper floor (Floor II etc) shall rest on RCC floor slab. The ends of walls shall be properly anchored to RCC column/PCC solid block walls as directed by Engineer-in-Charge whether shown on drawings not all 7 cm thick partition wall shall be provided with the following :-

- (i) Two Nos 8 mm dia MS round bars at every sixth course or two nos 6 mm dia MS round bars at every fourth course as decided by E-in-C.
- (ii) RCC band at lintel level for the entire length (including over openings). Unless otherwise shown on drawings, the RCC lintel band shall be 70mm x 70 mm size with 4 Nos, 8 mm dia CTD bars as longitudinal bars and 6 mm dia MS bar stirrups at 150 mm c/c.

**24.0 RCC PIPE :**

RCC NP2 pipe shall conform to IS 458-1971. Refer MES Schedule clause No 18.29 and 18.68. The make shall be as approved by GE. Reinforced concrete pipes for drains and culverts shall be non-pressure type, class NP2. The ends of concrete pipes shall be suitable for butt end joints. The butt ends shall be prepared for collar joint with grooves. The pipe joints shall be capable of withstanding the same pressure as the pipe. Concrete pipes shall be straight and free from cracks excepting craze cracks. The ends of pipes shall be square with their longitudinal axis so that when placed in a straight line in the trench, no opening between ends in contact shall exceed 3 mm in pipes up to 150/200 mm diameter and 6 mm in pipes greater than 150/200 mm in diameter. The outside and inside surfaces of the pipes shall be smooth dense and hard and shall not be coated with cement wash or other preparation. The pipe shall be free from defects resulting from imperfect grading of the aggregate, missing or moulding. Pipe shall be free from local dents or bulges greater than 3 mm in depth and extending over a length in any direction greater than twice the thickness of barrel.

PARTICULAR SPECIFICATIONS : PART-II (Contd.....)25.0 CONCERTINA COIL -

25.1 CONCERTINA COIL (1050MM DIA):- It shall be of size and type as specified in BOQ and of following specifications:-

- (i) Dia of Coil when upstretched – 1050 mm.
- (ii) No of circles – 50 to 53 per coil.
- (iii) Weight of each coil 15.6 Kg.
- (iv) Coverage per coil – 6 RM.
- (v) Central Core wire – made from high tensile spring steel core wire conforming to IS-4454 duly hot dipped galvanized (conforming to IS 2629) with diameter 2.59 mm  $\pm$  0.05 mm, UTS 145-160 Kg/Sqm. Zinc coating 250-300 gm/ Sqm.
- (vi) Strip – Electro galvanized steel strip 0.5 mm  $\pm$  0.02 mm thick, width 19 mm (before wrapping on central core wire), confirming to IS-1573, zinc coating – 120 gm/ Sqm and bituminized dipped, width of barbs 11.5mm, pitch of bars 25.4 mm + 0.2 mm.
- (vii) Clips – AISI 304 – 1.5 mm thick C and U clips ‘C’ special type for fixing coil and RBT wire, “U” clips special type for joining one coil to another coil and RBT wire to RBT wire joining.
- (viii) No of clips 125 for each coil.

**Note** - Running length of the wall occupied by coil shall only be measured (as unit Running Metre”)

**SIGNATURE OF CONTRACTOR**

**AGE (CONTRACTS)  
FOR ACCEPTING OFFICER**

**PARTICULAR SPECIFICATIONS PART-II (Contd.....)****APPENDIX 'A'**  
**SOURCES OF MATERIALS**

Ser No.	Name of materials	Sources of materials for works at station
1.	2.	3.
1.	Coarse aggregate for all RCC and PCC works	Dahisara and Kukma
2.	Sand for all RCC and PCC works	Rudrani Mata and Khari River
3.	Sand for plastering, pointing, Brickwork, seal coat and sand cushion	Rudrani Mata and Khari River
4.	Stone for stone masonry, soling, pitching, hardcore and WMM	Dahisara and Kukma

- Sources indicated are for guidance only.

**NOTES:-**

1. Sources of materials shall be given in Ser No. 1 to 4 above or in the vicinity thereof. The tenderer shall ascertain the actual position/exact location of source before submitting his tender and no additional payment shall be made on account of misunderstanding or its distance from site of works Contractor may bring material conforming to contract specifications from other sources without any price adjustment after obtaining written approval from GE.
2. The tenderer shall amongst other things also ascertain all information such as royalties taxes, duties and other charges etc. on the materials and no additional payment shall be made on account of the foregoing.

**SIGNATURE OF CONTRACTOR****AGE (CONTRACTS)  
FOR ACCEPTING OFFICER**

**PARTICULAR SPECIFICATIONS PART-II (Contd.....)****Annexure 'I'****APPROVED LIST OF MAKES / MANUFACTURES OF B/R & E/M ITEMS TO BE INCORPORATED OF ALL MES FMNS & ITS SUBORDINATE UNITS IN AOR SWC**

<b>Srl No</b>	<b>NAME OF MANUFACTURERS / BRAND NAME OF CEMENT</b>	<b>CEMENT GRADE</b>	<b>Valid upto</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
1.	M/S THE ASSOCIATED CEMENT COMPANIES LTD ,NEW DELHI 110044 BRAND: "ACC"		-
2.	M/S ULTRA TECH CEMENT , MUMBAI 400093 BRAND: "ULTRATECH"		-
3.	M/S THE INDIA CEMENT , CHENNAI 600002		-
4.	M/S DALMIA CEMENT (BHARAT) LTD ,TAMIL NADU 621651 BRAND: " DALMIA INFRA PRO", TAMILNADU		-
5.	M/S CENTURY CEMENT , MUMBAI 400020 BRAND: " CENTURY"		-
6.	M/S SAURASHTRA CEMENT, MUMBAI 400093 BRAND: "SAURASHTRA"		-
7.	M/S THE RAMCO CEMENTS LTD (FORMERLY MADRAS CEMENT, CHENNAI 600004 BRAND: "RAMCO"		-
8.	M/S MANGALAM CEMENT LTD, KOTA, RAJASTHAN BRAND: "MANGALAM"		-
9.	M/S BIRLA CORPORATION LTD, KOLKATA – 700001 BRAND: "BIRLA"		-
10.	M/S ORIENT CEMENT, HYDERABAD – 500063 BRAND: "ORIENT"		-
11.	M/S NUVOCO VISTAS CORPORATION LIMITED (FORMERLY LAFARGE CEMENT) KURLA, MUMBAI BRAND: "NUVOCO"		-
12.	M/S SHREE CEMENT, AJMER, RAJASTHAN 305901 BRAND: "SHREE"		-
13.	M/S J K CEMENT KANPUR- 208001 BRAND: "J K"		-
14.	M/S J K LAKSHMI CEMENT LTD, DIST SIROHI, RAJASTHAN BRAND: "J K LAKSHMI"		-
15.	M/S JAYPEE REWA CEMENT, REWA-486450 BRAND: "JAYPEE"		-
16.	M/S AMBUJA CEMENT LTD, JUNAGADH, GUJARAT 362715 BRAND: "AMBUJA"		-
17.	M/S SHREE GURU KRIPA CEMENT (PVT) LTD BRAND: "SARTAJ"	OPC 43 & PPC	-

**PARTICULAR SPECIFICATIONS PART-II (Contd.....)****Annexure 'I'****APPROVED LIST OF MAKES / MANUFACTURES OF B/R & E/M ITEMS TO BE INCORPORATED OF ALL MES FMNS & ITS SUBORDINATE UNITS IN AOR SWC**

<b>Srl No</b>	<b>NAME OF MANUFACTURERS / BRAND NAME OF CEMENT</b>	<b>CEMENT GRADE</b>	<b>Valid upto</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
18.	M/S PARSAKTI CEMENTS LTD. HYDERABAD BRAND: "PARSAKTI CEMENT"	OPC 43 & PPC	
19.	M/S MY HOME INDUSTRIES LTD, HYDERABAD-50081 BRAND: "MAHA CEMNET"	PSC  OPC 43 PPC	
20.	M/S CHETTINAD CEMENT CORPORATION LTD, CHENNAI 600006 BRAND: "CHETTINAD CEMENT"	OPC 43 & PPC	
21.	M/S WONDER CEMENT BRAND: "WONDER CEMENT"	OPC 43, OPC 53 & PPC	
22.	M/S JSW CEMENT LTD, AP. MUMBAI BRAND : "JSW PSC (PORTLAND SLAG CEMENT)" "JSW OPC 53", "JSW OPC 43"	PSC,  OPC 43 & OPC 53 }	
23.	M/S SAGAR CEMENT LTD, HYDERABAD BRAND : "SAGAR"	OPC 43, OPC 53, PPC & PSC	
24.	M/S SANGHI INDUSTRIES LTD, BRAND : "SANGHI"	OPC 53, PPC	
25.	M/S Shree Digvijay Cement Co. Ltd Brand: "KAMAL"	(a) OPC 43 (b) PPC	

**PARTICULAR SPECIFICATIONS PART-II (Contd.....)****Annexure 'I'****APPROVED LIST OF MAKES / MANUFACTURES OF B/R & E/M ITEMS TO BE INCORPORATED OF ALL MES FMNS & ITS SUBORDINATE UNITS IN AOR SWC****STEEL AND IRON WORK**

<b>Ser No.</b>	<b>Company Name &amp; Brand</b>	<b>Address</b>	<b>Type of Steel</b>	<b>Valid upto</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
1.	Rashtriya Ispat Nigam Limited (RINL) Brand : "RINL"	Visakhapatnam Steel Plant – 530031	All	-
2.	Tata Iron & Steel Company (TISCO, or Tata Steel) Brand : "TATA"	Bombay House, 2,4 Homi Modi Street Mumbai-400001	All	-
3.	Steel Authority of India Limited (SAIL) Brand : "SAIL"	Central Marketing Organization, Northern region, Delhi-110092	All	-
4.	M/s Jai Balaji Industries Ltd.(WB) Brand : "BALAJI SHAKTI"	5 Bentek Street, 1 <sup>st</sup> Floor Kolkata-700001	TMT Bars of Gde Fe 500D & CRS (Size 8-32mm)	
5.	M/s Shyam Steel Industries Ltd. (WB) Brand : "SHYAM"	Shyam Towar EN-32, Sector-V Salt Lake, Kolkata-700091 (WB)	TMT Bars of Gde Fe 500D & CRS	
6.	M/s Steel Exchange India Ltd.(AP) Brand : "SIMHADRI TMT"	D. No. 1-65/K/60, Plot No. 60 Abhis Hiranya, 1 <sup>ST</sup> Floor Kavuri Hills, Hyderabad Telangana-500081	TMT Bars of Gde Fe 500 Fe 500D HSCRM	
7.	M/s Kamachi Industries Ltd. Brand : "KAMACHI"	ABC Trade Centre, Anna Salai, Chennai-600002	TMT Bars of Gde Fe 500, Fe 500D Fe 550, Fe 550D & HCRM (Size of 8-40mm)	
8.	M/s Real Ispat & Power Limited, Chhattishgarh Brand : "G K TMT"	Vrindavan, Near IDBI Bank Civil lines Raipur-492001 CG	TMT Bars of Gde Fe 500D	
9.	M/s Super Smelters Limited, Kolkata Brand : "SUPER SHAKTI"	Premlata Building, 39, Shakespeare Sarani 2nd Floor, Kolkata-700017	TMT Bars of Gde Fe 500D, Fe 550 (Size of 8-32mm)	
10.	M/s Gallantt Ispat Ltd. Gujarat Brand : "GALLANTT TMX"	Ward 10 BC Plot No. 123, Ground Floor Gandhidham Kutch,Gujarat-370201	TMT Bars of Gde Fe 500 Fe 500D & CRS (Size of 8-32mm)	

**PARTICULAR SPECIFICATIONS PART-II (Contd.....)****Annexure 'I'****APPROVED LIST OF MAKES / MANUFACTURES OF B/R & E/M ITEMS TO BE INCORPORATED OF ALL MES FMNS & ITS SUBORDINATE UNITS IN AOR SWC**

<b>Ser No.</b>	<b>Company Name &amp; Brand</b>	<b>Address</b>	<b>Type of Steel</b>	<b>Valid upto</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
11	M/s Rashmi Metaliks Limited, W.B. <b>Brand : "RASHMI TMT"</b>	Premlata Building 39, Shakespeare Sarani 6 <sup>th</sup> Floor, Kolkata-700017	TMT Bars of Gde Fe 500 (Size 8-32mm) Fe 500D & Fe 550D (Size 8-25mm)	
12.	M/s Shyam Metalics & Energy Ltd <b>Brand : "SEL"</b>	Viswakarma, 1 <sup>st</sup> Floor, 86 C Topsia Road Kolkata-700046	TMT Bars of Gde Fe 500 & 500D (Size 8-32mm)	
13.	M/s Electrotherm (India) Ltd <b>Brand : "ET TMT"</b>	Survey No 72, Palodia, Via Thaltej, Ahmedabad Gujarat-382115	TMT Bars of Gde Fe 500 Fe 500D & CRS (Size of 8-36mm)	
14.	M/s Tulsyan NEC Ltd <b>Brand : "TULSYAN TMT"</b>	APEX Plaza, 1st floor OLD No.3, New no 77, Nungambakkam High road, Chennai-600034(TN)	TMT Bars of Gde Fe 500 Fe 500D & 550 (Size of 8-32mm)	
15.	M/s Incredible Industries Limited(Formerly M/s Adhunik Industries Limited) <b>Brand "ADHUNIK Fe-500 SD"</b>	Lansdowne Towers 2/1A Sarat Bose Road 6 <sup>th</sup> Floor, Kolkata-700020	TMT Bars of Gde Fe 500D (Size of 8-32mm)	
16.	M/s MSP Steel & Power Limited, Chhattisgarh <b>Brand "MSP TMT 500D"</b>	16/S, Block-A, New Alipore Kolkata-700053	TMT Bars of Gde Fe 500D (Size of 8-32mm)	
17.	M/s Shri Bajrang Power & Ispat Ltd. <b>Brand : "GOEL TMT"</b>	Vill-Borjhara, Raipur-493221 Chattisgarh	TMT Bars of Gde Fe 500 Fe 500D (Size 8-32mm)	

**(B) STRUCTURAL STEEL**

1.	Rashtriya Ispat Nigam Limited (RINL) Brand : "RINL"	Visakhapatnam Steel Plant – 530031	Structural Steel (Angle, Beam, Column, Channel, Plate etc)
2.	Tata Iron & Steel Company (TISCO, or Tata Steel) Brand : "TATA"	Bombay House, 2,4 Homi Modi Street Mumbai-400001	-do-
3.	Steel Authority of India Limited (SAIL) Brand : "SAIL"	Central Marketing Organization, Northern region, Delhi-110092	-do-
4.	M/s Jindal Steels and Power Ltd. Brand : "JINDAL"	Jindal Centre, Plot No 2 Sector-32 Gurgaon-122001	-do-

**PARTICULAR SPECIFICATIONS PART-II (Contd.....)****Annexure 'I'****APPROVED LIST OF MAKES / MANUFACTURES OF B/R & E/M ITEMS TO BE INCORPORATED  
OF ALL MES FMNS & ITS SUBORDINATE UNITS IN AOR SWC**

<b>Srl No</b>	<b><u>Materials</u></b>	<b>NAME OF MANUFACTURERS / BRAND NAME</b>
<b>1</b>	<b><u>2</u></b>	<b>3</b>

**3. STEEL, ALUMINIUM AND IRON WORKS**

**(A) STEEL WINDOWS & VENTILATORS, PRESSED STEEL, DOOR FRAMES SHUTTER FOR CUPBODRDS / WARDROBES AND STEEL LOCKERS** M/S AGEW STEEL MFG PVT LTD, AHMEDABAD  
M/S GODREJ & BOYCE STEEL MFG, MUMBAI  
ASHWINI AND SONS, GHAZIABAD  
M/S JANGID ENGINEERING WORKS  
M/S STEELMANS INDUSTRIES, OLD ADDA KAPURTHALA, JALANDHAR  
DURIAN  
NEELKAMAL

**(B) BOX TYPE MILD STEEL WINDOW (OTHER THAN 'Z' SEC) (MANUFACTURERS SHOULD HAVE EFFECTIVE BIS LICENCE ONLY IS MARKED SECTIONS TO BE USED FOR STEEL WINDOWS)** M/S SHREE KRISHNA ASSOCIATED, 304 INDUSTRIAL AREA, PHASE-II, PANCHKULA – 134109  
M/S FRIENDS MANUFACTURING CO OF KOTKAPURA  
M/S RAJASTHAN STEEL FABRICATIONS, JAIPUR

**(C) ALUMINIUM SECTION OF SHUTTERS / FRAMES FOR DOOR/ WINDOW/ VENTILATOR** HINDALCO  
JINDAL  
NALCO  
FENESTA  
AIS  
PROFINE INDIA (ALUPURE)

**(D) STEEL ROLLING SHUTTERS/ GRILLS & COLLAPSIBLE GATES** M/S AGEW STEEL MFG PVVT LTD, AHMEDABAD  
M/S GODREJ & BOYCE STEEL MFG, MUMBAI  
M/S JANGID ENGINEERING WORKS, H-161, SARNA DOONGER, INDUSTRIAL AREA, JAIPUR (RAJASTHAN)

**4. JOINERY**

**(A) FACTORY MADE PANELLED/GLAZED/ GAUGED WOODEN SHUTTERS FOR DOORS & WINDOWS** M/S PIONEER TIMBER, CHANDIGARH  
M/S JAIN DOORS PVT LTD, HSIDC, INDUSTRIAL A1 TEAK PRODUCTS PVT LTD, INDORE

**(B) FACTORY MADE PVC DOOR SHUTTERS AND FRAMES** M/S RAJSHRI PLASTIWOOD LTD  
M/S SINTEX INDUSTRIES LTD  
M/S DURA PLAST EXTRUSION  
ACCUCEL (ACCURA POLYTECH)  
GIZA  
ECOCELL

**(C) WOODEN FLUSH DOOR SHUTTERS** M/S KIT PLY INDUSTRIES LTD (KITPLY)  
M/S CENTURY PLY WOOD LTD (CENTURY)  
A1 TEAK PRODUCTS PVT LTD (A-1 FLUSH DOORS)  
DURIAN JAIN DOORS HARYANA  
GREENLAM (MIKASA)  
ARCHID PLY

**PARTICULAR SPECIFICATIONS PART-II (Contd.....)**

Annexure '1'

**APPROVED LIST OF MAKES / MANUFACTURES OF B/R & E/M ITEMS TO BE INCORPORATED OF ALL MES FMNS & ITS SUBORDINATE UNITS IN AOR SWC**

Srl No	<u>Materials</u>	NAME OF MANUFACTURERS / BRAND NAME
1	2	3
	(D) UPVC DOORS (PANEL DOORS), MODULAR DOORS, WINDOWS AND CHOWKHAT	H2O SOLUTION MADHU INDUSTRIES, BANGALORE FINESTA PRIZMA WINSOL PVT LTD (PRIZMA WINDOWS) YASHASHRI POLY EXTRUSION NCL VEKA AIS PORFINE INDIA(KOMMERLING) RAJSHRI
	(E) GALVANISED COLOUR/POWDER COATED STEEL WINDOWS, DOORS, PARTITION	NCL ALUTEK & SECCOLOR LTD TRISUL INDUSTRIES, MEERUT ASHWANI & SONS, GHAZIABAD
	(F)WPC DOORS	YASHPOLY GIZA ECOCELL
<b>5.</b>	<b><u>BUILDERS HARDWARE</u></b>	
	(A) HYDRAULIC DOOR CLOSER	UNIVERSAL DYANA EVEREST GODREJ DROMA HARDWYN EVERITE
	(B) FLOOR SPRING	EVEREST UNIVERSAL GODREJ
	(C) ALUMINIUM MONGERY (ISI MARKED)	JINDAL ALUTRAC DORMA INDIA PVT LTD CROWN CLASSIC
	(D) IRON MONGERY (ISI MARKED)	CROWN HETTICH OZONE PRAJAPAT
	(E) LOCKS	GODREJ HARRISON LINK JOHNSON
<b>6.</b>	<b><u>ROOF COVERINGS, PVC ,GALVANIZED SHEETS, PANELLING,PARTITIONS, HUTS &amp; BATHROOMS</u></b>	
	(A) <u>CGI SHEETS</u>	TATA RASTRIYA ISPAT SAIL JINDAL NIPPON DENRO INDIAN STEEL CORPORATION LTD (ULTRATUFF)
	(B) ALUMINIUM COMPOSITE PANEL	ALSTONE INTERNATIONAL VIVA ARMSTRONG ALUCOBOND
	(C) CALCIUM SILICATE PARTITION	RAMCO INDUSTRIES LTD AEROLITE PROMAT

**PARTICULAR SPECIFICATIONS PART-II (Contd.....)****Annexure 'I'****APPROVED LIST OF MAKES / MANUFACTURES OF B/R & E/M ITEMS TO BE INCORPORATED  
OF ALL MES FMNS & ITS SUBORDINATE UNITS IN AOR SWC**

<b>Srl No</b>	<b><u>Materials</u></b>	<b>NAME OF MANUFACTURERS / BRAND NAME</b>
<b>1</b>	<b>2</b>	<b>3</b>

	(D) PREFAB/ PORTABLE TOILET BLOCKS, SECURITY CABINS, SITE OFFICE AND SHED	EPP COMPOSITE PVT LTD SINTEX MACRO INTERPRISES
	(E) ZINCALUME/COLOR BOND (HIGH TENSILE PROFILE SHEETS FOR ROOF & WALL), SMARTDEK 51 (STRUCTURAL) DECKING GALVANIZED STEEL SHEET), PE BITE (COMPONENTS MADE OF PREMIUM QUALITY STEEL/GALVANIZED ROLL FRAMES), LYSAGHT SUBTLE, SQUARE FLUTED STEEL CLADDING	TATA BLUSCOPE STEEL LTD CRIL JSW STEEL COATED PRODUCT LTD JINDAL

**7. CEILING AND LININGS**

(A) PERFORATED PARTICLE BOARD/TILES FOR INSULATION AND ACCOUSTIC	ARM STRONG GYPROC (SAINT GOBAIN) GYPTech ANCHOR CEILING TILES
(B) PLYWOOD	CENTURY PLYWOOD KITPLY ARCHID PLY NATIONAL PLYWOOD ANCHOR
(C) BLOCK BOARD	CENTURY PLYWOOD ANCHOR KITPLY
(D) FALSE CEILING BOARDS & GRID SYSTEM/ CEILING TILES	ARMSTRONG HUNTER DOUGLAS BISON GYPSUM INDIA LTD
(E) GYPSUM BOARD	ARMSTRONG WORLD INDUSTRIES SAINT GOBAIN GYPSUM INDIAN GYPSUM PRODUCT
(F) LAMINATED SHEETS	FORMICA, ARCHID PLY SUNGLOSS, SUNMICA DELTA LAMINATES GLOBE PANEL INDUSTRIES BACKLITE HYLUM
(G) PLAIN PARTICLE BOARD	CENTURY PLYWOOD DURA PLY GREEN PLY KITPLY
(H) PRE LAMINATED PARTICLE BOARD.	GREEN PLY CENTURY PLYWOOD DURAPLY KITPLY

**PARTICULAR SPECIFICATIONS PART-II (Contd.....)****Annexure 'I'****APPROVED LIST OF MAKES / MANUFACTURES OF B/R & E/M ITEMS TO BE INCORPORATED  
OF ALL MES FMNS & ITS SUBORDINATE UNITS IN AOR SWC**

<b>Srl No</b>	<b><u>Materials</u></b>	<b>NAME OF MANUFACTURERS / BRAND NAME</b>
<b>1</b>	<b>2</b>	<b>3</b>
	(J) PRE LAMINATED PARTICLE BOARD (MDF/HDF BOARD)	CENTURY PLYWOOD KITPLY ACTION TESA ANCHOR
	(K) VENEERED PARTICLE BOARD	GREEN PLY CENTURY PLYWOOD DURAPLY, KITPLY
	(L)PVC FALSE CEILING WALL LINNING & SOLID PVC PARTIIONS	ECOCELL GIZA YASHPOLY
	(M) REINFORCED FIBRE CEMENT BOARD FALSE CEILING INCL MEMBERS	ARMSTRONG GYPROC (SAINT GOBAIN), EVEREST
<b>8.</b>	<b><u>FLOOR FINISHES &amp; PAVINGS</u></b>	
	(A) CERAMIC WALL & FLOOR TILES	JOHNSON KAJARIA ASIAN GRANITO INDIA LTD (AGL TILES) SOMANY ORIENT BELL LIMITED RAJASTHAN TILES (ACE)
	(B) NON-SKID CERAMIC TILES	JOHNSON KAJARIA ASIAN GRANITO INDIA LTD (AGL TILES) SOMANY ORIENT BELL LIMITED RAJASTHAN TILES (ACE)
	(C) VITRIFIED TILES	JOHNSON KAJARIA ASIAN GRANITO INDIA LTD (AGL TILES) SOMANY ORIENT BELL LIMITED RAJASTHAN TILES (ACE)
	<u>(D) TILE ADHESIVE</u>	PIDILITE INDUSTRIES LTD SOMANY CERAMICS LIMITED (SOMANY) M/S STP LIMITED, NEW DELHI (SHALI TILE GLUE, SHALI GROUT)
	<u>(E) MOSAIC/CEMENT FLOORING TILES</u>	M/S NITCO, MUMBAI MAYUR , BIHLWARA DURACRETE PALLADIO
	<u>(F) HEAVY DUTY PARKING TILES</u>	ASIAN GRANITO INDIA LTD (AGL TILES) ULTRA JONSON
	<u>(G) ACID RESISTANT TILES</u>	M/S JOHNSON, MUMBAI KAJARIA SOMANY
	(H) CEMENT CONCRETE INTERLOCKING PAVER BLOCKS / TILES, PRE-CAST KERB STONES, CHEQUERED & PRE GLAZED TILES	M/S ULTRA TILES NITCO PAVIT MEHTAB TILES, INDORE SUKHI INTERPRISE (SUKHI) LUCKY CEMENT BLOCK WORKS

**PARTICULAR SPECIFICATIONS PART-II (Contd.....)**

Annexure '1'

**APPROVED LIST OF MAKES / MANUFACTURES OF B/R & E/M ITEMS TO BE INCORPORATED  
OF ALL MES FMNS & ITS SUBORDINATE UNITS IN AOR SWC**

Srl No	Materials	NAME OF MANUFACTURERS / BRAND NAME
1	2	3

**9. WHITE WASHING, COLOURING & DISTEMPERING**

(A) DISTEMPER OIL-EMULSION (OBD)      NEROLAC  
JENSON & NICHOLSON  
ASIAN PAINTS  
BERGER PAINTS  
DULUX (AKZO NOBEL)

(B) ACRYLIC WASHABLE DISTEMPER      NEROLAC  
JENSON & NICHOLSON  
ASIAN PAINTS  
BERGER PAINTS  
SHALIMAR PAINTS  
ICI INDIA

(C) PLASTIC EMULSION PAINT      NEROLAC  
JENSON & NICHOLSON  
ASIAN PAINTS  
BERGER PAINTS  
DULUX (AKZO NOBEL)

(D) CEMENT BASE PAINT      BERGER PAINTS  
SHALIMAR PAINTS  
SUPER SNOWCEM  
DURACEM  
AQUACEM

(E) CEMENT PUTTY      NEROLAC  
ASIAN PAINTS  
BERGER PAINTS  
BIRLA WHITE  
JK CEMENT  
SHALIMAR PAINTS  
GOLDEN MOHAR

**10. GLAZING**

(A) SHEET GLASS PLAIN      SAINT GOBAIN  
MODIGUARD  
TRIVENI FLOAT GLASS

(B) SHEET GLASS FROSTED      SAINT GOBAIN  
MODIGUARD  
TRIVENI FLOAT GLASS

(C) HEAT ABSORBING GLASS & REFLECTIVE SOLAR CONTROL FILM      SAINT GOBAIN  
MODIGUARD  
TRIVENI FLOAT GLASS

(D) TOUGHENED GLASS      SAINT GOBAIN, MODIGUARD,  
TRIVENI FLOAT GLASS

(E) ROUGH CAST WIRED GLASS      SAINT GOBAIN, MODIGUARD,  
TRIVENI FLOAT GLASS

(F) OIL PUTTY      BERGER, JENSON & NICHOLSON, BIRLA WHITE  
JK CEMENT

(G) MIRRORS / MIRROR CABINETS      MODI, SAINT GOBAIN  
TRIVENI FLOAT GLASS

**PARTICULAR SPECIFICATIONS PART-II (Contd.....)****Annexure 'I'****APPROVED LIST OF MAKES / MANUFACTURES OF B/R & E/M ITEMS TO BE INCORPORATED  
OF ALL MES FMNS & ITS SUBORDINATE UNITS IN AOR SWC**

Srl No	<u>Materials</u>	NAME OF MANUFACTURERS / BRAND NAME
1	2	3
11.	<b><u>PAINTS</u></b>	
	<b>(A) SYNTHETIC ENAMEL PAINT</b>	ASIAN PAINTS NEROLAC PAINTS BERGER PAINTS JENSON & NICHOLSON PAINTS DULUX
	<b>(B) WALL CARE PUTTY</b>	BIRLA WALL CARE PUTTY BERGER JK CEMENT SHALIMAR
12.	<b><u>WATER SUPPLY, PLUMBING, DRAINS AND SANITARY FITTINGS</u></b>	
	<b>(A) CI PIPES AND FITTINGS</b>	ELECTRO-STEEL NECO KESORAM KEJARIWAL SINGHAI IRON FOUNDRY MATHURA
	<b>(B) UPVC PIPE</b>	ASTRAL THRUFLO(HINDWARE) HIL PRINCE FINOLEX SUPREME
	<b>(C) GALVANISED STEEL PIPES &amp; TUBES</b>	TATA, JINDAL, SWASTIK PRAKASH SURYA
	<b>(D) MS PIPES &amp; FITTINGS</b>	TATA, JINDAL, SWASTIK, PRAKASH SURYA
	<b>(E) DI PIPES &amp; FITTINGS</b>	JINDAL LTD, GUJRAT ELECTROSTEEL CASTINGS LTD, W.B. TATA METALINKS, KOLKATA SAW PIPES KEJARIWAL
	<b>(F) HDPE PIPES &amp; FITTINGS</b>	FINOLEX SUPREME ASTRAL PRINCE KESHAV KRIPA
	<b>(G) CPVC PIPES AND FITTINGS (CHLORINATED POLYVINYLCHLORIDE)</b>	FINOLEX, ASHIRVAD, SUPREME, THRUFLO(HINDWARE), HILL, PRINCE, DUTRON SFMC
	<b>(H) AC SOIL, WASTE, RAINWATER (SWR) &amp; DRAINAGE PIPES</b>	EVERST ABSESTOS HYDERABAD VISHAKHA HYDERABAD ASBESTOS(CHARMINAR) RAMCO
	<b><u>(J) CENTRIFUGALLY CAST CI PIPES (IS-3989) FOR SOIL WASTE PIPES &amp; FITTINGS (SPUN PIPE) C.I MAN HOLE COVERS.</u></b>	NECO, NAGPUR KESORAM ELECTRO STEEL SKF (SINGHAL IRON FOUNDRY, MATHURA)
	<b><u>(K) RCC PIPES, DRAIN PIPES</u></b>	EVEREST HIMALAYA INDIAN HUME PIPES

**PARTICULAR SPECIFICATIONS PART-II (Contd.....)****Annexure 'I'****APPROVED LIST OF MAKES / MANUFACTURES OF B/R & E/M ITEMS TO BE INCORPORATED  
OF ALL MES FMNS & ITS SUBORDINATE UNITS IN AOR SWC**

Srl No	<u>Materials</u>	NAME OF MANUFACTURERS / BRAND NAME
1	<u>2</u>	<u>3</u>
	<b><u>(L) AIR RELEASE VALVES</u></b>	KIRLOSKAR L & T JINDAL TATA ZOLOTO BIR VENUS SANT
	<b><u>(M) FOOT VALVES</u></b>	KIRLOSKAR L & T JINDAL TATA ZOLOTO VENUS BIR
	<b><u>(N) FLOAT VALVE</u></b>	LEADER PRAYAG ZOLOTO JAINKO
	<b><u>(O) REFLEX VALVES</u></b>	KIRLOSKAR LEADER SANT ZOLOTO VENUS
	<b><u>(P) SLUICE VALVES</u></b>	LEADER KIRLOSKAR L&T ZOLOTO
	<b><u>(Q) BUTTERFLY VALVES/ DISC VALVES</u></b>	LEADER KIRLOSKAR L&T ZOLOTO
	<b><u>(R) GATE VALVES</u></b>	LEADER KIRLOSKAR ZOLOTO JAINKO
	<b><u>(S) WATER METER</u></b>	DASHMESH CAPITAL ZOLOTO MECO
	<b><u>(T) PVC WATER TANKS</u></b>	SINTEX POLYCON, JAIPUR ROTEX ASHISH PLAT

**PARTICULAR SPECIFICATIONS PART-II (Contd.....)****Annexure 'I'****APPROVED LIST OF MAKES / MANUFACTURES OF B/R & E/M ITEMS TO BE INCORPORATED  
OF ALL MES FMNS & ITS SUBORDINATE UNITS IN AOR SWC**

<b>Srl No</b>	<b><u>Materials</u></b>	<b>NAME OF MANUFACTURERS / BRAND NAME</b>
<b>1</b>	<b>2</b>	<b>3</b>
	<b>(U) CHROMIUM PLATED BRASS BATH FITTINGS AND FIXTURES, BIB TAPS, STOP VALVES, PILLAR TAPS (ISI MARKED)</b>	JAQUAR KOHLER GROHE CERA JOHNSON HINDWARE JAINKO
	<b>(V) BATH ROOM FITTINGS, CHROMIUM PLATED CAST COPPER ALLOY FANCY TYPE BIB TAPS, STOP VALVES AND PILLAR TAPS</b>	KOHLER GROHE JAQUAR & COMPANY PVT LTD. PARRYWARE ROCA PVT LTD SOMANY MARC ESS ESS
	<b>(W) BRASS STOP COCK AND BIB COCK</b>	JAYPEE ZOLOTO PRAYAG POLYMER GEM SEIKO DHAWAN SANITARY UDYOG (PRIMA)
	<b>(X) SHOWER ROSE</b>	JAQUAR KOHLER GROHE MARC SOMANY PARRYWARE ESS ESS
	<b>(Y) WATER CLOSET - VITREOUS CHINA</b>	CERA HINDWARE PARRYWARE JOHNSON SOMANY CERAMICS LIMITED (SOMANY)
	<b>(Z) PTMT BATHROOM FITTINGS PLASTIC BIB TAPS, PILLAR TAPS, ANGLE VALVE AND STOP VALVES (ISI MARKED)</b>	R S INDUSTRIES (POLYTUF) PRAYAG PEARL PRECISION PRODUCTS PVT LTD (PEARL) ZOLOTO JAINKO
	<b>(AA) LOW LEVEL FLUSHING CISTERN ( PVC) (ISI MARKED)</b>	CERA HINDWARE PARRYWARE JOHNSON  KOHLER PRAYAG JAINKO PEARL
	<b>(AB) PLASTIC TOILET SEAT COVERS (PVC)</b>	CERA HINDWARE PARRYWARE KAJARIA, NEYCER JAINKO, PEARL
	<b>(AC) URINALS - VITREOUS CHINA</b>	CERA, HINDWARE PARRYWARE

**PARTICULAR SPECIFICATIONS PART-II (Contd.....)****Annexure 'I'****APPROVED LIST OF MAKES / MANUFACTURES OF B/R & E/M ITEMS TO BE INCORPORATED  
OF ALL MES FMNS & ITS SUBORDINATE UNITS IN AOR SWC**

<b>Srl No</b>	<b><u>Materials</u></b>	<b>NAME OF MANUFACTURERS / BRAND NAME</b>
<b>1</b>	<b>2</b>	<b>3</b>
	<b>(AD) WASH BASINS - VITREOUS CHINA</b>	CERA, HINDWARE, PARRYWARE JAQUAR & COMPANY PVT LTD JOHNSON , KOHLER
	<b>(AE) STAINLESS STEEL KITCHEN SINKS (ISI MARKED), STAINLESS STEEL PLATE RACKS &amp; DRAINING BOARD (MADE OF SALEM STEEL)</b>	NIRALI NEELKANT PRAYAG PARRYWARE BLUFSTAR(SILVERSHINE) JAINKO
	<b>(AF) CENTRIFUGAL PUMP</b>	KIRLOSKAR, CROMPTON GREAVES KSB, MATHER & PLATT BEACON, WASP
	<b>(AG) SUBMERSIBLE PUMP</b>	KIRLOSKAR CROMPTON GREAVES KSB MATHER & PLATT WASP
	<b>(AH) FLOAT VALVES/BALLCOCKS, COCKROACH TRAPS, GLASS SHELFs</b>	PRAYAG POLYMER PVT LTD SUPREME WILSON
	<b>(AJ) VERTICLE TURBINE PUMPS</b>	KIRLOSKAR KSB MATHER & PLATT WASP
	<b>(AK) NON CLOG SEWAGE SUBMERSIBLE PUMPS</b>	KIRLOSKER KSB MATHER & PLATT WASP
	<b>(AL) PUMPS FOR FIRE FIGHTING</b>	KIRLOSKAR, MATHER & PLATT ABB, AREVA, SIEMENS CROMPTON MOTOR, BHARAT BIJLEE
	<b>(AM) PVC PIPES FITTINGS</b>	FINOLEX, SUPREME ASHIRVAD, PRINCE HILL
<b>13</b>	<b>BITUMEN VG-10 &amp; VG-30</b>	M/S INDIAN OIL CORPORATION M/S BHARAT PETROLEUM LTD. M/S HINDUSTAN PETROLEUM CORPORATION LTD.
<b>14</b>	<b>WATER MEMBERANE PROOFING</b>	M/s STP LIMITED M/s ASIAN PAINTS LTD M/s TIKI TAR DANOSA (INDIA) PVT LTD M/s SHIVAM TAR PRODUCTS M/s BENGAL BITUMEN M/s IWL INDIA LIMITED

**PARTICULAR SPECIFICATIONS (contd..)**

Annexure '1'

**APPROVED LIST OF MAKES / MANUFACTURERS OF E/M ITEMS TO BE INCORPORATED  
OFF ALL MES FMNS & ITS SUBORDINATE UNITS IN AOR OF SWC**

Srl No	Materials	NAME OF MANUFACTURERS / BRAND NAME
1	2	3

**ELECTRICAL ITEMS:-**

- |    |   |   |
|----|---|---|
| 1. | <b>POLE - PRE-STRESSED CONCRETE</b>                                     | M/S CEMENT FABRIC INDIA, CHANDIGARH<br>M/S HINDUSTAN PRESTRESSED CONCRETE, FARIDABAD<br>M/S INDIAN PCC POLES<br>MA PRE-STRESSED WORKS JODHPUR<br>PRE-STRESSED CONCRETE LTD<br>CHANDIGARH<br>M/S SANKHLA UDYOG JODHPUR<br>PRECTO, CHANDIGARH<br>BETON CONCRETE PRODUCT, AURANGABAD |
| 2. | <b>POLE - STEEL TUBULAR</b>   | INDIA TUBE AND CO<br>M/S JINDAL STEEL PRODUCTS, KANPUR,<br>THE NATIONAL TUBING COMPANY KANPUR<br>BHARAT CONDUIT AND STEEL WKS KANPUR<br>INDIA ELECTRIC POLES MFG CO,<br>MAHARASHTRA<br>QUALITY STEEL PRODUCTS LTD, KANPUR<br>BOMBAY TUBES<br>BHEL                                 |
| 3. | <b>INSULATORS HT/LT DISC/PIN/SHACKLE/LOOP/S TRING TYPE</b>              | JAYSHREE<br>JAIPURIA BROTHERS<br>PACTIL, MYSORE   |
| 4. | <b>HT/LT INSULATOR / COMPOSITE INSULATORS</b>                           | JAIPURIA BROTHERS<br>JAYSHREE, BHEL   |
| 5. | <b>AIR CIRCUIT BREAKER (ACB) HT/ LT 600 VOLTS/LT ACB 415 VOLTS</b>      | LARSEN & TUBRO<br>SIEMENS<br>ABB<br>SCHNEIDER<br>CROMPTON GREAVES<br>GEC<br>BCH ELECTRIC LIMITED<br>C&S ELECTRIC LIMITED (C&S)<br>HAVELLS INDIA LTD   |
| 6. | <b>VACCUM CIRCUIT BREAKER (VCB) SUITABLE FOR 36 KV AND 12 KV SYSTEM</b> | SIEMENS<br>CROMPTON GREAVES, MUMBAI<br>ABB LTD, BANGLORE<br>ITE GURGAON<br>BHEL<br>SCHNEIDER NEW DELHI<br>LARSEN & TUBRO  |

**PARTICULAR SPECIFICATIONS PART-II (Contd.....)****Annexure 'I'****APPROVED LIST OF MAKES / MANUFACTURES OF B/R & E/M ITEMS TO BE INCORPORATED OF ALL MES FMNS & ITS SUBORDINATE UNITS IN AOR SWC**

<b>Ser No</b>	<b>Material</b>	<b>Name of Manufactures / Brand Name</b>
<b>1</b>	<b>2</b>	<b>3</b>
7.	<b>POWER FACTOR IMPROVEMENT CAPACITOR BANKS</b>	LARSEN & TUBRO SIEMENS EPCOS CROMPTON & GREAVES ABB SCHNEIDER HAVELLS
8.	<b>HT SWITCH GEAR 66/33/11KV 3 PHASE, GAS CIRCUIT BREAKER CIRCUIT BREAKER SF-6 TYPE</b>	CROMPTON & GREAVES AREVA T & D INDIA LTD,NOIDA ABB LTD,BANGLORE SIEMENS LTD, MUMBAI BHEL SCHNEIDER, NEW DELHI
9.	<b>HT 11 KV, 3 PH AUTOMATIC SWITCH FUSE UNIT</b>	CROMPTON & GREAVES SCHNEIDER, NEW DELHI C&S ELECTRIC(C&S) ABB LTD,BANGLORE
10.	<b>AIR BREAK SWITCH GANG OPERATED (33KV/11 KV) (GO/DO SWITCH)</b>	JAIPURIYA, AREVA , CROMPTON & GREAVES BHEL, PACTIL, MUMBAI HEL MYSORE ELECTRICAL INDUSTRIES(MEI) SOUTHERN SWITCH GEAR ANDREW YULE
11.	<b>ARRESTERS LIGHTENING LT / HT</b>	BHEL CROMPTON & GREAVES JAIPURIA BROTHERS OBLUM GEC-ELPRO
12.	<b>FLAME PROOF FITTINGS (ISI) MARKED</b>	CROMPTON GREAVES SUDDHIR SWITCHGEARS LTD M/S BALIGA ORIENT ELECTRIC PHILIPS BAJAJ
13	<b>LT SWITCH BOARD PANEL, LT PANEL, FEEDER PILLAR BOX, AMF PANEL, APFC PANEL (CPRI TESTED)</b>	C & S ELECTRIC LIMITED (C&S) UNIVERSAL SWITCH GEAR CONTROL POWERTECH SWTCHGEARS(I) PVT LTD (POWERTECH) RAJEEV ASSOCIATES HENSEL ELECTRIC INDIA PVT LTD POWERWARE ESS ESS KAY POWER SYSTEM & CONTROL HANSON ENTERPRISES PVT LTD (HANSON) NOVATEUR ELECTRICALS & DIGITAL SYSTEMS PVT LTD (INDOASIAN) BCH ELECTRIC LIMITED JOHN ELECT CO PVT LTD (BRANCH JOHNS)

**PARTICULAR SPECIFICATIONS PART-II (Contd.....)****Annexure 'I'****APPROVED LIST OF MAKES / MANUFACTURES OF B/R & E/M ITEMS TO BE INCORPORATED OF ALL MES FMNS & ITS SUBORDINATE UNITS IN AOR SWC**

Ser No	Material	Name of Manufactures / Brand Name
1	2	3
14.	<b>GEYSER</b>	CROMPTON GREAVES RACOLD V GUARD JAQUAR & COMPANY PVT LTD BAJAJ USHA HAVELLS VENUS
15.	<b>CHANGE OVER SWITCH /STARTER/ CONTACTOR DOL/ STAR-DELTA/ SYNCHRONOUS</b>	SIEMENS LARSEN & TUBRO LEGRAND SCHNEIDER HAVELLS INDIA LTD C&S ELECTRIC LIMITED (C&S) CROMPTON GREAVES GE ABB BANGALORE HPL
16.	<b>MAIN SWITCH IRON CLAD</b>	L&T HAVELLS INDIA LTD HPL ELECTRIC & POWER PVT LTD ANCHOR CROMPTON GREAVES
17.	<b>POWER TRANSFORMER,33/11 KV, 66/11 KV, 11/0.433, 33/0.433 KV, COPPER WOUND</b>	BHEL SIMENS LTD, MUMBAI BHARAT BIJLEE LTD, MUMBAI CROMPTON GREEVES, MUMBAI AREVA T&D INDIA LTD, NOIDA SCHENIDER ABB LTD, BANGALORE OSWAL TRANSFORMERS (P) LTD ESENNAR TRANSFORMERS (P) LTD (BRAND) ESENNAR ITE GURGAON VOLTAMP ANDREW YULE TRANSFORMER ELECTRICALS (P) LTD KOTSONS INDIAN TRANSFORMERS AND ELECTRICALS PVT LTD(BRAND ITE GURGAON)
18.	<b>TRANSFORMERS 33 KV, CURRENT &amp; POTENTIAL</b>	LARSEN & TURBO ABB SIEMENS SCHNEIDER CROMPTON GREAVES
18a	<b>TRANSFORMERS 11 KV, CURRENT &amp; POTENTIAL</b>	LARSEN & TURBO ABB SIEMENS SCHNEIDER CROMPTON GREAVES

**PARTICULAR SPECIFICATIONS PART-II (Contd.....)****Annexure 'I'****APPROVED LIST OF MAKES / MANUFACTURES OF B/R & E/M ITEMS TO BE INCORPORATED OF ALL MES FMNS & ITS SUBORDINATE UNITS IN AOR SWC**

<b>Ser No</b>	<b>Material</b>	<b>Name of Manufactures / Brand Name</b>
<b>1</b>	<b>2</b>	<b>3</b>
19.	<b>CABLE JOINTING KIT FOR 11 KV/22 KV</b>	RAYCHEMS DENSONS M-SEAL BIRLA -3M SIEMEN
20.	<b>UG HT XLPE, PVC INSULATED ALUMINUM CONDUCTOR FOR 33/11 KV SYSTEM AND UG LT XLPE PVC/INSULATED ALUMINIUM CONDUCTOR FOR 1100 V</b>	CABLE ORPORATION OF INDIA, MUMBAI UNIVERSAL CABLES LTD.SATNA GLOSTER POLYCAB WIRES PVT LTD (POLY CAB) RPG CABLES LTD, FINOLEX HAVELLS INDIA LTD KEI DYNAMIC CABLES
21.	<b>ALUMINUM CONDUCTOR STEEL REINFORCED (ACSR)</b>	ICC NICCO INDIAN ALUMINIUM CO ALL-IND
22.	<b>STREET LIGHT FITTINGS</b>	PHILLIPS, WIPRO CROMPTON GREAVES SURYA ROSHNI ORIENT ELECTRIC HAVELLS INDIA LTD JAQUAR, BAJAJ C&S ELECTRIC(C&S) POLYCAB, OREGENAL JILCO OREGENAL
23.	<b>SOLAR STREET LIGHT FITTINGS</b>	PHILLIPS BHEL TATA CROMPTON BAJAJ SURYA HAVELLS JILCO OREGENAL
24.	<b>LED STREET LIGHT FITTINGS</b>	SYSKA LED LIGHTS PVT LTD (SYSKA) PHILLIPS WIPRO CROMPTON GREAVES LTD HAVELLS INDIA LTD C&S ELECTRIC LIMITED HPL ELECTRIC & POWER PVT LTD HELONIX TECHNOLOGIES PVT LTD
25.	<b>HIGH MAST LIGHT</b>	BAJAJ PHILLIPS CROMPTON ORIENT ELECTRIC SURYA ROSHNI HAVELLS

**PARTICULAR SPECIFICATIONS PART-II (Contd.....)****Annexure 'I'****APPROVED LIST OF MAKES / MANUFACTURES OF B/R & E/M ITEMS TO BE INCORPORATED OF ALL MES FMNS & ITS SUBORDINATE UNITS IN AOR SWC**

<b>Ser No</b>	<b>Material</b>	<b>Name of Manufactures / Brand Name</b>
<b>1</b>	<b>2</b>	<b>3</b>
26.	FLUORESCENT TUBE LIGHT FITTINGS/CFL FITTINGS/	WIPRO CROMPTON PHILLIPS GE LIGHTING HALONIX TECHNOLOGIES PVT LTD OSRAM C&S ELECTRIC LIMITED HAVELLS INDIA LTD
27.	PVC CASING CAPING (ISI MARKED)	PRESTO PLAST FINOLEX PRECISION MODI SUPREME POLYCAB WIRES PVT LTD (POLY CAB) AREVA ABB SIEMENS PRINCE
28.	LIGHT FITTINGS LED	PHILLIPS OSRAM WIPRO BAJAJ CROMPTON GREAVES LTD SYSKA LED LIGHTS PVT LTD (SYSKA) HAVELLS INDIA LTD M/S SURYA ROSHINI LIMITED ORIENT ELECTRIC LUKER JAQUAR SURYA ROSHNI JILCO OREGENAL
29.	ELECTRONIC / PHOTOELECTRIC SWITCH FOR AUTO OP OF STREET LTS	LARSEN & TURBO GE LIGHTING BAJAJ LEGRAND SIMENS ABB
30.	MICROPROCESSOR BASED MCCB LT 415 VOLTS	LARSEN & TURBO ABB SIMENS SCHENIDER MDS/LEGRAND C&S ELECTRIC LIMITED (C&S) BENTEC INDIA LIMITED (BENTEC/BENLO) HAVELLS INDIA LIMITED
31.	AMMETER / VOLTMETER / POWER FACTOR / FREQUENCY METERS	AUTOMATIC ELECTRICAL L&T MECO BHEL ABB SIEMENS IMP HAVELLS HPL

**PARTICULAR SPECIFICATIONS PART-II (Contd.....)****Annexure 'I'****APPROVED LIST OF MAKES / MANUFACTURES OF B/R & E/M ITEMS TO BE INCORPORATED OF ALL MES FMNS & ITS SUBORDINATE UNITS IN AOR SWC**

<b>Ser No</b>	<b>Material</b>	<b>Name of Manufactures / Brand Name</b>
<b>1</b>	<b>2</b>	<b>3</b>
<b>32.</b>	<b>DIGITAL METERS WITH BUILT IN SELECTOR SWITCHES FOR VOLTMETER, AMMETER, FREQUENCY, ENERGY, KW, POWER ANALYSER</b>	LARSEN & TUBRO AE L&T (RISHAB) SECURE METER TRINITY AUTOMATIC ELECTRICAL HPL SOCOMEC ENERCON HAVELLS CONTROL AND SWITCHGEAR C&CMECO HAGER IMP
<b>33.</b>	<b>ELECTRONIC ENERGY METERS, (TAMPER PROOF)</b>	LARSEN & TUBRO SECURE METERS GE TRINITY ENERGY SYSTEMS PVT LTD AREVA LEGRAND HPL HAVELLS HAVELLS INDIA LTD JAIPURIA METERS
<b>34</b>	<b>CEILING FANS (5 STAR RATING) &amp; REGULATORS</b>	KHAITAN ORIENT ELECTRIC CROMPTON GREAVES HAVELLS USHA POLAR BAJAJ V GUARD PANASONIC
<b>35.</b>	<b>EXHAUST FAN / CABIN FAN / WALL MOUNTED FAN / AIR CIRCULATOR</b>	CROMPTON KHAITAN USHA BAJAJ ALMONARD HAVELLS ORIENT ELECTRIC PANASONIC
<b>36.</b>	<b>PVC CONDUIT (FLEXIBLE)</b>	FINOLEX SUPREME POLYCAB WIRES PVT LTD (POLYCAB) KALINGA CABLE & CONDUIT CO (KALINGA PREMIUM) GRANDLAY WIRES AND CABLES

**PARTICULAR SPECIFICATIONS PART-II (Contd.....)****Annexure 'I'****APPROVED LIST OF MAKES / MANUFACTURES OF B/R & E/M ITEMS TO BE INCORPORATED OF ALL MES FMNS & ITS SUBORDINATE UNITS IN AOR SWC**

Ser No	Material	Name of Manufactures / Brand Name
1	2	3
37.	PVC CONDUITS (RIGID)	FINOLEX SUPREME POLYCAB WIRES PVT LTD (POLYCAB) PRESTO PLAST AKG TIRUPATI KALINGA CABLE & CONDUIT CO (KALINGA PREMIUM) PRECISION PLAZA
38.	MS CONDUIT	BHARAT TATA JINDAL AKG BEC KALINGA BEC INDUSTRIES PRAKASH SURYA TIRPUTI NIC
39.	RELAY ELECTROMECHANICAL	AREVA T & D LARSEN & TUBRO SCHENIDER SIMENS CROMPTON AE HAGER
40.	RELAY NUMERICAL, STATIC	SIEMENS ABB AREVA T&D LARSEN & TUBRO CROMPTON SCHNIEDER AE HAGER
41.	UPS	TATA-LIEBERT APLAB PIXELS POWER CONVERSION TECH MICROTEK LUMINOUS
42.	DG SET (ENGINE)	CUMMINS GREAVES -COTTON ASHOK LAYLAND KIRLOSKAR MAHINDRA CATERPILLAR
43.	DG SET (ALTERNATOR)	CROMPTON- GREAVES CUMMINS, KIRLOSKAR BHARAT BIJLEE JYOTI, STAMFORD

PARTICULAR SPECIFICATIONS PART-II (Contd.....)Annexure 'I'APPROVED LIST OF MAKES / MANUFACTURES OF B/R & E/M ITEMS TO BE INCORPORATED OF ALL MES FMNS & ITS SUBORDINATE UNITS IN AOR SWC

Ser No	Material	Name of Manufactures / Brand Name
1	2	3
44.	INDUCTION MOTORS	CROMPTON- GREAVES SIMENS ABB BHARAT BIJLEE NGEF TEXMO
45.	LT CIRCUIT BREAK, MCCB, RCCB,RCBOs, MCB, DB, ELCB ,ISOLATER.	LEGRAND/MDS L&T SCHNEIDER ABB SIMENS HAVELLS INDIA LTD HAGER POLYCAB WIRES PVT LTD (POLY CAB) BCH ELECTRIC LIMITED
46.	SILENT DG SET (CANOPY)	SUDHIR, JAKSON & COMPANY STERLING GENERATORS GREAVES COTTON MAHINDRA CUMMINS
47.	FLEXIBLE WIRES AND CABLES (PVC) UP TO 1100 VOLTS (IS 694 :2010) (ISI MARKED)	NICCO FINOLEX L & T RR KABEL LTD HAVELLS POLYCAB WIRES PVT LTD (POLY CAB) KEI INDUSTRIES LTD GLOSTER CABLES LIMITED
48.	LT PVC/XLPE CABLES POWER & CONTROL CABLES (ISI MARKED)	FINOLEX L & T NICCO RR KABEL LTD HAVELLS INDIA LTD ANCHOR KEI INDUSTRIES LTD POLYCAB WIRES PVT LTD (POLY CAB)
49.	HT CABLES, CONTROL CABLES (ISI MARKED)	KEI INDUSTRIES LTD NICCO FINOLEX POLYCAB WIRES PVT LTD (POLYCAB) ICL HAVELLS INDIA LTD GLOSTER UNIVERSAL CABLES
50.	STARTERS	L&T ABB LEGRAND SIEMENS ENGLISH ELECT GE C&S ELECTIRC LIMITED (C&S) HAVELLS INDIA LTD BCH ELECTRIC LIMITED

**PARTICULAR SPECIFICATIONS PART-II (Contd.....)****Annexure 'I'****APPROVED LIST OF MAKES / MANUFACTURES OF B/R & E/M ITEMS TO BE INCORPORATED OF ALL MES FMNS & ITS SUBORDINATE UNITS IN AOR SWC**

<b>Ser No</b>	<b>Material</b>	<b>Name of Manufactures / Brand Name</b>
<b>1</b>	<b>2</b>	<b>3</b>
51.	<b>SWITCH FUSE UNIT / HRC FUSES</b>	L&T C&S ABB GE/SIEMENS HAVELLS INDIA LTD
52.	<b>HT RING MAIN UNIT, VCB, ITE KV</b>	ABB SCHNEIDER SIEMENS CG C&S
53.	<b>RISING MAIN/BUS KEY TRUNKING SANDWITCHED BUSBAR</b>	LEGRAND SCHNEIDER L&T C&S
54.	<b>SWITCHES / SOCKETS / BELL PUSH / CEILING ROSE &amp; CALL BELL</b>	HAVELLS (CRAB TREE) LEGRAND/MDS PHILLIPS HONEYWELL ELECT (BRAND:HONEYWELL) POLYCAB WIRES PVT LTD (POLY CAB) ANCHOR CONA
55.	<b>MODULAR SWITCHES / SOCKETS</b>	HAVELLS INDIA LTD (CRABTREE) LEGRAND HONEYWELL ELECT (BRAND HONYWELL) POLYCAB WIRES PVT LTD (POLY CAB) PANASONIC GM MODULAR LARSEN & TURBO
56.	<b>LAMINATED SHEET</b>	HYLAM FORMICA SUNMICA GREENLAM ANCHOR
57.	<b>LED BULBS &amp; LAMPS</b>	PHILIPS WIPRO SURYA OSRAM SYSKA LED LIGHTS PVT LTD (SYSKA) HALONIX TECHNOLOGIES PVT LTD HAVELLS
58.	<b>SELECTOR SWITCH PUSH BUTTONS</b>	L&T ABB AE BCH C&S ELECTRIC LIMITED
59.	<b>LIGHT FITTINGS &amp; ACCESSOIRES</b>	LEGRAND PHILIPS CG WIPRO HAVELLS INDIA LTD SURYA ROHANI LTD OSRAM

**PARTICULAR SPECIFICATIONS PART-II (Contd.....)****Annexure 'I'****APPROVED LIST OF MAKES / MANUFACTURES OF B/R & E/M ITEMS TO BE INCORPORATED OF ALL MES FMNS & ITS SUBORDINATE UNITS IN AOR SWC**

<b>Ser No</b>	<b>Material</b>	<b>Name of Manufactures / Brand Name</b>
<b>1</b>	<b>2</b>	<b>3</b>
60.	<b>BULK HEAD FITTINGS</b>	PHILIPS WIPRO CG HAVELLS INDIA LTD
61.	<b>VOLTAGE STABILIZER</b>	
	<b>(A) UPTO 5 KVA</b>	V GUARD AE GODREJ
	<b>(B) 5 KVA TO 25 KVA</b>	V GUARD CG AE MICROTEK APLAB
	<b>(C) ABOVE 25 KVA</b>	M/S VINTEK ELECTRONIC (VOLINA) AE GODREJ APLAB SINETRAC
62.	<b>SERVO CONTROLLED AUTOMATIC VOLTAGE STABILIZER</b>	M/S VINTEK ELECTRONIC (VOLINA) AE GODREJ
63.	<b>MOTOR STARTERS</b>	KIRLOSKAR ELECTRIC AREVA CROMPTON HAVELLS INDIA LTD C & S ELECTRIC LIMITED (C & S) SIMENS ABB BCH
64.	<b>PUMPS</b>	KIRLOSKAR BROTHER LTD CG MATHER & PLATT BHARAT BIJLEE
65.	<b>GI PIPES &amp; TUBING</b>	TATA JINDAL PRAKASH SURYA
66.	<b>CI PIPES &amp; CI FITTINGS / SPECIALS</b>	ELECTROSTEEL CASTING LTD JAIWAL NECO KESORAM (BIRLA GROUP) SKF BRAND
67.	<b>DI PIPES &amp; DI FITTINGS</b>	ELECTROSTEEL CASTINGS LTD JINDAL SAW TATA METALICS
68.	<b>HDPE PIPES &amp; FITTINGS</b>	RELIANCE FINOLEX SUPREME ASTRAL KISAN MOULDINGS LIMITED JAIN IRRIGATION SYSTEMS LTD NEEL KAMAL SFMC

**PARTICULAR SPECIFICATIONS PART-II (Contd.....)****Annexure 'I'****APPROVED LIST OF MAKES / MANUFACTURES OF B/R & E/M ITEMS TO BE INCORPORATED OF ALL MES FMNS & ITS SUBORDINATE UNITS IN AOR SWC**

<b>Ser No</b>	<b>Material</b>	<b>Name of Manufactures / Brand Name</b>
<b>1</b>	<b>2</b>	<b>3</b>
69.	SLUICE VALVE / REFLUX VALVE / HIGH PRESSURE SV / RV / GATE VALVE / FOOT VALVE	KIRLOSKAR L&T KSB UPADHYAYA
70.	NRV/AIR RELEASE VALVE	KIRLOSKAR L&T KSB ZOLOTO VENUS LEADER UPADHYAYA
71.	SUBMERSIBLE CABLE	FINOLEX POLYCAB WIRES PVT LTD (POLYCAB) RR KABEL PLAZA HAVELLS BCH
72.	SINGLE PHASE PREVENTOR/SEQUENCE CORRECTOR	L&T ABB SIEMENS GE BCH HAVELLS
73.	CHLORONOME PLANT	ION EXCHANGE CHLOROMAX MAIC-INDIA
74.	BLEACHING DOZER	CHLOROMAX ION EXCHANGE MAIC-INDIA
75.	RUBBER MATS	JYOTI ELECTROMAT JAIPURIA SINTEX
76.	PVC SHEET FLOORING	FINOLEX ELECTROMAT PREMIER VINYL
77.	BATTERY/BATTERY CHARGER	EXIDE AMRON AMCO MICROTEX SUKAM
78.	BATTERY MAINTANENCE FREE	EXIDE AMRON AMCO NICCO OKAYA
79.	CAPACITORS INCL RELAY	ABB L&T GE EPCOS HPL HAVELLS

**PARTICULAR SPECIFICATIONS PART-II (Contd.....)****Annexure 'I'****APPROVED LIST OF MAKES / MANUFACTURES OF B/R & E/M ITEMS TO BE INCORPORATED OF ALL MES FMNS & ITS SUBORDINATE UNITS IN AOR SWC**

<b>Ser No</b>	<b>Material</b>	<b>Name of Manufactures / Brand Name</b>
<b>1</b>	<b>2</b>	<b>3</b>
80.	<b>MEASURING INSTRUMENTS</b>	ABB L&T AE SIEMENS SECURE HPL HAVELLS IMP
81.	<b>PHOTO ELECTRIC TIME SWITCH, SINGLE PHASE / 3 PHASE</b>	L&T C & S ELECTRIC LIMITED (C & S) HAVELLS NOVATEUR ELECTRICALS & DIGITAL SYSTEMS PVT LTD
82.	<b>SHADOW LESS LIGHT</b>	PHILIPS CG WIPRO JOLLY
83.	<b>POST TOP LANTERN</b>	PHILIPS WIPRO LIGHTING CG BAJAJ HAVELLS
84.	<b>TOOLS (HAND &amp; CRIMING ETC)</b>	TAPPARIA EVEREST STANLEY
85.	<b>REFRIGERATORS &amp; FREEZERS</b>	VOLTAS HITACHI BLUE STAR DAIKAIN LG GODREJ SAMSUNG
86.	<b>WATER COOLERS</b>	BLUE STAR VOLTAS HITACHI USHA SHRIRAM
87.	<b>AVIATION LIGHT</b>	WIPRO PHILIPS GEC
88.	<b>UNDER WATER LIGHTS</b>	PHILIPS CG BAJAJ WIPRO
89.	<b>FIRE HOSE REEL</b>	MINIMEX SAFEX GODREJ & BOYCE
90.	<b>STAND POST TYPE HYDRANT</b>	MINIMEX SAFEX GODREJ & BOYCE

**PARTICULAR SPECIFICATIONS PART-II (Contd.....)****Annexure 'I'****APPROVED LIST OF MAKES / MANUFACTURES OF B/R & E/M ITEMS TO BE INCORPORATED OF ALL MES FMNS & ITS SUBORDINATE UNITS IN AOR SWC**

<b>Ser No</b>	<b>Material</b>	<b>Name of Manufactures / Brand Name</b>
<b>1</b>	<b>2</b>	<b>3</b>
91.	PRE HOSE PIPE	NEWAGE DUNLOP COSMOS GODREJ & BOYCE SAFEZONE
92.	SPRINKLER HEAD	TYCO SAFEX MINIMEX
93.	PRESSURE SWITCH	DANFOSS SIEMENS HONEYWELL RAPID CONTROL
94.	FIRE EXTINGUISHER	MINIMAX FIREX NEWAGE GODREJ & BOYCE FLAME GUARD INDUSTRIES CEASEFIRE SAFEZONE
95.	SINGLE HEAD LANDING VALVES THREE/FOUR WAY FIRE BRIGADE INLET, HOSE REEL DRUM AND SHUT OFF NOZZLE ALUMINIUM BRANCH PIPE	MINIMAX FIREX NEWAGE FLAME GUARD INDUSTRIES
96.	MAIN SWITCH IRON CLAD	L & T HAVELLS INDIA LTD HPL ELECTRIC & POWER PVT LTD ANCHOR CROMPTON GREAVES
97.	METAL CLAD EARTH PLUG SOCKET	LEGRAND SCHNIENDER ABB SIEMENS HAVELLS
98.	THERMO PLASTIC SOCKETS & JUNCTIO BOXES	LEGRAND HENSEL ELECTRIC INDIA PRIVATE LIMITED SCHNIENDER SIEMENS ABB
99.	PVC RIGID PIPE (HEAVY DUTY)	FINOLEX SUPREME ASTRAL
100.	TOATLLY ENCLOSED FITTINGS	PHILIPS WIPRO LIGHTING CROMPTON HAVELLS
101.	FOOT LIGHT & WALK OVER LIGHT	PHILIPS WIPRO CROMPTON HAVELLS

**PARTICULAR SPECIFICATIONS PART-II (Contd.....)****Annexure 'I'****APPROVED LIST OF MAKES / MANUFACTURES OF B/R & E/M ITEMS TO BE INCORPORATED OF ALL MES FMNS & ITS SUBORDINATE UNITS IN AOR SWC**

<b>Ser No</b>	<b>Material</b>	<b>Name of Manufactures / Brand Name</b>
<b>1</b>	<b>2</b>	<b>3</b>
102.	CABLE TERMINAL BLOCK	ELMEX CONNECT WELL WAGO
103.	DESERT COOLERS (ROOM COOLER PVC BODY)	SYMPHONY CROMPTON USHA
104.	NON CHEMICAL SCALE PREVENTORS	SCALE GUARD
105.	PACKAGED/ UNIFIED SUB STATION	SCHNIENDER ABB SIEMENS ITE GURGAON
106.	RRL HOSE PIPE	NEWAGE SUPREX MINIMAX
107.	GUN METAL VALVES	KIRLOSKAR ZOLOTO AUDCO TYCO DANFOSS SIM
108.	20 MM DIA RUBBER PIPE	JYOTI MINIMAX NEWAGE
109.	HOOTER	PHILIPS BOSCH NOTIFIRE ADWARD AGNI
110.	WINDOW TYPE AIR CONDITIONER	BLUESTAR VOLTAS HITACHI CARRIER O GENERAL DAIKIN HAVELLS(LLOYD)
111.	SPLIT TYPE AIR CONDITIONER	DAIKIN HITACHI O-GENERAL CARRIER VOLTAS BLUESTAR HAVELLS(LLOYD)
112.	THERMOMETERS/PRESSURE GAUGE	HGURU FIGDIG EMERALD DS ENGG
113.	HEATERS & SOLAR WATER SYSTEM	TATA BP SOLAR SYSTEM BHEL M/S RACOLD THERNO LTD, PUNE M/S BOSCH LTD, BANGLORE

**PARTICULAR SPECIFICATIONS PART-II (Contd.....)****Annexure 'I'****APPROVED LIST OF MAKES / MANUFACTURES OF B/R & E/M ITEMS TO BE INCORPORATED OF ALL MES FMNS & ITS SUBORDINATE UNITS IN AOR SWC**

<b>Ser No</b>	<b>Material</b>	<b>Name of Manufactures / Brand Name</b>
<b>1</b>	<b>2</b>	<b>3</b>
114.	<b>WATER SOFTENING PLANT</b>	ION EXCHANGE THERMAX PANTAIR
115.	<b>MPCBS</b>	LEGRAND ABB SCHNIEDER SIEMENS
116.	<b>CHANGEOVER SWITCH &amp; SWITCH DISCONNECTOR</b>	HAVELLS INDIA LTD NOVATEUR ELECTRICALS & DIGITAL SYSTEMS PVT LTD ( INDOASIAN) HAVELLS INDIA LTD (STANDARD DIVISION) HPL ELECTRIC & POWER PVT LTD BCH ELECTRIC LIMITED
117.	<b>SAFTEY THERMOSTATE FOR HEATER</b>	SIEMENS SCHNIEDER DANFOSS HONEYWELL JOHNSON CONTROL ENERGY BELIMO
118.	<b>COMBINED FIRE/ SMOKE DAMPERS</b>	PAVISTAR MAPRO/ AIRFLOW SYSTEMAIR TROSS
119.	<b>VENTILATION/ EHAUST AIR GRILLES</b>	PAVISTAR SYSTEMAIR TROSS
120.	<b>FACTORY FABBRICATED DUCT</b>	TECHNOFAB POLASTAR ZECO
121.	<b>JET NOZZLES</b>	PAVISTAR SYSTEMAIR TROSS
122.	<b>EXPANDED POLYSTYRENE (TF QAULITY)</b>	METTUR-BEARDSELL LLOYAD INSULATION DEBS PRODUCTS
123.	<b>ELASTOMERIC /CROSS LINKED POLYETYLENE FOAM</b>	PARAMOUNT ARMALEX SUPREME KELEX AFLEX
124.	<b>PROTECTION COATING OVER BASED CELL ELASTROMETIC</b>	POLYBOND PARAMOUNT ARMACELL
125.	<b>AIR WASHER/ SCRUBBER</b>	EDGETECH ZECO VTS

**PARTICULAR SPECIFICATIONS PART-II (Contd.....)****Annexure 'I'****APPROVED LIST OF MAKES / MANUFACTURES OF B/R & E/M ITEMS TO BE INCORPORATED OF ALL MES FMNS & ITS SUBORDINATE UNITS IN AOR SWC**

<b>Ser No</b>	<b>Material</b>	<b>Name of Manufactures / Brand Name</b>
<b>1</b>	<b>2</b>	<b>3</b>
126.	<b>CHEMICAL DEHUMIDIFIERS</b>	DRY AIR EDGETECH ZECO VTS
127.	<b>AIR WASHERS</b>	DRY AIR EDGETECH ZECO VTS
128.	<b>ACCOUSTIC ENCLOSURE AND CONOPIES FOR</b>	JAKSONS SUDHIR GENSET POWERIKA
129	<b>THIMBLES/ STUDS/ LUNGS</b>	DOWELLS COMET HEX
130.	<b>ELECTRIC HOOTER/ SIREN</b>	KHAIRAJ (BELL) ONLY NOTI FIRE ADWARD BOSCH
131.	<b>TOTALLY ENCLOSED FITTINGS</b>	PHILIPS WIPRO LIGHTING CROMPTION HAVELLS
132.	<b>FOOT LIGHTS &amp; WALK OVER LIGHTS</b>	PHILIPS WIPRO CROMPTION HAVELLS
133.	<b>PACKAGED/ UNIFIED SUB STATION</b>	SCHNIEDER ABB SIEMENS
134.	<b>AIR CURTAINS</b>	ALMONARD CROMPTION GREAVES AIR CON
135	<b>PRECAST CABLE COVERS</b>	HIND MOSIAC TILES UPLETA, MEHTAB-INDORE, SUPREME, MORBI LUCKY CEMENT BLOCK WORKS
136	<b>RMU</b>	LARSEN & TURBO ABB SCHNIEDER SIEMENS
137	<b>ISOLATION TRANSFORMER</b>	VINTEK ELECTRONICS(VOLINA) ITE GURGAON
138	<b>AIR HANDING EQUIPMENT AIR HANDING UNIT DOUBLE SKIN</b>	VOLTAS BLUE STAR DAIKAIN HITCHI O GENERAL

**PARTICULAR SPECIFICATIONS PART-II (Contd.....)****Annexure 'I'****APPROVED LIST OF MAKES / MANUFACTURES OF B/R & E/M ITEMS TO BE INCORPORATED OF ALL MES FMNS & ITS SUBORDINATE UNITS IN AOR SWC**

Ser No	Material	Name of Manufactures / Brand Name
1	2	3
139	COOLING	PAHARPUR MIHIR DELTA
140	CENTRIFUGAL CHILLERS & SCREW CHILLARS	CARRIER VOLTAS DAIKAIN BLUE STAR HITACHI
141	LIFTS	KONE OTIS SCHINDLER MITSUBISHI
142	SMART METERS	THYSSEN KRUPP LARSEN & TURBO SECURE HPL ELMEASURE
143	WATER COMPOUND                      PROOFING	DR. FIXIT, PIDILITE, STP, M/S TEXSA INDIA LTD, GURGAON

**Note:** - (a) Before placing the bulk supply order on any of the above listed firms/ manufacturers, sample approval and make approval shall be obtained from GE in writing.

(b) If make for any product not listed in Annexure 'I', any one of the make as approved/ validity renewed by E-in-C's branch or CE Command till the date of submission of tender, can be procured by contractor. However criteria of equivalency including category/group of make etc are to be strictly adhered. In case the make deleted by E-in-C / CE Comd after the date of submission of bid and during currency of contract shall deemed to be deleted from CA, if any make approved by E-in-C's Branch / CE Command after end date of submission of tender is felt necessary to be approved due to site requirement, non- availability of items with firms/makes listed in tender, then it shall be approved subject to price adjustment only with permission of AO supported with complete technical as well as financial data for pricing etc and it shall be ensured that no plus financial effect shall be permitted (i) Before placing the bulk supply order or any of the above listed firms/manufacturers shall be got approved from GE

(c) In addition to the makes mentioned in tender documents, if contractor request for use of product makes approved by any other command/ADG (other than the parent command) alongwith the documentary proof in respect of the approval, the same shall be allowed to be used without any financial effect.

SIGNATURE OF CONTRACTOR

AGE (Contracts)  
For ACCEPTING OFFICER