

**MILITARY ENGINEER SERVICES****NAME OF WORK: SPECIAL REPAIR TO BLDG NO. P-149/A, P-171 AND P-406 INCLUDING ROOF TREATMENT AT MIL STN GANDHINAGAR**

SL NO.	DESCRIPTION	PAGE	
		FROM	TO
1.	CONTENTS	01	01
2.	FORWARDING LETTER INCLUDING INSTRUCTIONS FOR FILLING AND SUBMISSION OF TENDER DOCUMENTS	02	06
3.	NOTICE OF TENDER INCLUDING APPENDIX 'A' TO NOTICE OF TENDER AND ERRATA THERE TO	07	12
4.	TENDER AND ITEM RATE CONTRACT FOR WORKS BY MEASUREMENTS IAFW-1779-A (REVISED 1955) (EXCEPT BOQ) (Note – BOQ i.e. Finance Bid attached at Srl No 10)	13	20
5.	GENERAL CONDITION OF CONTRACTS (IAFW- 2249) (1989 PRINTS) INCLUDING ERRATAS & AMENDMENTS	21	72
6.	SCHEDULE OF MINIMUM FAIR WAGES	73	73
7.	SPECIAL CONDITIONS	74	79
8.	PARTICULAR SPECIFICATIONS	80	118
9.	ERRATA/AMENDMENT TO TENDER DOCUMENTS		
10.	BOQ (Finance Bid)		
11.	RELEVANT CORRESPONDENCES		
12.	ACCEPTANCE LETTER		
	TOTAL NO. OF PAGES =		

Signature of Contractor

For Accepting Officer

Tele/Fax : 23200484

E-mail : [gandh4-mes@nic.in](mailto:gandh4-mes@nic.in)

Military Engineer Services  
Garrison Engineer (Army)  
PO : BSF Campus,  
Gandhinagar – 382 045

8923/ /E8

15 Oct 2024

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

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**NAME OF WORK : SPECIAL REPAIR TO BLDG NO. P-149/A, P-171 AND P-406 INCLUDING  
ROOF TREATMENT AT MIL STN GANDHINAGAR**

1. Tender documents in respect of above work are forwarded herewith as uploaded on the site <https://defproc.gov.in>
2. Bids will be received online by ACCEPTING OFFICER upto date and time mentioned on the NOTICE OF TENDER (NOT). No tender/bid will be received in physical form and any tender/bid received in such manner will be treated as non bonafied tender.
3. **Bid will be opened on due date and time fixed for opening in the presence of tenderers or their authorized 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 "Clarification end date" mentioned on the site <https://defproc.gov.in> for subject tender. You are requested not to write piece meal points and forward your points duly consolidated on or before "Clarification end date" mentioned on the site <https://defproc.gov.in> for subject tender.
5. Un-enlisted 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 alongwith EMD and tender fee on e-procurement portal and submit the physical documents in the office of GE(A) Gandhinagar within time limit specified in Notice of Tender **(NOT)**. Inadequacy/deficiency of documents shall make the bid liable for rejection and in such event BOQ shall not be opened.
6. (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 opening of BOQ. In case of failure to abide by any of these two requirements, the bid will be treated as non-bonafied.  
  
(b) The lowest contractor would be required to deposit **PERFORMANCE SECURITY** within 28 days of receipt of letter of acceptance as per condition 19 of IAFW-2249 and amendment issued vide E-in-C's Branch letter Nos. 66546/P-2/ 44 /E8 dated 16 Feb 2021 & Min of Finance, Deptt of expenditure, Procurement Policy Devision OM No. F.1/1/2022-PPD dated 02 Feb 2022 circulated vide E-in-C's Branch letter No. 66456/Mannual/137/E8 dated 30 Apr 2024.
7. Enlisted contractors of MES shall submit the scanned copies (pdf file) of enlistment letter and tender fee on e-procurement portal and submit physical documents in the office of GE(A) Gandhinagar within time limit specified in Notice of Tender **(NOT)**.

Contd....

Signature of Contractor

For Accepting Officer

**FORWARDING LETTER (Contd/...)**

8. The contractor must ensure that the tender 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 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 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 all the MES Offices and in this office.
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. **Tenderer is advised to cross check his quotation in the BOQ after uploading and before the Bid closing time & date. If, he fails to quote his rate for any item(s), in that case contractor has to carry out the work of given quantity without any cost to the Govt. No representation on this account shall be entertained.**
13. Any grievance concerning this contract agreement on which contractor is not satisfied with decision of Accepting Officer shall be referred by him only to the Next Higher Engineer Authority (NHEA). The contractor shall under no circumstances communicate with any authority other than NHEA, unless he has exhausted the option to represent to all Engineer authorities upto NHEA. While representing his case to authorities above NHEA, copies of correspondence exchanged with all authorities shall be enclosed clearly bringing out his grievance on them. Any breach of this stipulation shall be treated as default on the part of the contractor and his grievance will not be entertained. In addition he shall be liable for disciplinary action as deemed fit by Registering Authority.
14. Any complaint against the contractor received from a third party like suppliers of contractor, other contractors, his engineer, labour etc shall be referred to him by the GE. The contractor will be required to obtain settlement of the complaints from the originator and/or concerned authority and submit settlement letter to GE within 15 days of receipt of referral from GE. Any failure in this regards will invite disciplinary action against the contractor by the Registering Authority.
15. This letter shall form part of tender documents.

Yours faithfully,

SIGNATURE OF CONTRACTOR

FOR ACCEPTING OFFICER

**INSTRUCTIONS ON FILLING AND SUBMISSION OF TENDER**

1. **EARNEST MONEY.** 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 :-

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

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

**NOTES:** - Earnest Money in the form of cheque/Bank Guarantee etc will not be accepted. NONSUBMISSION OF EARNEST MONEY WILL RENDER THE TENDER AS NON-BONAFIDE AND CONSEQUENTLY LIABLE TO BE IGNORED.

2. All Contractors enlisted with any MES formation & who have deposited Standing Security deposit and have executed Standing Security Bond fulfilling the eligibility criteria may tender without depositing Earnest Money.

3. EMD submitted by all un-successful bidders shall be released immediately after acceptance of lowest bid. EMD of lowest bidder (in case if applicable) shall only be released after receipt of performance security.

4. **PERFORMANCE SECURITY.**

(a) The lowest bidder is required to give performance security as per condition 19 of IAFW-2249 within 28 days of receipt of letter of acceptance in favour of Garrison Engineer (A) Gandhinagar in the form specified for **an amount equivalent to 5% of the contract sum** in the form given below. Failure of lowest bidder in submission of performance security within the stipulated time shall attract penalties as given in condition 19 of IAFW-2249 and amendment issued vide E-in-C's Branch letter No. 66546/P-2/ 44 /E8 dated 16 Feb 2021.

(i) A Bank guarantee in the prescribed form.

(ii) Government Securities. FDR or any other Government instrument & stipulated by the Accepting Officer.

(iii) Insurance Surety Bonds as security Instrument.

(a) 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.

(b) Failure of the successful contractor to comply with the requirements of sub-clause 19.1 of condition 19 of I.A.F.W-2249 shall constitute sufficient ground 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 tenderer shall remain suspended till the aforesaid amount equal to the Earnest Money is deposited in Government Treasury.

(c) 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 of 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.

Signature of Contractor

For Accepting Officer

**INSTRUCTIONS ON FILLING AND SUBMISSION OF TENDER (Contd/...)**

(d) 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.

**5. GENERAL INSTRUCTIONS FOR COMPLIANCE**

5.1 The tender will only be accepted in the electronic form. All bids shall be submitted on 'https://defproc.gov.in' portal. Documents should be scanned and forwarded in 'pdf' form and 'xls' form as indicated.

5.2 Tender shall be forwarded on 'https://defproc.gov.in' portal on or before the bid closing date mentioned in the tender. No tender/bid in any other electronic or physical form email/fax/by hand/trough post will be considered.

5.3. Tender should be DIGITALLY signed using valid DSC. All pages of tender documents, corrections/ alterations shall be signed/initialled by the tenderer after acceptance.

5.4 Drawings must be returned duly initialled by the tenderer with tender documents 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. Contractor shall sign all drawings forming part of the tender. Any tender, which proposes alterations to any of the conditions whatsoever, is liable to be rejected.

5.6 The tender shall be accompanied by a scanned copy of Power of Attorney in favour of the signatory to the tender documents. In case the signatory himself is the sole proprietor, 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, 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. An 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 signing the tender on behalf of another partner(s) or on behalf of a firm or company shall attach 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 his to sign tender in pursuance of which tenders are being signed 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 submitted 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 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 conditions referred hereinafter and also conditions 24 & 25 of IAFW 2249 (General conditions of contract).

Signature of Contractor

For Accepting Officer

**INSTRUCTIONS ON FILLING AND SUBMISSION OF TENDER (Contd/...)**

5.11 Tenders will be opened in the presence of tenderers on the due date and time fixed for receipt of tender. Tenderers who submit their priced tenders/bids and are desirous of being present at the time of opening of the tenders/bids, may do so at the appointed time.

5.12 The tenderer shall quote his rate on the BOQ file only. No alteration to the format will be accepted or the bid will be disqualified.

5.13 In case the tender has to revise / modify the rates quoted in the BOQ (excel sheet) he can do so only in the BOQ, through <https://defproc.gov.in> site only.

5.14 In case a tenderer has to revise his offer, he can do so through the <https://defproc.gov.in> site only before the bid closing time and date.

**6. CPM (CRITICAL PATH METHOD):**

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

6.2 The tenderer 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 may make use of.

6.3 The tenderer'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 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. Department may issue amendments/errata in form of corrigendum to tender /revised BOQ to the tender documents before due date & time of submission of tender. The tenderer is requested to read the tender documents in conjunction with the errata/ amendments, if any, issued by the department.

8. The tenderer will not make, of the own, any alteration in tender documents issued to him by the Department. In the connection tenderers special attention is drawn to Para 10 of notice of tender. It is expressly brought to the notice of the tenderers that if he makes any alteration in tender documents and does not specifically bring out the alteration to the notice of the Accepting Officer, through a letter along with the tender and his tender is accepted by the Accepting Officer, the alteration(s) made by the tenderer shall be deemed to become null and void and the original provisions in the tender documents as originally made by the department or amended subsequently through amendments to tender documents issued by the department shall hold good and the contractor will not have any claim on this account.

9. In the event of lowest tenderer revoking his offer or revising his rates upward/ offering voluntary reduction, after opening of tenders, 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 for depositing the amount through MRO. Issue of tender to such Contractors shall remain suspended till the aforesaid amount equal to the earnest money is deposited in Govt Treasury. In addition, such tenderer and his related firm shall not be issued the tender in second call or subsequent calls. Reduction offered by the tenderer on the freak high rates referred for review shall not be treated as voluntary reduction.

10. These instructions shall form part of the contract documents and shall be signed and returned along with the tender.

11. The tenderers attention is also invited to adhere the latest rules as per the Contract Labour ( Regulation and Abolition ) Act 1970 and as amended time to time .

12. The tenderers should note that as per the amendment to Payment of Wages Act, 1936 Act, issued in the Gazette Notification dated 15 Feb 2017, the payment of the wages to workers deployed by the tenderer shall preferably to be made through AADHAAR linked bank account of the workers. Incase workers insists to paid in coins or current currency or by cheque, the same will not be denied but an undertaking may be obtained from such workers.

Signature of Contractor

For Accepting Officer

**MILITARY ENGINEER SERVICES**  
**NOTICE INVITING TENDER (NIT)**

1. A tender is invited for the work as given in Appendix 'A' to this NOTICE INVITING TENDER (NIT).
2. The work is estimated to cost as indicated in aforesaid Appendix 'A'. This estimate, however, is not a guarantee and is merely given as a rough guide and if the work costs more or less, a tenderer/bidder will have no claim on that account.
3. The work is to be completed within the period as indicated in aforesaid Appendix 'A' in accordance with the phasing, if any, indicated in the tender from the date of handing over site, which will be on or about two weeks after the date of acceptance of tender.
4. Normally contractors whose names are on the MES approved list and within whose financial category the estimated amount would fall and unenlisted contractors may submit tender/bid subject to other criteria mentioned in Appendix A. However in case of term contracts, enlisted contractors of Class SS to E may submit tender. Not more than one tender shall be submitted/uploaded by one contractor/ firm. Under no circumstances will a father and his son(s) or other close relations who have business dealing with one another be allowed to tender/bid for the same contract as separate competitors. Two firms shall be deemed to have business dealing if any of the partners/proprietor/director is common among both of them. A breach of this condition will render the tenders/bids of both the parties liable for rejection.
5. The office of Garrison Engineer (Army), Gandhinagar will be Accepting Officer here in after referred to as such for purpose of the contract.
- 5A. The Tenders/bids shall be uploaded on the "[www.https://defproc.gov.in](https://defproc.gov.in)" site in two packets i.e. the Technical Bid and Financial Bid upto the last date & time of submission of bids indicated in **NIT** therein. Bids shall be opened at time & date mentioned on <https://defproc.gov.in>.
6. Not more than one tender/bid shall be submitted/uploaded by one bidder firm. Under no circumstances will a father and his son(s) or other close relations who have business dealing with one another be allowed to tender/bid for the same tender as separate competitors. A breach of this condition will render the tenders/bids of both the parties liable for rejection.
7. The Technical Bid and Financial Bid (**Cover-1 and Cover-2**) shall be uploaded by the contractor on or before the date & time mentioned in **NIT**. A scanned copy of DD with enlistment details and other documents as specified in Appendix A shall be uploaded as Cover-1 (Technical bid) of the tender on e-tendering portal. DD is refundable in case the contractor is not considered eligible in technical evaluation of Cover 1 resulting in non opening of Cover1. The applicant contractor shall bear the cost of bank charges for procuring and encashing the DD including revalidation of DDs and shall not have any claim from Government whatsoever on this account.
8. Tender form and conditions of contract and other necessary documents shall be available on website [defproc.gov.in](https://defproc.gov.in) for download and shall form part of contract agreement in case the tender/bid is accepted.
9. In case of MES enlisted contractor who has not executed the Standing Security Bond and unenlisted contractor, the Cover-I shall be accompanied by Earnest Money for the amount mentioned in Appendix 'A' in the form of deposit at call receipt in favour of concerned CCE/GE/GE (I)/AGE (I) (see Appendix 'A') by a Scheduled Bank or in received treasury Challan the amount being credited to the revenue deposit of the concerned CCE/GE/GE(I)/AGE(I) (see Appendix 'A'). The CCE/GE/GE (I)/AGE (I) will return the Earnest Money, wherever applicable, to all unsuccessful tenderers/bidders by endorsing an authority on the deposit at call receipt for it's refund, on receipt of intimation from the Accepting Officer to do that.

(Signature of contractor)

For Accepting Officer

9.1 The GE will return the Earnest Money Deposit wherever applicable to all unsuccessful tenderers by endorsing an authority on the deposit receipt for its refund, on production by the tenderer a certificate of the Accepting Officer that a bonafied tender was received and all document were returned.

9.2 The GE will either return the Earnest Money Deposit to the successful tenderer by endorsing an authority on the deposit Receipt for its refund on receipt of an appropriate amount of Security Deposit or will retain the same in part or full on account of security deposit if such a transaction is feasible.

10. In case of successful contractor i e the lowest contractor having submitted EMD, he shall have the option of converting the EMD instrument into part of the Performance Security to be deposited by him within 28 days from the receipt of intimation of acceptance of tender from Accepting Officer.

11. Copies of the drawings and other documents pertaining to the work (signed for the purpose of identification by the Accepting Officer or his accredited representative), samples of materials and stores to be supplied by the contractor will be open for inspection by the tenderer at the office of GE during working hours.

11. Sample of materials and stores to be supplied by the contractor will also be available for inspection by the bidder at the office of concerned GE/GE (I)/AGE (I)/Project Manager during working hours. The bidder is advised to visit the site of work by making prior appointment with GE/GE (I)/AGE (I)/CCE/Project Manager, who is the Executing Agency of the work (see Appendix 'A'). The bidder shall be deemed to have full knowledge of all relevant documents, samples, site etc whether he has inspected them or not.

12. Any bid which proposes any alteration to any of the conditions laid down or proposes any other new condition whatsoever, is liable to be rejected.

13. The uploading of bid by a bidder implies that bidder has read this notice and the conditions of contract and has made himself aware of the scope and specification of work to be done and of the conditions and rates at which stores (as applicable) etc will be issued to him and local conditions and other factors having bearing on the execution of the work.

14. The bidder must be in possession of a copy of the MES Schedule (SSR) (Part-I & Part-II of latest edition) including amendments and errata thereto.

15. Accepting Officer does not bind himself to accept the lowest or any tender/bid or to give any reason for not doing so.

16. The Accepting Officer reserves the right to accept a tender submitted by a Public Undertaking/Small & Medium Enterprises (SMEs), giving a price preference/purchase preference over other tender(s)/bids which may be lower, as are admissible under the Government Policy. No claim for any compensation or otherwise shall be admissible for such tenderer/bidder whose tender/bid is rejected.

17. The **Notice Inviting Tender (NIT)** including Appendix 'A' and Annexures thereto, if any, shall form part of the contract agreement.

(Signature of contractor)

For Accepting Officer



**APPENDIX 'A' TO NOTICE OF TENDER**

1	Name of work	<b>SPECIAL REPAIR TO BLDG NO. P-149/A, P-171 AND P-406 INCLUDING ROOF TREATMENT AT MIL STN GANDHINAGAR</b>
2	Estimated Cost	Rs. 30.30 Lakh (at par market)
3	Period of completion	06 Months
4	Cost of tender documents	Rs. 500/- in the shape of DD/Bankers cheque From any scheduled Bank in favour of <b>Garrison Engineer (Army) Gandhinagar</b> and payable at Gandhinagar. (Note : In case of retendering, the contractor who had quoted in the previous call is not required to submit the cost of tender).
5	Website/Portal address	www.defproc.gov.in
6	Type of contract	The tender shall be based on specifications, IAFW- 1779 - A and GCC (IAFW-2249) with Schedule 'A' (list of items of work). The tenderers are required to quote their rates against each item of Schedule 'A'
7	Timeline details :	
	(a) Bid submission start date	Refer critical dates on the website.
	(b) Bid submission end date	
	(c) Date of bid opening	
8	Eligibility Criteria	
	(a) For MES enlisted contractors	All contractors enlisted with MES in class 'D' & above and category (a)(i) subject to satisfactory remarks wrt performance in respect of works in hand as reflected in Work Load return (WLR) or any other report circulated by competent engineer authority.
	(b) For contractors not enlisted with MES.	(i) Contractor not enlisted with MES should meet the enlistment criteria of 'D' Class & (a)(i) category contractor with regard to satisfactorily completion of requisite value works with Central/State Government/ Central/ State PSUs/ AWHO/ AFNHB/ CGEWHO / DGMAP, annual turnover, bank solvency, working capital and other requirements given in Para 1.4 & 1.5 of Section 1 of MES Manual of Contracts 2020 as available in all MES formations as well as MES website (www.mes.gov.in). (ii) Not carrying adverse remarks in Work Load Report (WLR) or any other similar report circulated by any competent authority, if already working in MES. (iii) Not suspended/debarred/blacklisted (either permanently or temporarily) from participating in any bid or for business dealings by any Central/State Government Department or any Central/State Government PSU or any Autonomous Body under Central/State Government or any Local Body as on the bid submission end date.
	(c) Technical PQC criteria	In case of Solar Power Works and Runway /Pavements, technical PQC criteria as stipulated in Manual on Contracts and as per policy letters issued by E in C's Branch from time to time shall be included suitably.

(Signature of contractor)

For Accepting Officer

**APPENDIX 'A' TO NOTICE OF TENDER (CONTD...)**

9	Tender issuing and Accepting Officer	Name : <b>Garrison Engineer (Army)</b> Address : <b>PO : BSF Campus, Gandhinagar – 382 045</b> Email:- <a href="mailto:gandh4-mes@nic.in">gandh4-mes@nic.in</a>
10	Executing Agency	Garrison Engineer (Army) Gandhinagar
11	Earnest Money	<b>Rs. 30,600.00</b> in favour of <b>Garrison Engineer (Army) Gandhinagar</b> in the form of Deposit at call receipt, FDR not acceptable.

**Notes:-**

1. After opening of Cover 1, if the number of MES enlisted contractors of eligible class as well as un-enlisted contractors, if any, fulfilling the other eligibility criteria given in NIT are less than 7(Seven), applications in respect of contractors one class or two classes (in case of remote and difficult areas to be decided as per list circulated by CE command/ADG) below the eligible class shall also be considered subject to fulfilment of other eligibility criteria given in the NIT. Therefore MES contractors one class below (two classes below in case of remote and difficult areas) may also bid for this tender. However contractors of one/two classes below the eligible class shall not be considered in case their present residual work in hand is more than twice their present tendering limit. Such bidders shall upload in their Cover-1 bid details of works in hand showing names of work, names of Accepting Officers, Contract amounts, dates of commencement and completion (stipulated) and progress as on bid submission date. These details shall be verified by the Tender Issuing Authority from concerned formations in case bids of such contractors are considered for evaluation.

2. In case after opening of Cover 1, the number of MES enlisted contractors of eligible class as well as un-enlisted contractors, if any, fulfilling the other eligibility criteria given in NIT, are 7 (Seven) or more, applications of only those one class below the eligible class bidders shall be considered, who have previously completed similar works satisfactorily and are meeting the criteria of upgradation in respect of past experience of completed works (individual work experience and/or average annual turnover as applicable) and financial soundness (solvency/financial soundness and working capital) as per details given in Manual on Contracts. Therefore such contractors shall upload the requisite information/documents in the Cover-1.

3. Unenlisted contractor shall be considered provided he meets the criteria. Foreign firms shall not be eligible for this tender. However Indian Firms having foreign national / Indian nationals staying abroad / Indian national having taken foreign citizenship, as director(s) shall be considered subject to security clearance from the concerned authorities.

4. Contractors enlisted with MES will upload following documents in Cover 1 for checking eligibility :-

- (a) Application for tender on Firm's letterhead.
- (b) Enlistment letter issued by the Registering Authority duly renewed for the cycle period in vogue.
- (c) Scanned copy of DD /Bankers Cheque toward cost of tender and EMD instrument in case SSD bond is not signed at the time of registration.
- (d) Any other document required as described in this Appendix.

5. Contractors not enlisted with MES will be required to upload following documents in Cover 1 for checking eligibility.

(Signature of contractor)

For Accepting Officer

**APPENDIX 'A' TO NOTICE OF TENDER (CONTD...)**

- (a) Application for tender on Firm's letterhead.
- (b) Scanned copy of DD/ Bankers cheque toward cost of tender and Earnest Money Deposit (EMD) instrument.
- (c) Copy of Police Verification Report/Police Clearance Certificate/ Character Certificate from the Police Authority of the area where the registered office of the firm is located/notarized copy of valid passport of Proprietor/each Partner/each Director.
- (d) All documents required for enlistment in MES for the class mentioned in Para 8(b) above as per Para 1.5 of Section 1 of MES Manual on Contracts 2020.
- (e) Details of works being executed in MES, if any.
- (f) Any other document required as described in this Appendix.

6. Tenders not accompanied by scanned copies of requisite DD/Bankers Cheque towards cost of tender and earnest money (as applicable) in Cover 1 shall not be considered for validation of 'T' bid and their Financial Bids will not be opened.

7. Contractors should ensure that their original physical DDs and Earnest Money Deposit (EMD) instruments (as applicable) reach the office of Accepting Officer within **05 days** of bid submission end date (\*The number of days to be mentioned shall be as decided by the Accepting Officers, but it shall not be less than 5 days) failing which following action shall be taken.

(a) In case of tenders from an enlisted contractor of MES, where scanned copies of requisite DD/ Bankers Cheque towards cost of tender have been uploaded in Cover 1 but physical copies are not received within the stipulated period, their financial bids (Cover 2) will be opened. However non-submission of physical copies of cost of tender shall be considered as willful negligence of the tenderer with ulterior motives and such tenderer shall be banned from bidding for a period of six months commencing from the date of opening of Financial Bid (Cover 2).

(b) In case of tenders from unenlisted contractor, where scanned copies of requisite DD/Bankers Cheque towards cost of tender have been uploaded in Cover 1 but physical copies are not received within the stipulated period, their financial bids (Cover 2) will not be opened. Name of such contractors along with complete address shall be circulated for not opening of their bids for a period of six months commencing from the date of opening of Financial bid (Cover 2).

(c) In case of tenders from enlisted and unenlisted contractors, where scanned copies of instruments for Earnest Money Deposit (as applicable) have been uploaded in Cover 1 but the same are not received in physical form within stipulated period, such tenders shall not qualify for opening of financial bid (Cover 2).

8. Contractor will not be allowed to execute the work by subletting or through power of attorney to a third party/another firm on his behalf. However a contractor can execute the work through power of attorney to sons/daughters/ spouse of Proprietor/Partner/Director and firm's own employees, director, project **manager provided they are not having a separate enlisted firm in MES in their name as Proprietor/Partner/Director.**

9. After opening of Cover 1 and during its technical evaluation, in case any deficiency is noticed in the documents required to be uploaded by the tenderers as per NIT, a communication in the form of e-mail/SMS/Speed Post etc shall be sent to the contractor to rectify the deficiency within a period of seven days from date of communication failing which their financial bid (Cover 2) shall not be opened and contractor shall not have any claim on the same.

(Signature of contractor)

For Accepting Officer

10. Invitation for e-tender does not constitute any guarantee for validation of Technical bid and subsequent opening of financial bid of any applicant/bidder merely by virtue of enclosing DD. Accepting Officer reserves the right to reject the Technical bid and not to open the financial bid of any applicant/bidder. Technical bid validation shall be decided by the Accepting Officer based on eligibility of the firm as per criteria given in this Appendix. Tenderer/bidder will be informed regarding non-validation of his Technical bid assigning reasons therefore through tender evaluation report which shall be uploaded on the website. Such tenderer, if desires, may appeal to the next higher Engineer Authority (NHEA) viz **HQ CWE Ahmedabad** on email id [ahbd3-mes@nic.in](mailto:ahbd3-mes@nic.in) with copy to the Accepting Officer on email before the scheduled date of opening of Cover 2. NHEA shall decide the matter within a period of seven working days from the date of receipt of appeal. The decision of the NHEA shall be final and binding. The tenderer/bidder shall not be entitled for any compensation whatsoever for rejection of his bid.

11. In case an unenlisted contractor is already executing works in MES, he shall not be considered eligible for the subject tender if the total value of such works is more than twice the tendering limit of the MES Class of contractor for which it is eligible. For this purpose, details of the works being executed by such a contractor shall be uploaded in the Cover -1 of the bid and shall be checked/verified by the Accepting Officer.

12. In case the BOQ is revised through the corrigendum and the bidder has failed to quote on revised BOQ (ie he has quoted on pre revised BOQ), such bid shall be treated as willful negligence by the bidder and his quotation shall be considered non-bonafide. In such cases the lowest tender shall be determined from amongst the valid/bonafide bids only. Accepting Officer may decide whether to re-tender or consider the lowest bonafide tender for acceptance.

13. Revoking the offer or revising the rates upward or offering voluntary reduction by the lowest tenderer after opening of Cover 2 shall be considered as a wilful default. For this default a penalty of an amount equal to Earnest Money shall be levied. In case of an unenlisted tenderer, Earnest Money deposited by him shall be forfeited. In case of MES enlisted tenderer having deposited the Standing Security Bond, an amount equal to the earnest money stipulated in the NIT, shall be notified to the tenderer for depositing through MRO and consideration of such tenderer in tender evaluation for future works shall remain suspended till the aforementioned amount is deposited in the Government Treasury. No other disciplinary/administrative action shall be taken against such tenderers. In such a situation, the next lowest offer shall not be considered for acceptance. Instead, retendering shall be resorted to in a transparent and fair manner and the defaulting tenderer and his related firm if any, shall not be eligible for this tender in second call or subsequent calls.

14. Tender to related firms shall not be issued simultaneously. Firms shall be termed as related if Proprietor/one or more Partners/Directors are common. Decision of Accepting Officer on issue/deny the tender to any one of the related firms shall be final and binding.

15. The tenderer attention is invited to ensure compliance of the “**EPF and MP Act 1952**”. Before commencement of work, the contractor should produce the provident fund code number to the GE, **if applicable**.

16 **Jurisdiction of Court** of the place from where tender has been issued shall alone have jurisdiction to decide any dispute out of or in respect of this tender. After acceptance of tender, condition 72 – Jurisdiction of courts of IAFW-2249 shall be applicable.

Signature of contractor

For Accepting Officer

File No 8923/E8 dated 15 Oct 2024

Garrison Engineer (Army)  
PO: BSF Campus  
Gandhinagar-382045

(TO BE USED IN CUNJUNCTION WITH GENERAL CONDITION OF CONTRACT IAFW-2249)

Tele : 23200484

GARRISON ENGINEER (A)  
PO: BSF Campus  
GANDHINAGAR-382045

8923/ /E8

15 Oct 2024

TENDER AND ITEM RATE CONTRACT FOR WORK BY MEASUREMENT IN THE EXECUTION OF  
**"SPECIAL REPAIR TO BLDG NO. P-149/A, P-171 AND P-406 INCLUDING ROOF TREATMENT  
AT MIL STN GANDHINAGAR"**

1. Shri/S'Shri \_\_\_\_\_ of \_\_\_\_\_  
is/are hereby authorized to tender for the above work. The tender is to be uploaded on  
<https://defproc.gov.in> portal on or before the bid closing date mentioned in the tender.
2. All documents must be uploaded while forwarding the bid on abovementioned portal.
3. THE PRESIDENT OF INDIA DOES NOT BIND HIM SELF TO ACCEPT THE LOWEST OR  
ANY TENDER.

SIGNATURE OF OFFICER  
ISSUING THE DOCUMENTS

(Signature of Contractor)

For Accepting Officer

**SCHEDULE 'A' (BOQ)(SCHEDULE OF WORKS)**  
**(List of works and Prices)**

**NOTES:-**

1. The tenderer is required to quote his unit rates (in Col 6) against each items of Sch 'A' (BOQ). **If, he fails to quote his rate for any item(s), in that case contractor has to carry out the work of given quantity without any cost to the Govt. No representation on this account shall be entertained.**
2. Description of items given in Sch 'A' (BOQ) is in brief. These are deemed to be amplified and read in conjunction with special conditions, particular specifications, specifications for materials and workmanship and conditions given in the relevant sections of MES Standard Schedule of Rates Part-I (2009) and Part-II (2010).
3. The entire work included in this contract is required to be completed within **06 (Six) Months** from the date of handing over site mentioned in the work order No 1.
4. The total amount of this Schedule is firm but will be treated as "Contract Sum" referred to in IAFW-2249 General Conditions of contracts. Wherever the schedule of credit is involved the contract sum shall be arrived at after deducting amount of Schedule of Credit from the total quoted amount.
5. Unit rates quoted by the contractor shall be deemed to allow for all minor details of construction/accessories which are not specifically mentioned in Sch 'A' (BOQ) or given in particular specifications or shown on drawings but which are essential for the completion of works/services in workman like manner and sound Engineering practice. In case of difference of opinion between the contractor and the AGE, as to whether or not, any items of work constitute minor details of construction, the decision of the Accepting officer shall be conclusive final and binding.
6. The quantities shown in column 3 of BOQ are approximate and are inserted as guidance only. They do not constitute any guarantee of the ultimate quantities which will be ordered under the contract. This shall, however, not be varied beyond the limits laid down in condition 7 of IAFW-2249 (General Condition of Contracts).
7. Unless otherwise specified, the rates quoted by the tenderer against schedule "A" items of work are deemed to include supplying, laying, fixing, connecting, testing (where required), etc including provision of all necessary materials, testing equipments and labour for testing and all works described under the heading 'Rates' and in the preambles to similar items in MES Schedule.
8. The work lies in various area and locations of **Mil Stn Gandhinagar** under the jurisdiction of GE (A) Gandhinagar. The tenderer has to visit the site of 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 location.
9. The cost of old retrieved materials are given in enclosed as "Schedule of credit". The "Contract Sum" referred to in IAFW- 2249 (and for the purpose of "AOC") shall be calculated after deduction of total amount of credit materials mentioned in "Schedule of credit" from the total amount quoted by the tenderer in finance bid. The quantities given in "Schedule of credit" are provisional and will depend upon the actual executed quantities of items of Sch 'A' and credit shall be adjusted accordingly. The rate of items of credit inserted in "Schedule of credit" is firm. The contractor shall have no claim whatsoever of the actual value of the retrieved material is different from the value indicated in "Schedule of credit".
10. The rate quoted shall be deemed to be inclusive of all taxes and levies of Govt. as applicable such as GST (Central & State) on works contract, toll tax, income tax, workers welfare tax/Cess, royalties to Govt/local bodies, etc and nothing extra shall be paid on this account. Necessary deduction at source shall be made as applicable as per the mandatory statutory requirement of Central, State Government and local bodies.

Signature of Contractor

For Accepting Officer

**SCHEDULE 'A' (BOQ)(SCHEDULE OF WORKS)**  
**(List of works and Prices)**

11. The subject work pertains to routine maintenance/Special repair and hence work will be required to be executed in piecemeal as and when required and contractor shall consider this factor while quoting rates and shall have no claim whatsoever in this aspects.
12. The works in BOQ items will be based on complaints/demand received from users for maintenance/special repair of the quarters during the period of contract.
13. No Payments to contractor shall be made unless proof of payment of wages to the workmen is submitted to Engineer-in-charge by the contractor alongwith each RAR/FB. In case payments are made in current coins or currency notes, certificate shall be submitted by the contractor alongwith undertaking by the concerned workmen asking for payment other than by cheque or by crediting in the bank account to the employee/workmen.
14. The defects liability period for this contract shall be 24 (Twenty four) Months from the date of handing over of the work to the Government. (Refer condition 46 of IAFW-2249).
15. The contractor to ensure compliance of the “**EPF and MP Act 1952**”. Before commencement of work, the contractor should produce the provident fund code number **if applicable**.

Signature of Contractor

For Accepting Officer

**SCHEDULE OF CREDIT****NOTES:-**

1. The quantities given under Col 4 are provisional and will depend upon the actual executed quantities of items of Sch 'A' and credit shall be adjusted accordingly.
2. The rate of items of credit inserted under column 5 is firm. The contractor shall have no claim whatsoever of the actual value of the material is different from the value indicated in column 5.
3. The tenderer shall deem to have visited the site & made themselves aware with the nature and extent of quality of materials & value that will become contractor's property as per schedule of credit.
4. The materials indicated in credit schedule shall become the property of the contractor and credit thereof shall be recovered from the contractor's RAR/final bills. The contractor shall remove such material from site only after recovery is affected from RAR/FB.
5. Materials obtained from dismantling/ demolition/ taking down shall not be re-used in the work unless specified in schedule. The materials to be re-used shall be stacked properly for re-use.
6. Old serviceable retrieved materials which are neither considered in schedule of credit nor considered for re-use shall be the Govt property and shall be deposited in MES store yard without any extra cost. All unserviceable material shall be disposed off as directed by Engineer-in-charge at site.

SL. NO	Particulars	Unit	Qty	Rate	Amount
1	2	3	4	5	6
1	Old PVC Chowkats with shutter n. exc 1.5 Sqm incl builder hardware (pvc doors)	EACH	12.00	270.00	3240.00
2	Old Chowkats with shutter exc 1.5 Sqm but n.exc 4.00 Sqm incl builder hardware	EACH	8.00	355.00	2840.00
3	Old steel window/ventilator with shutter n. exc 3 Sqm incl grill and builder hardware	EACH	24.00	160.00	3840.00
4	Old wooden shutters exc 1 Sqm and n Exc 2 Sqm incl iron mongary	EACH	12.00	235.00	2820.00
5	Old PVC water storage tank 500 ltrs with flote valve	EACH	6.00	310.00	1860.00
6	Old PVC water storage tank 1000 ltrs with flote valve	EACH	0.00	610.00	0.00
7	Old GI pipe 15mm dia	RM	35.00	12.00	420.00
8	Old GI pipe 20mm dia	RM	70.00	16.00	1120.00
9	Old GI pipe 25mm dia	RM	10.00	26.00	260.00
10	Old CI/PVC pipe any dia including fittings 75/110mm	RM	34.50	2.50	86.25
11	Old SS waste coupling any description	EACH	4.00	6.00	24.00
12	Old looking mirror	EACH	4.00	20.00	80.00
13	Old pillar tap/ basin mixer tap 15mm bore	EACH	4.00	42.00	168.00
14	Old PVC waste pipe	EACH	4.00	1.50	6.00
15	Old Aluminium tower bolt	EACH	4.00	3.00	12.00
16	Old PVC flushing cistern	EACH	4.00	27.00	108.00
17	Old Aluminium handle any size	EACH	4.00	4.00	16.00
18	Old SS wiremesh	SQM	3.00	3.00	9.00
19	Old sliding door bolt any size	EACH	2.00	8.00	16.00
20	Old health faucet	EACH	4.00	22.00	88.00
21	Old PTMT shower rose any description	EACH	4.00	1.50	6.00

Signature of Contractor

For Accepting Officer



**SCHEDULE OF CREDIT (Contd...)**

SL. NO	Particulars	Unit	Qty	Rate	Amount
1	2	3	4	5	6
22	Old bib cock/stop cock 15mm	EACH	40.00	42.00	1680.00
23	Old PVC float valve 20mm/Ball valve	EACH	9.00	1.50	13.50
24	Old brass gate valve 20/25mm	EACH	10.00	48.00	480.00
25	Old Glass shelf any description	EACH	4.00	16.00	64.00
26	Old SS towel rail any description	EACH	4.00	12.00	48.00
27	Old SS Soap dish	EACH	4.00	6.00	24.00
28	Old PTMT gratings	EACH	4.00	1.50	6.00
29	Old PTMT connection pipe any description	EACH	16.00	1.00	16.00
30	Old SS curtain rod incl all fittings	RM	30.00	4.50	135.00
31	Old prelamated particle board	SQM	8.00	2.50	20.00
32	Old U/s AC building boards on wall/ceiling any description	SQM	8.00	20.00	160.00
33	Old MS cupboard shutter with frame and all fittings	EACH	4.00	400.00	1600.00
34	Old brick masnory	CUM	2.00	380.00	760.00
35	Old PVC floor/nahani trap 75/110mm	EACH	4.00	1.50	6.00
36	Old gully trap 125/110 mm.	EACH	3.00	1.50	4.50
37	Old LDPE pipe 40 mm	RM	4.00	3.50	14.00
38	Old Unsv point wiring	PER POINT	70.00	24.00	1680.00
39	Old unsv distribution board any type any capacity	EACH	4.00	8.00	32.00
40	Old Unsv MCBs any type & capacity.	EACH	28.00	7.00	196.00
41	Old unsv light fitting any type and any capacity	EACH	24.00	6.00	144.00
42	Old Unsv Sub Main wire of any type & capacity.	RM	50.00	9.00	450.00
Total C/O to General Summary = Rs.					<b>24552.25</b>

**GENERAL SUMMARY**

- Total amount brought forward from Finance Bid (BOQ) = Rs. \_\_\_\_\_
- Deduct amount of Credit brought forward from 'Schedule of Credit' = (-) Rs. **24552.25 (Minus)**

NET CONTRACT SUM = Rs. \_\_\_\_\_

Signature of Contractor

For Accepting Officer

**SCHEDULE 'B'**  
**ISSUE OF MATERIALS TO THE CONTRACTOR**  
**(See condition 10 of IAFW-2249)**

SI No	Particulars	Rate at which materials etc will be issued to the contractor		Place of issue by name	Remarks
		Unit	Rate		
1	2	3	4	5	6

----- NIL -----

Signature of Contractor

For Accepting Officer

**SCHEDULE 'C'**

**List of tools and plants (other than transport) which will be hired to the contractor**  
**(See condition 15, 34 & 35 of IAFW-2249)**

SI No	Qty	Particulars	Details of MES Crew supplied	Hire charges per unit / per working day	Stand by charges per unit of day	Place of issue (by Name)	Remarks
1	2	3	4	5	6	7	8

----- NIL -----

Signature of Contractor

For Accepting Officer

**SCHEDULE 'D'**

**Transport to be hired to the contractor**  
**(See condition 16 and 35 of IAFW-2249)**

SI No	Qty	Particulars	Details of MES Crew supplied	Place of issue (by Name)	Remarks
1	2	3	4	5	6

----- NIL -----

Signature of Contractor

For Accepting Officer

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

**TENDER**

To,

The President of India,

Having examined and perused the following documents:-

1. Specification signed by AGE (Contracts).
2. Drawings as detailed in the specification.
3. Schedule 'A', 'B', 'C' & 'D' attached hereto.
4. MES Standard Schedule of rates part I (Specification) 2009 Print together with amendments Nos 1 to 3 and part-II (Rates) 2020 (including amendments 1 to 122) hereinafter and in IAFW-2249 referred as the MES schedule.
5. General Condition of contracts IAFW- 2249 (1989 print) together with amendment No 01 to 48 and Errata 01 to 20.
6. REFER CONDITION 31 OF IAFW: 2249 (GENERAL CONDITION OF CONTRACTS)  
Water will be supplied by the MES @ Rs 3.75 per thousand worth of work done priced at contract rates.
7. Should this tender be accepted I/We agree:-

\*(a) That the sum of Rs. \_\_\_\_\_ forwarded as Earnest Money shall either be retained as part of Performance Security Deposit or be refunded by the Govt. on receipt of the appropriate amount of the Performance Security Deposit within the time specified in condition 19 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 fixed under provisions of Condition 62 of IAFW-2249 and to carry out such deviations as may be ordered vide Condition 7 of IAFW-2249 upto a maximum of **10% (TEN PERCENT)** and further agree to refer all disputes, as required by condition 70 to the sole arbitrator of a serving officer having degree in Engineering or equivalent or having passed final/direct final examination of sub Division II of Institution of surveyor (India) recognized by the Govt. of India to be appointed by the Chief Engineer Bhopal Zone Bhopal or in his absence the officer officiating as Chief Engineer, if specially delegated in writing by the CEBZ Bhopal, for the above purpose, whose decision shall be final, conclusive and binding.

\* TO BE DELETED WHERE NOT APPLICABLE

Signature of Contractor

For Accepting Officer

TENDER (CONTD....)

Signature .....Name ..... in the  
capacity of ..... duly authorized to sign the tender  
for and on behalf of \*M/S ..... (\*IN BLOCK LETTERS)  
DATED .....

Witness	-----	Postal Address	-----
Address	-----		-----
	-----		-----
	-----		-----
		Tele	-----

ACCEPTANCE

.....alternations have been made in this document and as evidence that these  
alternations were made before the execution of the contract agreement, they have been initialed by  
the contractor and Shri PK Singh, EE, Garrison Engineer.

The said officer is hereby authorised 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 at the item rates  
contained in the schedule 'A' on the.....day of .....2024.

Signature .....Dated ..... day of ..... 2024.

APPOINTMENT:  
GARRISON ENGINEER (ARMY)  
GANDHINAGAR 382 045 (GUJ)  
(FOR AND ON BEHALF OF THE PRESIDENT OF INDIA)

**GENERAL CONDITIONS OF CONTRACTS (IAFW- 2249-1989 PRINT)**  
**FOR MEASUREMENT CONTRACTS (IAFW – 1779 & 1779 –A)**

1. A copy of the GENERAL CONDITIONS OF CONTRACTS (IAFW-2249-1989 PRINT) with errata 1 to 20 and amendments No 1 to 48 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 therefore, as modified, if any, elsewhere in these documents.

2. It is further agreed and declared by me/us, that the GENERAL CONDITIONS OF CONTRACTS (IAFW-2249-1989 Print) including conditions 70 thereof pertaining to settlement of disputes by Arbitration, containing 33 pages (Serial Page Nos 21 to 52), with errata 1 to 20 and amendments 1 to 40, containing 19 pages (Serial Page Nos. 53 to 72) form part of these tender documents.

3. My/our signature hereunder is in token of my/our having accepted the aforesaid documents as forming an integral part of this tender.

**NOTES:-**

- (i) The documents mentioned above can be seen in the Office of the Garrison Engineer (Army) Gandhinagar or in any other MES formation during working hours.
- (ii) In case the difference in interpretation due to wording in English or Hindi versions, the English version will prevail as per article 348 of constitution of India.

For Accepting Officer

Signature of Contractor

**SCHEDULE OF MINIMUM FAIR WAGES**

It is hereby agreed by me/us that the "Schedule of Minimum Fair Wages" as published by Govt of India/State Govt/Govt local authorities whichever is highest and which specifies minimum rates of wages for various categories of workman as applicable on the last due date of receipt of this tender shall form 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. We also hereby agree that payment to labours shall be made as per minimum wages notified by Govt of India/State Govt/Govt local authorities whichever is high.

For Accepting Officer

Signature of Contractor

**SPECIAL CONDITIONS**

1. **GENERAL.** These special conditions shall be read in conjunction with the General conditions of contracts (IAFW-2249) and IAFW-1779-A including errata and amendments thereto. Any provisions in these special conditions if at variance with the provision in the above mentioned documents shall be deemed to take precedence there over.
2. **VISIT TO SITE OF WORK.** Reference condition 4 of IAFW-2249. The tenderer shall be deemed to have satisfied himself before submitting his tender, as to the nature of the ground and substrata soil (as far as practicable), the climatic conditions, the form and nature of the site, nature of work and means of access to the site, the accommodation he may require, and in general shall be deemed to have himself obtained all necessary information on inspection of site as to risks, contingencies and other circumstances which may alter his tender. No extra payment consequent to any mistake, or misunderstanding or otherwise on this account will be allowed.
3. **OTHER AGENCIES.** Contractor's attention is invited to the fact that during the currency of this contract, works on other service, which are outside the scope of work of this contract, may be entrusted for execution to other agencies. The contractor shall permit full access and afford all facilities for such other agencies or departmental workmen, if any, engaged by the Government to carry out their part in the area. No extra payment shall however be made to the contractor on this account whatsoever.
4. **CONTRACTORS REPRESENTATIVE, AGENTS, SERVANTS AND WORKMEN.** Contractor shall employ only Indian Nationals as his representatives, agents, servants and workmen and verify 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 works. If for reasons of technical collaboration or other consideration 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 the tender. The GE shall have full power and without giving reasons to the contractor immediately cease to employ in connection with this contract any representative, agent, servant, workman or employee whose continued employment is in his opinion is undesirable. The contractor shall not be allowed any compensation on this account.
5. **SECURITY OF CLASSIFIED DOCUMENTS.** Contractor's special attention is drawn to condition 2-A and 3 of General Conditions of Contracts (IAFW-2249). The contractor shall not communicate any classified information regarding works either to sub contractor or others without 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 works and he shall return all documents on completion of the works or on earlier termination of the contract. The contractor shall along with final bill attach a receipt from the Engineer-in-Charge in respect of his having returned the classified documents as per condition 3 of General Conditions of Contracts (IAFW-2249)
6. **ACCEPTANCE OF TENDER.** The tender shall remain open for acceptance for a period of 60 days from the date specified for its submission.
7. **CRITICAL PATH METHOD (CPM) NETWORK**
  - 7.1 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 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 schedule the contractor will submit to 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 site.
  - 7.2 During currency of the work the contractor is expected to adhere to the time schedule and this adherence will be a part of the contractor's performance under the contract. During the execution of work contractor is expected to participate in the review and updating of the network, undertaken by the GE. These reviews may be undertaken at the discretion of the GE either as a periodic appraisal measure or when the quantum of work ordered on the contractor is substantially changed through deviation orders or amendments. Any revision of the schedule as a result of the review, will be submitted by the contractor to GE within a week who will approve it after due scrutiny. The contractor will adhere to the revised schedule thereafter. In case of contractor disagreeing with the revised schedule the same will be referred to the Accepting Officer whose decision will 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.
  - 7.3 Contractor shall mobilise and employ sufficient resources to achieve the detailed schedule within the broad framework of the accepted methods of working and safety
  - 7.4 No additional payment will be made to the contractor for any multiple shift work or other incentive method contemplated by him in his work schedule even though the time schedule is approved by the Department.

Signature of Contractor

For Accepting Officer

**SPECIAL CONDITIONS (CONTD...)****8. SAMPLES OF MATERIALS AND INDIAN STANDARDS**

8.1 In case where materials are specified to conform to samples the tenderer is advised to inspect samples of the 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 so 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 in the work by the contractor, shall conform to or shall be superior in quality to the sample displayed and shall comply with the specifications given herein after.

8.2 The contractor shall produce sample of materials and get them approved by the GE before commencement/incorporation in the work.

8.3 Contractor shall provide items/articles from the sources/firms mentioned in particular specifications. Where a firm listed in particular specification is manufacturing both ISI/non ISI marked materials, only ISI marked items/ articles shall be provided. In case of material which are not manufactured with ISI marking, the same shall conform to relevant IS or superior to IS and contractor shall produce sufficient proof to satisfy that, these items/articles are conforming to relevant IS or superior to IS. Wherever IS number is mentioned in the tender documents, the year of IS shall be the latest up to and including the date of receipt of tender.

**9. RECORD OF MATERIALS**

9.1 (a) Contractor shall produce the original vouchers/invoices in respect of all the materials claimed in RAR as material lying at site.

(b) Original vouchers/invoice for the following items of works applicable will be produced by the contractor before claiming RAR payment or before incorporation in the work whichever is earlier:-

(i) Cement, Concrete, Structural steel, Bricks, PVC Door frame/shutter, Builder Hardware, Aluminium Section/Aluminium Mongersie, AC Sheet, Galvalume sheet, Mosaic/Vitrified/Glazed/Ceramic Tiles/Granite/Stone Slab/ Kota Stone, Synthetic Enamel Paint, OBD, Cement Base Paint, GI Pipes, Sanitary Fittings, PVC Water Storage Tank, Particle Board etc. FRLS Cable, Electrical fittings, MCB/MCCB/DB, LED Light Fittings, Steel Poles etc. (ii) For all the materials costing more than 1 Lakh (iii) Any other items, which Engineer-in-charge specifically ordered.

9.2 The vouchers/invoice shall be from the manufacturers and /or from their authorized dealers/stockist for full quantity of the respective materials required for the work under the contract.

9.3 The quantity of proprietary articles/materials brought to site 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.

9.4 Proprietor materials referred above brought at site shall be stored as directed by the Engineer-in-Charge and those already recorded in measurement book shall be suitably marked for identification.

9.5 The contractor shall ensure that the materials are brought to site in original sealed container in packing bearing manufacturers marking.

9.6. The vouchers shall be certified by the Engineer-in-Charge as soon as materials are brought to site by the contractor and suitable endorsement made on the face of original paid vouchers indicating the contract No and other particulars of work for which used. Certified true copies of all such vouchers shall be carefully maintained by the Engineer-in-Charge.

10. **QUARRIES.** Reference to condition 14 of IAFW-2249. Quarries are not available on Defence land for use by the contractor.

11. **DEFECT LIABILITY PERIOD** Defect Liability period shall be 24 calendar month after the work / works have been handed over to the Government (herein after refer to as defect liability period) refer condition 46 of IAFW 2249.

12. **PERFORMANCE SECURITY DEPOSIT.** The successful contractor shall submit performance security for an amount equivalent to 5% of contract immediately after signing of acceptance letter in any form of Government securities as per Condition 19 of I.A.F.W- 2249, FDR or any other Government instruments or a Bank Guarantee in the prescribed form as stipulated by accepting Officer. Work Order shall be placed only after submission of Performance Security of adequate value by the contractor. It is clarified that in case of failure of contractor to comply with this mandatory requirement, the accepting Officer may consider cancellation of the award of contract.

Signature of Contractor

For Accepting Officer



**SPECIAL CONDITIONS (CONTD...)**

13. **REFUND OF PERFORMANCE SECURITY.** The Performance Security Deposit mentioned in Condition 19 of I.A.F.W- 2249 may be refunded to the Contractor after expiration of the defects liability period (vide Condition 46) by the GE provided always that the Contractor shall first have been paid the final bill and have rendered a No-Demand Certificate (I.A.F.A -451)
14. **RELEASE OF ADDITIONAL SECURITY DEPOSIT.** (Refer condition 22 and 68 of IAFW-2249)  
The contractor in case he has to deposit additional security for the contract, is advised to deposit the additional security in two equal parts so as to facilitate release of additional security in accordance with condition 68 of IAFW-2249
15. **AVAILABILITY OF LAND FOR STORAGE OF MATERIALS/ TEMPORARY WORKSHOP OFFICE**  
(Refer condition 24 of IAFW-2249) Delete the following in Para 1 of condition 24 of IAFW-2249, 'In the event of ---- of areas of land allotted to him' and following shall be read in conjunction with condition 24 of IAFW-2249. "The contractor shall be permitted to store his materials including erection of temporary sheds thereof and also to erect his temporary workshop and the like at the area of land marked for all purpose on the site plan free of rent if it is on class A1 land. For other types of land he shall be charged a licence fee of Rs 1/- per year or part of year for each and every separate area of land allotted to him".
16. **AVAILABILITY OF LAND FOR ACCOMMODATION OF LABOUR AND CANTEEN.**  
(Refer condition 24 of IAFW-2249). No land will be allotted for labour camp and canteen
17. **STATUTORY LEVIES INCLUDING SALE TAX, VAT, SERVICE TAX & GST ON WORKS CONTRACT** : The tenderer should include all statutory levies including sale tax VAT service tax, Labour Welfare Cess,. GST on works contract in his quoted rates. Conditional tender regarding sales tax will not be considered and is liable to be rejected.
18. **FAIR WAGES**  
The contractor shall have no claim what so ever if, for any reason other than those mentioned in condition 63 of IAFW-2249, he is required to pay wages in excess of minimum wages as laid down by Govt of India (shown in the schedule of minimum rate of wages or the minimum wages as fixed by the State Govt whichever is higher.
19. **OFFICIAL SECRET ACT**  
The contractor shall be bound by the official secret act 1923.
20. **ELECTRIC SUPPLY**  
(a) In the case the contractor desires to buy electricity from MES, he shall be charged for the electric energy consumed at Rs. **11.27** (Rupees eleven and paise twenty seven only) per kilowatt hours for KWH lighting and power each.  
(b) The above rates are exclusive of duty/tax, if any levied by the local state Govt on the electric energy. Duty and taxes, if any levied by the State Govt and/or electricity under taking and the like on the electricity charges, will be borne by the department.  
(c) Electric supply required for works shall be made available by MES. The exact location shall be shown by the Engineer-in-charge. The main switch and KWH meter to register the electric energy supplied shall be provided and installed by MES. Contractor shall provide all necessary connections, cables, fittings etc from the main switch in order to ensure a proper and suitable supply of electricity for the execution of work.  
(d) MES do not guarantee for continuity of supply and no compensation whatsoever shall be allowed for supply becoming intermittent or for breakdown in the system.  
(e) The supply shall be AC 3 phase, 3 wire, 400 to 440 volts (within permissible limits) 50 cycles up to 20A at point of supply.

Signature of Contractor

For Accepting Officer

**SPECIAL CONDITIONS (CONTD...)****21. WATER SUPPLY**

21.1 Reference condition 31 of General conditions of Contracts (IAFW-2249).

21.2 Water will be issued by MES for use in the work, the water will be available subject to following:-

(a) The contractor shall be charged for the water supplied by MES for the use in the work and by his workmen/employees at the rate 3.75 per Rs. 1000/- worth of work done priced at contract rates.

(b) MES will supply water to contractor at the point(s) as directed by the GE. The exact location of water point(s) shall be shown by Engineer-in-charge. Contractor shall arrange for storage and conveyance of water as necessary at his own expenses.

(c) Size of ferrule at the point of supply shall be 15mm bore.

(d) Unless indicated elsewhere in the tender, duration of water supply from MES point will be generally as under:-

(i) Two hours in the morning

(ii) Two hours in the evening/night.

(e) MES will not be liable for any damage or compensation on account of failures of supply of water or curtailment in the supply as the case may be, arising from accident or becoming necessary as a result of drought/or any other unavoidable causes.

**22. WORKING CONDITIONS IN UNRESTRICTED AREA**

22.1 The work lies in unrestricted Area. Working conditions are as under:-

22.2 Refer condition 25 of IAFW-2249. The contractor shall employ only Indian Nationals as his representative, servants and workman and verify 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 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.

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

22.4 The Engineer-in-Charge shall at his discretion have the right to issue passes (In case police verification is required, the cost if any shall be born by the contractor) with photographs 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 of the authorities concerned and in any case on completion of work.

22.5 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 prohibition of smoking lighting, fire precautions, search at specified timing etc. Nothing extra shall be admissible for any man-hours, etc. lost on this account.

22.6 Contractor shall make arrangement to issue photo passes to the labours, employees, by him and no extra payment on this account shall be admissible by the department.

23. **TESTING.** The cost of all tests shall be borne by the contractor. In case any implement and equipments for the testing at site of work are required, the same shall also be provided by the contractor without any extra cost to the Govt.

Signature of Contractor

For Accepting Officer

**SPECIAL CONDITIONS (CONTD...)**

24. **RETENTION MONEY/COMPENSATION FOR DELAY.** Refer condition 64 and 50 of IAFW-2249.
25. **LOSS OR DAMAGE ON ACCOUNT OF ENEMY ACTION**
- 25.1 **CONTRACTOR'S PLANT/EQUIPMENT AT SITE:-**
- (a) The contractor shall furnish to the Engineer-in-Charge every morning a distribution return of his plant/equipment on the site of work, stating the following particulars:-
- (i) Particulars of plant/equipment, its make, manufacture No, model No if any, registration No, if any, capacity, year of manufacture, year of purchase etc.
  - (ii) Total No (Quantity) on site of work.
  - (iii) Location, indicating No (quantity) at each location of site of work.
  - (iv) Purchase value on the date of purchase. For the purpose of this condition, plant/equipment shall include vehicles i.e. trucks and Lorries but neither the workmen's tools nor any manually operated tools/equipments.
- (b) The Engineer-in-Charge shall record the particulars, supplied by the contractor in the work diary and send the return to the GE for record in his office.
26. **REIMBURSEMENT IN CASE 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 condition) here in before or materials or any part of parts thereof. (The amount of loss assessed by the Accepting Officer of the contract or the CWE in case of contracts 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 to 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 Condition 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 any compensation be payable for any plant/equipment or materials not lying on site of work at the time of happening of enemy action.
27. **RE-IMBURSEMENT/REFUND ON VARIATION IN TAXES DIRECTLY RELATED TO CONTRACT VALUE**
- (a) The rates quoted by the Contractor shall be deemed to be inclusive of all taxes (including Sales Tax/VAT on materials, Sales Tax/VAT on Works Contracts, Turnover Tax, 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 lavies, and/or imposition/abolition of any new/existing taxes, duties, Royalties, Octroi & other levies shall be made except as provided in sub para (b) here-in-below.

Signature of Contractor

For Accepting Officer

**SPECIAL CONDITIONS (CONTD...)**

(b) (i) 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 sales Tax/VAT on Work Contracts, Turnover Tax, 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 as 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 tenders 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 payments due to the Contractor.

(ii) 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 there to which he may be in a position to supply. The Contractors shall submit the other documentary proof/information as the GE may require.

(iii) 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.

(iv) Reimbursement for increase in percentage rates/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."

**28. CONCILIATION****(a) SCOPE OF CONCILIATION**

The scope of conciliation shall be as given under Condition 71 of IAFW-2249 (General Conditions of Contracts).

**(b) COMMENCEMENT OF CONCILIATION PROCEEDINGS**

The party initiating conciliation shall send to the other party a written invitation to conciliate, briefly identifying the subject of the dispute. Conciliation proceedings shall commence when the other party accepts in writing the invitation to conciliate. If the other party rejects the invitation, there will be no conciliation proceedings. If the party initiating conciliation does not receive a reply within 30 days from the date on which he sends or within such other periods of time as specified in the invitation, he may elect to treat this as a rejection of the invitation to conciliate and if he so elects, he shall inform in writing the other party accordingly.

(c) **NUMBER OF CONCILIATORS** There shall be a Sole conciliator.

**(d) APPOINTMENT OF CONCILIATOR**

All disputes shall be referred to the sole conciliator viz Serving Officer not below the rank of Superintending Engineer/ Superintending Engineer (QS&C) having degree in Engineer or equivalent or having passed final/direct final examination of sub division-II of Institution of Surveyors (India) to be appointed by the Chief Engineer Jodhpur Zone Jodhpur or in his absence the officer officiating as Chief Engineer, if specially delegated in writing by the CEJZ Jodhpur in writing.

**(e) STATUS OF EFFECT OF SETTLEMENT AGREEMENT**

The settlement agreement signed by the parties as a result of conciliation proceedings shall have the same status and effect as it is an arbitral award on agreed terms.

**PARTICULAR SPECIFICATION****1. GENERAL.**

(a) The following specifications shall be read in conjunction with the General conditions of contract (IAFW-2249) and IAFW-1779-A including Errata/Amendments thereto. If any provision in the special conditions is at variance with that of the aforesaid documents, the former shall be deemed to take precedence there over.

(b) The work under this contract shall be carried out in accordance with schedule 'A' the particular specifications the drawings forming part of this contract and general specification and other provisions in the MES standard schedule of rates 2009 Part I & 2010 Part II including errata/amendments as applicable thereto.

(c) The term "General Specifications" referred to here-in-before as well as in IAFW-2249. (General Conditions of contracts) shall mean the specifications contained in the MES standard schedule of rates 2009 Part I & 2010 Part II including errata/amendments as applicable thereto.

(d) 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 stated otherwise in these documents in which case the provisions in these documents shall take precedence over the aforesaid provisions in the MES Schedule.

(e) Rates quoted by the tenderer shall be deemed to include for any minor details/items of work and/or construction 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.

(f) Decision of the Accepting Officer as to whether any minor details of work and/construction is obviously and fairly intended to be included in the contract shall be final conclusive and binding.

**2. SCOPE OF WORK.**

(a) This contract comprises full, final and entire completion of all works described in schedule 'A' and specified in particular specifications.

(b) The scope of work under this contract broadly comprises of the following job works:-

(i) Job No. GNR/BLDG/01/2024-2025: Spl repair to roof treatment of bldg. No. P-149/A & P-171 (Main Office Complex & JCO Club) at Gandhinagar Mil Stn.

(ii) Job No. GNR/BLDG/06/2024-2025: Spl repair of single JCOs living Accn (04 x Qtr) incl roof treatment (P-406) at Gandhinagar Mil Stn

Considering the site requirements/urgency of work, the GE may alter some of the buildings (of Mil Stn Gandhinagar) without any amendment to contract and no claim of the contractor shall be admissible on this account.

The tenderer is advised to inspect the site(s) by prior appointment with the Garrison Engineer to ascertain the nature of work/site(s), access thereto, local facilities for procurement of materials, working hours and labour rates prevalent in the area in fact all matters affecting his price in the tender for execution and completion of the work. The Tenderer shall be deemed to have full knowledge of the site (s) whether or not he actually visits.

(c) Probable sources of local materials are given in Appendix 'A' to particular specifications. However the samples shall be got approved by GE before bulk procurement of the material. The contractor may bring materials conforming to the specifications from other sources without any price adjustment. If the contractor proposes to use materials from such sources samples thereof shall be submitted to the GE before procurement in bulk and incorporation in the work.

(d) In Appendices/Annexures to particulars specifications, list of manufacturers of items have been given. Contractor shall obtain these items from one of the approved manufacturers only. However, it will not absolve the contractor from ensuring that the products supplied are conforming to the relevant IS in all respects before procuring the same for approval by the GE and before procuring bulk product for incorporation in work.

**PARTICULAR SPECIFICATION (Contd/.....)****3. EXCAVATION AND EARTH WORK****3.1 EXCAVATION IN TRENCHES AND OVER AREA**

- 3.1.1 Excavation in trenches and over areas shall be carried out as described in Para 3.13 of MES SSR part I, Bailing and pumping of water, if required will be done as described in Para 3.17 of MES SSR Part I. No extra payment shall be admissible for the above mentioned operation, if, however, inflow of water into excavation is caused by powerful springs or river seepage, broken water mains or drains and the like (other than those broken through the contractor's negligence) the contractor shall immediately, inform the GE and if in the opinion of the GE, the inflow is due to any of these causes, he shall issue instructions in writing as to the method to be employed in clearing the water and additional payment shall be allowed as deviation order.
- 3.1.2 Excavation in hard rock shall be carried out as specified in Para 3.15 of MES SSR part I and shall be measured in MB as described in preambles Para 3.1 of MES SSR part II. The hard rock so obtained shall become the property of contractor for which recovery as mentioned in the "Sch of credit" (if not mentioned the recovery shall be made at the rate of Rs **646.20** per cubic metre (Solid contents)) shall be made from the contractor. It will be the responsibility of the contractor to remove the hard rock outside MD land without any extra cost to the Government.
- 3.1.3 Blasting shall not be permitted.
- 3.1.4 Excavation and filling in certain specified locations like residing area, near to permanent buildings etc. shall be done manually as per direction of GE/E-in-Charge to avoid accidents and to ensure safety of workers, public and Govt. property.

**3.2 FILLING IN TRENCHES, PLINTH AND UNDER FLOORS**

- 3.2.1 Filling under floors, in plinth and in and around foundations, and other situation shall be done with approved earth/soft disintegrated rock. It shall be ensured that turf, peat and vegetable and other organic and deleterious matter is removed from the soil used for filling. Black cotton soil shall not be used for filling. Filling in general shall be done in layers as specified in clause 3.19 of MES SSR Part I and filling in trenches for pipes, drains, cable etc shall be done carefully as per clause 3.20 of MES SSR Part I.
- 3.2.2 Earth/soft disintegrated rock obtained from excavation shall be used for filling only after approval of Engineer-in-Charge. No charge shall be levied against contractor for use of approved soil/ soft disintegrated rock obtained from excavation. Soil/ soft disintegrated rock not approved for filling or surplus to the requirement shall be removed to a distance mentioned in Sch 'A'.
- 3.3 **HARD CORE**  
Refer Para 3.27 of MES SSR Part-I. The material for hard core shall be of broken stone or boulders as per Appendix 'A'. The hard core shall be watered and rammed. The thickness of hard core for measurement shall be the consolidated thickness.
- 3.4 **SURFACE DRESSING**  
Surface dressing for the area shall be carried out as per clause 3.10 of SSR Part-I. All rubbish obtained from surface dressing shall be removed, spread and levelled as directed by Engineer-in-Charge.

**4. CONCRETE.****4.1 AGGREGATE**

Coarse aggregate for all cement concrete works unless otherwise specified, shall be crushed or broken and graded hard stone. Coarse aggregate and fine aggregate (sand) shall be from the sources as mentioned in Appx 'A' and approved by the GE and shall confirm to IS 383 and to the samples kept in GE's office.

**4.2 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 will ensure that testing of water is carried out at regular intervals to comply with the requirement. Cost of testing of water will be borne by the contractor.

**4.3 CEMENT.** (For concrete as well as for all other cement work)**4.3.1 GENERAL**

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

**PARTICULAR SPECIFICATION (Contd/.....)**

4.3.2 Cement shall be ordinary portland cement (OPC) grade 43 confirming to IS-8112-1989 (Latest revision) or portland pozolana cement (PPC) Confirming to IS-1489-1991. Cement bags shall bear ISI mark and date of manufacture.

4.3.3 Blank

4.3.4 **Control on cement supplied by Contractors.** Following checks shall be carried out before the cement supplied by the contractor is accepted and is approved for incorporation in the works:-

(a) **Procurement.** The cement shall be procured from the following manufactures / main producers. However in case the total quantity of cement required in the work is less than 1200 bags then the same can be procured from authorised dealers of the main producers at the discretion of the Contractor.

Srl No	Company Name	Brand Name	Type of cement
(i)	M/S The Associated Cement Companies Ltd	ACC	All
(ii)	M/S Ultra Tech Cement	ULTRATECH	
(iii)	The India Cement	THE INDIA CEMENT	All
(iv)	M/S Dalmia Cement (Bharat) Ltd	'DALMIA' 'KONARK'	All
(v)	M/S Century Cements	CENTURY	All
(vii)	M/S Saurashtra Cement	SAURASHTRA	All
(viii)	The Ramco Cements Ltd. (Formerly Madras Cement)	RAMCO	All
(ix)	M/S Mangalam Cement Ltd	MANGALAM	All
(x)	M/S Birla Corporation Ltd	BIRLA	All
(xi)	M/S Orient Cement	ORIENT	All
(xii)	M/S Nuvoco vistas corp. Ltd Cement	NUVOCO CEMENT	All
(xiv)	M/S Shree Cement	SHREE	All
(xv)	M/S J K Cement	J K	All
(xvi)	M/S J K Lakshmi Cement Ltd	J K LAKSHMI	All
(xvii)	M/S Jaypee Rewa Cement	JAYPEE	All
(xviii)	M/S Ambuja Cement Ltd	AMBUJA	All
(xix)	M/S Shree Guru Kripa Cements Ltd	SARTAJ	OPC 43 Gr & PPC
(xx)	M/S Parasakti Cements Ltd	PARASAKTI	OPC 43 Gr & PPC
(xxi)	M/S Chettinad Cement Corporation Ltd	CHETTINAD	OPC 43 Gr & PPC
(xxii)	M/S JSW Cement Ltd, AP	JSW	PSC OPC 43/53 Gr &
(xxiii)	M/S Sagar Cements Ltd	SAGAR	PSC OPC 43/53 Gr & PPC
(xxiv)	M/S Sanghi Industries Ltd	SANGHI	OPC 53 PPC
(xxv)	M/S My Home Industries Ltd	MAHA CEMENT	PSC OPC 43 Gr & PPC
(xxvi)	M/S Wonder Cement Ltd.	WONDER CEMENT	OPC 43/53 Gr & PPC
(xxvii)	M/S Star Cement Meghalaya		OPC & PPC
(xxviii)	M/S Meghalaya Cement Ltd.	TOP CEM	OPC & PPC
(xxix)	M/S Shree Digvijay Cement Co. Ltd	KAMAL	OPC 43 PPC

4.3.5 The contractor shall furnish particulars of the manufacturer/supplier of cement alongwith date of manufacture to the GE for every lot of cement separately. The documents in support of the purchase of the 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 manufacturer. Before placing the order for supply 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 requirement of IS specification and each bag of cement shall bear relevant ISI mark. The weight of each consignment shall be verified by the Garrison Engineer and recorded. The content of cement shall be checked at random to verify the actual weight of cement per bag.

4.3.6 **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-8112-1989.

(b) The minimum period for curing and striking off form work shall be as under in lieu of that specified in clause 4.11.6.3 of MES Schedule Part-I :-

Signature of Contractor

For Accepting Officer

**PARTICULAR SPECIFICATION (Contd/.....)**

- (i) Curing : Structural RCC work, PCC work, Plaster etc : 14 days
- (ii) Striking off form work from walls, columns and vertical sides of beams : 3 to 4 days
- (iii) Slabs (Props left under) : 8 days
- (iv) Beams Soffits (Props left under) : 9 days
- (v) Removal of props to slab / beam :-
  - (aa) Spanning upto 6 M span : 16 days
  - (ab) Spanning beyond 6 M span : 22 days
- (vi) For cantilever portion of slab form work with support shall be retained until the completion of the casting of the entire frame work of the building.
- (c) Mixing of OPC & PPC shall not be allowed in the work. However with strict control of the ground executives, different buildings can have different types of cement.
- (d) 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 before approval to procure PPC.
  - (i) The quality of fly ash is strictly as per IS-1489 (Part-I)-2002 and as amended up to date.
  - (ii) Fly ash is inter-ground with clinker not mixed with clinker.
  - (iii) The fly ash content in PPC does not exceed the limits laid down in IS-1489 (Part-I)- 2002 and as amended up to date.
- (e) For using PPC non availability of OPC shall not be insisted upon. Also no price adjustment shall be made for use of PPC.

**4.3.7 TESTING OF CEMENT.** The manufacturer/main producer shall carry out inspections and testing of cement in accordance with the relevant BIS provisions. The Contractor shall submit the Manufacturers Test Certificate in original alongwith the test sheet giving the result of each physical test as applicable and the chemical composition of the cement or authenticated copy thereof, duly signed by the manufacturer with each consignment. The Engineer-in-Charge shall record these details in the Cement Acceptance Register (Annx `A') given here in after, after due verification. The GE shall also organize dependent physical testing of random samples of cement drawn from each lot 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 chemical analysis of hydraulic cement) and record the results in the relevant portion of Cement Acceptance Register (A `A').

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 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 hrs at his own cost after written rejection order of consignment by the GE.

**4.3.7.1** 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.

**4.3.7.2** The contractor shall be required to set up the adequate testing facilities at site to the entire satisfaction of GE for conducting setting time test and compressive strength test as per IS codes referred to here-in-before 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 test can alternatively be carried out at the Zonal laboratory, or any other recognized laboratory so designated by GE.

The contractor shall be allowed to use the cement only after satisfactory compressive strength of 7 days. 7 days strength will be relied upon to accept the lot of cement; 28 days compressive strength test will be final criteria to accept / reject the lot.

**4.4 STORAGE.** Cement shall be stored over dry platform at least 20 cm high in such a manner as to prevent deterioration due to moisture or intrusion of foreign matter. In case of store room, the stack shall be at least 20 cm away from floors and walls. The stacking of cement shall not be more than 10 bags high. It shall be ensured that tested and untested cement are segregated and stored separately with distinct identification.



**PARTICULAR SPECIFICATION (Contd/.....)****CEMENT SUPPLY & ACCEPTANCE REGISTER****Appendix 'A'**

1. CA No & Name of work
2. Contract 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) (Qty \_\_\_\_\_ (b) Lot No/ Week No \_\_\_\_\_)
5. Manufacturer test certificates No \_\_\_\_\_.
6. Random test Details (a) Physical test report from \_\_\_\_\_ vide their letter No \_\_\_\_\_ (Name of approved Lab/Engg College)  
(b) Chemical test report from \_\_\_\_\_ vide their letter No \_\_\_\_\_ (Name of approved Lab/Engg College)
7. Details of Physical & Chemical properties:-

	Physical Requirements (As per IS 4031)										Chemical Requirements (As per IS 4032)							
	Specific surface Area (Sqm/Kg)	Soundness by Le Chatellier	Soundness by Auto Clave	Initial setting time (Minute)	Final setting time (Minute)	Compressive Strengths (Mpa)			Temp during testing 'C	Standard consistency (%)	Lime saturation factor (Ratio)	Alumina Iron Ratio (Ratio)	Insoluble Residue (%)	Magnesium (%)	Sulphuric Anhydride (%)	Loss on ignition (%)	Alkalies (%)	Chlorides (%)
						03 Days	07 Days	28 Days										
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
As per relevant IS																		
As per manufacturer test certificate																		
As per manufacturer test certificate																		

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

Signature of Contractor

For Accepting Officer

**PARTICULAR SPECIFICATION (Contd/.....)**

- 4.5 **DOCUMENTATION.** The contractor shall submit original vouchers from the main producers/manufacturers for the total quantity of cement supplied under each consignment to be incorporated in the work. All consignment received at the work site shall be inspected by the GE along with 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 the GE duly authenticated and with cross reference to the control number recorded in the cement acceptance register. The cement acceptance register will be signed by the JE (Civil), Engineer-in-Charge, GE and the contractor. The Accepting officer may order board of officer for random check of cement and verification of connected documents. The entire quantity of all cement shall also be suitably recorded in the measurement book for record purpose before incorporation in the work and shall be signed by the Engineer-in-charge and the Contractor.
- 4.5.1 Identification of cement bags by the manufacturer shall be as per relevant BIS codes.
- 4.5.2 The entire lot of cement brought by Contractor to the site shall be removed by contractor under his own arrangements and at his own cost, whenever the test results are not found within the prescribed acceptable limits. Decision of GE in this respect shall be final and binding.
- 4.6 The proper accommodation for storage, preservation and maintenance of cement shall be provided by the contractor at his own cost till consumption of cement in the work at the place (s) decided by GE. All arrangement for proper storage and safely of cement as indicated here-in-before shall be made by Contractor at his own cost. The cement storage accommodation shall be provided with two locks at each door. The key of one lock at each door shall remain with the Engineer-in-Charge or his representative and that of other lock shall remain with the contractor's authorized agent at site of works so that cement is removed from the godown/storage accommodation according to daily requirement with the knowledge of both the parties.
- 4.6.1 Schedule of supply of cement shall be worked out by Contractor in consultation with GE so as to match with the progress contemplated in CPM Chart prepared for this Project.
- 4.7 **WEIGHING AND PAYMENT FOR CEMENT.**
- 4.7.1 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 labour etc shall be provided by the contractor at his own cost.
- 4.7.2 The quantity of cement arrived at as aforesaid shall be considered for payment as applicable in accordance with IAFW-2249, General Conditions of Contracts.
- 4.7.3 Payment for cement shall only be allowed after production of original purchase vouchers, manufacturer's test certificates for each consignment of cement brought by contractor and after the results of random testing carried out by GE are found satisfactory as specified here-in-before.
- 4.8 **SCHEDULE OF SUPPLY.** The contractor shall procure the cement timely as required in accordance with CPM network 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.
- 4.9 **MEASUREMENT AND PAYMENT OF CEMENT.**
- 4.9.1 The entire quantity of cement as brought at site, from time to time 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.
- 4.9.2 The payment shall only be allowed after production of original purchase vouchers, certified copies of test certificates from manufacturer for each consignment and if results of testing carried out in laboratory on receipt of cement (7 days compressive test) are found satisfactory after testing as specified herein before. Cement shall be paid as material lying at site as per condition 64 of IAFW-2249. Rate of cement given in MES SSR shall be applicable for cement irrespective of grade of cement specified for use in the work.
- 4.9.3 For the purpose of pricing deviations for the items involving cement the rates given in MES SSR shall be applicable.
- 4.10 **SPECIFICATION FOR NOMINAL MIX CONCRETE.**
- 4.10.1 **CEMENT** Cement shall be as specified here-in-before.

Signature of Contractor

For Accepting Officer

**PARTICULAR SPECIFICATION (Contd/.....)****4.10.2. AGGREGATES.**

(a) Aggregates shall conform to both IS-383 of 1970 and IRC-29 of 1968. 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/IRC. When required by Engineer-in-Charge. The contractor shall at his own expense to carry out any test laid down in both IS-383 of 1970 and IRC-29 of 1968 to verify that the aggregate comply with the requirements of the IS/IRC. The test will be carried out in any laboratory approved by the GE.

(b) Coarse aggregate shall consist of crushed stone aggregate.

(c) Fine aggregate shall consist of naturally occurring coarse sand. Fine aggregate shall confirm to Zone II of table IV of IS-383.

(d) Sample of the aggregate proposed to be used shall be approved by the GE prior to bulk delivery of the same at site of work. Fields test for deforming the contents of salt loam clay etc for fine aggregate shall be carried out by the Engineer-in-Charge from time to time to ensure that materials brought at site are in conforming with the samples approved by the GE.

(e) **GRADING OF AGGREGATES.** The grading of coarse and fine aggregate grading Zone II. The grading of coarse and fine aggregate shall be checked as frequently as possible. The frequency for the aggregate testing shall be determined by Engineer-in-Charge to ensure that the specified grading is being maintained.

**4.10.3 TRANSPORTING, PLACING, COMPACTION.** Transporting placing in position and compaction of concrete shall be carried out all as specified in clause 4.11.9 to 4.11.11.1 of MES SSR Part-I.

**4.10.4 MIXING AND COMPACTION OF CEMENT CONCRETE**

(a) All cement concrete shall be mixed in an approved mechanical mixer. Mixing of concrete shall all as per clause 4.11.5 on page 4-9 of MES SSR Part I (2009).

(b) All RCC work shall be thoroughly compacted 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 vibrated and needle/pin vibrators in beams/columns etc.

**4.11 SPECIFICATION FOR DESIGN MIX CONCRETE M-25 GRADE**

**4.11.1 CEMENT:** - Cement shall be as specified herein before

**4.11.2 AGGREGATE**

(a) Aggregate shall conform to IS 383 Coarse aggregate (stone aggregate) 20 mm and below for all cement concrete work i.e PCC/RCC shall be out of granite/basalt/trap stone and coarse aggregate (stone aggregate) of 40 mm and above shall be of sandstone of approved quality all as specified in clause 4.4.1 to 4.4.7 (1) of MES Schedule Part I. Mixture of two types of stone shall not be permitted. Aggregate shall be nonporous, 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. When required by the Engineer-in-Charge, the contractor shall at his own expenses carry out any test laid down in IS383 and IS-2386 to verify that the aggregate complies with the requirements of the IS. The test will be carried out in any laboratory approved by the GE.

(b) Coarse aggregate shall consist of crushed graded stone aggregates 20mm and below. Coarse aggregate upto 40mm shall be machine crushed coarse aggregate above 40 mm may be hand broken.

(c) Fine aggregate shall consist of naturally occurring coarse sand. Fine aggregate shall conform to Zone-II of table IV of IS-383.

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

(e) **GRADING OF AGGREGATE**

The grading of coarse and fine aggregate shall be as per MES Schedule. Fine aggregate shall have grading as per grading Zone-II. The grading of coarse and fine aggregate shall be checked as frequently as possible. The frequency for the aggregate testing shall be determined by Engineer-in-Charge to ensure that the specified grading is being maintained.

**PARTICULAR SPECIFICATION (Contd/.....)****4.11.3 BATCHING**

This shall be done as per clause No 4.11.3 of MES SSR Part-I. Irrespective of what is specified in MES SSR and else wherein these tender documents, weigh batching shall be carried out for all design mix concrete. Volumetric mixing of concrete will not be permitted. Weigh batching alongwith system of measured water either through calibrated pump or calibrated tank is to be adopted strictly for all design mix concrete work.

**4.11.4 MIX PROPORTION AND STRENGTH**

(i)	Strength to be achieved	As per IS-456-2000
(ii)	Type of cement	As specified here-in-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 compacting factor 0.85 to 0.92
(vi)	Max free water cement ratio	As per mix design based on IS-10262 and IS-456-2000
(vii)	Degree of quality control	Min Good (Refer Appx 'A' of IS-10262)
(viii)	Durability	Exposure - Moderate
(ix)	Minimum 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 aggregate	M-25 (design mix)

**NOTE:-**

(i) The minimum cement content for M-25 (Design mix) shall be as laid down in relevant IS. In case due to local site conditions or any circumstances design mix with cement content more than laid down in IS is approved, the contractor shall have no claim whatsoever on account of use of more quantity of cement. The quoted rate by contractor shall be deemed to include the quantity of cement as per design mix and nothing extra on this account is admissible.

(ii) No element of wastage of cement shall be allowed while working out the cement consumption details for design mix concrete work.

(iii) Mix design shall be prepared based on SP-23, handbook on concrete mixes and IS-10262. Recommendations guide lines for concrete mix design.

**4.11.5. APPROVAL OF DESIGN MIX**

(a) Soon after commencement of work, contractor shall arrange the design mix for M-25 grade concrete. Design mix concrete shall be got carried out from National Test House, SEMT, CME, and Regional Research Laboratories or from any Govt approved labs such as Govt 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 same shall be verified at site by casting the final cubes.

(c) Frequency of sampling shall be as per clause 15 of IS-456. Each sample shall consist of three numbers of preliminary test cubes (except as stated in para (d) below) of size 15x15x15 cm, and 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. The cubes will be tested after 28 days from the date of casting.

(d) One sample for every design mix in the initial stage shall consist of six numbers of preliminary test cubes of size size 15x15x15 cm, and 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 six cubes, three will be tested after seven days (on 8<sup>th</sup> day) from the date of casting and three will be tested after 28 days from the date of casting.

(e) The test after seven days (ie 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. However, 28 days compressive strength shall alone be the criterion for acceptance and rejection of the concrete.

**PARTICULAR SPECIFICATION (Contd/.....)**

(f) GE can also carryout seven days strength test of more samples at his option. However if the test report is found satisfactory, then the cost of testing including cost of cubes shall be borne by the Deptt. But if the result is found unsatisfactory, then the cost of cubes and cost of testing shall be borne by the contractor. The cost of conveyance of test cubes shall however be borne by the contractor in all cases.

(g) 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.

(h) All testing charges including cost of cubes, conveyance etc. shall be born by the contractor except that, the cost of optional seven days test be regulated as stipulated in Para (f) here-in-before.

**4.11.6 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) Standard deviation to be rechecked after collecting the result of actual concrete work (compressive strength actually achieved at site) to review for Design mix.

4.11.7 Testing of cubes shall be carried out at the site laboratory as per SSR Part-I & as per IS.

**4.11.8 PLACING AND CURING OF CONCRETE**

Placing & curing of concrete shall be as specified in SSR Part-I & as per IS.

**4.11.9 MIXING AND COMPACTION OF CEMENT CONCRETE**

(i) M-25 Design mix concrete at site shall be done by using semi-automatic batching plant of capacity 12 to 15 Cum/Hr.

(ii) All cement concrete except design mix concrete may be mixed in 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 as per clause 4.11.5 of MES SSR Part-I.

(iii) All RCC work shall be consolidated with approved mechanical vibrators except where not practicable in the opinion of the Engineer-in-Charge. RCC in slabs shall be compacted with plate/surface type vibrator and in beams/columns with needle/pin vibrator.

**4.12 PRECAST SOLID BLOCK WALLING**

(a) PCC solid blocks shall conform to IS-2185.

(b) **TYPE OF MIX** : The Precast PCC solid block shall be of PCC (1:3:6) using 20 mm graded stone aggregate. The concrete shall be mixed as laid down in IS-456. The solid concrete block shall be of grade as per IS-2185.

(c) **SIZE** The size of block shall be one of the following sizes

SN	Designation	Nominal size in cm			Actual size in cm		
		Length	Breadth	Height	Length	Breadth	Height
1	A	40	30	20	39	30	19
2	B	40	20	20	39	20	19
3	C	40	10	20	39	10	19
4	D	20	20	20			
5	E	20	20	10			

Sizes other than those specified above may also be used with the approval of Engineer-in-Charge

**(d) MATERIAL (AGGREGATE)****(i) COARSE AGGREGATE**

This shall be crushed or natural aggregate 20 mm and down size of approved quality and shall conform to IS-383.

**(ii) FINE AGGREGATE (SAND)**

This shall be free from dust and well graded having fineness modulus 3.6 and 4 of combined aggregate conforming to IS-383.

**PARTICULAR SPECIFICATION (Contd/.....)****(e) MANUFACTURING OF BLOCKS**

(i) The blocks shall be machine made. The mixing of concrete, the manufacturing of block, curing and drying shall be in accordance with Para 6 to 10 under IS 2185.

(ii) Faces of the blocks shall be flat and rectangular.

(iii) **MIXING** : Concrete shall be mixed in mechanical mixer. Mixing shall be continued until there is a uniform distribution of materials and the mix is uniform in colour and consistency.

**(iv) PLACING AND COMPACTION**

(aa) In case of mechanical compaction, the mould shall be filled up to overflow, vibrated or mechanically tamped and struck off level.

(ab) After remoulding the block shall be protected until they are sufficiently hardened to permit handling.

**(v) CURING**

The block hardened as mentioned herein before shall then be cured in a curing water tank or in curing yard and shall be kept continuously moist for at least 14 days. Where the blocks are cured in an immersion tank, the water of the tank shall be changed at least every 4 days.

**NOTE**

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

**(vi) 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 for 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 subsequent 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 moisture content should not exceed 25% of their maximum water absorption capacity. If the blocks are to be used in the situation where the relative humidity of air average more than 60%, the block can be dried to a moisture content of 40% of their maximum water absorption capacity.

**(f) PHYSICAL REQUIREMENT****(i) GENERAL**

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

**(ii) TOLERANCES**

The maximum variation in the dimension of the units shall not be more than  $\pm 5$  mm for length and maximum variation in height and width of units not more than + 3 mm.

**(iii) BLOCK DENSITY**

The block density shall be as per Para 4 of IS-2185.

**(iv) COMPRESSIVE STRENGTH**

The average compressive strength of eight blocks when determined in the manner described in IS-2185 shall not be less than 50 Kg/Sq cm of gross cross sectional area of one unit. The strength of lowest individual block shall be not less than 80 % of the average compressive strength of eight blocks.

**(v) WATER ABSORPTION**

The water absorption shall be as per IS-2185

(vi) Drying, shrinkage and moisture movement shall be as per IS-2185.

**(g) TESTS**

Tests as described in appendices 'A' to 'F' of IS-2185 shall be conducted on samples of blocks selected according to the samples procedure given in Para 11 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 and other expenses shall be borne by the contractor.

**PARTICULAR SPECIFICATION (Contd/.....)****(h) SAMPLING CRITERIA FOR CONFORMITY**

The blocks required for carrying out the test laid down in standard shall be taken by one of the method given in Para 10 of IS-2185 and shall be considered as conforming to the requirements of the specifications if the conditions mentioned in Para 11.2 to 11.5 of IS 2185 are satisfied.

**(j) PRECAST PCC SOLID BLOCK WALLING**

- (i) 20 cm thick and over PCC solid block walling shall be built in CM 1:6 and 10 cm thick PCC solid block walling shall be built in CM (1:4).

**(ii) LAYING**

The block shall be slightly wetted before and during laying in the wall. The blocks shall be laid with mortar joints completely filled without any void left in the masonry. The thickness of the horizontal and vertical joints shall not exceed 1 cm. The ½, 1/3 and 2/3 blocks shall be used for breaking the joints. The face joints shall be raked to a depth of 1 cm 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 pointing to be done later. Where plaster or pointing is not required the joints shall be struck flush and finished side by side.

- (iii) **CURING OF WALLING** Masonry work shall be kept constantly moist on all the faces for a minimum period of 7 days.

**4.13. FORM WORK**

- (a) Form work shall be as per clause 7.15 of MES SSR Part-I and shall comply with requirement of Para 4.11.6 of MES SSR Part-I. Form work shall be only steel/plywood.
- (b) Only steel props shall be used to support the formwork of slabs and beams.
- (c) Screws need not be used in the formwork except at the discretion of the contractor for his own convenience.

**5. PRECAST SOLID BLOCK WALLING**

- (a) PCC solid blocks shall conform to IS-2185.
- (b) **TYPE OF MIX** : The Precast PCC solid block shall be all as specified in Sch 'A', using 20 mm graded stone aggregate. The concrete shall be mixed as laid down in IS-456. The solid concrete block shall be of grade as per IS-2185.
- (c) **SIZE** The size of block shall be one of the following sizes

SN	Designation	Nominal size in cm			Actual size in cm		
		Length	Breadth	Height	Length	Breadth	Height
1	A	40	30	20	39	30	19
2	B	40	20	20	39	20	19
3	C	40	10	20	39	10	19
4	D	20	20	20			
5	E	20	20	10			

Sizes other than those specified above may also be used with the approval of Engineer-in-Charge

**(d) MATERIAL (AGGREGATE)****(i) COARSE AGGREGATE**

This shall be crushed or natural aggregate 20 mm and down size of approved quality and shall conform to IS-383.

**(ii) FINE AGGREGATE (SAND)**

This shall be free from dust and well graded having fineness modulus 3.6 and 4 of combined aggregate conforming to IS-383.

**(e) MANUFACTURING OF BLOCKS**

- (i) The blocks shall be machine made. The mixing of concrete, the manufacturing of block, curing and drying shall be in accordance with Para 6 to 10 under IS 2185.

**PARTICULAR SPECIFICATION (Contd/.....)**

- (ii) Faces of the blocks shall be flat and rectangular.
- (iii) **MIXING** : Concrete shall be mixed in mechanical mixer. Mixing shall be continued until there is a uniform distribution of materials and the mix is uniform in colour and consistency.
- (iv) **PLACING AND COMPACTION**  
(aa) In case of mechanical compaction, the mould shall be filled up to overflow, vibrated or mechanically tamped and struck off level.  
(ab) After remoulding the block shall be protected until they are sufficiently hardened to permit handling.
- (v) **CURING**  
The block hardened as mentioned herein before shall then be cured in a curing water tank or in curing yard and shall be kept continuously moist for at least 14 days. Where the blocks are cured in an immersion tank, the water of the tank shall be changed at least every 4 days.

**NOTE**

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

(vi) **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 for air. The dimensioned stability of concrete block is greatly affected by variation in their moisture content. Since the shrinkage of the block is much grater at the time it dries for the first time than due to subsequent 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 moisture content should not exceed 25% of their maximum water absorption capacity. If the blocks are to be used in the situation where the relative humidity of air average more than 60%, the block can be dried to a moisture content of 40% of their maximum water absorption capacity.

(f) **PHYSICAL REQUIREMENT**

(i) **GENERAL**

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

(ii) **TOLERANCES**

The maximum variation in the dimension of the units shall not be more than  $\pm 5$  mm for length and maximum variation in height and width of units not more than + 3 mm.

(iii) **BLOCK DENSITY**

The block density shall be as per Para 4 of IS-2185. For solid PCC block it shall not be less than 1800 Kg/M<sup>3</sup>.

(iv) **COMPRESSIVE STRENGTH**

The average compressive strength of eight blocks when determined in the manner described in IS-2185 shall not be less than 50 Kg/Sq cm of gross cross sectional area of one unit. The strength of lowest individual block shall be not less than 80 % of the average compressive strength of eight blocks.

(v) **WATER ABSORPTION**

The water absorption shall be as per IS-2185

(vi) Drying, shrinkage and moisture movement shall be as per IS-2185.

(g) **TESTS**

Tests as described in appendices 'A' to 'F' of IS-2185 shall be conducted on samples of blocks selected according to the samples procedure given in Para 11 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 and other expenses shall be borne by the contractor. The tests listed in Appendix 'A' to IS-2185 shall be conducted from the laboratory as approved by GE and other tests shall be carried out as listed in Annexure-II.



**PARTICULAR SPECIFICATION (Contd/.....)****(h) SAMPLING CRITERIA FOR CONFORMITY**

The blocks required for carrying out the test laid down in standard shall be taken by one of the method given in Para 10 of IS-2185 and shall be considered as conforming to the requirements of the specifications if the conditions mentioned in Para 11.2 to 11.5 of IS 2185 are satisfied.

**(j) PRECAST PCC SOLID BLOCK WALLING**

(i) 20 cm thick and over PCC solid block walling shall be built in CM 1:6 and 10 cm thick PCC solid block walling shall be built in CM (1:4).

**(ii) LAYING**

The block shall be slightly wetted before and during laying in the wall. The blocks shall be laid with mortar joints completely filled without any void left in the masonry. The thickness of the horizontal and vertical joints shall not exceed 1 cm. The 1/2, 1/3 and 2/3 blocks shall be used for breaking the joints. The face joints shall be raked to a depth of 1 cm 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 pointing to be done later. Where plaster or pointing is not required the joints shall be struck flush and finished side by side.

(iii) **CURING OF WALLING** Masonry work shall be kept constantly moist on all the faces for a minimum period of 7 days.

(iv) **SCAFFOLDING FOR WALLING** The scaffolding shall be strong and sound.

(v) 20/10 cm thick walls wherever shown on drawings shall be 20/10 cm thick precast PCC solid block walling. PCC block walling shall be constructed as per pattern indicated in drawings.

(VI) Unless otherwise specified or shown on drawings, all 10 cm thick partition walls on ground floor shall rest on sub base of the floor. 10 cm thick partition walls shall be properly bonded at ends in to adjoining walls.

(vii) Partition walls shall be provided with the following provision:-

(aa) 2 Nos 8 mm dia deformed TMT bars at 400 mm height and shall be embedded in cols at least 150 mm both side and full width in case of PCC block walls.

(ab) RCC band at lintel level for the entire length (including over opening) shall be provided. The RCC band shall be 100 mm x100 mm size reinforced with 2 Nos 10 mm dia TMT bars as longitudinal bars and 8 mm dia TMT bars links at 150 mm C/C. Longitudinal bars shall be anchored in supporting walls/columns.

(ac) If the length of the wall exceeds 3 metre in plan which is unsupported in perpendicular direction, the vertical RCC band of size 100x100 mm reinforced with 4 Nos 10 mm dia TMT bar as longitudinal bars and 8 mm dia TMT bars stirrups at 150 mm centre to centre. This band shall be anchored in slab/beam/sub base.

**5A PVC WALL PANELLING/PANELS****5A.1 PVC INSULATION PANEL**

PVC insulation panel shall consist of Expanded Poly Styrene(EPS) conforming to IS 4671 of minimum density 15 Kg/m<sup>3</sup> flame retardant (TF) grade of desired thickness stuck to PVC sheet using thermosetting adhesive on one side.

**5A.2 PVC SHEET FILLET FOR WALL PANELLING**

PVC sheet fillet shall be 5mm thick and 35mm wide PVC sheet with 'U' shape groove of 2mm depth in the centre. The purpose of the groove is that the head of the screw used to fix the fillet to the wall sinks into it so as to make the surface of the fillet plain.

**5B. BRICK WORK**

5B.1 Bricks shall be well burnt (Kiln burnt), best quality, locally available with crushing strength not less than 35 Kgs/Sqcm and maximum water absorption of 20%. The nominal size of bricks shall be 230 mm long, 115 mm wide and 75 mm high with a tolerance of  $\pm 8\%$  on each dimension.

5B.2 Sand for mortar shall be from the source as mentioned in Appendix 'A' and as approved by the GE. Sand shall be as specified in Para 5.4 of MES Schedule Part-I.

5B.3 Brick work shall be built in cement mortar as specified in Sch 'A' and shall be carried out all as specified in section 5 of SSR Part-I.

Signature of Contractor

For Accepting Officer

**PARTICULAR SPECIFICATION (Contd/.....)****6. RANDOM RUBBLE MASONRY**

6.1 The stone shall be of the type specified such as granite, trap other igneous rock, sand stone, quartzite etc and shall be obtained from approved quarries as indicated in Appendix 'A' and shall conform to the sample kept in the office of the GE. Stone shall be hard sound, durable and free from weathering decay and defects like cavities, crack flaw, sand holes and other similar defects that may adversely affect its strength and appearance. As far as possible stone shall be of uniform colour and texture. Generally stone shall not contain crypto, crystalline silica or chart, mica and other deleterious materials like iron oxide, organ impurities etc.

6.2 Sand for mortar shall be from the source as mentioned in Appendix 'A' and as approved by the GE and shall conform or superior to the sample kept in the office of GE.

**6.3 UNCOARSE/ BROUGHT TO COURSES MASONRY**

Stone masonry shall be uncoursed or brought up to courses as specified in Sch 'A', well bonded, bedded and solidly hearted all as described in Para 6.10 of MES SSR Part-I built in cement mortar as specified in Sch 'A'.

6.4 Bond, quoin and jamb stones where exposed shall be of stone only and may be either of stones or Precast solid PCC blocks in mix (1:3:6) type C-1 at other location at the option of contractor. Bond stone may be either of stone or Precast solid PCC block in PCC (1:3:6) type C-1 at the option of contractor. No price adjustment for use of PCC blocks shall be made.

6.5 No facing shall be executed to surfaces covered by earth filling. Unless otherwise specified/shown in drawings, joints of masonry covered by earth filling shall be finished flush with the same mortar as the work proceeds.

6.6 Leave or form holes as and where required or as directed by the Engineer-in-Charge shall be made good as per clause No 14.14.8 of MES SSR Part-I.

6.7 Chases and recess in walls where required or where directed by the Engineer-in-Charge shall as far as possible, be provided during construction to avoid cutting after wards.

6.8 The joints of stone masonry shall be racked out and cleaned as the work proceeds as specified in clause 6.9.3 and 6.9.4 of MES SSR Part-I.

**7. WOODWORK & JOINERY.**

7.1 Unless otherwise specified in Sch 'A', all timber for wood work and joinery (except particle boards, block boards and ply wood unless otherwise specified hereinafter) shall be of first class hard wood 'TEAK' (Tectona grandis), well seasoned and shall conform or superior to the sample kept in the office of GE.

7.2 Maximum permissible moisture contents in timber for various purposes is stipulated in Para 7.7 of SSR, Part-I. For clarification of zones for moisture content, this contract shall be deemed to fall under climatic Zone-II.

7.3 Use of nails in joinery work unless otherwise specified is prohibited. Wooden screws of appropriate size shall be used.

7.4 All woodwork & Joinery work shall be carried out as specified in MES SSR Part-I.

**7.5 WOODEN SHUTTERS FOR DOORS.**

(a) Shutters shall be factory made second-class hard wood (Non coniferous) Bonsum (Phoebe species)/ Chaplash (Artocarpus chaplash)/Hollock (Terminalia myrio capra) kiln seasoned and chemically treated.

(b) (i) **FACTORY MADE PANELLED DOORS.** Factory made panelled door shutters shall be made of kiln seasoned as per IS 1141 and chemically treated as per IS-401 second-class hard wood (Non coniferous) Bonsum (Phoebe species)/ Chaplash (Artocarpus chaplash)/ Hollock (Terminalia myrio-capra) for styles and rails. Panels shall be of 12 mm thick particle board veneered commercial (both faces) BWP grade bonded with liquid phenol formaldehyde synthetic resin adhesive conforming to IS-3097 (ISI marked) for all type of doors except in case of external doors directly exposed to weather. Panels for external doors directly exposed to weather shall be 9 mm thick BWP marine grade ply wood bonded with high quality liquid phenol formaldehyde conforming to IS : 710 (ISI marked)

(ii) **FACTORY MADE FLY PROOF DOORS.** Factory made fly proof door shutters shall be made of kiln seasoned and chemically treated second class hard wood (Non coniferous) Bonsum (Phoebe species)/ Chaplash (Artocarpus chaplash)/Hollock (Terminalia myrio-capra) fixed with galvanised wire cloth as specified in Sch 'A'.

**PARTICULAR SPECIFICATION (Contd/.....)**

(c) The overall sizes and dimensions of door shall be as per requirement and as directed by Engineer-in-Charge at site.

(d) The overall door shutters shall conform to the IS-1003

(e) Factory made wooden doors shutter shall be obtained from one of the manufacturer given in Appendix 'C'. Contractor will produce manufacturer's test certificate as per BIS code along with each consignment.

**7.6 PVC SOLID PANEL DOOR SHUTTER.**

Factory made solid panel PVC door shutter 30mm thick (style) consisting of frame made out of MS tubes for top and bottom rails. MS frame shall be covered with heat moulded plain colour PVC 'C' channel having a PVC sheet strip of 20mm width stuck inside with solvent cement for stiles and plain colour PVC sheets for top rail, lock rail and bottom rail on either side and as gap insert for top rail and bottom rail; Panelling of plain colour PVC sheet to be fitted in the MS frame welded/sealed to the stiles and rails with suitable PVC sheet beading and jointed together with solvent cement and supplying and fixing in the frame at site.

**7.7 PVC SOLID FRAME FOR DOOR SHUTTER.** PVC Solid door frame shall be of size 50mmx47mm made out of 5mm plain colour PVC sheet reinforced with MS square tube all as specified in MES SSR Part-I. PVC frame and shutter shall be of make as specified in Appendix 'C'.

**7.8 FLUSH DOOR SHUTTERS**

Flush door shutter shall be 30mm thick. Flush door shutters shall be solid core construction with block board core and plywood face panels, exterior grade, bonded with phenol formaldehyde BWP grade conforming to IS-3087-1985 Type I. Flush door shutters shall be factory made and shall be procured from manufacturer specified in Appendix 'C'.

**8. PRE-LAMINATED PARTICLE BOARD.**

Pre-laminated particle board (Interior/exterior grade as specified in Sch'A') shall be 3 layered conforming to IS-12823 and shall be of make specified in Appendix 'C'.

**9. BUILDERS HARDWARE.**

9.1 All articles of builder's hardware shall confirm to the specifications given in Section 9 of MES Schedule Part-I. The contractor shall produce the samples of each articles of builder's hardware and get approved in writing. The articles of builder's hardware shall bear ISI mark wherever available.

9.2 Butt hinges shall be as per Clause 9.7.2 and 9.7.9 of SSR Part I and shall be of naturally bright finish with smooth surfaces.

9.3 **TOWER BOLTS.** Aluminium Tower bolts shall be of Aluminium anodized (extruded section) conforming to specifications given in Clauses 9.3.1 & 9.3.3 of SSR Part-I. The dia of bolt shall be 10mm for all sizes.

**9.4 SLIDING DOOR BOLTS**

Aluminium sliding door bolt shall be of aluminium anodized all as per clause 9.5 of SSR Part -I. The dia of bolt unless otherwise shown shall be 16mm.

**9.5 HANDLES**

Aluminium handles shall be aluminum anodized as specified in SSR Part-I, clause 9.11 and 9.11.1.

**9.6 MS BUTT HINGES**

MS Butt hinges shall be of cold rolled mild steel, medium weight all as specified in clause 9.7.2 of MES SSR Part-I.

9.7 **STAINLESS STEEL BUTT HINGES.** Stainless Steel but hinges shall be of stainless steel and shall comply with IS-12817-1997, Specification stainless steel butt hinges. Hinges shall be of medium weight, unless otherwise indicated. Grade of stainless steel for flap and pin shall be as per IS. Unless otherwise indicated, hinges shall be naturally finished bright with smooth surface without chemical coating. The stainless steel hinges shall be rust proof and especially useful in high moisture area.

**10. STEEL AND IRON WORK.**

10.1 Quality of steel to be incorporated in the work shall be as follows:-

(a)	High strength deformed steel bars produced by Thermo Mechanical treatment process (In short called as TMT bars) for reinforcement.	Of Grade Fe 500 D and meeting all requirement of IS 1786-2008.
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**PARTICULAR SPECIFICATION (Contd/.....)**

10.1 Quality of steel to be incorporated in the work shall be as follows:-

(b)	Mild steel for miscellaneous works	Shall conform to IS-432(Part-I). Grade wherever not shown/ indicated otherwise shall be of Grade I.
(c)	Structural steel	Steel for general Structural purpose shall be Grade Fe-410 WA ISI marked (IS-2062-1999) for all type of steel Structures including those subject to dynamic loading. Structural steel ordinary quality shall conform to IS-1977
(d)	Galvanised steel sheets (Plain & corrugated)	Conforming to IS-277. Galvanised steel sheet shall be of Grade O (120 gm/Sqm zinc coating). The corrugation of CGI sheet shall be Grade 'B'.
(e)	Fabric reinforcement for concrete	Conforming to IS-1566

10.2 **WELDING.**

10.2.1 Welding shall be metal arc welding as specified in Para 10.15 of MES Schedule Part-I.

10.2.2 Unless otherwise specified, the fillet welds shall be of 6mm size.

10.2.3 All butt welds shall be full penetration welds.

10.3 **REINFORCEMENT.**

10.3.1 Reinforcement shall be bent to shape and provided as directed at site.

10.3.2 All laps and crossings shall be tied with mild steel wire (annealed) of size not less than 0.9 mm dia.

10.4 **REINFORCEMENT STEEL AND STRUCTURAL/NON-STRUCTURAL STEEL.**

10.4.1 **TYPE OF STEEL.**

10.4.1.1 **REINFORCEMENT STEEL.**

(a) TMT bars of grade Fe 500d shall be used.

(b) Wherever deformed bar(s) have been indicated, TMT bars of grade Fe 500d shall be used by the contractor at no extra cost to the Govt.

10.4.1.2 **STRUCTURAL STEEL.**

(a) Structural Steel shall conform to IS 2062-1999, Grade Fe-410-WA for all types of steel structures including those subject to dynamic loading.

(b) Unless otherwise specified elsewhere, mild steel in grills/guard bars, railing, flat iron, hold fast and in various members of steel windows and steel doors shall be of ordinary quality conforming to IS 1977-1975 Grade Fe-310-O.

10.5 **SOURCE OF PROCUREMENT.**

10.5.1 All TMT steel bars shall be procured directly from primary producer i.e. **SAIL/RINL/TISCO/ M/s Jai Balaji Industries Ltd**, (Balaji Shakti) 5, Bentinck street, Kolkata – 700001/ **M/s Shyam steel Industries Ltd**, (SHYAM) Shyam Towers EN-32, Sector-V, Salt Lake, Kolkata - 700091/ **M/s steel Exchange India Ltd** (brand Simhadri TMT), My Home Laxminivas Apartments, Ameerpet, Hyderabad – 500016, A.P. / **M/s Jindal Steels and Power Ltd. (JINDAL PANTHER)**, OP Jindal Road, Hissar, Haryana, PIN – 125005 / **M/s SRMB Srijan Pvt Ltd, (SRMB)** SRMB House, 7, Khetra dal lane, Kolkata – 700012/ **M/s Shri Bajrang Power & Ispat Ltd,(GOEL TMT)**, Vill-Borjhara, Urla Industrial Area, Raipur – 493 221, Chhattisgarh / **M/s Real Ispat & Power Ltd (G K TMT)**, Vrindavan, Near IDBI Bank, Civil Lines, Raipur – 492 001, C.G. / **M/s Super Smelters Ltd, (SUPER SHAKTI)**, Premlata, 39, Shakespeare Sarani, 3<sup>rd</sup> Floor, Kolkata – 700017 / **M/s Gallant Metal Ltd (GALLANT TMX)**, Ward 10 BC, Plot No. 123, Ground Floor, Gandhidham, Kutch, Gujarat – 370201 / **M/s Rashmi Metaliks Ltd (RASHMI TMT)**, Premlata, 39, Shakespeare Sarani, 3<sup>rd</sup> Floor, Kolkata – 700017 / **M/s Shyam Sel and Power Ltd (SEL)**, ss Chambers, 5 C.R. Avenue, Kolkata – 700 072 / **M/s SPS Steel Rolling Mills Ltd (ELEGANT TMT)**, Diamond Prestige, 41, A A J C Bose Raod, 8<sup>th</sup> Floor, Room No. 801, Kolkata-700017 / **M/s Shree Nakoda Ispat Ltd (NAKODA TMT)**, Near Railway Crossing Mowa, P O Shankar Nagar, Raipur – 492007 (CG) / **M/s JSW Steel Ltd (NEOSTEEL)**, JSW Centre, Bandra Kurla Complex, Bandra (East) Mumbai – 400051 / **M/s Kamachi Industries Ltd. (KAMACHI)**, ABC Trade Centre, 3<sup>rd</sup> Floor (Inside Devi Theatre Complex) Old No. 50, New No. 39, Anna Salai, Chennai – 600002, India

**PARTICULAR SPECIFICATION (Contd/.....)**

10.5.2 All Structural steel shall be of grade Fe-410 WA ISI marked and shall be procured directly from **SAIL/RINL/TISCO/Jindal Steels and Power Ltd**, Gurgaon-122001. Further in case of non availability of structural steel with these manufacturers, the same can be procured from secondary producers who manufacture structural steel out of ISI marked billets and are having BIS certification of ISI marking on their products with minus price adjustment with prior approval of the accepting officer. The minus price adjustment shall be done @ 5% of accepted rates. In case any section is not being manufactured/rolled by the main producer, there shall not be any price adjustment on account of procurement of this section from approved secondary producer. The approved secondary producers as referred above are listed below:-

Ser No	Name of firm & address
1.	M/S K.L. Steel Pvt Ltd, Post Box No 61, Lal Kuan, Bulandshahar Road, Ghaziabad (UP) Tele: 0120-2867911,2867915, FAX: 0120-2867917
2.	M/S Shri Badrinarain Alloys & Steels Ltd, 95, Stephen House, 4 B B D Bag Kolkata-700 001 , Tele:033-2220- 5381/2248 1601, FAX: 033-2248 8664
3.	M/S Pushpak Steel Industries Pvt Ltd, Gate No 119, Alandi Markal Road, Dhanore, Tah Khed ,Pune Tele-Fax: 020-26444700/070
4.	M/S Amba Shakti Ispat Ltd, Plot NO. 6 ,Phase II Industrial Area, Kala Amb, Distt-Sirmour-173 030 (HP) Tele:01734-309983,309986, FAX:01702-238927
5.	M/S SRMB UDYOG Ltd., 46, BB Ganguli Street, Kolkata-700 012, Tele:2236 9999
6.	M/S Shree Parashnath Re-Rolling Mills Ltd, 4C Maharshi Devendre Road 3 <sup>rd</sup> Floor Kolkata- 700 007 Phone: 033-2274 0045/4475, FAX: 033-2274 0039
7.	M/S Tata Steel Structura Tata Steel-Tube Division, Jeevan Tara Building, 1 <sup>st</sup> Floor, 5 Sansad Marg, New Delhi-110001 Tele: 991112334,264601734, 309983,309986
8.	M/S K L Concast Pvt Ltd, Z-18 Naraina, New Delhi
9.	M/S Karam Steel Corp, Nasrali Road, PO No 56, Mandi Gobind Garh -147 301
10.	M/S Shyam Steel Industries Ltd, 115 College street white towers, 1 <sup>st</sup> Floor Kolkata-700 012.
11.	M/S Kashi Vishwanath Steel Ltd, Narain Nagar, Bazpur road Kashipur, Distt- US nagar, Uttaranchal-13.
12.	M/S Shree Sharma Steel Rolling Mills, 127, Industrial area, Jhotwara, Jaipur – 302012, Tele: 033-2274 0045/4475, FAX: 033-2274 0039

10.5.3 Galvanised Steel sheet & Fabric Reinforcement for concrete: These shall be ISI Marked and shall be procured directly from Main manufacturers.

10.5.4 However reinforcement steel, structural steel, Galvanised steel sheets and Fabric Reinforcement shall be permitted to be procured from authorised dealers of main producers in case of small contracts of value not exceeding Rs. 7.50 lakhs.

10.5.5 Steel sections for railing, gates, fencing, guard bars, grills, steel chowkhat, holdfasts etc., which do not constitute structural members, can be procured from main producers/secondary producers/BIS marked manufacturers or their authorised dealers/authorized conversion agents at the option of Contractor without any price adjustment Testing shall not be insisted upon for such steel sections.

10.5.6 The contractor should place their demand/requisition of steel with the producers with adequate lead time.

10.5.7 Steel, when procured from main producers/approved secondary producers/authorized conversion agents of main producers (stipulated in above paras) shall have to be procured directly from the storage depots of the main producers/approved secondary producers/authorized conversion agents and not from their authorized agents/ dealers.

10.5.8 The particulars of the manufacturer/supplier of steel shall be submitted by the contractor to the Garrison Engineer prior to procurement for every lot of steel separately. The original documents in support of purchase of steel shall be verified by the site staff and Garrison Engineer and certified true copy of the result shall be retained in GE's office. The form given here in after will be used for this purpose

#### 10.6 **TESTING OF STEEL.**

10.6.1 The manufacturer is to carry out inspection and testing of steel in accordance with the relevant BIS provisions. The contractor shall submit the manufacturer's test certificate in original along with the Test Sheet giving the result of each mechanical test as applicable and the chemical composition of the steel or authenticated copy thereof, duly signed by the manufacturer with each consignment. The Engineer-in-Charge shall record these details in Steel Acceptance Register after due verification and send a certified true copy of test sheet to GE for his records. Any particular size of bar/steel section of any consignment, not meeting the requirement shall be rejected and the same shall be removed from the site by the contractor at his own cost and the contractor shall have no claim on this account.

Signature of Contractor

For Accepting Officer

**PARTICULAR SPECIFICATION (Contd/.....)****10.6.2 INDEPENDENT TESTING.**

10.6.2.1 The GE shall also organize independent testing of random samples of steel drawn from various lots from National Test House, SEMT Wing CME Pune, Regional Research Laboratories, Govt approved laboratories, Zonal laboratories as per the recommended minimum frequency. The minimum elongation shall be 18%.

**10.6.2.2. REINFORCEMENT STEEL.**

(a) Independent testing of steel by the GE shall be optional at the discretion of the GE in case of procurement of steel from main producers and testing charges shall be borne in accordance with Condition 10 A of IAFW-2249 i.e. testing charges shall be borne by the Deptt if the test results are found in order, otherwise these shall be borne by the Contractor.

(b) Independent testing of steel by the GE shall be mandatory in case of procurement of steel from secondary producers/authorized conversion agents of main producers and testing charges shall be borne by the contractor irrespective of the outcome of test results.

(c) In both the cases at (i) & (ii) above, the contractor at his cost shall provide all facilities required for the testing and cost of materials consumed in tests, samples, conveyance etc shall also be borne by the contractor.

**10.6.2.3 STRUCTURAL STEEL.**

(a) Independent testing of structural steel by the GE shall be optional at the discretion of the GE in case of procurement from main producers and testing charges shall be borne in accordance with Condition 10 A of IAFW – 2249 i.e., testing charges shall be borne by the Deptt if the test results are found in order, otherwise these shall be borne by the contractor.

(b) Independent testing of structural steel by the GE shall be mandatory in case of procurement from secondary producers/authorized conversion agents of main producers and testing charges shall be borne by the Contractor irrespective of the outcome of test results.

(c) In both the cases at (i) & (ii) above, the contractor at his cost shall provide all facilities required for the testing and cost of materials consumed in tests, samples, conveyance etc shall also be borne by the Contractor.

**10.7 STEEL WINDOWS /VENTILATORS.**

(a) Steel windows (glazed) shall be provided with horizontal glazing bars. Fixing and glazing of windows shall be in accordance with IS 1081 and shall be tennoned and riveted to the frame.

(b) Glazed shutters shall be provided with projecting type hinges, peg stay, pressed handle and all as specified in Sch 'A' and specified in SSR.

(c) Peg stays and handles for steel windows shall be of steel and painted with corrosion resistant paint.

(d) Handle to fly proof windows shall be pressed type

(e) Various sections for Steel windows shall be ISI marked and steel windows shall confirm to IS-1038.

(f) Factory made steel windows and ventilators shall be procured from the firm specified in Appendix 'C'.

**10.8 ANODISED ALUMINIUM DOORS, WINDOWS, VENTS, FIXED GLAZING AND GRILLS**

(a) Aluminium doors, windows, vents and fixed glazing shall be provided all as specified in MES SSR Part-I clause 10.37 and all as specified in Sch 'A'. The size and section of profile shall be all as directed by Engineer-in-charge.

(b) Make of aluminium section for doors/windows/ventilators shall be as given in appendix 'C'.

**PARTICULAR SPECIFICATION (Contd/.....)**

(c) Thickness of glass panes if not shown in Sch 'A', shall be 4mm thick. Glass shall be black tinted glass of selected quality. Glass panes shall be provided with standard glazing clips & rubber gasket as per manufacturer's instructions.

**10.9 GI WIRE CLOTH**

GI Wire gauge/fly proofing wherever indicated in Sch 'A' shall be conforming to IS-1568. Wire cloth shall be galvanized iron wire with not less than 0.56 mm nominal diameter of wire and 1.18 mm average width of aperture.

**10.10 STAINLESS STEEL WIRE CLOTH** Stainless steel wire gauge/fly proofing wherever indicated in Sch 'A' shall be of stainless steel wire with not less than 0.36 mm nominal diameter of wire and 1.40 mm average width of aperture.**10.11 MORTICE LOCKS**

Shutters shall be shop prepared for taking mortice locks and latches if specifically indicated.

**10.11.1** Flush door shutters fixed in bath rooms and toilets shall be protected by providing aluminium sheet cover 0.5 mm thick where indicated. Aluminium sheets shall conform to IS 737 - 1986. Aluminium sheet shall be fixed to the door with chromium plated steel round headed screws conforming to IS 1284-1975 at distance not exceeding 10 cm centre to centre.**11.1 CORRUGATED AND SEMI-CORRUGATED ASBESTOS CEMENT SHEETS**

AC sheets shall comply with IS-459-1992 and shall not be pigmented and shall be as specified in clause 11.2.2 of MES SSR Part-I and shall be of make specified in Appendix 'C'. AC sheets shall be fixed all as specified in clause 11.24 of MES SSR Part-I.

**11.2 GALVALUME SHEET ROOFING**

Galvalume sheet shall be 0.50mm thick (total coated thickness). 550 Mpa minimum, yield strength. It shall be coated with hot dip alloy of 55% aluminium 43.5% zinc 1.5% silicon and finished with resin coat on both surfaces @ 150gm/Sqm of coating (total both surfaces) having overall width and laid as specified and shall be fixed using hot dip galvanized, self drilling and self tapping screws neoprene and EPDM washers.

**11.3 FIBRE GLASS REINFORCED TRANSLUCENT SHEET ROOFING**

Fibre Glass reinforced translucent sheet shall be 2mm thick as specified in BOQ. Sheet shall be clean translucent with minimum total light transmission 75% i.e. diffusion classification II as per table 4 of IS 12866-1989. The sheet shall be conforming to IS-12866 and shall be fixed as per manufacturer's instructions.

**11.4. FALSE CEILING.**

(a) The false ceiling shall be provided all as per Sch 'A'. The complete ceiling system along with tiles shall be of M/S Armstrong World Industries (I) Pvt Ltd or equivalent as approved by GE.

(b) The grid system (605x605mm maximum grid size) shall be of 'Armstrong Prelude XL32' section with 24 mm wide T - Section flanges, white powder coated rotary stitching on all T sections i.e. the Main Runner (24x32x0.30mm) & Cross Tees (24x24x0.30mm). The wall angles (19x19x0.30mm) shall be white powder coated on two sides and rest of sides painted.

(c) The suspension system shall consist of M6 Anchor Fasteners with Vertical Hangers made of 26x26x25x1.2mm galvanised steel, 2.5mm dia pre straightened hanger wire along with 0.8mm thick adjustable hook clips and 2.68mm galvanised steel spring. The adjustable clip shall also consist of 3.5mm aquiline wire to be used with the main runner.

(d) The tiles shall be 'Classic Lite RH99' having humidity resistance (RH) of 99%, NRC 0.55, Light Reflectance ≥87%, Thermal Conductivity k = 0.052 - 0.057 w/m K, Colour White, Fire Performance UK Class 0 / Class 1 (BS 476 pt - 6 & 7) in module size of 600 x 600 x 16mm, suitable for Green Building application, with Recycled content of 30%.

**PARTICULAR SPECIFICATION (Contd/.....)**

(e) The main runner spaced at 1200mm centres securely fixed to the structural soffit using suspension system at 1200mm maximum centre. The first/last suspension system at the end of each main runner should not be greater than 450mm from the adjacent wall. Flush fitting 1200mm long cross tees to be interlocked between main runners at 600mm centre to form 1200 x 600 mm module. Cut cross tees longer than 600mm require independent support. 600 x 600mm module to be formed by fitting 600mm long flush fitting cross tees centrally between the 1200 mm cross tees. The wall angle shall be secured to wall with screws at 450 mm maximum centers.

(f) All the work of false ceiling system shall be got executed through manufacturer's authorized applicator and the contractor shall submit Installation certificate of manufacturer or their authorized applicator.

12. **WATER PROOFING TREATMENT:-** Water proofing treatment to RCC roof slabs shall be carried out all as specified in Sch 'A', MES SSR Part-I and as directed by Engineer-in-Charge.
- 12.1 After taking out the existing treatment, the roof surface shall be thoroughly wire brushed, washed, dried up and cleaned of all foreign matter and dust.
- 12.2 Roof surface shall be provided with screed bed as mentioned in Schedule 'A'. On the clean and dried screed surface, one coat of bituminous/polymerized primer conforming to IS 3384:1986 @ 0.30 liter/sqm shall be applied.
- 12.3 On primed surface the APP Polymer modified membrane reinforced with non-woven polyester Weighting not less than 3.5 Kg/Sqm (minimum) and 3 mm (Minimum) thickness shall be laid by torch application method. The APP membrane shall be procured from any firm mentioned in Appendix 'C' and the work shall be got done through any one of the manufacturer or their authorized applicator for membrane as approved by GE.
- 12.4 The Membrane should satisfy following specifications:-
- (a) Softening point of minimum 150° C
  - (b) Cold flexibility of minimum (-) 5 ° C
  - (c) Single central non-woven polyester reinforcement of  $\geq 160$  gms/Sqm
  - (d) Tensile strength of 650N/Sqcms and 350N/Sqcms in longitudinal and transverse direction respectively.
  - (e) A minimum elongation of > 20% in both directions.
  - (f) A dimensional stability % change of maximum 1%
  - (g) Water tightness/impermeable at 2Kg/Sqcm.
  - (h) Water absorption of not more than 1% on mass within 24 hours. The overlap, while torching shall be 100cm on length side and 150mm on width side of membrane.
- 12.5. The membrane shall be taken up to a height of minimum 300mm through a fillet 75mx75mm and shall be inserted inside a groove cut in the parapet and fixed. If the height of parapet is 300mm or less, membrane shall be taken till top of the parapet and finished after covering the top surface of the parapet. In case of roof projections, the membrane shall be taken about 50mm on the reverse side of roof at the edges
- 12.6 The work as specified above shall be executed through authorized applicators of manufacturers. The contractor shall furnish the following:-
- (a) Quality confirmation from the manufacturer of the product alongwith quantity supplied.
  - (b) Manufacturers Test Certificate. Test Certificates from any approved laboratory as directed by GE. The testing charges including cost of material required for testing, transportation of material to laboratory, etc or any other relevant charges shall however be borne by the contractor.
  - (c) Certificate from authorized applicator of having completed the work as per specifications.
  - (d) Authority letter in respect of applicator from the manufacturer of being authorized applicator.
- 12.7 Adequate preventions to be taken to ensure that the membrane does not get punctured during execution PCC (1:2:4) type B0 of radius 75mm provided at junction of roof & parapet wall/mounting/chemney all as specified in relevant item of Sch 'A'.
- 12.8. PCC padding if mentioned in schedule 'A' shall be laid to slope as directed by Engineer-in-Charge in alternate bays) bay length shall not be exceeding 2.0 Sqm each) and finished fair on top without using extra cement. 6mm wide joints shall be provided throughout the thickness of padding. All joints in padding shall be filled with bitumen 85/25 grade.



**PARTICULAR SPECIFICATION (Contd/.....)**

12.9 After laying water proofing treatment and if specified in Sch 'A', the top surface shall be treated with one coat of bituminous aluminium paint @ 0.11Kg/Sqm (Minimum) as per manufacturer's instructions.

12.10 **PONDING TEST.**

Ponding test shall be carried on on roof after completion of complete treatment. For ponding test, roof/terrace shall be filled with water and tested for 72 hours after required period of curing to observe leakage/seepage. Leakage/seepage if any shall be rectified and retested till leakage/seepage completely stooped.

12.11 The contractor shall provide a tablet on the plinth of each building of size 45cm x 60cm in cement plaster 10mm thick in CM 1:4 including CA No. Name of contractor, Date of completion of waterproofing treatment period and Date of expiry of guarantee period, etc. This shall be engraved in the plaster and painted as directed by GE.

12.12. **GUARANTEE TOWARDS WATER PROOFING TREATMENT TO ROOF.**

12.12.1 After completion of work contractor shall submit a written guarantee for a period of **10 (Ten) years** for the water tightness of the water proofing treatment carried out from the certified date of completion of the entire work under the contract as certified by the GE. During the aforesaid guarantee period of 10 years the contractor shall be solely responsible for the water tightness of the roof slabs. Any leakages/defects notices by the GE during this period shall be promptly rectified by the contractor without any extra cost to the Government.

12.13 **SECURITY DEPOSIT TOWARDS WATER PROOFING TREATMENT TO ROOF SLAB**

12.13.1 Should the GE at any time during constructions or reconstruction or prior to the expiration of a period of ten years after the certified date of completion of buildings or group of buildings find that the building shown leakage dampness or any sign of defective water proofing treatment the contractor shall on demand in writing from the GE specifying the building complained of notwithstanding the fact that the same may have been inadvertently passed certified and paid for forthwith undertake to carryout such treatment as may be necessary to render the said buildings water proof at his own expense for a period of ten years from the certified date of completion of said buildings and in the event of his failing to do so within a period to be specified by the GE, in his demand as aforesaid the GE may undertake such treatment at his risk and expense in all respects of the contractor, the liability of the contractor under the condition shall not extend beyond the period of 10 years from the certified date of completion unless the GE had previously given notice to the contractor.

12.13.2 The amount calculated as per table given below shall be retained from the contractor's final bill amount as security deposit for the water proofing treatment and the same shall be released after satisfactory completion of guarantee period as stated above. The contractor may alternatively submit fixed deposit receipt for the said sum from a scheduled/Nationalised Bank in lieu of the sum to be retained out of the final bill :-

<b>Amount of water proofing treatment to roof at contract rate</b>		<b>Amount to be retained from contractors dues rounded to nearest thousand rupees</b>
(i)	Up to Rs 25.00 lakhs	2% of amount subject to minimum of Rs 5000/- and enhanced by 25%.

12.13.3 The security deposit referred herein before may be refunded to the contractor after expiry of the period of 10 years from the certified date of completion by the GE, provided always that the contractor shall first have been paid the final bill and have rendered 'No demand certificate' IAFW-451 condition 10, 48 & 68 of General Conditions of Contracts (IAFW-2249) shall be deemed to be amended to the extent mentioned above.

Signature of Contractor

For Accepting Officer

**PARTICULAR SPECIFICATION (Contd/.....)****13. FLOORING.****13.1 GENERAL**

13.1.1 Floors shall be laid to levels and to falls as per site and as directed by Engineer-in-Charge.

13.1.2 Floors shall be carried out through threshold of all openings in walls.

13.1.3 Type of flooring shall be as specified in Sch 'A'.

**13.2 SUB BASE TO FLOOR**

Sub base to floor shall be provided all as per existing and directed by Engineer-in-charge. Bay system or use of glass dividing strips not to be adopted in case of sub base.

**13.3 CEMENT CONCRETE FLOOR.**

13.3.1 PCC floor up to 50 mm thick shall be laid adopting panel dimension not exceeding 1200 mm x 1200 mm with 3 mm thick (nominal thickness) sheet glass as dividing strips. The width of the glass strips shall be 2 mm less than the thickness of the floor and those strips shall be visible in the finished floor.

13.3.2 Wherever 100 mm PCC (1:2:4) type B-1 using 20 mm graded stone aggregate in flooring is specified shall be laid in alternate bay system with panel dimension not exceeding 2 m x 2 m. Glass dividing strips shall not be provided.

**13.4 NON-SKID CERAMIC TILES**

Non skid ceramic tiles where ever indicated in schedule 'A' shall be 1st class superior/premium quality confirming to grade B-II (A) as per IS- 13712-1993, thickness & size if not indicated in Sch 'A', shall be 7 to 8mm thick (minimum 300mmx 300mm). Tiles shall be white/light coloured. Tiles shall be laid set and jointed in neat cement slurry and pointed with white cement (mixed with colour pigment to match colour of tile) all as indicated. Screed shall be as mentioned in schedule 'A'. Make of tiles shall be as per Appx 'C'.

**13.5 GLAZED CERAMIC TILES**

Glazed ceramic tiles where ever indicated in schedule 'A' shall be of size as specified in Sch 'A' and of 1st Class (Premium/superior) quality. Tiles shall be laid set and jointed in neat cement slurry and pointed with white cement (mixed with colour pigment to match colour of tile). Tiles shall be got approved from GE before incorporation in the work. Tile shall be confirming to Grade B-III as per IS-13712-1993. Tiles shall be light coloured and plain shade. Make of tiles shall be as per Appx 'C'.

**13.6 VITRIFIED TILES FLOORING**

Vitrified tiles shall be got approved from GE before incorporation in the work. Quality of tiles shall be 1<sup>st</sup> class superior/ premium quality confirming to grade B-II a as per IS- 13712-1993. The tiles shall be light colour and plain shade as approved by GE. Make of tile shall be as specified in Appendix 'C'. Tiles shall be provided all as specified in clause 13.41 of MES SSR part- 1. Size and thickness of tile if not specified in Sch 'A', shall be 600mm x 600mm x(minimum) 10mm thick.

**13.7 POLISHED GRANITE STONE FLOORING**

(a) Polished granite slabs shall be 18 to 20mm thick.

(b) Polished granite slabs shall be set, jointed and pointed with neat cement slurry over 10 mm thick rendering/screed bed in CM (1:4).

(c). Polishing and grinding of Granite stone slab shall be as specified in SSR Part-I.

**13.8 POLISHED KOTA STONE FLOORING.**

Polished Kota stone slab flooring shall be laid all as specified in clause 13.47 of MES SSR Part-I and as directed by the Engineer-in-Charge. Thickness of stone slab if not specified in Sch 'A' shall be 20 to 25 mm. Size of the stone shall be as 550mmx550mm if not specified in Sch 'A'. Sub base and screed etc shall be as mentioned in schedule 'A'.

**13.9 CHEQUERED TILE FLOORING**

Wherever mentioned in Sch 'A' provide chequered tile flooring as under:-

(a) Tile shall be of size & thickness specified in Sch 'A'. Tile shall be uniform in size, colour, true Square with sharp edges and free from twist, cracks or other defects as specified in clause 13.17 of SSR Part I.

(b) Tiles shall be laid over screed bed as specified in Sch 'A'.

(c) Tiles shall be procured from any of the manufacturer as listed in Appendix 'C'.

**PARTICULAR SPECIFICATION (Contd/.....)**

- 13.10 **POLISHED KOTA STONE IN SKIRTING/DADO**  
Kota stone shall be as specified here-in-before except thickness, which shall be 18 to 20mm thick. Backing coat shall be 10mm thick in CM (1:4). Stone shall be laid bedded and jointed with neat gray cement slurry. The tiles shall be cleaned and rubbed after they are set. The joints shall match with the joints in floor. Kota Stone in skirting/dado shall be polished as specified.
- 13.11 **INTER LOCKING PRECAST BLOCK FLOORING**  
Interlocking pre-cast coloured (with grey cement & pigment) block shall be 60mm thick & M-35 grade or 80mm thick M-40 grade as specified in Sch 'A'. The make of tiles shall be as specified in Appx 'C'. The colour/size/pattern/design of blocks shall be as approved by GE. The block shall be laid all as specified in Sch 'A'.
- 13.12 **PLINTH PROTECTION.**  
Plinth protection shall be provided with the thickness and mix as specified in Sch 'A'. The plinth protection shall be laid in bays not exceeding 2 metres in length. Exposed surfaces shall be finished even and fair without using extra cement. Joints of plinth protection shall be filled with bitumen mastic (1:3).
14. **PLASTERING AND POINTING**
- (a) Prepare surface to be plastered, wet the surface thoroughly.
  - (b) Curing of plaster work shall be properly done. The contractor may use a spray pump or similar device without any price adjustment taking precaution against damage to plaster due to impact of splicing water.
  - (c) The type & thickness of plastering and pointing shall be all as described in Sch 'A' and shall be carried out all as specified in SSR Part-I, Sec 14.
  - (d) The contractor shall take every precaution right from the commencement of plasterwork to prevent any craziness that may appear on the surface of plaster and shall be responsible to make good any portion of plasterwork which in the opinion of the GE require removal and redoing.
  - (e) The thickness of plaster/dado/skirting specified in Sch 'A' is the finished thickness (exclusive of dubbing) over proudest portion.
  - (f) Plastering at the junction of walls and floors and to all internal and external angles shall meet at right angle as directed by Engineer-in-Charge.
  - (g) Sand for plastering and pointing shall be from the source mentioned in Appendix 'A' and as approved by the GE.
15. **WHITE WASHING/COLOUR WASHING/CEMENT PAINT/DRY DISTEMPER/ OIL EMULSION DISTEMPER ETC.**
- (a) Where white washing/colour washing/cement paint/dry distemper/oil emulsion distemper etc mentioned in Sch 'A' shall be carried out all as specified in Sch 'A' and as specified in MES SSR Part-I at the locations directed by Engr-in-Charge. Tint shall be approved by GE.
  - (b) White washing and colour washing shall be applied with proper brushes as specified in clause 15.12 of MES SSR Part-I, contractor may, at his discretion, do the same by means of spray pump without any extra cost to the Government.
  - (c) Where oil emulsion distemper and/or dry distemper mentioned in Sch 'A' shall be carried out all as directed by Engr-in-Charge. Prepare surfaces and apply primer as per clause 15.14 of MES SSR Part-I before applying two coats of distemper.
  - (d) Where plastic emulsion paint mentioned in Sch 'A' shall be carried out all as directed by Engr-in-Charge and all as per clause 17.16 of MES SSR Part-I.
  - (e) Where snowcem/cement paint is mentioned in Sch 'A' shall be carried out all as directed by Engr-in-Charge. Prepare surfaces and apply white cement as primer (if specified) as per MES SSR Part-I before applying snowcem/cement base paint.

**PARTICULAR SPECIFICATION (Contd/.....)**

(f) Exterior Paint (Apex of Asian or equivalent as approved by GE) shall be carried out all as per manufacturer's instructions. The surface shall be cleaned properly and should be free from dust, loose materials etc. Growth of fungus, algae or moss should be removed by wire brushes and then cleaned with water. The cracks shall be filled with crack seal and holes etc shall be filled with white cement mixed with sand in the ratio of 1:3. On prepared surface, apply a coat of exterior wall primer (if specified in Sch 'A') through brush and then apply one/two coats (as specified in Sch 'A') of weather proof exterior emulsion paint (Apex of Asian Paints or equivalent as approved by GE of Goodlass Nerolac/Johnson & Nicholson/Berger paints). The primer and exterior emulsion paint shall be of same make. The dilution, viscosity, coating period and application shall be all as per manufacturer's instructions and as directed.

(g) Makes for materials shall be as per Appx 'C'

**16. GLAZING.**

(a) The glass panes shall be of thickness & type as shown in Sch "A".

(b) Unless otherwise specified or indicated in the Sch "A", the thickness of glass shall be 3mm (nominal thickness).

(c) Glazing to metal frames shall be with putty conforming to IS-419 and steel clips and as specified in clause 16.5 to 16.10 of MES SSR Part-I.

(d) Glazing shall be cleaned as specified in clause 16.13 of MES SSR Part-I.

**17. PAINTING**

(a) Members specified to be painted shall first be passed by the Engineer-in-Charge and marked as such before commencement of painting work. Each coat of paint shall be passed by the Engineer-in-Charge before successive coat is applied. Number of coats to be applied shall be as specified in Sch 'A' and directed by Engr-in-Charge. The work shall be carried all as specified in Section 17 of MES SSR Part-I.

(b) Surface inaccessible for applying further coats shall be painted before fixing.

(c) First quality (grade) paint shall only be used. The make of the paint shall be as specified in Appendix 'C'.

(d) The primer and paint shall be of the same manufacturer.

**17.1 USES OF SMART PAINTING TOOLS.** Contractor may also use Smart Painting Tools for Painting work without any extra cost all as directed by Engineer-in-Charge. The rates quoted by contractor shall be deemed to include the same for painting work.

**17.2** Two coats of putty of 1mm thickness, one coat of water based primer and two coats of oil bound distemper shall be applied by using Airless spray technology with Max working pressure of 3300PSI and capable of operating multiple spray guns and spraying at max heights of 100 feet, the sprayer should be of reputed brand Graco Make 695/EH230H or its equivalent and certified by Paint Supplier.

**17.3** The airless paint sprayers should recommend spray tips to achieve the desired finish. Coverage along with airless accessories for applying the putty, primer and two coats of OBD paint, should be able to spray in hard to reach areas and achieve the good bonding and penetration of paints on the surface, excellent finish quality and hiding and high speed of paint applications using limited manpower.

**17.4** Scrapping shall be shown to the Engineer-in-Charge and got approved and test checked by him, prior to application of putty and priming on surface. Sanding of newly applied putty surface with the help of mechanized sanders of Asian Paint Trucare sanders or equivalent make (having mechanical vacuum mechanism) to make the surface smooth as per direction of Engineer-in-Charge.

**17.5** The contractor shall remove all splashes after completing each day's work. In case the splashes are not removed by the contractor the same shall be got removed by the Engineer-in-Charge at contractor's risk & cost.

**18. WATER SUPPLY AND PLUMBING**

(a) Sample for all pipes and fittings shall be got approved from GE before placing bulk orders.

(b) The pipe and fittings shall be galvanised steel medium grade ISI marked (IS-1239). Make shall be as per Appendix 'C'.

**PARTICULAR SPECIFICATION (Contd/.....)**

(c) Wherever required/directed necessary cuttings/leaving/ forming holes, chases etc in walls floor and ceiling and making good involved shall be deemed to have been included in the unit rate quoted by the contractor. No adjustment shall however, be made on this account for pricing any deviation in quantities.

(d) The work of Water supply lines shall be carried out and tested as specified in MES Schedule Part I. The test shall be carried out in presence of Engineer-in-Charge. All testing instruments, labour etc shall be arranged by the contractor without any extra cost.

**18.1 GI PIPE AND FITTING.**

These shall be ISI marked and make shall be as per Appendix 'C'.

**18.2 BIB TAPS/PILLAR TAP/STOP COCK.**

These shall be as specified in Sch 'A' and shall be ISI marked. Make shall be as per Appendix 'C'.

**18.3 HDPE WATER TANK**

(a) Water tanks shall be of capacity as specified in Sch 'A'.

(b) Water tank shall be single piece rotational moulded polyethylene, (cylindrical vertical with top closed) double layer (ISI marked). The quoted rate of water tank shall include for making arrangement for inlet/outlet/over flow and vent pipe with standard size of GI medium grade fittings.

(c) Water tank shall be of any of make specified in Appendix 'C'.

**18.4 HDPE/PVC PIPE AND FITTINGS**

These shall be confirming to relevant IS and make shall be as per Appendix 'C'. Laying/fixing shall be carried out all as specified in Sch 'A' and in Section 18 of MES SSR Part-I.

**18.5 PVC (SWR) PIPES & FITTINGS.**

PVC (SWR) pipe, rubber ring & fittings shall be all specified in Para 18, 27A & workman ship shall be all as specified in Para-18.67.7A of SSR Part-I (2009).

**18.6 STOP/GATE VALVES**

Stop/Gate valves shall be ISI marked and make shall be as per Appendix 'C'.

**19. SANTIARY APPLIANCES**

All sanitary fittings unless otherwise specified shall be white glazed vitreous china, first quality, ISI marked. Make of fittings shall be as per Appendix 'C'. The work shall be carried out and tested as specified in MES Schedule Part I.

**19.1 WASH HAND BASIN**

Wash hand basin shall be Vitreous china, white, flat back/oval type as directed. Size if not shown in Sch 'A' shall be 550x40. The brackets shall be CI as specified in SSR Part-I. Chain & plug and waste fittings shall be Chromium plated brass.

**19.2 WATER CLOSET (INDIAN TYPE ORISSA PATTERN)**

Water closet Indian type Orissa Pattern shall comprise as under:-

(a) Vitreous china, white, squatting pan, water closet apparatus Orissa pattern of size 580mm x 440mm white/coloured with integral foot rests conforming to IS-2556 of Part-III 1981 with CI 'P' trap or CI 'S' trap long arms 900 mm from the centre of socket, set in cement concrete.

(b) The pan shall be set in lime concrete (1:3) at least 15 cm around and finished just below the rim to receive the specified thickness of floor.

**19.3 WATER CLOSET (PEDESTAL PATTERN)**

Vitreous china, white, Pedestal pattern wash down apparatus shall be of pattern 2 of IS-2156 Part-II (1981). Wash down water closet pan shall be ISI marked complete with integral 'P' or 'S' trap, the closet screwed to and including wooden plug embedded into the floor and made good ground. Closed seat and cover shall be of thermo setting material, ISI marked and hinged with chromium plated brass hinges and rubber.

**19.4 NAHANI TRAPS**

Nahani trap shall be of cast iron as per IS-3989 and shall have outlet of as specified in Sch 'A'.

**19.5 PVC LOW LEVEL FLUSHING CISTERN**

Low level flushing cistern should be ISI marked 10 litre capacity body moulded from virgin quality high impact polyethylene with clock valve based on buoyancy principle and controlled by a water clock including brass chromium plated bend brass float valve 15mm bore with polythene ball and polythene connection complete of make as mentioned hereunder .

**PARTICULAR SPECIFICATION (Contd/.....)**

- 19.6 **LOOKING MIRROR**  
Mirror shall be 5 mm thick of size as given in Sch 'A' and mounted on 6 mm thick plywood backing. The edge of plywood shall be finished smooth with sand paper. Beading as specified in Sch 'A' shall be provided all around. Mirror shall be from the make specified in Appx 'C'.
- 19.7 **TOWEL RAIL**  
(a) Towel rail shall be 19mm (nominal) anodised aluminium tube and shall be screwed with steel chromium plated brackets fixed with PVC sleeve of appropriate size with brass chromium plated screws. The length of towel rail shall be 900mm unless otherwise shown on drawings.  
(b) Irrespective of whether shown on drawing or not each vitreous China wash hand basin shall be provided with 900mm long 19mm dia anodized aluminium tube towel rail. The exact location where towel rails are to be provided shall be decided by GE at site.
- 19.8 **KITCHEN SINK**  
It shall be of stainless steel made out of 1 mm thick Salem stainless steel (AISI- 304-18/18) sheet. Size of sink shall be as specified in Sch 'A' and shall be of make as per appendix 'C'. Sink shall be fitted with chromium plated brass waste coupling of make same as that of sink.
- 19.9 **PLATE RACK**  
It shall be of stainless steel made out of 1 mm thick Salem stainless steel (AISI- 304-18/18) sheet. Size of plate rack shall be as specified in Sch 'A' and shall be of make as per appendix 'C'. Plate rack shall be fixed on walls with rawl plugs and suitable size screws all as directed by Engineer-in-charge.
20. **KITCHEN CABINET**  
Kitchen cabinet (Shutters, shelves, partitions, etc) shall be of 18mm thick, PVC sheet one side pre-laminated ("Celuca Ply of Rajshree make or equivalent as approved by GE) of texture as approved by GE. The overall size shall be as directed by Engineer-in-charge at site. The manufacturing of cabinet & fixing shall be as per manufacturer's instructions.
21. **ELECTRICAL WORKS:-**
- 21.1. **GENERAL:-**
- 21.1 All work of electrifications shall be executed by fully qualified licensed electricians all as per the latest Engineering practice and latest IS codes/IE Rules. Certificate of qualification shall be produced on demand by Engineer-in-Charge.
- 21.2 The exact position of electrical fittings and fixtures shall be as directed by Engineer-in-Charge at the time of execution without any price adjustment.
- 21.3 The runs of wires and locations of fittings shall be marked on walls and soffits of roof/floor slabs for the wiring for the approval of Engineer-in-Charge. The contractor may have to realign the wiring and or relocate the fittings required after final approval at no extra cost to Government.
- 21.4 Looping in system of wiring shall invariably be used throughout the installation.
- 21.5 Before starting the work the contractor shall produce samples of all materials including accessories for approval by GE. The contractor shall ensure that the materials used in the work are identical with approved samples and uniform throughout.
- 21.6 Notwithstanding, the fact that an equipment has passed the inspection carried out during the stage of manufacture, the contractor is not relieved from his obligations to conform to the quality, workmanship, guarantee of performance etc.
- 21.7 Any defective material, equipment or workmanship which may come to the notice of the GE or his representative after installation shall be liable for rejection and the contractor shall to replace such materials, equipments etc or rectify the defects at his own cost.
- 21.8 The unit rates quoted in Sch 'A' shall also include the cost of cutting, chesses, opening in walls, ceiling etc, wherever required and making good the same after completion to match with the surroundings. Wherever possible, the existing alignment/layout of wiring shall be followed. The built in gutties does not be taken out. However if new gutties are required to be provided either due to damage in alignment or to maintain proper spacing of gutties, the same shall be provided and the rates quoted by the tenderer shall be deemed to include for the same.
22. **TYPE OF ELECTRIC SUPPLY:-**

**PARTICULAR SPECIFICATION (Contd/.....)**

- 22.1. Type of electric supply will be AC-240 / 415 volts single/ three phase and 50 Hz.
23. **POINT WIRING:-**
- 23.1 Point wiring shall be with PVC insulated / unsheathed multistranded copper / Aluminium cable as indicated in Sch 'A' drawn through PVC casing-N-capping/conduit.
24. **PVC INSULATED SINGLE CORE 1100 VOLTS GRADE CABLE**
- 24.1 The conductor shall be of copper wires. Cables shall be as specified in Schedule 'A' and shall conform to IS-694 and 8130 and shall be ISI marked IS- 694.
- 25.2 **XLPE CABLES**
- (a) HT XLPE cable shall be manufactured by using sioplas and dry curing with nitrogen gas technology conform to the requirements laid down in IS: 7098 (Part-II) issued by BIS. Contractor shall submit the acceptance test of HT XLPE cable as stipulated in clause 18.2.1 of IS-7098 Part-II. The acceptance test of cable is mandatory before approval of same by GE.
- (b) LT cables shall be XLPE insulated, heavy duty armoured all as specified in Schedule 'A' conforming to relevant IS.
- (c) All cables shall bear ISI certification marks. These shall be brought at site wound on cable drum, ends sealed and with manufacturers test certificate.
- (d) Cable shall be laid in trenches, fixed to walls/drawn in pipes/ducts and jointed and tested complete all as specified in clause 19.74 to 19.96 of MES SSR Part-I.
26. **SAND CUSHIONING**
- Sand cushioning shall be naturally available dry river sand. Sand cushioning for protection of cables shall be carried out all as specified in clause 19.75 of MES Schedule-Part-I.
27. **PVC CONDUIT/CASING CAPING WIRING**
- 27.1 The system of wiring shall consist of PVC insulated and PVC un-sheathed copper conductor/PVC insulated copper conductor in stove enameled steel/PVC conduit/PVC casing-N-capping as specified in Schedule 'A'.
- 27.2 Prior to laying and fixing of conduits/PVC casing-N-capping the contractor shall carefully examine the building, satisfy himself about the sufficiency of number and sizes of conduits, location of junction boxes, sizes and location of switch boxes and other relevant details.
- 27.3 Joint between conduits/PVC casing-N-capping and accessories shall be securely made to ensure earth continuity.
28. **RIGID PVC CONDUIT/PVC CASING-N-CAPPING AND ACCESSORIES**
- 28.1 Conduit/PVC casing-N-capping and accessories shall be medium grade and shall be conform to relevant Indian Standards. Each length of rigid PVC conduit/PVC casing-N-capping and accessories shall be marked with the following:-
- (a) Manufacturers name or trademark
- (b) Nominal size of the conduit
- (c) ISI certification mark
- 28.2 Inspection type conduit/PVC casing-N-capping fittings such as inspection boxes, drawn boxes, bends, elbows and tees shall be so installed that they can remain accessible for such purposes as to withdrawal of existing cables or the installing or additional cables.
- 28.3 Conduit pipes shall be fixed by heavy gauge saddles, secured to suitable wood plugs or other plug with screws in an approved manner at an interval of not more than half meters. Saddles shall be fixed at a distance of 30 cm from the centre of such fittings. All necessary bends in the system including diversion shall be done by bending pipes of by inserting suitable solid or inspection type normal bends, elbows or similar fittings.
- 28.4 The conduit of each circuit or section shall be completed before conductors are drawn in the entire system of conduit after erection shall be tested for mechanical and electrical continuity throughout and permanently connected to earth wire by means of suitable earthing clamp efficiently fastened to conduit pipe in a workman like manner for perfect continuity between earth wire and conduit. Gas or water pipes shall not be used as earth medium.

**PARTICULAR SPECIFICATION (Contd/.....)**

- 28.5 Inspection type conduit fittings such as inspection boxes drawn boxes, bends, elbows and tees shall be so installed that they can remain accessible for such purposes as to withdrawal of existing cables or the installing or additional cables.
29. **SCREWS, FASTENING AND NAILS:-**
- 29.1 All screws used in the work shall be chromium plated iron screws unless otherwise indicated.
- 29.2 Clips or wiring shall be of aluminium, of the gauge as approved by Engineer-in-Charge.
30. **SWITCHES/SOCKET OUTLETS 3 PIN 5 AMPS SP/6 PIN 15 AMPS**  
Switch/socket outlets shall be provided as specified in clause 19.114.1 and 19.114.5 of MES SSR Part-I. Switches and sockets outlets shall be ISI marked. Switches – IS-3854, Socket outlet- 1239-1988.
31. **FLEXIBLE CORD/TWISTED, WITH COPPER CONDUCTORS**  
Flexible cord shall be used for connecting the fan, light points and pendants. The wire used shall be twin core, tinned enameled stranded copper conductor elastomeric insulated of nominal cross section not less than 0.5 Sqmm shall be as per IS :9968 (Part 1)-1988.
32. **BULK HEAD FITTINGS:-**  
Bulk head CFL light fittings shall be all as specified in Sch A and SSR Pt I.
33. **DISTRIBUTION BOARDS**  
Distribution boards shall be Factory made double door type fabricated out of 1.2 mm thick CRCA sheet all as indicated in Sch A and specified in SSR Pt I, 2009. Distribution board shall be provided as specified in clause 19.107 and 19.108 of MES SSR Part-I. Distribution boards and MCBs shall be of same make. Suitable earth terminal shall be provided on the distribution boards for bonding to earth.
34. **MINIATURE CIRCUIT BREAKER:-**
- 34.1 Miniature circuit breakers shall conform to IS – 8829 of 1996, specification for miniature circuit breakers for AC circuits for voltage not exceeding 1000 Volts.
35. **SUNK TYPE BOXES**  
Boxes for housing electrical accessories recessed into wall shall be of sheet steel and conform to IS-5133. The boxes shall be painted black with two coats of black bituminous paint. The boxes shall be covered with 3 mm thick plastic sheet.
36. **CEILING ROSE**  
Ceiling rose shall be surface type and shall comply with IS :371-1979, Specification for ceiling roses having two or three terminal plates and of outside diameter not less than 63.5. mm. Ceiling roses shall be provided, with means for gripping flexible cord which shall not damage the insulation and/or sheath of the cord and shall be such that the load on the cord is not transmitted to the terminals.
37. **ELECTRICAL FITTINGS AND ACCESSORIES**  
All electrical fittings shall comply the relevant Indian standard and shall be of make specified in Appendix 'C'.
38. **GI TUBING** GI tubing shall conform to IS-1239 and as described in MES SSR.
23. **FOUNDATION BOLTS, NUTS, INSERTS ETC**  
(a) All foundation and other fixing bolts, nuts, brackets, cables trays and other hardware etc necessary for the erection shall be provided by the contractor and his rates shall include for the same. Adequate spacing shall be provided for lifting and handling each item of equipment.  
(b) Necessary foundation pockets with channels shall be provided wherever required and / or directed by GE.
18. **CEILING FANS/EXHAUST FANS**  
Ceiling fans shall be all as specified in Sch 'A'. The rate quoted shall deemed to includes necessary fittings and fixtures required at site all as directed.
30. **AIR CONDITIONER**  
Air conditioner shall be all as specified in Sch 'A'. Inner and outer unit shall be installed at location all as directed by the Engr-in-Charge. The rate quoted shall deemed to includes necessary fittings and fixtures required at site all as directed.
41. **REFRIGERATOR/DEEP FREEZER/WATER COOLER/STABILIZER**  
Refrigerator, deep freezer, Water cooler and Stabilizer shall be all as specified in Sch 'A'. The rate quoted shall deemed to includes necessary fittings and fixtures required at site all as directed.



**PARTICULAR SPECIFICATION (Contd/.....)****32. GUARANTEE/WARRANTY CERTIFICATE**

The tenderer shall submit manufacturers guarantee/Warranty certificate for all the equipments provided under this contract. The defect liability period shall be for the period of **ONE YEAR** from the certified date of completion of work, however period of guarantee/warranty certificate for equipments provided shall be deemed to be extended as per the guarantee/warranty certificate provided by the manufacturers.

**39. EARTHING**

(a) All the non current carrying metal parts of electrical installation shall be earthed properly. All metal conduits, cable sheaths, switch gear, distribution board, light fittings, MS boxes and alloying parts made of metal shall be bonded together and connected by means of earthing conductors to an efficient earthing system. All earthing shall be in conformity with IE Rules.

(b) The electrical resistance measured between earth connection at the main distribution board and any other point on the completed installation shall be low enough to permit the passage of current necessary to operate circuit breakers and shall not exceed phase current. All metal clad switches and other equipment carrying single phase current shall be connected to earth by a single connection. All metal clad switches, carrying medium voltage shall be connected with earth by two separate and distinct connections.

(c) No earth pit shall be made within 2.0 meter of a wall or foundation. Effort shall be made to locate in grass lawns or near flower beds or water taps. The distance between two earthing pits shall be at least 2 meters.

**39.1 RCC COVER FOR EARTH PIT**

(a) RCC cover for earth pit shall be 40 mm thick, mix of concrete for cover shall be (1:2:4) type B-1 using 20 mm graded crushed stone aggregate and reinforced with 8 mm dia high strength deformed TMT steel bars @ 100 mm c/c both ways. Handle shall be of 8 mm dia high strength deformed TMT steel bars and shall be fixed in such as way that the gap between cover and handle is at least 150 mm.

(b) Concrete chamber shall be PCC (1:3:6) type C-1. All internal surfaces of the chamber shall be given 10mm thick plaster in cement mortar (1:4). Funnel in chamber shall be made out of GI sheet. It shall be leak proof and provided with wire gauge duly soldered.

(c) Charcoal dust and salt filling shall be done in layers as shown in electrical plate No 3 of SSR Part-I. Surplus soil shall be disposed off and site left clean and tidy on completion.

**39.2 TESTING**

39.2.1 The installation after completion of work shall be tested for following:-

**(a) Insulation Resistance**

(i) The insulation resistance shall be measured by applying between earth and the whole system of conductor or any section thereof with all fuses in place and all itches closed, and except in earthed concentric wiring, all lamps in position or both poles of installation otherwise electrically connected together, a, DC voltage of not less than twice the working voltage, provided that it does not exceed 500 volts for medium voltage circuits. Where the supply is derived from three-wire (ac or dc) or a poly-phase system the neutral pole of which is connected to earth either direct or through added resistance the working voltage shall be deemed to be that which is maintained between the outer or phase conductor and the neutral.

(ii) The insulation resistance in megohms of an installation measured as in (i) shall be not less than 50 divided by the number of points on the circuit, provided that the whole installation need not be required to have an insulation resistance greater than one megohm.

(iii) Control rheostats, heating and power appliances and electric signs, may, if desired, be disconnected from the circuit during the test, but in that event the insulation resistance between the case or frame work, and all live parts of each rheostat, appliance and sign shall be not less than that specified in the relevant Indian Standard specification or where there is no such specification shall be not less than half a megohm.

(iv) The insulation resistance shall also be measured between all conductors connected to one pole or phase conductor of the supply and all the conductors connected to the middle wire or to the neutral on to the other pole of phase conductors of the supply. Such a test shall be made after removing all metallic connections between the two poles of the installation and in these circumstances the insulation resistance between conductors of the installation shall be not less than that specified in (ii) above.

**PARTICULAR SPECIFICATION (Contd/.....)**

(v) On completion of an electric installation (or an extension to an installation) a certificate shall be furnished by the contractor, countersigned by the certified supervisor under whose direct supervision the installation was carried out. This certificate shall be in a prescribed form as required by the Engineer in charge.

(b) **Testing of Earth Continuity Path**

The earth continuity conductor including metal conduits and metallic envelopes of cable in all cases shall be tested for electrical continuity and the electrical resistance of the same along with the earthing lead but excluding any added resistance or earth leakage circuit-breaker measured from the connection with the earth electrode to any point in the earth continuity conductor in the completed installation shall not exceed one ohm.

(c) **Testing of Polarity on Non-linked, Single-Pole Switches**

(i) In a two wire low voltage installation, a test shall be made to verify that all non-linked, single-pole switches have been fitted in the same conductor throughout and that such conductor has been connected to an outer or phase conductor or to the non-earthed conductor of the supply.

(ii) In a three-wire or four-wire installation, a test shall be made to verify that every non-linked, single-pole switch is fitted in a conductor connected to one of the outer or phase conductor of the supply.

39.3 The test shall be carried out in the presence of the Engineer-in-Charge and shall be signed by Engineer-in-Charge and the contractor. Three copies of test sheet shall be submitted by contractor. In case the earth result does not fall within the specified limit, as mentioned in IS/IE Rules, the contractor shall dig earth pit beyond 2.5 metres deep to obtain the desired earth results.

39.4 All testing instruments labour, materials and incidentals necessary to conduct the test shall be arranged by the contractor at his own cost.

40. **REPAIR WORK**

(a) All the work shall be executed by well qualified licensed electricians all as per the latest Engineering practice and latest IS codes/IE Rules. Certificate of qualification shall be produced by the contractor on demand by Engineer-in-Charge.

(b) The equipments/appliances to be repaired are located at various places of Army area and the scope of work included collection, loading, unloading etc of equipments/appliances as applicable from the existing position and returning, refitting in the same position or at alternate location as directed by Engineer-in-Charge. The exact location/position of work shall be as directed by Engineer-in-Charge at the time of execution without any price adjustment.

(c) Any defective material, equipment or workmanship which may come to the notice of the GE or his representative after installation shall be liable for rejection and the contractor shall replace such materials, equipments etc or rectify the defects at his own cost.

(d) The unit rates quoted in Sch 'A' shall also include the cost of cutting, chesses, opening in walls, ceiling etc, wherever required and making good the same after completion to match with the existing surface.

(e) It shall be the responsibility of the contractor to ensure the safe custody of all the equipment from the time, it is handed over to him by Engineer-in-Charge and till it is re-fixed duly repaired after repairing and testing etc. The equipment will be re-fixed at the different locations of the units in the Mily area as directed by Engineer-in-Charge.

(f) Any work not specifically mentioned in Sch 'A' or specified above but required for the satisfactory performance of the equipment shall be carried out by the contractor without any extra cost and the quoted rate in respective Sch 'A' item shall be deemed to have been included for such small items/repairs.

(g) The equipment after repairs/rewinding and overhauling shall be tested in the manner as directed and to the entire satisfaction of Engineer-in-Charge.

(h) After removing the old parts of the repairable equipment, the same shall be replaced with best material and workmanship in accordance with trade practice and as originally provided by manufacturer and approved by Engineer-in-Charge. All the material required for repairing shall be got approved by the Accepting Officer before incorporation into the work.

**PARTICULAR SPECIFICATION (Contd/.....)**

(j) Any damage caused to any equipment/appliances/installation as a result of faulty workmanship or due to negligence in repairs, the contractor shall make good such damage/loss to the Government without any extra cost to the Government and the decision of GE in this regard shall be final and binding.

(k) The contractor shall take all precautions against damage to the remaining part of the appliances/equipment, which are not required to be replaced/repaired. In case of any damage made, the contractor shall make the same good without any extra cost to the Government.

(l) 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 claim of whatsoever kind shall be entertained by the department.

(m) The work involved under this tender is a repair type work and to be carried out in stretches i.e. as and when required based on faults.

**40. CLEANING DOWN**

The contractor shall clean down all floors, glass pans and joinery etc by removing all lime/paint drops and splashes and leave the whole premises clean before handing over the building. While white/colour washing, distempering and painting inside the buildings, the furniture/goods will not be taken out, but will be collected in the centre of the room and covered with hessian cloth or other coverings to avoid lime/paint splashes/drops falling on them. The contractor quoted rate shall be deemed to include for the above operations.

**41. MEASUREMENT (FOR PERIODICAL SERVICES)**

41.1 Buildings for which audited PSMB's are available, quantities in respect thereof may be directly carried over in the MB quoting reference of the relevant PSMB's and page No in respect thereof.

41.2 Where the quantities of work are directly carried over from PSMB's a certificate will be rendered in the MB by the Engineer-in-Charge stating that quantities in the audited PSMB's have been converted to correspond with the method of measurement described in the relevant trade section of MES SSR-2010 Part II.

41.3 For the sake of payment the final quantities shown in audited PSMB's based on MES standard Schedule of Rates shall be taken as final & binding.

41.4 In the absence of audited PSMB's, measurement of work executed shall be physically taken and recorded in MBs as per the method of measurement described in MES Standard Schedule of Rates.

**42. MATERIALS**

(a) Probable sources of local materials are given in Appendix 'A' to particular specifications. However the samples shall be got approved by GE before bulk procurement of the material. The contractor may bring materials conforming to the specifications from other sources without any price adjustment. If the contractor proposes to use materials from such sources samples thereof shall be submitted to the GE before procurement in bulk and incorporation in the work.

(b) In Appendices/Annexures to particulars specifications, list of manufacturers of items have been given. Contractor shall obtain these items from one of the approved manufacturers only. However, it will not absolve the contractor from ensuring that the products supplied are conforming to the relevant IS in all respects before procuring the same for approval by the GE and before procuring bulk product for incorporation in work.

(c) Before starting the work, the contractor shall produce samples of all materials including accessories for approval by GE. The contractor shall ensure that the materials used in the work are identical with approved samples and uniform throughout.

(d) The spares/materials required for replacement shall be original and shall only be purchased from the authorized dealer/Agent of the company.

(e) The contractor shall produce the purchase vouchers of the spares/materials for verification and records by the Engineer-in-Charge. The contractor shall also submit the manufacturers test certificate and purchase vouchers of the manufacturer or their authorized dealer in respect of factory reconditioned compressors provided under this contract.

**43. MAKES OF MATERIALS**

Makes of materials shall be as given in Appendix 'C'. The contractor shall provide these materials from one of the manufacturers only.

**PARTICULAR SPECIFICATION (Contd/.....)****43. SAMPLES:-**

- 43.1 Before starting the work the contractor shall produce samples of all materials including accessories for approval by GE. The contractor shall ensure that the materials used in the work are identical with approved samples and uniform throughout.
- 43.2 The unit rates inserted in Sch 'A' shall also include the cost of cutting, chesses, opening in walls ,ceiling etc, wherever required and making good the same after completion to match with the surroundings. Wherever possible, the existing alignment/layout of wiring shall be followed. The built in gutties does not be taken out. However if new gutties are required to be provided either due to damage in alignment or to maintain proper spacing of gutties, the same shall be provided and the rates quoted by the tenderer shall be deemed to include for the same.

**44. DEMOLITION AND DISMANTLING:-**

- 44.1. Before handing over the buildings to the contractor a joint inspection by Engineer-in-Charge and contractor shall be carried out and the inventories of all fittings / fixtures shall be prepared and signed by the both parties.
- 44.2. Taking down items shall be carried out carefully without damaging any part of the building / structures which are to be intact any damages caused to the buildings v/ structures shall be made good by the contractor without any extra cost to the Govt.
- 44.3. Before handing over the equipment to the contractor for repair, a joint inspection by Engineer-in-Charge and contractor shall be carried out and the inventories of all fittings / fixtures shall be prepared and signed by the both parties. The contractor shall render a receipt to the Engineer-in-Charge before taking in possession of any equipment/unit for carrying out repairs in the form of delivery Challan. Any appliances/equipment lost or damaged while in possession of the contractor shall be made good by the contractor with same capacity and make of existing and in case failure of the contractor to make good loss, the GE Shall be entitled to effect recovery as per the prevailing market rate of such appliance/equipment from any payment due to the contractor.
- 44.4. Taking down/de-assembling of the items shall be carried out carefully without damaging other parts which are to be intact, any damages caused shall be made good by the contractor without any extra cost to the Govt.
- 44.5. All defective/unserviceable parts obtained from repairs/replacement for which schedule of credit is given shall become the property of the contractor and shall be removed after proper accounting by Engineer-in-Charge. Any defective/unserviceable parts obtained from repairs/replacement for which no credit is offered shall be Government property and shall be deposited at store yard of AGE E/M.

Signature of Contractor

For Accepting Officer

**PARTICULAR SPECIFICATION (Contd/.....)****Appendix 'A'****SOURCES OF MATERIALS**

<b>Ser No</b>	<b>Name of materials</b>	<b>Name of sources</b>
<b>1</b>	<b>2</b>	<b>3</b>
1.	Stone for masonry, coarse aggregate for cement concrete	Sevaliya
2.	Fine aggregate (sand) for cement concrete and mortar in masonry	Sabarmati River
3.	Sand for mortar in plastering and pointing	Sabarmati River
4.	Stone for soling, WBM and hard core	Sevaliya
5.	Stone for kerb/edging	Sevaliya
6.	Stone chipping for road work	Sevaliya

**NOTES**

- 1 Sources of materials shall be as given in Srl No 1 to 6 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.
- 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.
3. However, if due to any ban imposed by the state Govt authority on obtaining the materials from the sources specified above and or specified materials is not available at the sources mentioned above these materials conforming to specifications as given in particular specifications will be procured from any other place/source after getting the same approved from GE in writing and without any extra cost to Govt.

Signature of Contractor

For Accepting Officer

**PARTICULAR SPECIFICATION (Contd/.....)****Appendix 'B'****LIST OF BIS CERTIFICATE NOS OF VARIOUS PRODUCTS**

List of BIS Nos are given below for various items. Items for which Makes are not specified in Appendix 'C' shall be procured from any manufacture holding valid CML No

**1. CONCRETE.**

- (a) Plywood for concrete shuttering work (IS-4990-1981)
- (b) White Portland cement (IS-8042-1978)

**2 BUILDING HARDWARE.**

- (a) Steel Butt hinges (IS:1341-1981)
- (b) Non-ferrous butt hinges (IS:205-1978)
- (c) Ferrous Tower bolts (IS:204 Part-I-1978)
- (d) Non-ferrous tower bolts (IS:204, Part-II-1978)
- (e) Door handles ferrous and non-ferrous (IS:208-1979)
- (f) Parliament hinges, ferrous (IS:362-1982)
- (g) Hydraulically operated door closer (IS:3564-1986)
- (h) Continuous piano hinges (IS:3818-1986)
- (i) Non-ferrous metal sliding door bolts (IS:2681-1979)
- (j) Tee and strap Hinges (IS:206-1981)
- (k) Mild steel sliding door bolts (IS:281-1979)

**3 ROOF COVERING.**

- (a) Bitumen felts for water proofing and damp proofing (IS – 1322-1982).

**4. CEILING AND LINING.**

- (a) Plywood for general purposes (IS:303-1975(Second revision)
- (b) Block boards (IS:1659-1986)
- (c) Veneered particle board (IS:3097-1985)
- (d) Marine plywood (IS:710-1976)
- (e) Fiber hardboard (IS:1658-1977)
- (f) Pre-laminated particle board (IS:12823)

**5. FLOORING.**

- (a) Cement concrete flooring tiles (IS: 1237-1980)
- (b) Glazed earthenware tiles (IS: 777-1970)

**6. WATER SUPPLY PLUMBING, DRAINS AND SANITARY APPLIANCES.**

- (a) Concrete to pipes with or without reinforcement (IS:458-1971)
- (b) Salt glazed stone ware pipes and fittings (IS:651-1980)
- (c) Flushing cistern for water closets and urinals other than plastic (IS:774-1984)
- (d) Galvanised mild steel tubes (IS:1239 Part I-1979)
- (e) Cast copper alloy screwed down bib taps and stop valves (IS:781-1984)
- (f) Galvanised mild steel tube fittings (IS:1239 Part-II-1982)
- (g) Sand cast iron spigot and socket soil, waste and ventilating pipes and fittings (IS:1729-1979)
- (h) Ball valves (Horizontal plunger type) including floats for Water supply "purposes" (IS: 1703-1977)
- (i) Cast iron manhole covers and frames (IS:1726-Part-I to VII-1974)
- (j) AC pressure pipes (IS:1592-1980)
- (k) Automatic flushing cisterns (IS:2326-1987)
- (l) Vitreous china sanitary appliances
  - (i) Wash down water closets (IS:2556-1981 Part-II)
  - (ii) Squatting pans (IS:2256-1981 Part III)
  - (iii) Wash basins (IS:2556-1972 Part IV)
  - (iv) Laboratory sinks (IS:2556-1979 Part V)
  - (v) Urinals bowl type (IS:2556-1979 Part VI Section I)
  - (vi) Foot rests (IS:2556-1974 Part X)
  - (vii) Plastic WC seats and covers (IS:2548-1983)
  - (viii) Vertically cast iron pressure pipes for water, gas and sewage (IS:1537-1976)
  - (ix) Pillar Taps (IS:1795-1982)

**PARTICULAR SPECIFICATION (Contd/.....)****Appendix 'B' (Contd)****LIST OF BIS CERTIFICATE NOS OF VARIOUS PRODUCTS (Contd....)**

- (x) Centrifugally cast(spun) iron pressure pipes for water, gas and sewage (IS:1536-1979)
- (xi) Centrifugally cast(spun) iron spigot and socket soil, water and ventilating pipes, fittings and accessories (IS:3989-1984)
- (xii) Rubber sealing rings for gas mains, water mains and sewage (IS:5382-1985)
- (xiii) Cast Iron fittings for pressure pipes for water, gas and sewage (IS:1538-1976) Part II to XXIV
- (xiv) Sluice valves (TS:780-1969)

**7. ELECTRICAL WORKS.**

- (a) Ceiling rose (IS:371-1979)
- (b) Tumbler switches (IS:3854-1966)
- (c) Socket, outlet 3 pin plug and socket (IS:1293-1988)
- (d) Switch fuses (Main switch) (IS:4064-1978, Part I & II)
- (e) Rigid steel conduits (IS:9537-Part II-1988)
- (f) Single core cable polyethylene insulated and PVC sheathed cable (IS: 1596-1977)
- (g) Rigid non metallic conduit (IS:9537 – 1983 Part III)
- (h) Starter for tube light (IS:2215-1983)
- (i) Fluorescent lamps (IS:2418-1977 Part I to Part IV)
- (j) Aluminium stranded conductor (IS:398-1976-Part –I& II)
- (k) Switch gear (IS:2268-1969)
- (l) HRC cartridge fuse links up-to 650 volts (IS:9224-1979-Part II)
- (m) Porcelain insulators for overhead power lines (IS:731-1971)

Signature of Contractor

For Accepting Officer

**PARTICULAR SPECIFICATION (Contd/.....)****Appendix 'C'****LIST OF MAKES/MANUFACTURERS**

SL NO.	DESCRIPTION OF ITEMS	LIST OF MAKES/BRANDS/MANUFACTURERS
1	2	3
1	STEEL	AS SPECIFIED IN PARTICULAR SPECIFICATIONS
2	CEMENT	AS SPECIFIED IN PARTICULAR SPECIFICATIONS
3	CEMENT (WHITE)	BIRLA WHITE/JK WHITE/GRASIM INDUSTRIES
4	CHEMICAL FOR ANTI TERMITE TREATMENT	ISI MARKED MAKE BEARING IS-8994
5	BITUMEN	ISI MARKED MAKE BEARING IS-702
6	INTEGRAL WATER PROOFING COMPOUND (POWDER/ LIQUID)	IMPERMO/AQUAPROOF/PIDILITE/CICO/FOSROC/ROFF CHEMICAL/MC BOUCHAMIE
7	APP Membrane	STP Ltd/ Texsa India Ltd/ IWL Ltd/ Tiki Tar Danosa India Ltd/ M/s Asian Paint Ltd.
8	Factory made Wooden Shutter / Flush Doors/Frames	M/S Goel Brothers, Raipur/ M/S Pioneer Timber, Chandigarh/ M/S Goyal Industries, New Delhi/ M/S Jain Doors pvt Ltd, Haryana/ M/S India Wood & Wood Pdts, Mangalore/ M/S MP Wood Products, Indore/ M/S A1 Teak Products, Indore/Mankuva Timber Industries
9	Factory made paneled door shutters, wire gauze shutters, glazed shutters	Jain Wood Industries (JAYANA)/ Ashish Enterprises (Ashish)/ Mankuva Timber Industries
10	Factory made PVC, FRP Shutters and Frames	M/S Rajshri Plastiwood, Indore/ M/S Sintex Industries Ltd/ M/S Dura Plast Extrusion/ M/S Navratna Co Speciality Chemicals/ M/S Accura Polytech/ M/s Madhu Industries
11	UPVC Doors, Windows and Ventilators	M/S Rajshri Plastiwood, Indore/ M/S Poly Windows Pune/ M/S Aparna Profiles Pvt Ltd/ M/S Accura Polytech/ M/s Madhu Industries
12	Steel Windows, Ventilators, Door Frames, Shutters	Madhu Industries/ M/S Jangid Engineering, Jaipur/Decan Structural Pvt Ltd, Bangaluru/ Chandni Industries/ Ashwani & Sons/ Anoop Industries/ Trisul Industries/ Ashish Industries
13	Rolled Formed GI Section Pre-Painted/Pre-Coated Windows	NCL ALLTEK & SECCOLOR, Elexir Met/ Ashwani & Sons
14	Aluminium section of shutters/frames for door/window/ventilator	Hindalco/ Indal (Indian Al Coy)/ Jindal/ Associated Profile & Aluminium Ltd/Deco Grill
15	Steel Rolling Shutters/ Grills & Collapsible Gates	Shree Lakshmi Engg Wks, Bangalore/ M/S Prakash & Co, New Delhi/ M/S Senthil Rolling Shutters & Engg Co, Chennai/ M/S Swastik Rolling Shutters, Mumbai/ M/S Jayaraj Industries, Chennai
16	BUILDERS HARDWARE/ ALUMINIUM FITTINGS AND IRON MONGRY	ISI MARKED WITH OPERATIVE (VALID) CML NUMBER EXCEPT HANDLES
17	Hydraulic Door Closer	Everite/ Universal/ Hardwin/ Dyana
18	Stainless Steel Plate Rack	M/s Prayag/ M/s Nirali/ M/s Bluestar Sanitary Industries Pvt Ltd
19	Aluminium Tower Bolt/Aldrops/ Door handle/Butt Hinges	Argent Industries (ARGENT/DOORGLOW)/ Aluminium Udyog
20	Towel Rails/Racks	Jaquar/ KICH/ Swastik/Crown/Prayag/ESS ESS
21	Mortice Locks	Harrison/ Godrej & Boyce Co Ltd/ RP Lock Co New Delhi/ KICK
22	Galvanized Steel Chain Link Fence Febric	A1 Fence Products Company Ltd
23	Barbed wire	A1 Fence Products Company Ltd

Signature of Contractor

For Accepting Officer



**PARTICULAR SPECIFICATION (Contd/.....)**

SL NO.	DESCRIPTION OF ITEMS	LIST OF MAKES/BRANDS/MANUFACTURERS
1	2	3
24	Non asbestos Fibre reinforced (poly propylene), 6mm Cement Corrugated sheets)	Everest Industries Ltd (EVEREST)/ Charminar Fortune/ Ramco Indus Ltd
25	Pre-Painted Galvalume/Galvanized Corrugated Steel Sheets	TATA, JSW, ESSAR/ METCO Roof Pvt Ltd
26	Mangalore Tiles	Charminar/ Raja/ RECHO/ Prajapati/ Kerala Tiles Works
27	Galvanized Plain/Corrugated Steel Sheets	TATA/ JSW/ ESSAR/ Indian Steel Corporation Ltd/ National Steel & Agro Industries Ltd
28	AC Sheets & Ridge	Charminar/ Everest/UP Asbestos/ Ramcu
29	Perforated particle board/tiles for insulation and accoustic	Anchor Ceiling Tiles/ ArmStrong wood Ind/ Gypboard/ Bison Panel/ Lagyp
30	Pre painted galvalume/ Galvanized Plain/Corrugated Steel Sheets	TATA/ JSW/ ESSAR
31	PVC false ceiling, Wall lining & Solid PVC partitions	Rajshri Plastiwood/ Kumar Arch Tech Pvt Ltd/Navratna Speciality Chemicals/ Accura Polytech Pvt Ltd
32	Pre-laminated Particle board	Novapan/ Eco Board Industries, Pune / Kitply/ Green Ply/ Anchor Lam/ Century Plywood
33	Plywood	Kitply/ Century Plywood/ Archid Ply/ Green Ply/ Anchor
34	Glazed Ceramic wall / Flooring tiles/Mosaic Tiles	Kajaria/ Somany/ AGI Tiles/ Johnson Tiles/ RAK Ceramics Ltd/ Orient Bell Limited/ Simero
35	Non-skid Ceramic tiles	Kajaria/ Somany/ Johnson Tiles/Orient Bell Limited/ Simero
36	Vitrified Tiles	Kajaria/ Somany/ AGL Tiles/ Johnson Marbonite/ RAK Ceramics Ltd/ Orient Bell Limited / Simero
37	Mosaic/Cement Flooring Tiles	M/S NITCO, Mumbai/ Ultra/ Duracrete/ M/S Mehatab Tiles, Indore/ National Tiles/Bharat Tiles and Engg Coy, Bangalore/ Modern Tiles and Marbles Bangalore
38	Cement Concrete Interlocking Paver Blocks / Tiles	Mehtab Tiles , Indore/ NITCO/ M/S Ultra Tiles/ Navya Tiles, Jodhpur/ Patel Furniture Mart
39	Distemper oil-emulsion (OBD)	Asian Paints/ Nerolac/ Berger Paints/ ICI India
40	Plastic Emulsion Paint and exterior Emulsion paint	Asian Paints/ Berger Paints/ Nerolac/ ICI India
41	Cement Base Paint	Super Snowcem/ Duracem/ Aquacem/ Shalimar/ Berger
42	Cement Putty	Birla Cement/ JK White/ Asian/ Johnson & Nicolson/ Shalimar/ Golden Mohar
43	Oil Putty	Jenson & Nicholson/ Asian/ Berger/ Shalimar Hardware/ M/S Anglo Dutch Colour & Varnish wks, Najafgarh Rd/ M/S Bhagsson Paint Industries, Najafgarh rd/Golden Mohar/ M/S Atul Dyes and Chemicals/ UK Paint Industries, Gurgaon
44	Synthetic Enamel Paint	Asian Paints/ Nerolac Paints/ Dulux/ ICI Paint
45	Sheet glass plain	Saint Gobin/ Asahi/ Atul Glass Industries/ Gold Fish/ Trupti/ Modiguard/ Modi Float/ Hindustan Pilkington Glass works
46	Mirror	Modi/ Atul/ Saint Gobain/ Gold Fish/ Hindustan Glass Kolkata/ Asahi/ Kohinoor/ Swastik
47	GI Pipes & Fittings	Tata/ Jindal/ BST/ Surya/ KS Engineering Works (K.S)/ Zenith/ Swastik/ Prakash

Signature of Contractor

For Accepting Officer

**PARTICULAR SPECIFICATION (Contd/.....)**

SL NO.	DESCRIPTION OF ITEMS	LIST OF MAKES/BRANDS/MANUFACTURERS
1	2	3
48	PVC - Soil, waste, rainwater (SWR) & Drainage pipes	Supreme/ Prince (Ultrafit)/ Kisan/ Finolex
49	PVC Pipes & Fittings	Prince (Aquafit)/ Finolex/ Supreme/ HIL Limited (Birla Aircon)/ GM Modular Pvt Ltd/ Avon Plast Ind Pvt Ltd
50	MS Pipes & Fittings	Tata/ Jindal/ Swastik/ Prakash/ Surya/ BST/ Zenith
51	RCC pipes, drain pipes	Indian Hume Pipes/ Everest/ Himalaya/ Thuluvananikal pipes/ Poona Concrete product/ Aswathy Spun Pipes/ Vardhaman Concrete Product, Pune/ Dhare Concrete product, Pune/ Shivam Industries
52	PVC Water Tanks/Polythylene	Sintex/ Polycon Jaipur/ Rotex/ Plasto, Nagpur/ Polywell /M/S Okey Polymers Pvt Ltd/ JS Polyplast/ Ergen Plastic Industries, Jodhpur/ Vectus Industries Ltd/ Ashish Plast/ Simplex Plast/ Kaveri/ Infra
53	CP Bib Cock, Stop cock, pillar cock & Accessories	Jaguar/ Marc/ CERA/ Kohler
54	Copper/Brass Alloy Bib Tap, Pillar Tap, Angle Valve & Stop Valves and accessories	Soma/ Leader/ Zoloto/ Jaquar & Co. Pvt. Ltd (JAQUAR)
55	PVC Stop Cock and Bib Cock/float valves and accessories	Jaypee/ GMP/ Neta/ Zoloto/ Prayag polymer/ Symet
56	Gun-Metal Globe/Gate Valves/ Angle Valves	Leader/ Bir/ Zoloto/ Kirloskar
57	Shower Rose	Jaguar/ Kohler/ Crabtree/ CERA
58	Water Closet -Vitreous China (European/ India)/Squatting pan orrisa pattern	CERA/ Parryware/ Jaguar/ Kajaria sanitaryware/ Hindware/ Johnson/ RAK Ceramics
59	Flushing Cistern - PVC Low Level incl Flush Valves and fittings for WC and Urinals	Parryware/ CERA/ M/S Johnson Peddar/ RAK Ceramics
60	Plastic Seat Covers for EWC	CERA/ Neycer/ Parryware
61	Urinals - Vitreous China	CERA/ Parryware/ Neyveli Ceramics (Neycer)/ Hindware/ Jaquar/ Johnson/ Kajaria Sanitaryware Ltd
62	Wash Basin - Vitreous China	Kajaria Sanitaryware Ltd / CERA/RAK Ceramics/ Parryware/ Hindware/ Neyveli Ceramics (Neycer)/ Jaquar
63	Sink Steel	Jayna/ Nirali/ Neelkant/ Parryware
64	Stainless Steel Plate Rack	Prayag/ NIRALI/ Bluestar Sanitary Industries Pvt Ltd (Silver Shine)/ SPC (Selected Products Co.)/ R.S. Industries (POLYTUF)/ Prayag
65	GI & Stainless Steel Wire Mesh	SPC (Selected Products Co.)
66	PVC Insulated Copper/Aluminium Cable 1100 V of all types	Plaza/ Finolex/ Anchor/ Havells/ Nicco/ Polycab/ RPG/ Gloster/ RR Kobal/ KEI
67	PVC conduits (Rigid or flexible)/FRLS rigid PVC Conduits/fittings	Anchor/ Modi/ Pressfit Pipe & Profile/ Precision/ Astral/ Panasonic Life Solutions/ Polycab Wires Pvt Lt
68	Casing capping & Accessories	Precision/ Modi/ Presto Plast/ Supreme/ Polycab/ Plaza/ Pressfit/

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**PARTICULAR SPECIFICATION (Contd/.....)**

SL NO.	DESCRIPTION OF ITEMS	LIST OF MAKES/BRANDS/MANUFACTURERS
1	2	3
69	UG LT XLPE , PVC Insulated Aluminum Conductor for 1100 Volts	Cable Corporation of India, Mumbai/ Asian Cable Co, Chattisgarh/ Finolex Cable Ltd, Pune/ Polycab/ Gloster/ Universal/ RR Kabel/ RPG Cables Ltd, Thane/ Havells india ltd, Alwar/ KEI Industries Ltd (KEI)
70	Light fittings LED	Phillips/ Havells/ Osram/ Fiem Ind Ltd/ Wipro/ Bajaj/ GE/ Luker/ Jaquar & Co Pvt Ltd./ Bentec India Ltd./ EVEREADY/ORIENT Electric/ Pyrotech/ Halonix/ Crompton/ SYSKA/ HPL
71	LED Tube Lights & Bulbs	Phillips/ Havells/Osram Lighting Pvt Ltd./ Wipro/ Bajaj/ GE/ Luker/ Benlo/ Eveready/ Orient/ Jaquar/ Halonix/ Pyrotech/ Fiem/ Syska
72	Electric Accessories, Piano Switches, Ceiling rose, call bells, Buzzers, Lamp Holders	Panasonic Anchor/ Crabtree/ Leader/ Legrand/ Havells/ C&S Electric Ltd (C&S Electric)/
73	Modular Switches/Sockets	Anchor Roma/ Legrand/ Crabtree/ Havells/ Indo Asian/ L&T/ Panasonic Anchor
74	DB/MCB(Miniature Circuit Breakers & MCCB (Moulded Case Circuit Breakers)	Larsen & Tubro/ Legrand/ ABB/ Simens/ Schneider/ Havells/ Indo Asian/ C&S Electric
75	Microprocessor based MCCB/ RCCB LT 415 Volts	Larsen & Tubro/ Schneider/ ABB/ Legrand/ Seimens/ Indo Asian
76	Electronic Type Fan Regulator	Legrand/ Crompton/ Havells/ Bajaj/ Orient/ V-Guard
77	Ceiling Fan	Bajaj/ Crompton/ Polar/ Khaitan/ Orient/ Havells/ V-Guard/ POLYCAB/ Almonard /RR Fans /Panasonic /Anchor
78	BLDC Ceiling & Wall Fan	GORILLA/ Havells/ Bajaj/ Crompton
79	RCC pipes, drain pipes	Indian Hume Pipes/ Everest/ Himalaya/ Thuluvananikal pipes/ Poona Concrete product/ Aswathy Spun Pipes/ Vardhaman Concrete Product, Pune/ Dhere Concrete product, Pune/ Shivam Industries
80	DI Pipes & Fittings	Jindal Ltd, Gujrat/ Electrosteel Castings Ltd, W.B./ Tata Metalinks, Kolkata/ SAW Pipes/ Srikalahasthi Pipes Ltd
81	Geyser	Bajaj/Racold/Usha/Venus/Jaquar/V-Guard/Madhuban/Bharat/Pearl
82	Chemical Earthing Electrode	U-PROTEC Earthing/ Shivangi Entineering Works
83	Exhuast fan/Air circulators	Crompton/ Khaitan/ Usha/ Bajaj/ Almonard/ Havells/ POLYCAB/ Orient/ Anchor
84	LED Flame proof lights any type	Sudhir Switch Gear or equivalent in Havells / Crompton / Bajaj / Philips / Osram / Wipro
85	Flame proof switch any type	Sudhir Switch Gear or equivalent in Panasonic Anchor / M/s Crabtree / M/s Leader / M/s Legrand / M/s Havells / M/s C&S
86	Flame proof MCB DB/MCBs	Sudhir Switch Gear or equivalent in Havells / C&S / Indo Asian /Legrand
87	LT Panel	M/s Shriji Enterprises (SJE) / M/s Osian Switchgear & Controls (Brand Osian) Jodhpur / M/s Electro Control System /M/s Krish Engineers / M/s Utsav Electrical Pvt Ltd, Jodhpur (UTSAV)/ Yashi Electricals

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