

MILITARY ENGINEER SERVICES
CENTRAL COMMAND
JABALPUR ZONE

NAME OF WORK : REPAIR OF DOORS, WINDOWS, CUPBOARD AND OTHER B/R WORKS IN
MARRIED & OTM ACCN OF UNRESTRICTED AREA OF COD UNDER AGE B/R-II
OF GE (E) JABALPUR

CONTENTS

<u>Ser No</u>	<u>Particulars</u>	<u>Pages</u>
1.	Contents (INDEX SHEET)	: 01
2.	Tender forwarding letter	: 02 to 03
3.	Instructions for tenderers	: 04 to 07
4.	Notice of tender (IAFW-2162) with Appendix 'A' amendments/errata to Appendix	: 08 to 12
5.	Item rate tender and contract for works required IAFW-1779-A (Revised 1955) Schedule 'A', 'B', 'C', 'D' and Bill of Quantities in EXCEL SHEET(BOQ)	: 13 to 39
*6.	General conditions of contracts (IAFW-2249) (1989 Print) including errata and amendments thereto.	: 40 to 84
*7.	Schedule of minimum Fair Wages	: 85 to 94
8	Particular Specifications Part I (Special Conditions)	: 95 to 102
9.	Particular specifications Part II (Material & Workman ship), including Appendices & list of drawings (if any).	: 103 to 151
10.	Errata/ amendments to tender documents	:
11.	Relevant correspondence	:
12.	Acceptance letter	:
<u>Total No of Pages</u>		:
<u>Total No of Drawings</u>		: NIL Sheets

* Not enclosed along with tender documents. These documents may be seen in the office of GE (East) Jabalpur or any other MES office during working hours.

SIGNATURE OF CONTRACTOR

AGE (CONTRACTS)
FOR ACCEPTING OFFICER

Dated:

Tele Mil : 6870
Tele Civ : 0761-2331278
Email ID : geeastjab-mp@nic.in
garrisonengineer90@gmail.com

Military Engineer Services
Garrison Engineer (East)
Jabalpur – 482 011

8715/ 08 /E8

29 Oct 2024

M/s _____

(Tender ID : 2024_MES_681694_1)

**NAME OF WORK : REPAIR OF DOORS, WINDOWS, CUPBOARD AND OTHER B/R WORKS IN
MARRIED & OTM ACCN OF UNRESTRICTED AREA OF COD UNDER
AGE B/R-II OF GE (E) JABALPUR**

Dear Sir,

1. Tender documents alongwith BOQ in respect of above work are uploaded on the website www.defproc.gov.in. The tender is on single stage two cover e-tendering system. The contents of Cover I & Cover II are specified in NOTICE OF TENDER.
2. Bids will be received by ACCEPTING OFFICER upto the date and time mentioned in the NOTICE INVITING TENDER (NIT). No tender/bid will be received in physical form and any tender/bid received in such manner will be treated as non bonafide tender/bid.
3. Bid will be opened on due date and time fixed for opening in the presence of tenderers/bidders or their 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 document and/or depute your technical representative for discussion on tender/drawings and to clarify doubts, if any, on or before bid submission start date, you are requested not to write piece meal points and forward your points duly consolidated before due date viz bid submission start date.
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 document and Appendix 'A' to NIT along with EARNEST MONEY DEPOSIT (EMD) and tender fee on e-procurement portal and submit the physical documents in the office of **Garrison Engineer (East), Near COD Estate, Ranjhi, Jabalpur (MP)-482011** within time limit specified in NIT. Inadequacy/deficiency of documents shall make the bid liable for rejection resulting in disqualification for opening of finance bid.
6. Contractor having not executed standing security bond and standing security deposit in any MES formation shall upload scanned copy of EARNEST MONEY DEPOSIT (EMD) mentioned in Notice of Tender and shall ensure receipt of hard copy of EMD in the office of tender issuing authority before date & time fixed for this purpose. In case of failure to abide by any of these two requirements, the finance bid will not be opened.
7. Enlisted contractor of MES shall submit the scanned copies (pdf file) of enlistment letter, tender fee and such other documents as mentioned in Appx 'A' to NIT on e-procurement portal and submit physical documents in the office of **Garrison Engineer (East), Near COD Estate, Ranjhi, Jabalpur (MP)-482011** before date & time fixed for this purpose.
8. The contractor must ensure that the tender/bid on the proper form is uploaded in time as the Accepting Officer will take no cognizance of any quotations/offer received in any other electronic or physical form like email/fax/by hand/through post from tenderer/bidder even if they are received in time.
9. In view of delays due to system failure or other communication related failures, it is suggested that the tender/bid be uploaded if necessary, sufficiently in advance of the last due date and time fixed.

Contd.....

10. General Conditions of Contracts (IAFW-2249) (1989 Print) and errata and amendments thereto, Schedule of minimum fair wages and MES SSR Part- I (2009) and Part- II (2020) are not enclosed with these documents. These are available for perusal in the Office of of **Garrison Engineer (East) Jabalpur.**

11. The last date of receipt of **online application (Cover-1)** along with scanned copies of documents mentioned in Notice Inviting Tender shall be as per the critical dates given in tender documents. Contractor shall ensure delivery of hard copy of EMD (as applicable), tender cost and other relevant documents as per NIT, in the office of **Garrison Engineer (East) Jabalpur within 5 days from date of bid submission end date** failing which their price bid (Cover 2) shall not be opened.

12. **CONDITIONAL TENDER IS NOT ACCEPTABLE TO THE GOVERNMENT.**

(a) The tenderer is not permitted to make any condition or alteration or insertion in the tender documents other than the amendments issued by the Department. The applicability of amendment issued by the Department remains hold good irrespective of the amendment carried out by the tenderer in their offer.

(b) Any condition/ stipulation/ insertion etc without showing it in the tenderer's tender forwarding letter will not be accounted during scrutiny and the effect shall be ceased in case the tender is accepted.

(c) You are requested to ensure that all errata/ amendments/ issued prior to the due date are accounted in your offer.

13. No tender/bid will be received in physical form and any tender/bid received in such manner will be treated as non bonfide tender/bid.

14. You may forward your points on tender document and/or depute your technical representative for discussion on tender/ drawings and to clarify doubts, if any, on or before bid submission start date, you are requested not to write piece meal points and forward your points duly consolidated before due date viz bid submission start date.

15. 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.

Yours faithfully,

(I K Chaudhary)
AE (Civ)
Offg AGE (Contracts)
For Accepting Officer

Enclosures : Tender documents

Signature of Contractor

Dated

INSTRUCTIONS ON FILLING AND SUBMISSION OF TENDERS/BIDS**1. EARNEST MONEY DEPOSIT (EMD)**

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

- (a) Deposit at Call Receipt from a Scheduled Bank in favour of Garrison Engineer.
- (b) Receipted Treasury Challan, the amount being credited to the Revenue Deposit of GE (East) Jabalpur.

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

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

2. PERFORMANCE SECURITY DEPOSIT.

2.1 Performance Security Deposit for individual works shall be for an amount equal to 5% of the contract amount. In case of term contracts, the amount of contract shall be the amount mentioned in NIT, which should be related to the anticipated maintenance grant for the period covered by the contract in case of term contracts. In case work is foreclosed, the Performance Security shall be recalculated as per cost of completed work. In case the Performance Security already deposited is more than that required after foreclosure of works, contractor shall have the option to submit the fresh Performance Security and original Performance Security shall be released.

2.2 If the tender submitted by a contractor is accepted, he will be required to lodge with the Accepting Officer concerned, Performance Security Deposit for the specific work calculated as per Para 2.1 above, within twenty eight days of the receipt by the contractor of notification of acceptance of the tender. Work order No 1 shall be placed only after submission of Performance Security Deposit. Failure of the successful contractor to deliver Performance Security shall constitute sufficient grounds for cancellation of the award of work. In addition to this, in case of MES enlisted contractor, amount equal to the Earnest Money stipulated in the Notice Inviting Tender, shall be notified to the tenderer for depositing the amount through MRO. Issue of tender to such tenderers shall remain suspended till the aforesaid amount equal to the Earnest Money is deposited in Government Treasury. In case of unenlisted contractor, the Earnest Money deposited alongwith tender shall be forfeited. If the contractor failed to deposit the Performance Security within 28 days, Show Cause Notice shall be issued to the contractor prior to enforce this provisions.

3. GENERAL INSTRUCTIONS FOR COMPLIANCE

3.1 The bid received only in the electronic form will be considered. All bids shall be submitted on portal i.e. www.defproc.gov.in. Documents should be scanned and forwarded in PDF form or EXCEL form as indicated.

3.2 Bid shall be uploaded on www.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 like email / fax/ by hand / through post will be considered.

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

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

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

INSTRUCTIONS ON FILLING AND SUBMISSION OF TENDERS/BIDS (Contd....)

3.6 In the technical bid, a scanned copy of the power of attorney in favour of person uploading the bid using his/her DSC shall be uploaded. In case the Digital Signatory himself if 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 concerned or Ltd company, the digital signatory of the bid/tender shall ensure that he is competent to bind the contractor (through partnership deed, general power of attorney or memorandum and article of association of Company) in all the matters pertaining to the contract with Union of India including arbitration clause. A scanned copy of documents confirming to such authority shall be attached with tender/bid in pdf form, if not submitted earlier. The person uploading the bid on behalf of another partner(s) or on behalf of a firm or company using his DSC shall be uploaded 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 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.

3.7 Even in case of firms or companies which have already given power of attorney to an individual authorizing him to sign tender and in pursuance of which tender/bids are being uploaded by such person as a routine, fresh power of attorney duly executed in his favour stating specifically that the said person has authority to bind such partner (s) of the firm, or the company as the case may be uploaded in pdf form in 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.

3.8 Hard copies of all above documents should be sent by the contractor to the Tender issuing authority i.e. Garrison Engineer (East) Jabalpur well in advance to be received before the date & time fixed for the same.

3.9 Bid (Cover 1 & 2) shall be uploaded online well in time.

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

3.11 Tenderers / bidders who uploaded 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.

3.12 Bidder shall quote their rates in latest BOQ uploaded by the department. Bidders are advised to verify the latest BOQ, on the commencement of bid submission date. Uploading of old/ replaced BOQ will be considered as a willful negligence by the bidder and his quotation will be considered non-bonafide.

3.13 The tenderer will not make, of his own, any alteration in tender documents uploaded by the department. It is expressly brought to the notice of the tenderer that if he makes any alteration in tender documents and does not specifically bring out such alteration to the notice of the Accepting Officer through a letter along with his 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.

3.14 The tenderer/bidder shall quote his rates on the BOQ file only. No alteration to the format will be accepted else the bid will be disqualified and summary rejected.

3.15 In case the tenderer has to revise /modify the rates quoted in the BOQ (excel sheet), he can do so only in BOQ, through www.defproc.gov.in. only before the bid closing time and date.

4. PERFORMANCE SECURITY

4.1 Within 28 days of receipt of the letter of Acceptance, the successful contractor shall deliver to the Accepting Officer a Performance Security in any of the forms given below for an amount equal to **5%** of the contract sum:-

- (a) A Bank Guarantee in the prescribed form.
- (b) Government Securities- FDR or any other Government Instruments.

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

4.3 Failure of the successful contractor to comply with the requirements of sub clause 19.1 shall constitute sufficient grounds for cancellation of the award of work and forfeiture of the Earnest Money. In case of MES enlisted contractor, amount equal to the Earnest Money stipulated in the Notice Inviting Tender, shall be notified to the tenderer for depositing the amount through MRO. Issue of tender to such tenderers shall remain suspended till the aforesaid amount equal to the Earnest Money is deposited in Government Treasury.

INSTRUCTIONS ON FILLING AND SUBMISSION OF TENDERS/BIDS (Contd....)

5. 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.
6. In the event of contract being cancelled under Conditions 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.
7. **BANK GUARANTEE BOND AGAINST PERFORMANCE SECURITY**
- 7.1 Condition 19.1 of IAFW-2249 and condition 14A.1 of IAFW-1815-Z provides for submission of Performance Security by the successful contractor in the form of Bank Guarantee Bonds or Govt Securities, FDR or any other form of deposit.
- 7.2 The Performance Security shall be in favour of Accepting Officer and shall be in any one of the forms mentioned above. Work Order No. 1 shall be placed only after submission of **Performance Security of adequate value by the contractor**. In case a fixed deposit receipt of any Bank is furnished by the contractor to the Government **as part of the Performance Guarantee** and the Bank is unable to make payment against the said fixed deposit receipt, the loss caused thereby shall fall on the contractor and the contractor shall forthwith on demand furnish additional security to the Government to make good the deficit.
- 7.3 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.
- 7.4 Form for Bank Guarantee Bond against Performance Security Deposit shall be same as Appendix 2.1 of MES Manual on Contracts 2020.
- 7.5 The period of validity of the Bank Guarantee Bond against Performance Security shall be initially valid upto the stipulated date of expiry of Defects Liability Period plus minimum 60 days beyond that. In case final bill is not paid during this period, the contractor shall get the validity of Performance Guarantee extended to cover such enlarged time required for payment of final bill.
- 7.6 The original Bank Guarantee Bond against Performance Security along with necessary certified copies shall be sent to the PCDA/ CDA by the Accepting Officer for verification and then returning the original to the Accepting Officer and the certified true copies to the CWE/GE(I), GE/AGE(I) & AAO. The original BGB shall be kept in the custody of the Accepting Officer.
- 7.7 The Accepting Officer shall evolve a procedure to ensure that timely action is initiated to have the validity date of the Bond extended by the Contractor, or to have it encashed before the same expires. For this purpose a suitable register shall be maintained by the Accepting Officer. The register shall also be maintained by the Contract Section with details of Performance Securities and dates of validity of these instruments and the same shall be an auditable document. Performance Security shall be in possession of the official who is head of the Contract Section of the Office of concerned Accepting Officer.
- 7.8 In case at a later stage, on account of delay in completion of work or due to any other reason, it is considered that the validity date stipulated in the Bank Guarantee against Performance Security should be extended, then the contractor shall be directed by the Accepting Officer of the contract to have the validity extended before the date of validity expires. If the contractor fails to do so, the Bank Guarantee shall be encashed before expiry. The encashment notice shall be similar to the format given in Appendix 18.5 of MES Manual on Contract 2020 with "in lieu retention money" in Para 1, line 2 replaced by "against Performance Security". Accepting Officer shall ensure to issue notice to the concerned contractor to get the validity of Performance Security instrument extended suitably two months before the expiry of the validity. In case extension is not received four weeks before the expiry of validity of financial instrument, necessary encashment notice shall be served by Accepting Officer.
- 7.9 In case the BGB is not encashed by the concerned Bank, the matter shall be referred to the Central Office of RBI in Delhi and Mumbai at the following address or any latest address which can be found from internet :-

(A)	(B)
Jt Chief Officer Deptt of Banking and Operations Reserve Bank of India Parliament Street, New Delhi-110011	Reserve Bank of India Central Office Department of Banking Operations & Development Centre-1 World Trade Centre, Cuffe Parade, Colaba Mumbai-400005

INSTRUCTIONS ON FILLING AND SUBMISSION OF TENDERS/BIDS (Contd....)

7.10 Bank Guarantee Bond in lieu of Performance Security is due for discharge on expiry of Defects Liability period provided always that the contractor has been paid the final bill and contractor has rendered the No Demand Certificate (IAFW-451). Immediately after expiry of defects liability period, GE concerned shall check and ascertain the position of final bill.

In case final bill has been paid, contractor shall be asked to submit the No Demand Certificate (IAFW-451), if not already submitted by him. After submission of No Demand Certificate (IAFW-451), GE will intimate this fact to the Accepting Officer within a week who shall release the Bond duly discharged to the Contractor. Accepting Officers will ensure that no delay occurs in releasing the Bank Guarantee Bond.

In case final bill has not been paid, the status thereof shall be ascertained by Accepting Officer and efforts will be made to get it cleared within one month of expiry of Defects Liability period. After clearance and payment of final bill contractor shall be asked to submit the No Demand Certificate (IAFW-451), if not already submitted by him. After submission of No Demand Certificate (IAFW-451) to GE and on receipt of the same, Accepting Officer shall release the Bond duly discharged to the contractor without any delay.

If any recovery is outstanding against the contractor, release of Bank Guarantee will be subject to compliance of the procedure for effecting recovery/ withholding the due amount as stipulated in Condition 67 of IAFW-2249 as amended of GCC (IAFW-2249) or Condition 34 (as amended) of GCC (IAFW-1815Z), as applicable.

8. REVOKATION / REVISION OF OFFER UPWARD/OFFERING VOLUNTARY REDUCTION, AFTER OPENING OF FINANCIAL BIDS BY LOWEST BIDDER.

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

9. CPM (CRITICAL PATH METHOD) :-

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

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

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

10. AMENDMENT TO TENDER DOCUMENTS

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

10.2 In case the BOQ is revised by the department and the bidder has failed to quote in revised BOQ (i.e. he has quoted in previous 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 by the lowest amount amongst the valid/bonafide bids only.

11. Tenderer is deemed to be in possession of copy of MES schedule of Rates (Part I & II) including errata and amendments there to and an updated TD booklet mentioned in list of drawings. In case the same is required by tenderer it can be obtained from this HQ on any working day with due cost as admissible.

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

Signature of Contractor

AGE (Contracts)

For Accepting Officer

Dated

MILITARY ENGINEER SERVICES
NOTICE INVITING TENDER (NIT)

1. A tender is invited for the work as mentioned in Appendix 'A' to this NOTICE INVITING TENDER (NIT).
2. The work is estimated to cost indicated in aforesaid appendix "A." This estimate, however, is not a guarantee and is merely given as a rough guide and if the work cost more or less, a tender/bidder will have no claim on that account. The tender shall be based on as mentioned in aforesaid appendix "A".
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 of site, which will be on or about two weeks after the date of acceptance of tender.
4. 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 (East), Near COD Estate, Ranjhi, Jabalpur (MP)-482011** will be the Accepting Officer here-in-after referred to as such for the purpose of this contract.
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 tenderer / bidder on or before the date & time mentioned in Critical dates. A scanned copy of DD with enlistment details / documents etc shall be uploaded as packet 1 /cover-1 ('T' bid) of the tenderer / bidder on e-tendering portal. DD is refundable in case T bid (Cover-1) is not accepted resulting in non-opening of 'Q' bid (Cover-2). The applicant contractor shall bear the cost of bank charges for procuring and encashing the DD 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 **defproc.gov.in/eprocure.gov.in** site 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 **Garrison Engineer (East) Jabalpur** by a Scheduled Bank or in received treasury Challan the amount being credited to the revenue deposit of the **Garrison Engineer (East) Jabalpur**. The **Garrison Engineer (East) Jabalpur** 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.
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. Sample of materials and stores to be supplied by the contractor will also be available for inspection by the bidder at the office of GE (East) Jabalpur during working hours. The bidder is advised to visit the site of work by making prior appointment with GE, 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 tender/bid which proposes any alteration to any of the conditions laid down or which proposes any other condition or prescription whatsoever is liable to be rejected.

MILITARY ENGINEER SERVICES
NOTICE INVITING TENDER (NIT (Contd...))

13. The uploading of bid by a tenderer implies that bidder has read this notice and the conditions of contract and has made himself aware of the scope of work and specifications of the work to be done and of the conditions and rates at which stores, tools and plants 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 or to give any reason for not doing so.

16. The Accepting Officer reserves his right to accept a tender submitted by public undertaking giving a price preference over other tender(s)/bids which may be lower, as are admissible under the Government policy. No claim or any compensation or otherwise shall be admissible from such tenderer(s) whose tender(s) may be rejected on account of the said policy.

Signature of Contractor

Dated

AGE (Contracts)
For Accepting Officer

APPENDIX 'A' TO NOTICE INVITING TENDER (NIT)

1	Name of work	NAME OF WORK : REPAIR OF DOORS, WINDOWS, CUPBOARD AND OTHER B/R WORKS IN MARRIED & OTM ACCN OF UNRESTRICTED AREA OF COD UNDER AGE B/R-II OF GE (E) JABALPUR (Tender ID : 2024_MES_681694_1)										
2	Estimated cost	Rs. 49.00 Lakhs (At Par Market)										
3	Period of completion	270 Days										
4	Cost tender documents	₹ 500/- in the form of DD/Bankers cheque from any Scheduled Bank in favour of GE (East) Jabalpur and payable at Jabalpur . Note : In case of retendering, the contractor who had quoted in the previous call is not required to submit cost of tender.										
5	Website/portal address	www.defproc.gov.in and www.mes.gov.in										
6	Type of contract	The tender shall be based on item rate and specifications (IAFW-1779A) and General Conditions of Contracts (IAFW-2249) including its errata/ amendments with Schedule 'A'/ BOQ (list of items of work) to be quoted by bidders.										
7	Timeline details :											
	(a) Bid submission start date	Refer critical dates on the website.										
	(b) Last date of bid submission											
	(c) Date of bid opening											
8	Eligibility criteria											
	(A) For MES enlisted contractors	Contractor shall be enlisted with MES in Class 'D' and 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.	<p>(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).</p> <p>(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.</p> <p>(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.</p> <p>(iv) Details of work completed and under progress in MES be submitted in the following formats :-</p> <table><tr><td>Srl No</td><td>CA No & Name of Work</td><td>Value of CA</td><td>Date of commencement</td><td>Date of completion</td><td>Extended Date of Completion</td></tr></table> <p>(v) Un-enlisted contractor who have secured two works in MES should get themselves registered in the appropriate designated Class with any Registering Authority, else the firm will not be eligible for participation in the tender unless until the firm is enlisted with the MES.</p>					Srl No	CA No & Name of Work	Value of CA	Date of commencement	Date of completion	Extended Date of Completion
Srl No	CA No & Name of Work	Value of CA	Date of commencement	Date of completion	Extended Date of Completion							
9	Tender issuing and Accepting Officer	Lt Col P Aditya Deepak, GE Garrison Engineer (East) Jabalpur Tele No : 0761-2431452 E-Mail ID : geeastjab-mp@gov.in										
10	Executing agency	Garrison Engineer (East) Jabalpur										
11	Earnest Money	Rs. 98,000.00 in favour of GE (East) Jabalpur Note -To be deposited by Un-enlisted contractor										

Contd.....

APPENDIX 'A' TO NOTICE INVITING TENDER (NIT) (Contd.....)**NOTES :**

1. 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 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 fulfillment 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. Such contractors (one/two classes below the eligible class) shall not be considered in case their present residual work in hand is more than FIVE TIMES their present tendering limit. However in case such contractors fulfill the criteria of upgradation to the stipulated eligible class based on past experience of completed work (Individual work experience and/or average annual turnover, as applicable) and financial soundness (solvency/ financial soundness and working capital), the ceiling of present residual work will not apply and they will be considered for issue of tender. Such bidders shall upload in their Cover-1 bid details related to residual work in hand like 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. Such contractor if claim to fulfill the criteria of upgradation shall also upload the requisite information/documents in support of upgradation. 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 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) Scanned copy of EPF registration letter of firm.
 - (e) Scanned copy of GST UIN (Unique identification number) registration from appropriate authority.
 - (f) 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:-
 - (a) Application for tender on firm's letterhead.
 - (b) Scanned copy of DD /Bankers Cheque toward cost of tender and 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 finance 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).

APPENDIX 'A' TO NOTICE INVITING TENDER (NIT) (Contd.....)

- (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. 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 email/ 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.
9. 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 Jabalpur on email aocwejab-mp@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.
10. 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.
11. In case the BOQ is revised through the corrigendum and the bidder has failed to quote on revised BOQ (i.e. 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 retender or consider the lowest bonafide tender for acceptance.
12. 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 willful 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.
13. 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.

Signature of Contractor

(I K Chaudhary)
AE (Civ)
Offg AGE (Contracts)
For Accepting Officer

Case File No : 8715/ 06 /E8

Dated : 29 Oct 2024

Military Engineer Services
Garrison Engineer (East)
Jabalpur – 482011 (MP)

IN LIEU OF IAFW-1779-A (REVISED-1955)
TO BE USED IN CONJUNCTION WITH
GENERAL CONDITIONS OF CONTRACTS IAFW-2249
MILITARY ENGINEER SERVICES

Tele Mil : 6870
Tele Civ : 0761-2331278
Email ID : geeastjab-mp@nic.in
garrisonengineer90@gmail.com

Military Engineer Services
Garrison Engineer (East)
Jabalpur – 482 011

8715/ 07 /E8

29 Oct 2024

(Tender ID : 2024_MES_681694_1)

ITEM RATE TENDER AND CONTRACT FOR WORKS REQUIRED IN EXECUTION FOR

NAME OF WORK : REPAIR OF DOORS, WINDOWS, CUPBOARD AND OTHER B/R WORKS IN
MARRIED & OTM ACCN OF UNRESTRICTED AREA OF COD UNDER
AGE B/R-II OF GE (E) JABALPUR

Shri/ M/s _____ of _____ is/are here authorised to tender/bid for the above work. The technical and price bid (cover 1 & 2) to be uploaded on the e procurement site www.defproc.gov.in and Bids (cover 1& 2) will be immediately opened on date & time as fixed here-in before as per NIT.

Any correspondence concerning to this tender, should be addressed to **Military Engineer Services, Garrison Engineer (East) Jabalpur - 482011(MP)** duly quoting the reference and marked the TENDER ID No on the outside and same to be forwarded by post/hand.

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

Signature of the Officer
Issuing the document
Appointment:

Signature of Contractor
Dated

AGE (Contracts)
For Accepting Officer

SCHEDULE 'A'

LIST OF ITEM OF WORKS & PRICES

NOTES :-

1. The work under this contract shall be executed under GE (East) Jabalpur and shall comprise of full, entire and final completion of all items/ works as described in Schedule 'A'/BOQ for the following Jobs :-

Ser No	Name of Work	Maint Programme 2024-25
(a)	REPAIR OF DOORS, WINDOWS, CUPBOARD AND OTHER B/R WORKS IN MARRIED & OTM ACCN OF UNRESTRICTED AREA OF COD UNDER AGE B/R-II OF GE (E) JABALPUR	Code Head No 01/460/01 & 02, Ser No 1(am)

2. Description of items given in BOQ (in excel) 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 in relevant trade sections of the MES Standard Schedule of Rates (Part-I) 2009 for specifications & (Part II) 2020 for rates, preamble, special condition and contract drawings if any including notes thereon.

3. The quantities shown in Schedule (BOQ sheet) are approximate and inserted as a guide only. They do not constitute any guarantee of the ultimate quantities which will be ordered on the contractor. They shall not however be varied beyond the limits laid down in condition-7 of IAFW-2249, General Conditions of Contracts.

4. PERIOD OF COMPLETION

4.1. Period of completion for the entire work shall be **270 (TWO HUNDRED AND SEVENTY) DAYS** only including Holidays from the date of handing over site as shown in work order No.1.

4.2. Site for all works shall be handed over simultaneously and date of commencement for entire work under this contract shall start concurrently. In case it is not possible to make the entire site available on the award of work, the Contractor will have to re-arrange his working program accordingly. No claim what-so-ever, for not giving the entire site on award of work and for giving the site(s) gradually, will be tenable.

5. The bidder shall enter the unit rate in BOQ on website www.defproc.gov.in. The unit rates shall be entered by the bidder in figure only.

5.1 The unit rates quoted by the contractor shall be deemed to include for material and labour or supplying and fixing/laying complete all as directed/specified, unless described otherwise in BOQ.

5.2. The unit rate quoted by the tenderer will be deemed to include for transportation of contractors tools, plant and equipment required for execution at sites of work as detailed in Schedule „A“/BOQ, removing the same from site of work after completion and leaving the site clear to the entire satisfaction of Engineer-in-Charge.

5.3 The rates quoted by the Contractor shall include for all taxes, GST and duties act required to be paid by him to concerned authorities as per the rules and laws in force. No additional payment on these accounts shall be made under this Contract by the MES/ department.

6. Unit rate quoted by the tenderer against each item shall be deemed to include for all incidental and additional materials and labour/supply and fixing unless otherwise specifically provided for, obviously required for completion of the particular items of work in workman like manner described in MES Schedule 2009 Part I (Specifications) and 2020 Part II (Rates) ,and preamble to analogous items in the said schedule whether such additional items are included in the description of BOQ or not but are essential for executing the work in a workman like manner and sound Engineering practice. In case of any dispute whether any extra item/items constitute "Minor accessories/part"are part of contract or not, the decision of Accepting Officer shall be final conclusive and binding.

7. Measurements of work done shall be recorded as per the items and units as mentioned in Schedule „A“/BOQ and this mode of measurement shall take precedence over the method/mode of measurement as shown in the MES Standard Schedule of Rates (Part-I) 2009 for specifications & (Part II) 2020 for rates, if any variance noticed at later stage.

8. Actual work done at site shall be measured and recoded in MB duly signed by all concerned.

9. Contract Sum" will be treated after deduction of "Schedule of Credit" amount if any "Sch of Credit" are involved in the subject work.

10. DISMANTLED MATERIALS.

The contractor is advised to visit the site to assess the quality of materials as indicated in "Schedule of credit" with approximate quantities which shall be contractor's property. The materials obtained from demolition/dismantling shall be removed from site of work after obtaining written approval from the Engineer-in-Charge and recovery shall be made from contractor's dues (RAR/Final bill as the case may be) as and when the work of demolition/ dismantling proceeds. No claim whatsoever on this account shall be admissible. Old dismantled/ demolished materials other than "Sch of credit", either to be returned to MES stores yard or to be thrown at site in low level areas as directed by Engineer-in-Charge. Amount at the double of market rate shall be effected/ recovered from the final bill, if old dismantled/ demolished materials (other than "Sch of credit") shall not be returned/ deposited by the contractor.

11. ENFORCEMENT OF RIGHTS CONFERRED TO LABOUR UNDER VARIOUS ACTS & LAWS

Statutory provisions of Rights to labour under various Acts & Laws shall be strictly adhered to & theses aspects shall be taken under consideration while quoting the rates by bidders. Accordingly, Contractor`s quoted rates shall be deemed to include following factors:-

- (a) Contract Labour (Regulation & Abolition) Act 1970.
- (b) MES Model Rules for protection of health and sanitary arrangements for workers employed by the contractor have been specified in Annexure 'C' to IAFW-2249. As per condition 26 and 58 of IAFW-2249, the contractor during the progress of the work should comply with all the rules and provisions contained in the various Acts, Labour laws and MES Model Rules and should also arrange for safety provisions as per MES Safety Code specified in Annexure 'B' to IAFW-2249.

SCHEDULE 'A' Notes (Contd.....)**(c) MINIMUM WAGES ACT 1948 AND FAIR WAGES**

The contractor shall pay not less than the 'fair wage' as defined below or the minimum wage fixed under the Minimum Wages Act, whichever is higher to labourers engaged by him on the Work Condition 58 of IAFW-2249 (General Condition of Contracts) refers). The contractor shall not pay wages lower than minimum wages for labour as fixed by the Government of India/State Government/Union Territory, whichever is higher. The contractor shall, notwithstanding the provisions of any contract to the contrary, has to pay 'fair wage' or minimum wage fixed under the Minimum Wages Act, whichever is higher to labourers indirectly engaged on the work, including any labour engaged by his sub-contractors in connection with the said work, as if the labourers had been directly employed by him 'Fair Wage' means wage whether for time or piece-work notified at the time of inviting tenders for the Work and where such wages have not been so notified the wages prescribed by the Chief Engineer for the stations at which the Work is done.

(d) The Employees Provident Funds & Miscellaneous Provisions (EPF & MP) Act, 1952.

The Contractor shall have the registration with EPFO and ESIC. The EPF and ESI contribution on the part of employer in respect of this contract shall be paid by the contractor. Accordingly, Contractor's quoted rates shall be deemed to include all these factors.

(e) The Building and Other Construction Workers Welfare Cess Act 1996

The cess as per 'The Building and Other Construction Workers Welfare Cess Act 1996' shall be deducted, as notified by respective State Government, from payments to contractors.

(f) PAYMENT OF WAGES ACT, 1936

(i) The amendment to Payment of Wages Act, 1936 Act, issued in the Gazette Notification dated 15 Feb 17 states "All wages shall be paid in current coin or currency notes or by cheque or by crediting the wages in the bank account of the employee." Crediting of wages directly in bank account of the employee may preferably be adopted over other modes of payment of wages. This provision would make it easy to verify and ensure that minimum/due wages are paid to the employees and their social security rights are protected, leaving little room for complaints/litigations at a later date.

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

12. Before release of Work Order after consideration of contract, the contractor shall produce provisional fund code number to GE/AGE. In case of non applicability, contractor shall request to Accepting Officer whose decision shall be final and binding. In case, work is allotted to sub contractors with approval of accepting officer, EPF & MP Act 1952 shall also be applicable to sub-contractor engaged by the contractor for the said work.

13. The rates quoted by the Contractor shall be include for incorporation of material as per make mentioned in BOQ, if makes is not available in BOQ then as per list of product (GROUP OF PRODUCTS BASED ON MAKES /BRAND, materials of Group-I shall be incorporated in the work. If make of product/materials in BOQ as well as in Group-I is not available then Group-II/Group-III shall be used only after getting the written approval of Garrison Engineer (East) Jabalpur.

14. Please note that work lies in **UN-RESTRICTED AREA.**

15. DEFECT LIABILITY PERIOD OF THE WORK (REFER CONDITION 46 OF IAFW-2249) :-

As per condition 46 of IAFW-2249 (General Conditions of Contracts) amended through Amendment Nos. 48 and 49. This is an express condition of this Contract that Defect Liability Period for the subject work under this Contract will be **12 (TWELVE) MONTHS** after the works have been handed over to Government.

16. Please note that in subject work no reimbursement on account of variation in prices of materials, fuel and increase in wages of labour shall be applicable under this contract.

17. Due to execution of this work, if any damage to existing building/ structure will cause, same shall be made good by the contractor at his own cost. This aspect should be born in mind by the contractor while quoting his rate/ rates and no dispute will be entertained later on.

18. Unit RM, Cum or CUM, Sqm or SQM and Quintal or Qtl, Kg or KG wherever mentioned in the tender documents denotes the unit Running Metre, Cubic Metre, Square Metre, Quintal and Kilogram respectively.

(Signature of contractor)

AGE (Contracts)
For Accepting Officer

SCHEDULE 'A' SECTION -II
(SCHEDULE OF CREDIT)

Note :-

1. The quantities as given are provisional but the rates are firm.
2. The amount of credit shall be recovered in each running payment based on the work executed during the period.
3. Material as listed shall become property of the contractor. The contractor shall afford a credit to Govt on this account at the rates indicated in col 5.
4. The contractor shall have no claim if the material obtain from dismantling etc are found cracked. Disfigured or broken. The old dismantling/demolished/ taking down material shall be given to contractor at size in as is where is condition.
5. The other old material not shown in the Sch of credit shall be property of the deptt and contractor shall deposit the same in MES store yard without any extra cost.
6. The Contractor will not remove the credited material untill the credit of the same will be recovered from his payments. Till then the material shall be stacked property there.

Ser No	Description	A/U	Qty	Rate (in Rs.)	Amount
1	Old U/S floor, hearth or wall tiling.	Sqm	447.50	20.00	8950.00
2	Old U/S Brick Bats.	Cum	3.00	500.00	1500.00
3	Old U/S PVC Water tank 500 ltrs capacity.	Each	5.00	335.00	1675.00
4	Old U/S PVC Water tank 1000 ltrs capacity.	Each	2.00	425.00	850.00
5	Old U/S PVC float ball valve any size.	Each	55.00	12.00	660.00
6	Old U/S PVC Tank cover.	Each	25.00	7.00	175.00
7	Old U/S Gun metal, globe or gate valves 15 mm bore.	Each	2.00	40.00	80.00
8	Old U/S Gun metal, globe or gate valves 20 mm bore.	Each	2.00	50.00	100.00
9	Old U/S 15 mm bore GI tubes, 'medium grade' galvanised, with all fittings.	RM	250.00	20.00	5000.00
10	Old U/S 20 mm bore GI tubes, 'medium grade' galvanised, with all fittings.	RM	200.00	25.00	5000.00
11	Old U/S 15 mm bore, Fancy type, Chromoium plated Bib taps.	Each	100.00	40.00	4000.00
12	Old U/S Washer for bib tap/wash basin tap/pillar tap/stop cock/mixture tap.	Each	20.00	5.00	100.00
13	Old U/S Spindles for bib tap/wash basin tap/pillar tap/stop cock/mixture tap.	Each	50.00	15.00	750.00
14	Old U/S Brass chromium plated Wall Mixer for 15 mm bore of pipe.	Each	10.00	100.00	1000.00
15	Old U/S Brass chromium plated Wash Basin Mixer for 15 mm bore of pipe.	Each	10.00	100.00	1000.00
16	Old U/S Brass chromium plated Sink Mixer for 15 mm bore of pipe.	Each	5.00	100.00	500.00
17	Old U/S Chromium plated Angular Stop Cock for 15 mm bore of pipe.	Each	40.00	40.00	1600.00
18	Old U/S Chromium plated Two-way Bib Cock for 15 mm bore of pipe.	Each	5.00	40.00	200.00
19	Old U/S 15 mm dia of bore, fancy type, chromium plated stop valves (concealed type).	Each	2.00	40.00	80.00
20	Old U/S 15 mm dia of bore, fancy type, chromium plated stop valves.	Each	10.00	40.00	400.00
21	Old U/S 15 mm dia of bore, fancy type pillar taps.	Each	15.00	40.00	600.00
22	Old U/S 32 mm bore, brass chromium plated bottle traps.	Each	10.00	40.00	400.00
23	Old U/S 32 mm bore, PVC waste pipe.	Each	35.00	6.05	211.75
24	Old U/S 32 mm bore dia of discharge pipe, waste coupling of PTMT.	Each	2.00	7.00	14.00
25	Old U/S 32 mm dia of bore, Waste fittings, brass, chromium plated.	Each	15.00	40.00	600.00
26	Old U/S Chromium Plated Grating, 100 mm dia with waste hole.	Each	35.00	7.00	245.00
27	Old U/S Toilet Seat/Commode Jet Spray.	Each	10.00	40.00	400.00
28	Old U/S Health Faucet (ABS Body) mild steel chromium plated suitable for 15 mm dia pipe.	Each	30.00	40.00	1200.00
29	Old U/S Vitreous china wash basin.	Each	5.00	50.00	250.00
30	Old U/S Vitreous china wash down water closet pan (pedestal pattern).	Each	5.00	36.00	180.00
31	Old U/S plastic water closet seat cover.	Each	35.00	10.00	350.00
32	Old U/S Vitreous China squatting pan, 'Orissa' Pattern.	Each	3.00	36.00	108.00
33	Old U/S Sinks with drainage board.	Each	5.00	200.00	1000.00
34	Old U/S Sinks without drainage board.	Each	3.00	200.00	600.00
35	Old U/S Stainless Steel Plate Rack.	Each	5.00	200.00	1000.00

SCHEDULE 'A' SECTION -II
(SCHEDULE OF CREDIT ...contd)

Ser No	Description	A/U	Qty	Rate (in Rs.)	Amount
36	Old U/S 10 ltrs capacity PVC valveless, syphonic action type flushing cistern.	Each	30.00	50.00	1500.00
37	Old U/S internal fitting for 10 ltrs capacity PVC valveless, syphonic action type flushing cistern.	Each	25.00	25.00	625.00
38	Old U/S flush pipe.	Each	10.00	10.00	100.00
39	Old U/S 125 mm size, Brass chromium plated shower rose.	Each	20.00	100.00	2000.00
40	Old U/S PVC connections 15 mm size.	Each	50.00	7.00	350.00
41	Old U/S Brass Chromium Plated, tubular towel rail.	Each	20.00	50.00	1000.00
42	Old U/S 75 mm diameter of outlet, PVC (SWR) floor trap.	Each	5.00	12.00	60.00
43	Old U/S PVC Grating.	Each	5.00	2.00	10.00
44	Old U/S Soap Dish Holder.	Each	15.00	40.00	600.00
45	Old U/S Corner Glass Shelf with brackets.	Each	15.00	12.00	180.00
46	Old U/S Stainless Steel Double Coat Hook.	Each	5.00	40.00	200.00
47	Old U/S Sheet Glass Shelf assembly.	Each	20.00	12.00	240.00
48	Old U/S Toilet paper holder with flat recessed type stainless steel.	Each	20.00	100.00	2000.00
49	Old U/S Door Seal with aluminium beading and 50 mm wide rubber seal.	RM	50.00	15.00	750.00
50	Old U/S 100 mm long extruded aluminium alloy handles.	Each	45.00	25.00	1125.00
51	Old U/S 150 mm long aluminium, anodised, barrel tower bolts of extruded section.	Each	75.00	25.00	1875.00
52	Old U/S 100 mm Butt hinges, extruded aluminium alloy.	Each	85.00	20.00	1700.00
53	Old U/S 75 mm Butt hinges, extruded aluminium alloy.	Each	15.00	15.00	225.00
54	Old U/S 250 mm long aluminium alloy, anodised, sliding door bolt.	Each	28.00	50.00	1400.00
55	Old U/S 300 mm, mild steel ordinary rat tail rod pattern springs.	Each	35.00	24.00	840.00
56	Old U/S aluminium alloy wire cloth.	Sqm	200.00	10.00	2000.00
57	Old U/S 40 mm dia, cupboard knobs.	Each	25.00	7.00	175.00
58	Old U/S 75 mm size, hasp and staple.	Each	15.00	7.00	105.00
59	Old U/S Harrison rails, mild steel, chromium plated with fixing brackets, stops, rollers etc.	RM	100.00	18.00	1800.00
60	Old U/S Floor door stopper of aluminium alloy body and tongue, anodised.	Each	40.00	15.00	600.00
61	Old U/S 600 mm x 450 mm bevelled edge looking mirror.	Each	25.00	20.00	500.00
62	Old U/S Swivel Looking Mirror, rectangular shape of size 0.63 m x 0.445 m.	Each	1.00	20.00	20.00
63	Old U/S Single Door PVC Cabinet Mirror of size 350 mm x 450 mm with internal shelves.	Each	20.00	75.00	1500.00
64	Old U/S Stainless Steel Towel Ring Round.	Each	15.00	50.00	750.00
65	Old U/S Stainless Steel Towel Rack 600 mm long with lower hangers.	Each	5.00	100.00	500.00
66	Old U/S European WC, Single Piece, Vitreous China.	Each	2.00	250.00	500.00
67	Old U/S Vitreous China bowl urinal flat back.	Each	5.00	36.00	180.00
68	Old U/S Urinal partition, white colour of size 310 x 770 mm.	Each	6.00	25.00	150.00
69	Old U/S Vitreous China bowl Urinal without sensor with fixing accessories set, size of 480 x 300 x 740 mm.	Each	1.00	50.00	50.00
70	Old U/S Sensor Flushing Valve for Urinal with Complete Kit (Battery Operated)	Each	1.00	200.00	200.00
71	Old U/S Chromium Plated Hand Shower ϕ 120 mm Round Shape.	Each	10.00	100.00	1000.00
72	Old U/S Rain Water Pipes including fittings of any description.	RM	150.00	20.00	3000.00

SCHEDULE 'A' SECTION -II
(SCHEDULE OF CREDIT...contd)

73	Old U/S 110 mm bore PVC (SWR) vent cowl.	Each	2.00	10.00	20.00
74	Old U/S 75 mm bore PVC (SWR) vent cowl.	Each	2.00	7.50	15.00
75	Old U/S Stack clamps for 100 mm bore of pipe.	Each	25.00	12.50	312.50
76	Old U/S Stack clamps for 75 mm bore of pipe.	Each	15.00	10.00	150.00
77	Old U/S Chowkhat with shutters area not exceeding 1.50 sqm with iron mongry.	Each	10.00	350.00	3500.00
78	Old U/S Chowkhat with shutters area exceeding 1.50 sqm but not exceeding 4 sqm with iron mongry.	Each	70.00	450.00	31500.00
79	Old U/S Shutters of any description area exceeding 1 sqm & not exceeding 2 sqm each with iron mongry.	Each Leaf	30.00	182.00	5460.00
80	Old U/S 18/19 mm thick, high density PVC/WPC solid fibre board with prelaminated PVC sheet as Kitchen cupboard with hardware fittings.	Sqm	54.00	150.00	8100.00
81	Old U/S Iron Scrap	Kg	244.26	25.00	6106.50
82	Old U/S Stone Slab.	Sqm	15.00	20.00	300.00
83	Old U/S 15 mm dia of bore, Bib tap standard of PTMT any colour.	Each	75.00	7.00	525.00
84	Old U/S 15 mm dia of bore, Pillar taps of PTMT any colour.	Each	44.00	7.00	308.00
85	Old U/S 15 mm dia of bore, Stop Valve of PTMT any colour.	Each	50.00	7.00	350.00
Total					1,27,235.75

GENERAL SUMMARY

- (a) Total amount of Sch 'A' Section -I : Rs _____
- (b) Less credit B/F Schedule 'A' Section-II : **Rs. 1,27,235.75 (Minus)**
- (c) Net contract sum : Rs _____

(Signature of contractor)

AGE (Contracts)
Accepting Officer

SCHEDULE 'B'

ISSUE OF MATERIALS TO THE CONTRACTOR
(See condition 10 of IAFW – 2249)

Item	Particulars	Rate at which materials will be issued to the contractor		Place of issue (By Name)	Remarks
		Unit	Rate		
1	2	3	4	5	6
---NIL---					

SCHEDULE 'C'

ISSUE OF TOOLS AND PLANTS (OTHER THAN TRANSPORT)
WHICH WILL BE HELD TO THE CONTRACTOR
(SEE CONDITION 15, 34 & 35 OF IAFW-2249)

SI No	Qty	Particulars	Details of MES Supply	Higher charges per unit per working day	Stand by charges per unit per working day	Place of Issue(By Name)	Remarks
				NP	NP		
1	2	3	4	5	6	7	8
---NIL---							

SCHEDULE 'D'

TRANSPORT TO BE HIRED TO THE CONTRACTOR
(SEE CONDITION 16 & 35 OF IAFW-2249)

SI No	Qty	Particulars	Rate per unit per working day	Place of issue by name	Remarks
1	2	3	4	5	6
---NIL---					

(Signature of contractor)

AGE (Contracts)
For Accepting Officer

In lieu OF IAFW-2159**TENDER****To,****The President of India**

Having examined and perused the following documents :-

1. Specification signed by AGE (Contracts).
2. Drawings detailed in the specification/list of drawings.
3. Schedule 'A', 'B', 'C' and 'D' attached hereto.
4. MES Standard Schedule of Rates Part-I 'Specifications (2009)' including Amendment Nos **1 to 3** and Part-II 'Rates' (2020) including Amendment Nos **1 to 122** (hereinafter and in IAFW-2249 referred to as MES Schedule).
5. General Conditions of Contract IAFW-2249 (1989 Print) together with Errata No 1 to 20 and Amendment Nos **1 to 49**.
6. **WATER CONDITION 31 OF IAFW-2249, GENERAL CONDITION OF CONTRACTS**
Water will be supplied by MES for which recovery shall be made @ 3.75 per every Rs. 1000.00 worth of work done at contract rates.
7. Should this tender be accepted. I/We Agree
 - *(a) That the sum of **Rs. 98,000.00** forwarded as earnest money shall either be forfeited in case of failure of the successful Contractor to comply with the requirements of **performance security** or be refunded by the Government on receipt of the appropriate amount of **Performance Security** all as per Condition 19 of IAFW-2249.
 - (b) To execute all the works referred to in the said documents upon the terms and conditions contained/referred to therein at the item rates contained or referred to there upon and as detailed in the General summary hereinafter and to carry out such deviations as may be ordered vide Condition 7 of IAFW-2249 upto maximum of **10% (Ten percent)** and further agree to refer all disputes to the Arbitral Tribunal of a Sole Arbitrator, to be appointed by **CE Central Command Lucknow** out of MES Standing Panel of Arbitrators, subject to receipt of written consent from both the parties in terms of the provision under Section 12(5) of the Arbitration and Conciliation Act 1996 (as amended). If either party does not furnish such written consent, then the Arbitrator will be appointed from **CE Central Command**, if specifically delegated in writing by CE Central Command whose decision shall be final, conclusive and binding.

*Retain where applicable

TENDER (CONTD.....)

SIGNATURE Name in the
capacity of duly authorised to sign the TENDER FOR AND ON
BEHALF OF (IN BLOCK/CAPITAL LETTERS)
Dated

Postal Address with Mobile No
.....
.....
.....
.....
Telegraphic address
.....
.....

WITNESS:
ADDRESS:
.....
.....
.....
.....
Mobile No :

ACCEPTANCE

..... alterations have been made in these documents and as evidence that these
alterations were made before the execution of the Contract Agreement and they have been initialed
by the Contractor and Shri _____, AGE (Contracts)
of Garrison Engineer (East) Jabalpur.

The said Officer is hereby authorised to sign and initial on my behalf, the documents forming part
of this Contract.

The above tender was accepted by me on behalf of the President of India, for the Item Rate
Contract of Rs. _____ (Rupees _____)
on the _____ day of _____.

Signature _____
Dated _____

Appointment: Garrison Engineer (East) Jabalpur
(For and on behalf of President of India)
Accepting Officer

SUBSTITUTE PAGE FOR :
GENERAL CONDITIONS OF CONTRACTS
(IAFW-2249 -1989 PRINT)
ITEM RATE CONTRACT (IAFW-1779A)

A copy of the GENERAL CONDITION OF CONTRACT (IAFW-2249) (1989 Print) with Errata 1 to 20 **amendment Nos. 1 to 49** 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 CONTRACT before submission of this tender and I/We agree that I/We shall abide by the terms and conditions thereof, as modified if any, also where in these tender documents.

It is hereby further agreed and declared by me/us, that the GENERAL CONDITIONS OF CONTRACTS (IAFW-2249) 1989 PRINT) including condition 70 thereof pertaining to settlement of disputes by arbitration containing **45** pages with Errata 1 to 20 and amendment Nos. **1 to 49** form part of this tender documents.

(Signature of contractor)

Dated:

AGE (Contracts)
For Accepting Officer

SUBSTITITE PAGE FOR :
SCHEDULE OF MINIMUM FAIR WAGES

1. It is hereby agreed that the Schedule of "Minimum Fair Wages" (SMFW) as published Government of India Notification dates 10.03.92 comprising **10** pages or the latest vide notification of central or State Government (whichever is higher) issued up-to the date of submission of tender shall form part of this tender documents.
2. My/Our signature hereunder amount to my/our having signed the aforesaid documents forming part of this tender.

NOTE

"Schedule of minimum fair wages" referred to above is available for reference in the office of Garrison Engineer (East) Jabalpur".

(Signature of contractor)

Dated

AGE (Contracts)
For Accepting Officer

PARTICULAR SPECIFICATIONS PART – I
SPECIAL CONDITIONS

1. GENERAL

- 1.1 The following special conditions shall be read in conjunction with the General conditions of contract, IAFW-2249, IAFW-1989 Print and IAFW-2159 or IAFW-1779-A or IAFW-1771 or IAFW-1881 as the case may be, including Errata and amendments thereto. If any provision in these special conditions is/are at variance with that of the aforesaid documents, the former shall be deemed to take precedence there over.
- 1.2 The work under this contract shall be carried out in accordance with Schedule 'A', the particular specifications, drawings and other provisions in MES Schedule.
- 1.3 The term General Specifications referred to herein before as well as referred to in IAFW-2249 (General Conditions of Contracts) shall mean the specifications contained in the MES Schedule.
- 1.4 General rules, specifications, special conditions and all preambles in the MES Schedule shall be deemed to apply to the work under this contract. In case of any discrepancy, the provisions in these documents shall take precedence over the aforesaid provisions in the MES Schedule.

2. INSPECTION OF SITE

- 2.1 For the purpose of inspection of site, the tenderer is advised to contact the Garrison Engineer who will give reasonable facilities therefor. The tenderer shall also make himself familiar with the working conditions, accessibility to site of works, availability of labour and materials and such other relevant conditions which affect the execution and the entire completion of the works. The tenderer shall be deemed to have inspected the site and made himself familiar with various factors which may affect his quotation, whether he actually inspects the site or not.

2.2 HANDING OVER SITE:

- 2.2.1 The site(s) for execution of work will be available as soon as the work is awarded. In case it is not possible to make the entire site available on the award of work, the Contractor will have to re-arrange his working program accordingly. No claim what-so-ever, for not giving the entire site on award of work and for giving the site(s) gradually, will be tenable.

3. RESTRICTION FOR ENTRY TO WORK SITE

- 3.1 The restrictions for entry to work site and conditions of working in **RESTRICTED AREA.**
- 3.1.1 **ENTRY AND EXIT:** The contractor, his agent(s)/representatives, workmen etc and his materials, carts, trucks or other means of transports etc will be allowed to enter through and leave from only from such gate or gates and at such times as the GE or authorities in charge of the Restricted Area may at their sole discretion permit to be used. contractor's authorized representative is required to be present at the place of entry and exit for the purpose of the identifying his carts, truck etc to the personnel in charge of the security of Restricted Area.
- 3.1.2 **IDENTITY OF WORKMEN :** Every workman shall be in possession of an identity card. The identity card will be issued after a thorough investigation of antecedents of the labourers by the contractor and attested by the Officer-in-Charge of the unit concerned in accordance with the standing rules and regulations of the units. Contractor shall be responsible for conduct of his workmen, agents or representatives.
- 3.1.3 **IDENTITY CARDS OR PASSES:** The contractor, his agents and representatives are required individually to be in possession of an identity card or pass duly which will be examined by the security staff at the time of entry into or exit from the restricted area at any time or number of times inside restricted area.
- 3.1.4 **SEARCH :** Thorough search of all persons and transport shall be carried out at each gate and for as many times gate is used for entry or exit and may also be carried out at any number of times at the site within the Restricted Area.
- 3.1.5 **WORKING HOURS :** The units controlling restricted area, usually work during six days in a week and remain closed on the 7th day. The working hours available to the contractor's labour and staff are however appreciably reduced because of the time of entry and exit during working hours. The exact working hours, working days and number of working days observed for these restricted area 9s) where works are to be carried out shall be deemed to have been ascertained by contractor before submitting his tender. The tenderers attention is invited to the fact that number of working hours for a unit are prescribed in regulations and that they cannot be increased by the GE or authorities controlling the restricted area. The definition of "working days" as given under condition 1 (t) of IAFW-2249 does not apply in case where the works are carried out in restricted area.

PARTICULAR SPECIFICATIONS PART – I (Contd....)

- 3.1.6 FEMALE SEARCHER : If the contractor desires to employ female labour on works to be carried out inside the area of a AF stn, factory, depot, park etc and a female searcher is not borne on the authorized strength of the AF Stn, factory, depot, park etc at the time of submission of the tender, he shall be deemed to have allowed in his tender for pay and allowances etc for female searchers (Class IV servant) calculated for the period, female labour is employed by him inside that area. If more than one contractor employs female labour during any month and female's searcher(s) has/have employed in addition to the authoised strength of the AF Stn, factory, depot, park etc, the salary and allowances paid to the additional females searcher(s) shall be distributed on an equitable basis between the contractors employing female labour taking into consideration the values and period of completion of their contracts. The GE's decision in regard to the amount payable on this account by any contractor shall be final and binding.
- 3.1.7 FIRE PRECAUTIONS
- (a) The Contractor, his agents, representatives, workmen etc shall strictly observe the orders pertaining to fire precautions prevailing within the concerned area.
- (b) Motor transport vehicles, if any allowed by authorities to enter the concerned area, must be fitted with serviceable fire extinguishers.
- 3.2 The restrictions for entry to work site and conditions of working in **UNRESTRICTED AREA**
- 3.2.1 Contractor's attention is invited to Condition 25 of IAFW-2249. He shall employ only Indian National after verifying their antecedents and loyalty. 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.
- 3.2.2 The Engineer-in-Charge shall at his discretion, has the right to issue passes as per rules and regulations of the installation/area in force to control the admission of the contractor, his agents, and employees and work people to the site of the work or any part thereof. Passes should be returned by the contractor any time on demand by the Engineer-in-Charge or the authorities concerned and in any case on completion of work.
- 3.2.3 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 e.g. prohibition of smoking and lighting, fire precautions, use of media communication such as mobile and etc, search of persons on entry and exit, keeping to specific routes. Nothing extra shall be admissible for any man-hours etc. Onus on lost on this account shall be rest upon the contractor.
4. **WORK ON HOLIDAYS.**
- 4.1 The contractor shall not carry out any work on Gazetted holidays, weekly holidays and other non-working days except when he is specially authorised in writing to do so by the GE. The GE may at his sole discretion, declare any day as holiday or non-working day without assigning any reasons for such declaration.
5. **SAFETY PRECAUTIONS:**
- 5.1 The Contractor shall take every precaution to control traffic on road by keeping danger boards, necessary lighting arrangements, fencing & other location Viz; excavation, scaffolding etc. & watchman to avoid any damage. In case due to excavation or otherwise the road is to be blocked the contractor shall without any extra cost to the Government Provide separate by pass so that normal traffic will not be disturbed.
- 5.2 Any damage to the existing road/building etc. shall be made good by the contractor with the same specification as per existing work without any extra cost to the Government. In the event of contractor not fully complying with the above provisions to the satisfaction of the GE, the GE may provide the same for which the expenses incurred will be recovered from the contractor.
6. **NETWORK ANALYSIS**
- 6.1 The time and progress chart to be prepared as per condition 11 of General conditions of contracts (IAFW-2249) shall consist of detailed net work analysis and time schedule. The critical path net work will be drawn jointly by the GE and the contractor soon after acceptance of tender. The time scheduling of the activities will be done by the contractor so as to finish the work within the stipulated time. On completion of the time schedule a firm calendar date schedule will be prepared and submitted by the contractor to the GE who will approve it after due scrutiny. This net work analysis will be submitted in four copies within two weeks from the date of handing over the site.

PARTICULAR SPECIFICATIONS PART – I (Contd....)

- 6.2 During the currency of the work, the contractor is 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, the contractor is expected to participate in the reviews & updating of the net work undertaken by the GE. These reviews may be undertaken at the discretion of the GE either as periodical appraisal measure or when the quantum of work ordered on the contractor is substantially changed through deviation orders or amendments. Any revision of the time schedule as a result of the review will be submitted by the contractor to the GE within a week for his approval after due scrutiny.
- 6.3 The contractor shall adhere to the revised time schedule thereafter. In case of contractor disagreeing with the revised schedule, the same will be referred to the Accepting Officer, whose decision shall be final, conclusive and binding. GE's approval to the revised schedule resulting in a completion date beyond the stipulated date of completion shall not automatically amount to 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.
- 6.4 Contractor shall mobilize and employ sufficient resources to achieve the detailed schedule within the broad frame work of the accepted methods of working and safety. No additional payment will be made to the contractor for any multiple shift work or other incentive methods contemplated by him in his work schedule, even though the time schedule is approved by the department.
7. **SECURITY OF CLASSIFIED DOCUMENTS:** (Refer Condition 2A & 3 of IAFW-2249)
Contractor's special attention is drawn to conditions 2A and 3 of General Conditions of Contracts (IAFW-2249) and also to the Indian Official Secret Act-1923 (Particularly Section 5). The contractor is bound by the provision of the act. The contractor shall not communicate any classified information regarding works either to subcontractor(s) or others without prior approval of 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 the entire document on completion of the work 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 the General Conditions of Contracts (IAFW-2249).
8. **CONTRACTORS' REPRESENTATIVES, AGENTS AND WORKMEN:**
The contractor shall employ only Indian National as his representatives, servants and workmen after verifying their antecedents and loyalty. He shall ensure that no person of doubtful antecedents and Nationality is, in any way, associated with the work. If for reasons of technical collaboration or 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. The GE shall order the contractor to cease to employ in connection with this contract any representatives, agents, servants and workmen or employee whose continued employment in his opinion is undesirable. The contractor shall not be allowed any compensation on this account.
9. **MINIMUM FAIR WAGES:** (Refer Condition 58 of IAFW-2249)
- 9.1 Refer condition 58 of IAFW-2249. The contractor shall not pay wages lower than minimum wages for labour as fixed by the Government of India/ State Government/Union Territory whichever is higher.
- 9.2 The fair wages referred to in condition 58 of IAFW-2249 shall be deemed to be the same as the minimum wages payable as referred to above.
- 9.3 The contractor shall have no claim whatsoever if on account of local factor and/or regulations or otherwise he is required to pay the wages in excess of minimum wages as described above during the execution of work.
10. **ROYALTIES:** Refer Condition 14 of General Conditions of Contracts (IAFW-2249).
No quarries on Defence land are available. The contractor shall make his own arrangements for the procurement of materials such as stones, aggregate, moorum and approved earth from any quarries located outside MD land, required to be incorporated in the work. All royalties, duties, taxes as applicable shall be borne by the contractor on such account for the material to be incorporated in the work or works ordered in subsequent deviations.
11. **LAND FOR TEMPORARY WORKSHOP, STORES, ETC:** (Refer Para 1 of Condition 24 of IAFW 2249)
In lines 5 to 9 of sub-Para 1 of condition 24 of IAFW-2249;
For: "In the event of area of land" – to – "allot to him"
Read: "The Contractors shall be allotted free of charge, the area as decided by the GE, for the purpose of erection of temporary workshop, stores etc. Plot of land so allotted shall not be used for accommodation of labour and canteen for which the Contractor shall make his own arrangements, at his own expenses".

PARTICULAR SPECIFICATIONS PART – I (Contd....)**12. COOPERATION WITH OTHER AGENCIES:**

- 12.1 The contractor shall permit free access and generally afford reasonable facilities to other agencies or departmental workmen engaged by Government to carryout their part of the works, if any, under separate arrangements.
- 12.2 The contractor's prices shall be deemed to cater for all the above contingencies and nothing extra shall be admissible on this account.
13. Site Clearance/ Cleaning Down (Refer Condition 49 of IAFW-2249, General Conditions of Contracts.
- 13.1 The contractor shall remove from the site all unused stores and huts and the like belonging to the contractor provided for the execution of work under this contract and the site of works shall be cleared off all rubbish and waste materials by the contractor and the site of work delivered in clean and tidy manner to the satisfaction of the Engineer-in-Charge on or before the date of completion.
- 13.2 The contractor shall clean all floors, remove cement/lime/paint drops etc, clean the joinery, glass panes etc, touch up all painting work and carry out all other necessary items of work in connection there with and leave the whole premises clean and tidy to the entire satisfaction of the Engineer-in-charge before handing over the buildings.
- 13.3 Nothing extra whatsoever shall be paid to the contractor for ABOVE such clearances of site.

14. RECORD OF CONSUMPTION OF CEMENT:

- 14.1 For the purpose of keeping a record of cement received and consumed in works, the contractor shall maintain a pucca bound register in the form approved by the Engineer-in-Charge showing daily receipt, quantity used in the works and balance in hand. The register shall be signed daily by the contractor's representative and the Engineer-in-Charge in token of their verification of its correctness. The check will not, however, absolve the contractor of his responsibility to justify the consumption of cement at the time of finalisation of his accounts.
- 14.2 The register shall be kept at site in the safe custody of the contractor during progress of the work and shall, on demand, be produced for verification on Inspecting Officer. On completion of work, the register shall be handed over to the Engineer-in-Charge for record with MES.

15. ---BLANK----

16. ---BLANK----

17. PERIOD FOR KEEPING THE TENDER/ BID OPEN FOR ACCEPTANCE:

The tender/ bid shall remain open for acceptance for a period of **60 [sixty] days** commencing from the next day subsequent to bid submission end date.

18. DAMAGE TO EXISTING WORK

- 18.1 Any damage done to the existing structure during the execution of work shall be made good by the contractor at his own cost and the site of work left clean and tidy on completion. Rectification/reinstatement etc. shall conform to the standard of materials originally used in the work and finished work shall match with existing work in all respects to the entire satisfaction of the GE. In case of any dispute on this account the matter shall be referred to the CWE, whose decision in writing shall be final and binding.

19. OFFICIAL SECRET ACT:

The contractor shall be bound by the Official Secret Act.

20. SIGNING OF CONTRACT DOCUMENTS

- 20.1 The person signing the tender on behalf of the firms shall attach with the tender a proper power of attorney duly executed in his favour by such person or by all the partners of the firm stating that he has authority to bind such other persons of the firm as the case may be in all matters pertaining to the contract including Arbitration clause.

21. BANK GUARANTEE BOND:

- 21.1 In case the contractor desires to furnish Bank Guarantee in lieu of retention money/security deposit, the guarantee bond shall be executed as per specimen prescribed by the Government of India, Ministry of Defence on Non-judicial stamp paper(s) of appropriate value from a Schedule Bank. In case the Bank Guarantee Bond is executed from a non-Scheduled Bank the same shall be supported with cover from Reserve Bank of India.
- 21.2 Guarantee Bond shall come into force after the same is accepted by the Accepting Officer.

22. ---BLANK---

PARTICULAR SPECIFICATIONS PART – I (Contd....)**23. WATER WILL BE SUPPLIED BY MES**

- 23.1 Water will be supplied by MES to the contractor at points shown on site plan from piped system and shall be paid by the contractor @ Rs. 3.75 per Rs. 1000/- worth of work done priced at contract rates in case of unmetered supply (where it is not possible to meter the supply of water viz works of repairs, addition/alteration etc involving number of locations) and at All-in-Cost rate of preceding year (to be decided by CE Zone/CCE) in case of metered supply. The contractor shall arrange at his own expense for storage of water and lifting, pumping, carrying or conveying water to the site of work as required. In case water points are not marked on the site plan, the water shall be supplied at one point as decided by GE.
- 23.2 The supply of water may not be continuous. The contractor shall be deemed to have ascertained the hours of availability of water before submitting his tender. MES does not guarantee continuity of water supply and no compensation shall be allowed for intermittent or inadequate water supply and break down in the system. If the supply is not sufficient the contractor shall make his own arrangement to supplement the water supply at his own cost. For this purpose, the contractor shall be allowed to install hand pumps, tubewells at the site of work at places as directed by the Engineer-in-Charge without any charges from the contractor on this account. The contractor shall remove the hand pumps, tubewells as and when asked to do so by Engineer-in-Charge or GE and in any case on completion of work unless GE desires that these hand pumps, tube wells be left in position and the contractor agrees to do so without claiming cost thereof from the Department. No compensation whatsoever shall be admissible to the contractor if the GE requires him to remove the pumps before completion of work. Use of water from such sources shall be permitted only if found potable after testing, and fit for use in the work. The water from such sources shall be got tested by the contractor from a laboratory approved by the GE, who shall, after satisfying himself, permit the contractor to use the water from such sources. Testing charges shall be borne by the contractor.

24. ELECTRICITY SUPPLY

- 24.1 Electric Supply shall be made available by MES. The contractor will be charged for electric energy consumed at the rates of Rs. 7.06 per unit for lighting and power.
- 24.2 Electric supply required for works shall be made available by the MES at the incoming terminal of the main switch marked on the layout plan as decided by GE. The main switch and KWH meter to register the electric energy supplied shall be provided and installed by MES. The contractor shall provide all necessary connections, cables, fittings etc. from the main switch in order to ensure proper and suitable supply of electricity at all locations where electric energy is required by the contractor for carrying out all works under this contract. Government will not guarantee continuity of electric supply and no compensation whatsoever shall be allowed for supply becoming intermittent or for breakdown in the system for any reasons whatsoever.

25. TAXES, LEVIES AND OTHER DUTIES:

The unit rates quoted by the Contractor shall include for all taxes liability & statutory levies/duties i.e GST, Labour Welfare Cess, Turn Over Taxes or any Levies/duties applicable on Contract as on bid submission end date including Labour welfare cess for Building construction workers welfare Act required to be paid by him to concerned authorities as per the rules and laws in force. No additional payment on these accounts shall be made under this Contract by the MES. Department shall not issue form "D" or its equivalent. Tenderer is advised to check the rules and regulations from concerned authorities before submitting his tender.

26. CONCILIATION

- 26.1 The scope of conciliation shall be restricted to the following types of disputes with financial limits as indicated therein.
- (a) Disputes relating to levy of compensation for delay in completion -actual amount of compensation.
 - (b) Disputes relating to technical examination of works.
 - (c) Disputes relating to interpretation of the provisions of the contract with reference to their application to parties.
 - (d) Disputes relating to non-return of schedule „B“ stores over issued to contractor.
 - (e) Any other dispute having fair chances of being resolved by conciliation and considered fit to be referred to conciliation by the parties. For item (b), (c), (d) and (e) each as stated above the financial limit shall be Rupees two lakh or one percent of the contract amount whichever is less.
- 26.2 **COMMENCEMENT OF CONCILIATION PROCEEDINGS**
- 26.2.1 The party initiating conciliation shall send to the other party a written invitation to conciliate, briefly identifying the subject of the dispute.

PARTICULAR SPECIFICATIONS PART – I (Contd....)

- 26.2.2 Conciliation proceedings shall commence when the other party accepts in writing the invitation to conciliate.
- 26.2.3 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.
- 26.3 **Number of conciliators.** There shall be a Sole conciliator
- 26.4 **Appointment of conciliator**
All disputes brought out in Para 29.1 (a) to (e) above shall be referred to the sole Conciliator viz. Serving Officer not below the rank of Superintending Engineer/ Superintending Engineer (QS&C) having degree in Engineering or equivalent or having passed final/direct final examination of Sub division II of Institution of Surveyors (India) to be appointed by the Engineer-in-Chief, Army Headquarters, New Delhi or in his absence the officer officiating as Engineer-in-Chief or Director General of works if specifically delegated by the Engineer-in-Chief in writing.
- 26.5 **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.
27. **Out of pocket expense**
Out of pocket expenses incurred by the tenderer in submitting this tender shall not be reimbursed whether tender is accepted or not.
28. ---BLANK---
29. ---BLANK---
30. **MATERIALS AND SAMPLES (REFER CONDITION 10 OF IAFW-2249)**
- 30.1 The tenderer is advised to inspect samples of the local building materials maintained by the GE before submitting his tender. He will be deemed to have full knowledge of these materials whether he inspects them or not. The materials to be provided by the contractor shall conform to/shall be superior to the standard of samples displayed in the office of Garrison Engineer in the matter of quality unless otherwise specified.
- 30.2 The contractor shall produce samples of materials for incorporation through Engineer-in-Charge to the GE and get them approved in writing by the GE before commencement of work. All approvals of materials shall be in writing from GE to contractor. The materials, articles etc as approved shall be labeled as such and shall be signed by GE and contractor and kept in the safe custody of GE/Engineer-in-Charge.
31. **RECORD OF MATERIALS**
- 31.1 Original vouchers for the proprietary materials required for execution of works shall be produced by the contractor before claiming RAR payments.
- 31.2 The vouchers/invoices shall be from the manufacturers and/or from their authorised agents for full quantity of respective items required for the work under this contract. These vouchers shall be endorsed, dated and initialed by the Engineer-in-Charge giving the contract number and name of work and a certified true copy of each such voucher signed by both Engineer-in-charge and contractor shall also be kept on MES record.
- 31.3 The quantity brought to site shall be recorded in measurement books and signed by contractor and Engineer-in-Charge as a check to ensure that the required quantity have been brought to site for incorporation in the work.
- 31.4 Proprietary materials brought at site shall be stored as directed by Engineer-in-Charge and those already recorded shall be suitably marked for identification.
- 31.5 The contractor shall ensure that materials are brought to site in original sealed containers or packing bearing manufacturers marking except in the case of the total requirement less than the smallest packing.
32. **REFUND/ RELEASE OF PERFORMANCE SECURITY DEPOSIT (REFER CONDITION 19 OF IAFW-2249)**
- 32.1 The Performance Security Deposit mentioned in Condition-19 (Added through Amendment No. 47 to IAFW-2249, General Conditions of Contracts) may be refunded to the contractor after expiry of the defect's 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 (IAFW-451).

PARTICULAR SPECIFICATIONS PART – I (Contd....)

- 32.2 The refund/ release of Performance Security Deposit will be allowed only if there are no claims outstanding against the contractor in respect of the contract and the final bill is not "minus". In case any claims are outstanding against the contractor, and/or the final bill is "minus", the amount of Performance Security Deposit to be released, will be adjusted against the outstanding amount due to the Government and the balance, if any, will be released to the contractor.
33. **Testing of building Materials**
- 33.1 Sampling and testing of materials shall be done as per BIS stipulations and as modified in tender documents. The cost of samples of materials and other expenses required to be incurred for taking the samples, packaging, conveyance, preservation for future reference and testing charges shall be borne by the contractor.
- 33.2 Tests as described in tender documents including those enumerated in Appendix "B" to Particular specifications Part II, shall be carried out without any extra cost to Govt. Tests stipulated as „Independent“ and by "Board of Officers" shall also be carried out without any extra cost to Government.
- 33.3 Tests at different levels as provided and described in Appendix "B" to Particular specifications Part II, shall be carried out. Tests for which levels of testing have not been defined shall be carried out as decided by GE.
- 33.4 Site lab tests shall be carried out in site lab established by the contractor. Tests in site lab established by the contractor shall be carried out in presence of contractor's rep and Department's rep and tests results shall be prepared and signed by contractor's rep and Engineer-in-charge. No charges for tests carried out in contractor's site lab shall be recovered from the contractor. In case contractor does not establish the site lab, the testing of these materials shall be done in laboratories approved by GE without any extra cost to Government. If these tests are carried out in Department's lab, the testing charges as enumerated in Appendix "B" to Particular specifications Part II, shall be recovered from contractor.
- 33.4 Tests stipulated at "Command/Zonal Lab" shall be carried out in the Department's laboratories. Testing charges for tests carried out in "Command/Zonal Lab" shall be recovered at the rates enumerated in Appendix "B" to Particular specifications Part II. If testing facilities is not available "Command/Zonal Lab" these tests shall be carried out in approved laboratories without any extra cost to Government.
- 33.6 Approved laboratories other than "site lab" and Command/Zonal Lab". Testing and allied charges as charged by the concerned laboratories shall be borne by the contractor without any extra cost to Government. The testing charges mentioned for these tests are for guidance only and no compensation shall be admissible if testing and allied charges in approved laboratories are higher than those stipulated by Department in tender documents. No recovery shall be made from contractors for tests carried out in approved laboratories by them.
34. **IMPORT LICENCE**
- 34.1 Particular attention of the tenderer is drawn to the fact that all material to be supplied under this contract shall be from the ready stock or such as would be available within India except for such items are not of indigenous manufacture and are not otherwise totally banned for import by the Ministry of Commerce and Industry. No import license will be arranged by the Department for such items and where required, such license will have to be arranged by the contractor against their own import quota or through their sources.
- 34.2 All equipments and material to be used in the work shall be new and of the best of their respective kind.
- 34.3 No foreign exchange shall be provided by MES for any equipments/materials.
35. Re-imbursement/ refund on variation in "Taxes directly related to Contract value". The rates quoted by the Contractor shall be deemed to be inclusive of all the taxes Service Tax inclusive cess as applicable (including GST, Sales Tax/ VAT on materials, Sales Tax/ VAT on works contracts, Turnover Tax, Service Tax, Labour Welfare Cess/Tax, etc), duties, Royalties, Octroi & other levies payable under the respective Statues. No re-imbursement/ refund for variation in rates of Taxes, duties, Royalties, Octroi & other levies, and/ or imposition/ abolition of any new/ existing Taxes, duties, Royalties, Octroi other levies shall be made except as provided here-in-below in Sub Para of Para 34:-

PARTICULAR SPECIFICATIONS PART – I (Contd....)

- (a) The Taxes which are levied by Government at certain percentage rates of Contract Sum/ Amount shall be termed as "Taxes directly related to Contract Value" such as GST, Sales Tax/ VAT on Works Contracts, Turnover Tax, Labour Welfare Cess/ Tax and the 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 the 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 Government/ deducted by the Government 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" shall be refunded by the Contractor to the Government/ deducted by the Government from payments due to the Contractor
- (b) 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 to 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 Contractor shall submit the other documentary proof/ information as the GE may require.
- (c) 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 the duly authorised representative of Government and shall further, at the request of the GE furnish, verified in such manner as the GE may require, any documents so kept and such other information as the GE may require.
- (d) Reimbursement for the 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 Government, without getting the same adjusted against any other Tax liability or without getting the same refunded from the concerned Government Authority and submits documentary proof for the same as the GE may require.

Signature of Contractor
Dated :

AGE (Contracts)
For Accepting Officer

PARTICULAR SPECIFICATIONS PART II
(Material & Workmanship)

1. GENERAL

- 1.1 The work under this contract shall be carried out in accordance with Schedule 'A' provisions, all as shown on drawings, particulars specifications and General Specifications.
- 1.2 The term 'General Specifications' referred to here-in-before as well as referred to in IAFW-2249 (General Conditions of Contract) shall mean the specifications contained in the MES Schedule.
- 1.3 General Rules, Specifications, Special Conditions and all preambles in the MES Schedule shall be deemed to apply to the work under this Contract, unless mentioned otherwise in these documents. In case of varied provisions as contained in these in these documents shall take precedence over the provisions in the MES Schedule.
- 1.4 Particulars specification given here-in-after are in brief and are meant only to particularizes, amend and emphasis the specifications given in MES Schedule. In respect of such items of work for which particular specifications are not given, the specifications as given in MES Schedule and relevant BIS/ISI shall be followed.

2. MATERIALS TO BE SUPPLIED BY CONTRACTOR

- 2.1 Refer Condition 10 of IAFW-2249 (General Conditions of Contracts)
- 2.2 Materials having ISI certification marks issued by BIS only will be incorporated in the work except where specific 'Makes' have been specified, in which case such article/material/equipment of particular 'make' specified shall only be incorporated in the work (If IS marked materials of specified make are available the IS Marked material of the specified make shall only be provided). In exceptional cases where situation so warrants, materials without ISI marking may be incorporated although being manufactured with ISI marking after written approval of the Accepting Officer of the Contract agreement subject to the following:-
 - 2.2.1 The materials/articles must conform to IS/BIS requirement or shall be superior quality.
 - 2.2.2 **BLANK**
- 2.3 The tenderer is advised to inspect samples of ISI marked and other than ISI marked materials which are displayed in the office of the GE, before submitting his tender. The tenderer shall be deemed to have inspected the samples and satisfied himself as to the nature and quality of materials, he is required to incorporate in the work irrespective of whether he has actually inspected them or not.
- 2.4 The Contractor shall not procure bulk materials unless the sample of each article is got approved in writing from GE.
- 2.5 The relevant Indian standards shall be of latest revision including amendments, if any. The contractor shall incorporate in the work materials complying with the requirement of relevant Indian standards of the latest publication (Edition) including amendment/revision thereof, without any price adjustment in the quoted lump sum.

3. MATERIALS, WHICH LOOSE IDENTITY AFTER INCORPORATION

- 3.1 Materials such as cement, steel sections water proofing compound, paint, chemicals for anti-termite treatment, cement etc steel for reinforcement the quality of which cannot be checked after incorporation in the work, shall when collected at site, be recorded in the Measurement Book and signed by both the MES representative and the contractor as a check to ensure that the required quantity has been brought to site for incorporation in the work. Reference to Purchase Vouchers No, Name of the manufacturer/dealer from whom materials have been purchased shall be recorded in the Measurement Books (s).
- 3.2 The Contractor shall obtain/procure materials from manufactures authorized dealers/stockiest where such authorized stockiest has been appointed. The Contractor shall produce original receipted voucher of supplier to the GE, to ensure that the Contractor has actually brought the all required quantity and the quality of the materials from the authorized dealers/manufacturers and also to find out the rates thereon. These vouchers shall be endorsed, dated and initialed by the Engineer-in-Charge and the Contractor and shall be kept on records with the Engineer-in-Charge who shall forward these to the GE soon after completion of the works.
- 3.3 Materials 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.
- 3.4 The Contractors shall ensure that the materials are brought to the site in original sealed container or packing, bearing manufacturer's markings.
- 3.5 A Register showing the daily consumption of the chemical for anti-treatment shall be maintained which will be signed by the Engineer-in-Charge & the contractor in token of correctness of the entries therein. The Register shall also indicate the following :

- (b) Requirement of chemical in the work as per specifications.

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

- (c) The quantity actually used in the work.
- (d) Batch number of chemical received and its date of expiry.
- 4. **PRODUCTION OF PURCHASE VOUCHERS FOR MATERIALS PROCURED**
- 4.1 The contractor shall produce purchase vouchers from the manufacturer and/or their authorized agents for the full quantity following material as applicable as a prerequisite before submitting claim in RAR as material lying at site for payment of advances on account materials collected in accordance with condition 64 of General Conditions of Contracts IAFW-2249 :
 - (a) Materials, which loose identity after incorporation such as water proofing compound, paint, chemicals for anti-termite treatment etc.
 - (b) MS/CI/GI/DI pipes, fittings and pre-moulded bituminous boards, etc.
 - (c) Pipes and fittings.
 - (d) Steel windows and ventilators.
 - (e) Factory made door shutters, particle boards, plywood etc.
 - (f) Major E/M items such as DG Set, Transformer, VCB/OCB, LT/HT cable, Panel Board, ACSR Conductor etc.
 - (g) Electrical & water supply fittings/fixtures where name of manufacturers/brands are specified or approved.
 - (h) Bitumen & road marking Paint
 - (j) Cement.
 - (k) All steel sections (including reinforcement).
 - (l) Epoxy compound for water proofing treatment.
 - (m) Polymeric water proofing membrane.
 - (n) Sealing compound.
 - (o) Pre moulded bituminous filler etc.
 - (p) Any materials demanded by AGE
- 4.2 When the cost of each category of materials for entire contract is less than Rs. 2500/- productions of bills may not be insisted upon, if the GE is otherwise satisfied with the quality and quantity of materials.
- 5. **SAMPLE WORKMANSHIP**
- 5.1 To determine the acceptable standard of workmanship, the GE shall order the contractor to construct some portions of work in advance. All work and services of the "Sample Workmanship" such as brick work, RCC work, joinery, ceiling, plastering, flooring, plumbing, water supply and electrification with their fittings and fixtures, iron mongery, finishes etc, complete all as per drawing and specifications shall be got completed under the close supervision of the Engineer-in-Charge. It will be obligatory on the part of the contractor to complete the sample workmanship in advance.
- 6. **EXCAVATION & EARTH WORK**
- 6.1 GENERAL
 - (a) Excavation and earth shall be carried out as specified in Sch "A".
 - (b) Unsuitable soil shall not be used in filling. Soil obtained from excavation if approved by the Engr-in-Charge may be used for filling etc.
 - (c) Before filling the ground shall be cleared of all vegetation, roofs etc.
 - (d) The surplus spoil, if any shall be disposed to a distance as described in Sch 'A'.
- 6.2 **FILLING** :-
Earth obtained from surface dressing shall not be used for filling purpose for works under this Contract and shall be removed from the site and filled in low lying areas or at location directed by GE.
- 6.3 **DISPOSAL OF EXCAVATED EARTH**
All surplus soil obtained from excavation shall be disposed off to a distance as per item of Schedule 'A' at the location(s) as directed by Engineer-in-Charge, deposited, spread and leveled as specified in MES Schedule.
- 7. **HARD CORE**
- 7.1 Hard core shall be of hard broken stones or boulders out of black trap/basalt conforming to samples kept in GE office. The hard core shall be deposited, spread and leveled in layers not exceeding 150mm thick watered and rammed to true surfaces complete all as directed.
- 8. **CEMENT**
- 8.1 Refer Para 4.3 on page 4-2 of MES Schedule Part I (2009).

PARTICULAR SPECIFICATIONS PART II (Contd.....)**8.2 PROCUREMENT AND TESTING OF CEMENT**

- 8.2.1 All cement required for completion of work under this contract shall be procured, supplied & incorporated by the contractor under his own arrangement direct from the manufacturers. Particulars of the manufacturer/ producer of cement along with date of manufacture shall be furnished by the contractor to GE for every lot/ consignment of cement separately. Manufacturers are listed in Appendix 'A' to these particular specifications.
- 8.2.2 In case estimated requirement of cement is less than 1200 bags for PPC cement and OPC, contractor can procure cement from the authorized distributors/dealers of the approved firms. However, contractor shall have to submit test certificate for the batch issued by the firm. Independent testing of cement shall be at the option / discretion of the Garrison Engineer, if factory test certificates are produced by the contractor. In case the contractor does not produce the factory test certificate, the testing of cement by Garrison Engineer shall be mandatory. However, the testing shall be restricted to IS - 4031 (method of physical test for hydraulic cement) only. The GE shall ensure that cement accepted should not be more than two months old. The week / date of manufacture of cement is always printed at the bottom end of the cement bag. The marking of manufacturing date of cement bag is of peculiar nature and all concerned officials are required to clearly understand the method of marking.
- 8.2.3 All cement required for completion of work under this contract shall be of tested quality & shall comply with the requirements mentioned in the drawings, MES Schedule, IS specifications as amended & particular specification in this tender document.
- 8.2.4 The contractor shall furnish the particulars of the manufacturer of cement along-with the date of manufacture to the GE for every lot of cement separately. The cement so brought shall be fresh & in no case older than 90 (ninety) days from the date of manufacture. The GE shall verify the documents in support of the purchase of cement. Before placing the order for supply of cement, the contractor shall obtain written approval from the GE regarding name of manufacturer, quantity of cement etc. Cement shall be procured for minimum requirement of one month & not exceeding the requirements of cement for more than two months at a time. The cement shall be consumed within a period of three months after receipt. Cement shall conform to the requirement of IS specifications. Each bag of cement shall bear ISI mark. The weight of each consignment shall be verified by the GE & recorded. The content of cement shall be checked at random to verify the actual weight of cement per bag. However, the content of cement per bag shall be 50 Kg only subject to tolerance given in clause 9.2.1.1 & Annexure 'B' of IS-8112 and Clause 10.2.1.1 & Annexure 'B' of IS-1489 for OPC & PPC respectively.
- 8.2.5 The type of cement for the subject work shall be Portland Pozzolana Cement as per IS: 1489 of 1991. However ; the contractor may at his option use Ordinary Portland Cement of Grade 43 (Forty-three) in accordance with IS : 8112 of 1989 which shall be without any price adjustments. Mixing of OPC & PPC shall not be allowed & both PPC & OPC shall not be permitted for use in the same building except for plaster.
- 8.2.6 While using Portland Pozzolana cement, following requirement shall be met by the Contractor:
- (i) PPC shall meet the strength criteria of 43 Grade OPC as laid down in IS-8112 of 1989.
 - (ii) The minimum period before stripping formwork given in clause 11.3.1 of IS 456-2000 shall be increased at site by 03 (three) days. The contractor shall not claim anything extra on this account.
 - (iii) Wet curing shall be done for a period of 14 (Fourteen) days. Wet curing for column shall be done through Hessian cloth wrapped on the column.
 - (iv) The contractor shall submit following certificates for each batch of cement from the manufacturer;
 - (aa) The quality of fly ash is strictly as per IS 1489 (Part I) – 2002.
 - (ab) Fly ash is inter-ground with clinker and not mixed with clinker.
 - (ac) Dry fly ash is transported in closed containers and stored in silos. Only pneumatic pumping has been used.
 - (ad) The fly ash as received from thermal power plants using high temperature combustion above 1000oC has only been used.
 - (ae) The compressive strength of cement at 03 days, 07 days & 28 days shall not be less than 23 Mpa, 33 Mpa & 43 Mpa respectively. Each lot of cement brought at the site shall be tested for compliance by the GE before acceptance.
- 8.2.7 Procurement of cement shall be done in such a phased manner so as to avoid storage for long duration

PARTICULAR SPECIFICATIONS PART II (Contd.....)**8.3 Testing**

- 8.3.1 The manufacturer is required to carry out inspections and testing of cement in accordance with the relevant BIS provisions. The contractor shall submit the Manufacturer's Test Certificate in original along with the test sheets 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 as per the following IS provisions: -
- (a) Method of sampling hydraulic cement as per IS-3535 of 1986,
 - (b) Method of physical test of hydraulic cement as per IS-4031,
 - (c) Method of chemical analysis of hydraulic cement as per IS-4032 of 1985.
- 8.3.2 The test certificates & the test sheets shall be furnished by the contractor with each batch of cement. The Engineer-in-Charge shall record these details in the cement Acceptance/ Rejection Register as appended in Appendix 'D' to these particular specification, which shall be signed by the JE (Civil), Engineer-in-Charge, GE & the Contractor, after due verification.
- 8.3.3 The contractor shall however; organize 'setting time' and 'compressive strength' tests of cement through designated laboratory on sample collected from the lot brought at site before incorporation in the work. The contractor will be allowed to use the cement only after satisfactory compressive strength of 7 (seven) days. To meet this requirement, the contractor is required to keep minimum 10 days stock before any new lot is brought at site, which can be used, in the work. The contractor will, be required to remove the cement not meeting the requirement from site within 24 hours. Seven days strength will be relied upon to accept the lot of cement to commence the work. 28 days compressive strength test will be the final criteria to accept/ reject the lot.
- 8.3.4 The random samples as per relevant IS shall be selected by the GE before carrying out testing. The record of such samples selected by the GE shall be properly maintained in the Cement testing register giving cross reference to relevant consignment of cement & quantity received etc.
- 8.3.5 Cost of transportation of samples to the approved laboratory/ test house and all testing charges including the cost of sample shall be borne by the contractor irrespective of whether the sample passes or fails.
- 8.3.6 The contractor shall be required to setup adequate testing facilities at site to the entire satisfaction of GE for conducting setting time test and compressing strength test as per IS codes referred to in the clauses hereinbefore for the samples collected from the lot brought at site. These tests shall be carried out within 7 days of receipt of cement at site. The tests can alternatively be carried out at the Zonal Laboratory or any other recognized laboratory so designated by the GE.
- 8.3.7 The GE shall also organize & carryout independent testing as per the tests mentioned in the 'Cement supply & acceptance/ rejection register' at Appendix 'D' to these particular specifications of random samples drawn from various lots, if the sample fails in 7 days compressive strength. The test(s) shall be carried out through National Test House, SEMT Wing CME Pune, Regional Research Laboratories, Zonal laboratory, Government approved laboratory as per IS-3535 (method of sampling hydraulic cement); IS-4031-1995 (Method of physical test for hydraulic cement) and IS-4032-1985 (Method of chemical analysis of hydraulic cement). The decision as to where the testing is to be done shall be taken by the GE. In case the cement is not of requisite standard despite manufacturers' test certificate, the contractor at his cost shall remove the total consignment from the site after written rejection order of the consignment by the GE. All cost of testing shall be borne by the contractor irrespective of the result.
- 8.3.8 The required quantity of samples of the cement shall be taken in two Polythene bags and sealed by the Engineer-in-Charge in the presence of representative of the Contractor. The seal shall be authenticated by the Engineer-in-Charge and representative of the Contractor both. Out of two samples one sample shall be sent for testing and the other retained by GE in his office. Record of these samples shall be kept by Engineer-in-Charge in the register and copy of the same shall be sent to GE/ CWE/ CE by him for record in concerned contract files.
- 8.3.9 Cement brought by the Contractor shall be allowed to be incorporated in the work only after satisfactory test results of sample. GE shall inform the Contractor about the test results and accord permission, to incorporate, in the work, in writing.
- 8.3.10 In case the sample got tested by the GE from the institutions/ laboratories mentioned here-in-before fails, the concerned lot of cement shall stand rejected. The GE will inform the Contractor in writing about the test result and direct him to remove the rejected cement. Contractor shall remove the rejected cement from the site(s) of work(s) within two days of the order by the GE. Contractor shall have no claim whatsoever on account of rejection and removal of cement.

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

- 8.3.11 It shall be the responsibility of the Contractor to arrange to procure cement well in advance, to facilitate its testing before use in the work. The Contractor shall submit the program of procurement of cement to the GE before the date of commencement of the work indicating date of procurement and quantity. The contractor shall ensure that procurement of cement is regulated in such a manner that adequate time is available for its testing and progress of work is not hampered on this account.
- 8.3.12 The contractor shall submit original purchase vouchers for the total quantity of cement supplied under each consignment to be incorporated in the work. All the consignments received at the work site(s) shall be inspected by the GE along-with the relevant documents to ensure the requirements as mentioned hereinbefore, before acceptance. The original purchase vouchers and the test certificates shall be verified for the subject contract and defaced by the Engineer-in-Charge & kept on record in the Office of the GE duly authenticated and with cross reference to the consignment/ control number recorded in the 'Cement Acceptance/ Rejection Register'. The 'Cement Acceptance/ Rejection Register' shall be signed by the JE (Civil), Engineer-in-Charge, GE & the contractor. The contractor shall maintain Schedule of supply of cement for each consignment.
- 8.3.13 The Accepting Officer may order a Board of Officers for random check of the cement & verification of connected documents during the currency of contract.
- 8.3.14 No extension of time shall be admissible on account of any delay in testing of cement.
- 8.4 **STORAGE/ ACCOUNTING/ PRESERVATION OF CEMENT**
- 8.4.1 The Contractor shall store the cement at site in a covered leak proof godown with locking arrangement, over a dry platform/dunnage at least 20 cm high, in such a manner as to prevent deterioration due to moisture or intrusion of foreign matter. The stock of cement stored shall be at least 20 cm above floor & 60 cm away from the walls.
- The stacking of Cement shall not be more than 12 bags high. The stacking of cement shall be as specified in the relevant IS & storage, accounting & preservation of cement shall be done as per the standard engineering practice till the same is incorporated in the work and the cost of same shall be deemed to be included in the contractor's quoted rates. The cement so stored shall be inspected by the Engineer-in-Charge and the Contractor's rep once in a day to ensure that cement is stored, preserved & accounted as per norms & is not affected by moisture or by any other means. The cement shall be stored in such a way so as to differentiate each tested & untested consignment separately with distinct identification. GE shall make such inspections once in a week. If the GE is not satisfied with the storage/ preservation of cement, he may order for any test(s) of cement as applicable for that consignment to ensure its' conformity to the quality mentioned in the manufacturer's test certificate. The contractor shall bear all cost of necessary testing(s) in this regard & no claim whatsoever shall be entertained. Engineer-in-Charge shall attach a certificate with every RAR that cement is stored as per the above provisions and is safe. The tested and untested cement shall be segregated and stored separately with distinct identification.
- 8.4.2 **STACKING OF CEMENT SHALL BE DONE AS PER THE RELEVANT IS & AS UNDER:**
- (i) Each cement consignment shall be stacked separately & removal shall be made on the basis of 'first in' 'first out'.
 - (ii) Adequate top cover shall be provided.
 - (ii) Stacks in no case shall be higher than 12 bags. The maximum width of each stack shall be 3 meter. If the stack is 7 or 8 bags high, the bags shall be arranged in header & stretcher fashion, i.e. alternatively lengthwise & crosswise so as to pile together & avoid toppling over.
 - (iv) Adequate space shall be kept between two stacks.
- 8.4.3 The cement godown shall be provided with two locks on each door. One lock shall be provided by the rep of the GE and other by the Contractor. The keys of the lock provided by the rep of the GE at each door shall remain with Engineer-in-Charge or his representative and that of the other lock with the Contractor's authorized agent at site of work so that cement is removed from the go-down only according to the daily requirement with the knowledge of both the parties. During the period of storage, if any cement bag(s) is/are found to be in damaged conditions due to whatsoever reasons, the same shall be removed from the cement godown on written orders of the GE & suitable replacement for the cement bag(s) so removed shall be made & no claim whatsoever shall be admissible on this account.
- 8.4.4 In case more than one type of cement is used in the work i.e. OPC or PPC, both type of cements shall be stored separately as directed by the Engineer-in-Charge to avoid mixing of these two types of cement. Separate records shall be maintained including the location/ items where these two types of cement are used.

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

- 8.4.5 Cement shall be removed from the store only according to the daily requirement with the knowledge of both the parties and the Engineer-in-Charge & the contractor shall record daily consumption of cement in the cement consumption register, which will be signed.
- 8.5 Requirement of Cement
- 8.5.1 Requirement of cement to be incorporated in the works under this Contract (except for design mixes) shall be calculated on the basis of the cement constants as circulated by Engineer-in-Chief's Br, Army HQ, New Delhi, letter No 19280/ E-8 dated 03 May 1976, which can be seen in GE's Office. The quantity of cement required shall be checked jointly by the Engineer-in-Charge and the rep of the contractor at different stages of work and recorded in the cement register, which shall be checked at the time of payment of RAR. In case the consumption of cement as per the cement consumption register is found to be more than the estimated quantity of cement due to whatever reasons the contractor shall have no claim whatsoever for such excess consumption of cement.
- 8.6 **SCHEDULE OF SUPPLY**
- 8.6.1 The contractor shall procure cement timely as required in accordance with CPM chart agreed between the GE & the contractor. The contractor shall forfeit his right to demand extension of time if the supply of cement got delayed due to his failure in placing the order in time to the manufacturer.
- 8.7 **MEASUREMENT & PAYMENT OF CEMENT**
- 8.7.1 The entire quantity of cement shall also be suitably recorded in the Measurement book for record purpose as 'NOT TO BE ABSTRACTED' before incorporation in the work & shall be signed by the Engineer-in-Charge & the contractor.
- 8.7.2 The payment shall only be allowed after production of original purchase vouchers, certified copies of the test certificates from manufacturer for each consignment & result of testing carried out in laboratory on receipt of cement (7 days compressive test) are found satisfactory after testing at site as per condition 64 of IAFW 2249. Rate of payment given in SSR shall be applicable for cement irrespective of type & grade of cement specified for use in the work.
9. **CONCRETE WORK**
- 9.1 Cement shall be as specified herein before.
- 9.2 Lime shall be conforming to the approved sample kept in GE's office.
- 9.3 (a) Fine aggregate (sand) for concrete work shall confirm to materials specifications and grading within the limits of grading zone I to III as specified in clause 4.4.1 to 4.4.6 and 4.4.7(2) of MES Schedule Part I and shall conform to approved sample kept in the office of GE.
- (b) Coarse aggregate (stone aggregate) for all cement concrete work i.e. PCC/RCC shall be out of granite/ basalt/ trap stone as specified in Clause 4.4.1 to 4.4.6 & 4.4.7 (1) of MES Schedule Part I (2009).
- (c) Coarse aggregate (stone aggregate) 20 mm and below shall be machine crushed and above 20 mm may be hand broken.
- (d) Grading of Coarse aggregate (stone aggregate) unless specified otherwise in the specifications here-in-after in various location /work i.e. PCC/RCC shall be as specified in MES Schedule Part I(2009).
- (e) Coarse aggregate for the lime concrete & lean concrete filling in sunken floors/ slabs shall however be brick aggregate as specified in Clause 4.5 of MES Schedule Part-I (2009).
- (f) Aggregate shall comply with the requirements of IS: 383. 20 mm normal size crushed stone aggregate shall be used for the work unless otherwise indicated. Size of aggregate shall comply with the requirements of Clause 5.3.3 of IS 456-2000.
- 9.4.1 **WATER**
- ADMIXTURE**
- (a) Admixture (super plasticizer) if used; shall comply with IS 9103 & Clause 5.5.1 of IS: 456 – 2000, to achieve the work-ability and to reduce the water content in design mix. Admixtures shall confirm to IS 9103: 1999 and shall be liquid type only & shall be from approved manufacturers as given below: -
- (i) FOSROC Chemicals (India) Ltd.
- (ii) ROFFE Construction Chemicals Pvt. Ltd.
- (iii) STP Specialty Chemicals Ltd.
- (iv) CICO Technologies Ltd.
- (b) Para 5.5 of IS 456: 2000 be also referred for quality of admixtures.
- (c) For maximum dose of admixtures, refer Para 10.3.3 of IS 456: 2000.
- (d) Various tests as specified in IS 9103: 1999 shall be carried out for each batch of Admixtures at contractor's cost.

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

- (e) Contractor shall submit original purchase voucher and test certificate of manufacturer for complete quantity of admixtures used in the work before claiming payment for the same.
- (f) Complete quantity of admixtures including name of manufacturer, its brand name, date of manufacturing, date of expiry, voucher No. and details of test certificates shall be entered in MB as "Not to be abstracted" duly signed by JE, Engineer-in-Charge, GE and representative of contractor before making payment in RAR.
- (g) No deviation order shall be admissible for using admixture

9.4.2 STORAGE OF MATERIALS

Storage of materials shall be as described in IS: 4082.

9.5 WATER PROOFING COMPOUND

Water proofing compound complying with IS-2645 (1975) and bearing ISI certification marks shall be used in the work. Water proofing compound shall be mixed to concrete/cement mortar as per manufacturer's instructions. However, while pricing any deviation, waterproofing compound shall be considered as three percent by weight of cement in omit portion of the deviation order.

9.6 CEMENT CONCRETE

9.6.1 Important requirement of reinforced cement concrete/plain cement concrete shall be as under: -

- (a) All the materials, workmanship, inspection and testing for cement concrete to be used for concrete work shall be as per requirements in Section II of IS 456 of 2000.
- (b) Testing of concrete cubes shall be got done by contractor either at site lab or from Government Engineering College/National Test House/Regional Research Laboratory. The cost of all these tests including material and labour consumed, to be carried periodically shall be borne by Contractor. In case tests are carried out in Zonal laboratory of Chief Engineer Jabalpur Zone at Jabalpur the Contractor shall pay the cost of these tests at the rates given here-in- after in Appendix 'B'.
- (c) Requirements for Concrete M-5 (Nominal Mix)/ M-7.5 (Nominal Mix)/ M-10 (Nominal Mix)/ M-15 (Design Mix)/ M25 (Design Mix)/ M-30 (Design Mix) for all locations. During execution, contractor shall get the design mix carried out at Govt. engineering College/ National Test House/Regional Research laboratory as per IS: 456 – 2000, IS: 10262 & SP – 23 published by BIS and get the test report approved from GE in writing.
- (d) Number of samples for testing of concrete shall be ascertained in accordance with clause 15 of IS: 456-2000. Nine test specimen (concrete cubes) shall be made from each sample, out of which 3 cubes shall be tested for 7 days strength, 3 cubes shall be tested for 28 days strength and 3 cubes shall be kept reserve and handed over to Engineer-in-Charge at the time of completion of work. Engineer-in-Charge will keep the same till completion of defect liability period. However, in case, day's work of concrete is up-to 5 cubic meter, only 6 cubes shall be cast from one sample. (Three for 7 days strength and 3 for 28 days strength). No additional concrete shall be cast to be kept reserve. Suitable records for cubes tests shall also be maintained for all cubes.
- (e) Samples from fresh concrete shall be taken as per IS: 1199 and cubes shall be made, cured and tested at 28 days in accordance with IS: 516.
- (f) The test results of the samples shall be average of the strength of three. The individual variation should not be more than +/- 15% of the average. If more, the results of samples shall be treated as invalid.
- (g) Acceptance criteria for compressive strength The acceptance criterion for the test results of concrete shall be in accordance with clause 16.1 to 16.6 of IS: 456-2000, including the requirements of Table 11 of the IS: 456-20
- (h) Rate as given in MES Schedule part II for Mix design cement concrete shall be applicable for the Mix design cement concrete specified in the CA

9.6.2 DESIGN MIX

9.6.3 Wherever design mix concrete is specified/shown on drawing, the same shall be provided as per the following :-

- (a) Design mix concrete shall be M-25 and the acceptance criteria for compressive strength shall be all as per IS 10262 and SP-23 read in conjunction with IS-456-2000. The mix shall be designed as per recommended guide lines for concrete design mix as per IS. Adequate number of trial mixes shall be carried out at the commencement of the work to decide the proportion for the grade of the concrete and yield. The initial mix design particulars along with all the connected documents shall be submitted to GE for approval. The work on ground shall not be progressed until approval of design mix by the GE. However work may be commenced if the results of 7 days test are satisfactory and the contractor undertake to redo the work at "No extra cost to Government" in the event of unsatisfactory results after 28 days test. Subsequent design mix due to change in aggregate or for any other reasons shall be got approved by the GE.

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

- (b) Adequate number of tests at regular intervals shall be carried out to ascertain the properties of materials. In case of variation in grading of aggregate noticed at any point of line, the same shall be made good by suitably blending of different sizes of aggregates wherever possible. If this is not feasible the mix design shall be changed immediately before carrying out further work.
 - (c) To ensure adequate control and consistency of the properties of materials incorporated in concrete as per initial mix design, the materials shall be got tested at Govt approved lab or Engineering College approved by GE at the intervals as decided by GE.
 - (d) Cost of carrying out design mix from IIT/Govt College/Govt Approved Lab including cost of materials, handling and all such testing charges are to be borne by the Contractor.
- 9.6.4 The minimum cement content of M-25 (design mix) shall be not less than 330 Kg per cubic meter of concrete for the durability factor for moderate exposure.
- 9.7 No adjustment in rates/prices shall be made in case of variation in the quantity of cement beyond 330 Kg/cum based on design mix and contractors quoted rates shall be deemed to include for such variations if any. Similarly no adjustment due to any variations in quantity of coarse and fine aggregate shall also be carried out. Before quoting the rates the contractor should carry out his own evaluation of specified design mix and quote his rates accordingly.
- 9.8 **NOMINAL MIX**
- 9.8.1 Wherever nominal mix concrete is specified, same shall be provided as per table 9 of IS: 456-2000. The periodicity of tests on materials/ mix shall be as decided by the GE.
- 9.8.2 The minimum cement content for Concrete; M-5 (Nominal mix), M-7.5 (Nominal mix) & M-10 (Nominal mix) shall not be less than 125 Kg per Cu M, 160 Kg per Cu M & 210 Kg per Cu M respectively. No PLUS DO will be admissible if the cement content as per the nominal mix comes more than that specified above."
- 9.9 **QUALITY ASSURANCE MEASURES**
- 9.9.1 Quality assurance measures including establishment and implementation of a quality assurance plan shall be carried out in accordance with Clause 10.1 (10.1.1 to 10.1.2) of IS: 456-2000.
- 9.9.2 Clause 17 (17.1 to 17.5) of IS: 456-2000 shall be followed with regard to testing and inspection of structures.
- 9.10 **Pre-cast concrete articles such as RCC in lintel and PCC bed blocks etc**
Reinforced cement concrete lintels with or without integrally cast Chajja up-to 1500 mm span, RCC shelves, PCC bed block RCC cover slabs, fins and Jalli and the like may either be pre-cast or cast-in situ at the option of the contractor unless otherwise shown on drawings. If pre-cast, these articles shall be set in CM (1:3). Care shall be taken to see that top of all pre-cast RCC articles are marked as such. The contractor may cast the pre-cast articles on smooth cemented platform in lieu of mould as specified in MES Schedule.
- 9.11 **MIXING OF CONCRETE**
Refer clause 4.11.5 of MES Schedule Part-I. All cement concrete, both plain and reinforced shall be mixed in mechanical mixer of approved type. However, in exceptional cases involving small quantity (i.e. the quantity of concrete required being less than one batch of mix); the contractor may after prior written permission of the GE adopt hand mix.
- 9.11.1 All aspects of mixing shall be as per clause 10.3 to 10.3.3 of IS: 456-2000. Workability should be checked at frequent intervals. (Refer IS-119 also).
- 9.11.2 Ranges of workability and slumps for various placing conditions shall be as Clause 7 of IS: 456-2000 (7.1.1 to 7.1.2)
- 9.12 **BATCHING OF CONCRETE**
- (a) For nominal mix and design mix in proportioning the concrete mix the quantity of both cement and aggregates shall be determined by weight by weigh batcher only. Water shall be either measured by volume in calibrated tanks or weighed. All measuring equipment shall be kept in a clean serviceable condition and their accuracy checked periodically. The accuracy of measuring equipment shall be within + 2% of the quantity of cement being measured and + 3% of the quantity aggregate and materials and materials being measured.
 - (b) In case of nominal mix, if uniformity in the materials used for concrete mixing has been established, the proportioning may be done, if so permitted by GE in writing, by volumetric batching, provided periodic checks are made on weight volume relationship of the materials.
 - (c) Also the provisions as in clause 4.11.3.2 to 4.11.3.5 of SSR Part I shall be followed.
 - (d) Grading of coarse and fine aggregate shall be checked as frequently as possible to ensure that specified grading of aggregates is maintained.

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

- (e) Allowance for bulking and determination of moisture content of aggregate shall be made in accordance with IS: 2386 (Part-III). It is important to maintain the water cement ratio constant to its correct value.
- (f) All aspects of batching shall be as per Clause 10.2 to 10.2.6 of IS: 456-2000.
- 9.13 Finish to concrete surfaces & form work
- 9.13.1 Refer Para 4.11.16.1, 4.11.16.2(a), (c), (d) and (e), 4.11.16.3 of MES Schedule Part I. Form work shall be such that fair and even surface is achieved in forms itself and shall be provided by the Contractor without extra cost to Government.
- 9.13.2 Exposed surface of RCC columns, beams, lintels, and bands etc which are continuous/ contiguous with plastered surfaces of walls shall be plastered after hacking for key and finished in the same specifications as for adjoining wall surfaces.
- 9.13.3 Exposed surfaces of RCC Chajja, cantilevers and the like (Bottom and sides), soffit of RCC roof slabs/floor slabs and soffit and sides of isolated beams, waist slab of stair, sides of isolated columns, shelves, RCC parapets, fins/fascias and the like and RCC walls shall be finished fair and even in forms without any extra cost to the Govt.
- 9.13.4 Properly designed steel formwork (both verticals props & surfaces) shall only be used in the work. Design and detailing of form work shall be as per IS: 14687.
- 9.13.5 All aspects of formwork shall be as per Clause 11(11.1 to 11.3.3) of IS: 456- 2000.
- 9.14 Transporting, placing & compaction
- (a) After mixing concrete shall be transported to the formwork as early as possible. Concrete shall be placed and compacted before initial setting of concrete. Care should be taken to avoid displacement of reinforcement or movement of formwork.
- (b) The maximum permissible free fall for concrete shall be 1.5 Metre.
- (c) Concrete shall be compacted using appropriate mechanical vibrator. Needle vibrator shall be used for beams, columns and footing. Surface/tray vibrator shall be used for slab. Over/under vibration shall be avoided. Construction joint shall comply with IS 11817 and IS 456-2000.
- 9.15 **CURING**
- Curing of all concrete work shall be carried out all as specified in MES Schedule Part-I and Clause 13.5 of IS 456-2000. Period of curing shall be not less than continuous 10 days consecutive days. In case or concrete where mineral admixture or blended cement are used curing period shall be minimum 14 days.
- 9.16 Documentation (Refer IS-456)
- The following documents shall be maintained at site:
- (a) Test report & manufacturer's certificate for material.
- (b) Concrete mix design details
- (c) Pour card for site organization and clearance for concrete placement.
- (d) Record of site inspection of workmanship and field test.
- (e) Non conformance Report, changes orders.
- (f) Quality Control Charts
- (g) Statistical Analysis
- 9.17 **Machine Pressed precast cement concrete rubbed mould interlocking paver block**
- Shall be provided as per specification provided in BOQ.
- 10 **SCAFFOLDING**
- 10.1 Irrespective of whatever is specified in MES Schedule Part I double scaffolding having two sets of vertical supports shall only be provided in all situations No put-logs will be allowed.
- (a) Sand for mortar, brick work and all such other works shall be as specified in clause 5.4 of MES Schedule Part I and shall be procured from sources approved by GE/
- (b) Sand shall be washed if deleterious materials are beyond the limits specified in the IS
11. **BRICK/ BRICK WORK**
- 11.1 Bricks shall be common burnt clay; well burnt conforming to requirement laid down in IS 1077-1986 and shall be with following characteristics
- | | |
|-------------------------------|---|
| Type of bricks | - Non-Modular / old size bricks |
| Nominal size | - 230 x 114 x 75 mm |
| Actual size | - 230 x 111 x 70 mm |
| Water absorption | - 20% maximum |
| Compressive strength | - 35 Kg/ Sq Cm minimum |
| Efflorescence surface area of | - Nil to slight sign of efflorescence i.e. 0.10% of the brick should show a thin deposit of salt. |

PARTICULAR SPECIFICATIONS PART II (Contd.....)**11.2 TESTING**

- 11.2.1 Testing and sampling of bricks shall be as per IS 5454 and as specified in Appx 'B' hereafter.
- (a) Irrespective of the type/size of bricks shown on drawings contractor shall use only Old size bricks.
 - (b) While using Old size brick top bricks top course at plinths, parapets, steps and top of walls below floor slabs and roof slabs shall be laid with bricks on edge. Care shall be taken that the bricks on top course end of wall are properly keyed into position.
 - (c) In case of difference in levels due to thickness of bricks courses and thickness of RCC lintels cills, shelves and the like as shown on drawings, the leveling shall be done by providing PCC (1:3:6) Type C-1 leveling course and its cost shall be deemed included in the quoted rates.
 - (d) Centre line dimensions between walls shown on drawings shall be maintained.

11.3 BRICK WORK

Brick work shall be built in CM as specified in Schedule 'A'.

Half brick thick walls irrespective of the height shall be reinforced with 2 Nos 8 mm dia of steel bars at every sixth course commencing from floor

11.4. WORKMANSHIP

- 11.4.1 Brick work in walls with one brick thick and above shall be as indicated in Schedule A and if not mentioned otherwise shall be built in CM (1:6).
- 11.4.2 Brick work in half brick thick wall and under, independent pillars, brick parapet walls of any thickness and steps as indicated in Schedule A and if not mentioned otherwise shall be built in CM (1:4).

12. FLY ASH BRICK WORK**12.1 FLY ASH BRICK MASONRY**

Where brick masonry is shown on drawing or specified in Sch"A"/ BOQ, the same shall be of fly ash bricks (cement bonded) factory made. Visually the bricks shall be sound, compact & uniform in shape and free from visible cracks, war page & organic matters. The bricks shall have smooth rectangular faces with sharp corners & shall be uniform in shape & colour. Bricks shall be manufactured by using standard & latest technology fly ash brick making machine and shall be following specifications:

Technical Specifications :-

- (a) Size: 230 mm x 110 mm x 75 mm
- (b) Compressive Strength: Avg 7.5 N/Sqmm, Tolerance shall be as per clause 5.2 of IS:12894:2002.
- (c) Water Absorption : 8-12%
- (d) Efflorescence : Nil
- (e) Water Absorption : 8-12% (d) Efflorescence : Nil
- (f) Density :Approx, 1700 Kg/m³
- (g) Composition by weight:-
 - (i) Cement : Cement OPC 53 Grade -10 %
 - (ii) Fly Ash :Thermal Station Fly Ash (Gde-II) confirming to IS:3812:1981 for physical & chemical properties to be tested in accordance with IS: 727:1967-40-45%.
 - (iii) Crushed Sand/Stone : VSI machine make Grade I containing round shape particles-50-55%.
 - (iv) Admixtures : Construction chemicals as per manufacturer's instructions.
- (h) Thermal Conductivity : 0.90-1.05W/m² OC(0.75-090K cal/m²hr OC).
- (j) Drying Shrinkage : Maximum Average drying test shrinkage 0.035-0.04 % to be tested as per IS:4139.
- (k) Brick Colour :Grey
- (l) Bricks shall be tested in accordance and as described in IS : 3495 (Part I to IV). Sampling criteria for conformity of the bricks shall be as given in IS : 5454. Each brick shall be marked in a suitable manner with manufacture's identification mark or initials.
- (m) Bricks shall be procured from reputed manufacturer of fly ash bricks satisfying following criteria:-
 - (i) Manufacturing capacity of 25000 bricks/day.
 - (ii) Experience of min five years in supply of bricks to Govt project/reputed projects.
 - (iii) Average Annual turnover of Rs 1.5 Cores (Approx).

Contractor shall intimate to GE the name of manufacturer satisfying above conditions from whom contractor intends to procure the bricks. GE after verifying the credentials shall approve the name of the manufacturer.

PARTICULAR SPECIFICATIONS PART II (Contd.....)**12.2 FLY ASH BRICK WORK**

- (a) Brick 01 brick thick and above shall be built in CM (1:6) and that of ½ brick thick shall be built in CM (1:4) with 10 mm thick joints. Half thick brick walls may rest on PCC sub floor/RCC slab unless otherwise specified.
- (b) As the brick masonry work progresses, joints in the masonry work should be raked properly with suitable tool.
- (c) Wherever length of half brick thick wall exceeds 3 metre, vertical RCC band shall be provided as indicated in typical detail drawing No CEJZ/TD/813/91, sheet 2/5. Make of Fly ash Bricks: As approved by GE

13. SAND

13.1 Sand for mortar, brick work and all such other works shall be as specified under Clause 5.4 of MES Schedule Part I and shall be procured from sources approved by GE.

13.1.2 Sand shall be washed, if deleterious materials are beyond the limits specified in the IS.

14. Wood work and joinery**14.1.1 Timber**

- (a) Unless specifically specified otherwise timber for all wooden joinery and wood work (other than factory made shutter) shall be second class hard wood (SAL/ BIJASAL/ BANTEAK) as per the approved sample kept in GE's Office Timber for all wooden joinery and wood work shall conform to specifications given in Clause No 7.3 of MES Schedule Part I and defect shall be within the permissible limits as defined in Clause 7.4 & 7.5 of MES Schedule Part I.
- (b) Timber shall be well seasoned (air or kiln dried) at the option of the contractor. Factory made shutters shall however, be 'kiln' seasoned only. The moisture content of timber shall not exceed the limits laid down vide Clause 7.7 of MES Schedule Part I.
- (c) (i) Preservative anti-termite treatment shall be carried out to all wood works and joinery & Contractor's quoted rates shall be deemed to cater for this provision. Factory made plywood, particle boards & factory made shutters which are already ASCU-Vacuum pressure treated are not to be further treated with any chemical against termites.

(ii) Chemical used for anti-termite treatment to wood work and joinery shall be copper Napthanate or any other chemical specified in IS-401 applied in any one of the manners specified in ibid. IS code. Timber surfaces hidden or not exposed to view and in contact with brick work / masonry / concrete shall be left clean sawn and applied with two coats of creosote, unless specified otherwise in the tender documents.

14.1.2 WORKMANSHIP

- (a) Dimensions of various parts of joinery shall be as shown on drawing and shall supersede those stipulated in clause 8.20 of MES Schedule Part I. For the purpose of pricing deviations, factory made shutters shall be classified as second-class hard wood and priced accordingly at the applicable rates in MES Schedule Part II 2020 and no adjustment in SSR rates shall be done for change in sizes of stiles and rails.
- (b) Irrespective of what is shown on drawings, use of nails in the joinery is prohibited. Wood screw of appropriate size shall be used and shall be of "Nettle fold" brand or any other equivalent brand as approved by GE.
- (c) All joinery work shall be of full dimensions as shown on drawings. Overall sizes of joinery as shown on drawings shall be maintained. Tolerance in sizes and thickness shall be all as specified in SSR Part I.
- (d) Plugging/wooden gutties to walls wherever shown on drawings shall be done with wooden plugs made out of second class hard wood (Hollock/Bijasal/SAL/Benteak) as per clause 7.29 of MES Schedule Part I.

14.1.3 FLUSH SHUTTER

Flush shutter shall be of thickness specified in Schedule 'A' and as specified in clause 8.25 in SSR 2009 Part I and as directed by Engineer-in-Charge.

14.1.4 GLAZED AND SKELTON SHUTTER

Glazed and Skelton shutter shall be of thickness specified in Sch 'A' and as specified in clause 8.21.6, 8.21.7 & 4.24 and 8.20 (b) in SSR 2009 part I and as directed by Engineer-in-Charge.

15. SHEET GLASS/FIGURED GLASS

15.1 Sheet glass shall be of ordinary glazing quality confirming to IS : 2835-1987 and as specified in clause 16.0 of SSR Part I. Figured glass shall conform to IS : 5437-1994 and as specified in clause 16.3 of SSR Part I. Thickness of glass shall be as specified in Sch 'A'.

15.2 2mm Thick fiberglass reinforcement

Translucent corrugated sheet as Per Clause 11.35 of SSR Part-I(2009).

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

16. **REINFORCEMENT**
- 16.1 Reinforcement shall be bent to shape and provided all as indicated on the drawings/as directed by Engineer-in-Charge.
- 16.2 All laps and crossings shall be tied with MS wire (annealed) of size not less than 0.9 mm dia.
- 16.3 Unless otherwise shown on drawing, bends to a radius of 4 times of the dia of bar shall be provided in respect of TMT steel bars. For making adjustment arising out of deviations involving reinforcement bars, the length of each bar for the purpose of calculating laps shall be taken as 10 (Ten) metres for omit purpose.
- 16.4 Unless otherwise shown on drawings, spacing of chairs shall be 75 Cm centre to centre below the cranked up bars to keep the bars in position.
15. **REINFORCEMENT STEEL AND STRUCTURAL/NON-STRUCTURAL STEEL**
- 15.1 **TYPE OF STEEL**
- 15.2 **REINFORCEMENT STEEL:**
High strength deformed steel bars, produced by Thermo Mechanical Treatment Process (TMT steel bars) of grade Fe-500/ Fe-500d/ Fe-550/Fe-550d, meeting all requirements of IS: 1786 shall be used.
- 15.3 **SOURCE OF PROCUREMENT**
- 15.4 **Reinforcement steel & structural steel** shall be procured directly from main producers of Steel as per **Appx 'A' list of manufacturer.**
- 15.5 Reinforcement steel and structural steel may be permitted from authorized dealers of main producers in case the total requirement of steel is less than 5 tones (Particular Section).
- 15.6 **TESTING OF STEEL**
- 15.7 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. 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.
- 15.8 The contractor shall carry out independent testing of random samples of steel drawn from various lots from a National Test House/SEMT CME/Regional Research Laboratories/Regional College of Engineering/Govt approved Laboratories/Zonal Laboratories etc as per the direction of the GE. The random samples shall be approved by the GE before carrying out testing. The record of such samples approved by the GE for testing shall be properly maintained in the 'Steel Testing Register' giving cross-reference to relevant consignment of steel.
- 15.9 **DOCUMENTATION**
The contractor shall submit original purchase vouchers from the manufacturer for the total quantity of steel supplied under each consignment to be incorporated in the work. The GE along with the relevant documents before acceptance shall inspect all consignments received at the work site. 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 & with cross reference to the control number recorded in the Steel Acceptance Register. The Steel Acceptance Register will be signed by JE, Engineer-in-Charge, GE and the Contractor. The entire quantity of all steel items shall be suitably recorded in the Measurement Book as 'Not to be Abstracted', before incorporation in the work and shall be signed by the Engineer-in-Charge and the Contractor.
- 15.10 **Frequency of testing of steel** : Frequency of testing shall be as under:
Frequency for normal mass, tensile, bend and re-bend tests of steel
- | <u>Nominal size</u> | <u>Quantity</u> |
|--|--|
| Steel for concrete | |
| (a) Bars size less than 10 mm - MT or part | 1 sample (three specimens for each test for every 25 thereof). |
| (b) Bars size 10 mm to 16 mm - MT or part | 1 sample (three specimens for each test for every 35 thereof). |
| (c) Bars size over 16mm - | 1 sample (three specimens for every 45 tones or part thereof). |
| <u>Structural Steel</u> | |
| (d) Tensile test - | 1 test for every 25 tons of steel or part thereof. |
| (e) Bend test - | 1 test for every 10 tons of steel or part thereof. |

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

- Note:** 1. For various tests, acceptance criteria, tolerance etc. refer steel supply/ acceptance form and relevant BIS code.
2. Testing by GE as per above frequency is mandatory before payment is released to the contractor or steel is incorporated in the work. However, tests will not be insisted upon the Steel required for hold-fasts, grills, guard bars and such other allied items. Any items of steel not meeting the requirements shall be rejected and the particular consignment removed from the site by the contractor at his own cost. The contractor will have no claim on this account. Cost of tests and test samples as per above frequency shall be borne by the contractor irrespective of tests results. The GE may also increase frequency and number of samples / tests for his satisfaction. The cost of these additional tests shall be governed as per condition 10(A) of IAFW- 2249. However, cost of samples, transportation and other overheads shall be borne by the contractor irrespective of test results.

Note (applicable for all tests) Minimum one test from each section of steel to be used shall however be carried out.

- 15.11 For various tests, acceptance criteria, tolerances etc, provisions of relevant BIS shall be followed; CWE may appoint a Board of Officers for the purpose of knowing the acceptable tolerance in diameter and weight of various steel sections. In the event of any lot not found complying with requirement given in relevant BIS, the GE has the right to reject that lot, even though the manufacturer's test certificate show that the steel complied with requirement given in relevant BIS and the contractor shall have no right whatsoever on such objection of lot procured by him. The format of steel acceptance/ Rejection Register shall be as per Appendix 'C' to Particular Specification.
- 15.12 The Contractor shall submit original vouchers from the manufacturer for the total quantity of steel supplied under each consignment to be incorporated in the works. All consignments received at work site shall be inspected by the GE along with relevant documents before acceptance of steel for incorporation in the work. The original vouchers and Test Certificates produced by the contractor shall be defaced by the Engineer-in Charge and kept in the record in the office of GE duly authenticated with cross reference of control number recorded in the steel Acceptance / Rejection Register. The steel Acceptance / Rejection register shall be signed by Junior Engineer (Civil), Engineer-in-Charge, GE and the contractor. The steel shall be incorporated in the work only after it is accepted by Garrison Engineer. The Accepting Officer is also at liberty to carry out independent check of quality of steel through Board of Officers. In case of such check if it is found that steel brought on site/ incorporated in work does not meet the requirements laid down in the contract, such steel/ work in which such steel has been incorporated shall be rejected or devalued based on the seriousness of the defect. Accepting Officer's decision shall be final and binding in this regard and the contractor shall have no claim whatsoever on account of such rejection. The cost for steel testing either by the GE or Accepting officer shall be borne by the contractor. The entire quantity of all steel items shall be recorded in Measurement Book indicating size, quantities vouchers numbers, dates brought on site for record purpose as "not to be abstracted" and signed by Engineer-in Charge and the contractor before incorporation in the work.
- 15.13 Item of steel rejected shall be removed by the contractor from the site within 72 hours at his own expenses. No extra payment towards loading/ unloading and transportation shall be made to the contractor.
- 15.14 The steel shall comply with the requirements of following specifications:
- (a) Reinforcement Steel
 - (i) High Strength steel deformed (HYSD) bars produced by Thermo Mechanical Treatment Process (TMT steel bars of grades Fe 415) Conforming to IS: 1786.
 - (ii) Mild steel round bars Grade I Conforming to IS: 432 (Part-I) 1982
 - (b) Structural Steel
 - (i) Fusion welding quality conforming to IS: 2062.
 - (ii) Ordinary quality conforming to IS: 1977.
 - (c) Galvanized steel sheets (Plain & Corrugated) conforming to IS-277.
 - (d) Fabric Reinforced for concrete: Conforming to IS: 1566

Note: Steel only for hold fasts, grills, guard bars shall be ordinary quality. Structural steel shall be Fusion welding quality. Test certificate for ordinary quality steel is not required.

- 15.15 In case the manufactures mentioned in Appendix 'A' are unable to supply required steel being very small sections or being very small quantity the Contractor shall be permitted to procure such small sections / small quantities from ISI certificate holder rolling mills / authorised conversion agents subject to MINUS price adjustment; provided such steel meets all requirements as laid down in the Contract.

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

- 15.16 The steel shall be procured and brought to the site well in advance before it is actually required to be incorporated in the work taking into account the time required for its inspection and acceptance as specified here-in-before. No extension of time shall be admissible on account of any delay in testing of steel. The Contractor has to ensure that procurement of steel is regulated in such a manner that adequate time is available for its testing and progress of work is not hampered on this account.
- 15.17 The steel brought on site and accepted shall be properly stored, preserved and maintained as per normal practice. If the steel is not being incorporated in the work within three months of procurement, neat cement slurry shall be applied.
- 15.18 As and when the steel is received in trucks/by train, steel shall be taken to weigh bridges and weighed. Actual weight of steel shall be recorded by Engineer-in-Charge in presence of Contractor or his accredited representative. Expenses on this account shall be borne by the Contractor.
- 15.19 **REINFORCEMENT**
- (a) Reinforcement of steel TMT HYSD & MS round bars shall be provided all as shown on drawings and in absence thereof in accordance with the provisions of IS-456 of 2000
 - (b) Reinforcement shall be fabricated, placed in position all as shown on drawings and as specified in clause 10.17 to 10.22 of MES Schedule Part I(2009).
 - (c) Laps and crossing shall be tied with mild steel wire (annealed) (soft drawn) of diameter not less than 0.90 mm. Laps shall be staggered.
 - (d) Irrespective of whether corner reinforcement is indicated or not in RCC plan showing reinforcement of slabs, corner reinforcement shall be provided as shown in typical details drawings.
 - (e) The contractor shall be responsible for accurate fixing of reinforcement shown on drawings, and shall not pour any concrete until the reinforcement has been inspected in position and approved in writing by the GE. The contractor shall take necessary precaution to prevent any displacement of reinforcement bars during concreting.
 - (f) Reinforcement shall be bent and fixed in accordance with procedure specified in IS: 2502. All reinforcement shall be placed and maintained in the position shown on Drawing by providing proper cover block, spacers, supporting bars etc. All aspects of assembly of reinforcement, placing of reinforcement, including tolerances and welding of joints / providing mechanical connections etc shall be as per Clause 12 (12.1 to 12.6) of IS:456 - 2000.
 - (g) Welding of reinforcement shall be done as per IS-2751 & IS-9417. Welding should not be carried out at location subjected to excessive fatigue or impact forces. Welding shall not be done in RCC structures subjected to large number of repetitions of substantial load. In general; bars up-to and including 20 mm in diameter shall be lap welded and higher diameter bars may be butt-welded. The length of run weld at one stretch should not exceed five times the diameter of bar welded. Joints shall not occur at bends. Welding shall be carried out under adequate care and workman ship to avoid causing deleterious effect on reinforcement
- 15.20 **STRUCTURAL STEEL WORK**
- Structural steel work shall be executed as specified in relevant clauses of section 10 of MES Schedule Part I (2009).
- 15.21 Steel shall be arranged by the Contractor and shall comply with the requirement of following specifications: -
- (a) Structural Steel – (Grade 'A') Conforming to IS-2062
 - (b) Mild steel (Misc.) – FE-310-O / FE-410-O. Conforming to IS-1977 (1975)
 - (c) Hold fasts – FE-310-O / FE-410-O. Conforming to IS-1977 (1975)
- 15.22 For pricing deviation in respect of steel items the quality of steel shall be as given below :-
- (a) Structural Steel – Fusion welding quality Fe-410-W and as mentioned in MES Schedule.
 - (b) TMT HYSD bars – Conforming to IS-1786
 - (c) Steel items other than structural steel and reinforcement: Ordinary quality Fe-310-0/ Fe-410-0
16. **BUILDERS HARDWARE**
- (a) All articles of builders hardware shall be of ISI marked except MS Handle and shall comply with the relevant IS or specifications given in the MES Schedule for the relevant item of Schedule 'A'.
 - (b) Screws used for fixing items of builder's hardware shall as specified in clause 9.2.6 of MES Schedule Part –I (2009). Unless specified otherwise elsewhere. Screws shall be dipped in adhesive before fixing in particle board.

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

- (c) The contractor shall produce samples of each articles of builder's hardware (fittings) which he proposes to use and get it approved by GE. The sample shall be labeled as such signed by the GE and the contractor. These shall be kept in the custody of the GE till the completion of work.
17. **ARTICLES**
- (a) Butt hinges shall be of cold rolled mild steel medium weight, all as specified in clause 9.7.2 of MES Schedule Part-I (2009), Butt hinges shall be screwed to timber shutters.
- (b) All other articles of builders hardware shall comply with the requirement of relevant IS and as specified in MES Schedule Part-I (2009).
18. **STEEL SHEETING PLAIN & CORRUGATED**
- Galvanized steel sheet, plain or corrugated shall comply with the requirements of IS 277-1985 Specification for galvanized steel sheets plain or corrugated. The class of galvanizing shall be 120 gm/ Sqm plain sheets shall be reasonably flat and free from twist. Corrugated sheets shall be free from twist or buckle and shall have uniform corrugation, true in depth and pitch, and parallel to the sides of the sheets. The galvanized coating shall be clean, even and free from un galvanized spots and other defects. The tolerance on weight of an individual sheet be $\pm 10\%$ and tolerance on a bundle of sheet shall be $\pm 5\%$.
19. **GALVALUME SHEET**
- Trapezoidal profile roofing sheets having high tensile strength 345-550 Mpa & minimum yield strength 550 Mpa pre painted ALU-Zinc steel sheet (Galvalume) having maximum pitch 190 mm and depth 20 mm, in length as per site requirement. The fed material conforms to IS-277, ASTM 755, JIS 3322 & ASI 397 of 0.50mm total coated thickness (TCT). Paint coating over top surfaces shall be 18-20 micron & at bottom surface 5-7 micron over primer service coat of 5 micron epoxy on both sides (Glossy finish). The sheet shall have a hot dipped metallic zinc aluminium alloy of AZ 150 gms/sqm on both sides. Sheet width will be 1010mm; effective width will be 960 mm with ± 10 mm variation and sheet length as per the site requirement. The profile is having return leg for proper side lap. The sheet shall be fixed using self drilling/self tapping screws with EDPM seal. The roofing fasteners should be hot dipped galvanized with high durable protective triple coated or self tapping screws or self Drilling screws to suit domestic and technical roofing customized colours complete all as specified and directed by the Engineer-in-Charge.
20. **MILD STEEL GALVANISED TUBES (PIPES) AND FITTINGS**
- Mild steel Galvanised Tubes (Pipes) and fittings shall be as per clause 18.4 of SSR Part I (2009) and as per makes given in this document here in after.
21. **FACTORY MADE SOLID PVC DOOR FRAMES**
- Solid PVC door Frame of the size 50 x 47 mm made out of 5 mm PVC sheet. The door profiles are to be reinforced with 19 x 19 mm Square tube, EPDM rubber gasket weather seat to be provided through out the frame, The profile shall be mitre cut at two corners and joined by inserting 2 no of 150 mm long brackets of 15 x 15 mm MS square tube inside the 19mm x 19 mm MS Square tube and suitably screwed. The door frame shall be as per clause 136 & 137 clause 8B.3.1 and as drawing given on page 150 of SSR Part II (2020).
22. **FACTORY MADE SOLID PVC DOOR SHUTTERS**
- Factory made solid PVC door shutters shall be as per clause 8b.2.1 on page 124 & 51 of SSR Part II 2004 (RATES).
23. **WPC Door Frame**
- Shall be provided as per specification provided in BOQ.
24. **WPC door**
- Shall be provided as per specification provided in BOQ.
25. **FACTORY MADE ASCU VACCUM PRESSURE TREATED KILN SEASONED SHUTTER**
- (a) Only one type of species of timber shall be used in stiles and rails. Shutters with mixed species will not be accepted.
- (b) Use of nails in the joinery is prohibited. Wood screw of appropriate size shall be used and shall be 'Nettle fold' brand or any other equivalent brand as approved by GE.
- (c) All factory made shutters shall have manufacturers name & trade mark embossed at appropriate place on the back side of bottom rail.
26. **SOLID PC WALL LINING**
- Refer clause 12.33 of SSR Par-I (2009).

PARTICULAR SPECIFICATIONS PART II (Contd.....)**27. STEEL WINDOWS AND VENTS**

- (a) Steel windows shall be all as per clause 10.25 of MES Schedule Part I except that/comers of frames shall be welded to form solid fused welded joints conforming to the requirements listed in IS-1038 and the process of welding adopted may be flash butt welding or any other suitable method which gives the desired requirements.
- (b) All steel window glazed shutters shall be provided with horizontal glazing bars. These glazing bars shall be tennon riveted.
- (c) Steel window frames in contract with brick work/concrete shall be painted in mastic of one part of bitumen and three parts of sand or readymade mastic supplied by the manufacturer. In no case, painting with cement will be allowed. The rate quoted by contractor for windows/ventilator shall be deemed to be included for this provision.
- (d) Steel windows shall be fixed to walls with lugs. Lugs shall not be provided for fixing to lintel and Cill even though its provision exists in the Indian Standard specification and /or drawings.
- (e) The Contractor shall procure steel windows and ventilators from any of the firms mentioned here-in-after. Steel windows and ventilators manufactured at site will not be accepted. Samples of the steel windows/vents and fittings/ accessories shall be submitted to the GE by the Contractor for his approval in writing before placing bulk order for procurement.
- (f) The dimensions of steel windows/ventilators unless otherwise mentioned, shall conform to IS-1038. However, minor variations in the overall size to suit the standard practice of the manufacturer will be accepted without any price adjustment either to the quoted rates or while pricing deviations.
- (g) Steel window/ventilators shall be given one shop coat of anticorrosive zinc chromate primer. The rate quoted by contractor for windows/ventilator shall be deemed to be included for this provision.

28. PRESSED STEEL DOOR FRAME

Refer clause 10.27 of SSR Part-I (2009).

28.1 ECO pre-painted steel window Series ECO-4000

Shall be provided as per specification provided in BOQ.

29. GLAZING

- (a) Glazing shall be of selected quality tinted glass and of thickness specified in Schedule 'A' and as specified in section 16 of SSR part-I. Sheet glass shall be flat, transparent and clear as judged by unaided eye. It shall be free from cracks. All panes shall have properly squared corners and straight edges.
- (b) Fixing of glass panes shall be done with aluminium beading/clips alongwith rubber gasket. The beading/clip shall be of extruded section of weight 0.180 kg/m. All glass panes shall be fixed within the aluminium framing. There shall be no whistling or ratling. The aluminium anodized extruded glazing bead or snap beading to be used shall also be the product from approved manufacturer of aluminium extruded sections used for fabricating the doors and windows. No beading manufactured by local units shall be permitted to be used.

29.1 FLOOR FINISHES AND PAVINGS**29.2 GENERAL**

29.3 Floor shall be provided as indicated in the schedule 'A' and directed by Engineer-in-Charge

29.4 Exposed edges of floor shall be finished to match the surface finish of the floors bare shall be carried through all opening in wall

29.5 Refer clause 13.25, 13.27, 13.32, 13.38 and 13.40 of MES Schedule Part I for laying of Floors.

29.6 Sub base PCC shall be laid in one operation

29.7 PCC floor topping shall be finished even & smooth using extra cement

30. CERAMIC TILE

- (a) Tiles shall be of first quality & shall conform to IS-13753 and specified in clause 13.14.1 & 13.14.2 of SSR 2009 Part-I. Tiles shall be of uniform texture, water absorption shall be less than 0.5%. Tiles shall be free from blabs, distortion due to over heating and shall be of size indicated in Sch 'A'. Shade of tile shall be approved by GE.
- (b) Tiles shall be laid as specified in clause 13.40 in SSR 2009 part I and as directed by Engineer-in-Charge.

PARTICULAR SPECIFICATIONS PART II (Contd.....)**30.1 KOTA STONE FLOORING**

- (a) Kota stone flooring shall be provided as specified in Para 13.47 of SSR (Part I) 2009. Kota stone shall be of selected quality, hard, sound, dense & homogeneous in texture, free from cracks, decay, weathering & flung. They shall be hand or machine cut to the requisite thickness as indicated & they shall be of uniform colour. Joints shall be filled in grey cement using pigment. Top surface shall be grinded and polished.
- (b) Dressing of slabs, preparation of surface, laying, curing, polishing & finishing shall be carried out as specified in clause 13.47.2 to 13.47.4.5 of SSR Part I (2009).
- (c) 20-25 mm thick mirror polished Kota stone flooring set with cement slurry, mixed with colour over 20mm thick screed in CM (1:6) over sub base/floor slab. The size of Kota stone in flooring shall be 600x600mm. However where small area required to be flooring where 600x600mm kota stone are not accommodate, small size Kota stone at that particular area may be provided with written permission of GE.

31. GRANITE TILES

- (a) Granite tiles shall be of size specified in Sch 'A'.
- (b) Refer clause 13.28 of MES SSR 2009 Part I for other details laying of slab shall be as specified in clause 13.28.2 of SSR Part-I (2009) and Sch 'A' and all as directed by Engineer-in-Charge.
- (c) Colour of tile shall be approved by GE.

- 32. GRANITE SLAB.** The stone slab/tiles shall be of the type specified and shall be obtained from the approved quarries as indicate. Slab/tiles shall be hard, sound, durable and free from weathering, decay and defects like cavities, crack flaw, sand holes, injurious veins, patches of loose or soft materials and other similar defects that may adversely affect its strength and appearance. As far as possible, stones shall be of uniform colour and texture. Generally stones shall not contain crypto crystalline silica or chert, mica and other deleterious materials like iron oxide, organic impurities, etc.

DRESSING OF SLABS AND TILES :- Every slab shall be cut to required size and shape. The top surface of the slabs and tiles may be self faced or rough chisel dressed so that the dressed surface shall not be more than 6mm from the straight edge placed on it. The edges of depressions or projections shall be chisel dressed in a slant so that the surface does not have sharp unevenness. The side shall be chisel dressed to half the depth so that the dressed edge shall, at no place, be more than 3mm from a straight edge butted against it. Beyond this depth the sides may be dressed slightly splayed so as to form an inverted 'V' shaped joint with adjoining slab. The surface shall be reasonably true and plain and all the angles and edges shall be true, square and free from chippings. Where slabs are used for nosing, the exposed edges shall be rough tooled to full depth and cut to a uniform thickness.

FINE DRESSED SLABS : All joints upto half the depth and exposed faces shall be fine tooled so that a straight edge placed on it is full in contract with it.

POLISHED SLABS : Every slab shall be machine cut or hand cut to the required size. Hand cut slabs shall be first fine tooled as specified for fine dressed slab and then table rubbed before paving, to obtain a perfectly true surface free from chisel marks. Machine cut slabs shall have fine tooled dressing on all sides to full depth. Machine cut slabs may be supplied with polished (one cut) surface on top.

- 33. INTERLOCKING TILES** : Interlocking tiles shall conform to IS-15658-2006. Tiles shall be sound & free from cracks or other visual defects and all specified in clause 13.18 of SSR Part I (2009).

34. Vitrified tiles

Work shall be provided as clause 13.15 of SSR Part-1 (2009).

35. PLASTERING AND POINTING**35.1 GENERAL**

- (a) All external plaster shall be carried out up-to 150mm below ground level except where steps, ramps, plinth protection and shaft/passage with PCC are provided.
- (b) Plaster in skirting / dado shall be returned in jambs, soffit of lintels and window cill etc.
- (c) Thickness of plaster shall be finished thickness exclusive of dubbing.
- (d) Any other plasters in internal / external surfaces of wall not specified on drawings and/or in these specifications shall be 15mm thick in CM (1:6) finished fair and even.
- (e) All corners, angles junctions and edges unless otherwise specified shall be truly vertical or horizontal as the case may be and shall be carefully finished. All vertical and horizontal edges shall be rounded up.
- (f) Irrespective of whatever specified and shown on drawing 10mm wide and 5mm deep continuous groove shall be provided in plaster throughout, at the junction of wall and RCC slabs/beams/bands/walls/RCC column & or any other dissimilar materials as directed.

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

- (g) Sand for plastering / pointing work shall conform to the material specifications and grading as specified in clause 14.5 of MES Schedule Part-I.
- (h) Unless mentioned otherwise hidden surface of brick work / stone masonry shall be flush pointed in the same mortar as the work proceeds where no plastering is to be carried out.
- (j) The height of skirting shall be 100mm and the height of dado shall be 1150mm unless shown or specified otherwise.

36. WHITE WASHING**36.1 GENERAL**

White washing/colour washing/distempering/cement painting shall be carried out as specified in section 15 of MES Schedule Part I after preparation of surfaces as specified.

36.2 WHITE WASH

White was as described in Schedule A of white (lime) wash after preparation of surfaces as specified in MES Schedule Part I (2009).

36.3 Two coats of colour wash over a coat of white wash including preparation of surfaces as specified in MES Schedule Part-I (2009).

36.4 DRY DISTEMPER

Dry distemper where indicated in Schedule 'A' shall be applied in two coats over a coat of primer all as specified in MES Schedule. Surface shall be prepared by applying oil putty to remove any unevenness.

36.5 CEMENT BASE PAINT

Cement base paint where indicated in Schedule 'A' shall be with cement based paint conforming to IS-5410-1969 and shall be applied in two coats after preparation of surfaces, all as specified in MES Schedule. To prevent algae and moss growth and efflorescence, silicon base water repellent compound may be added to mixture at the rate as recommended by the manufacturer. Cement base paint shall be ready mix and of make as approved by GE.

36.6 PAINTING**GENERAL**

- (a) Refer clause 15.14.1, 15.20.3 and section, 17 of MES schedule Part I (2009) for paints and painting work.
- (b) Painting shall be with synthetic enamel and of first quality and not inferior to that specified in the IS and produced from any of the manufacturers mentioned in Appx 'A'. However paint for priming coat under coat and finishing coat shall be of the same manufacturer.
- (c) Tint of paint shall be as approved/directed by the GE.
- (d) All surfaces to be treated shall be suitably prepared before applying priming coat as specified in the MES Schedule.
- (e) Pink primer shall be used for wooden surface and red oxide zinc chromate for steel surface.
- (f) The contractor shall use fresh and first quality paint. The contractor's rate shall also be deemed go include for preparation of surface and application of primer.
- (g) Painting shall be two coats of synthetic enamel paint over a coat of primer all as described in schedule.
- (h) French polishing on wooden surface shall be carried out as per schedule 'A' and as specified in clause 17.7.4 of SSR 2009 part I.

36.7 WEATHER PROOF ANTI FUNGAL, ANTI ALGAE ACRYLIC EMULSION PAINT

Where weather proof acrylic emulsion weather coat paint is indicated in BOQ, the same shall be provided in two coats Acrylic Emulsion weather proof anti fungal, anti algae coat over a coat of suitable primer including preparation of surface. Preparation of surface and application of paint shall be all as described in BOQ and approved by GE. Tint of paint shall be as approved by GE. Acrylic emulsion weather coat paint shall be of manufacturers as indicated in Appx 'A'.

36.7.1 GUARANTEE FOR WEATHER PROOF ANTI FUNGAL, ANTI ALGAE ACRYLIC EMULSION PAINT

The contractor shall give a written guarantee on Rs. 100 Stamp Paper for (7) SEVEN years from the certified date of completion of entire work for the effectiveness of the paint carried out in favour of "**Garrison Engineer (East) Jabalpur**".

PARTICULAR SPECIFICATIONS PART II (Contd.....)**36.7.2 GUARANTEE AMOUNT**

An amount equal to 2.5% for the item of weather proof anti fungal, anti algae acrylic emulsion paint shall be retained from the amount due in final bill as guarantee amount for 7 years towards the performance of the work executed. This amount shall be released after successful expiry of the guarantee period provided there and the contractor shall first have been paid final bill and have rendered a 'No Demand Certificate' (IAFW-451). The security deposit referred here-in-above is independent of the guarantee amount referred against Performance Security here-in-before. Conditions 10, 46 and 68 of General Conditions of Contracts (IAFW-2249) shall be deemed to be amended to the extent mentioned above. However, the guarantee amount will be released to the contractor if a fixed deposit in the name of "**Garrison Engineer (East) Jabalpur**" for equal amount for 7 years is submitted by the contractor. The fixed deposit receipt amount shall be released to the contractor after expiry of guarantee period satisfactorily. If any defect is noticed during the guarantee period, it should be rectified by the contractor within seven days from the date of receipt of demand in writing from the GE and if the contractor fails to do, the same shall be got done through other agency at the risk and cost of the contractor.

37. SANITARY FITTINGS AND PLUMBING WORK**37.1 GENERAL**

The work of supplying fixing /laying and jointing of water closets including connecting pipes, cistern, wash hand basins, all soil, waste & vent pipes and fitting with accessories/traps and GT for building shall be carried out as described in Schedule to item & in MES Schedule Part-I (2009).

37.1.2 Water closets, wash hand basins etc shall be vitreous china first / standard quality white glazed and shall conform to relevant Part of IS-2556 (vitreous china sanitary appliance) and shall bear 'ISI' mark or of superior quality and finish. Tolerance in the size of fittings as given in IS shall be permissible. Also refer clause 18.32 to 18.39 of MES Schedule Part-I (2009).

37.1.3 Flush pipe and sockets of flushing of WC shall be jointed with white and red lead (white and red lead in equal proportion by weight) cement and linseed oil to form paste.

37.1.4 'P' or 'S' trap shall be jointed to WC pan with cement joints as specified in Clause 18.48.5 and 18.48.5.1 MES Schedule Part I (2009).

37.1.5 Plumbing work shall be carried out as specified in Clause 18.13 to 18.23 of MES Schedule Part-I (2009) and the Contractor shall employ licensed plumber.

37.1.6 Where not indicated elsewhere angle iron bracket shall be fixed to walls with PCC (1:3:6) type C-1 block of size 100 mm x 100 mm x 75 mm.

37.1.7 Cast iron brackets shall be fixed on walls with wooden plugs (built in walls) plugged to walls. Size of PCC blocks shall be 100 mm x 100 mm x 75 mm.

37.1.8 Excavation and earthwork up-to first manhole (excluding the manhole) shall be deemed included in the cost of respective building in Schedule 'A' Part I (2009).

37.2.1 Water Closet European Type (Pedestal Pattern)

Water closet European type (pedestal pattern) where shown on drawings shall comprise as under:

- (a) Vitreous china white water closet apparatus (pedestal pattern) of height 400 to 410 mm rear outlet, conforming to IS with integral 'P' trap having minimum 75 mm water seal. The closet shall be screwed to and including wooden plugs embedded into floor.
- (b) Seat and cover shall be of thermosetting material conforming to IS-2548 (Part-I) (2009) back plastic closed pattern flat bottom, hinged with chromium plated brass hinges, rubber buffers of suitable size and conforming to IS.
- (c) PVC (HDP) low level flushing cistern white colour of 10 litres discharge capacity comprising of all requisite fittings, fixtures including 'Z' type brackets and 15 mm bore PVC over flow pipe taken down upto 150 mm above finished floor level etc complete all as specified and directed.
- (d) Flush pipe of adequate length as described in Clause 20.2.1 I here-in-before.
- (e) Toilet paper holder shall be box type vitreous china.

37.2.2 Water Closet (Indian Type Orissa Pattern). Water closet Indian type Orissa Pattern shall comprise as under:

- (a) Vitreous china squatting pan, water closet apparatus Orissa pattern of size 580 mm x 440 mm white with integral foot rests conforming to IS-2556 of Part-III 1981 with P trap or S trap long arms 900 mm from the centre of socket, set in cement concrete irrespective of whatever shown on drawing.
- (b) PVC (HDP) low level flushing cistern white colour of 10 litre discharge capacity comprising of all requisite fittings, fixtures including 'Z' type brackets and 15 mm bore PVC over flow pipe taken down up-to 150 mm above finished floor level etc complete all as specified and directed.

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

- (c) 32 mm bore ready made flush PVC pipe bent to shape and 1.00 to 1.25 metre long (including bent portion) complete and jointing to WC with hemp and cement.
- (d) 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 unless shown otherwise on drawings.

Note. Where flushing cistern cannot be fixed in wall due to window lintel as per sanitary plan, the same shall be fixed on the side wall with additional bend, the cost of which shall be deemed to be included in the lump sum cost of building in Schedule 'A' Part I (2009).

37.3 HALF STALL TYPE URINALS

Urinals where indicated on drawings shall be ISI marked half stall type all as specified in clause 18.32.7.2 of MES Schedule Part I (2009). Urinal shall be provided with 32 mm dia PVC flush pipe and PVC automatic flushing cistern of capacity as indicated on drawings all as specified in MES Schedule. The size of urinal shall be 580 x 380 x 350 mm. Irrespective of whatever shown/ specified elsewhere in these tender documents, GI pipe to regulate flow of water from cistern to urinal shall be measured and paid under Schedule A Part II/ other relevant schedule. Urinal partition shall be all as shown on drawings.

37.4 CI SOIL WASTE & VENT PIPES AND FITTINGS

- (a) All soil, waste and vent pipes and their fittings and accessories shall be of cast iron (spun) spigot and socket and shall bear ISI marking (IS 3989).
- (b) CI pipes with fittings and accessories shall conform to IS 3989 as specified in Clause 18.23, 18.23.1 to 18.23.6 of MES Schedule Part I(2009). CI bend for soil pipes shall be with duck foot/heel rest. All other CI bends, tees, junctions etc shall be of required angle and shall be with oval access door for maintenance.
- (c) Jointing of CI pipes and fittings shall be with run lead joints as specified.
- (d) All soil, waste and vent pipes and their fittings shall be fixed alongwith vertical face of wall and shall be kept 50 mm to 75 mm away from face of wall while fixing.
- (e) Exposed surfaces of soil, waste and vent pipes, their fitting and accessories shall be given two coats of paint to match adjoining wall finish if the painting is not done at Factory.
- (f) Waste pipe from Nahani Trap to Gully Trap (NT to GT) and soil pipe to first manhole shall be of 75 mm dia / 100 mm dia CI Pipe respectively.
- (g) Cast iron pipe and fitting shall be secured with cast iron holder bats or mild steel clamps all as specified in clause 11.37.4 and 11.37.5 of MES Schedule Part-I(2009).

38. GI PIPE

38.1 MS Galvanised tubes and fittings shall comply to IS-1239 (Part I & II). Refer Clause 18.4 of MES Schedule Part-I (2009) and Part-II (2020) for other specifications.

38.2 GI pipes and fittings shall be laid and jointed in trenches all as specified in Clause 18.50 of

MES Schedule Part-I (2009).

39. UPVC PIPE

39.1 UPVC pipes shall conform to IS 4985-2000 and specification as per Section 18 and refer to Clause 18.7 to 18.11 of MES Schedule Part-I (2009).

40. HIGH DENSITYPOLYETHYLENE (HDPE) PIPES

40.1 HDPE pipes shall conform to IS 4984-1995 and specification as per Section 18 and refer to Clause 18.6 of MES Schedule Part-I (2009).

41. LOW DENSITYPOLYETHYLENE (LDPE) PIPES

41.1 LDPE pipes shall conform to IS 3076-1985 and specification as per Section 18 and refer to Clause 18.5 of MES Schedule Part-I (2009).

42. MIRROR

Mirrors shall be 5mm thick of size 600 x 375 mm with square corners polished fix to 6mm thick plywood (kitply) backing and with aluminium channel frame fixed with brass chromium plated screws to wall all as shown on drgs.

43. PVC TANK

HDPE service overhead water tanks having double layered wall shall be placed at location as directed by GE. PVC tank shall be of rotational moulded polythene water storage tank (cylindrical vertical with closed top) of capacity indicated in Sch 'A'. Rate quoted by Contractor shall deemed to include hoisting and fixing in position and complete inlet and outlet connections.

PARTICULAR SPECIFICATIONS PART II (Contd.....)**44. DEMOLITION/TAKING DOWN**

- 44.1 All material obtained from demolished/dismantled/taken down shall become Govt property and shall be removed by the contractor to store yard of GE (East) Jabalpur without any extra cost to Govt except credited to contractors. Old material will not be re-used in the work unless specifically enumerated in Sch 'A' rubbish (if any) received from demolition/dismantling/taking down shall be through away in low lying area as directed by Engineer-in-Charge without any extra cost to the Govt.

45. DISPOSAL OF SOIL

- 45.1 All surplus soil obtained from excavation shall be removed to the places at a distance n.ex 50 mtrs and shall be spread and leveled at places as directed by the Engineer-in-Charge.

46. RETURNING FILLING

- 46.1 Returning filling of earth in trenches shall be done in 25 cm thick layer with excavated soil approved by Engr-in-Charge in a manner and to ensure greater compactness and solidity. Each layer shall be leveled watered and well rammed to the entire satisfaction of Engr-in-Charge.

47. BARBED WIRE

- 47.1 Barbed wire shall be provided as specified in Schedule 'A'. Refer Para 10.32 & 10.32.1 of SSR Part-I (2009).

48. WELDED STEEL WIRE FABRIC

- 48.1 Welded steel wire fabric shall be provided as specified in Schedule 'A'. Refer para 10.33 & 10.33.1 of SSR Part-I (2009).

49. CHAIN LINK FENCE

- 49.1 Chain link fence shall be provided as specified in the Schedule 'A' and also refer Para 10.34 of SSR Part-I (2009)

50. ALUMINUM DOORS/WINDOWS/VENTILATORS

- 50.1 The aluminium doors/Windows/ventilators/partitions shall conform to IS:1948-1961. The contractor may provide items of quality superior to IS specifications without extra cost to the Government.
- 50.2 Frames and shutters for all doors/windows/ventilators/partitions shall be of aluminum alloy extruded tubular sections. Chemical and mechanical properties of sections shall comply with requirements given in IS: 733-1983 and as specified in Clause No 10.37 of MES Schedule Part I.
- 50.3 All profiles of aluminum doors/windows/ventilators/partitions shall be properly pretreated and powder coated using pure polyester jotun/interpon powder to a maximum of 40-45 microns coating thickness. Tint of coating shall be as approved by GE.
- 50.4 The joinery shall be fixed in the opening with expandable fissure/Hiltl make rawl plug No.8 on the sides of opening. Spacing of the fasteners shall not exceed 60cm centre to centre. The gaps at the top and sides shall be filled with required PVC/neoprene felt.
- 50.5 Provision for weather stripping shall be made in the vertical jambs of windows/ventilators. The cleats for mechanical horizontal/vertical joints of the fixed frame and shutters shall be specially extruded aluminum sections so as to avoid any play between jointed members.

51. ROLLING SHUTTER

Refer clause 10.23 of SSR Part-I (2009).

52. COLLAPSIBLE STEEL GATES

Refer clause 10.24 of SSR Part-I (2009).

53. WATER PROOFING TREATMENT OVER ROOF SLABS**53.1 (a) Material Specifications**

APP modified bituminous membrane 3 mm thick with non woven polyester core is to be used of any one make Viz; 'HYDROSTOP' of TIKITAR PRODUCTS OR TORCH SHIELD (P-3160) of PIDILITE INDIA Ltd Mumbai OR SUPER THERMOLAY of STP Ltd Mumbai OR HYPER PLAS POLYSTER of IWL INDIA Ltd, Chennai, as decided & approved by GE.

(b) Testing

Testing will be got done from one of the following test houses

- (i) National Test house Kolkata
- (ii) National Test house Andheri, Mumbai
- (iii) IITs

(c) Test certificate of manufacturer for each lot along with mention of batch & lot No for following tests will be supplied by the contractor.

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

(d) **Product Specification**
Details/Specifications of APP modified water proofing membrane with non woven polyester reinforcement:-

(e) Technical Data	
Property	- Range/result
(i) Roll Size in	- 10 x 1 M
(ii) Thickness of membrane	- 3 mm
(iii) Roll weight	- 32 to 35 Kg (3.2-3.5 Kg/Sq M
(iv) Coating Asphalt	- APP Modified
(v) Softening point, °C	- > 150
(vi) Polyester Core	- 150-160 gm/SqM
(vii) Tensile strength (N/5 Cm)	
	Longitudinal - > 650
	Transverse - > 400
(viii) Tear resistance (N)	
	Longitudinal - > 140
	Transverse - > 150
(ix) Water absorption	- < 0.15%
(x) Heat resistance	- No flow at 125°C
(xi) Cold flexibility	- Up-to 5°C
(xii) Elongation at break (L/T)	- 40/50 %
(xiii) Resistance ageing & ux	- pass
(xiv) Weather –o– meter, 200 Hrs*	- (*equals 10 years exposure to the sun light)

- Notes :**
- (i) Supplier/manufacturer will provide all necessary and required documents as evidence to genuineness of import of product/ manufacturer’s certificate of testing invoice etc.
 - (ii) For import of product, a copy of bill of loading of each consignment imported during the duration of project and supplied to requirement will be produced.
 - (iii) Copy of packing slip.

(f) **General guidelines for roof treatment**

(i) **Surface Preparation**

(a) Proper slope shall be ensured. (b) Roof slab shall be free from any undulation. (c) Roof slabs shall be free from any leakage/ seepage/ dampness.

(ii) **Application of membrane**

(a) Clean & remove dust, dirt, loose particles and unsound substrate, make surface smooth, even & free from local depressions with polymer modified mortar. The cost of the mortar is inclusive of rate quoted for laying APP membrane.

(b) Apply primer coat with Oxidised bitumen based solvented primer of; PIDILITE Industries Ltd or STP Ltd or IWL (India) Ltd or TIKITAR PRODUCTS @ 0.3 Kg per Sq M.

(c) Primer shall be allowed to dry over night.

(d) A coat of hot blown grade bitumen (softening point 115⁰ C) shall be applied @ 1.2 Kg/SqM as specified in BOQ.

(e) APP modified membrane shall be applied by heating one surface of membrane with LPG torch adequately through experienced authorized applicators of the firm. Membrane shall be correctly aligned before torching. Keep overlap margin for minimum of 100 mm. All overlap joints shall be sealed thoroughly by thermo-fusing both the membrane layer and sealing it with the help of hot trowel. All overlap joints shall make monolithic layer.

(f) **Approachable roof** : A coat of hot blown grade bitumen (softing point 115 C) shall be applied over the membrane and blinded with dry sand at 0.75 Kg/sqm. The surface is then laid over by PCC tiles as per BOQ. The tiles shall be pointed and grouted with polymer based tiles joint filler/grout.

(g) **Non Approachable roof** : A coat of bituminous aluminum paint @ 100 gm /Sqm Shall be applied on top of the laid APP membrane.

(h) All angles and abutments up-stands should be sealed with extra care to ensure perfect bondage. Membrane on roof at the junction of walls/ parapets shall be terminated at the top of coving & sealed properly.

(j) Membrane laying shall be started from the lowest level of the roof.

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

- (k) Membrane shall be laid perpendicular to the flow of water/ gradient.
- (l) (i) All junctions of roof slab & parapet wall shall be cleared of old concrete and other loose material and applied with cement slurry at 3 kg/m² and haunting to be done with PCC 1:2:4 as specified and charioted.
- (ii) Whenever Parapets exists the membrane shall be tucked into grooves made by cutting chases 200 mm above the hanching PCC and sealed with PCC 1:2: 4 type Bo and finished to match existing surfaces.
- (iii) If kerbs exist then membrane shall be taken over them.
- (iv) A plaque of size 90 x 60 cm Shall be made on the wall of the bldg/ block where water proofing treatment done at GF is CM 1:3, 15 mm thick. And the following engraved while is green.
- (a) CA No. (b) Name of contractor.
- (c) Date of completion. (d) Date of expiry of guarantee period.
- The cost of this above is deemed to be included in the rate quoted by the contractor in the item for laying APP membrane.
- (v) Whenever rain water pipe/ spouts are to be provided the same shall be provided before applying the treatment and concrete required for correction /benching courses. The pipe shall be embedded in PCC 1:2:4 type Bo all around pipe upto a minimum thickness of 50 mm all around pipe including finishing the face of in let with polymer modified mortar. The membrane shall be taken into the of the into the pipe. The rates are deemed to be included in the quoted rate of pipes.

53.2 GUARANTEE FOR WATER PROOFING TREATMENT

- (a) The Contractor shall give a guarantee of **10 (Ten)** years to Govt after the date of completion of work for water proofing treatment. For giving guarantee, if any additional treatment is required over and above that specified in Sch 'A'/BOQ, the same shall be carried out by the contractor without any extra cost of Govt.
- (b) Security amount as per scale of individual security of the cost of water proofing treatment at contract rates for building involving water proofing treatment rounded off to the next hundred rupees shall be retained from contractor's dues. However in any case security amount shall not be less than Rs. (1000) one thousand being very small area/ pocket i.e. sunken floor treatment only. This amount shall be released after expiry of guarantee period. The contractor, at his option may, furnish fixed deposit receipt pledged in favour of concerned GE in which case amount so deducted from the final bill shall be refunded to the contractor
- (c) In case the GE at any time during construction and/or prior to the expiry of the guarantee period, finds that the water proofing treatment carried out is not effective or any leakage seepage is observed in slabs, the contractor shall on demand in writing from the GE specifying the buildings complained of, not with standing that the same may have been inadvertently passed, certified and paid for, under take to carryout such treatment as may be necessary forthwith to make the buildings leakage/seepage free, at his own expanse till expiry of the guarantee period. In the event in his failure to do so within the specified period to be specified by GE in his demand aforesaid, the GE may under take such treatment at the risk and expense in all respects of the contractor. The liability of the contractor under this condition shall not extend beyond the period of 10 (ten) years from the date of completion unless the GE had previously given notice to the contractor to rectify the defects.
- (d) The 'Security Deposit' referred to in Condition 19 of General Conditions of Contracts (IAFW-2249) is independent of the guarantee amount referred to under sub clause (b) above, Conditions 46 & 68 of the General Conditions of Contracts (IAFW-2249) shall be deemed to be amended to the extent mentioned above.
- (e) **Flooding test for roof treatment** : On completion of roof treatment the contractor shall carryout flooding test. The flooding Test shall be carried out as per SSR Part I. Water shall be pounded for a minimum depth of 50mm and shall be allowed to remain over roof for a period of 72 hours. During this period if any defect such as leakage. Seepage etc, are noticed the contractor to the entire satisfaction of GE shall rectify it. Test result are duly signed from all concern shall be kept on record.
- (f) Water Proofing Treatment Guarantee on Rs. 100/- (One hundred only) stamp paper as per Contract Manual 2020.

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

54. **LAYING TECHNIQUE OF MEMBRANE**
- (a) The membrane shall normally be laid in length at right angles to direction of the run-off gradient, commencing at the lowest level and working up to the crest. The membrane shall be first cut to required lengths brushed clean of dusting material and laid out flat on the roof Each length of membrane prepared for laying shall be laid in position and rolled up for a distance of half of its length. The hot binding material shall be laid on to the roof across the full width of the rolled membrane as the later is steadily rolled out and pressed. The excess bonding squeezed out at the ends shall be removed as laying proceeds.

(b) When the first half of the membrane has been bonded to the roof, the other half shall be rolled up and then unrolled on to the hot bonding material in the same way as per Para (a) a above.

(c) The minimum overlaps of 100mm shall be allowed at the ends and sides of s trips polymeric membrane. All overlaps shall be firmly bonded by heating and fusing the layer of asphalt and melting the protective plastic film. But taking care not to overheat this as too much heat can harm the central polyethylene core, which is essential for water proofing function.

(d) When the asphalt starts to flow, the applicator should press both membranes with his foot on the opposite side to his hand holding the torch until a thin string of fluid asphalt appears indicating correct fusing and bonding. During this phase the trowel; should be worked with a back and forth, lengthwise motion to homogenize the bonded area.

55. **WORKMANSHIP**
- The work of water proofing treatment will be got executed by the contractor from the authorized applicator of the company from which the contractor sources the material.

56. **SAFETY IN CONSTRUCTION/SPECIAL REPAIR/MAINTENANCE**
- The Contractor shall take necessary precautions and measures listed in the IS Safety Codes, in the MES Safety Codes or as directed by the Engineer-in-Charge to ensure the safety of works/special repair and of workman and shall be responsible for the same. The provisions of the following IS safety Codes shall generally apply:-

IS No	Subject
3696 (Part 1) 1987	Safety Code for scaffolds and ladders Part-I. Scaffolds
3696 (Part 2) 1991	Safety Code Part-2 for scaffolds and ladders
4014 (Part-2)1967	Code f practice for steel tubular scaffolding; Part-2, Safety regulations for scaffolding.
4130 – 1991	Safety Code for demolition of buildings (Second revision)
5121 – 1969	Safety Code for piling and other deep foundations.
5916 – 1970	Safety Code for construction involving use of hot bituminous materials
7293 – 1974	Safety Code for working with construction machinery
7969 – 1975	Safety Code for storage and handling of building materials

- 56.1 **Note :**
- (i) The Contractor shall be produced the insurance of all workers employed by him in the subject work before commencement of work.

(ii) The Contractor shall be taken all safety measures as per MES/IS Safety Codes.

(iii) The Contractor shall be provided the all safety equipments to all workers.

(iv) All the material required for the subject work shall be confirming to relevant IS. Contractor shall be used the material as per manufacturer instructions/relevant IS.

57. **Dismantling B/R works**
- 57.1 All dismantled materials shall be treated as per Sch of credit and other materials such as debris / concrete waste etc to be removed from MD land at the cost of the contractor.

57.2 All dismantling shall be done to the area/loc as decided and specified. Any extra dismantling shall be made good by the contractor at his expenses to the old form as directed specified

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

58. **FORM WORK** :- Form work for RCC slab and band shall be fair finished as specified in SSR Part-I 2009.

RCC FOR SLAB AND BAND :- M-30 design mix.

STEEL REINFORCEMENT: - 8mm/10mm dia Tor/deformed bars as shown in the drawing. The same shall be amended as 8mm/10mm dia TMT steel bars all shown on the drawing.

INLET PIPES :- The cost of inlet pipes upto 1.8m length from inner faces of brick wall shall be included in the cost of soak well. The cost of earth work for 1.8m inlet pipe shall also be included in the cost of soak well.

59. **MANHOLE COVERS** :- Manhole covers shall be provided as shown on drawings.
SEPTIC TANKS

Septic tank shall be constructed all as specified here-in-after and shown on drawings.

EARTH WORK AND EXCAVATION :- Excavation and earth work shall be carried out in any type of soil as shown in the drawing and as specified.

EARTH FILLING :- Earth filling shall be carried out (with approved soil) in any type of soil complete all as specified and shown on drawings.

REMOVAL OF SURPLUS SOIL :- Removal of surplus soil to a distance exc 50m but n.exc 250m at low lying area.

PCC IN FOUNDATION :- PCC 1:5:10 type E2 as shown in the drawing.

BRICK MASONARY :- Brick work with sub class bricks shall be carried out in CM 1:4 all as shown on drawing.

FLOORING :- PCC flooring and sub base shall be carried out as shown on drawings. The surface of flooring shall be finished even and smooth.

PLASTERING :- 12MM thick plastering in CM 1:4 (internally) finishing even and smooth with using extra cement and mixing with water proofing compound @ 3% by weight of cement. External plaster 15mm thick in CM 1:4 finishing even and smooth without using extra cement shall be carried out upto 15cm from ground level.

BEARING PLASTER :- 20mm thick bearing plaster in CM 1:3 finish even and fair shall be provided as shown in the drawing.

FORM WORK :- Form work for RCC slab etc shall be fair finished as specified in SSR Part-I 2009.

RCC FOR SLAB AND BAFFLE WALL :- M-30 design mix.

STEEL REINFORCEMENT FOR SLAB AND BUFFLE WALL :- Where ever occur/shown on drawings 8mm dia/10mm dia TOR/deformed bars and 8mm dia round wars as shown in the drawing. The same shall be read as 8mm/10mm dia TMT steel bars all shown on the drawings.

INLET AND OUTLET PIPES :- The inlet and outlet pipes shall be provided as shown on drawings (i.e 1.8mtr from external face of wall).

VENT PIPE :- PVC vent pipe (SWR) 100mm bore with cowl shall be provided upto 2mtr.

RUNGS :- Rungs shall be provided as shown on drawings.

MANHOLE COVERS :- Manhole covers shall be provided as shown on drawings.

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

60. **SOAK WELL (1.2m dia and 4.50m deep) (DRAWING NO CEJZ/TD/58 SHEET 1/1)**
Soak well shall be constructed all as specified and shown on drawings.

EARTH WORK AND EXCAVATION :- Excavation and earth work shall be carried out in any type of soil as shown in the drawing and as specified.

EARTH FILLING :- Earth filling shall be carried out (with approved soil) in any type of soil complete all as specified and shown on drawings.

REMOVAL OF SURPLUS SOIL :- Removal of surplus soil to a distance exc 50m but n.exc 250m at low lying area.

BRICK BAT FILLING :- Loose filling with brick bats of gauge 80 to 150mm in soak well shall be provided as shown in the drawing.

PCC IN FOUNDATION :- PCC 1:4:8 type D2 as shown in the drawing.

BRICK MASONRY FOR SOLD BRICK WORK AND HONEY COMB BRICK WORK :- Solid brick work and honey comb brick work with subclass B bricks shall be carried out in CM 1:4 all as shown on drawing.

BEARING PLASTER :- 20mm thick bearing plaster in CM 1:3 finish even and fair shall be provided as shown in the drawing.

FORM WORK :- Form work for RCC slab and band shall be fair finished as specified in SSR Part-I 2009.

RCC FOR SLAB AND BAND :- M-30 design mix.

STEEL REINFORCEMENT :- 8mm/10mm dia Tor/deformed bars as shown in the drawing. The same shall be amended as 8mm/10mm dia TMT steel bars all shown on the drawing.

INLET PIPES :- The cost of inlet pipes upto 1.8m length from inner faces of brick wall shall be included in the cost of soak well. The cost of earth work for 1.8m inlet pipe shall also be included in the cost of soak well.

MANHOLE COVERS :- Manhole covers shall be provided as shown on drawings.

61. **CONCERTINA COIL**
Concertina coil shall be provided as per specified and described in relevant items of Schedule (BOQ).
62. **CLEANING OF SEPTIC TANKS, SOAK WELL, MAN HOLES AND SEWAGE LINE**
- 62.01 The cleaning of septic tank, sock well manholes and sewage pipe lines shall be carried out by properly skilled labour adequate precautions shall be taken by the contractor for working in the foul conditions. Cleaning of septic tank and manholes shall be carried out by the contractor mechanically/manually to the entire satisfaction of Engineer-in-Charge. Night soil/sludge obtained from septic tank, soak well manholes and sewage line will be deposited as directed by Engineer-in-Charge.
- 62.02 The rate quoted against respective schedule 'A' item for cleaning of septic tanks, soak well and manholes shall included for bailing, pumping and dewatering etc if water is accumulated from any source during the progress of work & the contractor shall be responsible to remove same at no extra payment.
- 62.03 The existing depth of the sludge/silted soil shall be jointly recorded in the measurement book and signed by both parties i.e the contractor and Engineer-in-Charge before under taking the actual dislodging work or waste night/silted soil of the manhole.
- 62.04 The contractor attentions is specially invited to the fact that the night soil/silted sludge shall be deposited at insolated place/low level area/excavation pit which shall be covered by earth not less than 25cm thick. Bleaching powder 1.00 Kg/Sqm shall be sprinkled on the surface, while carrying the night soil for disposal, the same shall be taken through closed container. Main and important road for transportation of the same shall be as possible be avoided. The night soil/sludge silted soil shall not be carried out at the peak hours of traffic.
- 62.05 Contractor shall deploy minimum two sweepers with T & P / mechanical equipments on each working day of eight hours per day per sweeper to clear any type of blockage for sewage line, manhole, gully trap, nahani trap, bottle traps etc. on day to day complaint basis by users.
- 62.06 If any complaint is not complied within the stipulated time and on same day the penalty shall be imposed on contractor @ Rs 100/- per complaint per day from the date of complaint received by sweeper.

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

- 62.07 Contractor will maintain complaint register and prepare the complaint slip and will details the sweeper for the complaint. He will again enter the completion in the register. After completion of a complaint, complaint slip should be kept in record duly singed by the concerned JE and users.
- 62.07 The deployment of tradesman will be on all working days except Sunday and holiday (However contractor has to provide tradesman on any Sunday/Holiday as per requirement given by the EIC in written.)

Signature of Contractor
Dated

AGE (Contracts)
For Accepting Officer

LIST OF PRODUCTS APPROVED BY HQ CE CC (Part -I) : CIVIL CONSTRUCTION PRODUCTS

S. No.	Product Category	Product	Name of Firm/ Brand	Group	Remarks
1	Floor and Wall Tiles				
		Ceramic & Vitrified tiles	Kajaria	I	
			Johnson	I	
			Somany Ceramics Ltd (Brand - Somany)	I	
			Orient Bell Ltd (Brand- Orientbell)	I	
			RAK Ceramics India Pvt Ltd (Brand- RAK Ceramic)	I	
			M/s Aparna Enterprises Ltd	I&II	
			Exxaro Tiles Ltd	II	
			Hindware Limited (Hindware)	II	
			Sunshine Tiles Company Pvt Ltd (Brand - Sunheart)	III	
			Oasis Vitrified Pvt Ltd	III	
		Hollow concrete block/ PCC concrete block	Jain Tiles Industries Haldwani (Brand - JTI)	II	
		Precast Concrete Block	Dayalshri Processors	II	
		Concrete Paver Block, Designer Chequered Tiles and Cement Concrete Flooring Tiles	Agrawal Pipe Works	II	
		Cement Concrete Interlocking Paver Blocks/ Tiles	Jain Tiles Industries Haldwani (Brand - JTI)	II	
			Ferrocon Dehradun	II	
			Gayatri Tiles	II	
			Tulip Infrastructure Saharanpur	III	
		Interlocking tiles/ Paver Block 25mm to 80mm	M/s Bajrang Industries, Factory- 45, A-1, Industrial Area, Richhai Jabalpur-482009	I	
		Chequered tiles any type	Jain Tiles Industries Haldwani (Brand - JTI)	II	
			Ferrocon Dehradun	II	
			Gayatri Tiles	II	
		Wooden Flooring	Greenpanel Industries Ltd	I	
			Action Tesa	I	
			Armstrong	I	
		Wall Clading Tiles	Jain Tiles Industries Haldwani (Brand - JTI)	II	
		PCC Interlocking Paver Blocks	Mehtab Tiles	I	CE JZ, 200057/ CPMT/76/E2D dt 15.05.24
		PCC Floor Tiles			
		PCC Chequered Tiles			
		Bollards	Gayatri Tiles	II	
		Kerb Stone			
2	PAINTS				
		Exterior Paint	Asian Paints Ltd	I	1. Exterior & Interior Paints are available in many categories. 2. In general Economy & Premium Category Paints should be used. 3. Luxury & Super Luxury categories of paints may be used only in prestigious works with approval of CE Zones in consultation with the user.
			Berger Paints India Ltd	I	
			Kansai Nerolac Paints Ltd	I	
			Acro Paints Ltd	II	
		Interior Paint	Asian Paints Ltd	I	
			Berger Paints India Ltd	I	
			Kansai Nerolac Paints Ltd	I	
			Acro Paints Ltd	II	
		Enamel/Oil Paint	Asian Paints Ltd (<i>Apcolite Premium Gloss</i>)	I	
			Berger Paints India Ltd (<i>Luxol Hi-Gloss</i>)	I	
			Kansai Nerolac Paints Ltd (<i>Synthetic Hi-Gloss Enamel</i>)	I	
			Acro Paints Ltd	II	
		Cement based Paints	Super Snowcem	I	
			Duracem Plus	I	
			Acro Paints Ltd	I	

S. No.	Product Category	Product	Name of Firm/ Brand	Group	Remarks		
		High Build Textured & Wall finishes	Asian Paints Ltd	I			
			Berger Paints India Ltd	I			
			Kansai Nerolac Paints Ltd	I			
			Acro Paints Ltd	II			
3.	FACTORY MADE DOORS/WINDOWS						
	Doors, Windows, Ventilators & Frames	UPVC shutters for doors, windows, ventilators & Frames	Fenesta	I			
			Koemmerling	I			
			Aluplast	I			
			Prominance	I			
			NCL Veka Ltd(Brand- NCL Veka)	I			
			Rajshri Plastiwood	II			
			Yashashri Polyextrutions Pvt Ltd	II			
			Chandni Industries Gaziabad	II			
			Kaka Industries Pvt Ltd	III			
			H20 Solution New Delhi	III			
			Madhu Industries	III			
			UPVC Doors and Windows	M/s Aparna Enterprises Ltd	I & II	Valid upto 09.05.25	
	PVC shutters for doors, windows, ventilators & Frames		Yamuna Interiors Pvt Ltd (Brand - Black Cobra) Yamuna Nagar	II			
			Kumar Arch Tech Pvt Ltd (Brand - Ecocell)	II			
			GIZA	II			
			Polyline Extrusions Pvt Ltd	II			
			Kaka Industries Pvt Ltd	III			
			WPC door, window & frames		Rajshri Plastiwood	I	
	GIZA	II					
	Ecocell	II					
	Yamuna Interiors Pvt Ltd (Brand - Black Cobra) Yamuna Nagar	II					
	Kaka Industries Pvt Ltd	III					
	Pre-painted steel windows, ventilators & door frames				Tata Pravesh	I	
			NCL Buildtek Limited	I			
			Elixir Met Form Pvt Ltd	I			
			Ashish Industries Gaziabad	I			
	Wooden flush door/ panel/ gauge shutters for door & window		Century Plyboard (India) Ltd. (Brand - Century Doors)	I			
			M P Wood Products (for Wooden Shutters, Flush doors & frames)		CEJZ, 200057/ CMPT/ 77/ E2D dt 18.05.24		
			Greenply industries Ltd	I			
			Rama Woods Crafts Satna (Firm will provide 10 yrs guarantee)	I			
			Greenpanel Industries Ltd	I			
			Jain Wood Industrires (make :JAYNA)	I			
			Jain Doors Pvt Ltd	II			
			Punjab Plywood industries (Brand- Black Cobra)	II			
			Steel windows, Ventilators, Door frames, Shutters, 'Z' Section steel windows (Fabricators)		NCL Buildtek Ltd	I	
					Ashish Industries Gaziabad	I	
	Trisul Industries Meerut	II					
	Chandni Industries Gaziabad	II					
	Ashwani & Sons	II					
	Madhu Industries	III					
	Deco Grill	II					
	Aluminium shutters, frames for doors, windows & ventilators (Fabricators)				Chandni Industries Gaziabad	II	
			Deco Grill	II			
	Rolled formed galvanised iron section, prepainted/ colour coated windows (Box Type)		M/s Ashish Industries	I	Valid upto 09.05.27		
			Z-Steel Section Windows (IS-1038)	Metro Industries	I	CEJZ L/No 200057/ CPMT/72/E2D dt 18.04.24	
	Steel Cup-boards		Metro Industries	I			
	Steel Lockers		Metro Industries	I			

		Pressed Steel Door Frames (IS-4351)	Metro Industries	I	
			M/s Ashish Industries	I	Valid upto 09.05.25
4.	PLY/ VENEERS, LAMINATES/ FALSE CEILINGS/ PARTICLE BOARDS/ WOODEN BOARDS SHEET/ WOODEN FLOOR ETC				
		UPVC/ PVC False Ceiling	Rajshri Plastiwood	I	
			Polyline Extrusions Pvt Ltd	II	
			Accura Polytech Pvt Ltd	II	
			Kumar Arch Tech Pvt Ltd (Brand – Ecocell)	II	
S. No.	Product Category	Product	Name of Firm/ Brand	Group	Remarks
S. No 4. PLY/ VENEERS, LAMINATES/ FALSE CEILINGS/ PARTICLE BOARDS/ WOODEN BOARDS SHEET/ WOODEN FLOOR ETC (Contd.....)					
		Metal false ceiling	P R Ceiling Products	I	
			Manraj Ceiling Products Pvt Ltd (Brand – Royal Kraft)	I	
			Armstrong	I	
		Gypsum Board False Ceiling/Gypsom Plaster	Everest Industries Ltd	I	
			Gyproc	I	
			Armstrong	I	
		PVC Board	USG Boral	I	
			Rajshri Plastiwood	II	CEJZ L/No 200057/ CPMT/86/E2D dt 03.07.24 & CEJZ L/No 200057/ CPMT/ 89/E2D dt 06.07.24 &
		WPC Board	PLUGA	II	
			Rajshri Plastiwood	II	
			PLUGA	II	
		Non-Asbestos Fibre Cement Board (Confirming to IS: 14862/ 2000) False Ceiling	Everest Industries Ltd	I	
			Shera	I	
			Kalsi	I	
			Prima	I	
			Duragreen	I	
		Glass Reinforced Gypsum (GRC) False Ceiling	Gyproc	I	
			Armstrong	I	
			USG Boral	I	
	Wall Panelling/ Partitions/ Ply Board/ MDF & HDF Boards	Plain Particle Board/ Particle board ceiling, Pre-laminated Particle Board	Greenpanel Industries Ltd	I	
			Century Ply	I	
			Greenply	I	
			Kitply	I	
			Punjab plywood industries (Brand- Black Cobra) Yamuna Nagar	II	
		Aluminium Composite Panels (ACP)	Aludecor	I	
			Alstrong	I	
			Alucobond	I	
			Alstone	I	
			Viva	I	
			Alexia Panels Dehradun (Brand- Alex Panels)	II	
		Laminates/ Veneers	Merino Laminates	I	
			Royale Touche Laminates	I	
			Greenlam Laminates	I	
			Century Laminates	I	
			Kitply	I	
			Sunmica	I	
			Formica	I	
			Greenpanel Industries Ltd	I	
			Virgo Laminates Ltd	I	
		Plywood for general purpose/ Block Board	Century Ply	I	
			Greenply	I	
			Kitply	I	
			Greenpanel Industries Ltd	I	
			Jain Wood Industries (Make JAYNA)	I	
			Punjab Plywood industries (Brand- Black Cobra	II	

S. No.	Product Category	Product	Name of Firm/ Brand	Group	Remarks
5.	SANITARY FITTINGS/ FIXTURES				
		CP Bath fittings & accessories	Grohe	I	
			Kohler	I	
			Jaquar & Co Pvt Ltd(Brand-Jaquar)	I	
			CERA Sanitaryware Ltd	I	
			Hindware Limited (Hindware/ QUEO)	I	
			Jaquar & Co Pvt Ltd(Brand – Essco)	II	
			Asian Paints Ltd (Brand - Royale, Essess & Bathsense)	II	
			Prayag Polymers Pvt Ltd	II	
			Status Sanitech Pvt Ltd Mathura (Brand - Player)	II	
			Pearl Precision Products Pvt Ltd (Brand - Sparsh Pearl)	II	
		CP Bath fittings & accessories (Contd.....)	Vardhman enterprises (Brand-JAINCO)	II	
			Ajanta Sanitaryware Pvt Ltd (brand : Millenium)	II	
			Jain Enterprises New Delhi (Brand-JAYNAM)	III	
			Bluestar Sanitary Industries Pvt Ltd (Brand - Silvershine)	III	
		PTMT bath fittings & accessories	R S Industries Delhi	II	
			Ajanta Sanitaryware Pvt Ltd (brand : Millenium)	II	
			Shakti Enterprises New Delhi (Brand - SYMET)	III	
			Jain Enterprises New Delhi	III	
		Stop Valves/Gate Valves/ Bib Taps (Brass)	Prayag Polymers Pvt Ltd	II	
			Dhawan Sanitary Udyog New Delhi (Brand - Prima)	II	
			KS Engg Works Gaziabad	II	
			Bluestar Sanitary Industries Pvt Ltd (Brand - Silvershine)	III	
		WHB/WC/Urinal	Jaquar & Co Pvt Ltd(Brand- Jaquar)	I	
			CERA Sanitaryware Ltd	I	
			Hindware Limited (Hindware/ QUEO)	I	
			Asian Paints Ltd(Brand - Royale, Essess & Bathsense)	II	
			Jaquar & Co Pvt Ltd(Brand - Essco)	II	
			Prayag Polymers Pvt Ltd	II	
		Metropole & Concealed Flushing Cistern	Jaquar	I	
			Grohe	I	
			Kohler	I	
			Ajanta Sanitaryware Pvt Ltd (brand : Millenium)	II	
		Seat Cover for EWC	CERA Sanitaryware Ltd	I	
			Parryware	I	
			Prayag Polymers Pvt Ltd	II	
			Ajanta Sanitaryware Pvt Ltd (brand : Millenium)	II	
			Pearl Precision Products Pvt Ltd (Brand - Sparsh Pearl)	II	
			Shakti Enterprises New Delhi	III	
		PVC Flushing Cistern (IS-774/1984)	CERA Sanitaryware Ltd	I	
			Parryware	I	
			Prayag Polymers Pvt Ltd	II	
			Pearl Precision Products Pvt Ltd (Brand - Sparsh Pearl)	II	
			Shakti Enterprises New Delhi	III	

		Stainless Steel Sinks	Johnson	I	
			Nirali	I	
			Hindware	I	
			Prayag Polymers Pvt Ltd	II	
			Ajanta Sanitaryware Pvt Ltd (brand : Millenium)	II	
			Status Sanitech Pvt Ltd Mathura (Brand - Player)	II	
			Shakti Enterprises New Delhi	III	
			Bluestar Sanitary Industries Pvt Ltd (Brand - Silvershine)	III	
			6.	PIPES	
	Internal Water Supply	CPVC Pipes & fittings	Astral Ltd(Brand- CPVC Pro)	I	
			Ashirvad	I	
			Fusion Industries Limited (Brand : Fusion)	I	
			Supreme	I	
			Savour Fair Manufacturing Co Pvt Ltd	I	
			Sentini Flopipes India Pvt Ltd	II	
			Surya Roshni Ltd	II	
			Prayag Polymers Pvt Ltd	II	
		UPVC Pipes & fittings	Astral Ltd (Brand- Aqua Safe & Aquarius)	I	
			Ashirvad	I	
			Supreme	I	
			Fusion Industries Limited (Brand : Fusion)	I	
			Savour Fair Manufacturing Co Pvt Ltd	I	
			Prayag Polymers Pvt Ltd	II	
			Surya Roshni Ltd	II	
			Sentini Flopipes India Pvt Ltd	II	
			AKG Extrusions Pvt Ltd	II	
			HDPE Pipe/ MDPE Pipe/ PVC Pipe	Astral Ltd (Brand- HDPE Pro)	I
		Finolex		I	
		Venkatesh Indigenous Pipes Pvt Ltd (Brand- VIP)		II	
		PPR Pipes & fittings	Prince	I	
			Finolex	I	
			Fusion Industries Limited (Brand : Fusion)	I	
			Supreme	I	
			Savour Fair Manufacturing Co Pvt Ltd	I	
		ERW MS Pipe	Surya Roshni Ltd	I	
			Tata	I	
			Jindal	I	
			Singhal Iorn Foundry Pvt Ltd (Brand-SKF)	II	
			Singhal Iorn Foundry Pvt Ltd Mathura	II	
		SWR pipes as per IS : 13592 for pipes & IS : 14735 for fittings	Astral Ltd (Brand- Drain Master)	I	
			Supreme	I	
			Sentini Flopipes India Pvt Ltd	II	
			Surya Roshni Ltd	II	
			Savour Fair Manufacturing Co Pvt Ltd	III	
		PVC UG drainage pipe as per IS : 16098 Part-I	Astral Ltd (Brand- Foam core)	I	
			Prince	I	
			Finolex	I	
		DWC UG drainage pipes as per IS: 16098 Part-2	Astral Ltd (Brand- D-rex)	I	
			Prince	I	
			Finolex	I	
		PP low noise SWR Pipe	Astral Ltd (Brand- Astral Silencio)	I	

	External Water Supply	DI Pipe & fittings	Tata	I	
			Electrosteel	I	
			Jindal Saw Ltd	I	
	GI Pipes		Tata	I	
			Jindal Hisar	I	
			Surya Roshani Ltd	I	
	Drainage pipes	Centrifugally cast (Spun) iron S/S soil, waste, ventilating & rain water pipes, fittings & accessories confirming to IS : 3989/ 2009	Singhal Iron Foundry Pvt Ltd (Brand - SKF)	II	
		Hubless centrifugally cast (Spun) iron Pipes, fittings & accessories confirming to IS : 15905/2011	Singhal Iron Foundry Pvt Ltd Mathura	II	

S. No.	Product Category	Product	Name of Firm/ Brand	Group	Remarks	
LIST OF PRODUCTS APPROVED BY HQ CE CC NOW FALL WITHIN THE AMBIT OF CMPT-III COMMITTEE FORMED AT CE ZONE LEVEL FOR CONSIDERATION AFTER EXPIRY OF APPROVAL VALIDITY : B/R RELATED PRODUCTS						
1.	Steel Cup Boards, Cabinet Doors & Wardrobe					
		Shutters & frames for cup board	Ashish Industries	I	Wherever less than three makes are approved in a group, CMPT-IIE Committee formed at CE Zone level may consider inclusion of additional makes to facilitate availability of minimum three makes in tenders.	
			Ashwani & Sons Gaziabad	II		
			Trisul Industries Meerut	II		
			Madhu Industries Bangalore	III		
			Jangid Engineering Works Jaipur	III		
2.	Doors and windows fittings (Hardware)					
		Hardware for aluminium/steel/ wooden doors & window fittings	Aluminium Udyog NewDelhi (Brand - Global ISI mark)	II		
			Mohan Metal Industries(Brand – Crown)	III		
			Argent Industries New Delhi	III		
3.	Roof Covering					
		Galvanised & Galvalume colour coated plain/ corrugated profile sheets	JSW Steel Coated Products Ltd	I		
			HIL Ltd (Brand Charminar)	II		
		Non-Asbestos Poly Propylene fibre corrugated roofing sheets	Ramco Industries Brand- Greencor)	II		
		Self supported steel roofing	Proflex Systems	I		
		AC Sheet	HIL Ltd (Brand Charminar)	II		
4.	Fencing					
		Fencing products, Concertina Coil and Chain link fencing	A-1 Fence Products Company Pvt Ltd	I		
5.	Internal Water Supply					
		HDPE water storage tanks	RC Plasto Tanks & Pipes Pvt Ltd	I		
			Vectus Industries Ltd	II		
			Prabh Dayal OM Prakash Infrastructure Pvt Ltd (Brand - Sheetal)	II		
			Savour Fair Manufacturing Co Pvt Ltd	III		
		Float Valves	Cera Sanitaryware Ltd	I		
			Dhawan Sanitary Udyog New Delhi (Brand - Prima)	II		
		SS Plate Rack	Prayag Polymers Pvt Ltd	II		
			Plastocraft Sanitary (India)Pvt Ltd (Brand – Kingston Agrani series ISI marked)	II		
6.	Miscellaneous B/R items					
		Integral Water Proofing Compound	Pidilite (Dr Fixit)	I		
		Tile Adhesive	JK Cement Ltd	I		
		Bonding Agent (For smooth RCC surfaces)	JK Cement Ltd	I		
		Cement Primer	JK Cement Ltd	I		
		White Cement and Wall putty	JK Cement Ltd (Brand - JK White)	I		
		Cement based Primer	JK Cement Ltd	I		
		Block Jointing Mortar	HIL Ltd (Brand - Aerocon Smartfix	I		
		Ready Mix Cement Sand Plaster	HIL Ltd	I		
		Heat reflected products (cool shield for roof & heat shield for glass windows)	Star Shield Technologies Pvt Ltd	II		
		Non metallic manhole cover	Fibrocast Navi Mumbai	I		
		Manhole & Drain Cover	Mehtab Tiles	I		
		Fly Ash Bricks	Mehtab Tiles	I		

CEJZ , 200057/ CMPT/ 76/ E2D dt 15.05.24

S. No.	Product Category	Product		Name of Firm/ Brand		Group	Remarks
7.	Road furniture						
		Road studs, Solar studs, Speed breaker, Traffic cone, Spring ost, Median marker, Delinator, Safety cons, Safety convex mirrors, Q-manager, Reflective jackets, Light baton		Shakti Enterprises		II	Wherever less than three makes are approved in a group, CMPT-IIE Committee formed at CE Zone level may consider inclusion of additional makes to facilitate availability of minimum three makes in tenders.
8.	Furniture						
		Office furniture/ Modular furniture		M/s Methodex Systems Pvt Ltd		I	
		School/Hospital Furniture		Accura Polytech Pvt Ltd		II	
9.	Cement						
		All grades	ACC		Auth: E-in-C's Br letter No A/90154/452/E2 Des-3 dt 02 Aug 2021		
			Ultra Tech				
			The India Cement				
			Dalmia Infra Pro				
			Century Cement				
			Saurashtra				
			Ramco				
			Mangalam				
			Birla				
			Orient				
			Nuvoco				
			Shree				
			JK				
			JK Laxmi				
			Jaypee				
			Ambuja				
		OPC 43	Sartaj				
			Parasakti Cement				
			Chettinad Cement				
			JSW OPC 43				
			Sagar				
			Maha Cement				
			Wonder Cement				
		OPC 53	JSW OPC 53				
			Sagar				
			Sanghi				
			Wonder Cement				
		PPC	Sartaj				
			Parasakti Cement				
			Chettinad Cement				
			Sagar				
			Sanghi				
			Maha Cement				
			Wonder Cement				
		PSC (Portland Slag Cement)	JSW PSC				
			Sagar				
			Maha Cement				
10.	Steel						
	TMT Bars	TMT Bars all grades/sizes	RINL		Auth: E-in-C's Br letter No 83044/Steel/769/E2 Des-3 dt 02.08.21, 83044/Steel/923/E2 Des-3 dt 29.07.2022, 83044/Steel/1067/E2 Des-3 dt 12.05.23		
			TATA				
			SAIL				
		TMT Bars grade Fe 500 & Fe 500D	Balaji Shakti				(8-32 mm)
			Shyam				
			Simhadri TMT				
			Jindal Panther				
			SRMB				
			Goel TMT				(8-32 mm)
			GK TMT				(8-36 mm)
			Super Shakti				
			Gallantt TMX				(8-32 mm)
			Reshmi TMT				(8-25 mm)
			SEL (Fe 500D only)				(8-32 mm)
			Elegant TMT				

S. No	Product Category	Grouping of products based on Makes/Brands				Remarks
		Product	Group-I	Group-II	Group-III	
	TMT Bars grade Fe 550 & Fe 550D (Contd....)	Nakoda TMT	(8-32 mm)			
		Neosteel	(8-40 mmFe 500D only)			
		Kamachi	(8-40 mm)			
		ET TMT	(8-36 mm)	Auth: E-in-C's Br letter No 83044/ Steel/818 /E2 Des-3 dt 06.10.21		
		Jindal Panther	(8-40 mm)	Auth: E-in-C's Br letter No 83044/ Steel/769/ E2 Des-3 dt 02.08.21		
		SRMB	(8-32 mm)			
		Super Shakti	(8-32 mm Fe 550 only)			
		Rashmi TMT	(8-25 mm Fe 550D only)			
		Elegant TMT(Fe500D)				
		Neosteel	(8-40 mm Fe 550D only)			
		Kamachi	(8-40 mm)			
	TMT Bars grade CRS	Shyam		Auth: E-in-C's Br letter No 83044/ Steel/769/ E2 Des-3 dt 02.08.21, 83044/Steel/923/E2 Des-3 dt 29.07.2022		
		Gallantt TMX	(8-32 mm)			
		Neosteel	(8-40 mm)			
		ET TMT	(8-36 mm)	Auth: E-in-C's Br letter No 83044/ Steel/769/ E2 Des-3 dt 02.08.21		
	TMT Bars grade HSCRM	Simhadri TMT		Auth: E-in-C's Br letter No 83044/ Steel/769/ E2 Des-3 dt 02.08.21		
		Kamachi	(8-40 mm)			
	Structural Settl (Angle, Beam, Column, Channel, Plate etc)	RINL				
		TATA				
		SAIL				
		Jindal				
S. No	Product Category	Grouping of products based on Makes/Brands				Remark
		Product	Group-I	Group-II	Group-III	
11	POLYMERIC BITUMEN EMULSION (PME)					
	Sl No	Name of firm	Product Description		Approval letter No and dt	
	(i)	M/s Hindustan Colas Private Limited	Polymer Modified Emulsions, Brand Name: HINMAT PLUS		43285/CMPT/590/D es-2 dt 13.11.2020	
	(ii)	M/s L N Petro Chem Private Limited	Polymer Modified Emulsions, Brand Name: EMULCOTE		43285/CMPT/591/D es-2 dt 13.11.2020	
	(iii)	M/s Ooms Polymer Modified Bitumen Pvt Ltd	Polymer Modified Emulsions		43285/CMPT/590/D es-2 dt 13.11.2020	
12.	BITUMEN EMULSION					
	(i)	M/s Hindustan Colas Ltd	Hincol Bitumen Emulsion confirming to IS-8887:2004 and ASTM D 2397		43285/CMPT/573/Des-2 dt 20.09.21	
	(ii)	M/s Indian Oil Total Pvt Ltd (ITPL)	"EMULSIS" Brand 'Bitumen Emulsions-CRS1 and CSS-1		43285/CMPT/615/Des-2 dt 18.08.21	
	(iii)	M/s Tiki Tar and Shell India Pvt Ltd	"SHELL SPRAMUL" Brand 'Bitumen Emulsions RS-1, SS-1 and CSS-1		43285/CMPT/608/Des-2 dt 28.05.21	
	(iv)	M/s Ooms Polymer Modified Bitumen Pvt Ltd	Catonic Bitumen Emulsions-RS1, RS2, MS, SS1 and SS2		43285/CMPT/611/Des-2 dt 14.07.21	
	(v)	M/s STP Limited	ShaliMulsion (C) confirming to IS-8887:2004 and ASTM D 2397		43285/CMPT/613/Des-2 dt 02.08.21	
13.	GLASS GRID/FIBRE GLASS					
	(i)	M/s Giridhar Techfab Pvt Ltd	GTF Glass Geogrid		43285/CMPT/562/Des-2 dt 17.01.19	
	(ii)	M/s Saint Gobain Adfors India	Saint Gobain Brand- Glass Grid		43285/CMPT/595/Des-2 dt 07.12.20	
	(iii)	M/s Maccaferri Environmental Solution Pvt Ltd	MacGrid AR 10A.7		43285/CMPT/605/Des-2 dt 01.04.21	

14.	Construction Chemicals and Waterproofing Products	
(a)	M/s Thermx Ltd. Approved vide letter No 43285/CPMT/601/Des-2 dated 22.02.21 and valid upto 21.02.2024	
	Admixtures	Curing Compound
	(i) Tecnos 94	(i) Maxcure CC 75
	(ii) Tecnos 95	(ii) Maxcure CC 80
	(iii) Tecnos RP	(iii) Maxcure CC 90
	(iv) Neutrol 100	(iv) Maxcure RR
	(v) Neutrol 200	(v) Maxcure MRA 102
	(vi) Neutrol 500	Reinforcement/Concrete Protective Coatings
	(vii) Accelerator NT	(i) T-Guard AC
	(viii) Warep 1000/L	(ii) T-Guard WBP
	(ix) Warep 1000/P	(iii) T-Guard EC 200
	(x) MuCis AD 28 Tecnos	(iv) T-Guard ENC
	Joint Sealant	(v) T-Guard CTE 45
	(i) MaxFlex PS	(vi) T-Guard CTE 65
	(ii) MaxFlex PU1	(vii) T-Guard BC
	(iii) MaxFlex PSPR	(viii) T-Guard BCP
	(iv) MaxFlex PUPR	FLOOR HARDENER
	(v) MaxFlex ACS	(i) TecFloor HT
	(v) MaxFlex PS 500	(ii) TecFloor HTS
	Water Proofing Chemicals/Materials	Repair & Rehabilitation, Bonding Agents & Grouts
	(i) Elastplast Rol 10 MuCis	(i) BS 66 MuCis
	(ii) Anticorr 280 II MuCis	(ii) BS 5F
	(iii) Tecnoseal V1	(iii) Maxtreat Patchup
	(iv) Maxshield PF 900	(iv) MuCis Protezione Ferro Mono
	(v) CRYSTECO PWD	(v) Maxtreat Fibrenet C
	(vi) Maxshield Roofkot	(vi) Maxtreat Fibrenet G
	(vii) Maxshield Wallkot	(vii) Maxtreat Carbon Rod
	(viii) Maxshield T15	(viii) Maxtreat Laminate
	(ix) Maxshield P 600	(ix) Maxtreat EHS
	(x) Maxshield Primer	(x) Seismocrete UHP
	(xi) MuCis Mia 200	(xi) Rapido fix
	(xii) Maxshield PF 100 PW	(xii) Flash Tixo
	Epoxy/Polyurethane Industrial Flooring	(xiii) Maxtreat EFC
	(i) TecFloor EC 500	(xiv) Maxtreat EPG
	(ii) TecFloor ET 1000/2000/3000/4000	(xv) Maxtreat Primer
	(iii) TecFloor UL	(xvi) Maxtreat Saturant
	(iv) TecFloor PU CEM	(xvii) Maxtreat Glue
	(v) TecFloor EC 100	(xviii) Maxtreat LM
	(vi) TecFloor PR	(xix) TM-Bond AR
	(vii) TecFloor ESD	(xx) TM-Bond EP
		(xxi) TM-Bond SG
		(xxii) TM-Bond SBR
		(xxiii) Maxtite MP
		(xxiv) Maxtite MG
		(xxv) Maxtite Grout EP
		(xxvi) Maxtite Grout
		(xxvii) Maxtite Block Fix
		(xxviii) Maxtite LG
		(xxix) MaxGrout 100
		(xxx) MaxGrout MMA
		(xxxi) MaxGrout E 10
		(xxxii) MaxGrout PAF
		(xxxiii) MaxGrout 45
		(xxxiv) MaxGrout 60
		(xxxv) MaxGrout LE
	(b) M/s Sika India Pvt Ltd. Approved vide letter No 43285/CPMT/593/Des-2 dated 19.11.20 and valid upto 18.11.2023	
	Joint Sealants	Water Proofing
	(i) Sikasil 728NS/SL	(i) Sikaplan WP 1120-15HL/20HL
	(ii) Sika Polysulphide	(ii) Sikalastic 450h/4501
	(iii) Sikaflex Construction +	(iii) Sika Cemflex
	(iv) Sikaflex PRO-3	(iv) Sika Latex
	(v) Sikadur Combiflex SG	(v) Sika 101h
	(vi) Sikaflex 11 FC	(vi) Sika Topseal 107
	(vii) Sikaflex Pro 3 SL	(vii) Sika Topseal 109hi

Ser No	Product Category	Grouping of products based on Makes/Brands		Remark		
		Product	Group-I	Group-II	Group-III	
Ser No 14(b). (Continued....)						
		Joint Sealants		Water Proofing		
		(viii)	Sikaflex 402 Airport	(viii)	Sika 2	
		(ix)	Sika Emseal Joint System	(ix)	Sika 4a	
		(x)	SikaSeal 106 Construction	(x)	Sika Swell P Profile	
		(xi)	Sikaflex 118 Extreme Grab	(xi)	Sika Fuko Swell 1	
		(xii)	Sikaflex 406 KC	(xii)	Sika Injection 101h	
		(xiii)	SikaHyflex 160 Construction	(xiii)	Sika Waterbar h	
		Refurbishment		(xiv)	Sikalastic 830N	
		(i)	Sikawrap glass fibre	(xv)	Sikalastic 842BG	
		(ii)	Sikawrap carbon fibre	(xvi)	Sikalastic 618 MTC	
		(iii)	Sika Anchofix 2/3+	(xvii)	Sika WP Shield 103P/PM/104P/PM	
		(iv)	Sikadur 31	(xviii)	Sikaplan 12G/15G	
		(v)	Sikadur 32	(xix)	SikaProof P 12/Al2HC/T10	
		(vi)	Sikadur 32 LP	(xx)	Sika Swell A/S2	
		(vii)	Sikdur 41	(xxi)	Sika WP Shield 103F/102F	
		(viii)	Sikadur 43	(xxii)	Sika Fuko VT1/VT2/Eco1	
		(ix)	Sika FerroGard 903	(xiii)	Sarnafil G 41OUG476/S327L	
		(x)	Friazinc R	(xiv)	Sikalastic 560/614	
		(xi)	Sikagard 550W Elastic	(xv)	Sika Bit T 130PG/140PG/ 130MG/ 140MG	
		(xii)	Sika Rep Microcrete 1&2	(xvi)	SikaBit T 130 SG/140SG	
		(xiii)	Sika Rep Microcrete 3 UW	(xvii)	Sikalastic 851/851R/901	
		(xiv)	Sika Rep Microcrete 4	(xviii)	Sika Injection 202IN/2010E/306/ 307/ 310	
		(xv)	Sika Carbo Dur	(xix)	Sika MultiSeal	
		(xvi)	Sidadur 12 Pronto	(xx)	SikaCim Pink	
		(xvii)	Sika Top 77	(xxi)	Sika Raintite I	
		(xviii)	Sika Top 122	(xxii)	Sika FlexiCoat 1K	
		(xiv)	Sika Top 122HS	(xxiii)	Sika CoolCoat/Sika CoolCoat Primer	
		(xv)	Sika Top Armatec 108	(xxiv)	Sika Cemcrete	
		(xvi)	Sika Top Armatec 110 Epo Ce	(xxv)	Sika Control WT 200 P IN	
		(xvii)	Sikagard 551S Elastic Primer	(xxvi)	SikaSeal Tape S	
		(xviii)	Sikagard PU UR/Sikagard PU UR (W)	(xxvii)	SikaBit W 15	
		(xix)	Sika MonoTop 122 F/R	(xxviii)	Sikalastic 853 RAP	
		(xx)	SikaGrout Precast 40	(xxix)	Sika Monotop 160 Migrating	
		(xxi)	Interol Poxitar	(xxx)	Sika WP Shield 103	
		(xxii)	Sikagard 552W Aquaprimer	Grout		
		(xxiii)	Sikagard 625 Clearcoat	(i)	Sika Grout 104	
		(xxiv)	Sika Anchorfix 3030	(ii)	Sika Grout 214	
		(xxv)	Sikawrap FX 50	(iii)	Intraplast EP	
		(xxvi)	Sika carbodur BC Rod	(iv)	Intraplast N 200	
		(xxvii)	Sika Carbodur NSM	(v)	Intraplast NN	
		(xxviii)	Sika Carbodur NSM	(vi)	Sikadur 42	
		(xxix)	Sikagard XT	(vii)	Sikadur 42 HES	
		(xxx)	Sika Rustoff 100	(viii)	Sikadur 52	
		Flooring		(ix)	Sikadur 53 UF	
		(i)	Sika Chapdur	(x)	Rokkon 1	
		(ii)	Sika Chapdur C	(xi)	RokkonR	
		(iii)	Sikafloor 20N PurCem	(xii)	Sikadur 42 MP (IN)	
		(iv)	Sikafloor 21N PurCem	(xiii)	Sikadur 52 LP (IN)	
		(v)	Sikafloor 29N PurCem	(xiv)	Sikagrout 60 RR	
		(vi)	Sikafloor 31N PurCem	(xv)	Sikagrout 295 IN	
		(vii)	Sikafloor 81 EpoCem	Admixture		
		(viii)	Sikafloor 82 EpoCem	(i)	Sika AER	
		(ix)	Sikafloor 105	(ii)	Sika FerroGard 901	
		(x)	Sikafloor 161	(iii)	Sika Rapid 1	
		(xi)	Sikafloor 220 W Conductive	(iv)	Sika Antifreeze	
		(xii)	Sikafloor 262 ASN	(v)	Sikament 2004NS	
		(xiii)	Sikafloor 264	(vi)	Sikament 4003NS	
		(xiv)	Sikafloor 381	(vii)	Sikament 4211 PQ	
		(xv)	Sikafloor 381 ECF	(viii)	Sikament NN	
		(xvi)	Sikafloor 7530	(ix)	Sikament 1016NS	
		(xvii)	Sikafloor Curehard 24	(x)	Sikament 2002NS	
		(xviii)	Sikafloor Proseal 22	(xi)	Sika Viscocrete 5101 NS	

Ser No	Product Category	Grouping of products based on Makes/Brands		Remark		
		Product	Group-I	Group-II	Group-III	
Ser No 14(b). (Continued....)						
		Flooring		Admixture		
		(xix) Sikagard 63		(xii) Sikaplast 5201 NS		
		(xx) Sikagard 63/1		(xiii) Sikaplast 4201 NS		
		(xxi) Sikagard 67		(xiv) Sikaplast 3001 NS		
		(xxii) Sika Ceram		(xv) Sika Viscocrete 20 HE		
		(xxiii) Sika Tilofix		(xvi) Sika Viscocrete 2004 NS		
		(xiv) Sika Wall Decor		(xvii) Plastiment BV 40		
		(xxv) Sikafloor 235 ESD		(xviii) Plastocrete Plus		
		(xxvi) Sikafloor 315		(xix) Singunit L		
		(xxvii) Sikafloor 325		(xx) Singunit L54AF		
		(xxviii) Sikafloor 359		(xxi) Singunit Powder 1		
		(xxix) Sikafloor 25 N Purcem (CN)		(xxii) Antisol A		
		(xxx) Sikafloor 326		(xxiii) Antisol EWP.		
		(xxxi) Sika Extender T		(xxiv) Sigunit Powder (K)		
		(xxxii) Sikafloor Joint S/EXA/XS/X		(xxv) Separol		
		(xxxiii) Sikafloor Leitset (Earthing Kit)		(xxvi) SikaRapid C100		
		(xxxiv) Sikafloor 290 Primer		(xxvii) Sikament 3070NS/2009PQ		
		(xxxv) Sikafloor 291		(xxviii) Sika Viscocrete 4107PQ		
		(xxxvi) Sikagard 720 Epocem		(xxix) Sikaplast 3144PQ		
		(xxxvii) Sikafloor Multidur System		(xxx) Sika Control WP-200P (IN)		
		(xxxviii) Sika Deco Flake				
		(xxxix) Sika Block Joining Mortar				
		(xxxx) Sika Tilogrout/Epoxy Tilogrout				
		(xxxxi) Sika Ceram Grey/155/212/255 (White & Grey)/288 (White & Grey)				
		(c)	M/s Bostik India Pvt Ltd. Approved vide letter No 43285/CMPT/578/Des-2 dated 28.01.20 and approval is valid upto 27.01.2023			
		Tile Adhesive		Repair & Rehabilitation/Bonding Agents/Grouts		
		(i) Fix All		(i) Bostik EP Bond		
		(ii) Super Fix All		(ii) Boscocem 475		
		(iii) Tile Grout		(iii) Bostik Plug Leak		
		(iv) Epoxy Tile Grout		(iv) Bostik Patch Fix MC		
		Curing Compounds		(v) Bostik Patch Fix Concrete		
		(i) Bostik CCC		(vi) Bostik LVEP		
		Joint Sealants		(vii) Bostik Grout Admix		
		(i) Bostik Seal N Flex 1		(viii) Bostik ERM		
		(ii) Bostik Seal N Flex FC		(ix) Bostik Anchor Grout		
		(iii) Bostik Seal N Flex 2K		(x) Bostik Evo Stik Flashband original		
		(iv) Bostik No More Nails		(xi) Bostik Flowfill Grout GP		
		Reinforcement/Concrete Protective Coating/ Systems		Epoxy Polyurethane Flooring		
		(i) Epoxy Coat UW		(i) Bostik Ultralevel ESL 1000		
		(ii) Rainshield PU		(ii) Bostic Ultralevel ESL 2000		
		(iii) Procoat PU		(iii) Bostik Ultralevel EUL 1000		
		(iv) Scratch Coat		(iv) Bostik ESM		
		(v) Bostik CTE		Floor Hardner		
		(vi) Magic Repellent SB		(i) Bostik Floor Hardner		
		(vii) Magic Repellent WB		Waterproofing Chemicals / Materials		
		(viii) Exterior Coat		(i) Boscocem Slurry		
		Membrane & Liquid Membrane/Coatings		(ii) Bostik K11 Slurry		
		(i) Aquablocker		(iii) Boscocrete		
		(ii) Boscoseal PU		(iv) Moisture Seal		
		(iii) Elasocoat		(v) Bostik CWP		
		Misc Construction Chemicals		(vi) Hydroment 476		
		(i) Bostik IWP		(vii) Boscolastic		
		(ii) Boscomate Plaster				
		(iii) Bostik LW				
		(iv) Bostik Two in One				

Ser No	Product Category	Grouping of products based on Makes/Brands				
		Product	Group-I	Group-II	Group-III	Remark
	(d)	M/s Fosroc Chemicals. Approved vide letter No 43285/CMPT/610/Des-2 dated 09.07.21 and approval is valid upto 29.01.2024				
		Admixtures (i) Auramix 400 (ii) Auramix 300 (iii) Conplast SP430 Curing Compounds (i) Concure WB (ii) Concure LP90 (iii) Concure 1315 Joint Sealant (i) Colpor 200 PF - Cold applied, high performance, pitch free, polyurethane pavement joint sealant (ii) Expoband One Reinforcement/Concrete Protective Coatings / Systems (i) Nitozinc Primer (ii) Dekguard S (iii) Nitocote EP410 (iv) Nitocote EP405 (v) Nitocote UR512 (vi) Nitocote BCS300 (vii) Nitocote ET140 (viii) Nitocote ET550 (ix) Nitocote SN522 Membrane & Liquid Membrane / Coatings (i) Proofex Engage (ii) Proofex PGP (iii) Proofex ORG (iv) Proofex OGP (v) Proofex Self Adhesive PR20 (vi) Proofex Self Adhesive Geotext (vii) Proofex Self Adhesive Antirroot (viii) Fosroc Polyurea WPE (ix) Brushbond (x) Brushbond RFX (xi) Nitocote CM210 (xii) Brushbond Roof Guard (xiii) Brushbond TI Flexicoat (xiv) Nitoproof 600 std	Repair & Rehabilitation/Bonding Agents/Grouts (i) Renderoc S2 (ii) Nitomortar S (iii) Renderoc RG (iv) Renderoc HS Xtra (v) Nitowrap EP (CF) (vi) Nitowrap EP (GF) (vii) Nitowrap (CFP) (viii) Nitobond EP (ix) Nitobond AR (x) Nitobond SBR (xi) Nitofill EPLV (xii) Conbextra EP10 (xiii) Conbextra GP2 (xiv) Conbextra GP3, (xv) Lokfix Epoxy/Polyurethane Industrial Flooring (i) Nitoflor SL 2000 (ii) Nitoflor FC 150 (iii) Nitoflor TF 5000 (iv) Nitoflor EU5 (v) Nitoflor SL Conductive (vi) Nitoflor SL Dissipative (vii) Trafficguard UR150 (viii) Nitoflor SL 3000UT Waterproofing Chemicals / Materials (a) Conplast (b) Supercast SW20 (c) Supercast PVC Concrete Surface Improvement (a) Reebol Misc Construction Chemicals (a) Cebex 100 (b) Nitoflor Hardtop Pothole Repair (a) Patchroc			
	(e)	M/s STP Limited. Approved vide letter No 43285/CMPT/613/Des-2 dated 02.08.2021 and approval is valid upto 07.06.2024				
		Admixtures (i) ShaliPlast SP/HP/MCI/PCE Repair & Rehabilitation/Bonding Agents/Grouts (i) TarFelt APP (ii) CPRX Compound (iii) ShaliCrete (iv) ShaliCryl 215 (v) ShaliTile Glue (vi) ShaliTile Grout (vii) ShaliGrout IP/73 (viii) ShaliBond Concrete (ix) ShaliFix MC (x) ShaliSBR Latex (xi) ShaliSlip SB (xii) TarPlastic (xiii) PipeWrap CT/BT (xiv) ShaliPrime PW CT (xv) TankMastic (xvi) ShaliPrime RC Waterproofing Chemicals / Materials (i) SuperTene (ii) STP No 1	Concrete Surface Improvement (i) ShaliFix EM Curing Compounds (i) ShaliCure PA/SS Joint Sealant (ii) ShaliSeal PS PG/GG (iii) ShaliSeal PU GG/PG 2K (iv) ShaliTex/ShaliJet Sealing Compound (v) ShaliSeal CSS A Reinforcement / Concrete Protective Coatings / Systems (i) ShaliSeal RS TC (ii) ShaliPlast LW+ (iii) ShaliPlast LW ++ (iv) ShaliProtek PuR40 (v) ShaliUrethane PC (vi) ShaliPoxy CTE 503			

Ser No	Product Category	Grouping of products based on Makes/Brands				Remark
		Product	Group-I	Group-II	Group-III	
Ser No 14(e). (Continued....)						
		<u>App Membrane</u> (i) SuperThermoLay (ii) Superior Shaliplus (iii) Industrial Bitumen <u>Membrane & Liquid Membrane/Coatings</u> (i) ShaliUrethane LM (ii) ShaliTex Primer (iii) ShaliUrethane LHM/BTD (iv) ShaliKote T-32 (v) ShaliPVC/HDPE SA (vi) TarFelt LM (vii) ShaliDrain 08 (vii) ShaliCem EWP		<u>Epoxy / Polyurethane Industrial Flooring</u> (i) ShaliFloor SL PU (ii) ShaliFloor SL AS 3PU (iii) ShaliFloor SL AS 3E (iv) ShaliFloor NM (v) ShaliFloor 3ES (vi) ShaliPoxy SL/FC (vii) ShaliScreed SL UL 3ES (vii) ShaliDeck SL <u>Thermal Insulation Coating</u> (i) ShaliCryl LM HI (ii) Shali XPS <u>Pothole Repair</u> (i) ShaliPatch <u>Misc Construction Chemicals</u> (i) ShaliPatch EC 20		
15	PEB/LGSF & HANGAR DOORS					
	(a)	PEB				
	SI No	Name of Firm	Product Description		Approved letter No and date	
	(i)	M/s RCC Eco-Build Systems Ltd	Designing, Manufacturing, Supply and Execution of Steel Structures i.e Pre-Engineered Buildings (PEB)		43285/CMPT/565/Des-2 dt 08.03.2019	
	(ii)	M/s BNAL Prefabs Pvt Ltd	Pre-Engineered Buildings (PEB) i.e designing, manufacturing, supply and execution of steel structures"		43285/CMPT/585/Des-2 dt 03.08.2020	
	(iii)	M/s Kirby Building Systems and Structures India Pvt Ltd	Designing, Manufacturing, Supply and Execution of Steel Structures i.e. (PEB)		43285/CMPT/594/Des-2 dt 19.11.20	
	(iv)	M/s Niagra Metals Pvt Ltd	Designing, Manufacturing, Supply and Execution of steel structures i.e. (PEB) with a restriction up to 40 meters of clear span		43285/CMPT/598/Des-2 dated 15.01.2021	
	(v)	M/s Zamil Steel Buildings India Pvt Ltd	Designing, Manufacturing, Supply and Execution of Steel Structures i.e. (PEB)		43285/CMPT/603/Des-2 dated 16.03.21	
	(vi)	M/s Paramount Building Solutions Pvt Ltd	Designing, Manufacturing, Supply and Execution of Steel Structures i.e. (PEB)		43285/CMPT/614/Des-2 dated 12.08.21	

Signature of Contractor
Dated

AGE (Contracts)
For Accepting Officer

Notes

1. Levels of testing shown in Legend as A, B & C, are defined as under: -

1.1 Level 'A'

- (a) Level 'A', Site lab shall be established by the contractor.
- (b) "Site Lab" means site lab established by contractor at the work site for such tests. This lab shall house all the facilities including T&P, machinery, equipment, manpower etc required for conducting tests. This lab shall be operative for entire duration of the contract till its completion. Tests shall be carried out in the presence of Engineer-in-charge to be nominated by the GE. Random check of compliance of frequency of testing shall be done by the GE.
- (c) Records shall be maintained at work site. These test results shall be signed by contractor of his authorised representative and aforesaid departmental official.
- (d) Within 15 days of placement of work order No.1 site lab shall be established and fact reported by the contractor to GE in writing who will verify the fact and satisfy himself regarding the facilities provided. Thereafter GE shall issue a certificate to this effect in writing listing out equipment particulars etc of material test. Only after issue of this certificate by GE the tests shall be carried out and materials so approved shall be incorporated in the work.
- (e) Manpower, materials and infrastructure like electricity, water etc required for conducting these tests shall be provided by the contractor.
- (f) Remedial measure if any required to achieve/obtain desired results for each test shall be taken promptly by contractor.
- (g) Tenderer is deemed to have catered for above provisions in his quoted lump- sum.
- (h) In case during any point of time contractor fails to adhere to the laid down frequency of the tests for any reasons whatsoever which in the absolute opinion of GE are beyond the control of the contractor he shall get the tests done from any other lab whose name shall be approved by GE in writing. The testing charges payable by contractor to such lab shall be borne by the contractor. Contractor's quoted lump sum is deemed to include for this eventuality and nothing extra shall be payable to the contractor. No extension of time shall be admissible on this account.
- (j) However, incase GE in his absolute opinion considers that contractor is intentionally not adhering to the laid down frequencies of tests, he shall reserve the right to deduct penal recovery which shall be double the rates of tests indicated in Appendix 'B' for level 'A'. However, besides effecting penal recovery for non compliance of contractual testing frequency, simultaneously GE will get tests done from Zonal lab as per laid down frequency and necessary testing charges given against level 'B' shall also be recovered from running bills. Incase facilities are not available to conduct such tests in Zonal lab GE will get them tested from any source and necessary testing charges paid by the GE shall be debited to the running payments. GE's decision shall be final and binding in such cases.

Testing charges for level 'A' indicated in Appendix 'B' are applicable only for the purpose of penal recovery as elaborated above.

1.2 Level 'B':

- (a) "Zonal Lab" means lab of CE Jabalpur Zone, Jabalpur, Post Box-84, Bhagat Marg, Jabalpur-Cantt.
- (b) The tests shall be conducted as per frequencies laid down for these tests in this labs for which Contractor shall provide all requisite facilities like sample, cubes materials etc. transportation to those labs for testing purpose. It will be Contractor's responsibility to adhere to the laid down frequency of testing. Test results shall be sent by lab to the GE whose copies can be made by Contractor at his own expense. Testing charges for the tests so conducted shall be recovered at the rates indicated in Appendix 'B' from the running payments. The Contractor's quoted lump-sum is deemed to include for above provision.
- (c) Provision of Para (h) above of Level 'A' shall be applicable to level 'B' also.

1.3 Level 'C':

- (a) Level 'C' lab stands for National Test House/ SEMT Wing Pune located in CME Pune 31/ Local Engineering College.
- (b) Rest provisions contained in Para (b) of level 'B' above shall be applicable here except that Contractor shall obtain test results from those labs and hand over to GE. The testing charges payable to these labs for conducting these tests shall be borne by the Contractor and his quoted lump-sum is deemed to include this provision.

2. Tests/ method of testing/ frequency of testing for Materials not listed in this Appendix 'B' shall also be mandatory & shall be carried out as per the relevant IS

Legend:

SITE LAB A			ZONAL LAB B		NATIONAL TEST HOUSE/ SEMT WING PUNE/ ENGINEERING COLLEGE. C			
Sl	Material	Tests	Method of Testing	Frequency of Tests		Level of Test	Rate	Remarks
1	2	3	4	5		6	7	8
1.	Bricks	As per IS:5454 as given under :-						
				Lot size	Sample Size	Permissible No of Defective Bricks		
	i) Compressive Strength		IS:3495 (Part-II)	1001-10000	5	0	i) A	180/- characteristics shall
	ii) Water Absorption		IS:3495 (Part-II)	10001-35000	10	0	ii) A	150/ also be carried out
	iii) Efflorescence		IS:3495 (Part-II)	35001-50000	35001-50000	0	iii) B	180/- as per IS- 5454.
2.	Coarse aggregate	i) Sieve analysis ii) Flakiness Index iii) Estimation of deleterious iv) Organic impurities v) Moisture content vi) Specific Gravity.	IS : 2386 (Part I) IS : 2386 (Part I) IS : 2386 (Part I) IS : 2386 (Part I) IS : 2386 (Part- II) IS : 2386 (Part- II)	One test for every 15 Cu M of aggregates or part thereof brought to site. One test per source of supply. Regularly as required. One test for each source of supply		i) A ii) A iii) A iv) C v) A vi) B	120/ 90/- 120/ 120/- 120/- 120/-	
3.	Fine aggregate	i) Sieve analysis, ii) Test for clay, silt & Impurities. iii) Specific Gravity. iv) Moisture content v) vi) Test for organic impurities	IS: 2386 (Part I) IS: 2386 (Part I) IS: 2386 (Part II) IS: 2386 (Part II) IS: 2386 (Part II)	One test for every 15 Cu M of fine aggregate or part thereof when brought to site. One for each source of supply. Regularly as required subject to 2 tests/ day, when being used. One test for each source of supply		i) A ii) A iii) B iv) A v) C	180/- 90/- 180/- 180/- 180/-	

Sl No	Material	Tests	Method of Testing	Frequency of Tests	Level of Test	Rate Rs	Remarks
1	2	3	4	5	6	7	8
4.	Cement	i) Setting time.	IS-4031-63 Re-affirmed 1930	Once for each consignment or as and when required.	i) B, C	180/-	
		ii) Soundness	IS-4031-63 Re-affirmed 1930	Once for each consignment or as and when required	ii) B, C	120/-	
		iii) Compressive strength	IS-4031-63 Re-affirmed 1930	Once for each consignment or as and when required	iii) B, C	360/-	
		iv) Fineness	IS-4031-63 Re-affirmed 1930	Once for each consignment or as and when required	iv) B, C	120/-	
5.	Structural Concrete (M-15 grade)& above	i) Slump test or compacting factor test or Ver Bee time	IS : 119	The minimum frequency of sampling of concrete of each grade shall be as under :-	i) A	180/-	a) Random sample shall be carried out to cover mixing units
		ii) Compressive strength	IS : 516	Qty of concrete in the Wks (Cu M)	1 - 5	1	b) Refer IS: 456 Cl. 14 for frequency of sampling.
					6 - 15	2	
					16 - 30	3	
					31 - 50	4	
					51 and above	4 + 1 **	** For each additional 50 Cu M or part thereof.
6.	PCC block for walling						

Sl No	Material	Tests	Method of Testing	Frequency of Tests	Level of Test	Rate per Sq. Met	Remarks
1	2	3	4	5	6	7	8
	a) Hollow block for walling	i) Compressive strength ii) Water absorption iii) Density	IS: 2156-1984 (Appendix 'B') IS: 2156-1984 (Appendix 'B') IS: 2156-1984 (Appendix 'A')	8 blocks out of 14. 3 blocks out of 14. 5 block s out of 14.	i) A ii) B iii) B	60/- 120/- 90/-	Samples: 14 blocks from consignments of every5000 blocks or part thereof
	b) Solid block for walling	i) Compressive strength ii) Water absorption iii) Density	IS : 2185 IS : 2185 IS : 2185	12 Blocks out of 18. 3 blocks out of 18. 3 blocks out of 18.	i) A ii) B iii) B	60/- 120/- 120/-	Samples: 18 blocks from consignment of every1000 blocks or part thereof.
7.	Cement flooring tiles / terrazzo tiles	i) Water absorption ii) Wet transverse strength iii) Resistance to wear	IS:1237 (Appendix 'D') IS:1237 (Appendix 'E') IS:1237 (Appendix 'F')	6 tiles out of 18 6 tiles out of 18 6 tiles out of 18	i) A ii) C iii) C	180/- 144/- 540/-	Samples: 18 tiles from each source of supply selected
8.	Burnt clay roofing tiles (hand made) (IS: 2690 Part II)	i) Water absorption. ii) Compressive strength	IS : 3495 (Part II) IS : 3495 (Part I)	6 tiles out of 12 6 tiles out of 12	i) A ii) A	216/- 180/-	Samples: 12 tiles from each source of supply selected at random i) Length 150 to 250 mm ii) Width 100 to 200 mm iii) Thickness 35 to 50 mm.
9.	Mangalore Pattern	i) Water absorption. ii) Breaking load.	IS : 654 (Appendix 'A') IS : 654 (Appendix 'C')	6 tiles out of 32 6 tiles out of 32	i) A ii) A	180/- 120/-	Samples: 32 tiles from each consignment of 3000 tiles or

Sl No	Material	Tests	Method of Testing	Frequency of Tests	Level of Test	Rate	Remarks
1	2	3	4	5	6	7	8
roofing tiles							
part thereof. These tiles shall be checked for dimensions.							
10.	Timber	i) Specific gravity & weight ii) Moisture content.	IS : 1708 - 1960 IS : 1708 - 1960	Minimum 3 samples from a lot of 4 Cu M or 250 pieces of seasoned timber	i) B ii) A	120/- 120/-	
11.	Water for construction. purposes	i) Test for acidity. ii) Test for alkalinity. iii) Test for solid content.	IS : 456 & 3015 IS : 456 & 3015 IS : 456 & 3015	Once at the stage of approval of source of water Once at the stage of approval of source of water Once at the stage of approval of source of water	i) C ii) C iii) C	240/- 240/- 300/-	Also refer clause 43 of IS: 456 and its subsequent sub clauses regarding suitability of water.
12.	Welding of steelwork	i) Visual Inspection Test.	IS: 822-1970 Clause 7.1	100% by visual inspection.	i) A	360/-	Specialised tests, their method & frequency are to be decided on consideration of their importance by the Accepting Officer.
13.	Timber panelled& glazed door/	Dimensions sizes, workmanship and.	IS : 1003 – 1977 (Part I)	Frequency of sampling from each lot shall be as under			

Appendix 'C'

STEEL SUPPLY & ACCEPTANCE REGISTER

1. CA No & Name of Work
2. Contract No
3. Name of Manufacturer's T.C. No
4. Manufacturer
5. Random Test Details
6. Types of steel Dia&Qty (a) Type/ TMT/ CRS (b) Diamm (c) Actual Wt MT (d) Conversion Wt MT.
- a) Physical test report from (Name of approved Lab/ Engg College) vide their letter No ()
- b) Chemical test report from (Name of approved Lab/Engg College) vide their letter No ()

	Chemical Test						Mechanical Test					Remarks	
	Carbon %	Sulphur %	Phosphoro %	Manganes %	Silicon %	Corrosion resistant element	Wt per metre	Stress (N/mm ²) .2% proof	Tensile Strength (N/mm ²)	Elongation %	Bend Test		Re-bend Test
a) As per IS 1786													
b) As per manufacture's test certificate													
c) As per independent test													

Remarks with signature

Accepted/Rejected

Garrison Engineer

Engineer-in-Charge

Junior Engineer

Contractor

Remarks of BOO/ Inspecting Officer/ CWE

Appendix 'D'

CEMENT SUPPLY & ACCEPTANCE REGISTER

1. CA No & Name of Work
2. Control No ^{\$\$\$} (see below)
3. Name of Manufacturer/ Brand Name/ Grade of Cement (a) Manufacture (Name of manufacturer) (b) Brand () (c) Grade ()
4. Qty of Cement & Lot No/ Week No (in Bags): (Quantity () in MT) (b) Lot No/ Week ()
5. Manufacturer's test Certificates No ()
6. Random Test Details

(a) Physical test report from (Name of approved Lab/ Engg College) vide their letter No ()

(b) Chemical test report from (Name of approved Lab/ Engg College) vide their letter No ()

7. Details of physical & chemical properties:

RESULTS	PHYSICAL REQUIREMENTS (AS PER IS 4031)						CHEMICAL REQUIREMENTS (AS PER IS 4032)					
	Specific Surface area (M ² /Kg)	Soundness by Le Chatellar	Soundness by Auto Clave	Initial Setting Time (Minutes)	Compressive strength (Mpa)			Temp during testing °C	Standard Consistency (%)	Lime Saturation Factor (Ratio)	Lime Saturation Factor (Ratio)	
As per relevant IS					03 Days	07 Days	28 Days					
As per manufacture's test certificate												
As per random test certificate												

Remarks with signature

Contractor

Junior Engineer

Engineer-in-Charge

Accepted/ Rejected

Garrison Engineer

Remarks of BOO/ Inspecting Officer/ CWE

^{\$\$\$} to be allotted serially by the Garrison Engineer consignment wise.