

**MILITARY ENGINEER SERVICES****NAME OF WORK: DAY TO DAY B/R MAINT SERVICES INCLUDING INTERNAL WATER SUPPLY AT AREA-V OF AGE B/R (CENTRAL) UNDER GE (WEST) COLABA, MUMBAI****CONTENTS**

<b>SI No</b>	<b>Description</b>	<b>Serial Page No.</b>
1	2	3
1.	Contents	1
2.	Forwarding letter	2 to 3
3.	Instructions for filling and submission of tenders	4 to 5
4.	Declaration certificate (to be given by a tenderer / bidder)	6
5.	Notice of e-tender IAFW-2162 (Revised 1960) including Appendix 'A' to Notice of Tender and Errata to Appendix 'A'	7 to 12
6.	Item rate tender and contract for works [comprising Schedule 'A' (Microsoft Office Excel format), 'B', 'C' & 'D'- IAFW 1779-A (Revised 1955)]	13 to 24
7.	General Conditions of contract IAFW-2249 (1989Print) including amendments / errata thereto	25 to 72
8.	Schedule of Minimum Wages	73 to 80
9.	Special Conditions	81 to 86
10.	Particular Specifications, list of drawings, list of manufacturers etc.	87 to 130
11.	Amendments/errata to tender documents	
12.	Relevant correspondence	
13.	Acceptance letter	
	<b>Total Pages:</b>	
	<b>Drawings: Nil</b>	

Signature of Contractor  
Date:AGE (Contracts)  
For Accepting Officer

Tel: 022-22151349

Garrison Engineer (West)  
Dr Homi Bhabha Road,  
Colaba, Mumbai-05

Fax: 022-22151439

8221/ 03 /E8

25 Apr 2026

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

\_\_\_\_\_

**DAY TO DAY B/R MAINT SERVICES INCLUDING INTERNAL WATER SUPPLY AT AREA-V OF AGE B/R (CENTRAL) UNDER GE (WEST) COLABA, MUMBAI**

Dear Sir,

1. Tender documents in respect of above work are uploaded on the site <http://defproc.gov.in> The tender is on single stage two covers e-tendering system. The contents of Cover I & Cover II are specified in NOTICE OF TENDER.

2. Bids will be received online by the 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 authorised representatives, who have uploaded their quotation bid and who wish to be present at the time of opening the bids.

4. Your attention is also drawn to instruction on filling and submission of tender attached herewith. You may forward your points on tender documents and/or depute your technical representative for discussion on tender drawings and to clarify doubts, if any, on or before 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 documents 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 GE (West) Colaba 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.

5.2 (a) Contractor having not executed standing security bond and standing security deposit in any MES formation shall upload scanned copy of EARNEST MONEY DEPOSIT (EMD) mentioned in Notice of Tender and shall ensure receipt of hard copy of EMD in the office of tender issuing authority before date & time fixed for this purpose. In case of failure to abide by any of these two requirements, the finance bid will not be opened.

(b) PERFORMANCE SECURITY (See Condition 19 of IAFW-2249)

In case the tender/bid submitted by the contractor is accepted, the contractor will be required to lodge with Accepting Officer '**PERFORMANCE SECURITY DEPOSIT**' CALCULATED @ 5% (Five percent) of the contract sum as notified by the Accepting Officer within 28 (Twenty Eight) days of the receipt by the contractor of notification of acceptance of Tender/ bid. The performance security can be submitted by the successful contractor in the form of Bank Guarantee Bond or Government securities, FDR or any other form of deposit approved in MES. **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.

The failure of the contractor to submit the 'Performance Security Deposit within the stipulated period of 28 days shall constitute sufficient grounds for cancellation of the award of the work and the following action will be taken by the department:-

In case of Un-enlisted Contractors the 'Earnest Money' submitted by the Contractor shall be forfeited. In case of MES enlisted contractor, amount equal to the earnest money stipulated in the 'Notice Inviting Tender' shall be deposited by the tender through MRO. Issue of tenders to such tenderers shall remain suspended till the aforesaid amount equal to 'earnest Money' is deposited in the Government Treasury and a proof of the same is submitted to the Accepting Officer for his reference and record by the contractor.

6. Enlisted contractors 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 GE (West) Colaba before date & time fixed for this purpose.

(a) Military Engineer Services Standard Schedule of Rates **2009 (Part-I-Specifications)** including amendments and errata issued up the last date of online submission/ uploading of the tender/ bid.

(b) Military Engineer Services Standard Schedule of **Rate 2020 (Part-II-Rates)** including amendments and errata issued up the last date of online submission/ uploading of the tender/ bid.

7. 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. 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.

8. 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.

9. General Conditions of Contracts (IAFW-2249) (1989 Print) and errata and amendments thereto, Schedule of minimum fair wages and MES SSR (Part -I and Part -II) are not enclosed with these documents. These are available for perusal in the Office of GE concerned and this office.

10. 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

SIGNATURE OF CONTRACTOR  
DATED

AE (QS&C)  
AGE (Contracts)  
for Accepting Officer

**INSTRUCTIONS FOR FILLING AND SUBMISSION OF TENDER**

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

(a) Deposit at Call Receipt form a Scheduled Bank in favour of **Garrison Engineer (West), Colaba Mumbai-400005.**

(b) Receipted treasury Challan, the amount being credited to the Revenue Deposit of **Garrison Engineer (West), Colaba Mumbai-400005.**

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 (West), Colaba Mumbai-400005.**

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

2. **PERFORMANCE SECURITY (See Condition 19 of IAFW-2249).** In case the tender/bid submitted by the contractor is accepted, the contractor will be required to lodge with the Accepting Officer 'PERFORMANCE SECURITY DEPOSIT' calculated @ 5% (Five Percent) of the Contract Sum as notified by the Accepting Officer within **28 (Twenty Eight) days** of the receipt by the contractor of notification of acceptance of Tender / Bid. The Performance Security can be submitted by the successful contractor in the form of Bank Guarantee Bond or Government Securities, FDR or any other form of deposit approved in MES. 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.

**The failure of the contractor to submit the 'Performance Security Deposit' within the stipulated period of 28 days shall constitute sufficient grounds for cancellation of the award of the work and the following action will be taken by the department :-**

(a) In case of Un-enlisted Contractors the 'Earnest Money' submitted by the Contractor shall be forfeited.

(b) In case of MES enlisted contractor, amount equal to the Earnest Money stipulated in the 'Notice Inviting Tender' shall be deposited by the tenderer through MRO. Issue of tenders to such tenderers shall remain suspended till the aforesaid amount equal to 'Earnest Money' is deposited in the Government Treasury and a proof of the same is submitted to the Accepting Officer for his reference and record by the contractor.

### **3 GENERAL INSTRUCTIONS FOR COMPLIANCE**

3.1 The bids received only in the electronic form will be considered. All bids shall be submitted on <http://defproc.gov.in> portal. Documents should be scanned and forwarded in 'pdf' form and 'xls' form as indicated.

3.2 Bids shall be uploaded on [h <http://defproc.gov.in>](http://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 provided for in the documents after acceptance. All corrections shall be initialed. The Contractor shall initial every page of tender and shall sign all drawings forming part of the tender. Any tender/bid, which proposes alterations to any of the conditions whatsoever, is liable to be rejected.

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

**INSTRUCTIONS FOR FILLING AND SUBMISSION OF TENDER**

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

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

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

3.13 In case the tenderer/bidder has to revise/ modify the rates quoted in the BOQ (excel sheet) he can do so only in the BOQ, through <http://defproc.gov.in> site only before the bid closing time and date.

**4. REVOCATION/ 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.

**5 CPM (Critical Path Method)**

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

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

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

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

5.5 These instructions shall form part of the contract documents. Signature of Contractor for Accepting Officer,

**SIGNATURE OF CONTRACTOR**  
Dated:

**AGE (CONTRACTS)**  
**FOR ACCEPTING OFFICER**

**DECLARATION CERTIFICATE (TO BE GIVEN BY THE TENDERER/BIDDER)**

It is to certify that : -

1. I/ we have submitted the tenders in the Performa as downloaded directly from the website.
2. I/ we have submitted tender documents, which are same/ identical as available on the website.
3. I/we have not made any modification/ corrections/ additions etc. in the tender documents downloaded from web by me / us.
4. I / we have checked that no page is missing and all pages as per the index are available and that all pages of tender document submitted by us are clear & legible.
5. I / we have digitally signed all the pages of the tender document before uploading/ submitting the same.
6. I/ we have submitted the cost of tender along with the eligibility documents as detailed in Para 5 of **'INSTRUCTIONS FOR FILLING AND SUBMISSION OF TENDER'** and as per NIT.
7. In case at any stage later, it is found there is difference in our downloaded tender documents from the original, Department shall have the absolute right to take any action as deemed fit without any prior intimation to me / us. The department shall not pay any damages to me / us on this account.
8. I/ we have uploaded/ submitted the scanned copies of documents keeping original copies with me/us and I/ we shall produce the original copies as and when asked by the department. In case at any stage later, it is found there is difference in downloaded copies from the original, Department shall have the absolute right to take any action as deemed fit without any prior intimation to me / us. The department shall not pay any damages to me / us on this account.
9. I/ we will submit original copies of documents as and when asked by the department.

I/We ( \_\_\_\_\_ ) hereby declare that the above information/ documents provided by me/us are true and accurate including the information provided/attached. In case any information/ document at any stage found fake / incorrect, my/ our earnest money deposit shall be forfeited & action as deemed fit by Garrison Engineer (West) Colaba, Mumbai may be taken against me/ us.

Dated .....

Place.....

**Signature of Contractor**

**NOTICE INVITING E-TENDER**

(IN LIEU OF IAFW-2162 (REVISED 1960))

1. A tender is invited for the works (see Appendix-'A').
2. The tender shall be based as mentioned in Appendix 'A'.
3. The work is estimated to cost (see Appendix-'A'). This estimate however, is not a guarantee and is merely given as a rough guide. If the work costs more or less, the tenderer will have no claim on this account.
4. The work is to be completed as per the period (See Appendix 'A' in accordance with phasing if any indicated in the tender) from the date of handing over the site which will be on or after as mentioned in Appendix 'A'.
5. Normally contractors whose names are on the MES approved list for the command/ area in which the work lies and within whose financial category the estimated amount would fall may tender. However, in case of term contracts, contractors in category 'SS' to 'E' may tender.
  - 5.1. Not more than one tender shall be submitted by one contractor or one firm of contractor. 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 for the same contract as separate competitors. Breach of this condition will render the tenders of both parties liable to rejection.
  - 5.2. Submission of the tender/ bid by the tenderer/ bidder does not constitute any guarantee for his eligibility for financial parts of the tender/bid, even of enlisted contractors of appropriate class. The tenderer/ bidder shall not become automatically entitled for his eligibility for financial parts of the tender/ bid by virtue of enclosing copy of demand draft along with the tender/ bid. The Accepting officer shall reserve the right to deny eligibility of any tenderer/ bidder for financial part of the tender/ bid. Firms to be considered eligible for the financial parts of the tender/ bid will be decided by the Accepting officer based on interalia past track record, financial position and experience of similar works executed by the tenderer/ bidder and eligibility criteria as mentioned in the tender/ bid. The Accepting officer shall consider tender/bids received up to date of submission/ uploading or extended date of submission/ uploading of the tender/bids. The tenderer/ bidder, if so desires, may appeal to the next higher engineer authority (Commander Works Engineers (Army) Mumbai) with copy to the Accepting officer prior to the date of opening of cover-2 of the tender/ bid. The decision of the next higher engineer authority shall be final and binding. No tenderer/ bidder shall be entitled for any compensation whatsoever or rejection of his financial bid.
6. The Garrison Engineer (West) Mumbai will be the Accepting Officer here-in-after referred to as such for the purpose of this contract.
7. The e-tender processing fee (see Appendix-'A') shall be in the form of 'Demand Draft' from any nationalised/scheduled bank in favour of the Garrison Engineer (West) Colaba Mumbai (see Appendix- A) shall be attached to the tender / bid to be published on the MES website portal ([www.defproc.gov.in](http://www.defproc.gov.in)) (see appendix A)
8. A contractor, who is not enlisted with the MES / who is enlisted but has not executed the Bond to Secure Performance of Agreement, while submitting a tender shall be required to furnish Earnest Money along with the tender (see Appendix-'A') in the form of deposit at Call receipt issued in favour of GE concerned from a scheduled bank or in the form of receipted treasury challan, the amount being credited to the revenue deposit of the Garrison Engineer (see Appendix-'A'). However, if the tender submitted by such a contractor is accepted, he will be required to lodge with the Accepting Officer "PERFORMANCE SECURITY DEPOSIT' @ 5% (Five Percent) of the Contract Sum as mentioned here-in-after.
  - 8.1 The GE will return the earnest Money wherever applicable to all unsuccessful tenderers by endorsing authority and deposit receipt for its refund on production by the tenderer a certificate of the Accepting Officer that a bonafide tender (vide condition 15 hereinafter) was received and all documents were returned. The GE will either return the earnest Money to the successful tenderer by endorsing on the deposit receipt for its refund on receipt of an appropriate amount of Performance Security deposit or will retain the same on account of part of security deposit if such a transaction is feasible.
9. Copies of the drawings and the documents pertaining to the work signed for the purpose of identification by the Accepting Officer or his accredited representative and sample of materials and stores to be supplied by the Contractor will be opened for the inspection at the concerned Garrison Engineer (West) Mumbai (See Appendix-'A') during office working hours.
10. The tenderers are advised to visit site by making prior appointment with Garrison Engineer (West) Colaba Mumbai by giving sufficient time. Tenderer shall be deemed to have full knowledge of all relevant document samples, site, etc. whether he has inspected these or not.
11. Tenders will be submitted/uploaded on the MES website portal ([www.defproc.gov.in](http://www.defproc.gov.in)) by due date and time (see Appendix A).
12. Tender of any tenderer who proposes any alternation to any of the conditions laid down or who proposes any other condition of any description whatsoever is liable to be rejected.

**NOTICE INVITING E-TENDER**

13 The Submission of tender by the tenderer/ bidder implies that he has read this notice and the condition of contract and has made himself aware of the scope and specifications of work to be done and of the conditions and the 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 Tenderers must be in possession of a copy of the MES standard schedule of rates (as applicable) and specifications including errata and amendments there to.

15 Tenderer must be very careful to submit a bonafide tender and must satisfy each and every condition laid down in this notice and must be submitted in the required format online.

16 The Accepting Officer does not bind himself to accept the lowest or any tender to give any reasons for not doing so.

17 This notice of tender along with Appendix 'A' shall form part of the contract.

**Signature of Contractor**  
**Date:**

**AGE (Contracts)**  
**for Accepting Officer**

**NOTICE INVITING E-TENDER****APPENDIX 'A' TO NOTICE INVITING TENDER (NIT)  
(FOR WORKS COSTING LESS THAN RS. 50 CRORES)**

1	Name of work	Day to day B/R maint services including internal water supply at Area-V of AGE B/R (Central) under GE (West) Colaba, Mumbai.
2	Estimated Cost	Rs. 50.00 Lakhs (At par market)
3	Period of completion	<b>330 days</b>
4	Cost of tender documents	Rs 500/- in the form of DD/Bankers Cheque from any scheduled Bank in favour of GE(West) Colaba, Mumbai payable at Colaba, Mumbai. (Note : In case of retendering, the contractor who had quoted in the previous call is not required to submit the cost of tender.)
5	Website/portal address	www.defproc.gov.in
6	Type of contract	The tender shall be based on IAFW-1779A and GCC (IAFW-2249) with Schedule 'A' (List of items of works) to be priced by contractors. The contractor is required to quote rates against items of Schedule of works (BOQ) electronically.
<b>7</b>	<b><u>Timeline details:</u></b>	
	(a) Publishing date of tender	Refer critical dates on the website
	(b) Bid submission start date	
	(c) Bid submission end date	
	(d) Date of bid opening	
8	Eligibility Criteria	
	(A) For MES enlisted contractors	All contractors 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 other contractors	(i) The firms not enlisted with MES shall meet the enlistment criteria of 'D' class MES contractors & category a(i) i.e. with regard to having satisfactorily completed 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 on Contracts 2020 as available in all MES formations as well as MES website ( <a href="http://www.mes.gov.in">www.mes.gov.in</a> ).  (ii) Not carrying adverse remarks in Work Load Report (WLR) or any other similar report circulated by any competent authority, if already working in MES.  (iii) Not suspended/debarred/blacklisted (either permanently or temporarily) from participating in any bid or for business dealings by any Central/State Government Department or any Central/state Government PSU or any Autonomous Body under Central/State Government or any local Body as on the bid submission end date.
9	Tender issuing and Accepting Officer	Name : Kameshwar Prasad, IDSE, EE Address : Garrison Engineer (West) Colaba, Mumbai - 400005 Phone No: 022-22151349 Email ID : <a href="mailto:gewestcolaba@gmail.com">gewestcolaba@gmail.com</a>
10	Executing agency	Garrison Engineer (West) Colaba, Mumbai
11	Earnest Money	Rs. 1,00,000.00 in favour of GE (West) Colaba, Mumbai in the form of Deposit at call receipt, FDR not acceptable.

**NOTES:**

1. "In case after opening of cover I, the number of MES enlisted contractors of eligible class as well as eligible unenlisted contractors, if any, fulfilling the other eligibility criteria given in NIT is less than 7, applications in respect of MES contractors of one class or two classes (in case of remote or difficult areas to be decided as per list circulated by CE command/ ADG) below the eligible class shall also be considered subject to fulfilment of other eligibility criteria given in the NIT. Therefore MES Contractor's one class below (two classes below in case of remote and difficult areas) may also bid for the tender. Such Contractors (Contractors of one/two classes below the eligible class) cannot be considered in case their present residual work in hand is more than FIVE TIMES their present tendering limit, However in case such contractors fulfil the criteria of up gradation to the stipulated eligible class based on the past experience of completed works (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 –I bid details of works in hand showing names of work, names of Accepting officers, contract amounts, date of commencement, contract completion (stipulated) and progress as on bid submission date. Such contractors, if claim to fulfil 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"

**NOTICE INVITING E-TENDER**  
**APPENDIX 'A' TO NOTICE INVITING TENDER (NIT)**  
**(FOR WORKS COSTING LESS THAN RS. 50 CRORES)**

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 application of only those one class below the eligible class bidder shall be considered, who have previously completed similar works satisfactorily and are meeting 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 Contract. Therefore such contractors shall upload the requisite information / documents in the Cover-I.
3. Un-enlisted 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 authority.
4. Contractors enlisted with MES will upload the following documents in Cover-I for checking eligibility :-
- (a) Application for tender on firm's letter head.
  - (b) Enlistment letter issued by the Registering Authority duly renewed for the cycle period in vogue.
  - (c) Scanned copy of DD/ Bankers cheque toward cost of tender and EMD instrument in case SSD bond is not signed at the time of registration.
  - (d) Any other documents required as described in this Appendix.
5. Contractors not enlisted with MES will required to upload following documents in Cover-I for checking eligibility.
- (a) Application for tender on firm's letter head.
  - (b) Scanned copy of DD/ Bankers cheque toward cost of tender and Earnest Money Deposit (EMD) instrument.
  - (c) Copy of Police Verification Report / Police Clearance Certificate / Character Certificate from police Authority of the area where the registered office of the firm is located / notarized copy of valid passport of proprietor / 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 Contract 2020.
  - (e) Details of works being executed in MES, if any.
  - (f) Any other documents 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-I shall not be considered of validation of 'T' bid and their Financial Bids will not be opened.
7. Contractors should ensure that their original physical DDs and Earnest Money Deposit (EMD) instruments (as applicable) reach the office of Accepting Officer within 07 days of bid submission end date, failing which following action shall be taken.
- (a) In case of tender from an enlisted contractor of MES, where scanned copies of requisite DD/Bankers Cheque toward cost of tender have been uploaded in Cover-I but physical copies are not received within the stipulated period, their financial bids (Cover 2) will be opened. However non submission of physical copies of cost of tender shall be considered as willful negligence of the tenderer with ulterior motives and such tenderer shall be banned from bidding for a period of six months commencing from the date of opening of Financial Bid (Cover 2).
  - (b) In case of tenders from un-enlisted contractor, where scanned copies of requisite DD/Banker 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 un-enlisted 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 from within stipulated period, such tenders shall not qualifying for opening of financial bid (Cover 2).
8. Contractor will not be allowed to execute the work by subletting or through power of attorney to a third party / another firm on his behalf. However a contractor can executed the work through power of attorney to sons / daughters / spouse of Proprietor / Partner / Director and firm's own employees, director, project manager provided they are not having a separate enlisted firm in MES in their name as Proprietor / Partner / Director.
9. After opening of Cover 1 and during its technical evaluation, in case any deficiency is noticed in the documents required to be uploaded by the tenderers as per NIT a communication in the form of e-mail / SMS / Speed post etc shall be sent to the contractor to rectify the deficiency within a period of seven days from date of communication failing which their financial bid (Cover 2) shall not be opened and contractor shall not have any claim on the same.

**NOTICE INVITING E-TENDER**  
**APPENDIX 'A' TO NOTICE INVITING TENDER (NIT)**  
**(FOR WORKS COSTING LESS THAN RS. 50 CRORES)**

10. Invitation for e-tender does not constitute any guarantee for validation of Technical Bid and subsequent opening of financial bid of any applicant / bidder merely by virtue of enclosing DD. Accepting Officer reserves the right to reject the Technical bid and not to open financial bid of any applicant / bidder. Technical bid validation shall be decided by Accepting Officer based on eligibility of 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 CWE (ARMY) Colaba, Mumbai-5 on email id [amumb3-mes@nic.in](mailto:amumb3-mes@nic.in) with copy to the Accepting Officer on email before the schedule date of opening of Cover 2. NHEA shall decide the matter within a period of seven working days from the date of receipt of appeal. The decision of the NHEA shall be final and binding. The tenderer / bidder shall not be entitled for any compensation whatsoever for rejection of his bid.

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

12. In case of BOQ is revised through the corrigendum and the bidder has failed to quote on revised BOQ (ie he has quoted on pre revised BOQ) such bid shall be treated as wilful 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.

13. Revoking the offer or revising the rates upward or offering voluntary reduction by the lowest tenderer after opening of Cover 2 shall be considered as a wilful default. For this default a penalty of an amount equal to Earnest Money shall be levied. In case of an unenlisted tenderer, Earnest Money deposit 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 (A). Irrespective of whatever is mentioned in condition 19.3 of IAFW 2249 with regard to suspension of tenders on account of non-submission of Performance Security, issue of tenders to such tenders shall remain suspended for a period of six months from the date of cancellation of contract under condition 19.3 of IAFW 2249 in case of un-enlisted contractors. In case of MES enlisted contractor, issue of tenders shall remain suspended till deposit of EMD or six months from date of cancellation whichever is later.

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

15. **PERFORMANCE SECURITY (See Condition 19 of IAFW-2249).** In case the tender/bid submitted by the contractor is accepted, the contractor will be required to lodge with the Accepting Officer 'PERFORMANCE SECURITY DEPOSIT' calculated @ 05% (Five Percent) of the Contract Sum as notified by the Accepting Officer within 28 (Twenty Eight) days of the receipt of notification of acceptance of Tender / Bid by the contractor. The Performance Security can be submitted by the successful contractor in the form of Bank Guarantee Bond or Government Securities, FDR or any other form of deposit approved in MES. 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.

**The failure of the contractor to submit the 'Performance Security Deposit' within the stipulated period of 28 days shall constitute sufficient grounds for cancellation of the award of the work and the following action will be taken by the department :-**

- (i) In case of Un-enlisted Contractors the 'Earnest Money' submitted by the Contractor shall be forfeited.
- (ii) In case of MES enlisted contractor, amount equal to the Earnest Money stipulated in the 'Notice Inviting Tender' shall be deposited by the tenderer through MRO. Issue of tender/s to such tenderers shall remain suspended till the aforesaid amount equal to 'Earnest Money' is deposited in the Government Treasury and a proof of the same shall be submitted to the Accepting Officer for his reference and record by the contractor.

**NOTICE INVITING E-TENDER**  
**APPENDIX 'A' TO NOTICE INVITING TENDER (NIT)**  
**(FOR WORKS COSTING LESS THAN RS. 50 CRORES**

15.1 **REFUND OF PERFORMANCE SECURITY (See Condition 68 of IAFW-2249)** : The Performance Security Deposit may be refunded to the contractor after the expiration of the 'Defects Liability Period' by the GE provided always that the contractor should have been paid the Final Bill and should have rendered a No Demand Certificate (IAFW-451).

16. **DEFECTS LIABILITY PERIOD (See Condition 46 of IAFW-2249)** : The 'Defects Liability Period' for the subject work shall be **12 (Twelve) Calendar Months** after the work has been handed over to the Government.

17. Court of the place from where tender has been issued shall alone have jurisdiction to decide any dispute out of or in respect of this tender. After the acceptance of tender, condition 72 of IAFW-2249 (General Conditions of Contracts) pertaining to Jurisdiction of Court shall be applicable".

(Signature of Contractor)

AE (QS &C)  
AGE (Contracts)  
for Accepting Officer

File No: 8221/ 03 /E8

Dated: 25 Apr 2026

Garrison Engineer  
(West) Colaba,  
Mumbai-05

Contact No.022-2151349

In lieu of IAFW-1779A (Revised  
1955) (To be used in conjunction with General Conditions of Contracts IAFW-2249)  
(1989 Print)

**MILITARY ENGINEER SERVICES**

Tele: 22151349

Garrison Engineer (West)  
Dr Homi Bhabha Road,  
Colaba, Mumbai-05

8221/ 03 /E8

25 Apr 2026

**ITEM RATE TENDER AND CONTRACT FOR WORKS REQUIRED IN THE EXECUTION OF: DAY TO DAY B/R MAINT SERVICES INCLUDING INTERNAL WATER SUPPLY AT AREA-V OF AGE B/R (CENTRAL) UNDER GE (WEST) COLABA, MUMBAI**

A tender/ bidder who is qualified as per the eligibility criteria mentioned in the tender documents and has interalia sound past record is hereby authorised to tender for the above work. **The e-tender/ e-bid (both cover-1 & and cover-2)** shall be submitted/ uploaded on the MES website portal ([www.defproc.gov.in](http://www.defproc.gov.in)) on **May 2026 upto 1800 hours.**

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

**APPOINTMENT:** AGE (Contracts)  
for Accepting Officer  
Signature of officer issuing/ uploading the  
documents

**SCHEDULE 'A' NOTES**

## Notes :-

- a. The tenderer shall fill his unit rate under column 5 in figures. The rate will automatically inserted under column 7 in words and the amount will automatically be extended under column 6. In case of any discrepancy, rate filled by the tenderer/ bidder in figure shall only prevail and all other entries (i.e. rates automatically inserted in words and amount automatically extended) shall accordingly be amended. The following Job works are clubbed in this tender:-

(a) <b>CPP NO. 37 of 2026-27</b> : Day to day B/R maint services including internal water supply at Area-V of AGE B/R (Central) under GE (West) Colaba, Mumbai.
---

2. The total amount under column 7 is not firm but will be treated as 'Contract Sum" referred to the General Condition of the Contract IAFW-2249.
3. The unit rates quoted by the tenderer in column 5 shall be inclusive of all taxes and levies prevailed including GST and Labour Welfare Cess on works contract imposed by any Govt. and nothing extra shall be paid on this account.
4. The unit rates quoted shall be deemed to include supply of all new materials and labour as required to complete the work except where specifically mentioned otherwise in the description in item. The rates quoted against each item of the schedule shall include of the full and entire completion of work all as specified.
5. The quantities shown under column 3 of Sch 'A' are provisional (refer condition 6 of IAFW-2249).
6. The contractor are advised to visit the site prior to submission of their tender and on submission of tender he shall be deemed to have satisfied himself as to the nature of site, local facilities access and all matters affecting the execution and completion of work. No extra charges consequent on misunderstanding or otherwise shall be allowed.
7. Period Of Completion:- The entire works under this contract shall be completed within a period of **330 days** from the date of commencement of work as mentioned in work order No 1 issued by the GE.
8. Item rates quoted by the tenderer shall be deemed to include for any minor details construction which are obviously and fairly intended, which may not have been included in documents but which are essential for the execution and entire completion of works. The decision the Accepting Officer whether or not any minor details of construction are obviously and in intended to be included in the rates quoted for the items shall be final and binding.
9. The rates quoted by the bidders in BOQ shall be deemed to be inclusive of GST as applicable under the statutory law of Govt of India imposed wef 01 July 2017. No reimbursement/refund for GST paid by contractor shall be made by the Deptt. It shall be responsibility of contract or to pay the GST (as applicable) to the concerned tax collecting authorities.
10. **PERFORMANCE SECURITY**
- 10.1 Within 28 days of receipt of the letter of acceptance, contractor shall deliver to the Accepting Officer a Performance Security in any of the forms given below for an amount equivalent to 5% of the contract sum.
- (a) A Bank Guarantee in the prescribed form.
- (b) Government Securities, FDR or any other Government Instruments stipulated by the Accepting Officer.
- 10.2 If the performance security is provided by the 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.
- 10.3 Failure of the contractor to comply with the requirements of sub clause 10.1 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.
- 10.4 All compensation or other sums of money payable by the contractor to the Government under the terms of this contract or under any other contract with Government may be deducted from, or paid by the sale of 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 Securities or any pat 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.

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

10.6 The Performance Security shall be in favour of Accepting Officer and shall be in any 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.

10.7 Period of validity of performance SECURITY: - The period of validity of the Bank Guarantee Bond or any other instruments as mentioned above against Performance Security shall be initially valid up to 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.

10.8 Bank Guarantee Bond in lieu of Performance Security is due for discharge on expiry of Defect Liability Period provided always that the contractor has been paid the final bill and contractor has rendered the No demand Certificate (IAFW-451).

10.9 If any recovery is outstanding against the contractor, release of Bank Guarantee will be subject to recovery /withholding the due amount as stipulated in condition 67 (as amended) of General Conditions of Contracts (IAFW-2249).

11 **DEFECTS LIABILITY PERIOD (See Condition 46 of IAFW-2249)** : The 'Defects Liability Period' for the subject work shall be **12 (Twelve) Calendar Months** after the work has been handed over to the Government.

12. Uploading of copy of provident fund code number in addition to other document required. The contractor not in possession of this Number shall be disqualified in "T" bid evaluation and his finance bid shall not be opened.

13. In case of any deviation, mode of pricing shall be decided by Accepting Officer I terms of Condition 62 of IAFW-2249.

13.1 In the event of a deviation order involving fixation of Special (Star) rate, Draft Rate shall be prepared by GE (within a maximum period of 30 days) while initiating the proposal for deviation seeking approval of Accepting Officer and notified to contractor. While notifying the Draft Rate, it will be clearly stipulated that the same is merely an estimated rate and firm rate shall be fixed based on actual and receipt of supporting documents from contractor such as vouchers/literatures of product/test certificate etc (as applicable) on completion of the work involving Star Rate. Any objection to method of fixing Star Rate will be dealt as per condition 7 of IAFW-2249.

13.2 Draft Star Rate shall be made based on market enquiry through telephonic enquiry/quotations/e-mails/rate lists/internet based sources, material & labour constants available in various civil engg books and record available in respect of Star Rates approved in the past for similar items of work etc. Contractor may also assist GEs office in preparation of draft Star Rate.

13.3 The Draft Star Rate shall be purely a draft rate and shall not be used for claiming final payment during execution of work. However GE shall allow part payment to the tune of 80% during execution to avoid any financial hardship to contractor.

13.4 After completion of the item of work involving Star Rate, contractor shall submit the vouchers/literature of product /test certificates (as applicable, decision of GE being final in case of any disagreement) for finalization of Star Rate. The Star Rate shall be technically checked by DCWE (Contracts)/Director (Contracts) depending upon the financial effect & approved by competent authority within a period of one month from submission of the relevant documents by contractor as mentioned above.

13.5 Star Rate as approved by competent authority after technical check by DCWE (Contracts)/Director (Contracts) depending upon financial effect shall be referred as "the rate decided by GE" under Para 62(G) of IAFW-2249.

SIGNATURE OF CONTRACTOR  
Dated:

AGE (CONTRACTS)  
FOR ACCEPTING OFFICER

**SCHEDULE OF CREDIT****NAME OF WORK : DAY TO DAY B/R MAINT SERVICES INCLUDING INTERNAL WATER SUPPLY AT AREA-V OF AGE B/R (CENTRAL) UNDER GE (WEST) COLABA, MUMBAI.****NOTES:-**

- The credit rate and value of old materials obtained from dismantling have been assessed by the department and have been indicated in column 5 & 6 respectively. The assessed credit rates of materials shall be taken as firm and the contractor shall not have any claim whatsoever against the Govt if the actual rate of dismantled materials turns out to be different from the rates inserted by the department.
- Quantities of dismantled materials given in column 4 are approximate and not firm and have been given as a rough guide only. Actual quantities obtained from dismantling at site of work shall be measure in measurement book and abstracted for arriving at the actual credit value.
- The contractor shall be allowed to remove the dismantled materials only after realization of the full credit value of the materials by the department. The decision of the GE in this connection shall be final and binding.

SI No	Description of items unserviceable	A/U	Qty	Rate	Amount
1	Old Bib taps, stop/angle valve, towel rack, pillar taps, looking mirror, towel rails, rat tail, shower rose, soap dish, toilet paper holder, health faucet, flushing jet, glass shelf, ball valves any types	Each	680.00	20.00	13600.00
2	Old Aluminum fittings, grating doom	Each	348.00	2.00	696.00
3	Old Wash basin, WC, Flushing cistern	Each	155.00	50.00	7750.00
4	Old Kitchen sink	Each	40.00	100.00	4000.00
5	Old Pad lock brass any type	Each	30.00	10.00	300.00
6	Old Wire cloth any type	Sqm	350.00	5.00	1750.00
7	Old Curtain rods any type including brackets, door seal, PVC pipes	RM	315.00	5.00	1575.00
8	Old Seat cover, flush pipe, PVC connections, waste pipe, waste coupling, bends, MS brackets, SS drawer handles, PVC mirror cabinet	Each	426.00	5.00	2130.00
9	Old Ply board, ply wood, HDHMR Board incl fittings	Sqm	220.00	25.00	5500.00
10	Old Floor spring and door closer	Each	75.00	100.00	7500.00
11	Old GI tubing of 15 mm bore	RM	150.00	15.00	2250.00
12	Old GI tubing of 20 mm bore	RM	200.00	20.00	4000.00
13	Old GI tubing of 40/50 mm bore	RM	120.00	30.00	3600.00
14	Old S/S modular baskets	Each	36.00	150.00	5400.00
15	Old Brass joinery fittings like tower bolt, handle, sliding door bolt, cylindrical lock any type	Each	190.00	50.00	9500.00
16	Old Gate valves	Each	80.00	25.00	2000.00
17	Old Water storage tank exc 250 & n.exc 500 ltr capacity	Each	4.00	250.00	1000.00
18	Old Water storage tank exc 1000 & n.exc 2000 ltr capacity	Each	25.00	400.00	10000.00
19	Old Water storage tank exc 2000 & n.exc 4000 ltr capacity	Each	9.00	500.00	4500.00
20	Old Leaping, fillets, piano hinges, beads	RM	395.00	2.00	790.00
	<b>Total :</b>				<b>87,841.00</b>

**SUMMARY**

1. TOTAL OF SCHEDULE 'A' AS PER BILLS OF QUANTITIES ON SERIAL PAGE NO 20  
₹. \_\_\_\_\_

2. **DEDUCT:** SCHEDULE OF CREDIT B/F FROM SERIAL PAGE NO. 21 : **(-) ₹ 87,841.00**

Net Contract Sum

₹. \_\_\_\_\_

(Rupees \_\_\_\_\_

Only)

(SIGNATURE OF CONTRACTOR)

AGE (Contracts)  
FOR ACCEPTING OFFICER

**SCHEDULE – 'B'****(ISSUE OF MATERIAL TO CONTRACTOR)**

(See condition 10 of IAFW-2249)

SI N o	Particular s	Unit	Rate at which material shall be issued to the Contractor	Place of issue of material	Remar ks
1	2	3	4	5	6
NIL					

**SCHEDULE – 'C'****{LIST OF TOOLS AND PLANT (OTHER THAN TRANSPORT) WHICH WILL BE  
HIRED TO THE CONTRACTOR}**

(See conditions 15, 34 and 35 of IAFW 2249)

SI n o	Quantit y	Particula rs	Details of MES crew supplied	Hire charges per unit per working day	Standby charges per unit per off day	Place of issue (by name)	Remar ks
1	2	3	4	5	6	7	8
----- Nil -----							

**SCHEDULE – 'D'****(TRANSPORT TO BE HIRED TO THE CONTRACTOR)**

(See conditions 16 and 35 of IAFW 2249)

SI n o	Quantit y	Particular s	Rate per unit per working day	Place of issue (by name)	Remarks
1	2	3	4	7	8
NIL					

SIGNATURE OF CONTRACTOR)  
Date :AGE (CONTRACTS)  
FOR ACCEPTING OFFICER

**TENDER**

To,

The President of India,

Having examined and perused the following documents:-

1. Specifications signed by the Assistant Engineer (QS&C) for Garrison Engineer (West) Colaba Mumbai-400 005.
2. Particular specifications and list of drawings attached.
3. Schedule 'A', 'B', 'C', 'D' attached hereto.
4. MES Standard Schedule of rates 2009 Part I-specifications together with Amendments No 1 to 03 and MES standard Schedule of Rates 2020 Part II – Rates together with Amendments No 1 to 122, and in IAFW-2249 referred to as MES Schedule.
5. General Conditions of contracts IAFW-2249 (1989 Print) together with **Errata Nos. 01 to 20** and **Amendments Nos. 01 to 49** and schedule of Minimum wages.
6. **WATER Condition of 31 of IAFW-2249** (General Conditions of Contracts 1989 Print). "Water will be supplied by the MES to the contractor @ ₹. 3.75 per every ₹ 1000/- worth of work done priced at contract rates. Contractor will be other MES sources at such point or points as may be decided by the Garrison Engineer on his sole discretion and the contractor shall make necessary arrangements at his own cost for fitting, pumping, carrying or conveying water to the site of works as required. In the event of breakdown of MES supply of water or in the event of the said supply of MES water becoming intermittent, the contractor shall have no claim whatsoever on this account."
7. Should this tender be accepted I / We agree:-
  - \*\*\* a) That a sum of **Rs** \_\_\_\_\_ forwarded as Earnest Money shall either be retained on account of Security Deposit or be refunded by the Government on receipt of an appropriate amount of Security Deposit within the time specified in Condition 22 of IAFW- 2249.
  - b) To execute all the works referred to in the said documents upon the terms and conditions contained or referred to therein and as detailed in General Summary hereinafter and to carry out such deviations as may be ordered vide Condition 7 of IAFW-2249 upto a maximum of **10% (TEN PERCENTAGE)** and further agree to refer all disputes as required by Condition 70 to the sole arbitration of a serving officer having degree in Engineering or equivalent or having passed final/direct final examination of sub division II of Institution of Surveyors (India) recognized by Govt of India, to be appointed by Chief Engineer Pune Zone Pune-01 or in his absence the officer officiating as Chief Engineer Pune Zone Pune-01.
  - (c) Further agree to refer all disputes as required by Conditions 70 & 71 to the sole arbitration of a serving officer having degree in Engineering or equivalent or having passed final/direct final examination of sub division II of Institution of Surveyors (India) recognized by Govt of India, to be appointed by Chief Engineer Pune Zone Pune-01 or in his absence the officer officiating as Chief Engineer Pune Zone Pune-01, whose decision shall be final, conclusive and binding.

\*\*\*TO BE DELETED WHERE NOT APPLICABLE.

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

Signature \_\_\_\_\_ in the capacity of \_\_\_\_\_  
duly authorized to sign the tender for and on behalf of M/s\_

\_\_\_\_\_  
\_\_\_\_\_(BLOCK CAPITALS)

Name of the Signatory: \_\_\_\_\_  
(IN BLOCK CAPITALS)

Date: \_\_\_\_\_

Postal Address: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Witness \_\_\_\_\_

Telegraphic Address: \_\_\_\_\_

Address \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Telephone/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 these have been initialed by the contractor and AE (QS&C), AGE (Contracts).

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 contract sum

of Rs \_\_\_\_\_ (Rupees \_\_\_\_\_

\_\_\_\_\_ only)

on \_\_\_\_\_ day of \_\_\_\_\_ 2026.

Signature \_\_\_\_\_ dated this \_\_\_\_\_ day of \_\_\_\_\_ 2026.

(FOR AND ON BEHALF OF THE PRESIDENT OF INDIA)  
Appointment: GARRISON ENGINEER (WEST) COLABA  
MUMBAI - 400 005  
ACCEPTING OFFICER

**GENERAL CONDITIONS OF CONTRACTS - IAFW 2249 (1989 PRINT) FOR  
ITEM RATE CONTRACTS- IAFW 1779 A (REVISED 1955)**

A copy of the GENERAL CONDITIONS OF CONTRACTS - IAFW 2249 (1989 Print) with errata 1 to 20 and 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 CONTRACTS before submission of this tender and I/We shall abide by the terms and conditions thereof, as modified if any, elsewhere 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 33 pages (serial page Nos. **25 to 57**) with errata 1 to 20 and amendment Nos. 1 to 49 containing 15 pages (serial page Nos. **58 to 72**) form part of these tender documents.

**NOTE:** In case of difference in interpretation due to wordings of English and Hindi versions of the General Conditions of Contracts (IAFW-2249) (1989 Print), the English version will prevail.

**AGE (Contracts)  
for Accepting Officer**

**Signature of Contractor  
Dated .....**

**SCHEDULE OF MINIMUM FAIR WAGES**

1. It is hereby agreed by me/us that the schedule of Minimum Fair Wages as published vide Government Of India Ministry of Labour order No 1 (2) 92 IS-II dated 10 Mar 1992 applicable to Area 'B' containing 08 (Eight) pages (Serial Page Nos **73 to 80**) shall form Part of these tender documents state Govt / Union territory Notification forms part of these tender documents.

2. It is also agreed by me/us that although latest notification, as available with the Accepting Officer, has been formed part of the contract, in case the Government has further revised the wages, the latest revised wages of labours shall only be applicable.

3. My/our signature (s) hereunder is deemed to my/our having read and understood the provisions contained therein and having signed the aforesaid Schedule of Minimum Wages forming part of this tender and in agreement of provisions of Para 2 above \* I/we agree that \*I/we shall abide by the same and that aforesaid documents form part of the tender.

**NOTE:** Schedule of Minimum fair wages is available for reference in the office of the CWE (Army) Mumbai/Concerned GE.

AGE (Contracts)  
for Accepting Officer

Signature of Contractor  
Dated.....

**SPECIAL CONDITONS****1. GENERAL**

1.1. The following Special conditions shall be read in conjunction with the General Conditions of Contracts IAFW-2249 including errata / amendments there to. If any provision in these special conditions is at variance with the aforesaid documents, these special conditions shall be deemed to take precedence there over.

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

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

1.4. General rules, specifications, special conditions and all preambles in MES Schedule shall be deemed to apply to the works under this Contract unless specified otherwise in these tender documents, in which case the provisions in these tender documents shall be deemed to take precedence over the provisions made in MES Schedule.

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

**3. PERIOD FOR KEEPING THE TENDER OPEN:** The tender shall remain open for acceptance for a period of 60 (sixty) days from the date specified for its submission/ uploading on the MES website portal ([www.eprocuremes.gov.in](http://www.eprocuremes.gov.in)).

**4. TIME AND PROGRESS CHART USING CRITICAL PATH METHOD**

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

4.2. During the currency of the work the contractor is expected to adhere to the time schedule and this adherence will be a part of the contractor's performance under the contract. During the execution of the work the contractor is expected to participate in the reviews and updating of the network undertaken by the GE. These reviews may be undertaken at the discretion of the GE either as a periodical appraisal measure or when the quantum of work ordered on the contractor is substantially changed through deviation orders or amendments. Any revision of the schedule as a result of the review will be submitted by the contractor to the GE within a week who will approve it after due scrutiny. The contractor shall adhere to the revised schedule thereafter. In case of contractor disagreeing with the revised schedule, the same will be referred to the Accepting Officer whose decision shall be final, conclusive and binding. GE's approval to the revised schedule resulting in a completion date beyond the stipulated date of completion shall not automatically amount to a grant of extension of time. Extension of time shall be considered and decided by the appropriate authority mentioned in Condition 11 of IAFW-2249 and separately regulated.

4.3. The contractor shall mobilise and employ sufficient resources to achieve the detailed schedule within the broad framework of the accepted method of working and safety.

4.4. 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.

**5. ELECTRIC SUPPLY:** In case the contractor desires to buy electricity from the MES, he shall be charged for the electric energy consumed at the following rates:

- (i) At ₹ 13.86 per unit for lighting purpose
- (ii) At ₹ 13.86 per unit for power purpose

Electric supply required for works upto maximum of 10 KVA shall be made available by the MES at the incoming terminal of the main switch on the site plan/ decided by the GE. The main switch and KWH meters to register to electric energy supplied shall be provided and installed by the MES. The contractor shall provide all necessary cables, fittings, etc. from the main switch in order to ensure a proper and suitable supply of electricity for the execution of work.

**SPECIAL CONDITONS**

The MES does not guarantee for continuity of supply and no compensation what so ever shall be allowed for supply becoming intermittent or for breakdown in the system.

GE or his representative shall be free to inspect all the power consuming devices or any electric line provided by the contractor. Any device or electric line provided by the contractor, which is not to the satisfaction of the GE shall be discontinued from the supply if so desired by him.

**6. FACILITIES TO CONTRACTORS:**

6.1. **QUARRIES ON DEFENCE LAND:** Reference Condition 14 of IAFW-2249. No quarries on defence land are available.

6.2 **SPECIAL CONDITION FOR ALLOTMENT OF LAND FOR STORAGE OF MATERIALS (INCLUDING TEMPORARY SHEDS):** Reference condition 24 of IAFW-2249. No Govt land shall be allotted to contractor for storage of materials and erecting temp shed in Defence area and Contractor have to make his own arrangement outside Defence area at his own cost.

6.3 **SPECIAL CONDITION FOR ALLOTMENT OF LAND FOR ACCOMMODATION OF LABOUR, CANTEEN, FABRICATING WORKSHOP ETC.:** Reference condition 24 of IAFW-2249. No Govt land shall be allotted for erection of his labour camp and temporary workshops.

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

8. **WORKS INSIDE MILITARY FARMS:** The contractor will not make use of bullock/ animal transport for the transport of building materials, etc. and shall employ solely mechanical transport for this purpose.

9. **CONDITION 64 OF IAFW-2249-ADVANCE ON ACCOUNT:** This clause is applicable if the contract sum is more than ` 50 lakhs.

9.1 Add the following in continuation of Para 8: -

"provided further, the contractor may be paid advance on account to the full value of the under mentioned materials only, brought on the site on his furnishing guarantee bond(s) from a scheduled bank for the amount of the retention money which should otherwise be recoverable from him under contract: -

- (a) Factory made paneled shutter
- (b) Steel windows/ ventilators
- (c) PVC soil/waste/ vent pipes, nahani traps/ gully traps
- (d) Builders hardware (iron mongery)
- (e) Cement tiles, terrazzo tiles, Shahabad stone tiles, Kota stone tiles, granite stone, marble stone, non skid ceramic tile and other floor tiles
- (f) Water supply pipes and fittings/fixtures
- (g) Electric tools/wire/fittings/fixtures
- (h) Pressed steel door frame
- (i) Sanitary fittings
- (j) Steel
- (k) Any other nonperishable materials as decided by GE.

9.1 The bank guarantee bond(s) shall be executed for a period and on a form as directed by the Accepting Officer. The contractor shall further arrange to extend the period of guarantee bond(s) if and when necessary, as directed by the Accepting Officer or shall furnish fresh guarantee bond(s) of similar value in lieu.

**10. RE-IMBURSEMENT/REFUND ON VARIATION IN TAXES DIRECTLY RELATED TO CONTRACT VALUE**

10.1 The rates quoted by the contractor shall be deemed to be inclusive of all taxes (including GST on materials, GST on works contracts, labour welfare cess/tax etc) duties, royalties, octroi & other levies payable under the respective statutes. No reimbursement/refund for variation in rates of taxes, duties, royalties, octroi & other levies, and/or imposition/abolition of any new/existing taxes, duties, royalties, octroi & other levies shall be made except as provided in sub Para here-in-below.

**SPECIAL CONDITONS**

10.2 The taxes which are levied by Govt at certain percentage rates of contract sum/amount shall be termed as "taxes directly related to contract value" such as GST on works contracts, labour welfare cess/tax and like but excluding income tax. The tendered rates shall be deemed to be inclusive of all "taxes directly related to Contract value" with existing percentage rates as prevailing on last due date for submission/uploading of tenders. Any increase in percentage rates of "taxes directly related to contract value" with reference to prevailing rates on last due date for submission/ uploading of tenders shall be reimbursed to the contractor and any decrease in percentage rates of "taxes directly related to Contract value" with reference to prevailing rates on last due date for receipt of tenders shall be refunded by the contractor to the Govt/deducted by the Govt from any payments due to the contractor. Similarly imposition of any new "taxes directly related to Contract value" after the last due date for submission/ uploading of tenders shall be reimbursed to the contractor and abolition of any "taxes directly related to contract value" prevailing on last due date for submission/ uploading of tenders shall be refunded by the contractor to the Govt/deducted by the Govt from the payments due to the contractor.

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

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

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

**11. EMPLOYMENT OF PERSONNEL**

11.1 The contractor shall employ only Indian nationals as his representative, servants and workmen after verifying their antecedents and loyalty. He shall ensure that no person of doubtful antecedent and nationality is in any way, associated with the work. If for the reasons of technical collaboration or other considerations the employment of foreign national (s) is unavoidable, the contractor shall furnish full particulars to this effect to the Accepting Officer at the time of submission of the tender. As a proof that the contractor has employed only Indian nationals, he shall render a certificate to the GE within one month from the date of acceptance of the tender to this effect. In case the GE desires, the contractor will have the police verification done of personnel employed by him.

11.2 The GE shall have full powers and without giving any reason to order the contractor immediately to cease to employ, in connection with his contract, any agent, servant or employ to continue employment is, in his opinion, undesirable. The contractor shall not be allowed any compensation on this account.

11.3 The contractor's attention is also drawn to condition 25 of IAFW-2249 in this connection.

**12. SUPPLY OF WATER**

12.1 Water will be supplied by MES to the contractor @ ₹ 3.75 per every ₹ 1000/- worth of work done priced at contract rates.

12.2 Water used of mixing and curing shall generally potable water clean and free from impurities viz oils, acids alkaline, salts, sugar, organic chemicals of other substance that may be deteriorating to concrete or steel and also confirming to IS-456.

**13. INSPECTION OF SITE BY THE TENDERER**

13.1. The tenderer advised to contact the Garrison Engineer for the purpose of inspections of site (s) and examination of relevant document other than those sent herewith, who will extend reasonable facilities for the purpose. The tenderers shall also make themselves familiar with working conditions, accessibility of site (s), availability of materials and other cogent conditions, which may affect the entire completion of work under this contract.

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

**14. CONDITION FOR WORKING IN UN-RESTRICTED AREA:**

14.1. The Contractor, his agents, employees work people and vehicle may require to pass through the unit lines in that case the Engineer-in-Charge shall, at his discretion have the right to issue passes, control their admission to the site of work or any part thereof. The Contractor shall on demand by the Engineer-in-Charge submit a list of personnel, etc, concerned and shall satisfy the Engineer-in-Charge as to the bonafide of such people. Passes issued shall be returned at any time on demand by the Engineer-in-Charge and in any case on completion of the work.

**SPECIAL CONDITIONS**

**14.2.** The Contractor and his agent, employees and work people shall observe all the rules Promulgated by the authority controlling the area in which the work is to be carried out e.g. prohibition of smoking, lighting and keeping to specified routes, occasional restricted hours of working etc. Any person found violating the security rules laid down by the authority, shall be immediately expelled from the area without assigning any reason what so ever and the contractor shall have no claim on this account, nothing extra shall be admissible for any man hours lost on this account.

**15. FIRE PRECAUTIONS:**

15.1. The contractor, his agents, representatives, workers etc. shall strictly observe the order pertaining to fire precautions prevailing within the restricted area.

15.2. Motor transport vehicles, if any allowed by authorities to enter the restricted area must be fitted with serviceable fire extinguishers.

**16. DAMAGE TO EXISTING STRUCTURES:** Any damage to any existing structures, any existing road etc. during the execution of works shall be made good by the contractor at his own expense. Rectification, replacement, making good, touching up, etc. shall be carried out conforming to the materials and workmanship originally provided and to the satisfaction of the Engineer-in-Charge. In case of any dispute on this account, the decision of the GE shall be final, binding and conclusive.

**17. APPROACHES:** The contractor shall make arrangements for and provide at his own cost all temporary approaches, if required to the site(s), after obtaining approval in writing of the GE to the layout of such approaches.

**18. COORDINATION WITH OTHER AGENCIES:** Refer Condition 24 of IAFW-2249. The contractor shall permit free access and afford normal facilities and usual convenience to other agencies or departmental workmen to carry out connected works or services under separate arrangements. The contractor will not be allowed any extra payment on this account.

**19. RECORD OF MATERIALS AND PURCHASE VOUCHERS:**

19.1. The quantity of materials such as cement, steel, paint, water proofing compound, chemicals for anti-termite treatment, and the like ( as applicable ) and directed by the Engineer - in - charge , (the quantity of which cannot be checked after incorporation in the works), shall be recorded in the Measurement Book as " NOT TO BE ABSTRACTED" and signed by the contractor and the Engineer-in-charge as a check to ensure that the required quantity had been brought to site for incorporation in the work.

19.2. The materials brought to site shall be stored as directed by the Engineer-in-charge and those already recorded in the Measurement Book shall be suitably marked for identification.

19.3. The contractor shall produce original receipted purchase vouchers/ invoices form the manufacturers and/or their authorised agents for the full quantity of the following materials, as applicable as a advances on account of the work done and/or materials collected in accordance with Condition 64 of General Conditions of Contracts – IAFW-2249 bills along with Test Certificates wherever applicable in respect of supplies for the following items ( as applicable ) to the Engineer-in-charge in addition to any other items as directed by Engineer-in-charge before payment is made in RARs, against material lying as site:-

- (a) Water proofing compound
- (b) Chemicals for Anti-termite treatment
- (c) Paint, Distempers and cement base paints & like
- (d) Cast iron pipes and fitting
- (e) Sanitary fittings
- (f) All grades of bitumen
- (g) Steel windows / ventilators
- (h) Factory made door shutters
- (i) Floor/Wall tiles
- (j) Builders Hardware
- (k) Tarfelt/bituminous products
- (l) Salt glazed stone ware pipe
- (m) Electrical and water supply fittings/fixtures where names of manufacturers/brands are specified or approved
- (n) Cables
- (o) Steel reinforcing bars and structural steel which are not issued under Schedule 'B'
- (p) Cement
- (q) Steel
- (r) PVC pipes
- (s) Any other proprietary articles.

**SPECIAL CONDITIONS**

19.4. The contractor shall, on demand, produce to the GE, original receipted vouchers/invoices in respect of the materials other than as stated in sub-Para just hereinbefore. Vouchers/invoices so produced and verified shall be stamped by Engineer-in-Charge indicating contract number. The contractor shall ensure that the materials are brought to site, in original sealed containers/packing, bearing manufacturer's marking except in the case of the requirement of materials (s) being less than smallest packing.

19.5. Bitumen shall be purchased directly from manufacturers' stockiest or their authorised dealers only. These vouchers/ invoices shall be defaced by the GE/Engineer-in-Charge, indicating reference to the contract number, under his dated signature, and CTC thereof shall be kept on record so as to avoid their being used again.

19.6. The vouchers/ invoices will clearly indicate the contract No. and IS No., specific alternative to which the material conforms in case of various alternative in IS.

**20. WATCH/ LIGHTING:** The contractor shall at his own cost take possible precautions to ensure safety of life and property by providing necessary fencing, barrier, light, watchman, etc., during the progress of work and as directed by the Engineer-in-Charge.

**21. CLEANING DOWN:** Refer condition 49 of IAFW-2249. The contractor shall clean all floors, remove cement, lime or paint drops, clean joinery, glass panes, etc., touch up all paint works and carry out all necessary items of works in connection with therewith and have the whole premises clean and tidy to the entire satisfaction of the Engineer-in-Charge before handing over the items / works. No extra payment shall be admissible to the contractor for this operation.

**22. MINIMUM WAGES PAYABLE**

22.1. Refer Condition 58 of IAFW-2249. The contractor shall not pay wages lower than minimum wages for labour as fixed by the Govt. of India/ state Govt. / Union Territory/ local authority, whichever is higher.

22.2. The contractor's attention is also drawn, amongst other things to the 'exploitations' to the schedule of minimum wages referred to above.

22.3 The fair wages referred to in Condition 58 of IAFW-2249 will be deemed to be the same as the minimum wages referred to above as upto date from time to time.

22.4 Schedule of minimum wages are not enclosed along with tender documents. However the contractor shall be deemed to have verified the minimum fair wages payable as on the last due date of uploading/ submission of tender.

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

**23. MATERIALS AND SAMPLES:**

23.1. Refer Condition 10 of IAFW-2249.

23.2. The materials and articles, which have been specified from certain makers/manufacturers, shall be of make/manufactures as specified. If the manufacturers specified in the tender documents make both ISI marked and conforming to ISI, the materials/ articles shall be ISI marked.

23.3. The materials and articles, which have not been specified in the tender documents by makes/manufacturers, shall be as under: -

(a) If ISI marked materials are being manufactured the same shall be ISI marked. For list of ISI marked manufacturers refer website of BIS i.e. [www.bis.org.in](http://www.bis.org.in).

(b) If materials are not being manufactured with ISI marked, the same shall be conforming to IS specifications.

23.4. Materials of local origin shall be as specified and conforming to samples kept in GE's office. The tenderer is advised to inspect sample of materials which are displayed in the office of 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, is required to incorporate in the work irrespective of whether he has actually inspected them or not.

23.5. The contractor shall not procure materials and articles unless the samples are first got approved by the GE.

**SPECIAL CONDITIONS**

24. **HANDING OVER OF SITE:** Site / bldgs for execution of the work will be available in peace-meal/ quarters wise / bldg wise, the contractor will have to arrange his working program accordingly. No claim whatsoever, for not giving entire site / bldgs as per the date of handing over of site mentioned in work order No 1 and for handing over of site / quarters / bldgs gradually based on the availability, will be tenable.
25. **RECORD OF EXECUTED WORKS:** It shall be ensured by the contractor and AGE that photographs of all hidden works and all stages of works (before & after) shall be taken from digital camera before proceeding to next stage. The contractor shall not commence / proceed with the next stage unless photographs are taken for the previous stage and before commencing the work on ground. These photographs shall be preserved on CDs for future reference. AGE shall arrange for digital cameras and CDs required for the same. Nothing extra shall be admissible to the contractor on this account.

Signature of Contractor  
Date:

AGE (Contracts)  
for Accepting Officer

**PARTICULAR SPECIFICATION****1.0 GENERAL**

1.1 Work under this contract shall be carried out in accordance with Schedule 'A', (BOQ), Special Conditions, Particular Specifications, including notes thereon (unless specified otherwise) and general rules and specifications given in MES SSR Part I –2009 as well as General Rules, Special Conditions and preambles to the various rates given in MES SSR Part II –2020 (MES SSR Part I and Part II hereinafter called MES Schedule).

1.2 The term '*General Specification*' referred to hereinbefore as well as referred to in IAFW- 2249 (General Conditions of Contracts) shall mean the specifications contained in the MES Schedule Part I.

1.3 General Rules, Specifications, Special Conditions, method of measurements, preambles in the MES Schedule shall be deemed to be applicable to the work under this contract, unless specifically mentioned otherwise in these documents.

1.4 The term '*as specified*', wherever appears in tender documents, relates to relevant particular specifications and in its absence general specifications.

1.5 Particular specifications in this section given hereinafter shall be generally applicable to all works covered under BOQ. The particular specifications are brief and are only to particularise, amend and emphasize the specifications given in MES Schedule, which are not repeated.

1.6 Where specifications/provisions given in these particular specifications are at variance with the provisions/specifications given in MES Schedule, specifications/provisions given in these particular specifications, hereinafter, shall be followed.

1.7 Where specifications for any item of work are not given in MES Schedule or in these particular specifications, specifications as given in relevant Indian Standard or Code of practice shall be followed.

**2.0 SCOPE OF WORK**

2.1 The scope of work shall be all as described in Sch 'A'(BOQ) and as specified hereinbefore.

**3.0 MATERIALS**

3.1 All materials to be supplied by the contractor for incorporation in work shall bear certification of relevant specifications/IS.

3.2 In case specification of materials needed for incorporation is not contained anywhere in the contract documents, the specification of such materials proposed to be incorporated in the work shall be got approved in writing from the GE before incorporation in the work. Contractor is advised to check availability, lead, time of procurement from these suppliers before quoting the offer.

3.3 All manufactured articles other than those manufactured in contractor's workshop at site shall bear ISI certification mark and which are readily available in the market and are given in Special Condition. It is mandatory for the contractor that ISI certified marked items/articles as listed therein shall only be incorporated in the work. Names of manufactures/suppliers of certain items/materials is given in Appendix 'C'. The Contractor is advised to check availability, lead, time of procurement from these suppliers before quoting. It is mandatory to incorporate the materials /items/ equipments in the works in the following order of preference :-

- (i) Makes and model Nos. specifically given in description of items of BOQ.
- (ii) Makes specified in Particular Specifications.
- (iii) Makes specified in Appendix 'C' to Particular Specifications.
- (iii) Makes having ISI marking on products/materials.
- (iv) Reputed makes confirming to IS specifications as approved by GE.

3.4 Materials such as stone aggregate, sand, lime etc shall generally conform to the sample kept in GE's office in addition to their conformity with relevant specifications given in the tender documents. The samples of such materials shall be got approved from GE in writing before the materials are brought at site in bulk. The contractor shall submit samples of materials to GE through Engineer-in-Charge for approval.

3.5 Letters conveying approval of samples/materials by GE will inter alia mention source of supply/name of manufacturer, trade name/brand (if applicable) and reference to clause of the tender documents containing specification of particular materials.

3.6 The contractor will ensure that the materials incorporated in the work are identical with the approved samples. If the same is not identical with the approved samples, the same shall be replaced by the contractor to the entire satisfaction of GE without any extra cost to Govt

**4.0 EXCAVATION AND EARTH WORK****4.1 General**

(a) The excavation and earthwork shall be carried out all as mentioned in BOQ items of work and in strata of soil/rock as mentioned in description of items. If any change in strata is met during excavation than mentioned above, the same shall be brought to the notice of GE in writing, who shall after verification, order the same to be regularized through a deviation order. Decision of the Garrison Engineer shall be final, conclusive and binding as regards classification of soils and rocks etc. met during excavation.

(b) Quoted cost of all items of BOQ for earthwork and excavation shall also be deemed to include for removal of tree roots, shrubs etc. met during excavation and bailing, pumping, dewatering from foundation trenches if water is met with or accumulated from any source or cause.

**4.2 Excavation in trenches for foundation, pipes, cables etc.**

(a) The excavation shall be restricted to dimensions as required for particular purpose of the BOQ items and as specified in MES Schedule. Excavation made, if any, in excess of required depth/width shall be made well by the Contractor with cement concrete 1:7:12 type F2 without extra cost to the Government

(b) The bed of the trenches shall be watered and well rammed and any depressions thus formed shall be filled with approved earth as required to the level and slopes as directed by Engineer-in-Charge.

**4.3 Returning and Filling in trenches / under floors**

(a) The approved soil, soft rock etc. (if permitted by GE) obtained from excavation (except earth/ spoil obtained from preparatory works and surface excavation) shall be used for returning, filling in trenches, under floors or any other situation after removing big stones, grass, roots and vegetables and other organic matter etc.. Earth mixed with small stones/pebbles (if approved by GE) is permitted for use in filling around pipes after the pipes are laid and tested. Any additional earth required for the purpose of filling shall be arranged by contractor from outside the Defence Land. For the purpose of RFR, the entire earth / soft rocks etc. obtained (except surface excavation, preparatory works) shall be deemed to be fit for reuse and only if additional quantity is required and ordered shall be brought from outside MD land.

(b) Filling under floors / sides of trenches shall be in layers not exceeding 250 mm and each layer shall be watered, compacted and rammed as approved by Engineer-in-Charge.

(c) Soil /Earth for filling in trenches or floors etc., if required after utilizing available approved for filling as stated above, shall be approved granular soil obtained from outside MD land from the source as approved by GE and shall be free from vegetation and other organic substance and spread in layers not exceeding 30 cm and ramming/ rolling as specified and as directed. Filling of soil/granular base shall be carried out at optimum moisture content (OMC) to 95% modified proctor density all as specified in IS-2720. Quantity of compacted earth only shall be considered for the payment purpose without any swelling constant for the loose quantity brought at site.

**4.4 Removal of surplus soil**

Surplus soil/ spoil shall be removed to a distance as specified in relevant items of BOQ and deposited at places including spreading and leveling as directed by EIC.

**5.0 CONCRETE****5.1 MATERIALS**

5.1.1 **CEMENT** : Cement shall be ordinary Portland cement all as specified in Appendix 'A' to particular specifications and shall be procured by contractor.

**5.1.2 AGGREGATE :**

a) Coarse aggregate for all cement concrete works shall be broken/crushed trap stone conforming to clause 4.4 of SSR Part-I.

b) Fine aggregate for all concrete works shall be naturally occurring river sand conforming to clause 4.4 of SSR Part-I /crushed sand conforming to clause No 4.4 of SSR Part-I at option of the contractor. Sand conforming to grading zone IV of IS-383 shall not be used for RCC work.

c) Fine aggregate for all concrete works of M-25 grade (Design Mix) and above shall be either natural sand or crushed sand at the option of the Contractor.

d) Crushed sand shall satisfy the physical, chemical and mechanical properties of sand as specified in IS:383, particularly grading, silt content, soundness, Alkali aggregate reaction etc. These properties shall be tested and verified in Site lab/Command Test lab/ any NABL accredited labs.

- e) Fine aggregate shall be stored at site in bins or in dumps on brick platform or by using other approved method so as to avoid contamination and risk of shoveling earth or other impurities along with it while in use.
- f) All coarse and fine aggregates shall conform to samples kept in the office of the GE.

5.2 **CEMENT CONCRETE MIX:** Mix of cement concrete shall be all as described in respective items of BOQ.

5.3 **Mixing, transporting, depositing, compacting and curing of concrete:**

(a) Plain cement concrete shall be mixed in mechanical mixer of Hopper type. The mixing procedure, supplying, conveying, transporting and placing etc. shall comply with the requirements of relevant General specifications and IS specifications. No hand mixing shall be allowed for PCC except for small quantity if approved by Engineer-in-Charge.

(b) All the materials, workmanship, inspection and testing for the plain cement concrete shall be as per the requirements of MES Schedule and IS. Engineer-in-Charge shall maintain a register for actual consumption of cement (other than cement register as mentioned in Special Conditions) duly signed by Engineer-in-Charge and contractor.

(c) All concrete for PCC work shall be consolidated / compacted by mechanical vibrator of approved type. Precast/ cast in situ plain cement concrete having small quantity, shall however be rammed and consolidated by tamping and rodding as specified in MES Schedule Part I.

(f) Contractor shall take necessary arrangement to maintain an environment of high humidity around the freshly placed concrete until it attend reasonably good strength with proper curing. Contractor shall follow any of the following method of curing while execution of work based on site conditions:-

- (i) Ponding or immersion in water
- (ii) Fogging or spraying of water
- (ii) Moist fabric cloth
- (iv) Wet / moist area covered by plastic sheets.

5.4 **PRECAST CEMENT CONCRETE:**

(a) Precast cement concrete of type as mentioned in BOQ items for cover slab for man holes, louvers and jalli shall be all as specified in Clause 4.20 of SSR Part-I as applicable.

(b) All precast articles shall be set in cement mortar as specified in BOQ items with joint to match.

5.5 **PLINTH PROTECTION:**

(a) PCC plinth protection shall be provided all as specified in BOQ item. Plinth protection shall be laid to a slope of (1:50). Exposed edges of plinth protection shall be provided with triangular filleting in CM (1:3). The top surfaces and edges shall be finished fair without using extra cement. PCC shall be laid in alternate bays and the joints in bays in plinth protection shall be filled with mastic filling comprising 1 part of mastic bitumen and 3 parts of sand (all by weight).

(b) The quoted rate of concrete shall be included for the above specifications for plinth protection and nothing extra shall be admissible.

6.0 **FLOORING**

6.1 **GENERAL**

(a) Refer Clause 13.25 of SSR Part I.

(b) Floors shall be laid to level or to slope or sunk as directed by Engineer-in-Charge. The finished surfaces shall be free from any unauthorised rise or hollows.

(c) **Plain Cement Concrete (PCC) Sub floor**

Plain Cement concrete (PCC) sub floor/Sub base shall be laid as mentioned in BOQ and at locations as directed by EIC. The type of PCC and thickness etc. shall be as indicated in BOQ.

(d) **PCC Floors**

Plain Cement concrete (PCC) floor shall be laid as mentioned in BOQ and at locations as directed by EIC. The type of PCC and thickness etc. shall be as indicated in BOQ.

6.2 **VITRIFIED TILE FLOORING/ SKIRTING:**

(a) Provide Vitrified tiles in flooring and skirting all as specified in BOQ.

(b) The vitrified tiles shall be of premium series/ quality.

- (c) The size of tiles shall be all as described in respective item of BOQ. In case size of tile is not mentioned in BOQ, the same shall be 10 mm thick of size 600mm x 600mm or 605mm x 605mm of make as given in Appx 'C'. Colour of tile shall be as approved by GE. Vitrified tiles shall be full body. The Grade of tiles to be specified as "Vitrified tiles Group B1a".
- (d) The tiles shall be tested at the sampling rate given in relevant I.S.
- (e) Tiles shall be laid over screed bed or backing coat as specified in BOQ items, set and jointed in cement slurry and pointed in white/coloured cement to match with the tiles in such manner to give joint free finish.

### 6.3 JOINTS FREE COLOURED CERAMIC TILES IN FLOORING/DADO/SKIRTING

- (a) Provide ceramic tiles in flooring /skirting as mentioned in BOQ.
- (b) Tiles shall be of 'JOINTS FREE NON SKID' finish and of colour/shade shall be as approved by GE.
- (c) The size of tiles shall be all as described in respective item of BOQ.
- (d) The tiles shall be tested at the sampling rate given in I.S. –13712 and the tile shall be conforming to IS. – 13712, grade B-II-(a). Tiles shall be of premium quality.
- (e) The make of tile shall be as given in Appendix 'C'.
- (f) Tiles shall be laid over screed bed or backing coat as specified in BOQ items, set and jointed in cement slurry and pointed in white/coloured cement to match with the tiles. The work shall be done all as specified in relevant clause of SSR Part-I.

### 6.4 KOTA STONE FLOORING AND IN TREADS

- (a) Polished Kota stone slab flooring shall be provided as mentioned in BOQ. 20 to 25 mm thick polished Kota stone slab of size 550mm x 550mm (Minimum) shall be provided in flooring, set with cement slurry with neat cement mixed with pigment to match the colour of Kota stone slab.
- (b) The Kota stone slabs shall be of selected quality, hard, sound, dense and homogeneous in texture, free from cracks, decay, weathering and flaws. They shall be hand cut to required thickness and shall be of colour/texture approved by GE. The Slab shall have top face polished before being brought to site. The stone slab/ tile shall be uniform thickness and colour. Tiles/slabs shall be true rectangles.
- (c) Every slab shall be cut to required size and shape and fine chisel dressed on sides to full depth so that straight edge laid along side of the stone shall be in full contact with it. The sides (edges) shall be table rubbed with coarse sand or machine rubbed before laying. All angles shall be free from chippings and surface shall be true and plain.
- (d) Laying, polishing and finishing shall be carried out all as specified in clause No.13.47.3 and 13.47.4 of MES Schedule Part- I.
- (e) Kota stone to be provided in steps (treads and risers) shall be prepolished in one piece of length and width of the tread as directed and no joints shall be allowed.

### 6.5 GRANITE STONE IN JAMBS/CILLS AND COOKING PLATFORM ETC

Mirror polished Granite stone slab as in jambs, cills and cooking platform etc. shall be provided as under and all as described in respective items of BOQ :-

- (a) The Granite stone slabs shall be of selected quality, hard, sound, dense and homogeneous in texture, free from cracks, decay, weathering and flaws. They shall be hand cut to required thickness and shall be of colour approved by GE. The Slab shall have top face polished before being brought to site. The stone slab shall be uniform thickness and colour. Slab shall be true rectangles and shall be in one piece.
- (b) Every slab shall be cut to required size and shape and fine chisel dressed on sides to full depth so that straight edge laid along side of the stone shall be in full contact with it. The sides (edges) shall be table rubbed with coarse sand or machine rubbed before laying. All angles shall be free from chippings and surface shall be true and plain. The thickness of slab shall be 18-20 mm.
- (c) The Granite stone slabs shall be laid over screed as specified in BOQ, set and jointed in cement slurry in white/coloured cement to match with the colour of granite. Laying, fixing and polishing shall be carried out all as specified in clauses 6.20.5 to 6.20.8 of MES Schedule Part I.
- (d) Polishing shall be carried out as directed by Engineer-in-Charge

(e) NOTE: The moulding on edges to granite slab shall be provided in the locations viz edges of steps, porch, staircase, window cills, jambs wherever shown/mentioned/required.

#### 6.6 GLAZED CERAMIC GLAZED TILES IN SKIRTING / DADO

(a) Provide Glazed ceramic tiles in skirting / dado conforming to IS- 13712 grade B-III as mentioned in BOQ.

(b) Tiles shall be of colour/shade as approved by GE.

(c) The size of tiles shall be all as described in respective item of BOQ. In case size of Ceramic glazed tiles in dado is not shown in mentioned in BOQ, the same shall be provided as 350x250x7 to 8 mm thick or 450x350x7 to 8 mm thick. Tiles shall be set and jointed in neat cement slurry and pointed in white cement.

(d) The tiles shall be tested at the sampling rate given in IS-13712.

(e) The make of tile shall be as given in Appendix 'C'. The tiles shall be of premium series/ quality.

(f) Tiles shall be laid over screed bed or backing coat as specified in BOQ items, set and jointed in cement slurry and pointed in white/coloured cement to match with the tiles. The work shall be done all as specified in relevant clause of SSR Part-I.

#### 7.0 PLASTERING AND POINTING

7.1. Plastering/Ready Mix Plaster shall be carried out all as described in respective items of BOQ.

7.2 The thickness of the plaster mentioned is the minimum thickness above the protruded part of masonry and is exclusive of thickness of key. Dubbing if required is deemed to be included in the plaster work and nothing extra shall be paid.

7.3 Plastering shall be in one coat (including dubbing) unless otherwise specified .

7.4 Mortar for plastering work/pointing may be machine mixed or hand mixed at the discretion of the contractor.

7.5 Preparation of mortar for plastering and pointing indicated here-in-after shall be as per Clauses 14.13 and 14.13.3 of SSR Part I.

7.6 The preparation of surface and application of plaster shall be as per Clause 14.14 of SSR Part I as applicable to new work and old work as per items of BOQ..

7.7 The junction of skirting/dado and plaster shall be as directed by Engineer-in-Charge/ specified herein after.

#### 7.8 Ready Mixed Plaster

Wherever shown/indicated on drawing, provide ready mix plaster in single /double layer AS SPCOGOF of Makes/brand- ACC's "ACCOPLAST"/ CK Birla's "AEROCEN" / Magic Plast /Speed Dry Mix's " ECO PLASTER". The surface shall be finished fair and even without using extra cement.

#### 8. WHITE WASHING/COLOUR WASHING/DISTEMPER/ WEATHER PROOF ACRYLIC EMULSION PAINT :

##### 8.1 GENERAL

White wash/colour wash shall be provided as specified in Section 15 of MES Schedule Part-I. The workmanship shall be as described in MES Schedule for new work.

8.2 WHITE WASH: Three coats of white (lime) wash after preparation of surfaces shall be applied to surfaces as indicated in BOQ unless otherwise specified in this specifications.

8.3 COLOUR WASH: Two coats of colour wash over one coat of white wash after preparation of surfaces shall be applied to the surface indicated in BOQ.

8.4 CEMENT BASED PAINT: Two coats of cement based paint over a coat of primer shall be applied to surfaces where indicated in BOQ. Cement based paint shall conform to IS 5410 and shall be applied as specified in clause 15.15 of SSR Part-I. Colour/shade of cement based paint shall be approved by GE.

8.5 **OIL BOUND DISTEMPER:** Wherever indicated in BOQ, provide oil bound distemper all as specified in clause Nos. 15.6 and 15.14 of SSR part-I.

8.6 **ACRYLIC WASHABLE DISTEMPER (ACRYLIC EMULSION DISTEMPER)**  
Where acrylic washable distemper is mentioned in BOQ, the same shall be as under :-

8.6.1 **Pre Painting.** Check the surface for incidence of dampness or water seepage and rectify the water seepage or dampness at source. Any loose plaster should be removed from the wall. Check for loose plaster by tapping on the walls. A hollow sound indicates loose plaster.

8.6.2 **Preparation of Surface.** The new surfaces shall be prepared as per Para 15.13.1& 15.14.1 of SSR Part-I.

8.6.3 **Application of Acrylic Distemper:** Apply two coats of Acrylic distemper over a coat of acrylic primer after a gap of 10 -12 hours after application of primer. In case primer for Distemper is not specified, the same shall be alkali resistant primer all as specified in clause No. 15.14.3 of MES Schedule Part-I 2009 Part-I (Specifications). Acrylic emulsion distemper shall be of make/manufacturers as indicated in Appendix 'C'.

### 8.7 **ACRYLIC EMULSION/PLASTIC EMULSION PAINT**

8.7.1 Where acrylic emulsion/Plastic emulsion paint is mentioned in BOQ, the same shall be Plastic emulsion/Acrylic emulsion paint of manufacturer as indicated in Appendix 'C' and of premium quality. The paint shall be 100% Acrylic and semi Acrylic paint shall not be used in the work.

8.7.2 **Preparation:** The surfaces to be applied with Acrylic emulsion paint shall be cleaned to remove loose dirt or dust, lichen, algae, fungi or any organic growth by use of stiff brush. Then the surface is washed well and allows water to dry. All cracks, voids and minor damages shall be patched/ repaired prior to application of paint with white cement putty or with Plaster of Paris. In case of old surfaces where excessive fungal/ algal growth is observed the surface should be bio washed as per manufacturer's instructions. This product is diluted in water before application as per manufacturer instructions and shall be applied with brush. The coat of bio wash shall be allowed to dry for 12-24 hours and then washed with clean water. Allow the wall to dry before it is ready for painting.

8.7.3 **Primer Coat:** Over this prepared surface apply a coat of acrylic primer as per manufacturer's instructions. This shall be allowed to dry for 4 to 6 hours before application of final paint

8.7.4 **Finishing Coat:** Plastic Emulsion/Acrylic Emulsion paint of premium quality 100%. Acrylic shall be applied in at least two coats as per manufacturer instructions. The Acrylic paint shall be prepared as per manufacturer's instructions by adding water in proportions as suggested No other thinner shall be used. Paint shall be applied with brushes or roller and shall be allowed to dry for 3 to 4 hours between subsequent coats.

### 8.8 **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 per MES SSR (Part I) clause 17.17. Tint of paint and make shall be as approved by GE. Acrylic emulsion weather coat paint shall be of manufacturers as indicated in Appendix 'C'.

8.8.1. **GUARANTEE FOR WEATHER PROOF ANTI FUNGAL, ANTI ALGAE ACRYLIC EMULSION PAINT:** The contractor shall give a written guarantee for [5] FIVE years from the certified date of completion of entire work for the effectiveness of the paint carried out in favour of Garrison Engineer.

8.8.2 **GUARANTEE AMOUNT:** An amount equal to 2.5% of weather proof anti fungal, anti algae acrylic emulsion paint shall be retained from the amount due in final bill as guarantee amount for **5 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" for equal amount for 5 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.

### 8.9 **WALL CARE PUTTY FINISH**

Where White cement based wall putty (Wall care putty) is indicated as under coat of distemper/Plastic paint in schedule of finishes, the same shall be provided as under :-

**8.9.1 Surface Preparation**

Before applying "Wall care Putty" remove all loosely adhering material from the wall surface with the help of sand paper, putty blade or wire brush. The substrate should be clean, free from dust, grease and loose materials. Moisten the wall with sufficient quantity of clean water. Mix "Wallcare Putty" with 36-40% clean water slowly to make a paste. It is very important that water be added to putty to make a mix and not vice versa. Continue the mixing for 10-15 minutes till a uniform paste is formed. It is very important that the mixing of "Wallcare Putty" should be done thoroughly. This will help in easy application, obtaining more coverage and smooth uniform shade. Only prepare a quantity which can be used within 2-3 hours of mixing with water.

**8.9.2 Pre-wetting of the Substrate**

It is very important and essential that the surface is wet thoroughly before the application of "Wallcare Putty". The surface should be wet during application. This ensures higher bonding strength, easy workability & higher coverage with the surface.

**8.9.3 Application of "Wall Care Putty" on the surface:**

- (a) After thoroughly mixing "Wallcare Putty", apply the first coat on the moistened wall surface from bottom to upward direction uniformly with the aid of putty blade. This would ensure minimum wastage and proper finish. The makes of Wall Care putty shall be as given in Appendix 'C'
- (b) After drying of first coat of putty just rub the surface gently with wet sponge or very gently with the putty blade in order to remove the loose particles.
- (c) Allow the surface to dry for atleast 3 hours and then apply second coat of putty. Leave the surface to dry completely. After drying of second coat remove any type of marks with the help of moist sponge or rub the surface very gently with the putty blade.
- (d) Leave the surface to dry, preferably overnight / 10-12 hours.
- (e) Always prepare a required quantity of putty and use it within 2-3 hrs of mixing with water.
- (f) The total thickness of the two coats should be not less than 1.5mm.

**9.0 PAINTING**

- (a) Painting shall be of quality not inferior to those required by the relevant IS and as per Clause 17.2 of SSR Part I.
- (b) Workmanship and preparatory works shall be as per Clause 17.6, 17.8 and 17.10 of SSR Part I as applicable for new works and old works. Painting shall be with priming coat, under coat and one finishing coat unless mentioned otherwise. Primer for wood work shall be pink primer and for steel shall be red oxide generally. Priming coat shall be redone if more than six months have lapsed before executing the under coat.
- (c) The final finish of paint shall be glossy suitable for, internal / external use as approved by the GE. Galvanised steel articles (sheet, pipes etc and wire cloth) and builders hardware shall be left untreated. All coats of paint shall be synthetic enamel paint and shall be obtained from any one of the manufacturers listed in Appendix 'C' and shall be of first grade/first quality. Exposed surface of all steel and wood items shall be painted with two coats of synthetic enamel paint over a coat of primer unless otherwise specified elsewhere.

**10.0 STEEL AND IRON WORK****10.1 GENERAL**

All steel required for the work under the contract shall be procured, supplied and incorporated in the works by the contractor under his own arrangement.

**10.2 GRADE AND QUALITY**

Steel supplied by the contractor shall conform to the following grades and quality:-

**(a) STEEL FOR CONCRETE REINFORCEMENT**

- (i) Reinforcement bars shall be High Strength deformed Steel Bars produced by Thermo Mechanical Treatment process (**TMT steel bars of grade Fe 500D**) meeting all the requirements of IS 1786.
- (ii) Minimum percentage elongation should be 18% for Fe-500D.

**(b) STRUCTURAL STEEL**

- (i) Structural Steel of Standard Quality shall conform to IS-2062 and Grade E 250 (Fe 410 W quality 'A'). This type of steel shall be provided for all structural steel works as in clause 10.4.1 of MES Schedule Part-I.

(ii) Structural Steel "Ordinary Quality" shall be used in guard bars, grills and like and shall conform to E 165 (Fe 290). This type of steel shall be provided as in clause 10.4.2 of MES Schedule Part-I.

c) Hard drawn steel wire fabric for concrete reinforcement / Fabric reinforcement shall conform to IS-1566.

d) Galvanised steel sheets (Plain and Corrugated), shall conform to IS-277 and having minimum zinc coating of 120 gm per Sqm, Gde 'B' corrugation.

**Note :** Any items of steel specified in clause No. 11.2 (a) to (d) above not conforming to grade and quality shall be rejected and the rejected steel items under the particular consignment shall be removed from the site by the Contractor at his own cost within 7 (Seven) days. The contractor will have no claim whatsoever on this account.

## 10.0 SOURCE OF PROCUREMENTS

### (A) REINFORCEMENT STEEL (TMT)

(a) Reinforcement bars shall be high strength deformed steel bars produced by Thermo Mechanical Treatment process TMT meeting all the requirement of relevant IS. The contractor shall procure TMT Bars produced from micro alloyed billets directly from main producer as **approved by E-in-C's Branch given in subsequent para.**

(b) List of manufacturer are as under :

SI No	Company Name & Brand	Address	Type of steel
1	Rashtriya Ispat Nigam Limited (RINL) <b>Brand : "RINL"</b>	Visakhapatnam steel plant Visakhapatnam-530 031, India Tel : (91 891) 518226, 518376 Fax : (91 891) 518316 Email : <a href="mailto:cmdvsp@itpvis.ap.nic.in">cmdvsp@itpvis.ap.nic.in</a>	All
2	Tata Iron & Steel Company (TISCO, or Tata Steel) <b>Brand : "TATA"</b>	Bombay House, 2,4 Homi Modi Street Mumbai- 400 001, India Tel : (91 22) 204 9131 Fax : (91 22) 204 9522, 287 0840 Email : <a href="mailto:corpcomm@jsr.tatasteel.com">corpcomm@jsr.tatasteel.com</a> (Br office for North : Jeevan Tara Bldg, Patel Chowk, New Delhi)	All
3	Steel Authority of India Limited (SAIL) <b>Brand : "SAIL"</b>	Central Marketing Organization, Northern Region 17 <sup>th</sup> Floor, scope Minar, Laxmi Nagar Distt. Centre, Delhi – 110092	All
4	M/s Jai Balaji Industries Ltd. <b>Brand : "Balaji Shakti"</b>	5 BenteK Street, Kolkata-700001 <u>Delhi Office</u> 510, Block-b, Navrang House 21 Kasturba Gandhi Marg, New Delhi-110001 011-43620219, 43620220 E-mail : <a href="mailto:info@jaibalajigroup.com">info@jaibalajigroup.com</a>	TMT Bars of Gde Fe 500 Fe 500D
5	M/s Shyam Steel Industries Ltd <b>Brand : "SHYAM"</b>	Shyam Towers EN-32, Sector-V, Salt Lake, Kolkata-700091 Tel-033- 40074007, Fax- 033-40074010, E-mail : <a href="mailto:marketing@shyamsteel.com">marketing@shyamsteel.com</a>	TMT Bars of Gde Fe 500 Fe 500D CRS
6	M/s Steel Exchange India Ltd. <b>Brand : "SIMHADRI TMT"</b>	My Home Laxminivas Apartments, Ameerpet, Hyderabad-500016, A.P. Tel- 040-23403725 Fax-040-23413267	TMT Bars of Gde Fe 500 Fe 500D HSCRM

SI No	Company Name & Brand	Address	Type of steel
7	M/s Shyam Metalics & Energy Ltd. <b>Brand : "SEL"</b>	Viswakarma, 1 <sup>st</sup> Floor, 86 C, Topsia Road, Kolkata-700046 Ph : +91 33 2285 2212 Website : <a href="http://www.shyamgroup.com">www.shyamgroup.com</a>	TMT Bars of Gde Fe 500, Fe 500D (Size 8-32mm)
8	M/s Kamachi Industries Ltd. <b>Brand : "KAMACHI"</b>	ABC Trade Centre, 3 <sup>rd</sup> Floor (Inside Devi Theatre Complex) Old No. 50, New No.39, Anna Salai, Chennai-600002, India Tel:+91-044-42961100 Fax:+91-044-42961122 E-mail: <a href="mailto:sales@kamachitmt.com">sales@kamachitmt.com</a> Website: <a href="http://www.kamachitmt.com">www.kamachitmt.com</a>	TMT Bars of Gde Fe 500, Fe 500D, Fe 550, Fe 550D HCRM (size 8-40mm)
9	M/s Gallantt Metal Ltd <b>Brand:"GALLANTT TMX"</b>	Ward 10BC, Plot No.123, Ground Floor, Gandhi Dham Kutch, Gujrat-370201 Tel:+91-2836-228164 Fax:+91-2836-235787 E-mail: <a href="mailto:gml@gallantt.com">gml@gallantt.com</a>	TMT Bars of Gde Fe 500 Fe 500D CRS (size 8-32mm)
10	M/s Rashmi Metaliks Ltd Brand: "RASHMI TMT"	Premlata Building, 39, Shakespeare Sarani, 6th Floor, Kolkata-700017 Tel: 033-22894255/56 Fax: 033-22894254 E-mail: <a href="mailto:Mkt.domesticdip@rashmigroup.com">Mkt.domesticdip@rashmigroup.com</a>	TMT Bars of Gde Fe 500 (size 8-32mm) Fe 500D, Fe 550D (Size 8-25mm)
11	M/s Real Ispat & Power Ltd Brand: "G K TMT"	Vrindavan, Near IDBI Bank Civil Lines Raipur-492001, C.G. Tel: +91-771-4224000 Fax: +91-771-4224010 E-mail: <a href="mailto:real@realispat.com">real@realispat.com</a> Website: <a href="http://www.realispat.com">www.realispat.com</a>	TMT Bars of Gde Fe 500 Fe 500D (size 8-36mm)
12	M/s Super Smelters Ltd, Kolkata Brand: "SUPER SHAKTI"	Premlata, 39, Shakespeare Sarani 3rd Floor, Kolkata-700017 Tele/Fax: +91-33-2289-2734/36 E-mail: <a href="mailto:info@supershakti.in">info@supershakti.in</a> Website: <a href="http://www.supershakti.in">www.supershakti.in</a>	TMT Bars of Gde Fe 500 Fe 500D, Fe 550 (size 8-32mm)
13	M/s Electrotherm (India) Ltd <b>Brand "ET TMT"</b>	Survey No. 72, Palodia, Via-Thaltej, Ahmedabad Gujarat-382115 Tel- +91-2717-660649/660550 Fax- +91-2717-234866 Website- <a href="http://www.electrotherm.com">www.electrotherm.com</a>	TMT Bars of Gde Fe 500 Fe 500D, & CRS (size 8-32mm)
14	M/s Tulsyan NEC Ltd		
15	M/s MSP Steel & Power Ltd Chattisgarh		

SI No	Company Name & Brand	Address	Type of steel
16	Incredible Industries Ltd (Formerly M/s Adhunik Industries Ltd. Brand "ADHUNIK Fe 500 SD")	"Lansdowne Towers" 2/1A, Sarat Bose Road 6 <sup>th</sup> floor, Kolkata- 700020 Tel 033- 30517100 Fax - +91-33-22890285	TMT Bars of Gde Fe 500D (size 8-32mm)

(B) **STRUCTURAL STEEL**: - The contractor shall procure all structural steel directly from the main producers namely –

S.No.	Company Name and Brand	Address	Type of Steel
01	Rashtriya Ispat Nigam Limited (RINL) Brand: "RINL"	Visakhapatnam Steel Plant Visakhapatnam-530 031, India Tel: (91 891) 518226, 518376 Fax: (91 891) 518316 Email: <a href="mailto:cmdvsp@itpvis.ap.nic.in">cmdvsp@itpvis.ap.nic.in</a>	Structural Steel (Angle, Beam, Column, Channel, Plate)
02	Tata Iron & Steel Company (TISCO or Tata Steel) Brand : "TATA"	Bombay House, 2, 4 Homi Modi Street Mumbai- 400 001, India Tel:(91- 22) 204 9131, Fax:(91- 22) 204 9522, 287 0840 Email: <a href="mailto:corpcomm@jsr.tatasteel.com">corpcomm@jsr.tatasteel.com</a>	Structural Steel (Angle, Beam, Column, Channel, Plate)
03	Steel Authority of India Limited (SAIL) Brand: "SAIL"	Central Marketing Organization, Northern Region, 17 <sup>th</sup> Floor, scope Minar, Laxmi Nagar Distt. Centre, Delhi-110092	Structural Steel (Angle, Beam, Column, Channel, Plate)
04	M/s Jindal Steels and Power Ltd. Brand : " JINDAL "	Jindal Centre, Plot No 2, Sector-32, Gurgaon-122001, Haryana Tele- 0124 661 2000 Fax- 0124 661 2125 Website : <a href="http://www.jindalsteelpower.com">www.jindalsteelpower.com</a>	Structural Steel (Angle, Beam, Column, Channel, Plate)

(C) **Non structural steel as for guard bars, holdfast, railing, grill, chowkhat etc galvanized steel sheets and structural steel where total requirement under the contract is less than 5.00 tonnes may be procured from authorized dealers of main producers after obtaining permission of the Accepting Officer in writing.**

(D) The contractor shall produce original vouchers & test certificates from main producers in case of structural steel for the total quantity of steel supplied, under each consignment. The original vouchers shall be kept on record of the GE duly defaced by Engineer-in-Charge and authenticated.

(E) Steel sections for railing, gates (other than Hanger gates), fencing, guard bars, grills, steel chowkats hold fasts etc which do not constitute structural members can be procured from main producers, secondary producers/BIS marked manufacturers or their authorized dealers without any minus price adjustment. Tests will not be insisted upon for such steel sections.

(F) Galvanized iron sheets and fabric reinforcement for concrete to be supplied by the contractors shall be ISI marked and shall be procured from main manufacturers viz. SAIL, RINL, TISCO, JINDAL Steels Power Ltd. as brought out in para 8.1.2 B hereinabove.

#### 10.1 **TESTING AND TEST CERTIFICATE**

(a) The contractor shall produce 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 supplied as specified in relevant IS codes, duly signed by the manufacturer with each consignment.

**Note:** Production of the test certificate in respect of steel required for guard bars, hold fasts, grills and like by the contractor may not be insisted upon.

(b) The original test certificate shall also be kept on record in the office of GE duly defaced by Engineer-in-Charge and authenticated.

(c) In addition to production of test certificate as mentioned in clause 8.1.3 (a) and (b) above, the contractor shall also provide all facilities to the department for independent testing of steel in Government approved Laboratories without any extra cost to the department and testing charges shall be borne by the contractor as stated.

### 10.2 MINIMUM FREQUENCY OF TESTING FOR EACH SOURCE AND EACH CONSIGNMENT

#### (a) Steel for concrete reinforcement:

- i) Bar size less than 10 mm dia : One sample (3 specimens) for each test for every 25 tonnes or part thereof.
- ii) Bar size 10 mm dia to 16 mm (inclusive) : One sample(3 specimens) for each test for every 35 tonnes or part thereof.
- iii) Bar size over 16mm dia : One sample (3 specimens) for each test for every 45 tones or part thereof.

#### b) Structural Steel:

- i) Tensile test :One test for every 25 tonnesofsteel or part thereof.
- ii) Bend test :One test for every 10 tonnes of steel or part thereof.

c) Chemical Test: Contractor shall submit manufacturer's test certificate to confirm chemical composition laid down in relevant IS-Codes.

d) Bend test and tensile test for structural steel shall be carried out as per IS-2062. For high strength deformed bars tensile, bend test and rebend test shall be done as per IS-1786. For MS bars tensile and bend test shall be carried out as per IS-432.

e) Minimum percentage elongation should be **18%** for Fe-500D.

f) GE has the right to get one more sample (3 specimen) tested if he is not satisfied with the consignment. However testing charges for the additional sample over and above frequency given in clause 8.1.4 above shall be borne by the department.

g) All testing charges shall be borne by the contractor in case the test results as per independent testing of random samples are not as per criteria laid down in the approved laboratory / test house. However in any case cost of transportation of samples (to and fro) to the approved laboratory shall be borne by the contractor.

### 10.3 RING TEST FOR TMT BARS :-

Ring test for the nitric acid and methanol for 24 hours immersion shall be carried out for all diameters of TMT bars as specified in IS and as directed by GE.

### 10.4 STORAGE :-

Steel supplied by the Contractor shall be stored in accordance with the requirement of IS. Each grade and quality of steel shall be stored separately and have identification tags indicating the source, quality and grade.

### 10.5 PRESERVATION AND MAINTENANCE OF STEEL :-

The steel brought by the contractor shall be preserved to ensure that no rusting takes place till it is incorporated in the works.

### 10.6 SCHEDULE OF SUPPLY

The contractor shall procure the steel sections, timely as required in accordance with CPM chart, agreed between GE and the contractor. Memorandum of understanding (MOU) has been signed by dept with SAIL (one of the main producer of steel) for supply of steel for MES works to contractor based on their demand directly to the firm. In case contractor faces difficulties in procurement of steel from primary producer, he shall contact GE who will in term will help him in procurement of steel from primary producers. The contractor will forfeit his right to demand extension of time if the supply of steel got delayed due to his failure in placing order in time to the manufacturer/supplier.

### 10.7 PAYMENT

Receiving payment of steel shall be governed by in accordance with condition 64 of IAFW-2249. Payment shall be allowed only after production of test certificate and purchase vouchers from main manufacturer/producer.

**10.8 MEASUREMENT**

The entire quantity of steel brought to site shall be recorded in Measurement Book "NOT TO BE ABSTRACTED" indicating the reference to manufacturer, source of supply, voucher number, and test certificate before incorporation in the work and shall be signed both by the Engineer-in-Charge and the Contractor. Proper documentation/record shall be maintained as per the instructions on the subject.

**10.9 WEIGHT CONVERSION**

Weight of steel supplied by the contractor shall be calculated at unit weights given in IS conversion table or manufacturer's certificate shall be followed if the weights are not available in IS tables.

10.9.1 Normal waste and off cuts shall be stacked neatly which shall be the property of the contractor. Contractor shall be allowed to remove such cut pieces after inspection and certification by the Engineer-in-Charge.

10.9.2 Advance on account of payment made towards these cut pieces shall be recovered from advance on account of payment immediately falling due and before removal of such cut pieces from site.

10.9.3 Bending and fixing of bars for concrete reinforcement including mild steel wire for binding shall be carried out all as specified in MES Schedule.

10.9.4 Hooks shall be provided only for mild steel bars. In case of cold twisted/ deformed steel bars ends shall be bent instead of hooks as specified in relevant IS.

10.9.5 Binding wire for reinforcement shall be mild steel wire (annealed) of size not less than 0.9 mm.

10.10 **STEEL SUPPLY/ACCEPTANCE FORM**: For each consignment of steel supply/acceptance form will be filled in and jointly signed by the department Rep. (AGE/ JE) and contractor and accepted/rejected by GE before incorporation in the works as per Annexure 'A'.

**STEEL SUPPLY/ACCEPTANCE FORM**

1. CA No and Name of work :
2. Consignment No. :
3. Name of Manufacturer :
4. Manufacturer's TC No :
5. Random test details
  - (a) Physical test report from .....vide letter No..... (Name of NABL approved Lab/GovtEngg College)
  - (b) Chemical test report from.....vide letter No.....
6. Type of steel, dia&Qty :
  - (a) Type : TMT/CRS
  - (b) Dia : mm
  - (c) Actual Wt : MT
  - (d) Conversion Wt : MT

	Chemical test							Mechanical test						
	Carbon %	Sulphur %	Phosphorous %	Sulphur + Phosphorus %	Manganese %	Silicon %	Corrosion resistant element	Weight per meter	Yield Stress (N/mm2)	Tensile Strength (N/mm2)	Percent elongation (Min 18%)	Bend test	Rebend Test	Remarks
As per IS-1786 2008														
As per manufacturer's test certificates														
As per independent test														

Remarks of Inspecting Officer/CWE :

10.11 **HOLDFASTS & BOLTS**: Provide Holdfasts as indicated on drawing. Holdfasts shall be tarred and sanded before fixing. Where holdfasts are required to be provided through concrete column etc, same shall be bolt type as shown on drawings.

10.12 **EXPANDED METAL:-** Expanded metal wherever specified for incorporation shall be of weight not exceeding 4 Kg per Sqm cut to length, bent to shape and shall be tied with and including annealed mild steel wire not less than 0.9 mm dia or shall be fixed with galvanised steel staples all as shown on drawings and directed by Engineer-in-Charge.

#### 11.0 **WATER SUPPLY, PLUMBING AND SANITARY APPLIANCE**

(i) Work shall be executed by a licensed plumber. The contractor shall produce license of the plumber for verification.

(ii) All materials (fittings, accessories, pipes etc) to be incorporated in the work shall be of standard make and shall strictly comply with the current IS specifications (ISS). The work shall be carried out as relevant clauses of MES Schedule Part-I.

(iii) Galvanised iron tubes (pipes) and fittings shall comply with relevant IS and as specified in clause No. 18.4.1 and 18.4.2 of MES Schedule Part-I. Laying and fixing of GI tubing shall be all as per relevant clause of MES Schedule Part-I.

(iv) Testing shall be carried out all as per relevant clauses of MES Schedule Part-I. The work is to be tested at the contractor's expenses at such time and in a manner as the GE shall direct and it shall be done to his entire satisfaction. Test result shall be jointly recorded by contractor and Engineer-in-Charge.

(v) **SANITARY APPLIANCES:** All sanitary fittings shall be glazed vitreous China first quality white with ISI marking unless otherwise mentioned in BOQ. Sanitary appliances shall conform to IS 2556 (Part I)-1994: Specification for vitreous sanitary appliances, Part I General requirements and shall be of approved make as mentioned in Appendix 'C'. Appliances shall be strong of high grade and shall be coated on all exposed surface with an impervious white vitreous glaze. The glaze shall be uniform, free from craze and discolouration and shall possess an impervious surface. Sanitary appliances shall be of one piece construction. Water closets and urinals shall have an integral flushing rim. Inside of the pans shall be regular and smooth in order to ensure efficient flush.

(vi) **BATH FITTINGS:** Provide Bath fittings all as specified in BOQ.

#### (vii) **STAINLESS STEEL SINK WITH DRAINING BOARD**

(a) Sink with draining board shall be of size as mentioned in BOQ. Sink with draining board shall be manufactured from Salem stainless steel sheets grade A1 SI-305. The thickness of the sheet shall be 1 mm. The sink shall be of any one of the makes mentioned in Appendix 'C'. The surface of the sink shall be plastic coated to make it safe and scratch free installation. The sample of sink shall be first got approved by GE before placing order for bulk procurement. The sink shall be provided with brass chromium plated connecting union and plug. The waste pipe shall be of HDPE pipe and shall be extended upto top of nahani trap.

(b) If size of sink with Draining board is not indicated on drawing, the same shall be of overall size 915mm x 510mm with bowl size 510mm x 405mmx200mm (or nearest size).

#### (viii) **STAINLESS STEEL SINK**

(a) Stainless steel Sink shall be of size as as mentioned in BOQ . Sink shall be manufactured from Salem stainless steel sheets grade A1 SI-305. The thickness of the sheet shall be 1 mm. The sink shall be of any one of the makes mentioned in Appendix 'C'. The surface of the sink shall be plastic coated to make it safe and scratch free installation. The sample of sink shall be first got approved by GE before placing order for bulk procurement. The sink shall be provided with brass chromium plated connecting union and plug. The waste pipe shall be of HDPE pipe and shall be extended upto top of nahani trap.

(b) If size of sink is not indicated on drawing, the same shall be of overall size 560mm x 455mm with bowl size 510mm x 405mmx200mm (or nearest size).

(ix) **PVC(SWR) PIPES AND FITTINGS:** Provide PVC Pipes & Fittings all as specified in BOQ & material, workmanship shall be as specified under clause nos 18.27A to 18.27A4 of MES Schedule Part-I.

#### 11.1 **SQUATT PATTERN WATER CLOSET ORISSA TYPE**

Provide Indian type water closet (Make shall be as given in **Appendix 'C'** of vitreous china first quality as mentioned in BOQ. Indian type water closet shall be Orissa type and shall be of size 580 mm x 440 mm with 'P' or 'S' trap and shall interlia include the following :-

(a) 32 mm dia PVC flush pipe of required length including all fittings and connected to WC as per manufacturer's instructions.

- (b) 10 litre capacity coloured PVC low level flushing cistern conforming to relevant IS with internal fittings complete.
- (c) WC pan and trap shall be set in cement concrete as specified hereinbefore and as directed by Engineer-in-Charge and finished just below the level of rim of pan to receive the specified thickness of floor finishing.
- (d) Exposed steel surfaces shall be painted with two coats of synthetic enamel paint over one coat of red oxide zinc chrome primer

### 11.2 URINAL AND FLUSHING CISTERN

- (a) Provide Urinal of vitreous china first quality as mentioned in BOQ. Urinal shall be vitreous china flat back bowl type of size 46cm x 35cm x 26 cm conforming to IS-2556(Part VI) 1995 if not mentioned in BOQ and shall be inclusive of providing and fixing with and securing urinal to plugs with brass screws complete. The make of urinal and flushing cistern shall be as given in **Appendix 'C'**.
- (b) PVC low level automatic flushing cistern shall be of 5 lit capacity and shall be provided and shall include supplying, fixing and painting CI brackets together with coupling connections and specials and fixed on and including wooden plugs embedded in wall. PTMT/GI medium grade flush pipe from cistern to urinal shall be provided including necessary fitting.
- (c) Screen/partition wall shall be of machine cut polished (on both sides) granite stone slab 15 mm thick and shall be provided to the sizes .
- (d) PTMT Urinal Spreader of any colour fix to 15mm GI Pipe, 32mm waist coupling suitable for urinal, PTMT bottle trap weight not less than 26gms.

### 11.3 WASH HAND BASIN :

Provide wash hand basin (Make shall be as given in **Appendix 'C'**) of vitreous china first quality as mentioned in BOQ. Wash hand basin shall be of size 550 mm x 400 mm if not shown in BOQ and shall include the cost of the following if not given to be measured and paid separately in BOQ items:-

- (a) 40 mm dia GI waste pipe from CP waste fitting to NT/ bottle trap.
- (b) GI pipe connection from bottle trap to Nahani trap.
- (c) A pair of painted standard cast iron brackets.
- (d) Rubber plug and chain chromium plated 400 mm length.
- (e) Brass chromium plated bottle trap 32 mm bore.

### 11.4 MIRROR:

The mirror shall be made of selected quality of sheet glass not less than 5.5 mm thickness shown on drawing with edges rounded or beveled as specified in clause 18.38 of SSR Part I. Mirror shall be with PVC back and PVC frame. The mirror shall be of approved make and of size shown in BOQ and shall be mounted on walls above WHB at a height as directed by Engineer-in-Charge. Size of mirror if not mentioned in BOQ, the same shall be 600mm x 450mm.

### 11.5 PVC WATER STORAGE TANK

Where PVC water storage tank is specified in BOQ, it shall be double layer Rotational Moulded polyethylene water storage tanks confirming to IS: 12701-1996 (First Revision) and shall be procured from any one of the manufacturer specified in Appendix-C and shall be provided with connections as specified in BOQ.

- (a) Hosting of tanks into position shall be carried out with proper tackle care being taken that no part of the tank or of the structure is damaged in the operation. The tanks, shall be installed in position truly level, unless otherwise directed. The joints or connection to pipes shall be made with boiler screw, union, tee etc. as directed. Supports for tanks shall be provided as directed.
- (b) Water tank shall be connected with inlet and outlet connections and fitted with ball valve to suit the size of inlet pipe. Wash out pipe and over flow pipe shall be as recommended by manufacturers.

### 11.6 WATER TUBING

#### 11.6.1 GI Tubing

- (a) Water tubing shall be galvanised MS screwed and socketed and tubing and fittings shall comply with relevant IS specified in para 18.4 SSR Part I and shall be medium grade.
- (b) Unions shall be provided before stop cocks as per the direction of the Engineer-in-Charge for easy removal/repair of pipes/ fittings for each branch or inlet/outlet etc.
- (c) All pipes and fittings are to be put together with white lead and fine spun yarn. The whole of the pipes and connections are to be fully tested and left drip dry. Test report shall be jointly prepared and signed by the contractor and Engineer-in-Charge.

- (d) Water tubing in trenches laid by the contractor should be sealed properly after threading pipe line and fittings in order to avoid the entry of loose soil inside the pipe line. The cost of the GI pipe plug is deemed to be included with the unit rate for provision of GI tubing laid in trenches.
- (e) The riser to the overhead tank shall be left not more than 2.0 metre away from the building in trenches to be connected from the external water supply distribution system. This end should be plugged properly to avoid the loose mud going inside.
- (f) Tubes of any grade and fittings shall be able to with stand a test by hydraulic pressure of 5 MPa without showing defects of any kind as specified in clause 18.4.5 of SSR Part-I.
- (g) All entry points for each quarter / room shall be provided with a suitable size of tee in lieu of bend and branch end of the tee shall be connected to the pipe of quarter / room and the bottom end shall be plugged for easy removal / cleaning etc.
- (h) All GI pipes / fittings and fixtures such as stop cock, bib cock shall bear ISI certification mark or of specified make.

#### 11.6.2 Unplasticised PVC Pipes

(a) UPVC pipes shall conform to IS 4985-2000. Specification for Unplasticised PVC pipes for potable water supply. The pipes shall be reasonably round. Internal and external surfaces of the pipes shall be smooth and clean, reasonably free from grooving and other defects. The ends shall be cleanly cut square with the axis of the pipes, UPVC pipes shall be of pressure ratings (working pressure) as 2.5, 4.5 and 10 Kg/sq cm as indicated.

(b) Jointing of Unplasticised PVC pipes:-

(i) Solvent Welded Joints: This technique is used with both spigot as well as spigot and socket type joints in which socket is made specially to form a close fit on the pipe end, and with injection moulded fitting. The pipes shall be cut perpendicular to the axis of the pipe length. Pipe ends shall be bevelled slightly with a beveling tool (reamer) at an angle of about 30°. The total length of insertion of the fitting socket shall be marked on the pipe and checked how far the pipe end could be inserted into the fitting socket. Attempt shall be made to push the pipe to the marked distance, if not possible, it shall at least be pushed for 2/3 of this distance.

(ii) Dust, oil, water, grease, etc shall be wiped out with a dry cloth from the surface. Further the grease should be thoroughly removed with a suitable solvent, such as methylene chloride or as an alternative the outside surface of the pipe and the inside of the fitting may be roughened with emery paper.

(iii) Generous coating of solvent cement shall be evenly applied on the inside of the fittings around the circumference for the full length of insertion and on the outside of the pipe end upto the marked line with non-synthetic brush of suitable dimension. The pipe shall be pushed into the fitting socket and held for 1 or 2 minutes as otherwise the pipe may come out of the fitting due to the slippery quality of cement and the tapering inside bore of the fitting. The surplus cement on the pipe surface shall be wiped out. If the solvent cement has dried up too much or the tapering of the socket is too steep, jointing will not be proper and pipe will come out of the fitting.

#### 11.7 Bib Taps, Stop Valves and Gate Valves

Bib taps and stop valves shall be as mentioned in BOQ and as specified in Clause 18.14, 18.15 and 18.102 of MES Schedule.

11.8 **TESTING:** Testing shall be carried out all as per clause 18.55 of SSR Part I. The whole of the works is to be tested at the contractor's expense at such time and in such a manner as the GE shall direct and it shall be done to his entire satisfaction. Test result shall be jointly recorded by contractor and Engineer-in-Charge for supply from each service tank.

#### 12.0 WOOD WORK AND JOINERY:

##### 12.1 FORM WORK:

13.1.1 Refer Clause No. 7.15 (7.15.1 to 7.15.12) of MES Schedule Part I. All the form work required for the work shall be of steel and ancillary steel supporting arrangements as per manufacturers. The recommended makes are ACRO, PASCHALINDIA, PERI INDIA.

12.1.2 Application of non-adhering oils such as used engine oils or bitumen based paints to inside of forms is not permitted.

12.1.3 Provide steel props/spans/ bracings of sufficient strength such as ACROW props, ACROW spans from ACROW Indian Ltd . Bombay or similar as approved by the Garrison Engineer. Props shall be rested on firm and stable surface after full compaction of earth under filling floors and PCC for sub base is laid. Form work shall be designed as per IS 14687 erected and removed of form work shall be as per clause 11 of IS 456-2M SBC as per soil report. Use of conventional wooden ballies (Posts), struts are not permitted.

12.1.4 Where the concrete surfaces are to be finished fair, timber formwork shall be brought lined with plywood/steel plates at the discretion of the contractor, but without any price adjustment.

12.1.5 In case of deviation, rates given in SSR for wooden form works for rough/fair finished surfaces of concrete shall be applicable irrespective of actual formwork materials provided in the work. The contractor can use steel plate form work at their own discretion without any extra cost.

## 12.2 TIMBER AND JOINERY

Timber for all wood work and joinery (Carpenter's work) and joinery (except factory made panel door shutters, particle boards, block boards and plywood) unless otherwise specified hereinafter shall be II nd class hard wood conforming to the sample kept in GE's office. The timber for various purposes is stipulated in IS-287 and also refer Clauses 7.6 and 7.7 of SSR Part I.

## 12.3 PRESERVATION OF TIMBER :

12.3.1 Preservative antitermite treatment shall be carried out to all wood work before incorporation in the work and fabricated by the contractor at site. Factory made plywood/boards are to be treated with approved chemical at site.

12.3.2 Chemical used for antitermite treatment to wood work and joinery fabricated at site shall be copper naphthanate or any other chemicals as specified in IS-401 and applied in any one of the manners as specified in IS-401.

## 12.4 SURFACE FINISH:

Unless otherwise specified all exposed faces of carpenter's work and joinery shall be wrought. All wrought surface shall be finished smooth with sand paper.

## 12.5 TOLERANCE

Tolerance for wrought faces of carpenter's work and joinery shall be as given in MES Schedule, except the following, in which case no tolerance shall be allowed:-

- (a) Styles and Rails for Panelled joinery.

## 12.6 PELETING:

Counter sunk holes for bolts and screws in wrought surfaces shall be plugged with tightly fitting plugs and finished plane with surrounding surfaces.

## 12.7 PLUGGING:

Plugging to wall shall be as per Clause 7.29 of SSR Part I.

## 12.8 SCREWING ETC:

Use of nails to joinery is prohibited, all planks/shelves, fillets, moulding and the like shall be fixed with screws. The minimum length of screws etc and their intervals shall be as per Clause 7.21 of SSR Part I. Wood screws shall be bright finished. The size and designations shall be as directed by Engineer-in-Charge.

## 13.00 FACTORY MADE PANELLED/GAUZED/GLAZED DOOR SHUTTERS

(a) Factory made timber panelled/gauzed/glazed door shutters shall be provided as specified in BOQ and to the specifications generally conforming to IS-1003.

(b) The timber for manufacture of styles and rail /factory made panelled shutters shall be of Class `C' of table I of IS- 1003 Part -I non- coniferous timber other than teak. The species of timber chosen for styles and rails by the manufacturers shall have criteria of strength, coefficient. Weight, durability, workability drying class and %age shrinkage not less than mango timber, as given in group II of Annexure C of IS – 12896 - 1990 )

(c) Tenderers are advised to note that the criteria's given in clause 7.4.2, and 7.7.3 of SSR Part I shall also be adhered to for this species of timber used. It shall be ensured that the timbers are kiln seasoned and ASCU treated. ASCU treatment shall be vacuum pressure treatment conforming to IS-401. Each styles and rails shall be of the same species and sizes indicated in the drg. and each shall be out of one piece of timber only.

(d) 9 mm thick plywood panel inserts (5/7 Ply) shall be of BWP grade bonded with phenol formaldehyde synthetic resin adhesive type conforming to IS-710. The plywood shall be with ISI mark.

(e) 12 mm thick panel inserts shall be flat pressed three layered veneered particle board (commercial veneer) with BWR grade synthetic resin adhesive exterior grade conforming to IS- 3097 with ISI mark.

(f) All members of the Panelled shutter shall be straight without any warp or bow and shall have smooth well-planed faces at right angles to each other. The contact surface of tennon and mortise joints shall be treated before putting together with synthetic resin adhesive conforming to IS-351 suitable for construction work in wood.

(g) The factory made panelled/gauzed/glazed shutters shall be obtained from any of the approved manufacturers listed in Appendix 'C'.

(h) However it shall be the responsibility of the contractor to ensure that the shutters shall comply in all respects with the contract specifications.

(j) All surfaces of door shutters required to be painted ultimately, shall be covered evenly by brush painting with a priming coat of suitable pink primer. The painting of primer shall be carried out after the door shutter is manufactured and before incorporation in the work. The application of paint shall be as approved by GE.

(k) All the toilet / bath / WC door shutters shall be PVC door all are specified hereinafter as indicated on drg / directed by GE.

### 13.1 FIXING OF SHUTTERS

(a) The size of the openings and the frames shall be checked and also the verticality of the side frames and the level position of the floor and the wall. Any adjustment necessary shall be made before installation of the shutters. The shutter shall be installed only after the walls on either side have dried.

(b) Any transit defects or storage defects in shutter shall be filled up with a good putty. Any corner opening may be rectified by the use of glued and pressing by 'C' clamps. Any damage to molding or glazing bars or other fixtures shall be rectified at site by use of similar materials.

(c) Width of hinges shall suit the shutter thickness.

(d) Cleats, where indicated, shall properly fit in the rebates of the chowkatsto effectively stop the shutter from closing.

(e) When driving screws it is advisable that in case of hard timbers pilot holes are drilled before fixing the screws. The screws shall be driven tight fit and straight.

(f) Shutters shall be checked after fixing for proper location alignment and swinging. After all the fixtures have been fitted, the shutters shall be tried again for proper closure, handling and movement. Any rectification necessary shall be done.

### 13.2 FLUSH DOOR SHUTTERS

(a) Flush door shutter shall be solid core types with block core and shall conform to IS 2202 (Part I) - 1999, Specification for wooden flush door shutters (solid core type) Part-I Plywood face panels; except with regard to the sizes of shutters which shall be as per site requirement. Flush door shutters shall be non-decorative (commercial) type; or decorative as indicated in BOQ.

(b) Flush door shutters shall be internally lipped. Internal lipping may be provided separately or as one piece with the frame. The width of frame including lipping shall not be less than 50mm. Where separate lipping is specifically desired it shall be so indicated. Internal lipping shall have a total depth of not less than 25 mm. Joints shall not be permitted in lipping.

(c) Flush door shall be free from twist or warp in plane and all the four edges of the door shutter shall be square. Both the faces of the door shutter shall be sanded to a smooth even texture.

(d) Tolerance on nominal thickness shall + 1.2 mm. Thickness of shutter shall be uniform throughout with the variation not exceeding + 0.8 mm when measured at any two points.

(e) The flush shutters shall be obtained from any of the approved manufacturers listed in Appendix 'C'.

(f) The size of the openings and the frames shall be checked and also the verticality of the side frames and the level position of the floor and the wall. Any adjustment necessary shall be made before installation of the shutters. The shutter shall be installed only after the walls on either side have dried.

(g) When driving screws, it is advisable that in case of hard timbers, pilot holes are drilled before fixing the screws. The screws shall be driven tight fit and straight.

(h) Shutters shall be checked after fixing for proper location alignment and swinging. After all the fixtures have been fitted, the shutters shall be tried again for proper closure, handling and movement. Any rectification necessary shall be done immediately.

### 13.3 PARTICLE BOARD :

Plain Particle Board where mentioned in BOQ shall be of wood particle three layered, flat pressed, solid core exterior grade BWR type, bonded with phenol formaldehyde synthetic resin adhesive conforming to IS-3087 all as specified in Clause 12.13 of SSR Part I. Thickness of the board shall be as mentioned in BOQ.

**13.4 VENEERED PARTICLE BOARD (OTHER THAN DOOR SHUTTERS):**

Veneered particle board where indicated/shown in drawing shall be three layered flat pressed solid core exterior grade BWR type with commercial or teak veneer (One side or both sides as shown on drawing) and shall be BWR grade bonded with phenol formaldehyde synthetic resin adhesive conforming to IS-3097 as specified in Clause 12.14 of SSR Part I.

**13.5 PRELAMINATED PARTICLE BOARD:**

Pre laminated particle board as mentioned in BOQ shall be three layered medium density particle board bonded with phenol formaldehyde synthetic resin adhesive with melamine finish, conforming to IS-3087 and IS-12823 Type I and of colour shade, tint and design of the lamination shall be as approved by the GE. Thickness of the board shall be as mentioned in BOQ. The prelaminated particle board shall be of desired colour/shade on one side as approved by GE and other side is balancing white.

**13.6 PLYWOOD FOR GENERAL USE :**

Plywood as mentioned in BOQ shall be BWR grade bonded with phenol formaldehyde synthetic resin adhesive conforming to IS-303 for general purposes plywood and IS-1328 for decorative face plywood and as specified in Clause 12.10 and 12.11 of SSR Part I. Face veneer shall be of teak veneer or commercial veneer as shown on drawing. Thickness of plywod shall be as mentioned in BOQ.

**13.7 MDF BOARD:**

MDF Board as mentioned in BOQ shall conforming to IS-12406-2003 and as specified in Clause 12.6 of SSR Part-I. Face veneer shall be of teak veneer or commercial veneer as mentioned in BOQ. Thickness of the board shall be as mentioned in BOQ.

**13.8 PVC DOORS WITH PVC FRAME FOR WC / BATH / TOILET**

(a) Irrespective of what is shown on drawings, all door shutters and frames of WCs, Bath and toilet shall be of PVC. The dimensions and overall sizes of doors shall be as shown on drawings. PVC door shutters with frames shall be obtained from any one of the manufacturer listed in Appendix 'C'.

(b) The PVC frame and PVC door shutters shall be as shown in drawing No. CEPZ/2005/TD/03 sheet 1/1 and shall be fixed as per manufacturer's instruction. In case dimensions are not specified/shown in drawing, the same shall be provided as under :-

(i)	Solid PVC Frame Single Door	Solid PVC Door Frame shall be of the size 50 x 47 mm made out of 5mm PVC sheet. The door profile is to be reinforced with 19 x 19 mm MS Square tube. EPDM rubber gasket weather seal shall be provided through out the frame. The profile shall be mitre cut at two corners, joined by inserting 2 Nos of 150 mm long brackets of 15x15 mm MS square tube inside the 19mmx19mm MS square tube, and suitably screwed.
(ii)	PVC Shutters	30mm thick Factory made solid panel PVC Door Shutter using prelam PVC sheet consisting of frame made out of MS tubes of 19 mm x 19mm for stiles & 15mm x 15mm for top & bottom rails. MS frame shall be covered with 5mm thick heat moulded PVC sheet 'C' channel having a 5mm thick PVC sheet strip of 20mm width stuck inside with solvent cement, forming stiles and 5mm thick PVC sheets for top rail, lock rail & bottom rail on either side and 10mm (5mm x 2) thick 20mm wide cross PVC sheet as gap inset for top rail & bottom rail. Paneling of 5mm thick PVC sheet to be fitted in the MS frame welded/sealed to the stiles & rails with PVC sheet beading and joined together with solvent cement adhesive etc. shall be complete. The width of stiles & rails shall not be less than 75mm and 100mm respectively. The door shutter shall be fixed to PVC door frame as per manufacturer's door frame as per manufacturers instructions

(c) Shutters shall be in depressed panel design and of colour as approved by GE and shall be include extra reinforcement on edges. The whole shutter shall have resistant to mild acid /alkali. Aluminium/Stainless steel mongry to PVC shutter shall be fixed as per manufacturer's instructions. Any tenderer offering PVC shutter with more thickness of PVC will not be paid any extra cost by the Government.

#### 14.0 **BUILDER'S HARDWARE:**

##### 14.1 **GENERAL**

14.1.1 All articles of builder's hardware shall be new, sound and strongly made, finished to correct shape, free from defects or flaws of any type, shall have smooth action and conform to sample kept in the office of the GE.

14.1.2 Samples of builder's hardware shall be submitted to the GE for approval before ordering in bulk. All articles of builder's hardware shall bear ISI marking. In case any item/fitting with ISI mark is not manufactured then it shall conform to the relevant ISI specifications and/or specifications given in MES Schedule for the relevant item.

14.1.3 Aluminium anodized fittings, where specified in BOQ shall be of extruded sections, aluminium anodized white. Thickness of anodizing shall be 15 microns.

##### 15.0 **GLAZING**

##### 15.1 **SHEET GLASS**

Sheet glass for glazing shall be plain, clear, good quality free from specks, bubbles, smoke wanes, air holes and other defects and shall conform to IS-2835. The thickness of sheet glass shall be all as specified in BOQ. In case thickness not specified the same shall be minimum 4 mm thick.

##### 15.2 **FIGURED GLASS**

(a) Wired glass, wired figured glass and figured glass shall conform to IS 5437- 1994 (Specification for wired and figured glass). These shall not contain any stones with cracks or stones bigger than 2 mm dia.

(b) Each pane of glass shall be in whole piece. Thickness of glass for aluminium doors/ windows shall be 5.5 mm if not specified in BOQ..

15.3 Glazing to windows/vents shall be carried out as per clause 16.10 of SSR Part I. Putty for wood and metal shall conform to IS-419.

#### 16. **DEMOLITION/DISMANTLING, TAKING DOWN AND MAKING GOOD**

16.1 All demolition/dismantling work (except for which separate item is given in Schedule- 'A'/BOQ) required for execution of work mentioned in Schedule-'A'/BOQ shall be deemed to be included in the unit rate quoted. The Contractor shall make good all disturbed surface to match with the existing specification and to the entire satisfaction of the Engineer-in-Charge. All dismantled material except shown in Schedule of credit shall be property of department and shall be handed over in store yard for which no removal shall be payable.

16.2 The Contractor should take necessary precaution for demolition/dismantling to the required shape/size. Contractor without any payment shall make all excess demolition/dismantling and damages caused to existing structure good.

16.3 Rates quoted for demolition/dismantling/taking down/fixed in repair shall include cost of making good, sorting of materials, and their removal as directed by the Engineer-in-Charge.

#### 17.0 **ALUMINIUM DOORS/WINDOWS/VENTILATORS**

17.1 Aluminium members shall be as shown on drawings and shall be powder coated black colour or as approved by GE of makes as given in Appx C'. In case the thickness of aluminium member/sections not shown on drawings the same shall be minimum 2mm thick. The fittings associated with doors and fixing shall be as per manufacturers instructions. The glazing shall be provided all as mentioned in items of BOQ, the thickness of glazing shall be minimum 5.0 mm if not specified. The glass shall be tinted glass conforming to IS.

17.2 PVC neoprene gasket shall be used in the glazing beads and around the shutters of windows, ventilators.

17.3 All Aluminium windows shall be provided with stainless steel mosquito proof jalli of approved quality as specified.

17.4 Aluminium grill shall be of as specified in BOQ and shall be provided with separate channel to window/ventilator externally.

17.5 All Aluminium doors shall be provided with heavy duty floor spring to each leaf of door shutters.

**17.6 Glass panes for windows:**

Glass panes for windows except for toilet windows/ventilators shall be of 5mm thick, float glass of standard makes as specified.

**17.7 Glass panes for Toilet windows/ventilators:**

Glass panes for toilet windows/ventilators shall be of 4mm thick pin-headed glass or frosted glass of standard makes as specified.

**18.0 PRESSED STEEL DOOR AND CUPBOARD FRAMES:** Pressed steel door frames where mentioned in BOQ, shall be as specified in Clause 10.27 of SSR Part-I. Filling in pressed steel frame shall be with PCC (1:3:6) Type C-0 concrete. Mild steel pressed/sheet shall be 1.25 mm thick. Pressed steel frames shall be factory made and shall not be manufactured at site and shall be procured from the manufacturers as mentioned in Appendix 'C'. Each door frame shall be provided with Flat iron stiffener..

**19.0 WATER PROOFING TREATMENT TO SUNKEN SLABS OF TOILET/BATH/WC:**

19.1 The water proofing treatment shall be provided all as specified in BOQ.

**19.2 Guarantee of water proofing treatment of sunken floor treatment**

(a) The contractor shall furnished guarantee in favour of GE for efficacy of water proofing treatment during the guarantee period. The work shall be executed through a specialist firm or authorized applicator and hence the contractor shall obtain guarantee from such specialist firm in his favour. The contractor in turn shall furnish guarantee to GE duly endorsing therewith a copy of guarantee secured by him from specialist firm. The guarantee shall be of 10 (Ten) years from the certified date of completion of the works as per contract.

(b) Any defects(s) / leakage(s) / seepage(s) in the water proofing treatment works executed noticed during the above guarantee period; shall be carried by the contractor forthwith, on demand in writing from the GE specifying that the water proofing treatment of roof of building(s) or sunken floor affected, notwithstanding that the water proofing treatment to the roof or sunken floor might have been invariably passed, certified and paid for, the contractor shall carry out the complete rectification of the defects /leakages / seepages etc during the guarantee period including tiling & all other items and shall make good the entire affected area as originally executed to the entire satisfaction of GE at his own expense during the above guarantee period. In the event of contractor's failure to rectify the defects within a period specified in notice by GE, the rectification of defects in water proofing works including defects/ leakages/ seepages shall be undertaken by GE at the risk and expense in all respect of the contractor.

(c) An amount equal to the 2% enhanced by 25% worked out based on the cost of roof treatment at contract rates towards guarantee shall be retained from the RAR/final bill amount towards security deposit for water proofing treatment of slab and sunken slab and this retained amount will be refunded to the contractor after expiration of the period of 10 (Ten) years from certified date of completion by the GE provided there are no defects/leakage/seepage in the building(s) in respect of water proofing treatment and the contractor shall first have been paid final bill and have rendered "No demand certificate" (IFA-415). Condition 10, 46 and 68 of General Condition of contract (IAFW-2249) shall be deemed to be amended to the extent mentioned above.

(d) The contractor shall ensure water tightness of the entire roofs provided with water proofing treatment during the guarantee period of 10 years and he will be responsible to keep the entire surface of such roofs water tight for a period of 10 years from certified date of completion of work. The contractor is required to inspect and examine the treatment once in every year along with the agency of materials of water proofing treatment as proactive measure for effectiveness of water proofing treatment and to adopt necessary measures to avoid any defects/leakages/seepages from roofs repaired with water proofing treatment.

**20.0 GALVALUME SHEET ROOFING**

20.1 Provide Galvalume sheet roofing at locations all as shown in drawings & as specified in BOQ and hereunder:-

(a) The material in general shall comply with IS: 15965-2012 pre-painted aluminium zinc alloy metallic coated steel strip and sheet (plain) unless otherwise any parameter specifically mentioned hereunder.

(b) The sheet shall be color coated zincalume trapezoidal profile sheet LYSAGHT® Trimdek1015 or equivalent, having nominal 1000-1020 mm effective cover width and nominal 28-30 mm deep ribs with subtle square fluting in the five pan at nominal 201-220 mm centre-to- centre and having thickness of 0.45 mm Base Metal thickness (BMT)/0.5mm Total coated thickness (TCT) complying with IS:513-2008 (corrected upto date) of Grade 550MPa. The sheet shall be metallic hot dip coated with zinc-aluminium alloy (55% Aluminium, 43.5% Zinc, 1.5% Silicon) and finished with resin coat @ 150 gm/sqm total on both surfaces. Coating procedure shall be as per IS:15965-2012. The end ribs shall be designed for anti capillary action to avoid any seepage of water through the lateral overlap.

(c) The profile shall have a minimum weight of 5 kg/sqm in supply width. The side lap shall be as per manufacturer's instructions but shall not be less than one profile. The side fixing arrangement i.e. side lap and end flushing shall be as shown on drawing/approved by GE. Fasteners, crimp at eaves level, end flashing and other components parts shall be of equivalent corrosion resistance property. Ridges shall be with same material, specifications and profile as that of roof sheets and shall be provided with a minimum overlap of 200 mm on roofing sheets on either side.

- (d) The roof sheets shall be supplied in customized cut lengths to cover entire one sloping side. No end lapping is permitted in roof sheets.
- (e) The sheet shall be pre-painted with Polyvinylidene fluoride (PVDF) paint coat as of class 3 durability paint coating as per clause 10 of IS:15965-2012 (QUA-Weather Control Test). The pre-painting shall have a minimum nominal thickness of 20 microns on top side (exterior) and 5 microns on bottom (interior) over primer coat on both surfaces as per specifications of manufacturer. The finished thickness of sheet shall be 0.575 mm – 0.620 mm.
- (f) The colour and profile of galvalume sheet shall be as approved by GE.
- (g) Top sheet and bottom sheet shall have brand marking of the manufacturer giving product details on the back of the sheet at every one metre spacing for confirming genuinity of the material and each coil or package of sheets shall be brought at site with manufacture's tag attached to each coil certifying legibly and indelibly the following:-
- (i) IS No. of the product;
  - (ii) Manufacture's name or trademark;
  - (iii) Material identification /coil number /packet number/batch number, Date of packing etc.
  - (iv) Product dimensions;
  - (v) Number of sheets or mass;
  - (vi) Coating class;
  - (vii) Colour name of top coat; and

## 20.2 Roofing Accessories

- (a) Ridges shall be with same material, specifications and profile as that of roof sheets and shall be provided with a minimum overlap of 200 mm on roofing sheet on either side.
- (b) Roofing accessories i.e. Corner piece apron, eaves/valley gutters, hoopers, ridges, sheet floor connectors etc. shall be of galvalume sheet and of size shape as specified.

## 20.3 Workmanship

- (a) The maximum spacing of purlins for fixing the sheets, minimum side laps & end laps of sheets etc shall be all as per manufacturer's instructions and standard engineering practice.
- (b) To preserve the surface appearance of Galvalume sheets clean and dry gloves shall be used during handling.
- (c) The sheets shall be fixed by means of galvanized self-drilling fasteners as per AS 3566- 2002 Class 3 (12-14 x 55 with EPDM seals). Fasteners shall be provided on all crests of the profile @ minimum 5 fasteners per one square metre of sloping roof area.
- (d) The scope includes material and fixing of roof sheets, ridges, wind ties, fasteners, eves flashing, end flashing, sealing of joints, curves, edges or other accessories with silicon sealant be done as per the standard practice specified by the supplier firm who profiled the steel sheets and for job required for sound engineering practice.
- (e) Care shall be exercised to prevent the sheets from sliding over rough surfaces or each other. Every precaution shall be taken against paint coating damage and contact with water during transit and erection.
- (f) The entire fixing process of galvalume sheets shall be executed through a specialist agency identified by the supplier or as approved by GE.

## 20.4 Testing

- (a) The contractor shall submit the original manufacture's test certificate in connection with Chemical composition of the steel, tensile/yield strength of steel sheet, corrosion resistance (salt spray) test, dimensional (thickness of both base metal and coating), coating adhesion (180 degree bend test), coating test by the way of either Triple spot test to be done by X-ray fluorescent method (as per IS: 12860) or weight loss test conducted in accordance with IS: 15961-2012 etc. and mechanical properties of steel for approval by GE prior to installation and shall also submit manufacturer's guarantee certificate of product conformation of the standard.
- (b) GE shall also carry out independent test as per the test mentioned above from random samples through Govt. approved laboratories/Zonal laboratories as per IS: 15965-20212 as under. The cost of testing, transportation of materials etc shall be borne by the contractor irrespective of the results of testing and no extra claim whatsoever shall be admissible.
- (i) Adhesion Test
    - (a) T-bend Adhesion Test
    - (b) Reverse Impact Resistance Test
  - (ii) Pencil Hardness Test
  - (iii) Scratch Hardness Test
  - (iv) Solvent Resistance Test
- (c) When a part of the test results for physical properties fails to comply with the requirement, a re-test (two more sets of test samples shall be taken for specific test requirements from the same lot) on the relevant items may be carried out to determine whether it is acceptable or not. If any of the re-test samples fail to meet the test criteria of this standard, the entire batch of sheets represented by the samples shall be deemed as not conforming to this standard.

20.5 Makes for Galvalume Sheet shall be as per **Appenix 'C'**.

**21.0 FLY ASH BRICK MASONRY:**

Fly ash brick masonry shall be provided all as specified in BOQ. Visually the bricks shall be sound, compact & uniform in shape and free from visible cracks, warpage & organic matters. The bricks shall be solid with frog 10 to 20 mm deep on one of its flat side. 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 with indigenous fly ash brick making machine and shall be of following specifications :-

**21.1 Technical Specifications**

- (a) Size: 230 x 110 x 70 mm
- (b) Compressive Strength: Avg 7.5 N / Sq.mm. Tolerance shall be as per clause 5.2 of IS: 12894:2002.
- (c) Water Absorption :Maximum 20 %
- (d) Efflorescence :Nil
- (e) Density :Approx. 1700 Kg/m<sup>3</sup>
- (f) Composition by weight :-
  - (i) Cement :-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 contain in ground shape particles – 50 – 55%.
  - (iv) Admixtures: Construction chemicals as per manufacturer’s instructions.
- (g) Thermal Conductivity :0.90–1.05 W/m<sup>2</sup> 0C (0.75 – 0.90 K cal/m<sup>2</sup>hr 0C
- (h) Drying Shrinkage :Maximum Average drying test shrinkage 0.035–0.04 % to be tested as per IS:4139.
- (j) Brick Colour :Grey

21.2 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 manufacturer’s identification mark or initials

**22.0 PVC DOORS WITH PVC DOOR FRAME**

- (a) The dimensions and overall sizes of doors shall be as required at site and the contractor shall be responsible for procuring the frame and shutters of exact size as required at site. PVC door shutters with frames shall be obtained from any of the manufacturer listed in Appendix ‘C’.
- (b) The thickness of PVC frame and shutters shall be as mentioned in BOQ or in absence frame and shutter shall be provided as under:-

(i)	Solid PVC Frame	Single Door	Solid PVC Door Frame shall be of the size 50 x 47 mm made out of 5mm PVC sheet. The door profile is to be reinforced with 19 x 19 mm MS Square tube. EPDM rubber gasket weather seal shall be provided through out the frame. The profile shall be mitred cut at two corners, joined by inserting 2 nos of 150 mm long brackets of 15x15 mm MS square tube inside the 19mmx19mm MS square tube, and suitably screwed.
(b)	PVC Shutters		30mm thick Factory made solid panel PVC Door Shutter using prelam PVC sheet consisting of frame made out of MS tubes of 19 mm x 19mm for stiles & 15mm x 15mm for top & bottom rails. MS frame shall be covered with 5mm thick heat moulded PVC sheet ‘C’ channel having a 5mm thick PVC sheet strip of 20mm width stuck inside with solvent cement, forming stiles and 5mm thick PVC sheets for top rail, lock rail & bottom rail on either side and 10mm (5mm x 2) thick 20mm wide cross PVC sheet as gap inset for top rail & bottom rail. Paneling of 5mm thick PVC sheet to be fitted in the MS frame welded/sealed to the stiles & rails with PVC sheet beading and joined together with solvent cement adhesive etc. shall be complete. The width of stiles & rails shall be more than 3’, 100mm stiles size, and 125mm rails size.

(c) Shutters shall be in depressed panel design and colour as approved by GE and shall be include extra reinforcement on edges. Shutter shall have recesses to take hinge to fix wooden frame. The whole shutter shall have resistant to mild acid /alkali. Aluminium/Stainless steel mongery to PVC shutter shall be fixed as per manufacturer’s instructions. Any tenderer offering PVC shutter with more thickness of PVC will not be paid any extra cost by the Government.

Signature of contractor  
Dated. \_\_\_\_\_

AGE (Contracts)  
For Accepting Officer

Appendix 'A'1.0 CEMENT

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

**A.** Type of cement for the subject work to be procured and incorporated in work shall be as given below

Sl No	Type of work	Type of cement	Remarks
1.	Plain and Reinforced concrete works using concrete grade upto M-30; Plastering; Flooring and Grouting with cement	OPC 43 grade IS: 8112	
2.	Plain and Reinforced concrete works using concrete grade more than M-30 and Cold weather concreting (5 C or below) irrespective of concrete grade	OPC 53 grade IS: 12269	
3.	Hydraulic Structures; Mass concreting and marine structures.	Portland Pozzolana Cement IS: 1489 (Part-I)	Fly-ash based: with increased time for stripping of form work by 50 % as laid down in para 11.3 of IS: 456:2000
4.	Underground Structures; Piles and foundation works in coastal environment; STP; WTP; Chemical Env't etc.	Sulphate Resistant Portland Cement IS: 12330	Specially for situations where concrete is exposed to "Sulphate Attack". Where sulphate concentration measured in terms of SO <sub>3</sub> content exceeds 300 PPM in ground water or 0.2 % in soil, the use of SRPC is recommended *C <sub>3</sub> A is below 5% and 2 x C <sub>3</sub> A + C <sub>4</sub> AF is below 25%.
5.	Marine works; STP & WTP	Portland Slag Cement IS: 455	Alternative to PPC or SRPC specified above.

NOTE:

- (a) Grade of cement shall be as mentioned above  
(b) The contractor can use higher grade cement without any extra cost to the government.

1.2 SOURCE OF PROCUREMENT

A. Cement will be procured by the contractor from any one of following main producer or other manufacturer approved by E-in-C's Branch till date of receipt of tender :-

(a)	The Ramco Cements Ltd. (Formally Madras Cement) (Brand : "RAMCO") (For ALL)	(b)	Ambuja Cement (Brand : "AMBUJA") (For ALL)
(c)	M/s Dalmia Cement (Bharat) Ltd (Brand : "DALMIA", "KONARK") (For ALL)	(d)	The India Cement (For ALL)
(e)	J K Lakshmi Cement Ltd (Brand : "J K LAKSHMI") (For ALL)	(f)	Nuvoco Vistas Corporation Ltd (Formally Lafarge Cement) (Brand : "NUVOCO") (For All)
(g)	M/s Ultra Tech Cement Ltd (Brand: "ULTRATECH") (For ALL)	(h)	The Associated Cement Companies Ltd (Brand : "ACC") (For ALL)
(i)	Saurashtra cement (Brand : "SAURASHTRA") (For ALL)	(j)	Century Cements (Brand : "CENTURY") (For ALL)

(k)	Jaypee Rewa Cement (Brand : "JAYPEE") (For ALL)	(l)	Mangalam Cement Ltd (Brand : "MANGALAM") (For ALL)
(m)	JK Cement (Brand : "J K") (For ALL)	(n)	Orient Cement (Brand : "ORIENT") (For ALL)
(o)	Shree Cement (Brand : "SHREE") (For ALL)	(p)	M/s JSW Cement Ltd. (Brand: " JSW PSC") (For PSC)
(q)	Birla Corporation Ltd (Brand : "BIRLA") (For ALL)	(r)	M/s Kesoram Industries ltd (Brand: " BIRLA SHAKTI") (For OPC 43, OPC 53 & PPC)
(s)	M/s Sagar Cement Ltd. (Brand "Sagar") For: "PSC, PPC, OPC 43 Grade, OPC 53 Grade		

The Contractor shall furnish, the particulars of the manufacturer of cement alongwith the date of manufacture to the Garrison Engineer for every lot of cement separately. The cement so brought shall be fresh and in no case older than 60 days from the date of manufacture. The document in support of the purchase of cement shall be verified by the Garrison Engineer. Before placing the order for supply of cement by the contractor, he shall obtain written approval from the GE regarding name of manufacturer, quantity of cement etc. Cement shall be procured for minimum requirement of one month and not exceeding the requirement of the same for more than two months at a time. The cement shall be consumed in the work within three months after receipt. Cement shall conform to the requirement of Indian Standard specification and each bag of cement shall bear relevant ISI certification mark. The weight of each consignment shall be verified by the GE and recorded. The content of cement shall be checked at random to verify the actual weight of cement per bag. However the content of cement per bag shall be 50 Kg only subject to tolerance given in clause 9.2.2.1 and Annexure 'B' of IS -8112 of 89.

### 1.3 TESTING OF CEMENT

(A) The contractor shall submit the manufacturer's test certificate in original alongwith test sheet giving the result of each physical test as applicable and the chemical composition of the cement or authenticated copy thereof, duly signed by the manufacture with each consignment, as per the following IS provision :-

- Method of sampling hydraulic cement as per IS-3535-1986.
- Method of physical test for hydraulic cement as per IS-4031.
- Method of chemical analysis of hydraulic cement as per IS-4032-1985.

The test certificate and test sheet shall be furnished with each batch of cement. The Engineer- in-Charge shall record these details in cement acceptance register to be maintained by him, which will be signed by JE (Civil), EIC, GE and the Contractors as given in the format hereinafter for verification.

(B) The contractor shall however, organise setting time and a compressive strength test of cement through designated laboratory on samples collected from the lot brought at site before incorporation in work. The contractor will be allowed to use the cement only after satisfactory compressive strength of seven days. To meet this requirement Contractor is required to keep minimum 20 days stock before any new lot brought at site which can be used in the work. The Contractor shall be required to remove the cement not meeting the requirement from site within 24 Hours. Seven day strength test will be relied upon to accept the lot of cement to commence the work. However 28 days compressive strength test will be the final criteria to accept/reject the lot.

(C) The GE shall carryout independent testing as per the tests mentioned in the 'CEMENT SUPPLY/ACCEPTANCE FORM' (Annexure 'A') of random samples of cement drawn from various lots, if sample fails in 7 days compressive strength, the testing shall be carried out through National Test House/ SEMT/ CME/ Regional Research Laboratories/ Govt. approved Laboratories/ Zonal laboratories/ as per IS -3535-1986 (Method of sampling hydraulic cement) and IS-4031 (method of physical test for hydraulic cement) and IS-4032-1985 (method of chemical analysis of hydraulic cement) referred to above . The decision as to where the testing of cement is to be done shall be taken by GE. In case the cement is not of requisite standard despite manufacturer's test certificate, the contractor shall remove the total consignment from the site at his own cost after written rejection order of the consignment by the GE.

(D) The random samples as per relevant IS shall be selected by GE before carrying out testing. The record of such samples selected by the GE for testing shall be properly maintained in the 'cement Testing Register' giving cross reference to relevant consignment of cement and quantity received etc.

1.4 **TESTING CHARGES** : Cost of transportation of samples to the approved laboratory / test house and all testing charges including cost of sample shall be borne by the contractor.

(A) The contractor shall be required to set up adequate testing facilities at site to entire satisfaction of Garrison Engineer for conducting setting time test and compressive strength test as per IS codes referred to herein before for the samples collected from the lot brought at site. The tests shall be carried out jointly within 7 days of receipt of cement at site. These tests can alternatively be carried out at the Zonal Laboratory or any other recognized Laboratory so designated by GE. The entire cost of testing shall be borne by the contractor irrespective of the fact that the result are satisfactory or not. Recovery at the under mentioned rates shall be made for tests carried out in Zonal Laboratory of MES :-

- (a) Setting Time. : Rs. 100 per test per sample of cement.
- (b) Compressive strength for : Rs. 300 per sample of three cubes.  
sample of three cubes.

1.5 The Contractor shall submit original purchase vouchers for the total quantity of cement supplied under each consignment to be incorporated in the work. All consignments received at the work site shall be inspected by the GE alongwith the relevant documents to ensure the requirements as mentioned hereinbefore, before acceptance.

The original purchase vouchers and the test certificates shall be verified for subject contract and defaced by the Engineer-in-Charge and kept on record in the office of the Garrison Engineer duly authenticated and with cross reference to the consignment / control number recorded in the Cement Acceptance Register. The cement Acceptance Register shall be signed by the Junior Engineer (Civil), Engineer -in-Charge, GE and the Contractor. The Contractor shall maintain schedule of supply of cement for each consignment. Cement when tested as per IS 4031, initial setting time shall not be less than 30 minutes and final setting time shall not be more than 600 minutes.

(B) The Accepting Officer may order a board of officers for random check of cement and verification of connected documents during the currency of contract.

#### 1.6 **STORAGE/ ACCOUNTING AND PRESERVATION OF CEMENT**

(A) Cement shall be stored In covered godown over dry platform at least 20 cm high in such a manner as to prevent deterioration due to moisture or intrusion of foreign matter. In case of store room, the stack should be at least 20 cm away from floors and walls. The stacking of cement shall be done as specified in relevant IS. The storage accounting and preservation of cement supplied by the Contractor shall be done as per standard engineer practice till the same is incorporated in the work and the cost of the same shall be deemed to be included in the unit rates/ amount quoted by the tenderer.

The Engineer - in - Charge shall inspect once a day to verify that cement lying at site is stored, accounted preserved and maintained as per norms. The cement shall be stored so as to differentiate each tested and untested consignment separately with distinct identifications. If the GE is not satisfied with the storage /preservation of cement, he may order for any test(s) of cement as applicable for that consignment to ensure its conformity to the quality mentioned in the manufacturer's test certificate. The Contractor shall bear the cost of necessary testing (s) in this regard also and no claim whatsoever shall be entertained.

Staking of cement shall done as per relevant IS and as under :-

- (a) Each cement consignment shall be stacked separately and removal shall be made on the basis of 'First In First out'.
- (b) Adequate top cover will be provided.
- (c) Stacks in no case shall be higher than 12 bags. The maximum width of each stack shall be 3.0m. If the stack is to be more than 7 or 8 bags high, the bags shall be arranged in header and stretcher fashion, ie. alternately lengthwise and cross wise so as to tie the piles together and lesser the danger of topping over.
- (d) Adequate space shall be kept between two stacks.

(C) Cement godown shall be provided with two locks on each door. The key of one lock of each door shall remain with the EIC or his representative and that of the other lock with the Contractor's authorised agent at site of works so that cement is removed from the godown only according to daily requirement with the knowledge of both the parties. During the period of storage if any cement bag (s) found to be in damaged condition due to any reason whatsoever, the same shall be removed from the cement godown on written orders of the GE and suitable replacement for the cement bag(s) so removed shall be made and no claim whatsoever shall be admissible on this account.

(D) The Contractor shall procure the cement timely as required in accordance with CPM agreed between GE and the Contractor. The Contractor will forfeit his right to demand extension of time if the supply of cement got delayed due to his failure in placing order in time to the manufacturer.

(E) Cement shall be removed from the store only according to daily requirement with the knowledge of both the parties and daily consumption of cement shall be recorded in cement consumption register which shall be signed by the Engineer-in-Charge and the contractor. Cement constants given in Appx 'A' to E-in-C's Branch letter No. 19280/E8 dated 03 May 1976 shall form the basis of consumption of cement for various items of works unless specifically indicated otherwise.

(F) In case the consumption of cement as per cement consumption register is found to be more than the estimated quantity of cement due to whatsoever reason, the contractor shall not have any claim whatsoever for such excess consumption of cement.

#### 1.7 MEASUREMENTS AND PAYMENT OF CEMENT

(A) The entire quantity of cement brought at site shall also be suitably recorded in the measurement Book for record purposes as 'Not to be abstracted' before incorporation in the work and shall be signed by the Engineer-in-Charge and the Contractor.

(B) The payment shall only be allowed after production of original purchase vouchers, certified copies of test certificates from the manufacturer for each consignment and results of testing carried out in laboratory on receipt of cement (7 days compressive test) are found satisfactory after testing as specified hereinbefore. Cement shall be paid as material lying at site as per Condition 64 of IAFW-2249. Rate of cement given in SSR shall be applicable for cement irrespective of grade of cement specified for use in the work.

#### 1.8 PORTLAND POZOLANA CEMENT:

Portland Pozolana Cement conforming to IS:1489 of 1991 and shall be procured by contractor at his own cost. Portland Pozolana Cement shall not be used for water retaining structures.

25.8.1 The following condition shall have to be satisfied before PPC can be allowed to be used in the work :-

- (a) PPC should meet the strength criteria of 43 grade OPC as laid down IS 8112 – 1989.
- (b) The minimum period before striking off form work while using PPC shall be as given in PS clause here-in-after.
- (c) In cold climate region where temperature is lower than 15 degree Centigrade only OPC shall be used.
- (d) Mixing of OPC & PPC shall not be allowed in a work. However with the strict control of ground executives different building can have different types of cement.
- (e) While procuring PPC, the following requirement are to be ensured and certificate to the effect is to be obtained by the contractor for each batch from the manufacturer and the same shall be submitted to the GE for approved to procure PPC.
  - (i) The quality of fly ash is strictly as per IS-1489 (Part I) -2002.
  - (ii) Fly ash is inter ground with clinker not mixed with clinker
  - (iii) Dry fly ash is transported in closed containers and stored in silos. Only pneumatic pumping should be used.
  - (iv) The fly ash received from thermal power plants using high temperature combustion above 1000 degree centigrade should be used."

Signature of contractor  
Dated. \_\_\_\_\_

AGE (Contracts)  
For Accepting Officer

Annexure `A`

**CEMENT SUPPLY AND ACCEPTANCE FORM**

Contract No. :  
 Name of Work : :  
 Control No. : Date:  
 Details of purchase:  
 (i) Particulars of manufacturer :  
 (ii) Details of supplier (if any) :  
 Details of test certificate:  
 (i) No. and date :  
 (ii) Particulars of Issuing Authority :

Sl. No.	Nomenclature	IS ref	Sampling as per IS-3535-1980	Physical test as per IS-4031	Chemical analysis as per IS-4032	Remarks
1	2	3	4	5	6	7
*As ordered  Remarks with Signature JE Engineer-in-Charge Contractor Accepted/Rejected Remarks of GE/Inspecting Officer/CE						

Signature of contractor  
 Dated. \_\_\_\_\_

AGE (Contracts)  
 For Accepting Officer

**STATION: MUMBAI SOURCE OF LOCAL MATERIAL**

- (a) Bricks : Local (Best Quality).  
(b) Stone for masonry/ Road : Local (Best Quality).  
(c) Crushed Stone aggregate for concrete : Local (Best Quality).  
(d) Crushed Sand. : Local (Best Quality).

**NOTES:**

(i) Sources indicated above are for guidance only. The contractor may at his discretion procure materials from other sources without any extra cost to Govt. provided they conform to / are superior to the samples of materials kept in GE's office and source is approved by GE.

(ii) Sources of materials shall be as given as above or in the vicinity there of. The tenderer shall ascertain the actual position / exact location of source before submitting his tender and no additional payment shall be made on account of misunderstanding for its distance from site of works.

(iii) The tenderer shall amongst other things also ascertain all information such as royalties, taxes, duties and other charges etc, on the materials and no additional payment shall be made on account of the foregoing.

**Signature of contractor  
Dated.**

**AGE (Contracts)  
For Accepting Officer**

## APPROVED LIST OF PRODUCTS AND MAKES/BRANDS/MANUFACTURERS

Ser No	Items		Make/Brand/Manufacturers
1	2		3
	<b><u>B/R ITEMS</u></b>		
	<b><u>Concrete</u></b>		
1	Ready Mix Concrete (RMC)	1	Lafarge
		2	Ultra Tech
		3	ACC
		4	RMC Ready Mix
		5	Ramco
2			<b>Blank</b>
3	AAC Block	1	Siporex
		2	HIL Limited (Birla AEROCON)
		3	Greenway Building Materials
		4	DLITE blocks
4	Ready Mix Plaster		M/s ACC Accoplast
			M/s Ultratech Readiplast
			M/s Magicrete Magicplast
			M/s CK Birla's AEROCEN
5			Blank
6			Blank
7			Blank
8			Blank
9			<b>Blank</b>
	<b><u>Joinery</u></b>		
10	Factory made Wooden Shutter	1	M/S Goel Brothers, Raipur
		2	M/S Pioneer Timber, Chandigarh
		3	M/S Goyal Industries, New Delhi
		4	M/S Jain Doors Pvt Ltd, Haryana
		5	M/S India Wood & Wood P Ltd Mangalore
		6	M/S MP Wood Products, Indore
		7	M/S A1 Teak Products, Indore
		8	Prince timber
		9	Indian timber product
		10	M/s Doorking Industries
11			Blank
12	Factory made PVC, FRP Shutters and Frames	1	M/S Rajshri Plastiwood, Indore (Rajshri)
		2	M/S Sintex Industries Ltd (Sintex)
		3	M/S Accura Polytech (Accucel)
		4	M/S Dura Plast Extrusion (Duraplast)
		5	M/S Madhu Industries (Madhu Industries)
		6	M/S Navratna Co Specialty Chemicals(GIZA)
		7	M/s Engco Industries Jodhpur
		8	M/s Selected Products (SPC)
		9	M/s Janik Developers
		10	M/s Kumar Arch Tech Pvt Ltd (Echon)
		11	M/s Maica Plstiwood

Ser No	Items		Make/Brand/Manufacturers
1	2		3
13	UPVC Doors, Windows & Ventilators	1	M/s Poly Windows, Pune
		2	M/s Aparna Profiles Pvt Ltd
		3	M/S Rajshri Plastiwood
		4	M/S Madhu Industries
		5	M/s Asprapiya UPVC Tech Pvt Ltd
		6	M/s Accura Polytech Pvt Ltd
		7	M/s Maica Plstiwood
14	Steel windows/ ventilators/Door frames and shutters	1	M/s Madhu Industries
		2	Jangid Engineering Jaipur
		3	Decan Structural Pvt Ltd Bangaluru
		4	Chandni Industries
		5	Ashwani & Sons
		6	Anoop Industries
		7	Trisul Industries
		8	Ashish Industries
15			Blank
16			Blank
17	WPC Boards	1	Rajshri Plasti Wood
		2	Navratna specialty Chemical
		3	Kumar Arch Tech Pvt Ltd.
		4	Maica Plstiwood
18	Rolled Formed GI Section Pre-Painted/Pre- Coated Windows	1	M/s NCL ALLTEK & SECCOLOR
		2	Elexir Met
		3	Ashwani & Sons
19	Aluminium section of shutters/ frames for door/window/ ventilator	1	Hindalco Ind Ltd
		2	Indaian (Indian Al Company)
		3	Jindal
		4	Associated profile & Alum Ltd.
		5	Sterlite
		6	Bhoruka Alum Ltd
		7	Architecture incorporation Chennai
		8	M/s Deco Grill
20	Venetian Blinds	1	Vista Levolor
		2	MAC
		3	Aerolux
	<b><u>Builder's Hardware</u></b>		
21	Hydraulic Door Closure	1	Everlite
		2	Universal
		3	Hardwin
		4	Dyna
		5	Ranjan
		6	Kelin
		7	Amar Engg & Co New Delhi
		8	Prabhat Door King
		9	Perfect Hydraulic
22			Blank
23	Stainless Steel Plate Rack	1	Prayag
		2	Nirali
		3	Bluestar Sanitary Industries Pvt Ltd. (Silver Shine)
		4	Selected Products Co.
24	Towel Rails	1	Jaquar
		2	KICH
		3	Swastik
		4	Crown
		5	Prayag
		6	ESS ESS

Ser No	Items	Make/Brand/Manufacturers	
1	2	3	
25	Mortice Locks	1	Harrison
		2	Godrej & Boyce Co Ltd
		3	RP Lock Co. Delhi
		4	KICK
26	Drapery Rod	1	Vista Levolor
		2	MAC-DECOR
		3	Sophia
	<u>Roof Covering</u>		
27	Mangalore Tiles	1	Charminar
		2	Raja
		3	RECHO
		4	Prajapati
		5	Kerela Tile Wks
		6	Trisur
		7	Mari Tiles Works Kawiyoor
		8	Saint Anthony's, Muvattupuzha Ernakulam
		9	M/s Haessika Decorative Tiles
28	Non Asbestos Fibre Reinforced (Polypropylene), 6mm Cement Corrugated Sheets	1	Everest Industries Ltd (EVEREST)
		2	Charminar Fortune
		3	RAMCO Indus Ltd (RAMCO)
29	Pre-Painted Galvalume/ Galvanized Corrugated Steel Sheets	1	TATA
		2	JSW
		3	ESSAR
		4	Metco Roof Pvt Ltd
		5	MB Engineering
30	Galvanised Plain/ Corrugated Steel Sheets	1	TATA
		2	JSW
		3	ESSAR
		4	Indian Steel Corpn Ltd
		5	National Steel & Agro Industries Ltd
31	Blank		
32	Blank		
33	Water Proofing Compound	1	Pidilite Industries Ltd
		2.	Sico
		3	FOSROC
		4.	M/s Excot
		5	Dr Fixit
		6.	M/s Imermo
		7	M/s Super/acqua-cerum (I) Ltd
34	APP Membrane	1	STP Ltd
		2	Texsa India Ltd
		3	IWL India Ltd
		4	TIKI Tech
	<u>Ceiling and Linings</u>		
35	Perforated particle board/tiles for insulation and acoustic/GRG/ GI metal	1	Anchor Ceiling Tiles
		6.	Eternite
		2	Armstrong Wood Ind.
		7.	Aerolite
		3	Bison Panel
		8.	STP
		4	Lagyp
		9.	S.N. Industries
		5	Gypboard
		10.	Diamond Ceiling
36	PVC False Ceiling, Wall Lining & Solid PVC Partitions	1	Rajshri Plastiwood (Rajshri)
		2	Kumar Arch Tech (Echon)
		3	Navratna specialty Chemicals (Giza)
		4	Accura polytech pvt Ltd. (Accucel)
		5	M/s Maica Plstiwood

Ser No	Items	Make/Brand/Manufacturers	
1	2	3	
37	<b>Plywood</b>	1 Kitply	6. Swastik
		2 Century Plywood	7. Indian plywood
		3 Archidply	8. Bhutan Board
		4 Green Ply	9. Jain wood industries
		5 Anchor	10. Maica Plstiwood
38	<b>Particle Board Gypsum</b>	1 Mangalam Timber Product	
		2 Gypsum Board	
		3 Jolly BD, Mumbai	
		4 Indian Gypsum product	
		5 Armstrong World Industries	
		6 Anchor Bombay	
		7 Indian Plywood	
		8 Board Gypsum India	
		9 Arolite costing system	
		10 Associate Decor Ltd.	
39	<b>Laminated Sheets</b>	1 Formica	6 Kitlam
		2 Sun Gloss	7 Nova Teak Super
		3 Sunmica	8 Green Lam
		4 BackliteHylum	9 Nova Pan
		5 ECO Board	
40	<b>Adhesives</b>	1 Pidilite	
		2 Fevicol	
		3 Vamicol	
		4 Armacell Pvt Ltd.	
41	<b>Pre-laminated Particle board/ MDF board</b>	1 Novapan	7. Bhutan Board
		2 Eco Board Industries, Pune	8. Archid Ply
		3 Kitply	9. Archid board
		4 Anchorlam	10. Associated Décor Ltd
		5 Century Plywood	11. Green Ply Indus Ltd.
		6 Green Ply	
42	<b>Block boards / Veneered particle board</b>	1 Bajaj Boards	8. Lotas
		2 NU Wood	9. Swastik
		3 A-1 Boards	10. Duralupp
		4 Bhutan Board	11. Jain Wood Ind.
		5 Charminar	
		6 Kitply	
		7 Green Ply Industries Ltd	
	<b><u>Floor finishes and Pavings</u></b>		
43	<b>Glazed Ceramic wall flooring tiles</b>	1 Johnson Tiles	8. Asian Granite Ind Ltd
		2 Kajaria	9. Spark Tek
		3 Somany	10. Regency
		4 AGL Tiles	11. Murudeshwar Ceramics
		5 RAK Cement Ltd.	12. Oasis vetrified Pvt Ltd
		6 Orient Bell Ltd	13. Qutone ceramic Pvt Ltd
		7 Sunshine tiles Co Pvt Ltd.	14. Varmora granite Pvt Ltd.
			15. Aparna Enterprises

Ser No	Items		Make/Brand/Manufacturers
1	2		3
44	Non-skid Ceramic tiles/Ceramic tiles	1	Johnson Tiles
		2	Kajaria
		3	Somany
		4	Orient Bell Ltd
		5	Naveen Tiles
		6	Spartek
45	Vitrified Tiles	1	Johnson marbonite
		2	Kajaria
		3	Somany
		4	Asian Granite Ltd
		5	RAK Ceramic Ltd
		6	Orient Bell Ltd
		7	Murudeshwar Ceramics
		8	Bell Granito
46	Mosaic/Cement Flooring Tiles	1	M/S Mehatab Tiles, Indore
		2	National Tiles
		3	Bharat Tiles and Engg Coy, Bangalore
		4	Modern Tiles and Marbles Bangalore
		5	M/s NITCO, Mumbai
		6	Ultra
		7	Duracrete
		8	Gwalior Granite
47	Acid Resistant Tiles	1	M/S Johnson, Mumbai
		2	Somany
		3	Kajaria
		4	M/S Burn Standard Co, Jabalpur
		5	M/S Purshottam Pottery Wks, Marvi
		6	Coromandarl Products.
		7	Iswar Industries Delhi
		8	Regency Caramics
		9	Duracrete
48	Cement Concrete Interlocking Paver Blocks / Tiles	1	MehtabTiles , Indore
		2	Ultra Tiles
		3	Navya Tiles, Jodhpur
		4	NITCO
		5	Patel Furniture Mart
		6	Topaz Tiles
		7	SAP Paver Jodhpur
		8	Sagar Tiles Saharanpur
		9	CEME
		10	Swami Tiles
		11	Sukhi Enterprises
		12	Supreme Tiles
		13	Luck Cement Block Works
		14	Vaishnavi Developers

Ser No	Items		Make/Brand/Manufacturers
1	2		3
49	PVC Sheet and tile flooring	1	Krishna Vinyl Tiles
		2	Armstrong
		3	M/S Marblex Tiles
		4	Polyfin Tiles
		5	Square Foot
50			Blank
	<b><u>White washing. Colour washing &amp; Distempering</u></b>		
51	Distemper Oil Emulsion	1	Nerolac
		2	Berger Paints
		3	Akzo Nobel (Dulux)
		4	Asian Paints
		5	Shalimar Paints
		6	Johnson & Nicholson
		7	Jotun
		8	Garware Paints
52	Plastic Emulsion Paint and Exterior Emulsion Paint	1	Asian Paints
		2	Berger Paints
		3	Nerolac
		4	Akzo Nobel (Dulux)
		5	Shalimar Paints
		6	Johnson & Nicholson
		7	Pidilite Weatherproof
		8	Jotun
53	Weather proof exterior acrylic emulsion paint	1	"APEX ULTIMA" of Asian Paints
		2	"WEATHER COAT ALL GUARD" of Berger Paints
		3	"EXCEL TOP GUARD" of Nerolac
		4	"DULUX WEATHERSHIELD MAX" of ICI India
54	Cement Base Paint	1	Super Snowcem
		2	Duracem
		3	Aquacem
		4	Shalimar Paints
		5	Berger Paints
55	Cement Putty (Wall Care Putty)	1	Birla Cement
		2	JK White
		3	Asian Paint
		4	Johnson & Nicolson
		5	Shalimar Paint
		6	Golden Mohar
	<b><u>Glazing</u></b>		
56	Sheet glass plain/Sheet glass frosted	1	Saint Gobin
		2	Asahi
		3	Atul Glass Industries
		4	Gold Fish
		5	Modi Guard
		6	Hindustan Pilkington Glass
		7	Trupti
		8	Modi Float

Ser No	Items		Make/Brand/Manufacturers
1	2		3
57	Heat absorbing glass & reflective solar control film	1	Hindustan Pilkington Glass works
		2	Saint Gobin
		3	Modi Float
		4	Modiguard
58	Rough cast wired glass	1	Hindustan Pilkington Glass works
		2	Saint Gobin
		3	Modi Float
		4	Modiguard
59	Oil Putty	1	Jenson & Nicolson
		2	Asian
		3	Burger
		4	Shalimar
60	Mirror	1	Modi
		2	Atul
		3	Saint Gobain
		4	Gold Fish
61	Painting Synthetic Enamel Paint	1	Asian Paints
		2	Nerolac Paints
		3	Dulux ( Akzonobel)
62	PVC Water Tanks/Polythylene	4	Johnson & Nikalson
		5	Jotum
		6	Shalimar
		1	Sintex Indus
		2	Polycon Jaipur
		3	Rotex
		4	Plasto Nagpur
		5	Polywell
		6	Carris pipes tubes Pvt Ltd
		7	Okey Polymers Pvt Ltd
		8	JS Polyplast
		9	Ergen Plastic Indus Jodhpur
		10	Vectus Industries Ltd.
		11	Ashish Plast
		12	Piyush Plasto Chems Pvt Ltd.
		13	Simplex Plast
14	Kaveri Plasto		
15	Rotamatic Containers Pvt.		
16	Sparsh Pearl		
63	Blank		
64	CP Bib Cock, Stop cock, pillar cock & accessories	1	Jaquar
		2	Marc
		3	CERA
		4	Kohler
		5	Soma
		6	Dhawan Sanitary Udyog
		7	Sparsh Pearl
65	Copper/Brass Alloy Bib Tap, Pillar Tap, Angle Valve and Stop valves & accessories	8	SIECO Indus
		9	GEM
		10	Mohan Metal Industries (Koroner)
		11	Shakti Enterprises
		12	PRISM Johnson Ltd
		13	Topsan
		1	Soma
		2	Leader
		3	Zoloto
		4	Jaquar & Co Pvt Ltd (JAQUAR)
		5	Shree Balaji Industries Ltd (Glacier)
		6	Plasto craft sanitary Pvt Ltd (Kingston)
		7	Vardhaman Ent (Jainko)
8	KS Engg Wks		
9	Aluminium Udyog (Kunchal)		
10	Shakti Enterprises		
11	Dhawan Sanitary Udyog		
12	Goel Singh Pvt Ltd.		
13	Prayag Polymers		
		14	Topsan

Ser No	Items		Make/Brand/Manufacturers	
1	2		3	
66	PVC Stop Cock and Bib Cock/ Float Valves & Accessories	1	Jaypee	7. GEM
		2	GMP	8. Hansaking Son
		3	Neta	9. SEIKO
		4	Zolota	10. Ajanta Polymers (Millenium)
		5	Prayag Polymer	11. Shakti Enterprises
		6	Symet	12. Procision Products (Pearl)
67	Gun-Metal Globe or Gate Valves/ Angle Valves	1	Leader	6. Shakti Enterprises
		2	Bir	7. Dashmesh
		3	Zoloto	8. Chambal
		4	Kirloskar	9. Kartar
		5	Balaji	10. Valco International
68	Shower Rose	1	Jaquar	6. Kingston
		2	CERA	7. Meera
		3	Crabtree	8. MARC
		4	Kohler	9. Prisan Johnson Ltd.
		5	Parko	10. ESS ESS
				11. Soma
69	CI/ Brass Ball Cocks (Float Valves)	1	Leader	
		2	NETA	
		3	Zoloto	
		4	Dhawan Sanitary Udyog (Prima)	
		5	Aarko Pipes gramodyog	
		6	Prayag Polymers	
70	Water Closet -Vitreous China (European/ Indian)/ squatting pan Orissa pattern	1	CERA Sanitary Wear	8. Prayag Polymers
		2	RAK Ceramics	9. Nyvelli ceramics
		3	Parryware	10. Simpolo vitrified
		4	Jaquar	11. Glint Faucets
		5	Hindware	12. Ambani Vitrified
		6	Johnson	13. Somani Ceramics
		7	Kajaria (KEROVIT)	
71	Flushing Cistern - PVC Low Level including Flush Valves & Fittings for WC and Urinals	1	M/S Johnson Peddar	9. RS Industries
		2	Parryware	10. Ajanta Polymers (Millenium)
		3	RAK Ceramics	11. Shakti Ent.
		4	CERA	12. Sparsh Pearl
		5	Neycer	13. Goyal Singh (I) Pvt Ltd
		6	Jaquar	14. Ambani Vitrified
		7	Prayag Polymers	15. Commander
		8	Speed Flo	16. Topsan
72	Plastic Seat Covers for EWC	1	CERA	6. Champion
		2	Parryware	7. Sped flow
		3	Neycer	8. Prayag Polymers
		4	RAK ceramics	9. Commander
		5	Duralite	10. Ajanta Polymers
73	Urinals - Vitreous China	1	CERA	8. Singh Polo vitrified pvt Ltd
		2	Parryware	9. Shakti Ent
		3	Neyveli Ceramics (Neycer)	10. Ambani vitrified
		4	Hindware	11. Prayag Polymers
		5	Johnson	12. Somani ceramics
		6	Jaquar	
		7	Kajaria (KEROVIT)	
74	Wash Basin - Vitreous China	1	CERA	8. Shakti Ent
		2	RAK Ceramics	9. Prayag
		3	Parryware	10. Johnson
		4	Hindware	11. Sipholo vitrified
		5	Neyveli Ceramics (Neycer)	12. Somani ceramics
		6	Jaquar	13. Ambani vitrified
		7	Kajaria Sanitary Wear (KEROVIT)	14. Glint Faucet Inc.

Ser No	Items		Make/Brand/Manufacturers	
1	2		3	
75	Stainless steel Sink / Stainless Steel Sink with draining board	1	Jayna	7. Prayag
		2	Nirali	8. Phonix
		3	Neelkant	9. Plasto Craft sanitary
		4	Parryware	10. Goel Singh (I) Pvt Ltd
		5	Diamond	11. Blue star sanitary Indus (Silver shine)
		6	Shakti	12. Topsan
76	Steel Rolling Shutters/ Grills & Collapsible Gates	1	Shree Lakshmi EnggWks, Bangalore	
		2	M/S Prakash & Co, New Delhi	
		3	M/S Senthil Rolling Shutters & Engg Co, Chennai	
		4	M/S Swastik Rolling Shutters, Mumbai	
		5	M/S Jayaraj Industries, Chennai	
		6	M/S Darshan Rolling Shutters, Nasik	
		7	M/S Shalimar Rolling Shutters & Co.	
		8	M/S Ganesh Rolling Shutters Hyderabad	
		9	M/S Shapana Dock & Steel	
77	CI Pipe and fittings	1	Electro-Steel Casting Ltd	
		2	Kejriwal	6. Kalinga
		3	NECO	7. Babulal Bajaj Iron Foundry
		4	Kesoram	8. True Form Engineers
		5	Kapilansh	
78	GI Pipes & Fittings	1	Tata	5. KS Engineering Works
		2	Jindal	6. Zenith
		3	BST	7. Swastik
		4	Surya	8. Prakash
79	DI Pipes & Fittings	1	Jindal Ltd, Gujrat	6. AARKO Pipe gramodyog
		2	Electrosteel Castings Ltd, W.B.	7. True form Techno Products Ltd
		3	Tata Metalinks, Kolkata	8. True form engineers
		4	SAW pipes	9. Jai Balaji Industries Ltd.
		5	Electro Therm India Ltd	
80	MS Pipes & Fittings	1	Tata	5. Surya
		2	Jindal	6. BST
		3	Swastik	7. Zenith
		4	Prakash	
81	HDPE Pipes & Fittings	1	Finolex	6. M/s Kissan Irrigation & Infrastructure Ltd (Kissan)
		2	PRINCE pipes fittings Ltd (Corefit)	7. Kisan
		3	Supreme	8. R.C. Plasto industries
		4	JAIN IRRIGATION SYSTEM	9. Triputi
		5	SFMC	
82	CPVC pipes and fittings (Chlorinated polyvinyl chloride)	1	FINOLEX	9. Ashirwad pipes pvt Ltd
		2	Dutron	10. Ajay Slow guard Delhi
		3	SFMC	11. Prayag polymers (P) Ltd.
		4	Birla Aerocon	12. HSIL Ltd
		5	Prince pipes & fittings Ltd (Smartfit)	13. Fusion Industries
		6	Vectors Industries Ltd	14. R.C. Plasto Industries
		7	Ajay Industrial corporation Ltd.	15. AVON plastics Industries pvt Ltd.
		8	SFMC	

Ser No	Items		Make/Brand/Manufacturers	
1	2		3	
83	PVC - Soil, waste, rainwater (SWR) & Drainage pipes	1	Supreme	5. Dinesh
		2	PRINCE (Ultrafit)	6. Amogh Plast
		3	Kisan	7. Astron Plastic
		4	Finolex	
84	PPR Pipes & Fittings	1	PRINCE pipes & fittings Ltd (Greenfit)	5.Kanha plastics Pvt Ltd.
		2	Finolex	6. Vectus Industries Ltd.
		3	Supreme	7. Fusion Industries
		4	SFMC	8. SHK Polymers Industries
85	PVC Pipes & Fittings	1	PRINCE Pipes & Fittings Ltd (Aquafit)	5. Kissan Irrigation & Infrastructure Ltd
		2	Finolex	6. G.M. Modular Pvt. Ltd.
		3	Supreme	7. AVON Plast (IND) Pvt Ltd
		4	HIL Limited (Birla Aircon)	10. Ajay Industrial Corpn Ltd (Greenline)
86	UPVC Pipes & Fittings	1	PRINCE Pipes & fittings Ltd. (Aquafit)	11. Kisan Mouldings Ltd
		2	Finolex	12. Vectus Industries Ltd.
		3	Supreme	13. Ashirwad Pvt Ltd
		4	HIL Limited (Birla Aircon)	14. CRI Pumps Pvt Ltd
		5	Kissan Irrigation & Infrastructure Ltd.	15. HSIL Ltd
		6	SFMC	16. Fusion Industries
		7	Kana Plastics Pvt Ltd	17. RC plasto industries
		8	Saro Varan Industries	18. AVON plastics Industries
		9	AKG Extrusion Pvt Ltd.	
87	UPVC Pipes & Fittings for SWR	1	PRINCE Pipes & fittings Ltd. (Aquafit)	8. AKG Extrusion Pvt Ltd.
		2	Finolex	9. Kisan Mouldings Ltd
		3	Supreme	10. Vectus Industries Ltd.
		4	HIL Limited (Birla Aircon)	11. CRI Pumps Pvt Ltd
		5	SFMC	12. HSIL Ltd
		6	Kana Plastics Pvt Ltd	13. RC plasto industries
		7	Saro Varan Industries	14. AVON plastics Industries
88	Polyethylene/Aluminium/Polyethylene Composite Pressure Pipe	1	PRINCE	3. Supreme
		2	Finolex	4. Vectus Industries Ltd
89	CI-Soil, waste, rainwater (SWR) & Drainage pipes	1	NECO, Nagpur	5. Kapilansh Nagpur
		2	SKF (Singhal Iron Foundry, Mathura)	6. Anand Fouders&Engg
		3	Bengal Iron Company	7. Raj Pattern Makers Founders (RPMF)
		4	Dhatu Udyog	
90	AC – Soil, waste, rainwater (SWR) & Drainage pipes	1	M/S Everest Asbestos Hyderabad	6. Asbestos Cement Ltd
		2	Visaka Ind Ltd	7. Sarvmangala mfg Kolkatta
		3	M/S Hyderabad Asbestos (Charminar)	8. Rohtas Indus Dalmia Nagar
		4	M/S Ramco	9. Swastik
		5	Rajastan Asbestos	

Ser No	Items		Make/Brand/Manufacturers
1	2		3
91	RCC pipes, drain pipes	1	Thuluvananikal Pipes
		2	Everest Asbestos
		3	Himalaya
		4	Indian Hume Pipes
		5	Poona Concrete Products
		6.	Awati Spun Pipe
		7.	Vardhan concrete Pro
		8.	Dhere concrete products Pune
		9.	Shivan Industries
92	Air Release Valves	1	Leader
		2	BIR
		3	Kirloskar
		4	Sant
		5	Upadhyay
		6.	Venus
		7.	Normax
		8.	AUDCO
		9.	L & T
93	Foot Valves	1	Upadhyay
		2	Leader
		3	Kirloskar
		4	Sant
		5	Varun
		6.	Venus
		7.	AARCO Pipes Gramodyog
		8.	AUDCO
		9.	NORMEX
94	Sluice valves	1	Leader
		2	Kirloskar
		3	Upadhyay
		4	L&T
		5	Zoloto
		6	Bir
		7.	AARKO Pipes Gramoudyog
		8.	Kalpana
		9.	Venus
		10.	AUDCO
		11.	CAIR Eurometic Automation
95	Gate valves	1	Leader
		2	Zoloto
		3	Sant
		4	Hindustan Metal Industries
		5.	Jay Pee
		6.	Kingston
		7.	Hansa
		8.	VELVCO Int.
96	Plastic Pipe (for non pressure Drainage & Sewerage)	1	PRINCE (Foamfit)
		2	Finolex
		4.	Supreme
		5.	Ashirwad Pipe Pvt Ltd.

**NOTES**

- (i) Materials to be incorporated in the work shall be superior/1st quality of the makes given above.
- (ii) Items shall be considered which ever is applicable only.
- (iii) Sources indicated are only for guidance and approval of the Garrison Engineer shall be taken prior to procurement of materials and its incorporation.
- (iv) The tender shall amongst other things also ascertain all information such as royalties, taxes duties and other charges. etc on the materials and no additional payment shall be made on account of the foregoing.
- (v) Sources of materials shall be as above or in the vicinity thereof. The tenderer shall ascertain the actual position / exact location of source before submitting his tender and no additional payment shall be made on account of misunderstanding of its distance from site of works.

Signature Of Contractor  
DATED :

AGE (Contracts)  
For Accepting Officer

**MATERIAL AND THEIR TESTS RECOVERY RATES OF TESTING CHARGES**

Sl. No	Materials	Test	Method of testing	Frequency of Tests			Level of test	Rate per test Rs.Ps	Remarks
1.	Bricks	(i) Compressive strength	IS-3495 (Part-II)	As per (IS-5454) as given under :			'A'	330/-	Checks for visual and dimensional characteristics shall also be carried out as per IS:5454
				Lot Size	Sample Size	Permissible No of Defective Bricks			
		(ii) Water Absorption	IS-3495 (Part-II)	1001 to 10000	5	0	'A'	330/-	
		(iii) Efflorescence	IS-3495 (Part-I)	10001 to 35000	10	0	'A'	330/-	
			35001 to 50000	15	1				
2.	Coarse aggregate	(i) Sieve analysis	IS:2386 (Part-I)	One test for every 15 cu. m of aggregates or part thereof brought to site			'A'	660/-	
		(ii) Flakiness Index	--do--	-do-			'A'	250/-	
		(iii) Estimation of deleterious materials	--do--	One test for every 100 cu. m of or part thereof			'A'	600/-	
		(iv) Organic impurities	--do--	One test per source of supply			'C'	275/-	
		(v) Moisture content	--do-- (Part-II)	Regularly as required			'A'	330/-	
		(vi) Specific gravity	--do-- (Part-II)	One test for each source of supply.			'B'	330/-	
3.	Fine Aggregate	(i) Sieve analysis	IS:2386 (Part-I)	One test for every 15cu.m of FA or part when brought to site.			'A'	660/-	
		(ii) Test for clay, silt and impurities	IS:2386 (Part-II)	--do--			'A'	500/-	
		(iii) Specific gravity.		One for each source of supply			'B'	330/-	
		(iv) Moisture content		Regularly as required subject to 2 tests/day when being used.			'A'	330/-	
		(v) Test for organic impurities		One test for each source of supply.			'C'	275/-	
4.	Cement	(i) Setting time	IS:4031-63 affirmed 1980	Once for each consignment or as and when required.			'B'	500/-	
		(ii) Soundness		--do--			'B'	550/-	
		(iii) Compressive strength		--do--			'B'	550/-	
		(iv) Fineness		-do-			'B'	275/-	

Sl. No	Materials	Test	Method of testing	Frequency of Tests	Level of test	Rate per test Rs.Ps	Remarks		
5.	Structural concrete (M-15 grade and above)	(i) Slump test (OR) Compacting factor Test (OR) Vee-Bee Time.	IS:1199	The minimum frequency of sampling of concrete of each grade shall be as under:		'A'	300/-	(i) Random sampling shall be carried out to cover all mix units.	
				Qty of concrete in the work	No of samples				
				1 to 5	1				
				6 to 15	2				
		(ii) Compressive strength	IS : 516	16 to 30	3	'A'	900/-		(ii) Refer IS 456-2000 clause 14 for frequency of sampling.
				31 to 50	4				
50 and above	4+1 for each add 50cum or part thereof								
6.	(a) PCC Blocks for walling (Hollow Block)	(i) Compressive strength	IS:2156-1984 (Appx 'B')	8 Blocks out of 14	'A'	900/-	Samples : 14 blocks from consignment of every 5000 blocks or part thereof.		
		(ii) Water absorption	--do-- (Appx 'E')	3 Blocks out of 14	'B'	330/-			
		(ii) Density	--do-- (Appx 'A')	3 Blocks out of 14	'B'	330/-			
	(b) PCC Solid blocks for walling	(i) Compressive strength	IS:2185	12 Blocks out of 18	'A'	900/-	Samples : 18 blocks from consignment of every 5000 blocks or part thereof. These blocks to be checked for dimension & weight.		
		(ii) Water absorption	--do--	3 Blocks out of 18	'B'	330/-			
		(ii) Density	--do--	3 Blocks out of 18	'B'	330/-			
	7.	Cement flooring tiles/ Terrazzo tiles	(i) Water absorption	IS-1237. (Appx 'D')	6 tiles out of 18	'B'	330/-	Samples: 18 tiles from each source of supply selected at random.	
			(ii) Wet transverse strength	--do-- (Appx 'E')	6 tiles out of 18	'B'	600/-		
			(iii) Resistance to wear	--do-- (Appx 'F')	6 tiles out of 18	'C'	1000/-		

Sl. No	Materials	Test	Method of testing	Frequency of Tests	Level of test	Rate per test Rs.P S	Remarks
8.	Burnt clay roofing tiles (hand made) As per IS : 2690 (Part-II) Length 150 mm to 250 mm, width 100mm to 200mm, thickness 35mm to 50mm	(i) Water absorption	IS : 3495 (Part-II)	6 tiles out of 12	'B'	216/-	Sample: 12 tiles from each source of supply selected at random.
		(ii) Compressive strength	--do-- (Part-I)	6 tiles out of 12	'A'	180/-	
9.	Mangalore pattern roofing tiles	(i) Water absorption	IS:654 (Appx 'A')	6 tiles out of 32	'B'	180/-	Sample: 32 tiles from each consignment of 3000 tiles or part thereof. These tiles shall be checked for dimension ..
		(ii) Breaking load	--do-- (Appx 'C')	6 tiles out of 32	'B'	120/-	
10	Timber	(i) Specific gravity and weight	IS : 1708	Minimum 3 samples from a lot of 4 cu. m or 250 pieces of seasoned timber.	'B'	120/-	
		(ii) Moisture content	--do--	--do--	'A'	120/-	
11	Water for construction purposes	(i) Test for acidity	IS : 456 & 3015	Once at the stage of approval of source of water	'B'	500/-	Also refer clause 4.3 of IS: 456 and its subsequent sub clauses regarding suitability of water.
		(ii) Test for alkalinity	--do--	--do--	'B'	500/-	
		(iii) Test for solid content	--do--	--do--	'C'	500/-	
12	Welding of steel work	Visual Inspection test	IS : 822 Clause 7.1	100% by visual inspection	Work site	360/-	Specialised tests, their method and frequency to be

Sl. No	Materials	Test	Method of testing	Frequency of Tests	Level of test	Rate per test	Remarks	
12 (Contd...)							decided on consideration of their importance by the Accepting Officer	
13	Timber panelled and glazed Door/ Window shutters (including factory made shutters )	(a) Dimensions, sizes, Workmanship and finish	IS:1003 (Part-I)	Frequency of sampling from each lot shall be as under:	'A'	180/-		
				<b>Lot Size</b>				<b>Sample size</b>
				26 to 50				5
				51 to 100				8
				101 to 150				13
				151 to 300				20
				301 to 500				32
				501 to 1000				50
1001 & above	80							
		(b) Strength test (i) Slamming (ii) Impact Indentation (iii) Shock Resistance (iv) Edge Loading	IS:1003 --do-- --do-- --do--	From each lot 5% of the factory made shutters shall be manufacturer tested for strength tests.				
14	Plywood (IS:303)	Moisture content	IS:1734 (Part-I)	Six test pieces cut from each of the boards selected as per table shall be subjected to tests.	'C'	240/-	Sampling shall be as per IS: 7835 tables.	
15	Wood particle board (Medium density IS:3097 )	(a) Density	IS:2360 (Part-III)	Three test specimen from each sample (Size 150mm x75mm)	'A'	60/-	Sampling shall be as per IS:3487- with moisture metre.	
		(b) Moisture content	--do--	--do--	'A' & 'B'	60/-		
		(c) Water absorption	--do-- (Part-16)	--do-- (Size 300mm x300mm)	'A'	60/-		
		(d) Swelling due to surface absorption	--do-- (Part-17)	--do-- (Size 125mm x100mm)	'A'	60/-		
		(e) Swelling in water	--do--	--do-- (Size 200 mm x 100mm)	'A'	60/-		
		(f) Modulus of rupture	--do-- (Part-4)	Three test specimens as per IS:2380	'B'	90/-		
		(g) Screw withdrawal strength	--do-- (Part-4)	--do-- As per IS:2385	'C'	120/-		
16	Reinforcement steel	(i) Physical test upto 16mm dia (Normal mass, tensile elongation, bend and rebend)			'B'	2500/-		
		(ii) Ditto- More than 16mm dia			'B'	2750/-		

**Legend**

A :Site Lab.

B :MES Lab/Zonal Lab/Command Test Lab.

C :NABL Accredited Lab/IIT/Engineering College.

**SIGNATURE OF CONTRACTOR**

Date:

**AGE (CONTRACTS)****FOR ACCEPTING OFFICER**