

MILITARY ENGINEER SERVICES**GARRISON ENGINEER [ND]
104 AREA, VISAKHAPATNAM – 530 004**

Name of work: **REPAIRS TO PATH , HARD STANDING , GARBAGE BIN AND OTHER MISC WORKS UNDER AGE BR I OF GE ND VISAKHAPATNAM**
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Number of drawings: **NIL** sheets

SIGNATURE OF CONTRACTOR
DATED :

AGE [CONTRACTS]
FOR ACCEPTING OFFICER

Telephone: 0891-2558305

Email id : ndvisptm4-mes@nic.in**SPEED POST**

Garrison Engineer (Naval Depot)

Industrial Estate (PO)

Visakhapatnam - 530007

8268 / / E8

May 2023

M/S _____

**REPAIRS TO PATH , HARD STANDING , GARBAGE BIN AND OTHER MISC
WORKS UNDER AGE BR I OF GE ND VISAKHAPATNAM**

Dear Sir(s),

1. Tender documents in respect of above work are uploaded on the MES website www.defproc.gov.in. The tender is based on single stage two cover e-tendering system. The contents of Cover I & Cover II are specified in NOTICE OF TENDER.
2. Bids will be received online by ACCEPTING OFFICER upto 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 line on a due date fixed for opening as per critical dates given in the portal. Cover 1 will be opened first. Tenderers may see the result of the opening of Cover-1 on the tender portal. Date of opening of Cover-2 shall be decided after technical evaluation of Cover-1 keeping in view the various eligibility criteria given in the NIT and the same will be intimated to the tenderers while uploading the technical evaluation on the tender portal.
4. Your attention is also drawn to instructions on filling and submission of tender attached herewith. You may forward your points on tender documents through email 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 i.e 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 and submission of the tender documents and Appendix 'A' to NIT alongwith EARNEST MONEY DEPOSIT (EMD) and tender fee on e-procurement portal mentioned above and submit the physical documents in the office of **GARRISON ENGINEER [ND], Industrial Estate Post, Visakhapatnam – 530007** within time limit specified in NIT. Inadequacy / deficiency of documents shall make the bid liable for rejection resulting in disqualification for opening of finance bid.
6. [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.

6. Contd.....

[b] The successful Contractor shall be required to lodge **Performance Security** for an amount equal to **5%** of the Contract Sum within 28 Days of receipt of Letter of Acceptance in the form of Bank Guarantee in the prescribed format or Government Securities or FDR or any other Government Instruments stipulated by the Accepting Officer in terms of Condition – 19 of IAFW – 2249, General Conditions of Contracts. Work order will be placed after receipt of the said Performance security from the contractor.

7. 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 **GARRISON ENGINEER [ND], Industrial Estate Post, Visakhapatnam – 530007** before date & time fixed for this purpose.

8. The contractor must ensure that the tender/bid is uploaded on the tender portal using the authorized DSC 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.

9. Keeping in view of delays due to system failure or other communication related failures, it is suggested that the tender/bid be uploaded, if necessary, sufficiently in advance of the last due date and time fixed.

10. General Conditions of Contracts (IAFW-2249) (1989 Print) together with errata and amendments thereto, Schedule of minimum fair wages and MES Standard Schedule of Rates Part -I (Specifications) and Part -II (Rates) are not enclosed with these documents. These are available for perusal in this Office or any of the MES offices which can be seen during working hours on any working day, with prior appointment. Tenderer is also requested to keep the copy of these documents with him as same are available in the market.

11. ANY TENDERER, WHICH PROPOSES ALTERATIONS TO ANY OF THE CONDITION, SPECIFICATIONS LAID DOWN IN THE TENDER DOCUMENTS OR ANY NEW CONDITION, WHATSOEVER, IS LIABLE TO BE REJECTED.

12. Contractor shall get themselves registered with the Employees Provident Fund Organisation and deposit the necessary contributions with the EPFO. Further, it is a mandatory requirement that all construction workers should be provided Universal Account Number [UAN] by the contractor by appropriately registering them on the EPFO portal. All the workers deployed by contractors are enrolled as members of Provident Fund and should be given the Universal Account Number [UAN]. Certificate to the effect that all the workers employed directly or indirectly are registered for EPF and the due consideration have been credited into their account shall be rendered by the contractor along with each and every RAR / Final Bill. **Note:** For the purpose of above, contractor shall have Provident Fund Code Number obtained from concerned authorities [Employees Provident Fund Organization]. **Incise tender/bid is accepted, the Provident Fund Code Number shall be submitted to GE before placing the Work Order.**

13. **GST REGISTRATION NUMBER:** The contractor shall be in possession of GST Registration Number. It is mandatory for the contractors to upload their GST Registration Number along-with the 'T' Bid. This will be one of the criteria for qualifying in 'T' Bid. Contractor, who does not upload GST Registration Number, shall be disqualified in the 'T' Bid evaluation and his Finance Bid shall not be opened.

14. Court of the place from where tender has been issued shall alone have jurisdiction to decide any dispute out of or in respect of this tender. After acceptance of tender, Condition 72 – Jurisdiction of Courts of IAFW – 2249 shall be applicable.
15. In case the BOQ is revised through Corrigendum to tender documents, bidders shall be required to quote their rates in the Revised BOQ only. Tenderer is supposed to check if any revised BOQ has been uploaded by MES, before uploading their BOQ. In case any bidder uploads pre-revised BOQ, it shall be considered as willful negligence by them and their bid shall be considered as non-bonafide.

Yours faithfully,

SIGNATURE OF CONTRACTOR

AGE [CONTRACTS]
For Accepting Officer

**INSTRUCTIONS FOR FILLING IN AND SUBMISSION OF E-TENDER DOCUMENTS
TO BE COMPLIED WITH BY THE CONTRACTOR**

1.0 EARNEST MONEY DEPOSIT (EMD):

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

[a] Deposit at Call Receipt from a Scheduled Bank in favour of Garrison Engineer concerned as specified in Notice of Tender.

[b] Receipted Treasury Challan, the amount being credited to the Revenue Deposit of Garrison Engineer concerned as specified in Notice of Tender.

1.2 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 concerned GE.

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 (i.e Finance Bid).

2.0 PERFORMANCE SECURITY:

2.1 The tenderers shall note that the successful tenderer is required to lodge **Performance Security** for an amount equal to **5%** of the Contract Sum within 28 Days of receipt of Letter of Acceptance in the form of Bank Guarantee in the prescribed format or Government Securities or FDR or any other Government Instruments stipulated by the Accepting Officer in terms of Condition – 19 of IAFW – 2249, General Conditions of Contracts. The contractor has to submit the following declarations alongwith Performance Security:-

[i] I/We hereby declare that I/We are not involved under any disputes in the contracts with MES where arbitration / court proceedings have already been started or are contemplated.

[ii] I/We hereby declare that, there are no outstanding recoveries against our firm in MES and I/We does not intend to abandon the work after entertaining the relief of Performance Security.

2.2 The Performance Security shall be valid for the Period as stipulated here-in-below. In case the tenderer fails to deposit the Performance Security within the stipulated period, the award of work shall be cancelled and 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 Government Treasury. The contractor / bidder shall not be entitled for any compensation whatsoever on this account.

[i] The Performance Security in the form of FDR shall be valid till expiry of Defects Liability Period as stipulated hereinafter.

[ii] The Performance Security in the form of Bank Guarantee Bond shall be valid till 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.

**INSTRUCTIONS FOR FILLING IN AND SUBMISSION OF E-TENDER DOCUMENTS
TO BE COMPLIED WITH BY THE CONTRACTOR [Contd....]**

3.0 CONTRACTORS ENLISTED IN MES FORMATIONS:

3.1 Contractors whose names are on the approved list of any MES formation and who have deposited Standing Security and have executed Standing Security Bond may tender / bid without depositing Earnest Money with the bid and if the Accepting Officer decides to accept the tender / bid, such tenderers will be required to lodge Performance Security as notified by the Accepting Officer as specified hereinbefore.

4.0 - BLANK -

5.0 GENERAL INSTRUCTIONS FOR COMPLIANCE

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

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

5.3 The bid shall be DIGITALLY signed using authorised DSC. All pages of tender documents, drawings, corrections/alterations shall be signed/initialed by the lowest bidder after acceptance of tender for making original and CTC of the contract.

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

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

5.6 In the technical bid, a scanned copy of Power 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 IN AND SUBMISSION OF E-TENDER DOCUMENTS
TO BE COMPLIED WITH BY THE CONTRACTOR [Contd.....]**

- 5.7 Even in case of Firms or Companies which have already given Power of Attorney to an individual authorizing him to sign tender in pursuance of which bids are being uploaded by such person as a routine, fresh Power of Attorney duly executed in his favour stating specifically that the said person has authority to bind such partners of the Firm, or the Company as the case may be, including the condition relating to Arbitration Clause, should be uploaded in 'pdf' form with the tender/bid; unless such authority has already been given to him by the Firm or the Company. It shall be ensured that power of attorney shall be executed in accordance with the constitution of the company as laid down in its Memorandum & Article of Association.
- 5.8 Hard copies of all above documents should be sent by the contractor to the Tender issuing authority well in advance to be received before the date & time fixed for the same.
- 5.9 Bid (Cover 1 & 2) shall be uploaded online well in time.
- 5.10 The contractor shall employ Indian Nationals after verifying their antecedents and loyalty. Attention is also drawn to special condition 3 referred hereinafter and also conditions 24 & 25 of IAFW 2249 (General conditions of contract).
- 5.11 Tenderers / bidders who uploaded their priced tenders/bids and are desirous of being present at the time of opening of the tenders/bids, may do so at the appointed time.
- 6.0 **REVOCATION/REVISION OF OFFER UPWARD / OFFERING VOLUNTARY REDUCTION, AFTER CLOSING OF BID SUBMISSION DATE & TIME**
- 6.1 In the event of lowest tenderer/bidder revoking his offer or revising his rates upward/offering voluntary reduction, after closing of bid submission End date & time, his offer will be treated as revoked and the Earnest Money deposited by him shall be forfeited. In case of MES enlisted Contractors, the amount equal to the Earnest Money stipulated in the Notice of tender, shall be notified to the tenderer/bidder for depositing the amount through MRO. Bids of such Contractors/bidders shall not be opened till the aforesaid amount equal to the earnest money is deposited by him in Govt Treasury. In addition, bids of such tenderer/bidder and his related firm shall not be opened in second call or subsequent calls. Reduction offered by the tenderer/bidder on the freak high rates referred for review shall not be treated as voluntary reduction.
- 7.0 **C P M (CRITICAL PATH METHOD)**
- 7.1 The project planning for work covered in the scope of tender is based on CPM.
- 7.2 The tenderer/bidder is expected to be fully conversant with the CPM technique and employ technical staff who can use the technique in sufficient details. Sufficient books and other literature on the subject are widely available in the market which the tenderer/bidder may make use of.

**INSTRUCTIONS FOR FILLING IN AND SUBMISSION OF E-TENDER DOCUMENTS
TO BE COMPLIED WITH BY THE CONTRACTOR [Contd.....]**

- 7.3 The tenderer's/bidder's attention is drawn to special condition of the tender regarding preparation of the detailed network analysis and time schedule for the work and his liability for employing sufficient resources to adhere to this schedule. Any inability on the part of the tenderer/bidder in using the technique will be taken as his technical inefficiency and will affect his class of enlistment and future prospect/invitation to tenders for future works.
- 8.0 **BOQ**
- 8.1 The tenderer shall quote his rates on the BOQ EXCEL FILE only as per guide line of e-procure web portal. No alteration to the format will be accepted and such bid will be disqualified.
- 8.2 In case any tenderer wishes to revise/modify the rates quoted in the BOQ file, he can do so only in the BOQ files before uploading the tender through **<https://defproc.gov.in>** site only before closing date & time.
- 8.3 After the uploading of tender, Department may upload the errata/ amendment through corrigendum. The tenderer/bidder should submit their offer considering the errata/amendment carried out through corrigendum issued from time to time.
- 8.4 While uploading the bid, the tenderers/bidders should specifically check whether any **revised BOQ** has been uploaded by department through corrigendum prior to **Bid submission start date**. Tenderers/bidders attention is specifically drawn to the fact that they should submit their offer on revised BOQ only. In case any tenderer/bidder submits offer on pre-revised BOQ in lieu of Revised BOQ, **it will be considered as a willful negligence by the tenderer/bidder and quotation shall be considered non-bonafide**.
- 9.0 Tenders/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.
- 10.0 Hard copies of all above documents shall be sent by the contractor to the Tender issuing authority well in advance to be received before the date & time fixed for the same.
- 11.0 The contractor shall employ Indian Nationals after verifying their antecedents and loyalty. Attention is also drawn to relevant provisions in Special Condition referred here-in-after and also Conditions 24 & 25 of IAFW-2249 (General Conditions of Contract).
- 9.0 These instructions shall form part of the contract documents.

SIGNATURE OF CONTRACTOR

AGE [CONTRACTS]
For Accepting Officer

MILITARY ENGINEER SERVICES
NOTICE INVITING TENDER [NIT]

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

NOTICE INVITING TENDER [Contd....]

- 10.0 In case of successful contractor i.e. the lowest contractor having submitted EMD, he shall have the option of converting the EMD instrument into part of the Performance Security to be deposited by him within 28 days from the receipt of intimation of acceptance of tender from Accepting Officer.
- 11.0 Copies of the drawings and other documents pertaining to the work signed for the purpose of identification by the Accepting Officer or his accredited representative, sample of materials and stores to be supplied by the contractor will also be available for inspection by the tenderer/bidder at the office of Accepting Officer and concerned GE/ GE(I)/ AGE(I) during working hours.
- 12.0 The tenderers / bidders are advised to visit the site of work by making prior appointment with GE/ GE(I)/ AGE(I)/ CCE/ Project Manager who is also the Executing Agency of the work (see appendix 'A'). The tenderers/bidders are deemed to have full knowledge of all relevant documents, samples, site etc., whether they have inspected them or not.
- 13.0 Any tender/bid which proposes any alteration to any of the conditions laid down or which proposes any other condition or prescription whatsoever, is liable to be rejected.
- 14.0 The uploading of bid by a bidder implies that bidder has read this notice and the Conditions of Contract and has made himself aware of the scope and specifications of work to be done and of the conditions and rates at which stores, tools and plants etc will be issued to him and local conditions and other factors having bearing on the execution of the work.
- 15.0 The bidder must be in possession of a copy of the MES Schedule (SSR) (Part-I & Part-II of latest edition) including amendments and errata thereto.
- 16.0 Invitation for e-tender does not constitute any guarantee for validation of 'T' bid and subsequent opening of finance bid of any applicant/bidder, even of enlisted contractors of appropriate class, merely by virtue of enclosing DD. Accepting Officer reserves the right to reject the 'T' bid and not open the finance bid of any applicant/bidder. 'T' bid validation shall be decided by the Accepting Officer based on, inter alia, capability of the firm as per criteria given in Appx 'A' to this NIT. The applicant contractor/bidder will be informed regarding non-validation of his 'T' bid assigning reasons thereof through the "defproc.gov.in" website. The applicant contractor/bidder if he so desires may appeal to the next higher Engineer authority i.e. HQ CWE, Visakhapatnam viz on email id "visptm3-mes@nic.in" with copy to the Accepting Officer on email before the scheduled date of opening of Finance Bid. The decision of the Next Higher Engineer Authority (NHEA) shall be final and binding. The contractor/bidder shall not be entitled for any compensation whatsoever for rejection of his bid.
- 17.0 The Accepting Officer reserves the right to accept a tender submitted by a Public Undertaking, giving a price preference over other Tender(s)/bids which may be lower, as are admissible under the Government Policy. No claim for any compensation or otherwise shall be admissible from such tenderer/bidder whose tender/bid is rejected.
- 18.0 Accepting Officer does not bind himself to accept the lowest or any tender/bid or to give any reason for not doing so.

NOTICE INVITING TENDER [Contd....]

- 19.0 This **Notice Inviting Tender (NIT)** including Appendix 'A' and Annexures thereto if any shall form part of the contract agreement.
- 20.0 Performance Security: The successful tenderer [either enlisted or un-enlisted] is required to lodge Performance Security for an amount equal to **5%** of the Contract Sum within 28 Days of receipt of Letter of Acceptance in the form of Bank Guarantee in the prescribed format or Government Securities or FDR or any other Government Instruments with the Accepting Officer in terms of Condition – 19 of IAFW – 2249, General Conditions of Contracts. The Performance Security shall be valid till expiry of Defects Liability Period. In case of BGB it shall be valid beyond 60 days of defects liability period. In case the tenderer fails to deposit the Performance Security within the stipulated period, the award of work shall be cancelled and Earnest Money deposited by him shall be forfeited. In case of MES enlisted Contractors, the amount equal to the Earnest Money stipulated in the Notice of Tender, shall be notified to the tenderer for depositing the amount through MRO. Issue of tender to such tenderer shall remain suspended till the aforesaid amount equal to Earnest Money is deposited in Government Treasury. The contractor shall not be entitled for any compensation whatsoever on this account. The Work Order for commencing the work shall be placed by the GE only after receipt of above Performance Security by the Accepting Officer within the stipulated time period.
- 20.1 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 deduced from, or paid by the sale of a sufficient part of 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, enclosed as aforesaid, any sum or sums which may have been deducted from or realized by the sale of his Performance Security or any part thereof.
- 20.2 Government shall not be responsible for any loss of securities or any depreciation in the value of securities while in their charge nor for loss of interest thereon.
- 20.3 In the event of contract being cancelled, under Condition 52, 53 & 54 of General Conditions of Contract IAFW 2249 , the Performance Security shall be forfeited in full and shall be credited into Consolidated Fund of India.

SIGNATURE OF CONTRACTOR

AGE [CONTRACTS]
For Accepting Officer

APPENDIX 'A' TO NOTICE INVITING TENDER [NIT]

1. Name of work : **REPAIRS TO PATH , HARD STANDING , GARBAGE BIN AND OTHER MISC WORKS UNDER AGE BR I OF GE ND VISAKHAPATNAM**
2. Estimated cost of work : Rs. **45.00 Lakhs** at par market cost
3. Period of Completion : **240 (Two Hundred Fourty)** days
4. Cost of tender documents & Garrison Engineer : Rs. **500/-** in the shape of Demand Draft (DD)/ Bankers Cheque from any Scheduled Bank in favour of **GE (ND) Visakhapatnam** and payable at Visakhapatnam (Note: In case of retendering, the contractor who had quoted in the previous call and submitted the tender fee 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 work] to be priced by the tender.
7. Timeline Details:
 - [a] Bid submission start date
 - [b] Bid submission end date : Refer critical dates on the website.
 - [c] Date of bid opening
8. **Eligibility criteria:**
 - [a] For MES enlisted contractors : Contractors shall be enlisted with MES in Class '**D**' and above and Category '**a(i)**' subject to satisfactory remarks wrt performance in respect of works in hand as reflected in Work Load Return (WLR) or any other report circulated by competent engineer authority.
 - [b] For contractors not enlisted with MES : [i] Contractors not enlisted with MES should meet the enlistment criteria of '**D**' class & '**a(i)**' category contractor with regard to satisfactorily completion of requisite value works with Central / State Government / Central/ State PSUs / AWHO / AFNHB / CGEWHO / DGMAP, annual turnover, bank solvency, working capital and other requirements given in Para 1.4 and 1.5 of Section 1 of MES Manual of Contracts 2020 as available in all MES formations as well as MES website (www.mes.gov.in).
[ii] Not carrying adverse remarks in Work Load Return (WLR) or any other 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.
 - [b] Details of Works : [iv] Contractors will have to submit details of works completed in MES and works under progress in following format

Srl No	CA No and Name of Work	Value of CA	Date of Commencement	Date of Completion	Extended Date of Completion

 (v) Un-Enlisted contractor who have secured two works in MES should get themselves registered in the appropriate designated class with any Registering Authority, else the firm will not be eligible for participation in the Tender unless until the firm is enlisted with the MES.

APPENDIX 'A' TO NOTICE INVITING TENDER [Contd....]

9. Tender issuing and Accepting Officer : Garrison Engineer [ND], 104 Area, Visakhapatnam
10. Executing Agency : Garrison Engineer [**Naval Depot**] Visakhapatnam.
Industrial Estate Post
104 Area
Visakhapatnam 530007
Telephone: 0891-2558305
Email id : ndvisptm4-mes@nic.in
11. Earnest Money : **Rs. 90,000/-** in favour of **GE (ND)** Visakhapatnam in the form of Deposit at call receipt. FDR not acceptable.

NOTES:

1. In case after opening cover 1, if the number of MES enlisted contractors of eligible class as well as eligible un-enlisted contractors, if any, fulfilling the other eligibility criteria given in NIT are less than 07 (Seven), applications in respect of MES contractors of one class or two classes (in case of remote and difficult areas to be decided as per list circulated by CE command / ADG) below the eligible class shall also be considered subject to fulfillment of other eligibility criteria given in the NIT. Therefore MES contractors one class below (two classes below in case of remote and difficult areas) may also bid for this tender. Such contractors (contractors of one/two classes below the eligible class) shall not be considered in case their present residual work in hand is more than FIVE TIMES their present tendering limit. However in case such contractors fulfil the criteria of upgradation to the stipulated eligible class based on 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-1 bid details related to residual work in hand like details of work in hand showing names of work, names of Accepting Officers, Contract amounts, dates of commencement and completion (stipulated) and progress as on bid submission date. Such 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.

APPENDIX 'A' TO NOTICE INVITING TENDER [Contd....]

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 07 (Seven) or more, applications of only those one class below the eligible class bidders shall be considered, who have previously completed similar works satisfactorily and are meeting the criteria of upgradation in respect of past experience of completed works (individual work experience and / or average annual turnover as applicable) and financial soundness (solvency / financial soundness and working capital) as per details given in Manual on Contracts-2020. Therefore such contractors shall upload the requisite information/documents in the Cover-1.
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 directors(s) shall be considered subject to security clearance from the concerned authorities.
4. Contractor enlisted with MES will upload following documents in Cover-1 for checking eligibility:-
 - [a] Application for tender on Firm's letterhead
 - [b] Enlistment letter issued by the Registering Authority duly renewed for the cycle period in vogue.
 - [c] Scanned copy of DD / Bankers Cheque toward cost of tender and EMD instrument in case SSD bond is not signed at the time of registration.
 - [d] Scanned copy of GST Registration Certificate.
 - [E] Any other document required as described in this Appendix.
5. Contractors not enlisted with MES will be required to upload following documents in Cover-1 for checking eligibility:-
 - [a] Application for tender on Firm's letterhead
 - [b] Scanned copy of DD / Bankers Cheque toward cost of tender and Earnest Money Deposit (EMD) instrument.
 - [c] Copy of Police Verification Report / Police Clearance Certificate / Character Certificate from the Police Authority of the area where the registered office of the firm is located / notarized copy of valid Passport of Proprietor / each Partner / each Director.
 - [d] All documents required for enlistment in MES for the class mentioned in Para 8(b) above as per Para 1.5 of Section 1 of MES Manual on Contracts 2020.
 - [e] Details of works being executed in MES, if any.
 - [f] Scanned copy of GST Registration Certificate.
 - [g] Any other document required as described in this Appendix.
6. Tenders not accompanied by scanned copies of requisite DD / Bankers Cheque towards cost of tender and earnest money (as applicable) in Cover-1 shall not be considered for validation of 'T' bid and their Financial Bids will not be opened.

APPENDIX 'A' TO NOTICE INVITING TENDER [Contd....]

7. Contractors should ensure that their original physical DDs and Earnest Money Deposit (EMD) instruments (as applicable) reach the office of Accepting Officer within 05 days of bid submission end date failing which following action shall be taken.
 - [a] In case of tenders from an enlisted contractor of MES, where scanned copies of requisite DD/Bankers Cheque towards cost of tender have been uploaded in Cover-1 but physical copies are not received within the stipulated period, their financial bids (Cover-2) will be opened. However non-submission of physical copies of cost of tender shall be considered as willful negligence of the tenderer with ulterior motives and such tenderer shall be banned from bidding for a period of six months commencing from the date of opening of Financial Bid (Cover-2).
 - [b] In case of tenders from un-enlisted contractors, where scanned copies of requisite DD/Bankers Cheque towards cost of tender have been uploaded in Cover-1 but physical copies are not received within the stipulated period, their financial bids (Cover-2) will not be opened. Name of such contractors along with complete address shall be circulated for not opening of their bids for a period of six months commencing from the date of opening of finance bid (Cover 2).
 - [c] In case of tenders from enlisted and un-enlisted contractors, where scanned copies of instrument for Earnest Money Deposit (as applicable) have been uploaded in Cover 1 but the same are not received in physical form within stipulated period, such tenders shall not qualify for opening of financial bid (Cover-2).
8. Contractor will not be allowed to execute the work by subletting or through power of attorney to a third party / another firm on his behalf. However a contractor can execute the work through power of attorney to sons / daughters / spouse of Proprietor / Partner / Director and firm's own employees, Director, Project manager provided they are not having a separate enlisted firm in MES in their name as Proprietor / Partner / Director.
9. After opening of cover-1 and during its technical evaluation, in case any deficiency is noticed in the documents required to be uploaded by the tenderers as per NIT a communication in the form of e-mail / SMS / Speed Post etc shall be sent to the contractor to rectify the deficiency within a period of seven days from date of communication failing which their financial bid (Cover-2) shall not be opened and contractor shall not have any claim on the same.
10. Invitation for e-tender does not constitute any guarantee for validation of Technical bid and subsequent opening of financial bid of any applicant/bidder merely by virtue of enclosing DD. Accepting Officer reserves the right to reject the Technical bid and not to open the financial bid of any applicant/bidder. Technical bid validation shall be decided by the Accepting Officer based on eligibility of the firm as per criteria given in this Appendix. Tenderer/bidder will be informed regarding non-validation of his Technical bid assigning reasons therefore through tender evaluation report which shall be uploaded on the website. Such tenderer, if desires, may appeal to the next higher Engineer Authority (NHEA) viz HQ Commander Works Engineers, Visakhapatnam on email id "visptm3-mes@nic.in" with copy to the Accepting Officer on email before the scheduled date of opening of Cover-2. NHEA shall decide the matter within a period of seven working days from the date of receipt of appeal. The decision of the NHEA shall be final and binding. The tenderer/bidder shall not be entitled for any compensation whatsoever for rejection of his bid.

APPENDIX 'A' TO NOTICE INVITING TENDER [Contd....]

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 the BOQ is revised through the corrigendum and the bidder has failed to quote on revised BOQ (ie he has quoted on pre revised BOQ), such bids shall be treated as willful negligence by the bidder and his quotation shall be considered non-bonafide. In such cases the lowest tender shall be determined from amongst the valid / bonafide bids only. Accepting Officer may decide whether to retender or consider the lowest bonafide tender for acceptance.
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 willful default. For this default a penalty of an amount equal to Earnest Money shall be levied. In case of an un-enlisted tenderer, Earnest Money deposited by him shall be forfeited. In case of MES enlisted tenderer having deposited the Standing Security Bond, an amount equal to the earnest money stipulated in the NIT shall be notified to the tenderer for depositing through MRO and consideration of such tenderer in tender evaluation for future works shall remain suspended till the aforementioned amount is deposited in the Government Treasury. No other disciplinary / administrative action shall be taken against such tenderers. In such a situation, the next lowest offer shall not be considered for acceptance. Instead, retendering shall be resorted to in a transparent and fair manner and the defaulting tenderer and his related firm if any, shall not be eligible for this tender in second call or subsequent calls.
14. Tender to related firms shall not be issued simultaneously. Firms shall be termed as related if Proprietor/ one or more Partners/ Directors are common. Decision of Accepting Officer on issue/ deny the tender to any one of the related firms shall be final and binding.
15. GST REGISTRATION NUMBER: The contractor shall be in possession of GST Registration Number. It is mandatory for the contractors to upload their GST Registration Number along with the 'T' Bid. This will be one of the criteria for qualifying in 'T' Bid. Contractor, who does not upload GST Registration Number, shall be disqualified in the 'T' Bid evaluation and his Finance Bid i.e Cover-2 shall not be opened.
16. Tenderer shall note that Court of the place from where tender has been published shall alone have jurisdiction to decide any dispute out of or in respect of this tender. After acceptance of tender, Condition 72 - Jurisdiction of Courts of IAFW-2249 shall be applicable.

Signature of Contractor

For Accepting Officer

Dated:

File No: 8268/ /E8

Garrison Engineer Naval Depot
Industrial Estate Post
104 Area
Visakhapatnam 530007
Telephone: 0891-2558305
Email id : ndvisptm4-mes@nic.in

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

TO BE READ IN CONJUNCTION WITH
GENERAL CONDITIONS OF CONTRACTS IAFW- 2249

MILITARY ENGINEER SERVICES

Telephone: 0891-2558305
Email id : ndvisptm4-mes@nic.in

REGD POST WITH ACK DUE
Garrison Engineer (Naval Depot)
Industrial Estate (PO), 104 Area
Visakhapatnam - 530004

8268 / / E8

May 2023

E-TENDER

ITEM RATE TENDER AND CONTRACT FOR WORKS REQUIRED
IN THE EXECUTION OF

"REPAIRS TO PATH , HARD STANDING , GARBAGE BIN AND OTHER MISC WORKS UNDER AGE
BR I OF GE ND VISAKHAPATNAM

M/s _____ is here by authorised to tender for the
above work.

The complete tender is uploaded on MES portal of www.defproc.gov.in. The bidders shall submit their bids through www.defproc.gov.in. The bid will be opened in office of Garrison Engineer, Industrial Estate, 104 Area, Visakhapatnam-530 004. Date and time of opening of Price Bid i.e. Cover – 2 will be intimated online after completion of evaluation of Technical Bid / Cover – 1. The financial bids of only those tenderers who meet the eligibility criteria as per Notice of tender shall only be opened.

Any correspondence concerning this tender should be addressed as indicated at the top of this sheet quoting the reference as given.

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

(Signature of the Officer issuing tender documents)
Appointment: AGE [CONTRACTS]
For Accepting officer

SCHEDULE 'A' NOTES**NOTES**

1. The entire work covered under this contract i.e. Schedule 'A' shall be completed within a period of **08 (Eight)** Months from the date of commencement of work as shown in Work Order issued by the GE. **Work Order shall be placed by the GE after receipt of Performance Security from the contractor.**
2. The description of items of works in **BOQ** are in brief. These shall be read together with Drawings, Specifications, Special conditions, notes, method of measurements, preambles, etc., as given in MES Schedule and General Conditions of Contracts (IAFW-2249) shall be followed except where specifically provided for otherwise. The intention of Accepting Officer in this regard shall be final, conclusive and binding on the Contractor.
3. Quantities inserted in the **BOQ** are provisional. These shall, however not be varied beyond the limits laid down in Condition 7 of General Conditions of Contracts (IAFW-2249).
4. Tenderer shall insert his unit rates **in figures only** under relevant column in BOQ. **The rates inserted shall be for material and labour/supply & fix complete unless otherwise specifically mentioned in the description of respective items.** The total amount in the BOQ is not firm but will be treated as contract sum as referred to in IAFW-2249, General conditions of contracts. Contract Sum shall be arrived at after deduction of the total of credit schedule from the total quoted amount.
5. The rates quoted by the tenderer in BOQ shall be deemed to include for any minor details of works and/or construction which are obviously and fairly intended and which may not have been specifically referred to in the tender documents but which are essential for the execution and completion of the work in a workman like manner and sound construction. In case of difference of opinion between the contractor and Garrison Engineer as to whether it constitutes minor or extra constructional detail included in the unit rate quoted or not, the decision of the Accepting Officer, shall be final, conclusive and binding.
6. Tenderers to note that unit rates / amount quoted in the BOQ shall deemed to be inclusive of all taxes/cesses viz GST, duties, royalties, octroi and other levies payable under respective statute as applicable on the date of Bid submission end date. Nothing extra shall be paid to the contractors on account of any miss understanding regarding applicability of taxes. It may be noted that any tender imposing any condition in this regard or on any other account shall be treated as a conditional tender and the same shall be liable to be rejected.
7. The contractor should keep in mind while quoting their/his tender, the fact that the buildings / site where the repair/work is to be carried out are under occupation and shall remain under occupation while carrying out the work. The contractor will carry out the work in phased manner in consultation with Engineer-in-Charge. It will be the responsibilities of the contractor to submit in writing his planning program of work seven days in advance to take over site/commence the work or any other requirements. No compensation or extra shall be admissible of any misunderstanding or loss of man-hours.
8. **GST is applicable for this work. Tenderer shall quote the unit rates / amount accordingly.**
9. **DEFECTS LIABILITY PERIOD:** Refer Condition – 46 of IAFW – 2249, General Conditions of Contracts. The Defects Liability Period for this work shall be **Twelve [12] Calendar Months** from the certified date of final completion of the work.

SCHEDULE 'A' NOTES [Contd.....]

10. The tenderers / bidders are advised to visit the site of work by making prior appointment with GE / Engineer-in-Charge. The tenderers shall be deemed to have visited all the site(s) involved under scope of work and made themselves familiar with the working conditions, whether they actually inspect the site(s) or not. Quoted rates are deemed to be inclusive for the same and nothing extra shall be admissible on this account.

11. In terms of provisions of the Contract Labour Regulations and Abolition Central Rules, 1971, tenderers are requested to obtain a license from the Asst. Labour Commissioner (C), Port Area, Visakhapatnam-01 for the labour employed under subject work and the same shall be submitted to the Engineer-in-Charge before commencement of work. Further, contractor has to submit an indemnity bond to the GE immediately after acceptance of his tender.

12. In case of any deviations required under the contract to be ordered during execution of work are covered in Condition 7 of IAFW-2249. The deviations shall be dealt as under:-

- [i] In case of any deviation, mode of pricing shall be decided by Accepting officer in terms of Condition 62 of IAFW-2249.
- [ii] 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 actuals and receipt of supporting documents from contractor such as vouchers / literature of product / test certificates etc (as applicable) on completion of work involving Star Rate. Any objection to the method of fixing Star rate will be dealt as per Condition 7 of IAFW-2249.
- [iii] Draft Star Rate shall be made based on market enquiry through telephonic enquiry / quotations / email / rate lists / internet based sources, materials & labour constants available in various civil engineering 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.
- [iv] 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 the contractor.
- [v] After completion of the item of work involving Star rate, contractor shall submit the vouchers / literature of product / test certificate (as applicable, decision of GE being final in case of any disagreement) for finalisation of Star rate. The Star Rate shall be technically checked by DCWE [C] / Director [C] 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.
- [vi] The star rate as approved by competent authority after technical check by DCWE[C] / Director [C] depending upon the financial effect shall be referred as "the rate decided by GE" under Para 62[G] of IAFW-2249.

SCHEDULE 'A' NOTES [Contd.....]

13. Method of measurements for all items of this contract shall be as given in MES Standard Schedule of Rates Part-I, 2009 and Part-II, 2020 unless otherwise specifically stated in these documents for any particular item of work.
14. Refer condition 49 of IAFW-2249 General Conditions of Contracts, the contractor shall remove from the site all unused stores and materials, tools, plant, equipment belonging to contractor and provided for the execution of work under this contract and delivered in clean tidy manner upto the entire satisfaction of Engineer -in-charge. Nothing extra whatsoever shall be paid to the contractor for such cleaning of site.
15. The quoted rates are includes for removing debris/dismantled/demolished material and clear the site after completion of work all as directed by Engineer-in-charge, failing which necessary recovery will be made from contractor's due and the work will be got executed through other agencies utilizing any due amount held with the department.
16. Tenderer will have to strictly ensure engagement of engineers and deployment of T&P, machinery & Transport applicable for Class and category of work mentioned in NIT aand as per condition 25 of UIAFW 2249. Inadequate engagement of engineers/deployment of T&P, machinery & transport as per eligible class and category of the contractor/CA conditions shall be considered as serious lapse attracting ban/removal/downgrading/debarment of the firm / company. Tenderer shall verify the applicable T&P, machinery and engineers required before quoting his rates as per class and category mentioned in NIT and no claim in this regard shall be admissible at a later stage.
17. If and when rock (soft/disintegrated or hard) is met at site, contractor shall immediately notify the fact to the GE in writing, who will after the verification, allow the work to proceed if item is included in BOQ otherwise, regularize the change through a proper deviation order. No work in excavation in rocks shall be carried out without written approval of GE. Hard Rock / Soft and disintegrated rock shall be properly segregated and measured only after approval of GE.
18. Blasting shall not be permitted in this work.
19. All the stones/boulders or rocks (soft/hard/disintegrated) obtained from site during excavation shall become property of the government and the same shall be issued/sold to the contractor under Schedule of credit @ Rs 500.00 per cum.
20. The work required Electrical License in accordance with Rule 29 under Part-III of Central Electricity Authority (Measures relating to safety and electric supply) Regulation 2010, the contractor shall have valid Electrical License issued by the Govt of Andhra Pradesh in the name of the Firm or get the work executed through any agency having valid Electrical License. Prior to commencement of work, copy of valid Electrical License in the name of the contractor or copy of agreement with agency having valid Electrical License along with agency's Electrical License shall be submitted by the contractor to the GE. In case contractor does not possess valid Electric License and he intends to get the work executed through any agency having valid Electric license and with whom he has agreement, Prior approval of such agency shall be got done from CWE. Reference of Electric License and details of Supervisors certificate of competency and permit of tradesman employed for execution of all electric works/electric component of works in the BOQ shall be duly incorporated in the Works Diary and relevant site documents respectively for the whole period during which such work is executed.
21. Any Item having some value as scrap obtained from work if not included in credit schedule shall be taken on charge and entered in salvage register.

SCHEDULE OF CREDIT**Notes:**

1. The credit for the materials obtained at site are as detailed below shall be taken over by the contractor at the fixed rate. Contractor shall have no claim what so ever against the Government, irrespective of the condition of the materials obtained at site and if the actual cost of the materials turns out to be different from the amount inserted by the Department.
2. The quantities inserted in the column 4 are provisional and the tenderer will have no claim if the quantities obtained at site turns out to be different during execution. The fixed rate of credit shown in column 5 is for the materials as in position.
3. The materials listed in this Schedule shall be recorded in the Measurement Book and abstracted and this amount shall be deducted from the value of work done. The contractor shall not be allowed to remove the materials listed in this Schedule till such time the value of work done by him is more than the value of credit.
4. The total amount of Schedule of Credit shall be deducted from the amount of BOQ to arrive at the net contract sum.
5. **The Quantities of all the unserviceable and serviceable materials obtained from work shall be ascertained through a Board of Officers Detailed by accepting officer before any such material is removed from site and credit for same obtained from contractor and before the payment of any RAR.**

SI No	Description of materials	Unit	Qty	Fixed Rate	Amount
1.	Unserviceable stone/ bricks	Cum	85.00	500.00	42500.00
3.	Old U/S scrap iron	Kg	4460.00	20.00	89200.00
4.	Old U/S CGI Sheet	Sqm	500.00	35.00	17500.00
5.	Old U/S chain link fencing	Sqm	950.00	50.00	47500.00
Total Schedule of Credit Rs.					1,96,700.00

SIGNATURE OF CONTRACTOR
DATED:

AGE [CONTRACTS]
FOR ACCEPTING OFFICER

SCHEDULE 'B'

ISSUE OF MATERIALS TO THE CONTRACTOR
(SEE CONDITION 10 OF IAFW-2249)

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

- NIL -

SCHEDULE 'C'

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

SI No	Quantity	Particulars	Details of MES crew supplied	Hire charges per unit per working day (Rs)	Stand by charges per unit per off day (Rs)	Place of issue by name	Remarks
1	2	3	4	5	6	7	8

----- N I L -----

SCHEDULE 'D'

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

SI No	Quantity	Particulars	Rates per unit per working day	Place of issue by name	Remarks
1	2	3	4	5	6

----- N I L -----

SIGNATURE OF CONTRACTOR
DATED:

AGE [CONTRACTS]
FOR ACCEPTING OFFICER

TENDER**To**

The President of India

Having examined and perused the following documents:-

1. Specifications signed by AGE [CONTRACTS]
2. Drawings as detailed in the specifications.
3. Schedule 'A', 'B', 'C' and 'D' attached hereto.
4. MES Standard Schedule of Rates - 2009, Part I (Specifications) and MES Standard Schedule of Rates-2020, Part II (Rates) (hereinafter and in IAFW-2249 referred to as the MES SCHEDULE) together with amendment Nos. 1 to 3 for Part-I and 1 to 122 for Part II as applicable.
5. General Conditions of Contracts IAFW-2249 (1989 Print) together with amendment No 1 to 49 and errata No 1 to 20.
6. Refer condition 31 of IAFW - 2249 (General Conditions of Contracts):- **Water will be supplied by the MES and shall be paid by the contractor at Rs. 3.75 per every Rs. 1000/- worth of work done priced at contract rates.**
7. SHOULD THIS TENDER BE ACCEPTED
I/WE AGREE

*(a) That the sum of **Rs. 90,000/-** (Rupees Ninty Thousand only) forwarded as Earnest Money shall be refunded by the Government on receipt of the appropriate amount of Performance Security all as per Condition - 19 of IAFW - 2249.

(b) To execute all the works referred to in the said documents upon the terms and conditions contained or referred to therein and as detailed in the General Summary and to carry out such deviations as may be ordered vide Condition - 7 of IAFW - 2249 up to a maximum of **10% [Ten Percent]** and further agree to refer all disputes as required by Condition - 70 of IAFW - 2249 to the Sole Arbitration of serving Officer having degree in Engineering or equivalent or having passed final / direct final examinations of Sub Division II of Institution of Surveyors [India] recognised by Government of India to be appointed by Chief Engineer [Navy], Visakhapatnam - 530 004 or in his absence the officer officiating as Chief Engineer [Navy], Visakhapatnam if specifically delegated in writing by Chief Engineer [Navy], Visakhapatnam - 530 004 whose decision shall be final, conclusive and binding.

*** To be deleted where not applicable.**

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

TENDER (CONTD...)

Signature _____ in the capacity of _____ Duly authorised to sign the
tender documents for and on behalf of M/s _____
_____) (IN BLOCK LETTERS)

Witness:	_____	Date	_____
Address	_____	Postal Address	_____
	_____		_____
	_____		_____
	_____	Telegraphic Address	_____
	_____	Telephone Number	_____

ACCEPTANCE

_____ alterations have been made in this document and as evidence that these alterations were made before the execution of the contract agreement they have been initialled by the contractor and Shri Bilhan Koul, 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 at the item rates contained in Schedule 'A' for the contract sum of Rs. _____
(Rupees _____ only) on the _____ day of _____ 2023.

Signature

Garrison Engineer

Dated this _____ day of _____ 2023

APPOINTMENT : GARRISON ENGINEER
Military Engineer Services
Station Road
Visakhapatnam - 530 004
(For and on behalf of the President of India)

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

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

A copy of the General Conditions of Contracts [IAFW – 2249], 1989 Print, with Errata 1 to 20 and Amendments No. 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 agree that *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, with Errata 1 to 20 and Amendments No. 1 to 49 form part of these tender documents.

Notes:

- [a] The documents mentioned above can also be seen in the office of the **Garrison Engineer [ND], Visakhapatnam – 530 007** or in any other MES office during working hours.
- [b] In case of difference in interpretation due to wordings of English and Hindi versions, the English version will prevail as per Article 348 of Constitution of India.

*Delete whichever is not applicable.

SIGNATURE OF CONTRACTOR
DATED:

AGE [CONTRACTS]
FOR ACCEPTING OFFICER

SCHEDULE OF MINIMUM FAIR WAGES
[See Condition – 58 of IAFW – 2249]

1. It is hereby agreed that the "Schedule of Minimum Fair Wages" [SMFW] as published vide Government of India Notification dated 10 March 1992 and further Notification and as amended subsequently from time to time by the orders of the competent Central / State Governments / Local Authorities till last date of submission of T – Bids, forms part of these tender documents.
2. My/Our signature hereunder amounts to my/our having read and understood the provisions contained therein and I/we agree that I/we shall abide by the same and that aforesaid documents form part of this tender.
3. 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 for labour shall only be applicable.
4. Schedule of Minimum Fair Wages is not enclosed along with tender but the contractor is deemed to have full knowledge regarding the minimum wages payable to labourers as legally effective on the last date of submission of T – Bids and his tendered rates shall be deemed to have been based on the same. For the purpose of reimbursement of Price Variation [PV] clause for wage escalation of labour, the minimum wages legally effective on the last date of submission of T – Bids shall be the basis.
5. The minimum wage legally effective referred to above is the minimum wages notified in Gazette / governed by any local regulations or by Central Government, whichever is higher.

Notes:

- [a] The documents mentioned above can also be seen in the office of the **Garrison Engineer [ND], Visakhapatnam – 530 007** or in any other MES office during working hours.
- [b] In case of difference in interpretation due to wordings of English and Hindi versions, the English version will prevail as per Article 348 of Constitution of India

SIGNATURE OF CONTRACTOR
DATED:

AGE [CONTRACTS]
FOR ACCEPTING OFFICER

SPECIAL CONDITIONS**1.0 GENERAL**

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

2.0 ADMISSION TO SITE BY CONTRACTOR AND RESPONSIBILITY TO ASCERTAIN HIS OWN INFORMATION

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

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

3.0 SECURITY AND PASSES

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

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

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

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

4.0 CONDITIONS FOR WORKING

4.1 The work lies within the **RESTRICTED AREA**. Following are the conditions for working within the Restricted Area.

4.1.1 **DEFINITION:** Restricted Area(s) for the purpose of this Contract means, the area(s) declared as such by the units and shown in site plan described in Special Conditions.

SPECIAL CONDITIONS [Contd....]**4.2 VISIT TO SITE WITHIN THE RESTRICTED AREAS**

4.2.1 Permission to enter the restricted areas at the time of submission of tender can be obtained through the Garrison Engineer. Tenderers are advised to send prior intimation to the GE about the particulars of their agents, representatives etc., if any, the date and time of their proposed visits so that necessary arrangements may be made by him to secure admission. Whether Tenderers visits the site or not he shall be deemed to have full knowledge on the restrictions of entering into/exit from and the working within the Restricted Area.

4.3 ENTRY/EXIT

4.3.1 The Contractor, his agent(s), representatives, workmen etc., and his materials, carts, trucks or other means of transport etc., will be allowed to enter through and leave from only such gate or gates and at such time as the GE or Factory authorities/In charge of restricted area may at their sole discretion permit to be used. Contractor's authorised representative is required to be present at the places of entry and exit for the purposes of identifying the carts, trucks etc., to the personnel in charge of the security of the Restricted Area.

4.4 IDENTITY CARDS OR PASSES

4.4.1 The contractor, his agents and representatives are required individually to be in possession of an identity card or pass issued by the authorities through concern GE regarding workmen the contractor shall submit to GE the list of workmen and other details for issuing passes through the unit controlling authorities. These passes will be examined by the Security staff at the time of entry into or exit from the restricted area and also any time or number of times inside the restricted area, the tenderer shall have no claim on this account from the department. Contractor shall be responsible for the conduct and action of his workmen, agents or representatives.

4.5 IDENTITY OF WORKMEN

4.5.1 Every workmen & contractor shall be in possession of an identity card. The identity card shall be issued after thorough investigation of the antecedents of the labourers of the contractor and attested by the Officer-in-Charge of the unit concerned in accordance with the standing rules and regulations of the units. In case of doubts in respect of any workmen the decision of GE in respect of which is final and binding. The contractor shall produce police investigation report to the GE on the antecedents of the individual concerned stating that the individuals are not involved/connected with any anti National, criminal activities. Contractor however, shall not be absolved himself from his responsibility for proper conduct and action of his workmen agents or representatives. Any damage/loss caused by the Contractor's agents, representatives and workmen to the existing property of works shall be made good by the Contractor free of cost and to the entire satisfaction of GE. All expenses for carrying out the Police Verification shall be borne by the Contractor. Contractors quoted rate shall be deemed to include all the expenses for carrying out Police Verification.

4.5.2 Contractor's all the labourers and supervisors shall wear a clearly identifiable Maroon Coloured Jacket over their dress at the time of entering the restricted area. The labourers (both skilled and unskilled) and supervisors shall be required to wear the jacket for the entire duration of his/her stay inside the restricted area premises. This is essential so that the security staff and other unit workers can clearly identify the contractor's labourers and supervisors. The cost of the jacket to be borne by the contractor and rates quoted by the contractor deemed to be inclusive for the provision. Nothing extra shall be payable to the contractor on this account.

SPECIAL CONDITIONS [Contd....]**4.6 SEARCH**

4.6.1 Thorough search of all persons and transport shall be carried out at each gate and for as many times as gate is used for entry or exit and may also be carried out at any time or any number of times at work site within the restricted area.

4.7 WORKING HOURS

4.7.1 The Units controlling restricted areas, usually work during six days in the week and remain closed on the 7th day.

4.7.2 The working hours available to Contractor's labour and staff are however appreciably reduced because of the time taken in security checks observed at the time of entry/exit during working hours. The Tenderers attention is invited to the fact that the total number of working hours for a Unit is prescribed in Regulations and that they cannot be increased by the GE or authorities controlling the Restricted Area. The definition of working day given under Condition 1(t) of IAFW-2249 does not apply in case where the works are carried out in Restricted Area.

4.9 WORKING ON HOLIDAYS

4.9.1 The contractor shall not carryout any work on Gazetted holidays, weekly holidays and other non working days except when he is expressly authorised in writing to do so by the GE subject to the provision contained in clause 4.7 above. The GE may at his sole discretion declare any day as a holiday or non working day without assigning any reason for such declaration. No claim what so ever on this account shall be entertained.

4.10 ACCESS TO RESTRICTED AREA AFTER COMPLETION OF WORK

4.10.1 After the works are completed and surplus stores etc., removed, the contractor, his agents, representatives of workmen etc., may not be allowed to have access to the restricted area except for attending any rectification of defects pointed out to him by Garrison Engineer.

4.11 FIRE PRECAUTIONS

4.11.1 The Contractor, his agents, representatives, workmen etc., shall strictly observe the orders pertaining to fire precautions prevailing within the restricted area. Processes involving fire hazards like welding etc., will not be permitted on the site of erection but are permitted in the contractor's site workshop. Necessary prior permission of the unit controlling authorities shall be obtained for carrying out welding on site.

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

4.12 FEMALE SEARCHER

4.12.1 If the contractor desires to employ female labour on works to be carriedout inside the restricted area and a female searcher is not borne on the authorised strength of the unit controlling the restricted area 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/Group 'D' servant) calculated for the period, female labour is employed by him inside that area.

SPECIAL CONDITIONS [Contd....]

4.12.2 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 the unit controlling the restricted area the salary and allowances paid to the additional female searcher(s) shall be distributed on an equitable basis between the contractor 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 any contractor shall be final and binding.

5.0 MINIMUM WAGES PAYABLE

5.1 Refer Conditions 58 of IAFW-2249. The Schedule of Minimum Fair Wages is not enclosed to these tender documents. The contractor shall not pay wages lower than minimum wages for labour as fixed by the Govt of India/State Govt under Minimum Wages Act or Contract Labour (Abolition and Regulation Act), whichever is higher.

5.2 The fair wage referred to in condition 58 of IAFW-2249 will be deemed to be the same as the minimum wages payable as referred to above. The contractor shall have no claim whatsoever, if on account of local factors and or regulations, he is required to pay the wages in excess of minimum wages as described above during the execution of work.

6.0 ROYALTIES

6.1 Reference Condition 14 of General Conditions of Contracts (IAFW-2249). No quarries on Defence land are available.

7.0 LAND FOR TEMPORARY WORKSHOP, STORES ETC

7.1 The contractors shall be permitted to store his materials including erecting temporary sheds for storage/temporary workshop, office/labour huts at the area of land to be decided by GE. The contractor shall be allotted free of charges, the area of land as decided by the GE, for the purpose of erection of temporary work ship, stores etc. Plot of land so allotted shall not be used for accommodation of labour and canteen for which the contractor shall make his own arrangements, at his own expenses.

8.0 WATER :

8.1 Water will be supplied by MES at the point(s) marked on site plan/as decided by the GE. The exact location of the water point(s) will be shown by the GE. Water meters to register the quantum of supply of water shall be provided and installed by the MES. Contractor shall provide all necessary pipes, fittings, etc. from the tapping point in order to ensure a proper and suitable supply of water for execution of work at his own cost. The contractor will be charged for the water drawn for execution of work at Rs. 3.75 per every Rs. 1000/- worth of work done priced at contract rates.

SPECIAL CONDITIONS [Contd....]

- 8.2 The contractor shall ensure safety of water meter by providing necessary meter box with locking arrangement at his own cost. The key of the meter box shall be kept with the Engineer-in-Charge for the subject work. Initial reading of water meter shall be recorded and signed jointly by the rep of the contractor and Engineer-in-Charge in a pucca bound register. Necessary interim readings shall be recorded during the progress of work, duly signed by Engineering-in-Charge and contractor's representative, so that the recovery towards water charges are made from each RAR payment.
- 8.3 The supply of water may not be continuous. The contractor shall be deemed to have ascertained the hours of availability of water before submitting his tender. The MES do not guarantee the continuity of water supply and no compensation shall be allowed for intermittent or inadequate water supply and break down in the system. If the supply is not sufficient the contractor shall make his own arrangement to supplement the water supply at his own cost. For the purpose the contractor shall be allowed to install hand pumps at the site of work at places as directed by the engineer-in-Charge without any charges from the contractor on this account. The contractor shall remove the hand pumps as and when asked to do so by Engineer-in-Charge or **GE** and in any case on completion of work. NO compensation whatsoever shall be admissible to the contractor if the **GE** requires him to remove the pumps before completion of work . Use of water from such sources shall be permitted only if found portable after testing and fit for use in the work. The water from such sources shall be got tested by the contractor from a laboratory approved by GE who shall after satisfying himself permit the contractor to use water from such sources. Testing charges shall be borne by the contractor.
- 9.0 **CO-OPERATION WITH OTHER AGENCIES**
- 9.1 The contractor shall permit free access and generally afford reasonable facilities to other agencies or department workmen engaged by the Govt to carryout their part of the work, if any, under separate arrangements.

SPECIAL CONDITIONS [Contd....]**10.0 ELECTRIC SUPPLY**

10.1 Electric supply required for the work shall be made available by MES. The exact locations of the Electric points will be shown by the GE. KWH meters to register the electric energy supplied and main switch shall be provided and installed by the MES. Contractor shall provide all necessary cables, fittings, etc., from the tapping point in order to ensure a proper and suitable supply of electricity for execution of work. The installations/items provided by the contractor shall conform to and strictly in accordance with Indian Electricity Rules. Moreover the layout of cables etc., as proposed by him shall be as per plan approved by the Engineer-in-charge. The contractor will be charged for the electric energy consumed for execution of works at the following rates:-

- [i] Rs. 14.54 (Rupees Fourteen and Paise Fifty Four) per Unit for lighting
- [ii] Rs. 14.54 (Rupees Fourteen and Paise Fifty Four) per Unit for power

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

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

11.0 NETWORK ANALYSIS

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

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

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

SPECIAL CONDITIONS [Contd....]

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

12.0 SAMPLE OF MATERIALS

12.1 Refer condition 10 of IAFW-2249 and clause 1.6 & 1.7 of Standard Schedule of Rates 2009 Part-I specifications. Materials provided by the contractor for incorporation in the works shall unless otherwise specified in the particular specifications be ISI marked. IS means Indian Standards as issued by the "Bureau of Indian Standards". Wherever in the specifications 'IS' is referred to, it means the edition with all amendments, current on the due date of receipt of the tender documents.

12.2 The tenderer is advised to inspect other 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, he is required to incorporate in the work irrespective of whether he has actually inspected them or not. The materials to be incorporated in the work by the contractor shall be IS marked or shall be equal or superior in quality to sample displayed and shall comply with the specifications given hereinafter. The contractor shall not procure materials unless the samples are first got approved by the Garrison Engineer.

13.0 RECORD OF CONSUMPTION OF CEMENT

13.1 The contractor shall maintain a pucca bound register with serially numbered pages with all pages initialled by Engineer-in-Charge against numbering showing quantities of cement received, used in work and balance at the end of each day. The form of record shall be as approved by Engineer-in-Charge. The register shall be signed daily by representatives of MES and the contractor in token of verification of its correctness and will be checked by Engineer-in-Charge, at least once a week and on the days cement is brought to site by the contractor.

13.2 The register shall be kept at site in safe custody of the contractor's representative during the progress of the work and shall on demand be produced for verification to the inspecting officer(s). On completion of the work the contractor shall deposit the cement register with the Engineer-in-Charge for record.

14.0 PERIOD FOR KEEPING THE TENDER OPEN

14.1 The tender shall remain open for acceptance for a period of **90 (Ninety)** days commencing from the next day subsequent to bid submission end date.

15.0 SECURITY OF CLASSIFIED DOCUMENTS

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

SPECIAL CONDITIONS [Contd....]**16.0 OFFICIAL SECRET ACT**

16.1 The contractor shall be bound by the Official Secret Act-1923.

17.0 RECORD OF MATERIALS

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

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

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

17.4 Contractor shall produce vouchers/invoices from the manufacturers and / or their authorised agents for the full quantity of the following materials, as applicable as a pre-requisite before submitting claims for payment for advances on account of the work done and/or materials collected in accordance with Condition 64 of General Conditions of Contracts-(IAFW-2249):-

[a] Cement

[b] Steel, chain link fencing, Tiles, interlocking Paver Blocks,
CGI/PGI/Galvalume Sheets

[c] Light fittings

[d] Copper conductor wire

[e] Weather proof box

[f] Flamer proof switches and Exhaust fans

[g] Paints, Primer

18.0 CLEANING DOWN

18.1 Refer Condition 49 of IAFW-2249, General Conditions of Contracts: -

18.2 The contractor shall clean all floors, walls, remove cement /lime paint marks/drops, etc. clean the joinery, glass panes, etc. touch up all painting works and carryout all other necessary items of works in connection therewith and leave the whole premises clean and tidy to the entire satisfaction of Engineer-in-Charge before handing over the buildings / works. No extra payment shall be admissible to the contractor for this operation. The contractor shall also clean all surrounding areas where building materials were kept or where ground was disturbed during execution of the work and make it as per original condition without any extra cost.

SPECIAL CONDITIONS [Contd....]**19.0 OUT OF POCKET EXPENSES**

19.1 No out of pocket expenses incurred by the tenderer in submitting his tender shall be reimbursed whether his tender is accepted or not.

20.0 MATERIALS IN METRIC SIZES

20.1 If the material (other than those issued under Sch 'B') are not available in metric sizes as shown on drawings, the contractor shall provide materials in equivalent inch sizes which would not be less than the metric size dimension under any circumstances, at no extra cost to the Government.

21.0 PERFORMANCE SECURITY

21.1 The tenderers shall note that the successful tenderer is required to lodge **Performance Security** for an amount equal to **5%** of the Contract Sum within 28 Days of receipt of Letter of Acceptance in the form of Bank Guarantee in the prescribed format or Government Securities or FDR or any other Government Instruments stipulated by the Accepting Officer in terms of Condition – 19 of IAFW – 2249, General Conditions of Contracts. The Performance Security shall be valid till expiry of Defects Liability Period as stipulated hereinafter (In case of BGB it shall be valid beyond 60 days of defects liability period). In case the tenderer fails to deposit the Performance Security within the stipulated period, the award of work shall be cancelled and Earnest Money deposited by him shall be forfeited. In case of MES enlisted Contractors, the amount equal to the Earnest Money stipulated in the Notice of Tender, shall be notified to the tenderer for depositing the amount through MRO. Bids of such Contractors shall not be opened till the aforesaid amount equal to the Earnest Money is deposited by him in Government Treasury. The contractor shall not be entitled for any compensation whatsoever on this account. The Work Order for commencing the work shall be placed by the GE only after receipt of above Performance Security along with requisite declarations from the contractor within the stipulated time period.

22.0 **DEFECTS LIABILITY PERIOD:** Refer Condition – 46 of IAFW – 2249, General Conditions of Contracts. The Defects Liability Period for this work shall be **Twelve [12] Calendar Months** from the certified date of final completion of the work.

23.0 **GST ON WORKS CONTRACTS BY STATE GOVERNMENT:** The tenderer's Unit Rates / Lumpsum Amount shall be deemed to include the GST levied by the State Government as fixed from time to time and no claim on account of GST shall be admissible. Tender will be considered non-bonafide if any stipulation is made by the tenderers in this regard and tender will be liable for rejection. As per State Government GST Act, tax at applicable percent will be deducted at source by GE as per State Government Orders issued from time to time. Contractor's Unit Rate / Lumpsum amount shall be deemed to include this aspect and nothing extra shall be payable to contractor on this account. GST @ 2 % [1 % for SGST + 1 % for CGST] shall be recovered at source from the RAR & Final Bill payments.

24.0 **EMPLOYEES' PROVIDENT FUND:** The contractor shall be in possession of EPF Code Number and all the workers employed by him shall be enrolled as member of Employees' Provident Fund and shall have Universal Account Number [UAN]. The contractor shall render a certificate that all workers directly or indirectly employed by him are registered for EPF and the due contributions have been credited in to their accounts, before claiming for any payment. The payments shall be released only on verifying the same from Official Website of EPFO [www.epfindia.gov.in].

SPECIAL CONDITIONS [Contd....]**25.0 QUALIFIED TRADESMEN: (APPLICABLE FOR WORKS COSTING RUPEES ONE CRORE AND MORE)**

25.1 In compliance with the Condition 26 of IAFW-2249 (General Conditions of Contracts), the contractor shall employ skilled/semi skilled tradesmen who are qualified and possessing certificate in particular trade from Industrial Training Institute (ITI)/National Institute of Construction Management and Research (NICMAR)/Similar reputed and recognized Institutes by State/ Central Government, to execute the works of their respective trade. The number of such qualified tradesmen shall not be less than 25% of total skilled/semi skilled tradesmen required in each trade. The contractor shall submit the list of such tradesmen alongwith requisite certificates to Garrison Engineer for verification and approval. Notwithstanding the approval of such tradesmen by GE, if the tradesmen are found to have inadequate skill to execute the work of their trades, leading to unsatisfactory workmanship, the contractor shall remove such tradesmen within a week after written notice to this effect by the GE and shall engage other qualified tradesmen after prior approval of GE. GE's decision whether a particular tradesmen possesses requisite qualification, skill and expertise commensurate with nature of work, shall be final and binding. No compensation whatsoever on this account shall be admissible.

26.0 RE-IMBURSEMENT/REFUND ON VARIATION IN "TAXES DIRECTLY RELATED TO CONTRACT VALUE"

26.1 The rates quoted by the Contractor shall be deemed to be inclusive of all taxes / cesses viz GST, duties, Royalties, Octroi & other levies payable under the respective Statutes as applicable on the date of bid submission end date. No reimbursement/refund for variation in rates of taxes, duties, Royalties, Octroi & other levies, and/or imposition/abolition of any new/existing taxes/cesses, duties, Royalties, Octroi & other levies shall be made except as provided in sub paras 26.2 to 26.5 here-in-below: -

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

SPECIAL CONDITIONS [Contd....]

- 26.3 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 there to which he may be in a position to supply. The Contractors shall submit the other documentary proof/information as the GE may require.
- 26.4 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 Government, 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.
- 26.5 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 Government, without getting the same adjusted against any other tax liability or without getting the same refunded from the concerned Government Authority and submits documentary proof for the same as the GE may require.
- 27.0 **DIGITAL RECORDS**
- 27.1 During execution of works, records of all hidden works, deviation and important stages of work shall be maintained using digital photography duly signed by AGE, GE and Contractor. All such records shall be submitted to higher authorities when called for and/or for verification during finalization of DOs. These records need to be produced as a proof by the GE/AGE in case of disputes. The decision of the GE with regard to recording of part/portion or full details of hidden works, deviation and important stages of works shall be final and binding. In case of dispute between the GE and Contractor with regard to measurements/finalization of DO's (in respect of recorded works) the decision of Accepting Officer shall be final and binding.
- 27.2 Contractors shall consider all such provisions in their quotation before quoting the tender and their quoted rates shall deemed to include all the incidental expenses (direct or indirect) required for such provisions and nothing extra will be entertained on this account.

SIGNATURE OF CONTRACTOR
DATED:

AGE [CONTRACTS]
FOR ACCEPTING OFFICER

SPECIAL CONDITIONS [Contd....]**MATERIALS & TESTS**

1. If facility for testing of building materials for any particular test is not available in the site laboratory, the same shall be got tested in the Command testing laboratory (CTL) and if not available in CTL, the same shall be got tested in National Test House/SEMT WING/Engineering collage at the discretion of Garrison Engineer. All expenses for testing shall be borne by the contractor.
2. TESTING FREQUENCY: The materials listed in Appx 'A' shall be tested as per the frequency indicated therein.
3. Level of testing shown in legend as A,B & C are defined as under:-
4. Level 'A': "Site Lab" means own site lab established by contractor at the work site for such tests. This lab shall house all the facilities including T & P, machinery, equipment, and manpower etc, required for conducting tests. Competent technical representative as approved by the GE shall be employed by the contractor to man the laboratory. This lab shall be operative for the entire duration of the contract till its completion. Tests shall be carried out in the presence of Engineer-in-Charge or any other departmental official to be nominated by the GE. Random check of compliance of frequency of testing shall be done by GE. Setting up site laboratory is mandatory for all works costing Rupees One Crore and above. The contractor may at his option set up site laboratory for works costing less than Rs.1 Crore (Rupees one crore) also without any extra cost to Government.
5. Record of these tests shall be maintained at work site. These test result shall be signed by contractor or his authorised representative and aforesaid departmental official. Random check shall be done by GE also and shall sign the same in token of the check.
6. Manpower, material and infrastructure like electricity etc, required for conducting these tests shall be provided by the contractor.
7. Tenderer is deemed to cater for above provisions in his quoted rates.
8. Remedial measures, if any, required to achieve/obtain desired results for each tests shall be taken promptly by the contractor. Quoted rates are deemed to be included for this eventuality and nothing extra shall be payable to the contractor. No extension of time shall be admissible on this account.
9. Rates for test given are applicable for recovery in case of unavoidable circumstances where some tests as per laid down frequency could not be done and in the opinion of the GE non performance of these tests do not affect quality control. However, in case GE in his opinion considers that contractor is purposely not adhering to laid down frequencies of tests, he shall reserve the right to get it tested in Zonal lab or any other lab as deemed fit and make penal recovery form RAR which shall be double the rate of testing charges indicated or testing charges actually paid to lab whichever is higher. GE's decision, in this regard , shall be final and binding.
10. Level 'B': "Zonal Lab" means any Command testing laboratory of MES.

SPECIAL CONDITIONS [Contd....]**MATERIALS & TESTS (Contd....)**

11. The tests shall be conducted as per frequencies laid down for these tests in these labs for which contractor shall provide all requisite facilities like samples, cubes, material etc, transportation to these labs for testing purpose. It will be contractor's responsibility to adhere to the laid down frequency of testing. Test results shall be sent by lab to the GE whose copies can be made by contractor at his own expense. Testing charges for the tests so conducted shall be recovered at the rates indicated from the running payments. The contractor's quoted rates are deemed to include for above provisions.
12. Provision of Para 9 above of level 'A' shall be applicable to level 'B' also.
13. Level 'C': Level 'C' stands for National Test House / SEMT Wing Pune located in CME Pune – 31 / Govt Approved Laboratories / NABL Accredited Laboratories / Regional Research Laboratories / IIT / National Institute of Technology where such facilities exist.
14. Test provisions contained in Para 11 of level 'B' above shall be applicable here except that contractor shall make necessary arrangement for transportation etc, to hand over the samples to these labs. Test results shall be forwarded to GE by these labs directly. The testing charges payable to these labs for conducting these tests shall be borne by the contractor and his quoted rates are deemed to include this provision.
15. Provision of Para 9 above of level 'A' shall be applicable to level 'C' also.
16. In case of non-availability of testing facilities in MES lab, the tests shall be conducted in any outside approved labs. Testing charges of materials/cubes carried out in approved laboratory shall be as per actual and shall be directly borne by the contractor.

SPECIAL CONDITIONS [Contd....]**Appendix 'A'****MATERIALS & TESTS**

Note: List of tests given hereunder is not final. Other tests required as per MES Schedule / BIS to satisfy the quality requirement will also be got done by the GE and necessary expenditure for the same shall be borne by the contractor.

SI No	Material	Tests	Method of testing	Frequency of tests	Level of test	Rate	Remarks
1	2	3	4	5	6	7	8
1.	Brick	1) 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
		2) Water Absorption	IS-3495 (Part-II)	Lot Size. 1001 to 10000	A	330/-	A
		3) Efflorescence	IS-3495 (Part-I)	10001 to 35000 35001 to 50000	A	330/-	A
2.	Coarse Aggregate	1) Sieve Analysis	IS: 2386(Part-I)	One test for every 15 cum of aggregates or part there of brought to site.	A	660/-	
		2) Flakiness Index	IS: 2386(Part-I)	One test for every 15 cum of aggregates or part there of brought to site.	A	250/-	
		3) Estimation of deleterious materials	IS: 2386(Part-I)	One test for every 100 cum of aggregate or part thereof.	A	600/-	
		4) Organic impurities	IS: 2386(Part-I)	One test per source of supply	B	275/-	
		5) Moisture content	IS: 2386 (Part-II)	Regularly as Required.	A	330/-	
		6) Specific gravity	IS: 2386 (Part-II)	One test for each source of supply.	B	330/-	
3.	Fine aggregate	1) Sieve Analysis	IS: 2386 (Part-I)	One test for every 15 cum of FA or part thereof when brought to site.	A	660/-	
		2) Test for clay, silt and impurities.	IS: 2386 (Part-I)	One test for every 15 cum of FA or part thereof when brought to site.	A	500/-	
		3) Specific gravity	IS: 2386 (Part-II)	One for each source of supply	B	330/-	
		4) Test for organic impurities	IS: 2386 (Part-II)	One test for each source of supply.	B	275/-	

SPECIAL CONDITIONS [Contd....]**Appendix 'A'****MATERIALS & TESTS**

1	2	3	4	5	6	7	8
		5) Moisture content	IS: 2386 (Part-II)	Regularly as required subject to 2 tests/per day when being used.	A	330/-	
4.	Cement	1) Setting time	IS-4031-63 Reaffirmed 1980	Once for each consignment or as and when Required.	B	500/-	
		2) Soundness	IS-4031-63 Reaffirmed 1980	Once for each consignment or as and when Required.	B	550/-	
		3) Compressive strength	IS-4031-63 Reaffirmed 1980	Once for each consignment or as and when Required.	B	550/-	
		4) Fineness	IS-4031-63 Reaffirmed 1980	Once for each consignment or as and when Required.	B	275/-	
5.	Structural concrete	1) Slump test or compacting factor test or VEE-BEE time	IS-1119	The Min frequency of sampling of concrete of each grade shall be as under :-	A	300/-	(1) Random sample shall be carried out to cover mixing units. (2) As per IS-456-2000 Clause. 14 for frequency of sampling.
		2) Compressive strength	IS-516	Qty of Conc. in the work (M ³)	No of samples	900/-	
				1 - 5	1		
				6 - 15	2		
				16 - 30	3		
				31 - 50	4		
				51 and above	4+1 for each Addl 50 Cu M. or part thereof		
6.	Cement flooring Tiles/ Terrazzo tiles	1) Water absorption	IS: 1237 (Appx 'D')	6 Tiles out of 18	B	330/-	Samples: 18 Tiles from each source of supply selected at Random.
		2) Wet Transverse strength	IS: 1237 (Appx 'E')	6 Tiles out of 18	B	660/-	
		3) Resistance to wear	IS: 1237 (Appx 'F')	6 Tiles out of 18	C	1000/-	
7.	Timber	1) Specific gravity and weight	IS: 1708- 1960	Minimum 3 samples from a lot of 4 Cum or 250 pieces of seasoned timber.	B	120/-	
		2) Moisture content	IS: 1708- 1960		A	120/-	

SPECIAL CONDITIONS [Contd....]**Appendix 'A'****MATERIALS & TESTS**

1	2	3	4	5	6	7	8
8.	Water for Construction purpose	1) 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.
		2) Test for alkalinity	IS: 456 & 3015		B	500/-	
		3) Test for Solid content	IS-456 & 3015		B	500/-	
9.	Welding of steel work	Visual inspection Test.	IS:822-1970 Clause-7.1	100% by visual inspection	Work site	360/-	Specialised tests, their method and frequency to be decided on consideration of their importance by the Accepting Officer.
10.	Timber panelled and glazed Door /window shutters	a) Dimensions, sizes workmanship and finish	IS:1003-1977 (Pt-I)	Frequency of sampling from each lot shall be as under: -	A	180/-	
				Lot size	Sample Size		
				26 to 50	5		
	(including factory made shutter)			51 to 100	8		
				101 to 150	13		
				151 to 300	20		
				301 to 500	32		
				501 to 1000	50		
				1001 and above	80		
		b) STRENGTH TEST					
		1) Slamming	IS: 1303-1990	From each lot 5% of the factory made shutter shall be Manufacture tested for strength tests.			
		2) Impact Indentation	IS: 1303-1990				
		3) Shock Resistance	IS: 1303-1990				
		4) Edge Loading	IS: 1303-1990				

SPECIAL CONDITIONS [Contd....]**Appendix 'A'****MATERIALS & TESTS**

1	2	3	4	5	6	7	8
11.	Ply Wood (IS:303-1989)	a) Moisture content	IS: 1734-1983 (Pt-I)	Six test pieces cut from each of the boards selected as per table-I shall be subjected to tests.	C	240/-	SAMPLING shall be as per IS-7835-1975 Table-2.
12.	Veneered Wood Particle Board (Medium Density) IS: 3097-1985	a) Density	IS: 635 (Pt-I)	Three test specimen from each sample (Size 150mm x 75mm)	A	60/-	Sampling shall be done as per IS: 3487-83 clause 2 with moisture meter.
		b) Moisture content	IS: 2360 (Pt-3)	Three test specimen from each sample (Size 150mm x 75mm)	A & B	60/-	
		c) Water absorption	IS: 2360 (Pt-16)	Three test specimen from each sample Size 300mm x 300mm)	A	60/-	
		d) Swelling due to surface absorption	IS: 2360 (Pt-17)	Three test specimen from each sample (Size 125mm x 100mm)	A	60/-	
		e) Swelling in water	IS: 2360 (Pt-17)	Three test specimen from each sample Size 200mm x 100mm)	A	60/-	
		f) Modules of rupture	IS: 2360 (Pt-IV)	Three test specimens as per IS: 2380-1977	B	90/-	
		g) Screw withdrawal strength	IS: 2360 (Pt-IV)	Three test specimens as per IS: 2385	C	120/-	
13	Ceramic tiles/galzed tiles	(i) Water absorption test	-	6 Tiles out of 18	'B'	180/-	Samples: 18 tiles from each source of supply selected at random
		(ii) Wet transverse strength		6 Tiles out of 18	'B'	144/-	
		(iii) Resistance to wear		6 Tiles out of 18	'B'	540/-	
14	Reinforcement steel	(i) Physical tests up to 16mm dia (Normal mass, tensile elongation, bend and re bend)			'B'	2500/-	
		(ii) More than 16mm dia			'B'	2750/-	

1.0 **GENERAL**

- 1.1 Work under this contract shall be carried out in accordance with Schedule 'A', particular specifications and general specifications and other provisions in MES Standard Schedule of Rates (here-in-after called MES Schedule) Part-I and Part-II read in conjunction with each other.
- 1.2 Term "General Specifications" referred to herein before as well as referred to in IAFW-2249 (General Conditions of contracts) shall mean the specifications contained in the MES Schedule Part-I.
- 1.3 General Rules, specifications, special conditions and all preambles in the MES Schedule shall be deemed to be applicable to the work under this contract, unless specifically stated otherwise in these documents in which case the provisions in these documents shall take precedence over the aforesaid provisions in the MES Schedule. The term 'as specified' wherever appears in tender documents and drawings, relates to relevant particular specifications and in its absence general specifications. All references to MES Schedule (Standard Schedule of Rates) in these specifications relate to Part I of MES Schedule unless otherwise mentioned. References to only some paragraphs of MES Schedule have been made in these particular specifications but other paragraphs and provisions as applicable are also to be followed for all sections/parts of Schedule 'A' even though not particularly mentioned hereinafter.
- 1.4 Particular Specifications given hereinafter shall be applicable to all the works covered in Schedule "A" and these are brief and only particularise and emphasize the specifications given in MES Schedule which are not repeated.
- 1.5 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 shall be followed. In case no specifications are given in these Particular Specifications for any item of work then the work shall be executed to the specification given in the MES Schedule in preference to the local trade practice. Where specification for any item of work is not given in these Particular Specifications or in MES Schedule in that case specifications given in relevant Indian standard specifications or code of practice shall be followed.
- 1.6 In the event of any discrepancy between various documents forming Part of the tender, the following order of precedence shall be observed:
- [a] Description of Schedule "A" including notes therein.
 - [b] Particular Specifications [Sections I & II].
 - [c] MES Schedule [SSR].
- 1.7 **NOTES:** In case no provision is made in [a] to [c] above, Indian Standard Specification/Code of Practice shall be followed.

PARTICULAR SPECIFICATIONS (CONTD...)**2.0 SCOPE OF WORK:**

2.1 The extent of work under this contract is as indicated in Schedule 'A'/BOQ. All references to clauses in succeeding paragraphs pertains to MES Schedule. The scope of work comprises as described in Schedule 'A'/BOQ and as specified in these particular specifications.

3.0 STORES & MATERIALS:

3.1 In case specification of any material needed for incorporation in the work is not contained in any of the contract documents mentioned above, the specification of such materials proposed to be incorporated in the work shall be got approved in writing from the GE before their incorporation in the work.

3.2 All manufactured materials / articles other than those manufactured in contractor's workshop at site shall conform to relevant IS or bear IS certifications mark as applicable.

3.3 Items conforming to ISI will be accepted only when ISI marked materials are not manufactured in the country. However, materials which are superior to ISI specifications such as particular type of paints, may be used without any extra cost to the Government but before incorporating such materials / items in the work, the contractor shall produce necessary test certificate as required by the GE as a proof that the materials / items to be incorporated in the work conform to relevant ISS or superior to ISS.

3.4 If the contractor, at his own discretion, intends to provide materials / items conforming to IS specifications and bearing IS certification mark from any other manufacturers other than those listed in the tender, such materials shall be allowed to be incorporated with prior approval of Accepting Officer and without any price adjustment. However, this option shall only be exercised when none of the manufacturers mentioned in these tender documents produce the materials with IS certification mark.

4.0 SAMPLES:

4.1 The contractor shall produce samples of all building materials and fittings before making arrangements for bulk supplies for prior approval of the GE. The materials to be provided by the contractor shall conform to or shall be superior to the samples approved. Please also refer clause 1.6 of MES Schedule Part-I.

5.0 STORAGE OF MATERIALS:

5.1 Materials shall be stored and protected all as specified in Clause 1.9 of MES schedule Part-I.

PARTICULAR SPECIFICATIONS (CONTD...)**6.0 MATERIALS AND SAMPLES [REFER CONDITION 10 OF IAFW – 2249]:**

6.1 Materials and articles shall bear IS certification marks and only those shall be incorporated in the work except for the materials for which specific makes are specified in the tender. The tenderer is advised to inspect the samples of other materials displayed in the office of the GE, before submitting his tender. The tenderer shall be deemed to have inspected the samples and satisfied himself as to the nature and quality of materials required to incorporate in the work once he submits his quoted tender irrespective of whether he has actually inspected them or not. The materials to be incorporated in the work by the contractor shall be ISI marked or shall be superior to the quality of samples displayed in the office of the GE and shall comply with the specifications given herein after.

6.2 The contractor shall not procure materials unless the GE first approves the samples in writing. The materials, articles etc approved shall be labelled as such and shall be signed by the GE and contractor's representative. These samples shall be kept in the custody of the Assistant Garrison Engineer / JE till the completion of the work or as directed by the GE. The brand of all materials, articles, fittings etc, approved together with the names of the manufacturers and firms from which supplies have been arranged shall be recorded.

6.3 With reference to condition 10 of IAFW – 2249 in respect of materials, if specific name of firm or make is inserted in this document for materials to be supplied, the materials only of that firm or make will be supplied by the contractor. In no case the materials of any other firm or make will be accepted. This will also apply to cases where more than one firm or make is specified in these documents, in that case, the choice of make or firms so specified rests with the contractor.

6.4 Materials provided by the contractor for incorporation in the work shall, unless otherwise specified in the particular specifications comply with the requirement of the relevant Indian Standards [IS] and bear IS certification mark. IS means Indian Standards as issued by the Bureau of Indian Standards. Wherever in the specifications of "IS" are referred, it means the latest addition of Indian standards with all amendments, current on the due date of receipt of the tender documents.

7.0 PROPRIETARY MATERIALS:

7.1 The quantity of materials such as paints, WPC, cement, steel, distemper, ATT chemical, bitumen and the like as applicable and as directed by the Engineer-in-Charge [The quantity of which cannot be checked after incorporation in the work] shall be recorded in measurement book 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.

7.2 Materials brought to site shall be stored as directed by the Engineer – in – Charge and those already recorded in measurement book shall be suitably marked for identification. The contractor shall ensure that the materials are brought to site, in original sealed container / packing bearing manufacturers marking except in the case of the procurement of material[s] being less than smallest packing. Sealed containers shall be opened in the presence of Engineer – in – Charge as and when required and empty containers should be kept in contractors store till the completion of the work for inspection by GE / Other Inspecting Officers.

PARTICULAR SPECIFICATIONS (CONTD...)**8.0 TESTING OF MATERIALS [REFER CONDITION 10 A OF IAFW – 2249]:**

8.1 Sampling and testing of materials shall be done as per BIS stipulations and as specified / modified in tender documents. The cost of samples of materials and other expenses required to be incurred for taking the samples, packing, conveyance, preservation for future reference and testing charges shall be borne by the contractor. Tests stipulated as "Independent" and by "Board of officers" shall also be carried out without any extra cost to the Government.

9.0 WORKMANSHIP:

9.1 All materials, workmanship of all fittings, appliances etc., used in this work shall be new and of the highest class of their kind and shall suitable in every where, for the services required and shall be generally comply to the relevant Indian Standards wherever they exists and in case no IS exists, the item shall be approved by GE before its incorporation in the work.

9.2 Unless samples of materials are approved, the contractor shall not be allowed to commence the work.

9.3 The contractor shall undertake all reasonable precautions for the protection from injury or damages and preservation of any or all existing structures, roadside poles, trees, drains, sewers or other sub-surface drains, pipes, conduit, cables, and any other structures under or above the ground which may be affected by the repair works. However, if any damage occurred to these objects / existing structures by reason of Contractor's negligence, it shall be replaced or restored to the original condition at his own expense.

9.4 The work shall be executed by experienced / fully trained workmen only.

9.5 Unserviceable materials / debris other than those catered under Schedule of Credit shall be removed off as directed by the Engineer-in-Charge to ensure safe and adequate working space.

10.0 DEMOLITION / DISMANTLING / TAKING DOWN:

10.1 All demolition/dismantling work shall be carried out carefully without disturbing existing item of work which are not required to be dismantled. Contractor shall provide all precautionary measures for this purpose so that no damages to be occurred in the existing buildings/structures. If any damages are occurred because of the contractors negligence as per the opinion of the Engineer-in-Charge, the same shall be made good by the contractor at his own cost as per the existing specifications with the entire satisfaction of Engineer-in-Charge. The site of work shall be left clean and tidy before completion of the work.

10.2 The serviceable items obtained from dismantling other than those catered under Schedule of Credit shall be returned to MES store yard and unserviceable materials / debris shall be cleared off the site with prior written permission of the Engineer-in-Charge. The decision of Engineer-in-Charge shall be final and binding. Unit rates quoted under Schedule 'A' shall deemed to be included for this provision also.

10.3 Items obtained from demolition shall not be removed from the site, but stacked at place as indicated by the GE. Items obtained from demolition shall be removed only after its entire amount is recovered from the 1st RAR or subsequent RARs.

PARTICULAR SPECIFICATIONS (CONTD...)**11.0 CONCRETE:**

11.1 **COARSE AGGREGATE:** Coarse aggregate for all cement concrete work shall be graded crushed granite stone all as specified and shall conform to grading given under MES Schedule Part-I. Normal size of graded stone coarse aggregate to be used for various situations shall be as specified in Schedule "A". The source of aggregate shall be as approved by GE.

11.2 **FINE AGGREGATE:** The fine aggregate shall be natural sand from any of the approved source. Fine aggregate for concrete shall generally conform to the specifications laid down in MES Schedule Part - I. The source of fine aggregate shall be as approved by GE.

12.0 CEMENT

12.1 **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 drawings, MES Schedule, IS specifications as amended and particular specifications given hereinafter.

12.2 Type of cement for the subject work shall be Ordinary Portland Cement Grade 43 [Forty Three] in accordance with IS - 8112 or Portland Slag cement conforming to IS - 455 or Portland Pozzolona Cement [PPC] as per IS - 1489 [subject to conditions mentioned here-in-after] at the option of contractor without any price adjustment unless otherwise mentioned in structural drawings forming part of the tender documents. However one type of cement shall only be used in the entire work.

12.3 When the contractor opts for using PPC in the work, GE can allow incorporation of PPC subject to following:

- [a] GE is required to ensure that PPC meets the strength criteria of 43 Grade OPC as laid down in IS-8112 - 1989.
- [b] The minimum period before striking formwork given in clause 11.3.1 of IS 456-2000 is to be suitably modified at sites by the GEs/AGEs (I).
- [c] The contractor shall give an undertaking that he shall not claim anything extra what-so-ever on account of extra time for stripping formwork, etc while using PPC in lieu of OPC.
- [d] In cold climate regions where temperature is lower than 15°C and important structures like Over Head Reservoirs, Under Ground Sumps, Prestigious Buildings and Buildings with spans 10m or more only OPC shall be used.
- [e] Mixing of OPC and PPC shall not be allowed in work.
- [f] While procuring PPC the following requirements are to be ensured and certificate to that effect shall be obtained for each batch from the manufacturers.

PARTICULAR SPECIFICATIONS (CONTD...)

- [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 has been used.
- [iv] The fly ash received from thermal power plants using high temperature combustion above 1000°C has been used.
- [v] Only pneumatic pumping has been used

12.4 **SOURCES OF PROCUREMENT:** Cement shall be procured by the contractor from any of the following main producers:-

- [i] M/s. Associated Cement Companies Ltd. Brand: 'ACC'
- [ii] M/s. Ultra Tech Cement Ltd. Brand: 'ULTRATECH'
- [iii] M/s. The India Cement
- [iv] M/s. Dalmia Cement [Bharat] Ltd. Brand: 'Dalmia Infra Pro'
- [v] M/s. Century Cements. Brand: 'Century'
- [vi] M/s. Saurashtra Cement. Brand: 'Saurashtra'
- [vii] M/s. The Ramco Cements Ltd. (Formerly Madras Cement) Brand: 'Ramco'
- [viii] M/s. Mangalam Cement Ltd. Brand 'Mangalam'
- [ix] M/s. Birla Corporation Ltd. Brand: 'Birla'
- [x] M/s. Orient Cement. Brand: 'Orient'
- [xi] M/s. Nuvoco Vistas Corporation Ltd. (Formerly Lafarge Cement) Brand: 'NUVOCO'
- [xii] M/s. Shree Cement. Brand: 'Shree'
- [xiii] M/s. JK Cement. Brand: 'JK'
- [xiv] M/s. JK Lakshmi Cement Ltd. Brand: 'JK Lakshmi'
- [xv] M/s. Jaypee Rewa Cement. Brand: 'JAYPEE'
- [xvi] M/s. Ambuja Cement Ltd. Brand: 'Ambuja'
- [xvii] M/s. Shree Guru Kripa Cement (Pvt) Ltd. Brand: Sartaj [OPC 43 & PPC] [Valid up to Nov 2023]
- [xviii] M/s. Parasakti Cements Ltd. Brand: 'Parasakti' [OPC 43 Grade & PPC] [Valid up to Sep 2023]
- [xix] M/s. My Home Industries Ltd. Brand: 'Maha cement' [PSC]
- [xx] M/s. Chettinad Cement Corporation Ltd. [OPC 43 Grade & PPC]
- [xxi] BLANK
- [xxii] M/s. JSW Cement Ltd. Brand: 'JSW' [OPC 43, OPC 53 & PSC]
- [xxiii] M/s. Sagar Cements Ltd. Brand: 'Sagar' [OPC 43, OPC 53, PPC & PSC]

12.5 Where total estimated requirement of cement in the work is less than 1200 bags, contractor can procure cement from the authorised dealers of the main producers as mentioned in clause 12.4 hereinbefore.

PARTICULAR SPECIFICATIONS (CONTD...)

- 12.6 The contractor shall furnish the particulars of the manufacturer / main producers of cement along with 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 Garrison Engineer shall verify the documents in support of the purchases of cement. 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 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 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, each bag of cement shall be of nominal average net mass of 50 KGs, subject to tolerance given in clause 9.2 and Annexure "B" of IS - 8112 and in relevant clause of IS - 1489.
- 12.7 If due to some unforeseen circumstances which are beyond the control of the contractor, cement is not used within 03 months, the same shall be retested and shall be used in the work only after taking prior approval of Accepting Officer. Permission to use cement more than 03 months old shall be given only in exceptional cases where Accepting Officer is satisfied with the grounds put up by the contractor and cement still meets all the requirements of IS. No claim whatsoever shall be entertained if permission to use cement more than 3 months old is not given to contractor.
- 12.8 **TESTING OF CEMENT**
- 12.8.1 The contractor shall submit the manufacturer's test certificate in original along with test sheet giving the result of each physical test as applicable in accordance with the relevant IS provision and the chemical composition of cement or authenticated copy thereof, duly signed by the manufacturer with each consignment, as per the following IS provision: -
- [a] Method of sampling hydraulic cement as per IS - 3535 - 1986.
 - [b] Methods of physical test for hydraulic cements as per IS - 4031.
 - [c] Method of chemical analysis of hydraulic cement as per IS-4032-1985.
 - [d] The test sheet should include results of the following mandatory tests: -
 - [i] Specific surface by Blains air Permeability method.
 - [ii] Soundness Test by Le' Chateller method.
 - [iii] Initial setting time.
 - [iv] Final Setting time.

PARTICULAR SPECIFICATIONS

[v] Compressive strength test at 3, 7 & 28 days as specified in the relevant IS code.

[vi] The test report should also show the chemical properties of the cement as per relevant IS codes.

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

12.8.3 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 10 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 days strength test will be relied upon to accept the lot of cement to commence the work. 28 days compressive strength test will be the final criteria to accept/reject the lot.

12.8.4 The GE shall carryout independent testing as per the tests mentioned in the "CEMENT SUPPLY / ACCEPTANCE FORM" 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 Wing / Government Approved Laboratories / NABL Accredited Laboratories / Regional Research Laboratories / IIT / National Institute of Technology / Command Testing Lab as per IS - 3535 [Method of sampling Hydraulic Cement], IS - 4031 [Method of Physical Test for Hydraulic Cement] and IS - 4032 [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. The cost of test shall be borne by the contractor irrespective of the results of testing.

12.8.5 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.

12.8.6 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.

12.8.7 The contractor shall be required to set up adequate testing facilities at site to the entire satisfaction of Garrison Engineer for conducting setting time test and compressive strength test as per IS codes referred to hereinbefore for the samples collected from the lot brought at site. These tests shall be carried out within 7 days of receipt of cement at site. The tests can alternatively be carried out at the Command Testing Lab, or any other recognised laboratory so designated by GE.

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12.8.8 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 along with the relevant documents to ensure the requirements as mentioned herein before, 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 JE [Civil], Engineer-in-Charge, GE and the Contractor. The contractor shall maintain schedule of supply of cement for each consignment. The Accepting Officer may order a board of officers for random check of cement and verification of connected documents during the currency of contract.

12.9 STORAGE/ACCOUNTING/PRESERVATION OF CEMENT

12.9.1 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 storeroom, the stack should be at least 20cm away from floors and walls. The stacking of cement shall be done as specified in relevant IS. The storage, accounting and preservation of cement supplied by the contractor shall be done as per standard engineering practice till the same is incorporated in the work and the cost of the same shall be deemed to be included in the unit rate/amount quoted by the 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 the norms. The cement shall be stored so as to differentiate each tested and untested consignment separately with distinct identification. If the GE is not satisfied with the storage/preservation of cement, he may order for any test(s) of cement as applicable for that consignment to ensure its conformity to the quality mentioned in the manufacturer's test certificate. The contractor shall bear the cost of necessary testing(s) in this regard and no claim whatsoever shall be entertained.

12.9.2 Stacking of cement shall be done as per relevant IS and as under:-

- [a] Each cement consignment shall be stacked separately displaying the control No and date of receipt of cement and removal shall be made on the basis of 'First in First out'.
- [b] Adequate top cover will be provided.
- [c] Stacks in no case shall be higher than 10 bags. The maximum width of each stack shall be 3.00m. If the stack is to be more than 7 or 8 bags high, the bags shall be arranged in header and stretcher fashion, i.e. alternately lengthwise and cross wise so as to tie the piles together and avoid danger of topping over.
- [d] Adequate space shall be kept between two stacks.

12.9.3 Cement godown shall be provided with two locks on each door. The key of one lock at each door shall remain with the Engineer-in-charge 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 whatsoever reason, 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.

PARTICULAR SPECIFICATIONS (CONTD...)

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

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

12.10 DOCUMENTATION:

12.10.1 The following documents will be maintained by the Engineer-in-Charge / GE for cement supplied by the contractor in addition to the documents specified in the contract:-

- [a] Original vouchers of cement shall be kept in the concerned file of the contract in GE Office, serially numbered on each page.
- [b] Original test certificates and test sheet should also be kept in the concerned file of the contract duly numbered.
- [c] Cement acceptance register as per **Appendix "A"**.
- [d] In / Out Register for cement as per **Appendix "B"**.
- [e] Register containing results of independent and additional testing by GE.
- [f] Register containing records of surprise checks and BOO.
- [g] Inspection Register.

12.11 SCHEDULE OF SUPPLY

12.11.1 The procurement of cement should be such that it matches with the physical progress of the work. The schedule of procurement shall be worked out by the GE in consultation with the contractor. The schedule shall be got vetted by GE from time to time. The contractor shall ensure that the schedule is adhered to. The contractor shall forfeit his right to demand extension of time if the supply of cement is get delayed due to his failure in placing order in time to the manufacturer.

12.12 MEASUREMENTS AND PAYMENT OF CEMENT

12.12.1 The entire quantity of cement shall also be suitably recorded in the Measurement Book for record purposes as 'Not to be abstracted' before incorporation in the work and shall be signed by the Engineer-in-Charge and the contractor.

12.12.2 The payment shall only be allowed after production of original purchase vouchers, certified copies of test certificates from 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 herein before. Cement shall be paid as material lying at site as per condition 64 of IAFW-2249. Rate of cement given in SSR or market rate whichever is less shall be applicable for cement irrespective of grade of cement specified for use in the work.

PARTICULAR SPECIFICATIONS (CONTD...).**13. Aggregates**

Aggregates for concrete work shall conform to specifications all as specified in clauses 4.4.1 to 4.4.7.3 of MES Schedule Part-I.

13.1 Fine aggregate (sand)

Grading for fine aggregate shall be within the limits of grading zone I to III as given in clause 4.4.7.2 of MES Schedule Part-I. However for all concrete and masonry work, fine sand within limits of grading I & II shall be provided and for all other balance work including plastering/screeding etc. where it shall be provided within limits of grading –III.

13.2 Coarse aggregate

Unless specified otherwise in these particular specifications, coarse aggregate for all concrete work in all situations shall be graded crushed stone aggregate of approved quality. Contractor may, however, use graded shingle aggregate of approved quality in lean concrete under foundation, sub base of floor without any price adjustment. Two types of aggregate shall not be mixed.

13.3 Grading of coarse aggregate

Graded aggregate of nominal sizes given hereunder, shall be used, unless specified otherwise in the specifications hereinafter :-

(a) Reinforced cement concrete.

- | | |
|----------------------------------------------------------------|---------|
| (i) For elements of depth/thickness more than and incl 100mm : | 20mm. |
| (ii) For elements of depth/thickness less than 100mm : | 12.5mm. |

Note : However, in no case the nominal size of aggregate shall be greater than one fourth the minimum size of the member and further it should conform to the requirement given in Clause 5.3 of IS-456-2000.

(b) Plain Cement Concrete

- | | | |
|-----------------------------------------------------|---|---------|
| (i) Under 30 mm thickness | : | 12.5 mm |
| (ii) 30 to 80mm thickness | : | 20 mm |
| (iii) Exceeding 80mm thickness | : | 40 mm |
| (iv) Lean concrete and concrete sub base of floors. | : | 40 mm |

13.5**Water**

Water shall conform to the requirement stipulated in IS-456-2000.

14. Important requirements of Design Mix (RCC/PCC).

(i) All design Mix concrete shall be provided strictly as given in section 2 of IS-456 – 2000 and shall suit the climatic and exposure conditions of area where work lies.

(ii) The design mix of concrete shall be got done either from Command test lab or any other NABL approved /Govt lab. The design mix given by the Lab as above shall be approved by the GE before incorporation in the work. However, the approval of GE will not absolve the contractor of his responsibility for obtaining required minimum strength. In case of any dispute or difference of opinion between the GE and the contractor in this regard, the decision of the CWE shall be final, conclusive and binding.

iii) All tests in support of mix design shall be maintained as a record for the contract.

iv) Ordinary Portland Cement/Portland Pozzolana Cement/PSC shall be used for Design Mix for various locations all as specified.

v) At the time of concreting, the contractor after taking into account the type of aggregate, plant and method of laying, he intends to use, shall allow for the aggregate cement ratio which he considers will achieve the strength requirement specified and will produce workability which will enable concrete to be properly compacted for its full depth as per IS.

vi) Actual proportion of cement, aggregate and water to obtain the required strength shall be determined by carrying out design mix as specified here-in-before.

PARTICULAR SPECIFICATIONS (CONTD...)

vii) Irrespective of the cement contents arrived as per actual mix design, no price adjustment will be made for variation in cement and aggregate contents. Rate quoted by the contractor shall be deemed to be inclusive of this factor and no claim whatsoever for increase in quantity of cement contents beyond minimum cement contents as per IS-456-2000 shall be entertained.

viii) The design mix concrete will be designed based on principle given in IS-456, 10262 and SP 23 for each class of concrete indicating that the concrete ingredients and proportions will result in concrete mix meeting requirement specified.

ix) In case of use of admixture and /or white cement, the mix shall be designed with these ingredients as well.

15. MIXING OF CONCRETE.

(i) The contractor shall use power driven mechanical concrete mixer of adequate capacity with hopper of approved type for mixing. The coarse and fine aggregate for mixing of cement concrete shall be put in the hopper through measuring boxes. Under no circumstances, measuring with other than proper measuring boxes shall be allowed. The drum shall be loaded with about the half of the coarse aggregate then with the fine aggregate then with the cement and finally with remaining coarse aggregate at the top. Water shall be added immediately before the rotation of drum is started. The period of mixing shall not be less than 2 minutes after adding all the materials in drum and shall continue till the resulting concrete is uniform in appearance.

(ii) Quantity of concrete mixed in any one batch shall not exceed the rated capacity of the mixer. The whole of the mixed batch shall be removed before adding new batch. Concrete mixed above shall not be modified by adding of water or otherwise in order to facilitate handling or for any other purpose.

(iii) On cessation of work and other stoppages exceeding 20 minutes, the mixer and other plant used for wet mix shall be thoroughly washed with clean water. Pick up and throw over blades in the drums of the mixer, which are worn down 20mm or made in depths shall be replaced with new blades.

15.1 PLACING AND COMPACTION OF CONCRETE.

(i) Concrete shall be transported without delay and incorporated in works at the position of laying within 20 minutes from the time of discharge from the mixer.

(ii) Mixed concrete shall be deposited in final position and solidly packed around reinforcement, carefully poured and consolidated by means of portable vibrators or mechanically operated and the kind as suitable for a particular situation as directed by the Engineer-in-Charge. Care shall be exercised that no voids or honey comb pockets are formed. The concrete shall not be laid in position for more than 1 meter in height in one concrete operation.

15.2 WATER CEMENT RATIO. The water cement ratio for the concrete shall be as per IS-456. To achieve this water cement ratio, the moisture contents in respect of coarse aggregate and fine aggregate shall be tested and kept on record. The frequency of testing of moisture contents in respect of coarse aggregate and fine aggregate shall be decided by Engineer-in-Charge depending upon conditions. The amount of water required shall be adjusted depending upon the result of tests for moisture contents. For determination of moisture content in aggregate IS:2386 (Part-III) may be referred to.

15.3 ACCEPTANCE CRITERIA FOR CONCRETE. The criteria for acceptance of the concrete shall be as given in Table V of IS : 456 (Code of practice for plain and reinforced concrete). The maximum frequency for the work tests shall be as specified therein or samples taken from concrete poured in operations as specified in clause here in after which ever more.

15.4 TESTS. The following tests shall be carried out during the execution of work. Tests shall be carried out in accordance with IS : 1199. The contractor shall provide all facilities and equipment for casting and curing of test cubes and conveyance of test cubes and other material for testing purpose to MES laboratory, the cost for the same shall be borne by the contractor. However, testing charges to be levied from contractor for tests carried out in MES laboratory shall be as per clause given in the special conditions.

PARTICULAR SPECIFICATIONS (CONTD...)

- (i) SLUMP TEST. The frequency of the test shall be decided by the Engineer-in-Charge. The slump for the vibrated concrete may be 1 inch to 3 inch maximum. The Engineer-in-Charge, however, reserves the right to vary the limit, which will be ascertained at the time of deciding the mix design for each grade. Any batch from which a slump test is being made shall not be transferred to the places of laying until the slump in excess of that required is consumed and removed from the site.
- (ii) COMPRESSION TEST.
A group of nine test cubes (15 cm x 15 cm x 15 cm) shall be taken out on the following stages of work :-
- (a) Columns and footings.
(b) All slabs and beams.

Note : The frequency may be increased as considered necessary by the Engineer-in-Charge.

(iii) Three cubes shall be tested at 7 days and three at 28 days for crushing strength and the remaining three cubes shall be kept as reserved exclusively for subsequent testing if so desired by Engineer-in-Charge and preserved for one year from completion of work under the contract. The contractor cannot object testing of other cubes for a purpose as a matter of right.

(iv) For the purpose of subsequent identification, test cubes shall be cross referred and record of this maintained and signed by the Engineer-in-Charge and contractor or his authorized representative.

(v) Test report will be signed jointly by the Engineer-in-Charge and the contractor.

(vi) ACCEPTANCE/REJECTION OF CONCRETE. Any concrete not acceptable after taking into consideration the criteria state in table V of IS : 456, shall be rejected. The contractor shall replace such concrete at his own expenses.

(vii) When defective or rejected work cannot be replaced due to any reasons whatsoever, (decision of Accepting Officer in this respect shall be final and binding) the cost of removal and replacement of the rejected concrete including the joints shall be recovered from the contractor whether it is subsequently replace by the Govt or not.

- | | | |
|---------------------------------|--|------------------------------------------|
| (a) Bulking of sand | | Test shall be carried out as per IS: 383 |
| (b) Impurities of sand | | |
| (c) Sieve analysis of aggregate | | |

15.5 CURING. The concrete shall be protected from premature drying for at least 8 days after pouring and shall be cured as directed by the Engineer-in-Charge for a period of not less than 14 days.

15.6 PLAIN CEMENT CONCRETE

- (i) Unless otherwise indicated, all plain cement concrete shall be mixed in a mechanical mixer with hopper of approved type. The coarse and fine aggregates for mixing of cement concrete shall be put in the hopper through measuring boxes. Under no circumstances, measuring with other than proper measuring boxes shall be allowed. However, in case of small quantity (i.e, the quantity of concrete required being less than one batch of mix, the contractor may after obtaining written permission of the Engineer-in-Charge be allowed hand mixing. Where hand mixing is permitted, it shall be carried out on water tight platform and care shall be taken to ensure that mixing is continued until the concrete is uniform in colour and consistency.
- (ii) All plain cement concrete shall be consolidated/compacted by tamping and Roding.

PARTICULAR SPECIFICATIONS (CONTD...)

15.7 FORM WORK.

Form work shall comply with requirements of para 4.11.6.1 to 4.11.6.5 and 7.15.1 to 7.15.10 of MES

Schedule (Part-I). Form work may be of steel, plywood or timber of adequate strength. In case of any deviation involving in form work, the pricing shall be done at the rates of timer form work. Timber formwork shall be such as to given rough finish surface of concrete as specified in clause 7.15.2 (a) of MES

Schedule Part-I.

15.8 WATER PROOFING COMPOUND . Water proofing compound where not indicted in Schedule 'A' shall be liquid water proofing ad mixture and shall be provided as per manufacturer's instructions.

16.0 **BRICK WORK WITH FLY ASH BRICKS (Fly ash brick work)**

16.1 Bricks shall be of fly ash bricks (Pulverized fuel ash-lime bricks) conforming to IS 12894-2002. Bricks shall have compressive strength not less than 75 Kg/Sq cm. Water absorption of bricks shall not exceed 20 %. The size of bricks shall be as approved by Engineer-in-Charge. Bricks shall be machine made by using Fal-G technology for manufacturing and the bricks shall have frog of 100mm in length, 40mm in width and 10 to 20 mm deep on one of its sides. The brick shall be procured from any one of the manufacturers enlisted as a member of Fly Ash Building Materials Manufacturers Association[FABMAS] and as approved by the GE [Approved list of manufacturers available with GE].

16.2 CEMENT: Refer relevant clauses specified herein before.

16.3 SAND: Sand for mortar shall be natural sand confirming to IS-2116 (latest edition) specification for sand for masonry mortars and all as specified in Clause 5.4 of MES Schedule Part-I."

16.4 Half brick thick wall of height more than 90cm shall be reinforced with two 8mm dia TMT bars horizontally at every fourth course starting from floor level and anchored in walls/columns at junctions. Quoted rates under relevant item are deemed to be inclusive for the same.

16.5 Mortar bed joints shall normally conform to thickness with tolerance as specified in clause 5.26 of MES Schedule Part-I. However joints up to 15mm thick are permitted with prior approval of the Garrison Engineer without any price adjustments and no extra claim shall be admitted for the extra cement consumed.

16.6 LAYING AND BONDING: Bricks shall be laid and bonded, all as specified in relevant clauses of MES Schedule as applicable to old size bricks (FPS Conventional bricks).

17.0 **PLASTERING**

17.1 Plaster (even if external wall face is pointed) and/or skirting/dado shall be returned in jambs, soffits of lintels and window cills etc. Where plaster on concrete surfaces is specified to match the adjacent wall surfaces, the mix of plaster shall be as for the brick surfaces.

17.2 All internal plastered surfaces shall be trowelled to a smooth and even finish without using extra cement and external plastered surfaces shall be finished even and fair. All external finishes shall be carried out up to 15cm below ground level where plinth protection is not provided.

17.3 The mix and thickness of plastering shall be as indicated in relevant items of Schedule 'A'/BOQ. The workmanship shall be as specified in MES Schedule Part I. Thickness of cement plaster mentioned in Schedule 'A' shall be finished thickness exclusive of dubbing. Dubbing may however be done in one operation with plaster. Nothing extra will be paid for dubbing. Sand shall be fine and conform to the requirement of IS-1342 free from deleterious materials.

18.0 **GRANITE SLAB / TILES:**

18.1 The granite slabs/ tiles shall be of best quality and of colour and size as approved by the GE or as specified in Schedule "A". The thickness of the slabs shall be as specified in Schedule "A" with permissible tolerance of $\pm 3\%$. The stone shall be hard, durable, sound, tough and regular in shape, uniform in colour and free from soft veins, cracks, flaws, decay and weathering. The contractor shall get samples of granite slabs / tiles approved by the GE for their colour. Every slab/core shall be machine cut to the required size and shape.

PARTICULAR SPECIFICATIONS (CONTD...)**19.0 STEEL AND IRON WORK**

19.1 Steel and iron work in various situations shall be carried out as specified in MES Schedule Part-I 2009 Part-I (Specifications), Section 10 and as shown in drawings.

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

[a] **REINFORCEMENT STEEL** : High strength corrosion resistant deformed steel bars produced by Thermo Mechanical Treatment process (TMT steel bars of grades **Fe-500D/Fe-550/Fe-550D**) meeting all other requirements of IS-1786. In case of TMT/CTD bars of grade Fe-415 indicted in drawings, the same shall be amended to the grades mentioned above without any price adjustment on plus side.

[b] **STRUCTURAL STEEL**

[i] Standard quality – of Grade E 250 [Fe-410W Quality A] Conforming to IS-2062.

[ii] Ordinary quality – Conforming to IS-1977 of Grade E 165 [Fe-290]. This shall be used for doors, windows, guard bars, grills, steel gates, hand railing, fencing posts etc.

[c] **GALVANISED STEEL SHEETS**: (Plain & Corrugated) shall conform to IS-277.

[d] **FABRIC REINFORCEMENT FOR CONCRETE**: Fabric reinforcement shall conform to IS-1566.

[e] **STEEL TUBES FOR STRUCTURAL PURPOSES SHALL CONFORM TO IS-1161 AND SHALL BE OF GRADE YST-240.**

19.1.2 All steel required under this work shall be contractor's supply.

19.2 SOURCE OF PROCUREMENT

[a] **REINFORCEMENT STEEL**: TMT steel bars of all sizes supplied by the contractor shall be procured directly from any one of the following manufacturers or from their authorised local dealers of main producers , But production of Test certificate from main producers is mandatory:-

[i] Rashtriya Ispat Nigam Limited [RINL] Brand : RINL
All types of steel

[ii] Tata Iron & Steel Company [TISCO] Brand : TATA
All types of steel

[iii] Steel Authority of India Ltd [SAIL], Brand : SAIL All
types of steel

[iv] M/s Jai Balaji Industries Ltd, Ne Delhi, Brand :
BALAJI SHAKTI [For Fe 500 & Fe 500 D]

[v] M/s Shyam Steel Industries Ltd, Kolkata, Brand :
SHYAM [For Fe 500, Fe 500 D & CRS]

[vi] BLANK]

PARTICULAR SPECIFICATIONS (CONTD...)

- [vii] M/s Jindal Steels and Power Ltd, Haryana, Brand: JINDAL PANTHER [For Fe 500, Fe 500 D, Fe 550, Fe 550D and CRS with sizes (8-40 mm)]
- [viii] M/s SRMB Srijan Pvt Ltd, Kolkata, Brand: SRMB [For Fe 500, Fe 500 D, Fe 550 & Fe 550D]
- [ix] M/s Concast Steel & Power Ltd, Kolkata, Brand: CONCAST MAXX
- [x] M/s Shri Bajrang Power & Ispat Ltd, Raipur, Brand: GOEL TMT [For Fe 500 & Fe 500 D],
- [xi] M/s JSW Steel Ltd, Mumbai, Brand: NEOSTEEL [For Fe 500, Fe 500 D, Fe 550D & CRS],
- [xii] M/s. Kamachi Industries Ltd [For Fe 500, Fe 500 D, Fe 550, Fe 550D & HCRM] , Brand : "**Kamachi**" (8-40mm) [Valid up to May 2021].
- [xiii] M/s. Gallantt Metal Ltd [For Fe 500, Fe 500 D & CRS] , Brand : "**Gallantt TMX**" (8-32mm) [Valid up to 05 Jul 2022].
- [xiv] M/s. Rashmi Metaliks Ltd [For Fe 500 (8-32mm), Fe 500 D & Fe 550D (8- 25mm)] , Brand : "**Rashmi TMT**" (8-25mm) [Valid up to 23 Aug 2022]
- [xv] M/s. Real Ispat & Power Ltd [For Fe 500 & Fe 500 D] , Brand : "**GK TMT**" (8- 36mm) [Valid up to **10 Mar 2023**]. **validity extended E-in-C letter No. 83044/Steel/631/E2 Des-3 Dt 11 Mar 2020.**
- [xvi] M/s. Super Smelters Ltd [For Fe 500, Fe 500 D & Fe 550] , Brand : "**Super Shakti**" (8-32mm) [Valid up to Feb 2020].
- [xvii] M/s Shyam Sel and Power Ltd. [for Grade Fe 500D with sizes 8mm to 32 mm] Brand name "**SEL**"[**valid upto 10 Feb 2022.**] **add in list E-in-C letter No. 83044/Steel/601/E2 Des-3 dated 11 Feb 2020.**
- [xviii] M/s SPS Steels Rolling Mills Ltd . **valid upto 08 Feb 2023.** (Brand ELEGANT TMT) (Gde Fe 500, 500D, 550) **was deleted from list from E-in-C letter 83044/Steel/371/E2 Des-3 dt May 2019.** And **Now add in list E-in-C letter No. 83044/Steel/625/E2 Des-3 dated 21 Feb 2020.**
- [xix] M/s Shree Nakoda Ispat Ltd. valid upto 01 Mar 2022.(for Grade Fe 500 & 500D with sizes 8mm to 32mm) **brand name "NAKODA TMT". add in list E-in- C letter No. 83044/Steel/629/E2 Des-3 dated 02 Mar 2020.**

PARTICULAR SPECIFICATIONS (CONTD...)

- [b] **STRUCTURAL STEEL:** The contractor shall procure structural steel sections directly from main producers like SAIL/RINL/TISCO/JINDAL.
- [c] **Galvanised iron sheets and Fabric Reinforcement for concrete:** These shall be ISI marked and shall be procured from Main manufacturers like SAIL, RINL, TISCO.

In no case TMT steel bars of all sizes shall be allowed to be procured from other than the above mentioned producers.

19.4 Galvanised sheets and fabric reinforcement for concrete shall be procured directly from Main manufacturers like SAIL, RINL, IISCO and TISCO or BIS marked manufacturers at the option of contractor without any minus price adjustment.

19.5 All finished steel shall be well and clearly rolled to the dimensions, sections and weights specified. The finished material shall be reasonably free from cracks, surface flaws, laminations, rough jagged and imperfect edges and any other harmful defects and shall be finished in a proper manner. Tolerance on size and weight of reinforcement bars shall not be more than as specified in Clause 10.17.4 and 10.17.5 of MES Schedule Part – I and as specified in IS – 1786 and IS – 2062 and as per relevant IS codes.

19.6 TESTING OF STEEL:

19.6.1 [a] The manufacturers of steel are to carry out inspection and testing of steel in accordance with the relevant BIS provisions. The contractor shall submit manufacturer's test certificate in original or authenticated attested true copy by the manufacturers only along with the test sheet giving the result of each mechanical test as applicable in accordance with relevant IS provision and the chemical composition of the steel or authenticated copy with each consignment. The Engineer-in-Charge shall record these details in a Steel Acceptance Register which will be signed by the Junior Engineer, Engineer-in-Charge, GE and Contractor as given in the format as **Annexure "D"& Annexure "E"** hereinafter, after due verification and Engineer-in-Charge shall send a certified true copy of test sheet to GE for his records.

[b] NIL.

[c] Independent testing of Structural Steel, GI Sheets and Fabric Reinforcement by the GE shall be mandatory and testing charges shall be borne by the Contractor irrespective of the outcome of test results.

[d] For independent testing ,random samples of steel drawn from various lots and shall be got tested from a National Test House / SEMT Wing / Government Approved Laboratories / NABL Accredited Laboratories / Regional Research Laboratories / IIT / National Institute of Technology / Command Testing Labas per the minimum frequency given below. Samples from each lot shall be also tested for quality and elongation.

[e] In all cases mentioned above contractor at his cost shall provide all facilities required for the testing. Cost of materials consumed in tests shall also be borne by contractor.

PARTICULAR SPECIFICATIONS (CONTD...)

19.7 Ultimate tensile strength elongation, bend and re bend test for reinforcement steel bars shall be carried out as per clause 9 and test specimen shall be as per clause 11 and delivery inspection shall be as per Clause 12 of IS – 1786. Bend tests and tensile tests for structural steel shall be carried out as per IS – 2062 and recorded as per **Annexure "F"**.

19.8 FREQUENCY OF SAMPLING FOR INDEPENDENT TESTING BY GE:

19.8.1 Frequency for nominal mass, tensile strength, bend and re-bend tests of steel for checking nominal mass, tensile strength, bend, re-bend test, test specimen at random shall be selected by the GE at following frequency:

Se r No	Nominal Size	Frequency
[a]	STEEL FOR CONCRETE REINFORCEMENT:	
1	Bars size less than 10 mm	1 Sample [3 specimens] for each test for every 25 tonnes or part thereof
2	Bar size 10mm to 16 mm	1 Sample [3 specimens] for each test for every 35 tonnes or part thereof
3	Bar size over 16 mm	1 Sample [3 specimens] for each test for every 45 tonnes or part thereof
[b]	STRUCTURAL STEEL:	
4	Tensile Test	1 Test for every 25 tonnes of steel or part thereof
5	Bend Test	1 Test for every 10 tonnes of steel or part thereof

19.8.2 The testing by GE as per above frequency is mandatory before payment is released to the contractor in case of structural steel from secondary producers. The GE may also increase the frequency and number of samples / tests for his satisfaction. The cost of these additional tests shall be governed as per Condition – 10 [A] of IAFW – 2249. However cost of samples, transportation and other overheads shall be borne by the contractor irrespective of test results.

19.8.3 Test shall not be insisted upon for the steel required for guard bars, holdfasts, grills and such other allied items.

19.8.4 In case test results of testing pursuant to clause 10.5.1 are not within the acceptable limits, then that consignment of steel shall stand rejected and contractor shall remove the same from site at his own cost. The rejected material shall not be incorporated in the work. The contractor shall have no claim on this account.

19.8.5 Cost of test samples as per frequency given in clause 10.5.1 above shall be borne by the contractor irrespective of test results.

PARTICULAR SPECIFICATIONS (CONTD...)**19.8.6 DOCUMENTATION:**

19.8.7 Original purchase vouchers from the manufacturer, and original or authenticated test certificates of the manufacturers for the total quantity of steel supplied under each consignment to be incorporated in the work shall be produced to the Engineer-in-Charge of the work by the contractor. All consignments received at the work site shall be inspected by the GE along with the relevant documents before acceptance. The original vouchers and the test certificates shall be defaced and signed by the Engineer-in-Charge and kept on record in the office of the GE duly authenticated and with cross reference to the control number recorded in the steel acceptance register. The steel acceptance register shall be signed by JE, Engineer-in-Charge, GE and contractor. The entire quantity of all consignments shall also be suitably recorded in the measurements book for record purposes as "NOT TO BE ABSTRACTED" before incorporation in the work and shall be signed by the Engineer-in-Charge and contractor. The following provisions shall also be complied:

- [a] All original vouchers will be kept in a file serially numbered and to be kept in GE's office
- [b] Test certificates of each steel consignment will be kept in a file, serially numbered and shall be kept in GE's office.
- [c] Steel Acceptance Register as per **Annexure "D"** will be maintained by the GE
- [d] In/Out Register for details of receipt, acceptance/rejection and consumption of steel will be maintained as per **Annexure "G"**.
- [e] Register containing results of independent and additional testing by GE
- [f] Inspection registers.

19.8.8 GE will check the documents personally, connected with the steel, at least once a month and record of these check will be kept in the Inspection Register [Para 19.8.7 [f] above].

19.9 STORAGE ACCEPTANCE/PRESERVATION OF STEEL:

19.9.1 The steel procured by the contractor shall be stored in the site of work as directed by Engineer-in-Charge / GE neatly in separate stacks at least 15 cm above GL for various grades / quality / sizes / consignments with distinct paint marks for identification. The steel so stacked shall be removed for incorporation in the work only in the presence of departmental representative. The quantity of steel of various sizes received at site and recommended for incorporation in the work shall be entered in a separate register and signed by the contractor and the Engineer-in-Charge daily.

19.9.2 Steel will be stored in a manner so as to prevent distortion and corrosion till it is consumed in the work. Any section that has deteriorated and corroded or if, considered defective for any other reason, the same shall be removed from site by contractor at his cost.

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

19.10 CONVERSION WEIGHT OF STEEL:

19.10.1 The weight of steel shall be calculated as per the conversion factors specified in the MES Schedule. For sections not listed in MES Schedule, ISI conversion table shall be followed or manufacturer's certificate if the weights are not available in MES Schedule / ISI tables.

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

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

PARTICULAR SPECIFICATIONS (CONTD...)**19.11 PAYMENT IN RAR:**

19.11.1 Payment of the steel brought by the contractor should only be released by the GE after taking action on points enumerated in Paras hereinbefore and after completing the documentation mentioned hereinbefore in this regard.

19.11.2 Before procurement of steel, contract and structural drawing shall be read thoroughly and various grades/types of steel to be incorporated in the work shall be identified by contractor and got approved by the GE. Steel shall be procured sufficiently in advance as mentioned hereinafter

19.12 **SAFETY OF STEEL:** It will be responsibility of contractor to make sure that all possible arrangement are made for safe custody of the steel. In case of any loss of steel, only contractor will be responsible and the loss will be made good by contractor without any delay or claim what so ever.

19.13 SCHEDULE OF SUPPLY: Contractor shall work out complete requirement of steel size wise and phase the same as per the activities planned to be executed in terms of CPM networking. The contractor shall procure all the steel sections in accordance with this CPM chart. Schedule of supply of steel will be finalised by GE in consultation with contractor and same will be incorporated in CPM chart so that supply of steel is monitored in a way to avoid any delay in completion of the work

20.0 WOOD WORK AND JOINERY

- 20.1 The timber required for all the works shall be **second class hard wood**, kiln seasoned and free from defects. The moisture content for the timber to be used in the work is within the limits as specified in IS-287-1973. Adequate number of tests shall be carried out to determine the moisture content in the timber used in the work and the contractor shall submit the test results done through any Govt. approved laboratories as approved by GE without any extra cost.
- 20.2 Tolerance for wrought faces of wood work shall be as specified in MES Schedule. No tolerance is permitted in boarding the finished thickness of which is less than 12mm.
- 20.3 Surface of timber in contact with or buried in masonry, concrete and plaster shall be clean sawn. All other timber surfaces unless otherwise specified shall be wrought on all faces.
- 20.4 Preservative anti termite treatment shall be carried out to all woodwork fabricated by the contractor at site. Factory made ply/boards are deemed to be provided with anti termite treatment.
- 20.5 Chemical used for anti termite treatment to wood work and joinery shall be copper NAPHTHENATE, ASCU or any other chemical specified in IS 401, applied in any one of the manners specified in IS.
- 20.6 The species of timber shall be of Sal, Bijasal [Venga], Laurel [Nalla Maddi] for frames and Bijasal [Venga], Haldu [Kambha] for shutters. All other timber required for the work unless otherwise specified shall be 2nd class hard wood kiln seasoned, free from defects such as Sal, Bijasal [Venga], Laurel [Nalla Maddi] or Haldu [Kambha] as approved by GE.
- 20.7 The species of timber shall be got tested at any reputed approved lab as approved by GE. The testing charges including charges for conveyance etc. shall be borne by the contractor.
- 20.8 Workmanship and dimensions shall be all as specified under relevant clauses of SSR Part – I, 2009.

PARTICULAR SPECIFICATIONS (CONTD...)**21.0 PANELLED / GLAZED SHUTTERS**

- 21.1 Panelled / glazed shutters shall conform to IS-1003 (Part-I). Styles and rails shall be kiln seasoned and chemically treated (under vacuum pressure). Panel inserts shall be 12mm thick veneered particle board BWP conforming to IS-3097 exterior grade (grade 1) solid core, general purpose commercial veneered on both sides as indicated in drawings. The thickness of shutter shall be as specified in BOQ.
- 21.2 Unless otherwise specified hereinafter the surfaces of timber in contact with or buried in masonry/concrete/plaster shall be clean sawn. All other surfaces shall be wrought. The workmanship and fixing of joinery shall be as per clauses 8.11 to 8.24 of MES Schedule Part-I.
- 21.3 Unless otherwise specified, all work both carpenter's and joiner's shall be of full dimensions shown as specified in MES Schedule and as directed by Engineer-in-Charge except that an allowance of 1.5mm shall be allowed for each wrought face. Wooden beads and fillets shall however, hold the full dimensions as specified.
- 21.4 Timber members upto 3.00 metre length shall be in one piece. Plugging to walls shall be done with wooden plugs as per clause 7.29 of the MES schedule and specified herein before.
- 21.5 Glazed and Skeleton shutters shall be made of second class hard wood as specified in MES Schedule Part-I, 2009. The dimensions of various components shall be as per Clause 8.24 of MES Schedule Part-I, 2009.

22.0 FACTORY MADE SOLID PVC DOOR SHUTTERS AND FRAMES:

- 22.1 PVC door shall be factory made. The members of door including frame shall be as specified. The entire door shutters shall be provided with stainless steel screws at appropriate places of rust-free quality. The door frame shall be fixed to the wall by 6 Nos expandable fastener bolts of 100mm long. Builder's hardware shall be anodized aluminium. The door frame shall be all as specified in Schedule "A" and as specified in clause 8.34.3 of MES Schedule Part - I. The shutter shall be factory made all as specified in Schedule "A" and as specified in clause 8.34.2 of MES Schedule Part - I. Workmanship of Door Frame & Shutters shall be as per manufacturer's instructions and as per relevant clauses of MES Sch Part - I.

23.0 BUILDER'S HARD WARE

- 23.1 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 IS specifications and the specifications given in the MES schedule for the relevant item. Builder's hardware shall be anodized [anodic film transparent] aluminium / mild steel / stainless steel / brass as specified in BOQ. The screws, bolts, nuts to be used for fixing shall be cadmium plated iron screws for anodized aluminium articles and GI for MS articles.

24.0 ALUMINIUM WIRE CLOTH:

- 24.1 The term wire gauge / fly proofing / mosquito proofing / wire mesh shall mean the "Woven Wire Cloth" and shall be conforming to relevant IS and sample as approved by the GE. Wherever aluminium wire cloth is specified for skeleton window shutters / ventilator shutters, provide Mosquito proof aluminium wire cloth with aluminium wire of 0.45mm nominal dia and 1.40mm average width of aperture. Aluminium wire cloth shall be fixed to the Aluminium shutters with standard anodised aluminium angle beadings. The mesh shall be fixed to wooden shutters / frames using second class hard wood beading, wrought faces, fixed with screws.

PARTICULAR SPECIFICATIONS (CONTD...)**GLAZING**

- 25.0
- 25.1 Glazing to windows / ventilators shall be as specified in Schedule 'A'. Sheet Glass for glazing shall conform to IS 2835-1987. Sheet glass shall be flat transparent and clear as judged by the naked eye. It may, however, possess a light tint when viewed edgewise. It shall be free from any cracks and other defects. Tolerance on the thickness of glass sheet shall be as specified in Clause 16.2.3 of MES Schedule Part-I, 2009.

26.0 PCC SUB BASE / FLOORING / HARD STANDING:

- 26.1 Sub floor may not be laid in panels. Under-layer and topping layers of cast-in-situ cement floors shall be laid in square or rectangular panels as directed by Engineer-in-Charge, Length of panel not exc. 2.0 metre, length to width ratio not exc. 1.5 times in rectangular panels.
- 26.2 Dividing strips for PCC floor shall be as specified in Schedule 'A' and as described in MES Schedule Part-I, 2009.
- 26.3 Joints in PCC footpaths, hard standing, steps and ramps shall be raked and filled with a mixture of hot blown grade bitumen conforming to IS-702 and sand in the ratio of 1:3.

27.0 NONSKID CERAMIC TILE FLOORING:

- 27.1 The size of the tile shall be as specified in Schedule "A". Non-skid ceramic tiles shall be first quality, flat true to shape, sound and free from flaws and other manufacturing defects. Ceramic tiles shall conform to IS - 15622, Grade B-II[a] for Toilets and B-II[b] for other locations for floor tiles and Grade B-III for wall tiles. The shade / design of tiles shall be as approved by GE. The screed for laying the tiles shall be 15 mm thick in cement mortar 1:4. The tiles shall be laid as per pattern described by GE, set, jointed in cement slurry. Joints shall be pointed flush using polymer based cementitious tiling joint filler to match the shade of the tile. The workmanship shall be all as specified in clause No. 13.40.2 of MES Schedule Part - I.

28.0 GLAZED CERAMIC TILE DADO / SKIRTING:

- 28.1 The size of tile shall be as specified in Schedule "A". The tile shall be plain, coloured / design, Type B-III, Grade-I quality, shall conform to IS - 15622 and shall be got approved by the GE. The tile shall be set over cement screed 10 mm thick in cement mortar [1:3]. Joints shall be pointed flush using polymer based cementitious tiling joint filler to match the shade of the tile. The height of dado / skirting shall be as directed by the Engineer-in-Charge. The dado thickness projecting from the rendered wall surface shall be provided with triangular coving in CM 1:3, finished even and smooth. The height of coving shall be equal to the projection of skirting from the wall surface.

29.0 VITRIFIED TILE FLOORING:

- 29.1 Provide 8 to 10mm thick heavy duty vitrified tiles of size as specified in BOQ. Colour and pattern shall be as approved by GE and shall be of 'First quality'. Screed shall be as specified in BOQ. The tiles shall be set, jointed in neat cement slurry and pointed with white cement with admixture of pigments to match the colour of tiles.
- 29.2 Vitrified tiles shall be double charged all as specified in MES Schedule Part-I, 2009. The workmanship and laying of tiles shall be all as specified in Clause 13.41 of MES Schedule Part-I and / or as per manufacturer's instructions.

PARTICULAR SPECIFICATIONS (CONTD...)**30.0 FORM WORK**

30.1 Formwork shall comply with the requirements of clauses 4.11.6 & 7.15 of MES Schedule Part I. Formwork shall be of MS sheet with angle iron frame with MS pipe props of adequate diameter and strength. In case of deviation involving formwork to surfaces exposed to view, the pricing shall be done at the rate of timber formwork for fair finish.

31.0 PLASTERING

31.1 Plaster (even if external wall face is pointed) and/or skirting/dado shall be returned in jambs, soffits of lintels and window cills etc. Where plaster on concrete surfaces is specified to match the adjacent wall surfaces, the mix of plaster shall be as for the brick surfaces.

31.2 All internal plastered surfaces shall be trowelled to a smooth and even finish without using extra cement and external plastered surfaces shall be finished even and fair. All external finishes shall be carried out up to 15cm below ground level where plinth protection is not provided.

31.3 The mix and thickness of plastering shall be as indicated in relevant items of Schedule 'A'. The workmanship shall be as specified in MES Schedule Part I. Thickness of cement plaster mentioned in Schedule 'A' shall be finished thickness exclusive of dubbing. Dubbing may however be done in one operation with plaster. Nothing extra will be paid for dubbing.

31.4 Sand shall be fine and conform to the requirement of IS-1342 free from deleterious materials.

32.0 CHEQUERED CEMENT TILES

32.1 Chequered cement concrete tiles, coloured shall conform to IS 13801-1993. Chequered tiles shall be with the centre to centre distance of chequers not less than 25mm and not more than 50mm, the groove in chequers being uniform and straight with the depth of grooves not less than 3mm. Tiles shall be manufactured by pressure process. Thickness of wearing layer measured from top of the chequers shall not be less than 6mm. Chequered tiles shall be all as specified in Clause 13.17 of MES Schedule Part-I, 2009

33.0 WHITE WASH / COLOUR WASH

33.1 Lime used for white washing shall be freshly burnt fat lime [Class "C"] white in colour, conforming to IS - 712. 3 coats of white wash shall be provided to walls all as specified in clause 15.12 of MES Schedule Part - I. Skirting and dado are not to be white washed. White washing and colour washing shall be applied with proper brushes as specified in clause 15.12 of MES Schedule Part - I, contractor may, at his discretion, do the same by means of spray pump without any extra cost to the Government.

34.0 ACRYLIC WASHABLE DISTEMPER:

34.1 Provide Acrylic Washable Distemper two coats over a coat of alkali resistant primer over wall care putty where specified. Acrylic Washable Distemper shall conform to IS - 428. Preparation of surfaces, application of primer and Acrylic Washable Distemper shall be in accordance with clause 15.14 of MES Schedule Part - I, 2009. Acrylic Washable Distemper shall be of any of the makes specified hereinafter. Tint of Acrylic Washable Distemper shall be as approved by GE.

PARTICULAR SPECIFICATIONS (CONTD...)**35.0 CEMENT BASED PAINT:**

35.1 Cement based paint shall conform to IS- 5410-1969. Prepare plastered surface of walls to be treated with cement based paint as specified in clause 15.15.2 of MES Schedule Part I. Cement based paint shall be provided all as specified in relevant clauses as applicable in section 15 of MES Schedule Part-I.

36.0 PUTTY

36.1 White Cement Based Wall Care Putty shall be of approved make and shall be water resistant. Putty shall be applied carefully so as to fill up the minor cracks/crevices in the plastered wall and provides an even levelled surface for applying further finishes.

37.0 PAINTING STEEL / WOODEN SURFACES:

37.1 Painting to steel / wooden surfaces shall be carried out as indicated in the relevant item of Schedule 'A' generally conforming to the specifications laid down in section 17 of SSR Part-I, 1991. Paint shall be of 1st quality not inferior to that specified in the relevant Indian Standard specifications.

37.2 The surfaces of steel / wood shall be thoroughly cleaned before applying new paint. All dust, rust and grease shall be removed cleaned before applying the paints.

37.3 The contractor shall ensure that the paints used are actually those that have been approved by the Garrison Engineer.

37.4 The contractor when so ordered by GE produce certificates of the brand of paints purchased by the contractor from the manufacturer satisfying the requirement of the relevant IS specifications.

38.0 PREPAINTED GALVALUME ALUMINIUM ZINC COATING GI BASED CORRUGATED STEEL SHEET ROOFING:

38.1 The sheeting shall be 0.5mm thick TCT Zinc Aluminium Alloy Coated Steel of Grade AZ 150/550 MPA. The sheeting shall be of make as specified in Schedule A. The roof sheet shall be laid with end lap of 200mm and side lap of 100 mm or as per the manufacturer instructions. The roof sheets coming at gable ends shall be round up below the flashing to prevent the reverse flow of water.

38.2 Cavities and gaps, if any, at eaves end, ridges and gable end shall be sealed with polymer filled blocks and metallic flashings and capping of appropriate design.

38.3 Tapping screws of 5 x 40mm with metal washer and PVC gripper at 500mm centre to centre horizontally shall be used or as required as per the manufacturer's instructions.

38.4 Flashings shall be of plain galvalume sheet 0.5mm thick bend to shape as directed. Flashing shall be of 2 meters long and shall have end lap of 200mm. At the lap portion of flashing one layer of silicon sealant shall be provided to prevent water entering through joints.

38.5 All welding electrode should confirm to IS - 814 [Part - III]. All MS black bolts and nut shall conform to IS - 1363 [Part - I to III]. Washers shall conform to IS - 5369, IS - 5370 and IS - 5372.

PARTICULAR SPECIFICATIONS (CONTD...)**39.0 POWDER COATED ALUMINIUM DOORS, WINDOWS AND VENTILATORS:**

39.1 All aluminium doors, windows and ventilators shall be powder coated as per manufacturer's instructions. Powder coated Aluminium doors, windows, ventilators and partitions shall be provided at locations and as per the details as specified in Schedule "A" and as directed by the Engineer-in-Charge. All sections shall be of heavy extruded sections. The thickness of standard aluminium frame shall not be less than 1.5mm thick if not specified. The material shall be procured from any one of the manufacturers as specified hereinafter and shall conform to designation 63400 given in IS - 737. Powder coating shall not be less than 50micron thick. The entire workmanship and material shall comply with the relevant IS standards and as per manufacturer's instructions. The thickness of glass shall be as specified in Schedule "A". Where not indicated the thickness of glass shall be 5.5 mm. Provide builders hardware as specified in Schedule "A" and as directed by the Engineer-in-Charge. The window shutters shall be side hung / sliding type as specified in Schedule "A" or as directed by GE. Aluminium doors, windows and ventilators shall conform to IS - 1948. The powder coated article shall be marked legibly and indelibly with grade of coating and the name or trade mark of the manufacturer.

40.0 SANITARY APPLIANCES:

40.1 Sanitary appliances shall be of vitreous china first quality and shall conform to IS - 2556 [Part - I]. The appliances shall be of high grade and shall be coated on all exposed surfaces with impervious white vitreous glaze. The glaze shall be uniform free from craze and appliance shall bear ISI mark. General and the specific requirements in MES Schedule Part-I as applicable to various fittings and workmanship as specified in relevant clauses of MES schedule Part-I shall be complied with. The contractor shall procure sanitary fittings bearing ISI mark.

40.2 All waste pipes and fittings up to Floor/Nahani trap from wash hand basin shall be of galvanised steel tubing medium grade conforming to IS - 1239 [Part II] 1969. Flush pipe and socket of flushing rim of WC shall be jointed with white and red lead cement [white and red lead in equal portion by weight] and linseed oil added to form paste. "P" and / or "S" trap shall be jointed to WC pan with cement joints as specified in clause 18.48.5 of MES Schedule Part - I [Specifications]. The sizes, given hereinafter are approximate sizes. The size of sanitary fittings to be provided shall be the nearest size as per manufacturers catalogue as approved by GE.

41.0 WATER STORAGE TANKS:

41.1 PVC water tanks shall be "Rotational moulded polyethylene water storage tanks" as per IS - 12701. The tanks shall be ISI marked and shall be of triple layered of HDPE. Hoisting and fixing in position connecting up pipes etc. shall be executed as per manufacturer's instructions and as per clauses No.18.60 of MES Schedule Part - I. Holes for inlet, outlet and over flow pipes shall be provided by core cutting blades. Making out holes by punching will not be permitted. PVC water storage tanks shall be ISI marked. PVC water tanks shall be of make as approved by GE. Hoisting 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 to position truly level, unless otherwise directed. The joints or connection to pipes shall be made with boiler screws, unions, tee etc., as directed.

PARTICULAR SPECIFICATIONS (CONTD...)**42.0 PVC SOIL / WASTE AND RAIN WATER PIPES FITTINGS:**

42.1 PVC [SWR] pipes shall conform to IS – 4985. The pipes shall have smooth internal and external surfaces and shall be free from grooving and other defects. The pipe of pressure rating 6 Kgf per Sq.cm shall be incorporated in the work. The size of pipes shall be as indicated in the Schedule "A". Rubber rings for the pipes and fittings shall conform to IS – 5382. PVC [SWR] fittings shall be used as per recommendations of the manufacturer of the pipes. In case there is no IS code for the fittings, these shall generally conform to the requirement of SS: 4515 DIN 19531 & DIN 19534. PVC [SWR] pipes and fittings shall be strong, dimensionally stable and shall be free from defects of approved quality. The make of PVC SWR pipe / fittings shall be as approved by GE.

43.0 FLOOR SPRING:

43.1 Floor spring shall comply with IS 6315-1992 (Hydraulically regulated) for heavy doors suitable for doors weighting up to 125 Kg. These shall be single action or double action type as indicated under relevant item of BOQ. The floor springs shall be free from all mechanical defects, sharp edges, and any other visible surface defects.

44.0 WATER PROOFING TREATMENT

44.1 Water proofing treatment to roof slab shall be provided as under:

- [a] Roof slab shall be cleaned thoroughly by using wire brush (Mechanical / hand brush) to make it free from any loose particle, dirt / dust, etc.
- [b] Cement slurry @ 3 Kg/Sqm shall be provided over cleaned roof surface.
- [c] Thereafter cement screed as specified shall be applied on prepared surface to have a smooth surface for laying of water proofing membrane.
- [d] After setting & drying cement mortar, the entire surface of the roof slab shall be cleaned thoroughly to remove all loose particles, dust / dirt particles and applied with hot blown grade bitumen 85/25, @ 1.20 Kg/Sqm over bitumen primer @ 0.5 litre/Sqm.
- [e] Over hot blown grade bitumen 85/25, polymeric water proofing membrane not less than 3 Kg / Sqm consisting of minimum 90 micron HMH DPE Film Center core shall be laid over entire roof surface and on vertical surface up to grooves as applicable (or as per manufacturers recommendation) with over laps of 100mm. The overlaps shall be sealed by flames or as per manufacturer instructions. Water proofing membrane shall be tucked in wall to a depth of 25mm (minimum) where applicable. Groove made in wall shall be filled with bitumen mastic filling without any extra cost to Govt. Hot blown bitumen applied below membrane should be compatible with membrane all as per recommendation of manufacturers.
- [f] A coat of hot blown bitumen 85 / 25 grade @ 1.2 Kg /Sqm shall be applied over water proofing membrane finished with one coat of bituminous heat resistant paint.
- [g] Proper care shall be taken to provide similar treatment near junction of roof and parapet to avoid any leakage through junction.

PARTICULAR SPECIFICATIONS (CONTD...)**44.2 FLOODING TEST TO ROOF**

44.2.1 On completion of water proofing treatment as herein before, the contractor shall carryout flooding test by forming earthen bunds over the roof at suitable interval as desired by GE. Water will be ponded for three days and leakage / seepage noticed shall be rectified by the contractor to the satisfaction of GE at no extra cost to Government.

44.3 GUARANTEE

44.3.1 The contractor shall give a written guarantee for the effectiveness of water proofing treatment for a period of 10 [TEN] years from the certified date of completion of entire work. An amount equal to 3% of cost of water proofing treatment towards guarantee amount shall be retained by the Government from the contractor's dues. This amount shall only be released after successful expiry of the guarantee period. However, the guarantee amount will be released to the contractor if a fixed deposit receipt in favour of GE for 10 Years is submitted by the contractor. The fixed deposit receipt amount shall be released to the contractor after expiry of guarantee period satisfactorily.

44.3.2 Should the GE at any time during currency of guarantee period or prior to the expiry of the Guarantee period, finds that the buildings have been noticed with leakage the contractor shall, on demand in writing from the GE specifying the buildings complained of, notwithstanding that the same may have been inadvertently passed/certified and paid for, undertake to carryout such treatment as may be necessary forthwith to render the building(s) free from leakage at his own expense till the expiry of the guarantee period. In the event of his failure to do so, within the specified period to be specified by the GE in his demand aforesaid, the GE may undertake such treatment at the risk and expense in all respects of the contractor. The liability of the contractor under this condition shall not extend beyond the period of ten years from the certified date of completion, unless the GE had previously given notice to the contractor to rectify the defects. The defects liability period mentioned under condition 46 of IAFW-2249 General Conditions of Contracts shall be deemed amended accordingly for the purpose of this condition.

44.3.3 A cement mortar tablet of size 300mm x 300mm x 10mm thick shall be prepared on external wall of building in which water proofing treatment to be carried out and CA No., date of expiry of guarantee period and name of the contractor shall be written on the tablet on the date of completion of work under the heading "Details of water proofing treatment of roof".

The water proofing membrane shall comply with following Technical requirements:-

PARTICULAR SPECIFICATIONS (CONTD...)

1.	Softening point	:	Min 120 degree centigrade
2.	Penetration at 25°C 100 g 5 Sec	:	25 d mm.
3.	Thickness of Central PE Film	:	Minimum 90 Micron
4.	Pliability	:	Does not break at -5 degree C for 24 hours.
5.	Heat resistance	:	Does not drip at 100'C for one hour
6.	Tensire strength:		
	Lengthwise	:	Minimum 115 N / 5 cm
	Cross wise	:	Minimum 105 N / 5 cm
7.	Elongation:		
	Length wise	:	> 250%
	Cross wise	:	> 250%

44.5 TEST CERTIFICATE

44.5.1 Contractor shall submit manufacturers test certificate and cash memo / bill / invoice in original for water proofing membrane before claiming payment and incorporating the same in the work.

45.0 EXTERNAL WEATHER COAT PAINT TO BUILDINGS**45.1 GENERAL**

45.1.1 Unless samples of all materials are approved, the contractor will not be allowed to commence the work. Brushing for painting, etc, shall be got approved by Engineer-in-Charge based on manufacturers recommendations. No improvised brushes or sub standard brushes shall be brought to site and used.

45.2 MATERIALS

45.2.1 Paint shall be weather proof Acrylic emulsion, exterior grade (100% acrylic) premium quality. Paint shall be any of the following make as approved by GE:-

- [a] APEX from Asian paints
- [b] Weather Coat Smooth from Berger Paints
- [c] Weather Shield Max Exterior Acrylic from ICI Dulux
- [d] Out Shine by NITCO paints
- [e] Nerolac EXCEL 100% Exterior Emulsion by Goodlass Nerolac

45.2.2 Shade of the paint shall be as approved by GE. The paint shall be brought in manufacturer's sealed containers only by the contractor duly marked with batch number from the manufacturer.

45.2.3

The contractor shall produce manufacturers test certificate along with purchase voucher in original for the paint brought to site before claiming payment for the same. Purchase voucher of paint shall contain the complete description of material, batch No., net weight, test certification No., quantity in each package, No. of packages etc., The quantity of material brought at site indicating No. of packages, quantity in each package, batch No., purchase voucher number, test certification number, date of manufacturing, date of expiry etc., shall be entered in MB as "Not to be Abstracted" and shall be signed by the JE, Engineer-in-Charge and contractor.

45.2.6

Each lot of paint shall be checked by Engineer-in-Charge and approved by him after verifying from invoices, package, batch No. and test certificate. Materials shall be incorporated in the work only after written approval from Engineer-in-Charge.

46.3

WORKMANSHIP

46.3.1

WORKMANSHIP

46.3.2

The works shall be executed using Smart Painting Techniques and tools to maintain the required quality work as per specifications of Smart Painting given in PS Clause No .

Following smart painting tools shall be used for the work at site.

(a) Hand held sander / long handle sander shall be used for preperation of surfaces.

(b) Multipurpose mixer shall be used for mixing cement based putty to get a uniform mix.

(c) Auto roller and Airless spray shall be used for painting.

(d) Jet washer shall be used for cleaning dirt and fungus etc from external walls

46.3.3

PREPARATION OF SURFACES: Old painted surfaces shall be prepared to receive painting as specified in relevant clauses in MES Schedule Part-I, 2009.

46.4

APPLICATION OF WEATHER PROOF PAINT

46.4.1

The acrylic emulsion weather proof paint shall be applied by using Auto Roller or Airless Sprayer as specified in Smart painting specifications in PS Clause No .

No strainer or colorants shall be used. The paint shall be stirred well before use and applied as per manufacturer's instructions.

46.4.2

The Painting work shall be carried out by Authorized trained personals of Manufacturers of Paint using Smart Painting Tools, contractor shall have to produce necessary documentation for the same . If the tradesmen are found to have inadequate skill to execute the work of their trades, leading to unsatisfactory workmanship, the contractor shall remove such tradesmen immediately after written notice to this effect by the GE and shall engage other qualified tradesmen after prior approval of GE. GE's decision whether a particular tradesmen possesses requisite qualification, skill and expertise commensurate with nature of work, shall be final and binding. No compensation / extra claim, whatsoever, on this account shall be admissible.

PARTICULAR SPECIFICATIONS (CONTD...)**46.5 SCAFFOLDING**

46.5.1 The exterior painting work shall be carried out by using scaffolding. No zoola is permitted for the work under any circumstances. Suitable scaffolds shall be provided for workmen. Scaffolding or staging more than 3.5 metres above the ground or floor, swung or suspended from any over head support or erected with stationary support shall have a guard rail properly attached, braced and otherwise secured at least 1 metre high above the floor or platform of such scaffolding or staging and extending along the entire length of the outside and ends thereof with only such openings as may be necessary for the delivery of materials. Such scaffolding or staging shall be so fastened as to prevent it from swaying from the building or structure. Every opening in the floor of a building or in a working platform be provided with suitable means to prevent the fall of persons or materials by providing suitable fencing or railing whose minimum height shall be 1 metre. Safe means of access shall be provided to all working platforms and other working places.

46.5.2 The rates quoted are deemed to include the above provision of scaffolding and no extra will be payable to contractor on this account. The scaffoldings shall be removed only after obtaining clearance of Engineer-in-Charge / Garrison Engineer after considering the quality of the work undertaken on completion of the painting.

46.6 SAFETY PRECAUTIONS

46.6.1 Contractor shall provide all safety precautions for the labour engaged for this work. All the labours shall be provided with safety belts, helmets, Nose screens etc and the contractor shall adhere to all safety precautions as per Labour Welfare Act. It is also advised, contractor to have insurance cover for his workmen working at heights against any eventuality from any reputed insurance agencies. Department will not be responsible for any untoward incident happening due to lack of safety precautions taken by contractor.

46.7 STAGE PASSING

46.7.1 The work shall be executed in a workman like manner and to the entire satisfaction of the GE. Contractor shall obtain the approval of GE stage wise as indicated below. The contractor shall give due notice in writing with sufficient time in advance to the Engineer-in-Charge and the GE, when each stage is about to be completed. The contractor shall start the work of subsequent stage only after obtaining written approval of the GE for pervious stage. In default of such notice being received from the contractor, if he commences the work of subsequent stage without approval of the GE, then the GE shall have all the rights reserved to reject the work and ask the contractor to remove the said portion executed. The contractor shall have no claim on this account or otherwise the decision of the GE in this regard shall be final and binding.

STAGES

- (i) Extent of area to be painted
- (ii) Sample of painting work (Area to be decided by GE)
- (iii) After preparation of surface
- (iv) After applying a coat of Acrylic emulsion paint.

46.8 GUARANTEE

46.8.1 The work of applying painting paint shall be got carried out under the supervision and guidance of accredited representative of the manufacturer. A certificate from their representative shall be obtained by the contractor to the effect that work of painting has been carried out under their strict supervision and as per manufacturer's instructions. The same shall be submitted by the contractor to GE. The contractor shall also obtain a written guarantee for effectiveness of paint

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against fading out, peeling off, cracking, dust / algae accumulation etc **for 5 (five) years from the certified date of completion of entire work** from the manufacturer and submit the same to GE before completion of work.

- 46.8.2 Should the GE at any time during construction or reconstruction or prior to the expiry of the guarantee period, finds defective performance of the paint, the contractor shall, on demand in writing from the GE specifying the locations complained of, notwithstanding that the same may have been inadvertently passed / certified and paid for, under take to carry out such treatment as may be necessary forthwith to rectify the defects to the full satisfaction of GE. In the event of his failure to do so, within the specified period to be specified by the GE in his demand aforesaid, the GE may undertake such defective work at the risk and expense of the contractor. The liability of the contractor under this condition shall not extend beyond the period of five years form the certified date of completion, unless the GE had previously given notice to the contractor to rectify the defects
- 46.8.3 A sum equal to 3% of the completion cost of items for Acrylic emulsion paint and primer shall be retained from the final bill amount towards guarantee for Acrylic emulsion paint which will be released after satisfactory expiry of 05 (five) years guarantee period. If contractor fails to rectify the defects noticed in the treatment or found in the material the aforesaid amount so retained shall be utilized for rectification of defects and contractor shall have no claim whatsoever on this account. The contractor may submit Bank guarantee Bond or Fixed Deposit Receipt from any Nationalized Bank pledged in favour of GARRISON ENGINEER for the said sum valid for the period of 05 (five) years form the date of completion of work in which event no further amount will be recovered from the final bill on this account. Defect liability period under condition 46 under General Conditions of Contracts IAFW-2249 shall be deemed to be amended to the extent mentioned above for Acrylic emulsion paint.
- 47.0 **MS GALVANISED CHAIN LINK FENCING**
- 47.1 Chain link fence shall be made of galvanised wire and shall confirm to IS:2712-2003. The specifications shall be all as specified in Clause 10.34 of MES Schedule Part-I, 2009. The fencing shall be PVC coated. Only plasticized poly(vinyl chloride) (PVC) with a low temperature (-20 C ; -4 C) plasticizer and no extenders or extraneous matter other than the necessary stabilizers and pigments shall be used for PVC coating. The PVC coating shall resists attack from prolonged exposure to dilute solutions most common mineral acids, seawater, and dilute solutions of most salts and alkali. The PVC coated wire shall pass the test for adhesion contained in ASTM F668 for Class 2a chain link fabric.
- 48.0 **CONCERTINA COIL:**
- 48.1 The concertina wire shall be creep resistant and shall not allow the fence to sag and should appear to be neat and tidy when erected on properly grouted posts. These shall be wound in a row/tier, spirally between two rows of barbed wire fencing all as directed by Engineer-in-charge. The wire shall be stretched for sufficient length to achieve the dia of coil as specified in Schedule 'A'. Stainless steel clips shall be used for clipping the concertina coils. Make shall be as approved by GE.
- 49.0 **FALSE CEILING:**
- 49.1 False Ceiling shall be provided all as specified in Schedule "A"/BOQ. The workmanship and fixing shall be all as specified in clause 12.19, 12.20 and 12.31 of MES Schedule Part - I [Specifications].
- 49.2 Ceiling boards shall be of uniform thickness, free from warp, cracks and other

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damages. Exposed surfaces of ceiling board shall be painted with two coats of distemper oil emulsion over a coat of primer.

- 49.3 False ceiling shall be with Aluminium snap grid system and grid size shall be 600 X 600mm. Size of grid at the edges/perimeter may however vary to suit the geometric shape of the building. Size of Aluminium main Tee, cross tee, ceiling cleats and GI wire suspenders to achieve the height[s] of false ceiling shall be as directed. GI wall angle shall be fixed to the wall with plugs embedded in wall.
- 49.4 The Aluminium sections shall be of standard sections of makes as specified hereinafter and shall confirm to IS and shall be got approved from GE before incorporation in work.
- 49.5 In case the sizes of various members of false ceiling grid not available or not specified, the same shall be as per manufacturer's instructions.

WATER SUPPLY WORKS.**50. WATER TUBING, BIB TAPS, STOP VALVES, PUSH BUTTON TAPS AND BALL BRASS VALVE.**

(a) Mild steel galvanised tubes (pipes) and fittings shall be all as specified in 18.4 of MES Schedule Part-I. All GI fittings and pipes shall be ISI marked. Makes of GI pipes shall be Parkash Surya/Jindal (ISI Marked).

(b) Bib taps and stop valves shall be all as specified in clause 18.14 and 18.15 of MES Schedule Part-I and shall be ISI marked.

(c) Brass ball valves shall be all as specified in clause 18.19 of MES Schedule Part-I and shall be ISI marked.

Note :- Samples of all these materials shall be got approved from GE before bulk procurement.

50.1. LAYING AND FIXING PIPES.

(a) The pipes for supply of water shall run on the roof/along walls as per the layout of the existing tanks as directed by Engineer-in-Charge. minor modification in the layout shall be carried out the suit the size of the PVC tanks as approved by the Engineer-in-Charge. The portion of the pipes running alongwith the walls shall be fixed with MS clamps.

(b) No old pipe or fittings as obtained from dismantling shall be reused in the work unless otherwise directed by Engineer-in-Charge.

(c) The pipes for supply of water shall run on the roof/along walls as per the layout of the existing tanks as directed by Engineer-in-Charge. minor modification in the layout shall be carried out the suit the size of the PVC tanks as approved by the Engineer-in-Charge. The portion of the pipes running alongwith the walls shall be fixed with MS clamps.

(d) No old pipe or fittings as obtained from dismantling shall be reused in the work unless otherwise directed by Engineer-in-Charge

51 PLUMBING WORK

51.1 **GENERAL.** Plumbing work shall be carried out as specified in clauses 18.13 to 18.23 and 18.40,18.62 to 18.67 of MES Schedule Part-I.

51.2 **SHORTER LENGTHS.** Except for WC connectors, the contractor may use pipe pieces without sockets to shorter lengths (less than one pipe length), where approved by the GE and connect these to pipe fittings with double socket/collars including additional joints as specified above without extra cost to the Government.

51.3 **TRENCHES FOR PIPE LINES.** Excavation for trenches shall be done as per the width given clause 3.2.3 on page 21 of MES Schedule Part-II and depth as required at site. The trenches shall be back filled after testing of pipes with excavated earth in layers not exceeding 250mm and surplus spoil disposed off to distance not exceeding 50 metres.

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51.4 **TESTING.** All soil waste and vent pipes shall be tested as specified in clause 18.79.1 to 18.79.5 of MES Schedule Part-I.

51.5 PP-R WATER SUPPLY PIPES: Pipe and pipe fittings shall be of 3-layered PP-R [Polypropylene random copolymer] pipes SDR 7.4 [PN-16] UV stabilized and antimicrobial fusion welded having thermal stability for hot & cold water supply including all PP-R plain & brass threaded polypropylene random fittings all as specified in Clause 18.114 of MES Schedule Part – I. Laying, jointing and fixing of pipes shall be carried out all as specified in clauses 18.114.3 and its sub-clauses of MES Schedule Part – I. The Contractor shall use proper bends, elbows, tees etc. at turning corners. Bending of pipes is not permitted except where the pipe has to follow the contour masonry/brick work or where a fitting cannot be inserted. The bends shall be gradual and firm with the written permission of the Engineer-in-Charge. Pipes and fittings shall be of make as approved by the GE. Contractor shall provide screwed plugs to all open ends of pipe on completion of day's work. Contractor shall provide screwed plugs to all open ends of pipe on completion of days work.

51.6 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

52. STEEL ROLLING SHUTTERS

Repairs to Steel Rolling Shutters shall be carried out as mentioned in relevant item /items of Schedule 'A'/BOQ and provisions contained in clause 10.23 including Sub clauses of MES Schedule Part-I as applicable shall be followed.

53.0 SITE CLEARANCE:

53.1 Refer condition 49 of IAFW-2249 General Conditions of Contracts, the contractor shall remove from the site all unused stores and materials, tools, plant, equipment belonging to contractor and provided for the execution of work under this contract and delivered in clean tidy manner upto the entire satisfaction of Engineer -in-charge. Nothing extra whatsoever shall be paid to the contractor for such cleaning of site.

54. FIBRE GLASS TRANSLUCENT SHEETS

The thickness of the sheets shall be all as description of Sch 'A'/BOQ item. For rest of the specifications refer clause 11.35 of SSR Part-I.

55.0 ANTI-TERMITE CHEMICAL TREATMENT:

55.1 Before undertaking any type of treatments a thorough inspection shall be carried out of the structure based on guidelines as indicated in IS-6313 (Part-3). Inspection and method of treatment shall be as specified in clause 3.31.2 and 3.31.3 of SSR Part-I.

55.2 Anti termite treatment shall be got done through any one of the specialist agency who holds valid licence as per clause 13 of Insecticides Act 1968 and is a member of India Pest Control Association. Persons employed to do the anti termite treatment shall be qualified as per rule 10 of the rules framed under the Inspection rules 1971. Before selecting the firm for Anti-termite treatment, the GE shall ensure that all the requirements for carrying out the Anti-termite treatment are fulfilled by the selected firm and antecedents of the firm is verified by him. The decision of the GE shall be final, conclusive and binding with regard to selection of firm and persons employed for carrying out Antitermite treatment.

55.3 Anti termite treatment shall be carried out with emulsion of chloropyriphos purchased directly from the manufacturer or his authorised agents. The EC% of chemical chloropyriphos shall be of 20 EC. Purchase vouchers and test certificates for each consignment shall be produced before the GE for verification and defacement against this contract.

[a] Chemicals brought to site in sealed containers bearing IS certification marks shall only be permitted to be used in the work.

PARTICULAR SPECIFICATIONS (CONTD...)

- [b] Chemicals shall be stored carefully at site. Seals of containers shall be broken only in the presence of Engineer-in-charge. Empty containers shall be removed off the site promptly, on any particular day if the contents of full container could not be used in the work, the container shall be sealed at the end of a day in the presence of the Engineer-in-Charge and opened when required also in the presence of Engineer-in-Charge.
- [c] Total quantity of chemical required for the work as per specification shall be worked out in order to ensure that full quantity is brought to site and used in the work. For this purpose, entries shall be made in the measurement book (not for payment/ not to be abstracted) indicating the brand name, quantity brought etc; and signed by Engineer-in-Charge as well as the representative of the agency executing the work and contractor.
- [d] Copy of IS-6313 (Part-II) for anti-termite treatment shall be made available at site by the contractor. Tests shall be carried out in recognised laboratory or test house at the discretion of GE of the chemical brought by the agency executing the work. The cost of test shall be borne by the contractor.
- 55.4 The defects liability period of anti termite treatment shall be 10 years and the contractor shall be responsible to keep the entire buildings free from termite infestation for a period of 10 years after the date of taking over the completed buildings from the contractor. The contractor may obtain a similar guarantee from the specialist firm engaged by him for the purpose.
- 55.5 A sum equal to 5% of the completion cost of ATT works shall be retained out of the contractor's bill as security deposit during the Guarantee period of 10 years, which shall be refunded to him after expiry of this period. Alternatively, the contractor may give a separate interest bearing security deposit pledged in favour of GE valid for 10 years for this amount.
- 55.6 Should the GE at any time during the construction or prior to the expiration of said Guarantee period of 10 years find that the buildings have been infected with termite, the contractor, on demand in writing from the GE, specifying the buildings complained of, notwithstanding the same may have been inadvertently passed, certified and paid for, forthwith undertake to carry out such treatment which may be necessary to render the buildings free from termite infestation at his own expense till expiry of the Guarantee period of ten years. In the event of his failing to do so within a period to be specified by the GE in his demand aforesaid, the GE may undertake such treatment at the risk and expense in all respects of the contractor.
- 55.7 The liability of the contractor under this condition shall not however extend beyond the period of the 10 years from the certified date of completion, unless the notice was served on the contractor previously to rectify such defects.
- 55.8 **UPVC JOINERY [DOORS/WINDOWS/VENTILATORS/FIXED GLAZING]:**
UPVC joinery shall be fabricated from Un-plasticised Polyvinyl Chloride [UPVC] sections. The profiles shall be three chamber system which shall provide high insulation properties.
The doors / windows / ventilator units shall be designed with all corner joints mitred and fusion welded and steel reinforced. The profiles shall have co-extruded seals.
All the hardware like friction stays, handles shall be screwed with self tapping screws. The handles, locks shall be designed so that they cannot be released from outside.
Contract shall submit purchase vouchers and Test certificates from original manufacturers before claiming payment for the same in RAR.

56.0 **APPLICABILITY OF RULES, REGULATIONS AND CODE OF PRACTICE:**

56.1 The entire electrical installation under this contract shall comply with the requirements to Indian Electricity Rules, acts and other regulations such as fire insurance act as may be applicable from time to time.

56.2 The work required Electrical License in accordance with Rule 29 under Part-III of Central Electricity Authority (Measures relating to safety and electric supply) Regulation 2010, the contractor shall have valid Electrical License issued by the Govt of Andhra Pradesh in the name of the Firm or get the work executed through any agency having valid Electrical License. Prior to commencement of work, copy of valid Electrical License in the name of the contractor or copy of agreement with agency having valid Electrical License along with agency's Electrical License shall be submitted by the contractor to the GE.

57.0 **WORKMANSHIP:**

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

57.2 The requirement pertaining to materials, conformity with Indian Electricity Act and rules, workmanship, testing, record of installations, safety procedures and practices and fire safety, shall be all as specified in MES Schedule clause 19.2.

57.3 All materials, workmanship of all fittings, appliances etc., used in this work shall be new and of the highest class of their kind and shall suitable in every where, for the services required and shall be generally comply to the relevant Indian Standards wherever they exists and in case no IS exists, the item shall be approved by AGE before its incorporation in the work. The workmanship shall be as per manufacturer's instructions.

58.0 **CLASS OF WORK:**

58.1 The work shall be carried out in strict compliance with the latest edition of Indian Electricity Act and edition of IS-732. It shall be of high standard and approved construction used in modern electrical work both as regards design and workmanship. Complete work shall be suitable in every respect for type of voltage specified and shall be to the satisfaction of Engineer-in-Charge.

58.2 All fittings / wiring shall be clear of doors / windows, ventilators or any other openings. After completing the work all the disturbed surfaces of walls, chases shall be made good as existing and contractors quoted rates shall deemed to be inclusive for the same.

59.0 **POINT WIRING:**

59.1 Type of wiring shall be all as described in BOQ and as directed by the Engineer-in-Charge

59.2 All terminal boxes for mounting switches, sockets, regulators, etc. shall be fixed as existing or as directed by Engineer-in-Charge. All switches and socket outlets are to be fitted to the switch box. The rates for point wiring shall include the cost of terminal box with cover.

59.3 Point wiring shall be carried out with PVC insulated, unsheathed copper conductor of size as mentioned under respective items of Schedule 'A'.

PARTICULAR SPECIFICATIONS (CONTD...)**60.0 PVC CONDUIT:**

60.1 PVC conduit shall be medium grade of size as mentioned in Schedule 'A' and shall bear ISI mark. The fittings and accessories shall be conforming to IS.

61.0 SWITCHES, SWITCH SOCKET OUTLET, CEILING ROSES, ETC:

61.1 The switches / switch sockets / ceiling roses shall be best quality as approved by GE conforming to the requirement laid down in relevant IS. Piano type switches shall be connected to phase and not to the neutral wire. Switches should be marked for the purpose they are to be used.

61.2 All the switches / switch socket outlets shall conform to latest IS. The size of the earth continuity wire and load from the continuity wire to the earth terminal body of the switch shall be as specified in Schedule "A". These shall be with porcelain base and Bakelite cover.

62.0 MCBs:

62.1 All the miniature circuit breakers [MCBs] shall comply with IS – 8828-2278. The body of the miniature circuit breaker shall be made of heat resisting moulding. The breaker shall be flush mounted.

62.2 The MCBs shall be designed for operated on hammer trip principle for effectively limiting the fault current within shortest period. All MCB and their distribution board shall comply with IS – 8828: 1996 and shall have minimum rupturing capacity as 10 KA.

63.0 EARTHING

63.1 Earthing shall be strictly in conformity with MES schedule Part I as per electrical plate No. 3 as indicated in Schedule 'A' and work shall be executed in the presence of MES representative. Excavation for earth pit shall be in any type of soil. Excavation shall be passed by the Engineer-in-Charge before refilling. The surplus soil if any shall be removed to a distance not exceeding 50m and the site shall be kept clean and tidy.

63.2 No extra payment shall be made to the contractor where greater depth of pit is required and consequent extra length of earth wire is required to be provided to obtain proper test results as specified herein after. All metal works associated with wiring system (other than current carrying parts) including cables, sockets, steel conduit and boxes shall be earthed through earth continuity conductor as required under Indian Electricity Rules. Earth terminals for switch socket outlets and fans/regulators shall be connected to the earth continuity conductor. The size of such earth continuity conductors shall be as specified in Schedule 'A'.

64.0 MCCB

64.1 For both Internal and External Electrification shall be suitable for operation on triple pole AC 415 Volts 50 cycles of different interrupting capacity as specified in Schedule 'A' without any accessories like auxiliary switch, alarm switch, shunt grip, under voltage trip.

PARTICULAR SPECIFICATIONS (CONTD...)**65.0 DBs:**

65.1 The quoted rate for provision of Distribution boards under relevant item is deemed to be included for necessary brick work and plastering as required for making good the disturbed surfaces and finishes to match with the adjoining surfaces..

66.0 LED LIGHT FITTINGS

66.1 LED light fittings shall be of capacity and make as specified in Schedule 'A' and as approved by the GE in writing. The contractor has to submit original purchase vouchers of all the light fittings to the GE before claiming any payment.

66.2 All LED light fittings shall be with minimum Lumen output of 100 lumens per watt with life of 50,000 burning hours and shall comply with the following technical specifications:-

- [i] Power Factor : not less than 0.95
- [ii] Output : as specified in the BOQ
- [iii] CRI (Colour Rendering Index) : Shall not be less than 70% for Bulk head & Flood light fittings and not less than 75% for other LED fittings
- [iv] THD (Total Harmonic Distortion) : Shall not be more than 20% for LED bulb and not more than 15% for other LED fittings

66.3 The contractor shall furnish written guarantee for a period of 03 years from the date of completion of work in favour of GE for efficacy of LED light fittings provided under subject work. Any defect noticed during the aforesaid guarantee period shall be rectified by the contractor forthwith, on demand in writing by GE, at his own expense. In event of his failure to rectify the defects within the period to be specified by the GE in his demand aforesaid, the GE shall undertake such rectification of work at the risk and expense in all respect of the contractor.

66.4 An amount equal to 5% of total cost of the work (Pertains to LED fittings) towards guarantee shall be retained out of the final bill of the contractor and will be refunded to the contractor after expiry of the period of 03 (Three) years from certified date of completion by the GE provided that there is no defect in the work completed and the contractor shall first have been paid final bill and have rendered "No demand certificate "(IAFA-415). Condition 46 and 68 of General Condition of contracts (IAFW-2249) shall be deemed amended accordingly.

67.REPAIRS TO CEILING FANS/GEYSERS:

67.1 Proper care shall be taken while dismantling / taking down existing ceiling fans/Geysers with out disturbing / damaging other structures and any damage done shall be made good by the contractor without any extra cost to the department.

67.2 The spare parts replaced shall be of standard size and best suitable for ceiling fans/Geysers and shall be got approved by GE before incorporation in the work.

67.3 Servicing, greasing, painting and winding of fans shall be carried out as directed by the Engineer-in-Charge. Copper wire required for rewinding shall be super enamelled wire of appropriate size as per site requirement and the record of winding shall be kept on record for each fan.

PARTICULAR SPECIFICATIONS (CONTD...)

68. PURCHASE VOUCHERS/ TEST CERTIFICATE: The Contractor shall provide Purchase vouchers for all the materials incorporated in the work, on demand by GE. The contractor shall also submit necessary test certificate wherever required/demanded by GE.

69. LT PANEL:

69.1. GENERAL: Design, manufacture, testing, supply, install and commission cubical type, sheet steel enclosures, free standing floor mounting, Outdoor type or Indoor type LT Panel as per BOQ and confirming to IS – 375. The Contractor shall submit drawings for panel boards with complete details for acceptance before starting manufacture of LT panels. LT panel shall be from any of the CPRI approved manufacturer given in List of Makes.

69.2. SYSTEM: The LT panel shall be suitable for operation on Three Phase, 4 Wire, 415 Volts, 50 Hz, Neutral earthed and short circuit fault level not less than 10 KA at 415 Volts and shall be suitable to withstand a Fault level of 50 KA [RMS] for one second. Rated normal voltage shall be 415 Volts.

69.3. STANDARD: The design, manufacture and testing of the various LT panel covered by this specification shall comply with latest edition of the relevant Indian Standard and Indian Electricity Acts.

69.4. TEST: Prototype of all panel supplied as per above specification should have been tested and approved previously by CPRI. Tenderer should submit the dimensional drawings of prototype LT panels tested along with test results. All routine and type test result should conform to IS – 8623.

70.0 EXTERNAL ELECTRIFICATION**70.1 SCOPE OF WORK**

70.1.1 The external electrification work shall be provided all as described in Schedule 'A' including testing as specified here under.

70.2 EXCAVATION

(a) Excavation in trenches cable and laying shall be carried out all as specified in clause 19.74 to 19.76 of SSR Part-I.

(b) Measurement of excavation shall be as per authorized width as given in Section 3, clause 3.2.3 para (a), (b) and (c) of MES Schedule Part-II.

I Please refer clauses on excavation hereinbefore.

70.3 SAND CUSHIONING

28.3.1 Sand cushioning to UG cable shall be carried out as specified in Sch 'A' and all as described in clause 19.75 of MES Schedule Part – I.

71.0 CABLE PROTECTION

29.1 Brick protection as specified in Sch 'A' and as per clause 19.20 of SSR Part-I shall be used in cable protection.

72.0 MAKING GOOD

30.1 Roads, footpath including side drains if any cut through for trenches shall be made good by the contractor to match the original specification as directed by the Engineer-in-Charge. When roads have to be crossed, half the width of the road shall be dug at a time and proper warning notices, signs and lights shall be displayed and watchman posted by the contractor at his own cost.

73.0 PROTECTION OF EXISTING WORK

(a) All pipes, water mains, cables, etc., met within the course of excavation shall be carefully protected and supported without extra cost to the Government and shall be deemed to include in the rates quoted for Schedule 'A'.

(b) The rates quoted by the contractor for various items in Schedule 'A' shall be deemed to include for all the contingencies referred above. No claim whatsoever will be entertained by the department on this account.

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PARTICULAR SPECIFICATIONS (CONTD...)**74.0 LT CABLES**

74.1 The scope of work will include proper laying of cable on proposed cable trays /on walls/ducts etc., fixing identification tags and Crimping with crimping lugs fixing compression glands at termination point in panel/marshalling box. The above shall be deemed to part of installation work and the contractor shall not be eligible for any extra charges other than those specifically mentioned in Schedule 'A'.

74.2 LT cables shall be 2/3/3½ or 4 core multi stranded aluminum conductor XLPE insulated inner sheathed armored and PVC sheathed conforming to IS-7098 (Part-I & II) suitable for 1100 Volt grade. LT cables shall be laid in cable trenches/on existing angle iron brackets in RCC ducts/cable trays /in pipes /on walls as directed by Engineer-in-Charge. Cables shall be fixed in tray/on angle iron bracket in RCC duct/on wall with help of GI strip (50 x4mm) clamp bent to shape & secured with the help of GI strip (50x4mm) shall be bracket fixed and cable and cable be clamped with GI strip. Cable shall be laid as per provision of IS-1225-1983. The cable for drum and the cables shall be handled in the correct manner so as to ensure safety for personal and obviating kinks or other damage to the cable insulation armouring or cable sheath. Cable shall be laid in trenches as specified in SSR/IS-1255. The XLPE insulated cables shall be capable of withstanding a conductor temperature of 250°C during short circuit without any damage.

75.0 TRENCHING : The bottom of the trench shall be carefully 95eveled and made free of stones but if gradients and changes in depth are unavoidable they shall be gradual.

76.0 DEPTH OF TRENCH : Depth from the upper surface of the road or pavement or ground to the cable axis shall be not less than the following :-
Upto 1.1 KV Working pressure : 45 cm plus radius of complete cable
3.3 KV to 11 KV Working pressure: 75 cm plus radius of complete cable
22 KV to 33 KV Working pressure: 1 metre plus radius of complete cable

77.0 METHOD OF LAYING:

77.1 Before laying the cable, the trench shall be provided with layer of sand of 8cm depth for the purpose of cushioning. After the cable has been uncoiled and laid into the trenches over the rollers, the cable shall be lifted slightly over the rollers beginning from one end by helpers standing about 10meters apart and drawn straight. The cables shall then be taken off the rollers by additional helpers lifting the cable and then laid straight into the route. When the cable has been properly straightened, it shall be covered with sand to a depth of 15cm. This is then gently punned down to a depth of 10cm above the top of the upper-most cable, thus providing good bedding for the protective cable covers, which are placed centrally over the cable. The punning shall be done by hand; mechanical punners shall not be used.

78.0 TESTING OF CABLES DURING LAYING

78.1 All new cables shall be megger tested before jointing. After jointing is completed all low voltage (LV) cable shall be megger tested and high voltage (HV) cable pressure tested before commissioning. The cables shall be tested for:

- (a) Continuity
- (b) Absence of cross phasing.
- (c) Insulation resistance between conductors and insulation resistance to earth.

PARTICULAR SPECIFICATIONS (CONTD...)**79.0 TESTING AFTER LAYING AND JOINTING**

79.1 Immediately after initial laying and jointing work is complete, a high voltage as specified in IS shall be applied to HV cables to ensure that they have not been damaged after laying operations and that there is no fault in the jointing. The following tests shall also be carried in all cables:-

- (a) Insulation resistance test - Sectional and overall
- (b) Continuity test - Sectional and overall
- (c) Full load test
- (d) Earth test
- (e) HV test as per relevant ISS.

79.2 Insulation resistance test shall be carried out between conductors and earth by megger. High voltage test shall be carried out by applying test voltages between conductors and each conductors and sheath as per relevant IS.

80.0 CABLE RECORD

80.1 The following essential data shall be furnished by the contractor as cable record of all the buried cable installations:-

- (a) Size and type of cable manufactures cable drum number.
- (b) Location of the cables in relation to the buildings, kerb line etc., with depth.
- (c) Cross sections showing where cables laid in pipes or ducts giving their sizes, type and depth together with an indication of any spare way available.
- (d) Positions and type of all joints.
- (e) Location of other cable, which run alongside / across the cable route.
- (f) Position and depths of all pipes, ducts etc., which are met as obstructions to the cable route.
- (g) Accurate lengths from joint to joint.

81.0 CABLE TERMINATION AND JOINTS KIT

81.1 Cable boxes for straight though and termination joints shall be in the form of "kits" with jointing instructions and literature/test certificate. The kit shall also carry the name of manufacture, date of manufacture and expiry date on the kit also size type and or cable for which suitable.

82.0 GI TUBING AND FITTINGS

82. 1 GI tube and fittings shall be of mild steel galvanised medium/light grade conforming to IS-1239 and ISI marked. Fittings conforming to IS-1239 if not available ready may alternatively comply with the requirement of IS-1879 for malleable cast iron fittings. GI tube and fittings shall be ISI marked.

82A Chemical Earthing:- Chemical Earthing shall be carried out through any reputed manufacturer to be approved by Accepting officer before start of work and all chemical earthings shall be tested as per relevant IS in presence of contractor, Engineer-in-charge and rep of accepting officer to be detailed separately by accepting officer and Test results are to be Forwarded along with completion certificate. Completion certificate shall not be issued in absence of same. Contractor will have to give Guarantee of 5 years for successful working of chemical earthing on stamp paper of Rs 100 and also deposit an FDR against guarantee money of Rs 50,000.00 in this regard which will be returned after 5 years of completion of work on submission of relevant documents, If the contractor fails to deposit the guarantee Money the same shall de deducted from his Final Bill.

SIGNATURE OF CONTRACTOR
DATED:

AGE [CONTRACTS]
FOR ACCEPTING OFFICER

PARTICULAR SPECIFICATIONS (CONTD...)**83.0 GUNITING / STRUCTURAL REHABILITATION**

- 83.1 **Guniting to damaged RCC members shall be carried out all as specified in BOQ and as directed by Engineer-in-Charge under strict supervision of manufacturers technical representative/applicator and contractor will have to produce all relevant documents in this regard that work has been carried out through authorized applicator of manufacturer.**
- 83.2 Affected portion of the RCC members shall be chipped off to the extent the loose concrete is seen from the chipped portion shall be cleaned thoroughly with compressed air and water. Every portion of chipped RCC member shall be shown to Engineer – in-Charge and his approval obtained before processing to the next stage of work. Visible scales on the bars shall be removed with brushes and the base cleaned thoroughly with compressed air.
- 83.4 When the chipped portion of the RCC member is free from dust and dried, existing reinforcement bars shall be cleaned properly and a thin coat of epoxy based anti-corrosive shall be applied over the old reinforcement thoroughly. The anti-corrosive shall be either Nitozinc pin of M/s FOSROC or CERAZINC ZR of M/s Cera-Chem (Pvt) Ltd and shall be applied as per the instructions of the manufacture.
- 83.3 Welded steel wire fabric of mesh size 75mm and 2.0mm dia of wire welded to existing reinforcement bars and fixed to the proposed surfcaes of guniting with suitable pins / claps / welding to the existing reinforcement as required and all as directed by Engineer-in-Charge.
- 83.4 The exposed concrete surfaces shall be coated with epoxy based bonding agent. The epoxy bonding agent shall be either Nitobond EP of M/s FOSROC Chemicals or Cera bond EP of M/s Cera Chem (Pvt) Ltd and shall be applied as per manufactures instructions.
- 83.5 The whole process of application of above treatments shall be carried out in the presence of technical representative of manufacturer of the chemical / bonding agent to the satisfaction of Engineer-in-Charge and shall be certified by him that the treatment has been done as per manufacturer’s instructions at all the locations. The epoxy coated portion of the RCC member shall be allowed to dry before guniting.
- 83.5 Guniting shall be done in CM(1:3) upto average thickness in two layers as specified in the BOQ. Aggregate used should be 6mm and down to 250 microns. The proportion of the aggregate shall be as mentioned in the relevant IS Code of practice. The quantity shall be consist of cement and aggregate in the ratio 1:3. Water cement ratio shall not exceed 0.3 by weight of cement. The gunite pressure shall not be less than 6.0 Kg/Sqcm at the tip of nozzle ejecting the mix. The gunite material should emerge from the nozzle in a steady stream. Should the flow became intermittent the nozzle man should direct the flow away from the surface of RCC member. It shall be ensured that the distance of nozzle is kept between 0.6 to 0.9 m and shall be perpendicular to the application surface. Except when guniting through reinforcing bars, the nozzle should be held closer and at a slight angle to permit better encashment and facilitate removal of rebound.

PARTICULAR SPECIFICATIONS (CONTD...)

- 83.6 Special care shall be taken that no loose material is left behind the reinforcement. The first gunite layer should however completely embed the reinforcement. The reuse of rebound is not permissible. Approximate value of rebound will be 34%. However, the decision of GE is final and binding regarding waste in rebound. The unit rate per Sqm quoted by the tenderer shall be deemed to have been included for the wastage. The final gunite surface should be rough enough to receive further deposit on the surface. Guniting surface should be cured for 7 days. Any excess depositing shall be made good without any extra cost.
- 83.7 Damage to any other portions of the building shall be made good without extra cost. Contractor has to clear off the site, all the debris obtained from rebound of guniting material at site.
- 83.8 Tenderer shall note that work has to be executed at scattered locations and at various heights upto 10 floors. Necessary scaffolding and all the safety measures shall be ensured to avoid any damages. The work shall be taken up only after taking all precautionary aspects and obtaining clearance from the GE.
- 83.9 The contractor shall give a written guarantee for the effectiveness of Guniting / Structural rehabilitation work carried out under subject work for a period of 03 [Three] years from the certified date of completion of entire work. An amount equal to 5% of cost of relevant items towards guarantee amount shall be retained by the Government from the contractor's dues. This amount shall only be released after successful expiry of the guarantee period. However, the guarantee amount will be released to the contractor if a fixed deposit receipt in favour of GE for 03 Years is submitted by the contractor. The fixed deposit receipt amount shall be released to the contractor after expiry of guarantee period satisfactorily.
- 83.10 Unit rates quoted by the tenderer under respective items of BOQ shall be deemed to be inclusive for all the above provisions.
- 84.0 **MICRO CONCRETING**
- 84.1 **PREPARATION:**
- 84.1.1 The unrestrained surface area of the repair must be kept to a minimum. The formwork should include drainage outlets for pre-soaking and, if beneath a soffitt, provision for airventing. Provision must also be made for suitable access points to pour or pump the mixed micro-concrete in place
- 84.1.2 Defective concrete surfaces must be cut back to a sound base. Smooth surfaces should be mechanically roughened. Corroded reinforcing steel should be exposed around its full circumference and cleaned to remove all loose scale and corrosion deposits. It is important to clean the steel to a bright condition. Grit-blasting is recommended.
- 84.1.3 One coat of Nitozinc Primer should be applied on the reinforcing steel. If any discontinuity in the applied film is noticed, one more coat has to be applied.
- 84.1.4 Several hours prior to placing, the concrete substrates should be saturated with clean water. Immediately prior to placing, any free water should be removed.

PARTICULAR SPECIFICATIONS (CONTD...)**84.2 MIXING:**

84.2.1 Care should be taken to ensure that micro concrete thoroughly mixed in a forced action mixer of adequate capacity. Alternatively, mix in a suitably sized drum with a high torque (400/500 rpm) rotary drill fitted with a mixing paddle. It is essential that machine mixing capacity and labour availability is adequate to enable the placing operation to be carried out continuously. The quantity of water required will generally be between 3.50 litres and 3.75 litres per 25 kg bag of micro concrete. The optimum water content should be determined and accurately measured into the mixer. However it should not exceed 3.75 litres/25 kg in any case. With the mixer running, slowly empty micro concrete into the mixer. Mix continuously for 5 minutes, ensuring a smooth even consistency of the mix. Where the addition of graded coarse aggregate has been recommended it should be added after the water and concrete are properly mixed. Mixing should then continue for a further 1 minute to ensure proper dispersion.

84.3 FORM WORK:

84.3.1 Slurry tight form work that will not deform or leak when subjected to hydraulic pressure imposed by the micro concrete will be fabricated and erected where the material is gravity fed, provision in the formwork will be made for a suitable feed hopper at the highest point. Where necessary, provision will be made for air vents to prevent air entrapment. Form work shall be coated with Reebol mould releasing agent prior to fixing.

84.3.2 Form work shall be made of mild steel sheets, steel bracings, props, etc and it shall be completely 100% leak proof.

84.4 PLACING / POURING;

84.4.1 The mixed material should be placed immediately. If placed by pump, standard concrete pumping practice should be followed. The pump and pipeline must be primed with cement slurry. Pumping should be commenced immediately after priming. If poured in the form work, avoid air entrapment by pouring from one side only. It should be cured immediately after stripping the formwork in accordance with good concrete practice. In harsh drying conditions, supplementary curing such as wed hessian or polythene sheeting must be used as per manufacturers recommendations.

84.5 The quoted rate for micro concrete under relevant item of BOQ shall deemed to be inclusive for all the above provisions including leak proof form work.

PARTICULAR SPECIFICATIONS (CONTD...)**85. SMART PAINTING SPECIFICATIONS****85.1 Preparation of surfaces**

Preparation of surfaces shall be done by using vacuum based sanding machines. Sanding machines should be used to dust free scraping of the walls within built vacuum suction system to remove all dust. Long handle sander /hand held sander is to be used as required basis, it shall be used till an even and smooth surface is obtained.

85.2 Application of wall care Putty

Wall care Putty shall be mixed by Multipurpose mixer machine. Putty shall be applied using Putty Sprayer.

85.3 Application of Distemper and Paint of any Type

Distemper /paint shall be applied with AUTO ROLLER, which consists of a pump attached to the roller head and ensures a uniform feed of paint to the roller and also prevent any spillage on the floor and windows as in the case of a conventional painting methodology. Distemping/Painting shall be started from ceiling down, A uniformly finished surface without patches, roller marks , distemper/ paint drop shall be obtained.

86 SMART PAINTING SPECIFICATIONS FOR OLD SURFACES**86.1 Preparation of surfaces**

The distemper whether in good or bad condition shall be removed completely by washing even to the last trace and allowed to dry completely .It shall then be prepared by Vacuum based sanding machine to obtain even and smooth surface.

86.2 For Old surfaces already painted with oil bound distemper the removal of distemper in bad condition shall be done only using Vacuum based sanding machine


86.3 After the priming coat has dried, the surface shall be lightly sandpapered with zero grade abrasive paper, taking care not to rub out the priming coat and then dusted off. Distemper shall be applied with AUTO ROLLER, which consists of a pump attached to the roller head and ensures a uniform feed of paint to the roller and also prevent any spillage on the floor and windows as in the case of a conventional painting methodology. Distemping/Painting shall be started from ceiling down, A uniformly finished surface without patches, roller marks, distemper/ paint drop shall be obtained.

86.4 Distemper shall be applied in dry weather with Auto Roller The first coat shall always be of lighter tint than that required finally and the subsequent coat shall be applied only after previous one has thoroughly dried for last 24 hours.

86.5 The distemper shall be thinned and prepared using prescribed thinner as per manufacturers instructions.

86.6The Distemping and Painting shall be carried out using following Tools The tools shall be one of the Burger/Asian/Techno commercial or any other equivalent manufacturer approved by GE.

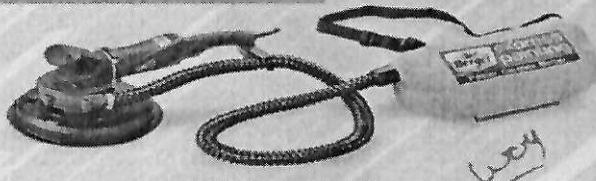
PARTICULAR SPECIFICATIONS (CONTD...)


express painting

DOs & DON'Ts

Faster. Cleaner. Better.

Hand-held Sander is designed with a short handle to reach walls that are at eye level and below, and can be easily at an angle's length. It is light bodied, can be carried around without much effort. It is an excellent tool to smoothen wall surface made of plaster or putty and reduce undulation. It provides superior finish and is faster than conventional finishing methods for both new construction and repainting site. Its built in powerful vacuum collects all the dust in the attached dust bag while sanding, that keeps environment dust free.



TECHNICAL DATA

Voltage supply	230-240 V
Power	1010 W
Frequency	50 Hz
Speed	1000-1850 r/min
Disc Diameter	225 mm
Net Wt.	2.8 Kg

Sand paper grade available: 80, 120, 150 and 240

DOs:

- Read all the safety instructions to reduce the risk of injury
- Check power cable and On-Off Switch before use
- Change carbon brush and sand paper when needed
- If the dust collector bag is 50% full, please clean up the bag immediately
- Keep the machine away from rain and water
- Keep the machine away from children
- Power cable must be kept away from the moving parts of the machine
- Always wear protective goggles and dust mask while using the machine
- Use original parts only for replacement
- Clean the dust collector bag at regular intervals
- At the day end after using it, take out the sanding disk and clean the dust sticking on it

DON'Ts:

- Do not dismantle the machine
- Do not mishandle the machine
- Do not use on wet wall or wet area
- Do not use local parts. Contact Berger Call Centre for any queries
- Do not get the machine over heated. Do not run the sander continuously for long hours. Use the machine upto 30 minutes and then keep this on 'off' mode for 10 minutes
- Do not work with materials containing asbestos

PARTICULAR SPECIFICATIONS (CONTD...)**Long Handle Sander**

is similar to Hand-held sander in operation, but comes with an additional advantage of an extendable arm for sanding higher walls, ceilings and areas of the house that is difficult to reach. It has a larger dust bag, which means the user can save on time, by not having to take frequent breaks to empty the contents of the bag.

RWF

**TECHNICAL DATA**

Rated voltage	230-240(V)
Frequency	50(Hz)
Rated power	750(W)
No-load frequency speed	1000-1800(r/min)
Sand paper diameter	225(mm)
Length of the telescopic scope	1100-1800(mm)

DOs

- Read all the safety instructions to reduce the risk of injury
- Check power cable and On-Off Switch before use
- Change carbon brush and sand paper when needed
- If the dust collector bag is 50% full, please clean up the bag immediately
- Keep the machine away from rain and water
- Keep the machine away from children
- Power cable must be kept away from the moving parts of the Always wear protective goggles and dust mask while using the machine
- Use original parts only for replacement
- Always use safety belts and harness when using the machine
- Clean the dust collector bag at regular intervals
- At the day end after using it, take out the sanding disk and clean the dust sticking on it

DONTS

- Do not dismantle the machine
- Do not mishandle the machine
- Do not use on wet wall or wet area
- Do not use local parts. Contact Berger Call Centre for any queries
- Do not use the machine beyond reach
- Do not get the machine over heated. Do not run the sander continuously for long hours. Use the machine upto 30 minutes and then keep this on "off" mode for 10 minutes
- Do not work with materials containing asbestos

PARTICULAR SPECIFICATIONS (CONTD...)

Auto Roller, a mechanical painting device which internally feeds paint to the roller head through high speed pumping action. Unlike a manual roller, it has an automatic regulated paint feed with a pause function, an extension handle to give better control and better reach for minimising operator fatigue. It transfers paint with high speed and accuracy and offers perfect finish to walls and ceilings.

**TECHNICAL DATA**

Input	220V- 50Hz
Max. Flow Rate	450ml/min
Rated Power	750(W)
Rated Power	45W
Max. Pumping Height	4.5M

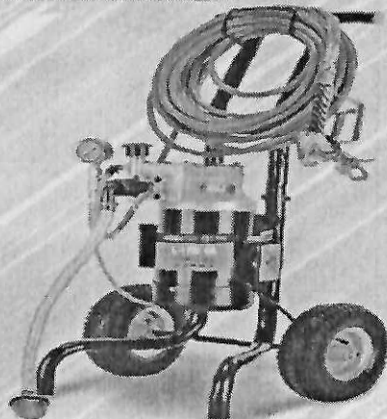
DOs

- Read all the safety instructions to reduce the risk of injury.
- Check power cable and on-off switch before use.
- Dilute the paint as per recommendations on the can.
- Only Berger products recommend for best finish.
- Keep the machines away from rain and water.
- Keep the machines away from children.
- Power cables must be kept away from the moving parts of the machine.
- Use original parts only for replacement.
- Clean well with clean water after usage and between every shade change.
- Make sure the flow control knob is adjusted properly to prevent dripping of paint from the roller head.

DON'Ts

- Do not operate in inflammable atmosphere.
- Do not dismantle or mishandle the machine.
- Do not use local parts.
- Contact Berger Call Centre 1800-103-6030 for any query.

Airless Sprayer gives flawless, smooth finish to painted surface. It is twice as faster than a roller or a brush. It is well suited for large paint jobs saving time and money.

**DOs**

- Read all the safety instructions to reduce the risk of injury
- Check power cable and On / Off switch before use
- Press reset switch when needed
- Clean the machine and valve after use
- Keep the machine away from rain and water
- Keep the machine away from children
- Power cable must be kept away from the moving parts of the machine
- Use original parts only for replacement
- Check air bypass valve
- Change the oil whenever needed
- After using the machine for a day, back wash it to empty the pipe
- After that wash the pipe with water
- There should be a 50% overlap while spraying paint using the Airless Sprayer

DON'Ts

- Do not dismantle the machine
- Do not mishandle the machine
- Do not use local parts. Contact Berger Call Centre for any queries
- Do not use the machine without paint
- Do not get the machine over heated

Cover inside

Berger's journey to the pinnacle of success

Berger Paints has come a long way since its inception in 1923. In the 18th Century, a young chemist, Lewis Berger, was manufacturing Prussian Blue using a secret process that every designer and householder coveted. Apart from his spectacular shades, he offered people a chance to transform their homes through the power of imagination.

Time and again Berger has proved itself to be the best. It emphasizes the idea that colour is a form of self-expression and today the name Lewis Berger is synonymous with colour worldwide. His example continues to inspire Berger Paints to create and innovate as can be seen in its varied product range.



- Sri Sri Good Green Governance Award 2018 on Zero Environmental Pollution won by Team Berger on Earth Day.
- Beepce Coatings Pvt. Ltd was the recipient of National Energy Conservation Award 2017, from the Ministry of Power, Government of India.
- May 2018: Beepce Coatings Pvt. Ltd won the Energy Circle Award for being the Best Energy Efficient Organization.
- Berger Paints India Limited was ranked 99th in BT 500 - India's Most Valuable Companies, 2017.
- Berger Paints India Limited ranks 1st among the global manufacturers of Paints & Coatings as reported by Coatings World, 2018.
- Berger Paints India Limited has been consistently on the list of Top Indian Brands in Millward Brown BRANDZ Top 50 from 2014, 2015, 2016 and 2017.
- Berger Paints India Limited features on the list of Forbes India's Super 50 Companies in 2015, 2016 and 2017.
- April 2018: Beepce Coatings Pvt. Ltd wins 1st Prize in the Eighth Regional 3R Forum in Asia & the Pacific
- May 2018: Beepce Coatings Pvt. Ltd won the Safety Award for Occupational Safety & Health from National Safety Council of India.
- April 2018: Beepce Coatings Pvt. Ltd won the Certificate of Appreciation for Industrial Safety & Health from Gujarat Safety Council
- Recipient of CII Green Pro Award

Prolink Services

Product recommendation



Assistance in shade selection
 Measurement by experts
 and cost estimation

Preview facility



Pre-inspection by technical experts



Sampling



Modernised painting support with XP tools
 Periodic site supervision
 Technical support as and when required
 Timely completion of the job with utmost
 satisfaction of the customer

Undercoats



Seal-O-Prime
 Primer with triple booster formulation that fights against dampness, efflorescence and alkalinity

WeatherCoat Exterior Primer
 High on whiteness and opacity, reduces porosity

BP Cement Primer(W/T)
 Excellent coverage, alkali resistant with good sealing properties

Bison Wall Putty
 For beautiful and flake-free interior and exterior walls

Putty Sprayer

- Automatic putty spraying action covers more wall area efficiently
- Saves time and manpower cost

Roller-cum-Sprayer

- As paint flow can be regulated it helps in reducing paint wastage
- Adjustable nozzle angle helps in superior paint finish

Express Painting Tools



Sanding Machine

- Faster and cleaner sanding process
- Almost dust-free scraping of the walls with in-built vacuum suction system to remove all the dust
- Long handle helps to reach ceilings and high areas of the wall
- Short handle sander is used to sand areas around eye level and below the eye level

Multipurpose Mixer

- Quick and hassle-free mixing saves time and labour cost
- All kinds of putty and texture mixing is possible

Auto-roller

- It has adjustable roller that prevents dripping or spilling of paint
- Automatic paint pumping action covers more wall area efficiently saving time and cost
- Gives superior finish

Airless Paint Sprayer

- Used for painting large areas quickly
- Supports water-based paints and primers
- Gives uniform finish

High Pressure Washer

- Hi-speed pressure wash
- Pressure regulator
- Nozzle adjustment

PARTICULAR SPECIFICATIONS (CONTD...)**85.0 APPROVED NAMES FOR PRODUCTS TO BE INCORPORATED IN WORKS:**

85.1 **The makes of products given below are expected to confirm IS specifications/ bear ISI mark. In case, they do not confirm to IS, they automatically deemed to be deleted from this list. The tenderer therefore, shall make market enquiry about the same and no claim whatsoever on this account shall be entertained. In such cases, the make shall be as approved by the Garrison Engineer. The makes if given in Schedule "A" shall take precedence over this list of makes. If Make of any Item is not mentioned in this list but the same is required for work then same shall be ISI marked , if ISI marked make is not available then the same shall be of any reputed make to be approved by GE in writing.**

86.1 LIST OF MAKES

Ser No.	Materials	Make/Name Of Firms
1	Factory Made Chowkats, Panelled / Skeleton Shutters [Wooden]	M/s. Timber Technic, Phase-V Industrial Development Area Jeedimetla, Hyderabad – 500 235 / M/s. Wood India Products, Calcutta / M/s. Standard Doors, Jeedimetla, Hyderabad / M/s. Electrical & General Wood Industries K-6, Industrial Development Area, Uppal, Hyderabad – 500 035 / M/s. Sri Ram Wood Products [P] Ltd, 31-34-145/1, Bangaramma Metta, Visakhapatnam / M/s. MP Wood Products, 124, Labriya Bheru, Dhar Road, Indore / M/s. Berar Timber Industries Pvt Ltd, National High Way No. 8, Village Saran, Valsad, Gujarat – 396 001 / M/s. Goyal Bros, Goyal House, Ramkund, Raipur – 492 001 / M/s. Betul Wood Products Pvt Ltd, Industrial Estate Betul – 460 022 / M/s. Goyal Industrial Corpn, 8343, D.B Gupta Marg, New Delhi – 110 005 / M/s. Doorking Industries, 27, G.N Block Sector-V, Industrial Estate, Salt Lake, Calcutta – 700 091 / M/s. Wood Treatment Specialist, Chennai / M/s. Wood Design [P] Ltd, Bangalore / M/s. Kitply Flush Doors And Furniture Co, Chennai/ M/s Jain Wood industries
2	Factory Made Wooden Flush Door Shutters	M/s Jain Wood industries/ M/s Jain Doors Pvt Ltd(Brand Woodify)/ M/s Archid ply Industries Ltd. / M/s Sri Bhawani plyboard Industry / M/s Sylvan Plyboard(India)Pvt. Ltd (Brand: Sylvan Ply) /Ambika Timber Works/Premier Wood Crafts[P] Ltd./ M/s A-1 Teak Products Pvt Ltd. / M/s Vidya Ply & Board Pvt Ltd /M/s SA Plywood Industry(P)Ltd
PVC / UPVC Door, Window & Chowkhat		
3	PVC Door / Window & Chowkhat	Kumar Arch Tech Pvt. Ltd / Sintex India Ltd. / Polywood / Rajashri Plastiwood Ltd. / Marino / Hindopan/ Polyline Extrusion Pvt Ltd /Navratan Specially Chemicals Ltd /Unifix Plast Pvt Ltd (Solid PVC Doors only)
4	UPVC Doors , Windows & ventilators	Yashashri poly extrusion Ltd (UPVC Windows ,Doors, Turn Window)/ M/s Profine India Window Tech. Pvt. Ltd (BRAND: KOEMMERLING) / Rajshri Plastiwood Ltd. (UPVC WINDOW only) /M/s NCL Veka Limited (UPVC Doors & Windows) / M/s Accura Polytech Pvt Ltd (Brand:- ACCUCCEL) / M/s Unifix Plast Pvt Ltd (UPVC Windows) / M/s Madhu Industries

PARTICULAR SPECIFICATIONS (CONTD...)

Ser No.	Materials	Make/Name Of Firms
5	PVC Door Shutters, Fully/Partly Glazed Panel Shutters , PVC Wiremesh / Louver Shutter, PVC Moulded Door Shutter , PVC Door Frame, PVC Window, PVC Cupboard Shutter, PVC Kitchen Cabinet Shutter, VC Sheet Cladding ,PVC Partitions, PVC Wall Lining & PVC False Ceiling	M/s Polyline Extrusion Pvt Ltd/ M/s Rajshri Plastiwood / M/s Navratan Specially Chemicals Ltd
6	Moulded Panel Doors	Jain Wood Industries/Jain Doors Pvt Ltd/ Goyal
7	Solid Panel Foam Doors [Solid / Glazed Panel]	Fenesta / Kesar / LG Hausys
8	FRP Door Shutters	Fibreways Technology / Krafto Door / Syntax India Ltd/
Wooden Doors & Windows		
9	Laminate	M/s Archidply Industries Ltd/DECOLAM/ SUNGLASS/ SUNMICA/ EUROTOUC/ <u>FORMICA</u> , <u>KITLAM</u> , <u>SUNGLOSS</u> , <u>BACKLYTE HYLEM</u> .
Door & Window Fittings		
10	Aluminum Door & Window Fittings	M/s Profine India Window Technology Pvt Ltd (Brand:Alupure) /Aluminium Udyog(GLOBAL)/ Trisul Industries/ Bharat / Classic / Alans / Argent / Hettich
11	Floor Springs / Door Closers	Indra Industries/Hardwin / Godrej / Doorset
False Ceiling & Partition Paneling		
12	Calcium Silicate Board / Calsidicor Tiles in False Ceiling / Wall Lining	Armstrong / India Gypsum / Lafarge / Gypstone / Saint Gobain / Everest
13	Mineral Fibre False Ceiling	Armstrong Gyroe [Saint Gobain] / Twiga Insulation / UP Twiga Fibre Glass Ltd. / Llyod Insulation
14	Metal False Ceiling	Armstrong / Unifloors / Nittobo
15	Cement Fibre Board Ceiling	Everest / Lafarge / Armstrong
16	PUF Insulated Panels	M/s Prestar Infr. Proj.Ltd/ M/s Jindal Mectec Pvt. Ltd // Unifix Plast Pvt Ltd (PUF Panels and Pre-fab Shelters)
17	Anodised Aluminium Partition System with Solid / Glazed Panel	Jindal / Hindalco / Indalco
18	PVC Partition and Wall Paneling/PVC Jafri Wall Partitions	Kumar Arch Tech Pvt. Ltd / Rajashri Plastiwood Ltd./Polyline Extrusion Pvt Ltd.
Cupboards, Cabinets & Wardrobe		
19	PVC Kitchen [Cupboards, Cabinets & Wardrobes]	Kumar Arch Tech Pvt. Ltd / Rajashri Plastiwood Ltd. / Sintex India Ltd. / Commander/ Polyline Extrusion Pvt Ltd(Cupboard Shutter, Kitchen Cabinet Shutter only) /Navratan Specially Chemicals Ltd (Cupboard Shutter, Kitchen Cabinet Shutter only)
20	Steel Cupboard & Bed side Lockers	M/s Trisul industries, M/s Chandni Industries
PVC Galvanised Sheets, Roofing sheets, Panelling, Partitions, Huts & Bath Rooms		
21	Rigid Foam PVC Sheets from 0.5mm to 40mm thickness	Kumar Arch Tech Pvt. Ltd / Rajashri Plastiwood Ltd. / Sintex / Marino

PARTICULAR SPECIFICATIONS (CONTD...)

Ser No.	Materials	Make/Name Of Firms
22	Colour Coated Roofing Sheet, Cladding and accessories	M/SColour Roof(India)Ltd (Brand:Hispan, Histern,Stile Rainbow, Deckspan ,Decks pan XTR, Riverclock) / M/sDura Roof Pvt Ltd(Brand:DuraRoof) /M/SJ indal Mectec Pvt Ltd / M/sStellar Buildtech Pvt Ltd(PPGI & PPGL roofing sheet) /M/S Prestar Infrastructure Projects Ltd / Unifix Plast Pvt Ltd (Colour Coated Roofing Sheet only)
23	Galvanised Iron sheet	M/s Shalini Roofing Pvt Ltd /Tata / Jindal / SAIL
Sanitary ware		
24	CP Bath Fittings	M/s Somany Sanitaryware Pvt Ltd (Brand:KENZO/VOGUE/ETHER) / Jaquar & Company Pvt. Ltd.(ESSCO) / Vardhaman Entperprises (Brand: JAINKO) / Shakti Enterprises (Brand: SHAKTI) / Marc / Kohler / Cera / Parryware / Grohe / Crabtree / Blue Star & Silver Shine
25	Sanitary ware products	Jaquar & Company Pvt. Ltd/ M/s Somany Sanitaryware Pvt Ltd (Brand: Signature)
26	CP Brass Faucets & Fixtures	M/s Prayag Polymers (p) Ltd. i) D'OR Series ii) (CP 9000, 8000 & 7000 Series) M/s Vardhman Enterprises (Brand: Jainko) /Jaquar & Company Pvt. Ltd. / Marc / Kohler / Cera / Parryware
27	Wash Basins / WCs	Jaquar & Company Pvt. Ltd. / Prayag / Kohler / Roca / Cera [First Quality] / Hindware [Italian Collection] / Parryware [Superfine] / Johnson Pedder
28	SS Wash Basins & WCs	Diamond / Nirali /Bluestar Sanitary Industries Pvt Ltd
29	Stainless Steel Kitchen Sink (ISI Marked)	M/s Prayag polymers(p) Ltd/ Plastocraft Sanitary(India) Pvt Ltd/ Prabhat Sanitary Pvt Ltd(Brand:IDOOS) / JMD International (Brand: D-sons) / Bluestar Sanitary Industries Pvt Ltd/ Jain Brothers Sanitation Pvt. Ltd. / Cera / Blue Star & Silver Shine / Kohler
30	PTMT Bath Fittings	M/s SAK Plast Pvt Ltd(SANITUF) ISI Marked / Prbhat Sanitary Pvt Ltd (Brand: IDOOS) / Prayag Polymer Pvt. Ltd./ M/s Pearl Precision Products Pvt Ltd(Inlet Valves, , Ball Cocks, Seat Covers, Health Faucets, Waste Couplings, Connection Pipes, Bathroom Accessories, Floor Gratings, Jet Spray, taps& fittings and cistern)
31	SS Door Hinges & Hardware	M/s Prayag Polymers (p) Ltd and ISI marked
32	SS Plate Rack	Suyog / Prayag /Bluestar Sanitary Industries Pvt Ltd
33	Kitchen Cabinets and Trolleys	Godrej Interio / Zuari / Kitchen Concepts / Dream Kitchens / Kitchen Crafts
34	Normal or Dual-Flow PVC Flushing Cistern	Hindware / Cera / Parryware / Commander
35	Flushing Cistern	M/s Prayag Polymers (p) Ltd. / M/s SAK Plast Pvt Ltd(SANITUF) / Prabhat Sanitary Pvt Ltd (Brand: IDOOS)

PARTICULAR SPECIFICATIONS (CONTD...)

Ser No.	Materials	Make/Name Of Firms
36	Glass Mirror	Prayag / Zircon / Cera / Saint Gobain / Modiguard
37	PVC / Acrylic Toilet Mirror Cabinet	Parryware / Polytuff / Commander / Cera
38	Stainless Steel Towel Rail / Towel Rack / Towel Ring / Soap Dish / Toilet Paper Holder	Kohler / Grohe / Jaquar / Blue Star & Silver Shine / Cera
39	Toilet Seat Cover	Commander / Parryware / Cera / Hindware / Jaquar/Prayag Polymers (only ISI marked) (P) Ltd
Paint / Distemper / Polish / Varnishes		
40	Acrylic Washable Distemper	Berger [Jadoo] / Nerolac / British Paint / Jotun India Pvt Ltd / Velvet Acrylic Distemper [Crimson Paints Pvt Ltd.]
41	Plastic Emulsion Paint	Berger [Silk] / ICI [Dulux Velvet Touch] / Shalimar Paints / Asian Paint Ltd. / Nerolac Paints Ltd. / Jotun India Pvt Ltd
42	Synthetic Enamel Paint / Acrylic Paint	Shalimar Paints Ltd. [Superlac] / Asian [Apolite] / Berger [Luxol] / Jenson & Nicholson Paints Ltd [Brolac] / Jotun India Pvt Ltd
43	Cement Based Paint	Snowcem Plus / Berger / Asian Paints [Gutucam] / Jotun India Pvt Ltd / Crimocem Super Cement Paints
44	Exterior Acrylic Emulsion Weather Coat Paint	Apex Ultima [Asian] / Extra Maxium Ultra [Shalimar] / Weather Coat [Berger Paints Ltd.] / Dulax / Royal Acrylic [Crimson Paints Pvt Ltd.] / Jotun India Pvt Ltd
45	French Polish	Berger / Jenson & Nicholson Paints Ltd / Asian / Jotun India Pvt Ltd
46	Thermoplastic Road Marking Paint / Retro-Reflective Paint	Asian Apcomark / STP / Shalimar Paints Ltd. / Berger Paints Ltd. / Jenson & Nicholson Paints Ltd / Jotun India Pvt Ltd
47	Water Based Road Marking Paint	Jotun India Pvt Ltd / Berger / Asian Apcotrak
48	Acid Resistant Paint	Asian / Berger / Jotun India Pvt Ltd
49	Epoxy Paint / Polyurethane Paint	Fosroc / Pidilite / Asian / Berger / Johnson & Nicholson / Jotun India Pvt Ltd
50	Black Bituminous Paint	Asian / Berger/ Shalimar Paints
51	White Cement / Wall Putty	Birla Laval Plast / Berger / J & N / Shalimar Paints / Asian Paints / M/s Kamdhenu Ltd (Exterior Emulsions, Interior Emulsions, Distemper, Putty, Primers, Enamels, Varnishes, Textures& Designer Paints, Fire Retardant aintsWood Coatings,Melamine,Sealeretc)
Ply Board / MDF & HDF Boards		
52	Ply Wood / Prelaminated Ply Wood / Marine Ply Wood / Veneered Decorative Plywood / Structural Plywood / Fire Retardant Plywood	Greenply Industries [Ply & Board Division] / Kitply / Century / National Plywood Industries Pvt. Ltd. / Archid Ply
53	Veneered Plain Particle Board / Prelaminated Particle Board	Greenply Industries [Ply & Board Division] / Kitply / Anchor / Bhutan Board / Novapan / Associate Décor

PARTICULAR SPECIFICATIONS (CONTD...)

Ser No.	Materials	Make/Name Of Firms
54	Plywood	M/s Jain Wood industries (Brand-: JAYNA)/M/s Archidply Industries Ltd. / M/s Sri Bhawani plyboard Industry / M/s Sylvan Plyboard(India) Pvt.Ltd (Brand:Sylvan Ply) / M/sVidya Ply & Board Pvt Ltd(BWP Plywood only) /M/sSA Plywood Industry(P)Ltd (Brand:GLOBE) (BWP Plywood & Marine plywood only)
55	Blockboard	M/s Jain Wood industries)/M/s Archidply Industries Ltd. / M/sSylvan Plyboard(India)Pvt. Ltd(Brand:SylvanPly) /M/sVidya Ply& Board Pvt Ltd /M/sSA Plywood Industry(P)Ltd (Brand:GLOBE)
56	Shuttering Plywood	M/s Archidply Industries Ltd. / SA Plywood Industry (P)Ltd (Brand:GLOBE)
57	Paver Block (Fly Ash Brick)	M/s Stylish Precast Pvt Ltd / M/s Skyward Concricks PvtLtd (FlyAshBrick) / M/s Shyam Steel Industries Ltd(PaverBlock)
58	Gypsum Board	Saint Gobain gyproc india pvt Ltd / USG Boral Building Products pvt Ltd/ Lafarge / Gypsum India Ltd
59	Gypsum Boards Jointing and Finishing Products Partition and Ceiling Framing work Products Plastering Products Gypsum Ceiling Tiles & Grids Mineral Fiber Acoustical Ceiling Systems	Saint -Gobain (Brand-Gyproc) , M/s USG Boral Building Products (India)Pvt Ltd.
60	MDF / HDF Boards	Greenply Industries Ltd [Engineered Panel Division] / Balaji Action Buildwell / Novapan / National / Kitply
Tile		
61	Glazed Vitrified Floor , Polished Vitrified Floor Tiles, Ceramic Glazed Wall Tiles, Ceramic Glazed Floor Tiles, Wall Tiles, Floor and Wall Tiles of any Size and Type / Nonskid Ceramic Tiles	Varmora/Kajaria Ceramics Ltd / Asian Granito India Ltd / H & R Johnson India Ltd / Nitco / Orient Bell Ltd
62	Wall, Floor and Outdoor Tiles(Premium quality)	M/s OASIS Vitrified Pvt Ltd/Varmora granito Pvt Ltd/Sunshine tiles co(p) Ltd/Somany Sanitaryware Pvt. Limited(First/Superfine quality)
63	Precast Concrete Interlocking Paving Blocks	Anjali Tiles / Ultra Tiles Pvt Ltd / Terra Firma / Ecco Scope / Mehtab Tiles
64	Precast Plain / Chequered Cement Tiles for Flooring	Ultra / Bansal / Nitco / Anjali / Multiwyn
65	Precast Terrazzo Tiles for Flooring	Johnson / Ultra Tiles Pvt Ltd / Nitco
66	Wooden Laminated Floor Tiles / Parquet Tiles	Vista / Pergo / Haro

PARTICULAR SPECIFICATIONS (CONTD...)

Ser No.	Materials	Make/Name Of Firms
67	Glazed Mosaic Tiles	Hindustan Tiles / Johnson / Ultra Tiles Pvt Ltd / National Tiles & Industries / Coral / Ceco
68	Heavy Duty Exterior Vitrified Tiles	Johnson [Endura] / Multiwyn / Century / Cristal / Somany [Durastone] / Orient Bell Ltd.
69	Glazed Porcelain Elevation Wall Tiles	Century Porselato / Porselato / Porcelain / Crystal Porcelain
70	Acid Resistant Vitrified Tiles	Johnson [Endura] / Somany [Durastone]
71	Metallic Floor Hardener for Wear Proof Topping	Ironite / Stillonite / Hardonate/ Maruti Bitumen Pvt Ltd
72	Non-Metallic Floor Hardener for Wear Proof Topping	Fosroc / Fibrex / Sika / BASF/Maruti Bitumen Pvt Ltd
73	Epoxy Resin / Polyurethane Based Floor Coating	Sika / Fosroc / BASF / Pidilite Industries /Apurva India Limited
74	Tile Adhesive	Pidilite Industries Ltd / Somany Ceramics Limited / Kajaria / Latecrete/Sika India Pvt Ltd(Sika Ceram) / Hindcon Chemicals Ltd (Hind Fix)
Fencing		
75	Barbed Wire, Chain link Fence, Punched Tape Concertina Coil, Gabions	A-1 Fence Products Company Pvt Ltd / Shiva Engineering Co. (Concertina Coil, Barbed Wire, Chain link Fence) (Brand: CONSEC)
76	Factory Made Steel Window/Doors/Ventilators	M/s Chandni Industries/ M/SMadhu Industries / M/S GS UDYOG
77	Anodised / Powder Coated Aluminum Frames	Jindal / Hindalco / Ajit India / Indal

PARTICULAR SPECIFICATIONS (CONTD...)

Ser No.	Materials	Make/Name Of Firms
78	Aluminium Doors / Windows [Solid / Glazed Panel]	Jindal / Hindalco / Balco / Modern Fabricator / Alumilite Pvt Ltd. / Ajit India Pvt Ltd/ Argent Industries(Aluminium Doors / Windows)
79	Metal Rolling Shutters and Rolling Grills / Collapsible Gates	BA Enterprises / Multiwyn Industrial Corporation / Doorwyn Industries / Modern Fabricator
Window Glazing / Glass Shelving / Urinal Partitions		
80	Plain Sheet Glass / Float Glass / Frosted Glass	Asahi India Glass Ltd/Saint Gobain Glass / Modiguard Float Glass / Asahi India / Hindustan Pilkington Glass / Triveni Float Glass / IAG / Safex/ Kesar
81	Toughened Glass / Laminated Glass	Safex / Saint Gobain Glass / Modiguard Float Glass / Kesar / Asahi India / Atul Tuf / Hindustan Pilkington Glass / Triveni Float Glass
82	Solar Control & Thermal Insulation Glass	SGG EVO / Evolite / Envision
83	Wired Glass	Saint Gobain Glass / Modiguard Float Glass / Triveni / Safex / Atul Tuf / Hindustan Pilkington Glass / Kesar
84	Black Painted Glass Tiles	Kesar / Marvel / Dreamwalls Color Glass / Paladio / Italia / Mridul / Mehtab Tiles
85	Tinted / Coloured Glass	Saint Gobain / Modiguard
86	Glass Top Shelves	Kesar / Ozone / Sparkle Glass
Road Furniture		
87	Cat Eyes / Studs [Metal / Plastic] /Rumble Strips /Speed Breakers	3M / Dark Eye /ISI Marked
88	Delineators / Road Barriers	3M / Dark Eye/ISI Marked
89	Road Signage	3M / Dark Eye/ISI Marked
HDPE / LDPE Water Tanks/ Sewage Disposal & Miscellaneous Items		
90	HDPE / LDPE Water Tanks	Sintex / Polycon / Oriplast / Jindal
91	UPVC / PPR / HDPE Pipe for Sewage	Jain Irrigation / Kisan / Prince / Supreme / Oriplast / Finolex / Diplast
92	HDPE Pipe	M/s Kiran Infra Tech (Double Wall Corrugated HDPE Pipes of Class SN-8 for underground Drainage and Sewerage) , M/s SHK Polymers Industries (Only ISI Marked)/KISAN,
93	RCC Pipes [NP2/NP3]	Any ISI Marked Makes
94	CI / DI Centrifugally Cast [Spun] Pipes & Fittings	Neco Centri / BIC / Electro Steel Casting Ltd. / AIC / PIC / Jai Balaji Industries / Sri Kalahasti Pipes Ltd.
95	Hubless Centrifugally Cast iron Pipes & Fittings	M/s Singhal Iron Foundry Pvt Ltd (Brand: SKF), M/s Jayaswal Neco Industries Ltd (Only for maint purpose)

PARTICULAR SPECIFICATIONS (CONTD...)

Ser No.	Materials	Make/Name Of Firms
96	PVC Soil / Waste / Rain Water [SWR] Pipes and Fittings	Jain Irrigation / Kisan / Supreme / Prince / Anant / Oriplast
97	SWR Pipes as per IS 13592:1992 and SWR Fittings as per IS 14735:1994	M/s Vectus Industries Ltd (Brand: VECTUS), M/s Skipper Ltd.
98	CPVC / UPVC Pipes and Fittings	Prayag Polymers(P) Ltd/Astral / Ashirwad Flowguard / Kisan / Reliance / Supreme / Prince
99	HDPE Pipes and Fittings [Water]	Kisan / Jain Irrigation / Supreme / Prince / Oriplast / Ajay Flow
100	Brass Ball [Float] Valve	Leader / Kirloskar / Zoloto
101	Brass Ball Cock	Prayag Polymers (P) Ltd
102	CI Manhole Covers	AIC / PIC/ISI Marked
103	PGI Sheet	Tata / Jindal / SAIL
104	Galvalume / Zinalume Sheet for Roof and Wall	Saxena Marine Tech Pvt. Ltd. / JSW Steel Ltd
105	Aluminium composite panel boards	Viva, Eurobond, Wonder Alu Board Overseas, Aludecor,Alstrong, Alucobond, Alstone, Citybond
106	Polyuretherene Resin paint/polish/enamel	Asian paints, Berger, Nerolac, STP limited, Sika, flowcrerte.
107	Polycarbonate transparent sheeting	Any Reputed make approved by GE conforming to IS 14443 1997.
108	Curtain Rods/Blinds etc	As per sample kept in GE office and as approved by GE.
109	Water Proofing Chemicals	M/s Choskey Chemicals Pvt Ltd / M/s Thermax Ltd / M/s Sika India Pvt Ltd/ M/s Bostik India Pvt Ltd/ M/s Fosroc Chemicals/ M/s STP Limited/ M/s Maruthi Bitumen Limited
110	APP Membrane	(i) M/s Sika India Pvt Ltd (ii) M/s Fosroc chemicals (iii) M/s STP Limited (iv) M/s IWL India Limited (v) M/S Asian Paints Ltd
111	Bitumen	IOCL/BPCL/HPCL

PARTICULAR SPECIFICATIONS (CONTD...)

Appendix 'A'

CEMENT SUPPLY & ACCEPTANCE REGISTER

1. CA No. & Name of Work
2. Control No.*
3. Name of Manufacturer/Brand Name/Gde of Cement (a) Manufacture (b) Brand
(c) Grade
4. Quantity of Cement & Lot No./Week No. (in bags): Qty (b) Lt No./Week No.
5. Manufacturer's Test Certificate No.
6. Random Test (a) Physical test Report from Vide their letter No.
Details (Name of approval Lab/Engg College)

(c) Chemical test report from vide their letter No.
(Name of approval Lab/Engg College)
7. Details of Physical & Chemical properties.

	Physical Requirement (As per IS 4031)								Chemical Requirements (As per IS 4032)									
	Specific Surface Area (M ² /kg)	Soundness by Le Chatellar	Soundness by Auto Clave	Initial Setting Time (Minutes)	Final Setting Time (Minutes)	Compressive Strengths (Mpa)			Temp during testing °C	Standard Consistency (%)	Lime Saturation Factor (Ratio)	Aclumina Iron Ratio (Ratio)	Insoluble Residue (%)	Magnesium (%)	Sulphuric Anhydride (%)	Loss on ignition (%)	Alkailles (%)	Chlorides (%)
						03 Days	07 Days	28 Days										
As per relevant IS																		
As per manufacturer's test certificate																		
As per random test certificate																		

Remarks with Signature

Accepted / Rejected

Contractor

Junior Engineer

Engineer-in-charge

Garrison Engineer

Remarks of BOO / Inspecting Officer / CWE

*** To be allotted serially by GE Consignment wise**

IN/OUT CEMENT REGISTER

SI NO	Date	Cement IN		Cement OUT			Qty Balance (In Bags)	Signature		Remarks
		Qty (In Bags)	Control No	Qty (In Bags)	Reasons*	GE of Cement		Contractor	GE/GE	
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(j)	(k)	(l)

*** NOTE:** The following reasons may be mentioned for taking out cement from store: -

- [a] For testing purpose
- [b] For use in work
- [c] Rejected cement taken out of site

CA No: GE[ND]/VIZ/

OF 2022-2023

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PARTICULAR SPECIFICATIONS (CONTD...)

STEEL SUPPLY/ACCEPTANCE FORM

Contractor No :

Name of work:

Control No :

Dated :-----

DETAILS OF PURCHASE

(I) Particulars of manufacturer

(ii) Details of supplies (if any) :-

DETAILS OF TEST CERTIFICATE

12 No & Date :-----

13 Particulars of issuing Authority :-

No	Description	Ref	Quantity (T) Physical properties								End Test	Remarks	
			Material	Version	Tensile strength	Yield strength (Minimum)	Elongation (%)	Sheet	Flame Test	Impact Test			
1	2	3	4	5	6	7	8	9	10	11	12	13	14

*As ordered

Remarks with signature :-

JE (Civil)/Supdt B/R Gde-I

Engineer-in-Charge

Contractor

Accepted/Rejected

Garrison Engineer

Remarks of BOO/Inspecting Officer/CWE

PARTICULAR SPECIFICATIONS (CONTD...)**Appendix 'C'****STEEL SUPPLY/ACCEPTANCE FORM**

Contract No. :

Name of work :

Control No. :

Details of purchase

(i) Particular of manufacturers :

(ii) Details of the suppliers, if any:

Details of Test Certificate

(i) No & Date :

(ii) Particular of issuing authority :

Srl No	Nomenclature and size of steel	IS Quality (t)_			Physical Properties							Remarks
		Ref	Actual	Conversion	UTS (N/sqmm)			Elongation (%)				
					IS	Test Sheet	Random Test*	IS	Test Sheet	Random Test*	Bend Test	
1	2	3	4	5	6	7	8	9	10	11	12	13

 * As per Appendix 'C'

Remarks with signatures

Junior Engineer

Engineer-in-Charge

Contractor

Accepted/Rejected

Garrison Engineer

Remarks of BOO/Inspecting Officer/CWE