

Tele :20852044

REGD ACK DUEGarrison Engineer (NW)
Military Engineer Services
Bhandup, Mumbai - 78

8482/B/15/E8

01 May 2026

M/s _____

DEMOLITION OF BUILDING NOS P-33 (COOKERY SCHOOL) AND T-43 AND PROVISION OF ELECTRIC SUPPLY AND WATER SUPPLY ALONGWITH ALLIED SERVICES FOR CONTAINERIZED FIRING RANGE AT INS HAMPLA UNDER GE (NW) BHANDUP

Dear Sir(s),

1. Tender documents in respect of above work are uploaded on the site www.defproc.gov.in. The tender is based on single stage two cover/two stage three 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 bona fide.
3. Bid will be opened online 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 instruction on filling and submission of tender attached herewith. You may forward your points on tender documents through e-mail and/or depute your technical representative for discussion on tender/drawings and to clarify doubts, if any, before the bid submission starts. You are requested not to write piecemeal points and forward your points duly consolidated in one go. You may also attend the pre bid meeting on the date given in the tender.
5. Unenlisted contractors are required to submit the scanned copies (in pdf file) of documents required as per eligibility criteria mentioned in instructions for filling the tender documents and Appendix 'A' to NIT alongwith EARNEST MONEY DEPOSIT (EMD) and tender fee on procurement portal mentioned above and submit the physical documents in the office of GE (NW) Bhandup 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. 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 (Accepting Officer's office name) before date & time fixed for this purpose.
7. The contractor must ensure that the tender/bid is uploaded on the tender portal using the authorised 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.

8. Keeping in view delays due to system failure or other communication related failures, it is suggested that tender/bid may be uploaded sufficiently in advance of the last due date and time fixed on the portal.
9. General Conditions of Contracts (IAFW-2249) (1989 Print) and errata and amendments thereto, Schedule of Minimum Fair Wages and MES SSR (Part-I and Part- II) are not enclosed with these documents. These are available for perusal in the Office of GE/AGE concerned and this office. Tenderer is also requested to keep the copy of these documents with him as same are available in the market.

10. PERFORMANCE SECURITY DEPOSIT

After acceptance of the Tender, the contractor will be required to lodge with the Accepting Officer PERFORMANCE SECURITY DEPOSIT @ 5% of contract amount. The amount is required to be lodged within 28 (Twenty eight) days of the receipt by the contractor of notification of acceptance of tender/bid, failing which action as stipulated in Condition of GCC shall be taken.

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

(SIGNATURE OF CONTRACTOR)

AGE (Contracts)
For Garrison Engineer (NW)

CONTENT

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(SIGNATURE OF CONTRACTOR)

AGE (Contracts)
For Accepting Officer

MILITARY ENGINEER SERVICES
NOTICE INVITING TENDER (NIT)

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

MILITARY ENGINEER SERVICES
NOTICE INVITING TENDER (NIT)

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

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

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

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

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

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

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

Signature of Contractor
Date:

AGE (Contracts)
for Accepting Officer

APPENDIX 'A' TO NOTICE INVITING TENDER

1	Name of Work	:	DEMOLITION OF BUILDING NOs P-33 (COOKERY SCHOOL) & T-43 AND PROVISION OF ELECTRIC SUPPLY AND WATER SUPPLY ALONGWITH ALLIED SERVICES FOR CONTAINERIZED FIRING RANGE AT INS HAMPLA UNDER GE (NW) BHANDUP
2	Estimated cost	:	Rs. 32.20 Lakhs (Approx) at par market rates.
3	Period of completion	:	180 (ONE HUNDRED EIGHTY) DAYS
4	Cost of tender documents	:	Rs. 500/- in the form of DD/Bankers Cheque from any scheduled Bank in favour of GE (NW) Bhandup payable at Mumbai
5	Website/portal address	:	www.defproc.gov.in and www.mes.gov.in
6	Type of contract	:	The tender shall be item rate contract based on IAFW-1779-A & IAFW2249 (GCC)
7	Timeline details:- (a) Bid submission start date (b) Bid submission end date (c) Date of bid opening	:	Refer critical dates on the website.
8	<u>Eligibility Criteria</u>	:	
	a) For MES enlisted contractors	:	All contractors enlisted with MES in Class 'D' and above and Category (a) (i) and b (i) , shall be considered qualified provided they do not carry adverse remarks in WLR of Competent Engineer Authority and other parameters as specified in the Tender Documents.
	b) For other contractors not enlisted with MES	:	(a) The firms not enlisted with MES shall meet the enlistment criteria of 'D' class MES contractors & Category (a) (i) and b (i) , i.e. with regard to having satisfactorily completed requisite value works with central/state Govt/Central/ State PSUs/ AWHO/ AFNHB/ CGEWHO/ DGMAP, Annual turnover, Solvency, Working capital, Immovable Property/fixed Assets, T&P, Engineering establishment, no recovery outstanding in any Govt Department, Police verification/Passport etc. Enlistment criteria may be seen in Para 1.4 and 1.5 of Section 1 of MES Manual on Contracts – 2020 as available in all MES formations as well as MES website. (Copy enclosed herewith as Annex-1) (b) These firms shall also submit copy of Police verification from Police Authority of the area where the registered office of the firm is located / notarised copy of valid passport of proprietor/each partner/each Director. (c) They should not carry adverse remarks in WLR or any other similar report of any authority.
	c) For all contractors (Enlisted with MES and not enlisted with MES)	:	Contractor will not be allowed to execute the work through power of attorney holder on his behalf to a third party/another firm except sons/daughters/wife of proprietor/partner/Director. This shall be subject to certain conditions as per policy in vogue issued by the deptt and approval of GE.
9	Tender Issuing Authority and Accepting Officer	:	GE (NW) Bhandup Military Engineer Services Bhandup, Mumbai -78
10.	Executing agency	:	GE (NW) Bhandup
11.	Earnest Money	:	Rs. 64,400.00 in the form of Deposit at call Receipt from any Scheduled / Nationalized Bank in favour of GE (NW) Bhandup or Receipted Treasury Challan, FDR not accepted, the amount being credited to the revenue deposit of GE. MES enlisted contractors are exempted from submission of EMD. Copy of EMD to be uploaded online and original EMD to be forwarded offline to the office of Accepting Officer so that the same are received within 5 days of bid submission end date.

APPENDIX 'A' TO NOTICE INVITING TENDER (CONTD...)**NOTES:-**

- 1 In case after opening of Cover 1, the number of MES enlisted contractors of eligible class as well as un-enlisted contractors, if any, fulfilling the other eligibility criteria given in NIT is less than 7 (Seven), applications in respect of contractors one class or two classes (in case of remote and difficult areas to be decided as per list circulated by CE command/ADG) below the eligible class shall also be considered subject to fulfilment of other eligibility criteria given in the NIT. Therefore MES contractor's 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 fulfill the Criteria of upgradation shall also upload the requisite information/ documents in support of upgradation. These details shall be verified by the Tender Issuing Authority from concerned formations in case bids of such contractors are considered for evaluation.
- 2 In case after opening of Cover 1, the number of MES enlisted contractors of eligible class as well as un-enlisted contractors if any, fulfilling the other eligibility criteria given in NIT, are 7 (Seven) or more, applications of only those one class below the eligible class bidders shall be considered, who have previously completed similar works satisfactorily and are meeting the criteria of upgradation in respect of past experience of completed works (individual work experience and/or average annual turnover as applicable) and financial soundness(solventy/financial soundness and working capital) as per details given in Manual on Contracts. Therefore such contractors shall upload the requisite information/documents in the Cover- 1.
- 3 Unenlisted contractor shall be considered provided he meets the criteria. Foreign firms shall not be eligible for this tender. However Indian Firms having foreign national / Indian nationals staying abroad /Indian national having taken foreign citizenship, as director(s) shall be considered subject to security clearance from the concerned authorities.
- 4 Contractors enlisted with MES will upload following documents in Cover I 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) GST
 - e) EPF
 - f) Any other document required as described in this Appendix.
- 5 Contractors not enlisted with MES will be required to upload following documents in Cover 1 for checking eligibility.
 - a) Application for tender on Firm's letterhead.
 - b) Scanned copy of DD/ Bankers cheque toward cost of tender and 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) GST
 - g) EPF
 - h) 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 I shall not be considered for validation of 'T' bid and their Financial Bids will not be opened.
- 7 Contractors should ensure that their original physical DDs and Earnest Money Deposit (EMD) instruments (as applicable) reach the office of Accepting Officer within 05 days of bid submission end date. 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 I but physical copies are not received within the stipulated period, their financial bids (Cover 2) will be opened. However non-submission of physical copies of cost of tender shall be considered as willful negligence of the tenderer with ulterior motives and such tenderer shall be banned from bidding for a period of six months commencing from the date of opening of Financial Bid (Cover 2).

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

c) In case of tenders from enlisted and unenlisted contractors, where scanned copies of instruments for Earnest Money Deposit (as applicable) have been uploaded in Cover I 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 I 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 or 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 CWE(Subs) Bhandup on email id sbm3-mes@nic.in with copy to the Accepting Officer on email nwbhnd4-mes@nic.in before the scheduled date of opening of Cover 2. NHEA shall decide the matter within a period of seven working days from the date of receipt of appeal. The decision of the NHEA shall be final and binding. The tenderer/bidder shall not be entitled for any compensation whatsoever for rejection of his bid.

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

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

APPENDIX 'A' TO NOTICE INVITING TENDER (CONTD...)

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 unenlisted tenderer, Earnest Money deposited by him shall be forfeited. In case of MES enlisted tenderer having deposited the Standing Security Bond, an amount equal to the earnest money stipulated in the NIT, shall he 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.

(Signature of Contractor)

File No: 8482/B/16/E8

Garrison Engineer (NW)
Military Engineer Services
Bhandup, Mumbai-400 078

Dated : 01 May 2026

AGE (Contracts)
for GE(NW) Bhandup

No.1**ELIGIBILITY CRITERIA FOR UN-ENLISTED CONTRACTORS****Criteria for Fresh Enlistment**

Criteria for Fresh Enlistment in various classes shall be as under:-

Class	Past Experience of completed works in last 5 years & Average Annual Turn Over (in Rs)	Financial soundness (in Rs)
'C'	(a) Two works costing not less than 50.00 lakh each. or One work costing not less than 80.00 lakh. and (b) Average annual turnover for two consecutive years shall not be less than Rs100.00 lakh.	(a) Solvent upto 40.00 lakh or Financially sound for engagement Upto 100.00 lakh (b) Working capital not less than 10.00 lakh
'D'	(a) Two works costing not less than 25.00 lakh each. or One work costing not less than 40.00 lakh.and (b)Average annual turnover for two consecutive years shall not be less than 50.00 lakh.	(a) Solvent upto 20.00 lakh or Financially sound for engagement upto 50.00 lakh. (b) Working capital not less than 7.50 lakh
'E'	(a)Three works costing not less than Rs 7.50 lakh. or Two work costing not less than Rs 10.00 lakh each or One work costing not less than Rs 20.00 lakh. and (b)Average annual turnover for two Consecutive years shall not be less Than Rs 25.00 lakh.	(a) Solvent upto Rs 10.00 lakh or Financially sound for engagement upto Rs 25.00 lakh. (b) Working capital Rs 5.00 lakh

Notes:-

1. Authority competent to enlist shall be called Registering Authority.
2. The categories for enlistment shall be decided on the basis of nature of works executed by Contractor. Contractors who have experience of executing of Prefab/Pre-Engineered Structures and fulfil other criteria, shall also be eligible for enlistment in category a(i). At the time of renewal, contractors already enlisted in Cat (a) (i) Building & Roads, shall be enlisted in Cat (a) (i) Building works & (a) (v) Roads. In case of E class contractors, Registering Authority shall issue suitable amendments to enlistment letters in respect of separate categories for buildings works ie a(i) and roads i.e. a(v) without any application from contractor.
3. For enlistment/upgradation/renewal/reclassification etc, in category (b) Electrical Engineering Works (i) to (iii), a declaration/undertaking shall be obtained from the applicant contractor in affidavit form whereby the contractor shall undertake to either obtain valid Electrical Licence of required class in its name or engage an agency having valid Electrical Licence of required class through MoU (Memorandum of Understanding) for execution of all electrical works as well as works under category (c) [including its sub categories (i) to (vii)] and the category (d)(v) to the extent Rule 29 under Part III of Central Electricity Authority (Measures Relating to Safety and Electric Supply) Regulations, 2010 is applicable either in full or part of the scope of work of contract awarded to him and that all such electrical works shall be executed by him through such agency only (either self or other agency) having valid Electrical Licence of required class from State /Union Territory Authorities where works are to be executed.
4. Working capital with the Contractor shall be judged from balance sheet/ bank's certificate as per Appendix 1.3 / bank statement for last 6 month/overdraft or cash credit facility from bank/ fixed deposit receipts with banks.
5. The requirements of minimum reserves are applicable for enlistment related process of existing contractors i.e. Change in constitution/Renewal/Reclassification (Revision in Monetary Limit) etc, if they have contracts in hand not having Performance Security provisions, till their contracts are completed and their Final Bills do not become MINUS. For this, these contractors will submit affidavit on non-judicial stamp paper of appropriate value (minimum value Rs. 100) declaring that all their contracts without Performance Security provisions are completed and the Final Bills are not MINUS. Immovable/movable property (minimum reserve) shall be exclusively in the name of Contractor and not in the name of family members/relatives/others. In case of Limited companies, immovable/movable property (considered for minimum reserve) shall be exclusively in the name of Company and should be reflected in the Balance Sheet of the Company.
- 6 "Last two consecutive years" shall mean immediate last two consecutive financial years reckoned from the date of application for upgradation. Two consecutive years for the purpose of fresh enlistment shall mean any of the two consecutive financial years in last Five Financial Years preceding the date of application for enlistment. For documents in support of works experience, TDS certificate for IT/Sales Tax/VAT/GST shall also be asked from applicant firms. All documents related to works experience and turnover (except Form 26 AS and portal generated GST return) shall be got independently verified from the client/issuing authority. Registering Authority may seek clarification from the Chartered Accountant in case of any doubt. Annual turnover to be considered for enlistment purpose shall mean the turn over from all businesses carried out by the applicant firm in relation to construction work related to categories of works for which the enlistment is being sought. It may be total turnover as shown in the audited balance sheet or part thereof. Necessary clarification shall be obtained from the Chartered Accountant whose audited balance sheet is submitted by the applicant firm in case considered necessary by the Registering Authority

7. Upgradation of enlisted contractor shall be done gradually in stages. Before a contractor is considered for upgradation, he should have worked at least for two years in the present tendering limit and should meet the criteria laid down. Normally upgradation will be done only to one next higher class at a time. However, if performance of any particular contractor is of very high order and Registering Authority considers upgradation of such contractor by more than one class justified, the same shall be done only with prior approval of E-in-C's Branch. Following considerations shall be applied to ascertain whether the performance of contractor is of very high order or otherwise:

(a) Contractor has completed works, value of which is more than 1.25 times the requirement in which the upgradation is being considered.

(b) Average Annual Turnover of the contractor is more than 1.25 times the requirement in which the upgradation is being considered.

Example: For a contractor enlisted in class 'G' having tendering limit of 100 lakh, proposed to be upgraded to class 'A' having tendering limit of 7.50 crore, minimum value of works completed and turn over shall be as under

(i) Two works completed costing not less than 5.00 crore each (1.25x4.00)

Or

One work costing not less than 7.50 crore (1.25x6.00)

(ii) Average annual turn over 7.5 crore (1.25x6.00)

(c) Average marks secured in Performance Reports (Stage-II) for the works completed in last five years shall not be less than 70%. Where report for any work is not available it will be deemed to contain only 60% average marks.

8. Contractors of 'A' class and above only shall be eligible for enlistment in categories

(iii) Runways and Pavements and (a)(iv) Marine and Harbour Works subject to prior approval of E-in-C.

9. The criteria laid down above for enlistment/ upgradation may be relaxed in the case of contractors whose performance has been found to be of a very high order. Such relaxation may, how ever be given only with the prior approval of E-in-C's Branch.

2. Documents required to be submitted by the contract or for enlistment in MES.

(a) Application for enrolment as contractor on IAFW-2190 (Revised2020). Coloured Photographs affixed on application shall be self-attested.

(b) Affidavit for constitution of firm.

(c) List of works executed during last five years (As per Appendix 1 2) including copies of Work Orders/ Work allotment letters, Copies of completion certificates and form 16A/TDS certificate for GST(GSTR-7A).

(d) Annual turnover certificate duly supported with audited balance sheet. The turn over certificate must bear the UDIN (Unique Document Identification Number). The turnover certificate and audited balance sheet should be from same Chartered Accountant. In case balance sheets are not audited, Form 26 AS and /or Annual GST return shall be forwarded in support of turn over.

(e) Audited balance sheet of last five years in case of Limited companies

(f) Solvency certificate from scheduled bank as per specimen given in **Appendix-1.3**

- (g) Working Capital certificate from scheduled bank as per specimen given in **Appendix-1.3**.
- (h) Affidavit from contractor that there is no Government dues/ recovery outstanding against him. If there is any Government dues/recovery outstanding from the contractor, enlistment/ upgradation shall not be carried out.
- (j) Affidavit from contractor giving brief details of arbitration / litigation cases he was involved in. Registering Authority will critically examine such details and if contractor is considered habitual litigant, his enlistment/ upgradation shall not be carried out. Contractor shall be deemed to be a habitual litigant if he moves the court more than once ignoring arbitration clause and court does not uphold his view.
- (k) Two self-attested photographs of Proprietor/ Partners/ Directors of firm for verification of character and antecedents from the police authorities. Places where online police verification process is available, the contractor will carryout police verification of the Proprietor/Partners/Directors and submit the verification reports for cross verification by the Department. Alternatively the contractor may submit a copy of valid passport issued by Govt of India.
- (l) Copy of partnership deed in case of partnership firm.
- (m) Memorandum and Articles of Association in case of Limited Companies.
- (n) Copy of Registration Certificate of firm with Registrar of Companies/ Register of Firms.
- (o) Affidavit that no near relative(s) of the contractor or his/their employees/agents is/are working as Gazetted/ Commissioned Officer(s) in MES/ Corps of Engineers/Ministry of Defence. If the near relative(s) is/are working in such capacity in any formation upto Zonal CE/CCE, he/ they shall furnish details. The contractor shall not be entitled to tender for the works in entire area of CE Zone/CCE.
- (p) Affidavit that no near relative(s) of the contractor or his/their employees/agents is/are working as Junior Engineer(s) in MES/Corps of Engineers. If his near relative(s) is/are working in such capacity in any formation upto CWE/ GE(I) office, the contractor shall furnish details. The contractor shall not be entitled to tender for the works in entire area of that CWE/GE(I).
- (q) Copy of power of attorney/ Resolution of the Board in favour of any Partner/ Director of the firm.
- (r) Copy of immediate last Income Tax Return.
- (s) A separate sheet containing specimen signatures (signed in black ink) and affixed with photographs of Proprietor/ Partners/ Directors to be used as Appendix B of enlistment letter).
- (t) Self-attested copy of PAN Card of Proprietor, Partners, Directors and the firm/ Company.
- (u) Self-attested copies of GST registration, EPFO registration and ESIC registration certificates.

Notes:-

- (i) All the documents submitted by the contractor shall be signed by Proprietor/all Partners/all Directors unless specifically authorised to a Partner/Director through POA or Resolution of the Board.
- (ii) Photocopies of documents shall be self-attested. Registering Authority shall ask production of original documents over if the photo copies.
- (iii) All affidavits shall be given on non-judicial stamp paper of appropriate value duly signed by the contractor and attested by the Magistrate/ Notary public.
- (iv) Registering Authority shall cross-verify the genuineness of financial documents at Para (d) & (e) above from issuing Chartered Accountant (CA) and documents at Para (f) & (g) from the concerned Bank branch by referring in writing to them along with copy of above documents submitted by contractor. Registering Authority is also at liberty to verify the genuineness of all the documents from other reliable/ authentic sources.
- (v) All documents related to work experience and turnover (except Form 26 AS and portal-generated GST return) shall be got independently verified from the client/ issuing Authority. For documents in support of works experience, TDS certificate for IT/Sales Tax/ VAT/ GST shall also be asked from applicant firms. Registering Authorities may seek clarifications from the Chartered Accountant in case of any doubt.
- (vi) Documents mentioned at Para 1.5 (a) and 1.5 (s) shall not be applicable for the purpose of documents to be uploaded for bidding purpose by unenlisted firms.

SIGNATURE OF CONTRACTOR

AGE (CONTRACTS)
FOR ACCEPTING OFFICER

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

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

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

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

2. PERFORMANCE SECURITY (See Condition 19 of IAFW-2249).

(a) In case the tender/bid submitted by the contractor is accepted, the contractor will be required to lodge with the Accepting Officer "PERFORMANCE SECURITY DEPOSIT" calculated @ 5% (Five Percent) of the Contract Sum as notified by the Accepting Officer within 28 (Twenty-Eight) days of the receipt of notification of acceptance of Tender / Bid by the contractor. The Performance Security can be submitted by the successful contractor in the form of Bank Guarantee Bond (as per format attached with Appx 'A' to NIT) or Government Securities, FDR, Insurance Surety Bonds or any other form of deposit approved in MES.

(b) If the Performance Security provided by the successful Contractor is in the form of Bank Guarantee, it shall be issued by Nationalized/ Scheduled Indian bank but its confirmation shall be done only from the Head Office of the Bank.

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

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

(d) The Performance Security shall be in favour of Accepting Officer and shall be in any of the forms mentioned here-in-before. Work Order No 1 shall be placed only after submission of Performance Security of adequate value by the contractor. In case a fixed deposit receipt of any bank is furnished by the contractor to the Government as part of the Performance Guarantee and the Bank is unable to make payment against the said fixed receipt, the loss caused thereby shall fall on the contractor and the contractor shall forthwith on demand furnish additional security to the Government to make good the deficit.

(e) The period of validity of the Bank Guarantee Bond against Performance Security shall be initially valid upto the stipulated date of expiry of Defects Liability Period plus minimum 60 days beyond that. In case final bill is not paid during this period, the contractor shall get the validity of performance Guarantee extended to cover such enlarged time required for payment of final bill.

INSTRUCTIONS ON FILLING AND SUBMISSION OF TENDER**3. GENERAL INSTRUCTIONS FOR COMPLIANCE**

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

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

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

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

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

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

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

INSTRUCTIONS ON FILLING AND SUBMISSION OF TENDER

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

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

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

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

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

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

6. REVOCATION/ REVISION OF OFFER UPWARD OFFERING VOLUNTARY REDUCTION. AFTER OPENING OF FINANCIAL BIDS BY LOWEST BIDDER

In the event of lowest tenderer/bidder revoking his offer or revising his rates upward, offering voluntary reduction, after closing of bid submission date & time, his offer will be treated as revoked and the Earnest Money deposited by him shall be forfeited. In case of MES enlisted Contractors, the amount equal to the Earnest Money stipulated in the Notice of tender, shall be notified to the tenderer/bidder for depositing the amount through MRO. Bids of such Contractors/bidders and their related firms 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. CPM (Critical Path Method)

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

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

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

8. **AMENDMENTS/ERRATA**: Department may issue amendments/errata in the form of CORRIGENDUM to BOQ/ revised BOQ/tender documents/Drawings etc. The tenderer/bidder is requested to read the tender documents in conjunction with all the errata/ amendments/corrigendum, if any, issued by the department before closing date of bid submission and the same shall be deemed to be included in the contractor's quoted rates.

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

SIGNATURE OF CONTRACTOR

Dated:

AGE (CONTRACTS)

FOR ACCEPTING OFFICER

CA NO. GE (NW) B-

OF 2025-26

SERIAL PAGE NO 18

In lieu of IAFW-1779A (Revised1955)

TO BE USED IN CONJUNCTION WITH GENERAL
CONDITION OF CONTRACT IAFW - 2249

Tele :20852044

Garrison Engineer (NW)
Military Engineer Services
Bhandup, Mumbai - 78

e - Tender

8482/B/17/E8

01 May 2026

**ITEM RATE E-TENDER AND CONTRACT FOR WORKS REQUIRED IN THE EXECUTION OF
DEMOLITION OF BUILDING NOS P-33 (COOKERY SCHOOL) & T-43 AND
PROVISION OF ELECTRIC SUPPLY AND WATER SUPPLY ALONGWITH ALLIED
SERVICES FOR CONTAINERIZED FIRING RANGE AT INS HAML A UNDER GE
(NW) BHANDUP**

M/s _____ of _____ is/are
hereby authorized to tender for the above work. The tender is to be submitted online on Website
www.defproc.gov.in by 1800 hours on 15 May 2026.

2. Any Correspondence concerning this tender should be addressed as indicated at the top of
this sheet quoting the reference to the tender id mentioned in the defproc.gov.in portal.

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

Signature of Officer Issuing the documents

APPOINTMENT: AGE (CONTRACTS)

FOR GARRISON ENGINEER (NW) BHANDUP
FOR AND ON BEHALF OF THE PRESIDENT OF INDIA

DATED:

In lieu of (IAFW-1779-A REVISED-1955)**SCHEDULE 'A' NOTES****Name Of Work : DEMOLITION OF BUILDING NOs P-33 (COOKERY SCHOOL) & T-43 AND PROVISION OF ELECTRIC SUPPLY AND WATER SUPPLY ALONGWITH ALLIED SERVICES FOR CONTAINERIZED FIRING RANGE AT INS HAMLDA UNDER GE (NW) BHANDUP****NOTES:-**

1. The quantities shown under Col.3 are approximate and are inserted for guidance only. They shall however, not to be varied beyond the limits laid down in condition 7 of IAFW-2249 the General Conditions of contract.
2. The rate to be filled in col 5 by tenderer in figure. The rate in words, amount & total shall automatically generate in BOQ for each unit.
3. Preambles, General Rules, special condition and specifications applicable to various trades in MES schedule 2009, Part I specifications and MES standard schedule of rates 2020, Part II Rates shall also be applicable to respective items of this schedule unless otherwise mentioned in this tender documents.
4. The work shall be carried out in accordance with the specifications and trade practice.
5. **The entire work shall be completed within 180 days from the date of commencement shown in work order No.1 which shall only be placed after submission of performance guarantee by the contractor.**
6. The tender shall remain open for acceptance for a period of 60(Sixty) days from the Bid submission end date of tender.
7. In the event of different rates quoted by the tenderer for similar items of Sch 'A' the lowest rate quoted shall stand valid and tender amount shall be adjusted accordingly.
8. All items of works included in this Schedule 'A' shall cover supply of all materials, labour and fixing complete as specified and as shown in drawing except where specifically mentioned otherwise in the description of item.
9. The contractor shall account for all the statutory levies and duties including GST levied by Central/State Government/Local bodies, Labour Welfare Cess and shall be included in his quoted rates. No stipulation for tax shall be entertained. Tender containing any condition to this effect is liable to be rejected.

In view of coming into force of "Goods & Services Tax Act" by Govt of India (Notification) wef 01 Jul 2017, the rates quoted by the contractors shall be deemed to include all types of GST as well as the provisions of Goods and Service Tax Act. Nothing extra whatsoever shall be admissible on this account. The clauses pertaining to tax liabilities wherever mentioned in the tender documents shall be deemed to be amended accordingly.
10. The tenderers are advised to refrain from making any stipulations or conditions in their offer. Conditional offers are liable to be rejected.
11. All the flats / buildings wherein the subject work is to be carried out are under occupation. Accordingly, the subject work is to be carried out under the said condition. Contractor shall take all precautionary measures to avoid inconvenience to the users. The site shall be left clean and tidy after day's work. No obstruction to passage shall be made by dumping materials.
12. The units of the building will be handed over to the contractor in a phased manner and a program of commencement and completion of the work in these quarter's/ units shall be arrived before commencement of the work and shall be strictly followed. Contractor shall commence and complete the work as per the program and the decision of GE for grouping of the quarters/ units of buildings shall be final and binding on the contractor.
13. The subject tender caters Schedule 'A' in two parts i.e Schedule 'A' Part-I and Schedule of Credit. The amount of Sch of Credit shall be deducted from the total of BOQ quoted by the tenderer to arrive the contract sum.

SCHEDULE 'A' NOTES (Contd....)**14. REQUIREMENT OF ELECTRICAL LICENSE:**

14.1 Rule 29 under Part III of Central Electricity Authority (Measures Relating to Safety and Electric Supply) Regulation, 2010 reads as under: -

"No electrical installation work including additions, alterations, repairs and adjustments to existing installations except such replacement of lamps, fuses, switches, low voltage domestic appliances and fittings as in no way alters its capacity or character shall be carried out upon the premises of or on behalf of any consumer, owner or occupier, for the purpose of supply to such consumer, owner or occupier except by an electrical contractor licensed in this behalf by the State Government and under the direct supervision of a person holding a certificate of competency and by a person holding a permit issued and recognized by the State Government."

14.2 For execution of electrical works / electrical component of works requiring Electrical License in accordance with Rule 29 mentioned above, the contractor shall have valid Electrical License issued by the concerned State/Union Territory in the name of the Firm or get the work executed through an agency having valid Electrical License.

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

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

14.5 Reference of Electrical Licence and details of Supervisors' Certificate of Competency and Permit of tradesmen employed for execution of electrical work/electrical component of works shall be duly incorporated in the Works Diary and relevant site documents respectively for the whole period during which such work is executed.

15. **Defect Liability Period:** Defect liability period will be **24 months** from the date of completion of work.

SIGNATURE OF CONTRACTOR

AGE (CONTRACTS)
FOR ACCEPTING OFFICER

NOTES :-

1. All dismantled/taken down materials specifically referred under this schedule shall become the property of the contractor for which necessary credit will be affected at the rates mentioned in this schedule. The quantity of materials in this schedule is approximately only. The materials from dismantling which are not reflected in the schedule, shall become the property of the Department and shall be returned to the store yard of GE.
2. The tenderer is required to visit the site before submitting the tender to obtain the knowledge of the physical conditions of the items referred in this schedule.
3. The dismantling work shall be carried out as instructed by the Engineer-in-Charge. Prior order of Engineer-in-Charge shall be obtained before dismantling.
4. Dismantling work shall be carried out carefully so as not to damage any adjoining structure. Any damage so caused shall be made good by the tenderer at their own cost. The cost of dismantled materials covered in the schedule of credit obtained up to the date of respective RAR will be priced at the unit rate mentioned in the Schedule and adjusted. The material shall be removed from the site after obtaining written permission of the Engineer-in-Charge.
5. The quantities indicated in Schedule of Credit are provisional. The final amount of the recovery shall be worked out based on the actual quantity obtained from dismantling. The tenderer will have no claim on any amount if there is any variation in actual quantities & those mentioned in schedule of credit and the cost indicated there in and the actual cost.

SerNo	Description of item	Unit	Qty	Rate	Amount	Remark
1	2	3	4	5	6	7
1.	Scrap iron	Kg	7200.00	15.00	108000.00	
2.	Old Bk bats/Stone	Cum	359.02	350.00	125657.00	
3.	Bib tap/ Angle cock/ stop cock/ Mixer tap	Each	7.00	30.00	210.00	
4.	Old U/S PVC Water tank 1000 ltrs	Each	2.00	750.00	1500.00	
5	Old wooden chowkats with shutters exc.1.50 Sqm and not exc. 4 Sqm including fittings.	Each	27.00	350.00	9450.00	
6.	Old aluminium window/ventilator of any description and size	Each	64.00	300.00	19200.00	
7.	Old GI tube 15 mm bore	RM	30.00	15.00	450.00	
8.	Old GI tube 25mm bore	RM	26.00	20.00	520.00	
9.	Old point wiring PVC cable of any size MS box of light, fan socket and power point.	Per Point	272.00	19.00	5168.00	
10.	Old Unsv switch, sockets, ceiling rose, bell, bell push, lamp holder etc	Each	533.00	2.00	1066.00	
11.	Old Unsv fan regulator	Each	33.00	4.00	132.00	
12.	Old Unsv MCB DB SPN 2/4/6/8 way, Plug & Socket board	Each	5.00	20.00	100.00	
13.	Old Unsv MCB SP/SPN/TPN	Each	67.00	3.00	201.00	
14	Old Unsv MCCB of any Cap	Each	1.00	28.00	28.00	
15.	Old Unsv MCB DB TPN of any Type	Each	2.00	140.00	280.00	

SerNo	Description of item	Unit	Qty	Rate	Amount	Remark
1	2	3	4	5	6	7
16	Old unserviceable sub main wiring	Rm	215.00	4.60	989.00	
17	Old unserviceable Cable 4 core of 25 Sqmm size	RM	60.00	15.00	900.00	
18	Old unserviceable Cable 3 ½ core of 50 Sqmm size	RM	40.00	15.00	600.00	
19	Old Unsv Tube light / street light fitting/ Post Top Lantern	Each	137.00	32.00	4384.00	
20	Old unserviceable PPR Pipe 25mm Size	Rm	20.00	8.00	160.00	
21	Old unserviceable PPR Pipe 50 mm Size	Rm	30.00	12.00	360.00	
22	Old asbestos sheet	Sqm	200.00	15.00	3000.00	
23	Old wooden chowkats with shutters not exc.1.5 each including fittings	Each	6.00	200.00	1200.00	
24	Old unserviceable Cable 2 core of 16 Sqmm size	RM	40.00	15.00	600.00	
25	Old unserviceable GI Pipe 15mm Size	Rm	20.00	6.00	120.00	
TOTAL AMOUNT OF SCH OF CREDIT C/O TO SUMMARY ON SL PAGE NO 43					Rs. 2,84,275.00	

Note : The amount of Sch of Credit shall be deducted from the total of BOQ quoted by the tenderer to arrive at the Contract Sum.

(SIGNATURE OF CONTRACTOR)

AGE (CONTRACTS)
FOR ACCEPTING OFFICER

SUMMARY

SER NO	PAGE REFERENCE	AMOUNT
--------	----------------	--------

- A. Amount quoted by contractor in Item Rate BOQ : Rs.
 - B. Deduct Schedule of credit B/F from SI Page No.42 : (-) Rs **2,84,275.00**
 - C. Deduct reduction offered by contractor : (-) Rs
-
- Amended contract Sum A-B-C **Rs.**

(Rupees Only)

(SIGNATURE OF CONTRACTOR)

AGE (CONTRACTS)
FOR ACCEPTING OFFICER

SCHEDULE 'B'

ISSUE OF MATERIALS ETC TO THE CONTRACTOR

(Ref Condition 10 of IAFW-2249)

Sr No	Description of items	Rate at which materialsetc will be issued to contractor		Place of issue (by name)	Remarks
		Unit	Rate		
--NIL--					

(SIGNATURE OF CONTRACTOR)

FOR ACCEPTING OFFICER

SCHEDULE 'C'

List of tools and plant (other than transport) which will be hired to the contractor (see condition 34 and 35 of IAFW-2249)

Sl No	Quantity	Particulars	Details of MES Crew supplied	Hire charges per unit working Day Rs. Ps	Stand by charges per unit per day	Place of issue (by Name)	Remarks
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 --NIL--

(SIGNATURE OF CONTRACTOR)

FOR ACCEPTING OFFICER

SCHEDULE 'D'

Transport to be hired to the contractor (see condition 16 & 35 of IAFW-2249)

 --NIL--

(SIGNATURE OF CONTRACTOR)

FOR ACCEPTING OFFICER

TENDER

1. The President of India,

Having examined and perused the following documents: -

- a. Specifications signed by AGE (Contracts) for Garrison Engineer (NW) Bhandup, Mumbai - 400 078.
- b. Drawings detailed in the specifications.
- c. Schedule 'A', 'B', 'C' and 'D' attached hereto.

2. MES Standard Schedule of Rates 2009 Part I specifications and MES Standard Schedule of Rates 2020 Part II rates together with amendment 1 to 3 for Part-I (here-in-after referred to as MES Standard Schedule).

3. General Conditions of Contracts IAFW-2249 (1989 Print) together with Errata 1 to 20 and Amendments 1 to 49 and the schedule of minimum wages applicable to area.

4. Water Condition 31 of IAFW-2249 (General Conditions of Contracts).

Water will be supplied by the MES and shall be paid by contractor at Rs. 3.75 for every Rs1,000/- worth of work done priced at contract rates.

Should this tender be accepted I/We Agree

******(a) That the sum of Rs. _____/- Rupees _____ only) forwarded as Earnest Money shall either be retained on account of Security Deposit or to be refunded by the Government on receipt of an equal amount as security deposit within the time specified as per Conditions-22 of IAFW-2249.

(b) To execute all the works referred to in the said documents upon the terms and conditions contained in the aforesaid Schedule 'A' or any other rates as may be fixed under the provisions of Condition-62 of IAFW-2249 and to carry out such deviation as may be ordered vide Condition 7 of IAFW-2249 up to maximum of 10% (TEN PERCENT) and further agree to refer to all disputes as required by Condition 70 to the sole Arbitration of serving officer having Degree in Engineer or equivalent or having passed Final/Direct final examination of sub division II of Institution of Surveyor (India) authorized by Govt to be appointed by Competent authority whose decision shall be final and binding.

******Delete whichever not applicable.

CA NO. GE (NW) B-

OF 2025-26

SERIAL PAGE NO 47

In lieu of IAFW-1779A (Revised 1955)

Signature : _____

(with Name in BLOCK CAPITAL LETTER) _____

in the capacity of _____ duly authorized to sign the tender for and on behalf of M/S

Name (IN BLOCK CAPITAL) of _____ signatory

Date : _____

WITNESS :-

Address

: _____

POSTAL ADDRESS :-

Telegraphic Address

Telephone

: _____

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 initialed by the contractor and Shri SK Verma, AE (QS&C), AGE (Contracts). The above tender was accepted by me on behalf of the President of India, at the item rates contained in the Schedule 'A' for Rs

_____ (Rupees) _____

_____ only) on the _____ day of _____ Signature

Dated this _____ Day of _____.

Garrison Engineer (NW) Bhandup
FOR AND ON BEHALF OF THE PRESIDENT OF INDIA
APPOINTMENT: GARRISION ENGINEER (NW) BHANDUP
ACCEPTING OFFICER

This _____ day of _____

RETAIN AS GENERAL CONDITIONS CONTRACT IAFW-2249
APPLICABLE (1989 PRINT)

***MEASUREMENT CONTRACT (IAFW-1779A REVISED 1955)**

A copy of the GENERAL CONDITIONS OF CONTRACTS, IAFW-2249 (1989 PRINT) with errata 1 to 20 and amendment Nos 1 to 49 has been supplied to me / us and is in my/our possession. I/we have read and understood the provisions contained in the aforesaid GENERAL CONDITIONS OF CONTRACTS before submission of this tender and I/we shall abide by the terms and conditions thereof, as modified if any, elsewhere in these tender documents.

It is hereby further agreed and declared by me/us that the General Conditions of Contracts (IAFW- 2249-1989 Print) including conditions 70 there of pertaining to settlement of dispute by arbitration containing 34 pages (serial page No 48 to 81 with errata 1 to 20 and amendments No 1 to 49 of IAFW- 2249-1989 Print) containing 27 pages (Srl Page No 82 to 108) form part of these tender documents.

NOTE: - In case difference in interpretation due to wordings of English and Hindi Versions of the GENERAL CONDITIONS OF CONTRACTS, IAFW-2249 (1989 Print) the English version will prevail.

SIGNATURE OF CONTRACTOR

FOR ACCEPTING OFFICER

SCHEDULE OF MINIMUM WAGES

A copy of the latest Schedule of Minimum Wages has been supplied to me/us and is in my/our possession. I/we have read and understood the provisions contained in the aforesaid Schedule of minimum wages before submission of the tender and I/we agree that I/we shall abide by the terms and conditions there of as notified, if any, elsewhere in these tender documents. Although latest notification of Labour wages as available with the Accepting Officer has been supplied to me/us, in case Government further revised the wages, the latest received wages shall only be applicable.

It is further agreed and declared by me/us that schedule of minimum Wages form Part of these tender documents.

SIGNATURE OF CONTRACTOR

FOR ACCEPTING OFFICER

SPECIAL CONDITIONS**1. GENERAL**

- 1.2 The following conditions shall be read in conjunction with General conditions of Contracts IAFW-2249 (1989 Print) & IAFW-2159 (Revised 1947)/ IAFW-1779/IAFW-1779A) (Revised 1995) including errata and amendments there to as applicable: -
- 1.3 If any provision in these special conditions is at variance with the provisions of the above-mentioned documents, provisions in these Special Conditions shall be deemed take precedence there over.

2. VISIT TO SITE

The tenderer is advised to inspect the site, by prior appointment with Garrison Engineer, to ascertain the nature of site, access thereto, local facilities for procurement of materials, working hours and labour rates prevalent in the area and all other matters affecting his price in the tender for execution and the completion of the work. The tenderer shall be deemed to have full knowledge of the site (s) whether or not he actually visits it/these. For the purpose of collection of materials and execution of the works, the site will be considered as lying in area as mentioned in clauses hereinafter.

3. SECURITY AND PASSES

- 3.1 Tenderer's attention is invited to condition 25 of IAFW-2249. He shall employ only Indian Nationals after verifying their antecedents and loyalty. 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. The contractor shall on demand by the Engineer-in-charge, submit a list of his agents, employees and work people, concerned and shall satisfy the Engineer-in-Charge as to the bonafide of such people.
- 3.2 The engineer-in-charge shall, at his direction has the right to issue passes, as per rules and regulations of the installation / area in force, to control the admission of the contractor, his agents, employees and work people to the site of the work or any part thereof. Passes shall be returned on any time on demand by the Engineer-in-Charge or the authorities concerned and in any case on completion of work.
- 3.3 The contractor and his agents, employees and work people shall observe all the rules promulgated by the authority controlling the installation/area in which the work is to be carried out e.g. prohibition of smoking and lighting, fire precautions, search of persons at entry and exit; keeping to specific routes, observing specified timings etc. Nothing extra shall be admissible for any man hours etc lost on this account,

4. MATERIALS AND SAMPLES

- 4.1 Refer condition 10 of IAFW-2249 and clause 1.6 & 1.7 of MES Schedule.
- 4.2 Materials provided by the contractor for incorporation in the works shall, unless otherwise specifies 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.

SPECIAL CONDITIONS

- 4.3 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 inspect them or not. The materials to be incorporated in the work by the contractor shall be ISI marked or shall be equal or superior in quality to sample displayed and shall comply with the specifications given hereinafter.
- 4.4 The contractor shall produce samples of all materials, articles, fittings, accessories etc, that he proposes to use and get these approved in writing by the Garrison Engineer within reasonable time from the date of commencement of work as per work order. The materials, articles ,etc as approved shall be labeled as such and shall be signed by the GE and Contractor's representative. These sample shall be kept in the custody of the Garrison Engineer/Engineer-in-Charge.
- 4.5 The contractor shall not procure materials unless the samples are first got approved by the Garrison Engineer.
- 4.6 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.

(a) A list of items/articles which are having ISI certification mark and are readily available is given in Appendix 'A'. It is mandatory that ISI certified market items/articles as listed in Appendix 'A' shall be incorporated in the work.

(b) The Govt reserves the right to get the items/articles listed in Appendix 'A' test in approved laboratories. The cost of sample for testing shall be borne by the contractor and the remaining expenses such as cost of transportation of sample to laboratory and testing fee shall be borne by the Govt, if the test result is found to be satisfactory. However, in the event of the test being found unsatisfactory, the entire cost of testing including cost of sample shall be borne by the Contractor. Government may get more than one sample of the same materials tested and the cost of such testing shall be borne by the Government.

5. PROPRIETARY / BRANDED MATERIAL

- 5.1 Proprietary / branded materials such as paints, chemicals for anti-termite treatment, bitumen, waterproofing compound etc, quantity of which cannot be checked after incorporation in the work, shall when collected at site, be recorded in measurement book and signed both by the Engineer-in-Charge and the contractor as a check to ensure that the required quantity has been brought at site for incorporation in the work.
- 5.2 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.
- 5.3 The contractor shall obtain Proprietary /branded materials from manufacturers or from manufacturer's authorized stockiest where such authorized stockiest have been appointed. The contractor shall, on demand, produce original receipted vouchers/invoices of suppliers to the Garrison Engineer, to ensure that the contractor has actually brought the required quantity of the materials from the authorized dealers/manufacturers and also to be find out the rates thereof. The original vouchers/invoices shall be defaced and stamped by Engineer-in-Charge, indicating 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 manufacturers marking except in the case of the requirement of material(s) being less than the smallest packing.

SPECIAL CONDITIONS**6. PRODUCTION OF VOUCHERS**

The contractor shall produce purchase vouchers/invoices from the manufacturers and / or their authorized agents for the full quantity of following materials to the Garrison Engineer, as applicable as a prerequisite 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). The Garrison Engineer will check the same before making RARs payment against these items. Production of purchase vouchers for these items is mandatory. The Garrison Engineer will not payment against the items listed below in RARs unless the purchase vouchers for the same have been produced to him and verified by him: -

- (a) Water proofing compound.
- (b) Chemicals for anti-termite treatment / water proofing treatment.
- (c) Paints.
- (d) C.I. Pipes and Fittings.
- (e) G.I Pipes and Fittings.
- (f) Sanitary Fittings.
- (g) Steel Window / Ventilators.
- (h) Tar felt / Bituminous products.
- (j) Iron monger.
- (k) SGSW pipes.
- (l) All proprietary articles.
- (m) Bitumen for road work.
- (n) Air blown grade bitumen for water proofing work.
- (o) Floor /wall tiles.
- (p) Factory made door shutters.
- (q) Electrical and water supply fittings/ fixtures where names of manufacturers / brands are specified or approved.
- (r) Gables/Wires.
- (s) Steel/Cement.

6.1 The vouchers shall be endorsed, dated and initialed by the Engineer-in-Charge giving the contact and name of work. A certified copy of each of such vouchers signed both by Engineer-in-Charge and the contractor shall be kept on record.

6.2 When the cost of each category of material is less than Rs 1000/- production of voucher may not be insisted upon, if the Accepting Officer is otherwise with the quality and quantity of material brought by contractor.

7. SECURITY OF CLASSIFIED DOCUMENTS

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

8. FAIR WAGES

The contractor shall have no claims, whatsoever if no account of any rules and regulations or otherwise he is required to pay wages in excess of the fair wages shown in the schedule of wages under condition 58 of General Conditions of Contracts IAFW-2249.

SPECIAL CONDITIONS**9. PERIOD FOR KEEPING TENDER OPEN**

The tender shall remain open for acceptance for a period of 60 (SIXTY) days from the bid submission end date.

10. RECORD OF CONSUMPTION OF CEMENT

(a) For purpose of keeping record of cement issued and consumed in works, the contractor shall maintain a pucca bound register, with serially numbered pages with all pages initialed by Engineer-in-Charge against numbering in the form approved by the Engineer-in-Charge showing daily receipts of cement from MES, quantity used in works and balance in hand. The register shall be signed daily by representative of MES and contractor in token of their verification of its correctness and will be checked by Engineer-in-Charge, at least once a week and on the days cement is issued to the contractor.

(b) The aforesaid provision will not however, absolve the contractor of his responsibility to justify the consumption of cement at the time of finalization of his accounts.

(c) The register shall be kept at site in the safe custody of the contractor during progress of the work and he shall on demand produce the same for verification by inspecting officers. On completion of the works cement register shall be handed over to the Engineer-in-Charge for record with MES.

11. ROYALTIES

Delete the existing condition 14 of IAFW-2249 & insert the word "BLANK" in lieu.

12. LAND AND LABOUR ACCOMODATION AND STORE AND WORKSHIP ETC.

12.1 Delete lines 5 to 9 of para 1 of Condition 24 of General Conditions of Contracts IAFW-2249 i.e from " In the event of area of land" to " Land allotted to him" and insert as under :-
"The contractor shall be allotted, the area as marked on the layout plan for the purpose of erection of temporary workshop, stores etc, for which he shall pay the nominal rent of Re 1/- per year or part of a year. No MD land is available for accommodation of labour and canteen in restricted area for which the contractor shall make his own arrangement at his own expense.

12.2 The contractor will not be allowed to quarry / win earth from MD land.

13. CO-OPERATION WITH OTHER AGENCIES

13.1 The contractor shall permit free access and generally afford reasonable facilities to other agencies or departmental workmen engaged by Government to carry out their part of the work, if any, under separate arrangements.

13.2 The contractor's prices shall be deemed to cater for all the above contingences and nothing extra shall be admissible on this account.

14. LABOUR REGULATION (ABOLITION) ACT

14.1 Contract labour (Regulation & Abolition) Act 1970 is applicable to MES contractors; Rates quotes by the tenderer shall be deemed to take into account the cost etc, required to comply with the provisions contained in the said act and the rules framed under the said act.

14.2 Refer Condition 58 of IAFW-2249. The "Schedule of Minimum Wages" as published vide Govt of India Notification as available on date of receipt of tender forms part of these tender documents. However, the contractor shall not pay wages lower than minimum wages for labour as fixed by the Govt of India /State Govt / Union Territory under Minimum Wages Act or Contract Labour (Abolition and Regulation Act) which is higher.

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

SPECIAL CONDITIONS

- 14.4 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.
- 15. WATER SUPPLY**
- 15.1 Refer condition 31 of General Conditions of Contracts (IAFW-2249) Water will be supplied by MES at points as approved and decided by GE. In case of metered supply be water meter to registered supply shall be provided and installed by MES & Contractor shall arrange for conveyance of water beyond water meter at his own expense.
- 15.2 It is an express provision of this contract that claim from the contractor shall be admissible if the quantity of water supplied by the department is inadequate on account of any reason whatsoever.
- 15.3 The supply of water may not be continuous. The contractor shall be deemed to have ascertained the hours of availability of water before submitting this tender. MES do not guarantee the outputs of water supply or break down in the system.
- 15.4 Water used for mixing and curing shall be generally potable water, clean and free from impurities viz oils, acids, alkaline salts, sugar, organic materials or other substance that may be deleterious to concrete or steel and also confirm to IS-456.
- 16. ELECTRIC SUPPLY**
- 16.1 In the case the contractor desires to buy electricity from the MES and if the same is available for supply with the department he shall be charged for the electric energy consumed at the following rates: -
- (a) Recovery of electricity charges will be as per latest approved "All in Cost rates".
- 16.2 Electric supply required for works shall be made available by the MES at the points as decoded by the GE. The main switch and KWH meter to register the electric energy supplied shall be provided and installed by the MES. The contractor shall provide all necessary connections, cables, fittings etc, from main switch in order to ensure a proper and suitable supply of electricity for the execution of work.
- 16.3 MES do not guarantee availability / continuity or supply of full quality of electricity as required / demanded by the contractor. The electricity shall be supplied to the extent available with the department. No compensation whatsoever shall be allowed for supply becoming intermittent or for break down in the system.
- 16.4 GE or his representative shall be free to inspect all the power consuming devices or any electric lines provided by the contractor. Any devices or electric lines provided by the contractor, which are not to the satisfaction of GE shall be disconnected from the supply, if so directed by GE.
- 17. PERFORMANCE SECURITY (REFER NEW CONDITION 19 OF IAFW -2249)**
- 17.1 Within 28 days of receipt of the letter of Acceptance, the successful contractor shall deliver to the Accepting Officer a Performance Security in any of the forms given below for an amount equivalent to 5% of the contract sum.
- (a) A Bank Guarantee in prescribed form.
- (b) Government Securities, FDR or any other Government Instruments stipulated by the Accepting Officer.
- 17.2 If the performance security is provided by the successful Contractor in the form of a bank Guarantee, it shall be issued by Nationalized/Scheduled Indian Bank but its confirmation shall be done only from the Head Office of the Bank.
- 17.3 Failure of the successful contractor to comply with the requirements of sub-clause 19.1 shall constitute sufficient grounds for cancellation of the award of work and forfeiture of the Earnest Money. In case of MES enlisted contractor, amount equal to the Earnest Money stipulated in the Notice Inviting Tender, shall be notified to the tenderer for depositing the amount through MRO. Issue of tender to such tenderers shall remain suspended till the aforesaid amount equal to the Earnest Money is deposited in Government Treasury.

SPECIAL CONDITIONS

- 17.4 All compensation or other sums of money payable by the contractor to the Government under the terms of this contract or under any other contract with Government may be deducted from, or paid by the sale of a sufficient part of the performance security or from the interest arising there from or from any sums which may be due or become due to the contractor by the Government on any account whatsoever and in the event of his performance security being reduced by reason of any such deduction, or sale as aforesaid, the contractor shall within ten days thereafter make good in cash or securities, endorsed as aforesaid, any sum or sums which may have been deducted from or realized by the sale of his performance security or any part thereof.
Government shall not be responsible for any loss of securities or any depreciation in the value of securities or any depreciation in the value of securities while in their charge nor for loss of interest thereon.
- 17.5 In the event of contract being cancelled, under condition 52, 53 & 54 of General Conditions of contract, the Performance Security shall be forfeited in full and shall be credited into Consolidated fund of India”.
- 17.6 **REFUND OF PERFORMANCE SECURITY (Refer Condition 68 of IAFW -2249)**
The performance security Deposit mentioned in Condition 19 above may be refunded to the contractor after the expiration of the **Defect liability period (24 Months)** (vide condition 46) by the GE provided always that the contractor shall first have been paid the final bill and have rendered a No-Demand Certificate (I.A.F.A-451).
18. **REIMBURSEMENT / REFUND ON VARIATION IN “TAXES DIRECTLY RELATED TO CONTRACT VALUE :-**
- (a) The rates quoted by the Contractor shall be deemed to be inclusive of all taxes (including GST on materials, GST on Works Contracts, Labour Welfare Cess / tax etc) duties, Royalties, Octroi& other levies payable under the respective statutes. No reimbursement/ refund for variation in rates of taxes of taxes, duties, Royalties, Octroi& other levies, and / or imposition / abolition of any new / existing taxes, duties, Royalties, Octroi& other levies shall be made except as provided in sub para (b) here-in-below
- (b) (i) The taxes which are levied by Government at certain percentage rates Contract Sum/Amount shall be termed as “ taxes” directly related to Contract value “ such as sales tax / VAT on works contracts, turnover tax, Labour welfare Cess / tax/Service tax and like but excluding Income tax. The tendered rates shall be deemed to be inclusive of all “taxes directly related to contract value” with existing percentage rates as prevailing on last due date for receipt of tenders. Any increase in percentage rates of “taxes directly related to contract” 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 of receipt of tenders shall be refunded by the Contractor to the Govt/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 Contactor and of any “taxes directly related to Contract value” prevailing on last due date for receipt of tender shall be refunded by the contractor to the Govt/deducted by the Government from the payments due to the Contractor.
- (ii) The contractors 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 Conditions, together with all information relating thereto which he may be in a position to supply. The Contractor shall also submit the other documentary proof / information’s as the GE may require.
- (iii) The contractor shall, for the purpose of this connection 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 kept and such other information as the GE may require,
- (iv) Re-imbursement for increase in percentage rates / imposition of “taxes directly related to Contract value “shall be made only if Contractors necessarily and 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”.

SPECIAL CONDITIONS**19. MINOR CONSTRUCTIONAL DETAILS**

Lump sum/rates quoted by the contractor shall be deemed to allow for all minor constructional details which are not specifically shown on drawings or given in the particulars specifications but are essential for the execution of work & services in workmen like manner and sound construction. In case of difference of opinion between the contractor and Garrison Engineer as to whether or not certain item of work. Constitutes 'Minor Constructional Details' which is deemed to have been included in the contractors quoted rate/percentage, the decision of the Accepting Officer shall be final conclusive and binding.

20. BLANK**21. CLEANING DOWN (REFER CONDITION 49 OF IAFW-2249)**

The contractor shall clean all floors, walls, remove cement, lime paint marks / drops etc clean the joinery glass panes etc, touch up all painters and carry out all other necessary items of work in connection therewith and leave the whole premises clean and tidy before handing over the building. No extra payment shall be claimed by the contractor for this operation.

22. LABEL OF ARTICLES

Contractor shall provide aluminum LABEL of not less than 75mm and of adequate gauge with Brass screws on articles like transformer, panel board, generating set etc indicating there on the names of the firm, the contract No and year as directed by GE. The cost of such aluminum labels shall be deemed to be included in the quoted rates against respective item of Schedule 'A'.

23. DAMAGE TO STRUCTURE

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

24. CONDITIONS OF WORKING**24.1 CONDITIONS OF WORKING IN RESTRICTED AREA :**

The entire work under this contract lies in 'RESTRICTED AREA". The conditions of working in restricted area in stipulated as under:-

(a) **Definition:** Restricted area(s) for the purpose of this contract means the area(s) declared as such by the units as shown in site plan/described in Special Condition.

(b) Work on site within the Restricted Area. Permission to entire the restricted area(s) at time of submission of tenders can be obtained, through the Garrison Engineer. Tenderers are advised to send prior intimation to the Garrison Engineer about the particulars of the agents, representative etc, if any, the date and the time of their proposed visits so that necessary arrangement may be made by the GE, to secure admission. Whether tenderers visit the site or not shall be deemed to have full knowledge of the restrictions on entering in , exit from and working within the restricted area.

(c) **Entry and Exit :**The contractor / his agent(s)/representative(s)/workmen etc, and his material 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 times as the GE or authorities in charge of the restricted are may at their sole discretion permit to be used. The contractor's authorized representative is required to be present at the places of entry and exit for the purpose identifying his carts, trucks etc, to the personnel -in-charge of the security of the restricted area.

SPECIAL CONDITIONS

- (d) Identity Cards or Passes :
- (i) The contractor, his agents and representative are required individually to be in possession of an Identity card or pass duly verified by the GE. The identity card or pass 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 restricted area.
- (ii) Identity of workmen : Every workmen shall be in possession of an Identity Card. The identity cards shall be issued after a thorough investigation of the antecedents of the labourers by contractor and attested by the Office-in-Charge of the units concerned in accordance with the standing rules and regulations of the unit. Contractor shall be responsible for conduct of his workmen, agents or representative.
- (iii) The contractor shall be responsible for conduct of his workmen, agents or representatives.
- (e) Search : Through search of all persons and transport shall be carried out at each gate and for as any times as gate is used for entry or exist and may also be carried out any time or any number of times at the work site within the restricted areas.
- (f) Female Searcher : If the contractor desires to employ female labour on works to be carried out inside the area of factory, depot, park, unit etc and a female searcher is not borne on the authorized strength of the factory, depot, park, unit etc, at the time of submission of tender, he shall be deemed to have allowed in his tender for pay and allows etc, for a female searcher (class IV servant/GP D servant) calculated for the period, female labours are employed by him inside the area. If more than one contractor employs female labour during any month and female searcher(s) has/ have to be employed in addition to the authorized strength of the factory, depot, park, unit etc, the salary and allowances paid to the additional female searchers(s) shall be distributed on equitable basis between the contractors employing female labour taking into consideration the values and period of completion of their contracts. The GE's decision in regard to the amount recoverable on this account from any contractor shall be final and binding.
- (g) **Work on Holiday**: The contractor shall not carry out any work on gazetted holidays, weekly holidays and other non working days except when he is expressly authorized in writing to do so by the Garrison Engineer. The GE may at his sole discretion declare any day as holiday or non working day without assigning any reason for such declaration.
- (h) **Access to restricted area after completion**: After the works are completed and surplus stores etc removed the contractor, his agents, representative or workmen etc, will not be allowed any access to the restricted area except for attending to any rectification of defects pointed out to him by the GE.
- (j) **Fire precautions** :
- (i) The contractor, his agents, representative, workmen etc shall strictly observe the orders pertaining to the precautions prevailing within the restricted area
- (ii) Motor transport vehicle, if allowed by the authorities to enter the restricted area must be fitted with serviceable fire extinguishers.
25. **OFFICIAL SECRET ACT** : The contractor shall be bound by the Official Secrets Act, 1923.

SPECIAL CONDITIONS

26. **PROCEDURE FOR REFERRING DISPUTES (OTHER THAN THOSE FOR WHICH THE DECISION OF THE CWE OR ANY PERSON IS BY THE CONTRACT EXPRESSED TO BE FINAL AND BINDING) TO SOLE CONCILIATOR FOR CONTRACTS VALUING LESS THAN RS. 10.00 CRORE IN TERMS OF CONDITION 71 OF IAFW-2249**

26.1 **Scope of Conciliation.** The scope of conciliation shall be restricted to the following types of disputes with financial limits as indicated therein:-

- (a) Disputes relating to levy of compensation for delay in completion-actual amount of compensation.
- (b) Disputes relating to technical examination of works.
- (c) Disputes relating to interpretation of the provisions of the contract with reference to their application to parties.
- (d) Disputes relating to non return of Schedule 'B' stores over-issued to the contractor.
- (e) Any other dispute having fair chances of being resolved by conciliation and considered fit to be referred to conciliation by the parties.

For item(b), (c), (d) and (e) as stated above, the financial limit shall be rupees two Lakhs or one percent of the contract amount whichever is less for each item.

26.2 **Commencement of Conciliation Proceedings.**

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

26.3 **Number of Conciliators.** There shall be a Sole Conciliator.

26.4 **Appointment of Conciliator.** All disputes brought out in Para 1 (a) to (e) above shall be referred to the Sole Conciliator viz. Serving officer not below the rank of Superintending Engineer/Superintending Engineer (QS&C) having degree in engineering or equivalent or having passed final/direct final examination of Sub Division II of Institution of Surveyors (India) to be appointed by the Engineer-in-Chief, Army Headquarters, New Delhi or in his absence the officer officiating as Engineer-in-Chief or Director General of Works if specifically delegated by the Engineer-in-Chief in writing.

26.5 **Status of Effect of Settlement Agreement.** The settlement agreement signed by the parties as a result of conciliation proceedings shall have the same status and effect as an arbitral award on agreed terms.

27. **METHOD STATEMENT**

27.1 The contractor shall plan for execution and completion of work with foresight to ensure timely execution with the quality of work desired.

27.2 Period of completion shall be divided into months/fortnights/weeks and plan for each month/fortnights/weeks by preparing a schedule for every months/fortnights/weeks with following details, even before commencement of work.

- (a) Items of work to be executed with quantity.
- (b) Labour to be deployed trade wise.
- (c) T&P to be deployed.
- (d) Material to be brought to site for work to be executed next week.
- (e) Type and number of Engineers to be employed.

27.3 Any special item of work to be executed alongwith description of method as to how contractor intends to execute. It must also be submitted in advance,

27.4 Contractor shall also plan in advance and make available all the requisite safety equipment for the labour. A list of the same shall be given.

SPECIAL CONDITIONS

- 27.5 Contractor shall produce test certificate of T&P being deployed at site. The test certificates should indicate the present capacity of the T&P and must not be more than 06 months old.
- 27.6 The above details shall be furnished by contractor within 10 days of acceptance of tender and well before commencement of work. Work will not be allowed to be executed without these details. However, date of commencement of work will be within one months of acceptance as per contract.
- 27.7 Delay on account of non-submission of these details/test certificate will be attributable to contractor and no extension of time will be granted on this account.

** MONTH/FORTNIGHT/WEEK NO _____

From : _____ To : _____

Ser No	T&P to be deployed	
	Type	Nos
1		
2		
3		
4		
5		

Ser No	No of Engineers to be employed	
		Nos
1.	Civil (a) Graduates	
	(b) Diploma Holders	
2.	Electrical (a)	
	(b)	
3.	Mechanical (a)	
	(b)	

Ser No	Name of work	Quantity
1		
2		
3		
4		
5		

Ser No	Labour required to be employed	
	Trade	Nos
1		
2		
3		
4		

MATERIALS TO BE BROUGHT AT SITE FOR EXECUTION MONTH/FORTNIGHT/WEEK WISE DETAILS

Ser No	Description of material	Quantity	Source

** Strike out which is not applicable.

SPECIAL CONDITIONS**28. REF CONDITION 25 OF IAFW-2249 GENERAL CONDITIONS OF CONTRACTS”**

- (a) Engineering establishment for work costing between Rs 7.5 Lakhs to Rs. 50 Lakhs

A degree holder in engineering from Govt recognised institution or equivalent final or direct pass of sub division II of the Institution of Surveyors (India), with at least 02 years practical experience of works.

AND

- (b) Engineering establishment for work costing below Rs 7.5 Lakhs

A diploma holder in Engineering from a Govt. Recognised Institute with adequate practical experience of the work.

29. SITE LABORATORY AND TESTING OF MATERIALS

(a) **A LEVEL TESTS FOR WORKS COSTING Rs 100 LAKHS AND ABOVE** :- The contractor shall set up site laboratory of minimum size 3m X 4m with proper ventilation and lighting for testing of materials (except Schedule 'B' materials) for A level tests as listed in Appendix 'A' to Particular specifications. The contractor shall arrange all equipment / machines for the tests specified in Appendix 'A' as A level tests at his own cost with prior approval of GE. The cost shall be included in the lump sum costs quoted by the contractor. The contractor shall employ a competent technical representative as approved by the GE for the purpose of testing and all such tests shall be carried out in the presence of Engineer-in-Charge. The successful test results thereof shall be recorded and signed jointly by the contractor and Engineer-in-Charge. The charges of these tests i.e. A level tests carried out in site laboratory of the contractor shall not be recovered. However in case a test which was specified to be carried out in site laboratory and which could not be carried out in site laboratory due to some reasons, such test shall be carried out in Zonal lab/ any other approved lab and the recovery will be made at the rates given in Appendix 'A' for tests carried out in Zonal lab or otherwise at the actual rates in case the tests are carried out in other labs. Testing charges will be deducted from the RAR's irrespective of the tests results for such tests.

(b) **A LEVEL TESTS FOR WORKS COSTING UP TO Rs 100 LAKHS:-** The contractor may set up site laboratory at his option for works costing upto 100 lakhs. The other stipulations will be same as specified in preceding Para (a). However in case the contractor has not set up the site laboratory and tests are carried out in Zonal or any other laboratory approved / set up by GE, the recovery shall be made at the rates given in Appendix 'A' for tests carried out in Zonal lab or otherwise as per actual rates in case the tests are carried out in other labs. Testing charges will be deducted from the RAR's irrespective of the test results for such tests.

(c) **B & C LEVEL TESTS** : For tests of 'B' and 'C' level as indicated in Appendix 'A', the contractor shall provide all facilities for testing of materials at Zonal Laboratory/Govt approved laboratories or test houses/Engineering Colleges at his own cost. The lump sum / rates quoted by the contractor shall deemed to be inclusive of these tests. For 'C' level tests, actual cost of testing shall be borne by the Contractor and for 'B' level tests recovery shall be made at the rates of various tests concluded in Zonal Laboratory of MES as indicated in Appendix 'F'. Wherever it is convenient to get 'B' level test done at approved test house / Engineering College, the same can be done at the cost of the contractor and no separate recoveries will be made by the Department for the same.

(d) The recoveries on account of testing charges wherever applicable shall be affected from the running account payments due to the contractor payable after completion of the respective test or whenever the test is due whichever is earlier.

(e) This clause supersedes all other stipulations, if any, with regard to testing of materials specified elsewhere in the tender documents.

30. TESTING OF MATERIALS

- (a) The cost of testing of materials as listed in Appendix 'A' to Particular Specification Part-I(Special Conditions) except materials issued under Schedule 'B' shall be borne by the contractor.
- (b) Tests of various materials as specified in SSR Part-I shall be carried out.
- (c) Rates given under Col 7 of Appendix 'A' shall be per lot of samples.

SIGNATURE OF CONTRACTOR**FOR ACCEPTING OFFICER**

SPECIAL CONDITIONS

31. Guarantee of Water Proofing Treatment to Buildings in Contracts including Special Water Proofing Treatment.

a) The period of guarantee will be 10 years from the date of completion of work.

(b) The contractor shall furnish guarantee in favour of the Garrison Engineer for the efficacy of the water-proofing treatment during the guarantee period where the work is got executed through a specialist firm ; the contractor shall obtain guarantee from such specialist firm in his favour. The contractor in turn shall furnish guarantee to GE duly endorsing therewith a copy of guarantee secured by him from specialist firm.

(c) An appropriate sum equal to amount of security deposit calculated as per scales laid down for Earnest Money enhanced by 25% on the amount of water proofing treatment at the contract rates shall be retained out of the final bill amount as security deposit toward the guarantee for the water-proofing work and it shall be released to the contractor only after the expiry of the guarantee period. The facility of furnishing fixed deposit receipt/ BGB in lieu of the sum to be retained as security, shall also be acceptable.

SIGNATURE OF CONTRACTOR

FOR ACCEPTING OFFICER

Appendix 'A' To SPECIAL CONDITIONREFER CLAUSE 30 OF SPECIAL CONDITIONSTEST OF MATERIALS AND RECOVERY RATES OF TESTING CHARGES

No	Materials	Test	Method of testing	Frequency of tests	Level	Rate	Remarks
1	2	3	4	5	6	7	
1.	Coarse aggregate	(i) Sieve analysis	IS-2386 (Part-I)	One test for every 15 Cum aggregate or part thereof brought to site.	'A'	660/-	
		(ii) Flakiness Index	-do-	-do-	'A'	250/-	
		(iii) Estimation of deleterious materials	IS-2386 (Part-I)	One test for every 100 Cum aggregate or part thereof brought to site.	'A'	600/-	
		(iv) Organic impurities	-do-	One test for source of supply	'B'	275/-	
		(v) Moisture content	IS-2386 (Part-II)	Regularly as required	'A'	330/-	
		(vi) Specific gravity	-do-	One test for source of supply	'B'	330/-	
2.	Fine aggregate	(i) Sieve analysis	IS-2386 (Part-I)	One test for every 15 Cum aggregate or part thereof brought to site.	'A'	660/-	
		(ii) Test for clay, silt and impurities	-do-	-do-	'A'	500/-	
		(iii) Specific gravity	IS-2386 (Part-II)	One test for source of supply	'B'	330/-	
		(iv) Moisture content	IS-2386 (Part-II)	Regularly as required subject to 2 tests / day when being used	'A'	300/-	
		(v) Test for organic impurities	IS-2386 (Part-II)	One test for each source of supply	'B'	275/-	

Contd...

(APPENDIX 'A' Contd...)

3.	Cement	(i) Setting time	IS-4031-63 Affirmed 1980	One for each consignments or as when	'B'	500/-	
		(ii) Soundness	-do-	-do-	'B'	500/-	
		(iii) Compressive strength	-do-	-do-	'B'	500/-	
		(iv) Fineness	-do-	-do-	'B'	275/-	
4.	Water for construction purpose	(i) Test for acidity	IS-456 & 3015	Once at the stage of approval of sources of water	'B'	500/-	Also refer clause 4.3 of IS-456 and its subsequent sub clause regarding suitability of water
		(ii) Test for alkalinity	-do-	-do-	'B'	500/-	
		(iii) Test for Total dissolved solids (TDS) Content	-do-	-do-	'B'	500/-	

5.	PCC Solid block for walling	(i) Compressive strength	IS : 2185	12 block out of 18	'A'	900/-	Samples: 18 blocks from consignment of every 1000 blocks or part thereof. These blocks to be checked for dimension and weight.
		(ii) Water absorption	-do-	03 block out of 18	'B'	330/-	
		(iii) Density	-do-	03 block out of 18	'B'	330/-	
6.	Timber	(i) Specific gravity and weight	IS-1708	Minimum 3 samples from a lot of 4 cum or 250 pieces of seasoned timber	'B'	120/-	
		(ii) Moisture content	-do-		'A'	120/-	
7.	Wood particle board (Medium density IS:3097)	(i) Density	IS - 2360 (Part-III)	Three test specimen from each sample (Size 150mm x 75mm)	'A'	60/-	Sampling shall be as per IS-3487 with moisture metre
		(ii) Moisture content	-do-	-do-	'A' & 'B'	60/-	
		(iii) Water absorption	-do-(Part-16)	-do-(Size 300mm x 300mm)	'A'	60/	
		(iv) Swelling due to surface absorption	-do-(Part-17)	-do-(Size 125mm x 100mm)	'A'	60/	
		(v) Swelling in water	-do-	-do-(Size 200mm x 100mm)	'A'	60/	
		(vi) Modulus of rupture	-do-(Part-4)	Three test specimen as per IS:2380	'B'	90/	
		(vii) Screw withdrawal strength	-do-(Part-4)	-do- as per IS:2385	'C'	120/	

Contd/.....

(APPENDIX ' A ' Contd...)

8.	Ply wood (IS:303)	Moisture content	IS - 1734 (Part-I)	Six tests pieces cut from each of the boards selected as per table shall be subjected to tests.	'C'	240/-	Sampling shall be as per IS-7835-tables.
9.	Timber paneled and glazed Door/Window & shutters (including factory made shutters)	(a) Dimensions, sizes, workmanship and finish	IS-1003 (Part-I)	Frequency of sampling from each lot shall be as under:- <u>Lot size</u> <u>Sample size</u> 26 to 50 5 50 to 100 8 101 to 150 13 151 to 300 20 301 to 500 32 501 to 1000 50 1001 and above 80	'A'	180/-	
		(b) Strength test (i) Slamming (ii) Impact Indentation (iii) Shock Resistance (iv) Edge Loading	IS-1303	From the each lot 5% of the factory made shutters shall be manufacturer tested for strength			

10.	Structural concrete (M-15 grade and above)	(a) Slump test or compacting factor test or vee-bee time test	IS-1199	The minimum frequency of sampling of concrete of each grade shall be as under	'A'	300/-	Random sampling shall be carried to cover all mix unit
		(b) Compressive strength			'A'	900/-	

Contd/.....

(APPENDIX ' A ' Contd...)

11.	Reinforcement steel	Physical test upto 16mm dia (a) Proof bars (b) Tensile strength (c) Elongation (d) Bent test (e) Rebent test	IS-1786	As per appendix 'D' of tender	'B'	2500/-	Testing charges as per set of test per diameter
		Physical test more 16mm dia (a) Proof bars (b) Tensile strength (c) Elongation (d) Bent test (e) Rebent test	IS-1786		'B'	2750/-	

Note : The cost of test other than these mentioned above which are required as per contract permission or specified in relevant IS/SSR/IES shall be borne by the contractor.

SIGNATURE OF CONTRACTOR

AGE (Contracts)
For Accepting Officer

PARTICULAR SPECIFICATIONS**1 GENERAL**

- 1.1 Works under this contract shall be carried out as detailed in different parts of Schedule 'A' and in accordance with particular specifications, drawing, Special conditions, other provisions given in General Summary and General Specification/Provisions given in MES Schedule Part-I-2009 and MES Schedule Part-II-2020 as applicable including amendments & errata thereto.
- 1.2 Term 'General Specifications' referred to in these documents as well as referred in IAFW-2249 (General Conditions of Contracts) shall mean the specifications contained in the MES Schedule.
- 1.3 General Rules, Specifications, Special conditions and all preambles in MES Schedule shall be deemed to be applicable to the work under this contract, unless stated otherwise in these documents. In case of variance between provisions in these documents and those given in MES Schedule, the provisions in these documents shall take precedence over the aforesaid provisions in the MES Schedule.
- 1.4 (a) Rate quoted by the tenderer shall be inclusive of material and labour required unless otherwise specified in the description of the item in Sch "A" and shall be deemed to include for any minor details/items of work and/or constructions which to obviously and fairly intended and which may not have been included in these documents and but which are essential for the execution and entire completion of the work.
- (b) Irrespective of whether any mentioned is made in the items catered in the Sch 'A' or not provision for making good to the disturbed surfaces while carrying out the work as catered in Sch A to match with the existing surfaces shall be deemed to be considered in the respective items. Decision of the Accepting Officer as to whether any minor detail of work and /of construction is obviously and fairly intended to be included or not in the contract shall be final, conclusive and binding.
- 1.5 Materials supplied by the contractor for incorporation in the work shall unless otherwise specified in the particular specifications comply with the requirements of relevant Indian Standards (IS) of the year of publication (Edition) as specified in MES Schedule Part-I. The contractor may however, at his own discretion, provide and incorporate in the works, such a material complying with the requirements of any corresponding subsequently amended or revised edition of the IS without any price adjustment on the contract rates.
- 2 **SCOPE OF WORK:** The scope of work consists of (i) **DEMOLITION OF BUILDING NO P-33 (COOKERY SCHOOL) AT INS HAMPLA** (ii) **DEMOLITION OF BUILDING NO T-43 AT INS HAMPLA** (iii) **PROVISION OF ELECTRIC SUPPLY AND WATER SUPPLY ALONGWITH ALLIED SERVICES FOR CONTAINERIZED FIRING RANGE AT INS HAMPLA**
- 2.1 All items of work included in the BOQ shall cover supply of all materials and labours, fixing complete all as specified except where specifically mentioned otherwise in the description of items in BOQ and also cover any minor items of work which may not have been described in the specifications but are required for completion of work/items in a workmanship like manner and in conformity with the best engineering practice. Decision of the Accepting Officer as to whether the item is minor or not, in the event of dispute shall be final and binding.
- 2.2 Any damage to existing structure caused during the execution shall be made good by the contractor at his own cost. The contractor is advised to take necessary precaution to carryout work to avoid any possible damage to the structure. In case of any damage, the same shall be made good with materials and workmanship, matching with the existing at Contractor's cost. Decision of GE regarding who is responsible for damage to what extent the compensation has to be levied, in case contractor does not rectify the damages etc, is final and binding and the provision for such precautionary work shall be deemed to be considered in the rates quoted against the respective items in Schedule 'A'

PARTICULAR SPECIFICATIONS**3 DISMANTLING/DEMOLITION**

- 3.1 Demolition/dismantling shall be done all as specified in Section 21 of SSR Part – I and preambles contained in SSE Part II 2020 where directed by the Engineer-in-Charge. Necessary precautions shall be taken as specified in clause 21.6 of MES Schedule Part-I. Any damage done to the existing structure shall be made good by the contractor and shall not have any claim whatsoever in this respect. Failing which the work shall be carried out at the risk & cost of the contractor.
- 3.2 Serviceable materials obtained from dismantling, as directed by Engineer in charge shall be returned by the contractor to the MES Store yard. All rubbish and unserviceable materials shall be cleared by the contractor from the site and disposed off. The unit rates quoted shall include for the above provision also.
- 3.3 The rates quoted in respective items of demolition/dismantling in Sch. 'A' includes for: -
(a) All the precautionary measures to be taken including custody of serviceable materials/temporary shoring for the safety of portion not required for demolition/dismantling of adjacent portion where considered necessary by the Engineer -in-Charge.
(b) All materials having worth value other than to be incorporated in the work and listed in Schedule of Credit which shall become the property of contractor shall be removed to the MES store yard of GE.
- 3.4 The contractor shall take adequate precaution by providing sufficient props/bracing as a support to the existing structure /bldg to protect the structure/bldg from damage/ falls on. The unit rate quoted shall include this provision also. Nothing extra shall be admissible on this account.
- 4.0 **SAFETY MEASURES :-** Contractor shall follow all safety measures required at site while executing of the work as mentioned in IAFW 2249
- 4.1 Contractor has to provide necessary scaffolding to ensure the safety of the workers including making insurance etc and also follow the safety measures as mentioned in Annexure 'B' of General Conditions of Contract IAFW 2249 forming part of the tender and as directed by GE/Engineer in charge. No Jhoola system is allowed in the work in any case. In case of any accident and casualty the contractor is liable to pay compensation as decided by the local Governed body/Govt as decided by the AO to next of kin without any extra cost to the Govt.
- 4.2 In addition to the safety precaution to be taken by the contractor as described in special conditions herein and In IAFW-2249, the contractor shall take following additional safety precaution of his workmen without any extra cost to the Government:
- (a) Safety adjustable waist belt with proper arrangement
 - (b) Safety helmets with strap. The above shall be provided to his workmen as and when required and directed by the Engineer-in-Charge.
 - (c) The contractor shall employ safety inspector qualified in construction of building works.
 - (d) Insurance of workmen as per Labour Act
 - (e) All workers and visitors in the construction site should wear Safety PPE Kit to reduce various exposure to hazards at construction site. Safety PPE includes goggles, helmets, gloves, ear muffs or plugs, boots and high visibility suit/ Jackets.
 - (f) Ensure the debris, dust, loose nails and stagnant water from excavation are not lying around the site. The construction site must be cleaned daily and remain clutter free to prevent slips and trips.
 - (g) One of way to ensure safety on site is by placing engineering control such as barriers, fence and safe guard to isolate people from hazardous area with high voltage electricity.
 - (h) Safety nets should be fitted as close to the working surface as possible, and in no case further below than the maximum distance marked on the label attached to net which would be either 1mtr or 6mtr the gap between net and building should be a close as but not more than 200mtr.

PARTICULAR SPECIFICATIONS

4.3 The contractor shall submit list of persons to be deployed on work and ensure insurance of the persons against any type of miss-happening during execution of work, well before the commencement of the work.

4.4 PRECAUTIONS FOR ELECTRIC WORKS

(a) All safety precautions shall be taken by the Contractor to prevent danger to persons working on overhead lines.

(b) The Contractor/his workmen shall not start work on the overhead electric line or on electric equipment unless he obtained proper shut down and unless he/they are reasonably satisfied that there is no danger to the life of workmen.

(c) The Contractor shall be responsible for providing all necessary safety equipment to his workmen to avoid accidents. In case of accidents the department will not be held responsible.

(d) The layout for external cabling shall be as indicated and as approved by the Engineer-in-charge.

(e) The entire work shall be carried out as specified in Indian Electricity Rules and regulations, ISS and MES Schedule.

5.0 SAMPLES / MATERIALS

5.1 The contractor is advised to inspect samples & materials, which displayed in the office of Garrison Engineer before submitting the tender.

5.2 The contractor shall produce samples of all materials and obtain approval in writing from the GE before placing bulk order for the materials for incorporation in the work. In case specifications of materials needed for incorporation is not contained anywhere in the contract documents, the specifications of such materials proposed to be incorporated in work shall be got approved in writing from the GE before incorporation in the work. Contractor is advised to check availability, lead, time of procurement from these suppliers before quoting, the materials shall conform to the relevant IS specifications or BS specification listed in MES Schedule

5.3 The materials to be incorporated in this work by the contractor shall conform to or shall superior in quality to the samples and shall comply with the specifications given herein after. The contractor shall be deemed to have inspected the samples and satisfied himself as to the nature and quality of materials required to be incorporated in the work irrespective of the fact whether he inspects them or not

5.4 As far as practicable all manufactured articles other than those manufactured in Contractor's workshop at site shall bear ISI certification mark and which are readily available in the market and are given in Special Conditions. It is mandatory for the Contractor that ISI certified marked items/articles as listed therein shall only be incorporated in the work. Names of manufactures / suppliers of certain items/materials are given in Appendix-'E' to these Particular Specifications. The Contractor is advised to check availability / lead time of procurement from these suppliers before quoting.

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

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

PARTICULAR SPECIFICATIONS

5.7 The Contractor and executives will ensure that the materials incorporated in the work are identical with the approved samples.

6 TESTING OF MATERIALS

6.1 All the materials to be incorporated in the work shall be subject to quality control tests as per the testing procedure and frequency as laid down in relevant IS and or as specified in the tender.

6.2 Irrespective of whatever is indicated elsewhere in the tender documents the modalities of testing arrangements shall be as given here in after,

6.3 Setting up of a site laboratory fully equipped to the satisfaction of GE to carryout the `A` type tests as given in Appendix `D` to these specifications is optional for the contractor. The laboratory after getting permission from GE shall be set up in all respects before any activity requiring tests as indicated above is physically commenced. Contractor shall employ a competent person technically qualified as approved by the GE to carryout the testing activities. All the tests shall be carried out in the presence of Engineer -in-Charge and records shall be jointly signed with the contractor.

6.4 Entire cost of laboratory and its functioning including cost of samples will be borne by the contractor in all respects and no separate recovery for testing charges shall be effected for tests/retest carried out at site laboratory. In the opinion of GE /whose decision in this regard shall be final and binding, if any of the tests as given in Appendix (D) to these specifications cannot be satisfactorily carried out in the site laboratory at any stage due to any reason, the same shall be got done in Zonal lab / Govt. approved lab/Engineering college as approved by GE in respect of which all expenditure there of shall be borne by the contractor.

6.5 Any tests marked as type `A`, `B` or `C` in Appendix `D`, if got done at Zonal lab / SEMT wing Pune, testing charges as indicated against them will be recovered from the contractor. In addition to this, the contractor shall arrange for samples and its handing/transportation to the concerned labs at his own cost.

6.6 The tests marked as type `B` and `C` will not be carried out in the site laboratory. These tests shall be carried out only in zonal lab / SEMT wing / Govt. approved lab/National test House / Engineering College as approved by the GE. Incase type `B` and `C` testing is done in zonal lab / SEMT wing, the testing charges recoveries shall be as indicated in the Appendix `D` to these PS against each test. However, if testing is done in other places as given above, the actual cost will be directly borne by the contractor.

6.7 The list of tests given in Appendix `D` to these particular specifications contains only a few common tests. However all other tests required in the work but not covered in the appendix shall also be got done in Govt. approved lab/Engineering College/National Test House as approved by GE and entire cost of sample, handling, transportation and actual testing charges will be borne by the contractor directly.

7.0 EXCAVATION AND EARTH WORK

7.1 **PREPARATORY WORK**: Before setting out the excavation work, the contractor shall carryout the preparatory work, such as removal of grass, vegetation etc. trimming/surface dressing of the area as per clause 3.6 and 3.10 of MES schedule and to the entire satisfaction of Engineer-in-charge. The cost of preparatory work as necessary shall be deemed to be included in the excavation rate.

7.2 **Excavation**: Generally all excavation (except rough excavation) shall be dug to the exact dimensions and profiles as directed by Engineer-in-Charge.

7.3 Disused foundations, drains or other obstructions met with during excavation shall be grubbed up and cleared away to the extent required.

PARTICULAR SPECIFICATIONS

- 7.4 During excavation the contractor shall take particular care to avoid damage to existing drains, water mains, cables or other underground work. Where required, existing pipes, cables etc, shall be properly slung or otherwise supported.
- 7.5 Top spit and other vegetable matter shall be separated from excavated material, if so directed.
- 7.6 If during excavation the contractor encounters, expansive soil or other bad ground, he all immediately notify it to EIC for his instructions in writing.
- 7.7 In firm soil the sides of excavation shall be kept vertical up to a depth of 1.5m from the bottom. For greater depth excavation profile may be widened or the sides sloped or shored up, depending upon the nature of soil. As ordered by the GE in writing. It shall be the responsibility of the contractor to take complete instructions from GE, in regarding the extent and manner of stepping, sloping or shoring and timbering to be done for excavations, where necessary.
- 7.8 Excavation shall be done from top to the bottom. Undermining and underpinning shall not be allowed.
- 7.9 The bed of excavation shall be formed to the required level, slope or grade shall be made firm by watering and ramming. The side of excavation shall be dressed or trimmed. Soft defective spots shall be dug out and filled with concrete of the same mix as that of the base concrete or approved dry filling as directed by the EIC.
- 7.10 Quoted cost of excavation and earthwork shall be deemed to include for bailing, pumping, dewatering from foundation trenches if water is met with or accumulated from any source or cause or working in water or liquid mud. No additional payment as stipulated in clause 3.11 of MES Schedule Part-II will be admissible . In the event of deviations, no adjustment shall be for cost of bailing, pumping and dewatering specified hereinbefore.
- 7.11 **HARD CORE.** Hard core shall be hand crushed or broken trap / basalt / granite stones of gauge not exceeding 63mm or all as specified in Schedule or BOQ and as directed by Engineer-in-charge well graded to provide dense and compact sub grade all as specified in Para 2.27.1 and 3.27.6 of MES Schedule Part I. The crushed or broken stones shall be brought from the source(s) approved by GE.
- 7.12 **FILLING IN TRENCHES**

The approved earth from excavation in foundations shall be used for filling in trenches, under floors and any other situation after removing big stones, grass, roots and vegetables and other organic matter. Earth mixed with small stones/pebbles (if approved by GE) is permitted for use in filling around pipes after the pipes are laid and tested. Any additional earth required for the purpose of filling shall be arranged by Contractor at no extra cost to the Department from outside the Defence Land.

PARTICULAR SPECIFICATIONS**8.0 CONCRETE WORK**

8.1 **CEMENT**. 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, SSR, IS Specifications as amended and as specified in Appendix-'A' to Particular Specifications given hereinafter.

8.2 **FINE AGGREGATE** – Fine aggregate for concrete works shall be natural sand/crushed stone sand/crushed gravel. Sand or combination thereof conforming to IS-383 and grading within the limits of Grading Zones II to III all as specified in Clause 4.4 of MES Schedule.

The sand shall be Hard, dense, strong, durable, clear and free from veins and adherent coatings and free from injurious number of disintegrated pieces, alkali, vegetable matters and other deleterious substances. As far as possible flaky, scoriaceous and elongated pieces should be avoided.

8.3 Natural river sand / crushed stone shall be obtained from the sources as approved by GE

8.4 **COURSE AGGREGATE** – Coarse aggregate for all cement concrete work shall be graded broken/crushed trap stone conforming to Clause 4.4 of MES Schedule. Mixture of two type shall not be used

8.5 **WATER** - Water shall conform to the requirement stipulated in IS-456 and as per Clause 4.9 of MES Schedule.

8.6 **STRENGTH OF CONCRETE**- Sample and testing of concrete shall be carried out as per clause 4.11.17.1, 4.11.17.2, 4.11.17.4 and 4.11.17.5 of SSR Part-I.

8.7 **MIXING OF CONCRETE** – Mixing of concrete shall be carried out as specified in Clause 4.11.5 and 4.11.5.1 of MES Schedule Part-I.

8.8 **CURING** – Curing to concrete surface shall be carried out all as specified in clause 4.11.13 of SSR Part -I

9 READY MIX CONCRETE GRADE M-30

(a) The contractor shall procure concrete from RMC manufacturer as listed hereinafter. RMC plant if specifically set up from one of the listed manufacturer shall conform to IS 4926:2003.

(b) Ready Mix Concrete shall be used in all RCC works except in works where small quantity of RCC is required to be provided after approval of GE in writing.

(c) Mix of the two types i.e. RMC and concrete in situ shall not be permitted for the same element of structure

(d) Ready mix concrete shall be procured from the manufacturer(s) listed below. The concrete procured from Ready Mix concrete Plants shall meet the requirements at the time of placing. Cost of admixture required for retardation of setting time and plasticizers for increasing workability and cost of transportation etc. shall be deemed to be included in the lump sum cost quoted by the tenderer.

PARTICULAR SPECIFICATIONS

(e) List of RMC manufacturer(s) is given below :-

- (i) Lafarge & Associates (RMC Division of L & T cement)
- (ii) RMC, Ready Mix (India) Pvt. Ltd
- (iii) ACC Ready Mix concrete
- (iv) M/s Ultra Tech cement Ltd.
- (v) M/s Godrej & Boyce Manufacturing Co Ltd.
- (vi) M/s Relcon Infra Project Ltd.
- (vii) M/s Ashok Buildcon Ltd.
- (viii) M/s. Radiant Infrastructure, Thane
- (ix) M/s. Concrettech India, Thane
- (x) M/s. Manoj Infrastructure, Thane
- (xi) M/s Rapid Infra Plant, Near Ghatkopar.

(f) The minimum cement content for RMC M-30 (Design Mix) shall be as per IS-456-2000

(g) In the event of deviation involving price adjustment, though the contractor have used RMC, the rate applicable for RMC M-30 shall be of SSR rate for RCC M-30 design mix concrete adjusted with contractor's quoted percentage

(h) When required, the RMC plant selected by the contractor shall provide information about the ingredient in making RMC including admixture, used for RMC to GE. Plasticizers for improving workability of concrete and admixture for extension of setting time shall be conforming to IS 6925 and IS 9103.

(j) Contractor will ensure that the RMC manufacturer ensure quality control and carry out material testing as per frequency listed in Annexure `B` of IS 4926:2003. The testing will be done in presence of rep of GE at RMC plant.

(k) The Contractor shall get the design mix from approved RMC manufacturer/ Institution/IIT Mumbai/SEMT Wing Pune/Govt approved lab and shall produce the design for approval of GE. The mix design be carried out on the basis of laboratory trial mixes using approved materials and methods as per IS: 10262 (Recommended guide lines for Mix design) or on the basis of any other method in consultation with Garrison Engineer. The aggregate cement ratio and water ratio once decided based on Trial mix design shall not be changed without approval of the GE. Any change in sources of coarse and fine aggregate and cement shall be informed to the GE and accordingly a fresh mix design is to be submitted for approval.

(l) The contractor shall submit the following to GE and obtain approval:

- i) The name of the suppliers from whom raw materials are to be procured.
- ii) Technical details of RMC plant.
- iii) Location of RMC and details of transportation of concrete by transit mixers.
- iv) Brief details of projects where RMC have been used from the proposed manufacturer.

(m) Admixtures shall be charged to the mixer at the same time in the mixing sequence for every batch. Liquid admixtures shall be charged with the water. Powdered admixture shall be sprinkled into the mixer with other dry ingredients. When more than one admixture is used, they shall be batched separately and they shall not be premixed before entering the mixer.

(n) Mixer performance checks shall be made at regular intervals to ensure uniformity of the concrete. Visual examination of the concrete shall be one of the aid for maintaining and checking mixer performance.

(o) The contractor is responsible for the quality of ready mix concrete manufactured at plant site with respect to the strength, cement content and use of constituent materials as per approved design mix.

PARTICULAR SPECIFICATIONS

(p) The agreement between the RMC manufacturer and the contractor shall ensure deployment of a qualified supervisor at plant site and random check by MES supervisor/executives

(q) Placing and compaction of concrete:-

(i) Concrete shall be transported using transit mixers/tippers without delay and incorporated in works at the position of laying within 30 minutes from the time of discharge from the mixer. Concrete shall be deposited and spread to such depths that when compacted and finished, it shall conform to the grade and cross section required and to ensure the thickness required.

(ii) Concrete shall be deposited in such a manner as to require as little handling as possible. In case of dry and hot weather, this time shall not exceed 45 minutes.

(r) In case the contractor desires, he can set up his own RMC plant conforming to all stipulations of IS 4926:2003 after obtaining prior written approval of GE without any price adjustment.

10 INTEGRAL WATER PROOFING COMPOUND

(a) Integral Water proofing compound wherever specified in Schedule A shall conform to IS-2645, ISI marked & shall be in powder form or liquid form. Mixing shall be done strictly as per manufacturer's instructions.

(b) The percentage of integral water proofing compound to be used in the work shall be as per the manufacturer's instructions, but in case of deviation the same shall be 3% (by weight of cement) as specified by Engineer-in-Charge.

11 FORM WORK

11.1 Form work shall comply with requirement of clause 4.11.6 of MES Schedule

11.2 Form work shall be of marine plywood or steel of adequate strength at the option of the Contractor. However deformed steel sheet shall not be used or permitted for use as formwork

11.3 STRIPPING TIME FOR FORM WORK

The Contractor's attention is invited to the stipulation in clause 4.11.6.3 of MES Schedule Part-I 2009, regarding stripping of form work. The periods stipulated therein are for concrete using ordinary Portland cement.

11.4 LEAVING / FORMING HOLES AND CHASES

The Contractor as the work proceeds should Leave/form holes/chases in concrete/masonry and RCC where and as directed by the Engineer-in-Charge and make good in cement and sand mortar (1:3) when ordered to do so.

12 PCC BLOCK MASONRY

12.1 All masonry work where specified in BOQ shall be with the precast PCC solid block of grade (C-5) having block density of not less than 1800 Kg/Cum. The concrete shall be mixed as laid down in IS-2185 (Part-I).

12.2 AGGREGATES

(a) Coarse aggregate shall be crushed or natural aggregate 20mm and below size, conforming to IS-383.

(b) Fine aggregates (Sand/Crushed rock fines) shall be free from dust and well graded having fineness modulus 3.5 to 4 of combined aggregate conforming to IS-383.

PARTICULAR SPECIFICATIONS

12.3 The size of blocks shall be one of the following:-

Size designation	Nominal Length CM	Breadth CM	Height CM	Actual Length CM	Breadth CM	Height CM
A	40	30	20	39	30	19
B	40	20	20	39	20	19
C	40	10	20	39	10	19
D	20	20	20			
E	20	20	10			

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

12.4 **MANUFACTURE OF BLOCKS**

- (a) The blocks shall be machined made. The process of concrete mixing, fabricating/ casting of blocks, curing and drying shall be in accordance with IS-2185 and all as specified and in MES Schedule.
- (b) Faces of the blocks shall be flat and rectangular.

12.5 **PHYSICAL REQUIREMENT**

- (a) General
All blocks shall be sound and free of cracks or other defects which interfere with proper placing of the block or impair the strength or performance of the construction. Minor chopping resulting from the customary methods of handling during delivery shall not be deemed ground for rejection.
- (b) Tolerance
The maximum variation in the dimension shall be not more than ± 3.0 mm in height and breadth and ± 5 mm for length.
- (c) Block density
The block density shall be as per IS-2185, (Part-I ,2005) for solid PCC block. It will not be less than 1800 Kg/Cum.
- (d) Compressive Strength
The average compressive strength of eight blocks when determined in the manner described in IS-2185 shall not less than 5.0 N/Sq mm of the gross area. The strength of lowest individual block shall not less than 80 percent of the average compressive strength of eight (8) blocks.
- (e) Water absorption
The water absorption shall be as per IS-2185.
- (f) Drying shrinkage
The drying shrinkage on the blocks shall be as pr IS-2185.
- (g) Moisture movement
The moisture movement shall be as per IS-2185.

12.6 TESTS

Tests as described in ANNEX 'B' to 'G' of IS-2185 shall be conducted on samples of blocks selected according to the sampling procedure as per Para 11 of IS-2185 to ensure conformity with the physical requirement laid in IS-2185.

12.7 SAMPLING & CRITERIAL FOR CONFORMITY

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

12.8 (a) Mortar for walling

20cm thick PCC solid block shall be in cement mortar 1:4 and 10cm thick PCC solid Block walling shall be built in cement mortar 1:4.

(b) Laying

The blocks shall be slightly wetted before and / or during laying in the wall. The blocks shall be laid with joints complete filled without any void left in the masonry. The thickness of the horizontal and vertical joints shall not exceed 1cm. The ½, 1/3 and 2/3, block shall be used for breaking the joints, The face joints shall be raked to a depth of 1cm by raking tool during the progress of the work when the mortar is still green, so as to provide proper key for plaster or to facilitate pointing to be done later. Where plaster or pointing is not required, the joints shall be struck flush and finished side by side.

(c) Curing of walling

Masonry work shall be kept constantly moist on all the faces for a minimum period of 7 days.

(d) Scaffolding for walling

Only double scaffolding shall be used. The scaffolding shall be strong and sound. No holes in the masonry for supporting scaffolding shall be allowed.

13.0 BRICK WORK

Brick shall be kiln burnt sub class 'B' locally available best quality, conforming to the samples kept in GE's office. The bricks shall have average compressive strength of 35 Kg/Sq. cm of not less than 50kg/Sqcm. Water absorption of bricks shall not exceed 20% when tested in accordance to IS -3495. Sampling and testing of bricks shall be carried out as per IS-5454 and IS -3495. The size of the bricks shall be 230 x 115 x 75mm. The tolerance in size of bricks shall be + 8%.

13.1 CURING OR WATERING. Masonry work shall be kept constantly moist for a minimum period of 7 days.

13.2 CEMENT. Cement shall be as given in Appendix "A".

13.3 SAND. Sand shall be as specified in clauses 5.4 and 5.4.1 of SSR 2009 Part-I.

13.4 The grading of sand for masonry work shall be as under: -

IS Sieve Designation	Percentage Passing
10 mm	100
4.75 mm	95 to 100
2.36 mm	95 to 100
1.18 mm	90 to 100
600 micron	80 to 100
300 micron	20 to 65
150 micron	0 to 50

PARTICULAR SPECIFICATIONS

- 13.5 **LEAVING/FORMING HOLES AND CHASES:** The Contractor as the work proceeds should Leave/form holes/chases in concrete/masonry and RCC where and as directed by the Engr-in-Charge & make good in cement and sand mortar (1:3) when ordered to do so.
- 13.6 **Curing of walling**
Masonry work shall be kept constantly moist on all the faces for a minimum period of 7 days.
- 13.7 **Scaffolding for walling**
Only double scaffolding shall be used. The scaffolding shall be strong and sound. No holes in the masonry for supporting scaffolding shall be allowed.
- 14 **STONE MASONRY**
Stone for stone masonry work shall be of approved quality and from approved quarry confirming to or superior to the sample kept in GE's Office. Please refer to clause 6.2, 6.7, 6.8 and 6.10 of MES Schedule Part-I for requirements of stone and stone masonry to be used in the work.
- 14.1 All surfaces of stone masonry shall be hammer dressed with bushes from general wall face not more than 40mm as specified in clause 6.9 of SSR Part-I.
- 14.2 In case of deviation, rates for relevant items of stone masonry given in MES schedule subject to contractor's percentage shall be applied irrespective of actual provision at site (with regards to bond stone).
- 14.3 **HAMMER DRESSING:** Stone masonry shall have hammer dressed face work to face of stones and dressing of face, heads and joints. Face depression shall not exceed 40mm all as specified in MES Schedule.
- 15 **STEEL AND IRON WORK**
- 15.1 All steel required for the work under the contract shall be procured, supplied and in the work by the Contractor under his own agreement.
- 15.2 **GRADES & QUALITY** Steel supplied by the Contractor shall conform to the following grades and quality:-
- (a) **STEEL FOR CONCRETE REINFORCEMENT AT LOCATIONS AS DETAILED**
- (i) TMT steel of Fe-500D grade manufactured by SAIL, TISCO, RINL and any other primary producer as approved upto closing date of bid by E-in-C's Branch conforming to IS-1786 shall be incorporated. If bars of Fe-500D grade are not available due to manufacturing status next higher grade may be used without revising the design and without any price adjustment.
- (ii) Where indicated as HIGH YIELD STRENGTH DEFORMED BARS, it shall be high strength deformed steel bars conforming to IS-1786-1985 (Reaffirmed 1990) & grade Fe-500D.
- (b) **STRUCTURAL STEEL**
- (i) Structural steel standard quality shall conform to IS-2062-2006 and grade E 250 (Fe 410W (quality B). This type of steel shall be provided in the locations mentioned in clause 10.4.1 of MES Schedule Part I.
- (c) **HARD DRAWN STEEL WIRE FABRIC FOR CONCRETE REINFORCEMENT**
Fabric reinforcement shall conform to IS-1556, 1982.

PARTICULAR SPECIFICATIONS

Note: Any items of steel specified in clause 12.2 (a) to (c) above not conforming in grade and quality shall be rejected and the rejected steel items under the particular consignment shall be removed from the site by the Contractor at his own cost within 7 (seven) days. The Contractor will have no claim whatsoever on this account.

15.3 SOURCE OF PROCUREMENT

(a) **Structural Steel**. The contractor shall procure structural steel from any of the following main producer:-

Sl No	Firm Name, Brand & Address	Size / Dia and Type
(i)	Rashtriya Ispat Nigam Limited, Brand: RINL	(Structural Steel) Angle, beam, column, channel, plates etc
(ii)	Tata Iron & Steel Company (TISCO or Tata Steel), Brand: TATA	-do-
(iii)	Steel Authority of India Limited (SAIL), Brand: SAIL	-do-
(iv)	M/s Jindal Steel & Power Ltd, Brand: Jindal	-do-

In case of non availability of structural steel from all main producers and primary producers mentioned above, the same can be procured from secondary producers as approved by E-in-C's Branch upto closing date of bid with necessary **minus price adjustment @ 5%** of the accepted rate of structural steel. In case the desired section of structural steel is not rolled/manufactured by main/primary producers, there shall be no price adjustment in use of structural steel procured from approved secondary producers.

(i) Non structural steel ordinary quality shall be used in frames of doors and windows, guard bars, grill gates and like and shall conform to IS-2062-2006, Grade E- 165 (Fe-290). This type of steel shall be provided as per respective item of Schedule 'A'.

(ii) Non structural steel as for guard bars, hold fast railing gates etc may be procured from main producers/secondary producers or their authorized dealers at the option of contractor without any minus price adjustment. Test will not be insisted upon for such steel sections

(b) TMT Steel

Steel required for the work shall be procured by the Contractor from the primary manufacturers as listed hereinafter (or) any other manufacturer approved by E-in-C's Branch, New Delhi even after issue/ submission of bid:-.

Sl No	Firm Name, Brand & Address	Size / Dia and Type
(i)	Rashtriya Ispat Nigam Limited, Brand: RINL	For all types & dia of TMT CRS bars
(ii)	Tata Iron & Steel Company (TISCO, or Tata Steel) , Brand: "TATA"	For all types & dia of TMT CRS bars
(iii)	Steel Authority of India Limited, Brand: SAIL	For all types & dia of TMT CRS bars
(iv)	M/s Gallantt Ispat Ltd, Gujarat Brand: "GALLANTTMMX"	TMT Bars of Gde Fe 500, Fe500D & CRS (Size 8- 32mm)

PARTICULAR SPECIFICATIONS

SI No	Firm Name, Brand & Address	Size / Dia and Type
(v)	M/s Rashmi Metaliks Limited, W.B Brand: "RASHMI TMT"	TMT Bars of Gde Fe 500, (Size 8-32mm) Fe 500D & Fe 550D, (Size 8-25mm), Fe 500DCRS (Size 8 to 20mm) & Fe 550DCRS (Size 25mm to 32mm)
(vi)	M/s Bajrang Power & Ispat Ltd, Brand - GOEL TMT TMT	TMT Bars of Gde Fe 500 & Fe-500D & Fe 550D (Size 8-32mm) Fe-500D CRS (Size 10-25mm)
(vii)	M/s Real Ispat & Power Limited Brand – GK TMT	TMT Bars of Gde Fe 500D
(viii)	M/s Steel Exchange India Ltd., Brand: "SIMHADRI TMT"	TMT Bars of Gde Fe500D & Fe 500D HSCRM
(ix)	M/s Super Smelters Limited Brand – SUPER SHAKTI	TMT Bars of Gde Fe 500D & Fe 550 (Size 8-32mm)
(x)	M/s Shyam Steel Industries Ltd, Brand: SHYAM	TMT Bars of Gde Fe500D & CRS
(xi)	M/s Jai Balaji Industries Ltd., Brand: "Balaji Shakti"	TMT Bars of Gde Fe 500D & Fe500D CRS (Size 8-32mm)
(xii)	M/s MSP Steel & Power Limited Chhattisgarh Brand: MSP TMT 500D	TMT Bars of Gde Fe 500D (Size 8-32mm)
(xiii)	M/s SPS Steel Rolling Mills Ltd, Brand – ELEGANT TMT	TMT Bars of Gde Fe 500D
(xiv)	M/s Sugna Metals Limited, Hyderabad Brand: SUGNA TMT	TMT bars of Gde Fe 550D with (Sizes 800 to 32mm)
(xv)	M/s Shyam Metalics & Energy Ltd Brand: SEL TIGER	TMT Bars of Gde Fe 500, Fe 500D (Size 8-32mm)
(xvi)	M/s Jindal Steel and Power Ltd, Haryana Brand: JINDAL PANTHAR	TMT bars of Gde Fe 500, Fe 500D, Fe 550, Fe 550D & CRS with (Sizes 8mm to 40mm)

The steel shall conform to the requirements as stated in clause 12.2 above. The documents in support of the purchase of steel shall be verified by the site staff and the GE. The particulars of the manufacturer/supplier of steel shall be obtained from the Contractor for every lot of steel separately. The form given at Appendix-'C', shall be used for the purpose.

(c) The Contractor shall place their demand/requisition of steel with adequate lead-time. The steel shall be purchased from the storage depots of the main producers and not from their authorized agents/dealers as the authorized agents/dealers deal with the steel manufactured by more than one manufacturer. The authorized conversion agents/dealers of the main producers can supply the steel to the Contractor provided the main producers have given such directions in a specific sale/purchase order and they are producing TMT steel using Thermex / Tempcore/ Evcon Turbo technology. It is therefore necessary and mandatory to be ensured by the GE that steel is not purchased by the Contractor directly from the "Authorized Conversion Agent" or from the "Authorized Dealer/Agent" of the Main producers.

(d) However, non structural steel as for hold fast, railing etc where total requirement under the contract is less than 5.0 tonnes may be procured locally after obtaining permission of the GE in writing.

(e) The Contractor shall submit original vouchers from the manufacturer for the total quantity of steel 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 before acceptance. The original test certificates and vouchers shall be defaced by the Engineer-in-Charge and kept on the record in the office of the GE duly authenticated and with cross reference to the control number recorded in the Steel Acceptance Register.

PARTICULAR SPECIFICATIONS

The Steel Acceptance Register, as given at Appendix 'C' shall be signed by the JE, Engineer-in-Charge, the GE and the Contractor. The Accepting Officer may order a Board of Officers for random check of steel and verification of connected document. The entire quantity of all steel items 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.

15.4

MINIMUM FREQUENCY OF TESTING FOR EACH SOURCE & EACH CONSIGNMENT**Steel for concrete reinforcement**

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

Structural Steel

(i)	Tensile Test	One Test for every 25tonnes of steel or Part thereof
(ii)	Bend Test	One Test for every 10tonnes of steel or part thereof

(a) For high strength deformed bars tensile, bend test & re-bend test shall be done as per IS-1786 of 1975. For MS bars tensile & bend test shall be carried out as per IS-432 of 1982.

(b) Testing by the GE as per above frequency is mandatory before payment is released to the Contractor or steel is incorporated in the work. However, tests will not be insisted upon for the steel required for guard bars, holdfasts, grills and such other allied items. Any items of steel, not meeting the requirements, shall be rejected and the particular consignment removed from the site by the Contractor, at his own cost. The Contractor will have no claim on this account. The cost of tests and test samples as per above frequency shall be borne by the Contractor.

(c) Cost of transportation of samples to the approved laboratory/test house and all testing charges shall be borne by the Contractor.

15.5

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

15.6

Preservation and Maintenance of Steel The steel brought by the Contractor shall be preserved to ensure that no rusting takes place till it is incorporated in the works.

15.7

Schedule of Supply The Contractor shall procure the steel sections, timely as required in accordance with CPM chart, agreed between the GE and the Contractor. The Contractor shall have no right to demand extension of time if the supply of steel got delayed due to his failure in placing order in time to the manufacturers / authorised suppliers. In case of non-availability of steel from the main manufacturers listed above, non-availability certificate duly signed by their authorised representative shall be submitted by the Contractor.

Payment Receiving payment of steel shall be governed by in accordance with condition 64 of IAFW-2249. Payment shall be allowed after production of test certificate & original paid/purchase vouchers by the Contractor.

15.8

PARTICULAR SPECIFICATIONS

15.9 **Measurement** The entire quantity of steel brought to the site shall be recorded in measurement book 'Not to be Abstracted' indicating the reference to manufacturer, source of supply, voucher No. & test certificate before incorporation in the work & shall be signed both by the Engineer-in-Charge and the Contractor. Proper documentations/records shall be maintained as per the instructions on the subject.

15.10 **Weight Conversion** Weight of steel supplied by the Contractor shall be calculated at unit weights given in Appendix-'A' of MES Schedule 2020 Part-II. For section not listed in MES Schedule, the ISI conversion table shall be followed or manufacturers certificate if the weights are not available in MES Schedule/ISI tables.

15.11 Normal waste and cut offs shall be stacked neatly which shall be the property of the Contractor. The Contractor shall be allowed to remove such cut pieces after inspection & certification by the Engineer-in-Charge.

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

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

15.14 Hooks shall be provided only for mild steel bars. In case of cold twisted / deformed /TMT steel bars ends shall be bent instead of hooks.

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

15.16 **FIELD TEST ON RING FORMATION USING NITRIC ACID AND METHANOL FOR DIFFERENTIATING TMT FROM TOR STEEL**

(a) A field test of ring formation using Nitric acid and Methanol shall be carried out to differentiate TMT from TOR steel. The test shall be conducted in the presence of the Engineer-in Charge/ MES rep and the Contractor / his authorized representative and the test results shall be recorded and duly signed by the Engineer-in Charge and the Contractor and countersigned by the GE.

(b) The test shall be carried out as mentioned below:

(i) Solution of Nitric acid and Methanol is prepared by using 2% of Nitric acid and 98% of Methanol

(ii) Steel rod to be checked is cut into small pieces of 200mm length and cross section is smoothened by sand paper.

(iii) Rod is kept in contact with above solution for 24hours.

(iv) Annular ring is visible on cross section in case of TMT. If the ring is not visible, then steel is not TMT steel.

15.17 **STEEL SUPPLY / ACCEPTANCE FORM.** For each consignment of steel supply/acceptance form (Refer Appendix 'C') will be filled in & jointly signed by the Department representative (Engineer-in-charge/JE (Civil)) and the Contractor and accepted/rejected by the GE before incorporation in the works. (Note: Steel supply/acceptance form shall be issued by the GE)

PARTICULAR SPECIFICATIONS

15.18 **WELDING.** Welding wherever shown on drawings shall be by metal arc process in accordance with IS-816-1969 and IS-9595-1996 all as specified in clause 10.15 of SSR Part-I (2009).

15.19 **HOLD FASTS/LUGS.** Flat iron hold fasts/lugs shall be provided by welding as and where shown on drawings, except those, to be provided to wooden chowkhats which shall be fixed with bolts/nuts as per details shown on drawings. Holes in wooden chowkhats shall be plugged with hard wood plugs.

16
16.1 **PLASTERING**
GENERAL

(a) Where plaster on concrete surfaces is shown to match the adjacent brick surfaces, the mix of plaster shall be as for the brick surfaces.

(b) All plastered surfaces shall be troweled to a smooth and even surface without using extra cement.

(c) Thickness of cement plaster mentioned hereinafter shall be finished thickness exclusive of dubbing. Dubbing may however be done in one operation with plaster.

(d) All corners, angles, junctions and edges shall be truly vertical or horizontal as the case may be and shall be carefully finished. Corners around jambs of openings and junctions of walls shall be rounded to minimum radius of 5mm. 12mm wide groove at the junction of walls and RCC slabs to the entire thickness of wall plaster shall be provided. Also trowel groove shall be provided at the junction of walls and RCC columns or any other dissimilar material e.g. wooden/steel chowkats etc.

(e) Particular attention of the Contractor is invited to take note of local practices and local availability of materials like bricks / stones, form work etc for any extra quantity of mortar required for rendering smooth, extra dubbing required, touching up properly and achieving smooth and even surfaces. This shall be deemed to have been included in the lump sum quoted for plaster work, as applicable.

16.2 **MATERIALS**

(a) Cement - Refer Appendix- 'B' to Particular Specifications attached hereafter

(b) Sand - Refer clause 14.5 of MES Schedule Part-I 2009

(c) Water - Refer clause 14.11 of MES Schedule Part-I 2009

16.3 **CEMENT PLASTER**

Cement plaster of cement and sand mortar or polymer modified ready mix cement based plaster shall be all as specified in the relevant items of BOQ.

16.4 **WALL CARE PUTTY.** The plastered surfaces where ordered shall be treated with wall care putty finish trowelled to an even and smooth finish. Wall care putty to be used for "Wall care putty Finish" shall be of make as mentioned in Appendix 'E'.

17
17.1 **FLOORING**
GENERAL

(a) Provisions contained in Clause 13.25, 13.32, 13.38 and 13.39 of MES Schedule are to be adopted for laying floors and pavements.

(b) Floors shall be laid to levels and as directed by the Engineer-in-Charge. Floor finish shall be extended over dwarf walls, doors and other openings.

PARTICULAR SPECIFICATIONS

(c) Sub floor may not be laid in panels. Topping layers of PCC floor and under and top layers of terrazzo cast in situ floors shall be laid in square or rectangular panels as directed by Engineer-in-Charge. Length of panel not exceeding 2.0m, to width ratio shall not exceed 1.5 times in rectangular panels.

17.2 CEMENT CONCRETE SUB FLOOR

Cement concrete sub floor (i.e. PCC sub-base laid below floor finish) in ground floor shall be as specified in Schedule.

17.3 CEMENT CONCRETE FLOORS

(a) PCC floors/wearing coat (laid over hard core/cement concrete sub floor / RCC slabs) as per Schedule 'A' shall be plain cement concrete.

(b) Cement concrete in floor/wearing coat shall be laid in alternate bays not exceeding four square meters. Aluminium dividing strip shall be provided (to form joint) in all cement concrete floors and wearing coat. The size of aluminium dividing strip shall be all as per Schedule 'A'. The glass dividing strips shall be inserted in the PCC floor/wearing coat while the concrete is still plastic and the strips shall be left in position.

(c) The surface of PCC floor/wearing coat shall be finished (with a steel trowel) to a even and smooth surface without using extra cement.

(d) Cement concrete flooring shall be carried out as specified in Clause 13.32 of MES Schedule Part-I.

17.4 CEMENT CONCRETE

17.4.1 The proportion of cement concrete shall all as mentioned in relevant items of Schedule 'A'

17.4.2 Cement concrete shall be prepared as specified in section 4 of SSR-2009 Part-I and clause 5 here in before and shall be laid as specified under clause 13.27 and 13.32 of SSR Part-I (2009).

17.4.3 Provisions contained in clause 13.25, 13.32, 13.38 and 13.39 of SSR-2009 Part-I schedule are to be adopted for laying floors and pavements.

17.4.4 Floors shall be laid to levels or to falls as directed by Engineer-in-Charge. Floor finish shall be extended over dwarf walls, doors and other openings.

17.5 **CERAMIC TILES IN FLOORS (NON SKID TYPE)**- Ceramic tiles in floor shall be non skid type in approved shade, colour and texture with matt finish Grade B II (a) confirming to IS No 13755 of superior quality with water absorption not more than 3 to 6 %. Exposed edges shall be with mitered joint. Pointing shall be done with white cement mixed with pigment to match the shade. The workmanship in all respects shall be as specified in Clause 13.40 of SSR Part I. Tiles surfaces shall be cleaned with dilute acid

17.6 **CERAMIC TILES IN DADO** – Glazed tiles in dado shall be in approved shade, colour and texture. Grade B II (b) confirming to IS No 13753 of superior quality with water absorption not more than 3 to 6 % . Exposed edges shall be with mitered joint. Pointing shall be done with white cement mixed with pigment to match the shade. The workmanship in all respects shall be as specified in Clause 13.40 of SSR Part I. Tiles surfaces shall be cleaned with dilute acid.

17.7 MACHINE CUT MACHINE POLISHED KOTA STONE FLOORING/SKIRTING ETC

(a) Kota stone tiles/slab shall have size as mentioned in schedule 'A' for flooring/skirting etc shall be of selected quality, hard, sound dense & homogeneous in texture, free from defects & conforming to clause 13.12 of SSR Part I. Thickness shall be as mentioned in schedule 'A'.

PARTICULAR SPECIFICATIONS

(b) Kota stone tiles/slabs shall be set, jointed & pointed in neat cement slurry with pigment to match the colour of tiles and laid over bedding layer over concrete sub-base/ RCC slab. Joints shall be thin & nearly indistinguishable.

(c) Polishing of Kota stone flooring shall be done to achieve mirror polish with using polishing machine and required grinding stones and in a manner and to the satisfaction of Garrison Engineer.

17.8 GREEN MARBLE STONE

These shall be machine cut/machine polished and all as specified in Schedule 'A' of best quality. The slabs shall be sound homogenous, free from works and free from any defects. These shall be procured in one piece of required sizes. Approval of the same shall be as per samples kept in GE office/as approved by GE.

17.9 Interlocking Tiles.

a) The paver block shall be of PCC of thickness as mentioned in Sch `A' reflective & inter locking type factory made as per sample kept in the office of the GE. The paver block shall be brought from the manufacturer mentioned hereinafter and as approved by GE.

(b) The compressive strength of paver block shall be 400 Kg/Sqcm and of colour & pattern as approved by the GE.

(c) The top layer of Paver blocks should not be less than 6 to 8mm thick and should have antiskid groove finish (vermicular finish). Paver block should have 1mm spacer to provide minimum gap between paver unit to allow joint filling sand to go in it and establish complete interlocking between blocks. Paver blocks should be lacquer coated to seal the micro porosity and give glossy finish.

(d) The paver block shall be laid dry over 25mm thick (compacted thickness) sand bedding. Joints shall be filled with sand as directed by the Engineer-in-Charge.

(e) The sand shall be free from clay and alkaline particles and conform to IS.

(f) The edges of the paver block shall be neatly trimmed to fit within kerbs along the peripheri of the paved area.

(g) The unit rates quoted shall be of inclusive of laying of paver block of different colour for making pattern all as directed by Engineer-in-Charge.

(h) Before incorporating the paver block in the work the paver block shall be got tested for compressive strength and record maintained signed by the contractor and Engineer-in Charge.

17.10 **CUDDAPAH STONE SLAB/TILES.** Cuddapah stone shall be fixed on shelves/ kitchen platform/ cills /jambes etc all as mentioned in schedule 'A' or as described in BOQ and described in SSR 2009 part-I. Every slab/tile shall be machine cut to required size and shape. The top surface of tile/slab before laying shall be machine polished.

18 PAINTING**18.1 WHITE WASHING / COLOUR WASH:-**

White wash /colour wash shall be carried out as specified in section 15 of MES Schedule Part-I Lime used for white washing and colour washing shall be freshly burnt fat lime (Class "C") or magnesium lime (Class "D" or "F") and white in colour conforming to IS 712- 1984.

PARTICULAR SPECIFICATIONS

18.2

WORKMANSHIP

a) Protective Measures. Surface of doors, windows, floors, articles of furniture etc. and such parts of the buildings not to be treated shall be protected from being splashed upon. Such surfaces shall be cleaned of splashes of white wash, colour wash without any extra cost to the Government. The contractor shall be responsible for any damage to the fittings, fixtures and furniture.

b) Scaffolding. Wherever scaffolding is necessary, it shall be erected on double supports tied together by horizontal pieces, over which scaffolding planks shall be fixed. No ballies, bamboos or planks shall rest against or touch the surface to be white washed. A properly secured and well-tied suspended platform (JHoola) may be used with prior permission of the Engineer-in-Charge. Where ladders are used, pieces of old gunny bags shall be tied at their tops and bottom to avoid damage or scratches to the walls and floors. For white washing the ceiling, proper stage scaffolding shall be erected.

c) Preparation of New Surfaces: - The surfaces shall be thoroughly cleaned of all dirt, dust, mortar drops, efflorescence, chalking, grease and other foreign materials prior to application of white wash.

d) Preparation of Old Surfaces: - On old surfaces already white washed or colour washed shall be, all loose particles and scales shall be scrapped off and holes in plaster as patches of less than 50 sq cm area shall be filled up with mortar of the same mix unless otherwise specified and directed by the Engineer-in-Charge. Where efflorescence is observed the deposits shall be brushed clean and washed. The surface shall be then be allowed to dry for at least 48 hours before white washing is done. Old surfaces spoiled by smoke soot shall be scrapped with steel wire brushes or steel scrapers. The surface shall then be broomed to remove all dust and dirt and shall be washed with clean water.

e) Preparation of White Wash. The white wash shall be prepared from fresh stone white lime. The lime shall be thoroughly slaked on the spot, mixed and stirred with sufficient water to make a thin cream. This shall be allowed to stand for a period of 24 hours and then shall be screened through a clean coarse cloth. Adhesive DDL of M/s Pidilite, SDL of M/s Chemisol (quantity 5 % of lime) shall be added to the cream. Other adhesive like Fevicol, Gum (40gm in quantity) dissolved in hot water with prior approval of the Engineer-in-Charge may be used for each 10 cubic decimeter of the cream The approximate quantity of water to be added in making the cream will be 5 litre of water to one kg of lime. Indigo (Neel), ultramine blue upto 3 gm per kg of lime dissolved in water shall then be added and stirred well in last two coats of white wash. Water shall then be added at the rate of about 5 litres per kg of lime to produce a milky solution.

f) Preparation of Colour Wash. Colour wash shall be prepared as mentioned above without using indigo (Neel), ultramine blue etc. Pidotint colour concentrate of M/s Pidilite in approved shade by the Engineer-in-Charge shall be added to white wash as prepared while stirring well as per manufacturer's instructions.

g) Application of White Wash.

The white wash shall be applied with "MOONJ" brushes to the specified number of coats. The operation for each coat shall consist of a stroke of the brush given from the top downwards, another from the bottom upwards over the first stroke, and similarly one stroke horizontally from the right and another from the left before it dries. Each coat shall be allowed to dry before the next coat is applied. No portion of the surface shall be left out initially to be patched up later on. The brush shall be dipped in white wash, pressed lightly against the wall of container and then applied by lightly pressing against the surface with full swing of hand. Each coat shall be allowed to dry before the next coat is applied. Further each coat shall be inspected and approved by the Engineer-in-charge before the subsequent coat is applied.

PARTICULAR SPECIFICATIONS

White washing on ceiling should be done prior to that on walls. For new works, three or more coats shall be applied till the surface presents a smooth and uniform finish through which the plaster does not show. The finished dry surface shall not show any signs of cracking and peeling nor shall it come off readily on the hand when rubbed. For old work, after the surface has been prepared, a coat of white wash shall be applied over the patches and repairs. Then a single coat or two or more coats of white wash as stipulated in the description of the item shall be applied over the entire surface. The white washed surface should present a uniform finish through which the plaster patches do not appear.

19 DISTEMPERING.

- 19.1 The contractor shall inform the GE within three weeks after the acceptance of tender about the brands/ Names of the manufacturer proposed to be used in the works and submit the samples thereof and obtain written approval of the GE before their use in the works.
- 19.2 The contractor shall when so required by the GE, produce certificate from the manufacturer or their representative to establish that the quality of distemper purchased by the contractor from them satisfy the requirement as laid down in the relevant Indian Standards.
- 19.3 Distemper for priming coat, under coat and finishing coat shall be of the same Make as approved by GE.
- 19.4 Tint of Distemper if not mentioned in Schedule "A" shall be approved by the GE.
- 19.5 Distempering shall be carried out as specified in clauses 15.6 and 15.14 of SSR- 2009Part-I.

20 ACRYLIC EMULSION ANTIFUNGAL PAINT (100% ANTIFUNGAL) APPLICATIONS

(a) Old fungus / Moss / Algae affected surface on new or old surfaces, remove fungus growth if any antifungal treatment or with the help of available fungicide bleaching powder solution all as per Manufacturer's instructions. The surfaces shall be cleaned by wire brushing and washed with water before application of primer or paint.

(b) Before application of primer for plastered surfaces, the surfaces shall be cleaned, made free of loose particles, dust, grease, chalk, fungus and mould. One coat of acrylic emulsion weather coat paint with water (1:1 by volume) as a self priming coat shall be applied as per manufacture's instructions and as directed by Engineer-in-Charge.

(c) The acrylic emulsion weather coat paint shall be applied by brush or roller. No stainer or colorants shall be used. The paint shall be stirred well before use. The primer coat shall not be left without application of top coats for a long period of time.

(d) **APPLICATION OF ACRYLIC EMULSION WEATHER COAT PAINT:-** Two coats of acrylic emulsion weather coat paint thinned with 400 ml water per lit of paint shall be applied. The drying period between two coats shall be minimum 4 hours or as per Manufacture's instructions. The shade shall be as approved by GE. Finish of acrylic emulsion weather paint shall be smooth matt finish or as approved by Engineer-in-charge.

(e) The paint shall be as per Manufacture's original colour as available no mix of tint shall be made into original shades.

(f) The weather coating Acrylic emulsion paint and the acrylic primer shall be same of 100% antifungal brand from any one of the make given in Appendix 'A' and shall be approved by GE prior to the application.

PARTICULAR SPECIFICATIONS**20.1 GUARANTEE**

(a) The contractor shall ensure that all the buildings painted with acrylic paint free from fungal infections, light patches, discolour, etc. during the guarantee period of 05 years and he shall be responsible to upkeep the entire surface for a period of 05 years from the certified date of completion of work. The Security Deposit @ 2.5% of the value of relevant items towards the guarantee for Acrylic Paint shall be retained from the RAR/final bill amount as security deposit toward the guarantee for the acrylic paint and it shall be released to the contractor only after the expiry of the guarantee period. The facility of furnishing fixed deposit receipt/ BGB in lieu of the sum to be retained as security, shall also be acceptable for exterior painting carried out at contract rates. This amount shall be released to the contractor after satisfactory expiry of five years guarantee period. The GE may accept BGB from schedule bank or a fixed deposit receipt (pledged in GE's favour) from any Nationalized Bank for the said guarantee amount for a period of five years, in which event no further amount will be recovered from the final bill/RAR on this account. The defects liability period under condition 46 of General conditions of contract (IAFW-2249) shall be deemed to be amended to the extent mentioned above for acrylic painting works.

(b) Necessary guarantee shall be obtained from the manufacturer applicator on non judicial stamp paper giving five years guarantee from the certified date of completion of contract to keep the building free from fading, peeling off paint during guarantee period. The guarantee does not however, absolve the contractor from his responsibility in respect of this specialized work as per contract conditions. The contractor shall be responsible to ensure that the buildings are kept free from fading or peeling off the acrylic paint during guarantee period.

20.2 STAGewise APPLICATION FOR ACRYLIC PAINT

Work for acrylic emulsion paint shall be carried out as per stage given below. Before starting the work for next stage prior approval of Engineer-in-Charge shall be obtained.

Stage I	:	Preparation of surface.
Stage II	:	Applying priming coat.
Stage III	:	Applying first coat of acrylic emulsion paint.
Stage IV	:	Applying second coat of acrylic emulsion paint.

21.0 SYNTHETIC ENAMEL PAINTING :-

(a) All synthetic enamel paint, emulsion paint shall be of 1st quality manufactured by the standard firms of make as specified.

(b) The contractor shall inform the GE, within three weeks of the acceptance of the tender, the brand/names of the manufacturers of paint proposed to be used in the works and submit samples thereof and obtain prior written approval of GE before their use in works.

(c) The contractor shall when so require by the GE, produce certificate from the manufacturer or their representative to establish that the brands of paints purchased by the contractor from them, satisfy the requirements of the relevant Indian Standards.

(d) Paints for priming coat, under coat and finishing coat shall be of the same manufacturer.

(e) Tin of paint will be approved by the GE.

(f) Painting to steel surfaces shall be carried out as per relevant item of BOQ and SSR Part I.

22 RAIN COAT PAINTING:- Rain coat shall be manufactured by Dr. Fixit or equivalent of M/s Buildcore chemicals/ M/s STP/ M/S Fosroc as approved by GE. The coat shall be applied on surfaces as per manufacturers instructions and as directed by Engineer-in-Charge

PARTICULAR SPECIFICATIONS

- 22.1 **GUARANTEE** : Contractor shall produce guarantee for 05 (Five) years from the date of completion of work for the efficiency of the treatment (painting) done by him. A sum equal to 2.5% of the completion cost of items for Rain Coat shall be retained from the final bill amount towards Guarantee for Rain Coat which will be released after satisfactory expiry of 05 (Five) years of Guarantee period. If contractor fails to rectify the defects and contractor shall have not claim whatsoever on this account. The contractor may submit Bank Guarantee Bond or Fixed Deposit Receipt from any Nationalized Bank pledged in favour of GE for the said sum valid for the period of 05 (Five) years, in which event no further amount will be recovered from the final bill on this account. Defects liability period of one year as laid down under condition 46 of IAFW-2249 is not applicable for leakage/seepage proof coating covered under this contract and shall deemed to be amended to the extent mentioned above.

23 LEAKAGE / SEEPAGE PROOF COATING

(i) The contractor shall carryout leakage/seepage proof coating to wall/terrace/roof/chajja portion all as specified in Sch 'A' & as per manufacturers instructions through their approved/authorized applicators to ensure the water tightness during the guarantee period of 5 years. Contractor shall be responsible to keep the entire surface water tight for a period of 5 years from certified date of completion of work. The Security Deposit @ 2.5% of the value of relevant items towards the guarantee for leakage/seepage proof coating shall be retained from the RAR/final bill amount. The amount shall be released to the contractor after the satisfactory completion of **FIVE YEARS** guarantee period. During the guarantee period if any leakage is found out same shall be got rectified by the contractor without any extra cost to the Government. In any case during the guarantee period the contractor who executed the works shall inspect and examine the treatment once in every year and make good any defects observed. Defects liability period of one year as laid down under condition 46 of IAFW-2249 is not applicable for leakage/seepage proof coating covered under this contract and shall deemed to be amended to the extent mentioned above. Garrison Engineer may accept Bank Guarantee Bond from Schedule Bank or fixed deposit receipt (pledged in favour of GE) from any approved Bank for the above said amount for a period of 5 years in which case no further amount will be recovered from the final bill on this account.

(ii) Tenderer shall submit 5 years guarantee certificate (as per proforma to be given by GE) to undertake and accept the responsibility to carryout all required rectifications at his own risk and cost. In case of contractor's failure to carryout the rectifications, the Govt shall be at liberty to get all such rectifications carried out at his risk and cost from security amount. Quoted rate against the relevant item of BOQ shall be deemed to include for the above aspects for leakage/seepage proof coating and no extra claim on whatever account will be entertained from the contractor.

24 SCAFFOLDING FOR PAINTING WORKS

- 24.1 The exterior painting works shall be carried out by using scaffolding. No jhoola is permitted for the work under any circumstances. Suitable protection shall be provided for workmen. The contractor shall be solely responsible for all the labours deployed for the work for identity/security. In case of any accident/injury fatal or partial disability, the contractor shall be solely responsible for settling all claims, compensation. Department shall have all rights to recover any sum indicated/claimed by labour commissioner/court directives. Engineer-in-charge will have to ensure that contractor has provided all adequate and required means for the workmen and contractor may get his personnel insured as per labour law.

- 24.2 Scaffolding or staging more than 3.5m above the ground or floor, swung or suspended from any overhead support or erected with stationery support shall have a guard rail properly attached, braced and otherwise secured at least 1m 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 opening 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.

PARTICULAR SPECIFICATIONS

- 24.3 Working platform, Gangways and stairways should be so constructed that they should not sag unduly or unequally, and if the height of the platform or the Gangway of the stairway is more than 3.5m above ground level they should be closely boarded, should have adequate width and should be suitably fenced, as described herein before.
- 24.4 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 1m.
- 24.5 Safe means of access shall be provided to all working platforms and other working places. The rates quoted are deemed to included the above provision of scaffolding and no extra will be payable to contractor on this account. The scaffolding shall be removed only after obtaining clearance of Engineer-in-Charge/Garrison Engineer after considering the quality of the work undertaken.

25 WOOD WORK

- 25.1 **TIMBER.** Timber for all wood and joinery shall be as specified in schedule 'A' and conforming to the samples kept in the office of GE. Maximum permissible Moisture content in timber for various purposes is stipulated in IS-287 and also refer clause 7.7 of page No. 7-2 of SSR-2009 Part I. Work under this contract falls under climatic Zone-II, wherever wood is indicated as first class hard wood, the same shall mean "Teak Wood". All other woodwork not specified elsewhere shall be 2nd class hardwood of species SAL/KALASIRIS/ HOLLOCK, and all as per clause No. 7.8 of SSR Part I.
- 25.2 **TOLERANCE.** Tolerance for wrought faces for carpenter's work / joinery shall be as given in SSR-2009 Part-I.
- 25.3 **SURFACE FINISHED.** Unless otherwise specified all exposed faces of woodwork and joinery shall be wrought finished. All wrought surfaces shall be made smooth with sand paper except surfaces in contact with masonry and similar situations.
- 25.4 **SCREWING.** Use of nails in joinery is prohibited. Planks/shelves fillet, moulding and the like shall be fixed with screws. The minimum length of screws etc and their internals shall be as specified in clause 7.21 on page No. 7-10 of SSR-2009 Part I. The screws shall be bright finish. The size and designation shall be as directed by Engineer-in-charge.
- 25.5 The species of timber for joinery items and other wooden items shall be given in relevant item of BOQ.

HOLD FAST / LUGS. Flat iron hold fast/lugs shall be provided by welding as directed by the Engineer-in-Charge except those, to be provided to wooden chowkats, which shall be fixed with bolts/nuts as per directed by the Engineer-in-Charge. Holes in wooden chowkats shall be plugged with hard wood plugs. Hold fasts/lugs shall be embedded in PCC (1:2:4) bed block of size 230 mm X 230 mm X 75 mm in one brick thick or equivalent walls and 115 mm X 230 mm X 75 mm in half thick or equivalent walls. Door/ windows frames coming in contact with RCC members shall be fixed with dash thru expansion fasteners of adequate size and approved Make.

- 25.6 **TARRING:** The backs of wooden chowkats in contact with brick work/plaster etc shall be given two coats of tar. Holdfasts shall be given two coats of tar and sanded.

25.7

JOINERY. Chowkats of all doors shall be as per relevant item of BOQ and as specified In SSR-2009 Part-I. The chowkats shall be prepared and fixed as specified in clause Nos. 8.18 & 8.19 on page No. 158 of SSR-2009.

PARTICULAR SPECIFICATIONS**26 SOLID PVC DOORS AND FRAMES FOR WC & BATH**

All door shutters and frames of WCs, Wash and toilets shall be of PVC as shown on drawing

(a) PVC doors and PVC frames for doors shall be solid core factory made conforming to the specifications given in SSR and shall be of Make: i) Rajshri Plasti wood Ltd. ii) Sintex Industries Pvt. Ltd. or equivalent as approved by GE.

(b) Solid PVC door frame of size 50mm x 47mm made out of 5 mm thick wood grains printed PVC sheet reinforced with MS square tube and edges and painted to match with printed sheet.

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

(d) Shutters shall be in depressed panel design and colors as approved by GE and shall be include extra reinforcement on edges. Shutter shall have recesses to take hinge to fix frame. The whole shutter shall have resistant to mild acid /alkali. Aluminium/iron mongery to PVC shutter shall be fixed as per manufacturer's instructions. Any tenderer offering PVC shutter with more thickness of PVC will not be paid anything extra Cost to dept.

(e) Testing of PVC doors and chowkhats shall be got carried out as per IS: 4020 form Govt. approved laboratory if decided by GE. Cost of testing, transportation of samples etc. to approved laboratory shall be borne by the contractor.

27 FACTORY MADE PANNELLED DOOR SHUTTERS

a) Factory made Panelled door shutters shall be conforming to IS-1003 (Part-I) Styles and rails shall be kiln seasoned and chemically treated (under vacuum pressure). Panel insert shall be 12mm thick particle board conforming to IS-3097 exterior grade (Grade I) solid core, general purpose commercial veneer on both sides. The thickness of shutter shall be as indicated in the respective Schedule 'A' item.

28 WINDOWS AND GLAZED/WIRE GAUZED SHUTTERS -

These shall be of second class hardwood as mentioned hereinabove. Wooden beads for fixing glass/wire gauze shall be fixed with brass panel pins. Size of wooden beads shall be as mentioned in relevant clause of MES Schedule.

29 ANODISED ALUMINIUM DOORS. WINDOWS. VENTILATORS. PARTITIONS. COMPOSITE UNITS ETC.

(a) Sizes and types of aluminium sections given in IS 1948-1961 are rarely available in market, therefore sections manufactured by reputed firms shall be used for fabrication as indicated.

Chemical and mechanical properties of sections shall comply with requirements given in IS 733-1983, Specification for wrought aluminium and aluminium alloys bars, rods and sections, IS 737-1986, Specification for wrought aluminium and aluminium alloys sheet and strip for general engineering purposes and IS 1285-2002, Specification for wrought aluminium and aluminium alloys extruded round tube and hollow sections for general engineering purposes.

(b) Aluminium sections and fittings shall be anodized and minimum average thickness of anodizing (coating of anodizing) on all aluminum section and fitting shall be 15 micron and shall conform to IS: 1868- 1996, Testing of anodizing coating shall be in accordance with IS:5523-1983

(c) Joining of sections, providing fittings, lugs, method of fixing etc shall be as per IS 1948-1961.

(d) Aluminium Doors, Windows, Ventilators, Partitions, Composite units etc. shall havematt, scratch-brush or polished finish as indicated.

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(e) Glazing:- Glass panes shall be as indicated. Unless otherwise indicated, fixing of glass panes shall be done with aluminium beading with CP brass or stainless-steel screws spaced not more than 10 cm from each corner and intermediate not more than 20 cm apart. When glass panes are fixed with aluminium beading having mitred joints, epoxy resin or silicon sealant shall be applied between glass panes and sash bars and also between glass panes and beading. Aluminium beading shall also be from firm of sections used for fabrication of aluminium Doors, Windows, Ventilators, Partitions, Composite units etc. Joints shall be filled with PVC/neoprene felt, cleats etc as indicated.

(f) Paneling:- Panels shall be of decorative plywood, prelaminated particle board, aluminium etc as indicated. The panels shall be cut to correct size with minimum 12mm portion being inserted in the frame and shall be fixed firmly with CP brass or stainless-steel screws. The joints between panels and members shall be sealed with epoxy resin or silicon sealant. Joints shall be filled with PVC/neoprene felt, cleats etc as indicated.

(g) PVC protected sheeting shall be used while fixing the frame of doors, windows, ventilators etc to avoid damages, scratches etc.

30 **PVC DOORS AND FRAMES**. Factory made solid moulded PVC door shutters and frames shall be as per BOQ and MES Schedule Part -I.

31 **FLUSH DOOR SHUTTERS**: These shall be as per relevant item of BOQ and shall be from one of the Manufacturers appearing on the approved list of manufacturer(s) of Flush shutters issued by Burro of Indian Standard of India as on the last date of bid closing.

32 **FACTORY MADE PANELLED SHUTTERS AND GLAZED SKELETON SHUTTER**. These shall be all as per relevant items of Sch 'A'. Make of factory made shutters shall be all as given in Appx A.

33 **BUILDERS HARDWARE (IRON MONGERY)**

All articles of iron mongery (Builder's Hardware) shall generally conform to specifications given in section 9 of MES Schedule Part I. The Contractor shall produce the samples of each article of builder's hardware which he proposes to use and get the same approved in writing by the Garrison Engineer. Articles of builder's hardware shall bear ISI mark, wherever available.

34 **ALUMINIUM GRILL**. Aluminium grill shall be provided as described under respective item of Schedule "A". The make shall be of M/S Aluminium profiles Associates Mumbai, AERO GRILL Chennai, specialist grill Kanpur/Deco grill or equivalent as approved by GE.

35 **ANODISED ALUMINIUM FRAME WORK (SNAP GRID) FOR FALSE CEILING WORK** : Refer relevant item of BOQ and Paras 10.38 & 10.38.1 of MES Schedule Part-I.

WATER PROOF TREATMENT TO ALL SUNKEN PORTIONS

36.0 **APP WATER PROOFING TREATMENT TO ROOF**

36.1 **WATER PROOFING TREATMENT OVER ROOF (Inaccessible Roof)**

36.1.1 Preparation of the existing surface includes removal of existing water proofing treatment of any description completely by chiseling and expose the top surface of RCC slab and clean the surface with water using wire brush/coir brushes.

36.1.2 After preparation of the surface, PCC (1:2:4) type BO using 12.5mm graded aggregate of average thickness 50mm shall be laid as a leveling course and the surface shall be finished fair and even. This leveling course shall be laid where the existing roof slabs are not having the proper slope and all as directed by Engineer in charge.

PARTICULAR SPECIFICATIONS

- 36.1.3 Apply oil bound bitumen primer @ 0.40 Lit/sqm manufactured by the same agency as that of APP with a density of 0.87 – 0.89 Kg/Lit at 25° C on the prepared dry roof surface. Provide and lay APP modified water proofing membrane reinforced with non woven polyester matt with physical properties as under :-
- (aa) Membrane weight >3.6 Kg/Sqm
 - (ab) Non woven polyester weight > 160 gm/sqm
 - (ac) Softening point of membrane > 150° C
 - (ad) Joint Tensile strength
 - Longitudinal > 650/5cm at 230° C
 - Transverse > 450/5cm
 - (ae) Tear Strength
 - Longitudinal > 300 N/cm
 - Transverse > 250 N/cm
 - (af) Elongation of reinforcement > 20%
 - (ag) Impermeability under water pressure > 2 Kg/Cm² for inaccessible roof
3 Kg/Cm² for accessible roof
- 36.1.4 APP membrane shall be laid using butane torch by torch on application with minimum 10 cm side overlap and 15 cm end lap. The laying of membrane shall be got done through an authorized applicator of manufacturer of membrane
- 36.1.5 Over the membrane provide a finishing with solar reflective bituminous Aluminium paint @ 0.1 Kg/sqm as prescribed by manufacture of membrane
- 36.1.6 **WATER PROOFING TREATMENT OVER ROOF (ACCESSIBLE ROOF)**, after laying of APP membrane provide 25mm thick cement screed in 1:3 cement mortar with approved water proofing admixture and lay 20mm thick pressed cement concrete tiles 300 x 300 mm. While laying tiles care should be taken to see that joints between tiles are kept minimum (not exceeding 3mm) and joints are thoroughly filled with water proof polymer based joint mortar. No voids in the joint are permitted. Top finished surface of cement tiles shall be laid to true slope so that no stagnation of water takes place.
- 36.2 **WATER PROOF MEMBRANE** : APP modified water proofing membrane to be incorporated in the work for WPT shall be obtained from one of the following manufacturer :-
- (a) Super thermo lay by STP
 - (b) Chemistic by M/s Chemisol Adhesive Pvt Ltd
 - (c) Moply by Txsa India Ltd Mumbai
 - (d) Hyperplus by M/s I W L (India) Ltd, Chennai
- 36.3 **PHYSICAL PROPERTIES**
- The physical properties of APP modified torch applied membrane shall be as under :
- (i) Membrane weight >3.6 Kg/Sqm
 - (ii) Non woven polyester weight > 160 gm/sqm
 - (iii) Softening point of membrane > 150° C
 - (iv) Joint Tensile strength - Longitudinal > 650 Kg/Sqcm at 230°C
Transverse > 450 Kg/Sqcm
 - (v) Tear Strength - Longitudinal > 300 N/ Sqcm
Transverse > 250 N/Sqcm
 - (vi) Elongation of reinforcement > 30%
 - (vii) Impermeability under water pressure > 3Kg/Sqcm

PARTICULAR SPECIFICATIONS**36.4 TESTING OF MEMBRANE**

The following independent tests shall be carried out in approved Government Laboratories and necessary test reports shall be submitted to Garrison Engineer for the materials before incorporation in the work :-

- (a) Thickness of membrane
- (b) Weight of membrane
- (c) Tensile strength (Longitudinal/Crosswise)
- (d) Tear Resistance
- (e) Softening point

36.5 **FLOODING TEST ON ROOF**: On completion of waterproofing treatment work as specified herein before the contractor shall carry out flooding test by forming bunds over the roof surfaces at interval as decided by GE. Water will be filled for 3 days and contractor shall rectify the leakage/seepage if any noticed to the entire satisfaction of GE without any extra cost to the Govt. The cost on this account shall be included in the relevant items of Sch 'A'.

36.6 The contractor shall carryout water proofing work over roof to ensure the entire roof water tightness during the guarantee period of 10 years and he will be responsible to keep the entire surface of roof water tight for a period of 10 years from certified date of completion of work. The Security Deposit towards the guarantee for water proofing treatment shall be retained from the RAR/Final Bill amount. This amount shall be calculated as per the scales laid down by MES for calculating individual security deposit on the final work done amount of water proofing at contract rate. The amount shall be released to the contractor after the satisfactory completion of TEN YEARS guarantee period. During the guarantee period if any leakage is found out same shall be got rectified by the contractor without any extra cost to the Government. In any case during the guarantee period the contractor who executed the WPT works should inspect and examine the treatment once in every year and make good any defects observed. Defects liability period of one year as laid down under condition 46 of IAFW 2249 is not applicable for water proofing work covered under this contract and shall deemed to be amended to the extent mentioned above for WPT work. Garrison Engineer may accept Bank Guarantee Bond from Schedule Bank or fixed deposit receipt (Pledged in favour of GE) from any approved Bank for the above said amount for a period of 10 years in which case no further amount will be recovered from the final bill on this account.

36.7 Tenderer shall submit 10 years guarantee certificate (as per proforma enclosed herewith) duly undertaking and accepting the responsibility to carry out all required rectifications at his own risk and cost. In case of contractor's failure to carry out the rectifications, the Govt shall be at liberty to get all such rectifications carried out at his risk and cost from security amount. Tenderer is required to visit the buildings in which the water proofing treatment is to be done in order to ascertain the exact nature and extent of work involved. The quoted rate in the Schedule 'A' against the respective items shall be deemed to include for the following aspects for effective water proofing treatment and no extra claim on whatever account will be entertained from contractor.

36.8 TEMPLATE (LABEL)

Template (Label) made of 15mm thick plaster in CM (1:3) of size 60 x 60 cm showing the following particulars shall be provided on each bldg before the final completion of work without any extra cost to the Department:-

- (a) Name of Contractor
- (b) CA Number
- (c) Date of completion
- (d) Guarantee period

PARTICULAR SPECIFICATIONS

- 36.9 The above information shall be written with white paint with 5 cm size letters and numbers. The entire quantity of materials such as water proofing membrane bitumen primer, bitumen and bituminous aluminium paint etc required for the whole work shall be brought at site in sealed position and shall be entered in the MB as NOT TO BE ABSTRACTED showing the date, total quantity brought. Each seal shall be opened in front of Engineer in Charge only. Paid vouchers from authorized dealer shall be submitted to the Engineer in Charge immediately after every
- 36.10 Wherever junction of vertical and horizontal structures occur a groove of size 75 x 65mm shall be formed at a height of 15 cm above roof level for tucking in edge of water proofing treatment in case of brick wall etc. The groove shall coincide with the horizontal joint of brick course and shall be shaped with cement and sand mortar (1:3) & in case of junction between RCC beam/parapet etc. PCC 1:2:4 coving with 75mm in the quoted rate against respective items of Schedule 'A' Part-I.

37 POST CONSTRUCTION ANTITERMITE TREATMENT

- 37.1 Post constructions antitermite chemical treatment shall be carried out for existing floor, covered in items of schedule 'A' Part I all as described in Clause 3.31 of MES Schedule Part I to below floors, junctions of walls and floors, external perimeter of buildings and surroundings of conduits/pipes and below plinth protection.
- 37.2 The above post construction antitermite treatment work shall be executed through an approved agency which should be member of Indian Pest Control / Post Control or pest control Association of India holding valid license as per Column 13 of Insecticide Act 1968 and persons employed to do the antitermite treatment shall be qualified as per rules framed under Insecticides Rules 1971. Specialist firm shall be approved by the GE and the work shall be done to the entire satisfactions of the GE. **The defects liability period of antitermite treatment shall be 10 years** and the contractor shall be responsible to keep the entire buildings free from termite infection for a period of 10 years after the certified date of completion. The main contractor shall produce paid vouchers along with necessary certificates from the Pest Control specialist firm giving TEN years guarantee (from certified date of completion of contract) to keep the building fully free from termite infestation during guarantee period. This guarantee does not however absolve the main contractor from his responsibility in respect of this specialist work as per contract conditions. The main contractor shall be responsible to ensure that the buildings are kept free from termite infestations during guarantee period.
- 37.3 **GUARANTEE**: The security deposit amount shall be calculated as per the scales laid down by MES for calculating Individual. The Security Deposit @ 2.5% of the value of relevant items towards the guarantee for Anti termite treatment shall be retained from the RAR/final bill amount as security deposit toward the guarantee for the anti termite treatment and it shall be released to the contractor only after the expiry of the guarantee period. The facility of furnishing fixed deposit receipt/ BGB in lieu of the sum to be retained as security, shall also be acceptable for exterior painting carried out at contract rates. The amount shall be released to the Contractor after satisfactory expiry of ten years guarantee period. The GE may accept Bank Guarantee Bond from Scheduled Bank or a fixed deposit receipt (pledged in GE's favour) from an approved Bank for the said sum for a period of ten years, in which event no further amount will be recovered from the final bill on this account. Defects liability period under Condition 46 of General conditions of Contracts (IAFW-2249) shall be deemed to be amended to the extent mentioned above for antitermite treatment works.
- 37.4 If at any during the guarantee period it is found by the GE that the building or any parts thereof are affected by termites, the Contractor shall at his own cost provide post construction antitermite treatment to such affected portions to the entire satisfactions of Garrison Engineer. The decision of the GE as to the extent to which such post construction treatment is to be provided shall be final, conclusive and binding.

PARTICULAR SPECIFICATIONS

- 37.5 The chemical for use in antitermite treatment shall be emulsion of Lindane 20 EC or Chlorophyriphos 20 EC chemical directly purchased from the original manufacturer or his authorized agent as specified in Appendix 'B' attached. Chemical should be brought in sealed containers(s).
- 37.6 If necessary GE shall carry out frequent checks after at least one mandatory test with regard to composition of chemical in an approved laboratory and a record shall be kept incorporating the laboratory results. The cost of the laboratory test will be borne by the Contractor if the same is got done by the Department despite production of test certificates by the Contractor to satisfy that spurious materials are not being used. A copy of ISI 6313 (Part-3) should be made available at site by the Contractor
- 37.7 Chemicals shall be stored carefully at site, seals of the container shall be broken only in the presence of the Engineer-in-Charge. Empty containers should be got removed off the site promptly. If on any particular day the contents of full containers could not be used in the work, the containers should be got sealed at the end of the day in the presence of the Engineer-in-charge and opened when required, also in the presence of the Engineer-in-Charge.
- 37.8 The contractor shall provide a plate of adequate dimensions, 20mm thick in cement and sand mortar (1:4) indicating the CA NO, name of the specialist firm and the date of expiry of the antitermite treatment guarantee rendered to the respective blocks of accommodations at place directed by the Engineer-in-Charge. Height of letters shall not be less than 10cm and shall be engraved in plaster. The plaster plate shall be painted with three coats of synthetic enamel paint (including the priming coat) of tint as decided by the GE. The unit rates quoted in Schedule 'A' Part-I for the respective items are deemed to be inclusive of the cost of antitermite treatment and guarantee period specified above.

38 WATER PROOFING TREATMENT

- 38.1 The contractor shall carryout water proofing work over roof to ensure the entire roof water tightness during the guarantee period of 10 years and he will be responsible to keep the entire surface of roof water tight for a period of 10years from certified date of completion of work. The security Deposit at the rate of 2.5% of the waterproofing treatment work done amount towards the guarantee for water proofing treatment shall be retained from the RAR/final bill amount. The amount shall be released to the contractor after the satisfactory completion of TEN YEARS guarantee period. During the guarantee period if any leakage is found out same shall be got rectified by the contractor without any extra cost to the Government. In any case during the guarantee period the contractor who executed the WPT works should inspect and examine the treatment once in every year and make good any defects observed. Defects liability period of one year as laid down under condition 46 of IAFW-2249 is not applicable for water proofing work covered under this contract and shall be deemed to be amended to the extent mentioned above for WPT work. Garrison Engineer may accept Bank Guarantee Bond from Schedule Bank or fixed deposit receipt (pledged in favour of GE) from any approved Bank for the above said amount for a period of 10 years in which case no further amount will be recovered from the final bill on this account.
- 38.2 Tenderer shall submit 10 years guarantee certificate (as per proforma enclosed herewith) duly undertaking and accepting the responsibility to carryout all required rectifications at his own risk and cost. In case of contractor's failure to carryout the rectifications, the Government shall be at liberty to get all such rectifications carried out at his risk and cost from security amount. Tenderer is required to visit the buildings in which the water proofing treatment is to be done in order to ascertain the exact nature and extent of work involved. His quoted rate in the **Schedule 'A' Part I Item Nos 1** against the respective items shall be deemed to include for the following aspects for effective water proofing treatment and no extra claim on whatever account will be entertained from the contractor.

PARTICULAR SPECIFICATIONS**38.3 WATER PROOFING MEMBRANE**

APP modified polyster reinforced water proofing membrane incorporate in the work for WPT shall be obtained from one of the following manufacturers:-

- (a) SUPER THERMOLAY : B-46, Hind Road Manufactured by STP limited
(Formerly Shalimar Products), Extension Calcutta-08
- (b) CHEMISTIK : Chemisol Adhesives Pvt Ltd, 7/10 Botawala Building, 2nd floor, Hormiman Circle, Fort, Mumbai-23 (Ph 2661936, 2625389 & 2625520)
- (c) MOPLY : Manufactured by TEXSA INDIA LTD
A-418, 1st floor, DLF City, GURGAON -02
- (d) HYPER PLAST : Manufactured by IWL Ltd.
- (e) Dr Fixit Torchshield P4160 : Manufactured by Pedilite Industries
- (f) SUPREME BITUCHEM : Manufactured by Supreme Bituchem India Pvt. Ltd

PHYSICAL PROPERTIES

38.4 The physical properties of APP modified water proofing membrane shall be as under:-

i)	Atactic Poly Propaneylene (APP) modified bituminous membrane weight	Not less than 3.50 Kg/Sqm
ii)	Single centre core non-woven polyester reinforcement weight	> =160 gms/ sqm.
iii)	Cold flexibility	Minimum (-) 2°C.
iv)	Softening point of Membrane	Not less than 150°C
v)	Tensile strength	In Longitudinal direction- 650N/ Sqcm & in Transverse direction 350N/Sqcm
vi)	Tear Strength (L/T)	Longitudinal > 300 N, Transverse > 250 N
vii)	Elongation	> 20% in both directions.
vii i)	Dimensional stability %change	Maximum 1%.
ix)	Water tightness/ impermeable at	2 kgf/ cm ² .
x)	Water absorption	Not more than 1% on mass within 24 hours.

The water proofing membrane treatment shall be carried out by the approved applicator of the manufacturer as approved by GE.

38.5

CERTIFICATE BY SPECIALISED AGENCY A certificate by the specialized firm, who has executed the work of water proofing treatment under this contract, will be rendered to the department stating that the said work has been executed by them and shall be signed jointly with the main building contractor. This certificate however does not absolve the main contractor from his responsibility in respect of specialist work as per contract condition. The main contractor shall be responsible to ensure that the roof slab shall be water tight/leak proof during guarantee period"

38.6

PARTICULAR SPECIFICATIONS**38.7 APPLICATION AND WATER PROOFING OVER ROOF****38.8 SURFACE PREPARATION**

38.8.1 After rectification is completed, top surface of the RCC roof slabs shall be thoroughly cleaned of any dust, loose materials, grease etc wire/coir brushes. The surface shall then be thoroughly washed with fresh water.

38.8.2 WATER PROOFING TREATMENT

(a) The locations of seepage/leakage if any shall be identified and marked. Grouting will be carried out in portion of roof slab observed with seepage at Contractor's expense as under:

(b) A matrix of dimension 1.0x1.0m shall be drawn on the affected portion of roof slab and 1m beyond on all sides. 12mm dia grouting nozzles shall be fixed at each cardinal point of the matrix in the affected portion of slab. The nozzle should penetrate up to 40mm below roof slab or up to top reinforcement in roof slab. After cleaning the roof slab, the roof slab shall be grouted using injection-grouting method with a pressure of 2.0kg/sq.cm, using a grout of cement slurry with 20partsof water and 1part of cement by volume till rejection. After grouting is over, the nozzles holes shall be sealed off with cement mortar 1:3 and cured. Then the entire roof slab shall be washed with fresh water and allowed to dry.

(c) Oil bound bitumen primer @ 0.4litre/sqm manufactured by the same agency as that of APP with a density of 0.87-0.89kg/litre at 25°C shall be applied on the prepared dry roof surfaces. Provide and lay APP modified water proofing membrane reinforced with non-oven polyester mat one layer weighing > 3.5kg/sqm.

(d) APP membrane shall be laid using butane torch-on application with minimum 10cm sideoverlap and 15cm end lap. The laying of membrane shall be got done through an authorisedapplicator of manufacturer of membrane.

(e) Over the membrane provide a finishing coat of solar reflective bituminous aluminium paint @ 0.10kg/sqm and all as prescribed by manufacturer of membrane.

(f) FINISHING LAYER FOR ACCESSIBLE ROOF AND TERRACES : In case of accessible roof andterraces, provide a polypropylene/ polyester, non-woven geotextile fabric of 160 gsm over the membrane, specified here-in-above. Over the geotextile fabric provide 20 mm thick cement screed (1:4) and lay 22 mm thick hydraulically pressed PCC tiles of size 250X250 mm set and jointed over APP membrane. While laying tiles a care shall be taken to see that joints between the tiles arekept minimum (not exceeding 5 to 8 mm). Top of finished surface of tiles shall be laid to the true slope so that no stagnation of water take place. Wherever junction of vertical and horizontal structures occur a groove of size 75 x 65mm shall be formed at a height of 15 cm above roof level for tucking in edge of water proofing treatment in case of brick wall etc. The groove shall coincide with the horizontal joint of brick course and shall beshaped with cement and sand mortar (1:3). In case of junction between RCC beam/parapet etc. PCC 1:2:4 coving with 75mm in radius shall be provided. Cost of above provision shall deemed to be included in the quoted rate against respective Items of Schedule 'A' Part I.

38.9 TESTING OF MEMBRANE

The following tests shall be carried out in approved Government Laboratories and necessary test reports shall be submitted to Garrison Engineer for the materials before incorporation in the work.

PARTICULAR SPECIFICATIONS

- | | |
|--|-----------------------------------|
| a) Thickness of membrane | b) Weight of membrane |
| c) Tensile strength (Longitudinal/Crosswise) | d) Tear Resistance |
| e) Softening point | f) Weight of Carrier (Polyester). |

Apart from above tests contractor shall also produce manufactures test certificate. Test certificate shall be produced with every consignment of material brought at site by the contractor.

38.10 **TEMPLATE (LABEL)**

Template (Label) made of 15mm thick plaster in CM (1:3) of size 60 x 60 cm showing the following particulars shall be provided on each bldg before the final completion of work without any extra cost to the Department: -

- | | |
|------------------------|------------------------|
| (a) Name of Contractor | (c) Date of completion |
| (b) CA Number | (d) Guarantee period |

The above information shall be written with white paint with 5 cm size letters and numbers. The entire quantity of materials such as water proofing membrane bitumen primer, bitumen and bituminous aluminium paint etc required for the whole work shall be brought at site in sealed position and shall be entered in the MB as 'NOT TO BE ABSTRACTED' showing the date, total quantity brought. Each seal shall be opened in front of Engineer-in-Charge only. Paid vouchers from authorized dealer shall be submitted to the Engineer-in-Charge immediately after every consignment and copy of such paid voucher shall be forwarded to Garrison Engineer by Engineer-in-Charge duly endorsed.

38.11 **GUARANTEE TO BE EXECUTED BY CONTRACTOR FOR REMOVAL OF DEFECTS AFTER COMPLETION IN RESPECT OF WATER PROOFING WORKS.**

This agreement made this ___day of _____ two thousand_____ between _____ of _____ (son of _____ of _____) (hereinafter called guarantor on the one part) and the PRESIDENT OF INDIA (hereinafter called the Government on other part).

WHEREAS THIS agreement is supplementary to a contract hereinafter called the contract) dated _____ and made between the GUARANTOR of the one part and the GOVERNMENT on the other part where by the contractor interalia, undertook render the buildings and structures in the said contract recited completely water and leak proof.

AND WHEREAS THE GUARANTOR agreed to give a guarantee to effect that the said structures will remain water leak proof for ten years from the certified date of completion.

NOW THE GUARANTOR hereby guarantees that water proofing treatment given by him will render the structures completely leak proof and the minimum life of such water proofing treatment shall be Ten years to be reckoned from the certified date of completion. Provided that the guarantor will not be responsible for leakages caused by earthquakes or structural defects or misuse of roof and sunken floor slabs or alterations and for such purpose.

- a) Misuse of and sunken floor slabs shall mean by operation which will damage roofing treatment, like chopping of firewood and things of the same nature which might cause damage to the roof.
- b) Alteration shall mean construction of any additional storey or any part of roof or construction adjoining to existing roof, where by roofing treatment is removed in parts. And removal of finishes of sunken portion of slabs.

PARTICULAR SPECIFICATIONS

c) The decision of the Garrison Engineer with regard to cause of leakage shall be final and binding. During this period of guarantee the guarantor shall make good all defects and in case of any defects being found, render the building water proof and finish the disturbed surfaces as existed to the satisfaction of Garrison Engineer at his cost and shall commence the work for such rectification within seven days from the date of issue of the notice from the Garrison Engineer calling upon him to rectify the defects, failing which the work shall be got done by the department by some other contractor at the GUARANTOR'S risk and cost. The decision of the Garrison Engineer as to the cost, payable by the Guarantor shall be final and binding. That if the Guarantor fails to execute the water proofing or commit breach there under then the Guarantor will indemnify the Principal and his successors against all loss, damage, cost expense or otherwise which may be incurred by him by reason of any default on the part of GUARANTOR in performance and observing of this supplementary agreement. As to the amount of loss and/or damage and/or cost incurred by the Government, the decision of the Garrison Engineer will be final and binding on the parties.

IN WITNESS WHEREOF these presents have been executed by the obligator _____ and by _____ for and on behalf of the PRESIDENT OF INDIA on the day month and year first above written.

SIGNED sealed and delivered by OBLIGATOR in the presence of :-

- 1.
- 2.

SIGNED ON BEHALF OF THE PRESIDENT OF INDIA BY

_____.

PARTICULAR SPECIFICATIONS

39 **GUARANTEE FOR WATER PROOFING TREATMENT AS MENTIONED IN BOQ.** The contractor shall carryout water proofing work over roof portion to ensure the water tightness for entire roof during the guarantee period of 10 years and he shall be responsible to keep the entire surface of roof water tight for a period of 10 years from certified date of completion of work. The Security Deposit @ 2.5% of the value of relevant items towards the guarantee for Water proofing treatment shall be retained from the RAR/final bill amount as security deposit toward the guarantee for the WPT and it shall be released to the contractor only after the expiry of the guarantee period. The facility of furnishing fixed deposit receipt/ BGB in lieu of the sum to be retained as security, shall also be acceptable for WPT carried out at contract rates. The amount shall be released to the contractor only after the satisfactory completion of **TEN YEARS** guarantee period. During the guarantee period if any leakage is found out same shall be got rectified by the contractor without any extra cost to the Government. In any case during the guarantee period the contractor who executed the WPT work should inspect and examine the treatment once in every year and make good any defects observed. Defects liability period of one year as laid down under condition 46 of IAFW-2249 is not applicable for water proofing work covered under this contract and shall deemed to be amended to the extent mentioned above for WPT work. Garrison Engineer may accept Bank Guarantee Bond from Schedule Bank or fixed deposit receipt (pledged in favour of GE) from any approved Bank for the above said amount for a period of 10 years in which case no further amount that be recovered from the final bill on this account.

39.1 Contractor shall submit 10 years guarantee certificate (as per proforma given here-in-after duly undertaking and accepting the responsibility to carryout all required rectifications at his own risk and cost. In case of contractor's failure to carry out the rectifications, the Govt shall be at liberty to get all such rectifications carried out at his risk and cost from security amount. His quoted rate in the Schedule 'A' shall be deemed to include for the following aspects for effective water proofing treatment and no extra claim on whatever account will be entertained from the contractor.

40 **WATER PROOF TREATMENT TO ALL SUNKEN PORTIONS**

- (a) Provide WPT to sunken RCC slab all as specified in Schedule 'A'
- (b) PCC (1:5:10) mixed with water proofing compound as per manufacturer's instructions shall be provided on bottom of sunken portion with proper coving on sides and 15mm thick cement plaster (1:4) with water proofing compound on sides, PCC and plaster shall be carried out at the same time.
- (c) Spout/ Spouts of 40mm dia PVC pipes projecting at least by 10 cm clear of face of the outer wall or as shown in drawings shall be provided to drain out seepage water if any.
- (d) After laying of all CI connections and branch pieces etc, apply two coats of hot bitumen 85/25 grade at the rate of 1.7 kg/sqm, over vertical sides and floor of sunken portion.
- (e) All the joints of pipes with the wall shall be sealed properly by bitumen after these are filled with PCC (1:2:4) mixed with water proofing compound.

GUARANTEE

(a) The contractor shall ensure that the toilet shall be free from leakage free etc during the guarantee period of 05 years and he shall be responsible to upkeep the entire surface for a period of 05 years from the certified date of completion of work. The Security Deposit @ 2.5% of the value of relevant items towards the guarantee for leakage/seepage proof coating shall be retained from the RAR/final bill amount as security deposit toward the guarantee for the acrylic paint and it shall be released to the contractor only after the expiry of the guarantee period. The facility of furnishing fixed deposit receipt/ BGB in lieu of the sum to be retained as security, shall also be acceptable for exterior painting carried out at contract rates as security deposit for sunken floor treatment till guarantee period of **10 years** for satisfactory performance of treatment. This amount shall be released to the contractor after satisfactory expiry of **Ten years** guarantee period. The GE may accept BGB from schedule bank or a fixed deposit receipt (pledged in GE's favour) from any Nationalized Bank for the said guarantee amount for a period of five years, in which event no further amount will be recovered from the Final Bill/RAR on this account. The defects liability period under condition 46 of General Conditions of contract (IAFW-2249) shall be deemed to be amended to the extent mentioned above for acrylic painting works.

(b) Necessary guarantee shall be obtained from the contractor on non judicial stamp paper giving five years guarantee from the certified date of completion of contract to keep the toilet free from leakages during guarantee period. The guarantee does not however, absolve the contractor from his responsibility in respect of this specialized work as per contract conditions.

(a) Preservative antitermite treatment shall be carried out to all wood work and joinery fabricated by the Contractor at site. Factory made ply/boards are deemed to be provided with antitermite treatment.

PARTICULAR SPECIFICATIONS

(b) Chemical used for antitermite treatment to wood work and joinery shall be copper NAPHTHANATE, ASCU or any other chemical specified in IS-401, applied in any one of the manners specified in ibid IS.

41 SANITARY AND TOILET FITTINGS

GENERAL All sanitary appliances shall be of vitreous china first quality, white in colour and shall be as per IS-2556 for General requirements and the specific requirements bearing ISI mark as mentioned in relevant clause of MES Schedule. These shall be of an approved make from the list.

42. PLUMBING WORK**42.1 GENERAL**

(a) Plumbing work shall be carried out as specified in clause 18.27 A of MES Schedule (Part I).

(b) **Soil / Waste / Vent Pipe / Fittings / Accessories** : These shall be of CI (SWR) and shall be conforming to relevant IS with spigot and socket ends. All the pipes and fittings shall have ISI certification mark.

(c) **Jointing** : Joints shall be carried out as specified in Sch 'A' and relevant clause of MES Schedule.

(d) **Fixing of pipes to walls** : Pipes and fittings shall be fixed to wall all as directed. These shall conform to IS-3989. Floor traps shall be provided with CP brass grating.

42.2 G.I WATER TUBING. Water tubing shall be all as specified in relevant items of Schedule 'A', and shall be laid all as specified in SSR Part-I (2009).

42.3 UPVC SWR PIPE /PVC (SWR) AND FITTINGS : These shall be all as described in relevant items of Sch 'A'. Make of UPVC pipes PVC SWR shall be all as per Appendix 'E'

42.4 BIB TAPS, PILLAR TAPS, STOP VALVES AND GUN METAL GATE VALVE

These shall be all as indicated in relevant items of Sch 'A' and as specified in relevant clauses of SSR Part-I 2020.

42.5 PVC SOIL, WASTE AND RAIN WATER (SWR) DRAINAGE PIPE

a) PVC SWR pipes shall conform to IS-4985 & make shall be as specified and approved by GE.

b) Rubber rings for the pipes and fittings shall conform to IS-5382.

c) PVC (SWR) fittings shall be used as per recommendation of the manufacturer of the pipes. In case there is no IS code for the fittings, these shall be generally conform to the requirements of BS : 4515 DIN 19531 & DIN 19534.

42.6 PVC(SWR) pipes and fittings shall be strong, dimensionally stable and shall be free from defects.

42.6 SEWAGE PIPE/SGSW PIPE AND FITTINGS

(a) SGSW (Salt Glazed Stone Ware) pipes including fittings and accessories shall conform to the specifications laid down in Clause 18.28 of the MES Schedule and shall be of Grade 'A' conforming to IS 651(1971).

PARTICULAR SPECIFICATIONS

(b) Laying and joining of SGSW pipe shall be done all as specified in Clause 18.69 and 18.70 of MES Schedule Part I.

(c) PCC in concrete bedding and haunching shall be of the type and mix given in relevant section of Schedule 'A' and shall be carried out as per clauses 18.68.1, 18.68.2, 18.68.3, 18.68.4, 18.68.5, 18.68.1, 18.69.2, 18.69.3 & 18.70 of SSR Part-I.

(d) In Schedule 'A' bedding and haunching has been catered for. However, reference shall be made to IS 4127 (Clause 4.1, 4.2 and 4.3) and if the site conditions regarding sub soil water level and other related factors so require, adjustment for providing bedding only or completely encasing the pipe shall be made through a deviation order.

(e) Filling of soil in trenches and ramming shall be carried out in layers not exceeding 25cm thick and surfaces left slightly proud of the adjacent ground. Surplus soil shall be disposed off to a distance exceeding 250 meters and not exceeding 500 meters.

43.0 GALVALUME STEEL SHEETS

43.1 The Galvalume steel sheet shall be 0.50mm thick (total coated thickness), with hot dip alloy precoating of galvalume (55% aluminium + 43.5% Zinc + 1.5% Silicon) conforming to AS-1397/ASTM A-792 and precolour paint coating with silicon modified polyester/super polyester conforming to IS14246 or AS-2728 as per manufacturer's specifications. Colour of sheet shall be as approved by GE. The Make of Galvalume sheets shall be as per Appx 'E'.

43.2 Galvalume sheet shall have high tensile steel, having minimum yield strength 550 Mpa.

43.3 The flashing, ridging and valley and capping shall be made out of same material as of sheeting.

43.4 The Galvalume sheet shall be procured from manufacturer or from the profiler of main manufacturer. Contractor shall produce original purchase voucher of manufacturer / profiler to Eng-inCharge for materials purchased alongwith manufacturer's test certificate before incorporation in the work. Contractor shall submit complete manufacturer's literature & details of colour coated Galvalume sheet of make proposed to use in the work and its sample before commencement of work for approval of GE.

43.5. Galvalume sheeting work shall be carried out only through authorised representative of manufacturer/profiler.

43.6 The covered width of sheet will be 1000 mm to 1060 mm and length will be in one stretch upto 12000mm or as required at site.

43.7 Each sheet shall be marked legibly with the following informations :-

(i) Manufacturer's name or Trade mark.

(ii) Thickness of sheet.

43.8 Original manufacturer's test certificate for strength, coating thickness and manufacturer's marking on sheets to match batch No. as given in test certificate, shall be submitted by the contractor to GE for verification and approval in writing before incorporation in the work.

43.9 Penetration and laps in sheets shall be sealed by the contractor using proper sealant as per manufacturer's instructions. HDPE filler shall be provided wherever required to close voids between sheets, sheets and fasteners etc.

PARTICULAR SPECIFICATIONS**44. BARBED WIRE**

44.1. Barbed wire shall be all as specified in clause 10.32 of SSR-2009 Part-I. Weight of barbed wire shall be between 97 to 106 Kg per Kilometer.

44.2. TESTING

44.2.1. The contractor shall submit the test certificate for ultimate tensile strength and zinc coating of barbed wire of the original manufacturer. However GE reserves the right for independent testing in Government approved laboratory as decided by him and the contractor shall pay the cost of testing including materials, transportation, testing charges etc.

45. RAZOR TAPE CONCERTINA COIL

45.1 TECHNICAL SPECIFICATIONS OF MATERIAL. Hot galvanized spring tensile wire manufactured by M/S. Special Steel Ltd, M/S. Super Fence or M/S. Global Fencing.

CENTRAL CORE

Ultimate Tensile Strength : 145 to 160 N/Sqmm

Zinc Coating : 250 to 300 gram/m²

45.2. BARBED RAZOR RIBBON TAPE

45.2.1 Galvanised Iron:- 0.5 mm thick hot dip galvanized width 19 mm (Before wrapping on central core wire).

Zinc coating : 120 gram/m².

45.2.2 CLIPS. GI 1.66 mm thick (minimum 25 clips per running metre).

45.2.3 GI line wire 10 SWG with Zinc coating: 120 gram/m².

45.2.4. Weight per coil : Not less than 13 Kg.

45.3 DETAILS OF CONCERTINA BARBED RAZOR TAPE

DIA OF COIL WHEN UN-STRETCHED	NUMBER OF CIRCLES	NUMBER OF CLIPS	WEIGHT OF COIL (GI STRIP)	COVERAGE PER COIL
610 mm	80	200	13 Kg	8 to 10 Running Metre

PARTICULAR SPECIFICATIONS**46.0 INTERNAL ELECTRIFICATION****46.1 SCOPE OF WORK**

The scope of work consists of and all as specified in Sch 'A' and particular specifications.

46.2 GENERAL REQUIREMENTS

46.2.1 This installation shall strictly comply with the provisions contained in the latest edition of the Indian Electricity Rules and amended IS-732-1963. Code of practice for Electrical wiring and fittings in buildings as applicable to these works except where such regulation and rule are modified by these specifications.

46.2.2 All electrical work shall be executed properly by skilled licensed electricians and ITI certificate holder under the supervision of suitably qualified electrical supervisors with minimum qualification shall be degree in electrical engineering. The contractor on demand by Engineer-in-Charge shall produce such evidence of qualification of his workmen, supervisors(s) either at the time of commencement of the work or at any time there after during the contract period.

46.2.3 The position of various electrical fittings and fixtures shown on the drawings may be changed by the Engineer-in-Charge at the time of execution if found necessary.

46.2.4 The run of PVC/Steel conduits shall be marked on the walls and soffits of roof / floors slabs for the wiring. Approval of the Engineer-in-Charge shall be obtained in writing before starting the works.

- (a) Looping back system of wiring shall in variably be used throughout the installation.
- (b) All electrical fittings and wirings shall be clear of door, windows and other openings.
- (c) The main switches and controls should have the voltage of supply clearly painted on them.
- (h) The phase indication (RYB) should be provided at the main incoming switches and controls.
- (a) The name of functions of each distribution board shall be clearly and neatly painted on the distribution boards.

46.3 MATERIALS AND SAMPLE BOARD

46.3.1 All materials unless otherwise specified shall possess ISI mark or conform to relevant IS specifications or to BSS if ISS is not available. Approval of GE referred to in clause 19.2.1 and 19.2.2 of MES Schedule shall be in writing. Approved samples shall be labeled as such and signed both by the contractor and the Engineer-in-Charge. They shall remain in the custody of Engineer-in-Charge, till final completion of work.

(b) 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 surfaces.

46.4 TYPE OF WIRING

The type of wiring shall be as given in relevant section of Schedule 'A', Particular specification and as directed by Engineer-in-Charge. Point wiring for light/power/fan/bell or buzzer/telephone point (s) includes all works comprising of:-

46.4.1 Supplying and fixing/drawing of copper conductor cables including surface / concealed stove enamelled steel conduit or PVC conduit and fittings and accessories for carrying out wiring as specified in Schedule 'A'.

46.4.2 Supply and fixing of suitable size sunk CI/pressed steel terminal box covered with white plastic laminated sheet to accommodate requisite switches, fan regulator(s), sockets or switch socket combination.

PARTICULAR SPECIFICATIONS**46.5 CABLES**

46.5.1 Cable for internal wiring for light, power and sub mains shall be single core PVC insulated and sheathed or unsheathed (as specified in Schedule 'A') with copper multi-stranded copper conductor FRLS cables 1100 Volts IS: 694 marked.

46.5.2 The insulation shall consist of compounded polyvinyl chloride. The thickness of insulation shall not be less than nominal value mentioned in appropriate table of IS 694. The composition of the compound of sheath shall polyvinyl chloride. The value of thickness of PVC sheathing shall be in accordance with those specified in appropriate tables. The insulation on and sheath shall be homogeneous body. The cable shall be of approved make/ grade and ISI marked.

46.5.3 All materials for fittings/accessories of cable etc to be incorporated in the work shall strictly comply with latest Indian Standard or if Indian Standards have not been issued then with current British Standards.

46.6 PVC RIGIDNON-METALLIC CONDUIT FITTINGS

46.6.1 Conduit shall comply with IS: 9537(Part-III) -1983. The fittings for rigid non-metallic PVC conduit shall conform to IS: 3419-1988. Conduit & conduit fittings shall be ISI marked. These shall be procured from any of the manufacturing firms mentioned in Appendix 'B' here-in-after.

46.6.2 The maximum permissible number of 1100 volts grade single core copper cables that may be drawn into the rigid non-metallic conduit shall be all as per MES SSR Part- I clause 19.125, Table(B).

46.7 RIGIDSTEELCONDUITFITTINGS

46.7.1 Conduit shall comply with IS: 9537(Part-II) -1981 and accessories/fittings shall be as per IS-3837 and 2667 respectively. These shall be of make as mentioned in Appendix 'B' here-in-after.

46.7.2 The fittings for rigid steel conduit shall conform to relevant IS and shall be all as specified in Schedule 'A' and as approved by the Engineer-in-Charge at site.

46.7.3 **CASING 'N' CAPPING:** PVC casing 'N' capping and accessories/fittings shall comply with IS:14927(Part-II)-2001 and shall be of double interlocking type. These shall be of make as mentioned in Appendix 'B' here-in-after.

46.8 **SUNK TYPE BOXES:** Boxes for housing electrical accessories recessed into wall shall be of sheet steel or cast iron as indicated/directed and shall conform to IS-5133 (Part I) & IS :14772-2000 and as specified in clause 19.38 of MES Schedule. The boxes shall be covered with sheet top cover as described in Schedule 'A' items and shall have beveled edges.

46.9 FLEXIBLE CORDS TWISTED WITH COPPER CONDUCTOR

Flexible cord twin core with tinned annealed copper conductor stranded, PVC insulated, twisted together, size 23/0076.

46.10 PLUGS, SCREWS AND FASTNERS

All as specified in Clause 19.30and19.31 of MES Schedule.

46.11 CEILING ROSE, SHADES AND BULKHEAD FITTING

These shall be as specified in Clause 19.32 and19.34 of MES Schedule.

46.12 MODULAR SWITCHES/SWITCH SOCKET OUTLETS 5 PIN 5 AMPS SP/6 PIN 15 AMP SP 240VOLTS:-

46.13.1 The base shall be made of vitrified ceramic materials or tough non-ignitable moulded insulating material. These shall be of flush type 6 to 16 amps multi-purpose, non-shuttered/shuttered type as indicated.

PARTICULAR SPECIFICATIONS

46.12.2 Current carrying parts shall be made of brass, copper phosphorous, bronze, aluminum alloy or any other suitable material. Springs shall be of corrosion resistant metal. Attachment fitting screw and other non current carrying parts shall be of mild steel, aluminum alloy or insulating material. All switches, sockets and switch socket outlets shall bear ISI certification mark.

46.13 LAMPHOLDER

These shall be of brass conforming to IS-1250 and as per Clause 19.41 of MES Schedule.

46.14 MINIATURE CIRCUIT BREAKERS (MCBs)

46.15 MCBs shall be conforming to IS: 8828 of 1996 and shall be ISI marked. These shall be housed in DBs & shall be suitable for 'C' curve characteristics.

46.15.1 MCB shall have quick make and break non-welding silver alloy contacts both on the manual and automatic operation. MCBs shall be of thermal magnetic type with inverse time delay over current tripping having a short circuit rupturing capacity as indicated in respective items of Schedule 'A' and if no rupturing capacity indicated in items of Schedule 'A' then it shall be of 10kA. In case of Multiple type MCBs, the tripping must be on all the poles and operating handle shall be common. Pressure clamp terminals for stranded solid conductor insertion are acceptable upto 4sq mm for copper and for higher ratings the terminals shall be suitably extended for bolted lugs connections. All terminals shall be suitably screwed. MCBs shall be housed in distribution board fabricated out of sheet steel and shall have IP-40 degree of protection to prevent entries of dust. Ample clearance between the conductors and sheet steel body shall be maintained in order to obviate any chance of short circuit. Movable conduit entry plates shall be provided at top and bottom to facilitate drilling holes to suit individual requirement. The MCBs shall be mounted on a high grade rigid insulating support and connected by electrolytic copper bus bars phase separation barriers made out of arc resistant materials between the phase. Bus bars shall be colour coded for Phase identification and shall be PVC shrouded. Reference shall also be made to clause 19.46 of the MES Schedule Part-I for further requirements of distribution boards.

46.15.2 Suitable earth terminal shall be provided on the distribution board for bonding to earth.

46.16 MCBs ISOLATORS: It shall conform to IS:13947(Part-3), 1993 and shall be as per clause 30.46.3 of MES Schedule Part-I. These shall be of make as mentioned in Appendix 'B' here-in-after.

46.17 MCB DISTRIBUTION BOARDS/ SHEET METAL ENCLOSURES (DBs) FOR HOUSING MCBs, MCCBs/ RCCB' ELCB AND ISOLATOR ETC.

46.17.1 Sheet steel enclosures for mounting isolators, MCBs and MCCBs shall be fabricated out of steel sheet as per manufacturer's Design and Specifications and finished with stove enamel paint. Label channel shall be provided for labeling outgoing circuit. Two knock out, of suitable dia. shall be provided at top for incoming cables but at bottom corresponding to number of ways. Bus bars shall be fabricated accordingly. Distribution boards (DB's) shall be recessed in wall to become flush with wall where it is possible or otherwise as directed by Engineer in Charge. Proper marking shall be provided in the DB to indicate type of circuit in power and light. Neoprene gasket shall be used in DBs. All wiring connection required to be made with MCCBs, MCBs and Isolators shall be carried out by providing necessary thimbles/ lugs duly crimped. Reference shall also be made to clause 19.46.1 of the MES Schedule Part- I for further requirements of distribution boards.

PARTICULAR SPECIFICATIONS**46.18 LIGHTFITTINGS**

46.18.1Light fittings such as wall fittings, ceiling fittings, bulk head fittings and the like shall be of high grade of make & model as indicated in description of item under Schedule 'A', or in absence of the same, as mentioned in Appendix 'B' here-in-after. In case no make for fittings have been indicated then the same shall be of reputed make bearing ISI mark as approved by GE.

46.19 PORCELAIN CONNECTORS: Porcelain connectors shall be provided inside the box for fan hook. The wiring shall be done in such a way that ceiling rose is proposed for fan and tube light fitting the porcelain connect or need to be provided.

46.20 LOCATION OF VARIOUS FITTINGS

46.20.1Particular attention is drawn to the neatness in appearance which is to be achieved by judicious location of light fittings, switches socket outlets and main controls etc. Due regards shall be given to doors, windows, opening, etc. in fixing the run of cables, position of fittings, control switches etc. The location of fittings etc shall be marked in advance on walls etc. and approved by GE

46.21 APPROVAL OF SAMPLES

46.21.1Sample of all materials to be incorporated should be approved by GE before in corporation and shall conform to IS wherever applicable.

46.22**EARTHING AND TESTING**: Shall be carried out as described in IS 3043 and as per Schedule 'A' and as shown in drawing. It shall be conforming to the Clause 19.137of MES Schedule.

46.23**SITING ELECTRICAL EQUIPMENT**: The siting of cable conduit, controls, distribution boards, fittings and accessories, etc. shall be as laid down in IS 4648"Guide for electrical layout in building "or as directed by EIC/GE.

46.24**SYSTEM OF WIRING**: Wiring shall be carried out with PVC insulated cable and shall run as far as possible near walls, ceilings so as to be easily accessible and capable of being inspected. Power wiring shall be kept apart and shall be distinct from other wiring. Separate conduit shall be used for power wiring.

46.25**CONTROL AT POINT OF ENTRANCE OF SUPPLY**: These shall be a linked main switch gear with MCB on each live conductors of supply main at the point of entrance. No fuse shall be inserted in the neutral.

46.26**TYPE OF SWITCH BOARD**: Hinged type metal boards for mounting mains witch/MCCB/ MCB and electric meter shall be of 16 gauge MS sheets with provision of locking arrangement and all as specified.

46.27 FAN REGULATORS AND CLAMPS

(a) All ceiling fans and regulators shall be earthed effectively by means of suitable aluminium earth continuity conductors. Cost of earthling of fans and regulators/fittings (with aluminium earth continuity conductors) shall be deemed to be included in the unit rate for point wiring for fans/ lights.

(b) The ceiling fans with down rods and regulators shall be issued under Schedule 'B' free for fixing and connecting only.

PARTICULAR SPECIFICATIONS**46.28 TESTING**

(a) On completion of the work the entire electrical installation shall be tested by the Contractor for the following tests which shall be carried out in accordance with IEE Regulations in the presence of Engineer-in-Charge:-

- (i) Earth Continuity
- (ii) Insulation Resistance,
- (iii) Earth Resistance,
- (iv) Any other test prescribed by Engineer-in-Charge.

(b) All testing equipment/ apparatus materials, labour etc required for above test shall be provided by the Contractor by his own expense through his sources. Works for which test results do not conform to standards will be red one by contractor at his own expenses.

(c) The result of aforesaid test shall be recorded jointly and signed (in triplicate) by the contractor and the Engineer-in-Charge.

47 GIPIPE ANDFITTINGS MEDIUMGRADE

47.1 GI pipe & fittings shall be galvanised and ISI marked. Laying of pipes shall be as directed by Engineer-in-charge. Laying and jointing of GI pipes shall be in accordance with clauses 18.50 and 18.51 of MES Schedule. All pipe work shall be laid or fixed to be completely airtight and water tight as specified.

47.2 LAYING AND FIXING OF PIPES

(a) The pipes for supply of water to all fittings in the buildings shall be run on the walls except other wise specified in these tender documents or shown on drawings, connected to various fittings and shall be brought in the rooms at point/ position approved by the Engineer-in-Charge at site. Where GI pipe crossed the wall a GI sleeve piece of suitable length/ dia shall be provided to accommodate the GI pipe. The cost of the sleeves shall be deemed to be included in the lump sum cost of the building.

(b) Where pipes are laid underground, the trenches shall be excavated as directed by the Engineer-in-Charge. The pipes running along face of the wall shall be clamped to the walls as specified in SSR.

(c) All water supply works shall be carried out through licensed/ skilled plumber/ fitter as approved Engineer-in-Charge.

47.0 PAID VOUCHERS AND TEST CERTIFICATES

Paid vouchers and test certificates as applicable for all items shall be produced by the contractor under his letter and duly signed by him giving cheque No. with date under which payment made before claiming payment for items. Genuineness of paid vouchers and test certificate will be checked by GE before completion of work by method as suitable for major items. Decision of GE regarding major items shall be final and binding. No claim on account of these provisions shall be admissible.

48.0 EXTERNAL ELECTRIFICATION

48.1 All electrical work shall be carried out by properly skilled electricians under the supervision of suitably qualified electrical supervisors. The contractor on demand, to the Engineer-in-Charge, shall produce such evidence of qualifications of his workman/supervisors either at commencement of the work or at any time thereafter.

PARTICULAR SPECIFICATIONS

48.2 The installations shall strictly comply with the provisions contained in the latest edition of the "Regulations for the Electrical Equipment of Buildings" issued by the Institution of Electrical Engineers (hereinafter referred to as the IEE Regulations) and the Indian Electricity Rules as applicable to these works except where such regulations and rules are modified by the specifications. However, the tenderers shall also ensure that the requirements of the supplying agency DEB are also complied while executing the work.

48.3 LAYOUT

(i) Route of underground cables, final location shall be approved by the Engineer-in-charge in writing before the contractor takes the work in hand.

(ii) The contractor shall verify the cable length actually required at site before purchasing the same.

48.4 LAYING OF CABLES

48.4.1 HT/LT underground cables shall be laid in trenches with sand cushioning and PCC cover slabs protection all as specified in MES Schedule (Part-I).

48.4.2 For road/Nallah/Floor crossings and to cross-hard standing the cable shall be laid in GI Pipe, etc. Rates quoted for cables shall include for cost of straight through cable box with compound if required to be provided. Cable route indicators shall be provided at regular intervals of 30 metres or as directed by Engineer-in-Charge. In addition one indicator shall be provided at every turning of route and at every cable joint.

48.4.3 The LT cables shall be of 1100 volts grade XLPE insulated PVC sheathed, armoured heavy duty conforming to IS-7098 - I (amended upto date).

48.4.4 The HT cables shall be of 11000 volts grade 3 phase system XLPE type. The cable shall conform to IS-7098 (Part II edition, amended upto date). The HT cables shall be any of the Make specified in Appendix 'B'.

48.5 **SAND CUSHIONING FOR LAYING CABLES:** Sand cushioning shall be provided as specified in clause 19.75 of MES Schedule Part-I. Naturally occurring fine dry sand conforming to the requirements given in clause 14.5 of SSR-2009 Part-I and from the sources approved by GE shall be incorporated

48.6 **CABLE COVER** :PCC covers for HT/LT cables shall be of class as per schedule 'A', conforming to IS-5820-1970. Cable covers should be precast, factory made and shall be tested for its strength by the contractor in presence of Engineer-in-Charge at his own cost and test certificate from approved lab should be submitted.

PARTICULAR SPECIFICATIONS PART – II (CONTD...)

48.7 TESTING

48.7.1 After installation of capacitor banks the power factor without and with capacitor banks will be tested and improvement of power factor will be noted for at least 24 hours at each of the installations where capacitor banks are installed.

48.8 CABLE TERMINATION AND JOINT KITS

48.8.1 The shall comply with the requirements as specified in clause 19.22 to 19.22.2 of MES Schedule Part-I 2009.

48.8.2 For road/Nallah/Floor crossing and to cross hard-standing the cable shall be laid through GI pipe. Rates quoted for cable shall include for cost of straight through cable box with compound if required to be provided.

48.9 GI PIPES

GI tubing and fittings shall be medium grade and galvanized and conforming to IS-1239 (Part-II). Pipes shall be all as described in Schedule 'A'

48.10 STREET LIGHT FITTING

These shall be as stipulated in Sch 'A', conforming to relevant IS and shall be as specified in clause No 19.42 of MES Schedule.

49.0 The detailed sketch shall be recorded in the measurement book.

45.0 LIST OF MAKES

Refer Appdx 'D' for details.

SIGNATURE OF CONTRACTOR

**Offg AGE (Contracts)
For Accepting Officer**

PARTICULAR SPECIFICATIONS**Appendix 'B'****1. CEMENT**

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

1.1.1 TYPE OF CEMENT

- (i) Ordinary Portland Cement grade 33 - (IS-269 - 1989)
- (ii) Ordinary Portland Cement grade 43 - (IS-8112 - 1989)
- (iii) Ordinary Portland Cement grade 53 - (IS-12269 - 1987)
- (iv) Rapid Hardening Portland Ordinary Cement (IS-12269-1987)
- (v) Portland Pozzolana Cement - (IS-1489-1991)
- (vi) High aluminium cement - (IS-6452 - 1989)
- (vii) Sulphate Resisting Portland Cement - (IS-12280 - 1988)

1.2 Type of cement for the subject work shall be Ordinary Portland Cement grade 43 (Forty Three) in accordance with IS-8112, 1989 unless otherwise specified in Sch A / mentioned in structural drawings forming part of the tender documents,

1.2.1 In case of non availability of OPC (Ordinary Portland Cement) in the market, the contractor can be use PPC (Pozzolana Portland Cement)with prior permission from the Accepting Officer and his decision shall be final & ending and in that case PPC shall meet the strength criteria of 43 grade OPC (Ordinary Portland Cement) as laid down in IS-8112-1989, Mixing of OPC and PPC is not allowed.

1.3 PROCUREMENT/SUPPLY OF CEMENT BY CONTRACTOR**(a) PROCUREMENT**

The cement supplied by the contractor will be procured from main producers of cement. The particulars of the manufactures of cement along with the date of manufactures shall be obtained from the contractor for every lot of cement separately. The documents in support of the purchase of cement shall be verified by the Engineer-in-Charge/GE. The cement shall be procured by the contractor from the manufactures as given below :-

(b) MANUFACTURES

The following are the manufactures of Ordinary Portland Cement & Portland Pozzolana Cement :-

SI No.	Company Name & Brand	Cement Grade	Validity
I.	The Associated Cement Companies Ltd Brand - ACC	All	-
II.	Ultra Tech Cement Ltd Brand - ULTRATECH	All	-
III.	The India Cement	All	-
IV.	Dalmia Cement (Bharat) Ltd Brand- DAKMIA INFRA PRO	All	-
V.	The Ramco Cement Ltd (Formerly Madras Cement) Brand- RAMCO	All	-
VI.	Birla Corporation Ltd Brand- Birla	All	-
VII.	Orient Cement Brand- BIRLA-A1	All	-

PARTICULAR SPECIFICATIONS

SI No.	Company Name & Brand	Cement Grade	Validity
VIII.	Century Cements Brand- CENTURY	All	-
IX.	Saurashtra Cement Brand- SAURASHTRA	All	-
X.	Mangalam Cement Ltd Brand – Mangalam	All	-
XI.	Nuvoco Vistas Corporation Ltd (Formerly Lafarge Cement) Brand- NUVOCO	All	-
XII.	Shree Cement Ltd Brand- SHREE	All	-
XIII.	JK Lakshmi Cement Ltd Brand- JK LAKSHMI	All	-
XIV.	JK Cement Brand- JK	All	-
XV.	Jaypee Rewa Cement Brand JAYPEE	All	-
XVI.	Ambuja Cement Ltd Brand- AMBUJA	All	-
XVII.	M/s Chettinad Cement Corporation Pvt Ltd, Chennai Brand- CHETTINAD CEMENT	OPC 43 & PPC	13 May 2027
XVIII.	M/s My Home Industries Pvt Ltd, Chennai Brand- MAHA CEMENT	PSC	13 Oct 2027
XIX.	M/s My Home Industries Pvt Ltd, Chennai Brand- MAHA CEMENT	OPC 43 & PPC	13 Oct 2027

PARTICULAR SPECIFICATIONS**Appendix 'B' (Contd)**

- (c) While procuring Portland Pozzolana cement, the following requirements are to be ensured and certificate to be obtained from the manufacturer for each batch of PPC procured:-
- (i) The quality of fly ash is strictly as per IS-1489 (Part-I) -2002
 - (ii) Fly ash is inter-ground with clinker not missed with clinker.
 - (iii) Dry fly ash is transported in closed containers and stored in silos only pneumatic pumping is used.
 - (iv) The fly ash is received from thermal power plant using high temperature combustion above 1000C.
 - (v) The fly ash content in PCC is not more than 25%.
- (d) **USE OF PPC (POZZOLONA PORTLAND CEMENT)**
Portland Pozzolana Cement shall not be used for the following :-
- (aa) In cold climate region.
 - (ab) Over head reservoir.
 - (ac) Under ground sump.
 - (ad) Prestigious Building.
 - (ae) Building with spans 10 meter or more.
 - (af) PPC and OPC shall not be mixed.

1.3.1 The contractor shall furnish the particulars of the manufacturer/supplier 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 & in no case older than 60 days from the date of manufacture. The document in support of purchases of cement shall be verified by the Garrison Engineer. Before placing the order for supply of cement by the contractor, he shall obtain written approval from the GE regarding names of manufacturers, quantity of cement etc. Cement shall be procured for minimum requirement of one month and not exceeding the requirement of the same for more than two months at a time. The cement shall be consumed in the work within three months after receipt. Cement shall conform to the requirement of Indian Standard Specification and each bag of cement shall bear relevant ISI mark. The weight of each consignment shall be verified by the GE and recorded. The content of cement shall be checked at random to verify the actual weight of cement per bag. However, the content of cement per bag shall be 50Kg only subject to tolerance given in clause 9.2.1.1 and Annexure 'B' of IS-8112,1989.

1.4 TESTING OF CEMENT

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 relevant IS provisions and the Chemical composition of the cement or authenticated copy thereof duly signed by the manufacturer with each consignment as per the following IS provisions: -

- (a) Method of Sampling Hydraulic Cement as per IS-3535, 1986.
- (b) Method of Physical Tests for Hydraulic Cement as per IS-4031.
- (c) Method of Chemical Analysis of Hydraulic Cement as per IS-4032, 1985.

PARTICULAR SPECIFICATIONS**Appendix 'B' (Contd)**

- 1.4.1 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 contractor as given in the format hereinafter for verification.
- 1.4.2 The contractor shall however, organize 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 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 the 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.
- 1.4.2.2 The GE shall carry out independent testing as per the test 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, CME, Regional Research Laboratories, Govt approved laboratories, Zonal Laboratories as per test methods referred hereinbefore. 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 manufacture'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.
- 1.4.2.3 The random samples as per relevant IS shall select by the GE before varying out testing. The record of such samples selected by the GE for testing shall be properly maintained in the Cement Testing Register given cross reference to relevant consignment of cement and quantity received etc.
- 1.4.3 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.
- 1.4.4 The contractor shall be required to set up adequate testing facilities at site to the entire satisfaction of Garrison Engineer for conducting setting Time Test and Compressive Strength Test as per IS codes referred to hereinbefore for the samples collected from the lot brought at site. These tests shall be carried out within 7 days of receipt of cement at site. The tests can alternatively be carried out at the Zonal Laboratory so designated by GE.
- 1.4.5 The contractor shall submit original purchase vouchers for the total quantity of cement supplied under each consignment to be incorporated in the works. All consignments received at the work site shall be inspected by the GE alongwith the relevant documents to ensure the requirement as mentioned hereinbefore, before acceptance. The original purchase vouchers & the Test Certificates shall be verified for subject contract and defaced by the Engineer-in-Charge and kept on record in the office of GE duly authenticated and with cross reference to the consignment /control recorded in the Cement Acceptance Register. The cement Acceptance Register shall be signed by JE (Civ), Engineer-in-Charge, GE and the Contractor. The contractor shall maintain schedule of supply of cement for each consignment.
- 1.4.6 The Accepting Officer may order a Board of Officers for random check of cement and verification of connected documents during the currency of contract.

PARTICULAR SPECIFICATIONS**Appendix 'B' (Contd)****1.5 STORAGE ACCOUNTING/PRESENTATION OF CEMENT**

- 1.5.1 Cement shall be stored in covered go down over dry platform at least 20cm high in such a manner as to prevent deterioration due to moisture or intrusion of foreign matter. In case of store rooms, the stock should be at least 20cm away from floors and walls. The stocking of cement shall be done as specified in relevant IS. The storage, accounting and preservation of cement supplied by the contractor shall be done as per standard engineer practice till the same is incorporated in the work and the cost of the same is deemed to be included in the unit rate/amount quoted by the tenderer. The EIC shall inspect once a day to verify that cement lying at site is stored, accounted, preserved and maintained as per the norms. The cement shall be stored so as to differentiate each tested and untested consignment separately with distinct identification. If the GE is not satisfied with the storage /preservation of cement, he may order for any test(s) of cement as applicable for that consignment to sure its conformity to the quality mentioned in the manufacturers test certificate. The contactor shall bear the cost of necessary testing(s) in this regard and no claim whatsoever shall be entertained.
- 1.5.2 Stacking of cement shall be done as per relevant IS and as under :-
- (a) Each cement consignment shall be stacked separately and removal shall be made on the basis of 'First in First out'.
 - (b) Adequate top cover will be provided.
 - (c) Stacks in no case shall be higher than 10 bags. The maximum width of each stack shall be 3.00m. If the stack is to be more than 7 to 8 bags high, the bags shall be arranged in header and stretcher fashion , alternatively lengthwise and crosswise so as to tie piles together and avoid danger of topping over Adequate space shall be kept between two stacks.
 - (d) Adequate space shall be kept between two stacks.
- 1.5.3 Cement godown shall be provided with two locks on each door. The key of one lock at each door shall remain with the EIC or his representative and that of the other lock with the contractor's authorized agent at site of works so that cement is removed from the go down only according to daily requirement with the knowledge of both the parties. During the period of storage, fi 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 of the GE and suitable replacement for the cement bags(s) so removed shall be made and no claim whatsoever shall be admissible on this account.
- 1.5.4 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 & 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 indicated otherwise.
- 1.5.5 In case 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.

PARTICULAR SPECIFICATIONS**Appendix 'B' (Contd)****1.6 SCHEDULED OF SUPPLY**

The contractor shall procure the cement timely as required in accordance with CPM chart agreed between GE and the contractor. The contractor will forfeit his right to demand extension of time if the supply of cement gets delayed due to his failure in placing order in time to the manufacturer. The Contractor shall have no right to demand extension of time if the supply of cement got delayed due to his failure in placing order in time to the manufacturers / authorised suppliers. In case of non-availability of cement from the manufacturers listed above, non-availability certificate duly signed by their authorised representative shall be submitted by the Contractor.

1.7 DOCUMENTATION MEASUREMENT AND PAYMENT OF CEMENT

The contractor shall submit original vouchers from the supplier for the quantity of cement supplied under each consignment to be incorporated in the work, all consignment received at the work site shall be inspected by the GE alongwith relevant documents received at the work site. The original vouchers and the test certificate shall be defaced by the Engineer-in-Charge and kept on record in the office of GE duly authenticated with cross reference to the control number recorded in cement acceptance register. This register will be signed by the JE, Engineer-in-Charge, GE and Contractor.

1.7.2 The accepting Officer may order a Board of Officer for random check of cement and verification of connected documents. The entire of cement shall also be suitably recorded in the Measurement Book for record purposes as 'Not to be abstracted' before incorporation in the work shall b signed by the Engineer-in-Charge and the contractor.

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

SIGNATURE OF CONTRACTOR**FOR ACCEPTING OFFICER**

LIST OF MAKES (B/R ITEMS)

List of makes/Firms for products to be incorporated in the subject tender:-

SLNO	ITEMS	MAKES
1.	2	3
1	Fine aggregates:	
	i) For masonry	Conforming to samples kept in GEs office.
	ii) For plaster work	Conforming to samples kept in GEs office.
2	Coarse aggregate	Conforming to samples kept in GEs office.
3	Hard core	Conforming to samples kept in GEs office.
4	Stone	Best locally available and conforming to samples kept in GEs office.
5	PCC Solid Block	Sukhi
6	ACC Block	Siporex, Birla Aercon, Dlite Blocks
7	Ready Mix Concrete	Lafarge (RMC), Ultra Tech, ACC, RMC Ready Mix
<u>JOINERY AND HARDWARE</u>		
1.	Factory made Flush Doors	Kit Ply Industries, Century Ply Industries, Green Ply Industries, National Ply wood Industries, Sarda Ply Wood Industries, Mayur Ply Wood.
2	Factory made paneled shutter	(i) M/s Bhimsaria Doors Pvt Ltd, Raipur Chattisgarh (ii) M/s Berar Timber Industries Pvt Ltd, National Highway No 8, Village Saran, Valsad, Gujarat - 396001 (iii) M/s Pioneer Timber Projects, 22, Madhya Marg, Sec 'C', Chandigarh (iv) M/s A-1 Teak Products Pvt Ltd, Indore - 452 002. (v) M/s Betul Wood Products Pvt Ltd, Industrial Estate, Betul - 460 022 (MP), (India). (vi) M/s Egwood Electrical and General Industries, 1 st floor, MG Secunderabad - 500 003. (vii) M/s Goyal Industries Corpn, 83443, D.B. Gupta Marg, New Delhi 110 005. (viii) M/s Prince Timbers, Gulab Nagar, Outside Victoria Bridge, Jam Nagar - 261001. (ix) Arkay Doors (P) Ltd, G-1/45 Shop No 24, Lawrence Rd, Industrial Area, New Delhi -110 035. (x) M/s Doorking Industries, 27, G. N. Block Sector-V. Industrial Estate, Salt Lake, Calcutta - 700 091 (xi) M/s Mehta Seaschem wood Industries Pvt Ltd, Old Bunder Rd, Near Ferri Naka, Behind Sharada Timber Mart, Bhavnagar - 364 001 (xii) M/s Jain Doors Pvt Ltd, Kundli Industrial Area. (xiii) M/s VPRPART, H-399, Mini Growth Centre Phase-II, Sangaviya Jodhpur. (xiv) M/s JK Interior Vakola, Santacruz (East).
3	Factory made Wooden shutters	(i) M/s Goel Brothers Rajpur (ii) M/s Pioneer Timber CHD (iii) M/s Goyal Industrial New Delhi (iv) M/s Jain Doors Pvt Ltd (v) M/s India Wood & wood Products M lore (vi) M/s Price Timber (vii) M/s A-1 Teak Products Indore
4	Factory made PVC / FRP Door frames & shutters	(i) M/s Sintex Industries Ltd, Plastic Division ,Kalol, N Gujarat - 382 721 (ii) M/s Rajshree Plasti wood Ltd, 10/1 South Tukoganj, Kanchan Baug Road, Indore. (iii) M/s Accura Polytech Pvt Ltd Ahmedabad. (iv) M/s Dura PlastExfousion (v) M/s Madhu Industries (vi) M/s Navratna Co Speciality Chemicals

Appendix D(contd...)
LIST OF MAKES (B/R ITEMS) (CONTD.....)

5	Wood based partitions	Novapan, Bhutan Road, Green Ply, Mangalore, Mysore & Chipboard, Century Ply board India Pvt Ltd, Kit Ply.
6.	Dash tru-hold Expansion Fasteners	(i) Dash Fasteners Pvt Ltd, C-16, South Extension Part II, New Delhi (ii) M/s Mon Traders, C-16, Tardeo Air Conditioned Market, Bombay - 400 034.
7	Rolling shutters & Collapsible gate	(i) M/s Shaparia Dock and Steel Co Pvt Ltd (ii) M/s Swastik Rolling Shutters and Engineer Works (iii) M/s Senthil Rolling Shutter & Engineering Co (vi) M/s Shalimar Rolling Shutters (v) M/s Darshan Rolling shutters, Panchvati, Nasik (vi) M/s Ajanta Engineering Works, Pune (vii) M/s Shiv Shakti Engineering, Pune. (viii) M/s Prakash & Co, Delhi.
8	Mortice locks	Harrison , RP Lock Co, New Delhi, Godrej & Boyce Co Ltd, Mumbai
9	Hydraulic Door closers	Everlite, Prabhat, Universal, Dyna
10	Glass for glazing	Modiguard, Saint-Gobain, Atul, Modi Float, Gold Fish
11	Sheet Glass Frosted	Saint Gobin, Asahi Works, Atul Glass, Gold Fish, Modi Guard
12	Prepainted Galvalume Plain corrugated sheet	TATA, JSW, ESSAR
13	Cement Concrete Interlocking Paver Blocks/ Tiles	M/s Mehtab Tiles, Indore, M/S Ultra Tiles, M/s Navya Tiles, Jodhpur, M/s NITCO, M/s Patel Fur Mart
13A	PVC Sheet and Tile flooring	M/s Krishna Vinyl Tiles, M/s Armstrong, M/S Marbles Tiles, M/s Polyfin Tiles, M/s Square Foot, M/s Krishna Vinyl tiles
14	Aluminium Section for Shutter/Frames for door/window/ventilators	M/s Hindalco Ind Ltd, M/s Indian A1 Company, M/s Jindal, M/s Associated Profile & Alum Ltd, M/s Sterlite, M/ Deco Grill
15	Drapery rod	Vista Levolor, MAC-DÉCOR, Soffia
16	Aluminium Doors/Windows / Ventilators	Associated Profiles & Aluminium Ltd, DG Make / HINDAL Co / INDAL Co/, Everlite/ ECL/, Jindal/ M/s TulsarVihar, Dr AB Road, Worli, Mumbai / M/s Eastern commercial & Industries Enterprises Bombay/ Indian Aluminium Co (INDAL Co)
17	Aluminium & Brass Mongery	Argent Industries, Crown Industries, Mech India, Nu-Lite Industries, Perfect Fabricators, Classic, Aluminium Udyog
18	Gypsum based ceiling	Gypsum board, Arm strong, Ramco, Bison
19	Aluminium sections for false ceiling	Jindal, Indal, Hindalco
20	Aluminium Composite Panel/ Materials	Flexibond, Orient Bell, Green Flamax
21	Venetian Blinds	Trac, Kurlon, MAC, VISTA, Aerolux, Vista, Levolor
22	Laminated Sheets	Formica, Sunmica, Ecoboard, HYLAM, Greenlan Laminates, Merino Laminates, Century, Kit Vista
23	Particle board & Pre-laminated particle board	Anchor, Kitply, Century, Diamond, Archidply, Navopan, Deco board, Green Ply, Eco board, M/s Novatek Bombay Burmah Trading Corp Ltd, Wallace Street Fort Bombay-01
24	Pre moulded non bituminous joint filler board	STP, Tikitar, Sikka
25	Pre moulded bituminous joint f	STP Ltd, Tikitar Industries Ltd, Capital steel and Chemicals Ltd, Garlex Joint Filler by M/s Garlick & Co Pvt Ltd, Roof Rites Delhi, SN Industries, Delhi.

Appendix D(contd...)
LIST OF MAKES (B/R ITEMS) (CONTD.....)

SER NO	ITEMS	MAKES
1.	2	3
26	Non-Asbestos fibre Reinforced (polypropylene) 6mm Cement corrugate sheets.	Charminar, Everest, Ramco.
27	AC rain water pipes	Everest, Rajasthan asbestos cement, Hyderabad Asbestos Cement, Rohtas, Sarbmangala Manufacture Co, M/s Swastik
28	Steel windows, ventilators, door frames, shutters	M/s Madhu Industries
29	Mortice Locks	M/s Harrison, Ms/ Godrej & Boyee Co. Ltd
30	Plywood	M/s Kitply (KITPLY) M/s Century Plywood/ M/s Archid Ply (ARCHID)/ M/s Green Ply (GREEN PLY)/ M/s Achor (ANCHOR)
31	Adhesives	M/s Pidilite, M/s Fevicol, M/s Vermicol
KITCHEN/BATH / SANITARY FITTINGS		
1	Kitchen chimneys	Bajaj, Sunflower, Butterfly, Glen, Sunflame
2	Stainless Steel Sink ISI marked	Nirali , Blue Star , Prayag (Gold Range, Silver Range & Solitaire), JAYNA, Diamond , Parryware
3	EWC, IWC, Wash hand basin, Urinal Flushing Cistern & other Vitreous China sanitary ware with accessories	Parryware (Super Fine), Cera (1 st quality), Jaguar ,Neycer, HINDWARE, RAK Ceramics
4.	Aluminium Tower Bolt/ Aldrops/ door Handle/ Butt Hinges	M/s Argent Industries, M/s Aluminium Udyog
5	Towel rails	Crown, Swastik, ESSESS, Prayag, KICH, Jaquar
6	PVC Low level flushing cistern	Commander (Champion), Parryware (Slimeline), JINDAL, SARAL Slim Touch (RiddiSiddi), PRAYAG
7	Seat and cover for WC	Commander, Parry ware ,Cera , Necycer, PRAYAG.
8	CP Fancy Bib Taps, Stop Valves, Pillar Tap	Jaquar, Marc, Sieco Indus, Kohler, Cera, Soma, Prima, Coronet, Shakti, Johnson
9	PVC Toilet cabinet Mirror	Commander, Jasmine, Cipla Plast, Rotamax, Polytuff
10	Hot & Cold water supply fitting	M/s Jaquar, M/s L&K, Goldline, M/s Crabtree, PRAYAG, Marc, Seiko, Plumber
11	Mirror	Atul Product Pvt Ltd, New Delhi, Kohinoor, Swastic, Golden fish, Saint Gobain , Modiguard.
12	PTMT fittings (Bib Taps, Stop cock, Pillar Tap)	Prayag, Polytuff,
13	Stainless Steel Plate Rack	M/s Prayag (Prayag), M/s Nirali, M/s Bluestar Sanitary Industries Pvt Ltd (Silvershine)
14	Pulley System Wall Stands Floor Stands & Accessories	M/s Easy Dry System Pvt Ltd (Easydry)
15	Shower Rose	Jaquar, Kohler, Cera, Soma

Appendix D(contd...)**LIST OF MAKES (B/R ITEMS) (CONTD.....)**

CHEMICALS / WATER PROOFING COMPOUNDS		
1	Chemical for Anti-termite treatment for structures (CHLOROPYRIFOS) (20 E C)	(i) Montari Industries Ltd, 78, Nehru Place, New Delhi -110 019, (ii) 4-H Clubs (India), 487A, Gandhi Nagar, Jammu-04. (iii) TRISHUL bearing (ISI Mark confirming to IS specifications (iv) M/s Dara Chemicals Industries Ltd, D-3, Lajpet Nagar-01, New Delhi - 24. (v) 'DURSBAN' manufactured by DENOCIL marketed at Mumbai by DE-NOCIL Corporation Protection Ltd, 1 st & 2 nd Floor, Pirojshah Nagar, Eastern Express Highway, Vikroli (East) , Mumbai - 79. (vi) M/s Kanojia Chemicals & Industries Ltd, P.O Renukoot - 231217, District - Sonbhada (UP). (vii) M/s India Pesticides Ltd, E-17 to 23, UOSIDS Industrial Area, Deva Road, Chinhal, Lucknow (UP) - 227105 (viii) Pest control (Rajasthan) Guruhari Niwas D-232 Marg Bani Park, Jaipur, Firm having membership of IPCA and holding valid licence.
2	Water Proofing Company	(i) Pidilite Industries Ltd, Talaja, Raigad District. (ii) M/s Thermex Ltd (iii) M/s Krishna Conchem Products Pvt Ltd (iv) STP Ltd (v) M/s Asian Paint Ltd (vi) M/s Berger Paints India Ltd (vii) M/s Bostic India Pvt Ltd (viii) M/s Bauchemimic (India) (ix) IWL India Ltd (x) Fosroc chemicals (I) pvt ltd
FLOORING/TILING		
1	Mosaic/ Cement Tiles	Nitco, Bharat, Ultra, Mehtab, National
2	Glazed Ceramic tiles (Wall/ Floor)	Somani Tiles, Kajaria Tiles, RAK Ceramics, Orient Bell, AGL, Varmora Tiles
3	Vitrified Tiles	Somani Tiles, Kajaria, RAK Ceramics, Orient Bell, AGL Tiles, Varmora Tiles
4	Acid resistant Tiles	Johnson Tiles, Somany Tiles, Kajaria Tiles,
5	Inter locking Paver blocks / tiles	(i) Ultra Tiles (ii) Supreme Tiles (iii) NITCO (iv) Mehtab Tiles (v) Navya Tiles Jodhpur (vi) Sukhi Enterprises (vii) Topaz Tiles
6	Non Skid Ceramic Tiles	Kajaria, Somany, Johnson. Orient Bell, Spartek, Regency, Asian
PAINTS/FINISHES		
1.	Primer	Asian paints, Nerolac, Shalimar, Berger, Synthetic Enamel.
2	Synthetic Enamel Paint	Nerolac, Asian Paints (Apolite Premium), Dulux, Shalimar, Johnson & Nicholson
3	Anti corrosive paint on structural steel	Asian Paints, Nerolac, Berger, Dulux, Fosroc chemicals (I) pvt ltd
4	Cement Base Paint	SUPER SNOWCEM, SHALIMAR, Asian Paints, Nitco Paint Pvt Ltd., Berger Paints, Duracem, Aquacem

LIST OF MAKES (B/R ITEMS) (CONTD.....)

SLNO	ITEMS	MAKES
5	Acrylic emulsion paints (interior)	Berger Paints (Rangoli Acrylic emulsion), Asian Paints (Premium emulsion), Nerolac Paints (Beauty Gold acrylic emulsion). ICI Dulux (Super smooth acrylic emulsion).
6	Plastic Emulsion Paint	Asian Paints, Berger Paints, Nerolac Paints, Dulux, Johnson & Nicholson
7	Acrylic exterior antifungal paint	Asian Paint (Apex)/ Ultima, Berger Paint (Weather coat all guard emulsion) ICI Dulux (Weather shield max / Ultra clean emulsion) Nerolac (Excel anti peel emulsion) Pidilite weather proof
8	Dry/Oil Bound Distempers and Emulsions	Asian paints (Tractor acrylic distemper), Nerolac Paints (Beauty acrylic distemper), Berger Paints, Dulux, Shalimar
9	Colour anodizing for Aluminium sections	Conpaptex, Vadodara, Krishna Metal Industries, Mumbai, Mansi chemical, Ahmadabad, Anand Tech Process, Bangaluru.
10	Cement Putty	Shalimar, M/s Birla Cement, Asian, JK White, Jehnson Nicolson
11	Hot applied thermo plastic road marking paint (As per CI 803.4 of MORTH)	Asian Paints Ltd SHALIMAR , STP Ltd, IWL India Ltd
12	Epoxy Paint & Primer	Asian, Berger, Nerolac
13	Polymer modified ready mix plaster	Easy Plast from Wall plast, Chemplast, Ready Plast from Ultra Tech
PLUMBING		
1	CI Pipes and fittings	Kalinga, NECO, Electrosteel, Kejrival, Kesoram
2	HDPE pipes & fittings	Finolex, Prince, Kissan, Tiruputi, Supreme, Dutron, ASTRAL, SFMC
3.	PVC Pipes	Kissan, Aqua Fit, Finolex, Birla Aircon, Avon Plast, Prince
4.	CP Bibcock, Stopcock, Pillar Cock and accessories	Jaquar, Marc, Cera, Soma, Prima, Sieco, Kohler, Coronet, Shakti, Johnson
5.	Foot valve	Kirloskar, Leader, Prayag
6	Sluice valves (ISI Marked)	Leader, Venus, Kirloskar, L&T (AUDCO), Indian Valves
7.	Gate valve, Ball valve	Leader, Zoloto, Kartar, Kriloskar
8.	PVC /HDPE Water Tanks (ISI marked)	Sintex, Rotomex, Polycon,, OMTEX, ASTRAL
9	Float Valve	Prayag, Zoloto, M/s Jaypee, Seiko
10	GI Pipe & fittings	Tata, Jindal, Surya, KS, BST, Zenieth
11.	DI Pipes & Fittings	M/s Jindal Ltd Gujrat, M/s Electrosteel Casting Ltd, M/s Tata Metalics Kolkata, M/s Saw Pipes, NECO, Electrotherm
12.	Loft Tanks	Sintex, Polycon, Plasto, Ganga
13.	PVC Soil Waste Min Water (SWR & Drainage Pipes)	M/s Supreme, M/s Prince, M/s Kissan, M/s Finolex, ASTRAL, SFMC
14.	PPR Pipes & Fittings	M/s Kanha Plastic Pvt Ltd (KPT), M/s Prince Pipes Fittings Ltd (Green Fit), SFMC, SHK,
15.	UPVC Pipes & Fittings	Kissan, Birla Aircon, KPT, Hindware, Green Line, AKG, Prince, ASTRAL, SFMC
16.	ERW pipes	Jindal, Tata, SAIL
17	Reflex Valves (NRV)	Kirloskar, Leader, Sant, L & T
18	Air Release Valves	Kirloskar, Leader, Sant, L & T
19	CPVC pipes and fittings	Finolex, Dutron, SFMC, M/s Prince Pipes & Fittings Ltd (SMART FIT), M/s Birla Aerocon , ASTRAL, Ashirval, Prayag

Appendix D(contd...)LIST OF MAKES (B/R ITEMS) (CONTD.....)

MISCELLANEOUS		
1	APP membrane	STP, Pidilite Industries Ltd Mumbai, Fosroc chemicals (I) pvt ltd, Tiki Tech, IWL, Texsa
2	Protective coating to reinforcement Bars	PSL Ltd, Zary Causeway, Kachigam, Daman (UT) or equivalent, Pidilite, Zinga (Calcutta), SRMB Srijan Ltd, Hariom Epoxy shield, Fosroc chemicals (I) pvt ltd
3.	Bituminous Sealing compound	STP Ltd, SN Industries, Tikitar ,Fosroc chemicals (I) pvt ltd
4.	Alkaline Rust Primer	Pidilite, STP Ltd, Fosroc, Krishna Conchem
5.	Bi-polar Migratory Corrosion Inhibitor	Pidilite, STP Ltd, Fosroc, Krishna Conchem
6.	Epoxy Bond Coat	Dr Fixit, Pidilite, Fosroc, STP, SIKA, Krishna Conchem
7.	Polymer Bonding Agent	Dr Fixit, Pidilite, Fosroc, STP, SIKA, Krishna Conchem
8.	Micro concrete	Pidilite, M CON, SIKA, FOSROL, SHALI FIX, Krishna Conchem
9.	Polymer modified mortar	M CON, SIKA, PIDILITE, FOSRC, Krishna Conchem
10.	Crack filler	SIKA, PIDILITE, PERMA

LIST OF MAKES (E/M ITEMS)**List of makes/Firms for products to be incorporated in the subject tender:-**

SER NO	ITEMS/MATERIALS	NAME OF MANUFACTURER'S/FIRM
1.	Power Transformer 33/11 KV	CROMPTON GREAVES, KIRLOSKAR ELECTRIC Co, BHEL, SCHNEIDER, ABB, ALSTOM, T&D INDIA, VOLTAS, SIEMENS, TRANSFORMERS & RECTIFIERS (INDIA) LIMITED
2.	Transformer 11KV/415 Volts	CROMPTON GREAVES, KIRLOSKAR ELECTRIC Co, BHEL, SCHNEIDER, ABB, ALSTOM, T&D INDIA, VOLTAS, SIEMENS, TRANSFORMERS & RECTIFIERS (INDIA) LIMITED,
3.	Isolation Transformers/ UPS etc	CROMPTON GREAVES, KIRLOSKAR ELECTRIC Co, BHEL, SCHNEIDER, ABB, ALSTOM, T&D INDIA, VOLTAS, SIEMENS, TRANSFORMERS & RECTIFIERS (INDIA) LIMITED,
4.	GOD (Gang Operated Device) 11 KV and above	PACTIL (MATRO), JAIPURIYA BROTHERS, OBLUM, ATLAS, ABB
5.	HT Switch gear 33 KV, VCB (Out Door)	BHEL, ABB, SIEMENS, CROMPTON GEAVES, SCHNEIDER, ALSTOM, KIRLOSKAR.
6.	HT Switch gear 11 KV, VCB (Indoor/Out Door)	BHEL, ABB, SIEMENS, CROMPTON GEAVES, SCHNEIDER, ALSTOM.
7.	HT switch gear protection relay electronics	ABB, SCHNEIDER, C&S, SIEMENS, L&T
8.	HT Trivector Meter	SECURE, L&T, ABB (ELSTER), SCHLUMBERGER, SIEMENS
9.	HT Ring main unit, SF6, 11KV	ABB, SIEMENS, CROMPTON GEAVES, SCHNEIDER
10.	Package/unified Sub-Station	ABB, SIEMENS, CROMPTON GEAVES, SCHNEIDER
11.	HT Cable joints heat shrinkable /Cold shrinkable / push on type	RAYCHEM, M-SEAL, DENSON, BIRLA 3M, MAHINDERA & MAHINDERA, SIEMENS, ICC, RAYOHEM, LT JOINT
12.	CT & PT, 11 KV/33KV	PRAGATI, AE, KAPPA, SCHNEIDER L&T (AS PER HT PANEL MANUFACTURES DESIGN), SIEMENS, ABB
13.	HT 33 KV/11KV XLPE Cables	UNIVERSAL CABLES (UNISTAR), ASIAN CABLES (RPG) CCI (TROPODOUR), POLYCAB, NICCO, GLOSTAR, VISHAL
14.	Disc Insulator / Pin Insulator 11 KV and 33 KV ratings	BHEL, WS INSULATORS, JAYSHREE, MODERN INSULATOR, YAMUNA POWER (DENSON), JAYPURI CO
15.	HT/LT Steel tubular swaged pole	NATIONAL TUBING CO, KANPUR, SINGH PROFILES, QULAIY STEELS, BHARAT CONDUIT & POLES CO MUMBAI, INDIA ELECTRIC POLES MFG CO LTD (RAIGARH), INDIA TUBE CO LTD (JAMNAGAR), JAIBHARAT POLES MFG & ENGRS CO (BARODA), BOMBAY TUBING LTD, BANSAL, HAVELLS
16.	HT/LT PCC Poles	SATHE CEMENT VASTU NIRMITI PUNE, DEVANG FENCE THANE, VAIBHAV CEMENT PRODUCT PUNE, AKAT COMPANY MUMBAI
17.	Bus Bar Trunking	L&T, SIEMENS, SCHNEIDER, ABB, GE, LEGRAND, C&S
18.	Lightning Arrestor non-linear resistor type	OBLUM, ELPRO, ATLAS, PACTIL, CROMPTON GEAVES, SCHNEIDER, BHEL
19.	HT Panel	L&T, SIEMENS, SCHNEIDER, ABB, GE, EPLEC LEGRAND, C&S
20.	LT Panels	SIEMENS, CROMPTON GREAVES, L&T, ABB, HPL INDIA LTD, DOLAR, EPLEC LEGRAND

LIST OF MAKES (E/M ITEMS) (CONTD.....)

21.	LT Air Circuit Breaker	L&T, ABB, SIEMENS, BCH, LEGRAND, SCHNEIDER, HPL, C&S
22.	MCCB	LEGRAND (DPX), SIEMENS/L&T (SENTREN), SCHNEIDER (MERLIN GERIN) / C&S, MDS, ABB (ISOMAX SERIES), GE (RECORD PLUS), HPL INDIA LTD , BENTEC
23.	ACB (Drawout type)	GE,SCHNEIDER, HAVELLS, LEGRAND, SIEMENS, C&S
24.	Contactors	SIEMENS, ABB, L & T,GE, SCHNEIDER, BCH, C&S, LEGRAND
25.	MCB / RCBO/RCCB/DB/Isolators	L&T (HEGAR), LEGRAND (LEXIC), SIEMENS (BETAGUARD), SCHNEIDER (MG-MULTI-9), ABB, GE, HAVELLS/STANDARD ,HPL, CGS, C&S, MDS, STANDARD, BENTEC
26.	Prewired DB	HAVELLS /LEGRAND/ L&T/SIEMENS/ABB, C&S, MDS, BENTEC
27.	Voltmeter/Ammeter/Frequency meter/PF Meter (Analog Type)/ Meters	AE, IMP, L&T (RISHAB), HAVELLS, BENTEC, TTL
28.	Voltmeter/Ammeter/Frequency meter/PF Meter (Digital Type)	ENERCON, DIRIS, DUCATI, L&T (RISHAB) TRINITY, RAAS, CONCORD, AE, SECURE, TTL TECHNOLOGY, ENERCON, LEGRAND
29.	Selector Switch	SIEMENS, KAYCEE, C&S, L&T, LEGRAND
30.	Street Light timers	L&T, LEGRAND, GE, BAJAJ, SIEMENS, ABB, BCH
31.	LT Cables, 1100 Volts, XLPE	RPG, UNIVERSAL CABLES, KEI, FINOLEX CABLES, POLY CAB, HAVELLS INDIA LTD, RR KEBLES, RPG CABLES (KEC), UNIFLEX, BENTEC
32.	Change over Switches	L&T, SIEMENS, CROMPTON GREAVES, GE, HAVELLS/ INDOASIAN/ STANDARD, C&S, LEGRAND, BENTEC
33.	Temper proof electronic meter	SECURE, L&T, ACCURATE METERS, HAVELLS, HPL
34.	(a) Voltage Stabilizers 5 KVA to 25 KVA	SINETRAC, BRENTFORD, VINITEC, AE, MICROTECH. APLAB
	(b) Voltage Stabilizers upto 4 KVA	VINITEC, SINETRAC, MICROTECH, POWER WARE, APLAB, V GUARD, AE.
	(c) Voltage Stabilizers above 25 KVA (Servo Controlled)	ANDREW YULE (BRENTFORD), AE, APLAB
35.	DG SETS	
	(i) Engine	CUMMINS, KIRLOSKAR OILS ENGINES, ASHOK LAYLAND, GRE AVES LTD, COTTON, MAHINDRA
	(ii) Alternator	KIRLOSKAR ELECTIRIC , CROMPTON GEAVES, STAMFORD, ABB, SIEMENS
	(iii) Acoustic Enclosures for DG Sets (as per CPCB norms)	BHASKAR POWER PROJECTS PVT LTD, KALA GENSET, GOEL POWER ENGINEERS, JACKSON, SUDHIR GENSET LTD, POWERICA, RA POWER, SHREE DIESELS, CROMPTON GREAVES.
36.	LT Capacitor Banks	SIEMENS, L&T, ABB, EPCOS, GE, UNIVERSAL C&S, LEGRAND
37.	APFC Panels	L&T, SCHNEIDER, CROMPTON GEAVES, HPL
38.	Electronic Energy Meters	SECURE, L&T ALSTOM (AREVA) / HPL, LEGRAND
39.	CTs (LT)	KAPPA, IMP, AE, SIEMENS, L&T
40.	PVC insulated Copper wires - 650/110 Volts	FINOLEX, L&T , HAVELLS, POLYCAB, PLAZA, ANCHOR
41.	Steel conduit	AKG, BEC, NIC, BHARAT STEEL TUBES, CTI
42.	PVC Casing Caping	PRESS FIT, PRECISION, SUPREME, MODI, PRINCE (Only ISI Marked)
43.	PVC Rigid pipe (Heavy duty) / PVC Conduit pipe	FINOLEX,PRINCE,TIRUPATI, DUTRON, SUPREME, AKG, PRECISION , AVON PLAST, ASTRAL
44.	MS Conduit	Jindal AKG, Asian RMG
45.	Piano type Switch/Sockets	LEGRAND, HAVELLS, CPL, STANDARD CONA, LEADER, C&S, BENTEC

LIST OF MAKES (E/M ITEMS) (CONTD.....)

46.	Modular Switches/sockets	ANCHOR (ROMA), LEGRAND, CRABTREE, HAVELLS, L&T HPL, BENTEC
47.	Ceiling rose	ANCHOR, LEGRAND, CRABTREE, CONA, LEADER, PRESTOP
48.	LED Tube light & Bulbs	PHILIPS, BAJAJ, WIPRO, HAVELLS, LUKER, BENTEC
49.	Solar Street light fittings	Philips, Havells, Bhel, Tata, Crompton, Bajaj, Surya, Axxon
50.	High Mast Light	Bajaj, Philips, Crompton, Metal Coats, Utkarsh Tubes & Pipes
51.	Flood light	PHILIPS, CROMPTON GREAVES, SURYA, HALONIX, C&S, BENTEC
52.	LED Light fittings/ LED Lattern/ Garden Lights	Crompton, Philips, Havells, Wipro, Bajaj, Luker, Bentec, Halonix, Jaquar, Shakti
53.	Halogen Light/ Fittings	Bajaj, Wipro, Crompton, Philips
54.	Geyser	Havells, Bajaj, Racold, Jaquar, V Guard
55.	LED Street Light Fittings	Bajaj, Philips, Wipro, Crompton, Havells, Luker, Jaquar, Bentec, Orient, Poly Cab, Surya, Pyrotech
56.	Flouroscent Tube Light Fitting/ LED/ Lamp Holder	Wipro, Bajaj, Crompton, Philips, Havells, Surya
57.	CFL fittings	PHILIPS, CROMPTON GREAVES, BAJAJ, WIPRO, SURYA, HAVELLS, C&S, HALONIX
58.	CFL Lamps	OSRAM, PHILIPS, CROMTON GEAVES, BAJAJ, WIPRO, HALONIX, SURYA ROSHNI LTD
59.	Ceiling Fan	Bajaj, Crompton, Havells, Polycab
60.	Exhaust fan	CROMPTON GREAVES, KHAITAN, BAJAJ, USHA, Havells
61.	Fan Regulator	Anchor, Legrand, Havells, Bajaj, Usha, Khaitan
62.	Electric Call Bell	ANCHOR, LEGRAND, CONA, C&S
63.	Wall mounted Fan/Air Circulator	CROMPTON GEAVES, ALMONARD, USHA, KHAITAN, BAJAJ
64.	PVC Pole Boxes	SINTEX, FINOLEX, UNIVERSAL
65.	Flame proof Electrical fittings	BATIGA LIGHTNING EQUIPMENT, BAJAJ ELECTRICALS, SHYAM SWITCH GEAR, FLEXIRO, SUDHIR, CGS
66.	ACSR Conductor	ALL-IND, ICC, NICCO, BHARAT CONDUTORS, INDIAN ALUMINIUM CO
67.	Laminated Sheet Cover	HYLAM, FORMICA, GREEN LAMINATED BOARDS, ANCHOR, BAKELITE.
68.	Aviation Obstruction Light	BAJAJ, CROMPTON GREAVES, WIPRO, PHILIPS
69.	Thimbles/Studs/Lugs	DOWELLS, JAIPURIA BROTHERS, AXIS, INDIRA
70.	Lifts	OTIS, MITSUBISHI ELECTRIC, KONE INDIA, SCHINDLER ELEVATORS, HITACHI LIFTS, FUJITEC INDIA, THYSSEN KRUPP ELEVATORS INDIA
71.	LT Changeover switch	L&T, SCHNEIDER, HAVELLS, STANDARDS, C&S, LEGRAND, BENTEC
72.	Battery charger	VOLTSTART, AE, BCH
73.	Cranes	MUKUND LTD, LOAD MATE, DEMAG, ELECTROMECH, JESSOP CRANES, WMI (KONE CRANES) CRANEX LTD
74.	Precast concrete cable cover	Mehtab Tiles, Indore, M/s Sukhi Enterprises

Note:-

1. Paid Vrs/Test certificates wherever applicable shall be submitted by the tenderer to the Engr-in-Charge for record.
2. Delete whichever is not applicable.
3. The Contractor shall have no right to demand extension of time if the supply of materials got delayed due to his failure in placing order in time to the manufacturers / authorized suppliers. In case of non-availability of materials from the makes listed above, non-availability certificate duly signed by their authorized representative shall be submitted by the Contractor.

SIGNATURE OF CONTRACTOR

FOR ACCEPTING OFFICER