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CONNECTED ACCESSORIES AT SECTOR 'C' & 'D' AND ADJACENT AREA UNDER AGE
E/M-I OF GE 865 EWS**

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Signature of Contractor

Offg AGE (Contracts)
for Accepting Officer

Garrison Engineer
865 Engr Works Section
PIN-913865
C/O 56 APO

8820/865/EWS(NIT-76)/2024-25/22/E8

28 Oct 2024

M/S _____

CA No 865/EWS(NIT-76)/2024-25: REPAIR / MAINTENANCE OF LT CABLE , MCCB, LT PANELS WITH CONNECTED ACCESSORIES AT SECTOR 'C' & 'D' AND ADJACENT AREA UNDER AGE E/M-I OF GE 865 EWS

Dear Sir(s),

1. Tender documents in respect of above work are uploaded on site www.defproc.gov.in. The tender is on single stage two cover e-tendering system. The contents of Cover I & Cover II are specified in NOTICE OF TENDER.
2. Bids will be received online by ACCEPTING OFFICER upto the date and time mentioned in the NOTICE INVITING TENDER (NIT). No tender/bid will be received in physical form and any tender/bid received in such manner will be treated as non bonafide tender/bid.
3. Bid will be opened on line on a due date fixed for opening as per critical dates given in the portal. Cover 1 will be opened first. Tenderers may see the result of the opening of Cover 1 on the tender portal. Date of opening of Cover 2 shall be decided after technical evaluation of Cover 1 keeping in view the various eligibility criteria given in the NIT and the same will be intimated to the tenderers while uploading the technical evaluation on the tender portal.
4. Your attention is also drawn to instruction on filling and submission of tender attached herewith. You may forward your points on tender documents through email and/or depute your technical representative for discussion on tender/drawings and to clarify doubts, if any, on or before bid submission start date. You are requested not to write piece meal points and forward your points duly consolidated before due date viz. bid submission start date.
5. Un-enlisted contractors are required to submit the scanned copies (in pdf file) of documents required as per eligibility criteria mentioned in instructions for filling the tender documents and Appendix 'A' to NIT alongwith EARNEST MONEY DEPOSIT (EMD) and tender fee on e-procurement portal and submit the physical documents in the office of Garrison Engineer 865 EWS C/O 56 APO 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 contractor of MES shall submit the scanned copies (pdf file) of enlistment letter, tender fee and such other documents as mentioned in Appx 'A' to NIT on e-procurement portal and submit physical documents in the office of Garrison Engineer 865 EWS, C/o 56 APO before date & time fixed for this purpose.

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FORWARDING LETTER (Contd.../)

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 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 for period of 36 (Thirty Six) Months. 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 19 of GCC shall be taken.

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

Yours faithfully

Offg AGE (Contracts)
for Accepting Officer

Signature of Contractor

Encls:- (One set of tender documents)

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 form, alongwith their tender/bid :-

- (a) Deposit at call Receipt from a Scheduled Bank in favour of Garrison Engineer/CCE concerned.
- (b) Receipted Treasury Challan, the amount being credited to the Revenue Deposit of Garrison Engineer/CCE.

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

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

2. PERFORMANCE SECURITY DEPOSIT. In case, the tender submitted by contractor is accepted, the contractor will be required to lodge "Performance Security Deposit" for **an amount equivalent to 5%** of the contract sum/lump sum in favour of the Accepting Officer with 28 (Twenty Eight) days of the receipt of the contractor of notification of acceptance of his tender/bid. The performance security shall be in the form of "Bank Guarantee" or FDR. Failure of the contractor to comply with the requirements of Performance Security shall constitute sufficient grounds for cancellation of the contract and award of work and forfeiture of the Earnest Money. In case of MES enlisted contractor who have not deposited the Earnest Money as per requirement, amount equal to the Earnest Money stipulated in the Notice Inviting Tender, shall be notified to the contractor for depositing the amount through MRO. Issue of tender to such contractor shall remain suspended till the aforesaid amount equal to the Earnest Money is deposited in Govt Treasury (See condition 19 of GCC (IAFAW-2249)) (As amended under amendment No 49 to IAFW-2249).

3. GENERAL INSTRUCTIONS FOR COMPLIANCE

3.1 The bids received only in the electronic form will be considered. All bids shall be submitted on defproc.gov.in portal. Documents should be scanned and forwarded in 'pdf' format and 'xls' form as indicated. Bids shall be uploaded on '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 date email/fax/by hand/through post will be considered.

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

3.3 Digital signatory of the bid/tender shall ensure that he is competent to bind the contractor (through partnership deed, general power of attorney or Memorandum and Article of Association of the Company) in all the matters pertaining to the contract with Union of India including arbitration clause. A scanned copy of the documents in confirmation of such authority shall be attached with the tender/bid in 'pdf' form in Cover 1. It shall be ensured that power of attorney shall be executed in accordance with the constitution of the company as laid down in its Memorandum & Article of Association

3.4 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.

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INSTRUCTIONS ON FILLING AND SUBMISSION OF TENDER (CONTD....)

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 and 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 partner(s) of the firm, or the company as the case may be, including the condition relating to Arbitration clause, should be uploaded in 'pdf' form with the tender/bid; unless such authority has already been given to him by the firm or the company. It shall be ensured that power of attorney shall be executed in accordance with the constitution of the company as laid down in its memorandum & Article of Association.

3.8 Bid (cover 1&2) shall be uploaded online well in time.

4. BOQ

4.1 The tender shall quote his rates on the BOQ EXCEL FILE only as per guidelines of e-procure web portal. No alternation to the format will be accepted and such bid will be disqualified.

4.2 In case any tenderer wishes to revise/modify the rates quoted in the BOQ file, he can do so only in the BOQ files before uploading the tender through <https://defproc.gov.in> only before closing date & time.

4.3 After the uploading of tender, department may upload the errata/amendment through corrigendum. The tender/bidder should submit their offer considering the errata/amendment carried out through corrigendum issued from time to time.

4.4 While uploading the bid, the tenderers/bidders should specifically check whether any **revised BOQ** has been uploaded by department through corrigendum prior to **Bid submission start date**. Tenderer/bidders attention is specifically drawn to the fact that they should submit their offer on revised BOQ only. In case any tenderer/bidder submits offer on pre-revised BOQ in lieu of Revised BOQ, **it will be considered as a willful negligence by the tenderer/bidder and quotation shall be considered non-bonafide.**

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

6. 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.

7. The contractor shall employ Indian Nationals after verifying their antecedents and loyalty. Attention is also drawn to relevant provisions in Special Condition 3 referred here-in-after and also conditions 24 & 25 of IAFW-2249 (General Conditions of Contracts).

INSTRUCTIONS ON FILLING AND SUBMISSION OF TENDER (CONTD....)

8. REVOCATION/REVISION OF OFFER UPWARD/OFFERING VOLUNTARY REDUCTION AFTER CLOSING OF BID SUBMISSION DATE AND TIME

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 contractor/bidders shall not be opened till the aforesaid amount equal to the earnest money is deposited by him in Govt Treasury. In addition, bids of such tenderers/bidder and his related firm shall not be opened in second call or subsequent calls. Reduction offered by the tenderer/bidder on the freak high rates referred for review shall not be treated as voluntary reduction.

9. CPM

9.1 The tender is based on CPM.

9.2 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 which the tenderer/bidder may make use of.

9.3 The time allowed for the completion of work has been worked out through CPM after dividing the work in broad stages.

9.4. The tenderer shall make/update the CPM chart and may use software's like MS PROJECT or PRIMAVERA or any other suitable software after taking prior approval from GE.

9.5 The tenderers attention is drawn to special condition of the tender regarding preparation of the detailed network and time schedules as for the work and his liability for employing sufficient resources to adhere to this schedule. Any inability on the part of the tenderer in using the technique will be taken as his technical insufficiency and will affect his class of enlistment and future prospects for receiving tenders for the works.

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

11. The subject works pertain to approved: **MAINT WORKS, CPP Sr No 96 for the FY 2024-25**

MILITARY ENGINEER SERVICES
NOTICE INVITING TENDER (NIT)

1. A tender 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 tender/bidder will have no claim on the account. The tender shall be based on as mentioned in aforesaid Appendix 'A'.
3. The work 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 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 865 Engr Wks Sec, C/o 56 will be Accepting Officer here in after referred to as purpose of the 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 www.defproc.gov.in site for download and shall form part of contract agreement in case the tender/bid is accepted.
9. In case of MES enlisted contractor who has not executed the Standing Security Bond and 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 its refund, on receipt of intimation from the Accepting Officer to do that.
10. In case of successful contractor i.e the lowest contractor having submitted EMD, he shall have the option of converting the EMD instrument into part of the Performance Security to be deposited by him within 28 days from the receipt of intimation of acceptance of tender from Accepting Officer
11. Sample of materials and stores to be supplied by the contractor will also be available for inspection by the bidder at the office of 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.

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

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 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 bidders must be in possession of a copy of the MES Schedule (SSR) (Part-I & 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

Offg AGE (Contracts)
for Accepting Officer

APPENDIX 'A' TO NOTICE INVITING TENDER (NIT)

(For Works costing less than Rs 50 Crore and Specialist E/M works costing less than Rs. 5 Crore)

Tender Id 2024 MES

1.	Name of the Work	REPAIR / MAINTENANCE OF LT CABLE , MCCB, LT PANELS WITH CONNECTED ACCESSORIES AT SECTOR 'C' & 'D' AND ADJACENT AREA UNDER AGE E/M-I OF GE 865 EWS
2.	Estimated Cost	Rs 40.00 Lakhs (At Par Market)
3.	Period of Completion	180 (one hundred eighty) days
4.	Cost of Tender Documents	Rs 500.00 in the form of DD/Bankers cheque from any schedule Bank in favour of GE 865 EWS and payable at Leh (Note: In case of retendering, the contractor who had quoted in the previous call is not reqd to submit the cost of tender.)
5.	Website/Portal Address	www.defproc.gov.in and www.mes.gov.in
6.	Type of Contract	The tender shall be based on IAFW 2249 and IAFW-1779A with Schedule 'A' (List of Items of Works) to be priced by contractor. The contractor are required to quote their rates against items of Schedule of Works (BOQ) electronically.
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.	Eligibility criteria	
	(a) For MES Enlisted contractors	Contractors shall be enlisted with MES in Class 'D' and above and category b (i) subject to satisfactory remarks w.r.t. performance in respect of works in hand as reflected in Work Load Return (WLR) or any other report circulated by Competent Engineer Authority.
	(b) For contractors not enlisted with MES	(i) Contractor not enlisted with MES should meet the enlistment criteria of 'D' class & b (i) category contractor with regard to satisfactorily completion of requisite value works with Central/State Government/ Central/ State PSUs/ AWHO/AFNHB/ CGEWHO / DGMAP, annual turnover, bank solvency, working capital and other requirements given in Para 1.4 & 1.5 of Section 1 of MES Manual of Contracts 2020 as available in all MES formations as well as MES website (www.mes.gov.in). (ii) Not carrying adverse remarks in Work Load Report (WLR) or any other similar report circulated by any competent authority, if already working in MES. (iii) Not suspended/debarred/blacklisted (either permanently or temporarily) from participating in any bid or for business dealings by any Central/State Government Department or any Central/State Government PSU or any Autonomous Body under Central/State Government or any Local Body as on the bid submission end date.
	(c) Technical PQC criteria	<i>In case of Solar Power Works and Runway/Pavements, Technical PQC criteria as stipulated in Manual of Contract and as per policy letters issued by E-in-C's Branch from time to time shall be included suitably.</i>
9.	Tender issuing and Accepting Officer	GE, O/o GE 865 EWS, Pin-913 865 C/o 56 APO Email Id: ngw8654-mes@nic.in , Phone No:01982-260760
10.	Executing Agency	Garrison Engineer 865 Engr Works Sec, C/o 56 APO
11.	Earnest money	Rs 80,000.00 in favour of Garrison Engineer 865 EWS in the form of deposit at call receipt. FDR not acceptable.

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 eligible un-enlisted contractors, if any, fulfilling the other eligibility criteria given in NIT is less than 7 (Seven), applications in respect of MES contractors of one class and 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 area) 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 works in hand showing names of work, names of Accepting Officers, Contract amounts, dates of commencement and completion (stipulated) and progress as on bid submission date. Such contractors, if claim to fulfil the criteria of upgradation shall also upload the requisite information/documents in support of upgradation. These details shall be verified by the Tender Issuing Authority from concerned formations in case bids of such contractors are considered for evaluation.
2. In case after opening of Cover 1, the number of MES enlisted contractors of eligible class as well as un-enlisted contractors, if any, fulfilling the other eligibility criteria given in NIT, are 7(Seven) or more, applications of only those one class below the eligible class bidders shall be considered, who have previously completed similar works satisfactorily and are meeting the criteria of upgradation in respect of past experience of completed works (individual work experience and/or average annual turnover as applicable) and financial soundness (solvency/financial soundness and working capital) as per details given in Manual on Contracts. Therefore such contractors shall upload the requisite information/documents in the Cover 1.
3. Un-enlisted contractor shall be considered provided he meets the criteria. Foreign firms shall not be eligible for this tender. However Indian Firms having foreign national / Indian nationals staying abroad / Indian national having taken foreign citizenship, as director(s) shall be considered subject to security clearance from the concerned authorities.
4. Contractors enlisted with MES will upload following documents in Cover1 for checking eligibility:-
 - (a) Application for tender on Firm's letterhead
 - (b) Enlistment letter issued by the Registering Authority duly renewed for the cycle period in vogue
 - (c) Scanned copy of DD /Bankers Cheque toward cost of tender and EMD instrument in case SSD bond is not signed at the time of registration.
 - (d) Any other document required as described in this Appendix.
5. Contractors not enlisted with MES will be required to upload following documents in Cover 1 for checking eligibility.
 - (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 above as per Para 8 (b) above as per Para 1.5 of Section 1 of MES Manual on Contracts 2020.
 - (e) Details of works being executed in MES, if any.
 - (f) Any other document required as described in this Appendix.

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

6. Tenders not accompanied by scanned copies of requisite DD/Bankers Chequetowards cost of tender and earnest money (as applicable) in Cover 1 shall not beconsidered for validation of 'T' bid and their Financial Bids will not be opened.
7. Contractors should ensure that their original physical DDs and Earnest MoneyDeposit (EMD)instruments (as applicable) reach the office of Accepting Officer within07days of bid submission end datefailingwhich following action shall be taken.
 - (a) In case of tenders from an enlisted contractor of MES, where scannedcopies of requisite DD/ Bankers Cheque towards cost of tender have been uploaded inCover 1 but physical copies are not received within the stipulated period, theirfinancial bids (Cover 2) will be opened. However non-submission of physical copies of cost of tender shall be considered as wilful negligence of the tenderer withulterior motives and such tenderer shall be banned from bidding for a period of sixmonths commencing from the date of opening of Financial Bid (Cover 2).
 - (b) In case of tenders from un-enlisted contractor, where scanned copies ofrequisite DD/Bankers Cheque towards cost of tender have been uploaded in Cover 1butphysical copies are not received within the stipulated period, their financial bids(Cover2), will not be opened. Name of such contractors along with complete address shall becirculated for not opening of their bids for a period of six months commencing from thedate of opening of Financial bid (Cover 2).
 - (c) In case of tenders from enlisted and un-enlisted contractors, wherescanned copies of instruments for Earnest Money Deposit(as applicable) have beenuploaded in Cover 1 but the same are not received in physical form within stipulatedperiod, 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 powerof 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 ofproprietor/partner/director and **firm's own employees, director, project manager provided they are not having a separate enlisted firm in MES in their name as Proprietor/Partner/Director.**
9. After opening of Cover 1 and during its technical evaluation, in case anydeficiency is noticed in the documents required to be uploaded by the tenderers as perNIT, a communication in the form of e-mail/SMS/Speed Post etc. shall be sent to thecontractor to rectify the deficiency within a period of 7 days from date of communicationfailing which their financial bid (Cover 2) shall not be opened and contractor shall nothave any claim on the same.
10. Invitation for e-tender does not constitute any guarantee for validation ofTechnical bid and subsequent opening of financial bid of any applicant/bidder merely byvirtue of enclosing DD. Accepting Officer reserves the right to reject the Technical bidand not to open the financial bid of any applicant/bidder. Technical bid validation shallbe decided by the Accepting Officer based on eligibility of the firm as per criteria givenin this Appendix. Tenderer/bidder will be informed regarding non-validation of hisTechnical bid assigning reasons therefore through tender evaluation report which shallbe uploaded on the website. Such tenderer if desires, may appeal to the NHEA viz HQ 138 Works Engrs on email id dcwecontntr1383-mes@nic.in with copy to the AcceptingOfficer on email before the scheduled date of opening of Cover 2. NHEA shall decide the matter within a period of seven working days from the date of receipt of appeal. The decision of theNHEA shall be final and binding. The tenderer/bidder shall not be entitled for anycompensation whatsoever for rejection of his bid.
11. In case an unenlisted contractor is already executing works in MES, he shall not be considered eligible for the subject tender if the total value of such works is more than twice the tendering limit of the MES Class of contractor for which it is eligible. For this purpose, details of the works being executed by such a contractor shall be uploaded in the Cover -1 of the bid and shall be checked/verified by the Accepting Officer.
12. In case the BOQ is revised through the corrigendum and the bidder has failed toquote on revised BOQ (i.e. he has quoted on pre revised BOQ), such bid shall be treatedas wilful negligence by the bidder and his quotation shall be considered non-bonafide.In such cases the lowesttender shall be determined amongst the valid/bonafide bidsonly. 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 wilful default. For this default a penalty of an amount equal to Earnest Money shall be levied. In case of an un-enlisted tenderer, Earnest Money deposited by him shall be forfeited. In case of MES enlisted tenderer having deposited the Standing Security Bond, an amount equal to the earnest money stipulated in the NIT, shall be notified to the tenderer for depositing through MRO and consideration of such tenderer in tender evaluation for future works shall remain suspended till the aforementioned amount is deposited in the Government Treasury. No other disciplinary/administrative action shall be taken against such tenderers. In such a situation, the next lowest offer shall not be considered for acceptance. Instead, retendering shall be resorted to in a transparent and fair manner and the defaulting tenderer and his related firm if any, shall not be eligible for this tender in second call or subsequent calls.

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

15. INTEGRITY PACT (to be included as per value of work).

16. **TENDER COMMITTEE**: Technical and Financial Evaluation of Bids shall be done through tender committee as per SOP for implementation of IFA system in MES circulated by CGDA, Delhi Cantt vide their U.O NO IFA/03/IFA Setup MES/PR/2023/ dated 31 Mar 2023.

(Ajeet Kumar Yadav)
Lt Col
Garrison Engineer

Case No: CA No: 8820/865/EWS(NIT-76)/2024-25/**21**/E8

Garrison Engineer
865 Engineer Works Section
PIN-913865
C/o 56 APO

Dated: 28 Oct 2024

IN LIEU OF IAFW-1779A (REVISED 1955)
(TO BE USED AND READ IN CONJUNCTION WITH GENERAL CONDITIONS OF CONTRACTS
IAFW-2249 (1989 PRINT)

MILITARY ENGINEER SERVICES

Garrison Engineer
865 Engr Works Section
PIN-913865
C/O 56 APO

8820/865/EWS(NIT-76)/2024-25/22/E8

28 Oct 2024

ITEM RATE TENDER AND CONTRACT FOR WORKS REQUIRED FOR

CA No 865/EWS(NIT-76)/2024-25: REPAIR / MAINTENANCE OF LT CABLE , MCCB, LT PANELS WITH CONNECTED ACCESSORIES AT SECTOR 'C' & 'D' AND ADJACENT AREA UNDER AGE E/M-I OF GE 865 EWS

1. **M/s/Shri/ Sarvashri** _____ of _____
is/are hereby authorized to tender for the above work. The tender is to be uploaded in the website "www.defproc.gov.in" before the date and time given in the site www.defproc.gov.in portal.
2. All documents must be returned whether or not a tender has been submitted.
3. All correspondence concerning this tender should be addressed as indicated at the top of this sheet quoting the reference as given.

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

(Signature of Contractor)
Date:

(Signature of Officer issuing tender documents)
Appointment: Garrison Engineer

SCHEDULE 'A' NOTES

NAME OF WORK : REPAIR / MAINTENANCE OF LT CABLE , MCCB, LT PANELS WITH CONNECTED ACCESSORIES AT SECTOR 'C' & 'D' AND ADJACENT AREA UNDER AGE E/M-I OF GE 865 EWS

NOTES :-

1. Schedule of Works of this work is item rate contract. The Schedule of item is uploaded in the MES web site under BOQ in excel format. Bidder is required to quote his rates and upload as per instruction given in the web site. For more details refer website "eprocuremes.gov.in".
2. The quantities given in BOQ (Schedule of Works) under Column-3 for all items are approximate and are inserted as a guide only. These shall however not be varied beyond the limit laid down in Condition- 07 of IAFW-2249 (General Conditions of Contract)
3. Tenderers are required to work out and quote their rates for each item of works as catered in Schedule of Works in the manner set out in condition 6A(D) of IAFW-2249 and quote their rates per unit under Column-06 of BOQ in figures and extend the amount column-07 automatically based on description of items, drawing if any, specification, special conditions, general and other conditions of contract for each item separately.
4. Description of each item of work given in schedule 'A' is in brief. These shall be deemed to be amplified and read in conjunction with special conditions, particular specifications, specifications contained in MES schedule and the drawings including notes therein.
5. Description of items given under Column-2 of **BOQ** and unit rates quoted under Column-5 will be for "Material and Labour" or for "Supply and fixing" and testing, commissioning for any particular item complete unless otherwise specifically stated as 'Supply only' or "Fixing only" or "Labour only".
6. Method of measurements for all items of schedule 'A' shall be as given in MES Schedule of Rates, unless specified otherwise.
7. The entire work under this contract shall be completed within in a period of **180 (one hundred eighty) days** from the date of handing over of site/commencement of work as per work order No 01 issued by the GE.
8. The total amount in Column- 08 of Schedule 'A' (BOQ) is not firm but shall be treated as contract sum as referred to in IAFW-2249.
9. Contractor's unit rates against item of Schedule 'A' shall be deemed to include for all minor details, processes & operations, which may not have been specifically mentioned or given in particular specification and/or special conditions but are essential for execution of work in sound and workman like manner. In case of any difference of opinion between the GE and Contractor as to whether or not certain items of work constitutes minor details and operation, the decision Accepting officer shall be final, conclusive and binding.
10. The makes given in particular specifications shall be applicable to the items for which makes are not given in Schedule 'A', the items for which no make is given shall be used ISI marked/conforming to IS with prior approval of Accepting Officer.
11. 'Sqm', '10 Sqm', 'Cum', 'RM' and '10 RM' denotes for 'Square Metre', '10 Square Metre', 'Cubic Metre', 'Running Metre' and '10 Running Metre' respectively.

Contd.....

SCHEDULE 'A' NOTES (CONTD../-)

12. The old demolished/dismantled material shall become contractor's property and the amount of credit shall be deducted from the contractor's RAR as shown in Schedule of credit for old materials when become due after demolition/dismantling of respective items and finally from final RAR. The contractor shall not have any extra claim if the materials obtained from dismantling are found cracked disfigured or broken. Old materials shall not be used in the work. Other old materials not shown in schedule of credit for old material shall become Govt. Property and contractor shall deposit the same in MES store yard of concerned sub division of GE 865 EWS.

13. The serviceable material retrieved through dismantling/demolition shall be reused in the work under respective items of Sch 'A' as directed by Engineer-in-Charge. The balance retrieved material shall be the property of the contractor and credit for the same shall be taken from the contractor at the rates given in credit schedule. The tenderers are required to visit the site of work and ascertain themselves fully with the state of materials to be retrieved during dismantling/demolition prior to quote their rates/amount. No claim whatsoever with regard to the quality of retrieved material will be entertained later on.

14. After completion of the subject work to the entire satisfaction of Engineer-in-Charge site clearance will be done by the contractor all as specified in SSR-2009 Part-I (specifications) and SSR-2020 Part-II (Rates) and as directed by Engineer-in-Charge. No extra payment will be admissible on this account.

15. The contractor rate includes for removing debris/dismantle/demolished materials and clear the site after completion of work all as directed by Engineer-in-Charge, failing which necessary recovery be made from contractor's due and the work will be got executed on risk and cost of contractor through other agencies.

16. The work under this contract shall be carried out in the following jobs :**Maint grant 2024-25 (CPP Ser No -96)**

16A. THE ALL TAXES SUCH AS GST / SALES TAX / SERVICE TAX ETC. AS APPLICABLE IN J&K SHALL BE BORNE BY THE CONTRACTOR AND NOTHING EXTRA SHALL BE ADMISSIBLE TO CONTRACTOR ON THIS ACCOUNT

17. The tenderer quoted rates shall deemed to be included Goods & Service Tax as notified by Govt. The Contractor shall ascertain & consider Goods & Service Tax while quoting their rates of each items & nothing extra shall be admissible to contractor on this account.

18. No Payment of contractor /firm will be made unless proof of payment of wages to the workmen is submitted by contractors/firm to concerned GE. In case payment are made in current coin or currency notes, certificate will be submitted by the contractors/firm alongwith undertaking by the concerned workmen asking other than by cheque or by crediting in the bank account of the employee/workmen to concerned GE.

19. As per Government of India, Ministry of Labour and Employment New Delhi circular No 35025/02/2014-SS II dated 15 Jul 2015, it is mandatory to the contractor that all the workers deployed by the firm are enrolled as member of Provident Fund and shall have the Universal Account Number(UAN).

20. It is mandatory to the GE that while clearing the bills/payments (RAR) of contractors, certificate be obtained from the contractors that all workers employed by him directly or indirectly are registered for EPF and the due contributions have been credited into their accounts.

21. **Defect liability period:** Refer condition 46 of General condition of contracts IAFW-2249 read in conjunction with amendment No. 49 of IAFW-2249, Defect liability period of this contract is **thirty six calendar months** from the actual certified date of completion of work. Defect liability period mentioned as one year or otherwise anywhere in these tender documents shall be deemed to be amended and superseded as per provisions contained in amendment No 41 to 49 of IAFW-2249

SCHEDULE 'A' NOTES (CONTD../-)

22. Performance security (Refer condition 19 of General condition of contracts IAFW-2249 read in conjunction with amendment No. 47 of IAFW-2249):

22.1 Within 28 days of receipt of the letter of Acceptance, the contractor shall deliver to the Accepting Officer a performance security in any of the forms given below for an amount equivalent to 5% of the contract sum : -

- (a) A Bank Guarantee in the prescribed form which can be obtained from GE office or any other office of MES.
- (b) Government Securities, FDR or any other Government Instruments stipulated by the Accepting Officer.

22.1.1 Work order No 01 will be placed upon contractor after receipt of above said performance security.

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

22.3 Failure of the Contractor to comply with the requirement of performance security given in **22.10** above (and/or relevant clause) 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 the Government Treasury.

22.4 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 Performance Security or from the interest arising there from or from any sums which may be due or become due to the Contractor by the Government on any account whatsoever and in the event of his Performance Security being reduced by reason of any such deduction, or sale as aforesaid, the contractor shall within ten days thereafter make good in cash or securities, enclosed as aforesaid, any sum or sums which may have been deducted from or realized by the sale of his Performance Security or any part thereof.

Government shall not be responsible for any loss of securities or any depreciation in the value of securities while in their charge nor for loss of interest thereon.

22.5 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.

22.6 **Refund of Performance Security:** In this connection, Refer condition 68 of General Condition of Contracts IAFW-2249 read in conjunction with amendment No. 45 of IAFW-2249.

23. Security Deposits: In this connection, Refer condition 22 and other relevant conditions of General condition of contracts IAFW-2249 read in conjunction with amendment No 41 to 49 (as applicable) of IAFW-2249. Provisions for Individual Security Deposit or Additional Security Deposit or any other security deposit mentioned anywhere in these tender documents shall be deemed to be amended and superseded as per provisions contained in amendment No 41 to 49 of IAFW-2249.

SCHEDULE 'A' (CONTD)SCHEDULE OF CREDIT

NOTES:-

1.	The retrieved/dismantled/demolished materials listed below shall be property of the Contractor and he shall afford credit at the rates mentioned against each item.				
2.	The tenderers are advised to visit the site of work to ascertain the condition of materials likely to be obtained before quoting the tender. The unit rate to be quoted in Schedule 'A' shall be deemed to include this aspect and no claim whatsoever regards the condition/availability of the materials listed above shall be entertained at a later date.				
3.	Quantities given are provisional. The recovery shall be affected from the contractor for the actual quantities retrieved and as per the progress of work.				
4.	Any materials required to be taken down or dismantled and not reflected below shall be the property of the Government. It shall be returned to the Government store at Contractor's own expenses.				
S. No	Description of items	A/U	Qty	Rate	Amount
				Rs p	Rs P
1.	Old U/S GI Tubing of any size	RM	51	12.00	612.00
2.	Old U/S Cable of size 3.5 core (150 -630 Sq mm)	RM	590	50.00	29500.00
3.	Old U/S Cable of size 3.5 core (95 -120 Sq mm)	RM	400	40.00	16000.00
4.	Old U/S Cable of size 3.5 core (25 -70 Sq mm)	RM	1000	15.00	15000.00
5.	Old U/S Cable of size 2 core (10-16 Sq mm)	RM	900	10.00	9000.00
6.	Old U/S ACSR Conductor/GI wire	Qtl	2	2000.00	4000.00
7.	Old U/S stay assembly	Each	12	100.00	1200.00
8.	Old U/S Change over switch of any type/bus bar chamber	Each	36	125.00	4500.00
9.	Old U/S MCCB of any type	Each	27	20.00	540.00
10.	Old U/S Steel Pole	Each	10	2000.00	20000.00
11.	Old U/S cross arms/channel	Qtl	2	2000.00	4000.00
12.	Old U/s earthing of any type	Each	40	100.00	4000.00
	Total Rs				108352.00

Total of Schedule of Credit C/o to General Summary page

- **Rs 1,08,352.00**

Signature of the Contractor

Offg AGE (Contracts)
for Accepting Officer

SCHEDULE 'B'
ISSUE OF MATERIALS ETC TO THE CONTRACTOR (SEE CONDITION 10 OF IAFW-2249)

Ser No	Descriptions/ Particulars of Materials	Unit	Rate at which materials etc will be issued to the contractor	Place of issue by Name	Remarks
1	2		3	4	5

-NIL-

Signature of Contractor

Offg AGE (Contracts)
for Accepting Officer

SCHEDULE 'C'
LIST OF TOOLS AND PLANT (OTHER THAN TRANSPORT) WHICH WILL BE HIRED BY THE CONTRACTOR
(SEE CONDITION 15, 34 AND 35 OF IAFW-2249)

Ser No	Quantity	Particulars/ Details of Crew supplied for each road	Hire Charges with crew & fuel per unit per working day	Standby off day charges per day	Place of issue by Name	Remarks
1	2	3	4	5	6	7

.....NIL.....

Signature of Contractor

Offg AGE (Contracts)
for Accepting Officer

SCHEDULE 'D'
TRANSPORT TO BE HIRED TO THE CONTRACTOR
(SEE CONDITION 16 AND 36 OF IAFW-2249)

Ser No	Particulars	Rate per unit per working day	Place of issue by Name	Remarks
1	2	3	4	5

.....NIL.....

Signature of Contractor

Offg AGE (Contracts)
for Accepting Officer

TO THE PRESIDENT OF INDIA

Having examined and perused the following documents :-

1. Specification signed by Garrison Engineer
2. Drawing detailed in the specifications.
3. Schedule 'A', 'B', 'C' and 'C' attached hereto.
4. MES standard Schedule of Rates 2009 (Part-I) (Specifications) and 2020 (Part-II) (Rates) for together with amendments 01 TO 03 to Part-I and 1 to 122 errata/amendment to Part II-2020 (as applicable upto the date and time of bid submission end date) respectively here-in-after and in IAFW-2249 referred to as the MES Schedule.
5. General conditions of contract, IAFW-2249 (1989 print) together with amendments No 01 to 49 and errata 01 to 20 as applicable.
6. WATER: Condition 31 of IAFW-2249 (General conditions of contract). Water will not be supplied by the MES.
7. Should this tender be accepted :-

I/We agree

*(a) That the sum of

Rs..... (Rupees.....)

.....) forwarded as earnest money shall either be retained as a part of Performance Security Deposit or to be refunded by the Department on receipt of an appropriate amount as Performance Security deposit within the time specified in condition 19 of IAFW-2249.

(b) To execute all the works referred to in the said documents upon the terms and conditions contained or referred to therein and as detailed in the schedule "A" and to carry out such deviations as may be ordered vide condition 7 of IAFW-2249 upto a maximum of 10%(Ten percent) and further agree to refer all the disputes as required vide condition 70 to Sole Arbitration of serving officer having degree in Engineering or equivalent or having passed final/direct final examination of sub Div-II from institution of surveyors (India) recognized by the Govt of India to be appointed by Chief Engineer Leh Zone , C/O 56 APO , or in his absence, officiating Chief Engineer Leh Zone C/O 56 APO , whose decision shall be final, conclusive and binding.

* To be deleted where not applicable.

Contd...

GENERAL SUMMARY

1. Total of Schedule 'A'/BoQ Part- I brought forward from serial page No.

: Rs. _____

2. **Credit schedule** :-

Total of Schedule 'A' brought forward from : **(-)Rs 1,08,352.00**
serial page No.

Total carried over to next page.

: Rs. _____

GENERAL SUMMARY

Brought forwarded From Page No: Rs _____

For the contract sum of Rs _____ (Rupees _____
_____ only)

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

Postal Address _____

Telephone Number _____

Witness _____

Address _____

ACCEPTANCE

_____ Alterations have been made in these documents and as evidence that these alterations were made before the execution of the contract agreement; these have been initialed by the contractor and **Offg AGE (Contracts) of Garrison Engineer 865 EWS C/o 56 APO**. The said officer is hereby authorised to sign and initial on my behalf the documents forming part of this contract.

The above tender was accepted by me on behalf of the President of India for the contract sum of

Rs _____ (Rupees _____
_____)

Signature _____ on the _____ day of _____ 2024

Lt Col
Accepting Officer
(For and on behalf of the President of India)

2nd CALL
SPECIAL CONDITIONS

1. **GENERAL :-**

1.1 The following conditions shall be read in conjunction with General Conditions of contracts IAFW-2249 (1989 Print) including errata/amendments thereto. If there are any provisions in these special conditions which are at variance with the provisions in the above mentioned documents, the provision in these special conditions shall be deemed to take precedence.

1.2 General rules, preambles, special conditions, method of measurement etc, specified in MES schedule of rates shall be applicable unless specific provisions to the contrary are made in these tender documents.

2. **VISIT TO SITE OF WORK**

2.1 The tenderers are advised to visit the site of work with prior permission of GE and make themselves familiar with the local working conditions, accessibility to site(s), availability of materials and other relevant conditions which effect their pricing, workmen like execution and entire completion of work. The tenderers shall be deemed to have visited the site(s) before tendering whether they actually visit or not.

3. **RESTRICTION FOR ENTRY TO WORKS SITE:** All works lies in restricted area. The restrictions for entry to work site and conditions of working in **RESTRICTED AREA** shall be as under.

(a) **ENTRY AND EXIT:** The contractor / his agents / representatives / workmen etc, and his materials, carts, trucks or other means of transport etc. Will be allowed to enter through and leave from only such gate or gates and at such times as the GE or authorities in charge of the restricted area may at their sole discretion permit to be used. Contractor's authorised representative is required to be present at the places of entry and exit for purpose of identifying his carts, trucks, etc. to the personal in charge of the security of the restricted area.

(b) **IDENTITY OF WORKMEN:** Every workman shall be in possession of an identity card. The identity card shall be issued after a thorough investigation of antecedents of the labourers by the contractor and attested by Officer-in-Charge of the unit concerned in accordance with the standing rules and regulation of the unit. Contractor shall be responsible for conduct of his workmen, agents or representatives.

(c) **IDENTITY CARD OR PASSES:** The contractor, his agent and representative are required individually to be in possession of an identity card or pass which will be examined by the security staff at the time of entry into or exit from the restricted area at any time or number of time of entry into or exit from the restricted area at any time or number of times inside restricted area.

(d) **SEARCH:** Thorough search of all persons and transport shall be carried out at each gate and for as many times gate is used for entry or exit and may also be carried out any number of times at the site within the restricted area.

(e) **WORKING HOURS:** The units controlling restricted area, usually work during six days in a week and remain closed on the 7th day. The working hours available to the contractor's labour and staff are however appreciate reduced because of time of entry and exit during working hours. The exact working hours, working days and number of working days observed for these restricted area (s) where works are to be carried out shall be deemed to have been ascertained by contractor before submitting his tender. The tenderers attentions is invited to the fact that number of working hours for a unit are prescribed in regulations and that they cannot be increased by the Garrison Engineer or authorities controlling the restricted area. The definition of "working days" as given under condition 1(t) of IAFW-2249 does not apply in case where the works are carried out in restricted area.

Contd../-

SPECIAL CONDITIONS

(f) **Working on holidays:** The contractor shall not carry out any work on gazetted holidays, weekly holidays and other non working days except when he is specially authorised in writing to do so by the Garrison Engineer. The GE may at his sole discretion declare any day as holidays or non working day without assigning any reasons for such declaration.

(g) **FIRE PRECAUTIONS:**

(i) The contractor, his agents, representative, workmen etc. shall strictly observe the order pertaining to fire precautions prevailing within the restricted area.

Motor transport vehicle, if allowed by the authorities to enter the restricted area must be fitted with the serviceable fire extinguisher.

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

4. **CONTRACTOR'S REPRESENTATIVES/ AGENTS AND WORKMAN**

4.1 The contractor shall employ only Indian Nationals and verify their antecedents and loyalty before employing them on the work. He shall ensure that no person of doubtful antecedents and nationality, is in any way associated with the works. If for reasons of technical collaboration or other considerations the employment of any foreign national is unavoidable, the tenderers shall furnish full particulars to the Accepting Officer at the time of submission of tender. As a proof that he has employed only Indian Nationals, the contractor shall render a certificate to this effect to GE within one month from the date of commencement of work.

4.2 The GE shall have full power, and without giving any reasons to order the contractor immediately to cease to employ in connection of this contract any representatives, agent servants and workman or employees whose continued employment in his (GE) opinion is undesirable. The contractor shall not be allowed any compensation on this account.

4.3 **VERIFICATION OF ANTECEDENTS:** Verification of antecedents of the contractor's representatives / labour deployed at site in connection with execution of work under the contract, as per security requirement of user unit / installation shall be the responsibility of the contractor and all expenses in connection with verification of antecedents by police authority / security agency shall be born by the contractor.

5. **HOURS OF WORKING**

The working hours shall be as notified by the authority controlling the area, which will be normally from 0800 hours to 1700 hours. If, however contractor want to works beyond their normal hours , he can do so if permitted by GE in writing. Similarly, no work will be allowed to be carried out on Sunday and gazetted holidays unless specially, permitted by GE in writing..

Contd../-

SPECIAL CONDITIONS**6. LAND FOR STORAGE OF MATERIALS WORKSHOP, OFFICE AND ACCOMMODATION FOR LABOURS**

- 6.1 The contractor shall be permitted to store materials including erecting temporary sheds, temporary workshop and the site office at the area(s) of land marked on the site plans) or as decided by the GE if the area (s) are not marked on the site plan (s). The contractor shall pay license of ` 1.00 (Rupees one only) per year or part thereof in respect of each and every separate area(s) of land allotted to him.
- 6.2 The contractor shall be permitted to erect labour camp on Ministry of Defence land for labour coming from outside the J&K state only. Site for labour camp shall be as decided by GE and contractor shall have no claim whatsoever on this account.

7. CONTRACTOR's PLANT, EQUIPMENT AT SITE

- 7.1 The contractor shall furnish to the Engineer-In-Charge every morning a distribution return of the plant and/or equipment on the site of work, stating the following particulars :-
- (i) Particulars of plant/equipment, items, manufacture No, Model No if any Registration No, if any, capacity, year of Manufacture, year of purchase etc.
 - (ii) Total No (quantity) on site of works.
 - (iii) Location indicating No (quantity) at each location on the site of works.
 - (iv) Purchase value on the date of purchase. For the purpose of this condition, plant and/or equipment shall include vehicle i.e. trucks and lorries but neither the workman's tools nor any manually operated tools/equipment.
- 7.2 The Engineer-In-Charge shall record the particulars supplied by the contractor in the works diary and send the return to the GE for record in his office.

8. LOSS OR DAMAGE ON ACCOUNT OF ENEMY ACTION

- 8.1 If as a result of enemy action the contractor suffers any loss or damage, the Govt shall reimburse to the contractor such loss or damage to the extent and in the manner here in after provided.
- (i) The loss suffered by him on account of any damage or destruction of his plant or equipment (as defined in special condition 7 above) or materials or any part or parts thereof, (The amount of loss assessed by the Accepting Officer of the contract, shall be final and binding.
 - (ii) The compensation paid by him under any law for the time being in force to any workman employed by him for any injury caused to him or the workman's legal successors for loss of workman's life.
 - (iii) Payment of compensation for loss or damage to any work or part of work carried out. (The amount of compensation shall be determined in accordance with condition 48 of General Conditions of contracts IAFW-2249)
 - (iv) No reimbursement shall be made nor any compensation be payable under the above provision unless the contractor has taken air defence/precautions ordered in writing by the GE concerned or in the absence of such reasonable precautions. Neither reimbursement shall be payable nor any compensation shall be payable for any plant and/or equipment or material not lying at site of work at the time of enemy action.

9. USE OF EXISTING BUILDING ETC

The contractor shall not use the existing latrines bath and other existing buildings if any for use by his work people or for storage of his materials or for any other purpose unless permitted to do so in wiring by the GE.

Contd../-

SPECIAL CONDITIONS10. **WATER.**

Water shall not be supplied by the MES. Water shall be arranged by the contractor at own cost. Use of water from any source(s) shall be suitable for construction purpose as per IS-456-2000 to the satisfaction of GE.

11. **ELECTRICITY**

Electricity will not be supplied by the MES.

12. **DAMAGE TO EXISTING BUILDING, ROADS AND DRAINS ETC.**

The contractor shall be responsible to reinstate and make good at his own expense, the damage if any caused by his workman to existing buildings, roads, drains etc while carrying the work under this contract. Rectification, reinstatement, replacement making good and touching up etc shall confirm to the standard of workmanship and materials originally used and the same shall be done to the entire satisfaction of Engineer-In-Charge.

13. **QUARRIES AND ROYALTY:**

Reference condition of 14 of IAFW-2249 General conditions of contracts.

Delete this condition in toto and substitute as under :-

"Neither quarries are available nor the quarrying shall be permitted on the defence land."

14. **LEVY OF GOODS & SERVICE TAX** : The tenderer quoted rates shall deemed to be included **Goods & service tax** as notified by Govt . The Contractor shall ascertain & consider **Goods & service tax** while quoting their rates of each item & nothing extra shall be admissible to Contractor on this account .14.A **LABOUR WELFARE TAX/CESS**

Contractor's quoted rates shall be inclusive of the labour welfare tax/cess levied by labour welfare authorities. The prevailing percentage of which as on date of issue of tender is 1% of the gross payment due to contractor.

15. **MINIMUM WAGES PAYABLE TO LABOUR**

15.1 Refer condition 58 of IAFW-2249. The contractor shall not pay wages lower than minimum wages for labour as fixed by the Govt. of India/State Govt., whichever is higher.

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

15.3 The contractor shall have no claim whatsoever if on account of any local regulation or otherwise, he is required to pay wages in excess of fair wages shown in schedule of minimum wages during execution of work.

16. **PERMIT FOR PLYING GOODS TRANSPORT IN J&K AREA**

Recommendations for issue of permits for plying goods transport private carriers for carrying materials for the work will be made by the GE 865 EWS, C/O 56 APO to Transport authorities of J&K Govt. However the Ministry of Defence does not guarantee issue of such permits. The GE 865 EWS, C/O 56 APO reserves the right to decide the routes, number of vehicles to be recommended for issue of permits, duration for which the permit is to be recommended and his decision shall be final conclusion and binding with reference to the matter referred to in these conditions.

17. **CO-OPERATION WITH OTHER AGENCIES**

The contractor shall permit free access and afford reasonable facilities to other agencies or departmental workmen engaged by the Govt to carryout other work services (whether or not in connection with work under the scope of this contract) on the site, simultaneously, the contractor shall not be allowed any extra payment on this account.

Contd../-

SPECIAL CONDITIONS**18. BANK GUARANTEE FOR SECURITY DEPOSIT/RETENTION MONEY**

On acceptance of the tender, the Govt may accept a guarantee bond from the Bank of India or any nationalised Banks and/or scheduled banks for security deposit(s) and/or retention money. The bond is to be on the prescribed format which is available and may be seen by the tenderers in the office of CE Zone, HQ 31 Sub Area and also in the office of HQ 138 WE/ GE.

19. RELEASE OF ADDITIONAL SECURITY

Ref the condition 22 and 68 of IAFW-2249. To enable the department to release the additional security deposit in two installments the contractor shall be required to submit the security in two equal parts which can be released separately.

20. TIME AND PROGRESS CHART USING CRITICAL PATH METHOD

20.1 The time and progress chart to be prepared as per condition 11 of the IAFW-2249. (General conditions of contract) shall consist of detailed net works analysis and a time schedule. The critical path net work will be drawn jointly by the GE and contractor after acceptance of tender but before commencement of work as per Work Order No 1. The time scheduling will be done by the contractor so as finish the work within the stipulated time. On completion of the time schedule a firm calendar date schedule of the activities will be prepared and submitted by the contractor to GE, who will approved after the scrutiny. The calendar date Schedule will be submitted in four copies within two weeks from the date of handing over of site.

20.2 During the execution of work the contractor is expected to participate in the review and updating the net work undertaken by GE either as periodical appraisal measure or when the quantum of work ordered on the contract is subsequently changed through deviation orders or amendments. Any revision of the schedule as a result of the review will be submitted by the contractor to the GE within a week who will approve it after due scrutiny. The contractor will adhere to the revised schedule there-after. In case of contractor disagreeing with the revised schedule the same will be referred to Accepting Officer whose decision will be final, conclusive and binding.

“During the currency of work, the contractor is expected to adhere to the time schedule and this adherence will be the one of main parameter of the contractor’s performance under this contract.”

20.3 GE approval to the revised schedule resulting in completion date beyond the stipulated date of completion shall not automatically amount to a grant of extension of time. Extension of time shall be considered and decided by the appropriate authority mentioned in condition 11 of IAFW-2249 and separately regulated under the existing rules and Acts.

20.4 The contractor shall mobilise and employ sufficient resources to achieve the detailed schedule within the broad frame work of the accepted method of working and safety. No additional payment will be made to the contractor for any multiple shift work or other incentive methods of achieving the target.

21. RECORD OF CONSUMPTION OF CEMENT

21.1 For the purpose of keeping a record of cement issued/received and consumed in works, the contractor shall maintain a properly bound register in the form approved by the Engineer-In-Charge showing the daily receipt of cement, quantity used in works and balance at the end of the each day and such other information as is required to control the consumption and issue/receipt of cement. This register shall be signed daily by the contractor’s representative in token of correctness of the entries made and it shall be signed in token of check by MES representative as follows :-

(a) Daily by JE in-charge of supervision of work.

(b) Once in a week by the Engineer-In-Charge.

Contd../-

SPECIAL CONDITIONS

21.2 The register shall be kept at site of work in the safe custody of the contractor during progress of work and on demand shall produce the same for verification of inspecting officer. The register shall be returned to MES on completion of work.

21.3 The aforesaid provisions shall not, however, absolve the contractor of his responsibility of incorporating quantity of cement in various items of works.

22. SECURITY OF CLASSIFIED DOCUMENTS

22.1 Tenderers special attention is drawn to condition 2A and 3 of General conditions of contract IAFW-2249 for compliance. The contractor shall not communicate any classified information regarding the work either to sub contractor(s) or to any other persons without proper written approval of the Engineer-In-Charge. The contractor shall also not make copies of the design and drawings and other documents furnished to him in respect of works and he shall return all documents to the department on completion of the work or earlier determination and/or termination of contract.

22.2 The contractor shall attach with final bill the receipt from the Engineer-In-Charge to the effect that he (the contractor) has returned the classified documents as per condition 3 of General conditions of contracts, IAFW-2249)

23. CLEANING DOWN

The contractor shall clean all floors, joinery, glass pans etc and remove drops of cement/lime, paint etc and touch up all painting work and carryout all other items of work as are necessary to make and leave the premises clean and tidy before handing over the building and/or works. The contractor shall not be allowed any extra payment on this account.

24. VALIDITY OF TENDER

This tender shall remain open for acceptance for a period of 60 days from the date on which the same is due to be submitted,

25. REFER SPECIAL CONDITIONS 6 & 9

(i) The contractor shall maintain site/area of land/buildings in a clean and tidy conditions at his own expenses and shall deliver up the same on/or before the date of completion of the works, or on termination of the contract, or in the event of the site areas of land /buildings required by the AGE (I) within one month or order to that effect, in a clean and tidy state complete in every particular and to the satisfaction of Engineer-In-Charge.

(ii) In addition to completion of all other stipulation under condition 49 of IAFW-2249. The completion certificate under condition of 49 of IAFW-2249 shall be issued only after vacation of site/area of land/building allotted to the contractor. However the contractor may be permitted by the GE in writing to retain such area of land/building which is in the opinion of GE may be required for storage of materials required for rectification of defects(decision of the GE shall be final and binding in this regard). Soon after the rectification of defects such area of land/building shall be vacated and delivered to the Engineer-In-Charge in a neat state. Payment of final bill shall be made to the contractor only after such areas of land/buildings are vacated by the contractor.

26. SPECIAL CONDITIONS FOR OUTPUT OF ROADROLLER :

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27. OFFICIAL SECRET ACT

The contractor shall be bound by the Indian Official Secret Act 1923, particularly Section 5 thereof, all as per Condition 2A of IAFW-2249.

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SPECIAL CONDITIONS**28. PROPRIETARY MATERIALS/ARTICLES AND RECORD OF MATERIALS**

- (a) The proprietary materials/articles such as paint, bitumen, water proofing admixture, ROAD furniture etc. when brought to site shall be inspected and approved by the Engineer-In-Charge.
- (b) The quantity of proprietary articles brought to site shall be recorded in measurement book (IAFW-2261) and signed by the contractor and the Engineer-In-Charge as a check to ensure that the required quantity has been brought to site for incorporation in the works.
- (c) The proprietary materials shall be stored as directed. Those already recorded in the measurement book shall be marked suitably for identification.

29. PAYMENT ON ACCOUNT

Reference condition 64 of IAFW-2249.

30. 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 **Goods & service tax, Labour Welfare cess & Income tax etc**). Duties, Royalties, reimbursement/refund for variation in rates of taxes, duties, Royalties, Octroi & other levies, and/or imposition/abolition of any new/existing taxes, duties, Royalties, Octroi & other levies shall be made except as provided in sub para (b) here-in-below.
- (b) (i) The **Goods & service tax, Labour Welfare cess & Income tax etc** which are levied by Govt at certain percentage rates of items of Contract Sum/Amount shall be termed as 'taxes directly related to Contract value'. The tendered rates shall 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 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 Govt from any payments due to the contractor. Similarly imposition of any new 'taxes directly related to contract value' after the last due date for receipt of tenders shall be reimbursed to the contractor and abolition of any 'taxes directly related to contract value' prevailing on last due date for receipt of tenders shall be refunded by the contractor to the Govt/ deduct by the Govt from the payments due to the contractor
- (ii) The contractor shall, within a reasonable time of his becoming aware of variation in percentage rates and/or imposition of any further 'taxes directed related to contract value' give written notice thereof to the GE stating that the same is given pursuant to this Special Condition, together with all information relating there to which he may be in a position to supply. The contractors shall submit the other documentary proof/information as the GE may required.
- (iii) The contractor shall, for the purpose of this condition keep such books of account and other documents as are necessary and shall allow inspection of the same by a duly authorized representative of Govt, and shall further, at the request of the GE furnish, verified in such a manner as the GE may require, any documents so kept and such other in formations as the GE may require.
- (iv) The Reimbursement for increase in percentage rates/imposition of 'taxes directly related to contract value' shall be made only if the contractor necessarily & properly pays additional 'taxes 'taxes directly related to contract value' to the Govt, without getting the same adjusted against any other tax liability or without getting the same refunded from the concerned Govt Authority and submits documentary proof for the same as the GE may require'

Signature of Contractor

for Accepting Officer

SPECIAL CONDITIONS (CONTD)

ANNEXURE- I

(Refer to special condition 31)

Srl No	Material	Tests	Method of testing	Frequency of tests			Level of test	Rate Rs.	Remarks
1	2	3	4	5			6	7	8
1	Bricks	(i) Compressive strength	IS-3495 (Part-II)	As per (IS-5454)			'A'	180	Checks for visual and dimensional characteristics shall also be carried out as per IS-5454.
		(ii) Water Absorption	-do-	Lot size	No of defective Bricks.		'A'	150	
		(iii) Efflorescence	-do- (Part-I)	1001 to 10000	5	0	'A'	180	
				10001 to 35000	10	0			
				35001 to 50000	15	1			
2.	Coarse Aggregate	(i) Sieve Analysis	IS-2386 (Part-I)	One test of every 15 Cum of aggregates or part thereof brought to site			'A'	120	Legend 'A' –site lab 'B'-Zonal Lab 'C'- Approved test house /Engg college.
		(ii) Flakiness Index	-do-	-do-			'A'	90	
		(iii) Estimation of deleterious materials	IS : 2386 (Part-I)	One test for every 100 Cum of aggregates or part there of			'A'	120	
		(iv) Organic impurities	-do-	One test per source of supply			'C'	120	
		(v) Moisture content	-do- (Part-II)	Regularly as required			'A'	120	
		(vi) Specific Gravity	IS:2386	One test for each source of supply			'B'	120	
		3.	Fine Aggregate	(i) Sieve analysis	IS:2386 (Part-I)	One test for every 15 Cum of fine aggregates or part when brought to site.			'A'
(ii) Test for clay silt and impurities.	-do-			-do-			'A'	90	
(iii) Specific gravity	-do-			One for each source of supply			'B'	180	

Contd.P/..

SPECIAL CONDITIONS (CONTD)

1	2	3	4	5	6	7	8	
		(iv) Moisture content	-do- (Part-II)	Regularly as required subject to 2 tests/day when being used		'A'	180	
		(v) Test for organic impurities	-do- (Part-II)	One test for each source of supply.		'C'	180	
4	Cement	(i) Setting time	IS: 4031-63 affirmed 1980	Once for each consignment or as and when required.		'B'	180	
		(ii) Soundness	-do-	-do-		'B'	120	
		(iii) Compressive strength	-do-	-do-		'B'	360	(ii) Refer IS-456 2000 clause 14 for frequency of sampling.
		(iv) Fineness	-do-	-do-	1	'B'	120	
				6-15	2			
				16-30	3			
				31-50	4			
				51 & above	4 + 1 for each addl 50 Cum or part thereof			
Note :- The contractor shall provide following items at site lab for carrying out field tests:- (a) Universal testing machine. (b) Sieve set – 02 Nos. (c) Weighing balance – 02 No (d) Cube mould – 27 Nos. (e) Graduated jars. (f) Oven								
5.	Structural Concrete (M-20 grade and above)	(i) Slump test (OR) compacting factor test vee-bee time test	IS-1199	The minimum frequency of sampling of concrete of each grade shall be as under :-		'A'	180/-	Random sampling shall be carried to cover all mix unit
(ii) Compressive strength		IS-516	Qty of concrete In the work Cum	No of samples	'A'	120/-	As per IS:456-2000 clause 14 for frequency of sampling	
			1-5	1				
			6-15	2				
			16-30	3				
			31-50	4				
			51 and above	4+1 for each Addl 50 Cum or part thereof				

Contd../-

SPECIAL CONDITIONS (CONTD)

1	2	3	4	5	6	7	8
6.	(a) PCC blocks for walling (Hollow block)	(i) Compressive strength	IS:2156 1984' (Appx 'B')	8 Blocks out of 14	'A'	60	Samples: 14 blocks from consignment of every 5000 blocks or part thereof.
		(ii) Water absorption	-do- (Appx 'E')	3 blocks out of 14	'B'	120	
		(iii) Density	-do-	-do-	'B'	90	
	(b) PCC solid blocks for walling	(i) Compressive strength	IS : 2185	12 blocks out of 18	'A'	60	Samples : 18 blocks from consignment of every 1000 blocks or part thereof. These blocks to be checked for dimensions and weight.
		(ii) Water absorption	-do-	3 blocks out of 18	'B'	120	
		(iii) Density	-do-	3 blocks out of 18	'B'	120	
7	Cement flooring tiles./ Terrazzo tiles	(i) Water absorption	IS-1237 1980 (Appx 'C')	6 Tiles out of 18	'B'	180	Samples : 18 tiles from each source of supply selected at random.
		(ii) Wet transverse strength.	-do- (Appx 'E')	-do-	'B'	144	
		(iii) Resistance to wear	-do-	-do-	'C'	540	
8	Burnt clay roofing tiles (Hand made) As per IS : 2690 (Part-II)	(i) Water absorption	IS : 3495 (Part-II)	6 tiles out of 12	'B'	216	Samples : 12 tiles from each source of supply selected at random.
	length 150mm to 250mm width 100mm to 200mm thickness 35mm to 50mm	(ii) Compressive strength	-do- (Part-I)	-do-	'A'	180	

Contd../-

2nd CALL

SPECIAL CONDITIONS (CONTD)

1	2	3	4	5	6	7	8																
9.	Mangalore pattern roofing tiles	(i) Water absorption	IS:654 (Appx 'A')	6 Tiles out of 32	'B'	180	Samples : 32 tiles from each consignment of 3000 tiles or part thereof. These tiles shall be checked for dimension.																
		(ii) Breaking load	-do- (Appx 'C')	-do-	'B'	120																	
10.	Timber	(i) Specific gravity weight	IS :1708 1960	Minimum 3 samples from a lot of 4 Cum or 250 pieces of seasoned timber.	'B'	120																	
		(ii) Moisture content	-do-	-do-	'A'	120																	
11.	Water for construction purpose	(i) Test for acidity	IS : 456& 3015	Once at the stage of approval of source of water.	'B'	240	Also refer clause 4.3 of IS :456 and its subsequent sub clauses regarding suitability of water at work site.																
		(ii) Test for alkalinity	-do-	-do-	'B'	240																	
		(iii) Test for soil content	-do-	-do-	'B'	300																	
12.	Welding of steel work	(i) Visual inspection test	IS : 822 1970 Clause 7.1	100% by visual inspection	As per site	360	Specialized tests, their method and frequency to be decided on consideration of their importance by the accepting officer.																
13.	Timber panelled and glazed Door/Window shutters (including factory made shutters)	(a) Dimensions, sizes, Workmanship and finish	IS : 1003 1977 (Part I)	Frequency of sampling from each lot shall be as under :- <table><tr><td>Lot Size</td><td>Sample Size</td></tr><tr><td>26 to 50</td><td>5</td></tr><tr><td>51 to 100</td><td>8</td></tr><tr><td>101 to 150</td><td>13</td></tr><tr><td>151 to 300</td><td>20</td></tr><tr><td>301 to 500</td><td>32</td></tr><tr><td>501 to 1000</td><td>50</td></tr><tr><td>1001 and above</td><td>80</td></tr></table>	Lot Size	Sample Size	26 to 50	5	51 to 100	8	101 to 150	13	151 to 300	20	301 to 500	32	501 to 1000	50	1001 and above	80	'A'	180	
Lot Size	Sample Size																						
26 to 50	5																						
51 to 100	8																						
101 to 150	13																						
151 to 300	20																						
301 to 500	32																						
501 to 1000	50																						
1001 and above	80																						

SPECIAL CONDITIONS (CONTD)

1	2	3	4	5	6	7	8
	(b) Strength test	IS : 3034 1990	From each lot 5% of the factory made shutters shall be manufacturer tested for strength tests.		'B'	240	
	(i) Slamming	-do-					
	(ii) Impact Indentation	-do-					
	(iii) Shock Resistance	-do-					
	(iv) Edge loading	-do-					
14.	Plywood (IS : 303 1989)	(a) Moisture content	IS : 1734 1983 (Part I)	Six test pieces cut from each of the boards selected as per table shall be subjected to tests.	'B'	240	Sampling shall be as per IS : 7638-1975 tables.
15.	Wood particle board (Medium density IS : 3097 1985)	(a) Density	IS : 635 (Part I)	Three test specimens from each sample (Size 150mm X 75mm)	'C'	60	Sampling shall be as per IS : 3487 1983 with moisture meter.
		(b) Moisture content	-do-	-do-	'A' & 'B'	60	
		(c) Water absorption	-do- (Part-16)	-do- (Size 300mmX 300mm)	'A'	60	
		(d) Swelling due to surface absorption	-do- (Part-17)	-do- (Size 125mmX 100mm)	'A'	60	
		(e) Swelling in water	-do-	-do- (Size 200mmX 100mm)	'A'	60	
		(f) Modules of rupture	-do- (Part-4)	Three test specimen as per IS : 2380-77	'B'	90	
		(g) Screw withdrawal strength	-do- (Part-14)	-do- as per IS : 2385	'C'	120	

2nd CALL

SPECIAL CONDITIONS (CONTD)

1	2	3	4	5	6	7	8
16	Reinforcement steel	Physical tests up to 16 mm dia (normal mass, tensile elongation, bend and rebend)	-do- (Part-14)	Relevant IS	'B'	2500	
		More than 16 mm dia			'B'	2750	
17	Structural concrete (M-25 Grade and above)	Slump test or compaction factor test or Vee Bee Time	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
		Compressive strength	IS-516	<u>Qty of concrete In the work</u> Cum	No of samples	300	As per IS:456-2000 clause 14 for frequency of sampling
				1-5	1		
				6-15	2		
				16-30	3		
				31-50	4		
				51 and above	4+1 for each Addl 50 Cum or part thereof		

SAMPLING : The required number of blocks for testing shall be taken from every consignment of 5000 blocks. The block shall be picked up at random from a stack of particular batch. The sample of block shall be marked for future identification of the batch it represents.

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

Offg AGE (Contracts)
for Accepting Officer

PARTICULAR SPECIFICATIONS**1.0 GENERAL :-**

- 1.1 Work under this contract shall be carried out in accordance with Sch 'A' Particular specifications, general specifications and other provisions contained in MES Schedule 2009 (Part-I) & 2020 (Part-II) read in conjunction with each other.

Terms "General specifications" referred to here in before as well as referred in IAFW-2249 (General Conditions of Contract) shall mean the specification contained in the MES Schedule 2009 (Part-I).

- 1.2 General Rules, specifications, special conditions and all preambles in the MES Schedule shall be deemed to be applicable to the work under this contract unless specifically stated otherwise in these documents in which case the provisions in this documents shall take precedence over the aforesaid provisions in the MES Schedule. The term "as specified" wherever appears in the tender documents and drawings, relates to relevant particular specification and in its absence general specification. All reference to MES Schedule /SSR in these specification relate to Part-I of MES Schedule 2009 unless otherwise mentioned. Reference to some paragraphs of MES Schedule have been made in these particular specifications but other paragraphs and provisions, as applicable are also to be followed for all parts of Schedule 'A'.

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

- 1.4 Unit rates quoted by the tenderer shall be deemed to include for any minor details/items of work and/or constructions which are obviously and fairly intended and which may not have been included in these documents but which are essential for execution and entire completion of the work. Decision of the Accepting Officer as to whether any minor detail of work and/or construction is obviously and fairly intended to be included in the contract or not, shall be final, conclusive and binding.

- 1.4.1 In all the above and in all similar cases, the details indicated elsewhere which are similar or near to the missed out items of work shall be followed. In the absence of any other similar or near details, minimum essential requirement of completion of the work from structural and utility point of view shall be deemed to be included in the rate quoted. In the event of any dispute, decision of the Accepting Officer shall be final, binding and conclusive.

1.5 MATERIALS

- 1.5.1 All the material to be procured by the contractor for incorporation in the work under this contract (with the exception of local materials like stone aggregate stones and sand etc) shall be with ISI certifications mark. Also refer Para 1.5.2 below).

- 1.5.2 However if any specific makes/manufacturer names are specified elsewhere, materials shall be of these specific makes/manufacturers only. If any material is not manufactured with ISI certifications marks in the country, it shall be confirming to relevant ISI and other specifications specified elsewhere and shall also conform to samples displayed in CWE's/GE Office as applicable.

- 1.5.3 Indian standard (ISI) of the year of publication/edition listed or specified in the SSR part-I shall be applicable for the work under this contract unless specifically indicated otherwise elsewhere in this tender documents.

1.6 LOCAL MATERIALS

Local material such as stones aggregate etc shall conform to or superior to the specifications and to the samples kept in the office of CWE's/GE and the tenderers are advised to inspect the sample and have full knowledge thereof whether they inspect them or not before quoting their tender.

Contd.../-

PARTICULARS SPECIFICATIONS (Contd.../-)

1.6.1 SAMPLE OF MATERIALS :-

- (a) Refer Condition 10 of IAFW-2249
- (b) Specific requirements, regarding dimensions strength weight and finishes as per IS, SSR and the particular specifications given herein after vis-a-vis actual properties, check tests carried out, reference to test certificates and marking, etc based on which samples of each materials are approved as conforming to relevant specifications shall be recorded in the sample approval register.
- (c) The contractor shall not procure materials unless the samples are first got approved from the Garrison Engineer.

1.6.2 RECORD OF MATERIALS

- (a) The quantity of materials such as paints, Liquid water proofing admixture and the like as directed by the Engineer-In-Charge, shall be recorded in measurement books and signed by the contractor and the Engineer-In-Charge as a check to ensure that their required quantity has been brought at site for incorporation in the work.
- (b) Materials brought to site shall be stored as directed by the Engineer-In-Charge and shall be suitably marked for identification.
- (c) The contractor shall on demand produce to the GE, original. Accepted Vouchers /invoices in respect of the supplies. Vouchers/invoices so produced and verified shall be stamped by the Engineer-In-Charge indicating contract number. The contractor shall ensure that the materials are brought to site, in original sealed containers/packing bearing manufacturer's marking except in the case of requirement of materials (being less than smallest packing).
- (d) The contractor shall produce to the GE in original printed and machine numbered purchase vouchers/ invoices including manufacturers test certificate for the materials shown here in after. (if these are required for incorporation in the work), whenever procured and brought to site of work for incorporation in the work. A Xerox copy of defaced original Vouchers/invoices by the Engineer-In-Charge stating "verified for materials purchased and brought to the site of work for incorporation in the work under CA" and signed with date.
 - (i) Steel
 - (ii) Tiles
 - (iii) Timber
 - (iv) Door shutters
 - (v) Particle boards, block boards, ply wood, , pre-laminated particle boards and the like wood.
 - (vi) Builders hardware
 - (vii) CGI sheets
 - (viii) Aluminium fittings
 - (ix) Paints, Distempers, Cement base paint and the like
 - (x) GI tubing and all water supply fittings, valves& HDPE Tank.
 - (xi) SGWS pipe
 - (xii) Sanitary fittings
 - (xiii) All electrical items
 - (xiv) Bitumen
 - (xv) cement

Payment for above materials shall neither be made in the RARs nor these will be allowed for incorporation in the work unless purchase vouchers/ invoices and test certificate of manufacturer as stated above are produced by the contractor and are verified by the Engineer-In-Charge.

Contd.../-

PARTICULARS SPECIFICATIONS (Contd.../-)**1.7 STANDARD OF WORKMANSHIP.**

To determine the acceptable standard of workmanship and layout of fittings wiring etc GE shall order the contractor to execute certain typical portion of work (different trades) and services sufficiently in advance of other work in one portion of the building. These shall be executed and completed under the close supervision of the Engineer-In-Charge and shall be got approved from GE. On the approval by the GE of such items, these items shall be signed and/or suitably identified by the GE and labelled as guiding samples. The record of such inspection and passing of each stage of these samples shall be recorded by GE under his dated signatures. Works on each sample/portion of the building shall be processed well (minimum two stages ahead) of other portion of building. Approved finishes/workmanship shall be followed in the work as a whole.

1.8 SCOPE OF WORK. The scope of work under this contract comprise of full final and entire completion of works as described in Schedule 'A', all shown in drawings and as specified in these particular specifications.**2.0 EXCAVATION**

- (a) Unit rates for building in Schedule 'A' Part-I shall include for excavation and earth work in hard/dense soil.
- (b) The measurement of excavation shall be as explained in MES Schedule (Part-II) with the exception that separate quantities of soft/loose soil, hard/dense soil and soft rock shall not be worked out but these materials shall be grouped together as hard/dense soil.
- (c) Stone Boulders obtained from excavation shall be sorted out and neatly stacked at site by the contractor as directed by the Engineer-In-Charge without any extra cost to the Govt, the aforesaid boulders and stones in stacker shall be issued under Schedule 'B' to contractor on payment as indicated therein. These boulders may be used in the work after breaking them into specified size as approved by Engineer-In-Charge.
- (d) If hard rock (Stone boulders) is met at site, contractor shall immediately notify the fact to the GE in writing, who will after the verification regularize the change through a proper deviation order.

2.1 FILLING IN TRENCHES/UNDER FLOORS

The approved earth obtained from excavation in foundation shall be used for filling in trenches, under floors and any other situations as specified after removing stone, grass roots and vegetable moulds, or other organic matters. Earth mixed with small stones/pebbles (if approved by GE) is permitted for use in filling under floor and foundation. The filling under pipes after the pipes are laid and tested shall however be with Earth-free from pebbles/stones. Any additional earth required for the purpose of filling shall be arranged by the contractor at no extra cost to the department from outside the defence land.

2.2 Filling under floors/sides of trenches shall be in layer not exceeding 25 cm thick and each layer shall be watered and well rammed.**2.3** Surplus spoils shall be removed and spread at places as directed by the Engineer-In-Charge, to a distance not exceeding 50 metres and levelled as directed by Engineer-In-Charge.**2.4** After construction and before handing over any building the area around so defined in Clause 2.1 here-in-before shall be dressed without extra cost to the Govt. Spoil obtained from surface dressing shall be removed to a distance not exceeding 50 meters, spread and levelled as directed by Engineer-In-Charge.**2.5 FOUNDATION AND PLINTH**

Any change in foundation/plinth necessitated due to undulating ground which may have to be carried out as per the decision of the GE and shall be adjusted through a proper deviation order.

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PARTICULARS SPECIFICATIONS (Contd.../-)

2.6 For the purpose of reckoning the depth of the foundation the minimum level of the ground after surface dressing shall be considered except at the places where cutting is involved.

2.7 **BAILING/PUMPING OF WATER**

All water that may accumulate in trenches of foundations, column footing, rafts etc, during the progress of work from rain / snow, sub soil water, spring etc shall be bailed/pumped out or otherwise removed all as per Clause 3.17 of SSR Part-I and nothing extra except as provided for vide special Condition 3.11 on Page No 19 of SSR Part-II shall be payable on this account. Contractors are therefore advised to ascertain level of sub soil water at site of work before quoting tender.

3.0 **CONCRETE WORK**

3.1 **CEMENT** Contractor shall make his own arrangements to procure cement as specified here in after. The cost of cement, its transportation, storage, testing charges, its accounting and preservation etc till consumed in work shall be borne by the contractor.

3.1.1 **TYPE OF CEMENT** Type of cement to be used in this contract shall be ordinary Portland cement, grade 43, conforming to IS-8112, unless otherwise specifically specified. Different type of cement, if so required, as per contract provisions, shall also be arranged by contractor at no extra cost to Govt.

3.1.2 **PROCUREMENT**

3.1.2.1 Cement shall be procured by the contractor directly from the following producers or their authorized dealers/stockiest:-

(a) The Associated Cement Companies Ltd Brand : "ACC"	(l) Jaypee Rewa Cement, Brand : "JAYPEE"
(b) Ultra Tech Cement Ltd, Brand : "ULTRATECH"	(m) Ambuja Cement Ltd , Brand : "AMBUJA"
(c) The India Cement	(n) M/s JSW Cement Ltd AP Brand : "JSW PSC (Portland Slag Cement)"
(d) Dalmia Cement (Bharat) Ltd Brand : "DALMIA INFRA PRO"	(o) Birla Corporate Ltd, Brand : "BIRLA"
(e) Century Cements, Brand : "CENTURY"	(p) Orient cement, Brand : "BIRLA-1"
(f) Saurashtra Cement, Brand : "SAURASHTRA"	(q) Nuvoco Vistas Corporation Ltd (Formerly Lafarge Cement), Brand : "NUVOCO"
(g) The Ramco Cements Ltd (Formerly Madras Cement). Brand : "RAMCO"	(r) J K Lakshmi Cement Ltd, Brand : "J K LAKSHMI"
(h) Mangalam Cement Ltd, Brand:"MANGALAM"	(s) M/s Kesoram Industries Ltd Brand : "BIRLA SHAKTI"
(j) Shree Cement Ltd, Brand : "SHREE"	(t) M/s Sagar Cements Limited, Hyderabad Brand : "SAGAR"
(k) J K Cement , Brand : "J K"	

3.1.2.2 Cement brought by the contractor at site(s) of work shall be in jute/polythene/ paper bags containing 50 Kg cement in each bag originally sealed by manufacturer. Before allowing any on account payment for materials at site, test check shall be carried out to ascertain average weight of cement per bag.

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PARTICULARS SPECIFICATIONS (Contd.../-)

3.1.2.3 Contractor shall produce purchase vouchers, test certificates and other valid documentary proof to the entire satisfaction of GE for entire quantity of each consignment to prove that cement has been purchased from the main producer or their authorized dealers/stockists as listed in Para 3.1.2.1 above. The contractor shall also submit particulars of the manufacturer of cement for every lot for verification by the site staff and GE.

3.1.3 TESTING OF CEMENT:

3.1.3.1 The contractor shall submit the manufacturer's test certificate in original along with the test sheets giving the result of each physical test as applicable and the chemical composition of the cement or authenticated copy thereof, in accordance with BIS provision provisions duly signed by the manufacturer or his authorized representative with each consignment. The Engineer-In-Charge shall record these particulars in the Cement Acceptance Register (Format given in relevant Appx 'B' attached to these particular specifications), after due verification.

3.1.3.2 Cement brought to site of work shall remain the property of Govt. Contractor shall in no case, remove, any bag of cement unless permitted in writing by GE. In addition to manufacturer's test certificate, GE shall also take random samples of cement drawn from various lots of each consignment as specified in IS Codes and get them tested from any one of the Govt. approved laboratories at his discretion or from SEMT CME, Regional Research Laboratory or Zonal Laboratory, all as per IS-3535-1986, IS-4031 and IS-4032-1985. Irrespective of results, cost of materials for such samples, cost of requisite handling & conveyance and cost of testing etc shall be borne by the contractor. Cement from each consignment shall be allowed to be incorporated in the work only after the GE is satisfied with the quality of cement brought by contractor.

3.1.3.3 Cost of testing undertaken as per provision in Clause 4.3.1 of SSR Part-I shall also be borne by the contractor. It shall be ensured that tested and untested cement is segregated and stored separately with distinct identification. Cement of different brands shall be stacked separately.

3.1.3.4 If the test results on samples of a particular consignment are not within acceptable limits, the matter shall be referred to the Accepting Officer, whose decision regarding acceptability of such cement with price adjustment or removal from the site shall be final and binding. Cement so rejected or any bag of cement in godown showing indication of any setting shall be segregated and removed by contractor from the site within a week's time, with due permission of GE for their removal.

3.1.4 STORAGE/CONSUMPTION OF CEMENT

3.1.4.1 Cement in bags shall be stored in proper leak proof/damp proof storage Godown, over at least a 30 cm high platform and 60 cm away from walls in such manner as to prevent deterioration due to moisture or intrusion of foreign matter, all as specified in Clause 4.3.1 to 4.3.3 of SSR Part-I.

3.1.4.2 For the purpose of keeping a record of cement procured and consumed in works, the contractor shall maintain a properly bound register in the form approved by the Engineer-In-Charge showing all procurements, quantity used in the work and balance in hand. At the end of each day and such other information as may be required to control the consumption of cement pages of the register shall be numbered and initialed by Engineer-In-Charge. This register shall be signed daily by the contractor or his representative in token of correctness of the entries made. In token of check, it shall be signed by MES representative also as follows :-

- (a) Daily by JE (Civil) in charge of works.
- (b) Once in a week by the Engineer in Charge.

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PARTICULARS SPECIFICATIONS (Contd.../-)

- 3.1.4.3 The said register shall remain at site of work, in the safe custody of the contractor and demand shall be produced for verification of inspecting officer. On completion of the work, the register shall be returned to MES for safe custody for any future reference. The cement Go down shall be provided with two locks on each door. The key of one lock on each door shall remain with the Engineer-In-Charge or his authorized representative and that of the other lock with the contractor authorized agent at site of work so that cement is removed from the Go down according to daily requirement with the knowledge of both the parties.
- 3.1.4.4 Foregoing provisions shall not, however absolve the contractor of his responsibility of incorporating required quantity of cement in various items of works as per contract provisions.
- 3.1.4.5 Cement shall be used in order of which it is received. It shall be insured that only one type/make of cement is used in any structural member.
- 3.1.5. **DOCUMENTATION:**
The contractor shall submit original purchase voucher and Test certificate for the total quantity of cement supplied under each consignment to be incorporated in the work. All consignment received at the work site shall be inspected by the GE alongwith the relevant documents before acceptance. The original voucher and the test certificate shall be defaced by the Engineer-In-Charge and kept on record in the office of the GE duly authenticated with cross reference to the control number recorded in the cement acceptance register. The cement acceptance register will be signed by the Supdt B/R Gde-JE (Civil), Engineer-In-Charge, GE and the contractor. The entire quantity of cement shall also be suitably recorded in the measurement book for record purpose before incorporation in the work, as "Not to be abstracted" indicated the voucher No with dates, quantity, date of manufacture/expiry date etc. It shall form the basis to allow advance on account through RARs
- 3.1.6. **SCHEDULE OF SUPPLY:**
The contractor shall ensure that procurement action is taken immediately after acceptance of the contract so as to adhere to schedule of activities as per CPM Net Work Contractor shall procure sufficient quantity of cement of each consignment, to ensure that cement is available at site/store out of previous stock minimum for 30 days when sample for fresh consignment are taken for 28 days testing. However quantity of cement in each consignment shall not be less than 1000 bags (except lesser quantity required in the work).
- 3.1.7. The periodicity of striking the form work and curing for works for ordinary Portland cement shall be as stipulated in Clause 10.3. & 12.5 of IS 456 of 2000.
- 3.2. **AGGREGATE.**
Aggregates for concrete work shall conform to specification and all as specified in Clause 4.4.1 to 4.4.7 of SSR Part-I.
- 3.2.1 **FINE AGGREGATE.** Grading of fine aggregates shall be within the limits of grading of Zone I to I11 as given in Clause No 4.4.7 (2) of SSR Part-I.
- 3.2.2 **COARSE AGGREGATE.**
Coarse aggregates for all concrete work in all situations shall be graded crushed stone aggregate (crushed in mechanically operated crusher) of approved quality, irrespective of whether indicated specifically in the description of items or otherwise or SSR provisions. Nallah shingle will not be used even for plain cement concrete work in any situation.

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PARTICULARS SPECIFICATIONS (Contd.../-)

3.2.3 GRADING OF COARSE AGGREGATE.

Grading of coarse aggregate (Broken/crushed stone) unless otherwise specified shall be as follows:-

- | | | |
|-------|---|------------------|
| (i) | For all reinforced/plain cement concrete of thickness up to 25 mm or under. | : 12.50mm graded |
| (ii) | For all reinforced cement concrete work over 25 mm thick. | : 20mm graded |
| (iii) | For plain cement concrete over 25 mm and under 75 mm thick. | : 20mm graded |
| (iv) | For plain cement concrete 75 mm thick and over. | : 40mm graded |

3.2.3.1 Grading of broken brick aggregate for lime concrete shall be as per 4.5.3 of MES Schedule, Part-i.

3.2.3.2. Grading of fine aggregate (sand) shall be as per Para 4.4.7.2 of MES Schedule Part-I for grading Zone-III.
Fine aggregate (sand) shall be obtained from natural source.

3.4.1 **WATER PROOFING ADMIXTURE**: - Irrespective of specifications given elsewhere water proofing for all cements concrete/mortar where indicated shall be integral (liquid) water proofing admixture of make as specified in respective appendix attached to these particular specifications and shall be mixed in the proportion recommended by the manufacturer. In case of deviations, waterproofing admixture shall be considered @ 1% by weight of cement.

3.4.2 **WATER** : Water shall confirm to the requirement stipulated in IS-456-2000.

3.5 MIX OF CONCRETE.

Unless otherwise specified in these particular specifications, mix of cement concrete in various situations shall be as under: -

<u>SITUATIONS</u>		<u>TYPE OF CONCRETE</u>
a) Lean concrete under foundation of walls, walls below plinth beams, toe walls, dwarf walls, steps, column footings and brick/stone retaining walls.	:	As shown in drawings. In case not indicated in drawings, PCC(1:4:8) type D-2 (by volume)
b) Foundation concrete under RCC retaining walls	:	As shown in drawings. In case not indicated in drawings, PCC(1:4:8) type D-2 (by volume)
c) PCC in plinth protection, channel/ drain, PCC blocks for holder bats, hold fasts/lugs for doors, windows and ventilators and plugging for scaffolding holes.	:	As shown in drawings. In case not indicated in drawings, PCC(1:3:6) type C-1 (by volume)
d) PCC in bed blocks/plates, kerbs padding, benching, splash stones, coping and PCC in any other situation not covered above.	:	As shown in drawings. In case not indicated in drawings, PCC (1:2:4) type B-1(by volume)
e) All Reinforced cement concrete	:	M-25(Design Mix) in all locations irrespective of what ever is shown on drawings.

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PARTICULARS SPECIFICATIONS (Contd.../-)

3.6 Important requirements for M-25 Design Mix

3.6.1 **Design Mix M-25** shall be carried out in accordance with IS-456 :2000 (Code of practice for plain & reinforced concrete) and IS-10262 (revised upto date) pertaining to recommended guide lines for concrete mix design with following stipulations:-

- (a) Characteristic compressive strength : 25 N/mm² required in the field at 28 days.
- (b) Maximum size of aggregate : 20mm (Crushed aggregate)
- (c) Type of exposure : Severe
- (d) Maximum free water cement ratio : 0.45
- (e) Degree of quality Control : Good (Refer Appendix A of IS- 10262)
- (f) Degree of workability : As per IS-456: 2000
- (g) Minimum cement contents : As per IS-456: 2000

3.6.2 At the time of tendering, the contractor after taking into account the type of aggregate, plant and method of laying, he intends to use, shall allow for the water cement ratio which he consider will achieve the strength requirement specified and will produce workability which will enable concrete to be properly compacted for its full depth.

3.6.3 Actual proportion of cement, aggregate and water to obtain the required strength shall be determined by preliminary tests as specified hereinafter. The water cement ratio may be reduced in the trial mix design but not increased.

3.6.4 Concrete for **M-25 (Design Mix)** shall have the minimum cement content of **380Kg/Cum**. There shall be **no price adjustment whatsoever, on account of variation (plus side)** in cement contents of design mix approved and the minimum cement content indicated above. In case the cement content as per actual Mix Design are working out lower than minimum cement content indicated above, the contractor shall provide minimum cement content indicated above and nothing extra shall be payable on this account. Engineer-in-charge shall maintain a record of actual consumption of cement in a proper register and initial the entry for every change in quantity of material.

3.6.5 As soon as possible after receiving the order to commence the work, the contractor, shall submit the mix design from a Govt. approved lab / Engineering college lab (**To be approved by the GE**) for the concrete of grade as specified as per Appendix 'C' of IS-10262 keeping into considerations provision of Para 3.6.1 to 3.6.4 here in above for perusal & approval by the GE. Based on the mix design as above, contractor shall arrange to carry out trial mixes from a credited engineering establishment (lab/college) (**To be approved by the GE**) using material (cement, sand, aggregates and water) from the site of construction as per Appendix 'C' of IS-10262.

3.6.6 Details/results of trial mixes from the engineering establishment along with their recommendations regarding quantities of cement, water, sand, and coarse aggregates to be used in the work to achieve characteristic compressive strength of 30 N/mm² in the field at 28 days shall be submitted by the contractor to the GE for final approval by the CWE.

3.6.7 The approval of the CWE will not absolve the contractor of his responsibilities to obtain the required minimum strength of concrete at any stage.

3.6.8 Contractors unit rates against respective parts of Sch 'A' shall include for the above provisions and as brought out here-in-after. Further, in case there is any change in source of local materials viz sand/aggregates or grade of cement etc, the procedure as in Para 3.6.5 & 3.6.6 here-in-before shall be repeated.

3.7 MIXING CONCRETE

All cement concrete except small quantities shall be mixed in automatic mixing plant installed at site with tested/calibrated control panel, water meter & weigh batcher capacity of plant shall be 25 to 40 cum per hour. For smaller quantity as stated above with prior permission of GE in writing mixing of concrete in mechanical mixer & weigh batcher shall be as per clause 10.3 of IS: 456-2000 & as specified here-in-after.

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PARTICULARS SPECIFICATIONS (Contd.../-)**(i) WEIGH BATCHING :**

In design mix concrete, the quantity of cement and aggregate shall be determined by weight. In no case volume batching of aggregates based on weight volume conversion in the mix design shall be allowed. Water shall be either measured by volume in calibrated tanks or weight. Due care shall be given to adhere to designed to the water cement ration and shall be adjusted on minus side to account for free surface moisture present in natural river sand and plus side to account for percentage of water absorption by stone aggregate, if any. The net water added shall be as per mix design given by lab. All measuring equipment shall be maintained in clean serviceable condition and their accuracy periodically checked. In this connection also refer clause 4.11.3, 4.11.3.1 to 4.11.3.5 of SSR Part-I.

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

(iii) On cessation of work and other stoppages exceeding 20 minutes, the mixer and other plant used for the wet mix shall be thoroughly washed with clean water.

3.7.1 CURING.

Curing of RCC/PCC shall be as per clause 13.5 of IS 456-2000.

3.8 SAMPLING AND ACCEPTANCE CRITERIA FOR CONCRETE.

The criteria for sampling and acceptance of the concrete shall be as per Para 15.1 to 16.1 of IS-456-2000, (code of practice for plain and reinforced concrete). The minimum frequency for the work tests shall be as specified therein and as specified here-in-after.

3.9 TEST.

The following tests shall be carried out during execution of the work. Tests shall be carried out in accordance with IS-516 and IS 1199, the contractor shall provide all facilities and equipment for casting, curing of testing cubes and conveyance of test cubes and other material for testing purposes to MES laboratory, the cost for which shall be borne by contractor. The testing charges @ 100/- per test of three cubes shall be levied from contractor for tests carried out in MES laboratory.

3.9(A) SLUMP TEST

The frequency of the test shall be decided by the GE. The slump for the vibrated concrete shall be as specified in IS-456. The GE however, reserves the right to vary the limit which will be ascertained at the time of deciding the mix design for each grade. Any batch from which a slump test is being made shall not be transferred to the places of laying until the slump in excess of the required for a particular batch is not removed from the site.

3.9(B) COMPRESSIVE STRENGTH TEST

Three cubes shall be tested at 7 days and three at 28 days for crushing and the remaining three cubes shall be kept as reserved exclusively for Govt use for subsequent testing (If so desired by Govt) and preserved for one year from completion of work under the contract. The contractor can not object testing of other cubes for the purpose as a matter of right. For the purpose of subsequent identification of the test cubes, the concrete to which these pertains shall be cross referred and record of this maintained and signed by the Engineer-In-Charge and contractor or his authorised representative.

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PARTICULARS SPECIFICATIONS (Contd.../-)**3.10 PLACING AND COMPACTION OF CONCRETE.**

Concrete shall be transported without delay and incorporated in works within 20 minutes from the time of discharge from the mixer. Mixed concrete shall be deposited in final position and solidly packed around reinforcement, carefully poured and consolidated by means of portable vibrators or mechanically operated and of the kind as suitable for a particular situation as directed by the GE. Care shall be exercised that no voids/honey comb pockets are formed. The concrete shall not be laid in position for more than 1 mtr in height in one concrete operation.

3.11 FORM WORK.

3.11.1 Formwork shall comply with requirement of Para 4.11.6.1 to 4.11.6.5 and 7.15.1 to 7.15.10 of SSR (Part-I).

3.11.2 All form work for foundations, columns, beams slabs, walls etc will be provided of steel and no wooden ballies, planks etc will be used/allowed for the same as directed .However the form work for the items other than mentioned above may be of steel, plywood or timber of adequate strength. IN case of any deviation involving form work, the pricing shall be done on the basis of timber form work. Timber form work shall be such as to give rough finish surface of concrete as specified in Clause 7.15.2(a) of MES Schedule Part-I.

3.11.3 Shuttering of RCC cantilever canopy/chajja shall not be removed unless counter balancing load have been imposed.

3.11.4 In case of bad weather stripping time for form work as specified may be increased as directed by Engineer-In-Charge without additional payment to contractor.

3.12 EXPOSED SURFACE OF CONCRETE

3.12.1 Exposed RCC/ PCC surfaces, which are ultimately required to be finished by application of white/colour wash, distemper, cement base paint or oil paint etc. shall be plastered with cement and sand mortar (1:3), 5mm thick and finished even and smooth after removal of form work.

3.12.2 Exposed surfaces of lintels, beams, columns, etc., which are continuous with plastered surfaces of walls, shall be plastered in the same manner as specified for the walls.

3.13 PRECAST CONCRETE ARTICLES.

Cement concrete lintels with or without integrally cast chajjas upto 1.5 metre clear span, shelves, bed blocks/plates, cover slabs, fins and the like may either be precast or cast in situ at the contractor's option unless otherwise specified elsewhere. If, precast, these shall be set in cement mortar (1:3). In case of deviation involving these items, pricing shall be done on the basis of cast-in-situ work.

3.14 PCC COPING

PCC coping shall be provided as shown on drawings.

3.15 BEARING OF RCC STRUCTURAL MEMBERS.

3.15.1 Bearing to all roof/floor slabs resting on masonry walls shall comprise of 20mm thick bearing plaster in cement mortar (1:4) finished even and smooth treated with one coat of white wash and two layers of bitumen laminated water proofing building paper type-I weighing not less than 60gms/sqm each layer laid over it.

3.15.2 All beams/bressumers resting on masonry shall be provided with PCC bed blocks of cement concrete mix 1:2:4 type B-1. The size of bed block shall be as indicated on drawing. In case size is not indicated it shall be 200mm deep, length equal to the width of beam plus twice the depth of block and width equal to the thickness of wall.

3.15.3 The bearing of lintels shall comprise of a full PCC solid/hollow block with vertical joints in PCC solid/hollow block work staggered.

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PARTICULARS SPECIFICATIONS (Contd.../-)

3.16 JUNCTION OF RCC ROOF SLABS/CGI SHEET ROOFING AND PARAPET WALLS:

PCC benching in the form of coved fillet of radius 75mm shall be provided in PCC (1:1 ½: 3) type A1 all along the junction of RCC roof slab/powder coated CGI sheet roofing (as applicable) and vertical projections as specified above.

3.17 PCC BENCHING :

PCC Benching/stopper shall be provided as shown on drawings and the radius of the round portion shall be 75mm.

3.18 CONCRETE PADDING/FILLING: Where the required height of walls, openings is not obtained with adequate size of PCC blocks/stone (As applicable), the same shall be obtained by providing concrete padding of PCC (1:3:6) type C-1.

3.19 PLINTH PROTECTION:

3.19.1 Plinth protection in all situations as shown on drawings shall be provided with 75mm thick in PCC (1:3:6) type C-1 using 20mm graded crushed stone aggregate over 75mm thick consolidated broken stone hard core over rammed earth surface. Unless otherwise indicated on the drawings, the width of the plinth protection shall be 90 cm. PCC shall be laid in alternate bays n. exc. 2 Sqm each and finished even and fair on top without using extra cement. 6mm wide joints shall be provided throughout the thickness of plinth protection in concrete bays and in between the walling and plinth protection. All joints in bays of concrete as well as between walling and plinth protection, shall be filled with mastic filling comprising of one part of heated bitumen 85/25 or 90/10 grade and 3 parts of sand (all by weight).

3.19.2 HARD CORE

Unless otherwise specified the hard core shall of hard broken Stone or boulders broken to gauge not exceeding 63mm. The material of hard core shall be well graded for providing dense and compact sub grade. Hard core shall be deposited, spread and levelled in layers not exceeding 15cm thick and watered and well rammed to a true surface and compacted with sufficient fine material. The thickness of hard core specified or indicated, as in Schedule 'A' after consolidation. Where thickness has not been mentioned it shall be 150mm consolidated.

3.20 SEISMIC PROVISION:

Seismic strengthening arrangements shall be provided all as shown and specified on relevant drawings in all buildings listed in Sch 'A'

3.21 PLINTH BAND/BEAM

RCC band/beam as specified shall be provided at plinth level throughout including doors and other openings and in locations shown on drawings. The concrete mix shall be mixed with the integral water proofing admixture of make as specified in respective appendix attached to these particular specifications in the proportion as recommended by the manufacturer with a coat of bitumen grade 85/25 conforming to IS-702 @ 1.5 Kg per Sqm on top. Thickness and reinforcement of plinth band shall be as shown on drawings. Where these have not been shown on drawings thickness shall be 80mm and longitudinal bars shall be 2 Nos of 12 mm TMT bars and links shall be 8mm TMT bars @ 150mm C/C.

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PARTICULARS SPECIFICATIONS (Contd.../-)**4. PCC BLOCK MASONRY**

4.1 Unless otherwise specified here-in-before and/or Sch/BOQ, PCC block masonry shall be provided as under:-

(A) (i)	All walls below plinth beam plinth band	Solid block masonry in cement Mortar (1:4)
(ii)	All External walls above plinth beams/plinth band	Solid block masonry in cement Mortar (1:6)
(iii)	All 10cm thick walls	Solid block masonry in cement Mortar (1:4)
(B)	All internal walls(200mm thick and more) above plinth beam/plinth band.	Solid block masonry in cement Mortar (1:6)

4.2 **PCC blocks**: Solid PCC concrete block shall be casted as per IS-2185 (Part-I) 1979. These shall be manufactured for minimum average compressive strength of 5N/Sqmm at 28 days.

4.2.1 Precast concrete blocks shall be casted mechanically in approved machine in PCC 1:3:6 using 12.50mm graded crushed stone aggregate as per IS-2185. The PCC block shall conform to the requirement of relevant IS. The PCC block for masonry shall be of size (Nominal dimensions) 30X20X20cm or 40X20X20cm.

4.2.2 The work for precast block masonry shall be carried out as specified in clause 4.23.1 to 4.23.15 of SSR Part-I.

4.2.3 Pre-cast concrete block shall be manufactured/ casted at site of work. The site for casting of PCC block shall be as directed by Engr-in-Charge.

4.2.4 Contractor shall keep watch and ward of PCC block to avoid any breakage/loss.

4.2.5 Where ever 10 cm thick wall are shown on drawings these shall be reinforced with 2 Nos 8 mm dia TMT bars with 6 mm dia MS round bars links @ 150 mm center to center shall be provided, placed horizontally at every third course starting from bottom.

4.2.6 TESTING:

4.2.6.1 Following three tests shall be carried out in accordance with IS-2185 as stipulated in Appendix 'E' to these Particular Specifications.

(a) Compressive strength (b) Block Density (c) Water absorption.

4.2.6.2 All the above test shall be carried out as described in appendices of IS-2185 and IS-2156 as stipulated in Appendix 'F' to these Particular Specifications.

4.2.6.3 A record of "concrete pour " for blocks and numbers of blocks casted /incorporated in testing shall be jointly maintained to assess the quantity of cement utilised. The contractor shall bear the cost of blocks, preparation of blocks and their curing, transportation and handling complete.

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PARTICULARS SPECIFICATIONS (Contd.../-)

4.3 FI TIES :

Masonry coming in contact with RCC columns shall be anchored to columns with MS flat iron ties, starting from 20cms above DPC/plinth beam. The ties shall be of 25mm x 3mm flat iron, 25cm long provided at every fourth course.

4A. STONE MASONRY

4A.1 MATERIALS:

4A.1.1 **STONE**: Stone shall be of best quality, locally available obtained from approved quarries or from boulders after chiseling and hammer dressing. Stone shall be hard, sound, durable and free from defects like cavities, sand holes or any other defect that may adversely affect its strength and appearance. It shall be of uniform colour and texture. Stone boulders shall be of regular size. Stone boulders (in their original rounded shape) shall not be used in the stone masonry work.

4A.1.2 **CEMENT** : Refer clause 3.2 here-in-before.

4A.1.3 **SAND** : Refer clause 5.4 of Section 5 of the MES Schedule Part-I.

4A.2 WORKMANSHIP :

4A.2.1 The stone masonry work shall conform to the general requirements specified in clauses 6.2.1 to 6.2.4, 6.7.1(a), 6.7.1(b), 6.8, 6.9, 6.10.1 and 6.10.2 of the MES Schedule Part-I.

4A.2.2 TYPE OF STONE MASONRY:

4A.2.2.1 Random rubble stone masonry shall be uncoursed or brought up to course as indicated in relevant items, drawings and shall be provided as specified in clause 6.10.1/6.10.2 of the MES Schedule and in accordance with Figs 7&8 on page 125 of the MES Schedule (Part-I). In case type and grade of cement mortar for stone masonry is not indicated in drawings or not specified elsewhere in these particular specifications, the same shall be considered RR stone masonry, brought up to course, built-in cement mortar 1:4. Unless other wise specified, in case of retaining wall of height less than 60 cm and drains, RR masonry shall be un-coursed. In case contractor does the superior quality masonry, as per local practice than the masonry specified, nothing extra shall be admissible on this account to the contractor.

4A.2.2.2 Dry random rubble masonry uncoursed where indicated shall be provided as specified in clause 6.17 of the MES Schedule (Part-I).

4A.2.3 BOND STONE :

Bond stones of stone shall be provided as per details shown on the drawings at the rate of 2 Nos per Sqm of the face area of wall and shall be staggered. Contractor may use pre cast PCC 1:3:6 type C-1 bond stones in lieu of stone bond stones at his discretion (except where specifically indicated in respective Parts of Sch "A") without any extra cost to Govt.

5. WOOD WORK AND JOINERY

5.1 TIMBER :

5.1.1 Timber for all joinery and woodwork shall conform to specifications given in clause 7.3 of the MES Schedule Part-I and shall be within the permissible limits of defects in clauses 7.4 and 7.5 of the MES Schedule Part-I.

Contd.../-

PARTICULARS SPECIFICATIONS (Contd.../-)

5.1.2 Timber shall be well seasoned whether air or kiln dried at the discretion of the contractor (except factory made door shutters which shall be kiln seasoned only) but without any price adjustments. The moisture contents of timber shall not exceed the limits laid down in clause 7.7 of MES Schedule Part-I.

5.2 SPECIES OF TIMBER:

5.2.1 The species of timber and prefabricated wood products (i.e. plywood, wood particles board etc) shall be as specified below unless otherwise specifically specified elsewhere in these Particular specifications:-

(i) Panelled/Glazed/Wire gauzed shutters for doors (Styles, rails, beading/ mouldings, fillets).	Factory made shutters using 2 nd class soft wood "Kail" (Also Refer clause 6.7.5 here-in-after)
(ii) Wooden chowkhats for cupboards & wardrobe (where indicated of wood in drgs)	: 2 nd class soft wood "Kail" (Also Refer Note below)
(iii) Beading over plywood/particle board for ceiling/lining and wood work for Ladakhi pattern fascia. (Where indicated on drawings)	: Second class soft wood "Kail"
(iv) Wooden handrail and wooden panelling, Edging of cup boards, ward robes, cabinet shutters, etc.	: First class soft wood "Deodar"
(v) Eaves Boarding (Where indicated on drawings)	: Second class soft wood "Kail"
(vi) Any other wood work not indicated in drawings or specifications.	: First class soft wood "Deodar"
(vii) Shutter for Cup board& wardrobe	: 18mm thick Prelaminated (one side) particle board of approved shade/colour

5.3 PARTICLE BOARD:

Particle board shall conform to the requirement of IS-3097(duly ISI marked) exterior grade (grade-1), specifications for veneered particle board (medium density). Particle board shall be of uniform thickness and density throughout and bonded with phenol formaldehyde synthetic resin (BWR type). Both the faces of particle board shall have sanded smooth finish. Where thickness of particle board has been shown as 20mm in the drawings / else-where, the same shall be amended to read as 18 / 19mm.

5.4 PLYWOOD :

All plywood where indicated on drawings shall be BWR grade conforming to IS-303. Decorative plywood where indicated in drawings shall conform to IS-1328.

5.5PRELAMINATED PARTICLE BOARD:

Pre-laminated particle board where indicated shall be of grade-I, type-II one side decorative type lamination as approved be GE and other side balancing white as per IS-12823 of 1990.

5.6COMMERCIAL VENEERED PARTICLE BOARD:

5.6.1 Particle boards shall be three layered flat pressed teak wood veneered particle board bonded with phenol formaldehyde synthetic resin adhesive and shall conform to exterior grade of IS-3897 specifications for veneered particle board. Edges of particle board shutters/shelves shall be provided with 6mm thick edging of wood as specified above. It shall any of the make as mentioned in Appendix 'A' of makes here-in-after.

5.6.2 All ply wood where indicated on drawings shall be BWR grade conforming to IS-303. Decorative plywood where indicated in drawings shall conform to IS-4728. These shall be any of the make as mentioned in Appx'A' of makes.

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PARTICULARS SPECIFICATIONS (Contd.../-)

5.7 BLOCK BOARD:

- 5.7.1 Block Boards shall conform to the requirements of IS 1959-2004, Specification for blockboards. Block boards shall be of grade I quality, exterior grade or grade 2 quality, interior grade and of decorative type or commercial type as indicated. In case of decorative type it shall be indicated if one or both the faces shall have decorative face veneer. Strips of wood in the core may be laid separately or glued or otherwise jointed.
- 5.7.2 Block boards shall be flat and square. Both faces of block board shall be sanded to a smooth even surface. Block boards shall be uniform in thickness within the tolerances specified. 12.12.2 Tolerance permissible on the thickness of block boards shall be ± 5 percent for boards up to 25 mm thickness and ± 2.5 percent for boards above 25 mm thickness.

5.8 WORKMANSHIP:

- 5.8.1 Joinery shall be wrought all over. Timber exposed to view shall be wrought and timber not exposed to view shall be clean sawn. The workmanship and fixing of joinery shall be as per clause 8.15 to 8.26 of MES Schedule Part I.
- 5.8.2 The dimensions of the various components of joinery (other than block board shutters) shown on drawings, wherever at variance, shall supersede the standard dimensions mentioned in clause 8.20 of the MES Schedule Part I. However, for pricing deviations involving any joinery work, the rates in MES Schedule (Part-II) for the corresponding joinery items shall be applicable.
- 5.8.3 Unless otherwise specified, all work both carpenter's and joiners shall hold full dimensions as shown on drgs except that an allowance of 1.00mm shall be allowed for each wrought face. Wooden beads and fillets shall however, hold the full dimensions as shown on drgs. The contractor shall also maintain the overall sizes of the doors and windows etc. as shown on drgs.
- 5.8.4 Timber members up to 3.00 metre in length shall be in one piece.
- 5.8.5 Plugging to walls shall be done with wooden plugs as per clause 7.29 of the MES Schedule Part-I.

6 FACTORY MADE paneled / GLAZED / WIRE GAUGE SHUTTERS:

- 6.1 Paneled / glazed / Wire gauzed shutters of doors shall be factory made, manufactured in accordance with IS-1003, made of well selected kiln seasoned, chemically pressure treated, 2nd class soft wood "Kail". Styles, and rails shall be as specified in clause 5.2.1 here-in-before. Panel inserted shall be of particle board 12mm thick commercial veneered on both faces, conforming to specifications mentioned in clause 5.6 above. Factory made shutters shall be procured from any of the factory as given in relevant Appendix attached to these particular specification.
- 6.1.2 A Tolerance of (plus/minus) 3mm on width and height only shall be allowed, provided the shutter snugly fits into the frame. The thickness of shutters given in drawing shall be the finished thickness and no tolerance on this shall be permissible.
- 6.1.3 The GE should ascertain whether the testing facilities are available for seasoning, preservative treatment of timber at approved factory and shutters are manufactured as per IS-1003 specifications.
- 6.1.4 For the purpose of pricing deviation in respect of Factory made Paneled/glazed/wire gauze shutters, the rates shall be derived from the rates given in MES schedule of rate part II for wire gauze shutters enhanced by the percentage for difference in rates given in MES Schedule of rates part II for factory made shutters and other shutters.

Contd.../-

PARTICULARS SPECIFICATIONS (Contd.../-)

- 6.1.5 The contractor at his option without any extra cost to the Govt may provide 1st class soft wood "Deodar" factory made wire gauzed shutters in lieu of 2nd class soft wood "Kail" factory made wire gauzed shutters. Also for pricing of the deviations for 1st class soft wood "Deodar" factory made wire gauzed shutters, rates given in MES schedule for 2nd class soft wood factory made shutters (read in conjunction with the provisions given in clause 6.7.4 above) shall be applicable.

6.2 **FLUSH DOOR SHUTTERS**

Flush Door Shutters shall be provided as per description of respective items in Schedule 'A' conforming to IS: 2202 and refer to clause No- 8.25 to 8.26.7 of MES SSR Part-I. Thickness of flush door shutters shall be as specified in relevant items of Schedule 'A'.

6.3 **PVC DOORS AND DOOR FRAMES (FOR WC, TOILET, SHAFT & BATH)**

- 6.3.1 Irrespective of what is shown/indicated in drawings. All doors and chowkhats of WC JC and bath of all buildings covered in this work shall be of PVC as specified here-in-after in lieu of panelled door shutters with PVC Chowkhat.

- 6.3.2 PVC door frame (Chowkhats shall be of size 50 mm x 47 mm with a wall thickness of 5 mm made out of coloured 5 mm rigid PVC foam shocked mitre cut at two corners and jointed with 2 Nos 150 mm long brackets of 15mm x 15 mm MS square tube. The two vertical door profiles shall be reinforced with 19 mm x 19 mm square tube of 19 gauge Rubber gasket weather seal shall be provided through out the frame. The door frames shall be fixed with wall using 65/100 mm long MS screws all as per manufacture's instructions and as directed by Engineer-in-Charge.

- 6.3.3 Factory made solid panel PVC door shutters 30 mm thick consisting of frame made out of MS tubes of 19 gauge thickness of size of 19 mm x 19 mm for stiles and 15mm x 15 mm for top and bottom rails MS frame shall be covered with 5 mm thick heat moulded PVC channel of size 30 mm x 50 mm forming stiles and 5 mm thick 75 mm wide PVC sheet for top rail, lock rail and bottom rail on either side. 10 mm thick (2 x 5 mm). 20mm wide cross PVC sheet shall be provided as gap insert for top bottom rails. Panel insert of 5 mm thick PVC sheets shall be fitted in the MS frame welded/scaled to the stiles and rails with 30mm wide x 5 mm thick PVC sheet beading on either side and jointed together with solvent cement adhesive. The size of stiles and rails shall be 75 mm and 100 mm respectively. The door shutter shall be fixed to PVC door frame as per manufacturer's instructions.

- 6.3.4 **ALUMINIUM DOORS, WINDOWS AND FRAMES** : All as per described under relevant item of Sch 'A' Part I (BOQ).

7. **BUILDERS HARDWARE**

7.1 **GENERAL:**

- 7.1.1 Items and quantities: -Hardware fittings shall be provided according to the scales indicated in the schedule of iron mongry on the relevant drgs and in conformity with any note that may be appearing on particular drawings. Irrespective of whatsoever is shown on drawings, all builders hardware fittings (except butt hinges and spring hinges) in buildings covered under Sch 'A' Part-I shall be aluminium anodized.
- 7.1.2 In case the size of particular fitting is not given in the drawings, it shall be of size as decided by the GE.
- 7.1.3 All articles of builder's hardware shall bear ISI marking. In case ISI marked articles are not manufactured, those shall conform to the relevant IS specifications given in the MES schedule for the relevant item.
- 7.1.4 Finish of articles shall be as specified in clause 9.2.4 of the MES Schedule Part-I.
- 7.1.5 Screws used for fixing the articles of builders hardware shall be as specified in clause 9.2.6 of the MES Schedule (Part-I).

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PARTICULARS SPECIFICATIONS (Contd.../-)**7.2 ARTICLES :****7.2.1 BUTT HINGES:**

Butt hinges shall be of cold rolled, mild steel, medium weight all as specified in clause 9.7.1 & 9.7.2 of MES Schedule Part-I.

7.2.2 CONTINUOUS (PIANO) HINGES:

Continuous (Piano) Hinges shall be of mild steel electro galvanised finish as specified in clause 9.7.6 of MES Schedule Part-I. The width of the flap shall be to suit the thickness of the shutter.

7.2.3 SLIDING DOOR BOLTS

7.2.3.1 Non ferrous metal sliding door bolts i.e. Aluminum anodized sliding door bolts shall be as per clause 9.5.2 of SSR part I.

7.2.3.2 The sliding door bolt shall have smooth sliding action. The hasp when not cast integral with the bolt, shall be properly secured to the bolt. Sliding bolts shall be provided with fixing bolts. Brass bolts shall have satin finish or polished. Aluminum bolts shall be anodized.

7.2.4 BARREL TOWERBOLTS:

(i) Aluminum anodized tower bolt of 250 mm size for doors shall be as per clause 9.3 of SSR part I.

(ii) Size of barrel tower bolts shall be as shown on drawings. Where size of barrel tower bolts not indicated, the same shall be 250 mm for doors and 100 mm for windows.

7.2.5 HANDLES:

(i) Fabricated Aluminum handles shall be as per clause 9.11 of SSR part I.

(i) Size of handles shall be as shown on drawings. Where size of handles not indicated, the same shall be 150 mm for doors and 125mm for windows.

7.2.6 HASP AND STAPLES:

(i) Hasp and staples, safety type, Aluminum anodized with mild steel hinge pin shall be as per clause 9.10 of SSR part I.

(ii) Size of Hasps and staples shall be as shown on drawings. Where size of Hasps and staples not indicated, the same shall be 75 mm.

7.2.7 DOORS SPRINGS :

Ordinary rat rail rod pattern spring including roller and roller plate shall be as per clause 9.7.8 of SSR part I. Size of door spring shall be as shown on drawings. Where size of door spring not indicated, the same shall be 150 mm.

7.2.8 TOWEL RAILS :

Towel rails shall be tubular, mild steel, chromium plated, 22 gauge, min 18/19 mm bore, 'C' shaped with flanged ends for fixing. In case length is not mentioned in drawings, it shall be 60cm long. Wherever aluminium towel rails are indicated in the drawings, these shall be deemed to read as chromium plated MS towel rails as specified in this clause.

7.2.9 WIRE CLOTH:-

Wire cloth to be used for wire gauzed shutters shall be galvanised mild steel with average width of aperture 1.18mm and nominal dia of wire 0.56mm."

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PARTICULARS SPECIFICATIONS (Contd.../-)**7.2.10 KNOBS:**

Shutters and drawers of small size built in cabinets, switch boxes and built in furniture shall be provided with aluminumanodised knobs of not less than 38mm dia.

7.2.11 DOOR STOPPER/WOODEN CLEATS:

Wooden door stoppers/wooden cleats of suitable size shall be provided to each open able shutter of window, ventilators and doors.

7.2.12 HYDRAULIC DOOR CLOSER :

Hydraulic door closer shall be provided on main entrance door irrespective of whatever shown on drawings and specified in particular specifications.

7.2.13 DRAPERY ROD:-

Drapery rod where indicated shall be 19/20mm dia mild steel chromium plated conduit pipe laminated with PVC cover in wood finish including fancy wooden bracket with end stops& hooks of best quality as approved by GE . In admbldgs conduit pipe shall be MS Conduit pipe laminated with PVC cover.

7.2.10 Curtain Rod: Curtain rods shall be provided toall doors and windows. These shall conform to IS10342-1982. It shall be 19mm dia pressed mild steelprovided with rings and brackets all as specied in clause 9.21 of SSR Part-I.

8.0 STEEL AND IRON WORK

Note:- All items of steel and iron work including steel for reinforcement required for incorporation in this contract shall not be issued under Schedule "B" . Contractor shall make his own arrangements to procure steel and iron all as specified hereinafter.

8.1 GENERAL

8.1.1 Items of steel and iron brought to site by the contractor for incorporation in the work shall be free from defects all as specified in clause 10.4.3 and 10.17.6 of SSR Part-I and shall be conforming to IS specifications as given below :-

(i)	<u>STRUCTURAL STEEL</u>	:	Fe-410-S (Standard Quality) Conforming to IS-2062, unless indicated otherwise
(ii)	<u>STEEL FOR REINFORCEMENT</u>		
	(a) MS round bars for reinforcement	:	Conforming to IS-432(Part-I) Gde-I
	(b) High strength deformed steel bars produced by Thermo Mechanical Treatment process	:	TMT steel bars of Grade Fe-500/Fe 500D and Fe 550/Fe 550D meeting all requirements of IS-1786
(iii)	Mild Steel as in fencing posts, Hold fasts, grills, guard Bars,steel door ,railing, steel gate, members of steel windows , doors and the like.	:	Fe-410-O (Ordinary Quality) Conforming to IS-1977, unless indicated otherwise
(iv)	Fabric reinforcement for concrete	:	Conforming to IS-1566.
(v)	Black/Galvanised steel sheets	:	Conforming to IS-277. Galvanised steel sheets (plain & corrugated) shall have Class 8 coating.

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PARTICULARS SPECIFICATIONS (Contd.../-)**8.1.2 PROCUREMENT:****(A) TMT STEEL**

(a) TMT Steel bars of all sizes to be supplied by the contractor shall be procured from main producers of steel namely STEEL AUTHORITY OF INDIA LTD (SAIL), TATA IRON AND STEEL CO. (TATA), RASHTRIYA ISPAT NIGAM LTD (RINL) & primary producer namely M/S SHYAM STEEL INDUSTRIES LTD DURGAPUR, M/S KAMACHI INDUSTRIES LTD (KAMACHI), M/S SHYAM METALICS & ENERGY LTD (SEL), M/S ELECTROTHERM (INDIA) LTD (ET TMT), M/S TULSYAN NEC LIMITED (TULSYAN TMT), M/S INCREDIBLE INDUSTRIES LIMITED (FORMERLY M/S ADHUNIK INDUSTRIES LIMITED) (ADHUNIK Fe 500 SD), M/S GALANT INSPAT LTD, GUJRAT (GALLANT TMX), M/S RASHMI METALIKS LIMITED, W.B (RASHMI TMT), M/S REAL ISPAT & POWER LIMITED, CHHATTISGARH (G K TMT), M/S STEEL EXCHANGE INDIA LTD (AP) (SIMHADRI TMT), M/S SUPER SMELTERS LIMITED, KOLKATA (SUPER SHAKTI), M/S JAI BALAJI INDUSTRIES LTD. (WB) (BALAJI SHAKTI), M/S MSP STEEL & POWER LIMITED, CHHATTISGARH (MSP TMT 500D)

(b) The GE for every lot of steel shall obtain the particulars of the manufacturer/ supplier of steel from the contractor separately. The form given at Appendix 'A' will be issued for this purpose.

(c) The site staff and GE shall verify the original documents in support of the purpose of steel and will retain certified true copy of the results in GE's office.

(d) The CEs will ensure that contractors place their demand/requisition of steel with adequate lead-time. The steel will be procured from the storage depots of the main producers and not from their authorised agents/dealers as the authorized agents deal with the steel manufactured by more than one manufacturer.

(e) However procurement of Reinforced steel, Structural steel, GI sheets and Reinforced Fabric may be permitted from authorized dealers of main producers in case of small contracts of value not exceeding Rs 7.5 lakhs.

(f) The contractors should place their demand/requisition of steel with adequate lead time. The steel can be lifted from the storage depots of main producers. However authorized conversion agents of main producers can supply the steel to the contractors provided main producers have given such directions in a specific sale/purchase order conversion agents are producing TMT steel using Thermax or Tempcore or Evcon Turbo Technology or Siemen's HYQST/TMT. All such transactions shall be with main producers only and the contractor shall not procure any steel section (TMT steel bars) directly from the conversion agents. Purchase vouchers and Test certificates shall be from main producers.

(B) PROCUREMENT OF STRUCTURAL STEEL

Structural steel sections shall be procured from main producers of steel namely STEEL AUTHORITY OF INDIA LTD (SAIL), TATA IRON AND STEEL CO. (TATA), RASHTRIYA ISPAT NIGAM LTD (RINL) IISCO & primary producer namely Jindal Steels and Power Ltd (JINDAL) In case of non-availability of structural steel from all of the main producers mentioned above the same can be procured from secondary producers mentioned in clause (B)(i) here-in-after who manufacture structural steel out of ISI marked billets and are having BIS certifications of ISI marking on their products and approved by Engineer-In-Chief, **with necessary minus price adjustment** (@ 5% of SSR rate enhanced by contractor's percentage for building work as worked out in BOQ.. However in case of the desired section of structural steel is not manufactured/rolled by primary producer there shall be no price adjustment in use of structural steel procured from approved secondary producer.

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PARTICULARS SPECIFICATIONS (Contd.../-)(i) A list of **Secondary producers of Structural steel only** is as given below:-

1	M/s KL Steel Pvt Ltd Post Box No. 61, Lal Kuan, Bulandshahar Road, Ghaziabad(UP) Ph: 0120-2867911,2867915, Fax: 0120-2867917	Structural Steel
2.	M/s Shri Badrinarain Alloys and Steel Ltd 95, Stephen House, 4 BBD Bag, Kolkata-700001 Ph: 033-22205181/22481601, Fax: 033-22488604	Structural Steel
3.	M/s Pushpak Steel Industries Pvt Ltd, Gate No 119, Alandi Market Road, Dhanore , TahKhod Pune Tel-Fax: 020-2644700/070	Structural Steel
4.	M/S Amba Shakti Ispat Ltd , Plot No 06 Phase-II , Industrial Area, Kala Amb, Distt-Sirmour-173030(H.P) Ph: 01734-309983,309986, Ph: 01702-238927	Structural Steel
5.	SRMB Udyog Ltd 46, BB Ganguli Street , Kolkata – 700 012 Ph: 22369999	Structural Steel
6.	M/s Shree Parashnath Re-Rolling Mills Ltd 4C Maharshi Devendre Road 3 rd Floor Kolkata-700007 Ph: 033-22740045/4475, Fax: 033-22740039	Structural Steel
7.	M/s Tata Steel Structura Tata Steel –Tube Division, Jeevan Tara Building, 1 st Floor 5, Sansad Marg , New Delhi-110001 Ph: 99112324,264601734, 309983,309986	Structural Steel
8.	M/s KL Concast Pvt Ltd Z-18,Narain, New Delhi	Structural Steel
9.	M/s Karam Steel Corp Nasrali Road , PO Box No. 5, Mandi Gobindgarh-147301	Structural Steel

- (C) Reinforced steel, structural steel and Galvanised steel sheets & fabric reinforcement for concrete may be procured from authorised dealers of main producers in case the total requirement of steel is less than 5 tones.
- (D) Steel sections for railings, gates fencing, guard bars grills, steel chowkhats ,holdfasts etc, which do not constitute structural members can be procured from main producers/BIS marked manufacturers or their authorised dealers at the option of Contractor without any minus price adjustment. Tests will not be insisted upon for such steel sections.

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PARTICULARS SPECIFICATIONS (Contd.../-)

8.1.3 DOCUMENTATION: The contractor shall submit original purchase vouchers from the manufacturer for the total quantity of steel supplied under each consignment to be incorporated in the work. All consignments received at the work site shall be inspected by the GE along with the relevant documents before acceptance. The original vouchers and the Test Certificates shall be defaced by the Engineer-in-Charge and kept on record in the office of the GE duly authenticated and with cross reference to the control number recorded in the Steel Acceptance Register. The Steel Acceptance Register will be signed by JE, Engineer-in-Charge, GE and contractor. The Accepting Officer may order board of officers for random check of steel and verification of connected documents. The entire quantity of all steel items shall also be suitably recorded in the Measurement Books 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.

8.1.4 TESTING OF STEEL: The manufacturer is to carry out inspections and testing of steel in accordance with the relevant BIS provisions. The contractor shall submit the manufacturer's test certificate in original along with the Test Sheet giving the results of each mechanical test as applicable and the chemical composition of the steel or authenticated copy thereof, duly signed by the manufacturer with each consignment. The Engineer-in-Charge shall record these details in Steel Acceptance Register (Appendix 'B') after due verification and send a certified true copy of test sheet to GE for his records. The GE/CWE shall also organize independent testing of random samples of steel drawn from various lots as applicable and detailed in sub para (A) & (B) below from a National Test House, SEMT wing CME Pune, Regional Research Labs and NABL approved Labs. Government approved labs, Engineering college, Zonal Labs etc as per the recommended minimum frequency as shown in Table at Appendix 'C'. Samples from each lot should be tested for quality and elongation. The elongation shall not be less than 18%. In order to undertake Department testing, requisite facilities shall be organized by the contractor. In addition to above tests, the TMT steel received from secondary producers will be tested by GE/CWE in person, before incorporation in the works by simple field tests and records shall be maintained. However, CWE will carry out random checks where GE has not tested the steel. The records of such random checks would be maintained in the steel test register. Simple field test involves sand papering the X-section of the TMT bars and dipping the same in chemical solution to give a clearly defined annular ring of tempered steel. The contractor at his cost shall arrange facilities for such tests. The record of such checks would be maintained in the steel test register.

(A) **Reinforcement Steel**

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

(ii) In case at sub para 8.1.4(A) (i) above, the contractor at his cost shall provide all facilities required for the testing and cost of materials consumed in tests shall also be borne by the Contractor.

(B) **Structural steel**

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

(ii) Independent testing of structural steel by the GE shall be mandatory in case of procurement from secondary producers and testing charges shall be borne by the Contractor irrespective of the outcome of test results".

(iii) In both the case at Sub Para 8.1.4 (B) (i) & (ii) above, the contractor at his cost shall provide all facilities required for the testing and cost of materials consumed in tests shall also be borne by the Contractor.

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PARTICULARS SPECIFICATIONS (Contd.../-)

8.1.4.1 Testing of steel as referred above is an essential requirement before the payment is released to contractor as material lying at site or before incorporation in the work and no recovery in lieu of testing shall be accepted.

8.1.4.2 Quality of steel shall be ascertained by following tests:-

(i) **THERMO MECHANICALLY TREATED BARS:**

Tensile test, bend test and re-bend test shall be carried out as per clause 8 of IS-1786-1985. Test specimen shall be taken as per clause 10 of IS-1786-1985. Minimum tensile strength, yield stress and minimum elongation for different grades shall be as under:-

<u>Sl No</u>	<u>Grade</u>	<u>Yield stress</u>	<u>Elongation</u>	<u>Tensile strength</u>
1	TMT-500	500 N/Sqmm	18%	545 N/Sq mm

(ii) **MILD STEEL BARS:**

Tensile test and bend test shall be carried out as per clause 9 and delivery inspection as per clause 10 of IS-432(Part-I) 1982. Minimum yield stress shall be 250 N/Sqmm.

(iii) **STRUCTURAL STEEL (Fe-410-S) AND MILD STEEL SECTIONS (Fe-410-O) :**

Tensile test and bend test shall be carried out as per IS-226/ IS-2062/IS-1977 as applicable. Minimum yield stress shall be 250 N/Sqmm.

(iv) **CHEMICAL TEST:**

Chemical test shall be carried out to ascertain chemical composition, which shall conform to the norms laid down in relevant ISI codes. For TMT bars, chemical composition shall be as given in relevant Appendix 'C' attached to these particular specifications.

8.1.5 **TOLERANCE**

Rolling and cutting tolerance of structural steel products shall be as specified in IS-1852 of 1985 Tolerance on size and weight of reinforcement bars shall be as specified in clause 10.17.4 and 10.17.5 of SSR part-I. Steel with less weight than permissible shall not be used.

8.1.6 **SCHEDULE OF SUPPLY:**

The contractor shall ensure that procurement action is taken immediately after acceptance of contract so as to adhere to schedule of activities as per CPM network.

8.1.7 **STORAGE, ACCOUNTING PRESERVATIONS AND MAINTENANCE:**

8.1.7.1 Structural steel/bars of different classification, section, sizes and lengths shall be stacked separately. Steel shall be marked with distinct painting marks for easy identification. Steel shall be recorded in MB for record purpose only.

8.1.7.2 All steel shall be stored on Dunnage at-least 15cm above ground level. Steel reinforcement shall be stored properly to prevent distortion and corrosion. In case of long time storage, suitable protective measures like cement coating, provision of temporary shelter etc to save it from rusting/distortion etc shall be taken. Any item of steel that has deteriorated or corroded or considered defective by Engineer-in-Charge shall not be used in the work and shall be removed from the site of work.

8.1.8 **METHOD OF MEASUREMENT:**

All items of steel brought at site shall be entered in MB as "Not to be abstracted" indicating the diameters and length of bars, quantities, voucher number with dates. It shall form the basis to allow advances on account through RAR's. While allowing advance on such materials, quantities so entered in MB shall be reduced by 2% to account for waste and off cuts and every care shall be taken to ensure that all quantities will be utilised in the work.

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PARTICULARS SPECIFICATIONS (Contd.../-)

8.1.9 RECORD OF MEASUREMENTS:

Before casting of concrete, reinforcement incorporated shall be measured by Engineer-in-charge and contractor jointly. These measurements shall be entered in a register for the purpose of record and shall be signed by contractor's rep and Engineer-in-Charge. Proper reference of Drg. No, location, date etc shall be given therein.

8.1.10 WEIGHT CONVERSION:

Conversion factor for various sections/sizes of steel shall be as per conversion tables given in SSR. Where conversion table is not available in SSR, IS conversion tables shall be followed.

NOTES:-

- (a) Mixing of different types and grades of bars shall not be done in the same RCC member as main reinforcement to satisfy clause 26.1 of IS-456 of 2000.
- (b) TMT bars of grade 500 MPa will be used.
- (c) TMT shall not be treated as corrosion resistant steel bars.

8.2 STEEL REINFORCEMENT:

8.2.1 Reinforcement of mild steel plain bars and TMT bars (refer Sch 'A' note here-in-before) etc. shall be provided as shown on drawings and in the absence thereof in accordance with the provision of IS-456-2000.

8.2.2 Reinforcement shall be fabricated and placed in position all as shown on drawings and specified in clause 10.17 to 10.22 of MES Schedule (Part-I) without application of heat.

8.3 WELDING

8.3.1 Welding shall be done by metal arc process unless otherwise permitted by the GE, in writing, in accordance with IS-816-1969, Code of practice for use of metal arc welding of general construction in mild steel, and IS 9595-1996, Recommendation of Metal Arc Welding of carbon and carbon manganese steel, regarding workmanship welding method, welding procedure with suitable electrodes and wire flux, combinations, quality of welds, correction of weld faults etc.

8.3.2 Preparation of Members for Welding shall be done as specified in clause No-10.15.2 of SSR Part-I (2009).

8.3.3 Butt/ fillet welding shall be done as per process as specified in clause No-10.15.3 & 10.15.4 of SSR Part-I (2009).

8.4.3 **HOLD FASTS/LUGS:** Flat iron hold fasts/lugs shall be provided by welding as and where shown on drawings. Hold fasts/lugs shall be embedded in PCC (1:3:6) bed blocks of size 230 x 230 x 75 mm in one brick thick walls and 230 x 115 x 75 mm in half brick wall.

8.4.4 **MILD STEEL GRILLS/GUARD BARS:** Mild steel framed grills type A shall be provided to all the windows and vents as per details shown on drawings. Grill shall be made out of MS FI 25 x 3 mm irrespective of what is shown on drawings described in relevant items of Sch 'A'. In case of both fly proof/ mosquito proof and glazed windows, grills shall be welded to frame of glazed windows.

8.4.5 **BARBED WIRE:-** Barbed wire shall be all as per clause No 10.32 & 10.32.1 of SSR 2009 Part-I specifications.

8.4.6 **Chain link Fencing:-** Chain link fencing shall be all as per clause No 10.34 of SSR 2009 Part-I specifications.

8.4.7 **Concertina Coil:-** Concertina Coil shall be all as per specified in relevant item in Schedule 'A' (BOQ).

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PARTICULARS SPECIFICATIONS (Contd.../-)

9. STEEL WINDOWS/VENTILATORS:

9.1 GENERAL

The process of welding adopted shall be flash butt welding which gives a continuous and solid joint all along the place of meeting of the members. Welds shall be properly ground and left with no protrusion of welding material at the joint.

9.2 All shutters shall be provided with non-friction hinges.

9.3 Peg stays shall be provided as per clause 10.25.5 of SSR Part-I to all open able glazed shutters.

9.4 Fixing lugs to fixed frames shall be as per provisions of IS-1038 except that top lugs shall not be provided.

9.5 STEEL DOORS, WINDOWS AND VENTILATORS

9.5.1 Steel doors, windows and ventilators shall comply with IS 1038-1983, Specification of steel doors, windows and ventilators; except with regard to sizes, which shall be as indicated; and shall be of approved make. Rolled steel sections for fabrication shall conform to IS 7452-1990.

9.5.2 FABRICATION

Both fixed and opening frames shall be constructed of sections joined at corners. The corners of frames shall be welded to form a solid fused welded joint. All frames shall be square and flat. The process of welding adopted may be flash butt welding or any other suitable method which complies with the requirements listed in the IS. Subdividing bars of the units shall be tenoned and riveted to the frames. Casements shall be fitted to their frames so as to provide continuous contact to weathering on the inside and outside and shall be secured in closed position by the fittings which shall have been properly adjusted. Windows and doors may have holes in the web of bars other than those required during manufacture and fixing. Fixing lugs shall have standard slot of 8mm wide for MS screw of 6 mm dia and 12 mm long with square nuts.

9.5.3 For fixing steel hinges, slots shall be cut in the fixed frame and the hinges inserted inside and welded to the frame. The hinges shall be projecting type and not less than 65mm and not more than 75mm wide. The hinge pin shall be of electro-galvanised steel of suitable thickness. Where indicated, friction hinges shall be provided for side hung windows.

10 CGI SHEET ROOFING

10.1 GENERAL

Particular care shall be taken in providing good workmanship in the construction of roofs, specially the vulnerable points mentioned below to ensure that the finished roof is water-tight without any leakage, under all weather conditions.

- (a) Filling of side joints of flat terrace tiles, bricks, stone slabs etc with mortar.
- (b) Joints between roof and parapets, chimney stacks, etc.
- (c) Rain water outlets.
- (d) Waterproofing treatment.
- (e) Drilling of holes in corrugated and semi-corrugated sheets.
- (f) Avoiding cracks in fragile articles such as asbestos cement sheets, tiles, etc, due to careless handling and fixing.
- (g) Sealing joints of gutters, hip and ridge coverings, etc.

10.2 Sloping roofs shall be secured with suitable wind ties where indicated. These shall be fixed with the same hook bolt which secure the sheets to the purlin. To allow for expansion and contraction, holes in wind ties shall be slotted, if so directed.

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PARTICULARS SPECIFICATIONS (Contd.../-)

- 10.3 All Galvanised Iron corrugated sheet roofing work, shall comply as specified in clause No-11.22 to 11.22.5.2 of SSR Part-I(2009).
- 10.4 Sheets for roof shall be galvanized steel sheets of thickness 0.63mm,' with zinc coating of 275gms/sqm, laid with two corrugation side lap and end lap of 150mm. Ridges/hips/vallies shall be of plain galvanized steel sheets 0.80mm thick with nominal grade of zinc coating 275gms/sqm with minimum 150mm lap on either side, over the roof sheets and shall be properly bent to shape and fixed. The end laps of the ridges/hips and between ridges and hips shall also be not less than 150mm. The sheets shall be fixed to purlins as specified in clause 11.22.3.3 of MES Schedule Part-I. The horizontal distance of side lap shall not be less than 145mm. The depth of corrugation of CGI sheetsshall be 12.5mm.
- 10.5 Laying/fixing of sheets, fixing accessories, number of bolts, bitumen/galvanized iron washers and length of bolts shall be all as specified in relevant clauses of roofing section of MES Schedule Part-I.
- 10.6 Flat iron wind tie shall be provided on either sides of eaves and ridge with an overlap of 75mm at joints and shall be jointed with 2 Nos nuts and bolts of suitable dia.
- 10.7 Roofing shall be done as specified in clause No-11.22 of SSR Part-I(2009) and as specified in Schedule 'A'.
- 10.8 **GALVALUME SHEET ROOFING**
- 10.8.1 Galvalume sheet shall be 0.50mm thick (total coated thickness), 550 Mpa minimum, yield strength . It shall be coated with hot dip alloy of 55% Aluminum 43.5% Zinc 1.5% Silicon and finished with resin coat on both surfaces @ 150gn / Sqm of coating(total both surfaces) having overall width and laid width as specified and shall be fixed using hot dip galvanized, self drilling and self tapping screws neoprene and EPDM washers. Penetrations and laps in sheet shall be sealed by using proper sealentprofile. HDPE fillers shall be provided wherever required to closed voids between sheets, sheet & fasteners etc.
- 10.8.2 Fixing system shall be as per manufacturers instructions and shall be safe against effects of wind velocity.
- 10.8.3 **GALVALUME SHEET WALL CLADDING**
Galvalume sheet for wall cladding shall be same as for roof and shall be fixed with 8mm and 30mm deep trapezoidal profile sheeting fixed with self trapping fasteners.
- 10.9 **Waterproofing Treatment to RCC roof slab including roof projections shall be provided as under:-**
- (a) The slab shall be finished with 10 mm thick screed bedding in cement mortar (1:4) finished even and fair mixed with water proofing compound as per manufacturer's instructions, The screed bedding shall be provided while the concrete of slab is green.
- (b) Apply a coat of manufacturer's primer conforming to IS-3384 @ 0.40 LTR per square metre on the prepared surfaces of screed bed.
- (c) Provide polymeric water proofing membrane ISI Marked laid with overlaps, bonded with hot blow bitumen, end overlaps shall not be less than 150 mm and side lap 75 mm. Polymeric water proofing membrane should be five layered 3mm thick with centre core as 90 micron, high molecular & high density polythene film. Minimum weight of water proofing membrane shall be 3 Kg per square metre. The contractor shall produce purchase vouchers and test certificates from the manufacturer's of the same.
- (d) Over the polymeric water proofing membrane apply semi hot blown 85/25 grade bitumen conforming to IS-702 @ 1.20 Kg per square metre of roof surface and binded with fine sand in dry condition @ 1.2 Kg per square metre dust over the bitumen surface.
- (e) Contractor shall stand guaranteed to the Government for a period of Ten years from the date of taking over the completed buildings for the efficiency of the treatment carried out. Contractor shall furnish written guarantee on own letter head for the above addressed to the Garrison Engineer immediately on complete of work.

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PARTICULARS SPECIFICATIONS (Contd.../-)

(f) An appropriate sum, equal to the amount of security deposit calculated as per scales laid down for individual security deposit on the amount of water proofing treatment at the contract rates under the contract, should be retained out of contractor's final bill as security deposit for the guarantee period of ten years from the date of completion of entire work which shall be refunded to him after expiry of this period. Alternatively contractor may give separate interest bearing deposit to GE valid for ten years for the same mentioned above.

(g) Should the GE at any time, during construction or prior to expiry of said guarantee period of ten years, find that buildings have been leaking, the contractor, on demand in writing by GE, will forthwith undertake to carry out such repairs/rectification which may be necessary to render the buildings free from leakage at his own expense till expiry of guarantee period of ten years.

(h) In the event of contractor's failure to comply with GE's directions with the stipulated period, the work shall be carried out at risk and cost of the contractor, The liability of the contractor under this condition shall not, however, be extended beyond the period of ten years from the certified date of completion, unless the notice was served on the contractor previously to rectify such defects.

(j) Contractor shall provide a plaster plate of requisite size in location as decided by Engr-in-Charge on the wall of each of the building. The plate shall be 10mm thick in cement mortar (1:4) to indicate the details such as water proofing treatment done vide CA No, date of expiry of defect liability period and name of contractor by engraving and painting (Black).

11 GYPSUM BOARD FALSE CEILING

Gypsum board false ceiling shall be all as specified in Schedule 'A'.

11.2 FIXING COVER FILLETS AND BEADING

Unless otherwise specified, cover fillets and beading shall be fixed as per specification given in clause No-12.28 of SSR Part-I (2009).

12.0 FLOORING**12.1 GENERAL**

12.1.1 Ordinary Portland cement for all flooring shall be used as specified in clause No 3.2 here in before.

12.1.2 Provision contained in clauses 13.25, 13.27 13.32 & 13.38 of SSR (Part-I) shall be adopted for laying floors and pavement.

12.1.3 Floors shall be laid in levels or to falls and as directed by Engineer-In-Charge.

12.1.4 Floors finish shall be extended over dwarf walls, doors and other openings.

12.1.5 Floor topping of cast-in-situ cement concrete shall be finished even and smooth without using extra cement as specified in clause 13.32.8 of SSR Part-I.

12.1.6 The dividing line between floors of different types wherever met between rooms shall be determined on the basis of the finish visible when the door is closed and the applicable finish shall accordingly be provided.

12.1.7 Sub base shall not be laid in panels.

12.1.8 Under layer and topping layers of cast-in-situ cement floors shall be laid in panels conforming to pattern indicated in drgs/specified in zonal specifications. Length of panel shall not exceed 1.2 metre and length to width ratio not exc. 1.5 times.

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PARTICULARS SPECIFICATIONS (Contd.../-)

12.2 GLAZED CERAMIC TILES:

Glazed ceramic tiles (white/ coloured) dado/skirting shall be provided all as per description of relevant item of Sch 'A'. The size of tiles shall be as specified in relevant items of Sch 'A'. The thickness of tiles shall not be less than 6mm. The tiles shall be laid over bedding layer with neat cement slurry and shall be pointed with white cement and mixed with pigment to match shade of tile in case of colour tiles. The tiles shall be of any of the make mentioned in Appendix enclosed. The tiles shall be of 1st quality conforming to IS-13753 of 1993. These tiles shall conform to specification given in clause 13.14 to 13.14.2 of SSR Part-I.

12.3 NON-SKID CERAMIC TILES :

12.3.1 Nonskid ceramic tiles (white/coloured) for flooring shall be provided all as per description of relevant item of Sch 'A'. The size of tiles shall be as specified in relevant items of Sch 'A'. The thickness of tiles shall not be less than 7mm. The tiles shall be laid over bedding layer with neat cement slurry and shall be pointed with white cement and mixed with pigment to match shade of tile in case of colour tiles. The tiles shall be of any of the make mentioned in Appendix 'A'. The tiles shall be of 1st quality conforming to IS-13755 of 1993 for flooring.

12.3.2 Laying shall be as specified in clause No-13.40 of SSR Part-I 2009.

12.4 CHEQUERED TILES:

12.4.1 Chequered cement concrete tiles shall be complete as per relevant item of Schedule 'A' and as specified in clause 13.17 of SSR 2009 Part-I (Specification).

12.4.2 Laying shall be as specified in clause No-13.39 of SSR Part-I 2009.

12.5 VITRIFIED PORCELAIN TILES

12.5.1 Vitrified polished porcelain floor tiles shall be of 1st quality. These vitrified tiles are classified under group B1a of the International Standard for ceramic tiles ISO: 13006. Tiles shall be hard, dense, impervious and frost resistant. Water absorption of tiles shall be less than 0.5% and flexural strength (Modulus of Rupture) shall be more than 35 N/Sqmm. Vitrified polished porcelain floor tiles shall be provided of sizes, colour, shades, texture and designs as indicated and if size not indicated it shall be 600mm x 600 mm/ 605 x 605 mm. The thickness shall be as specified by the manufacturer but not less than 10mm.

12.5.2 LAYING

Laying of vitrified tiles shall be done as per procedure as specified in Schedule 'A' and as specified in clause No. 13.41 of MES Schedule Part-I.

12.6 BEDDING

12.6.1 The screed bed for laying floor tiles shall be of cement and sand mortar, as specified in Schedule 'A'. Bedding over which the tile shall be laid shall not be less than 10mm at any place. Tiles shall be soaked in water before laying.

12.6.2 In the cases of skirting and dado, the wall surface shall be covered with about 10mm thick plaster of cement and sand mortar 1:3 and allowed to harden. The plaster shall be roughened with wire brushes or by scratching diagonal lines. The back of tiles shall be buttered with cement paste and set on bedding mortar. The tiles shall be gently tapped in position one after the other. Top of skirting or dado shall be truly horizontal and the joints vertical or as per required pattern. Joints shall be flush pointed with white cement with pigment to match the colour of tiles.

13 GLAZING

All glazing/ glass work shall be done as specified in clause No-16.0 to 16.19 of SSR Part-I(2009).

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PARTICULARS SPECIFICATIONS (Contd.../-)**14.0 PLASTERING AND POINTING****14.1 GENERAL**

14.1.1 Plaster and skirting/dado shall be returned in jambs, soffits of lintels and windows etc.

14.1.2 Where plaster on concrete surface is shown to match the adjacent wall surface, the mix of plaster shall be same as for the wall surfaces.

14.1.3 All plastered surfaces shall be trowelled to even and smooth surfaces the mix of plaster shall be same as for the wall surfaces.

14.1.4 All external finishes shall be carried out upto 15cm below ground level except where plinth protection etc is provided.

14.1.5 All corners angles, junctions shall be truly vertical or horizontal as the case may be and shall be carefully finished, corners around joints, openings and junction of walls shall be rounded to minimum radius of 5mm, 12mm wide groove shall be provided at junction wooden / steel chow hats etc.

14.2 FLUSH POINTING

The mortar shall be pressed into the joints and shall be finished off flush and level with the edges of the bricks, tiles, blocks or stones so as to give a smooth appearance. The edges shall be neatly, trimmed with a trowel and straight edge.

14.3 RAISED POINTING

Raised pointing shall project from the wall facing with its edges cut parallel so as to have a uniformly raised band about 6 mm in depth. The pointing shall be finished to a smooth but hard surface.

15.0 WHITE/COLOUR WASH.**15.1 LIME**

Lime used for white washing shall be freshly burnt fat lime (Class 'C') or magnesium/ siliceous dolomitic lime (Class 'C' or 'F'), white in colour, conforming to IS 712-1984 Specification for building limes.

15.2 White (lime) wash or colour wash shall be provided all as specified in Schedule 'A' and as specified in clause No. 15.12 of MES Schedule Part-I. For white washing on ceiling adequate quantity of zinc oxide shall be added to lime wash for achieving egg white shade. Skirting and dado are not to be white/colour washed.

15.3 DISTEMPER DRY AND DISTEMPER OIL EMULSION**15.3.1 DISTEMPER DRY**

Distemper dry of required colour and shade shall be obtained ready mixed conforming to IS: 427 -2005, Specification for distemper, dry. The material shall be in the form of fine dry homogeneous powder free from odour of putrefaction as such and when mixed with water. Preparation of surfaces shall done as specified in Schedule 'A' and as specified in clause No. 15.13 of MES Schedule Part-I.

15.4 DISTEMPER, OIL EMULSION

15.4.1 Distemper of required colour and shade shall be obtained ready mixed conforming to IS: 428-2000 Specification for distemper, oil emulsion. The material shall in the form of a homogeneous paste free from odour of putrefaction as such and when mixed with water.

15.4.2 Distemper work shall be provided all as specified in Schedule 'A' and as specified in clause No. 15.13 to 15.14 of MES Schedule Part-I(2009).

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PARTICULARS SPECIFICATIONS (Contd.../-)

15.5 CEMENT BASED PAINT

- 15.5.1 Cement paint shall comply with IS 5410-1992, Specification for cement paint colour as required. The material shall be in the powder form, free from lumps that are not friable and when mixed with required volume of water shall be suitable for use on porous surfaces of masonry, concrete, bricks and rough plaster work.
- 15.5.2 Cement painting work shall be provided all as specified in Schedule 'A' and as specified in clause No. 15.15 of MES Schedule Part-I(2009).

16. WEATHERPROOF EXTERIOR EMULSION (WATER BASED) PAINT.

(a) Weatherproof exterior emulsion (water based) paint shall be carried out in two coats over one coat of primer (as per manufacturer instruction) over 1mm thick wall putty. The finish and shade shall be as approved by GE.

(b) Contractor shall stand guaranteed to the Government for a period of five years from the date of taking over the completed buildings for the efficiency of the Weatherproof exterior emulsion (water based) paint carried out. Contractor shall furnish written guarantee on his own letter head for the above addressed to the Garrison Engineer immediately on completion of work.

(c) An appropriate sum, equal to the amount of security deposit calculated as per scales laid down for individual security deposit on the amount of Weatherproof exterior emulsion (water based) paint at the contract rates under the contract, shall be retained out of contractor's final bill as security deposit for the guarantee period of five years from the date of completion of entire work which shall be refunded to him after expiry of this period. Alternatively contractor may give separate interest bearing fixed deposit to GE valid for five years for the same mentioned above

17.0 PAINTING

- 17.1.1 All synthetic enamel paints and emulsion paints shall be of 1st quality manufactured by the standard firm. Approved brands of paints are given in relevant appendix attached to these Particular Specifications.
- 17.1.2 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 work and submit samples thereof to GE before their use in work and obtain prior approval of GE.
- 17.1.3 The contractor shall, when required by the GE, produce certificate from the manufacturer or their authorized agents to establish that the brand of paints purchased by the contractor from them satisfy the requirements of the relevant IS.
- 17.1.4 Paints for priming coat, under coat and finishing coat shall be of the same brand.
- 17.1.5 Tint of paint, if not mentioned in drgs/schedule of finishes, will be as approved by the GE.

17.2 WORKMANSHIP

- 17.2.1 All surfaces required to be painted shall be smoothened size and knotted and then applied with priming coat, stopping and filling (filler coat) shall be done after priming coat and surface rubbed down to a level and smooth surface and thereafter under coat and finishing coat shall be applied all as specified in clause 17.6 of MES Schedule Part-I. Steel and iron work shall be painted in the manner as specified in clause 17.8 of MES Schedule Part-I.
- 17.2.2 All steel and wooden surfaces including wooden based surfaces such as plywood, particle board etc shall be given two coats (under coat and finishing coat) of synthetic enamel paint as indicated in schedule of finishes over a coat of primer.

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PARTICULARS SPECIFICATIONS (Contd.../-)

- 17.2.3 The surfaces indicated in the Schedule of finishes to be given aluminium paint shall be given two coats of aluminium paint conforming to IS- 2339 over a coat of appropriate primer.
- 17.2.4 No treatment shall be given to reinforcement and galvanized steel surfaces.
- 17.2.5 Other steel surfaces, exposed to view but not covered in Schedule of finishes or their finishing is not specifically indicated in any other drawings or specified elsewhere shall be given two coats of synthetic enamel paint over a coat of red oxide zink chrome primer of tint as directed by the GE.
- 17.2.6 Bottom of door shutter shall be given one coat of primer only.
- 17.2.7 Preparation for painting of Asbestos Cement Building Products, Plaster, Concrete, Brick and Stone Surfaces shall done as specified in Schedule 'A' and as specified in clause No. 17.9 of MES Schedule Part-I (2009).

18. **INTERNAL ELECTRIFICATION**

18.1 **SCOPE OF WORK**

The work consists of items as described in Schedule 'A'.

18.2 **GENERAL REQUIREMENTS**

Refer clause 19.2.1 to 19.2.8 of MES Schedule Part-I

18.3 **TYPE OF WIRING**

The type of wiring (PVC casing &capping) shall be as shown on drawings and direction of the Engineer-in-charge.

- (a) Cable for internal wiring for light, power and sub main cables shall be copper conductor,

(b) **PLUG/GUTTIES, SCREW AND FASTENINGS**

These shall be in accordance with clause 19.30 & 19.31 of MES Schedule Part-I.

(c) **CEILING ROSE , SHADES AND BULKHEAD FITTINGS**

These shall be in accordance with clause 19.32, 19.33 and 19.34 of MES Schedule Part-I and as specified and shown on Schedule 'A'.

(d) **SWITCH SOCKET OUTLETS.**

These shall be in accordance with clause 19.40 of MES Schedule Part-I and described in Schedule 'A'.

(e) **LAMP HOLDERS.**

These shall be in accordance with clause 19.41 of MES SSR-2009 (Part-I).

(f) **LIGHT FITTINGS.**

All light fittings shall be provided in accordance with the description of the items as shown in Schedule 'A' and shall be fixed on first class hard wood boxes of suitable size except for ceiling fittings as directed by Engineer-in-charge.

(g) **SYSTEM OF WIRING.**

Wiring shall be carried out with PVC insulated cable. All conductors as far as possible shall run near walls and ceiling so as to easily accessible and capable of being thoroughly inspected. Power wiring shall be kept separate and distinct from light wiring. In all type of wiring due consideration shall be given for neatness good appearance and safety. Diagonal runs will not be permitted.

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PARTICULARS SPECIFICATIONS (Contd.../-)

- (h) Particular attention is drawn to the neatness as in appearing which is to be achieved by judicious planning of run of the cable, the location of the light fittings, fan switches, socket outlets main switches etc.
- (j) Due regard shall be given to doors, windows, opening etc in fixing of runs of cables position of fittings, control switches and outlet points, The workmanship shall comply strictly with the rules contained in latest Indian Electricity rules.
- (k) Samples of all electric fittings shall first be got approved from GE in writing before incorporation in work and shall conform to relevant IS. Utility light fittings shall be of the best quality available and conform to samples kept in CWE/GE office
- 18.4 **MCB's**
These shall be all as specified In Sch 'A', and clause 19.46 of MES SSR-2009 (Part-I) Specifications.
- 18.5 **EARTHING AND TESTING –**
Earthing shall be carried out as described in IS- 3043: 1987, clause 19.137 to 19.146 and shown in electrical plate No-3 of MES SSR-2009 (Part-I).
- 18.6 **UNDERGROUND CABLES**
These shall be laid in trenches and shall conform to clauses 19.75, 19.76, 19.78, 19.80 to 19.82 and as given in Schedule 'A'.
- 18.7 **UNDERGROUND LT (PVC OR XLPE) AND HT XLPE CABLE**
Cables shall be as all as specified in Schedule 'A' and shall conform to the specifications given in clause 19.19. The LT and HT XLPE cable shall be of approved make as per Appx attached.
- 18.8 **TESTING OF UNDERGROUND CABLES:**
During and after laying, testing shall be done as specified in clause 19.93 to 19.96 MES SSR-2009 (Part-I).
- 18.9 **GI PIPE:**
GI pipe shall conform to IS and fittings shall be galvanised and conforming to IS-1239 (Part-II). Pipes for drawing cables shall be all as described in relevant item of Schedule 'A'.
- 18.10 **CONFORMITY WITH IE ACT**
All electric work shall be carried out in conformity with the requirement of the Indian Electricity act 1910 & Indian Electricity rules 1956.
- 18.11. **TESTING**
All electric work shall be systematically tested by the contractor in the presence of Engineer-in-Charge to ensure compliance with the specifications laid down. The contractor shall supply the necessary apparatus labour and instruments or equipment required for testing.
- 19.0. **INTERNAL WATER SUPPLY**
- 19.1 **GENERAL**
- 19.1.1 Fittings shall be of approved pattern, type and make and shall conform to the relevant IS Specification.
- 19.1.2 All cast fittings shall be sound and free from laps, blow holes and pittings. External and internal surfaces shall be clean, smooth and free from sand burning; plugging stopping or patching of casting shall not be permissible. The bodies, bonnets, spindles and other parts shall be machined true to shape so that when assembled the parts are axial parallel and cylindrical with surfaces, smoothly finished and are correct in adjustment.

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PARTICULARS SPECIFICATIONS (Contd.../-)

- 19.1.3 Where taps and stop valves, etc., are specified to be nickel/ chromium plated the thickness of plating shall not be less than that for the grade specified in the relevant IS Specifications. The plating shall be capable of taking high polish and shall not easily tarnish or scale.
- 19.1.4 Galvanisation of malleable iron and cast iron bodies shall be done by hot dip process. Mild steel components shall be electro-galvanized.
- 19.2 **WATER TUBING, BIB TAPS, STOP VALVES, PIPER TAPS AND SHOWER ROSE**
Mild steel galvanized tubes (pipes) and fittings shall be all as specified in clause 18.4 of MES Schedule Part-I. Bib taps and stop valves shall be all as specified in clause 18.14 to 18.16 of MES Schedule Part-I. Shower rose shall be of approved make as per sample kept in GE's office.
- 19.2 **POLYPROPYLENE RANDOM COPOLYMER (PP-R) PIPES AND FITTING**
Polypropylene Random Copolymer (Pp-R) Pipes and Fitting shall be all as specified in clause 18.114 of MES Schedule Part-I. Fitting shall be of approved make as per sample kept in GE's office.
- 19.3 **GUN METAL GATE VALVE**
This shall be as specified in clause 18.102 of MES SSR Part-I (2009).
- 19.4 **LAYING AND FIXING PIPES**
(a) The pipes for supply of water to all fittings in the buildings shall be run on the walls except otherwise as specified in these tender documents or shown on drawings, connected to various fittings and shall be brought in the room at point/position approved by the Engineer-in-Charge at site.
(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 walls shall be clamped in the walls as specified in SSR.
- 19.5 **PVC PIPE CONNECTION :**
Ready made PVC connection pipes of standard make (ISI marked) shall be 450mm long suitable for 15mm bore GI pipe complete with brass chromium plated coupling nuts and rubber washer. The weight of brass coupling nuts shall not be less than 40 grams. The weight of PVC pipe 450mm long shall not be less than 40 grams.
- 19.6 **WORKMANSHIP**
(a) The pipes for supply of water to all fittings in the buildings shall run on the internal walls (from OHT) except otherwise as specified in these tender documents or shown on drawings, connected to various fittings and shall be brought in the room at point/position approved by the Engineer-in-Charge at site. Pipes for internal water supply shall run on internal surfaces of walls/floors having a clearance to accommodate PUF type insulation.

(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 walls shall be clamped in the walls as specified in SSR. Where pipe is passing through a wall, a mild steel tube sleeve shall be fixed all as specified in clause 18.51.1 of SSR part-1.
- 19.7 **TESTING**
After completion of work, entire water supply system shall be tested as per clauses 18.50.4 and 18.55 of SSR Part-I. Any defect noticed shall be made good by the Contractor without any extra cost to Govt. The Contractor's lump sum quoted in respective parts of Schedule 'A' shall be deemed to include this aspect.

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PARTICULARS SPECIFICATIONS (Contd.../-)**20.0 WATER STORAGE TANKS**

- 20.1 Hosting of tanks into position shall be carried out with proper tackle care being taken that no part of the tank or of the structure is damaged in the operation. The tanks, shall be installed in position truly level, unless otherwise directed. The joints or connection to pipes shall be made with boiler screw, union, tee etc. as directed. Supports for tanks shall be provided as indicated.
- 20.2 PVC water tank shall be "Rotational moulded polyethylene water storage tank" as per IS 12701-1996, hoisting and fixing in position, connecting up pipes etc. shall be executed as per manufacturer's instruction.

20A UPVC SOIL, WASTE AND RAINWATER (SWR) DRAINAGE PIPES**20A.1 UPVC (SWR) pipes shall conform to IS 13592-1992 as under :**

Type 'A' Pipe : For use in ventilation pipe work and rain water application.

Type 'B' Pipe : For use in soil and waste discharge system. The size of pipes as specified in Schedule 'A'.

- 20A.2 Rubber rings for pipes and fittings shall conform to IS 5382-1985.
- 20A.3 UPVC (SWR) fittings shall be used as per recommendations of the manufacturer of the pipes. In case there is no IS code for the fittings, these shall generally conform to the requirements of BS 4515 DIN 19531 and DIN 19534.
- 20A.4 UPVC (SWR) pipes and fittings shall be strong, dimensionally stable and shall be free from defects.

21.0 CAST IRON RAIN WATER PIPES & FITTINGS.**21.1 CAST IRON PIPES**

- 21.1.1 Pipes shall conform to IS: 1230 -1979 Specification for cast iron rain water pipes and fittings. Pipes and fittings shall be true, smooth and cylindrical, their inner and outer surfaces being as nearly as practicable concentric. These shall be sound and uniform castings, free from laps, pin holes or other imperfections and shall be neatly finished and carefully fitted both inside and outside. The ends of pipes shall be reasonably square to their axes.
- 21.1.2 Cast Iron rain water pipes shall be of the dia specified in the description of the item and shall be in full length of 1.80 metre including socket ends of the pipes, unless shorter lengths are required at junctions with fittings. The pipe length shall be in each case be with socket. The pipes shall be supplied without ears unless otherwise indicated.
- 21.1.3 The pipes supplied shall be factory painted (with a tar base composition) both inside and outside which shall be smooth and tenacious.
- 21.1.4 Every pipe shall ring clearly when struck all over with a light hand hammer. When shorter pipes are cut from full length they shall be cut with a hacksaw. The sizes, weights, sockets and tolerances of pipes shall be as shown in Table 1 on Page No- 225 of SSR Part-I (2009).
- 21.2 **FIXING AND JOINTING**
This shall be as per clause No- 11.18.2 of SSR part-I (2009) and as specified in Schedule 'A'.

Contd/-

PARTICULARS SPECIFICATIONS (Contd.../-)**21.3 CAST IRON FITTINGS FOR RAIN WATER PIPES**

C.I fittings such as bends of various degrees, heads, offsets of different projections, branches and shoes shall conform to IS: 1230. Bends shall be of the nearest standard degrees as actually required at site. Heads shall be of the flat or corner type as required. Offsets shall be of the projection as specified. Branches shall be single or double and shall be of the nearest standard degree as actually required. Standard shoes shall be of overall vertical length, 180 mm for 75mm dia., 205mm for 100 mm dia and 275mm for 150 dia sized pipe from top of socket to lowest tip of shoe. Shoes of longer lengths if used shall be in lengths from top of socket to lowest tip of shoe of 300 mm, 375mm, 450 mm or 600 mm, as actually required at site.

21.4 SALT GLAZED STONEWARE PIPES, FITTINGS AND GULLY TRAPS

21.4.1 Salt glazed stoneware pipes, fittings and gully traps shall comply with the requirement of IS 651-1992. Specification for salt glazed stoneware pipes and fittings. Pipes and fittings shall be of quality Grade 'A' or Grade 'AA' as indicated.

21.4.2 These shall be specified in clause No-18.28 of SSR Part-I(2009) and specified in Schedule 'A'.

21.5 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 MES Schedule Part-I and shall be of Grade 'A' conforming to IS-651.

(b) Laying and jointing of SGSW pipes shall be done all as specified in clause 18.69 and 18.70 MES Schedule Part-I.

(c) PCC in concrete bedding and haunching shall be of the type and mix given in relevant part of Schedule 'A'.

(d) In Schedule 'A' item of SGSW pipes bedding and haunching have 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 of earth shall be carried out in layers not exceeding 25cm thick and surface left slightly proud of the adjacent ground.

21.6 RCC MANHOLES COVER AND FRAMES.

Frames shall be of mild steel angle iron welded to shape embedded in masonry and haunched as shown on drawings. Precast RCC rectangular cover slab shall be as specified in Schedule "A" Handle and frame shall be painted with a coat of bituminous paint.

22.0 SANITARY APPLIANCES**22.1 GENERAL**

22.1.1 Sanitary appliances shall be of vitreous China, unless otherwise indicated and shall conform to IS: 2556 (Part I)-1994. Specifications for vitreous sanitary appliances, Part-I. General requirements and shall be of approved make. Appliances shall be strong, of high grade and shall be coated on all exposed surface with an impervious white vitreous glaze. The glaze shall be uniform, free from craze and discolouration and shall possess an impervious surface.

22.1.2 Sanitary appliances shall be of one piece construction. Water closets and urinals shall have an integral flushing rim. Inside of the pans shall be regular and smooth in order to ensure efficient flush.

Contd/-

PARTICULARS SPECIFICATIONS (Contd.../-)

22.2 WASH DOWN WATER CLOSET

Water Closet shall conform to IS 2556 (Part 2)-2004. Specification for vitreous sanitary appliances (vitreous china), part II, specific requirements for wash down water closets, and shall be of pattern 1 or 2 as indicated, and of height 390 mm and 410 mm respectively. Each closet shall have an integral trap either with P or S outlet; trap inlet depth shall be at least 75 mm. Where required the closet shall have an anti-siphonage 50 mm dia vent horn on the outlet side of the trap. The serrated part of the outlet shall not be glazed externally. Each closet shall have not less than two holes for fixing to floor.

22.3 SQUATTING PANS

22.3.1 Squatting Pans shall conform to IS 2556 (Part 3)-2004. Specification for sanitary vitreous appliances (vitreous china), part III, specific requirements for Squatting Pans. These shall be of long pattern size 580 or 630 mm or Orrisa pattern size 580x440 mm or 630x540 mm as indicated. The flushing inlet shall be at the narrow end unless indicated to be provided at both the ends. Each pan shall be provided with a 100 mm dia P or S trap with or without inspection vent as directed. The trap shall be glazed inside. The inside of the pans shall be regular and smooth to ensure an efficient flush.

22.3.2 FOOT REST

They shall conform to IS 2556 (Part 7)-1995, Specification for vitreous sanitary appliances, part X, Foot Rest. The minimum size of foot rest shall be 250 x 125 mm.

22.5 WASH BASIN

22.5.1 Wash basin shall conform to IS 2556 (Part 4)-2004, Specification for vitreous sanitary appliances (Vitreous China) (Part-4) Specific requirements for wash basins. The basins shall be of flat back pattern, size 660x460 mm (surgeons basin), 630x450 mm, 550x400 mm or 450x300 mm: or angle back pattern 600x480 mm or 400x400 mm, as indicated. Wash basin to be installed in surgeon's room and operation theater shall not be provided with soap holder recess and combined overflow. Basins shall be provided with a single or double tap holes as indicated. A suitable tap hole button shall be supplied if the tap is not required in installation. The waste hole shall be either rebated or beveled internally with an overall dia of 65 mm and a depth of 10 mm. Each basin shall be provided with 32 mm brass, chromium plated waste fitting. A slot type overflow having an area of not less than 5 sq cm shall be provided at the back of the bowl. Every basin shall have an integral soap holder recess or recesses, which shall fully drain into the bowl.

22.5.2 PEDESTAL

Glazed pedestals for wash basins shall be provided where indicated. The quality and thickness of the ware and the quality of the glaze of the pedestals shall not be less than that of the basins with which it is to be installed. They shall be suitably recessed at the back for the reception of supply and waste pipe and fittings. They shall be so constructed as to support the basins rigidly and adequately and shall be so designed as to make the height from the floor to top of the rim of basin between 750 to 850 mm.

22.6 BOWL TYPE URINALS

Urinals basins shall be flat back or corner wall type, lipped in front and shall conform to IS: 2556 (Part-6) 1995. Specification for vitreous sanitary appliances (vitreous china), part 6, Specific requirements for Urinals Section 1 Bowl type. The urinal shall be of one piece construction. Each urinal shall be provided with not less than two fixing holes on each side. Each urinal shall have an integral flushing rim of suitable type and inlet or supply horn for connecting flush pipe. The flushing rim and inlet shall be of the self draining type. The bottom of the pan shall have sufficient slope from the front towards the outlet for efficient draining. When installed, there should be no liquid left over in the bottom of the pan of urinal after flushing.

Contd/-

PARTICULARS SPECIFICATIONS (Contd.../-)

22.7 HALF STALL URINALS

They shall be flat back type and shall conform to IS 2556 (Part-6) 1995. Specification for vitreous sanitary appliances(vitreous china), Part 6, Specific requirements for Urinals Sec 2, Half stall urinals. These shall be of size 580x380 x 350mm min or 450x350x300 mm min as indicated. They shall be of one piece construction with or without an integralflushing box rim and provided with slots or alternative fixing arrangement at the flat back end.

22.8 MIRROR:

Mirror shall be polished bevelled edge sheet glass 8.0mm thick of selected quality and provided with wooden/polythene(PVC) moulding frame. Mirror shall be hung by key slots on brass screws fixed to plug embedded in walls unless otherwise shown on drawings. Size as required at site. Colour of PVC moulding frame shall be same as that of washhand basin.

22.9 WASTE PIPE AND COUPLING :

In all locations where waste pipe is to provided e.g for WHB, Sinks etc., 32mm dia, GI, medium grade, waste pipe of required length shall be provided with brass chromium plated waste coupling with perforated grating 32mm dia.

22.9 GLASS SHELF

The unit shall consist of an assembly of glass shelf placed or seated on anodized aluminum angle frame. The size of shelf shall be 60x12 cm unless otherwise indicated. The shelf shall be of 5.5 mm thick sheet glass, ordinary quality with edges rounded off. The shelf shall be supported on chromium plated brass brackets which shall be fixed with chromium plated brass screw top lugs or gutties fixed in the wall.

22.10 TOILET PAPER HOLDER

The toilet paper holder shall be of chromium plated brass or vitreous China as indicated and of size and design as approved by the GE. It shall be fixed with chromium plated brass screws and rawls/plugs.

22.11 WORKMANSHIP

22.11.1 General Requirements

22.11.2 The work shall be carried out generally complying with the requirements of relevant bye laws and rules wherever in force.

22.11.3 All water supply, sanitary and plumbing installation work shall be carried out through licensed skilled plumbers.

22.11.4 All pipe work shall be laid or fixed as to be completely airtight or watertight as specified.

23.0 DISMANTLING/DEMOLITION OF WORK:

The work of dismantling/demolition shall be carried out with utmost care without any harm/damage to existing structure/part of the structure. Any damage to the existing part shall be repaired/made good by the contractor without any extra cost to the Govt. The serviceable material obtained from demolition/dismantling shall be re-used in the same work to the extent approved by the Engineer-In-Charge as per the relevant item of Schedule 'A'. The unused material shall be the property of the Govt and shall be deposited in MES store yard by the contractor without any extra cost to the Govt.

Note:- For any difference of opinion, the decision of Accepting Officers shall be final and binding to the contractor.

Signature of Contractor

Offg AGE (Contracts)
for Accepting Officer

PARTICULARS SPECIFICATIONS (Contd.../-)
APPROVED NAMES FOR PRODUCTS TO BE INCORPORATED IN WORKS

Appendix 'A'

SER. NO	NAME OF ITEM	MAKES	
1	CHEMICAL FOR ATT	CHLORO-PYRIPHOS-20 EC GRAMAX-20 LINDANE-20 EC	
2	ATT AUTH CO	(a) PEST CONTROL SERVICES OF INDIA PVT LTD (b) PEST CONTROL SERVICES DELHI (c) INDIA PESTICIDES LUCKNOW (d) TATA CHEMICALS PEST CONTROL (e) PEST CONTROL DELHI	(f) PEST CONTROL CORPORATION DELHI (g) DE-NOSIL BOMBAY (h) DR SWAROP'S PEST CONTROL (i) MONATARI INDUSTRIES NEW DELHI
3	STEELDOOR/WINDOW FRAMES/ CHOWKHAT STEEL DOORS/ VENTILATORS/CUPBOARD AND WINDOWS	(a) M/S AGEW STEEL MANUFACTURER PVT LTD AHMEDABAD (b) M/S SHIV MULAR NARODA AHMEDABAD (c) GODREJ AND BOYCE MFG MUMBAI (d) SEN HARVIC MUMBAI (e) SHRI KRISHNA ASSOCIATES, PANCHKULA (f) M/S STEELMAN INDUSTRIES JALANDHAR (g) M/S RAYMUS STRUCTURAL & ENGG WORK PVT LTD NEW DELHI (h) ISHWAR INDUSTRIES MEERUT CANTT (i) SHIVAM STEEL JUMMU	(j) MOHINDRA FABRICATIONS FOCAL POIN, GURDASPUR (k) M/S SANJAY STEEL WORKS JAMMU (l) SK STEEL FABRICATOR LUDHIANA (m) SEHGAL DOORS NEW DELHI (n) BHAWANI STEELS GAZIABAD (o) M/S CHANDNI INDUSTRIES GAZIABAD (p) GURU NANAK ENGG WORK UDHAMPUR (q) M/S ANOOP INDUSTRIES PVT LTD MEERUT
4	ROLLING SHUTTERS/COLLAPSIBLE GATE /GRILLS	(a) SHRI KRISHNA ASSOCIATES PANCHKULA (b) ISHWAR INDUSTRIES MEERUT CANTT (c) M/S STEELMAN INDUSTRIES JALANDHAR (d) PARKASH & CO NEW DELHI (e) SKS STEEL INDUSTRIES NEW DELHI	(f) M/S PARKASH ROLLING SHUTTERS DELHI (g) M/S AKASH ROLLING SHUTTER DELHI (h) M/S AUTO ROLLING SHUTTER ENTERPRISES NEW DELHI (i) SWASTIC ROLLING SHUTTER & MANUFACTURING WORKS
5	FACTORY MADE WOODEN paneled /GLAZED WIRE GAUGE DOORS SHUTTERS	(a) M/S MP WOOD PRODUCT INDORE (b) M/S GOYAL INDUSTRIES CORPORATION 8743 DESH BANDHU GUPTA ROAD NEW DELHI (c) M/S JAIN WOOD INDUSTRIES MURTHAL, SONIPAT (d) M/S PIONEER TIMBER PRODUCT CHANDIGARH (e) CHANDIGARH TIMBER PRODUCTS CHANDIGARH (f) M/S SARAB ENTERPRISES KATHUA (J&K) (g) SHRI KRISHNA INDUSTRIES PANCHKULA	(h) M/S SHIVA JOINERY & FURNITURE INDUSTRIES JAMMU (i) M/S WOOD CRAFT ASSAM NEW DELHI (j) M/S MS JOINERY WORK PARIMPORA SRINAGAR (k) JAGAN SAW MILL AKHNOOR ROAD JAMMU (l) EVEREST TRADING PATHANKOT (m) M/S KC JOINERY MILL JAMMU (n) M/S DRONE TIMBER TECHNOLOGISTS (P) LTD, NEW DELHI
6	HDF PRE LAMINATED MATT FINISH DOORS SHUTTERS	(a) M/S HR ENTERPRISES, OLD DALHOUSIE ROAD NEAR DAV SCHOOL, PATHANKOT (PB) (b) M/S TEHNOFAB INDIA LTD AMBALA (HR) (c) POLYLINE EXTRUSION PVT LTD PLOT NO-8, PH-II, KASBA INDUSTRIAL, AREA, KOLKATA-700107	(d) M/S BALAJI ACTION BUILD WELL NEW DELHI (e) KITPLY INDUSTRIES (f) NATIONAL (g) PRIMA
7	FACTORY MADE FLUSH DOORS SHUTERS	(a) M/S GREEN PLY INDUSTRIES (b) M/S CENTURY PLY (c) SWASTIK PLY WOOD (d) M/S DURA PLY (e) M/S NATIONAL PLYWOOD INDUSTRIES (f) MP WOOD PRODUCT INDORE (g) PIONEER TIMBERCHANDIGARH	(h) M/S KITPLY INDUSTRIES (i) M/S LAXMI DOOR, LUCKNOW (j) GOYAL INDUSTRIES, FARIBAD (k) M/S MYSORE WOOD PRODUCT (l) ARCHID PLY (m) M/S JAIN WOOD INDUSTRIES (n) MERINO FLUSH DOOR, FARIDABAD
8	PVC DOOR/ WINDOW/ FRAME/ SHUTTERS	(a) SINTEX INDUSTRIES (b) RAJSHRI PLASTIWOOD LTD (c) M/S DURA PLAST EXTRACTION PVT LTD (d) FENESTA (e) POLYTUFF (f) FIXOPAN (g) INDO PLAST PVT LTD, NEW DELHI	(h) DURIAN DOORS (i) M/S POLYLINE EXTRUSION PVT LTD KOLKATA (j) ACCURE POLY TECH PVT LTD AHMEDABAD (k) M/S POLYWINDOW, PUNE

SER. NO	NAME OF ITEM	MAKES	
9	UPVC WINDOW/DOORS/FRAME SHUTTERS	(a) FENESTA INDIA PVT LTD (b) VEKA INDUSTRIES PVT LTD MUMBAI (c) H2O SOLUTION (WINDOWS & DOORS) (d) KUNDLI INDUSTRIAL ESTATE, SONIPAT	(e) KUMAR ARCH TECH (f) LG HAUSYS (g) POLY WINDOW, PUNE
10	DOOR/WINDOW/STEEL FITTINGS	(a) MOWJEE (b) M/S KITCH ARCHITECTURAL PRODUCT PVT LTD	(c) RS INDUSTRIES (d) EVEREST (e) CLASSIC
11	MORTICE LOCK	(a) GODREJ (b) HARRISON (c) LINK	(d) EVEREST (e) JONSON (f) UNIVERSAL
12	HYDRAULIC DOOR CLOSER/ SPRING	(a) EVEREST (b) GODREJ (c) DROMA INDIA (d) DYANA (e) AMAR (f) SANDHU	(g) EVERLITE (h) HARDWYN (i) PRIYA (j) UNIVERSAL (k) PRABHAT (l) DOOR KING
13	ANODIZED ALUMINUM DOORS/WINDOW FRAMES/PARTITIONS	(a) JINDAL (b) INDAL (c) HINDALCO (d) M/S ANOOP INDUSTRIES PVT LTD MEERUT (e) ARGENT (f) FENESTA (g) CROWN	(h) ALUMINIUM SYS CORP, MUMBAI (i) NAIRS ARKINETAL ENTERPRISES, NEW DELHI (h) ALUMINIUM MANUFACTURING CO, KOLKATA (i) SANTOSH & CO, NEW DELHI (j) DADA ALUMINIUM FABRICATION, JALANDHAR
14	ALUMINUM FITTINGS FOR WOODEN/ ALUMINUM PVC DOORS AND WINDOWS	(a) ALUTRAC (b) CROWN (c) JINDAL (d) CLASSIC (e) DROMA INDIA (f) M/S ALUMINIUM UDYOG	(g) ARGENT INDUSTRIES M/S ELITE ENTERPRISES, MUMBAI (h) MEPRO (i) M/S CLASSIC, NEW DELHI (j) M/S MOHAN METAL INDUSTRIES, NEWDELHI
15	ALUMINUM COMPOSITE PANELS	(a) ALCO BOND (b) ALSTRONG (c) ARMSTRONG (d) ALSTONE	(e) ALUMINIUM CLAD (f) OROPANEL (g) ALUDECORE
16	FABRICATORS FOR ALUMINUM WORKS	(a) DADA INDUSTRIES JALANDHAR (b) M/S GUPTA ALUMINIUM JAMMU (c) ALUPLEX INDUSTRIES DIGIANA JAMMU (d) ALUMINIUM UDHYOG (e) MODERN ALUMINIUM JAMMU (f) ZOOM FABRICATOR, JAMMU	(g) HINDUSTAN ALUMINIUM NEW DELHI (h) SIDI ENTERPRISES (i) HINDUSTAN ADVIZERS PATHANKOT (j) RANA CONSTRUCTION
17	DROPERY RODS	(a) VISTA (b) LEVALOR (c) AEROLUX	(d) MAC DECOR (e) MASEUT (f) LEXAFLEX
18	VENETIAN BLINDS	(a) VISTA (b) NEHA TOUCH (c) DECORE	(d) LEAVILOR (e) WINTREE
19	PRE LAMINATED PARTICLE BOARD	(a) NOVA PAN (b) GREEN PLY (c) BHUTAN BOARD (d) MYSORE WOOD BOARD (e) CENTURY PLYWOOD (f) ANCHOR (g) KITPLY (h) SWASTIK	(i) NATIONAL (j) ECO BOARD (k) ARCHIDLAM FROM MYSORE CHIP BOARD (l) NOVATEAK (m) M/S BALAJI ACTION BUILDER (n) ARCHID PLY (o) DURA BOARD
20	PLY WOOD FOR GENERAL PURPOSE	(a) DURA PLY (b) BHUTAN BOARD (c) GREEN PLY (d) DURO (e) CENTURY (f) DURIAN (g) SWASTIK PLY JAIPUR (h) NATIONAL PLYWOOD INDIA PVT LTD KOLKATA (i) MERINO PLYWOOD (j) KITPLY (k) ARCHID PLY	(l) MYSORE CHIP BOARD LTD (m) MAYUR PLY (n) SITAPUR PLYWOOD (o) JAYANA (p) SHRI RAM PANELS PVT LTD, PUNJAB (q) BLJ PLYAM MARKETING PVT LTD & CO, MP (r) M/S JANARDHAN PLY BOARD INDUSTRIES
21	LAMINATED SHEETS	(a) CENTURY (b) DURA MARINO (c) SUNMICA (d) GREENLAM (e) SUNGLOSS MERINO (f) FORMICA	(g) BAKELITE HYLAM (h) SWASTIK (i) ARCHIDLAM (j) MYSORE CHIP BOARD (k) NOVATEAK SUPER KITLAM

SER. NO	NAME OF ITEM	MAKES	
22	FIBRE BOARD (MEDIUM DENSITY/HDF)	(a) NOVA PAN (b) BHUTAN BOARD (c) KIT PLY (d) MYSORE CHIP BOARD LTD (e) DURATUFF	(f) GREEN PANEL MAX (g) MANGALAM TIMBER PRODUCTS, KOLKATA (h) RAMCO INDUSTRIES LTD
23	CALCIUM SILICATE BOARD/WALL LINING \CEILING TILES	(a) AEROLITE CEILING SYSTEM (b) M/S BHARAT STEEL ROLL BAHADUR GARH (CALSI BRAND)	(c) ECO BOARD
24	FIBRE CEMENT CEILING BOARD	(a) EVEREST (b) ARMSTRONG (c) GYPROC	(d) BISON BOARD (e) SWASTIK (f) USG BORAL
25	METAL SHEET TILES CEILING	(a) ARMSTRONG (b) DURLUM	(c) HUNTER DOUGLAS (d) SAINT GOBAIN
26	GYPSUM BOARD FALSE CEILING	(a) NATIONAL GYPSUM (b) ARMSTRONG (c) SAINT GOBAIN (d) LAFARGE SON (e) USG BORAL	(f) ANCHOR CEILING TILES (g) ETERNIT EVEREST (h) GYPBORD (i) HILUX CALCIUM SILICATE BOARDS (RAMCO)
27	THERMAL INSULATION CEILING BOARDS	(a) EVEREST (b) JINDAL (c) ARMSTRONG	(d) ACE PREFAB (e) MODERN PREFAB
28	GALVANIZED STEEL SHEETS	(a) SAIL (b) TATA (c) JSW STEEL (d) EVEREST (e) APOLLO METALEX	(f) JINDAL (g) PRESTAR INFRASTRUCTURE PROJECTS LTD, KOLKATA (h) BHUSHAN
29	POLYCARBONAT SHEET	(a) DURATUFF (b) LEXAN (c) VMT PLASTEC LTD	(d) M/S COXWELL (e) DOMES ENGG PVT LTD
30	COLOUR COATED GALVALUME SHEETS	(a) TATA BLUE SCOPE, (JINCALUME) (b) JSW STEEL (GALVXLUME) (c) CRIL (d) KIRBY	(e) METAL SCOPE (f) KAMDHENU (g) EVEREST
31	PVC TILES/SHEET	(a) PRIMER VINYL POLYFILM LTD (b) WONDER FLOOR (c) ARMSTRONG (d) KRISHNA TILES (e) POLYFIN	(f) NEELKAMAL (g) MARBLEX (h) ACCURA POLY TECH PVT LTD AHMEDABAD (i) BOHR INDUSTRIES
32	WOODEN LAMINATED FLOORING	(a) GREEN PLY (b) ACTION TESA	(c) CENTURI
33	TERRAZZO TILES/PCC TILES/PCC CHEQUERRED TILES	(a) NTC (b) NITCO (c) EUROCON (d) DURACRETE (e) ULTRA TILES PVT LTD (f) BHARAT TILES	(g) REGENT TILES (h) GICO (i) MODERN HOLLOW BLOCK UDHAMPUR (j) HINDUSTAN TILES (k) SS TILES
34	INTERLOCKING TILES/EXTERIOR TILES/PAVER BLOCKS	(a) NTC (b) NITCO (c) ULTRA (d) JOHNSON (e) TERRA FIMA (f) A-ONE TILES	(g) CORAL (h) PAVIT (i) SS TILES (j) HINDUSTAN TILES (k) MODERN HOLLOW BLOCK UDHAMPUR
35	ACID RESISTANT TILES	(a) SOMANY (b) NITCO	(c) KAJARIA (d) ORIENT BELL
36	GLAZED CERAMIC/NON SKID WALL/ FLOOR TILES	(a) KAJARIA (b) H & R JOHNSON (c) CERA (d) NITCO (e) SOMANY (f) ORIENTBELL	(g) ASIAN GRANITO (h) VARMOARA (i) ORIENT BELL CERAMICS (j) SPARTEC (k) JOHNSON (l) REGENCY
37	VITRIFIED TILES	(a) KAJARIA (b) JOHNSON (c) ORIENT BELL (d) NITCO (e) SOMANY (f) VARMOARA (g) ASIAN GRANITO	(h) BELL GRANATO (i) EURO TILES (j) MARBITO (k) MURUDESHWAR CERAMIC LTD (NAVIN DIAMOND TILES) (l) CRYSTAL CERAMIC, AHMEDABAD
38	VITREOUS CHINASANITARY APPLICANCES/FITTINGS (SANITARWARE)	(a) JAQUAR (b) ROCA (c) KOHLER (d) HR JOHNSON (e) NEYCER	(f) CER (g) MARC (h) HINDWARE (i) PARRYWARE

SER. NO	NAME OF ITEM	MAKES	
39	WATER CLOSET SEAT AND COVER TOILET SEAT COVER	(a) JAQUAR (b) SOMANY (c) PRAYAG (d) CERA (e) NEYCER (f) JOHNSON (g) SUPREME	(h) PARRYWARE (i) POLYTUFF (j) COMMANDER (k) HINDWARE (l) AJANTA (m) DURALIGHT (n) MILENNIUM
40	PVC FLUSHING CISTERN	(a) HINDWARE (b) JOHNSON PEDDAR (c) PRAYAG (d) KAJARIA (e) SUPREME	(f) PARRYWARE (g) CERA (h) COMMANDER (i) HINDWARE SANITARY WARE (j) NEYCER
41	SHOWER ROSESCHROMIUMPLATED	(a) JAQUAR (b) MARC (c) PARCO (d) ESS ESS	(e) JAINKO (f) BLUSTAR (g) PRIMA (h) GEM
42	BATHROOM FANCY FITTINGS	(a) JAQUAR (b) MARC (c) ESS ESS (d) KOHLER (e) JOHNSON	(f) ANCHOR (g) SOMA (h) JAINCO (i) GEM (j) CERA
43	BIB TAPS /STOP COCK(CP)& FANCY FITTINGS	(a) JAQUAR (b) PARKO (c) MARC (d) ESS ESS (e) CERA (f) KOHLER (g) ELITE (h) ZIM	(i) PRIMA (j) ESSCO (k) JANIKO (l) PRAYAG (m)GEM (n) SOMA (o) ANCHOR (p) SIECO
44	SENSOR OPERATED FLUSH VALVES	(a) TOSHI (b) UTEC (c) IDROLL	(d) JAQUAR (e) KOHLER
45	HAND DRIER	(a) OPAL (b) ATMAS (c) UTEC	(d) TOSHI (e) HAIER
46	TOILET/ BATHROOM CABINETS	(a) JAQUAR (b) CERA (c) PRAYAG	(d) COMMANDER (e) NILKAMAL (f) PARRYWARE
47	LOOKING MIRROR	(a) SAINT GOBAIN (b) MODI GUARD (c) TRIVENI FLOAT GLASS (d) ATUL (e) SWASTIK (f) PRAYAG	(g) GOLDFISH (h) JOLLY (i) HINDUSTAN PILKINGTON GLASS WORK (j) BEWA
48	STAINLESS STEEL SINK WITH OR WITHOUT DRAINING BOARD/ PLATE RACK	(a) NIRALI (b) NEELKANTH (c) JAYNA (d) SILVERSHINE (e) JINDAL (f) DIAMOND (g) AMCO	(h) KOBRA (i) PRAYAG (j) SHAKTI (k) JAINCO (l) PARRYWARE (m) SILVERLINE (n) M/S ANUPAM INDUSTRIES
49	PVC RAIN WATER PIPE/ SEWAGE PIPES/ CPVC PIPE	(a) SUPREME (b) ASHIRWAD (c) FINOLEX (d) SFMC	(e) ASTRAL (f) KISAN (g) PRINCE (h) B-SURE(JAIN PIPE)
50	WATER STORAGE HDPE TANK	(a) SINTEX (b) POLYWELL (c) ROTEX (d) POLYCON (e) PRAYAG	(f) LOTUS (g) POLYPLAST (h) POLYTUFF (i) JOHNSON
51	PUFF INSULATED WATER STORAGE TANKS	(a) SINTEX (b) ROTEX (c) HATICH (d) JS POLYPLAST	(e) ACE BUILDER (f) POLYWELL (g) POLYCON (h) VECTUS
52	FLOAT VALVES	(a) PRAYAG (b) SHAKTI (c) SUPREME (d) WILSON	(e) POLYTUF (f) PEARL (g) PRIMA
53	PVC BATH FITTINGS/ PVC GRATING/PVC CONNECTION	(a) PRAYAG (b) SHAKTI	(c) POLYFUF (d) SUPREME
54	MANHOLE COVER & FRAME	(a) NECO (b) SKF	(c) RAJ (d) KK

SER. NO	NAME OF ITEM	MAKES	
55	SAND CAST IRON SPIGOT & SOCKET SOIL WASTE VENT PIPE & FITTINGS	(a) SRIF (GOLA CASTNGS) (b) NECO (JAYASWAL) (c) HIF MATHURA (d) SKF (e) RAJ IRON FOUNDRY	(f) BENGAL IRON CORPORATION KOLKATA (g) ADHUNIK (h) ALC (i) BAJAJ HIC (j) MIC
56	SHEET GLASS (PLAIN/ PIN HEAD/ FROSTED)	(a) SAINT GOBAIN (b) MODI GUARD (c) ATUL (d) ASAHI (e) SWASTIK	(f) TRIVENI FLOAT (g) HINDUSTAN PIKLINGTON GLASS WORKS (h) MODI FLOAT
57	CEMENT BASED PAINTS	(a) SNOWCEM (b) ASIAN (c) JENSON & NICHOLSON (d) BERGER (e) DURACEM (f) ACQUOLAC PAINTS (g) ACRO PAINTS (h) ECOCEM (i) BIRLA WHITE	(j) SUPER SNOWCEM OF SNOW WHITE INDUSTRIES CORP, CHENNAI (k) SUPER POWERCEM OF POWER PAINT INDIA LTD NODIA (l) KAMDHENU (m) BRITISH XTRACEM (n) ECOCEM (TATA PRODUCT)
58	WALL PUTTY	(a) ASIAN PAINTS (b) BIRLA WHITE (c) NEROLAC (d) JK CEMENT (e) BERGER PAINT	(f) SHALIMAR (g) KAMDHENU (h) ICI INDIA (i) JENSON AND NICHOLSON (j) TATA PIGMENT
59	ACYLIC DISTEMPER/OIL BOUND DISTEMPER	(a) NEROLAC PAINTS (b) JENSON & NICHOLSON (c) BERGER PAINTS (d) ICI DULUX	(e) ASIAN PAINTS (f) SHALIMAR PAINTS (g) ACRO PAINTS (h) GARWARE
60	PLASTIC EMULSION PAINTS	(a) BERGER (SILK, RANGOLI EASY CLEAN) (b) ASIAN (ROYALE, PREMIUM EMULSION) (c) NEROLAC (IMPRESSION ECOCLEAN, LOTUS TOUCH) (d) DULUX ICI	(e) JENSON & NICHOLSON (EQVT MAKE) (f) ICI INDIA (DULUX VELVET TOUCH) (g) GOODLASS NEROLAC (ALL ESCPES) (h) SHALIMAR PAINTS (HUSSAIN COLLECTION)
61	EXTERIOR EMULSION PAINTS	(a) BERGER (WEATHER COAT ALL GUARD, WEATHER COAT SMOOTH) (b) ASIAN (APEX ULTIMA, APEX WEATHERPROOF) (c) NEROLAC (EXCEL TOTAL, SURAKSHA ADVANCED)	(d) JENSON & NICHOLSON (e) DULUX ICI (f) KAMDHENU (g) SHALIMAR (h) ICI INDIA (i) ECOPLUS (TATA PRODUCT)
62	SYNTHETIC ENAMEL PAINTS	(a) GOODLASS NEROLAC PAINTS (b) JENSON & NICHOLSON (c) BERGER PAINTS (d) ICI INDIA DULUX ASIAN PAINTS	(e) AQUOLAC PAINTS (f) SHALIMAR PAINTS (g) ACRO PAINTS (h) BRITISH (GLO HIGHGLASS)
63	BITUMEN/BITUMEN PRIMER	IOC BPCL HPCL	
64	CI SPUN PIPE	ISI MARKED	
65	WATER PROOFING COMPOUND POWDER/LIQUID	M/S JK CEMENT M/S ACC LTD M/S PIDILITE INDIA LTD RAIGARH M/S FOSROC CHEMICAL INDIA LTD M/S CHOKSEY CHEMICAL M/S SIKA INDIA PVT LTD M/S ROFFE CHEMICAL LTD	
66	CONCRETE ADMIXTURES /PLASTICISERS	M/S BAUCHIMIC (I) PVT LTD CICO TECH LTD FAIRMATE CHEMICALS PVT LTD FOSROC CHEMICALS (I) LTD STP SPECIALITIES CHEMICALS LTD	
67	JOINT SEALANT	CHOWKSEY FOSROC PIDILITE SIKA	
68	FILLER BOARD	SUPREME INDUSTRIES	
69	BRASS AND GUNMETAL FITTING	ISI MARKED	
70	AC SHEETS/BOARDS	M/S HYDERABAD INDUSTRIES LTD RAMCO EVEREST SWASTIK INDUSTRIES	

SER. NO	NAME OF ITEM	MAKES	
71	PRE-MOULDED JOINT FILLER BITUMINIOUS	M/S TIKITAR INDUSTRIES LTD STP LTD CAPITAL STEEL AND CHEMICAL	
72	TOUGHENED GLASS/ROUGH CAST WIRED GLASS	M/S HINDUSTAN PILKINGTON GLASS WORKS SAINT GOBAIN MODI FLOAT MODIGUARD ATUL GLASS INDUSTRIES GOLD FISH ASAHI	
73	LIME (IS-712)	M/S SURYA CEM M/S BIRLA WHITE	
74	OIL PUTTY	GOLD MOHAR M/S SHALIMAR HARDWARE BURGER J&N	
75	WATER PROOFING TREATMENT	HYPERPLAS BY IWL INDIA LTD, CHENNAI MULTIPLAS BY STP TEXSA LIMITED GURGAON BENGAL ACQUAFLUX-BENGAL BITUMEN SARITA VIHAR NEW DELHI SUPERIOR POLY PLUS 310 BY STP LTD	
76	TOUGHENED GLASS/ROUGH CAST WIRED GLASS	SAINT GOBAIN MODIGUARD ASAHI HINDUSTAN PILKINGTON GLASS WORKS ATUL GLASS INDUSTRIES GOLD FISH	
77	GI WATER TUBING AND FITINGS	PARKASH SURYA SWASTIK TATA JINDAL ZENITH KASHMIR TUBES	
78	UPVC PIPES AND FITTINGS, UPVC SWR PIPES & FITTINGS, PPR PIPES & FITTING, CPVC PIPES AND FITTINGS, COMPOSITE PIPES	JINDAL KISAN SFCM SUPREME AKG KISAN MOULDINGS LIMITED JAIN IRRIGATION SYSTEMS LTD SAVOIR-FAIRE MANUFACTURING CO PVT LTD KANHA PLASTIC PVT LTD	

2nd CALL
E/M ITEMS

Ser No	NAME OF ITEMS	MAKE / BRAND
1	POWER TRANSFORMER 66/33/11KV 500KVA AND ABOVE	
	(a) BHEL (b) SCHNEIDER (c) ABB (d) BHARAT BIJLEE (e) ALSTOM (f) ANDEW YULE (g) CROMPTON GREAVES	(h) VOLTAMP (j) SIEMENS (k) INDIAN TRANSFORMER & ELECT LTD (ITE GURGAON) (l) ELECTRICFIELD (m) MEGAWIN SWITCH GEAR
2.	DISTRIBUTION TRANSFORMERS 11 KV ABOVE 100 KVA & BELOW 500 KVA CAPACITY COPPERWINDING	
	(a) BHEL (b) SCHNEIDER (c) ABB (d) SIEMENS (e) BHARAT BIJLEE (f) ALSTOM (g) ANDEW YULE (h) VOTAMP	(i) CROMPTON GREAVES (j) GEE INDUSTRIES (k) INDIAN TRANSFORMERS & ELECT LTD (ITE GURGAON) (l) JK TRANSFORMER (m) MEGAWIN SWITCHGEAR (n) AUTOMATIC ELECTRIC
3.	DISTRIBUTION TRANSFORMERS UPTO 100 KVA CAPACITY COPPER WINDING	
	(a) RAJASTHAN TRANSFORMER (b) JK TRANSFORMER (c) CONTINENTAL (d) POWERWARE	(e) NORTHSON (f) RK INDUSTRIES (g) ELECTRIC FIELD (h) ALBA POWER
4.	CURRENT & POTENTIAL TRANSFORMER, 11 & 33KV	
	(a) ABB (b) SIEMENS (c) CROMPTON GREAVES (d) ENGLISH ELECTRIC (e) SCHNEIDER (f) KAPPA	(g) AUTOMATIC ELECTRICAL (h) NATIONAL (i) LAXMI (j) JYOTI (k) PRAGATI
5.	TRANSFORMER OIL	
	(a) M&L MATERIAL (MIDEL) (b) POWER LINK	(c) POWER OIL (d) SAVITA
6.	HT SWITCH GEAR 66/33/11 KV GAS (INDOOR/OUTDOOR) SF6	
	(a) ABB (b) SIEMENS (c) SCHNEIDER (d) BHEL (e) ENGLISH (f) ELECTRIC ANDREW YULE (g) CROMPTON GREAVES	(h) ALSTOM (i) C&S ELECTRIC (j) L&T (k) AREVA (l) MEGAWIN SWITCH GEAR (m) INDIAN TRANSFORMER & ELECTRIC LTD (ITE GURGAON)
7.	HT SWITCH GEAR PROTECTION RELAYS (ELECTRO MECHANICAL / NUMERICAL)	
	(a) L&T (b) ABB (c) SIEMENS (d) SCHNEIDER (e) BHEL	(f) HAVELLS (g) CROMPTON GREAVES (h) ANDEW YULE (i) ALSTOM (j) AREWA
8.	COMPACT SUB-STATION	
	(a) ABB (b) SIEMENS (c) BHEL (d) SCHNEIDER (e) VOLTAMP (f) ALSTOM	(g) L&T (h) CROMPTON (i) AREVA (j) VOLTAMP (k) RAYCHEM (l) RPG
9.	HT 11KV AUTOMATIC SWITCH FUSE UNIT	
	(a) SOUTHERN SWITCH GEAR (b) ANDREW YULE (c) CROMPTON GREAVES	(d) SCHNEIDER (e) INDIAN TRANSFORMER & ELECTRIC LTD (ITE GURGAON)
10.	AIR BREAK GANG OPERATED SWITCH/DEVICE	
	(a) BHEL (b) PACTIL (c) ANDREW YULE (d) MASORL ELECTRIC (e) ABB (f) JAIPURIA BROS	(g) UNIVERSAL (h) JAISHRI (i) ATLAS (j) SOUTHERN SWITCH GEAR (k) BIRLA
11.	LIGHTENING ARRESTERS	
	(a) PACTIL (b) CROMPTON GREAVES (c) M EI ELECRICAL (d) ALSTOM (e) SCHNEIDER (f) JAIPURIA, BROS (g) RASHTRIYA	(h) JAISHRI (i) ATLAS (j) GEC (k) ELPRO (l) OBLUM (m) JMV NOIDA
12.	DISC/PIN INDULATORS	

Ser No	NAME OF ITEMS	MAKE / BRAND
	(a) BHEL (b) PACTIL (c) MASORL PORCEILIN (d) JAIPURIA	(e) JAYSHREE (f) WS INSULATOR (g) HITKARI (h) RASTRIYA
13	HT XLPE CABLES 66/33 KV & 11 KV (a) UNIVERSAL CABLES (b) ASIAN CABLES (c) KEI INDUSTRIES LTD (d) FINOLEX (e) POLYCAB (f) GLOSTER CABLES LTD (g) CCI (h) NICCO	(i) HAVELLS (j) NICCO (k) ICL (l) RAVIN (m) ELECKTRON (n) RPG (o) RALLISON (p) PLAZA
14	LT CABLES 1100 VOLTS XLPE (a) FINOLEX (b) UNIVERSAL (c) RPG CABLES (d) KEI INDUSTRIES PVT LTD (e) POLYCAB (f) GLOSTER (g) GRANDLAY (h) HAVELLS (i) NICCO (j) INDO ASIAN CABLES	(k) KALINGA (l) GOLD (m) PLAZA (n) PARAGAON (o) RR CABLES (p) CRYSTAL (q) RAVIN (r) RICHA (s) EON (t) RALLISON
15	LT/HT CABLE JOINTS HEAT SHRINKABLE/COLD SHRINKABLE/PUSH ON TYPE (a) DENSON (b) M-SEAL (c) BIRLA 3M (d) RAYCHEM (e) CABSEAL	(f) RPG (g) YAMUNA GASES (h) MAHENDRA & MAHENDRA (i) CCI (j) JAIPURIA BROS
16	ACSR CONDUCTORS (a) JAIPURIA (b) ALUMINIUM IND (c) ICC (d) NICCO (e) ALIND (f) NORTHSON	(g) PALICON (h) ASIAN POWER (i) UJALA (j) KONARK (k) BHARAT (l) CONDUCTOR
17	HT/LT PCC POLES (a) HINDUSTAN PRE STRESSED CONCRETE (b) KASHMIR CEMENT (c) PRE CAST CEMENT PRODUCT (d) CONCRETE UDYOG LTD	(e) MA PRESTRESS WORK (f) INDIAN PCC POLE (g) CEMENT FABRIC INDIA (h) PRECTO INDUSTRIES (i) KB INDUSTRIES
18	HT/LT STEEL TUBULAR SWAGED POLES (a) NATIONAL TUBING CO KANPUR (b) BHARAT CONDUIT & STEEL WORKS KANPUR (c) JINDAL STEEL PRODUCT (d) QUALITY STEELS (e) SURJIT STEEL INDUSTRIES	(f) SOHAN LAL & SONS (g) ANIL ENGG CORPORATION (h) ZAIN INDUSTRIES SRINAGAR (i) ADVANCE TUBE JAMMU (j) SIDHARTH STEEL (k) NASIR ELECTRICAL
19	HIGH MAST LIGHTS (a) BAJAJ (b) PHILIPS (c) CROMPTON (d) GE	(e) SURYA (f) HPL (g) METAL COATS (h) UTKARH TUBES
20	LT PANELS/AC CONTROL PANELS /PUMP HOUSE PANELS FOR SS (a) SIEMENS (b) L&T (c) ABB (d) SCHNEIDER (e) LEGRAND (f) HAGER (g) HENSAL (h) CROMPTON GREAVES	(i) UNIVERSAL SWITCHGEAR CONTROL (j) AVON (k) AE (l) HP (m) ADHUNIK SWITCHGEAR (n) NATIONAL ENGG WORKS (o) ANY CPRI APPROVED CO/FIRM (p) SHALABH
21	PVC FEEDER PILLER BOX AC BOX/ JUCTION BOX (a) L&T (b) HPL (c) SINTEX (d) HAVELLS (e) HENSAL	(f) ADVANCE (g) ADHUNIK (h) NOVATEUR ELECTRIC (i) MILESTONE
22	HIGH VOLTAGE INSULATING RUBBER MAT (a) JYOTI (b) DUNLOP (c) ELECTROMATE	(d) SUNTEX INSULATION (e) SAFEVOLT (f) SINTEX (g) JAIPURIA BROS
23	HT RING MAIN UNIT VCB 11 KV (d) SIEMENS	(h) CROMPTON GREAVES

Ser No	NAME OF ITEMS	MAKE / BRAND
	(e) MEI (f) ABB (g) SCHNEIDER	(i) C&S (j) GE (k) MEGAWIN SITCHGEAR
24	LT AIR CIRCUIT BREAKERS	
	(a) ABB (b) SIEMENS (c) L&T (d) HAVELLS (e) SCHNEIDER (f) LEGRAND (g) HAGER	(h) GEC (i) CROMPTON (j) C&S ELECTRIC (k) INDOASIAN (l) STANDARD (m) HPL
25	MCCBS MICRO PROCESSER BASED	
	(a) ABB (b) SIEMENS (c) L&T (d) HAVELLS (e) SCHNEIDER (f) LEGRAND (g) HAGER	(h) C&S ELECTRIC (i) INDOASIAN (j) CROMPTON (k) GE POWER (l) HPL (m) STANDARD ELECRICALS
26	POWER CONTACTORS	
	(a) L&T (b) ABB (c) SCHNEIDER (d) SIEMENS (e) LEGRAND (f) HAVELLS (g) GE POWER	(h) AE (i) C&S ELECTRIC (j) HPL (k) ENGLISH ELECTRIC (l) INDOASIAN (m) STANDARD
27	VOLTMETER /AMMETER/FREQUENCY METER/ PF METER (ANALOG TYPE)	
	(a) L&T (b) AE (c) ABB (d) SECURE (e) HPL	(f) MECO (g) HAVELLS (h) INDOASIAN (i) C&S ELECTRIC (j) BENTEX
28	DIGITAL TYPE VOLTMETER AMMETER / POWER FACTOR METER	
	(a) SECURE (b) L&T (RISHAB) (c) C&S ELECTRIC (d) MECO (e) HPL	(f) KAY HAVELLS (g) ENERCON (h) AUTOMETIC ELECTRIC (i) PREMIER
29	ELECTRONIC ENERGY METER	
	(a) L&T (b) HPL (c) HAVELLS (d) SECURE (e) JAIPUR METER (f) AE	(g) LEGRAND (h) ARIVA (i) GE (j) INDO ASIAN (k) MECO (l) GENUS
30	VACCUM CIRCUIT BREAKER 11KV/33KV	
	(a) ABB (b) SIEMENS (c) SCHNEIDER (d) ENGLISH (e) ELECTRIC (f) BHEL	(g) ALSTOM (h) CROMPTON & GREAVES (i) L&T (j) MEGAWIN SITCHGEAR (k) INDIAN TRANSFORMER LTD
31	CHANGE OVER SWITCHES	
	(a) SIEMENS (b) ABB (c) L&T (d) SCHNEIDER (e) LEGRAND (f) HAVELLS (g) HAGER (h) GE	(i) HPL (j) STANDARD (k) INDO ASIAN (l) ANCHOR (m) C&G (n) MEGAWIN (o) GEC (p) KAY
32	VOLTAGE STABILIZERS UPTO 05 KVA	
	(a) AE (b) ANDREW YULE (c) GODREJ (d) ELECTRIC FIELD (e) VOLINA	(f) VINITEC (g) POWERWARE (h) SINETRAC (i) MICROTEK (j) VGUARD
33	VOLTAGE STABILIZERS ABOVE 05 KVA (SERVO CONTROLLED)	
	(a) AE (b) ANDREW YULE (c) VOLINA (d) VINITEC (e) ELECTRIC FIELD	(f) POWERWARE (g) SINETRAC (h) VOLTAMP (i) BLUE LINE

Ser No	NAME OF ITEMS	MAKE / BRAND
34	UPS	
	(a) TATA LIBERT (b) APLAB (c) CROMPTON (d) SUKAM	(e) MICROTECH (f) SINETRAC (g) BLUE LINE (h) LUMNOUS
35	(a) DG SETS ENGINE	
	(a) CROMPTON GREAVES (b) MAHINDRA & MAHINDRA (c) TATA RUSTON (d) CUMMINS (e) KIRLOSKAR OIL ENGINES (f) ASHOK LEYLAND	(g) PERKIN (h) VOLVO (i) ESCOURT (j) STERLING (k) M POWER
	(b) DG SETS ALTERNATOR	
	(a) BHARAT BIJLI (b) CROMPTON GREAVES (c) SEIMENS (d) CUMMIN ELECTRIC (e) STAMFORD (f) VOLVO	(g) ALSTOM (h) GEC (i) KIRLOSKAR ELECTRIC (j) CATLER PILLAR JYOTI
36	DG SET SOUND PROOF CANOPY	
	(a) C&S (b) PARKINS (c) CATER PILLER (d) STERLING (e) JACKSON (f) SUDHIR	(g) VOLVO (h) BHASKER POWER (i) KIRLOSKER (j) POWERICA (k) GREEN FIELD (l) COTTON GREAVES
37	DG Set Sound Proof Canopy	
	(a) L&T (b) ABB (c) SCHNIEDER (d) SIEMENS (e) GE	(f) EPCOS (g) CROMPTON GREAVES (h) HAVELLS (i) ASIAN
38	PF IMPROVMENT CAPACITOR BANKS	
	(a) ABB (b) L&T (c) SCHNIDER (d) SIEMENS (e) LEGRAND	(f) CROMPTON GREAVES (g) HAVELLS (h) GE (i) EPCOS
39	RIGID PVC CONDUIT	
	(a) PLAZA (b) FINOLEX (c) SUPREME (d) PRESTO PLAST (e) ANCHOR (f) BAJAJ (g) KALINGA	(h) AKG (i) KINJAL (j) ASIAN (k) AVON (l) RICHA CABLE (m) NIC
40	MS CONDUIT PIPE	
	(a) BHARAT STEEL (b) JINDAL (c) TATA (d) AKG (e) BEC (f) KALINGA	(g) PRAKASH TUBES (h) TIRUPATI (i) VIMCO (j) PRECISION (k) NATIONAL
41	PVC FLEXIBLE COPPER WIRES	
	(a) L&T (b) FINOLEX (c) GRANDLAY (d) ANCHOR (e) POLYCAB (f) HAVELLS (g) KINJAL	(h) HPL (i) PLAZA (j) PARAGON (ELEKTRON) (k) GLOSTER (l) KEI (m) SHALABH
42	SWITCH/SOCKETS/CEILING ROSES/FAN RAGULATORS	
	(a) ANCHOR (b) LEGRAND (c) CRABTREE (HAVELLS) (d) C&S ELECTRIC (e) STANDARD (f) SSK	(g) POLYCAB (h) PLAZA (i) CONA (j) INDOASIAN KONJAL (k) EON (l) LEADER (m) RR CABLE
43	MCB/ELCB/RCCB/ISOLATORS/ MCB DISTRIBUTION BOARD	
	(a) ABB (b) SIEMENS (c) L&T (d) SCHNEIDER (e) LEGRAND (f) HAGER	(j) BCH (k) INDOASIAN (l) GE POWER (m) HPL (n) STANDARD ELECRICALS (o) ANCHOR

Ser No	NAME OF ITEMS	MAKE / BRAND
	(g) CROMPTON (h) HAVELLS (i) C&S ELECTRIC	(p) SHALABH
44	LAMINATED SHEET COVER	
	(a) HYLUM (b) SUNMICA	(c) FORMICA (d) GREENLAM
45	MODULAR SWITCH/SOCKETS/ FAN/REGULATORS	
	(a) LEGRAND (b) SEIMENS (c) CRABTREE (HAVELLS) (d) ROMA (ANCHOR) (e) INDOASIAN	(f) STANDARD (g) HPL (h) POLYCAB (i) ANCHOR
46	PVC CASING CAPING	
	(a) CG (b) BAJAJ (c) FINOLEX (d) POLYCAB (e) PLAZA (f) KALINGA	(g) SUPRIME (h) ASIAN (i) MODI (j) NATIONAL (k) LAXMI (l) PRINCE
47	LED FITTINGS/LAMPS	
	(a) PHILIPS (b) CROMPTON (c) BAJAJ (d) WIPRO (e) SURYA (f) SYSKA (g) HAVELLES (h) GE	(i) C&S (j) JAQUAR (k) HPL (l) OSRAM (m) POLYCAB (n) OREVA (o) GOLDWYN (p) EVEREADY
48	CEILING FANS (EXHAUST/WALL MOUNTED /FAN/AIR CIRCULATORS	
	(a) BAJAJ (b) CROMPTON GREAVES (c) GEC (d) HAVELLS (e) KHAITAN (f) ORIENT	(g) USHA (h) POLAR (i) ALMONARD (j) ANCHOR (k) ORTEM (l) EON
49	WATER HEATER GEYSER	
	(a) BAJAJ (b) USHA LEXUS (c) HAVELLS (d) CROMPTON GREAVES (e) JAQUAR	(f) RECOLD (g) VENUS (h) V GUARD (i) SUPREME (j) PEARL (k) EON
50	50 BUS BAR TRUNKING SYSTEMS	
	(a) SHENEIDER (b) SIEMENS (c) GE (d) L&T	(e) CROMPTON (f) HAVELLES (g) HPL (h) STANDARD
51	BATTERY CHARGER	
	(a) SU-KAM (b) AMCO (c) SINETRAC	(d) EXIDE (e) BCH
52	LEAD ACID BATTERIES	
	(a) AMARON (b) STANDARD (c) EXIDE (d) TATA GREEN (e) MICROTEK	(f) SUKAM (g) CKAYA (h) APC (i) AMCO
53	FLAME PROOF LIGHT FITTINGS & FANS	
	(a) BAJAJ (b) CROMPTON GREAVES (c) SUDHIR (d) FLASHPRO (e) C&S ELECTRIC	(f) HAVELLS (g) PLUTO (h) ATLAS (i) FLEXPPO (j) SHYAM
54	SOLAR STREET LIGHT FITTINGS	
	(a) BAJAJ (b) PHILIPS (c) WIPRO (d) CG (e) TATA PHOTAN	(f) HAVELLS (g) SURYA (h) HPL
55	STREET LIGHT TIMERS	
	(a) L&T (b) LEGRAND (c) BAJAJ (d) SIEMENES (e) ABB (f) AE	(g) GE (h) INDOASIAN (i) HAVELLS (j) SINETRAC (k) BCH (l) C&S ELECTRIC

Ser No	NAME OF ITEMS	MAKE / BRAND
56	AVIATION OBSTRUCTION LIGHT	
	(a) BAJAJ (b) CROMPTON GREAVES (c) PHILIPS (d) WIPRO	(e) SURYA (f) HAVELLS (g) HPL (h) SYSKA
57	SHADOWLESS LIGHTS	
	(a) PHILIPS (b) CG (c) WIPRO (d) CROMPTON GREAVES	(e) GEC (f) HALONIX (g) HAVELLS (h) BAJAJ
58	UNDER WATER LIGHTS	
	(a) WIPRO (b) PHILLIPS (c) SURYA (d) BAJAJ	(e) CROMPTON GREAVES (f) HAVELLS (g) HPL
59	GI PIPES	
	(a) JINDAL PIPES (b) TATA (c) BST (d) PRAKAASH/SURYA (e) NIDHI PIPES	(f) OSWAL (g) ZENITH (h) SWASTIK (i) ADVANCE STEEL
60	HDPE/UPVC PIPES	
	(a) FINOLEX (b) SFMC PIPE (c) JAIN PIPE (d) RELIANCE (RPPPL) (e) SWASTIK (f) KISAN (g) ALONPOLY EXTRUSION LTD	(h) KIRTI (i) PRINCE (j) SUPREME (k) TIRUPATI (l) DUTRON
61	61 CI PIPES	
	(a) ELECTRO STEEL (b) KESORAM (BIRLA GP) (c) KAPILANSH (d) TATA	(e) JAI BALAJEE (f) KEJERAWAL (g) SKF (h) NEW JANTA
62	DI PIPES	
	(a) ELECTRO STEEL (b) JINDAL (c) KESORAM (d) TATA	(e) JAI BALAJEE (f) KEJERAWAL (g) AARKO (h) RASHMI METALIKS
63	MS PIPES	
	(a) TATA (b) GST (c) BST (d) JINDAL	(e) SWASTIK (f) ZENITH (g) PRAKASH / SURYA
64	PPR PIPES	
	(a) SFMC (b) SAFE (c) SUPREME (d) FINOLEX (e) ASTRAL (f) RELIANCE	(g) DIPLAST PLASTIC (h) VEEKAY TECHNOCRAT PVT LTD (i) AMITEX POLYMERS (j) KITEC INDUSTRIES LTD (k) PRINCE (l) HINDUSTAN PLASTIC & MACHINE CORPS (m) KANHA PLASTIC PVT LTD
65	AIR RELEASE VALVES	
	(a) KIRLOSKAR (b) LEADER (c) ZOLOTO (d) L&T (AUDCO) (e) TATA (f) BIR (g) KARTAR (h) SANT	(i) JINDAL (j) UPADHAYAY (k) KALPANA (l) VARUN (m) KBS (n) NBR (o) VENUS (p) KEJRIWAL
66	SLUICE VALVES /NON RETURN VALVES/BUTTERFLY/CHEK/GLOB VALVES	
	(a) KIRLOSKAR (b) LEADER (c) ZOLOTO (d) L&T (AUDCO) (e) TATA (f) BIR (g) KARTAR (h) SANT	(i) JINDAL (j) UPADHAYAY (k) KALPANA (l) VARUN (m) KBS (n) NBR (o) VENUS (p) KEJRIWAL
67	CI PIPES FITTINGS	
	(a) SKF (b) SRIF (c) JINDAL SAW (d) NECO (JAYASWAL) (e) KAPILANSH (f) TATA	(g) ASHUTOSH CASTING LTD (h) VEETUS INDUSTRIES LTD (i) ANAND FOUNDERS & ENGINEERS (j) HIF (k) HEPSCO (BINAYUDYOG) (l) HINDUSTAN ENGG

Ser No	NAME OF ITEMS	MAKE / BRAND
68	GI PIPES FITTINGS	
	(a) JINDAL (b) TATA (c) UNCO (d) INDUS (e) BHARAT STEEL TUBE DELHI	(f) NIDHI PIPES LTD (g) OSWAL (h) SWASTIK (i) PRAKASH / SURYA
69	PUMP SETS MONO BLOCK	
	(a) KIRLOSKAR (b) CROPMTON (c) BEACON (d) MATHER & PLATT (e) GRANDFOS	(f) KBS (g) JOYTI (h) KALSI (i) BS PUMPS
70	CENTRIFUGAL PUMPS	
	(a) KIRLOSKAR (b) BEACON (c) MATHER & PLATT	(d) GRANDFOS (e) JYOTI (f) SIEMEN
71	SUBMERSIBLE PUMPS	
	(a) CALAMA (b) KIRLOSKAR (c) BEACON (d) KSB (e) GRANDFOS	(f) MATHER & PLATT (g) JYOTI (h) CROMPTON GREAVES (i) CRI
72	NON CLOG SEWAGE PUMPS	
	(a) KIRLOSKAR (b) BEACON (c) KSB (d) CROMPTON	(e) MATHER & PLATT (f) JYOTI WASP (g) GRANDFOS
73	VERTICAL TURBINE PUMP	
	(a) KSB (b) KIRLOSKAR (c) WASP (d) GRANDFOS	(e) JOHNSON (f) MATTER & PLATT (g) CROMPTON GREAVES (h) ATLANTA
74	MOTOR STARTERS	
	(a) L&T (b) BCH (c) SIEMENS (d) C&S ELECTRIC (e) ABB	(f) GE (g) HAVELLS (h) MDS (i) LEGRAND
75	ELECTRIC MOTOR	
	(a) BHARAT BIJLEE (b) KIRLOSKAR (c) ENGLISH ELECTRIC (d) CROMPTON GREAVES (e) ABB (f) SIEMENS	(g) GE (h) JYOTI (i) NGEF (j) AREVA (k) HAVELLS
76	SUBMERSIBLE CABLE	
	(a) FINOLEX (b) PLAZA (c) HAVELLS (d) ASIAN (e) POLYCAB	(f) RALLISON (g) RR CABLES (h) BECO (i) BHC
77	77 SINGLE PHASE PREVENTER	
	(a) L&T (b) INDO ASIAN	(c) HPL (d) LEGRAND
78	CHILLERS/CHILLING UNITS	
	(a) DAIKIN (b) CARRIER (c) VOLTAS	(d) BLUESTAR (e) KIRLOSKAR (f) ACCEL
79	ALUMINUM EXTRUDED, ALUMINIUM GRILL/DIFFUSER / FIRE DAMPER	
	(a) DYNA CRAFT (b) RAVISTAR (c) MAPRO (d) CARRYAIRE	(e) SERVEX (f) GREEN HECK (g) BRIGHTFLOW RUSKIN
80	AIR HANDLING UNIT COOLING COIL FOR AHU	
	(a) VOLTAS (b) CARRIER (c) DAIKIN (d) KIRLOSKER (e) UNIVERSAL	(f) AIRFLOW (g) THERMAFLOW (h) NATIONAL (i) BLUE STAR
81	81 COOLING TOWERS	
	(a) MIHIR (b) PAHARPUR (c) VOLTAS	(d) ADVANCE (e) DELTA
82	FRACTIONAL HP MOTORS	
	(a) AUE (b) SIEMENS	(c) JYOTI (d) ABB

Ser No	NAME OF ITEMS	MAKE / BRAND
83	VARIABLE FREQUENCY DRIVES (VFD)	
	(a) DANFOSS (b) SIEMENS (c) ABB	(d) SCHNEIDER (e) JYOTI
84	INSULATION (PUF) FOR PIPES	
	(a) OMKAR (b) TWIGA	(c) LLOYD (d) MALANPUR
85	85 PRESSURE GAUGE/DIAL TYPE THERMOMETERS	
	(a) FIEBIG (b) H GURU (c) EMERALD (d) ANERGY (e) DROPKO	(f) DIGITAL MARKETING SYSTEM (g) TAYLOR (h) DS ENGG (i) DWYER AUTO MAT LUB SYSTEM
86	INSULATION (EXPANDED POLYETHYLENE)	
	(a) MATTUR (b) BEARDSSELL (c) TOSHIBA (d) STYRENE PACKAGING	(e) LLOYD (f) CAPRICORN (g) ECOTHEM (h) INSULATION
87	87 INSULATION (CROSS POLYETHYLENE FOAM)	
	(a) SUPREME (b) THERMOFLEX (c) TROCELLONE (d) BASF (e) LLOYED	(f) ARMAFLEX (g) FLAMSTOP (h) AROFLEX (i) PARAMOUNT (j) FGP LTD
88	88 INSULATION (INITRILE RUBER)	
	(a) ARMAFLEX (b) AROFLEX	(c) LLOYED
89	CONTROLS (3 WAY VALVES) THERMOSTATS	
	(a) ANERGY (b) SIEMENS	(c) HONYWELL
90	GI SHEETS FOR DUCTING (COMMERCIAL)	
	(a) SAIL (b) TATA (c) JINDAL (d) LLOYD	(e) INDIAN STEEL (f) NIPPON (g) RASHTRIYAISPAT
91	ACTUATOR	
	(a) JEVENTA (b) BELIMO (c) SIEMENAS (d) ADVANCE (e) CASTLE	(f) ROTORK (g) NIBCO (h) AIP (i) HONYWELL
92	CENTRIFUGAL FANS (AHUS)	
	(a) NICOTRA (b) KRUGER (c) AIRFLOW (d) GREENHECK	(e) COMBIFREE (f) LLOYD (g) YILIDA
93	STRIP HEATERS	
	(a) RAYCOLD (b) DASSPASS	(c) AUE (d) HONEYBEE
94	HUMIDSTAT/THERMOSTATE	
	(a) PENN (b) DANFOSS (c) HONEYWELL (d) SIEMENS	(e) JOHNSON (f) RAPIDCOOL (g) ANERGY
95	AIR FILTER / HEPA FILTER	
	(a) TENACITY (b) PUROLATOR (c) LLYOD (d) MIHIR (e) DANFOSS (f) INDFOSS	(g) KLENZOID (h) JOHN FOWLERS (i) DELTA (j) HANNY (k) AIRTECH (l) TERMODYNE
96	96 DUCT FLANGE	
	(a) ZECO (b) ROLSTAR	(c) ECODUCT
97	EXPANSION VALVE	
	(a) DANFOSS (b) HONEYWELL	(c) RAPID CONTROL (d) SIEMENS
98	FLOW SWITCH	
	(a) RAPID COOL (b) SIEMENS	(c) BCH (d) L&T
99	AUTOMATIC AIR VENT	
	(a) RAPID CONTROL	(b) ANERGY
100	3 WAY MODULATING VALVE	
	(a) HONEYWELL (b) SIEMENS (c) ANERGY	(f) DANFOSS (g) JOHNSON (h) ASKA

Ser No	NAME OF ITEMS	MAKE / BRAND
	(d) SUZLON (e) INDFOSS	(i) RAPID CONTROL (j) CASTLE
101	ROOM THERMOSTATE/AHU THERMOSTAT	
	(a) HONEYWELL (b) SIEMENS (c) DASPASS	(d) ESCORTS (e) INDFOSS
102	HP/LP CUTOUTS/CONTROLS	
	(a) HONEYWELL (b) PENN (c) DANFOSS	(d) INFOS (e) DASPASS
103	AIR WASHERS	
	(a) BREEZE (b) AIR NICOTRA (c) PECMA	(d) AIREF (e) AIRLOW
104	BUTTERFLY VALVE	
	(a) AUDECO (b) ADVANCE	(c) DEEPAK (d) ZOLOTO
105	FIRE HYDRENT	
	(a) MINIMAX (b) FIREX (c) SAFEX (d) FLAME GUARD	(e) SAFE ZONE (f) UFECON (g) ELECTRO EQUIP
106	106 RRL HOSE PIPE	
	(a) NEWAGE (b) DUNLOP (c) COSMOS (d) FLAME GUARD	(e) MINIMEX (f) SAFE ZONE (g) UFECON (h) ELECTRO EQUIP
107	FIRE PANEL	
	(a) MATHER & PLATT (b) MINIMAX (c) SAFEX (d) AGNI (e) HONEYWELL	(f) SYSTEM (g) SENSOR (h) FIREX (i) NOTEFIRE
108	HOOTER / SIREN	
	(a) MINIMAX (b) MELTRON (c) AHUJA	(d) PHILIPS (e) AGNI
109	MANUAL CALL BELL POINT	
	(a) AGNI (b) SURKSHA	(c) MINI MAX (d) FIREX
110	110 SMOKE/HEAT/IONISATION DETECTOR	
	(a) APPOLO (b) EDWARDS (c) HONEY WELL	(d) SYSTEM SENSER (e) RAVEL
111	111 WATER SPRINKLER HEAD	
	(a) TYCO (b) CEASEFIRE	(c) SAFEX (d) MINIMAX
112	FIRE EXTINGUISHER	
	(a) MINIMAX (b) FIREX (c) NEWAGE (d) GODREJ & BOYC	(e) CEASEFIRE (f) SAFE ZONE (g) UFECON (h) ELECTRO EQUIP
113	FIRE DAMPER	
	(a) DYAN CRAFT (b) RAVISTAR (c) MAPRO	(d) CARRY AIR (e) RUSKIN (f) AIRFLOW
114	114 WINDOW TYPE / SPLIT TYPE AIR CONDITIONERS	
	(a) VOLTAS (b) HITACHI (c) DAIKIN (d) CARRIER (e) FEDDERS LLYOD (f) WHIRLPOOL	(g) LG (h) BLUE STAR (i) SAMSUNG (j) GODREJ (k) USHA SHRIRAM
115	REFRIGERATOR	
	(a) WHIRLPOOL (b) LG (c) SAMSUNG (d) VOLTAS	(e) GODREJ (f) ELECTROLUX (g) HAIER
116	DESERT COOLERS	
	(a) SYMPHONY (b) KHAITAN (c) KENSTAR (d) CROMPTON GREAVES	(e) BAJAJ (f) OSRAM (g) VEDEOCON
117	DEEP FREEZER	
	(a) BLUE STAR	(d) SIDHWAL

Ser No	NAME OF ITEMS	MAKE / BRAND
	(b) VOLTAS (c) SHRI RAM (USHA)	(e) CARRIER (f) FEDDERS LLYOD
118	AIR CURTAIN (a) CROMPTON GREAVES (b) ALMONARD	(c) VOLTAS (d) CARRIER
119	WATER COOLERS (a) VOLTAS (b) BLUESTAR	(c) SHRIRAM (USHA) (d) SIDHWAL
120	HOT WATER GENERATOR ELECTRIC FIRED (a) RAPID COOL (b) BRASCH (c) INDEECO (d) DYNAFLOW	(e) SUNTEC (f) SHALIMAR PAINTS / ACRO PAINTS/ (g) GARWARE
121	HOT WATER GENERATOR (OIL FIRED) (a) THERMAX (b) MAKTEK (c) RAPIDTHERM (d) ECOFLAME	(e) REILLO (f) ZENITH (g) WESTERN

Note:-

1. In case Sch 'A'(BOQ) items indicates makes then same shall be from any one of the makes specified therein at the option of contractor.
2. Sch 'A'/BOQ items do not indicates makes, then makes to be incorporated in the work shall be from those listed as relevant Appx to Particular Specifications (B&R & E/M). Category Group -1 (GP -1) shall be applicable in this work where makes are divided into various Groups/categories. Selection shall be at the option of Contractor from amongst the list. In case manufacturer of the item makes both ISI and non ISI marked items, then ISI marked item shall be used. Please note that even if any makes are given in Particular Specifications, they shall stand superseded and only the makes given in Relevant Appx shall be applicable for all purpose.
3. Materials/Items for which no make have been specified, shall be ISI marked. Contractor will download list of BIS marked manufacturer from BIS site www.bis.org.in and submit name of manufacturer, meeting the contract specifications criteria by hand over the report with a request letter to Engineer-in-Charge with his signature for approval of makes. The material shall only be procured by Contractor after approval of makes by GE concerned. In case ISI marked material/items are not manufactured then same shall confirm to relevant IS amended upto date.
4. In addition to all makes mentioned above, if make of any item(s) not mentioned in above list and required for execution of work as per BOQ of the tender documents, the makes as approved by Engineer-in-Chief's office shall be followed.
5. For material/item not covered in para (1) to (3) above, the same shall be of best quality available in market and approved by GE

Signature of Contractor

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

CA No 865/EWS- /2024-25 (New)
CA No 865/EWS(NIT-76)/2024-25 (Old)

2nd CALL

Serial Page No: 91

Appendix 'B' to Particular Specifications
CEMENT SUPPLY/ACCEPTANCE REGISTER

1. **Contract No** :
NAME OF WORK :
2. Control No: Dated:
3. Name of manufacture/Brand Name/Gde of Cement (A) Manufacturer.....(b) Brand.....(c) Grade.
4. Qty of cement & Lot No/Week No (in Bags) : (Qty.....(b) Lot No/Week No.....
5. Manufacturer's test certificates No.....
6. Random Test Details (a) Physical test report from.....vide their letter No.....(Name of approved Lab/Engg College)
(b) Chemical test report from.....vide their letter No.....(Name of approved Lab/ Engg College)
7. Details of Physical & Chemical Properties:

Details of Physical & Chemical Properties:																		
	Physical requirements (As per IS-4031)										Chemical Requirements (As per IS 4032)							
	Specific surface Area (M ² /Kg)	Soundness by Le Chatellar	Soundness by Auto Clave	Initial Setting Time (Minutes)	Final setting Time (Minutes)	Compressive Strengths (Mpa)			Temp during testing °C	Standard Consistency (%)	Lime saturation factor (Ratio)	Alumina Iron Ration (Ratio)	Insoluble Residue (%)	Magnesium (%)	Suphuric Anhydride (%)	Loss on ignition (%)	Alkalies (%)	Chlorides (%)
						03 Days	07 Days	28 Days										
As per relevant IS																		
As per manufacturer's test certificate																		
As per random test certificate																		

Remarks with signature

Accepted/Rejected

Contractor Junior Engineer Engineer-in-Charge
Remarks of BOO/Inspecting Officer/CWE
. To be allotted serially by GE consignment wise.

Garrison Engineer

APPENDIX 'C'
STEEL SUPPLY/ACCEPTANCE FORM

Contract No :
NAME OF WORK :
Control No : _____
dated _____

Details of Purchase

Particulars of Manufacturer
Details of supplier (if any)
Details of Test certificates
No and date
Particulars of issuing authority

Srl No	Nomenclature and size of steel	IS Ref	Quality		Physical properties								Remarks
			Actual	Conversion	0. 2% Proof stress/yield stress (minimum)			Elongation %					
					IS	Test Sheet	Random Test	IS	Test Sheet	Random Test	Bend test	Re-bend Test	
1	2	3	4	5	6	7	8	9	10	11	12	13	14

*As ordered

Remarks with signature

JE (Civil)

Engineer-in-Charge

Contractor

Accepted/Rejected

Garrison Engineer

Remarks for BOO/Inspecting officer/CWE

Signature of Contractor

Offg AGE (Contracts)
for Accepting Officer

CHEMICAL COMPOSITION IN PERCENT (MAXIMUM)

Description	IS-1786-1985	SAIL-TMT All grades	TISCON-42	Rastriya Ispat Nigam Ltd Re-bars all grades
(1)	(2)	(3)	(4)	(5)
(a) Carbon	0.30	0.25	0.17	0.20
(b) Sulphur	0.06	0.05	0.045	0.04
(c) Phosphorous	0.06	0.05	0.045	0.05
(d) Sulphur and Phosphorous	0.11	0.10	0.09	0.09
(e) Manganese	-	-	-	0.60

Signature of Contractor

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

APPENDIX 'E'
**FREQUENCY FOR NORMAL MASS, TENSILE, BEND
AND REBEND TESTS OF STEEL**

Srl No	Nominal Size	Quantity
--------	--------------	----------

A. STEEL FOR CONCRETE REINFORCEMENTS :

- | | |
|--------------------------------------|---|
| 1. Bars size less than 10mm thereof. | 1 sample (3 specimens) for each test for every 25 tonnes or part thereof. |
| 2. Bar size 10mm to 16mm thereof. | 1 sample (3 specimens) for each test for Every 35 tonnes or part thereof. |
| 3. Bar size over 16mm thereof. | 1 sample (3 specimens) for each test for every 45 tonnes or part thereof. |

B. STRUCTURAL STEEL:

- | | |
|-----------------|--|
| 1. Tensile Test | 1 Test for every 25 tonnes of steel or part thereof for each class of steel product namely plate, sections & flats rolled from each cast). |
| 2. Bend Test | 1 Test for every 10 tonnes of steel or part thereof. |

NOTE :

- For various tests, acceptance criteria, tolerances etc. refer to relevant Clause and Relevant BIS Codes.
- 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, test 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. Cost of tests and test samples as per above frequency shall be borne by the contractor irrespective of test results.
- The GE may also increase frequency and number of samples/tests for his satisfaction. The cost of these additional tests shall be governed as per condition 10(A) of IAFW-2249. However cost of samples, transportation and other overheads shall be borne by the Contractor irrespective of test results.

Signature of Contractor

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

GENERAL CONDITIONS OF CONTRACTS (IAFW-2249, 1989 PRINT)
FOR ITEM RATE TENDER AND CONTRACTS (IAFW-1779-A-1955)

A copy of the General Conditions of Contracts (IAFW-2249, 1989 Print) with errata 1 to 20 and amendments No. 1 to 49 has been supplied to me/us and is in my/our possession. I/We have read and understood the provisions contained in the aforesaid GENERAL CONDITIONS OF CONTRACTS before submission of this tender and I/We agree that I/We shall abide by the terms and conditions thereof, as modified if any, elsewhere in these tender documents.

It is hereby further agreed and declared by me/us that the GENERAL CONDITIONS OF CONTRACTS (IAFW-2249, 1989 Print) including Condition 70 thereof pertaining to settlement of disputes by arbitration, containing 33 pages (Serial Page No to) with errata 1 to 20 and amendment No 1 to 49 form part of these documents.

Note:- Schedule of general condition of contracts (IAFW-2249, 1989 Print) have not been attached in the tender documents, these documents may be seen in any MES office during working hours. These documents shall form part of tender documents.

Offg AGE (Contracts)
for Accepting Officer

Signature of Contractor

SCHEDULE OF MINIMUM FAIR WAGES

It is hereby agreed that "Schedule of Minimum fair wages" (SMFW) as published vide Government of India (Ministry of Labour) Notification vide their letter No 1 (2)/92-IS-II dated 10.3.92 comprising 8 pages form part of these tender documents.

My/our signature here under amount to my/our having signed the aforesaid documents forming part of this tender.

Note:- Schedule of minimum fair wages have not been attached in the tender documents, these documents may be seen in any MES office during working hours. These documents shall form part of tender documents.

Offg AGE (Contracts)
for Accepting Officer

Signature of Contractor