

**NAME OF WORK: CONSTRUCTION OF OTM ACCN (KLP) AT BDE HQ IN  
PALLANWALA UNDER GE (S) AKHNOOR**

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(Signature of Contractor)  
Dated \_\_\_\_\_

Dir/AAD (Contracts)  
for Accepting Officer

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Military Engineer Services  
Chief Engineer  
Udhampur Zone  
PO : Garhi  
Udhampur-182121

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03 Jun 2026

Eligible Bidders

**NAME OF WORK: CONSTRUCTION OF OTM ACCN (KLP) AT BDE HQ IN  
PALLANWALA UNDER GE (S) AKHNOOR**

Dear Sir(s),

1. Tender documents in respect of above work are uploaded on the site [www.defproc.gov.in](http://www.defproc.gov.in). The tender is on single stage two cover e-tendering system. The contents of Cover I & 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 online on a due date fixed for opening as per critical dates given in the portal. Cover 1 will be opened first. Tenderers may see the result of opening of Cover 1 on the tender portal. Date of opening of Cover 2 shall be decided after technical evaluation of Cover 1 keeping in view the various eligibility criteria given in the NIT and the same will be intimated to the tenderers while uploading the technical evaluation on the tender portal.
4. Your attention is also drawn to instruction on filling and submission of tender attached herewith. You may forward your points on tender documents through e-mail and/or depute your technical representative for discussion on tender/drawings and to clarify doubts, if any, before the bid submission starts. You are requested not to write piece meal points and forward your points duly consolidated in one go. You may also attend the pre bid meeting on the date given in the tender.
5. Un-enlisted contractors are required to submit the scanned copies (in pdf file) of documents required as per eligibility criteria mentioned in instructions for filing the tender documents and **Appendix 'A' and Appendix 'B' to NIT** along with EARNEST MONEY DEPOSIT (EMD) and tender fee on e-procurement portal mentioned above and submit the physical documents in the office of the **HQ CEUZ Udhampur** within time limit specified in **NIT**. Inadequacy/ deficiency of documents shall make the bid liable for rejection results in disqualification for opening of finance bid

6. Enlisted contractors of MES shall submit the scanned copies (pdf file) of enlistment letter, tender fee and such other documents as mentioned in Appx 'A' & 'B' to NIT on e-procurement portal and submit physical documents in the office of the **HQ CEUZ Udhampur** before date & time fixed for this purpose.

7. The contractor must ensure that the tender/bid is uploaded on the tender portal using the authorised DSC in time as the Accepting Officer will take no cognizance of any quotations/offer received in any other electronic or physical form like email/fax/by hand/through post from tenderer/bidder.

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

9. General Conditions of Contracts (IAFW-2249) (1989 Print) and errata and amendment there to, Schedule of minimum fair wages and MES SSR (Part-I and Part-II) are not enclosed with these documents. These are available for perusal in the Office of GE concerned and this office. 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% (Five percent) of contract amount. The amount is required to be lodged within 28 (Twenty eight) days of the receipt by the contractor of notification of acceptance of tender/bid, failing which action as stipulated in Condition 19 of IAFW-2249 shall be taken

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

Yours faithfully,

(Signature of Contractor)  
Dated \_\_\_\_\_

Dir/AAD(Contracts)  
for Accepting Officer

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

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

(a) Deposit at Call Receipt from a Scheduled Bank in favour of GE/AGE(I) concerned.

(b) Receipted Treasury Challan, the amount being credited to the Revenue Deposit of GE/AGE(I).

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/AGE(I).

**NOTES:-** Earnest Money Deposit (EMD) in the form of cheque/Bank Guarantee etc will not be accepted. Non-Submission of Earnest Money Deposit (EMD) (scanned copy alongwith Technical Bid & hard copy before the date & time fixed for opening of BOQ) will render the bid disqualified for opening of Cover -II (finance bid).

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

(a) In case the tender/bid submitted by the contractor is accepted, the contractor will be required to lodge with the Accepting Officer 'PERFORMANCE SECURITY DEPOSIT' calculated @ 5% (Five Percent) of the Contract Sum as notified by the Accepting Officer within 28 (Twenty Eight) days of the receipt of notification of acceptance of Tender / Bid by the contractor. The Performance Security can be submitted by the successful contractor in the form of Bank Guarantee Bond or Government Securities, FDR or any other form of deposit approved in MES. The failure of the contractor to submit the 'Performance Security Deposit' within the stipulated period of 28 days shall constitute sufficient grounds for cancellation of the award of the work and the following action will be taken by the department.

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

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

(b) Irrespective of whatever is mentioned in condition 19.3 of IAFW 2249 with regard to suspension of tenders on account of non-submission of Performance Security, issue of tenders to such tenderers shall remain suspended for a period of six months from the date of cancellation of contract under condition 19.3 of IAFW 2249 in case of unenlisted Contractors. In case of MES enlisted contractor, issue of tenders shall remain suspended till deposit of EMD or six months from date of cancellation whichever is later.



**INSTRUCTION ON FILLING AND SUBMISSION OF TENDER (Contd/-)**

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

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

**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' form and 'xls' form as indicated.

3.2 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 email/ fax/ by hand/ through post will be considered.

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

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

3.5 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 matter 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.

**INSTRUCTION ON FILLING AND SUBMISSION OF TENDER (Contd/-)**

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

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

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

3.9 The contractor shall employ Indian Nationals after verifying their antecedents and loyalty. Attention is also drawn to special condition 7 referred here-in-after and also conditions 24 & 25 of IAFW-2249 (General conditions of contract).

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

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

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

**4. REVOCATION/ REVISION OF OFFER UPWARD/ OFFERING VOLUNTARY REDUCTION BY ANY PARTICIPATING BIDDER AFTER BID SUBMISSION END DATE & TIME**

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

**5. CPM (Critical Path Method)**

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

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

**INSTRUCTION ON FILLING AND SUBMISSION OF TENDER (Contd/-)**

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

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

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

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

(Signature of the Contractor)

Dated: \_\_\_\_\_

Dir/AAD (Contracts)

for Accepting Officer

**MILITARY ENGINEER SERVICES**  
**NOTICE OF TENDER (NIT)**

1. A tender is invited for the work as mentioned in Appendix 'A' to this NOTICE INVITING TENDER (NIT).
2. The work is estimated to cost as indicated in aforesaid Appendix 'A'. This estimate, however, is not a guarantee and is merely given as a rough guide and if the work cost more or less, a tenderer/ bidder will have no claim on that account. The tender shall be based on as mentioned in aforesaid Appendix 'A'.
3. The work is to be completed within the period as indicated in aforesaid Appendix 'A' in accordance with the phasing, if any, indicated in the tender from the date of handing over 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 the **CEUZ Udhampur** will be the Accepting Officer here-in-after referred to as such for 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 tenderer/bidder on or before the date & time mentioned in **NIT**. A scanned copy of DD with enlistment details/ documents shall be uploaded as packet 1/cover-1 ('T' bid) of the tender/bid on e-tendering portal. DD is refundable in case 'T' bid is not accepted resulting in non-opening of 'Q' bid. The applicant contractor shall bear the cost of bank charges for procuring and encashing the DD and shall not have any claim from Government whatsoever on this account.
  - 7.1. Tender form and conditions of contract and other necessary documents shall be available on [eprocuremes.gov.in/eprocure.gov.in](http://eprocuremes.gov.in/eprocure.gov.in) site for download and shall form part of contract agreement in case the tender/ bid is accepted.
  - 7.2 In case of MES enlisted contractor who has not executed the Standing Security Bond and un 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.

**NOTICE OF TENDER (NIT) (Contd..)****7.3 PERFORMANCE SECURITY** (See Condition 19 of IAFW-2249).

(a) In case the tender/bid submitted by the contractor is accepted, the contractor will be required to lodge with the Accepting Officer 'PERFORMANCE SECURITY DEPOSIT' calculated @ 5% (Five Percent) of the Contract Sum as notified by the Accepting Officer within 28 (Twenty Eight) days of the receipt of notification of acceptance of Tender / Bid by the contractor. The Performance Security can be submitted by the successful contractor in the form of Bank Guarantee Bond or Government Securities, FDR or any other form of deposit approved in MES. The failure of the contractor to submit the 'Performance Security Deposit' within the stipulated period of 28 days shall constitute sufficient grounds for cancellation of the award of the work and the following action will be taken by the department :-

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

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

(b) Irrespective of whatever is mentioned in condition 19.3 of IAFW 2249 with regard to suspension of tenders on account of non-submission of Performance Security, issue of tenders to such tenderers shall remain suspended for a period of six months from the date of cancellation of contract under condition 19.3 of IAFW 2249 in case of unenlisted Contractors. In case of MES enlisted contractor, issue of tenders shall remain suspended till deposit of EMD or six months from date of cancellation whichever is later.

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

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

**7.4** 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.

**NOTICE OF TENDER (NIT) (Contd..)**

8. 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.
9. 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.
10. The uploading of bid by a bidder implies that bidder has read this notice and the conditions of contract and has made himself aware of the scope and specification of work to be done and of the conditions and rates at which stores (as applicable) etc will be issued to him and local conditions and other factors having bearing on the execution of the work.
11. The bidder must be in possession of a copy of the MES Schedule (SSR) (Part-I & Part-II of latest edition) including amendments and errata thereto.
12. Invitation for e-tender does not constitute any guarantee for validation of 'T' bid and subsequent opening of finance bid of any applicant/ bidder, even of enlisted contractors of appropriate class, merely by virtue of enclosing DD. Accepting Officer reserves the right to reject the 'T' bid and not open the finance bid of any applicant/bidder. 'T' bid validation shall be decided by Accepting Officer based on, inter alia, capacity of the firm as per criteria given in Appx 'A' to this NIT. The applicant contractor/bidder will be informed regarding non-validation of his 'T' bid assigning reasons thereof through the defprocmes website. The applicant contractor/bidder if he so desires may appeal to the next higher Engineer authority HQ CENC Udhampur on email ID <dircontceengrul-mes@nic.in> with copy to the Accepting Officer on email ID <e8u2-mes@nic.in> & e8udhampur@gmail.com before the scheduled date of opening of Finance Bid. The decision of the Next Higher Engineer Authority (NHEA) shall be final and binding. The contractor/ bidder shall not be entitled for any compensation whatsoever for rejection of his bid.
13. 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.
14. Accepting Officer does not bind himself to accept the lowest or any tender/bid or to give any reason for not doing so.
15. The Notice Inviting Tender (NIT) including Appendix 'A' and Annexures thereto, if any, shall form part of the contract agreement.

Signature of the Contractor)  
Dated: \_\_\_\_\_

Dir/AAD (Contracts)  
for Accepting Officer

**APPENDIX 'A' TO NOTICE INVITING TENDER (NIT)**

1	Name of Work	Construction of OTM Accn (KLP) at Bde HQ in Pallanwala Under GE (S) Akhnoor
2	Estimated Cost	Rs 944.00 lakh (At Par Market)
3	Period of completion	<b>22 (twenty two) months</b>
4	Cost of tender documents	<b>Rs 3000/-</b> in the form of DD/Bankers cheque from any Scheduled Bank in favour of <b>GE (S) Akhnoor payable at Akhnoor.</b> (Note: In case of retendering, the contractor who had quoted in the previous call is not required to submit the cost of tender).
5	Website/portal address	www.defproc.gov.in
6	Type of contract	The tender shall be based on drawing and specifications (IAFW-2159) and GCC (IAFW-2249) with Schedule 'A' (list of items of work) to be priced by contractor/pre-priced by MES. The contractor is required to quote the lump sum amounts for parts of Schedule 'A' and quote rates against items of other parts of Schedule 'A'.
7	Timeline Details :	
	(a) Bid submission start date	} - Refer critical dates on the website
	(b) Bid submission end date	
	(c) Date of bid opening	
8	Eligibility Criteria	
	(a) For MES enlisted contractors	Contractors enlisted with MES in <b>Class 'S' and above and category 'a(i)'</b> shall be considered qualified provided there are no adverse remarks in Work Load Returns (WLRs)/any other report (s) circulated by Competent Engineer Authorities.
	(b) For contractors not enlisted with MES	(i) Contractor not enlisted with MES should meet the enlistment criteria of <b>'S' Class and 'a(i)'</b> category contractor with regard to satisfactory completion of requisite value works with Central/ State Government/ Central/ State PSUs/ A WHO/ AFNHB/ CGEWHO/ DGMAP, annual turnover, bank solvency, working capital and other requirements given in Para 1.4 & 1.5 of Section 1 of MES Manual on Contracts, 2020 as available in all MES formations as well as MES website (www.mes.gov.in).  (ii) Not carrying adverse remarks in Work Load Return (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.

**APPENDIX 'A' TO NOTICE INVITING TENDER (NIT)**

		(iv) Details of works completed and under progress in MES be submitted in the following format:- <table><tr><th>Srl No.</th><th>CA No. &amp; Name of Work</th><th>Value of CA (Rs)</th><th>Date of commencement as per W. O. No. 1</th><th>Date of completion as per W.O. No. 1</th><th>Extended date of completion, if any</th><th>Actual date of completion</th><th>% Progress</th></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table>	Srl No.	CA No. & Name of Work	Value of CA (Rs)	Date of commencement as per W. O. No. 1	Date of completion as per W.O. No. 1	Extended date of completion, if any	Actual date of completion	% Progress								
Srl No.	CA No. & Name of Work	Value of CA (Rs)	Date of commencement as per W. O. No. 1	Date of completion as per W.O. No. 1	Extended date of completion, if any	Actual date of completion	% Progress											
		(V) Un-enlisted Contractor who have secured two works in MES should get themselves registered in the appropriate designated Class with any Registering Authority, else these firm will not be eligible for participation in the tender unless until the firm is enlisted with the MES.																
9	Tender issuing and Accepting Officer	Chief Engineer Udhampur Zone PO : Garhi, Udhampur (J&K), PIN – 182121 Tele/ Fax : 01992-293008 Email : e8udhampur@gmail.com																
10	Executing agency	<b>GE (S) Akhnoor</b>																
11	Earnest Money	Rs. 7,97,000.00 in favour of <b>GE (S) Akhnoor payable at Akhnoor</b> in the form of Deposit at call receipt, FDR not acceptable.																

**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 or two classes (in case of remote and difficult areas to be decided as per list circulated by CE Command/ADG) below the eligible class shall also be considered subject to fulfillment of other eligibility criteria given in the NIT. Therefore MES Contractor's one class below (two classes below in case of remote and difficult areas) may also bid for this tender. Such contractors (contractor's 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 of bid details related to residual work in hand like details of work in hand showing name(s) of works, 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.



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

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 Cover 1 for checking eligibility:-
  - (a) Application for tender on Firm's letterhead.
  - (b) Enlistment letter issued by the Registering Authority duly renewed for the cycle period in vogue
  - (c) Scanned copy of DD/Bankers Cheque towards cost of tender and EMD instrument in case SSD bond is not signed at the time of registration.
  - (d) Scanned copy of GST Registration Certificate.
  - (e) Integrity pact.
  - (f) All other documents as mentioned in NIT and tender.
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 towards 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 registered office of the firm is located/notarized copy of valid passport of Proprietor/each Partner/each Director.
  - (d) All documents required for enlistment in MES for the class mentioned in Para 8(b) above as per Para 1.5 of Section 1 of MES Manual on Contracts, 2020.
  - (e) Details of works being executed in MES, if any.
  - (f) Integrity pact.
  - (g) Scanned copy of GST Registration Certificate.
  - (h) All other documents as mentioned in NIT and tender.
6. Tenders not accompanied by scanned copies or requisite DD/Bankers Cheque towards cost of tender and earnest money (as applicable) in Cover 1 shall not be considered for validation of 'T' bid and their Financial Bids will not be opened.
7. Contractors should ensure that their original physical DDs and Earnest Money Deposit (EMD) instruments (as applicable) reach the office of Accepting Officer within 7 days of bid submission end date failing which following action shall be taken.
  - (a) In case of tenders from an enlisted contractor of MES, where scanned copies of requisite DD/Bankers Cheque towards cost of tender have been uploaded in Cover 1 but physical copies are not received within the stipulated period, their financial bids (Cover 2) will be opened. However non-submission of physical copies of cost of tender shall be considered as willful negligence of the tenderer with ulterior motives and such tenderer shall be banned from bidding for a period of six months commencing from the date of opening of Financial Bid (Cover 2).

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

- (b) In case of tenders from unenlisted contractor, where scanned copies of requisite DD/Bankers Cheque towards cost of tender have been uploaded in Cover 1 but physical copies are not received within the stipulated period, their financial bids (Cover 2) will not be opened. Names of such contractors along with complete address shall be circulated for not opening of their bids for a period of six months commencing from the date of opening of Financial bid (Cover 2).
- (c) In case of tenders from enlisted and unenlisted contractors, where scanned copies of instruments for Earnest Money Deposit (as applicable) have been uploaded in Cover 1 but the same are not received in physical form within stipulated period, such tenders shall not qualify for opening of financial bid (Cover 2).
8. Contractor will not be allowed to execute the work by subletting or through power of attorney to a third party/another firm on his behalf. However a contractor can execute the work through power of attorney to sons/daughters/spouse of Proprietor/Partner/Director and firm's own employees, director, project manager **provided they are not having a separate enlisted firm in MES in their name as Proprietor/Partner/Director.**
9. After opening of Cover 1 and during its technical evaluation, in case any deficiency is noticed in the documents required to be uploaded by the tenderers as per NIT, a communication in the form of e-mail/SMS/Speed Post etc shall be sent to the contractor to rectify the deficiency within a period of seven days from date of communication failing which their financial bid (Cover 2) shall not be opened and contractor shall not have any claim on the same.
10. Invitation for e-tender does not constitute any guarantee for validation of Technical bid and subsequent opening of financial bid of any applicant/bidder merely by virtue of enclosing DD. Accepting Officer reserves the right to reject the Technical bid and not to open the financial bid of any applicant/bidder. Technical bid validation shall be decided by the Accepting Officer based on eligibility of the firm as per criteria given in this Appendix. Tenderer/bidder will be informed regarding non-validation of his Technical bid assigning reasons therefor through tender evaluation report which shall be uploaded on the website. Such tenderer, if he/she desires, may appeal to the Next Higher Engineer Authority (NHEA) viz HQ CENC Udampur on email ID **<dircontceengrul-mes@nic.in>** with copy to the Accepting Officer on email before the scheduled date of opening of Cover 2. NHEA shall decide the matter within a period of seven working days from the date or receipt of appeal. The decision of the NHEA shall be final and binding. The tenderer/bidder shall not be entitled for any compensation whatsoever for rejection of his bid.
11. In case an unenlisted contractor is already executing works in MES, he shall not be considered eligible for the subject tender if the total value of such works is more than twice the tendering limit of the MES Class of contractor for which it he eligible. For this purpose, details of the works being executed by such a contractor shall be uploaded in the Cover-1 of the bid and shall be checked/verified by the Accepting Officer.
12. In case the BOQ is revised through the corrigendum and the bidder has failed to quote on revised BOQ (i.e. he has quoted on pre revised BOQ), such bid shall be treated as willful negligence by the bidder and his quotation shall be considered non-bonafide. In such cases the lowest tender shall be determined from amongst the valid/bonafide bids only. Accepting Officer may decide whether to re-tender or consider the lowest bonafide tender for acceptance.

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

13. Revoking the offer or revising the rates upward or offering voluntary reduction by the any participating bidders after last date and time of bid submission (i.e, cover-I) shall be considered as a wilful default. For this default a penalty of an amount equal to Earnest Money shall be levied. In case of an unenlisted tenderer, Earnest Money deposited by him shall be forfeited. In case of MES enlisted tenderer having deposited the Standing Security Bond, an amount equal to the earnest money stipulated in the NIT, shall he notified to the tenderer tor 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 he issued simultaneously. Firms shall be termed as related if Proprietor/one or more Partners/Directors are common. Decision of Accepting Officer on issue/deny of the tender to anyone of the related firms shall be final and binding.

15. **EMPLOYEES PROVIDENT FUND CODE:-** Tenderer's attention is invited that successful bidder has to submit details of EPF code number before placing of Work Order No. 1 by the GE.

16. Court having original jurisdiction over the place from where tender has been issued/published shall alone have jurisdiction to decide any dispute out of or in respect of issue(s) related to bidding under this tender. After acceptance of tender, condition 72 (Jurisdiction of courts) of IAFW-2249 (General Conditions of Contracts) shall be applicable.

17 **INTEGRITY PACT:** Integrity pact duly signed by Accepting Officer/Authorised Officer has been uploaded alongwith this tender as Appendix 'B'. The same shall be signed by bidder(s) on each page and scanned copy shall be uploaded as part of Technical bid (cover-1) and original Integrity pact duly signed on each page shall be forwarded by post alongwith tender fee and EMD (if applicable). Integrity pact will be an integral part of the Contract and both parties are bound by its provisions.

(Signature of Contractor)

Dir/AAD (Contracts)  
For Accepting Officer

**APPENDIX 'B' TO NOTICE OF TENDER****INTEGRITY PACT****General**

1. Whereas the President of India, represented by Chief Engineer Udhampur Zone hereinafter referred to as Principal / Owner and the

first part, has floated the Tender and intends to award, under

laid down organizational procedure, contract for **NAME OF WORK: CONSTRUCTION OF OTM ACCN (KLP) AT BDE HQ IN PALLANWALA UNDER GE (S) AKHNOOR**

hereinafter referred to as works / Services and M/s\_\_\_\_\_ represented by, \_\_\_\_\_(which term unless expressly indicated by the contract, shall be deemed to include its successors and its assignees), hereinafter referred to as the Bidder / Contractor and the second part is willing to carryout the works / services.

2. Whereas the Bidder is a Proprietorship Concern / Partnership Firm/Limited Liability Partnership Firm/ Private Limited Company/ Limited Company/ Joint Venture constituted in accordance with the relevant law in the matter and the Principal / Owner is Chief Engineer performing its functions on behalf of the President of India.

**Objectives**

3. Now, therefore, the Principal /Owner and the Bidder agree to enter into this pre-contract agreement, referred to as INTEGRITY PACT (IP), to avoid all forms of corruption by following a system that is fair, transparent and free from any influence/ prejudiced dealings prior to, during and subsequent to the conclusion of the contract to be entered into with a view to :-

3.1 Enabling the Principal/Owner to get the desired works / services at a competitive price in conformity with the defined specifications of the Services by avoiding high cost and the distortionary impact of corruption on public procurement.

3.2 Enabling Bidders to abstain from bribing or any corrupt practice in order to secure the contract by providing assurance to them that their competitors will also refrain from bribing and other corrupt practices and the Principal/Owner will commit to prevent corruption, in any form, by their officials by following transparent procedures.

**Commitments of the Principal / Owner**

4. The Principal/Owner commits itself to the following :-

4.1 The Principal/Owner undertakes that, no official of the Principal / Owner, connected directly or indirectly with the contract will demand, take a promise for or accept, directly or through intermediaries, any bribe, consideration, gift, reward, favour or any material or immaterial benefit or any other advantage from the Bidder, either for themselves or for any person, organisation or third party related to the contract, in exchange for an advantage in the bidding process, bid valuation, contracting or implementation process related to the Contract.

4.2 The Principal/Owner will, during the pre-contract stage, treat all Bidders alike and will provide to all Bidders the same information and will not provide any such information to any particular Bidder which could afford an advantage to that particular Bidder in comparison to other Bidders.

**APPENDIX 'B' TO NOTICE OF TENDER**

4.3 All the officials of the Principal/Owner will report to the appropriate Government office any attempted or completed breach(s) of the above commitments as well as any substantial suspicion of such a breach.

5. In case of any such preceding misconduct on the part of such official(s) is reported by the Bidder to the Principal /Owner with willful and verifiable facts and the same is prima facie found to be correct by the Principal /Owner, necessary disciplinary proceedings, or any other action as deemed fit, including criminal proceedings may be initiated by the Principal / Owner and such a person shall be debarred from further dealing related to the tender / contract process. In such a case while an Inquiry is being conducted by the Principal /Owner, the tender process/ proceedings under the contract would not be stalled.

**Commitments of Bidders**

6. The Bidder commits himself to take all measures necessary to prevent corrupt practices, unfair means and illegal activities during any stage of his bid or during any pre-contract or post-contract stage in order to secure the contract or in furtherance to secure it and in particular commits himself to the following :-

6.1 Bidder will not offer, directly or through intermediaries, any bribe, gift, consideration, reward, favour any material or non-material benefit or other advantage, commission, fee, brokerage or inducement to any official of the Principal /Owner, connected directly or indirectly with the bidding process, or to any person, organisation or third party related to the contract in exchange for any advantage in the bidding, evaluation, contracting and implementation of the Contract.

6.2 The Bidder further undertakes that he has not given, offered or promised to give, directly or indirectly any bribe, gift, consideration, reward, favour any material or non-material benefits or other advantage, commission, fees, brokerage or inducement to any official of the Principal / Owner or otherwise in procuring the Contract or forbearing to do or having done any act in relation to the obtaining or execution of the contract or any other Contract with the Government for showing or forbearing to show favour or disfavor to any person in relation to the Contract or any other Contract with the Government.

6.3 The Bidder will not collude with other parties interested in the contract to impair the transparency, fairness and progress of the bidding process, bid evaluation, contracting and implementation of the contract.

6.4 The Bidder will not accept any advantage in exchange for any corrupt practice, unfair means and illegal activities.

6.5 The Bidder would not enter into conditional contract with any Agent(s), broker(s) or any other intermediaries wherein payment is made or penalty is levied, directly or indirectly, on success or failure of the award of the contract.

6.6 The Bidder commits to refrain from giving any complaint directly or through any other manner without supporting it with full and verifiable facts. Complaint will be processed as per **Guidelines for Handling of Complaints** in vogue. In case the complaint is found to be vexatious, frivolous or malicious in nature, it would be constructed as a violation of Integrity Pact.

**APPENDIX 'B' TO NOTICE OF TENDER****7. Previous Transgression**

7.1 The Bidder declares that no previous transgression occurred in the last three years immediately before signing of this Integrity Pact with any other company in respect of any corrupt practices envisaged here under or with any Public Sector Enterprises in India or any Government Department in India.

7.2 If the Bidder makes incorrect statement on this subject, Bidder can be disqualified from tender process or the contract and if already awarded, same can be terminated for such reason.

**8. Company Code of Conduct**

8.1 Bidders are advised to have a company code of conduct (clearly rejecting the use of bribes and other unethical behaviour) and a compliance program for the implementation of the code of conduct throughout the country.

**9. Sanction for Violation**

9.1 Any breach of the aforesaid provisions by the Bidder or any one employed by him or acting on his behalf (whether with or without the knowledge of the Bidder) or the commission of any offence by the Bidder or any person employed by him or acting on his behalf, as defined in Chapter IX of the Indian Penal Code, 1860 or the Prevention of Corruption Act 1988 or any other act enacted for the prevention of corruption shall entitle the Principal / Owner to take all or any one of the following actions, wherever required :-

(i) Technical bid of the Bidder will not be opened. Bidder will not be entitled to or given any compensation. However, the proceedings with the other Bidder(s) would continue.

(ii) Financial bid of the Bidder will not be opened. Bidder will not be entitled to or given any compensation. However, the proceedings with the other Bidder(s) would continue.

(iii) The Earnest Money Deposit shall stand forfeited either fully or partially, as decided by the Principal / Owner, in case contract is not awarded to the Bidder and the Principal/ Owner shall not be required to assign any reason therefor. For enlisted contractors an amount less than or equal to Earnest Money Deposit as decided by the Principal / Owner shall be deducted from any amount held with the Department / any payment due.

(iv) To immediately cancel the contract, if already concluded/awarded without any compensation to the Bidder.

(v) To encash the Performance Security furnished by the Bidder.

(vi) To cancel all or any other Contract(s) with the Bidder.

(vii) To temporarily suspend or temporarily debar /permanently debar the bidder as per the extant policy.

(viii) If adequate amount is not available in the present tender / contract, the deficient amount can be recovered from any outstanding payment due to the Bidder from the Principal / Owner in connection with any other contract for any other works / services.

**APPENDIX 'B' TO NOTICE OF TENDER**

(ix) If the Bidder or any employee of the Bidder or any person acting on behalf of the Bidder, either directly or indirectly, is closely related to any of the officers of the Principal/Owner, or alternatively if any close relative of an officer of the Principal / Owner has financial interest/stake in the Bidder's firm, the same shall be disclosed by the Bidder at the time of submission of tender. Any failure to disclose the interest involved shall entitle the Principal/ Owner to debar the Bidder from the bid process or rescind the contract without payment of any compensation to the Bidder. The term 'close relative' for this purpose would mean spouse whether residing with the Government servant or not, but does not include a spouse separated from the Government servant by a decree or order of a competent Court, son or daughter or step son or step daughter and wholly dependent upon Government servant, but does not include a child or step child who is no longer in any way dependent upon the Government servant or of whose custody the Government servant has been deprived of by or under any law, any other person related, whether by blood or marriage, to the Govt servant or to the Government servant's wife or husband and wholly dependent upon Government servant.

(x) The Bidder shall not lend to or borrow any money from or enter into any monetary dealings or transactions, directly or indirectly, with any employee of the Principal / Owner and if he does so, the Principal /Owner shall be entitled forthwith to cancel the contract and all other contracts with the Bidder.

9.2 The decision of the Principal / Owner to the effect that a breach of the provisions of this Integrity Pact has been committed by the Bidder shall be final and binding on the Bidder. **However, the Bidder can approach the Independent External Monitor(s) (IEMs) appointed for the purposes of this Pact.**

10. **Independent External Monitors (IEMs)**

10.1 MoD has appointed the following Independent External Monitors for this pact in consultation with the Central Vigilance Commission:-

<b>Srl No</b>	<b>Name of IEM</b>	<b>E-mail Id</b>
1	Shri Narayan Murthey Ganapathy, IFoS (Retd) 3/268, Vipul Khand, Gomtinagar, Lucknow-PIN - 226010	Email ID : gana_narayan@yahoo.com
2	Shri Lalatendu Mohanti, IPS (Retd) A-1 Tower-5, New Motibagh, New Delhi, PIN - 110023	E-mail ID : l.mohanti@gmail.com

10.2 Details of Nodal Officer nominated by E-in-Cs Branch are as follows:-

(b) **Nodal Officer**

Shri PKS Sengar, Director (Contracts)  
Room No. 158  
Dte of Contract Management  
Engineer-in-Chief's Branch  
Kashmir House, Rajaji Marg  
New Delhi-110011  
Email ID: dircont1einc-mes@nic.in

**APPENDIX 'B' TO NOTICE OF TENDER**

10.3 In case of any complaint with regard to violation of Integrity pact, either party can approach IEMs with copy to the Nodal Officer and the other party. If any such complaint from bidder is received by the Principal / Owner, the Principal / Owner shall refer the complaint to the Independent External Monitors for their recommendations / Inquiry report.

10.4 If the IEMs need to peruse the relevant records of the Principal / Owner and / or of the Bidder / Contractor in connection with the complaint sent to them, the Principal / Owner and / or the Bidder / Contractor shall make arrangement for such perusal of records by the IEMs as demanded by them including unrestricted and unconditional access to the project documentation and minutes of meeting. If records / documents of Sub Contractor(s) are also required to be perused by the IEMs, the Bidder shall make arrangement for such perusal of records by the IEMs, as demanded by them. IEMs are under obligation to treat the information and documents of the Principal / Owner and Bidder / Contractor / Sub-Contractors with confidentiality.

10.5 The task of the IEMs, is to review independently and objectively, any complaint received with regard to violation of Integrity Pact and offer recommendations or carry out inquiry as deemed fit. The IEMs are not subject to any instructions by the representatives of the parties and shall perform their functions neutrally and independently. The report of inquiry, if any, made by the IEMs shall be submitted to either of the following for a final and appropriate decision in the matter keeping in view the provision of this Pact :-

- (a) Engineer-in-Chief in normal cases
- (b) CVO(MES & BRO) / DMA / Department of Defence (DoD) in cases involving vigilance angle

**11. Examination of Books of Accounts**

In case of any allegation of violation of any provisions of this Integrity Pact or payment of commission, the Principal / Owner or its agencies shall be entitled to examine the Books of Account of the Bidder and the Bidder shall provide necessary information of the relevant financial documents in English and shall extend all possible help for the purpose of such examination.

**12. Law and Place of Jurisdiction**

This Pact is subject to Indian Law. The place of performance and jurisdiction is the seat of the Principal / Owner.

**13. Other Legal Actions**

The actions stipulated in this Integrity Pact are without prejudice to any other legal action that may follow in accordance with the provisions of the extant law in force relating to any civil or criminal proceedings.



**APPENDIX 'B' TO NOTICE OF TENDER****14. Signing of Integrity Pact on behalf of Bidder**

- (a) **Proprietorship Concern:** The Integrity Pact must be signed by the proprietor or by an authorised signatory holding power of attorney signed by the proprietor.
- (b) **Partnership firm** - The Integrity Pact must be signed by all Partners or by one or more Partner holding power of attorney signed by all the Partners.
- (c) **Limited Liability Partnership firm** - The Integrity Pact must be signed by all Partners or by one or more Partner holding power of attorney signed by all Partners.
- (d) **Private Limited/Limited Company** - The Integrity Pact must be signed by representative duly authorised by Board resolution.
- (e) **Joint Venture** - The Integrity Pact must be signed by all Partners and members to Joint Venture or by one or more Partner holding power of attorney signed by all Partners and all members to the Joint Venture.

**15. Validity**

15.1 The validity of this Integrity Pact shall be from date of its signing. It expires for the Contractor after the final payment under the contract has been made or till the continuation of Defects Liability Period, whichever is later and for all other bidders, till the Contract has been awarded.

15.2 Should one or several provisions of this Pact turn out to be invalid, the remainder of this Pact remains valid. In this case, the parties will strive to come to an agreement to their original intentions.

**APPENDIX 'B' TO NOTICE OF TENDER**

**INTEGRITY PACT**

To

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**Sub- NAME OF WORK: CONSTRUCTION OF OTM ACCN (KLP) AT BDE HQ IN PALLANWALA UNDER GE (S) AKHNOOR**

Dear Sir,

It is hereby declared that MES is committed to follow the principle of transparency, equity and competitiveness in public procurement.

The subject Notice Inviting Tender (NIT) is an invitation to offer made on the condition that the Bidder will sign the Integrity Pact, which is an integral part of tender/bid documents, failing which the tender/bidder will stand disqualified from the tendering process and the bid of the bidder be summarily rejected.

This declaration shall form part and parcel of the Integrity Pact and signing of the same shall be deemed as acceptance and signing of the Integrity Pact on behalf of MES.

Yours faithfully

Chief Engineer

**APPENDIX 'B' TO NOTICE OF TENDER****INTEGRITY PACT**

To

The Chief Engineer  
Udhampur Zone

**Submission of Tender for the NAME OF WORK: CONSTRUCTION OF OTM ACCN (KLP) AT BDE HQ IN PALLANWALA UNDER GE (S) AKHNOOR**

Dear Sir,

I/We acknowledge that MES is committed to follow the principles thereof as enumerated in the Integrity Pact enclosed with the tender/bid document.

I/We agree that the Notice Inviting Tender (NIT) is an invitation to offer made on the condition that I/We will sign the Integrity Pact, which is an integral part of tender document, failing which I/We will stand disqualified from the tendering process. I/We acknowledge that THE MAKING OF THE BID SHALL BE REGARDED AS AN UNCONDITIONAL AND ABSOLUTE ACCEPTANCE of the conditions of the NIT

I/We confirm acceptance and compliance with the Integrity Pact in letter and spirit and further agree that execution of the said Integrity Pact shall be separate and distinct from the main contract, which will come in to existence when tender/bid is finally accepted by MES. I/We acknowledge and accept the validity of the Integrity Pact, which shall be in line with Para 15 of the enclosed Integrity Pact.

I/We acknowledge that in the event of my/our failure to sign and accept the Integrity Pact, while submitting the tender/bid, MES shall have unqualified, absolute and unfettered right to disqualify the tender/bidder and reject the tender/bid in accordance with terms and conditions of the tender/bid.

Yours faithfully

(Duly authorised signatory of the Bidder)

**IAFW-2159 (REVISED 1947)**

**TO BE USED IN CONJUNCTION WITH GENERAL CONDITIONS  
OF CONTRACTS IAFW-2249 (1989 PRINT)**

**MILITARY ENGINEER SERVICES**

Tele/Fax: 01992-243355

e-mail: e8udhampur@gmail.com

Mil Tele: 2034/2237

Military Engineer Services  
Chief Engineer  
Udhampur Zone  
PO : Garhi  
Udhampur-182121

88021-A/ 12 /E8

03 Jun 2026

**LUMPSUM TENDER AND CONTRACT FOR: "CONSTRUCTION OF OTM ACCN (KLP)  
AT BDE HQ IN PALLANWALA UNDER GE (S) AKHNOOR"**

1. A bidder who is qualified as per eligibility criteria mentioned in the tender documents and has inter alia sound past record is hereby authorized to tender for the above work. The tender/bid (cover-1 & cover-2 both) shall be uploaded on the portal **www.defproc.gov.in** on or before the bid closing date and time as per portal.
2. All documents must be uploaded while uploading the bid on above mentioned portal.
3. Any correspondence concerning this tender shall be communicated as per information available on the e-portal mentioned above by due date and time.

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

(SIGNATURE OF THE CONTRACTOR)  
DATED: \_\_\_\_\_.

(SIGNATURE OF THE OFFICER  
ISSUING TENDER DOCUMENT  
APPOINTMENT: Dir/AAD (CONTRACTS)  
DATED : \_\_\_\_\_.

**SCHEDULE 'A' (BoQ) NOTES**

1. Schedule 'A' of this contract is divided into following parts:-

(a)	Part-I	:	Building Work
(b)	Part-II	:	Site Clearance and Development Work
(c)	Part-III	:	Internal Water Supply Work
(d)	Part-IV	:	Internal Electric Supply Work
(e)	Part-V	:	Plumbing Work
(f)	Part-VI	:	Area Drainage Work
(g)	Part-VII	:	Sewage Disposal Work
(h)	Part-VIII	:	Road, Path and Culvert Work
(j)	Part-IX	:	External Water Supply Work
(k)	Part-X	:	External Electric Supply Work
(l)	Part-XI	:	Fencing/Compound Wall and Gate Work
(m)	Part-XII	:	Miscellaneous Items of Work (BOQ)

2. Schedule 'A' Part-I is firm. The quantities (Approx No. of units required) for all items of Schedule 'A' Part-II to Part-XII as indicated under respective Col 6 and Col 3 of BOQ are "Provisional". However these quantities shall not be varied beyond the limit contained in Condition 7(c) of IAFW 2249 (General conditions of contracts) forming part of Contract.

3. **(a)** Schedule 'A' Part-II to Part-XI have been pre-priced by MES. However, the tenderers are required to work out their own lumpsum price for these parts independently based on description of items, Particular Specifications, Special Conditions, General Conditions of the Contract in the manner set out in Condition 6(A) & 6(B) of IAFW-2249 and quote their lumpsum in BOQ and arrive at a percentage for each of these parts above / below on the lumpsum price inserted by MES and insert the same against respective parts in the place provided for in BoQ.

**(b)** Schedule 'A' Part-I & Part-XII have not been pre-priced by MES. Tenderers are required to work out their unit rate in BOQ for each item independently based on description of the item, Particular Specifications and Special Conditions of the Contract in the manner set out in Condition 6 of IAFW-2249 and quote the same in figures and words under Col 6. The amount shall be extended to Col 7/8 of BOQ. The total amount of this part of Sch 'A' shall be summed up into end of BOQ at the place provided for.

4. Method for measurement for all items listed in Sch 'A' Part-II to XII shall be as given in MES Standard Schedule of Rates unless specifically stated otherwise here-in-after for any particular item of work.

**SCHEDULE 'A' (BOQ) NOTES (Contd/-)**

5. (a) Description of building works and items of works given under Col 2 of all Parts of Schedule 'A' is in brief. These shall be deemed to be amplified by and hence shall be read in conjunction with Particular Specifications, General Specifications and Special Conditions contained in the relevant trade sections of the MES Schedule including preambles, the contract drawings and notes therein.

(b) Under column-3 of Schedule 'A' Parts, reference to main drawings has only been given. This shall be deemed to be inclusive of all the connected drawings as mentioned in the "List of Drawings" attached here- in- after.

(c) In the list of drawings, reference to main drawings has only been given. In case the details in respect of any item shown on main drawings are not given in the drawings referred to in the main drawings then the same shall be followed from any other drawing included in the list of drawings. Any drawing mentioned in the contract/contract drawings but inadvertently not included in the list of drawings shall also be deemed to form part of the contract.

6. **(A) Schedule 'A' Part-I**

Unless otherwise specified in these tender documents, the lumpsum quoted by the tenderer's for the works included in Sch 'A' Part-I shall be deemed to include for all relevant items of works all as specified in these tender documents, as shown in drawings and notes thereon complete for entire completion of works except those covered in Sch 'A' Part-II to XII. Lump sum price quoted by the tenderers for the building under Sch 'A' Part-I shall also deem to include the following provisions:-

(a) Fittings, fixtures and all other sundries and miscellaneous items/accessories such as fan hooks with boxes, electric meter board/main switch board, niches of specification as directed by GE for housing main distribution boxes/distribution boards.

(b) All other details of works shown on drawings such as sanitary & Toilet fittings and appliances, Porch, Verandah, plinth protection with covered drain, steps, dwarf wall, open platform, ramps/aprons, PVC water tank, rain water pipe(s) with fittings, spouts etc; (except inapplicable details in typical drawings) whether covered in particular specifications or not.

(c) Strengthening measures required to be provided to all buildings of Sch 'A' Part-I, please refer Particular specifications Clause No 3.17 here-in-after.

(d) Excavation and earth work to all buildings /works.

(e) Preconstruction Anti-termite treatment to building of Sch 'A' Part-I (Srl item No. 1.01 to 1.05 of BOQ).

(f) Roof Treatment to building of Sch 'A' Part-I (Srl item No. 1.01 to 1.05 of BOQ)

(g) Built in furniture as shown on drawings

**SCHEDULE 'A' (BOQ) NOTES (Contd/-)**

6.1 Unit rates inserted against all items of Sch 'A' shall be deemed to include for "Material and labour", or "Supplying and fixing", "Supply, installation, Testing and Commissioning" as applicable complete unless specifically described otherwise as "Labour only" and/or "Supplying only" and/ or "Fixing only" in the description of any particular item under Column 2.

6.2 The unit cost of buildings under Sch 'A' Part-I, shall however not include the cost of services which are covered under Schedule 'A' Part-II to Part-XII.

**7. Period of Completion.**

The entire work under this contract as described in Schedule 'A' alongwith connected services catered in General Summary/BOQ (Schedule of works) shall be completed within **22 (Twenty two) months** from the date of commencement of work shown in work order No. 1 to be placed by GE.

**7.1 APPROVAL OF LEVELS**

Levels are to be taken before starting excavation and after clearance of vegetation/bushes etc at the intervals of not exceeding 3 meters and the same shall be plotted in graph sheet duly marked with the location of the buildings/structures covered in tender along with the proposed developed ground levels if any and proposed plinth level of the various buildings/structures, drainages/disposal arrangement etc and submitted to CWE duly signed by JE, Contractor, Engr-in-Charge and GE for approval within **one Month** from the date of commencement. Permanent bench mark (which will not change in future) shall be prominently marked on the level sheet. Intermediate bench mark, such as FFL of other permanent buildings shall also be marked on the level sheet. Made up GL and FFL of the proposed buildings shall be fixed, such that, quantity of excavated earth and filled earth shall match economically. Excavation/site clearance work at site shall commence only after written approval for the proposed levels is obtained from the CWE. CWE while conveying the said approval to GE, shall also endorse a copy of his letter alongwith all documents to Accepting Officer mentioning interalia the approx financial effect of the approval if any. The contractor shall be deemed to have taken into consideration the above provisions before quoting lump sum while submitting his tender.

7.2 Site/Buildings for execution of work shall be handed over as soon as the 'Work Order No. 1' is placed, In case all the buildings mentioned in the contract are not readily available in one go, the contractor will organize his resources/ working program/ CPM accordingly. No claim whatsoever for not handing over the complete site to contractor on date of issue of 'Work Order No1' will be admissible

**8. Defects liability period for the work as per Condition 46 of General Conditions of Contracts (IAFW-2249) shall be twenty four calender months. The tenderer is deemed to have considered this aspect while quoting his rates**

9. (a) Different items of excavation and earthwork involved for execution of works against Sch 'A' Part-II to Part-XII shall be measured and paid under respective Schedule.

**SCHEDULE 'A' (BOQ) NOTES (Contd/-)**

- (b) Cutting of roads/paths/drains etc. where required for laying of cables, pipes etc. shall be done by the contractor all as directed by the Engineer-in-Charge and the same after laying of cables, pipes etc. shall be made good to match with the adjoining works. Also proper sign boards, display boards etc. shall be displayed by the contractor all as directed by the Engineer-in-Charge. Payment for cutting of roads/paths/drains etc. shall be made under respective schedule no other payment/claim on account of above shall be tenable.
- (c) While carrying out excavation for construction of structures as given in Sch 'A' Part-I or any other Schedule 'A' Part-II to Part-XII, if cable/water pipe line/sewage line are damaged. The contractor shall rectify at own expense and realign adjacent to the proposed buildings as directed by GE.
10. (a) Contractor's lumpsum in General Summary shall be deemed to include for all minor details, processes and operations which may not have been specifically mentioned or given in particular specifications but which are essential for the execution of the building works and services in a sound and workman like manner so as to be structurally and functionally sound. In case of any difference of opinion between GE and the contractor as to whether or not certain items of works constitute(s) minor details, which is included in the contractor's lumpsum, the decision of the Accepting Officer shall be final, conclusive and binding.
- (b) Lumpsum Cost of the buildings quoted by tenderer in Schedule 'A' Part-I shall include the cost of any cutting/leaving/forming holes, chases etc., in walls, floors and ceiling as required and making good the same in cement and sand mortar (1:3) or PCC 1:2:4 using stone aggregates all as directed by Engineer-in-Charge for the works included in various parts of Sch 'A'. No adjustment shall, however, be made on this account for pricing of any deviation in respect of quantities indicated as "PROVISIONAL" in the tender documents.
11. Layout of structures indicated in site plan is tentative. No adjustment in price shall be done on account of final approved layout plan within the site plan area.
12. The unit cost of buildings of Schedule 'A' Part-I shall be based on foundation for Safe Bearing Capacity of soil as indicated in concerned drawings based on the soil investigation report. However in case, GE observes soil of unusual nature (or different pattern from SBC report) at site during the execution, which may result in change of SBC, he shall get tested the SBC of soil and if actual SBC found at site is at variance with reference to SBC given in drawings, the case shall be referred to Accepting Officer for approval and change shall be regularized through a deviation order. The cost of testing of SBC shall be borne by the Department.
13. All RCC work under Sch "A" Part-I shall be of minimum grade M-25 (Design Mix) as per IS 456-2000/or of higher grade (if specifically mentioned).
14. Particular specifications for common materials such as sand, coarse aggregate, shingle or crushed stone aggregate, bricks, etc. specified for building work against Sch 'A' Part-I shall also be applicable for all items of other Parts of Sch 'A'.



**SCHEDULE 'A' (BOQ) NOTES (Contd/-)**

15. (a) Tenderers are advised to visit site of work to familiarize themselves with nature of site, access to site, approaches, existence of shrubs/vegetation, etc. security checks exercised by the authorities in whose control the area lies, availability of labour and local materials, space for keeping their men, material in proximity of site, climatic conditions of the area, to enable them their resource planning for completion of work within the period of completion specified in the NIT/tender documents.
- (b) Tenderers are advised to quote their rate keeping all these factors in view. Buildings will be handed over on as-is-where-is basis. No claim whatsoever shall be entertained at later date after acceptance of tender. If the tenderer envisages any difficulty existing at site and desires to propose any change he should do so in writing at least seven days before due date of receipt of tender so that his proposals could be seen, analyzed and cognizance of any changes can be made in tender documents by issue of suitable amendments as applicable. Tenderers quoted rates are deemed to have taken into consideration all these factors irrespective of whether they have visited the site or not.
16. The abbreviation "Cum", "Sqm", "RM", "Kg" and "Qtl" where ever appear in the tender documents especially under column of unit rate of Sch 'A' shall have the meaning "Cubic metre", "Square metre", "Running metre", "Kilogram" and "Quintal" respectively.
17. In the event of any discrepancy between inner dimensions and outer dimensions of building, the inner dimensions shall be maintained and outer dimension of the building shall be deemed corrected accordingly without any extra cost to the Govt.
18. **MAKES OF ITEMS**
- (a) In case Sch 'A' items indicate makes then same shall be from any one of the makes specified therein alongwith the makes mention in Appx 'E' (list of makes) and as specified in note No. 18 (e) here-in-below at the option of contractor.
- (b) In case manufacturer of the item makes both ISI and non ISI marked items, then ISI marked item shall only be used. Please note that even if any makes are given in Particular Specifications, they shall stand superseded (except makes of cement & steel) and only the makes given in Appendix 'E' (list of makes) (B/R & E/M) shall be applicable for all purposes.
- (c) 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](http://www.bis.org.in) and submit name of manufacturer meeting the contract specifications criteria and 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 conform to relevant IS amended upto date.

**SCHEDULE 'A' (BOQ) NOTES (Contd/-)**

(d) Irrespective of makes, manufacturers specified in tender documents, material(s) should not be procured from/of the makes, manufacturers, brands, models etc, if as on date, there is ban on the manufacturer due to technical defaults or not operating/ manufacturing for a long time or, nonexistent etc. No claim whatsoever on this account shall be admissible to the contractor later on.

(e) In addition to the makes mentioned in Appx 'E' (list of makes), any other make approved (as Group-I/Category –I/Group-X i.e. superior group) by E-in-C's Branch (CMPT-I), CENC (CMPT-II)/ any other Command or ADG) and HQ CE UDHAMPUR ZONE (CMPT-III) upto bid submission end date shall also be deemed included in the list of makes/brands/manufacturers here-in-after.

(f) In case makes of any item(s) is/ are not specified in any of the aforesaid documents, such items shall be of reputed make as approved by Accepting Officer in writing and shall bear ISI marking.

(g) In order to decide the equivalency of cat part of different makes, model and manufacturers; cost, specifications and parameters etc. shall be taken into consideration by the GE. In case of difference in the opinion of GE and Contractor, decision of the concerned CWE shall be final, conclusive and binding. No claim whatsoever on this account shall be admissible to the contractor later on.

(h) Contractor will intimate in writing to GE the name of make of material, brand, model No./Cat Part No. etc, which he intends to procure. GE will approve the same within 10 days of receipt of such request after due verification of documents supplied by contractor with his request letter.

19. Production of purchase vouchers and test certificates of main producers mentioned in Particular Specifications are mandatory for all consignments of reinforcement steel supplied by the contractor before making any payment and incorporation of steel in work. In case of structural steel, production of purchase vouchers and test certificates of main producers or secondary producers as mentioned in Particular Specifications are mandatory before making any payment and incorporation of steel in work.

**20. Goods and Service Tax (GST)**

It is to be noted that the work shall be executed in the UT of Jammu & Kashmir Goods and Service Tax (GST) on works contracts shall be applicable and deducted as per the existing rules and regulations. All the bidders shall get themselves acquainted with the relevant provision of GST Act and enrolled for GST as per rules / regulations of the UT Govt / Central Govt. Contractor's bid shall be deemed to have included GST and all other taxes, duties, cess etc .prevailing at the time of Bid Submission End Date. The deduction of GST at source by the department shall be as per rules and regulation of Govt prevailing at the time of payment.

**SCHEDULE 'A' (BOQ) NOTES (Contd/-)****21. Deployment of Engineers & T&P**

21.1 The contractor will be required to strictly ensure engagement of engineers as per condition 25 of IAFW 2249 & refer Special Condition 7.1 for work costing more than Rs.10 Crore and deployment of 'T & P, Machinery & Transport' as in stipulated in Special Condition No. 38 in tender. Inadequate engagement of engineers and deployment of 'T&P. Machinery & Transport' as per contract conditions shall be considered as serious lapse attracting ban/removal /downgrading / debarment of the Firm/Company. However, any T&P not included in the list given in Special Condition No. 38 but essentially required for execution of work shall be arranged and deployed by the contractor without any extra cost to the department.

**22. PRICING OF DEVIATION**

(a) In case of any deviation, mode of pricing shall be decided by the Accepting Officer in terms of Condition 62 of IAFW-2249.

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

(c) Draft Star Rates shall be made based on market enquiry through telephonic enquiry/quotations/email/rate lists/internet based sources, material & labour constants available in various Civil Engg books and record available in respect of Star Rates approved in the past for similar items of work etc. Contractor may also assist GE's office in preparation of draft Star Rate.

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

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

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

**SCHEDULE 'A' (BOQ) NOTES (Contd/-)****23. PERFORMANCE SECURITY (See Condition 19 of IAFW-2249).**

(a) In case the tender/bid submitted by the contractor is accepted, the contractor will be required to lodge with the Accepting Officer 'PERFORMANCE SECURITY DEPOSIT' calculated @ 5% (Five Percent) of the Contract Sum as notified by the Accepting Officer within 28 (Twenty Eight) days of the receipt of notification of acceptance of Tender / Bid by the contractor. The Performance Security can be submitted by the successful contractor in the form of Bank Guarantee Bond or Government Securities, FDR or any other form of deposit approved in MES. The failure of the contractor to submit the 'Performance Security Deposit' within the stipulated period of 28 days shall constitute sufficient grounds for cancellation of the award of the work and the following action will be taken by the department.

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

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

(b) Irrespective of whatever is mentioned in condition 19.3 of IAFW 2249 with regard to suspension of tenders on account of non-submission of Performance Security, issue of tenders to such tenderers shall remain suspended for a period of six months from the date of cancellation of contract under condition 19.3 of IAFW 2249 in case of unenlisted Contractors. In case of MES enlisted contractor, issue of tenders shall remain suspended till deposit of EMD or six months from date of cancellation whichever is later.

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

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

**SCHEDULE 'A' (BOQ) NOTES (Contd/-)**

24. E/M machines/ equipments such as transformer, LT panel, DG set etc. shall be brought at site by the contractor after 75% progress of building work to avail manufacturer guarantee/ warrantee in full. However, necessary approval of design, drawing, make and technical details shall be submitted by the contractor to GE well in advance.

25. Hard rock if obtained from excavation in hard rock, the same shall be issued to the contractor @ Rs.500.00 per Cum and recovery shall be made in the RAR payments. Contractor may use hard rock so obtained in the work after breaking them into specified sizes as approved by GE in writing. In case the quantity of hard rock is more than what can be incorporated in the work, the balance quantity issued shall be the property of Contractor. Quantity of hard rock for issue purpose shall be considered same as that of excavation done in Hard Rock.

26. Whenever hard rock is met at site during excavation, proper written permission of GE shall be obtained before starting excavation, No blasting shall be permitted.

27. The tenderer are advised to visit the work site by taking prior appointment with GE before submission of tender. The tenderer shall have no claim what-so-ever on this account at a later stage whether he has actually inspected the work site or not.

28. The contractor shall submit the Yard Sticks alongwith detailed estimate for stage wise payment in respect of each building covered in Part-I of Sch 'A' to concerned Engineer-in-Charge for scrutiny and onward submission to GE. GE shall process the same to CWE duly recommended after technical check by his AGE (Contracts)/JE(QS&C), for approval. The same shall be technically checked by DCWE (Contracts) of CWE Office. The Yard Stick shall be approved by CWE.

29. This Contract does not include the provision of Reimbursement/Refund in variation of prices and no escalation shall be paid. However, Condition 63 of IAFW-2249 shall be applicable in this contract. The contractor shall consider this aspect while quoting the rates. No claim whatsoever on this account shall be entertained at later stage.

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

31. **Refer Condition 62 (B) & (C) of the General Conditions of Contracts (IAFW-2249):-** In case of deviation involved in Sch 'A' Part-I, the items involved in the deviation shall be priced at the rates in MES Schedule or prorata rates based on analogous items in MES Schedule adjusted by (-)5% (Minus Five percent) over SSR-2020 (Part II) rates, shall be applied as contractor percentage to cover his profit and overhead charges.

32. In case any item is repeated in BOQ, lowest rate quoted by bidder shall be considered for payment purpose.

33. The fine aggregate, coarse aggregate, bricks and other materials shall be procured only from the legal sources.

**SCHEDULE 'A' (BOQ) NOTES (Contd/-)**

34. The items for excavation and earthwork as catered in the provisional schedules are meant to be executed through mechanical means i.e. Hydraulic excavator, if due to any reason, whatsoever, excavation is done manually (or any other means), nothing extra shall be admissible to contractor on this account. The contractor shall consider this aspect while quoting his rates. No claim whatsoever on this account shall be entertained at later stage.

35. Rate applied for removing excavated material (spoil) beyond 50m in the excavation work by mechanical means in respect of Sch 'A' Part-II to Part-XII have been derived after taking into consideration of preamble (d) on Srl Page No. 29 of SSR 2020(Part-II). The contractor shall consider this aspect while quoting his rates.

36. The lumpsum quoted by the tenderer shall also include for any details of works and construction which are obviously and fairly intended and which may not have been specifically referred to in the tender documents and/or partially shown on drawings but which are essential for the execution and completion of the work in a workman like manner and sound construction.

37. **Drawings:-**

37.1. If certain details are missing, in that case, the details indicated elsewhere in the drawings, which are similar or nearer to the missed out items of work, shall be followed. In the absence of any other similar and near details, the minimum essential requirement for the completion of work from the structural and utility point of view shall be deemed to be included in the amount quoted.

37.2. However, some of the details/items which shall be deemed to be essential for execution and entire completion of the works are detailed as under for guidance:-

- (i) Reinforcement for any RCC member not indicated on the drawings but is structural requirement.
- (ii) Dwarf wall in situation like verandah, passage etc. are not indicated in drawings.
- (iii) Lintel over doors, windows and openings not shown in drawings.
- (iv) Builder hardware for doors/windows/vents etc, though not indicated on drawings but essential for usage.
- (v) Internal/external surface of walls where no finish specified on drawings shall be as specified in particular specifications such as internal/external plaster, cement base paint (for external surfaces) & OBD (for Internal surfaces).

37.3. For structural details, refer structural drawings only. If there is any discrepancy between architectural and structural drawings with regard to structural details, details shown on structural drawings shall prevail. Similarly if there is any discrepancy between structural and architectural drawings with regards to architectural details, details shown in architectural drawings shall prevail. The decision of the Accepting Officer as to what constitutes structural or architectural details shall be final, conclusive and binding.

**SCHEDULE 'A' (BOQ) NOTES (Contd/-)**

37.4. For missing reinforcement details of RCC works, minimum reinforcement as required as per IS shall be deemed to be included in the quoted lump sum. The decision of the Accepting Officer as regards minimum requirement as per IS shall be final and binding.

37.5. In case where type and size of beams, slabs and columns etc are not indicated, these shall be provided as directed by the Accepting Officer as per details of similar beams, slabs and columns, etc and cost of same and shall be deemed to be included in the quoted lump sum. The decision of the Accepting Officer as to the similar of beams, slabs, columns etc. shall be final and binding.

37.6. If there is any discrepancy regarding General Notes on RCC STD (structure type detail) drawing and structural drawings, the details shown in main structural drawing shall be followed. Similarly details shown in main architectural drawings shall always be followed in case of discrepancy between main architectural drawing and TD (Typical detail) drawings.

37.7. Nothing extra shall be admissible on account of work executed as stated above and the contractor shall be deemed to have taken into consideration the above provisions before quoting lump sum while submitting his tender.

38. **With respect to Schedule of Credit (if applicable):** The cost of old retrieved materials are given in "Schedule of Credit". The "Contract sum" referred to in IAFW 2249 (and for the purpose of AOC) shall be calculated after deduction of total amount of credit materials mentioned in "Schedule of Credit" from the total amount quoted by the tenderer in finance bid. The quantities given in "Schedule of Credit" are provisional and will depend upon the actual executed quantities of BOQ and credit will be adjusted accordingly. The rate of items of credit inserted in "Schedule of Credit" is firm. The Contractor shall have no claim whatsoever of the actual value of the retrieved materials different from the value indicated in "Schedule of Credit".

39. The rates quoted by the Contractor shall also included for provision and maintaining barricading on site 3m high by using MS pipes or angle iron framework of vertical member at 3m c/c and horizontal 1.30m c/c fixing the horizontal & vertical member with clamps and supporting the horizontal member with struts and covering the complete frame work with galvalume sheet 0.50mm thick. The vertical members shall be embedded/fixed to concrete pedestals below ground including fabricating, cutting and fixing in position of MS frame work, painting with two coats of approved antirust paint complete. The rate quoted by the contractor shall be deemed to include this aspect and no claim whatsoever on this account shall be entertained.

**Note:-** Barricading shall be provided from starting of work till the completion of entire work. Barricading alongwith framework shall be the property of Contractor after completion of the work.

40. The approach path to the site of work, where required, shall be prepared or maintained by the contractor by removing bushes and other obstructions. The rate quoted by the contractor shall be deemed to include this aspect and no claim whatsoever on this account shall be entertained.

Signature of Contractor)

Dir/AAD (Contracts)  
For Accepting Officer

## SCHEDULE 'A' (CONTD...)

## PART-I: LIST OF WORKS AND PRICES FOR BUILDING WORK

Srl No.	Description of items of works	Drg No	Unit Rate (Rs)		No of Units reqd	Amount Rs	Period of completio	Remarks
			Unit	Rate				
1	2	3	4	5	6	7	8	9

1 Refer to BoQ Srl item No. 1.01 to 1.05

As applicable as per list of drawings

Refer Sch 'A' Notes for all items.  
Refer Sch 'A' Notes for all items.

(Signature of contractor)

Dir/AAD (Contracts)  
For Accepting Officer



## SCHEDULE 'A' (CONTD...)

## PART-II: LIST OF WORKS AND PRICES FOR SITE CLEARANCE AND DEVELOPMENT WORK

Srl No.	Description of items of works	Drg No	Unit Rate (Rs)		No of Units reqd	Amount Rs	Period of completion	Remarks
			Unit	Rate				
1	2	3	4	5	6	7	8	9

1.00	Earth work in excavation by mechanical means (Hydraulic excavator) means <b>over areas</b> (exceeding 30cm in depth but not exceeding 1.5m in depth, exceeding 1.5m in width as well as 10 sqm on plan) including getting out in all kind of soil and disposal of excavated earth lead upto 50m and <b>lift upto 1.5m</b> , as directed by Engineer-in charge	As applicable, refer list of drawings	Cum	166.62	2013.00	335406.06		Refer Sch 'A' notes for all items Refer Sch 'A' notes for all items
2.00	Removing excavated material (soil) exceeding 250m and not exceeding 500m and depositing where directed at a level not exceeding 1.5m above the starting point complete all as specified and as directed.		Cum	262.20	2013.00	527808.60		

Total of Sch 'A' Part-II c/o to BOQ

Rs 863214.66

(Signature of contractor)

Dir/AAD (Contracts)  
For Accepting Officer

## SCHEDULE 'A' (CONTD...)

## PART-III: LIST OF WORKS AND PRICES FOR INTERNAL WATER SUPPLY WORK

Srl No.	Description of items of works	Drg No	Unit Rate (Rs)		No of Units reqd	Amount Rs	Period of completion	Remarks
			Unit	Rate				
1	2	3	4	5	6	7	8	9

- 1.00 Steel water tubing, concealed medium grade, galvanised, including short length, with all fittings and fixed complete to walls and ceiling or laid in floors, for the following bore of pipe, complete all as specified.

- 1.01 15mm bore

- 1.02 20mm bore

- 1.03 25mm bore

**Note:-** Any cutting /leaving /forming holes, chases etc., in walls, floors and ceiling as required and making good the same, shall be deemed to be included in lump sum Sch 'A' Part-I as per para 10(b) in Sch 'A' BOQ Notes.

As applicable, refer list of drawings

Refer Sch 'A' notes for all items  
Refer Sch 'A' notes for all items

RM	143.00	380.00	54340.00
RM	169.00	245.00	41405.00
RM	196.00	150.00	29400.00

- 2.00 Bib taps, cast copper alloy, screwed down, fancy type, chromium plated, screwed for iron pipe or brass ferrule and fixed for **15mm** bore of pipe, complete all as specified and directed. Each 607.57 17.00 10328.69

- 3.00 Stop valves **15mm dia**, cast copper alloy, screwed down, high pressure, fancy type, chromium plated with long shank and cup (concealed type), screwed both ends for iron pipe or for unions and fixed, complete all as specified and directed. Each 720.14 26.00 18723.64

## SCHEDULE 'A' (CONTD...)

## PART-III: LIST OF WORKS AND PRICES FOR INTERNAL WATER SUPPLY WORK

Srl No.	Description of items of works	Drg No	Unit Rate (Rs)		No of Units reqd	Amount Rs	Period of completion	Remarks
			Unit	Rate				
1	2	3	4	5	6	7	8	9
4.00	Chromium plated shower rose size 125mm, including fixing to steel pipe or union for 15mm bore pipe, complete all as specified and directed.		Each	409.25	3.00	1227.75		
5.00	Brass chromium plated mixer tap for mixing hot & cold water, screwed down for iron pipe 15mm bore and fixed, complete all as specified and directed		Each	1743.41	3.00	5230.23		
6.00	Pillar taps, cast copper alloy, fancy type, with capstan heads, chromium plated, screwed down high pressure, with or without lettered 'Hot' or 'Cold' with long screwed shanks and fly-nuts, screwed for iron pipe and fixed for 15mm bore pipe, complete all as specified and directed.		Each	676.44	2.00	1352.88		
7.00	Health faucet (ABS Body), Mild steel, chromium plated suitable for 15mm dia pipe with 1.25 metre long flexible tube and ABS wall hook including making connections and fixed in position complete all as specified and directed.		Each	395.65	24.00	9495.60		
8.00	Self-closing taps, cast copper alloy, chromium plated, screwed for iron pipe and fixed for 15mm bore of pipe, complete all as specified and as directed.		Each	950.97	10.00	9509.70		
9.00	PVC connections, 15mm size with PTMT nuts of length 450mm, complete all as specified and directed.		Each	150.00	122.00	18300.00		

## SCHEDULE 'A' (CONTD...)

## PART-III: LIST OF WORKS AND PRICES FOR INTERNAL WATER SUPPLY WORK

Srl No.	Description of items of works	Drg No	Unit Rate (Rs)		No of Units reqd	Amount Rs	Period of completion	Remarks
			Unit	Rate				
1	2	3	4	5	6	7	8	9

10.00 PVC connections, 15mm size with PTMT nuts of length **300mm**, complete all as specified and directed. Each 115.20 22.00 2534.40

11.00 Gun-metal, globe or gate valves, with iron wheel head, screwed both ends for iron pipe of bore **20mm** and fixed, complete all as specified and as directed. Each 540.11 24.00 12962.64

**Total of Sch 'A' Part-III c/o to BOQ**

**Rs 214810.53**

**(Signature of contractor)**

**DIR/AAD (Contracts)  
For Accepting Officer**

**SCHEDULE 'A' (CONTD...)****PART-IV: LIST OF WORKS AND PRICES FOR INTERNAL ELECTRIC SUPPLY WORK**

Srl No.	Description of items of works	Drg No	Unit Rate (Rs)		No of Units reqd	Amount Rs	Period of completion	Remarks
			Unit	Rate				
1	2	3	4	5	6	7	8	9
1.00	Modular switch one way 6 Amps, 1 Module, complete all as specified.	As applicable, refer list of drawings	Each	260.50	780.00	203190.00	Refer Sch 'A' notes for all items	Refer Sch 'A' notes for all items
2.00	Modular Bell push 6A, 1 module, 240V, complete all as specified and directed.		Each	307.30	6.00	1843.80		
3.00	Modular socket, 2/3 pin, 6 Amps, combined 2 module, complete all as specified.		Each	340.54	243.00	82751.22		
4.00	Modular socket, 2/3 pin, combined 6/16 Amps, 2 Module complete all as specified.		Each	528.40	95.00	50198.00		
5.00	Modular switch, one way, 16 Amps, 240 Volts, 1module, complete all as specified.		Each	343.70	95.00	32651.50		
6.00	Bell, AC 230 volts, single pole multi music type complete all as specified and directed.		Each	561.50	6.00	3369.00		
7.00	Ceiling rose 3 phase PVC/polycarbonate, isolated body, complete all as specified and as directed.		Each	65.70	402.00	26411.40		
8.00	Lamp holder, PVC / Polycarbonate type with back plate suitable for batten fittings, complete all as specified and directed.		Each	166.50	118.00	19647.00		

**SCHEDULE 'A' (CONTD...)****PART-IV: LIST OF WORKS AND PRICES FOR INTERNAL ELECTRIC SUPPLY WORK**

Srl No.	Description of items of works	Drg No	Unit Rate (Rs)		No of Units reqd	Amount Rs	Period of completion	Remarks
			Unit	Rate				
1	2	3	4	5	6	7	8	9
9.00	LED lights fitting 1x20W, 220V, AC decorative box type with driver, holder including LED tube light connecting up with three core flexible copper conductor cable of suitable size from ceiling rose, complete all as specified and directed.		Each	1305.00	245.00	319725.00		
10.00	LED luminaire 600mm x 600mm, 35/36 watt, 220 V AC recessed type with high efficiency PMMA diffuser soft glare free light complete with driver, holder & LED lamp suitable for roof ceiling including connecting up with driver three core flexible copper conductor cases of suitable size, complete all as specified and as directed.		Each	4269.15	30.00	128074.50		
11.00	LED light fitting 1X9W/1X10W bulkhead luminaires including LED light driver holder connecting up with three core flexible copper conductor cable of suitable size, complete all as specified and directed.		Each	1389.85	11.00	15288.35		

**SCHEDULE 'A' (CONTD...)****PART-IV: LIST OF WORKS AND PRICES FOR INTERNAL ELECTRIC SUPPLY WORK**

Srl No.	Description of items of works	Drg No	Unit Rate (Rs)		No of Units reqd	Amount Rs	Period of completio	Remarks
			Unit	Rate				
1	2	3	4	5	6	7	8	9
12.00	LED street light fitting 60 watt, 230 V, AC outdoor type with high pressure die cast aluminium housing and heat resistant complete with driver, lamp bracket made to shape with GI pipe of 40mm dia, 1.5m length, made to shape and fixed on wall with impact and corrosion resistant including thermal management in multiple optics complete with IP 66 protection, complete all as specified and directed.		Each	5459.53	27.00	147407.31		
13.00	Single pole and neutral enclosure with a two pin and earth plug and socket complete with one single pole MCB of capacity, 20/30 Amps, 240V, complete all as directed.		Each	1817.80	61.00	110885.80		
14.00	Sheet metal enclosure DB TPN 4 way double door (IP-43) made out of powder coated CRCA mild steel sheet 1.6mm thick, 415 volts, 200 amps rated bus bar, dust and vermin proof suitable for incorporation of MCBs duly concealed in wall and making good to disturbed surface complete all as specified and directed.		Each	2642.70	7.00	18498.90		

**SCHEDULE 'A' (CONTD...)****PART-IV: LIST OF WORKS AND PRICES FOR INTERNAL ELECTRIC SUPPLY WORK**

Srl No.	Description of items of works	Drg No	Unit Rate (Rs)		No of Units reqd	Amount Rs	Period of completion	Remarks
			Unit	Rate				
1	2	3	4	5	6	7	8	9
15.00	Sheet steel enclosure (powder coated) for flush mounting distribution board, dust and vermi proof, factory made, protection class IP 43 suitable for mounting MCBs, 8 way with 220 volts, 200 amps rated enamelled bus bar, cable lugs, double door complete all specified and directed.		Each	1912.70	23.00	43992.10		
16.00	Sheet steel enclosure (powder coated) for flush mounting distribution board, dust and vermi proof, factory made, protection class IP 43 suitable for mounting MCBs, 12 ways with 220volt, 200 amps rated enamelled bus bar, cable lugs, double door complete all specified and directed.		Each	2264.90	2.00	4529.80		
17.00	MCB, triple pole & neutral, 415 volt, 10KA, 'C' curve, 40 amp to 100 amp.		Each	2360.74	7.00	16525.18		
18.00	MCB, single pole, 240 volt, 10KA, 'C' curve 32 amp.		Each	851.20	29.00	24684.80		
19.00	MCB, single pole, 240 volt, 10KA, 'C' curve 6 amp to 32 amp.		Each	294.00	174.00	51156.00		

**Total of Sch 'A' Part-IV c/o to BOQ****1300829.66****(Signature of contractor)****DIR/AAD (Contracts)  
For Accepting Officer**



## SCHEDULE 'A' (CONTD...)

## PART-V: LIST OF WORKS AND PRICES FOR PLUMBING WORK

Srl No.	Description of items of works	Drg No	Unit Rate (Rs)		No of Units reqd	Amount Rs	Period of completion	Remarks
			Unit	Rate				
1	2	3	4	5	6	7	8	9
1.00	PVC (SWR) pipes, type 'B', single socketed in any length with rubber ring joints and laid in trenches or in floors, for following bore of pipe, complete all as specified and as directed.	As applicable, refer list of drawings						Refer Sch 'A' notes for all items Refer Sch 'A' notes for all items
1.01	110mm bore		RM	403.64	82.00	33098.48		
1.02	75mm bore		RM	234.04	160.00	37446.40		
2.00	PVC (SWR) pipe, type 'B', single socketed, in any length with rubber ring joints fixed to wall, for following bore, complete all as specified and directed.							
2.01	110mm bore		RM	474.76	26.00	12343.76		
2.02	75mm bore		RM	291.47	101.00	29438.47		
3.00	Stack clamps out of 50mm x 5mm flat iron and 16mm dia round iron stays, including bolts and nuts and securing ends of stays to wall or roof <b>for 100mm bore of pipe</b> , complete all as specified and as directed.		Each	130.00	26.00	3380.00		
4.00	Stack clamps out of 50mm x 5mm flat iron and 16mm dia round iron stays, including bolts and nuts and securing ends of stays to wall or roof <b>for 75mm bore of pipe</b> , complete all as specified and as directed.		Each	120.00	84.00	10080.00		
5.00	PVC (SWR) junction single, (single T), equal or unequal <b>with oval access door</b> , for 110mm bore, complete all as specified and directed.		Each	549.03	25.00	13725.75		

## SCHEDULE 'A' (CONTD...)

## PART-V: LIST OF WORKS AND PRICES FOR PLUMBING WORK

Srl No.	Description of items of works	Drg No	Unit Rate (Rs)		No of Units reqd	Amount Rs	Period of completion	Remarks
			Unit	Rate				
1	2	3	4	5	6	7	8	9
6.00	PVC (SWR) reducers 110/75mm bore dia complete all as specified and as directed.		Each	135.00	25.00	3375.00		
7.00	PVC (SWR) bends, any radius, for 110mm bore of pipe, complete all as specified and as directed.		Each	125.00	27.00	3375.00		
8.00	PVC (SWR) bends, any radius, for 75mm bore of pipe, complete all as specified and as directed.		Each	110.00	32.00	3520.00		
9.00	PVC (SWR) bends (ISI marked), any radius for 75mm bore with oval access door, complete all as specified and as directed.		Each	145.00	32.00	4640.00		
10.00	PVC (SWR) vent cowl for 75mm bore dia, complete all as specified and as directed.		Each	95.00	25.00	2375.00		
11.00	75mm bore PVC (SWR) floor trap, plain with grating including jointing with solvent cement, complete all as directed.		Each	225.00	66.00	14850.00		
<b>Total of Sch 'A' Part-V c/o to BOQ</b>						<b>Rs</b>	<b>171647.86</b>	

(Signature of contractor)

DIR/AAD (Contracts)  
For Accepting Officer

**SCHEDULE 'A' (CONTD...)**  
**PART-VI: LIST OF WORKS AND PRICES FOR AREA DRAINAGE WORK**

Srl No.	Description of items of works	Drg No	Unit Rate (Rs)		No of Units reqd	Amount Rs	Period of completion	Remarks
			Unit	Rate				
1	2	3	4	5	6	7	8	9

1.00	Earth work in excavation by mechanical means Hydraulic excavator)/ in foundation trenches or drains (not exceeding 1.5 m in width or 10sqm on plan), including dressing of sides and ramming of bottoms, <b>lift upto 1.5m</b> , including getting out in all kind of soil (the excavated soil) and disposal of surplus excavated soil, within a lead of 50m complete all as specified and directed.	As applicable, refer list of drawings	Cum	228.55	450.00	102847.50	Refer Sch 'A' notes for all items	Refer Sch 'A' notes for all items
2.00	Returning, filling in any kind of soil, including spreading, leveling, watering and well ramming in layers not exceeding 25cm complete all as specified and directed.		Cum	139.10	44.50	6189.95		
3.00	<b>PCC 1:3:6 type C-1</b> using 20mm graded crushed stone aggregate as in <b>surface channels and drains surface including use of form work</b> complete all as specified and as directed.		Cum	5951.50	310.00	1844965.00		
4.00	Extra for forming fair finished drain or channel 30cm inner girth in cement concrete using extra cement including forms, moulds, mitred/stopped ends etc., complete all as specified and as directed.		RM (inner girth only measured)	43.35	780.00	33813.00		

## SCHEDULE 'A' (CONTD...)

## PART-VI: LIST OF WORKS AND PRICES FOR AREA DRAINAGE WORK

Srl No.	Description of items of works	Drg No	Unit Rate (Rs)		No of Units reqd	Amount Rs	Period of completion	Remarks
			Unit	Rate				
1	2	3	4	5	6	7	8	9

- 5.00 Add or deduct from srl item No 3 above for each 25mm girth or part there of over or under 30cm inner girth, complete all as specified. **(For adjustment purpose only)**

RM (inner girth only measured) 10.05 \_ \_

- 6.00 Providing precast cement concrete type **B-1, 1:2:4 (using 20mm** graded crushed stone aggregate) as in landings, cover slabs (for man holes, drain etc.) chullah hoods, chajjas, water troughs, mangers, shelves and similar articles and set in **cement mortar 1:4**, including use of form work, complete all as specified.

Cum 11053.80 11.00 121591.80

- 7.00 Mild steel, **TMT bars 6mm to 8mm dia**, cut to length, bent to shape required, including cranking, bending spirally for hooping for columns, hooking ends and binding with and including mild steel wire (annealed) not less than 0.9 mm dia or securing with clips, complete all as specified and directed.

Kg 84.55 1006.00 85057.30

## SCHEDULE 'A' (CONTD...)

## PART-VI: LIST OF WORKS AND PRICES FOR AREA DRAINAGE WORK

Srl No.	Description of items of works	Drg No	Unit Rate (Rs)		No of Units reqd	Amount Rs	Period of completion	Remarks
			Unit	Rate				
1	2	3	4	5	6	7	8	9

8.00 Rendering **15mm thick in cement mortar 1:4** on fair faces of brick work or concrete surfaces, finished the surface even and smooth without using extra cement, complete all as specified and directed.

Sqm      304.24      1694.00      515382.56

Total of Sch 'A' Part-VI c/o to BOQ

Rs      2709847.11

(Signature of contractor)

Dir/AAD (Contracts)  
For Accepting Officer

**SCHEDULE 'A' (CONTD...)**  
**PART-VII: LIST OF WORKS AND PRICES FOR SEWAGE DISPOSAL WORK**

Srl No.	Description of items of works	Drg No	Unit Rate (Rs)		No of Units reqd	Amount Rs	Period of completion	Remarks
			Unit	Rate				
1	2	3	4	5	6	7	8	9
1.00	Earth work in excavation by mechanical means Hydraulic excavator)/ in foundation trenches or drains (not exceeding 1.5 m in width or 10sqm on plan), including dressing of sides and ramming of bottoms, lift upto 1.5m, including getting out in all kind of soil (the excavated soil) and disposal of surplus excavated soil, within a lead of 50m complete all as specified and directed.	As applicable, refer list of drawings	Cum	228.55	235.50	53823.53	Refer Sch 'A' notes for all items	Refer Sch 'A' notes for all items
2.00	Plain cement concrete type D-2, (1:4:8) using 40mm graded crushed stone aggregate as in foundation, filling and mass concrete complete all as specified and directed.		Cum	5483.10	13.00	71280.30		
3.00	PCC 1:4:8 type D-2 (using 40mm graded crushed stone aggregate) as in concrete bed to 200mm dia drain pipes including packing under and haunching against the sides of pipes after they are laid and tested, complete all as specified and directed.		RM	611.19	295.00	180301.05		
4.00	PCC 1:4:8 type D-2 (using 40mm graded crushed stone aggregate) as in concrete bed to 150mm dia drain pipes including packing under and haunching against the sides of pipes after they are laid and tested, complete all as specified and directed.		RM	455.02	100.00	45502.00		

**SCHEDULE 'A' (CONTD...)**  
**PART-VII: LIST OF WORKS AND PRICES FOR SEWAGE DISPOSAL WORK**

Srl No.	Description of items of works	Drg No	Unit Rate (Rs)		No of Units reqd	Amount Rs	Period of completion	Remarks
			Unit	Rate				
1	2	3	4	5	6	7	8	9
5.00	Reinforced cement concrete pipe of 200mm bore, class NP-3 with collars, laid and jointed complete all as specified and directed.		RM	460.00	310.00	142600.00		
6.00	Reinforced cement concrete pipe of 150mm bore, class NP-3 with collars, laid and jointed complete all as specified and directed.		RM	400.00	110.00	44000.00		
7.00	Brick work with subclass "B" brick using old size bricks, straight or curved on plan exceeding 6m mean radius built in cement mortar 1:4 complete all as specified and directed.		Cum	5370.50	33.00	177226.50		
8.00	Plain cement concrete 1:2:4, type B-1, using 20mm graded crushed stone aggregate, as in lintels upto 1.5m clear span, cills, steps, seismic and other similar bands, plinth courses, coping, benching, kerb, benching, bed plates and the like including weathering, slightly rounded or chamfered angles and throating including necessary form work, complete all as specified.		Cum	9259.40	6.00	55556.40		
9.00	Rendering 15mm thick in cement mortar 1:4 on fair faces of brick work or concrete surfaces, finished the surface even and smooth without using extra cement, complete all as specified and directed.		Sqm	304.24	104.00	31640.96		

**SCHEDULE 'A' (CONTD...)**  
**PART-VII: LIST OF WORKS AND PRICES FOR SEWAGE DISPOSAL WORK**

Srl No.	Description of items of works	Drg No	Unit Rate (Rs)		No of Units reqd	Amount Rs	Period of completion	Remarks
			Unit	Rate				
1	2	3	4	5	6	7	8	9
10.00	Supply only integral water proofing compound complete all as specified and directed.		Kg	46.10	29.00	1336.90		
11.00	Providing precast cement concrete type B-1, 1:2:4 (using 20mm graded crushed stone aggregate) as in landings, cover slabs (for man holes, drain etc.) chullah hoods, chajjas, water troughs, mangers, shelves and similar articles and set in cement mortar 1:4, including use of form work, complete all as specified.		Cum	11053.80	3.00	33161.40		
12.00	Mild steel, TMT bars 6mm to 8mm dia, cut to length, bent to shape required, including cranking, bending spirally for hooping for columns, hooking ends and binding with and including mild steel wire (annealed) not less than 0.9 mm dia or securing with clips, complete all as specified and directed.		Kg	84.55	177.00	14965.35		
13.00	Mild steel framed work such as grills, gratings. etc. with ends of bars shouldered and or riveted, or forged into spikes, framed guard bars, barred iron doors, ladders, framed balusters, walk ways, railing , framedwork or water tanks and similar work conforming to Fe 290, Gde-E-165, complete all as specified and directed.		Kg	164.86	1557.00	256687.02		



**SCHEDULE 'A' (CONTD...)**  
**PART-VII: LIST OF WORKS AND PRICES FOR SEWAGE DISPOSAL WORK**

Srl No.	Description of items of works	Drg No	Unit Rate (Rs)		No of Units reqd	Amount Rs	Period of completion	Remarks
			Unit	Rate				
1	2	3	4	5	6	7	8	9

14.00	Preparation of new or previously untreated steel and iron surfaces over 10cm in width or girth, not otherwise described and applying two coat of synthetic enamel paint over a coat of red oxide primer complete all as specified & directed.		Sqm	141.30	69.00	9749.70		
15.00	Returning, filling in any kind of soil, including spreading, leveling, watering and well ramming in layers not exceeding 25cm complete all as specified and directed.		Cum	139.10	157.00	21838.70		

**Total of Sch 'A' Part-VII c/o to BOQ**

**Rs 1139669.81**

**(Signature of contractor)**

**Dir/AAD (Contracts)  
For Accepting Officer**

## SCHEDULE 'A' (CONTD...)

## PART-VIII: LIST OF WORKS AND PRICES FOR ROAD, PATH AND CULVERT WORK

Srl No.	Description of items of works	Drg No	Unit Rate (Rs)		No of Units reqd	Amount Rs	Period of completion	Remarks
			Unit	Rate				
1	2	3	4	5	6	7	8	9
1.00	Surface excavation not exceeding 30cm deep and averaging 15cm deep and getting out in any kind of soil and disposal of excavation earth lead upto 50m, complete all as specified and directed.	As applicable, refer list of drawings	Sqm	73.15	3000.00	219450.00		Refer Sch 'A' notes for all items Refer Sch 'A' notes for all items
2.00	Add or deduct from item No. 1.00 above for every 3cm or part thereof above or below 15cm average depth. (For Adjustment purpose only)		Sqm	8.30	—	—		
3.00	Rolling and consolidating of formation surfaces in cutting with power road roller 8 to 12 tonne capacity, watering as necessary including filling in hollows and depressions and consolidation to the required level, gradient and camber, complete all as specified and directed.		Per 10 Sqm	26.00	213.00	5538.00		
4.00	150mm thick (spread thickness) soling (or sub base) with broken boulders or quarried stones, interstices filled, surface formed and rolled consolidated and compacted with 8 to 12 tonnes power roller to required gradient and camber, complete all as specified and directed.		Per 10 Sqm	2633.70	213.00	560978.10		

## SCHEDULE 'A' (CONTD...)

## PART-VIII: LIST OF WORKS AND PRICES FOR ROAD, PATH AND CULVERT WORK

Srl No.	Description of items of works	Drg No	Unit Rate (Rs)		No of Units reqd	Amount Rs	completion	Period of	Remarks
			Unit	Rate					
1	2	3	4	5	6	7	8	9	

5.00 150mm thick (compacted thickness) water bound macadam (in two equal layers each layer 75mm thick to be compacted separately) with coarse aggregate of granite, trap or basalt of stone grading 2 (63 to 40mm size), spread, rolled with power roller 8 to 12 tonne and consolidated to gradient and camber required, complete all as specified.

Per 10 Sqm 4782.20 213.00 1018608.60

6.00 Preparing surfaces by brushing with wire brushes for removing caked mud etc. sweeping with brooms and finally fanning the cleaned surface with gunny bags to remove all loose dirt, unsurfaced water bound macadam etc; complete all as specified and directed.

Per 10 Sqm 360.60 213.00 76807.80

7.00 Applying evenly a priming/tack coat with bituminous primer @ 10kg per 10sqm using paving bitumen, complete all as specified and directed.

Per 10 Sqm 512.50 213.00 109162.50

8.00 Bituminous premix semi dense asphaltic concrete 40mm consolidated thickness with 5.5% binder content (using paving bitumen of grade VG-30) by weight of total mix in hot mix plant and laid with self propelling mechanical paver, rolled, consolidated and compacted with 8 to 12 tonnes power roller to required to gradient and camber required complete all as specified and as directed.

Per 10 Sqm 3828.50 213.00 815470.50

## SCHEDULE 'A' (CONTD...)

## PART-VIII: LIST OF WORKS AND PRICES FOR ROAD, PATH AND CULVERT WORK

Srl No.	Description of items of works	Drg No	Unit Rate (Rs)		No of Units reqd	Amount Rs	Period of completion	Remarks
			Unit	Rate				
1	2	3	4	5	6	7	8	9

9.00 Preparing bituminous surfaces of road and marking 2.5mm thick, centre lines, stop lines, dashes, arrows etc. and the like not exceeding 10cm wide on roads pavements with hot applied thermo plastic road marking paint of approved colour confirming to BS 3262-1989 with special applicator machine all as per manufacturers instruction, complete all as specified and directed.

RM 447.05 940.00 420227.00

10.00 Providing and laying at or near ground level factory made kerb stone of M-25 grade cement concrete in position to the required line, level and curvature, jointed with cement mortar 1:3, including making joints with or without grooves (thickness of joints except at sharp curve shall not to more than 5mm), including making drainage opening wherever required complete all as specified and as directed.

Cum 8514.90 28.50 242674.65

## SCHEDULE 'A' (CONTD...)

## PART-VIII: LIST OF WORKS AND PRICES FOR ROAD, PATH AND CULVERT WORK

Srl No.	Description of items of works	Drg No	Unit Rate (Rs)		No of Units reqd	Amount Rs	completion	Period of	Remarks
			Unit	Rate					
1	2	3	4	5	6	7	8	9	

- 11.00 Metal tubular dealineator made out of ABS round body fitted with 2 No 65mm dia, highly reflective reflectors made out of PMMA and mounted on 45mm/50mm dia, mild steel pipe of 600mm height duly powder coated and thermo plastic elastomer 3 bands of green, red and yellow reflector radium tape of 25mm wide strips with anti theft steel net for reflector protection including embedding in PCC 1:2:4 (150mmx150mmx300mm) type B-I, complete all as specified and directed
- Each 801.84 50.00 40092.00
- 12.00 Cat eye solar reflective type of metal body alloy of size 100mm x 100mm x 20mm with PAMA striplens reflector of model No. DA 972.0 fixed with and incl MS stud of suitable size as per manufactures instructions, complete all as specified and directed.
- Each 367.09 30 11012.70
- 13.00 Hard core of broken stone or boulders guage not exceeding 63mm, deposited, spreading in layer not exceeding 15cm thick, watered and rolled/rammed to a true surface, complete all as specified and directed.
- Cum 2070.00 151.00 312570.00

## SCHEDULE 'A' (CONTD...)

## PART-VIII: LIST OF WORKS AND PRICES FOR ROAD, PATH AND CULVERT WORK

Srl No.	Description of items of works	Drg No	Unit Rate (Rs)		No of Units reqd	Amount Rs	Period of completion	Remarks
			Unit	Rate				
1	2	3	4	5	6	7	8	9

14.00 100mm thick, plain cement concrete, 1:4:8, type D-2 (using 40mm graded crushed stone aggregate) as in sub base of floors and path complete all as specified and as directed. Sqm 533.00 1250.00 666250.00

15.00 Providing and laying 60mm thick factory made chamfered edge cement concrete inter locking paver block of M-35 grade with approved colour, design & pattern as in footparth, parks, lawns, drive ways or light traffic parking etc., of required strength, thickness & size/shape, made by table vibratory method using PU mould, laid in required colour & pattern over and including 50mm thick compacted bed of fine sand, compacting and proper embedding/ laying of inter locking paver blocks into the sand bedding layer through vibratory compaction by using plate vibrator, filling the joints with sand and cutting of paver blocks as per required size and pattern, finishing and sweeping extra sand; complete all as specified and directed. Sqm 873.70 1170.00 1022229.00

## SCHEDULE 'A' (CONTD...)

## PART-VIII: LIST OF WORKS AND PRICES FOR ROAD, PATH AND CULVERT WORK

Srl No.	Description of items of works	Drg No	Unit Rate (Rs)		No of Units reqd	Amount Rs	Period of completion	Remarks
			Unit	Rate				
1	2	3	4	5	6	7	8	9

- 16.00 Providing and laying 80mm thick factory made chamfered edge cement concrete paver block of M-40 grade with approved colour, design & pattern as in footpath, parks, lawns, drive ways or light traffic parking etc., of required strength, thickness & size/ shape, made by table vibratory method using PU mould, laid in required colour & pattern over and including 50mm thick compacted bed of coarse sand, compacting and proper embedding/ laying of inter locking paver blocks into the sand bedding layer through vibratory compaction by using plate vibrator, filling the joints with fine sand and cutting of paver block as per required size and pattern, finishing and sweeping extra sand; complete all as specified and directed. Sqm 945.50 80.00 75640.00
- 17.00 Removing excavated material (soil) exceeding 250m and not exceeding 500m and depositing where directed at a level not exceeding 1.5m above the starting point complete all as specified and as directed. Cum 262.20 623.00 163350.60

## SCHEDULE 'A' (CONTD...)

## PART-VIII: LIST OF WORKS AND PRICES FOR ROAD, PATH AND CULVERT WORK

Srl No.	Description of items of works	Drg No	Unit Rate (Rs)		No of Units reqd	Amount Rs	completion	Period of	Remarks
			Unit	Rate					
1	2	3	4	5	6	7	8	9	

18.00 Earth work in excavation by mechanical means Hydraulic excavator)/ in foundation trenches or drains (not exceeding 1.5 m in width or 10sqm on plan), including dressing of sides and ramming of bottoms, lift upto 1.5m, including getting out in all kind of soil (the excavated soil) and disposal of surplus excavated soil, within a lead of 50m complete all as specified and directed.

Cum 228.55 5.00 1142.75

19.00 Plain cement concrete type D-2, (1:4:8) using 40mm graded crushed stone aggregate as in foundation, filling and mass concrete complete all as specified and directed.

Cum 5483.10 28.00 153526.80

20.00 Brick work with subclass "B" bricks, using old size bricks, straight or curved on plan exceeding 6m mean radius built in cement mortar 1:6 complete all as specified and directed.

Cum 4875.00 5.00 24375.00

21.00 Brick work with subclass "B" bricks using old size bricks, straight or curved on plan to any radius in half brick thick walls built in cement mortar 1:6 complete all as specified and directed.

Sqm 652.59 0.50 326.30

22.00 Rendering 15mm thick on other than fair faces of brick work in cement mortar (1:4) finished even and smooth without using extra cement, complete all as specified and directed.

Sqm 263.12 12.00 3157.44



## SCHEDULE 'A' (CONTD...)

## PART-VIII: LIST OF WORKS AND PRICES FOR ROAD, PATH AND CULVERT WORK

Srl No.	Description of items of works	Drg No	Unit Rate (Rs)		No of Units reqd	Amount Rs	completion	Period of	Remarks
			Unit	Rate					
1	2	3	4	5	6	7	8	9	

23.00 20mm thick, granite (of any type) work (table rubbed and polished), in steps, jambs, pillars, window-cills, cooking platforms and like in cement mortar (1:4) including pointing in white cement (1:2) using marble dust with admixture of pigment to match with shade of granite including moulding of corners as required, complete all as specified and as directed.

Sqm 5183.70 12.00 62204.40

24.00 Steel work in tubular trusses including special shaped washer etc. complete using ERW or induction butt welded tubes conforming to I.S.1161- 1979 grade St.-240, complete all as specified and directed.

Kg 124.11 54.00 6701.94

25.00 Plain cement concrete 1:2:4, type B-1, using 20mm graded crushed stone aggregate, as in lintels upto 1.5m clear span, cills, steps, seismic and other similar bands, plinth courses, coping, benching, kerb, benching, bed plates and the like including weathering, slightly rounded or chamfered angles and throating including necessary form work, complete all as specified.

Cum 9259.4 0.05 462.97

26.00 150mm thick, plain cement concrete 1:2:4, type B-01, using 20mm graded crushed stone aggregate, as in path & hard standing etc; finished the surface even and smooth without using extra cement complete all as specified and directed.

Sqm 952.94 180 171529.20

## SCHEDULE 'A' (CONTD...)

## PART-VIII: LIST OF WORKS AND PRICES FOR ROAD, PATH AND CULVERT WORK

Srl No.	Description of items of works	Drg No	Unit Rate (Rs)		No of Units reqd	Amount Rs	completion	Period of	Remarks
			Unit	Rate					
1	2	3	4	5	6	7	8	9	

27.00	Forming contraction (Dummy) joints 65mm deep x 10mm wide, filled with sealing compound grade 'A', complete all as specified and directed.	Per 10 RM	608.70	21.50	13087.05
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Total of Sch 'A' Part-VIII c/o to BOQ

Rs 6196575.30

(Signature of contractor)

Dir/AAD (Contracts)  
For Accepting Officer

## SCHEDULE 'A' (CONTD...)

## PART-IX: LIST OF WORKS AND PRICES FOR EXTERNAL WATER SUPPLY WORK

Srl No.	Description of items of works	Drg No	Unit Rate (Rs)		No of Units reqd	Amount Rs	Period of completion	Remarks
1	2	3	Unit	Rate	6	7	8	9
1.00	Earth work in excavation by mechanical means Hydraulic excavator/ in foundation trenches or drains (not exceeding 1.5 m in width or 10sqm on plan), including dressing of sides and ramming of bottoms, lift upto 1.5m, including getting out in all kind of soil (the excavated soil) and disposal of surplus excavated soil, within a lead of 50m complete all as specified and directed.	As applicable, refer list of drawings	Cum	228.55	30.50	6970.78	Refer Sch 'A' notes for all items	Refer Sch 'A' notes for all items
2.00	Returning, filling in any kind of soil, including spreading, leveling, watering and well ramming in layers not exceeding 25cm complete all as specified and directed.		Cum	139.10	27.50	3825.25		
3.00	Steel water tubing "medium grade" galvanized with all fittings including short length, laid in trenches floor/under road on wall, for following bore of pipe, complete all as specified.							
3.01	50mm bore		RM	421.20	83.00	34959.60		
3.02	25mm bore		RM	184.60	102.00	18829.20		
3.03	20mm bore		RM	158.60	102.00	16177.20		
4.00	Gun metal, globe or gate valve with iron wheel head screwed both ends for iron pipe and fixed, for following dia pipe, complete all as specified and directed.							
4.01	50mm dia		Each	979.08	2.00	1958.16		
4.02	25mm dia		Each	587.24	5.00	2936.20		
4.03	20mm dia		Each	540.11	15.00	8101.65		

SCHEDULE 'A' (CONTD...)

PART-IX: LIST OF WORKS AND PRICES FOR EXTERNAL WATER SUPPLY WORK

Srl No.	Description of items of works	Drg No	Unit Rate (Rs)		No of Units reqd	Amount Rs	Period of completion	Remarks
			Unit	Rate				
1	2	3	4	5	6	7	8	9

5.00

Cutting & screwing existing steel tubing of size 40mm/50mm dia for alterations or additions or lengthening screw on pipe to form connector and placed in position without taking down, complete all as specified and directed.

Each

224.06

3.00

672.18

Total of Sch 'A' Part-IX c/o to BOQ

Rs

94430.22

(Signature of contractor)

Dir/AAD (Contracts)  
For Accepting Officer

## SCHEDULE 'A' (CONTD...)

## PART-X: LIST OF WORKS AND PRICES FOR EXTERNAL ELECTRIC SUPPLY WORK

Srl No.	Description of items of works	Drg No	Unit Rate (Rs)		No of Units reqd	Amount Rs	Period of complete	Remarks
			Unit	Rate				
1	2	3	4	5	6	7	8	9

1.00	Supply, laying, jointing and testing, laid in trenches/road crossing/on walls/on poles including clamps or passing through pipes 11000 volts grade (earthed) XLPE insulated, screened, PVC bedded, galvanised steel strip or wire armoured heavy duty electric cable with stranded aluminium conductor of cross sectional area 95 Sqmm, 3 core complete all as specified and directed.	As applicable, refer list of drawings	RM	1067.97	170.00	181554.90	Refer Sch 'A' notes for all items	Refer Sch 'A' notes for all items
2.00	Steel tubular swaged poles type 410 SP-55, (11 meter long), complete with cast iron base plate, final taper plug, bolts, nuts and screws as specified including painting with two coats of aluminium paint over one coat of red oxide primer and 06 Nos bands/straps with white and red post office box colour (30 cm wide each) synthetic enamel paint at a distance 30cm from plinth block and numbering of poles with black synthetic enamel paint in 2.5 cm height including black bituminous paint two coats on steel surface embedded in concrete foundation complete all as specified and directed. <b>Note:</b> (Excavation and earth work and PCC foundation concrete shall be measured and paid separately).		Each	17758.80	2.00	35517.60		

## SCHEDULE 'A' (CONTD...)

## PART-X: LIST OF WORKS AND PRICES FOR EXTERNAL ELECTRIC SUPPLY WORK

Srl No.	Description of items of works	Drg No	Unit Rate (Rs)		No of Units reqd	Amount Rs	Period of complete	Remarks
			Unit	Rate				
1	2	3	4	5	6	7	8	9

- |      |                                                                                                                                                                                                                                                                                                                                                                                                               |              |          |      |          |
|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|----------|------|----------|
| 3.00 | Mild steel work as in cross arms, bracings supports, clamps, and back plates fabricated out of structural steel sections including, nuts, bolts, washers, welding, bending cold or hot, drilling holes for bolts, in any shape or size as indicated or directed and including preparation of surface and applying two coats of aluminium paint over a coat of primer, complete all as specified and directed. | Qtl          | 11931.40 | 1.00 | 11931.40 |
| 4.00 | Cable jointing kit for 11KV (earthed) grade cable for outdoor termination heat shrinkable type joint, complete with and including jointing material and accessories suitable for XLPE armoured aluminium cable of size 50Sqmm to 95Sqmm, 3 core with and including connecting single thimbles etc; complete all as specified and directed.                                                                    | Each         | 6150.70  | 4.00 | 24602.80 |
| 5.00 | Lightning arrestor suitable for 11000 volts expulsion type complete with all fitting, transmission class, discharge capacity 65 Kilo Amp, 10KA station class, complete all as specified and directed.                                                                                                                                                                                                         | Set of three | 10694.90 | 2.00 | 21389.80 |
| 6.00 | Pin type porcelain vitreous, white, or green insulator including one galvanised mild steel spindle, two galvanised iron washer and one nut 150mm high, 150mm dia suitable for 11000 Volt grade complete all as specified and directed.                                                                                                                                                                        | Each         | 298.40   | 6.00 | 1790.40  |

## SCHEDULE 'A' (CONTD...)

## PART-X: LIST OF WORKS AND PRICES FOR EXTERNAL ELECTRIC SUPPLY WORK

Srl No.	Description of items of works	Drg No	Unit Rate (Rs)		No of Units reqd	Amount Rs	Period of complete	Remarks
			Unit	Rate				
1	2	3	4	5	6	7	8	9

7.00 Supplying and laying synthetic rubber insulated mats 2.5mm thick for voltage upto 11KV for electrical purpose as per IS 15652-2006, (superseding IS 5424) suitable for electrical shock safety of sizes 2mx1m fire retardant/extinguishing electric insulated, 2mm thick synthetic mat, complete all as specified and directed.

Each 1959.26 2.00 3918.52

8.00 Supply, laying, jointing, testing and commissioning aluminium conductor, XLPE insulated, PVC inner sheathed, GI strip or wire armoured and overall PVC sheathed, heavy duty, 1100 volts grade in trenches/on surface of wall/ in DWC pipe including dressing and clamping the cable with MS Zinc Passivated clamps and fixing suitable thimbles/lugs including cable glands of suitable size etc; for following cross sectional area of cable complete all as specified and directed.

8.01	Cross sectional area 400 Sqmm, 3.5 core	RM	1800.30	40.00	72012.00
8.02	Cross sectional area 150 Sqmm, 3.5 core	RM	759.22	60.00	45553.20
8.03	Cross sectional area 35 Sqmm, 3.5 core	RM	269.75	40.00	10790.00
8.04	Cross sectional area 25 Sqmm, 4 core	RM	249.04	225.00	56034.00
8.05	Cross sectional area 16 Sqmm, 4 core	RM	193.50	80.00	15480.00

## SCHEDULE 'A' (CONTD...)

## PART-X: LIST OF WORKS AND PRICES FOR EXTERNAL ELECTRIC SUPPLY WORK

Srl No.	Description of items of works	Drg No	Unit Rate (Rs)		No of Units reqd	Amount Rs	Period of complete	Remarks
			Unit	Rate				
1	2	3	4	5	6	7	8	9

- 9.00 LED street light fitting 60 watt, 230 V, AC outdoor type with high pressure die cast aluminium housing and heat resistant complete with driver, lamp bracket made to shape with GI pipe of 40mm dia, 1.5m length, made to shape and fixed on wall with impact and corrosion resistant including thermal management in multiple optics complete with IP 66 protection, complete all as specified and directed. Each 5459.53 27.00 147407.31
- 10.00 Loop type insulator, vitreous porcelain, white or brown, small size, with overall dimensions 65 x 90mm, clearance of hole 16mm complete all as specified. Each 102.60 4.00 410.40
- 11.00 Stay assembly complete with accessories and stay rod 20mm dia and 215cm long, stay bow 14mm dia and 40cm long, stay wire of size 7/8mm, stranded galvanised including MS Galvanised stay plate 300mm x 300mm x 6mm, galvanised thimble stay clamps and loop type insulator complete all as specified and as shown in electric plate No. 01 of SSR Part-I (Specification). Per set 2305.00 2.00 4610.00
- Note:-** Excavation & concrete measured and paid separately.



## SCHEDULE 'A' (CONTD...)

## PART-X: LIST OF WORKS AND PRICES FOR EXTERNAL ELECTRIC SUPPLY WORK

Srl No.	Description of items of works	Drg No	Unit Rate (Rs)		No of Units reqd	Amount Rs	Period of complete	Remarks
			Unit	Rate				
1	2	3	4	5	6	7	8	9

12.00	Earth work in excavation by mechanical means Hydraulic excavator)/ in foundation trenches or drains (not exceeding 1.5 m in width or 10sqm on plan), including dressing of sides and ramming of bottoms, lift upto 1.5m, including getting out in all kind of soil (the excavated soil) and disposal of surplus excavated soil, within a lead of 50m complete all as specified and directed.		Cum	228.52	153.00	34963.56		
13.00	Returning, filling in any kind of soil, including spreading, leveling, watering and well ramming in layers not exceeding 25cm complete all as specified and directed.		Cum	139.10	95.50	13284.05		
14.00	River bed fine sand in trenches/ ducts 15 cm under cable and 8 cm above the cable for cushioning/protection to cable including spreading, levelling and get thick 18cm after hand punning complete all as specified and directed. <b>Note:-</b> For measurement purpose punned thickness 18 cm shall be measured.		Cum	1974.30	51.00	100689.30		
15.00	Supply and laying reinforced precast concrete cable cover, class LV, type 1 flat, size 250mm X 150mm X 40mm in trenches for cable protection, on the top surface, complete all as specified and directed.		Each	44.20	1780.00	78676.00		

## SCHEDULE 'A' (CONTD...)

## PART-X: LIST OF WORKS AND PRICES FOR EXTERNAL ELECTRIC SUPPLY WORK

Srl No.	Description of items of works	Drg No	Unit Rate (Rs)		No of Units reqd	Amount Rs	Period of complete	Remarks
			Unit	Rate				
1	2	3	4	5	6	7	8	9

16.00	Supply and laying reinforced precast concrete cable cover, class HV, type 1 flat, size 300mm X 180mm X 40mm in trenches for cable protection, on the top surface, complete all as specified and directed.		Each	57.40	756.00	43394.40		
17.00	Plain cement concrete type D-2, (1:4:8) using 40mm graded crushed stone aggregate as in foundation, filling and mass concrete complete all as specified and directed.		Cum	5483.10	0.50	2741.55		
18.00	PCC 1:3:6 type C-1 using 20mm graded crushed stone aggregate as in surface channels and drains surface including use of form work complete all as specified and as directed.		Cum	5951.50	1.50	8927.25		
19.00	Plain cement concrete 1:2:4, type B-1, using 20mm graded crushed stone aggregate, as in lintels upto 1.5m clear span, cills, steps, seismic and other similar bands, plinth courses, coping, benching, kerb, benching, bed plates and the like including weathering, slightly rounded or chamfered angles and throating including necessary form work, complete all as specified.		Cum	9259.40	0.50	4629.70		
20.00	HT Danger notice plate of size 25cm X 20cm & 1.6mm thick mild steel, sheet vitreous enamelled white with letters figures in English, Hindi or Urdu and conventional skull and bones in signal red colour and fixed with MS clamp bolts and nuts of approved size complete all as specified and as directed.		Each	223.80	10.00	2238.00		

## SCHEDULE 'A' (CONTD...)

## PART-X: LIST OF WORKS AND PRICES FOR EXTERNAL ELECTRIC SUPPLY WORK

Srl No.	Description of items of works	Drg No	Unit Rate (Rs)		No of Units reqd	Amount Rs	Period of complete	Remarks
			Unit	Rate				
1	2	3	4	5	6	7	8	9

21.00 GI tubing light grade 100mm bore for cable protection including all fittings, fixed in poles/walls floors etc all as specified and directed. RM 880.00 12.00 10560.00

22.00 Tube 'medium grade' galvanized, with all fittings and fixed complete to walls and ceiling etc 80mm bore, complete all as specified and directed. RM 765.00 27.00 20655.00

23.00 GI tubing medium grade 40mm dia for cable protection including all fittings, fixed in poles/walls floors etc all as specified and directed. RM 380.20 12.00 4562.40

**Total of Sch 'A' Part-X c/o to BOQ**

**Rs 958323.54**

(Signature of contractor)

**Dir/AAD (Contracts)  
For Accepting Officer**

## SCHEDULE 'A' (CONTD...)

## PART-XI: LIST OF WORKS AND PRICES FOR FENCING/COMPOUND WALL AND GATE WORK

Srl No.	Description of items of works	Drg No	Unit Rate (Rs)		No of Units reqd	Amount Rs	Period of completion	Remarks
			Unit	Rate				
1	2	3	4	5	6	7	8	9

1.00	Earth work in excavation by mechanical means Hydraulic excavator/ in foundation trenches or drains (not exceeding 1.5 m in width or 10sqm on plan), including dressing of sides and ramming of bottoms, lift upto 1.5m, including getting out in all kind of soil (the excavated soil) and disposal of surplus excavated soil, within a lead of 50m complete all as specified and directed.	As applicable, refer list of drawings	Cum	228.55	259.00	59194.45	Refer Sch 'A' notes for all items Refer Sch 'A' notes for all items	Refer Sch 'A' notes for all items
2.00	Plain cement concrete type D-2, (1:4:8) using 40mm graded crushed stone aggregate as in foundation, filling and mass concrete complete all as specified and directed.		Cum	5483.10	45.00	246739.50		
3.00	Brick work with subclass "B" brick using old size bricks, straight or curved on plan exceeding 6m mean radius built in cement mortar 1:4 complete all as specified and directed.		Cum	5370.50	209.50	1125119.75		

## SCHEDULE 'A' (CONTD...)

## PART-XI: LIST OF WORKS AND PRICES FOR FENCING/COMPOUND WALL AND GATE WORK

Srl No.	Description of items of works	Drg No	Unit Rate (Rs)		No of Units reqd	Amount Rs	Period of completion	Remarks
			Unit	Rate				
1	2	3	4	5	6	7	8	9

4.00	MS TMT bars 10mm dia and over, cut to length, bent to shape required, including cranking, bending spirally for hooping for columns, hooking ends and binding with and including mild steel wire (annealed) not less than 0.9 mm dia or securing with clips, complete all as specified and directed.		Kg	82.60	1104.50	91231.70		
5.00	Mild steel, TMT bars 6mm to 8mm dia, cut to length, bent to shape required, including cranking, bending spirally for hooping for columns, hooking ends and binding with and including mild steel wire (annealed) not less than 0.9 mm dia or securing with clips, complete all as specified and directed.		Kg	84.55	1076.50	91018.08		
6.00	Formwork to sides and soffits of floor or roof beams, beam haunchings, girders, bressummers, lintels, cantilevers, shelves including sup- ports, overhangs, etc. also splays between floors and beams etc. for rough finished surface of concrete flat complete all as specifed and directed.		Sqm	462.80	187.50	86775.00		

## SCHEDULE 'A' (CONTD...)

## PART-XI: LIST OF WORKS AND PRICES FOR FENCING/COMPOUND WALL AND GATE WORK

Srl No.	Description of items of works	Drg No	Unit Rate (Rs)		No of Units reqd	Amount Rs	Period of completion	Remarks
			Unit	Rate				
1	2	3	4	5	6	7	8	9

7.00 Reinforced cement concrete (nominal mix) 1:2:4, type B-1, using 20mm graded crushed stone aggregates as in including rafts, footings, foundation beams; plinth beams; bases for columns, etc.; basement slabs, under-reamed piles and mass concrete complete all as specified and as directed. Cum 6494.11 14.00 90917.54

8.00 Providing precast cement concrete 1:2:4 type B-0 (using 12.5mm graded crushed stone aggregate) as in louvers and jallies, 50mm thick (measured solid), including all mouldings but excluding frame and set in cement mortar 1:4, complete all as specified and directed. Sqm 875.00 181.50 158812.50

9.00 Rendering 15mm thick on other than fair faces of brick work in cement mortar (1:4) finished even and smooth without using extra cement, complete all as specified and directed. Sqm 263.12 687.50 180895.00

10.00 Rendering 15mm thick in cement mortar 1:4 on unfair faces of brick work surface or concrete surface, finished the surface even and smooth without using extra cement, including, complete all as specified and directed. Sqm 330.93 478.00 158184.54

## SCHEDULE 'A' (CONTD...)

## PART-XI: LIST OF WORKS AND PRICES FOR FENCING/COMPOUND WALL AND GATE WORK

Srl No.	Description of items of works	Drg No	Unit Rate (Rs)		No of Units reqd	Amount Rs	Period of completion	Remarks
			Unit	Rate				
1	2	3	4	5	6	7	8	9

11.00 Returning, filling in any kind of soil, including spreading, leveling, watering and well ramming in layers not exceeding 25cm complete all as specified and directed.

Cum 139.10 95.00 13214.50

12.00 Preparation of newly plastered or unplastered wall surface and applying two coats of cement base paint over a coat of white wash complete all as specified and directed.

Sqm 79.40 1397.00 110921.80

13.00 PVC (SWR) pipes, grade 'B', 75mm bore, single socketed in any length with rubber ring joints, as in weep holes, complete all as specified and as directed.

RM 234.04 110.50 25861.42

14.00 Formwork to sides of concrete foundations, footings, bases of columns, raft and raft beams, sides and soffits (if any) of foundation and plinth beams and similar work; vertical or to batter for rough finished surfaces of concrete flat, complete all as specified.

Sqm 316.72 20.50 6492.76

## SCHEDULE 'A' (CONTD...)

## PART-XI: LIST OF WORKS AND PRICES FOR FENCING/COMPOUND WALL AND GATE WORK

Srl No.	Description of items of works	Drg No	Unit Rate (Rs)		No of Units reqd	Amount Rs	Period of completion	Remarks
			Unit	Rate				
1	2	3	4	5	6	7	8	9

15.00	Formwork to sides of pillars, posts, struts, piers, columns and stanchions for rough finished surfaces of concrete square, rectangular or polygonal complete all as specified and directed.		Sqm	598.08	26.50	15849.12		
16.00	RCC 1:2:4, type B-1 (using 20mm graded crushed stone aggregate) as in columns, pillars, piers, posts and struts, complete all as specified and directed.		Cum	8605.30	4.00	34421.20		
17.00	Framed work such as doors and gates of angle or other section with gusset plates, rails, braces etc. complete drilled for fixing of steel sheeting or other covering, doors etc. to be prepared for hanging or sliding with and including either hooks and hinges or steel hanging door fittings (exclusive of steel sheeting or other covering, running rails and guides) and hanging, also fastening and fixing conforming to Fe-290 (Gde E-165), complete all as specified and as directed.		Kg	116.24	1988.50	231143.24		



## SCHEDULE 'A' (CONTD...)

## PART-XI: LIST OF WORKS AND PRICES FOR FENCING/COMPOUND WALL AND GATE WORK

Srl No.	Description of items of works	Drg No	Unit Rate (Rs)		No of Units reqd	Amount Rs	Period of completion	Remarks
			Unit	Rate				
1	2	3	4	5	6	7	8	9

18.00 20mm thick, granite (of any type) work (table rubbed and polished), in steps, jambs, pillars, window-cills, cooking platforms and like in cement mortar (1:4) including pointing in white cement (1:2) using marble dust with admixture of pigment to match with shade of granite including moulding of corners as required, complete all as specified and as directed.

Sqm 5183.70 29.00 150327.30

19.00 Preparation of new or previously untreated steel and iron surfaces over 10cm in width or girth, not otherwise described and applying two coat of synthetic enamel paint over a coat of red oxide primer complete all as specified & directed.

Sqm 141.30 40.50 5722.65

**Total of Sch 'A' Part-XI c/o to BOQ**

**Rs 2882842.05**

**(Signature of contractor)**

**Dir/AAD (Contracts)  
For Accepting Officer**

## SCHEDULE 'A' (CONTD...)

## PART-XII: LIST OF WORKS AND PRICES FOR MISCELLANEOUS ITEMS OF WORK

Srl No.	Description of items of works	Drg No	Unit Rate (Rs)		No of Units reqd	Amount Rs	n completeio	Remarks
			Unit	Rate				
1	2	3	4	5	6	7	8	9
1.00	Refer to BOQ Srl item Nos. 13.00 to 51.00	As applicable as per list of drawings					Refer Sch 'A' Notes for all items.	Refer Sch 'A' Notes for all items.

(Signature of contractor)

Dir/AAD (Contracts)  
For Accepting Officer

**SCHEDULE 'B'****LIST OF MATERIALS ETC TO BE ISSUED TO CONTRACTOR****(SEE CONDITION 10 OF IAFW-2249)**

Srl No.	Description of materials	Rate at which materials etc. will be issued to contractor		Place of issue by name	Remarks
		Unit	Rate (Rs)		
1	2	3	4	5	6

-----NIL-----

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(Signature of the Contractor)Dir/AAD (Contracts)  
For Accepting Officer

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

Place of issue	Quantity	Particulars	Details of crew	Hire charges per unit per working day (Rs)	Stand by charges per unit per off day (Rs)	Place of issue	Remarks
1	2	3	4	5	6	7	8

-----NIL-----

(Signature of the Contractor)

Dir/AAD (Contracts)  
For Accepting Officer**SCHEDULE 'D'****TRANSPORT TO BE HIRED TO THE CONTRACTOR****(See condition 16 and 36 of IAFW-2249)**

.Ser No	Quantity	Particulars	Rate per unit per working Day	Place of issue name	Remarks
1	2	3	4	5	6

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

(Signature of the Contractor)

Dir/AAD (Contracts)  
For Accepting Officer

## TENDER

To

**THE PRESIDENT OF INDIA**

Having examined and perused the following documents:-

1. (a) Specifications signed by Dir (Contracts)/Jt. Dir (Contracts)/AAD (Contracts).  
(b) Drawings detailed in the list of drawings.  
(c) Schedule 'A', 'B', 'C' and 'D' attached hereto.
2. MES Standard Schedule of Rates 2009 Part-I including Amendment No. 1 to 3 for specifications and 2020 – Part-II including Amendment No. 1 to 122 for rates(here-in-after referred to as the MES Schedule) as applicable to the above Schedule.
3. General conditions of contracts IAFW-2249 (1989 Print) together with amendment No 1 to 49 and errata 1 to 20.
4. Water Condition 31 of IAFW-2249 (General Conditions of Contracts)  
Water will not be supplied by the MES. Contractor will make his own arrangement of water.
5. Should this tender be accepted:-  
I/We agree
  - (a) That the sum of **Rs 7,97,000.00 (Rupees Seven lakh ninety seven thousand only)** forwarded as earnest money shall be refunded by the Govt on receipt of the appropriate amount of Performance security as per condition 19 of IAFW-2249.
  - (b) To execute all the works referred to in the said documents upto the terms and conditions contained or referred to there in and as detailed in the General Summary on the subsequent pages 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 disputes as required under condition 70 of IAFW-2249 duly amended as per Special Conditions 37 hereinafter to the sole arbitrator to be appointed by the Engineer-in-Chief or Director General of Works, if specifically delegated in writing by Engineer-in-Chief, Army HQ or in his absence Officer Officiating as Engineer-in-Chief Army HQ, whose decision shall be final, conclusive and binding.

\*To be deleted where-ever not applicable

Contd...

**GENERAL SUMMARY**

Signature \_\_\_\_\_ in the capacity of \_\_\_\_\_

Duly authorised to sign the tender for and on behalf of \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_ (IN BLOCK LETTERS) DATED \_\_\_\_\_

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

Telegraphic \_\_\_\_\_

Address \_\_\_\_\_

Telephone/Mo 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. They have been initialed by the contractor and AAD(Contracts)/Jt.Dir(Contracts) /Dir. (Contracts)

The said officer is hereby authorised to sign and initial on my behalf the documents forming part of this contract.

The above tender was accepted by me on behalf of the President of India for the Lump Sum of

Rs. \_\_\_\_\_ (Rupees \_\_\_\_\_

\_\_\_\_\_).

Signature \_\_\_\_\_ on the \_\_\_\_\_ day of \_\_\_\_\_ 2026.

APPOINTMENT: CE  
CHIEF ENGINEER  
UDHAMPUR ZONE  
(FOR AND ON BEHALF OF THE PRESIDENT OF INDIA)  
ACCEPTING OFFICER

**SPECIAL CONDITIONS (Contd/-)****1. General**

(a) General specifications mentioned anywhere in the contract including those in General Conditions of Contract, viz-IAFW-2249, shall mean the specifications given in the MES Standard Schedule of Rates (Part-I). Particular specifications given here-in-after are in brief and only to particularize, amend and emphasize the specifications given in the MES Standard Schedule of Rates. Specifications, General Rules, preambles and Special Conditions contained in MES Standard Schedule of Rates (Part-I and Part-II) shall, unless specifically described otherwise, be applicable to this contract.

(b) Any work shown on drawings but not described in particular specifications shall, unless specifically described to be excluded from the contract, be deemed to be included in the lumpsum quoted by the contractor for Schedule 'A' Part-I. In case of doubt with regard to the manner of detail for executing the work, the decision of Accepting Officer shall be final, binding and conclusive. This shall not be applicable to the items of work pertaining to services for which separate parts of Schedule 'A' setting out the requirements have been given. Should there be item(s) or services as shown on drawings but not included in the relevant parts of Schedule 'A' these shall, unless otherwise described or stated in the contract, constitute an additional work.

(c) All headings and marginal notes to these special conditions or to any other documents of this contract are solely for the purpose of giving a concise indication and not a summary of the contents thereof and they shall never be deemed to supersede the contents of the clause.

(d) The tenderer is advised to point out in writing discrepancy(s), if any, of the tender documents at least 10 days before the due date of receipt of tender. In case discrepancy(s) in contract documents is/are noticed by the contractor during execution of the works, it shall be brought out to the notice of the Accepting Officer of contract and other concerned in writing before commencement of the particular work where discrepancy(s) is/are noticed failing which the contractor shall forfeit his right to claim on account of such discrepancy(s).

(e) Also where there are obvious mistakes in any of the contract provisions, the Accepting Officer shall be the sole deciding authority with regard to the intention of the contract documents and his decision in this respect shall be final, binding and conclusive.

(f) Where the drawings show finishes to wooden members, such finishes shall be applied to wooden members as well as wood based members. However, surfaces covered with laminates shall not be given any finish such as painting, polishing etc.

(g) Where reinforcement details/thickness of RCC members such as slabs, beams, lintels, etc. is not shown on the drawings, the same shall be supplied by the GE on the basis of provisions in IS-456 and the same shall be provided and incorporated in the works by the contractor and no extra payment will be admissible on this account.

(h) Where ever nomenclatures of structural slabs (e.g. S-1, S-2 etc.) is given in the RCC plans, the details of reinforcement for such slabs shall be as given for slabs of the same nomenclature elsewhere, if not given in the same drawings.

**SPECIAL CONDITIONS (Contd/-)**

- (i) Dwarf wall in situations like verandah, passage, etc. even if not shown on drawings, shall be deemed to be included in the scope and shall be provided at no extra cost to the department.
2. **Conditions of contract and Execution of works:** The various sections/sub sections of the tender documents shall be deemed to be supplementary / complementary to each other.
3. **Inspection of site by the tenderer**
- (a) The tenderer is advised to contact the Garrison Engineer for the purpose of inspection of site (s) and relevant documents other than those sent herewith who will give reasonable facilities for the purpose. The tenderers shall also make themselves familiar with the working conditions, accessibility of site (s), availability of materials and other cogent conditions, which may affect the entire completion of work under this contract.
- (b) The tenderers shall be deemed to have inspected the site (s) and made themselves familiar with the working conditions, whether they have actually inspected the site (s) or not.
4. **Restriction for entry to work site.**
- 4.1 All work lies in **RESTRICTED AREA**. The restriction for entry to work site and conditions of working in restricted area shall be as under:-
- (a) The contractor / his agents / representatives / workmen etc. and his material carts, trucks or other means of transport etc. will be allowed to enter through and leave from such gate or gates and at such times as the GE or authorities in charge of restricted area may at their sole discretion permit to be used. Contractor's authorized representative is required to be present at the places of entry and exit for the purpose of identify his carts, trucks etc. to the personnel in-charge of the restricted area.
- (b) **Identity of workmen:** Every workman shall be in possession of an identity card. The identity cards shall be issued after a thorough investigation of the antecedents of the laborers by the contractor and attested by officer in charge of the units concerned in accordance with the standing rules and regulations of the unit. Contractor shall be responsible for conduct of his workmen, agent or representatives.
- (c) **Identity cards or passes:** The contractor, his agents and representatives 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 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.



**SPECIAL CONDITIONS (Contd/-)**

(e) **Working hours**: The units controlling restricted area usually work during six days in a week and remain closed on the seventh day. The working hours available to the contractor's labour staff gets reduced because of the time of entry and exit during working hours. The exact working hours, working days and non-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 tenderer's attention is invited to the fact that numbers of working hours for a unit are prescribed in regulations and that they cannot be increased by the GE or authorities controlling the restricted area. The definition of working days as given under Condition 1 (t) of IAFW –2249 does not apply in case where the works are carried out in restricted area. However following working hours shall be available to the contractor's labour inside the unit area:-

- (i) Working hours 0830 hours to 1630 hours
- (ii) Half day 0830 hours to 1400 hours

(f) **Fire Precautions**

- (i) The contractor, his agents, representatives, workmen etc. shall strictly observe the orders pertaining to fire precaution prevailing within the restricted area.
- (ii) Motor transport vehicles, if allowed by the authorities to enter the restricted area must be fitted with the serviceable fire extinguisher and spark arrestor.

(g) **Female searcher** If the contractor desires to employ female labour on works to carry out inside the area of factory, depot, park etc. and a female searcher is not borne on the authorized strength of the factory, depot, park etc. at the time of submission of 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 labourer(s) employed by him inside the area. If more than one contractor employ female labourer(s) during any month and female 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 searcher(s) shall be distributed on equitable basis between the contractors employing female labour taking into consideration the values and period of completion of their contracts. The GE's decision in respect of the amount recoverable on this account from any contractor shall be final and binding.

5. **Security of Classified Documents: -** Contractor's special attention is drawn to condition 2A & 3 of General Conditions of Contract (IAFW-2249). The contractor shall not communicate any classified information regarding the works either to sub-contractors or others without prior approval of the Engineer-in-Charge. The contractor shall also not make copies of the design/drawings and other documents furnished to him in respect of the work and he shall return all documents on completion of the work or earlier termination of contract. The contractor shall along with final bill attach a receipt from the Engineer-in-Charge in respect of his having returned the classified documents as per condition 3 of General Conditions of Contracts IAFW-2249).
6. **Official secret Act: -** The contractor shall be bound by the Indian Official Secret Act, 1823 particularly section 5 thereof, all as per condition 2A of IAFW-2249.

**SPECIAL CONDITIONS (Contd/-)****7. Employment of personnel**

(a) Contractor shall employ only Indian Nationals as his representatives, servants and workmen after verifying their antecedents and loyalty. He shall ensure that person of doubtful antecedent and nationality is in no way, associated with the work. If for the reasons of technical collaboration or other considerations the employment of foreign national(s) is unavoidable, the contractor shall furnish full particulars to this effect to the Accepting Officer at the time of submission of the tender. As a proof that the contractor has employed only Indian Nationals, he shall render a certificate to GE within one month from the date of acceptance of tender to this effect.

(b) Verification of antecedents of Contractor's representatives/personnel/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 borne by the Contractor.

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

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

**7.1 CONTRACTOR'S SUPERVISION (REFER NOTES NO 4 IN RESPECT OF CONDITION 25 OF IAFW- 2249) FOR WORKS COSTING MORE THAN RS. 10 Crore**

Contractor has to employ at least, three Degree holders (two in Civil Engineering & other in Electrical Engg) from a Government recognised Institution or equivalent/final or direct final pass of sub-division II of the Institution of Surveyors (India)) with at least 5 years practical experience of works.

**AND**

Four Diploma holders in Engineering (two from Civil & two from Electrical) from a Government recognized institution with at least 5 years practical experience of works.

**NOTES**

(i) The above provision shall be applicable irrespective of the fact whether contractor himself is a qualified Engineer or not.

(ii) Engineers (degree/diploma holders) employed should be of the relevant discipline to which nature of work pertains.

In case contractor fails to deploy site Engineers/supervisor of requisite qualification, action will be taken in terms of condition 25 of IAFW-2249 and the work will be suspended by the GE until such date as suitable persons are appointed and the contractor shall be held responsible for the delay so caused to the work".

**SPECIAL CONDITIONS (Contd/-)****7.2. ELECTRIC LICENSE FOR CARRYING OUT ELECTRICAL WORKS :**

(a) For execution of electrical works /electrical components of works requiring Electrical License in accordance with Rule 29 under Part-III of central Electricity Authority (Measures related to safety and electric supply) Regulations 2010, the contractor shall have valid Electrical License issued by the concerned state/union territory in the name of the firm or get the work executed through an agency having valid Electrical License.

(b) Prior to commencement of electrical work / electrical component of works, copy of valid license in the name of contractor or copy of agreement with other agency having valid electrical license along with agency's electrical license shall be submitted by the contractor to the Accepting office through GE with copy to CWE. In case contractor does not possess valid electrical license and he intends to get such work executed through agency having valid electrical license and with whom he has agreement, prior approval of such agency shall be got done from CWE. Copy of license shall be kept on record by GE/CWE as well as CE Zone for future reference.

(c) GE and concerned AGE shall ensure that electrical work/electrical components of works required to be executed in accordance with rule 29 mentioned above are executed by contractor/agency having valid electrical license, as applicable. In addition, supervisor for execution of electrical works/electrical components of works employed by the contractor shall possess Supervisor certificate of competency issued by concerned state Government/Union territory and the worker/tradesmen for execution of electrical works /electrical components of works shall hold necessary permit issued by concerned state Government/Union territory.

(d) Reference of electrical license and details of supervisors certificate of competency and permit of tradesmen employed for execution of electrical work/electrical components of works shall be duly incorporated in the works diary and relevant site documents respectively for the whole period during which such work is executed.

**8. Availability of Land for storage of materials, temporary work-shops and offices etc.**

(a) Refer condition 24 of IAFW-2249. The contractor shall be permitted to store his materials including erecting temporary sheds there on at the area of land marked on site plan and he shall pay a license fee of Rs. 1.00 per year or part thereof in respect of each and every separate area of land allotted to him. Completion certificate will not be issued to the contractor by the Garrison Engineer till the temporary storage shed and office are removed and site cleared in terms of condition 49 of IAFW-2249.

**SPECIAL CONDITIONS (Contd/-)**

9. **Damage to existing structures:** - Any damage to the existing structures, existing road, etc. during the execution of work shall be made good by the contractor at his own expense. Rectification, replacement, making good and touching up etc. shall be carried out to conform to the materials and workmanship originally provided and to the satisfaction of the Engineer-in-Charge. In case of any dispute on this account, the decision of the GE shall be final, binding and conclusive.
10. **Quarries and Royalties**  
Quarries are not available on land, which is in the charge of MES authorities. Condition 14 of IAFW-2249 shall thus be treated as not applicable.
11. **Approaches.**  
The Contractor shall make arrangements for and provide at his own cost all temporary approaches, if required to the site(s) after obtaining approval in writing from the GE to the layout of such approaches.
12. **Location of buildings and works.**  
There may be some changes in location/sitting of buildings shown in site (layout) plan(s) to suit local conditions and/or departmental requirement. The contractor shall have no claim whatsoever to such change in the location/ sitting of works.
13. **Action where no specifications exist.**  
(a) In case of any class of works for which there is no such specifications in the tender documents including SSR, such work shall be carried out in accordance with Indian standard specification and where Indian Standard Specifications do not cover the same, the work should be carried out as per Standard Engineering practice subject to the approval of the GE.  
(b) No claim whatsoever will be tenable for any misunderstanding or for not having ascertained requisite information/knowledge to muster the resources required in satisfactory completion of the entire work to requirement as per contract agreement.
14. **Method of Measurement:** Measurement of measurable work executed under this contract shall be taken in accordance with the rules of measurements as laid down in SSR pertaining to various items of work as applicable unless otherwise indicated in the respective parts of Schedule 'A'. In case the method of measurement of particular item of work is not given in SSR, a reference will be made to the relevant provision in the latest edition of IS-1200.
15. **Critical Path Method / Net work Analysis and the time schedule**  
(a) The time and progress chart, to be prepared as per condition-11 of IAFW-2249 (General conditions of contracts), shall consist of detailed network analysis and time schedule. The critical path network will be drawn jointly by the GE and the contractor soon after the acceptance of tender.

**SPECIAL CONDITIONS (Contd/-)**

(i) The time scheduling of the activities will be done by the contractor so as to finish the work within the stipulated time. The contractor is advised to use the facility of computerisation available with any organisation, which affords such facility in doing the same. On completion of time schedule, a firm calendar date schedule will be prepared and submitted by the contractor to GE, who will approve it after due scrutiny.

(ii) The schedule will be submitted in four copies within two weeks from the date of handing over site. In case the contractor fails to submit the CPM net work diagram, the net work prepared by the GE will be binding on him and he will be bound to employ resources of men and materials in the manner directed by the GE.

(b) During currency of the work the contractor is expected to adhere to the time schedule and this adherence will be the part of contractor's performance under the contract. During the execution of the work, the contractor is expected to participate in the reviews and updating of the network undertaken by the GE. These reviews may be undertaken at the discretion of the GE either as a periodic appraisal measure or when the quantum of work ordered on the contractor is substantially changed through deviation order(s) / 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 thereafter.

(c) In case of contractor not agreeing to the revised schedule, the same will be referred to the Accepting Officer whose decision will be final, conclusive and binding. GE's approval to the revised schedule resulting in completing 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 in terms of Condition 11 of IAFW-2249 and separately regulated.

(d) Contractor is expected to mobilize and employ sufficient resources to achieve the detailed schedule within the broad framework of the accepted methods of working and safety.

(e) No additional payment will be made to the contractor for any multiple shift work or other incentive methods contemplated by him in his work schedule even though the time schedule is approved by the department.

**16. Coordination with other Agencies.**

The contractor shall permit free access and afford normal facilities and usual convenience to other agencies or departmental workmen to carryout connected works or services under separate arrangements. The contractor will not be allowed any extra payment on this account.

**17 Security against loss or damage.**

(a) **Contractor's plants/equipments at site:** The contractor shall furnish to the Engineer-in-Charge, every morning a distribution return of his plants/equipments on the site of the work, stating the following particulars:

**SPECIAL CONDITIONS (Contd/-)**

(i) Particulars of plants/equipments, its make, manufacture No., Model No, if any, Registration No, if any, capacity, year of manufacture and year of purchase etc.

(ii) Total No (quantity) on site of work.

(iii) Location and indication of No (quantity) at each location of the site of work.

(iv) Purchase value on the date of purchase: For the purpose of this condition, plant/equipment shall include vehicles i.e. trucks and lorries but neither the workmen's tools nor any manually operated tools/equipment. The Engineer-in-Charge shall record the particulars supplied by the contractor in works diary and send the return to the GE for record in his office.

**(b) Loss on Account of Enemy Action.** 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/equipment (as defined in special condition above), materials or any part or parts thereof, the amount of loss assessed by Accepting Officer of the contract on this account shall be final, binding and conclusive.

(ii) The compensation paid by him under any law for the time being in force, to any workmen employed by him for any injury caused to workmen or workmen's legal successor for loss of the 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 Condition of Contract (IAFW-2249).

(iv) No reimbursement shall be made nor shall any compensation be payable under the above provision unless the contractor had taken Air Defence precautions ordered by the GE/or concerned, or in the absence of such order, reasonable precautions taken by the contractor.

(v) No reimbursement shall be made nor shall any compensation be payable for any plants / equipments or materials not lying on site at the time of enemy action.

18. **Water will not be supplied by the MES.** The contractor shall make his own arrangements for water required for work and his workmen at his own cost.

**(b)** The contractor shall be permitted to collect the water from any nearby Nallah by way of digging/boring tube well or hand pump under his own arrangements at his own cost at the site of work. If this water on testing is found suitable and conforming to the requirement of IS-456, the contractor may use the same in the work.

**SPECIAL CONDITIONS (Contd/-)**

(c) In respect of the water arranged by the contractor from his own resources and the resources stated in para (b) above, it will be ensured by him that the water is free from injurious quantities of acid, alcohol, silt, oil, injurious salt, organic matters or other impurities all as specified in IS-456 and is clean, potable and suitable for mixing with concrete and mortar, for washing aggregate, soaking of bricks/brick tiles and for curing concrete and plaster.

(d) In all above cases water shall be treated under contractor's own arrangements from Govt approved test laboratories and the test report shall be kept in GE's office for record.

(e) Sub-soil water obtained by boring tube wells, hand pumps or from nearby Nallah etc, if not found suitable and conforming to IS-456 can be used in the formation of road work and water bound macadam for road and the like, if the water is so approved by the Engineer-in-charge.

(f) In the event of contractor using sub soil water as above, no recovery will be made for the rent of land/royalty for the sub soil water etc.

(g) The contractor shall at his own cost provide and fix pipes and install pumping set(s) etc. as required for drawing the water from tube wells/hand pumps.

(h) The contractor shall at his own cost provide and fix pipes and install pumping set (s) etc. as required for drawing the water from tube well. On completion of the work, the contractor shall remove the pump and fittings installed, fill up the hole and make good the site as directed by the Engineer-in-charge at his own expenses and bore will be the property of the department and no extra payment will be made to the Contractor.

**19. ELECTRIC SUPPLY**

(a) In case the contractors desire to buy electricity from the MES, he shall be charged for electric energy consumed at the following rates:

- (i) At Rs. 15.56 per unit for the light.
- (ii) At Rs. 15.56 per unit for the power

(b) Electric supply required for the work shall be made available by the MES at the point(s) marked on the layout plan. The main switches and energy meter to register the electric energy supplied shall be provided and installed by the MES. The contractor shall provide all necessary cables, fittings etc., from the main switches in order to ensure a proper and suitable supply of electricity for the execution of work. The contractor shall also provide necessary earthing keeping in view the safety requirements. The MES does not guarantee for the continuity of the supply and no compensation whatsoever shall be allowed for supply becoming intermittent or for the breakdown in the system.

**SPECIAL CONDITIONS (Contd/-)**

(c) The actual position of supply point(s) for electric energy will be ascertained by the contractor from the GE before submitting his tender. Irrespective of whether he actually inspects or not, he shall be deemed to have inspected and seen the supply point(s) in consultation with GE before submitting his tender. No claim, whatsoever, shall be entertained on this account.

20. **VALIDITY OF TENDER:** Tender shall remain open for acceptance for a period of **90(Ninety)** days from the date on which the tender is due to be submitted.

21. **SAMPLES OF MATERIALS / ARTICLES:**

(a) Material/articles provided by the contractor for incorporation in the work shall comply with the requirements of the Indian Standard and shall have ISI certification marking. However, if the material is not marked with ISI certification, the material/article shall be conforming to IS. Some of the items which are marked with ISI certification are as under:

- (i) Articles of builders hardware e.g. sliding/locking/tower bolts, butt/spring hinges, hasp and staple, rim/ mortise lock handles
- (ii) Polythene connections and PVC pipes
- (iii) GI tubing, CI pipes, GI/cast iron fittings
- (iv) Sanitary fittings, e.g. Chinaware, stop/bib cocks/pillar cock, float valves
- (v) Chemicals for Antitermite treatment for wood and soil
- (vi) Electrical switches, sockets, MCBs etc., conductors and cables
- (vii) Where makes of materials/article are mentioned in the particular specifications, the contractor shall provide the materials/articles of any one of the makes mentioned in CA irrespective of whether their product is having ISI certification or not.

(b) In case of materials / articles for which Indian Standards are not finalised/issued and therefore not included in the MES Schedule, contractor shall produce the samples and get them approved by the GE in writing before incorporation in the works.

(c) The contractor is advised to inspect the samples of local building materials, e.g. bricks, stone aggregate, sand etc. and other materials maintained by the CWE/GE before submitting his tender. The contractor will be deemed to have inspected these samples and have full knowledge thereof, whether he inspects them or not. The materials to be provided by the contractor shall conform to or superior to the samples.

(d) The selection and use of sources for materials shall subject to the compliance of these specifications in conjunction with the MES Schedule and relevant Indian Standard Specifications.

22. **PROPRIETARY MATERIAL /ARTICLES**

(a) The proprietary items such as Antitermite chemicals, tar, tar felt, water-proofing compound, paint 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.



**SPECIAL CONDITIONS (Contd/-)**

(c) The proprietary materials shall be stored as directed. Those already recorded in the Measurement Book shall be marked suitably for identification.

(d) The Contractor, shall on demand, produce to the GE original receipt vouchers /invoices in respect of the supplies to ensure that the contractor has actually brought the articles of required quality and quantity from the authorised agent/manufacturer/supplier and also to find out the rates thereof.

(e) The chemical required for Anti termite treatment shall be purchased from manufacturers/authorized dealers only and contractor shall produce the cash voucher etc. to prove the genuineness of the same. GE will also ensure that proper quality/quantity of chemicals are brought and incorporated in the work.

(f) Under no circumstances payment on account (RAR) shall be made to the contractor as material lying at site for incorporation in the work, unless the contractor produces original purchase vouchers/invoices for the following items of materials as applicable: -

- (i) Water proofing compound
- (ii) Paint
- (iii) G.I tubing and fittings
- (iv) Sanitary fittings and appliances
- (v) Switches
- (vi) Cables
- (viii) Particle board
- (ix) Timber
- (ix) Standard steel windows
- (x) Factory made shutters
- (xi) Bitumen for roof treatment
- (xii) Brass stop cock/bib cock/pillar cock
- (xiii) C.I. D/F sluice valve
- (xiv) Steel tubular electric poles
- (xv) ACSR conductors
- (xvi) All types of insulators
- (xvii) Transformers
- (xviii) All types of light fittings
- (xix) Cement
- (xx) MCCB/MCB
- (xxi) Chemical for Antitermite treatment
- (xxii) Steel including reinforcement
- (xxiii) Voltage Stabilizers

23. **Production of purchase voucher: -**

Attention of the contractors are invited that purchase vouchers of the following items shall be submitted:-

(a) Cement, Steel major E/M equipments like Transformer, DG sets, Pumps, Motors, AC and lift equipments.

(b) Materials/articles as clause 23(f) as above.

**SPECIAL CONDITIONS (Contd/-)****24. WATCH/LIGHTING**

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

**25. MAKING GOOD**

The contractor shall leave or form holes in concrete (Plain), brick work, stone masonry and in any other situation as required for the work or as directed by the Engineer-in-Charge and make good all the holes in the same mortar and mix as specified for that portion of work.

**26. CLEANING DOWN**

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

**27. PRICING OF DEVIATION.**

The principle enunciated in the condition 62 of IAFW-2249 shall apply to various sections/ parts of Schedule 'A' of this contract. The contractor's percentage applicable for pricing deviation as per Condition 62 of IAFW-2249 shall be contractor's percentage for the respective sections / parts of Schedule 'A'.

**28. Minimum Wages Payable**

(a) Refer condition 58 of IAFW-2249 General Conditions of Contracts. Govt. of India, Min of Defence (Department of labour and employment) vide notification dated 20 May 2009 have fixed the minimum rates of wages as updated from time to time for various categories of employees under the minimum wages Act 1948. The contractor shall not pay wages lower than minimum wages including allowance as fixed under the said notification as updated till the date of receipt of tender. Wherein any area the minimum rates of wages fixed by the State Government for employees in employment in the construction or maintenance of road or in building operation, in stone breaking or stone crushing in the maintenance of buildings, and in construction and maintenance of runways, in relation to which the State Government is the appropriate Government, the rates of wages fixed by State Government as updated time to time shall in respect of these areas deemed to be minimum rates of wages payable under this contract.

(b) Contractors' attention is also drawn, amongst other things, the 'explanations' to the Schedule of minimum wages referred to above.

(c) The fair wages referred to in Condition 58 of IAFW-2249 will deemed to be the same as the minimum wages referred to above.

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

**SPECIAL CONDITIONS (Contd/-)****29. Out put of Road roller:**

(a) Where road roller(s) are hired by the department to the contractor, a log book for each roller shall be maintained by the department recording hours of working of the road roller. In case however when the contractor procures road roller(s) from sources other than the department, a log book for each road roller shall be maintained by him for recording hours of working of the road roller. Entries in the log book shall be signed by the contractor or his authorized representative and by the Engineer-in-charge.

(b) To ensure proper consolidation, road roller must work for at least the number of days assessed on the basis of output given here-in-after.

**OUTPUT OF ROAD ROLLER PER DAY OF 8 HOURS:**

- (i) Consolidation of formation surfaces/sub grade: 1850 Sqm
- (ii) Consolidation of stone soling 15cm (spread thickness) – 800 Sqm.
- (iii) Consolidation of WBM (stone metal) 7.5 cm (Compacted thickness): 248 Sqm.
- (iv) Consolidation of 25 mm thick bituminous carpet including seal coat: 600 Sqm.
- (v) Consolidation of 40 mm thick bituminous carpet including seal coat: 372 Sqm.

(c) If the roller has not worked for the number of days so assessed, recovery shall be affected from the contractor for the number of days failing short of the days assessed on the basis of output stipulated above. The recovery shall be affected as under:-

- (i) Where road roller is hired out by the department to the contractor at rates given in schedule 'C' of this contract.
- (ii) Where road roller is hired by the contractor only from source other than the department = Rs. 2000/- per working day of 8 hours.
- (iii) Where road roller is hired by the contractor from the department and also from sources other than the department = higher of the two rates, i.e., rate given in Schedule 'C' of this contract or the rate mentioned in the preceding para.
- (iv) The above provision shall not absolve the contractor of his responsibility for properly consolidating surfaces as required under the provisions of the contract.

**30. Re-imbursement / refund on variation in "taxes directly related to Contract value":-**

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

**SPECIAL CONDITIONS (Contd/-)**

(b) (i) The taxes which are levied by Govt at certain percentage rates of Contract Sum/Amount shall be termed as "taxes directly related to Contract value" such as GST on materials, GST on work contracts, Labour Welfare Cess/ tax and like but excluding Income Tax. The tendered rates shall be deemed to be inclusive of all "taxes directly related to contract value" with existing percentage rates as prevailing on bid submission end date. Any increase in percentage rates of "taxes directly related to Contract value" with reference to prevailing rates on the bid submission end date 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 the bid submission end date 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 bid submission end date shall be reimbursed to the Contractor and abolition of any "taxes directly related to Contract value" prevailing on the bid submission end date shall be refunded by the Contractor to the Govt/deducted 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 directly related to contract value", give written notice thereof to the GE stating that the same is given pursuant to this Special Condition, together with all information relating thereto which he may be in a position to supply. The Contractor shall submit the other documentary proof / information as the GE may require.

(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 information as the GE may require.

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

**31. WORK ON HOLIDAYS**

The contractor shall not carry out any work on Gazetted holidays, weekly holidays and other non working days except when it is specially any day as a holiday or non working day without assigning any reason for such declaration. authorised in writing to do so by GE. The GE may at his sole discretion declare any day as holiday or non working day without assigning any reason for such declaration.

**32. Condition 64 of IAFW-2249 Advances on Account (Applicable to contract of value of Rs 50 Lakhs and above):-**The contractor may be paid advance on account to the full value of the under mentioned materials only brought on to the site, on his furnishing guarantee Bond(s) from a scheduled bank for the amount of the retention money which should otherwise be recoverable from him under the contract:-

**SPECIAL CONDITIONS (Contd/-)**

- (a) Factory made panelled door shutters
- (b) Factory made steel windows
- (c) Iron mongry
- (d) Sanitary fittings
- (e) Electrical fittings/fixtures/equipments
- (f) Water supply fittings/fixtures/equipment

**33. Special Condition for Conciliation (CONDITION 71 OF IAFW 2249 GENERAL CONDITIONS OF CONTRACTS REFERS) (APPLICABLE FOR ALL CONTRACTS OF VALUE OF LESS THAN RS 10 CRORES)****35.1 Scope of conciliation**

33.1.1 The scope of conciliation shall be restricted to the following types of disputes with financial limits as indicated therein:-

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

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

**33.2 Commencement of Conciliation Proceedings**

33.2.1. The party initiating conciliation shall send to the other party a written invitation to conciliate, briefly identifying the subject of the dispute.

33.2.2 Conciliation proceedings shall commence when the other party accepts in writing the invitation to conciliate.

33.2.3 If the other party rejects the invitation, there will be no conciliation proceedings. If the party initiating conciliation does not receive a reply within 30 days from the date on which he sends or within such other periods of time as specified in the invitation, he may elect to treat this as a rejection of the invitation to conciliate and if he so elects, he shall inform in writing the other party accordingly.

**33.3 Number of Conciliators: -**

There shall be a Sole Conciliator.

33.4 **Appointment of Conciliator** :- All disputes brought out in para 32.1.1 (a) to (e) above shall be referred to the Sole Conciliator viz Serving Officer not below the rank of Superintending Engineer /Superintending Engineer (QS&C) having degree in Engineering or equivalent or having passed final/direct final examination of Sub division II of Institution of Surveyors (India) to be appointed by the Engineer-in- Chief, Army Headquarters, New Delhi or in his absence the Officer officiating as Engineer-in-Chief.

**33.5.1 Status of effect of Settlement Agreement: -**

The settlement agreement signed by the parties as a result of conciliation proceedings shall have the same status and effect as it is an arbitral award on agreed terms.

**SPECIAL CONDITIONS (Contd/-)****34 DISPUTE RESOLUTION BOARD (DRB) (CONDITION 71 OF IAFW 2249 GENERAL CONDITIONS OF CONTRACTS REFERS) (APPLICABLE FOR ALL CONTRACTS VALUE EQUAL TO OR MORE THAN RS 10 CRORES)**

- 34.1** During execution of the works or after completion or after determination/cancellation/termination of contract all disputes between the parties to contract arising out of the contract (except those for which decision of Accepting officer or any other officer (CWE and/or GE) is expressed to be final and binding), including any disagreement by either party with any action, inaction, opinion, instruction, certificate or valuation by the Accepting officer or his nominee, the matter in dispute shall, in the first place be referred to the Dispute Resolution Board (DRB). In case of disagreement with the decision of such DRB, any party may invoke arbitration clause.
- 34.2** The Constitution of the DRB shall be a three member body as under:-
- (i) **Chairman:-** Joint DG (Contracts) of the concerned Command Chief Engineer. Where Jt DG (C) is not posted in the Comd, any other Chief Engineer/Brig level officer posted in CE Comd shall be nominated by Comd CE at his sole discretion.
  - (ii) **Member:-1** } Col/Director rank officers of Comd CE or of any other Zonal CE be nominated by Comd CE.
  - (iii) **Member:-2** }
- 34.3** The name of chairman and members shall be notified by the Accepting officer within one month of the date of acceptance of contract.
- 34.4** Once the DRB is constituted the members and Chairman shall disclose in writing their neutrality and impartiality about any personal interest in the work.
- 34.5** The dispute shall be referred to the chairman of the DRB by the concerned party after giving notice to the other party for invoking of this clause.
- 34.6** The DRB shall decide the dispute in accordance with the terms of the contract, principle of natural justice, equity and fair play.
- 34.7** The DRB may fix oral hearing at a place, date and time as decided by the Chairman.
- 34.8** The requisite administrative support to the DRB shall be provided by the Accepting officer.
- 34.9** All the contract documents pertaining to the case shall be provided by the Accepting officer for reference by the DRB.
- 34.10** DRB shall give its decision on the disputes within three months of notice from any party invoking the DRB clause. This period can be extended by one month with the consent of the parties.
- 34.11** All the decisions given by the DRB shall be by majority and such decisions shall be communicated in writing by Chairman to the parties.

- 34.12** If the decision of the DRB is not to the satisfaction of either party or if the DRB fails to give decision within the laid down time either party shall indicate his reservations on the decision to Accepting officer with 30 days of such decision and to refer that dispute for arbitration with the provisions of Condition 70 of IAFW 2249 General Conditions of Contract.
- 34.13** It shall be mandatory for the party invoking arbitration on any particular dispute to have first exhausted the remedy provided under the DRB clause for that particular dispute.
- 34.14** The mandate of the DRB shall terminate on completion of the one year from the date of completion/determination/cancellation/termination of the contract.
- 34.15** If any member of Chairman of the DRB is unable to function due to any reason whatsoever, or he resigns his appointment, Chief Engineer Command as the case may be, shall fill the vacancy so caused within 15 days of happening of such vacancy.
- 34.16** Any dispute referred to the DRB and having been decided by the DRB and not objected to by either party within 30 days shall attain finality and shall not be referable to arbitration.
- 36.17** Accepting officer shall ensure implementation of the decisions of the DRB which attain finality, i.e except those which are objected by him or by contractor within 30 days as per Para 35.12 above.
- 34.18** Findings and decision of DRB shall be admissible as evidence, to the extent permissible as per law, in the subsequent Arbitration and/or litigation.
- 34.19** DRB Chairman/members shall not, in any case, be liable to be called as witness or to produce any evidence in any Arbitration or departmental proceeding of any kind.
- 34.20** During execution of work the disputes may be referred to the DRB as per the requirement of each party after having exhausted the decision making process provided in the contracts. In case of completion of work or after determination/cancellation/ termination of the contract all the disputes including payment/nonpayment/delay in final bill shall be simultaneously referred to the DRB within six months of completion/determination/ cancellation/termination of the contract.
- 34.21** The department case before the DRB shall be present by Accepting Officer himself and/or Dir (Contract) of CE Zone assisted by CWE and his DCWE (Contract), GE and his AGE (Contracts) and any other officer and legal counsel nominated by Accepting Officer. The contractor may present his case by himself and/or by his nominated reps & authorized legal/technical counsel.

**SPECIAL CONDITIONS (Contd/-)****35. Qualified tradesmen:(applicable for works costing rupees one crore or more)**

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

**35(A):- Testing of Materials: -****(a) 'A' level tests for works costing Rs.100 lakhs and above:**

The contractor shall set up site laboratory for testing of materials (except Sch 'B' materials) for 'A' level tests as listed in Annexure-I hereto. The contractor shall arrange all equipments/machines for the tests specified in Annexure-I as 'A' level tests at his own cost with prior approval of GE. This cost shall be included in the lump sum costs quoted by the contractor. The contractor shall employ a competent technical representative as approved by the GE for the purpose of testing and all such test shall be carried out in the presence of Engr-in-Charge. The successful test results thereof shall be recorded and signed jointly by the contractor and the Engr-in-Charge. The charges for these tests i.e. 'A' level tests carried out in site laboratory of the contractor shall not be recovered. However, in case a test which was specified to be carried out in site laboratory and which could not be carried out in site laboratory due to some reason, such test will be carried out in zonal lab/any other approved lab and the recovery shall be made at the rates given in Annexure-I for tests carried out in zonal lab or otherwise at the actual rates in case the tests are carried out in other labs. Testing charges will be deducted from the RARs irrespective of the test results for such tests.

**(b) 'A' level tests for works costing upto Rs.100 lakhs:** The contractor may setup site laboratory at his option for works costing upto Rs.100 lakhs. The other stipulations will be same as specified in preceding para (a). However, in case the contractor has not set up the site laboratory and tests are carried out in zonal or any other laboratory approved/set up by GE, the recovery shall be made at rates given in Annexure-I for tests carried out in zonal lab or otherwise as per actual rates in case the tests are carried out in other labs. Testing charges will be deducted from the RARs irrespective of the test results for such tests.



**SPECIAL CONDITIONS (Contd/-)**

(c) **'B' & 'C' level tests:** For tests of 'B' and 'C' level as indicated in Annexure-I, the contractor shall provide all facilities for testing of materials at Command Test laboratory/Govt. approved laboratories or test house/Engg. Colleges at his own cost. The lump sum/rates quoted by the contractor shall be deemed to be inclusive of these tests. The rates of various tests conducted in Laboratory of MES are indicated in Annexure-I. The contractor shall bear the actual charges of 'C' level tests (to be done in labs other than MES labs) irrespective of rates indicated in Annexure-I. Wherever it is convenient to get 'B' level test done at approved test house/Engg. College, the same can be done at the cost of the contractor and no separate recoveries will be made by the Department for the same.

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

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

**(B) NON DESTRUCTIVE TESTING OF HARDEND CONCRETE IN COMPLETED RCC STRUCTURES****Rebound Hammer Testing****(a) Equipment: -**

Contractor will provide Rebound Hammer including the test anvil as part of the Site Lab equipment. The equipment will be of standard makes like Schimdt / AIMIL. Rebound Hammer will be used for non destructive, in-situ testing of hardened concrete of the RCC /PCC works executed under various Schedules of this contract in accordance with IS 13311 (Part 2) and Clause 17.8 of IS 456: 2000. Rebound Hammer for testing normal RCC structures of the building work under Schedule 'A' Part-I will have impact energy of 2.25 Nm and it will be suitable for testing compressive strength of RCC/ PCC members up to 50 N/ Sq mm i.e., for concrete up to M-50 grade. For testing of airfield pavement works, the rebound hammer will have impact Energy of 30 Nm. Steel Test Anvil of known Brinell hardness will also be provided with the Rebound Hammer. The Rebound Hammer will be checked against the Test Anvil before commencement of the tests.

**(b) Calibration: -**

Rebound Hammer will be initially calibrated from any approved NABL approved lab. Thereafter, after initial use of the equipment, it will be calibrated on Universal Testing Machine (UTM) of the Engineer Test House / Zonal Laboratory of MES or any other Govt approved lab in accordance with Clause 5.2 of IS 13311 (Part 2) on PCC cubes of size 150 X 150 X 150 mm and co relation between compressive strength and Rebound number established. The relation so drawn will form basis for calibration of the equipment. The process of calibration will be repeated after every 1000 test observations recorded with the Rebound Hammer or on noticing of any erratic observations on anvil, whichever is earlier.

**SPECIAL CONDITIONS (Contd/-)****(i) Frequency of Testing :-**

Hardend concrete will be tested at 28-30 days after the date of its casting, for evaluating compressive strength with rebound hammer at following frequencies :-

(i) RCC in Foundations, Columns and Beam	:	1 set of test for every 10 Cum of RCC work
(ii) RCC work in slabs, roof projections etc	:	1 set of test for every 50 Sqm of RCC surface.
(iii) PCC in Heavy duty floors and pavements	:	1 set of test for every 50 Sqm of floor / Pavement surface.

**Note:** - One set of test will consist of ten observations taken randomly.

(c)**Test procedure:** - Rebound Hammer Tests will be undertaken in accordance with Clause 6 of IS 13311 (Part 2).

**(d) Acceptance Criteria:-**

(i) Acceptance criteria for compressive strength of RCC and PCC works will predominantly be based on the results of cube testing as laid vide Clause 3.9 of Particular Specifications and Clause 16 of IS 456 : 2000. Non destructive testing will be supplementary to the cube testing. In non destructive testing, the structural members of the executed works will be tested in – situ to establish whether the RCC / PCC have actually attained the desired compressive strength or not. Where compressive strength on non destructive testing is found to be higher than the laid down characteristic compressive strength corresponding to the specified grade of concrete, the RCC/PCC work represented by the sample, will be deemed to have passed the test. But when the compressive strength on non destructive testing is found to be lower than the characteristic compressive strength corresponding to the specified grade of concrete, then the RCC /PCC work represented by the sample will need further investigations through core testing. In such cases, the contractor will make all arrangements necessary for core cutting of the samples and their testing in Govt approved labs. Core tests will be done as per IS 516 and Clause 17.4 and 17.5 of IS 456: 2000. Final decision on acceptance/ rejection of the RCC / PCC work will be taken by the Garrison Engineer on the basis of Clause 17.4.3 of IS 456: 2000. RCC /PCC work if accepted with lower compressive strength will be devaluated based on approval of the Accepting Officer.

(ii) The decision of the Accepting Officer on devaluation shall be final and binding on the Contractor.

(iii) The Acceptance Criteria mentioned above is for Compressive strength of the RCC /PCC work alone. Other characteristics of RCC /PCC work will be checked separately and decision taken on the basis of the corresponding results.

### **36. LAYOUT AND SETTING OUT THE WORKS AND CHECKING OF DIMENSIONS, LEVELS AND PLUMBS**

**SPECIAL CONDITIONS (Contd/-)**

**36.1.** The Contractor shall arrange **TOTAL STATION, Electronic Theodolite** at his own cost for following activities related to the work:-

- (a) Setting out of layout and alignments of works i.e. Buildings and Services.
- (b) Checking of levels of ground and setting levels of filled up/cut formations for Buildings and Roads, Sub grade, Plinths, Floors, Roofs and the like and their checking.
- (c) Setting out plumb lines of columns and walls and other vertical elements of the structures and their checking.
- (d) Setting out of Curves, Slopes and Angels for any elements of construction and their checking.

**36.2.** The Errors / Tolerances in vertical and horizontal profile of the structures/building elements / Services will not exceed following limits:-

<b><u>Parts of Building / Structure</u></b>	<b><u>Maximum Tolerance Permitted</u></b>
(a) Measurements i.e., Length, Width, height and diagonals in layout of buildings and other RCC structures.	(a) Plus or Minus 5 mm for dimensions exceeding 10 m. (b) Plus or Minus 2 mm for dimensions upto 10 m.
(b) Level of Plinth, Floors and slabs	Plus or Minus 1mm in 20 m length
(c) Verticality / plumb of Columns	Max 1mm in any axis in one storey height
(d) Verticality / plumb of brick walls	Max 3 mm in storey height
(e) Verticality in RCC Reservoirs frame work	Max 5 mm in entire height
(f) Sub grade level of Floors of the buildings	Plus or Minus 5 mm.
(g) Road Formation / Earthen Formation top	Plus or Minus 10 mm in 10 m length.
(h) Finished Road Surface of Bituminous Roads and hard standings	Plus minus 3 mm in 10 m length longitudinally as well as across the carriage way.
(j) Finished Road Surface of Concrete Roads and hard standings.	Plus minus 2 mm on 10 m length longitudinally as well as across the carriage way.

**SPECIAL CONDITIONS (Contd/-)**

**37. Amended Condition 70 of IAFW 2249 (Arbitration):-** The existing description of Condition 70 of IAFW-2249 is substituted by the revised description as under:-

**(a) Arbitration Where Applicability of Section 12 (5) of the Arbitration and Conciliation Act Has Been Waived Off:-** All disputes, between the parties to the Contract (other than those for which the decision of the CWE or any other person is by the Contract expressed to be final and binding) shall, after written notice by either party to the Contract to the other of them, be referred to the Arbitral Tribunal of a Sole Arbitrator (in case of contract sum less than or equal to Rs 100 Crore) or to Arbitral Tribunal of three Arbitrators (in case of contract sum exceeding Rs 100 Crore) from MoD Panel of Arbitrators. The officers so considered for appointment of Arbitrator, either as sole Arbitrator or for Arbitral Tribunal, shall be having degree in Engineering or equivalent or having passed Final/Direct Final Examination of Sub-Division II of Institution of Surveyor (India) or similar other Institutes recognised by the Government of India.

In case of arbitration by Sole Arbitrator, the Arbitrator shall be appointed by the Authority mentioned in the contract document within a period of thirty days of having received the notice from any of the parties to Contract, out of MoD Panel of Arbitrators. In case of Arbitral Tribunal consisting of panel of three Arbitrators, both the parties will be asked by the Appointing Authority to suggest at least two names out of MoD Panel of Arbitrators within thirty days. The Appointing Authority will appoint two Arbitrators, one Arbitrator each out of the suggested names. The two Arbitrators so appointed will select one Arbitrator from the MoD Panel of Arbitrators who will be the 'Presiding Arbitrator'. The Serving Officer(s) so appointed as Arbitrator(s), either as Sole Arbitrator or as one of the three Arbitrators in the Arbitral Tribunal, can continue as Arbitrator even after retirement, provided both the parties to the Contract give written consent to this effect. In such case, however, the Arbitrator shall not be entitled for any fee even after retirement.

**(b) Arbitration Where Applicability of Section 12 (5) of Arbitration & Conciliation Act Has Not Been Waived Off.** All disputes, between the parties to the Contract (other than those for which the decision of the CWE or any other person is by the Contract expressed to be final and binding) shall, after written notice by either party to the Contract to the other of them, be referred to the Arbitral Tribunal of a Sole Arbitrator (in case of contract sum less than or equal to Rs 100 Crore) or to Arbitral Tribunal of three Arbitrators (in case of contract sum exceeding Rs 100 Crore). The Officers so considered for appointment as Arbitrator, either as Sole Arbitrator or for Arbitral Tribunal, shall be having degree in Engineering or equivalent or having passed Final/Direct Final Examination of Sub Division II of Institution of Surveyor (India) or similar other Institutes recognised by the Government of India.

**SPECIAL CONDITIONS (Contd/-)**

In case of arbitration by sole Arbitrator, the Arbitrator shall be appointed by the authority mentioned in the contract document from the MoD Panel of Arbitrators within a period of thirty days of having received the notice from any of the parties to the Contract. In case of Arbitral Tribunal consisting of panel of three Arbitrators, both the parties shall be asked by the Appointing Authority to suggest at least two names out of MoD Panel of Arbitrators within thirty days. The Appointing Authority will appoint two Arbitrators, one Arbitrator each out of the suggested names. The two Arbitrators so appointed shall select one Arbitrator from the MoD Panel of Arbitrators who will be the 'Presiding Arbitrator'.

**(c) Common For All Arbitration.**

Unless both parties agree in writing, such reference shall not take place until after the completion or alleged completion of the works or termination or determination of the contract under Condition Nos 55, 56 and 57 hereof.

Provided that in the event of abandonment of the works or cancellation of the Contract under Condition No 52,53 or 54 hereof, such reference shall not take place until alternative arrangements have been finalised by the Government to get the works completed by or through any other Contractor or Contractors or Agency or Agencies.

Provided always that commencement or continuance of any arbitration proceeding hereunder or otherwise shall not in any manner militate against the Government's right of recovery from the Contractor as provided in Condition 67 hereof.

If the sole Arbitrator or one or more Arbitrators of the Arbitral Tribunal so appointed resign(s) from his/her appointment or vacate(s) his/her office or is unable or unwilling to act due to any reason whatsoever, the Authority appointing him/her will appoint a substitute Arbitrator to act in his/her place in the manner specified hereinabove. In case the Arbitrator resigning in this manner is the Presiding Arbitrator, the other two Arbitrators of the Arbitral Tribunal shall appoint the substitute Presiding Arbitrator.

The Arbitral Tribunal may proceed with the arbitration, *ex parte*, if either party, in spite of a notice from the arbitrator fails to take part in the proceedings.

The Arbitral Tribunal may from time to time with the consent of the parties, enlarge the time for making and publishing the award subject to the limit laid down in the Arbitration & Conciliation Act 1996 as amended upto the date on which arbitration proceedings commence.

**SPECIAL CONDITIONS (Contd/-)**

The Arbitral Tribunal shall make the award within the period as provided in the Arbitration & Conciliation Act 1996 (as amended upto the date on which arbitration proceedings commence) from the date of entering on the reference or within the extended period as the case may be on all matters referred to it and shall indicate findings alongwith sums awarded separately on each individual item of dispute. The Arbitral Tribunal shall give reason for the award in each and every case irrespective of the value of claims or counter claims.

The request for invocation of arbitration and appointment of arbitrator by either party shall be done mandatorily on MES Arbitration online platform (MIMAMSA). All proceedings related to such arbitration including submission of all documents shall be conducted on the subject platform and as per its applicable SOP. All procedural orders, interim award, final award or any other information or direction given by the arbitrator shall be published by him/her on the platform. Published and uploading of final award on the platform shall satisfy the requirements of Sec. 31(5) of the Arbitration and Conciliation Act 1996. For purpose of calculating limitation period as per Sec 34(3) of the Arbitration and Conciliation Act 1996, the date of uploading of final award on the platform by the arbitrator shall be applicable.

The venue of Arbitration shall be such place or place or places as may be fixed by the Arbitral Tribunal in its sole discretion.

The Award of the Arbitral Tribunal shall be final and binding on both parties to the Contract.

**37.01 Refer condition 70 of IAFW 2249 (or condition 37 of 1818Z in case of future contract as applicable).**

The request for invocation of arbitration and appointment of arbitrator by either party shall be done mandatorily on MES Arbitration online platform (MIMAMSA). All proceedings related to such arbitration including submission of all documents shall be conducted on the subject platform and as per its applicable SOP. All procedural orders, interim award, final award or any other information or directions given by the arbitrator shall be published by him/her on the platform. Publishing and uploading of final award on the platform shall satisfy the requirements of Sec. 31(5) of the Arbitration and Condition Act 1996. For purpose of calculating limitation period as per Sec. 34(3) of the Arbitration and Conciliation Act 1996, the date of uploading of final award on the platform by the arbitrator shall be applicable.

**38.00 Vehicles, Equipments and Plants (VEP):**

38.1 Contractors to note that they will be required to deploy at work site, T&P and Machinery as per sound engineering practice unless otherwise specifically mentioned in tender documents. The items/details/numbers of T&P and machinery required to be deployed at site will be decided by GE based on the scope of work & codal provisions.

38.2 Any other T&P and machinery required for execution of the work even though not categorically mentioned in tender and/or specifically directed by GE but technically required for execution of work shall be deployed by the contractor at site.

**SPECIAL CONDITIONS (Contd/-)**

38.3 Inadequate deployment of T&P shall be considered as serious lapse on the part of contractor and GE shall have full powers to suspend the execution of the work until such time, contractor deploys requisite T&P and machinery at site. The contractor shall be held responsible for the delay so caused to the works.

38.4 GE will be the sole authority to decide the optimum requirement of items/details/numbers of T&P and machinery required to be deployed at site at a particular stage of work. The decision of GE in this regard shall be final and binding.

SL No	T&P Machinery	Minimum Requirement	Remarks
1	One bag capacity concrete mixer (For plaster and lean concrete)	2	
2	Automatic concrete batching plant of capacity 15 Cum to 20 Cum (RCC Work)	1	
3	Self-loading concrete mixer (RCC Work)	1	
4	Vibrators (Nos)	20	
5	Tower/ builder's hoist (Nos)	4	
6	Steel shuttering with spans, props etc (sqm)	6000	
7	Truck/Tippers (Nos)	5	
8	DG Sets 5/10 KVA (Nos)	2	
9	Diesel/Elec operated water pump sets 5 HP (Nos)	3	
10	Welding Sets (Nos)	3	
11	Total Station	1	
12	Grinding/polishing machine	2	
13	Concrete cube testing machine (hydraulically operated)	1	
14	Concrete mobile weight batchers	3	
15	Hand Grinding Machine	3	
16	Excavators ( Power shovels/draglines)	2	
17	Bull Dozers	1	
18	Road Rollers	1	
19	Drilling Machines	3	

SIGNATURE OF CONTRACTOR

Dated: \_\_\_\_\_

Dir/AAD (Contracts)  
for Accepting Officer

**SPECIAL CONDITIONS (Contd/-)****Annexure – I**

(Refer to Special Condition 37)

Ser 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) As given under			'A'	330	Checks for visual and dimensional characteristics shall also be carried out as per IS-5454.
		ii) Water Absorption	-do-	Lot size	Sample size	Permissible No. of defective bricks	'A'	330	
		iii) Efflorescence	-do- (Part-I)	1001 to 10000	5	0	'A'	330	
				10001 to 35000	10	0			
				35001 to 50000	15	1			
2	Coarse Aggregate	i) Sieve Analysis	IS : 2386 (Part-I)	One test for every 15 Cum of aggregates or part thereof brought to site			'A'	660	Legend: 'A' -Site Lab. B-Zonal Lab 'C' Approved test house/ Engg College
		ii) Flakiness Index	-do-	-do-			'A'	250	
		iii) Estimation of deleterious materials	IS : 2386 (Part-I)	One test for every 100 Cum of aggregates or part thereof			'A'	600	
		iv) Organic impurities	-do-	One test per source of supply			'C'	275	
		v) Moisture content	-do- (Part-II)	Regularly as required			'A'	330	
		vi) Specific Gravity	IS : 2386 (Part-II)	One test for each source of supply			'B'	330	
3.	Fine Aggregate	i) Sieve analysis	IS : 2386 (Part-I)	One test for every 15 Cum of FA or part when brought to site.			'A'	660	
		ii) Test for clay silt and impurities.	-do- (Part-II)	-do-			'A'	500	
		iii) Specific gravity	-do- (Part-II)	One for each source of supply			'B'	330	
		iv) Moisture content	-do- Part-II	Regularly as required subject to 2 tests/day when being used			'A'	330	
		v) Test for organic impurities	-do- (Part-II)	One test for each source of supply.			'C'	275	



**SPECIAL CONDITIONS (Contd/-)****Annexure – I**

1	2	3	4	5	6	7	8
4	Cement	i) Setting time	IS : 4031-63 affirmed 1980	Once for each consignment or as and when required.	'B'	500	
		ii) Soundness	-do-	-do-	'B'	550	
		iii) Compressive strength	-do-	-do-	'B'	550	
		iv) Fineness	-do-	-do-	'B'	275	
5	Structural concrete (M-25 grade and above)	i) Slump test (OR) compacting factor test (OR) Vee-Bee time.	IS : 1199	The minimum frequency of sampling of concrete of each grade shall be as under :-	'A'	300	i) Random sampling shall be carried out to cover all mix units.
		ii) Compressive strength	IS : 516	Qty of samples in the work Cum	'A'	900	ii) Refer IS-456 of 2000 clause 14 for frequency of sampling.
				1-5	1		
				6-15	2		
				16-30	3		
				31-50	4		
				51 & above	4 +1 for each		
				addl or	part there of		
<b><u>Note:</u></b> - The contractor shall provide following items at site lab for carrying out field tests. <ul style="list-style-type: none"> <li>a. Universal testing machine.</li> <li>b. Sieve set – 02 Nos.</li> <li>c. Weighing balance – 02 Nos.</li> <li>d. Cube mould – 27 Nos.</li> <li>e. Graduated jars.</li> <li>(f) Oven</li> </ul>							
6	a) PCC blocks for walling (Hollow block)	Compressive Strength	IS : 2156 of 1984 (Appx 'B')	8 Block out of 14	'A'	900	Samples: 14 blocks from consignment of every 5000 blocks or part thereof.
		ii) Water absorption	-do- (Appx 'E')	3 block out of 14	'B'	330	
		iii) Density	-do- (Appx 'A')	3 Blocks out of 14	'B'	330	

**SPECIAL CONDITIONS (Contd/-)****Annexure – I**

1	2	3	4	5	6	7	8
	b) PCC solid blocks for walling	i) Compressive strength	IS : 2185	12 Blocks out of 18	'A'	900	Samples: 18 Blocks from consignment of every 1000 blocks or part thereof. These blocks to be checked for dimensions and weight.
		ii) Water absorption	-do-	3 blocks out of 18	'B'	330	
		iii) Density	-do-	3 Blocks out of 18	'B'	330	
7	Cement flooring tiles/Terrazzo tiles	i) Water absorption	IS-1237 Appx 'D'	6 Tiles out of 18	'B'	330	Samples 18 tiles from each source of supply selected at random.
		ii) Wet transverse strength	-do- (Appx 'E')	-do-	'B'	660	
		iii) Resistance to wear	-do- (Appx 'F')	-do-	'C'	1000	
8	Burnt clay roofing tiles	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.
	(hand made) As per IS : 2690 (Part-II) length 150mm to 250mm width 100mm to 200mm thickness 35mm to 50mm	ii) Compressive strength	-do- (Part-I)	-do-	'A'	180	

**SPECIAL CONDITIONS (Contd/-)****Annexure – I**

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 and 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 on purposes	i) Test for acidity	IS : 456 & 3015	Once at the stage of approval of source of water	'B'	500	Also refer clause 4.3 of IS: 456 and its subsequent sub clauses regarding suitability of water.
		ii) Test for alkalinity	-do-	-do-	'B'	500	
		iii) Test for solid content	-do-	-do-	'C'	500	
12	Welding of steel work	i) Visual Inspection test	IS : 822-1970 clause 7.1	100% by visual inspection.	Work site	360	Specialised tests, their method and frequency to be decided on consideration of their importance by the accepting officer.
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 :- <u>Lot Size</u> 26 to 50 51 to 100 101 to 150 151 to 300 301 to 500 501 to 1000 1001 and Above	'A'	180	<u>Sample size</u> 5 8 13 20 32 50 80

**SPECIAL CONDITIONS (Contd/-)****Annexure – I**

1	2	3	4	5	6	7	8
		b) Strength test	IS : 1303	From each lot 5% of the factory made shutters shall be manufacturer tested for strength tests			
		i) Slamming	-do-				
		ii) Impact Indentation	-do-				
		iii) Shock Resistance	-do-				
		iv) Edge Loading	-do-				
14	Ply wood (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.	'C'	240	Sampling shall be as per IS: 7835-1975 tables.
15	Wood particle board (Medium density IS : 3097-1985)	a) Density	IS : 2360 (Part-III)	Three test specimens from each sample (Size 150mm x 75mm)	'A'	60	Sampling shall be as per IS: 3487-1983 with moisture metre.
		b) Moisture content	-do-	-do-	'A' & 'B'	60	
		c) Water absorption	-do- (Part-16)	-do- (Size 300mmx300mm)	'A'	60	
		d) Swelling due to surface absorption	-do- (Part-17)	-do- (Size 125mmx100mm)	'A'	60	
		e) Swelling in water	-do-	-do- (Size 200mmx100mm)	'A'	60	
		f) Modulus of rupture	-do- (Part-4)	Three test specimens as per IS : 2380-77	'B'	90	
		g) Screw withdrawal strength	-do- (Part-14)	-do- as per IS : 2385	'C'	120	
16	Reinforcement steel (IS : 1786)	(a) Physical tests upto 16mm dia (Normal mass, tensile, elongation, bend and rebend.)	As per relevant IS	As per Annexure 'D'	'B'	2500per sample	
		(b) -do- but more than 16mm dia.	As per relevant IS	As per Annexure 'D'	'B'	2750 per sample	

(Signature of the Contractor)

Dir/AAD (Contracts)  
For Accepting Officer

**PARTICULAR SPECIFICATIONS (Contd...)****1. GENERAL**

- 1.1 Work under this contract shall be carried out in accordance with schedule 'A', Special Condition, Particular Specifications, Drawings including notes therein and General Specifications and other provisions in MES Schedule 2009 Part I for specifications and 2020 Part II for rates read in conjunction with each other.
- 1.2 Term "General Specifications" referred to here-in-after as well as referred to in IAFW-2249 (General Conditions of Contract) shall mean the specifications contained in the MES schedule 2009 Part I.
- 1.3 General rules, specifications, special conditions and all preambles in the MES schedule shall be deemed to be applicable to the work under this contract, unless specifically stated otherwise in these documents in which case the provisions in these documents shall take precedence over the aforesaid provisions in the MES schedule. The term "as specified" wherever appears in the tender documents and drawings, relates to relevant particular specifications and in its absence, general specifications. All reference to MES Schedule/SSR in these specifications relate to Part-I of MES Schedule 2009, unless otherwise mentioned. Reference to only some paragraphs of MES Schedule have been made in these particular specifications but other paragraphs and provisions as applicable are also to be followed for all parts of Schedule 'A', Provisional Sum and Prime Cost sum provided in General Summary, if any, even though not particularly mentioned here-in-after.
- 1.4 Where specifications for any item of work are not given in MES Schedule or in these particular specifications, specifications as given in relevant Indian Standard Code of Practice shall be followed.
- 1.5 Lumpsum quoted by the tenderer shall be deemed to include for any minor details/items of works and / or constructions which are obviously and fairly intended and which may not have been included in these documents but which are essential for the execution and entire completion of work. Decision of the Accepting Officer as to whether any minor details of work and / or constructions obviously and fairly intended to be included in the contract or not shall be final, conclusive and binding.
  - 1.5.1 However, some of the minor details/ items which shall be deemed to be essential for execution and entire completion of work are detailed as under for guidance :-
    - (i) Reinforcement for any RCC member not indicated in the drawings.
    - (ii) Dwarf wall in situations like verandah, passage etc. not indicated in drawings.
    - (iii) Lintels over doors, windows and openings not shown in drawings
  - 1.5.2 In all the above and in all similar cases, the details indicated elsewhere in the drawings 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 for completion of the work from structural and utility point of view shall be deemed to be included in the lumpsum quoted. In the event of any dispute, decision of the Accepting Officer shall be final, binding and conclusive.

2. **EXCAVATION AND EARTH WORK**

2.1 **Preparatory work** Before setting out the layout of building and commencing the construction, the contractor shall carry out the preparatory work, such as removal of grass, vegetation etc. trimming/surface dressing of the area as per clause 3.6 of MES Schedule Part-I to the entire satisfaction of Engineer-in-charge and after that before starting excavation work, the contractor shall carryout surface excavation not exceeding 30 cms deep and averaging 15 cms deep over the entire area covered by items of Schedule 'A' Part-I and dispose of the spoil to a distance as ordered by the GE. The entire area covered by items of Schedule 'A' Part I is referred to implies the entire building plot extending upto 3.00 mtrs all around from the outer edge of plinth protection of the buildings. The cost of such work as may be necessary shall deem to be included in contractor lumpsum.

2.2 **Excavation**

(a) Soft/loose soil, hard/dense soil, soil mixed with boulders or soft or disintegrated rock and mud shall be classified as any type of soil.

(b) Unit rates for buildings in Schedule 'A' Part-I shall include for excavation and earth work in any type of soil as aforesaid. In the event of deviations involving excavation and earth work, for building work, the omit portion of DO shall be priced by taking the average of soft/loose soil and hard/dense soil (as per 03004 to SI 03007 of SSR-2020 Part-II (Rates)).

(c) 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 mud shall not be worked out, but these materials shall be grouped together as any type of soil as aforesaid.

(d) If hard rock is met at site, contractor shall immediately notify the fact to the GE in writing, who will after due verification, regularize the change through a proper deviation order

2.2.1 **Bailing/Pumping of water**

Contractor's quoted rates shall be deemed to including bailing/pumping of water and working in mud soil, if met, with all as per clause 3.17 of SSR Part-I. No claim whatsoever shall be entertained on this account.

2.3 **Filling in Trenches/under floors**

2.3.1 The approved earth obtained from excavation in foundations shall be used for filling in trenches, under floors and any other situation as specified after removing big stones, grass roots and vegetables moulds and other organic matter. Earth mixed with small stones/pebbles (if approved by GE) is permitted for use in filling under floors and foundations. The filling around pipes, after the pipes are laid and tested, shall however be made 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. For pricing deviation, the cost of earth shall be priced at the applicable rate of rough excavation in soft/loose soil and removal to a distance exc. 0.5 KM but not exc. 1.5 KM subject to contractor's percentage for Sch 'A' Part-I as given in Sch 'A' Notes, or as quoted in General Summary.

2.3.2 Filling under floors/sides of trenches shall be in layers not exceeding 250 mm thick, and each layer shall be watered and well rammed.

**PARTICULAR SPECIFICATIONS (Contd...)**

- 2.3.3 Surplus spoil shall be removed and spread at place(s) as directed by the Engineer-in-Charge, to a distance exceeding 200m and not exceeding 250m, and levelled, as directed by the Engineer-in-Charge.
- 2.4 **Trenches for Foundations and Pipes**
- 2.4.1 The excavation shall be restricted to dimensions shown on the drawings. Excavation made, if any, in excess of required depth/width shall be made good by the contractor with cement concrete mix (1:5:10) without any extra cost to the Govt.
- 2.4.2 The beds of the trenches, if in soft or made up earth, shall be watered and well rammed and any depressions thus formed shall be filled with approved earth as required to the level and slope as directed by Engineer-in-Charge.
- 2.5 **Dressing Around Buildings.**  
After construction and before handing over any building, the area around, as defined in clause 2.1 hereinbefore, shall be dressed without extra cost to the Govt. Spoil obtained from surface dressing shall be removed to a distance not exceeding 100 meters, spread and levelled as directed by Engineer-in-Charge
- 2.6. **Foundation and plinth.**
- 2.6.1 Any change in foundation/plinth, necessitated due to undulating ground, which may have to be carried out as per the decision of the GE, shall be adjusted through a proper deviation order.
- 2.6.2 For the purpose of reckoning the depth of the foundation, the average level of the ground after surface dressing shall be considered.
- 2.6.3 **Pre-construction Anti termite treatment**  
Pre-construction anti-termite chemical treatment shall be carried out to surface which include bottom and sides of excavation in foundations of walls, columns, the back filled earth in immediate contact with the foundation structure, plinth filling, filled earth under floors, junction of walls and floors, soil under plinth protection, Soil along external perimeter of the buildings and soil surroundings the conduits/pipes of the buildings mentioned in Schedule 'A' notes all as specified in clause 3.26.1 to 3.26.11 of MES Schedule Part-I.
- 2.6.4 Anti termite treatment shall be got done through an approved specialized agency which is a member of Indian Pest Control Association holding valid license as per Clause 13 of Insecticides Act 1968. Persons employed to do the Antitermite treatment shall be qualified as per Rule 10 of the rules framed under the Insecticides Rule 1971. The work shall be carried out through any of the agency as mentioned in list of makes attached hereinafter.
- 2.6.5 Anti termite treatment shall be carried out with emulsion as mentioned in Appx-'A' of makes attached hereinafter shall be purchased directly from manufacturer or his authorized agent. Purchase vouchers shall be produced to the GE for verification.
- 2.6.6 Cholorophyrus 20% EC Chemicals brought to site in sealed containers bearing ISI certification marks shall only be permitted to be used. Chemicals shall be stored carefully at site. Seals of containers should be broken only in the presence of Engineer-in-Charge (EIC). Empty containers shall be kept at site till the completion of work under safe custody. If on a particular day the contents of one full container could not be used in the work, the container should be got sealed at the end of the day in the presence of the Engineer-in-Charge and opened when required in the presence of the Engineer-in-Charge.

PARTICULAR SPECIFICATIONS (Contd...)

- 2.6.7 The Engineer-in-Charge should work out on his own, the total requirement of chemical required for the work as per specifications and ensures that the full quantity is brought to site and used in the work. Engineer-in-Charge should ensure that paid vouchers are produced by the agency executing the work for the full quantity of the chemical required and brought to site and a record of such vouchers duly defaced by Engineer-in-Charge with his dated signature should also be kept on record. For this purpose entries should be made in the MB as "NOT TO BE ABSTRACTED" indicating the brand name, quantity brought etc, and signed by Engineer-in-Charge as well as the representative of the Agency executing the work.
- 2.6.8 The defects liability period of anti-termite treatment shall be 10 years and the contractor shall be responsible to keep the entire building(s) free from termite infestation for a period of 10 years after the date of taking over the complete building(s) from contractor. The contractor may obtain a similar guarantee from the specialist firm engaged by him for the purpose.
- 2.6.9 Should the GE at any time during construction or reconstruction or prior to the expiration of period of 10 years after the anti-termite treatment has been completed as per contract, finds that the buildings have been infected with termites, the contractor shall, on demand in writing by the GE specifying the building(s) complained of, notwithstanding that the same may have been inadvertently passed, certified and paid for, forthwith undertake to carry out such treatment as may be necessary to render the said building(s) free from termite infestation at his own expenses for a period of ten years from the certified date of completion and in the event of contractor's failure to do so within a period to be specified by GE in his demand aforesaid, the GE may undertake such treatment at the risk and expense in all respect of the contractor. The liability of the contractor under this condition shall not extend beyond the period of 10 years from the certified date of completion unless the GE had previously given notice to the Contractor.
- 2.6.10 A sum equal to 0.25% of the quoted lump sum against buildings covered as per Schedule 'A' Part-I for which anti-termite treatment has been specified in Sch 'A' Note or Rs. 25000.00 whichever is more will be held back out of the contractor's bill as security deposit for the Guarantee period of 10 years which shall be refunded to him after expiry of this period from the certified date of completion by the GE, provided always that the Contractor shall first have been paid the final bill and have rendered a No-Demand Certificate (IAFA-451). Alternatively, the contractor may give a separate interest bearing security/fixed deposit or Bank Guarantee Bond from any Scheduled/Approved Bank to GE valid for 10 years for sum mentioned above.
- 2.6.11 Testing of chemical is mandatory from approved laboratory before incorporation in the work. The cost of testing shall be borne by the contractor.
- 2.6.12 The contractor shall provide plaster plate of 1mx0.90m size in situation as decided by the Engineer-in-Charge on the wall of each of the building. The plate shall be 10mm thick in cement mortar (1:4) indicating the CA No, Name of the contractor, the date of completion of the work and the probable date of expiry of 10 years Guarantee for Antitermite treatment by engraving and painting (Black). The cost of Antitermite treatment and the plaster plates as specified here-in-before shall be deemed to be included in the unit rates of the buildings.



**2.7 Hard core**

2.7.1 Hard core shall be of hard broken stone or boulders broken to gauge not exceeding 63mm. The contractor however has the option to use hard broken burnt brick hard core of the aforesaid gauge without any price adjustment. 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 true surface and compacted with sufficient fine material. The thickness of hard core specified or indicated in the drawing is the thickness after consolidation. Where thickness has not been mentioned, it shall be 150mm consolidated. However only one type of hard core either of stone or bricks should be used in location of a building or part thereof.

**2.8 Rubble Soling**

Where shown or indicated on drawings, broken stone soling of range 100mm to 50mm of Granite, Trap or Basalt stone shall be provided to the width and depth as shown on drgs. The thickness shall be the compacted thickness of rubble soling.

**3. CONCRETE WORK****3.1 General**

3.1.1 Where there is discrepancy between the number of reinforcement bars as marked on the drawings and the number of bars as worked from the C/C spacing shown on the drawings, the later shall prevail. The number of reinforcement bars in the RCC slab etc. shall be worked out considering the span between C/C of supports.

3.1.2 Where ever nomenclatures of RCC slabs (e.g. S-1, S-2 etc.) is given in the RCC plans, the details of reinforcement for such slabs shall be as given for slabs of the same nomenclature elsewhere, if not given in the same drawings.

3.1.3 RCC Chajjas where shown on a architectural plans /cross sections shall be provided even if not marked on the structural plans/sections.

**3.2 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.

**3.2.1 Type of Cement.**

Type of cement to be used in this contract shall be Ordinary Portland Cement (**OPC**) Grade 43 conforming to IS-8112-1989 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. But however, Portland Pozzolana Cement (**PPC**) (as per IS-1489-1991) can be used in lieu of Ordinary Portland Cement without any price adjustment subject to fulfilling certain criteria enumerated herein under in succeeding paras :-

PARTICULAR SPECIFICATIONS (Contd...)**3.2.2 Procurement**

3.2.2.1 Cement shall be procured by the contractor (**OPC, PPC & PSC**) directly from any of the producers listed below:-

**APPROVED CEMENT MANUFACTURERS FOR MES ON PAN INDIA LEVEL**

<b>Srl No.</b>	<b>Company Name</b>	<b>Address</b>	<b>Cement Grade</b>
1.	The Associated Cement Companies Ltd <b>Brand: "ACC"</b>	414-421, Splendor Forum (4 <sup>th</sup> Floor), 3, District Centre, Jasola, New Delhi-110044 <b>Ph: 011-46583600</b>	All
2.	Ultra Tech Cement Ltd. <b>Brand: "ULTRATECH"</b>	'B' Wing, 2 <sup>nd</sup> floor, Mahakali Caves Road, Andheri (East), Mumbai-400093, Ph 022-66917800	All
3.	The India Cement	Dhun Building, 827, Anna Salai, Chennai-600002	All
4.	Dalmia Cement (Bharat) Ltd <b>Brand: "DALMIA INFRA PRO"</b>	Dalmiapuram, Distt- Truchirappalli, Tamil Nadu-621651	All
5.	Century Cements <b>Brand: "CENTURY"</b>	Industry House, 159 Church Gate, Reclamation, Mumbai-400020 Ph: 022-22023936	All
6.	Saurashtra Cement <b>Brand: "SAURASHTRA"</b>	Gala No A-1, Ground Floor, Udhog Sadan No. 3 MIDC, Central Road, Andheri (East), Mumbai-400093 <b>Ph: 022-32955557/67</b> <b>Mo: 9320290081</b>	All
7.	The Ramco Cements Ltd. (Formerly Madras Cement) <b>Brand: "RAMCO"</b>	Auras Corpotate centre, 98-A, Dr Radhakrishnan Salai, Mylapore, Chennai- 600004 Ph. 044 28478666	All
8.	Mangalam Cement Ltd <b>Brand: "MANGALAM"</b>	PO Aditya Nagar, Morak, Distt- Kota, Rajsthan-326520 <b>Ph: 9351468076</b>	All
9.	Birla Corporation Ltd <b>Brand: "BIRLA"</b>	Birla Building (3 <sup>rd</sup> & 4 <sup>th</sup> Floor) 9/1, RN Mukherjee Road, Kolkata-700001 <b>Ph: 033-30573700</b>	All
10.	Orient Cement <b>Brand: "BIRLA-A1"</b>	5-9-22/57/D, 2 <sup>nd</sup> and 3 <sup>rd</sup> Floor, GP Birla Centre, Adarsh Nagar, Hyderabad-500063 <b>Ph: 044 23688600</b>	All

Srl No	Company Name	Address	Cement Grade
11.	Nuvoco Vistas Corporation Ltd (Formerly Lafarge Cement) <b>Brand: "NUVOCO"</b>	Equinox Business Park Tower-3 ,East Wing, 4 <sup>th</sup> Floor, LBS Marg, Kurla (West), Kurla Mumbai Maharashtra-400070	All
12.	Shree Cement Ltd. <b>Brand: "SHREE"</b>	Bangur Nagar, Beawar, Distt- Ajmer, Rajasthan-305901 <b>Ph:</b> 01462-228101-06	All
13.	J K Cement <b>Brand: "JK"</b>	Kamla tower, Kanpur-208001	All
14.	J K Lakshmi Cement Ltd <b>Brand: "J K LAKSHMI"</b>	Jaykaypuram, Distt-Sirohi, Rajasthan-307019, <b>Ph:</b> 02971-244409/10	All
15.	Jaypee Rewa Cement <b>Brand: "JAYPEE"</b>	Jaypee Nagar Post Office Jaypee Nagar, Rewa-486450, M P.	All
16.	Ambuja Cement Ltd. <b>Brand: "AMBUJA"</b>	Kodinar, PO-Ambujanagar, Taluka-Kodinar, Distt-Junagarh, Gujrat-362715 <b>Ph:</b> 02795-237000	All
17.	M/s Chettinad Cement Corporation Pvt. Ltd. Chennai <b>Brand "CHETTINAD CEMENT"</b>	<b><u>M/s Chettinad Cement Corporation Pvt. Ltd.</u></b> 4 <sup>th</sup> Floor, Rani Seethai Hall Building 603, Anna Salai Hall, Chennai-600 006 <b>Tele :</b> + 91-44-28292727/42149955 <b>Fax:</b> +91-44-28291558 <b>Email:</b> shares@chettinadcement.com <b>Website:</b> <a href="http://www.chettinad.com">www.chettinad.com</a>	(a) OPC-43 (b) PPC
18.	M/s My Home Industries Pvt Ltd. <b>Brand "MAHA CEMENT"</b>	<b><u>M/s My Home Industries Pvt Ltd.</u></b> 9 <sup>th</sup> Floor, Block -3 My Home Hub, Madhapur Hyderabad-500081, Telangana <b>Tele :</b> + 91-40-66929696 <b>Fax-m+:</b> +91-40-23118000 <b>Email:</b> corp@myhomegroup.in <b>Website:</b> <a href="http://www.myhomeindustries.com">www.myhomeindustries.com</a>	(a) OPC-43 (b) PPC (c) PSC

PARTICULAR SPECIFICATIONS (Contd...)

Srl No	Company Name	<u>Address</u>	Cement Grade
19.	M/s Wonder Cement Ltd.  <b>Brand "WONDER CEMENT"</b>	<b><u>M/s Wonder Cement Ltd.</u></b> 17. Old Fatehpura Seva Mandir Road, Udaipur-313004 Rajasthan (India) <b>Tele</b> : + 91-294-33991133 <b>Fax</b> : +91-274-3006333 <b>Email</b> : corp.office@wibdercenebt.com <b>Website</b> : <a href="http://www.wondercement.com">www.wondercement.com</a>	(a) OPC-43 (b) OPC-53 (c) PPC

3.2.2.2 In case the total estimated requirements of cement is less than 1200 bags, Contractor can procure cement from the authorised distributors/ dealers of the approved firms, but the contractor will have to submit test certificates of the batch issued by the main producers.

**3.2.2.3 Requirements for using Portland Pozzolana Cement.**

- (a) PPC meets the strength criteria of 43 Grade OPC as laid down in IS-8112-1989.
- (b) The minimum period before stripping form work given in clause 11.3.1 of IS-456-2000 is to be suitably modified and as approved for the period by GE. The contractor shall not claim extra on this account.
- (c) Mixing of **OPC & PPC** shall not be allowed in a work. However with the strict control of the ground executives, different buildings can have different type of cement.
- (d) Following requirements shall be ensured at the time of procurement and certificate to this effect shall be obtained from manufacturer for each batch.
  - (i) The quantity of Fly Ash is strictly as per IS-1489 (Part-I)-1991.
  - (ii) Fly ash is underground with clinker not mixed with clinker.
  - (iii) Dry fly ash is transported in closed containers and stored in silos only. Only pneumatic pumping should be used.
  - (iv) The fly ash is received from thermal power plants using high temperature combustion above 1000<sup>0</sup> C should be used.
  - (v) The fly ash contents in PPC shall not exceed **35%** to ensure consistency.
- (e) In cold climatic regions where temperature goes below 15<sup>0</sup> C and important structures like overhead reservoirs, underground sumps and buildings with spans 10 m or more, only **OPC** shall be used. However for other structures during working seasons in cold climatic regions, where **OPC** is not available use of **PPC** may be permitted provided it shall be ensured that while using **PPC**, atmospheric temperature should be more than 15<sup>0</sup> C.

3.2.2.4 Contractor shall produce purchase vouchers, test certificate 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 as in para 3.2.2.1 above. The contractor shall also obtain date of manufacturing of cement from manufacturers/ suppliers for every lot of cement separately and will submit complete documents in support of purchase of cement to Engineer-in-charge/ GE for verification.

**PARTICULAR SPECIFICATIONS (Contd...)****3.2.3 Testing of Cement.**

3.2.3.1 The manufacturer is to carry out inspection and testing of cement in accordance with the relevant BIS provisions. The Contractor shall submit the Manufacturer's Test certificate in original along with the Test Sheets giving the result of each physical test as applicable and the chemical composition of the cement or authenticated copy thereof, duly signed by the manufacturer or his authorized representative with each consignment. The Engineer-in-Charge shall record these details in the Cement Acceptance Register (Performa as per Annexure 'A') after due verification and forward a certified true copy of test sheet to GE for his records.

3.2.3.2 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 manufacturers 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 National Test house SEMT wing CME, Regional Research Laboratory or Zonal Laboratory, all as per relevant IS (Method of sampling hydraulic cement), (Method of physical test for hydraulic cement) and (Method of chemical analysis of hydraulic cement). 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.

3.2.3.3 Cost of testing undertaken as per provision in clause 3.2.3.2 above 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.

3.2.3.4 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. No claim whatsoever shall be entertained on this account.

**3.2.4 Storage/Consumption of Cement**

3.2.4.1 Cement in bags shall be stored in proper leak proof/damp proof storage godown, over at least a 20cm high platform at least 20 cm away from floor and walls in such manner so as to prevent deterioration due to moisture or intrusion of foreign matter, all as specified in clause 4.3.1 of SSR Part-I. It shall be ensured that stacking of cement shall not be more than 10 bags high. It shall be ensured that tested and untested cement is segregated and stored separately with distinct identification.

3.2.4.2

3.2.4.3 The entire quantity of cement brought at site shall also be suitably recorded in the MB indicating quantity and purchase voucher (s) before incorporating in the works. Entries in the MB shall be signed by the Engineer-in-charge and the contractor.

3.2.4.4 (i) 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 to check, it shall be signed by MES representative also as follows:-

**PARTICULAR SPECIFICATIONS (Contd...)**

- (a) Daily by JE (Civil) or JE (E/M) in charge of works.
- (b) Twice in a week by the Engineer-in-Charge.
- (ii) The register shall remain at site of work, in the safe custody of the contractor and on demand shall be produced for verification of Inspecting Officer. On completion of the work, the register shall be returned to MES.
- (iii) The cement godown 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's authorized agent at site of work so that cement is removed from the godown according to daily requirements and with the knowledge of both the parties.
- (iv) 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.

3.2.4.5 Cement shall be used in order of which it is received but not later than two months from the date of manufacturing. It shall be ensured that only one type/make of cement is used in any structural member.

3.2.4.5 **Documentation**

The contractor shall submit original purchase vouchers from the manufacturer 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 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 Cement Acceptance Register. The Cement Acceptance Register will be signed by the JE(Civil) or JE (E/M), Engineer-in-Charge, GE and the contractor. The Accepting Officer may order a board of Officers for random check of cement and verification of connected documents. The entire quantity of cement shall be suitably recorded in the Measurement book also for record purposes before incorporation in the work, as "Not to be abstracted" indicating the voucher number with dates, quantity, date of manufacture/expiry date etc. It shall form the basis to allow advance on account through RARs. While allowing advance on account quantities of cement so entered in MB shall be reduced by 2.50%.

3.2.4.6 **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.

3.3 **Aggregates**

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

3.3.1 **Fine aggregate (sand)**

Unless specified otherwise in these particular specifications M-Sand (Manufactured sand) for all concrete & masonry work shall be used. Grading for fine aggregate shall be within the limits of grading zone I to III as given in clause 4.4.7.2 of MES Schedule Part-I. However for all concrete and masonry work, fine sand within limits of grading I & II shall be provided and for all other balance work including plastering/screeding etc. where it shall be provided within limits of grading –III.

**3.3.2 Coarse aggregate**

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

**3.3.3 Grading of coarse aggregate**

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

(a) Reinforced cement concrete.

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

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

(b) Plain Cement Concrete

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

**3.4 Water**

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

**3.5 Mix of concrete**

Unless otherwise specified in drgs and else where in these particular specifications, the mix of cement concrete in various situations shall be as under. However the grade of concrete shall not be less than what is given below:-

SI No	<u>Situation</u>	<u>Type of Concrete</u>
(a)	Lean concrete under foundation of walls, plinth toe beam and in gaps between plinth columns footing.	PCC (1:5:10)(by Volume)
(b)	Lean concrete under column footing.	PCC(1:4:8)(by Volume)
(c)	PCC in plinth protection and channel/drain, PCC cills, PCC block for holder bats and holdfasts or lugs for doors, windows and ventilators and plugging for scaffolding holes.	PCC(1:3:6)(by Volume)
(d)	PCC in bed blocks/plates, Kerbs, benching splash stones and coping and PCC in any other situation not covered above.	PCC(1:2:4) (by Volume)
(e)	All RCC works for buildings/structures.	M-25 (Design mix) for building work and M-30 (Design mix) for water retaining structures as per IS-456 of 2000

**PARTICULAR SPECIFICATIONS (Contd...)**

**Note** :- PCC/RCC for other than building works/structures work (Schedule 'A' Part-I) shall be as specified in relevant item of Schedule 'A' parts or as specified in particular specifications here in after or as shown on drawing shall be followed.

**3.6 Important requirements of Design Mix (RCC/PCC).**

- 3.6.1 (i) All design Mix concrete shall be provided strictly as given in section 2 of IS-456 – 2000 and shall suit the climatic and exposure conditions of area where work lies.
- 3.6.2 (ii) The design mix of concrete shall be got done from CTL/ NIT /IIT. The design mix shall be approved by the GE before incorporation in the work. However, the approval of GE will not absolve the contractor of his responsibility for obtaining required minimum strength. In case of any dispute or difference of opinion between the GE and the contractor in this regard, the decision of the CWE shall be final, conclusive and binding.
- ii) All tests in support of mix design shall be maintained as a record for the contract.
- 3.6.2 Ordinary Portland Cement/Portland Pozzolana Cement shall be used for Design Mix.
- 3.6.3 At the time of concreting, the contractor after taking into account the type of aggregate, plant and method of laying, he intends to use, shall allow for the aggregate cement ratio which he considers will achieve the strength requirement specified and will produce workability which will enable concrete to be properly compacted for its full depth as per IS.
- 3.6.4 Actual proportion of cement, aggregate and water to obtain the required strength shall be determined by carrying out design mix as specified here-in-before.
- 3.6.5 Irrespective of the cement contents arrived as per actual mix design, no price adjustment will be made for variation in cement and aggregate contents. Rate quoted by the contractor shall deemed to be inclusive of this factor and no claim whatsoever for increase in quantity of cement contents beyond minimum cement contents as per IS-456-2000 shall be entertained.
- 3.6.6 The building(s) has/have been designed for moderate exposure condition & 1.5 hours fire rating.

**3.7 BATCHING & MIXING**

- 3.7.1 All concreting shall be done by using computerized automatic concrete batching plant of minimum capacity 15 to 20Cum/hour, which shall be installed by the contractor at site, calibrated and tested. The batching plant shall conform to IS-4925. It shall have the facilities of data print-outs, presenting the quantity to be weighed with automatic cut-off when the same is achieved.
- 3.7.2 In case of non-availability of batched concrete, ready mix concrete (RMC) may be used. The concrete to site shall be transported by transit mixtures. All the precautions shall be taken during the transportation and handling of concrete to achieve the desired strength, durability, etc. as envisaged in the mix design. Contractor has to get the approval from Engineer-in-Charge regarding source of ready mix concrete by giving the details of such plants indicating name of owner/company, its location, technical establishment, past experience and text of Memorandum of understanding (proposed to be entered between purchaser and supplier) who, after satisfying himself about quality/capability of the



**PARTICULAR SPECIFICATIONS (Contd...)**

company, shall give approval in writing (subject to drawl of MOU). The MOU shall be drawn with RMC plant owner/company and submitted to Engineer-in-Charge within a week of such approval. The contractor will not be allowed to purchase ready-mixed concrete without completion of above formalities for use in this project. Notwithstanding the approval granted by Engineer-in-Charge in aforesaid manner, the contractor shall be fully responsible for quality of concrete including input control, production, transportation and placement, etc. The Engineer-in-Charge will reserve the right to deploy his supervisor at plant site to inspect at any such stage and reject the material/concrete etc, if he is not satisfied about quality of material/product.

- 3.7.3 The design mix concrete will be designed based on principle given in IS-456, 10262 and SP 23 for each class of concrete indicating that the concrete ingredients and proportions will result in concrete mix meeting requirement specified.
- 3.7.4 In case of use of admixture and /or white cement, the mix shall be designed with these ingredients as well.
- 3.7.5 Nothing extra shall be paid for use of ready mix concrete instead of batch mixed concrete.
- 3.8. All measuring equipment shall be maintained in a clean and serviceable condition and their accuracy shall be checked at least once a month.

3.9 **Acceptance criteria for concrete**

The criteria for acceptance of the concrete shall be as given in clause 16( Section-II) of IS-456/2000(Code of practice for plain and reinforced concrete). The minimum frequency for the work tests shall be as specified therein or samples taken from concrete poured in operations as specified in clause here-in-after which ever more. Frequency of sampling is laid down in para 15 (Section-II) of IS-456/2000.

3.9.1 **Tests**

The following tests shall be carried out during the execution of work. These tests shall be in addition to those specified in clause 3.9 hereinbefore. Tests shall be carried out in accordance with IS-516 and IS-1199. The contractor shall provide all facilities and equipment for casting and curing of test cubes and conveyance of test cubes and other material for testing purpose to MES Laboratory, the cost for which shall also be borne by the contractor. However, testing charges to be levied from contractor for tests carried out in MES Laboratory as per special condition No 34 here-in-before. All equipments required for site tests as per BIS norms will be procured by the contractor. The cost of the same is deemed to be included in the lumpsum quoted by the contractor.

(i) **Workability test**

Workability test shall be as per clause 7 of IS-456/2000.

(ii) **Sampling and strength of designed concrete mix**

(a) General samples from fresh concrete shall be taken as per IS-1199 and cubes shall be made, cured and tested at 28 days in accordance with IS-516.

(b) In order to get a relatively quicker idea of the quality of concrete, optional tests on beams for modulus of rupture at  $72 \pm 2$ h or at 7 days, or compressive strength tests at 7 days may be carried out in addition to 28 days compressive strength test. For this purpose the values should be arrived at based on actual testing. In all cases, the 28 days compressive strength specified in table 2 shall alone be the criteria for acceptance or rejection of the concrete.

**(iii) Frequency of Sampling**

**(a) Sampling Procedure**

A random sampling procedure shall be adopted to ensure that each concrete batch shall have a reasonable change of being tested that is, the sampling should be spread over the entire period of concreting and cover all mixing units.

**(b) Frequency**

The minimum frequency of sampling of concrete of each grade shall be in accordance with the following:-

<u>Quantity of concrete in work, in cum</u>	<u>Numbers of samples</u>
1-5	1
6-15	2
16-30	3
31-50	4
51 and above	4 plus one additional sample for each additional 50cum or part thereof.

**Note:** - At least one sample shall be taken from each shift. Where concrete is procured at continuous production unit, such as ready mixed concrete plant, frequency of sampling may be agreed upon mutually by suppliers and purchasers.

**(c) Test Specimen**

Three test specimens shall be made for each sample for testing at 28 days. Additional samples may be required for various purposes such as to determine the strength of concrete at 7 days or at the time of striking the form work, or to determine the duration of curing, or to check the testing errors. Additional samples may also be required for testing samples cured by accelerated methods as described in IS-9103. The specimen shall be tested as described in IS-516.

**(d) Test Results of sample**

(i) The test results of the sample shall be the average of the strength of three specimens. The individual variation should not be more than  $\pm 15$  percent of the average, if more, the test results of the sample are invalid.

(ii) For the purpose of subsequent identification of the work test cubes, the concrete of which these pertains shall be cross referred and records of this maintained and signed by the Engineer-in-charge and contractor or his authorized representative.

(iv) Slump Test.

(a) The frequency of the test shall be decided by the GE. The slump for the vibrated concrete may be 1 inch to 3 inches maximum. 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 lying until the slump in excess of that required shall not be consumed and removed from the site.

**(b) Compression Test**

A group of nine test cubes (15 cm x 15 cm x 15 cm) shall be taken out at the following stages of work in all building catered in Schedule 'A' Part-I. Column footing and raft beams, columns, walls, beams, band, slab etc.

**PARTICULAR SPECIFICATIONS (Contd...)**

**Note:** The frequency may be increased as considered necessary by the GE.

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

(d) For the purpose of subsequent identification, test cubes shall be cross-referred and record of this maintained and signed by the Engineer-in-Charge and contractor or his authorised representative. Test report will be signed jointly by the Engineer-in-Charge and the contractor.

(e) Acceptance/Rejection of concrete

Any concrete not acceptable after taking into consideration the criteria stated in table 11 of IS: 456, shall be rejected. The contractor shall replace such concrete at his own expenses.

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

(g) Bulking of sand - Test shall be carried out as per IS: 383.

(h) Impurities of sand - Test shall be carried out as per IS: 383.

(j) Sieve analysis of aggregate - Test shall be carried out as per IS: 383.

(k) RCC Beam shall be casted monolithically with slab.

**3.9.2 Placing and compaction of concrete**

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

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

**3.9.3 Water cement ratio**

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

**3.9.4 Curing**

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

**3.9.5 Concrete other than controlled concrete**

Ordinary concrete using graded crushed stone aggregate shall be provided all as specified here-in-before.

**PARTICULAR SPECIFICATIONS (Contd...)****3.9.6 Plain cement concrete**

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

(ii) All plain concrete shall be consolidated / compacted by tamping and Roding.

**3.9.7 Nominal mix**

Nominal mix where indicated shall be provided as per IS-456-2000

**3.9.8 Form work**

3.9.8.1 Formwork shall comply with requirement of para 4.11.6.1 to 4.11.6.5 and 7.15.1 to 7.15.12 of MES Schedule (Part I).

3.9.8.2 All formwork for columns, beams, slabs, chajjas etc. shall be provided of steel with steel props adjustable with lateral stability and no wooden ballies/planks etc. will be allowed for the same as directed by Engr-in-Charge. In case of any deviation involving formwork, the pricing shall be done at the rates of timber formwork for fair finished surface of concrete as specified in clause 7.15.2 of MES SSR (Part-I).

**3.9.9 Exposed surface of concrete**

3.9.9.1 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.

3.9.9.2 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.

**3.9.10 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.

**3.11 RCC Chajjas**

3.11.1 RCC Chajjas (whether cast integral with the lintel or precast and embedded in the wall) shall be provided with a coved fillet of radius 50mm in PCC (1:2:4) preferably casted while the concrete is still green.

3.11.2 The top surface of chajjas and the coved fillet shall be finished with 10mm thick cement plaster in cement mortar (1:3) with a mixture of approved water proofing compound as per manufacturer's instructions just after the initial setting of cement in lintel has taken place.

**3.12 Drip Course**

Drip course to projections of RCC/PCC beyond external faces of the walls where shown on drawings, and where RCC Chajjas are not provided with down ward facia, shall be formed in the concrete while casting, as per details shown on drawings.

**3.12.1 Window / Ventilator cill**

Irrespective whatever showing on drawings, 18-20mm thick green marble slab to be provided & Half molding on the edges of inner frame to be included all round the opening of window/ventilator (like cill, jams & soffits) all around the opening of window over and including 20mm thick screed bed of CM(1:4), flush on interior side of wall opening shall be provided under all windows/vents extending 100mm in walls on internal side. On external side of wall, 50mm thick PCC 1 : 2 :4 type B0 shall be provided.

**3.13 Bearing of RCC Structural Members**

3.13.1 Bearing of all RCC roof/floor slabs should rest on two layer of bitumen laminated water proofing building paper type-I, weighing not less than 60 gms/Sqm each layer, laid over 20mm thick bearing plaster in CM 1:4 finished even and smooth treated with one coat of white wash over PCC band/masonry wall.

3.13.2 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 drawings. 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.

3.13.3 The bearing of lintels shall comprise of a full brick with vertical joints in brick work staggered.

**Note** : Provisions given in this clause are applicable only to load bearing wall and not for frame structures.

**3.14 Junction of RCC Roof slabs and parapet walls, Moulds/Facia/Pipe etc (As applicable)**

PCC padding in the form of a coved fillet of radius 75mm shall be provided in PCC (1:2:4) all alongwith junction of RCC roof slabs and vertical projections as specified above.

**3.15 Plinth Protection**

3.15.1 Plinth protection in all situations as shown on drawings shall be provided with 50mm thick PCC (1:3:6) type C-1 using 20mm graded crushed stone aggregate over 75mm thick consolidated bed of hard core blinded with coarse sand over well consolidated earthen surface. Unless otherwise indicated on the drawing, the width of the plinth protection shall be 100cm. PCC shall be laid in alternate bays (not exceeding 2 Sqm) and finished 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 walling and plinth protection. All joints in bays of concrete as well as between walling and the concrete in plinth protection shall be filled with mastic filling comprising of one part of heated bitumen 85/25 grade and 3 parts of sand (all by weight). The plinth protection shall be laid to slope of 1:12 from outer edge of wall.

3.16 **PCC Benching**

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

3.17 **Concrete padding**

Where the required height of walls, opening is not obtained with adequate size of PCC blocks/stone/bricks, the same shall be obtained by providing concrete padding of PCC (1:3:6) type C-1.

3.18 **Seismic Provision**

3.18.1 The seismic provision shall be provided all as per details shown in drg No.CE/TD-1584/2021 sh 1/5 to 5/5. The lumpsum cost quoted by the contractor shall be deemed to include above provision. Where roof band are indicated in the drawing, these shall not be monolithic with the slab and bearing plaster including other treatment mentioned in clause 3.12 hereinbefore shall also be provided over roof band. For the purpose of determining strengthening measures to be adopted as per drawing No. CE/TD-1584/2021 Sh 1/5 to 5/5, the building shall be considered to be belonging to category 'D' as per Table-1 of said drawing.

3.18.2 Seismic strengthening measures shall be provided all as shown in drawings and as per the provisions of relevant IS for the Seismic Zone in which the buildings lies. In case any item which may not have been specifically stated or shown is required to be provided for Seismic strengthening, same shall be provided without any extra cost to the Government. Provisions of IS code amended upto the last due date of receipt of tender shall be applicable for the purpose.

4. **BRICK WORK**

4.1 **Materials**

4.1.1 **Bricks:** Bricks shall be Sub class 'B' kiln burnt, locally available, best quality conforming to the samples kept in CWE/GE's office. Irrespective of what is specified in Schedule 'A'/Notes on drawings, bricks shall have minimum compressive strength of 75Kg/Sqcm. Water absorption of bricks shall not exceed 20% when tested in accordance with IS-3495. Sampling and testing of bricks shall be carried out as per IS-5454 and IS-3495. The size of brick shall be 230mm x 115 mm x 75mm. The tolerance in the dimensions shall be  $\pm 8$  percent.

4.1.2 **Cement:** Refer clause 3.2 here in before.

4.1.3 **Sand:** Sand for mortar shall be as specified in clause 5.4 of MES Schedule Part-I.

4.2 **Workmanship**

4.2.1 Unless otherwise specified here-in-after and/or shown on drawings, brick work in various situations shall be built in cement mortar as under :-

(a) Brick work in half brick thick and under, independent pillars and reinforced brick work including foundations - Cement mortar 1:4.

(b) Brick work in all other situations including foundations - Cement mortar 1:6.

4.2.2 Half brick thick wall of height more than 90 cms shall be re-inforced with two Nos 8mm dia mild steel round bars, horizontally at every fourth course, starting from floor/DPC level and anchored in wall/columns at junctions. The anchorage length provided shall be not less than 150 mm. Over laps, if any required in the reinforcement shall not be less than 30 cms.

**PARTICULAR SPECIFICATIONS (Contd...)**

- 4.2.3 In the event of deviations, brick work as specified above shall be priced at the applicable rates in MES Schedule (Part-II) for materials and labour with sub class 'B' bricks subject to contractor's percentage on Schedule 'A' Part-I.

4.3 **F.I Ties**

Brick masonry coming in contact with RCC columns shall be anchored to columns with MS Flat iron ties, starting from 15 cms above DPC/floor level. The ties shall be of 25 mm x 3 mm flat iron, 25 cm long provided at every fourth course not exceeding 30 cm. Anchorage of FI ties in column shall be 10cm.

4.4 **Plinth band**

If indicated or shown in structural drawings, RCC M-25 (Design Mix) Plinth band shall be provided all as per details shown in structural drawings and notes therein.

4.5. **Damp proof course**

- 4.5.1 The damp proof course shall consist of a layer of 40 mm thick plain cement concrete (1:2:4) type B0 (using 12.5 mm nominal size crushed stone aggregate) mixed with water proofing compound and to be laid as specified in para 5.42.1 and 5.42.2 of MES Schedule (Part-I).

- 4.5.2 Water proofing compound for damp proof course and in other locations of work as specified, shall conform to IS-2645. It shall be mixed with cement concrete in the proportion and manner as given in manufacturer's instructions. Deviations if any shall be priced at the rate of 3% by weight of cement. Water proofing compound shall be of any make as mentioned in Appx 'A' of makes attached hereinafter.

- 4.5.3 Damp proof course shall also be provided under door / openings below floor by giving vertical drop irrespective of what is shown on the drawings. PCC/ Terrazzo floor where provided shall be extended in door openings. Damp proof course shall not be provided for RCC framed construction where the top of plinth beams/ plinth band is at floor level.

4.6 **Laying and Bonding**

- 4.6.1 Brick shall be laid and bonded, all as specified in clause 5.23 and 5.24 of MES Schedule Part-I as applicable to old size bricks (FPS conventional bricks). Facing shall be done as per clause 5.31 of MES Sch Part-I.
- 4.6.2 Half brick walls upto 2100mm height shall rest directly on the sub base of floor. Half brick walls above 2100mm height and dwarf wall be provided with foundations as shown on the drawings.

5. **STONE MASONRY**

Stone masonry works where indicated shall be provided as under:-

5.1 **Materials**

- 5.1.1 **Stone**: Stone shall be harder stone such as granite, trap or basalt of best quality locally available. 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 (in their original rounded shape) shall not be used in the stone masonry work.

- 5.1.2 **Cement**: Refer Clause 3.2 here-in-before.

- 5.1.3 **Sand**: Refer Clause 5.4 of the MES Schedule Part-I.

5.2 **Workmanship**

- 5.2.1 The stone masonry work shall conform to the general requirements given in clauses 6.2.1 to 6.2.4, 6.7.1(b), 6.8,6.9 and 6.10.2 of the MES Schedule Part-I.

**5.2.2 Type of stone Masonry.**

5.2.2.1 Random rubble masonry brought upto courses for situations other than retaining walls shall be provided as specified in clause 6.10.2 of the MES Schedule and in accordance with Fig 8 of the MES Schedule. The stone masonry work shall be built in cement mortar 1:6 unless otherwise specified, elsewhere in these specifications or in Schedule 'A'. 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.

5.2.2.2 Dry random rubble masonry uncoursed or RR masonry uncoursed in cement mortar for retaining walls shall be provided as specified in clause 6.10.1 and 6.17 of the MES Schedule Part I.

**5.2.3 Bond stones**

Refer clause 6.10.1.5 of MES Schedule Part-I. If the through bond stones of adequate size/length are not available, PCC bond stones in lieu shall be provided cast- in-situ or Pre-cast cement concrete of mix 1:3:6 type C-1 of section 15cmx 15 cm without any price adjustment.

**5.3 Stone or boulder filling behind retaining Walls**

Hand packing of stone or boulders shall be provided all as specified in clause 3.29 of the MES Schedule Part-I.

**6. WOOD WORK AND JOINERY**

**6.1 Timber**

6.1.1 Timber for all joinery and wood work shall conform to specification given in clause 7.3 of the MES Schedule Part-I and shall be within the permissible limits of defects defined in clauses 7.4 and 7.5 of the MES Schedule Part-I.

6.1.2 Timber shall be well seasoned (weather 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 content of timber shall not exceed the limit laid down in clause 7.7 of MES Schedule Part-I for Zone-II.

**6.2 Preservation of Timber**

6.2.1 Preservative Antitermite treatment shall be carried out to all woodwork and joinery fabricated by the contractor at site. Factory made wood based boards are not to be treated with any chemical.

6.2.1 Chemical used for Antitermite treatment to wood work and joinery shall be copper NAPHTHATE or any other chemical specified in IS-401 & applied in any one of the manner specified in the ibid IS.



**6.4 Species of timber**

The species of timber and prefabricated wood products (ie plywood, wood particle board etc), shall be as specified below:-

(i)	Panelled/glazed/wire gauzed shutter for doors (styles, rails, glazing bars, beading/ moulding fillets).	:	Factory made shutter using 2nd Class hard wood suitable for joinery (SAL/ HOLLOCK).
(ii)	Edging of cup boards, ward robes/cabinet shutters, pelmet boxes etc.	:	First Class hard wood.
(iii)	Panel inserts of door shutters, pelmets, shutters of cup board/ward robes where shown	:	Particle board commercial veneered on both sides of the thickness as shown on drawing.
(iv)	Sliding/folding wooden doors/hatch window	:	1st Class soft wood (Deodar).
(v)	Any other wood work not indicated in drawings or specification not given.	:	1st class soft wood (Deodar).

6.4.1 In the event of deviation of panelled joinery with veneered particle board inserts, the pricing shall be done at the rates given in SSR Part-II for factory made panelled shutters.

6.4.2 Panelled shutters shall be provided with beading all round the panel inserts on the front side of door. The size of beading shall be 20mm in width and tapered thickness from 10mm to 5mm.

**6.5 Commercial Veneered Particle Board**

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 list of makes hereinafter.

6.5.1 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 list of makes.

**6.5.2 Prelaminated particle Board**

It shall be of exterior grade conforming to relevant IS and of any of the make as mentioned in list of makes attached hereinafter.

**6.6 Workmanship**

6.6.1 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 clauses 8.15 to 8.26 of MES Schedule Part-I.

6.6.2 The dimensions of the various components of joinery (other than block board shutters) shown on drawings, wherever are at variance shall supercede the standard dimensions mentioned in clause 8.24 of the MES Schedule Part-I. However, for pricing deviations involving any joinery work, the rates in the MES Schedule (Part-II) for the corresponding joinery items shall be applicable.

6.6.3 Unless otherwise specified all work both carpenters and joiners shall hold full dimensions shown on drawings except that an allowances of 1.00mm shall be allowed for each wrought face. Wooden beads and fillets shall however, hold the full dimensions as shown on drawings. The contractor shall also maintain the overall sizes of the doors and windows etc, as shown on drawings.

- 6.6.4 Timber member's upto 3.0 metre length shall be in one piece.
- 6.6.5 Plugging to walls shall be done with wooden plugs as per clause 7.29 of the MES Schedule Part-I.
- 6.7 **Factory Made Shutters**
- 6.7.1 All panelled/glazed/wire gauzed shutters of doors shall be 35 mm thick factory made, manufactured in accordance with IS-1003 made of well selected and seasoned chemically pressure treated 2<sup>nd</sup> Class hard wood suitable for joinery. Styles, rails and glazing bars shall be as specified in clause 6.3(i) here-in-before. Panel inserts shall be of particle board 12mm thick commercial veneered on both faces, conforming to specifications mentioned in clause 6.4 above. The shutters shall be procured from any of the factory as mentioned in list of makes of makes attached hereinafter.
- 6.7.2 A tolerance of  $\pm 3$ mm on width and height shall be allowed provided the shutter snugly fits into the frame.
- 6.8 **FLUSH DOOR SHUTTERS**
- 6.8.1 Flush shutters wherever indicated to be provided, shall be solid core type with block board core or particle board core with commercial plywood facing on both sides or one side commercial facing and the other decorative or both sides decorative facing as described in the item description. The doors shall conform to IS-2202 (Part-I) 1983 and as specified in MES Schedule clause 8.21.1 to 8.21.6.
- 6.8.2 Cup boards/wardrobe shutters, cabinets etc. where indicated on drawings or in item description shall be provided with MDF Board with both side colour lamination.
- 6.9 **FRP Door**  
Wherever the drawing indicated PVC doors the same shall be provided with FRP (fibre glass reinforced plastic) doors complete all as directed by the GE. Make of doors shall be Durian Industries/Gujcon (Shree Gujrat timber corporation)/Astral windows Pvt. Ltd.
- 6.10 **Fire Door**: Fire door where shown on drawing shall be provided all as specified here-in-below and as directed by the GE.
- 6.10.1 **Scope**: Specification covers the design, supply of materials, manufacture and installation of factory made, ready to fit door sets of 120 minutes fire rating as per BS 476:Part 22.
- 6.10.2 Material and Finishes:-
- (a) Material Frame to be manufactured from 1.50 mm galvanized steel. Fire door leaf to be manufactured from 0.8 mm galvanized sheet of grade DX51 D+Z 80.
  - (b) Finishes – Frames and door leaves to be powder coated with a thickness of 60 to 70 micron for scratch, scuff and corrosion resistance.
    - (i) Optional: Wood décor surface, coil coated to galvanized sheet, as approved by the GE.
    - (ii) Optional: Stainless Steel, finished as approved by the GE.

**PARTICULAR SPECIFICATIONS (Contd...)****(c) Construction of Frames:-**

Door frame profile to be double rebated and fitted with a groove to accommodate a profiled elastic seal on all three frame sides. All frames to have suitable reinforcements fitted with the required mounting base for fixing of door closer at the appropriate location as per manufacturer's details. Frames to have factory finished pre-punched cut-outs to receive the specified hardware along with requisite mortar guard. Frames to be provided complete with heavy-duty hinges as per manufacturer's details. Frames to be provided with heavy duty elastic profile seal to provide an air-tight seal, thermal and acoustic insulation and to cushion the mechanical door action. Provide frames, other than slip on drywall type with a minimum of three anchors per amp suitable for the adjoining wall construction.

**(d) Construction of Door Leaves:-**

Doors to be press formed to 62 mm thick double skin hollow door. In tumescent Seal strips to be fitted on 3 sides of the door leaf. Double-leaf doors to be flush-fitting without meeting stiles on either side. Dorrs to have no visible screws or fasteners on either face internal reinforcement to be provided at the appropriate positions, as per manufacturer's details. Doors to be factory prepared with pre punched cut-outs and reinforcement to be receiving hardware as per final finish hardware schedule. Doors to be prepared for assembly of the hinges as per manufacturer's details. Door leaves to be fitted with concealed lock boxes and pre-assembled according to hardware specification. Doors to be fitted with door closer provided with re-inforcement and prepare to accommodate the specification.

**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 mongery on the relevant drawings. In all buildings iron mongery shall be used of aluminium anodized except butt hinges which shall be of mild steel medium weight.

7.1.2 In case the size of particular fittings is not given in the drawing, 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, these shall conform to the relevant ISI specifications and the specifications given in the MES Schedule for the relevant items.

7.1.4 Finish of articles shall be as specified in clause 9.2.4 of 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 MES Schedule Part-I. All the iron mongery wherever required to be welded, shall be welded with gas welding only.

**7.2 Articles**

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

**7.2.2 Continuous (Piano Hinges)**

Continuous (Piano) hinges shall be mild steel chromium plated all as specified in clause 9.7.6 of MES Schedule Part-I.

**7.2.3 Locking Bolts Steel**

Locking Bolts shall be mild steel, electro galvanized plate and bright bolt not less than 10mm dia, 100mm size all as specified in clause 9.6 of MES Schedule Part-I.

**7.2.4 Helical Door Springs**

All wire gauged shutter shall be provided with helical door springs made of mild steel all as specified in clause 9.7.8 of MES Schedule Part-I irrespective whatever is shown on drawings. The size of helical door spring shall be 150mm.

**7.2.5 Towel Rails**

Towel rails shall be tubular of aluminum alloy anodised of 'D' shape with flanged ends for fixing. It shall be of minimum dia 20mm and 60cm long in case length is not mentioned in drawings or otherwise as specified in BOQ.

**7.2.6 Wire Cloth**

Wire cloth to be used for wire gauged shutters shall be of stainless steel with average width of aperture 1.4mm & nominal dia of wire 0.3mm (as per SI 09169 in SSR) with average width of aperture 1.18mm and nominal dia of wire 0.56mm all as specified in clause 9.25 and 9.32 of MES Schedule Part-I.

**7.2.7 Tie Hanger**

Tie hanger shall be 20mm x 6mm flat of aluminum. The length of the tie hanger if not shown on the drawings shall be 400mm.

7.2.8 Door handles, tower, bolts, hasps and staples and sliding door bolts shall be of aluminum anodized all as shown on drawings in all building. Where mortise locks or knobs are shown in the drawings, handles shall not be provided. Tower bolts shall be barrel tower bolts having shoot dia of 12mm for more than 150mm and above.

**7.2.9 Knobs**

Shutters and drawers of small size built in cabinets/meter and switch boxes and built in furniture shall be provided with aluminum anodised knobs of 40mm dia.

**7.2.10 Flush Bolts**

Where double shutters have been provided for built in furniture, one of the shutters shall be provided with flush bolts of aluminium anodized.

**7.2.10.1 Pegs**

Pegs where shown on drawings shall be of aluminum anodised, cast integral with base plate.

**7.2.11. HDF Door**

HDF door shall be provided as indicated on drawings. HDF doors shall be of quality of High Density Fiber (HDF) panel board doors includes High Quality Timber Frame with machine filled Poly Urethane Foam (PUF) core of minimum 45Kg/ Cum Density and 3.20mm thick HDF facing layer, all as shown in drawings.

**7.2.11.1 BUILDERS HARDWARE**

**7.2.11.2 General**

7.2.11.3 **Items and Quantities**: Hardware fittings shall be provided according to the scales indicated in the Schedule of iron mongery on the relevant drawings. In all buildings iron mongery shall be used of aluminium anodized except butt hinges which shall be of mild steel medium weight.

7.2.11.4 In case the size of particular fittings is not given in the drawing, it shall be of size as decided by the GE.

**PARTICULAR SPECIFICATIONS (Contd...)**

- 7.2.11.5 All articles of builder's hardware shall bear ISI marking. In case ISI marked articles are not manufactured, these shall conform to the relevant ISI specifications and the specifications given in the MES Schedule for the relevant items.
- 7.2.11.6 Finish of articles shall be as specified in clause 9.2.4 of MES Schedule part-I.
- 7.2.11.7 Screws used for fixing the articles of builders hardware shall be as specified in clause 9.2.6 of MES Schedule Part-I. All the iron mongery wherever required to be welded, shall be welded with gas welding only.
- 7.2.11.8 **.Articles**
- 7.2.11.8.1 **Butt Hinges**: Butt hinges shall be cold rolled, mild steel, medium weight all as specified in clause 9.7.2 of MES Schedule Part-I.
- 7.2.11.8.2 **Continuous (Piano Hinges)**  
Continuous (Piano) hinges shall be mild steel chromium plated all as specified in clause 9.7.6 of MES Schedule Part-I.
- 7.2.11.8.3 **Locking Bolts Steel**  
Locking Bolts shall be mild steel, electro galvanized plate and bright bolt not less than 10mm dia, 100mm size all as specified in clause 9.6 of MES Schedule Part-I.
- 7.2.11.8.4 **Helical Door Springs**  
All wire gauged shutter shall be provided with helical door springs made of mild steel all as specified in clause 9.7.8 of MES Schedule Part-I irrespective whatever is shown on drawings. The size of helical door spring shall be 150mm.
- 7.2.11.8.5 **Towel Rails**  
Towel rails shall be tubular of aluminum alloy anodised of 'D' shape with flanged ends for fixing. It shall be of minimum dia 20mm and 60cm long in case length is not mentioned in drawings or otherwise as specified in BOQ.
- 7.2.11.9 **Wire Cloth**  
Wire cloth to be used for wire gauged shutters shall be of galvanised mild steel with average width of aperture 1.18mm and nominal dia of wire 0.56mm all as specified in clause 9.25 and 9.32 of MES Schedule Part-I.
- 7.2.11.10 **Tie Hanger**  
Tie hanger shall be 20mm x 6mm flat of aluminum. The length of the tie hanger if not shown on the drawings shall be 400mm.
- 7.2.11.11 Door handles, tower, bolts, hasps and staples and sliding door bolts shall be of aluminum anodized all as shown on drawings in all building. Where mortise locks or knobs are shown in the drawings, handles shall not be provided. Tower bolts shall be barrel tower bolts having shoot dia of 12mm for more than 150mm and above.
- 7.2.11.12 **Knobs**  
Shutters and drawers of small size built in cabinets/meter and switch boxes and built in furniture shall be provided with aluminum anodised knobs of 40mm dia.
- 7.2.11.13 **Flush Bolts**  
Where double shutters have been provided for built in furniture, one of the shutters shall be provided with flush bolts of aluminium anodized.
- 7.2.11.14 **Pegs**  
Pegs where shown on drawings shall be of aluminum anodised, cast integral with base plate.

**7.2.12 Curtain, rod and pelmet boxes**

Curtain rods where shown on drawings shall be fancy type, PVC coated, 25mm dia drapery rods with fancy valves at both ends including MS brackets and shall be approved by GE. Pelmet boxes where indicated or shown in drawings shall be provided as per details and dimensions shown in drawings of block board 19mm thick interior grade.

**7.2.13 Hydraulic door closer**

Hydraulic door closer where indicated in drawings shall be of cast iron body Designation No.2 Universal type, conforming to IS 3564 - 1995 as per clause 9.16 of MES Schedule Part-I.

**7.2.14 Mortice Lock/Rim Latch**

Where shown on drawings these shall be of brass chromium plated.

**8. STEEL AND IRON WORK**

**Note:** - All item of steel and iron work including steel for reinforcement required for incorporation in this contract shall not be issued under Sch 'B'. Contractor shall make his own arrangements to procure steel and iron all as specified hereinafter. Required checks specified here-in-after shall be carried out before the steel supplied by the contractor is accepted and is approved for incorporation in the work.

**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 :-

8.1.1.1 (a) **Reinforcement steel** : High strength deformed steel bars produced by Thermo Mechanical Treatment Process (TMT steel bars of grades **Fe-500D**) meeting all other requirements of IS : 1786 shall be used as indicated on drawings.

(b) **Structural Steel:-**

(i) Standard Quality – Conforming to IS: 2062 of 2011 (Grade E-250 Quality 'BR')

(ii) Ordinary Quality – Conforming to IS: 1977 (Fe 290 Gde E-165)

8.1.1.2 **Black/Galvanised Steel Sheets:** (Plain & Corrugated) conforming to IS: 277. Galvanised steel sheets, wherever indicated, shall have 275 grade of zinc coating.

8.1.1.3 **Fabric Reinforcement for Concrete:** Conforming to IS: 1566.

**8.1.2 Source of Procurement:**

(a) **Reinforcement Steel** - TMT steel bars of all sizes shall be procured directly from main Producers of steel or approved primary producers listed here in below:-

SI No.	Company Name & Brand	Address	Steel Grades / Sizes
1.	Rashtriya Ispat Nigam Ltd (RINL) <b>Brand: "RINL"</b>	Visakhapatnam Steel Plant Visakhapatnam– 530031, India Tel: (91891) 518226, 518376 Fax: (91891) 518316 E-Mail : <a href="mailto:cmdvsp@itpvis.ap.nic.in">cmdvsp@itpvis.ap.nic.in</a>	All
2.	Tata Iron & Steel Company (TISCO or Tata Steel) <b>Brand: "TATA"</b>	Bombay House 2,4 Homi Modi Street Mumbai – 400 001, India Tel : (9122) 2049131 Fax : (9122) 2049522, 2870840 E-Mail : <a href="mailto:corpcomm@jsr.tatasteel.com">corpcomm@jsr.tatasteel.com</a>	All

PARTICULAR SPECIFICATIONS (Contd...)

Sl No.	Company Name & Brand	Address	Steel Grades / Sizes
3.	Steel Authority of India Ltd (SAIL) <b>Brand: "SAIL"</b>	Central Marketing Organisation Northern Region, 17 <sup>th</sup> Floor, Scope Minar, Laxmi Nagar Distt Centre, Delhi-110092.	All
4	M/s Real Ispat & Power Limited Chhattisgarh <b>BRAND: "G.K. TMT"</b>	<b><u>M/s Real Ispat &amp; Power Limited (CG)</u></b> Vrindavan, Near IDBI Bank, Civil lines, Raipur- 492 001, Chhattisgarh <b>Tele:</b> 0771-4224000 <b>Fax:</b> 0771-4224010 <b>Email:</b> <a href="mailto:real@realispat.com">real@realispat.com</a> <b>Website:</b> <a href="http://www.realispat.com">www.realispat.com</a>	TMT bars of Gde Fe-500D
5	M/s MSP Steel & Power Limited Chhattisgarh <b>BRAND: "MSP TMT 500D"</b>	<b><u>M/s MSP Steel &amp; Power Limited Chhattisgarh</u></b> 16/S, Block-A, New Alipore, Kolkata-700 053 <b>Tele:</b> 033 4005 7777/2398 2239 <b>Mob:-</b> 7381028976 <b>Email:</b> <a href="mailto:contactus@mspsteel.com">contactus@mspsteel.com</a> <b>Website:</b> <a href="http://www.mapsteel.com">www.mapsteel.com</a>	TMT bars of Gde Fe-500D (size 8mm to 32mm)
6	M/s SPS Steel Rolling Mills Ltd, (WB) Brand: <b>"ELEGANT TMT"</b>	<b><u>M/s SPS Steel Rolling Mills LTd. (WB)</u></b> Regd Office "Diamond Heritage" 16, Strand Road, Room No. H523 A, 5th Floor, Kolkata-700001 Corp Office "Diamond Prestige, 41A, A.J.C Bose Road, 8th Floor, Room No. 801, Kolkata-700017 <b>Mob-</b> 9831055568/9830281273 <b>E.mail –</b> <a href="mailto:info@spsgroup.co.in">info@spsgroup.co.in</a>	TMT bars of Gde Fe-500D
7.	M/s Sugna Metals Limited, Hyderabad <b>Brand: "SUGNA TMT"</b>	<b><u>M/s Sugna Metals Limited</u></b> Plot No. 76, Vemireddy Enclave Road No. 12, Banjara Hills, Hyderabad- 500 034 (Telangana) <b>Tele:-</b> 040 27664502/27663527 <b>Email:</b> <a href="mailto:info@sugnatmt.com">info@sugnatmt.com</a> <b>Website-</b>	TMT bars of Gde Fe-550D with sizes 8mm to 32mm
8.	M/s Shyam Metalics and Energy Ltd <b>Brand: "SEL TIGER"</b>	<b><u>M/s Shyam Metalics and Energy Ltd.</u></b> Viswakarma Building, North West Block 1 <sup>st</sup> , 2 <sup>nd</sup> & 3 <sup>rd</sup> Floor 86 C, Topsia Road, Kolkat-700 046 (WB) <b>Tele:-</b> +9133-40113000	TMT bars of Gde Fe-550D with (sizes 8mm to 32mm)

PARTICULAR SPECIFICATIONS (Contd...)

SI No.	Company Name & Brand	Address	Steel Grades / Sizes
9.	M/s Jindal Steel and Power Ltd, Haryana  <b>Brand: "JINDAL PANTHAR"</b>	<b><u>M/s Jindal Steel and Power Ltd, Haryana</u></b> OP Jindal Road Hissar, Haryana, Pin-125005 <b>Tele:-</b> +91-1662-222471/84 <b>Fax:-</b> +91-1662-222476	TMT bars of Gde Fe-500, Fe-500D, Fe-550, Fe-550D & CRS with (sizes 8mm to 40mm)
10.	M/s Tulsyan NEC Limited, Chennai  <b>Brand: "TULSYAN TMT"</b>	<b><u>M/s Tulsyan NEC Limited, Chennai</u></b> APEX Plaza, 1 <sup>st</sup> Floor Old No. 3, New No. 77 Nungambakkam High Road Chennai-600 034 (TN) <b>Website-</b> <a href="http://www.tulsyannec.in">www.tulsyannec.in</a> <b>Tele:-</b> - 044-61991060/61991045 <b>Mob-</b> 9840354010,9677088334	TMT bars of Gde Fe-500, Fe-500D & Fe-550 with (sizes 8mm to 32mm)
11.	M/s Electrotherm (India) Ltd., Gujrat  <b>Brand: "ET TMT"</b>	<b><u>M/s Electrotherm (India) Ltd; Gujrat</u></b> Survey No. 72 Palodia Via-Thalteh, Ahmedabad Gujrat-382 115 <b>Tele:-</b> +91-2717-234553/660550 <b>Mob:-</b> +91-9687-234866 <b>Website-</b> <a href="http://www.electrotherm.com">www.electrotherm.com</a>	TMT bars of Gde Fe-500, Fe-500D, & CRS with (sizes 8mm to 32mm)

**(b) Structural Steel:**

(i) Structural steel sections shall be procured directly from structural steel manufacturer listed here-in-below.

SI No.	Company Name & Brand	Address	Steel Grades / Sizes
1.	Rashtriya Ispat Nigam Ltd (RINL) <b>Brand: "RINL"</b>	Visakhapatnam Steel Plant Visakhapatnam- 530031, India Tel: (91891) 518226, 518376 Fax: (91891) 518316 E-Mail : <a href="mailto:cmdvsp@itpvis.ap.nic.in">cmdvsp@itpvis.ap.nic.in</a>	Structural Steel (Angle, Beam, Column, Channel Plate etc.)
2.	Steel Authority of India Ltd (SAIL) <b>Brand: "SAIL"</b>	Central Marketing Organisation Northern Region, 17th Floor, Scope Minar, Laxmi Nagar Distt Centre, Delhi-110092.	Structural Steel (Angle, Beam, Column, Channel Plate etc.)
3.	Tata Iron & Steel Company (TISCO or Tata Steel) <b>Brand: "TATA"</b>	Bombay House 2,4 Homi Modi Street Mumbai – 400 001, India Tel : (9122) 2049131 Fax : (9122) 2049522, 2870840 E-Mail : <a href="mailto:corpcomm@jsr.tatasteel.com">corpcomm@jsr.tatasteel.com</a>	Structural Steel (Angle, Beam, Column, Channel Plate etc.)
4.	M/s Jindal Steels and Power Ltd, <b>Brand: "JINDAL"</b>	Jindal Centre, Plot No. 2, Sector-32, Gurgaon-122001, Haryana Tele:- +0124 661 2000 Fax:- +0124 661 2125 Website- <a href="http://www.jindalsteelpower.com">www.jindalsteelpower.com</a>	Structural Steel (Angle, Beam, Column, Channel Plate etc.)



PARTICULAR SPECIFICATIONS (Contd...)

In case of non availability of structural steel with above mention manufacturer, the structural steel can be procured from approved secondary producers with necessary minus price adjustment @ 5% of quoted rate. However, in case the desired section of structural steel is not rolled / manufactured by main producers, there shall be no price adjustment in use of structural steel procured from approved secondary producers if any approved by Engineer-in-Chief's branch upto bid submission end date.

(c) **Galvanised Steel Sheets and Fabric Reinforcement for concrete**: These shall be procured directly from main producers namely STEEL AUTHORITY OF INDIA LTD (SAIL), TATA IRON AND STEEL CO. (TISCO), RASHTRIYA ISPAT NIGAM LTD (RINL)/JINDAL/BIS marked manufacturers at the option of contractor without any minus price adjustment.

(d) Reinforcement steel for water retaining structure shall be Corrosion Resistant Rebar.

### 8.1.3 **Procurement of Materials**

(a) The Contractors should place their demand/requisition of steel with adequate lead-time. The steel will be procured from the storage depots of the main producers/ approved primary producers/ secondary producers (**As applicable**) and not from their authorised agents/dealers.

(b) TMT Reinforcement Steel and Structural Steel manufactured by TISCO through their authorised distributors/ business development partners can be procured at the option of contractor without any minus price adjustment. Documents indicating original lot No and test Certificate from TISCO along with voucher from TISCO authorised distributor from whom steel being purchased shall be mandatory. All other requirements for acceptance of steel and records shall be maintained.

(c) 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/secondary 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.

(d) Reinforcement steel, Galvanised steel sheets and Fabric reinforcement for concrete may be permitted from authorised dealers of main producers in case the total requirement of reinforcement steel, structural steel/Galvanised steel sheets/ fabric reinforcement for concrete is less than 5 tones.

(e) It shall be the responsibility of contractor to produce purchase vouchers, test certificate and other valid documentary evidence for entire satisfaction of GE for entire quantity of each consignment to prove that materials have been purchased from main producers/ approved primary producers/ secondary producers of steel (**As applicable**). Details shall be submitted on Steel Supply Acceptance Form (Performa enclosed as per Annexure 'B').

(f) The site staff and GE shall verify the original documents in support of the purchase of steel and will retain certified true copies of results in GE office.

### 8.1.4 **Testing of Steel:**

(a) The manufacturer is to carry out inspection and testing of Steel in accordance with the relevant BIS provisions. The contractor shall submit the Manufacture'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 (Performa as per Annexure 'B') after due verification and forward a certified true copy of test sheet to GE for his records.

**PARTICULAR SPECIFICATIONS (Contd...)**

(b) The GE/CWE shall also organize independent test of random samples of steel drawn from various lots of steel as applicable and detailed in sub paras (c) & (d) below from a National Test House, SEMT Wing CME, Regional Research Labs, Govt approved Labs, Zonal Labs etc. as per the recommended minimum frequency shown in table at Annexure 'C'. Samples from each lot should be tested for quality and elongation. The elongation shall not be less than 18 %.

(c) Independent testing of structural steel shall be optional at the discretion of the GE, in case of procurement of steel from main producers. However, in case of procurement of structural steel from secondary producers, independent testing of steel by the GE shall be mandatory.

(d) In order to undertake Departmental testing, requisite facilities including transportation of samples shall be organized and provided by the contractor at his cost. Cost of materials (Samples) consumed in tests and Cost of testing shall also be borne by the contractor. Condition 10A of IAFW-2249 regarding testing charges shall be deemed to be amended accordingly.

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

(g) Ultimate tensile strength elongation, bend and re-bend test for reinforcement steel bars shall be carried out as per clause 8 and test specimen shall be as per clause 10 of IS-1786 and delivery inspection shall be as per clause 10 of IS-432 (Part-I) 1982. Bend test and tensile tests for structural steel shall be carried out as per relevant IS.

**Notes:**

(i) The design has been done with steel of grade as mentioned in drawings. However, contractor at his option may use steel of Fe 550 in lieu of Fe-500 grade without any price adjustment. Mixing of different grades of steel in same structure is not permitted. However, for different buildings steel of different grade may be used.

(ii) A building/structure wise record shall be maintained if different grade steel is used in the work.

(iii) Engineer-in-Charge & GE shall approve this and case shall be referred to Design Section of this HQ in case of any doubt before execution of work. Only after clarification is taken then only work shall commence.

(iv) In case of deviations, pricing shall be done at SSR-2020 rates of TMT bars only.

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

**(i) Thermo mechanically treated bars**

Tensile test, bend test and rebend test shall be carried out as per clause 8 of IS-1786-2008. Test specimen shall be taken as per clause 10 of said IS. Minimum tensile strength, yield stress and elongation for different grades shall be as under:-

Ser No	Grade	Yield Stress	Elongation Not less than	Tensile Strength
1.	TMT-500(D)	500 N/Sqmm	18 %	565 N/Sqmm.
2.	TMT-550(D)	550 N/Sqmm	18 %	600 N/Sqmm.

**(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 240 N/Sqmm.

**PARTICULAR SPECIFICATIONS (Contd...)**

(iii) **Structural Steel.** Tensile test and bend test shall be carried out as per clause 10 and 11 of IS-2062-2011. 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 Annexure 'D' attached.

**Note:** If the test fails and steel has been incorporated in the work, The further execution of the work with that steel will be stopped and matter shall be referred to Accepting Officer. The decision of the Accepting Officer regarding acceptance of work done with the steel which has failed in test, with price adjustment as decided by him or redoing the work with steel of proper specifications or any other decision shall be final and binding on the contractor. In case Accepting Officer decide to remove the substandard steel the work executed using substandard steel shall also be demolished and site cleared by the contractor without any extra cost to the Govt.

8.1.6 **Documentation**

The Contractor shall submit original purchase vouchers from the manufacturer or secondary producer (as the case may be) 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 Certificate 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 a 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 Book for record purposes as "NOT TO BE ABSTRACTED", before incorporation in the work and shall be signed by the Engineer-in-Charge and the Contractor.

8.1.7 **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.

8.1.8 **Schedule of Supply**

The contractor shall ensure that procurement action is taken immediately after acceptance of contract so as to adhere to Schedule of activity as per CPM net work.

8.1.9 **Storage, Accounting, Preservation and Maintenance**

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

8.1.10 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.

8.1.11 **Method of Measurement.**

All items of steel brought at site shall be entered in MB as "Not to be abstracted" indicating the diameter and length of bars, quantities, voucher number with dates. It shall form the basis to allow advances on account through RARs. 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 such quantities will be utilized in the work.

8.1.12 **Record of Measurements.**

Before casting of concrete, reinforcement incorporated shall be measured by rep of GE 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 also be given therein.

8.1.13 **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 table shall be followed.

8.1.14 Mixing of different types and grades of bars shall not be done in the same structural member as main reinforcement to satisfy clause 25.1 of IS-456 of 2000.

8.1.15 TMT bars shall not be treated as corrosion resistant steel bars.

8.2 **Steel Reinforcement**

8.2.1 All steel for Reinforcement shall be TMT (Thermo – Mechanically Treatment) process steel and shall be provided as shown on drawings and in the absence thereof in accordance with the provisions of IS-456.

8.2.2 Reinforcement shall be fabricated and place 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**

Welding wherever shown on drawings shall be by metal arc process in accordance with IS-1816 and IS-822. 8.7

8.4 **MS Grills**

MS grills as shown on drgs shall be provided to all windows/vents.

8.5 **Hold Fast/ Lugs**

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

8.6 **Fan Hook with MS Boxes**

Wherever fan hooks/fan points have been shown mild steel boxes with fan hooks as per details shown on drawings shall be provided. Exposed faces shall be treated with two coat of synthetic enamel paint.

8.4 **Box type Steel Windows/ Ventilators**

8.4.1 **General** : Irrespective of whatever is shown on drgs ,steel windows/ventilators shall be box type conforming to IS-1038 and shall be ISI marked manufactured by any ISI approved manufacturer whose list can be seen on website [www.bis.org.in](http://www.bis.org.in) pertaining to IS-1038. Along with the paid voucher, contractor will submit attested copy of valid license, certificate of manufacturer to authenticate that ISI marked windows are supplied by ISI approved manufacturer. Rolled steel sections used shall also be ISI marked. Makes given in Annexure 'E' of makes attached hereinafter for steel windows/Ventilators, shall be applicable only if they fulfill the criteria mentioned here-in-before.

8.4.2 Fixed and openable frames shall be fabricated of sections specified in drgs, corners welded to form a solid fused welded joint. The process of welding adopted may be flash butt welding which gives a continuous and solid joint all along the place of meeting of the member. Welds shall be properly ground and left with no protrusions of welding material at the joint.

**PARTICULAR SPECIFICATIONS (Contd...)**

- 8.4.3 Handles shall be of Z section welded with openable frame.
- 8.4.4 Box steel section used in outer frame, shutter frame and central frame shall be ERW section of 16 gauge.
- 8.4.5 Fixing lugs to fixed frames shall be as per provision of IS-1038 except that top lugs shall not be provided.
- 8.4.6 All openable shutters of side hung windows shall be provided with non friction hinges.
- 8.4.7 Two mild steel tower bolts of size as shown on drawings shall be provided to each leaf of window (one at top and one at bottom). Where size of bolt is not shown, the same shall be 75mm. Each tower bolt shall be welded on 3mm thick steel sheet piece of suitable size which shall in turn be welded to Z section of steel window to provide suitable arrangement of using tower bolt.
- 8.5 **Pressed steel frames for doors**
- 8.5.1 Pressed steel frames shall be all as per details shown on drawings and shall be made out of 1.25mm thick MS Sheet for main doors and 2mm thick for kitchen doors. Irrespective of what is shown on drawings, the frames shall conform to IS-4351. The void of the steel frames shall be filled with PCC 1:3:6 type C0 (using 12.5mm graded stone aggregate). Hold fasts for the frames shall be provided as per details shown on the aforesaid drawings. Pressed steel frames shall be painted with two coats of synthetic enamel paint over a coat of zinc chrome primer.
- 8.5.2 Shock absorber shall not be provided to pressed steel door frames and in lieu 50mm butt hinges, cold rolled, mild steel shall be welded to frame to receive wooden cleats.
- 8.6 **Angle Iron frame for door**
- Wherever shown on drawings, angle iron door frames shall be provided to door openings as per detail shown on drawings. The size of angle iron shall be as indicated on the drawing. The joints shall be welded properly to form solid fused welded joints. Welds shall be properly grounded and left with no protrusion of weld material at the joint.
- 8.7 **Pressed steel windows/ventilators**. Pressed steel windows/vents shall be all as per details shown on drgs and shall be made out of 1.25mm thick MS sheet, and shall confirm to IS-4351. The void of the steel frames shall be filled with PCC 1:3:6 type C-O. Hold fasts shall be provided all as shown on drgs. The window shutter shall be made of hot rolled steel section all as shown on drgs and shall confirm to IS-1038 of 1983 and 7452 of 1990. All openable shutter shall be provided with nose frictional hinges. Iron mongry all as shown on drgs shall be provided to windows/ventilators.
- 8.8 **Solid PVC joinery**
- Solid PVC joinery wherever indicated on drawings shall be provided as per sub section 8B on pages 133 to 153 of MES Schedule Part-II (Rates) and as directed. Pressed steel door frame as specified hereinbefore shall be provided to all PVC doors. Irrespective of whatsoever is shown on drawings, no painting shall be carried out over PVC doors. However pressed steel door frames shall be painted with two coats of synthetic enamel paint over a coat of red oxide zinc chrome primer. The PVC joinery shall be any of the make as mentioned in Appx 'E' of makes attached hereinafter.
- 8.9 **Aluminium Doors/Windows**
- Aluminium doors/windows shall be provided all as shown on drawings as described in clause 10.37 of MES Schedule Part-I (2009) (Specifications). The aluminium sections for doors/windows shall be of any of the makes mentioned in Appx 'E' of makes attached here-in-after.

**PARTICULAR SPECIFICATIONS (Contd...)****9. ROOFING****9.1 Pent roofing:**

- 9.1.1. Pent roofing shall be provided to the slope all as shown on drawings. If the slope of roof is not shown on drawings it shall be 1:3.
- 9.1.2 Irrespective of what so ever is shown on drawings. wind tie of FI 40x6mm shall be provided at ridge level only. At lower purlin level wind tie shall not be provided. However extra hard metal stitching screws shall be provided with lower purlin to give extra strength.
- 9.1.3 Irrespective of what so ever is shown on drawings, eaves board of plain prepainted metallic sheet 0.60mm thickness with 0.65mm painted thickness shall be provided at all locations. The width of eaves board shall be 250mm. The eaves board shall be fixed to purlins/false rafter/principle rafters with hard metal stitching screws.

**9.1.4 Pre-painted Pre-engineered Metallic Roof Sheet**

Roof sheets shall have standing seam or clip lock arrangement as approved by GE in all the buildings irrespective of what is shown/indicated on drawings shall be pre-engineered metallic sheets of the following technical specifications:

- (i) Minimum base metal thickness = 0.45 mm
- (ii) Minimum total coated thickness = 0.47mm
- (iii) Minimum total painted thickness = 0.50mm
- (iv) Minimum yield strength = 550 Mpa
- (v) Fixing/accessories = All as per manufacturers

instructions duly approved by GE.

- (vi) Galvanised with minimum coating = 175 gm/sq.m

(As per IS-277 & 513) (on both sides)

- (vii) Metal base shall be pre-coated with Silicon modified polyester colour of thickness 20 micron top coat over a 5 micron primer. The colour of coating shall be provided as approved by GE. The colour coating shall be above the galvanising coat.

9.1.4.1 **Substrate** : It shall be made of 0.6 mm cold rolled steel conforming to IS:513

9.1.4.2 **Galvanising** : Substrate shall be galvanized as per IS:277 & IS : 513, the minimum weight shall be 175 gms/m<sup>2</sup> zinc coating mass on both sides.

9.1.4.3 **Colour Coating** : Oven baked paint system applied over galvanised susstrate, shall comprise of silicon polyster top coat 20 microns over 5 micron primer coat (finished side), back side to be applied with natural black coat over 5 micron primer over galvanised substrate. Painting shall conform to IS: 14246.

**9.1.4.4 Handling & Storage**

Sheets and other accessories shall be handled and stored carefully to avoid Scratches as per manufacturers instruction. Nothing extra will be payable for this purpose.

**9.1.4.5 Maintenance**

The fixing of sheets shall be such, that the roofing system provided is free of leakages and seepages. The contractor will be liable to repair all leakages and seepages free of cost for five years after completion. A sum equal to 2.5% of the amount of roof sheets work at contract rates for the buildings listed in schedule „A“ Part-I in which roof sheets work is carried out or Rs 6250.00, whichever is less will be held back 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 the contractor may give separate interest bearing deposit to GE valid for five years for the sum mentioned above.

**9.1.4.6 Cutting & Cleaning.**

Sheets cutting and cleaning before fixing & after fixing shall be carried out as per manufacturer's instructions.

9.1.4.7 The fixing system recommended by the manufacturer shall be approved by GE before starting fixing of sheets.

9.1.4.8 Sheeting, Ridges, valley gutters, fascia, eaves board etc. shall be of the same manufacturers and shall be fixed as per instructions in order to:-

- (a) Fulfill the site requirement as per sound engineering practices.
- (b) Be complete in all respects

9.1.4.9 Contractor shall obtain all the material from any of the following manufacturers subject to the approval of GE.

9.1.5 **Roof Trusses:** The roof trusses shall be provided of section as indicated and all as shown on drawings. The tubular trusses shall be fabricated with ERW or induction butt welded tubes conforming to IS -1161 of 1979 St. 240. The structural steel trusses shall be fabricated with steel grade Fe-410 S, of section as shown on drgs. The welding shall be arc welding all as specified in clause 10.15 of SSR-Pt I. The other supporting members of roof shall be of sections all as shown on drawings. The hidden surfaces of steel work shall be given two coats of red oxide zinc chrome primer.

9.1.6 **False Ceiling:** Frame work for false ceiling shall be of size 605mmX605mm of aluminium anodized and all as shown on drawings.

9.1.7 **Ceiling Board:** Ceiling board shall be as specified in drawings. The ceiling pattern shall be all as shown on drawings.

(a) **Gypsum board:** Gypsum board where shown on drawings shall be 12mm thick base board, square edged and shall conform to IS-2095. The board shall be carefully lifted and fixed to the frame work with screws @ 230 mm c/c as per manufacturers instructions. The joints between the junctions shall be made flush with requisite compound paper tapes and two coats of oil bound distemper over a coat of primer as per manufactures instructions.

(b) **Mineral Fiber Tiles:** Mineral Fiber Tiles 600x600mm, 10mm thick shall be provided where shown on drawings as per manufacturers instructions. The mineral fiber tiles shall be of approved make.

**9.2 RCC Roof Slab shall be laid to slope as shown on drawings.**

9.2.1 After RCC slab is laid, cured and fully set, ponding shall be done over RCC slab by filling water which shall be kept there for 48 hours. Water proofing treatment on roof slab shall be carried out only if there is no seepage/leakage observed. In case even slightest indication of seepage/leakage is noticed, the same shall be rectified by grouting and/or plastering with cement mortar (1:3) after roughening the affected portion at no extra cost. Test will again be carried out and treatment shall be started only if there is no leakage/seepage observed.

**9.2.2. Water proofing treatment to all RCC roofs including roof projection and terrace except garages**

9.2.2.1 Water proofing treatment to all roof slabs including roof projections and terraces shall be provided as per detail here in under:-

(a) The slab shall be finished with 10mm thick cement plaster in cement mortar 1:4 finished even and smooth (without using extra cement) mixed with water proofing compound as per manufacturer's instructions. The cement plaster shall be provided while the concrete of the slab is green.

**PARTICULAR SPECIFICATIONS (Contd...)**

(b) Apply a coat of bituminous primer conforming to IS-3384 @ 0.3 litre/Sqm on the prepared surface of plaster. After drying of primer, apply a coat of hot blown VG 20 paving grade (60-80 penetration) bitumen conforming to IS-702 @ 1.2 Kg/Sqm of plastered surface.

(c) Provide polymeric water proofing membrane ISI marked laid with overlaps, bonded with hot blown bitumen, end overlaps shall not be less than 150mm and side lap 75mm. Polymeric water proofing membrane should be five layered with centre core as 90 microns high molecular high density polyethylene film. Minimum weight of water proofing membrane shall be 3 Kg per Sqm. The contractor shall produce purchase vouchers and test certificate from the manufacturer for the same. The products of following firms shall be used for water proofing membrane.

(i) M/S IWL India Ltd.

(ii) M/S Tiki Tar Danosa (India) Pvt. Ltd.

(iii) Sika India Pvt. Ltd.

(iv) M/S STP Ltd.

(v) M/S Asian Paints Limited

(vi) M/s Torchtar Membranes & Bitumen Product Pvt Ltd.

(d) Over the Polymeric Water proofing membrane apply semi hot blown VG 20 paving grade (60-80 penetration) bitumen conforming to IS-702 @ 1.2 Kg/Sqm of roof surface and blinded with fine sand in dry condition @0.5 Kg/Sqm dusted over the bitumen coat.

(e) Curved fillet in PCC (1:2:4) type B-0 radius 75mm be provided at the junction of roof and vertical surface such as parapet wall/mumty/chimney/ around opening and treatment mentioned above (except fine sand) shall be applied followed by a cement plaster 20mm thick in cement mortar (1:6). Complete treatment shall be carried out by the applicator of the Manufacturer of Membrane.

(f) For non-accessible roofs including projections: Top surfaces of roof after carrying out treatment as specified here-in-above shall be provided with 2 coats of aluminium paint over a coat of primer as per manufacturer's instructions.

(g) For accessible roofs, terraces etc.: In addition to the treatment specified vide clause 9.1.2.1 (a) to (e) here in before, provide 20mm thick precast machine pressed, factory made PCC plain tiles 300mmx300mm, thickness not less than 20mm with grey cement and no pigment laid over 15 mm thick bedding layer in cement mortar 1:6 mixed with 5% creosote oil, jointed and pointed flush in cement mortar 1:3.

**9.2.2.1(A) Water proofing treatment to all RCC roofs including roof projection etc of Garages:-**

(a) RCC roof surfaces will be laid to outward slope 1:30. The roof will be designed with free falls.

(b) 15mm thick cement plaster in CM 1:3 using Water proofing Compound finished even and smooth without using extra cement, will be provided when surfaces is green. The finished surfaces will be allowed to dry for a while till a string mark can easily be made on the surfaces when 450x450mm square marks will be made with 3 mm string over the entire surface.

**9.2.2.2 TREATMENT FOR COMPLETE TOILET/BATH ROOM PORTION**

Water proofing treatment for complete toilet/bathroom portion of floor slabs of baths/WC/Toilet/ lobby/Passage/Ground sunk/ Kitchen/Lavs and any other sunken slabs shall be provided with water proofing treatment as under irrespective of whether shown on drawing or not.

(a) Concrete coved angle fillet 75mm in radius in PCC (1:2:4) shall be provided at the junction of wall and slab as to permit smooth turning up of Polymeric water proofing membrane.



PARTICULAR SPECIFICATIONS (Contd...)

(b) The sides of walls coming in contact with felt shall be plastered in cement mortar (1:4) 15mm thick mixed with water proofing compound upto height as shown on drawings.

(c) Slab surfaces shall be wire brushed and cleaned of all dust.

(d) Bituminous primer conforming to IS-3384 applied @ 0.7 litres per square metre of walls and slabs. After drying of primer apply a coat of hot blown 85/25 grade bitumen @ 1.20 Kg/Sqm.

(e) Provide polymeric water proofing membrane ISI marked laid with over laps bonded with cold cut back adhesive, overlap shall not be less than 150mm. Over the water proofing membrane apply semi hot blown 85/25 grade bitumen conforming to IS-702 @ 1.20 Kg/Sqm of surface.

(f) Irrespective of what is shown on drawings, the sunken slabs shall be given 1:40 slope towards outer wall and slab surface shall be plastered in cement mortar (1:3) with water repellent finishes using repellan S-101 with minimum 10mm thick given in proper slope towards outlet pipe. This slope shall be given in such a way that water is not accumulated on the edges of outer wall. The outlet pipe of 50mm dia GI pipe (light Grade) shall be provided slightly below the in such a way that water is not accumulated on the edges of outer wall. The outlet pipe of 50mm dia GI pipe (light Grade) shall be provided slightly below the plaster level to ensure proper drainage of water and shall be projected 100mm from outer face of the wall.

(g) Filling of sunken portion shall be carried out in PCC 1:5:10, type E-2.

9.2.3 Bitumen primer and bitumen for roof treatment shall be of same manufacturer.

9.2.4 Roof slope shown on drawing shall be deemed to be amended according to above provision.

9.2.5 The main contractor shall stand guaranteed to the Government for a period of TEN YEARS from the date of taking over of the completed buildings for the efficiency of the treatment carried out. The main contractor shall furnish written guarantee on a non judicial stamp paper of Rs 100/- for the above in favour of Garrison Engineer immediately on completion of work.

9.2.6 A sum equal to 0.25% of the quoted lumpsum against buildings covered as per Schedule 'A' Part-I for which water proofing treatment has been specified or Rs. 25000.00 whichever is more, will be held back out of the contractor's bill as security deposit for the guarantee period of 10 years which shall be refunded to him after expiry of this period from the certified date of completion by the GE, provided always that the Contractor shall first have been paid the final bill and have rendered a No-Demand Certificate (IAFA-451). Alternatively, the contractor may give a separate interest bearing security deposit or bank guarantee bond to GE valid for ten years for sum mentioned above.

9.2.7 Should the GE at any time, during the construction or prior to the expiry of said guarantee period of 10 years, find that the buildings have been leaking, the contractor, on demand in writing from the GE, will forthwith under take to carry out such repairs/rectification which may be necessary to render the buildings freefrom leakage at his own expense till expiry of the guarantee period of ten years.

9.2.8 In the event of Contractor's failure to comply with the GE's directions within the stipulated period, the work shall be carried out at the risk and cost of the contractor. The liability of the contractor under this condition shall not, however, be extended beyond the period of 10 years from the certified date of completion, unless the notice was served on the contractor previously to rectify such defects.

**PARTICULAR SPECIFICATIONS (Contd...)**

9.2.9 The contractor shall provide a plaster plate of requisite size in location as decided by the Engineer-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 waterproofing treatment done vide CA NO, date of expiry of guarantee period and name of contractor by engraving and painting (black). The cost of plaster plates are included in the lump sum quoted for the buildings.

**9.3 RAIN WATER PIPES AND ACCESSORIES**

9.3.1 Irrespective of what is shown on drawings, rain water pipes shall be of UPVC, ISI marked and of diameter & size as indicated. RWP shall be provided all as specified in clause 18.27A of SSR Part-I, and shall be provided in the manner all as specified in clause 11.20 of SSR Part-I. Size and length shall be as shown on drawing, wherever, the same is not shown on drawing it shall be 110mm bore. The pipes and fittings shall be secured to walls below all joints with mild steel holder bat clamps as specified in clause 11.34.5 of the MES Schedule Part-I. The colour of pipes shall be as decided by GE. The pipes and fittings shall be jointed with rubber rings and fixed to walls as indicated.

9.3.2 Where the pipes have been encased in masonry/brick work/concrete works, bracket/holder bat clamps etc need not be provided for fixing the pipes. Bends will be acceptable in lieu of shoe or nose, without any price adjustment. Irrespective of what is shown on drawing, the gap between shoe/bend & plinth protection/splash stone shall be packed with PCC M-10 (Nominal mix). Sealing compound "M" seal or equivalent shall be provided around rain water pipes passing through RCC chajjas/roof projections as shown on drawings.

9.3.3 Splash stones with PCC (1:2:4) type B-I using 20mm graded crushed stone aggregate as specified here-in-before shall be provided below the rain water pipe.

9.3.4 Spouts and pipe outlet where shown on drawing shall be of GI tubing medium grade as per IS-1239. Size and length shall be as shown on drawing, wherever, the same is not shown on drawing it shall be 50mm bore, projecting 250mm beyond outer face of walls. Spout/GI Pipe/Conduit wherever passed through beam/RCC, it shall be put in position at the time of casting of beam/RCC.

**10 FLOORING****10.1 GENERAL**

10.1.1 Ordinary Portland cement/Portland Pozzolana cement for all flooring shall be used.

10.1.2 Provisions contained in clauses 13.19, 13.25, 13.27, 13.32, 13.36 to 13.41 and 13.47 of MES Schedule (Part-I) are to be adopted for laying of floor and pavements.

10.1.3 Floors shall be laid to level or to falls as shown on drawings and as directed by the Engineer-in-Charge. If the level or fall of the floors is not shown/marked on drawings, the floors of corridors, passages, toilet and kitchen shall be given a fall of 10mm with respect to floor level of adjacent rooms.

10.1.4 Floor finish shall be extended over dwarf walls, door and other openings.

10.1.5 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 MES Schedule Part-I.

10.1.6 Wherever terrazzo finish is shown on drawings for treads and landing, it shall be provided with matching finish of riser and skirting.

10.1.7 Wherever cement concrete finish is shown on drawings for treads and landing, these shall be provided with cast-in-situ cement concrete topping 25mm thick in cement concrete 1:2:4 (using 6mm and below aggregate). Risers in such cases shall be finished with 15mm thick cement plaster in cement mortar (1:3) finished even and smooth using extra cement. Treads shall be finished with chequered finish.

**PARTICULAR SPECIFICATIONS (Contd...)**

- 10.1.8 Cast-in-situ terrazzo shall be in grey cement without pigment unless otherwise indicated. In location where terrazzo with white cement has been indicated in Schedule of finishes, it shall be with white cement without pigment.
- 10.1.9 Marble aggregate (chips) shall be of size 4mm to 7mm for terrazzo floors. The colour of marble chips shall be as shown on drawings or as approved by GE when not indicated in drawings.
- 10.1.10 Surfaces of floors, skirting/dado/treads/landings etc. when finished in terrazzo shall be grinded and wax polished as specified in clause 13.38.6 and 13.38.8 of MES Schedule Part-I. The grinding by hand may be allowed in WC/Bath, if grinding by machine is not feasible in such situations. These situations are in addition to those as specified in clause 13.38.6 of MES Schedule Part-I.
- 10.1.11 The dividing line, between the floors of different type wherever met between rooms, shall be determined on the basis of the finish visible when the doors are closed and the applicable finish shall accordingly be provided.
- 10.1.12 Floor finish over RCC slabs shall be laid all as specified in clause 13.32.6 of MES Schedule Part-I.
- 10.1.13 Sub base shall not be laid in panels.
- 10.1.14 under layer and topping layers of cast-in-situ cement and terrazzo floors shall be laid in panels conforming to pattern indicated in drawings. Length of panel not exceeding 1.2 meter, length to width ratio not exc. 1.5 times shall be adopted. Not more than 3 dividing strips shall be meeting at any joint. Dividing strip shall be of plain glass of size 38mmx4mm thick for 40mm thick floors and 48mm X 4mm thick for 50mm thick floors except at doors opening where aluminium dividing strips 1.50mm thick shall be finished smooth with the top surfaces of floor. However, where different floor levels indicated to be provided strips shall not be provided and flooring at junction shall be provided in the shape of fillet. No dividing strips shall be provided for floors of thickness exceeding 50mm. However the topping layers shall be laid in panels of size not exc. 2.00mx1.50m.
- 10.1.15 In case flooring of any room has not been indicated in schedule of finishes drgs, it shall be provided as that of similar room from utility point of view without any extra cost to Govt. No DO / claim shall be entertained on this account.
- 10.1.16 Sand filling under floors of thickness as shown on drawing shall be provided all as Specified in clause 3.21.2 and 3.21.4 of SSR part-I.

**10.2 Type and composition of floors**

The flooring for building(s) shall be provided as shown on drawing for Schedule of finishes and as specified here-in-below:-

**10.2.3 PCC flooring****(a) Ground floor**

PCC 1:2:4 type B-1, 100mm thick laid in alternate panels over PCC 1:5:10 type E-2, 150mm thick in sub base under floors over rammed earth, finished even and smooth without using extra cement. All joints in bays shall be filled with mastic filling comprising of one part of heated bitumen 85/25 or 90/100 grade and 3 parts of sand (all by weight).

**10.2.4 Coloured PCC interlocking tile Flooring****Ground floor**

Coloured PCC interlocking tiles 80mm thick heavy duty M-40 grade over a 25mm thick layer of sand cushioning over 100mm thick PCC 1:5:10 type E-2, using 40mm graded stone agg, in sub base over well compacted earth.

**10.2.5 Vitrified Colour Tile Flooring****Ground floor**

10mm thick vitrified coloured tiles (HD full polished) of size 600mm x 600mm (exceeding 0.42 sqm and not exceeding 1.00 sqm), of shade as decided by GE, set jointed and pointed in coloured cement to match laid over 3mm bed of polymer modified tiles adhesive over 15mm thick screed layer in cement mortar 1:4, over 25mm thick PCC 1:2:4 type B-0 using (12.5mm graded crushed stone agg) over 75mm thick sub base PCC (1:5:10) type E-2 over rammed earth. The tiles shall be of any make mentioned in Appx'E' of makes attached hereinafter.

**First floor & Subsequent Floor**

10mm thick vitrified coloured tiles (HD full polished) of size 800mm x 800mm/600mm x 1200mm (exceeding 0.42 sqm and not exceeding 1.00 sqm) shall be laid over 3mm bed of polymer modified tiles adhesive over 15mm thick screed layer in cement mortar 1:4 over RCC slab after applying a coat of cement slurry@3Kg/Sqm.

**10.2.6 Kota Stone Flooring****Ground floor**

18 to 20 mm thick mirror polished kota stone of size 600mm x 600mm laid over 20mm thick screed layer in cement mortar 1:3 over 75mm thick PCC 1:5:10 type E-2, using 40mm graded stone agg sub base over rammed earth. Kota stone flooring shall be provided with white marble boarder 150mm wide as directed by GE.

**First floor & Subsequent Floor**

18 to 20 mm thick mirror polished kota stone of size 550mm x 550mm laid over 15mm thick screed layer in cement mortar 1:3 over RCC slab after applying a coat of cement slurry@ 3Kg/Sqm. Kota stone flooring shall be provided with white marble boarder 150mm wide as directed by GE.

**10.2.7 Non Skid Ceramic Tile Flooring****Ground floor**

7-8mm thick Non skid ceramic tiles, coloured, (square/rectangular) area of tiles exceeding 0.11 sqm but not exceeding 0.18sqm of first quality, of shade as decided by GE, set jointed and pointed in coloured cement to match laid over 10 mm thick screed layer in cement mortar 1:4, over 25mm thick PCC 1:2:4 type B-0 using (12.5mm graded stone agg) over 75mm thick sub base PCC (1:5:10) type E-2 over rammed earth. The tiles shall be of any make mentioned in Appx'E' of makes attached hereinafter.

**First floor & Subsequent Floor**

7-8mm thick Non skid ceramic tiles, coloured, (square/rectangular) area of tiles exceeding 0.11 sqm but not exceeding 0.18sqm of first quality, of shade as decided by GE, set jointed and pointed in coloured cement to match laid over 10 mm thick screed layer in cement mortar 1:4 over RCC surface after applying a coat of cement slurry@ 3Kg/Sqm. The tiles shall be of any make mentioned in Appx'E' of makes attached hereinafter.

**10.2.8 Granite flooring:** 18mm to 20mm thick granite (jet black of superior quality) stone slab in one or two piece (or as a one piece) with finishes as per SSR part –I, laid over 20mm thick screed in CM 1:3 over 25mm thick PCC 1:2:4 type B-0 using (12.5mm graded crushed stone agg) over 75mm thick sub base PCC (1:5:10) type E-2 over rammed earth.

**First floor & Subsequent Floor**

18mm to 20mm thick granite (jet black of superior quality) stone slab in one or two piece (or as a one piece) with finishes as per SSR Part - I, over 20 mm thick screed layer in cement mortar 1:3 over RCC surface after applying a coat of cement slurry@ 3Kg/Sqm.

PARTICULAR SPECIFICATIONS (Contd...)**11. PLASTERING AND POINTING GENERAL**

- 11.1 (a) Prepared surface to be plastered and pointed, wet the surface thoroughly.
- (b) Curing of plasterwork shall be properly done. The contractor may use a spray pump or similar device without any price adjustment taking precaution against damage to plaster due to impact of splicing water.
- (c) The contractor shall take every precaution right from the commencement of plasterwork to prevent any craziness that may appear on the surface of plaster and shall be responsible to make good any portion of plasterwork which in the opinion of the GE requires removal and redoing.
- (d) Unless otherwise shown on drawings/specified, external plaster surfaces shall be finished to fair and even surfaces and internal plastered surfaces shall be finished to even and smooth surface without using extra cement.
- (e) The thickness of plaster/dado/skirting is the finished thickness (exclusive of dubbing) over proudest portion
- (f) Plastering at the junction of walls and floors and to all internal and external angles shall meet at right angle as directed by Engineer-in-Charge. Plastering shall be returned in openings involved.
- (g) Internal plastering shall be carried out to the full width of jambs for the door, windows and openings ie up to external edge of the wall.
- (h) Sand for plastering and pointing shall be from the source mentioned here-in-before and as approved by the GE.
- (j) A horizontal groove of size 15 mm wide and 6 mm deep shall be provided in the internal plaster at junction of the wall, lintel band, beam & ceiling.
- (k) Where plinth protection is not provided the external plastering/pointing shall be carried out up to 150 mm below the ground level.
- (l) Joint of masonry to be plastered/pointed shall be racked out as the work proceeds as specified in the MES schedule.
- (m) Semi circular plaster grooves 15 mm wide 6 mm deep shall be provided internally at all the junction of RCC column/slabs/beams with masonry of external walls and shall be filled with crack seal compound.

**11.2 MATERIALS**

11.2.1 **CEMENT.** Refer clause 3.2 here-in-before.

11.2.2 **Sand.** Refer clause 3.3.1 here-in-before.

**11.1 CEMENT PLASTER**

11.2 **(INTERNAL):** Unless other specific finish is shown/marked on drawing(s), internal surface of all PCC block walls/ stone wall / brick wall shall be rendering 10mm thick in cement mortar (1:6) on brick/PCC block masonry and 15mm thick in CM (1:6) on stone masonry surfaces and shall be finished even and smooth without using extra cement. However, if the wall putty is to be done on any wall surfaces as per tender/SoF then the plaster shall be finished even & fair.

11.4 **CEMENT PLASTER (EXTERNAL):** Unless other specific finish is shown/marked on drawing(s), external surface of all PCC block walls/ stone wall / brick wall shall be rendered in two coats. 1st coat shall be 10mm thick in CM (1:6) for brick/ PCC block, 15mm thick in CM (1:6) for stone masonry and 2nd coat shall be 5mm thick in CM (1:4)

**PARTICULAR SPECIFICATIONS (Contd...)**

mixed with water proofing compound finished even and smooth. Water proofing compound shall be added as per manufacturer's instructions. In case of deviation WPC shall be considered as liquid form 200ml shall be taken by weight of cement bag of 50 Kg. Rendering shall be finished even and smooth without using extra cement.

- 11.5 **KEYED POINTING:** Irrespective of what so ever specification for key pointing shown in schedule of finishes drawing, keyed pointing on external stone masonry surfaces shall be as under:- All stone walls shall be keyed pointed as specified in Para 14.29.5.3 of SSR Part-I. Keyed pointing shall be in CM (1:3) using grey cement
- 11.6 **Cement Skirting/Dado**  
Cement skirting/dado 15mm thick in CM 1:3 shall be provided in locations indicated in the drawings. Skirting/dado shall be finished even and smooth with steel trowel using extra cement. Height of cement dado/skirting where not shown on drawings shall be 1.05 meter for dado and 10cm for skirting.
- 11.7 **Kota stone skirting**  
12-15 mm thick pre-polished kota stone shall be provided in skirting where shown on drawings, laid over 10mm thick screed layer in cement mortar 1:3, jointed and pointed in neat cement slurry, grinded and polished to achieve mirror finish. Where the height of skirting has not been indicated on drawing, it shall be 150mm. The shade of Kota stone shall be same as approved for the flooring by the GE.
- 11.8 **Vitrified tile skirting**  
9 to 10 mm thick vitrified tiles shall be provided in skirting where shown on drawings, laid over 10mm thick screed layer in cement mortar 1:4, jointed and pointed in neat cement slurry, grinded and polished to achieve mirror finish. Where the height of skirting has not been indicated on drawing, it shall be 150mm. The shade of Kota stone shall be same as approved for the flooring by the GE.
- 11.9 **Glazed Ceramic tiles Skirting/ Dado**  
Glazed ceramic tiles as in skirting /dado shall be conforming to IS-13712 of 1993. The glazed ceramic tiles, coloured, first quality shall be of size 300x600mm, thickness not less than 6 to 7mm, of grade B-IIa. The shade of the tiles shall be the same as approved for the flooring by the GE. The tiles shall be over 10 mm thick screed bed in CM 1:3 on wall surfaces. The tiles shall be jointed & pointed in white cement with pigment. Height of the tile skirting/dado where not shown on drawings shall be 15cm for skirting and 1.05 meter for dado. Tiles shall be of any make mentioned in list of makes attached hereinafter.
- 11.10 Granite Skirting/Dado:- All as specified in Sch of finishes and SSR Part-I (specification).
12. **White/Colour Wash/Distemper/Cement Base Paint**
- 12.1 **White/colour Wash**  
White (lime) wash or colour wash shall be provided as indicated in drawing, all as specified in clause 15.2 and 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.
- 12.2 **Distemper**  
Dry/oil bound distemper shall be provided as indicated on drawings all as specified in clause 15.5, 15.6, 15.13 and 15.14 of MES Schedule Part-I. Irrespective whatever shown on drawings, the distemper (OBD) shall be applied with roller paint brush only.

**PARTICULAR SPECIFICATIONS (Contd...)****12.3 Cement Based Paint**

Cement based paint shall be provided as indicated on drawings, all as specified in clause 15.7 and 15.15 of MES Schedule Part-I. Shade shall be approved by GE. Quality shall be provided on surfaces to be painted. The shade shall be as approved by GE.

**13. Glazing**

13.1 All glazing shall be with sheet glass of ordinary quality and shall conform to IS-2835. Glass shall be free from all defects viz bubbles etc. and shall be of uniform thickness.

13.1.1 Glazing to windows/door etc. as shown on the relevant drgs shall be with 3mm thick glass upto 0.5 square meter and 4mm thick beyond 0.5 square meter in each pane unless otherwise shown on drawings. Glass used shall be plain sheet glass except in bath/WC/Toilets/Lav as applicable where it shall be pin headed.

13.1.2 Glazing to steel frames, where shown on drawings, shall be fixed with special spring glazing clips and as shown in drawing and glazing to wooden joinery shall be fixed with wooden beading with putty all as specified in clause 16.5 to 16.10.2 of MES Schedule. If fixing detail is not shown in drawing it shall be fixed with putty as per the direction of GE.

**14. Painting**

All synthetic enamel paints and emulsion paints shall be of 1st Quality manufactured by the standard firms.

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

14.1.2 The contractor shall, when required by the GE, produce certificate from the manufactures or their authorized agents to establish the brands of paints purchased by the contractor from them satisfying the requirements of relevant Indian Standards.

14.1.3 Paints for priming coat, under coat and finishing coat shall be of the same brand.

14.1.4 Tint of paint, if not mentioned in drawings/Schedule of finishes will be approved by the GE.

**14.2 Workmanship**

14.2.1 All wood work 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 there after 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.

14.2.2 The surface of wood and steel or iron where indicated in the Schedule of finishes to be painted shall be given two coats (under coat and finishing coat) of synthetic enamel paint over a coat of pink primer/red oxide zinc chrome primer respectively.

14.2.3 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.

14.2.4 No treatment shall be given to reinforcement and galvanized steel surfaces.

14.2.5 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 else where 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.

14.2.6 Bottom of door shutter shall be given one coat of primer only.

**PARTICULAR SPECIFICATIONS (Contd...)****14.2.7 Tarring**

The backs of wooden/steel chawkhats in contact with stone/brick work/plaster etc. shall be given 2 coats of tar. Hold fast shall be given 2 coats of tar and sanded.

**14.3 Cement Slurry**

Portions of MS bolts, lugs, anchor bolts etc. embedded in concrete be treated with neat cement slurry.

**15. SUNDRY ITEMS BUILT IN FURNITURE AND MISCELLANEOUS ITEMS****15.1 Water Storage Tanks**

Water storage tanks of capacity as shown on drgs shall be hoisted, placed and connected to water supply system at the locations shown on drgs. If the capacity of the tank is not mentioned or shown on drgs, it shall be 500 liters capacity each. If location of the tank is not indicated on the drgs, it shall be as decided by GE. The water storage tanks shall be Rotational Moulded Polyethylene (cylindrical vertical with closed top) white with three layered and the tank cover shall be of threaded/screwed type as per IS-12701 of 1989. The hoisting of tanks shall be all as specified in clause 18.60 of SSR Part-I. Water storage tank shall be provided with following accessories:-

**15.1.1 Accessories of tank**

- (a) 25mm bore wash out pipe (Medium grade) 15cm long with GI plug.
- (b) 20mm GI over flow pipe medium grade fitted with brass anti-Mosquito rose coupling at end projecting 20cm beyond the External edge of projected RCC roof slab.
- (c) Inlet and outlet GI pipes 20cm long of dia to suit the riser/down take pipes.
- (d) Inlet, outlet, washout and overflow pipe shall be fixed to tank with brass check nut connectors of dia suitable for pipe connections.

15.1.2 Inlet and outlet pipes beyond the limits specified in clause 15.1.1 here-in-before shall be measured and paid for separately under respective items of Schedule-'A' for internal water supply.

**15.2 Numbering of Buildings/Blocks**

15.2.1 Numbering of all blocks (at both end walls) shall be done by the contractor by engraving and painting (black) the requisite letter/figures on a cement plaster (1:3) plate (format) of size and shape as shown on drawings.

**15.3 BRICK STEPS**

Steps shall be constructed with brick in CM (1:4) over PCC 1:4:8, Type D2 foundations all as shown on drawings. Cement plaster 15mm thick in cement mortar (1:4) shall be provided to sides. The exposed plastered surfaces shall be given two coats of cement based paint over prepared surface.

**15.4. Notice Board**

Notice Board shall be provided as per details shown on drawings. The green baize shall be approved by GE. The brass screws shall be used to fix the green baize to soft board.

**15.5 Steel locker**

Steel lockers shall be fabricated and fixed as shown on drawings.

**15.6 Writing shelf/book shelf**

Writing shelf/book shelf shall be provided all as shown on drawings.

15.7 **Cup boards, Cabinet, Wardrobes & modular Kitchen:-** Cup board, cabinet, wardrobes & modular kitchen etc of size as shown on drawings shall be provided at location indicated. The same shall be provided all as shown on drawings and all as per manufacture's details and all as directed by the GE.



PARTICULAR SPECIFICATIONS (Contd...)**15.8 Full length mirror**

Full length mirror shall be provided all as shown on drawings. Where size of mirror is not shown, the same shall be size 450mm x 1220mm. The thickness of mirror shall not be less than 5mm.

**15.9 Table Dressing Gents/ Mirror with shelf**

Table dressing gents/ mirror with shelf shall be provided all as shown on drawings.

**15.10 Soap nitch**

Wherever soap nitch has been shown on drawings, chromium plated brass soap tray shall be provided in lieu. The size of soap tray shall be as decided by the Garrison Engineer.

**15.11 RCC Shelves**

RCC M-25(Design Mix) shelves single/two/three tier where indicated on drawings shall be either precast and set in CM (1:3) or cast-in-situ at the discretion of the contractor. In the event of deviations, pricing shall be done as per cast-in-situ rates of concrete in MES Schedule. Top surface of RCC shelves shall be finished even and smooth without using extra cement.

**15.12 RCC Jalli**

RCC Jalli (with mix 1:2:4 using aggregates of size 6mm and below) shall be precast with wire reinforcement as per drawing and jointed in cement mortar (1:3). Thickness where not shown in drawings shall be 50mm. Faces of RCC Jalli shall have fair and even surface. In the event of deviation, RCC Jalli shall be priced on cast-in-situ RCC type B0 subject to contractor's percentage quoted for respective section of Schedule.

**15.13 Crumple Joint**

Crumple joint shall be provided at locations shown on drgs and as shown.

**15.14 Stainless steel sink with draining board**

Stainless steel sink with drainage board shall be made out of 1.00mm thick sheet as described in clause 18.90 of MES Schedule Part-I (2009). The overall size of sink shall be 915mm x 460mm with bowl size 410mm x 330mm x 160mm. The sink shall be of any of the make mentioned in Appendix 'A' of Makes attached here-in-after.

**15.15 PVC 50 MM THICK PANEL.**

PVC panels shall be constructed all as shown on drawings. PVC panel 50 mm thick shall be fitted in angle iron frame and finished with two coats of synthetic enamel paint, all as shown on drawings. The fabrication of partition wall shall be executed through authorized fabricator of the solid penal board, as approved by the GE.

**15.16 Trough type Wash Hand Basin/Service Counter**

Trough type Wash Hand Basin / Service Counter shall be provided all as shown on drawings.

**15.17 Towel Rail**

Towel rails shall be of stainless steel tubular/ hollow, D type, 60cm long between the flanges, 20mm dia and fixed with stainless screws and PVC gutties or otherwise as specified in BOQ.

**15.18 Peg set of 3/6**

Peg sets shall be of solid aluminium body.

**15.19 Decorative curtain rods**

Decorative curtain rods (DCR) shall be as approved by the GE.

**15.20 Meat hooks**

Meat hook shall be of stainless steel, solid body, all as approved by the GE.

**15.21 Gas cooking range**

Gas cooking range shall be provided all as shown on drawings.

**15.22 Stainless steel soap tray**

Stainless steel soap tray shall be provided as shown on drawings and as directed.

15.23 Granite stone where indicated shall be 20mm thick black polished.

**15.24 Shower**

Stainless steel shower shall be provided as specified in BOQ or as directed by Engineer-in charge

15.25 Tubular towel rail: - stainless steel, D type, 20mm dia, 60cm long between flanges.

15.26 Toilet paper holder with flat recessed type stainless steel fixed to walls with chromium plated screws.

15.27 Health faucet (ABS Body), Mild steel, chromium plated suitable for 15mm dia pipe with 1.25 metre long flexible tube and ABS wall hook including making connections and fixed in position complete all as specified and directed.

15.28 **Mirror:-** 600mm x 450mm bevelled edge mirror of selected quality glass, mounted on 6mm thick AC building board or commercial plywood and fixed to wooden plugs with chromium plated brass screws and cup washers or frameless mirror as approved by GE.

15.29 **Soap dish:-** stainless steel, approximate size 160x160x90mm.

15.30 Low density PVC pipe 32/40mm dia as in waste pipe to sink and WHB.

15.31 PVC connections 60cm long superior quality with PTMT nut on both side.

15.32 Stainless Steel Towel Ring of dia 300mm or otherwise as specified in BOQ.

15.33 Corner glass shelf in baths shall be as approve by GE.

**15.33 Steel rolling shutter.**

Refer clause 10.23 of MES Schedule part- I in general for the overall requirements. Rolling shutters (Gear operated type with chain wheel and hand chain) where shown on drawing shall be factory made confirming to IS-6248 and of the type according to the size of opening. The laths shall be 1.25 mm thick and may be fabricated with hot rolled black sheet in lieu of cold rolled as given in the IS. Three number ball bearings per shutter and rotatable mild steel pulleys shall be provided. Hood cover shall be of 1.25 mm thick M.S. sheet fixed to brackets. Rolling shutter complete in all respects shall be fixed in opening as shown on drawings and as directed by GE. The shutters including hood shall be given two coats of synthetic enamel paint over a coat of red oxide zinc chrome primer.

15.34 **Stainless Steel Railing/parapet for Balcony and Stair Hall/Stair Case:-** Irrespective of what is shown on drawings, railing/parapet for balcony and stair hall/stair case shall be stainless steel railing. If not shown on drawings. Stainless steel railing shall be consisting of the following parts/members:-

- |     |                       |   |                                                                                             |
|-----|-----------------------|---|---------------------------------------------------------------------------------------------|
| (a) | Hand rail             | : | 50mm outer dia pipe of SS 304 grade, 1.6mm wall thickness.                                  |
| (b) | Balusters             | : | 50mm outer dia pipe of SS 304 grade, 1.6mm wall thickness.                                  |
| (c) | Mid rail (vertical)   | : | One number in between balusters, 12mm outer dia pipe of SS 304 grade, 1.6mm wall thickness. |
| (d) | Mid rail (Horizontal) | : | Three number centrally horizontal placed 12mm outer dia pipes of SS grade 304, 1.6mm        |

**PARTICULAR SPECIFICATIONS (Contd...)**

wall thickness.

- (e) Base plate : 6mm thick plate of SS 304 grade with dash fasteners, fixed as per manufactures instructions.

**16. Sanitary and Toilet Fittings.****16.1 General**

- 16.1.1 All sanitary appliances shall be of vitreous china (white or coloured as specified) first quality and shall conform to IS-2556 for General requirement and the specific requirements be as mentioned in clause 18.32 to 18. 40 of MES Schedule Part-I. These shall be of an approved make as per Appx`A'of makes attached hereinafter.
- 16.1.2 All waste pipe and fittings upto floor/nahani trap shall be galvanised steel tubing medium grade all as specified in clause 18.4 of MES Schedule Part-I.
- 16.1.3 Flush pipe and socket of flushing rim of WC shall be jointed with white cement and red lead (white cement and red lead in equal proportion by weight) and linseed oil to form paste.
- 16.1.4 CI 'P' or 'S' trap shall be jointed to WC pan with cement joints as specified in clause 18.86.1 of MES Schedule Part-I.
- 16.1.5 Low level flushing cistern, dual action, water saver, PVC flushing cistern with valve less syphonic action fitting compete.
- 16.1.6 The sizes, given here-in-after are approximate sizes. The sizes or sanitary fittings to be provided shall be the nearest size as per manufacturer' catalogue.

**16.2 Water Closet (Squatt Pattern)**

Water Closet (Squatt Pattern) Orissa type wherever provided shall conform to IS-2556 Part-III and shall be of approved make of size 580x440mm provided with cast iron 'P' or 'S' trap and the following fittings/items irrespective of whatever is shown on drawing :-

- (i) A pair of cast iron brackets.
- (ii) 32mm dia PVC flush pipe of required length including PVC coupling and bend.
- (iii) 15mm dia polythene overflow pipe upto 75mm from floor level with polythene antimosquito rose.
- (iv) Low level, dual action water saver PVC flushing cistern of total capacity 10 litres and one time discharge capacity of 5 liters with valve less symphonic fittings, complete.
- (vi) The pan shall be set in cement mortar (1:2) at least 15cms around and finished just below the rim to receive the specified thickness of floor finish.

**16.3 Wash Hand Basin oval type with granite top**

Wash hand basin(Vitreous China), glazed, oval shaped, counter type, fixed on RCC slab after laying black granite (as shown on drawing) as approved by GE over 10 mm thick screed in cement mortar 1:3. The edges shall be bull nosed as directed by Engineer-in-Engineer. If more than 1 wash hand basin are shown at same location, the RCC shelf with granite stone be continuous.

All wash hand basin shall have following accessories :-

- (i) Waste coupling 32 mm dia full threaded.
- (ii) 32mm dia CP waste coupling.

**PARTICULAR SPECIFICATIONS (Contd...)**

(iii) CP pillar cock, cast copper alloy with capstan head with long screwed and fly nuts suitable for 15mm bore pipe or otherwise as specified in BOQ.

(iv) 32mm dia galvanized steel medium grade waste pipe fitted with brass chromium plated waste coupling outlet complete. Length of waste pipe shall be as indicated on drawings/as directed by Engineer-in-Charge. Where bottle trap in lieu of waste pipe is shown on drgs, CP brass bottle traps suitable for 32mm waste coupling shall be provided.

**16.4 Water Closet (Pedestal pattern)**

Water closet (Pedestal pattern) shall be fixed with cast iron 'P' trap and shall consist of following:-

- (i) Water closet with wash down pattern of height 40cm, vitreous china ware and 'P' trap all as per IS-2556 part-II.
- (ii) Plastic seat and cover with mat under side, solid moulding closed front pattern, with cover conforming to IS-2548, seat and cover shall be white colour with chromium plated hinge and nuts.
- (iii) Low level, dual action water saver PVC flushing cistern of total capacity 10 liters and one time discharge capacity of 5 liters with valve less syphonic fittings, complete.
- (iv) A pair of standard brackets/clamps as supplied by manufacturer.
- (v) 15mm dia polythene overflow pipe 75mm length with polythene antimosquito rose.
- (vi) 32mm dia flush pipe of chromium plated brass tube bent to required shape including chromium plated brass coupling.
- (vii) The closet shall be screwed with brass screws to sheesham wood plugs embedded in floor.
- (viii) CP fancy type health faucet with 8mm dia 1.25m long flexible tube fixed with 15mm dia pipe.

**16.5 Water Closet (Anglo Indian type)**

Water closet (Anglo Indian type) shall be fixed with cast iron 'P' trap and shall consist of following:-

- (i) Water closet of vitreous china ware with 'P' trap height as per IS-2556 part-II all as specified therein.
- (ii) Plastic seat and cover with mat under side, solid moulding closed front pattern, with cover conforming to IS-2548, seat and cover shall be white colour with chromium plated hinge and nuts.
- (iii) Low level, dual action water saver PVC flushing cistern of total capacity 10 liters and one time discharge capacity of 5 liters with valve less syphonic fittings, complete.
- (iv) A pair of standard brackets/clamps as supplied by manufacturer.
- (v) 15mm dia polythene overflows pipe 75 mm lengths with polythene ant mosquito rose.
- (vi) 32mm dia flush pipe of chromium plated brass tube bent to required shape including chromium plated brass coupling.
- (vii) The closet shall be screwed with brass screws to sheesham wood plugs embedded in floor.
- (viii) CP jet with connection pipe.

**16.6 Mirror**

Looking mirror of thickness not less than 5mm shall be provided where shown on drawings. It shall be well polished, defect free waveness and mirror shall be fixed on 12mm commercial plywood BWR grade mitered at corners and provided with aluminium angle heavy quality of suitable size frame. Mirror shall be hung by key sets on screws fixed to plug embedded in walls unless otherwise shown on drawings. Size of mirror where not shown on drawings shall be 60x45 cm. The mirror shall be any of the make mentioned in Appx'A' of makes attached herewith.

16.7 **Wash Hand Basin with granite top**

Vitreous china designer wash hand basin, flat back, excluding taps, Waste, chain and plug and porcelain stopper, Waste, chain and plug and porcelain, Waste pipe, CP Waste coupling etc., fixed on RCC slab after laying black granite (as shown on drawing) as approved by GE over 10 mm thick screed in cement mortar 1:3. The edges shall be bull nosed as directed by Engineer-in-Charge. If more than 1 wash hand basin are shown at same location, the RCC shelf with granite stone be continuous.

16.8 **Water Closet (Pedestal pattern)**

Water closet (Pedestal pattern) shall be fixed with cast iron 'P' trap and shall consist of following:-

(i) Vitreous china Wash down water closet pan (pedestal pattern) composite type (one piece) with flushing cistern 10 ltr capacity dual flushing, coloured, including fixing bolt, plastic water closet seat soft type, CP jet including all necessary fittings and 'P' trap all as per IS-2556 part-II.

16.9 **Urinals:** Vitreous china Half stall, flat back, complete including water spreader, waste pipe of suitable size and length providing and fixing plugs, bedding urinal against wall in cement mortar 1:2, securing urinal to plugs with and including 60 mm long brass screws, pointing around urinal back in cement; fixing flush pipe, grating and union for discharge pipe with following accessories

(i) Chromium plated brass coupling to connect urinal pan with bottle trap

(ii) Urinal partition of marble / granite shall be provided as per details shown on drawings.

17. **PLUMBING WORK**

17.01 **General**

Plumbing work shall be carried out all as specified in clauses 18.13 to 18.27 and 18.40, 18.62 to 18.67 of MES Schedule Part-I.

17.02 **Soil/Waste/Vent pipe/Fittings/Accessories**

These shall be of cast iron (sand cast) conforming to IS-1729 with or without ears and with spigot and socket ends. All the pipes and fittings shall bear ISI certification mark.

17.03 **Jointing**

CI Pipes pipes and fitting laid under floor/hidden portion shall be jointed as specified in clause 18.40 and 18.67 of MES Schedule Part-I and all other joints shall be in cement mortar as specified in MES Schedule Part-I.

17.04 **Fixing of Pipes to Walls**

CI Pipes and fittings shall be fixed to wall with mild steel clamps as specified in clause 18.67 to 18.67.6 of MES Schedule Part-I.

17.05 **Nahani/Floor traps**

Nahani/floor traps shall be provided in situations as shown on drawings. These shall conform to IS-3989. Floor traps/ Nahani Traps shall be provided with C.I. grating.

17.06 **Shorter lengths**

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

17.07 **Gully Trap**

(a) Gully traps shall be salt glazed stoneware complying with the requirements of IS-651. These shall be surrounded in PCC (1:3:6) type C-1 15cm thick in all the four sides and 10cm thick at bottom. Jointing to drain pipe shall be done in cement mortar (1:1).

(b) Cast iron perforated grating shall be 150mmx150mm bituminous coated and fixed as directed by Engineer-in-Charge. PCC (1:2:4) type B-1 kerb and RCC cover slabs shall be provided all as directed by Engineer-in-Charge.

**17.08 Trenches for Pipe Lines**

Excavation for trenches shall be done as per the width given in clause 3.2.3 of MES Schedule Part-II and depth as required at site. The trenches shall be back filled after testing of pipes with approved excavated earth in layers not exceeding 250mm and surplus spoil disposed off to distance not exceeding 100 meters.

**17.09 Testing** On completion of work, all soil, waste and vent pipes including fittings shall be tested as specified in clauses 18.79 and 18.93 of SSR Pt-I to the entire satisfaction of Engineer-in-Charge. Joints found leaking or defective shall be made good by the Contractor without any extra cost to Govt. Record of testing shall be maintained for each building separately duly signed by Engineer-in-Charge and Contractor. The Contractor's Lump sum quoted against this Schedule shall deemed to include this aspect.

**18 BLANK**

**19. INTERNAL WATER SUPPLY**

**19.1 Water tubing, Bib taps, Stop Valves 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 and 18.15 of MES Schedule Part-I.

**19.2 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.

**19.3 PVC Pipe Connection**

Ready made PVC connection pipes of standard make, length and style as mentioned in relevant item of schedule-'A' suitable for 15mm nominal bore shall be provided.

**19.4 Workmanship**

(a) Laying of G.I pipes (Internal Works) shall be in accordance with clause 18.41 of MES Schedule Part-I.

(b) The contractor shall use proper bends, elbows, unions etc. at turning/corner. Bending of pipes shall not be allowed in any case.

(c) Pipe shall not run diagonally.

(d) Contractor shall provide screwed plugs to all open ends of pipes on completion of days work.

(e) 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-I.

**19.5 Testing**

After completion of work, entire water supply system shall be tested as per clauses 18.50.4 And 18.55 of SSR Pt-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 Sch A shall be deemed to include this aspect

20 **INTERNAL ELECTRIFICATION**

20.1 **Scope of work:** - The work consists of items as described in respective part of Schedule 'A'.

20.2 **General Requirements.** Refer clause 19.2.1 to 19.2.8 of MES Schedule Part-I.

20.3 **Type of Wiring**

The type of wiring (concealed conduit) shall be as given in drawings and all as described in Schedule 'A'. Point wiring for light/power/fan/bell or buzzer point(s) includes all works mentioned in preambles to the rates in MES Schedule Part-II for point wiring unless otherwise indicated in these tender documents.

20.4 **Internal Electrical Work**

(a) Cable for internal wiring for light, power, and sub main cables shall be with copper conductor and shall be of the type and size as indicated in schedule 'A', Copper conductor cable fire retardant low smoke conforming to IS-694 shall be used.

(b) **Flexible Cords, Twisted Copper Conductor**

Flexible cords, three core, each with tinned annealed stranded copper conductor elastomer insulated and textile braided twisted together, size nominal cross sectional area 1.5 Sqmm shall be as per IS-9968 Part-I.

(c) **Wooden Battens block and boards and round block**

These shall be in accordance with clause 19.28(19.28.1, 19.28.2 and 19.28.3) of MES Schedule Part-I. Wood shall be first class hard wood (Sheesham) in lieu of teak wood.

(d) **Plug/Gutties, Screws and Fastenings**

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

(e) **Ceiling rose, shades and bulk head fittings**

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

(f) **Sunk type boxes**

These shall be in accordance with clause 19.38 of MES Schedule Part-I.

(g) **Switch socket outlets**

These shall be in accordance with clause 19.40 of MES Schedule Part-I.

(h) **Lamp Holders**

These shall be as per clause 19.41 of MES Schedule Part-I.

(j) **Miniature Circuit Breakers**

These shall conform to IS-8828 (Specification for MCB and isolator for voltage not exceeding 1000 volts). All MCB's/MCCB's shall be housed in suitable size sheet metal enclosure of MS sheet supplied by the same manufacturer of MCBs/MCCB's.

20.5 **Earthing and Testing**

Earthing shall be carried out as described in clause 19.137 to 19.139 and as shown in Electrical Plate No. 3 of MES Schedule Part-I.

20.6 **Sitting of Electrical Equipment**

The sitting of cable conduit run controls, distribution boards, fittings and accessories etc. shall be as laid down in IS-4648 "Guide for electrical layout in residential buildings" or as directed by the Engineer-in-Charge. The location of fittings etc. shall be marked in advance on walls etc and approved by the Engineer-in-Charge.

20.7 **System of Wiring**

**PARTICULAR SPECIFICATIONS (Contd...)**

Wiring shall be carried out with FRLS cable. All conductors as far as possible shall run near walls and ceiling so as to be 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 and good appearance and safety. Diagonal runs will not be permitted.

**20.8 Control at point of entry of supply**

These shall be linked with main switch gear (isolator) with the MCB on each live conductor of the supply mains at the point of entry. The wiring throughout the installation shall be such that there is no break in the neutral wire except in the form of the linked switch gear. No fuses shall be inserted in the earth neutral.

**20.9 Type of switch boards**

Hinged type metal boards for mounting the MCB and electrical meters shall be as per clause 19.105.1 of MES Schedule Part-I. Meter Box shall be made of 16 gauge MS sheet with provision of locking arrangement and glass window.

**20.10 Joints and looping back**

These shall be as per clause No. 19.109 of MES Schedule Part-I.

**20.11 Passing through walls and floors**

Refer clause 19.111 of MES Schedule Part-I for passing the conductors through walls and floors. The rates for PVC/steel conduit concealed wiring against internal electrification shall be deemed to include the provisions mentioned in clause 19.111 of MES Schedule Part-I.

**20.12 Record drawings**

On completion of the wiring to the building the contractor shall submit three copies of the line plans of the building (Scale 1:100) indicating actual position of all controls and fittings and actual runs of all main and sub-circuit and such other information which the Engineer-in-Charge may require. All circuits shall be clearly indicated and numbered in the wiring diagram and all points shall be given the same number as the circuit to which they are electrically connected phase and neutral wires shall be shown in red and black colours respectively.

**20.13 Conduit wiring**

The system of conduit wiring shall be as per clause 19.125 of MES schedule Part-I. Grade of conduit shall be medium.

**20.14 Material and sample board**

All materials unless otherwise specified shall possess ISI mark or conform to relevant IS specifications or to BSS if ISS is not available. Approval of GE referred to in clause 19.2.1 and 19.2.2 of MES Schedule shall be in writing. Approved samples shall be labelled as such and signed both by the contractor and the Engineer-in-Charge. They shall remain in the custody of Engineer-in-Charge, till final completion of work. The contractor is deemed to have included in rates, cost of making holes/chases where required through masonry or concrete work for taking in cables/conduits and conductors etc and making good the same to match with existing work.

**20.15 End termination**

All cable termination for internal electrification for various switches. Light fittings, MCBs, MCCBs junction boxes, connectors etc shall be provided with suitable crimped legs/studs/sleeves as required to avoid any possibility of loose connections and sparking.



**PARTICULAR SPECIFICATIONS (Contd...)****20.16 Electrical tests**

On completion of wiring, the whole installation will be tested in accordance with IS-732, clause 8(a) (b) & (c) and test certificate as per Appendix 'B' of the above IS rendered duly signed by the contractor and Engineer-in-Charge. If the test results are not acceptable, all repairs and replacement and extra work of removal and relaying or refixing shall be carried out by the contractor at his own expense and installation retested, until test result indicate compliance with the pre scribed requirement. The contractor shall supply all necessary apparatus, lab and instruments or equipments required for testing. The quoted amount/rate for respective item/part of Sch 'A' shall be deemed to include for the above provision.

**21. SEWAGE DISPOSAL****21.1 Excavation and earth work**

Irrespective of the width of the trenches for the pipes excavated, the width for the purpose of payment shall be the authorized width as defined in preamble a(ii) of sub section 'C' on Srl Page No. 330 of SSR (Part-II). Other requirement specified here-in-before and in the MES Schedule as applicable shall be complied with.

**21.2 SGSW Pipe and Fittings**

(a) SGSW (Salt glazed Stoneware) 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'. The width and thickness of concrete shall be all as mentioned in preamble a (i) & (ii) of Sub Section 'C' on Srl Page No. 330 of SSR Part II.

(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.

**21.3 Testing**

Drains and pipe shall be tested as per clause, 18.79 of MES Schedule Part-I. The Contractor's quoted lump sum against respective Part of Sch 'A' shall be deemed to include this aspect.

**21.4 Manhole**

Manholes shall be built as per description given in respective items of Schedule 'A' and as shown on drawings or as directed by Engineer-in-Charge.

**21.5 RCC Manholes Cover and Frames**

Frames shall be of mild steel angle iron welded to shape embedded in masonry and hunched as shown on drawings. Precast RCC rectangular cover slab shall be of M-25 (Design mix). Handle and frame shall be painted with a coat of bituminous paint.

**PARTICULAR SPECIFICATIONS (Contd...)**

21.6 **Septic Tanks** Septic Tanks of capacity as mentioned in relevant items of Sch 'A' shall be built to the following specifications and as shown on drawings :-

- (i) Foundation : PCC (1:2:4) type B-2 over hard core. Floor shall be finished and floor with 20mm thick water proof cement plaster in cement mortar (1:3), (the cement mixed with an integral water proofing compound as per manufacturer's instructions) to an even and smooth surfaces using extra cement.
- (ii) Brick work : All brick work shall be in cement mortar (1:4).
- (iii) Finishes : 20mm thick water proofing cement plaster internally in cement mortar (1:3) finished even and smooth using extra cement mixed with approved integral water proofing compound according to the manufacturer's instructions. External surfaces shall be flush pointed in the same mortar as the work proceeds.
- (iv) All RCC and PCC : RCC M-25 (Design mix)/PCC (1:2:4)
- (v) Steps : 20mm dia mild steel steps 30cm apart vertically staggered in situations shown on drawings and painted with 2 coats of bituminous paint.
- (vi) Excavation and earth work : In any type of soil and surplus spoil shall be disposed to a distance not exceeding 50 meters.
- (vii) All other details : As shown on drawings.

21.6A **LLDPE SEPTIC TANKS**

LLDPE septic tanks shall be as specified in relevant item of Sch 'A'. The tank shall be of Make: Sintex/Comfort polymers/Polycon.

21.7 **Soakage Wells**

Soakage wells of the sizes as mentioned in relevant item of Sch 'A' shall be constructed all as per details shown on drawings to the following specifications:-

- (i) Excavation and earth work : In any type of soil and disposal of surplus earth to a distance not exceeding 50 meters.
- (ii) PCC foundation : PCC (1:4:8) type D-2 (using 40mm graded crushed stone aggregate).
- (iii) Walls : Brick work in cement mortar (1:4) including honey comb brick work.
- (iv) Cover slab : RCC M-25 (Design mix) with reinforcement and RCC manhole cover all as shown on drgs.
- (v) Fillings : Brick bats filling of gauge 80 to 150mm.
- (vi) All other work. : As shown on drawings.

**PARTICULAR SPECIFICATIONS (Contd...)****22 ROAD.****22.1 Excavation and earth work**

Before commencement of excavation or earth filling, the representative of the GE and the contractor will be required to take the levels jointly of the existing ground surfaces at intervals decided by the GE (the decision of the GE being final and binding in this respect). The longitudinal and cross sections shall be prepared from these levels by the Engineer-in-Charge. These cross sections shall also show the proposed formation levels after consolidation and shall be signed by the GE and contractor in token of their acceptance.

**22.1.1 Rolling Formation Surfaces**

(a) The formation surfaces shall be rolled to the required gradient and camber with power roller including sprinkling the surfaces with water as required.

(b) Where rolling is not consisting, prior permission of the GE shall be obtained in writing for hand ramming. The laying of the base course will commence only after the earth formation is approved by the GE

**(c) Earthen Berms**

Earthen berms as described in respective items of Schedule 'A' shall be watered and well consolidated with 0.80 to 1.5 tonne animal roller and finished to profile in line with finished surface of the road/path.

**22.1.2 Drainage of Earth Formation**

At all times, the formation surfaces shall be kept drained by the contractor. The contractor shall provide such temporary/open drain as may be necessary to prevent accumulation of water from any cause whatsoever.

**22.1.3 Soling**

Soling shall consist of broken stones of Granite, Trap or Basalt and shall be laid and leveled in one layer, watered and rolled to required surface and camber all as per clause 20.A.2.1 and 20.A.20.1 of MES Schedule Part-I.

**22.1.4 STACKING AND MEASUREMENTS OF MATERIAL.**

The contractor shall collect and stack, approved materials like aggregate, sand etc on leveled ground at places indicated by GE in closely packed, stacks. Stacks measurement of these materials shall be taken and recorded in measurement book and signed by the contractor and Engineer-in-Charge as per special condition 20.A.1.2 of MES Schedule 2020 part- II rates before commencement of hard standing/road work. It shall be ensured that the required quantity of materials have been incorporated in the work. However these provisions do not absolve the contractor from his responsibility of providing more materials as necessary to complete the work. Any additional materials required for making good hollows and the depressions during rolling shall be supplied and provided by the contractor at his own expense in addition to the stacked materials mentioned hereinbefore.

**22.1.5 Soling :** Soling shall consist of broken stones laid and leveled in one layer, watered and rolled to required surface and camber all as per clause 20A.2.1 and 20A.20.1 of MES Schedule Part-I Specifications-2009.

**PARTICULAR SPECIFICATIONS (Contd...)****22.2 Water Bound Macadam**

(a) Stone aggregate, screenings and binding materials for water bound macadam shall be as specified in clause 20.A.3 of MES Schedule Part-I and conform to the samples kept in GE's office and approved by the GE before incorporation in the work. Screenings shall be of grading 'A' as specified in clause 20.A.3.2 of MES Schedule Part-I. The coarse aggregates shall be of grading No. 2 with size from 63mm to 40mm as specified in sub clause 6 of clause 20.A.3.1 of the MES Schedule Part-I.

(b) Water bound macadam shall consists of 75mm thick (compacted thickness) broken stone aggregate of type as mentioned in relevant item of Sch 'A' consolidated in one layer. Spreading rolling applying screening and watering shall be as specified in clause 20.A.21 to 20.A.21.13 of MES Schedule Part-1. The rolling shall be done with power Roller after the application of screenings and wet rolling as described in MES Schedule Part-I.

**23. SEMI DENSE ASPHALTIC CONCRETE/ Bituminous Carpet**

(a) Semi Dense Asphaltic Concrete shall be carried out as specified in Sch 'A'/BOQ and Aggregate for the bituminous carpet/semi dense asphaltic concrete shall be as specified in clause 20.B..2.5.4(d),20.B.4 of SSR Part I 2009.

(b) Unless otherwise mentioned in Schedule 'A'/BOQ the bitumen for tack coat, premix work and seal coat shall be paving bitumen **VG-30** hot application shall be arranged by the Contractor. The bitumen shall be purchased by the Contractor directly from the Govt refineries. The Contractor shall produce original purchase vouchers of the bitumen to the GE for his verification.

(c) Bituminous carpet shall be laid on the water bound macadam after the later has completely dried up and before allowing any traffic on the same. Top surfaces of water bound macadam shall be properly cleaned before applying tack coat and laying bituminous carpet. Carpet shall be thick (consolidated thickness) as specified in respective schedule excluding seal coat and provided as specified in the clause 20.A.27 and 20.A.28 of MES Schedule Part-I. Premix sand seal coat shall be applied to the surface immediately after laying the carpet. No traffic shall be allowed on the road till the seal coat has been placed. Carpet shall be laid with mechanical paver and mixed in hot mix plant.

**OR**

(c) Semi dense asphaltic concrete shall be laid on the water bound macadam after the later has completely dried up and before allowing any traffic on the same. Top surfaces of water bound macadam shall be properly cleaned before applying tack coat and laying semi dense asphaltic concrete. Semi dense asphaltic concrete shall be thick (consolidated thickness) as specified in respective schedule and shall be laid all as specified in clause 20.B.4 and mix design criteria shall meet the requirement as specified in clause 20.B.2.11 of SSR Part-I. Semi dense asphaltic concrete shall be laid with mechanical paver and mixed in hot mix plant.

**PARTICULAR SPECIFICATIONS (Contd...)**

- 23.1 Path and hardstanding and Culvert work shall be carried out as specified in respective items of Sch 'A' and as specified and as shown on drawings.
- 23.2 **Binder** :- Binder shall be paving bitumen of grade VG 30 and shall not be issued under sch 'B'. Contractor shall procure the bitumen from the manufactures mentioned in clause 16.3 here in after at their ownand rates quoted shall be inclusive of that.
- 23.3 **Bitumen** :- Bitumen shall not be issued by the deptt under sch 'B'. Bitumen shall be viscosity grade paving bitumen of grade VG-30. It shall confirm to IS: 73-2006 (Third edition) with following characteristic/specifications:-
- |      |                                                       |   |       |
|------|-------------------------------------------------------|---|-------|
| (a)  | Absolute viscosity, 600C, poises, min                 | : | 1600  |
| (b)  | Kinetic viscosity, 135OC, CST, Min                    | : | 300   |
| (c)  | Flash Point, 0C, Min                                  | : | 220   |
| (d)  | Solubility in trichloroethylene, %, Min               | : | 99    |
| (e)  | Penetration at 250C                                   | : | 60-80 |
| (f)  | Softening point, 0C, min                              | : | 45    |
| (g)  | Test on residue from thin film over test/RTFOT        |   |       |
| (i)  | Viscosity ratio at 600C, Max                          | : | 4.0   |
| (ii) | Ductility at 250C, CM, Min, after thin film oven test | : | 50    |
- 23.4 **Procurement of bitumen** : Bitumen shall be procured by the contractor from refinery of any of the following manufacturers in sealed containers and original purchase vouchers, test certificate of the material shall be produced to the GE by the Contractor:-
- Indian oil Corporation Ltd
  - Hindustan Petroleum Corporation Ltd
  - Bharat Petroleum Corporation Ltd.
- 23.5 **AGGREGATES** The aggregate shall consists of crushed stone, crushed gravel/shingle or other stone. They shall be clean, strong durable, of fairly cubical shape and free from disintegrated pieces, organic or other deleterious matter and other coating. The aggregates shall preferably be hydrophobic and of low porosity.

**PHYSICAL REQUIREMENTS**

Ser No	Test	Test method	Requirement
1	2	3	4
1.	Los Angles Abrasion Value	IS:2386 (Part-IV)	40% Maximum
2.	Aggregates Impact Value	-do-	30% Maximum
3.	Flakiness and Elongation Indices (Total)	IS : 2386 (Part-I)	30% Maximum
4	Coating & Stripping of bitumen aggregate mixture	AASHTO T 182	Minimum retained coating 95%
5	Soundness		
	(a) Loss with Magnesium sulphate 5 cycles	IS : 2386 (Part-V)	12% Maximum
	(b) Loss with Magnesium sulphate 5 cycles	-do-	18 % Maximum
6.	Water Absorption	IS : 2386 (Part-III)	01% Maximum

**PARTICULAR SPECIFICATIONS (Contd...)****23.6 AGGREGATES GRADING:-**

The mineral aggregates, including mineral filler shall be graded or combined so as to confirm to the grading set forth as under :-

Ser No	IS Sieve Designation	Percent passing by weight
1	22.40 mm	100
2	13.20 mm	79-100
3	11.20 mm	68-90
4.	5.60 mm	33-55
5	2.80 mm	22-38
6	710 Micron	6-22
7	355 Micron	4-14
8	180 Micron	2-9
9	90 Micron	0-5

**23.7 FINE AGGREGATE:-**

Fine aggregate shall be the fraction passing 2.36 mm sieve retained on 75 Micron sieve consisting of crusher run screening gravel, sand or mixture of both. These shall be clean hard, durable, uncoated, dry and free from any injurious soft or flaky pieces and organic or other deleterious substances.

**23.8 FILLER:-**

The combined grading of aggregates i.e. coarse aggregate, fine aggregate & filler shall confirm to the following table. The filler shall be an inert material whole of which passes 710 micron sieve, at least 90 % passing 180 micron sieve & not less than 70 percent 90 micron sieve. Unless otherwise indicated, filler shall be cement (OPC-43 Gde)

**23.9 PREPARATION AND TRANSPORTATION OF MIX**

(a) The work of laying shall not be taken up during foggy weather or when the base course is damp or wet or during dust storm or when the atmospheric temperature in shade is 10 degree 'C' or less.

(b) Bituminous macadam mix shall be prepared in a hot mix plant of capacity 40-50MT and capable of yielding a mix of proper and uniform quality with thoroughly coated aggregates. The hot mix plant shall be a batch mix type. Total system for crushing of stone aggregate and feeding of aggregate fractions in required proportion to achieve the desired mix, deployed by the contractor must be capable of meeting the over all specification requirements under stringent quality control. The plant shall have the following essential features:-

**23.10 GENERAL**

(a) The plant shall have coordinated set of essential units capable of Producing uniform mix as per the job mix formula.

(b) Cold aggregate feed system with minimum four bins having belt conveyor arrangement for initial proportioning of aggregate from each bin in the required quantities in order to have free flow it.

(c) Belt conveyors below each bin should have variable speed drive motors. There should be electronic load sensor on the main conveyor for measuring the flow of aggregate.

**PARTICULAR SPECIFICATIONS (Contd...)**

- (d) Dryer units with burner capable of heating the aggregate to the required temperature without any visible un burnt fuel or carbon residue on the aggregate and reducing the moisture content of the aggregate to the specified minimum.
- (e) The plant shall be fitted with suitable type of thermometer instruments at appropriate places so as to indicate record /register the temperature of heated aggregate, bitumen and mix.
- (f) Bitumen supply unit capable of heating, measuring/metering and spraying of bitumen at specified temperature with automatic synchronization of bitumen and aggregate feed in the required proportion.
- (g) A filler system suitable to receive bagged or bulk supply of filler material and its incorporation to the mix in the correct quantity wherever required.
- (h) A suitable built in dust control system for the dryer to contain/recycle permissible fines into the mix. It should be capable of preventing the exhaust of the dust into atmosphere for environmental control wherever so specified by the Engineer-in-Charge.
- (j) The plant should have centralized control panel/cabin capable of presenting controlling synchronizing all operations starting from feeding of cold aggregates to the discharge of the hot mix to ensure proper quality of mix. It should have indicators for any malfunction in the operation.
- (k) Every hot mix plant should be equipped with siren or horn so that the operator may use the same before starting the plant every time in the interest of safety of staff.

**23.11 FOR BATCH TYPE PLANT:-**

- (i) Gradation control unit having minimum four week vibratory screens for accurate sizing of hot aggregate and storing them in separate bins. The unit should be fully covered to reduce the maintenance cost and for better environmental condition.
- (ii) Proper arrangement for accurate weighting of each size of hot aggregate from the control panel before mixing.
- (iii) Paddle mixer unit shall be capable of producing a homogeneous mix with uniform coating of all particles of the mineral aggregate.

**23.12 FOR CONTINEOUS TYPE PLANT:-**

- (i) Gradation control unit having vibratory screens for accurate sizing of hot aggregate and storing them in separate bins. The unit should be fully covered to reduce the maintenance cost and for better environmental condition.
- (ii) There should be appropriate arrangement for regulating and volumetric control of the flow of hot aggregate from each bin to achieve the required proportioning.
- (iii) Paddle mixer unit shall be capable of producing a homogenous mix with uniform coating of all particles of the mineral aggregate with binder.
- (i) It is prerequisites that only properly screened and graded materials are fed to the bins. If required, a vibratory screening unit shall be installed at the plant site to ensure the same. A primary four dock vibratory screening unit shall be installed before the multiple bin cold feed system for screening the aggregates and grading the same.

(ii) Belt conveyers below each bin should have variable speed drive motors. There should be electronic load sensor on the main conveyer for measuring the flow of aggregate.

(iii) There should be arrangement to measure moisture content of the aggregate (Supply and fixing) so that moisture correction may be applied for working out requirement of binders and filler. The temperature of binder at the time of mixing shall be in the range of 150 degree Centigrade.

23.13 Mixing shall be through to ensure that a homogenous mixer obtained in which all the particles of the aggregate are quoted uniformly and the discharge temperature of the mix shall be between 130 degree Centigrade to 160 degree Centigrade.

23.14 The mixture shall be transported by the tippers or Dumpers from the mixing plant to the site where it is to be used. The Tippers or Dumpers employed for transport shall be cleaned and covered properly to maintain the required heat. Any Tipper causing excessive delay shall be removed from the work until such conditions are corrected.

23.15 The temperature of the mix at the time of laying will be in the range of 120 degree Centigrade to 160 degree Centigrade.

24.16 Mix falling short of above quality shall be rectified and redone by the contractor at his own cost and defective mix shall also be removed off from the site by the contractor at his own cost.

23.17 Mix Design criteria for Bituminous Macadam /dense Asphaltic Concrete : The design requirements for bituminous macadam/or dense asphaltic concrete have been laid down in clause 20.B.2.11 of MES Schedule (Part-I) which shall be complied with

24. **QUALITY CONTROL**:-Control on quality of materials and mixes shall be exercised by the Engr-in-Charge in accordance with the specification/conditions given as under:-

Ser No	Test	Frequency (minimum)
I	Quality of binder	Two samples per lot to be subjected to all or some tests as directed by Engr-in-Charge.
II	Aggregate impact value	One test per 50 Cum of aggregate
III	Flakiness index and along with index of aggregate	One test per 50 Cum of aggregate
IV	Stopping valve and water absorption of aggregate	Initially one set of three representative specimen for each source of supply. Subsequently when warranted by changes in the quality of changes.
V	Grading of aggregates	Two test per day per plant both on individual constituents and mixed aggregates from the dryer.
VI	Mix Grading	One set of tests on individual constituents and mixed aggregate from the dryer for each 400 tonnes of mix subject to a minimum of two sets being tested per plant per day.



**PARTICULAR SPECIFICATIONS (Contd...)**

- VII Stability of mix For each 400 tonnes of mix produced a set of three Marshall specimens to be prepared and tested for stability, flow value, density and void cement subject to a minimum of two sets being tested per plant per day.
- VIII Water sensitivity of mix (Retention of Marshal stability) As required for bituminous concrete.
- IX Control of temperature of binder in boiler, aggregate in the dryer and the mix at the time of laying and rolling At regular close interval.
- X Control of binder content and gradation in the mix One test for each 400 tonnes of mix subject to minimum of two tests per day per plant.
- XI Density of compacted layer One test per 250 Sqm area.
- XII Bitumen Extraction Test Minimum one test per batch per day.

- 24.1 In addition to the above test on mixes, the contractor shall satisfy the department regarding the quality of aggregates used in the mix through various tests to the frequency stipulated at his own cost.
- 24..2 In the absence of clear indications about method/frequency tests for any item, the instructions of Engr-in-Charge shall be followed. The agency carrying out the tests shall be one of the approved NABL Accredited lab / Test house as approved by the GE before commencement of supply of mix.
- 24.3 For testing of samples of aggregates, mixes etc samples in the required quantity and form shall be supplied to the Engr-in-Charge by the contractor at his own cost and under his own arrangements.

**REQUIREMENT OF MIX FOR BITUMINOUS MACADAM**

Ser No	Description	Requirement
I	Marshal stability (ASTM Designation D-159) determined on Marshal specimens compacted by 75 compaction blows on each end	545 Kg minimum
II	Marshal flow (mm)	Min 2 to 4
III	Percent air voids in mix	10 to 15
IV	Binder content percentage by weight of total mix	Min 4 percent
V	Type of binder	VG 30

**PARTICULAR SPECIFICATIONS (Contd...)**

24.4 **BINDER CONTENT FOR BITUMINOUS MACADAM** : - The bitumen content for BM shall be minimum 4 percent by weight of the total mix except when otherwise as approved in Job mix formula. The above figure is only for general guidance and the final product from the HMP will have to comply all the standards and specifications given by MORST for road and bridge work.

24.5 **JOB MIX FORMULA FOR BITUMINOUS MACADAM:-**

The contractor shall intimate to the Engr-in-Charge in writing at least 20 days before the start of the work. The job mixed formula proposed to be used by him for the work and shall give the following details :-

- i. Sources and location of all materials.
- ii. Proportions of all materials expressed as follows where each is applicable
  - a. Binder , as percentage by weight of total mix
  - b. Coarse aggregate/fine aggregate/mineral filler as percentage by weight of total aggregate including mineral filler.
- iii. A single definite percentage passing each sieve for the mix aggregate. The result of tests enumerated in table given in para 2.7.4 above as obtained by the contractor.
- iv. Test results of physical characteristics of aggregate to be used.
- v. Mixing temperature/compacting temperature.

While working out job mix formula, the contractor shall ensure that it is based on the correct and truly representative sample of the materials that will actually be used in the work and that the mix and its different ingredients satisfy the physical and strength requirement of these specifications. Approval of the job mix formula shall be based on independent testing by the Engineer-in-Charge for which samples of all ingredients of mix shall be furnished by the contractor as required by the former. The approved job mix formula shall remain effective unless and until modified by the Engr-in-Charge. Should a change in the source of materials be proposed, a new job mix formula shall be established and got approved from the Garrison Engineer before actually using the material.

**Note** – If the bitumen content as per approved Job mix formula is more than the prescribed % age i.e. 4 % no plus DO will be permissible on such account for additional paving bitumen. Job mix formula with bitumen content less than 4% shall not be admissible and in such case contractor shall repeat the job mix formula.

24.6 For testing of samples of aggregates, mixes etc samples in the required quantity and form shall be supplied to the Engr-in-Charge by the contractor at his own cost and under his own arrangements.

**PARTICULAR SPECIFICATIONS (Contd...)****REQUIREMENT OF MIX FOR SADC**

Ser No	Description	Requirement
I	Marshal stability (ASTM Designation D-159) determined on Marshal specimens compacted by 75 compaction blows on each end	820 Kg minimum
II	Marshal flow (mm)	Min 2 to 4
III	Percent air voids in mix	3 to 5
IV	Percent voids in mineral aggregate (VMA)	Min 1 to 13
V	Percent voids in mineral aggregate filled by bitumen (VFB)	65 to 75
VI	Binder content percentage by weight of total mix	Min 5.5 percent
VII	Swell test (Asphalt Instt MS-2 No-2)	Min 1.5 percent
VIII	Water sensitivity (ASTM D-1075) loss of stability on immersion in water at 60 degree 'C'	Min 75 percent retained strength.

24.7 **BINDER CONTENT FOR SADC:** - The bitumen content for SADC shall be minimum 5.5 percent by weight of the total mix except when otherwise as approved in Job mix formula. The above figure is only for general guidance and the final product from the HMP will have to comply all the standards and specifications given by MORST for road and bridge work.

24.8 **JOB MIX FORMULA FOR SADC**

The contractor shall intimate to the Engr-in-Charge in writing at least 20 days before the start of the work. The job mixed formula proposed to be used by him for the work and shall give the following details :-

- vi. Sources and location of all materials.
- vii. Proportions of all materials expressed as follows where each is applicable
  - c. Binder , as percentage by weight of total mix
  - b. Coarse aggregate/fine aggregate/mineral filler as percentage by weight of total aggregate including mineral filler.
- viii. A single definite percentage passing each sieve for the mix aggregate. The result of tests enumerated in table given in para 2.7.4 above as obtained by the contractor.
- ix. Test results of physical characteristics of aggregate to be used.
- x. Mixing temperature/compacting temperature.

**PARTICULAR SPECIFICATIONS (Contd...)**

While working out job mix formula, the contractor shall ensure that it is based on the correct and truly representative sample of the materials that will actually be used in the work and that the mix and its different ingredients satisfy the physical and strength requirement of these specifications. Approval of the job mix formula shall be based on independent testing by the Engineer-in-Charge for which samples of all ingredients of mix shall be furnished by the contractor as required by the former. The approved job mix formula shall remain effective unless and until modified by the Engr-in-Charge. Should a change in the source of materials be proposed, a new job mix formula shall be established and got approved from the Garrison Engineer before actually using the material.

**Note** – If the bitumen content as per approved Job mix formula is more than the prescribed % age i.e 5.5 % no plus DO will be permissible on such account for additional paving bitumen. Job mix formula with bitumen content less than 5.5% shall not be admissible and in such case contractor shall repeat the job mix formula.

24.9 **PERMISSIBLE VARIATIONS FROM THE JOB MIX FORMULA FOR SADC**

The contractor shall be responsible for ensuring proper proportioning of materials in accordance with the approved job mix formula and producing uniform mix. The permissible values of individual percentage of various ingredients in the actual mix from the job mix formula being within the limit as specified in the under mentioned table. These variations are intended to apply to individual specimen taken for quality control tests vide para 2.7.5 mentioned here-in-above.

<b>Ser No</b>	<b>Description of ingredients</b>	<b>Permissible variations by weight of total mix in percent</b>
I	Aggregate passing 13.2 mm sieve and larger sieves	+ 8% -
II	Aggregate passing 11.2 mm/sieve and 5.6 mm sieve	+ 7% -
III	Aggregate passing 2.8 mm/sieve and 1.4 mm sieve	+ 6% -
IV	Aggregate passing 710 micron sieve and 3125 mm sieve	+ 5% -
V	Aggregate passing 180 micron sieve	+ 4% -
VI	Aggregate passing 90 micron sieve	+ 2% -
VII	Binder	+0.3% -
VIII	Mixture temperature	+ 10 degree 'C' -

**25 WORKMANSHIP**

25.1 **PREPARATION OF SURFACES** Before laying bitumen macadam/or bituminous premix concrete carpet on existing base, the existing surfaces shall be prepared all as specified in clause 20.A 27.1 and 20B.4. to 20 B 4.8 of SSR- 2009 Part-I.

**PARTICULAR SPECIFICATIONS (Contd...)**

25.2 **TACK COAT.** Tack coat at the rate ordered by GE shall be applied just ahead of spreading of macadam/or premix all as specified in clause 20.B.3.2 of SSR 2009 Part-I.

25.3 **CONSTRUCTION JOINTS.** Construction joints and controls on laid thickness shall be all as specified vide clauses 20.B.4.7 and specified in clause 20.B.4.9 of MES Schedule 2009 Part-I.

25.4 **SPREADING OF MIX.** Spreading of mix shall be done by means of self propelling mechanical paver with suitable screeds capable of spreading tamping and finishing the mix true to grade, line and cross section without causing segregation dragging, irregularities or other surfaces defects and at a speed consistent with character of the machine. The temperature at the time of laying shall be the designed temperature. The mix shall be spread so that required thickness is achieved after rolling. Small quantities where laying of premix carpet by paver is not feasible may be spread by hand if specifically sufficient thickness so as to get compacted thickness as specified. The edges (longitudinal and transverse) of previously laid carpet shall be cut back to its full depth and exposed surface painted with hot coat of bitumen and new mix shall be placed in contact with it.

25.5 **ROLLING AND COMPACTION.** The mix after spreading shall be thoroughly compacted by rolling with set of rollers, at a speed not more than 5 Km/hr immediately following by paver. The initial rolling shall be with 8 to 12 ton power roller and surface finished by final rolling with 8 to 12 ton tandem roller. The wheel of roller from the edge and progress towards centre. The roller shall proceed on the fresh material with a rear or fixed wheel leading so as to minimize the pushing of the mix and each pass of the roller shall overlap the proceeding one by half the width of roller.

25.6 **OPENING OF TRAFFIC.** Traffic may be allowed immediately after completion of the final rolling when mix has cooled down to the surrounding temperature.

**25.7.Trenches for Pipe Lines**

Excavation for trenches shall be done as per the width given in clause 3.2.3 of MES Schedule Part-II and depth as required at site. The trenches shall be back filled after testing of pipes with approved excavated earth in layers not exceeding 250mm and surplus spoil disposed off to distance not exceeding 100 meters.

25.8 **Testing** On completion of work, all soil, waste and vent pipes including fittings shall be tested as specified in clauses 18.79 and 18.93 of SSR Pt-I to the entire satisfaction of Engineer-in-Charge. Joints found leaking or defective shall be made good by the Contractor without any extra cost to Govt. Record of testing shall be maintained for each building separately duly signed by Engineer-in-Charge and Contractor. The Contractor's Lump sum quoted against this Schedule shall deemed to include this aspect.

**PARTICULAR SPECIFICATIONS(Contd...)****26. HOT APPLIED THERMOPLASTIC ROAD MARKING PAINT****26.1.1 GENERAL :**

- (i) The work under this section consists of marking traffic stripes using a thermoplastic compound meeting the requirement specified herein.
- (ii) The thermoplastic compound shall be screeded /extruded on to the pavement surface in a molten state by suitable machine capable of controlled preparation and laying with surface application of glass beads at a specific rate. Upon cooling to ambient pavement temperature, it shall produce an adherent pavement marking of specified thickness and width and capable of resisting deformation by traffic.
- (iii) The colour of the compound shall be white or yellow (IS colour No. 356) as specified in the drawings or as directed by the Engineer.
- (iv) Where the compound is to be applied to cement concrete pavement, a sealing primer as recommended by the manufacture, shall be applied to the pavement in advance of placing of the stripes to ensure proper bonding of the compound. On new concrete surface any laitance and/or curing compound shall be removed before the markings are applied.

**26.2 THERMOPLASTIC MATERIAL**

26.3 **GENERAL** : The thermoplastic material shall be homogeneously composed of aggregate, pigment, resins and glass reflectorizing beads.

**26.4 REQUIREMENTS:**

- (i) Composition: The pigment, beads, and aggregate shall be uniformly dispersed in the resin. The material shall be free from all skins, dirt and foreign objects and shall comply with requirements indicated in Table below:-

**PARTICULAR SPECIFICATIONS(Contd...)****27 PROPORTIONS OF CONSTITUENTS OF MARKING MATERIAL****(Percentage by weight)**

Component	White	Yellow
Binder	18.0 min	18.0 min
Glass Beads	30-40	30-40
Titanium Dioxide	10.0 min	-
Calcium Carbonate and inert Fillers	42.0max	See
Yellow Pigments	-	Note

**NOTE :** Amount of yellow pigment, calcium carbonate and inert fillers shall be at the option of the manufacture, provided all other requirements of this specification are met.

(ii) **PROPERTIES:** The properties of thermoplastic material, when tested in accordance with ASTM D36/BS-3262-(Part I) , shall be as below:

(a) **LUMINANCE :**

**WHITE** : Daylight luminance at 45 degrees-65 per cent min. as per AASHTO M 249

**YELLOW** : Daylight luminance at 45 degrees-45 per cent min. as per AASHTO M 249

(b) **DRYING TIME:** When applied at a temperature specified by the manufacture and to the required thickness, the material shall set to bear traffic in not more than 15 minutes

(c) **SKID RESISTANCE:** not less than 45 as per BS 6044.

(d) **CRACKING RESISTANCE AT LOW TEMPERATURE:** The material shall show no cracks on application to concrete blocks.

(e) **SOFTENING POINT:** 102.5±9.5° C as per ASTM D 36.

(f) **FLOW RESISTANCE:** Not more than 25 per cent as per AASHTO M 249.

**PARTICULAR SPECIFICATIONS(Contd...)**

(g) **YELLOWNESS INDEX (FOR WHITE THERMOPLASTIC PAINT):** not more than 0.12 as per AASHTO M 249.

(iii) **STORAGE LIFE:** The material shall meet the requirements of these Specifications for a period of one year. The thermoplastic material must also melt uniformly with no evidence of skins or unmelted particles for the one year storage period. Any material not meeting the above requirements shall be replaced by the manufacturer/supplier/ contractor.

(iv) **REFLECTORISATION :** Shall be achieved by incorporation of beads, the grading and other properties of the beads shall be as specified in here in after.

(v) **MARKING :** Each container of the thermoplastic material shall be clearly and indelibly marked with the following information :

1. The name, trade mark or other means of identification of manufacturer
2. Batch number
3. Date of manufacture
4. Colour ( white or yellow)
5. Maximum application temperature and maximum safe heating temperature.

(vi) **SAMPLING AND TESTING:** The thermoplastic material shall be sampled and tested in accordance with the appropriate ASTM/BS method. The Contractor shall furnish to the depts a copy of certified test reports from the manufacturer, of the thermoplastic material showing results of all tests specified herein and shall certify that the material meets all requirement of this Specification.

**27.1 REFLECTORISING GLASS BEADS**

27.2 **GENERAL:** This Specification covers two types of glass beads to be used for the production of reflectorised pavement markings. Type 1 beads are those which are a constituent of the basic thermoplastic compound vide Table here in before and Type 2 beads are those which are to be sprayed on the surface vide Clause 26.9.3.

27.3 The glass beads shall be transparent, colourless and free from milkiness, dark particles and excessive air inclusions. These shall conform to the requirements spelt out in Clause 26.9.8.

**27.4 SPECIFIC REQUIREMENTS**

27.4.1.1 **GRADATION:** The glass beads shall meet the gradation requirements for the two types as given in Table as below.



**PARTICULAR SPECIFICATIONS(Contd...)****TABLE GRADATION REQUIREMENTS FOR GLASS BEADS**

Sieve size	<u>Per cent retained</u>	
	Type 1	Type2
1.18 mm	0 to 3	-
850 micron	5 to 20	0 to 5
600 –do-	-	5 to 20
425 –do-	65 to 95	-
300 –do-	-	30 to 75
180 –do-	0 to 10	10 to 30
below 180 micron	-	0 to 15

27.4.1.2 **ROUNDNESS**: The glass beads shall have a minimum of 75 percent true spheres.

27.4.1.3 **REFRACTIVE INDEX** : The glass beads shall have a minimum re-fractive index of 1.50.

27.4.1.4 **FREE FLOWING PROPERTIES** : The glass beads shall be free of hard lumps and clusters and shall dispense readily under any conditions suitable for paint striping. They shall pas the free flow-test.

27.5 **TEST METHODS**: The specific requirements shall be tested with the following methods:

(i) **Free-flow test** : Spread 100 grams of beads evenly in a 100 mm diameters glass dish. Place the dish in a 250 mm inside diameter 54desiccators which is filled within 25 mm of the top of a 54desiccators plate with sulphuric acid water solution ( specific gravity 1.10). Cover the desiccators and let it stand for 4 hours at 20 to 29 degree C. Remove sample from 54desiccators, transfer beads to a pan and inspect for lumps or clusters. Then pour beads into a clean, dry glass funnel having a 100 mm stem and 6 mm orifice. If necessary, initiate flow by lightly tapping the funnel. The glass spheres shall be essentially free of lumps and clusters and shall flow freely through the funnel.

(ii) The requirements of gradation, roundness and refractive index of glass beads and the amount of glass beads in the compound shall be tested as per BS 6088 and BS 3262 (Part-I).

(iii) The contractor shall furnish to the depts a copy of certified test reports from the manufacturer of glass beads obtained from a reputed laboratory showing results of all tests specified herein and shall certify that the material meets all requirements of this Specification. However, if so require, these tests may be carried out as directed by the Engineer-in-Charge

**PARTICULAR SPECIFICATIONS(Contd...)****27.6 APPLICATION PROPERTIES OF THERMOPLASTIC MATERIAL**

27.6.1. The thermoplastic material shall readily get screeded/ extruded at temperatures specified by the manufactures for respective method of application to produce a line of specified thickness which shall be continuous and uniform in shape having clear and sharp edges.

27.6.2 The material upon heating to application temperatures , shall not exude fumes, which are toxic, obnoxious or injurious to persons or property.

**27.7 PREPARATION :**

(i) The material shall be melted in accordance with the manufacturer's instructions in a heater fitted with a mechanical stirrer to give a smooth consistency to the thermoplastic material to avoid local overheating .The temperature of the mass shall be within the range specified by the manufacture, and shall on account be allowed to exceed the maximum temperature stated by the manufacturer. The molten material should be used as expeditiously as possible and for thermoplastic material which has natural binders or is otherwise sensitive to prolonged heating, the material shall not be maintained in a molten condition for more than 4 hours.

(ii) After transfer to the laying equipment, the material shall be maintained within the temperature range specified by the manufacturer for achieving the desired consistency for laying.

**27.8 PROPERTIES OF FINISHED ROAD MARKING:**

- (a) The stripe shall not be slippery when wet.
- (b) The marking shall not lift from the pavement in freezing weather.
- (c) After application and proper drying, the stripe shall show no appreciable deformation or discolouration under traffic and under road temperatures upto 60° C.
- (d) The marking shall not deteriorate by contact with sodium chloride, calcium chloride or oil drippings from traffic.
- (e) The stripe or marking shall maintain its original dimensions and position. Cold ductility of the material shall be such as to permit normal movement with the road surface without chopping or cracking.
- (f) The colour of yellow marking shall conform to IS Colour No 356 as given in IS:164.

**28. ROAD STUDS/GLOW STUDS/ CAT'S EYE/REFLECTIVE PAVEMENT MARKERS**

28.1. General: The work cover the providing and fixing of reflective pavement market (RPM) or road stud, a device which is bonded to or anchored within the road surfaces, for lane marking and delineation for night time visibility. It reflects incident light in directions close to the direction from which it came.

28.2. Material:

28.2.1. Plastic body of RPM/ road stud shall be moulded from AS (Acrylic Styrene Acrylonitrile) or HIPS (Hi-impact Polystyrene) or ABS (Acrylic Butadiene Styrene) or as mentioned in BOQ approved by the Engineer-in-Charge. The marker shall support a load of 13,635 kg tested in accordance with ASTM D4280. CA NO CWE/BPL/B/ OF 2026--27 PARTICULAR SPECIFICATIONS Serial Page No 90

**PARTICULAR SPECIFICATIONS(Contd...)**

28.2.2. Reflective panels shall consist of numbers of lenses containing single or dual prismatic cubes capable of providing total internal reflection of the light entering the lens face. Lenses shall be moulded of methyl methacrylate conforming to ASTM D788 or equivalent.

28.3. Design: The slope of retro reflecting surface shall preferably be  $350 \pm 50$  to base and the area of each retro-reflecting surface shall not be less than 13.0 sqcm.

28.4. Optical performance

28.4.1. Unidirectional and bi-directional studs: Each reflector or combination of reflectors on each face shall have a coefficient of luminous intensity (CIL) not less than given in table -800-12 or Table 800-13 as appropriate.

28.4.2. Omni-directional studs: Each Omni-directional stud shall have a minimum (CIL) of not less than 2 mcd/lx. Entrance angle Table – 800-12 Minimum CIL values for category 'A' studs Observation angle 00 U 50 L & R CIL in mcd/lx 0.30 220 00 U 100 L & R 110 44 0.50 120 60 24 Entrance angle Table – 800-13 Minimum CIL values for category 'B' studs Observation angle 00 U 60 L & R CIL in mcd/lx 0.30 00 U 100 L & R 20 10 4 0.50 Note: 15 7.5 3 (a) The entrance angle of 00 U corresponds to the normal aspect of the reflectors when the reflecting road stud is installed in horizontal road surface. (b) The stud incorporating one or more corner cube reflectors shall be included in category 'A'. The stud incorporating one or more bi-convex reflectors shall be included in category 'B'.

**28.5. Tests**

28.5.1. Coefficient of luminance intensity can be measured by procedure described in ASTM E 809 "Practice for Measuring Photometric Characteristics" as recommended in BS – 873 Part 4: 1973.

28.5.2. Under test conditions, a stud shall not be considered to fail the photometric requirements if the measure CIL at any one position of measurement is less than the values specified in Table 800-12 or Table 800-13 provide that (a) the value is not less than 80 percent of the specified minimum, and (b) the average of the left and the right measurements for the specific angle is greater than the specified minimum.

28.5.3. Solar Powered Road Markers (Solar Studs): The solar studs shall be made of aluminium alloy and poly carbonate material which shall be absolutely weather resistance and strong enough to support a load of 13,635 kg tested in accordance with ASTM D4280. Its colour may be white, red, yellow, green or blue or combination as directed by the Engineer-in-Charge. Its water resistance shall meet the requirements of IP 65 in accordance with IS 60529: 2001 category 2 for protection against water ingress. The dimensions of solar studs shall not be less than 100 mm X 100 mm X 10 mm. it shall have super bright LEDs so as to provide long visibility from a distance of more than 800 metre. Its flashing rate shall not be less than 1 Hz. It should be able to give the prescribed performance in the temperature range of -40-0 C to +550.

**PARTICULAR SPECIFICATIONS(Contd...)****28.5.4. Fixing of Reflective Markers**

28.5.4.1. Requirements: The enveloping profile of the head of the stud shall be smooth and the studs shall not present any sharp edges to traffic. The reflecting portions of the studs shall be free from crevices or ledges where dirt might accumulate. Marker height shall not be less than 10 mm and shall not exceed 20 mm. and its width shall not exceed 130 mm. The base of the marker shall be flat within 1.3 mm. If the bottom of the marker is configured, the outermost faces of the configurations shall not deviate more than 1.3 mm from a flat surface. All road studs shall be legibly marked with the name, trade mark or other means of identification of the manufacturer.

28.5.4.2. Placement: The reflective marker shall be fixed to the road surface using the adhesives and the procedure recommended by the manufacturer. No nails shall be used to affix the marker so that they do not pose safety hazard on the roads. Regardless of the type of adhesive used, the markers shall not be fixed if the pavement is not surface dry and on new asphalt concretes surfacing until the surfacing has been opened to traffic for a period of not less than 14 hours. The portions of the highway surface, to which the marker is to be bonded by the adhesive, shall be free of dirt, curing compound, grease, oil, moisture, loose or unsound layers, paint and any other material which would adversely affect the bond of the adhesive. The adhesive shall be placed uniformly on the cleaned pavement surface or on the bottom of the of the marker in a quantity sufficient to result in complete coverage of the area of contact of the marker with no voids present and with a slight excess after the marker has been lightly pressed in place. For epoxy installations, excess adhesive around the edge of the marker, excess adhesive on the pavement and adhesive on the exposed surfaces of the markers shall be immediately removed.

28.5.4.3. Rate: The contract unit rate for reflective road markers shall be payment in full compensation for furnishing all labour, material, tools, equipment including incidental costs necessary for carrying out the work at site conforming to the specification complete as directed by the Engineer-in-Charge.

**29 PAIRS TO POT HOLES**

29.1 Pot holes shall be cleaned to remove all dust and mud etc. and the edges shall be cut to regular shape with vertical sides. The pot holes shall be filled up with materials as mentioned in BOQ.

Signature of Contractor  
Dated:

Dir/AAD(Contracts)  
for Accepting Officer

**PARTICULAR SPECIFICATIONS (Contd...)****30. Area Drainage**

The work shall be carried out as specified in respective items of Sch 'A' and as specified.

**31 Protective Work:** The work shall be carried out as specified in respective items of Sch 'A' and as specified.**32 Blank****33 External Electrification.****33.1 Scope of work**

The extent of work is as per items given in schedule 'A'. All references to clause in the succeeding paragraphs pertains to MES Schedule Part-I.

**33.2 General Requirement**

33.2.1 Materials, execution, testing and record of installation shall conform to relevant IS specifications and as given in clause 19.2.1 to 19.2.6 and as also in accordance with Indian Electricity Rules 1956.

**33.3 Making Good**

The contractor is deemed to have included in his lumpsum, cost of cutting holes/making chases when required through roads/bricks or concrete work for taking in cables conduit and conductors etc and making good the same to match with the existing work.

**33.4 Materials.**

33.4.1 Insulator and insulator fittings shall be as specified in clause 19.6.1 to 19.6.4. Stay wire and stay wire assemblies shall conform to specification given in clause 19.7 to 19.8.

33.4.2 Steel cross arms shall conform to specifications given in clause 19.9.

33.4.3 Conductors shall conform specifications given in clause 19.10.

33.4.4 Bearer wires shall conform to specifications given in clause 19.11.

33.4.5 Lightning arrestors shall conform to specifications given in clause 19.12 and 19.13

**33.5 Excavation**

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

(b) Measurement of excavation shall be as per authorised width as given in section 3, clause 3.2.3 para (a), (b) and (c) on pages 17 & 18 of MES Schedule (Part-II).

(c) Please refer clauses on excavation hereinbefore.

**33.6 Sand cushioning**

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

**33.7 Cable protection**

Brick cover as specified in relevant item of Sch 'A' shall be used in cable protection, all as specified in relevant clauses of SSR Part-I.

**33.8 Protection of existing work**

(a) All pipes, water mains, cables etc., met within the course of excavation shall be carefully protected and supported without extra cost to the Government .

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

**34. EXTERNAL WATER SUPPLY**

**34.1 Scope of work**

The work consists of work described in relevant Part of Schedule 'A'. All reference to clauses in succeeding paragraphs pertains to MES Schedule Part-I.

**34.2 Materials**

**34.2.1 Mild steel galvanised tubes (Pipes) and fittings**

These shall conform to the clause 18.4.1 to 18.4.5 and shall bear ISI certification mark.

**34.2.2 Rubber gasket for jointing**

It shall be as specified in clause 18.11 of MES Schedule Part-I.

**34.2.3 Masonry valve pits**

This shall be of size as given in relevant item of Schedule 'A'. Pit shall be underground with foundation in PCC (1:3:6) type-C2 brick work in CM (1:6), internally finished with 15mm thick cement plaster in CM 1:4 and externally flushed pointed as work proceeds. Flooring shall be 40mm thick PCC (1:2:4) type B-1 laid over 75mm thick hardcore. Cover shall be of 6mm thick MS black sheet fixed to angle iron frame made out of 25x25x6mm by friction hinges welded to frame and sheet. Angle iron frame will be grouted on masonry chamber with MS hold fasts. Locking device will be provided to lock MS sheet cover to angle iron frame. One handle made out of MS round bar 8mm dia D type 15cm long shall also be welded on MS sheet cover. The steel surfaces exposed to view shall be painted with two coats of synthetic enamel paint over one coat of red oxide zinc chrome primer.

**34.4 Workmanship**

34.4.1 The work shall be carried out in compliance with the requirement specified in clause 18.41.1 to 18.48.7 of MES Schedule Part-I as applicable to handling/laying of cast iron pipe.

34.4.2 Laying and jointing of GI pipe shall be in accordance with clause 18.50 to 18.51 of MES Schedule Part-I.

**34.4.3 Back fillings of trenches**

It shall be all as specified in clause 18.56 of MES Schedule Part-I.

**34.4.4 Making connection of GI distribution with GI main**

It shall be as per clause 18.59 of MES Schedule Part-I.

**34.4.4 Cutting of GI Pipe line fixing meter and stop valves**

It shall be as specified in clause 18.63 to 18.63.2 of MES Schedule Part-I.

34.4.5 **Testing of pipe line**

Testing of pipe shall be carried out as specified in clause 18.54 of MES Schedule Part-I. The contractor's quoted sum against relevant parts of schedule-'A' shall be deemed to include in this aspect.

35. **LIGHTENING PROTECTION**

The work shall be carried out as specified in respective items of Sch 'A' and as specified

36. **HOT WATER SUPPLY AND SUMMER APPLIANCES**

The work shall be carried out as specified in respective items of Sch 'A' and as specified

37. **MISC TEMS OF WORK**

The work shall be carried out as specified in respective items of Sch 'A' and as specified in relevant Sch of SSR 2009 Part-I.

37.1 **Miniature Circuit Breakers**

These shall conform to IS-8828 (Specification for MCB and isolator for voltage not exceeding 1000 volts). All MCB's/MCCB's shall be housed in suitable size sheet metal enclosure of MS sheet supplied by the same manufacturer of MCBs/MCCB's.

37.2 **LED Fittings:** LED light fittings shall be as specified in relevant item of Sch 'A'.

37.3 **FAN/EXHAUST FANS:** These shall be as specified in relevant item of Sch 'A' and as directed.

37.5 **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'.

37.5.1 **Cable laying and record** The following essential data shall be furnished by the contractor as cable record of all the buried cable installation:-

- (a) Size, type and make of cable.
- (b) Location of cable in relation to bench marks or any other permanent structure.
- (c) Cross-section showing where cables are laid in pipes or trenches giving their sizes, type and depth.
- (d) Position and type of all joints.
- (e) Position and depth of all pipes, ducts to which it met and obstructions to the cable run.
- (f) Record of accurate lengths from joints to joint and phase sequence between joints to joints to each cable run.
- (g) The contractor shall provide LT cable metal tags indicating sizes, each run Joints, length of cable between sub lead centers, so that at any spot each cable can be identified easily.
- (h) While laying LT cable under the roads, paths etc, exact depth at which the cables are to be laid shall be as per SSR and as directed by the Engineer-in- Charge.
- (j) Cable shall not be bent to small radius while laying in trenches/ducts. The Minimum safe bending radius shall be taken as 12 D, where 'D' indicates dia of cable.

**PARTICULAR SPECIFICATIONS (Contd...)**

(k) Before laying the cable, the trenches shall be provided with a layer of sand to the thickness as directed by Engineer-in-Charge, for the purpose of cushioning. Cable ends with exposed ends shall be provided with cable sockets. Sand cushioning for protection of underground cable in trenches shall be done as described in clause 19.75 of MES Schedule.

(l) All jointing of cables in joint boxes, etc. shall be done strictly as per Manufacturer's instructions. The joints shall conform the relevant IS. Each jointing will be inspected and passed by Engineer-in-Charge. Random checks shall be exercised by GE also and the findings recorded. The PVC cable shall be terminated through a gland, made of suitable sizes. Before making joints in cables near the proposed building sufficient loops shall be provided for further maintenance.

**37.5.2 Testing of underground cables**

During and after laying of cables testing shall be done as specified in clause 19.93 to 19.96 of SSR Part-I. The testing shall be carried out by the contractor in presence of Engineer-in-Charge; recorded and signed by both. For cable laying, jointing and testing, the relevant clause in pages 19.19 to 19.23 of SSR Part-I (1991) shall also be kept in view. The rates quoted by the contractor for relevant items of Schedule 'A' shall be deemed to include for the testing.

**37.5.3 Testing of cable & equipments**

LT/HT cable (where the quantity of particular size is more than 500m ), HT panel/DG set, transformers, Compact package type substations, RMU and the like shall be inspected & tested in presence of Accepting officer Rep and Engr-in-charge in factory premises prior to dispatch of these items . The contractor shall inform well in advance to the department for inspection at factory premises.

**37.6 Cables boxes**

These shall be straight through TC or end boxes for HT and LT cables as specified in the Schedule 'A'. Jointing of cables shall be as specified in relevant IS.

**37.7 LT/HT Poles**

These shall be as specified in relevant clauses of MES SSR 2009 Part-I. Erection of poles shall conform to clause 19.50 to 19.52.

**37.8 BLANK****37.9 DIESEL ENGINE (DG SET)**

The diesel engine shall be air cooled diesel engine driven generating set enclosed in acoustic cover of capacities shown in relevant items of Schedule „A“, 415 volt, 3 phase, 4 wire, 50 Hz at 1500 RPM conforming to the requirement of Euro-II conforming to ISO-9001 : 1994 and consisting of the following standard accessories and controls:-

- (i) Engine speed governor (Electronic/ mechanical).
- (ii) Air filter dry/oil both type as per manufacturer's standard specification.
- (iii) Turbo charger after cooler.
- (iv) Tor signal vibrator damper.
- (v) Electric motor starter.
- (vi) Gear Pump for forced lubrication.
- (vii) Fuel injection pump.
- (viii) Lub oil filter and lub oil cooler.
- (ix) Instrument panel comprising of temperature gauge, tacho-cum-hour counter meter and fuses, battery charging Ammeter.
- (x) One set of indicating lamps for load on, main load on, set fails to start, low oil pressure, high temperature alarm/ high temperature trip and alternator over load.



- (xi) One audio alarm hooter.
- (xii) One KWH meter 3 phase unbalanced load.
- (xiii) One KW meter of suitable capacity.
- (xiv) One set of bus bar.
- (xv) One power factor meter.
- (xvi) Corrosion resister.
- (xvii) Set of tools as per Manufacturer's catalogue.
- (xviii) Spares as Manufacturer catalogue.

**37.9.1 LUBRICATION OIL SYSTEM**

Force feed lubricating system of adequate capacity comprising of gear type lubricating oil pump, oil sump, oil cooler, oil filter, lubricating oil pump. It shall be placed at readily accessible place. It shall be provided with regulator valve and pressure release valve to protect the system from excessive pressure and to maintain constant oil pressure in complete system.

**37.9.2 ELECTRIC STARTING SYSTEM**

Electric starting system shall comprise of BOSCH's/LUCAS/Mico starter complete with copper leads of adequate size connected to the system start/ stop button, starter gear ring and battery charging generator with regulator to charge the batteries.

**37.9.3 EXHAUST SYSTEM**

Exhaust system shall include provision of a suitable size silencer and complete pipe system of suitable size to carry the exhaust gases out of the generator room without creating undue back pressure. System shall be cladded with asbestos rope.

**37.9.4 ENGINE PROTECTION DEVICES**

The tenderer shall clearly indicate the alarms and safety device incorporated in his offer. However, system must have following protection devices with Engine (Audio/ visual) indicator with sheet down:-

- (a) Low lubricating oil pressure.
- (b) Over speeding of engine.
- (c) High water temperature in radiator/ high cylinder temperature.

**37.9.5 FUEL TANK**

Fuel tank offered by tenderer shall be of capacity not less than 12 hours running at full load with level indicator, stop cock, drain plug alongwith suitable filing arrangement consisting of semi rotary hand operated pump with suitable connections. The rate quoted by tenderers in Schedule „A“ against Gen Set shall be deemed to include the same.

**37.9.6 TESTING AT FACTORY**

Testing of DG Set/ Alternator and panel at factory shall be done during manufacturing process. Contractor will intimate Accepting Officer through concerned GE at least one month in advance to nominate representative of Accepting Officer for testing at factory premises.

**37.9.7 TESTING AT SITE**

The DG set after installation will be tested for 12 hours continuous run in the presence of rep of Accepting Officer as follows:-

**INITIAL RUN**

- (i) at 25% load for one hour.
- (ii) at 50% load for one hour.
- (iii) at 75% load for one hour.
- (iv) at 100% load for one hour.
- (v) at 110% load for one hour.

(vi) at 100% load for rest hour.

37.9.8 All necessary arrangement of load and fuel and other equipments will be arranged by contractor. No extra payment will be made for the testing.

37.9.9 Water load shall be provided by the department.

37.9.10 In case of failure, contractor will repair or replace defective part or complete set at his own cost. GE's decision shall be final on this aspect.

37.9.11 Spare parts and tool kit as per manufacturer's recommendations shall be provided.

37.9.12 Acoustic Enclosure: Acoustic enclosure should be made as per CPCB guidelines and it should satisfy all CPCB conditions.

37.9.13 Commissioning test shall be done in the presence of contractor, manufactures rep by IEM or rep to be nominated by Accepting Officer.

**37.10. LT SWITCH BOARD PANEL**

37.10.1 LT Panel shall be of CRCA sheet construction ( minimum 2 mm thick) fixed on masonry platform of suitable size 60cm above GL and 30 cm below GL. The design of LT panel shall ensure that weights of components are adequately supported without any distortion/deformation. Ample space for housing the cable and connections for the purpose of installation and maintenance of cable shall be provided at the back/front with two doors along with locking arrangements.

37.10.2 The bus bar shall be of high conductivity aluminum alloy grade EGIE and of adequate cross section to ensure that the temperature rise is within the permissible limits. The bus bar shall be insulated with PVC sleeves, supported at uniform intervals with non hygroscopic insulated supports to withstand short circuit faults and enclosed in a separate chamber. High tensile bolts and spring washer shall be provided at all bus bar joints. Connections from main bus bar to functional circuit shall be provided with appropriate size aluminum strips and so arranged as to withstand without any damage or deformation the thermal and dynamic stresses due to short circuit. Neutral bus bar shall be half the size of phase bus bar. LT panel should be factory made. The drawings of LT panel will be got approved from GE before manufacturing /assembly.

37.10.3 **Testing.** Pre-commissioning test of all electric equipments/machinery installed under this contract shall be carried out by Electric Inspector in presence of Contractor before issuance of satisfactory completion certificate of the work by the GE. The record of such tests will be maintained by the GE duly signed by all concerned and a copy thereof shall be forwarded to Accepting Officer for record purpose. The equipments required for all the tests to be carried out. The quoted amount/rate of respective parts/items of Sch 'A' shall be deemed to include for the above provision.

**37.13 Sluice valve**

It shall be of cast iron class as indicated in Sch 'A' with flanged ends. It shall bear IS certification mark as per IS-14846.

**37.13.1 Fixing of Sluice valve**

It shall be in accordance with clause 18.57 of MES Schedule Part-I.

37.13.3 **BRANCH CONNECTION FROM GI PIPE LINE:** The work shall be carried out in accordance with workmanship like manner and any cost of minor fittings and excavation and earth work is deemed to be included in the rates quoted by the contractor.

PARTICULAR SPECIFICATIONS (Contd...)**37.14. TESTING CERTIFICATE AND LITERATURE**

The contractor shall produce to the GE the manufacturer's test certificates and literature/manual of the following equipments:-

- |                                            |                       |
|--------------------------------------------|-----------------------|
| (a) Steel tubular poles                    | (h) Transformer       |
| (b) XLPE LT/HT cables                      | (i) DG Set            |
| (c) LT Panels                              | (j) Lift              |
| (d) GOD                                    | (k) VCB               |
| (e) Lightening Arrestor                    | (l) Non return valves |
| (f) Sluice valves                          |                       |
| (g) Hot water supply and Summer appliances |                       |

37.14.1 The manufacturer's test certificate and literature/ manual for other items as deemed necessary by GE, asked shall also be produced by the contractor.

**38. 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 Engr-in-Charge as per the relevant item of Sch '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.

39. **Completion Drawing** After completion of entire work and before payment of FB, the Contractor shall submit completion drawing in triplicate for all the items of Sch 'A' Part-I incorporating all the changes made through deviation orders on cloth bonded tracing sheet to the GE. The cost of the same shall be deemed to be included in the lump sum rate quoted by the Contractor. In the event of failure on the part of Contractor, an amount of Rs. 50,000/- shall be recovered from the FB.

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Signature of contractor

Dir/AAD (Contracts)  
For Accepting Officer

**PARTICULAR SPECIFICATIONS (Contd...)****Annexure 'A'****CEMENT SUPPLY & ACCEPTANCE REGISTER**

1. CA No & Name of Work:
2. Control No\*.
3. Name of Manufacturer/Brand Name/Gde of cement (a) Manufacturer \_\_\_\_\_  
(b) Brand \_\_\_\_\_ (c) Grade \_\_\_\_\_
4. Qty of cement & Lot No/Week No (in bags) : (a)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 &amp; chemical properties:-

	Physical Requirements (As per IS-4031)								Chemical Requirements (As per IS 4032)									
	Specific surface area (M <sup>2</sup> /Kg)	Soundness by LeChatellar	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 Ratio (Ratio)	Insoluble Residue (%)	Magnesium (%)	Sulphuric 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 signaturesAccepted/RejectedContractorJunior Engineer (Civil/E&M)Engineer-in-ChargeGarrison EngineerRemarks of BOO/Inspecting Officer/CWE

PARTICULAR SPECIFICATIONS (Contd...)'Annexure 'B'STEEL SUPPLY AND ACCEPTANCE REGISTER

1. CA No & Name of wok : .....
2. Contract No : .....
3. Name of Manufacture's TC No : .....
4. Manufacturer : .....
5. Random test details

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

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

## 6. Type of steel, dia &amp; Qty:

- (a) Type : TMT/CRS
- (b) Dia : mm
- (c) Actual Wt : MT
- (d) Conversion Wt : MT

	Chemical test							Mechanical test						
	Carbon %	Sulphur %	Phosphorous %	Sulphur +phosphorus %	Manganese %	Silicon %	Corrosion resistant element	Wt per meter	Yield stress(N/mm2)	Tensile strength (n/mm2)	Percent elongation (Min 18%)	Blend test	Rebend test	Remarks
As per IS 1786-2008														
As per manufacture's test certificates														
As per independent test														

Remarks with Signature

Accepted/Rejected

Contractor Junior Engineer

Engineer-in-charge

Garrison Engineer

Remarks of BOO/Inspecting officer/CWE

Annexure 'C'

FREQUENCY FOR NORMAL MASS, TENSILE, BEND AND REBEND TESTS OF STEEL

Ser No	Nominal size	Quantity
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**STEEL FOR CONCRETE**

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

**STRUCTURAL STEEL**

- |    |              |                                                      |
|----|--------------|------------------------------------------------------|
| 1. | Tensile Test | 1 Test for every 25 tonnes of steel or part thereof. |
| 2. | Bend Test    | 1 Test for every 25 tonnes of steel or part thereof. |

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**Note :-**

- For various tests, acceptance criteria, tolerance etc, refer to Appendix 9.1 a 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, tests will not be insisted upon for the steel required for guard bars, holdfasts, grills and such other allied items. Any items of steel, not meeting the requirements, shall be rejected and the particular consignment removed from the site by the Contractor at his own cost. The contractor will have no claim on this account. 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.

PARTICULAR SPECIFICATIONS (Contd...)ANNEXURE 'D'CHEMICAL COMPOSITION IN PERCENT (MAXIMUM)

Description	I IS - 1786-1985 All Grades	TMT All Grades
(a) Carbon	0.30	0.25
(b) Sulphur	0.06	0.05
(c) Phosphorous	0.06	0.05
(d) Sulphur and phosphorous	0.11	0.10
(e) Manganese	-	-

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**B/R ITEMS MAKES/MANUFACTURERS/ PRODUCERS**

Sr No	Product	Group of Products Based on Makes/ Brands
1.	CHEMICALS FOR ATT	CHLORO PHYRIPHOS 20 ES GRAMAX-20
2.	ATT AUTH CO	PEST CONTROL SERVICES OF INDIA PVT LTD PEST CONTROL SERVICES DELHI INDIA PESTICIDES LUCKNOW TATA CHEMICALS PEST CONTROL
3.	STEEL DOOR/ WINDOW FRAMES/ CHOWKHAT STEEL DOORS/ VENTILATOR/ CUPBORDS AND WINDOW	M/S AGEW STEEL MANUFACTURER PVT LTD AHMEDABAD  M/S SHIV MULAR NARODA AHMEDABAD  GODREJ AND BOYCE MFG MUMBAI  SEN HARVIC MUMBAI  M/S SHIVAM METAL SHAPER INDUSTRIES (BRAND SHIVAM METAL)
4.	FIRE RATED WOODEN DOOR, FIRE RATED METAL DOOR, FIRE RATED GLAZED DOOR, FIRE RATED ACOUSTIC DOOR HMPS DOOR & SS RAILING	SUPREME MET WOOD
5.	ROLLING SHUTTERS/ COLLASPSIBL GATE/ GRILLS	SHRI KRISHANA ASSOCIATES PANCHKULA ISHWAR INDUSTRIES MEERUT CANTT M/S STEELMAN INDUSTRIES JALANDHAR M/S SHIVAM METAL SHAPER INDUSTRIES (BRAND SHIVAM METAL)
6.	FACTORY MADE WOODEN PANELLED/ GLAZED/ WIRE GAUGE DOOR SHUTTERS	M/S MP WOOD PRODUCT INDORE M/S GOYAL INDUSTRIES CORPORATION 8743 DESH BANDHU GUPTA ROAD NEW DELHI M/S JAIN WOOD INDUSTRIES MURTHAL SONIPAT M/S PIONEER TIMBER PRODUCT CHANDIGARH
7.	HDF PRE LAMINATED/ MATT FINISH DOOR SHUTTERS	M/S HR ENTERPRISES, OLD DALHOUSIE ROAD NEAR DAV SCHOOL, PATHANKOT (PB)  M/S TECHNOFAB INDIA LTD AMBALA (HR)
8.	FACTORY MADE FLUSH DOOR SHUTTERS	M/S GREEN PLY INDUSTRIES, M/S CENTURY PLY SWASTIK PLY WOOD DURA PLY
9.	PVC DOOR/ WINDOW / FRAME/ SHUTTERS	SINTEX INDUSTRIES RAJSHRI PLASTIWOOD LTD M/S DURA PLAST EXTRACTION PVT LTD MUMBAI FENESTA POYTUFF
10.	UPVC WINDOW/ DOORS/ FRAME/SHUTTERS	FENESTA INDIA PVT LTD VEKA INDUSTRIES PVT LTD MUMBAI H2O SOLUTION (WINDOW & DOORS)
11.	DOOR /WINDOW STEEL FITTINGS	MOWJEE M/S KITCH ARCHITECHTURAL PRODUCT PVT LTD RS INDUSTRIES
12.	MORTECH LOCK	GODREJ HARRISON LINK EVEREST



**PARTICULAR SPECIFICATION (CONTD...../-)**  
**MAKES OF PRODUCTS TO BE INCORPORATED IN WORKS APPENDEX `E`**

13.	HYDRAULIC DOOR CLOSER/SPRING	EVEREST GODREJ DROMA INDIA DYANA
14.	ANODIZED ALUMINUM DOORS/WINDOW/ FRAMES/PARTITIONS	JINDAL INDAL HINDALCO
15.	ALUMINUM FITTINGS FOR WOODEN/ ALUMINUM/PVC DOORS AND WINDOWS	ALUTRAC CROWN JINDAL CLASSIC DROMA INDIA GLOBAL
16.	ALUMINIUM COMPOSITE PANELS	ALCO BOND ALSTRONG ARMSTRONG
17.	FABRICATORS FOR ALUMINIUM WORK	DADA INDUSTRIES JALLANDHAR M/S GUPTA ALUMINIUM JAMMU ALUPLEX INDUSTRIES DIGIANA JAMMU
18.	DRAPERY RODS	VISTA LEVALOR AEROLUX MAC DÉCOR
19.	VENETIAN BLINDS	VISTA NEHA TOUCH DECORE
20.	PRE LAMINATED PARTICLE BOARD)	NOVA PAN GREEN PLY BHUTAN BOARD MYSORE WOOD BOARD CENTURY PLYWOOD
21.	PLYWOOD FOR GENERAL PURPOSES	DURA PLY BHUTAN BOARD GEEN PLY DURA CENTURY DURIAN WROWN
22.	LAMINATED SHEETS	CENTURI DURA MARINO SUNMICA GREENLAM SUNGILOSS MERINO
23.	FIBRE BOARD (MEDIUM DENSITY/HDF)	NOVAPAN BHUTAN BOARD KIT PLY MYSORE CHIP BOARD LTD
24.	CALCIUM SILICATE BOARDS /WALLINING CEILING TILES	AEROLITE CEILING SYSTEM M/S BHARAT STEEL ROLL BAHADUR GARH (CALSI BRAND)
25.	FIBRE CEMENT CEILING BOARD	EVEREST ARMSTRONG GYPROC
26.	METASHEET TILES CEILING	ARMSTONG DURLUM HUNTER DOUGLAS SAINT GOBAIN

**PARTICULAR SPECIFICATION (CONTD...../-)**  
**MAKES OF PRODUCTS TO BE INCORPORATED IN WORKS APPENDEX `E`**

27.	GYPSUM BOARD FALSE CEILING	NATIONAL GYPSUM ARMSTRONG SAINT GOBIN
28.	THERMAL INSULATION CEILING BOARDS	EVEREST JINDAL ARMSTRONG
29.	GALVANIZED STEEL SHEETS	SAIL TATA JSW STEEL
30.	POLYCARBONAT SHEETS	DURTUFF LEXAN VMT PLASTEC LTD M/S COXWELL DOMES ENGG PVT LTD
31.	COLOUR COATED GALVLUME SHEETS	TATA BLUE SCOPE (JINCALUME) JSW STEEL (GALVALUME) CRIL
32.	PVC TILES/SHEET	PRIMER VINYL POLYFILM LTD WONDER FLOOR ARMSTRONG
33.	WOODEN LAMINATED FLOORING	GREEN PLY ACTION TESA CENTURI
34.	TERRAZZO TILES/PPC TILES/ PPC CHEQUERRED TILES	NTC NITCO EUROCON DURACRETE M/S EVEREST CEMENT PRODUCTS (BRAND-EVEREST)
35.	INTER LOCKING TILES/EXTERIOR TILES/PAVER BLOCKS	NTC NITCO ULTRA JOHNSON M/S EVEREST CEMENT PRODUCTS (BRAND-EVEREST)
36.	ACID RESISTANT TILES	SOMANY NITCO KAJARIA ORIENT BELL
37.	GLAZED CERAMIC/ NON SKID WALL / FLOOR TILES	KAJARIA H&R JOHNSON CERA NITCO SOMANI
38.	VETRIFIED TILES	KAJARIA JOHNSON ORIENT BELL NITCO SOMANI
39.	VITREOUS CHINA SANITARY APPLIANCES/ FITTINGS (SANITAARIWARE)	JAQUAR ROCA KOHLER HR JOHNSON
40.	WATER CLOSET SEATS AND COVER TOILET SEAT COVER	JAQUAR SOMANI PRAYAG CERA NEYCER JOHNSON PRIMA POLYPLAST

**PARTICULAR SPECIFICATION (CONTD...../-)**  
**MAKES OF PRODUCTS TO BE INCORPORATED IN WORKS APPENDEX `E`**

41.	PVC FLUSHING CISTERN	HINDWARE JOHNSON PRAYAG KAJARIA PRIMA POLYPLAST
42.	SHOWER ROSES CHROMIUM PLATED	JAQUAR MARC PARCO ESSESS XEN
43.	BATH ROOM FANCY FITTINGS	JAQUAR MARC ESS ESS KOHLER JOHNSON XEN
44.	BIB TAPS/STOP COCK (CP) & FANCY FITTINGS	JAQUAR PARKO MARC ESS ESS ROCA CERA KOHLER PRIMA XEN
45.	SENSOR OPERRATED FLUSH VALVES	TOSHI UTEC IDROLL JAQUAR KOHLER
46.	HAND DRIER	OPAL ATMAS TOSHI HAIER
47.	TOILET/ BATHROOM CABINETS	JAQUAR CERA PRAYAG
48.	LOOKING MIRROR	SAINT GOBAIN MODI GUARD TRIVENI FLOAT GLASS
49.	STAINLESS STEEL SINK WITH OR WITHOUT DRAINING BOARD/ PLATE RACK	NIRALI NEELKANTH JAYNA SILVERSHINE JINDAL PRIMA XEN
50.	PVC RAIN WATER PIPE/ SEWAGE PIPE/ CPVC PIPES	SUPREME ASHIRWAD FINOLEX SPMC ASTRAL
51.	WATER STORAGE HDPE TANKS	SINTEX POLYWELL ROTEX POLYCON

**PARTICULAR SPECIFICATION (CONTD...../-)**  
**MAKES OF PRODUCTS TO BE INCORPORATED IN WORKS APPENDEX `E`**

52.	PUF INSULATED WATER STORAGE TANKS	SINTEX ROTEX HATICH JS POLYPLAST
53.	FLOAT VALVES	PRAYAG SHAKTI WILSON
54.	PVC BATH FITTINGS/ PVC GRATING/PVC CONNECTION	PRAYAG SHAKTI POLYTUF POLYPLAST
55.	MANHOLE COVER & FRAME	NECO SKF RAJ KK
56.	SAND CAST IRON SPIGOT& SOCKET SOIL WASTE, VENT PIPES & FITTINGS	SRIF (GOLA CASTINGS) NECO (JAYASWAL) HIF MATHURA SKF
57.	GLASSES (PLAIN/PINHEAD/ FROSTED)	SAINT GOBIN MODI GUARD ATUL ASASHI
58.	GLASSES (PLAIN/PINHEAD FROSTED)	SAINT GOBIN MODI GUARD ATUL ASASHI
59.	WALL PUTTY	ASIAN PAINTS BIRLA WHITE NEROLAC JK CEMENT BERGER PAINT
60.	ACYLIC DISTEMPER	NEROLAC PAINTS JENSON & NICHOLSON BERGER PAINTS ICI DULUX ASIAN PAINTS
61.	PLASTIC EMULSION PAINT	BERGER (SILK, RANGOLLI EASY CLEAN) ASIAN (ROYALE) NEROLAC (IMPRESSION ECOCLAN) DULUX ICI
62.	EXTERIOR EMULSION PAINT	BERGER (WEATHER COAT ALL GUARD) ASIAN (APEX ULTIMA) NEROLAC (EXCEL TOTAL) JOHNSON & NICHOLSON DULUX ICI
63.	SYNTHETIC ENAMEL PAINT	GOODLASS NEROLAC PAINTS JENSON & NICHOLSON BERGER PAINTS ICI INDIA DULUX ASIAN PAINTS

**PARTICULAR SPECIFICATION (CONTD...../-)  
MAKES OF PRODUCTS TO BE INCORPORATED IN WORKS APPENDEX `E`**

64	BITUMEN	IOCL, BPCL, HPCL AND MRPL
65	ROAD MARKING PAINT/THERMOPLASTIC PAINT	ASIAN PAINT / JONSON NICHOLSON / GOODLASS NEROLAC / BERGER PAINTS / DULUX/ RELIANCE/AUTOMARK INDUSTRIES LTD/METRO ROAD SYSTEM/SHIVALIK.
66	ROAD FURNITURE/ CAT EYE/ DELINEATOR	CAT EYE/ DARK EYE/ PROTEK/ AUTOMAT

**E/M ITEMS MAKES/MANUFACTURERS/ PRODUCERS**

1.	POWER TRNSFOMER 66/33/ 11 KV 500KVA AND ABOVE	BHEL SCHNEIDER ABB BHARAT BIJLEE ALSTOM ANDEW YULE M/S INDIAN TRANSFORMERS & ELECTRICALS PVT. LTD. GURGAON
2.	DISTRIBUTIN TRANSFORMERS 11KV ABOVE 100 KVA & BELOW 500KVA CAPACITY COPPER WINDING	BHEL SCHNEIDER ABB SIEMENS BHARAT BIJLEE ALSTOM ANDEW YULE M/S INDIAN TRANSFORMERS & ELECTRICALS PVT. LTD. GURGAON. M/S ACCURATE INDUSTRIES
3.	DISTRIBUTION TRANSFORMERS UPTO 100 KVA CAPACITY COPPER WINDING	RAJASTHAN TRANSFORMER JK TRANSFORMER CONTINENTAL M/S INDIAN TRANSFORMERS & ELECTRICALS PVT. LTD. GURGAON. M/S ACCURATE INDUSTRIES
4.	CURRENT & POTENTIAL TRANSFORMER 11 & 33 KV	ABB SIEMEANS CROMPTON GREAVES ENGLISH ELECTRIC SCHENEIDER
5.	TRANSFORMER OIL	M&I MATERIAL (MIDEL) POWER LINK POWER OIL SAVITA
6.	HT SWITCH GEAR 66/33/11 KV GAS (INDOOR/OUTDOOR) SF6	ABB SIEMENS SCHNEIDER BHEL ENGLISH ELECTRIC
7.	HT SWITCH GEAR PROTECTION RELAYS (ELECTRO MECHANICAL/ NUMERICAL)	L&T ABB SIEMENS SCHNEIDER BHEL M/S INDIAN TRANSFORMERS & ELECTRICALS PVT. LTD. GURGAON.

**PARTICULAR SPECIFICATION (CONTD...../-)**  
**MAKES OF PRODUCTS TO BE INCORPORATED IN WORKS APPENDEX `E`**

8.	COMPACT SUB STATION	ABB SIEMENS BHEL SCHNEIDER VOLTAMP ALSTOM M/S INDIAN TRANSFORMERS & ELECTRICALS PVT. LTD. GURGAON.
9.	HT 11KV AUTOMATIC SWITCH FUSE UNIT	SOUTHERN SWITCH GEAR ANDREW YULE CROMPTON GREAVES SCHNEIDER
10.	AIR BREAK GANG OPERATED SWITCH DEVICE	BHEL PACTIL ANDREW YULE MYSORE ELECTRIC ABB JAIPURIA BROS UNIVERSAL
11.	LIGHTENING ARRESTERS	PACTICL CROMPTON GREAVES M EI ELECTICAL ALSTOM SCHNEIDER
12.	DISC/PIN INSULATORS	BHEL PACTIL MASORE PORCEILIN JAIPURIA
13.	HT XLPE CALBES 66/33 KV & 11 KV	UNIVERSAL CABLES ASIAN CALBES KEI INDUSTRIES LTD FINOLEX POLYCAB GLOSTER CALBES LTD CCI NICCO HAVELLS
14.	LT CALBLES 1100 VOLTAS XLPE	FINOLEX UNIVERSAL RPG CABLES KEI INDUSTRIES PVT LTD POLYCAB GLOSTER SCI GRANDLAY SEEWEL HAVELLS
15.	LT / HT CABLE JOINTS HEAT SHRINKABLE/ COLD SHRINKABLE/ PUSH ON TYPE	DENSON M-SEAL BIRLA 3M RAYCHEM CABSEAL VIKCHEM

**PARTICULAR SPECIFICATION (CONTD...../-)**  
**MAKES OF PRODUCTS TO BE INCORPORATED IN WORKS APPENDEX `E`**

16	ACSR CONDUCTORS	JAIPURIA ALUMINIUM IND ICC NICCO ALIND
17.	HT/LT PCC POLES	HINDUSTAN PRE STRESSED CONCRETE KASHMIR CEMENT PRE CAST CEMENT PRODUCT CONCRETE UDYOG LTD
18.	HT/LT STEEL TUBLAR SWAGED POLES	NATIONAL TUBING CO KANPUR BHARAT CONDUIT& STEEL WORKS KANPUR JINDAL STEEL PRODUCT STEEL TUBULAR SWAGED POLES M/S SHIVAM METAL SHAPER INDUSTRIES, JAMMU
19.	HIGH MAST LIGHTS	BAJAJ PHILIPS CROMPTON GE
20.	LT PANELS/AC CONTROL PANEL/PUMP HOUSE PANELS FOR SS	SIEMENS L&T ABB SCHNEIDER LEGRAND HANGER HENSAL CROMPTON GREAVES M/S INDIAN TRANSFORMERS & ELECTRICALS PVT. LTD. GURGAON.. DVEPL M/S ACCURATE INDUSTRIES HAVELLS
21.	PVC FEEDER PILLER BOX AC BOX/ JUNCTION BOX	L&T HPL SINTEX HAVELS HENSAL
22.	HIGH VOLATAGE INSULATING RUBBER MAT	JYOTI DUNLOP ELECTROMATE
23.	HT RING MAIN UNIT VCB 11 KV	SIEMENS MEI ABB SCHNEIDER
24.	LT AIR CIRCUIT BREAKERS	ABB SIEMENS L&T SCHNEIDER LEGRAND HAGER GEC CROMPTON HAVELLS
25.	MCCB S MICRO PROCESSOR	ABB SIEMENS L&T

**PARTICULAR SPECIFICATION (CONTD...../-)**  
**MAKES OF PRODUCTS TO BE INCORPORATED IN WORKS APPENDEX `E`**

		SCHNEIDER LEGRAND HANGER C&S ELECTRIC BENLO
26.	POWER CONTACTORS	L&T ABB SCHNEIDER SEIMENS LEGRAND GE POWER AE
27.	VOLTMETER/AMMETER FREQUENCY METER/PF METER (ANALOG TYPE)	L&T AE ABB SECURE
28.	DIGITAL TYPE VOLTMETER AMMETER/POWER FACTOR METER	SECURE L&T (RISHAB) C&S ELECTRIC MECO
29.	ELECTRONIC ENERGY METER	L&T HPL HAVELLS SECURE JAIPUR METER AE LEGRAD BENLO
30.	VACUUM CIRCUIT BREAKER 11KV/33KV	ABB SIEMENS SCHNEIDER ENGLISH ELECTRIC BHEL M/S INDIAN TRANSFORMERS & ELECTRICALS PVT. LTD. GURGAON. DVEPL
31.	CHANGE OVER SWITCHES	SIEMENS ABB L&T SCHNEIDER LEGRAND HAGER GE HPL HAVELLS
32.	VOLTAGE STABILIZERS UPTO 05 KVA	AE ANDREW YULE GODREJ ELECTRIC FIELD M/S INDIAN TRANSFORMERS & ELECTRICALS PVT. LTD. GURGAON. M/S ACCURATE INDUSTRIES
33.	VOLTAGE STABILIZERS ABOVE 05 KVA (SERVO) CONTROLLED)	AE ANDREW YULE BENTFORD BEN TEK V GUARD ELECTRIFIELD M/S INDIAN TRANSFORMERS & ELECTRICALS PVT. LTD. GURGAON. M/S ACCURATE INDUSTRIES



**PARTICULAR SPECIFICATION (CONTD...../-)**  
**MAKES OF PRODUCTS TO BE INCORPORATED IN WORKS APPENDEX `E`**

34.	UPS	TATA LIBERT APLAB CROMPTON
35.	DG SETS	<u>ENGINE</u> CROMPTON GREAVES MAHINDRA &MAHINDRA TATA RUSTON CUMMINS KIRLOSKAR OIL ENGINES ASHOK LEYAND
		<u>ALTERNATOR</u> BHARAT BIJLI CROMPTON GREAVES SEIMENS CUMMIN ELECTRIC STAMFORD VOLVO
36.	DG SET SOUND PROOF CONOPY	C&S PARKINS CATER PILLERS STERLING
37.	LT CAPACITOR APFC PANEL	L&T ABB SCHNIEDER SIEMENS GE DVEPL M/S INDIAN TRANSFORMERS & ELECTRICALS PVT. LTD. GURGAON.
38.	PF IMPROVEMENT CAPACITOR BANKS	ABB L&T SCHNIDER SIEMENS L&T LEGRAND
	INTERNAL ELECTRIC SUPPLY	
39.	RIGID PVC CONDUIT	PLAZA FINOLEX SUPREME PRESTO PLAST
40.	MS CONDUIT PIPE	BHARAT STEEL JINDAL TATA
41.	PVC FLEXIBLE COPPER WIRES	L&T FINOLEX GRANDLAY ANCHOR POLYCAB BENLO SCI SEEWEL HAVELLS
42.	SWITCH /SOCKETS/CEILING ROSES/FAN RAGULATORS	ANCHOR LEGRAND CRABTREE (HAVELLS ) BENLO
43.	MCB /ELCB/RCCB/ RCBO/INSOLATORS/MCB DISTRIBUTION BOARD	ABB SIEMENS L&T SCHNEIDER LEGRAND HAGER

**PARTICULAR SPECIFICATION (CONTD...../-)**  
**MAKES OF PRODUCTS TO BE INCORPORATED IN WORKS APPENDEX `E`**

		CROMPTON HPL BENLO HAVELLS
44.	LAMINATED SHEET COVER	HYLUM SUNMICA FORMICA GREENLAM
45.	MODULAR SWITCH/SOCKETS/FAN REGULATORS	LEGRAND SEIMENS CABTREE (HAVELLS) ROMA (ANCHOR)
46.	STREET LIGHT FITTINGS & ACCESSORIES/ LAMPS- HPSV(70/150/250/400) HPMV(80/125/250/400) /METAL HALIDE	PHILIPS CROMPTON GREAVES WIPRO MYSORE GE LIGHTING
47.	TUBE LIGHT/ STREET LIGHT FITTING/ROD	PHILIPS CROMPTON WIPRO GE LIGHTING
48.	PVC CASING CAPING	CG BAJAJ FINOLEX POLYCAB
49.	LED FITTINGS/LAMPS	PHILIPS CROMPTON BAJAJ WIPRO SURYA SYSKA GE BENLO ASCENTECH HPL
50.	CEILING FANS (EXHAUST/WALL MOUNTED FAN/AIR CIRCULATORS)	BAJAJ CROMPTON GEC KHAITAN ORIENT
51.	WATER HEATER GEYSER	BAJAJ USHA LEXUS CROMPTON GREAVES JAQUAR RECOLD
52.	WATER TRUNKING SYSTEMS	SHENEIDER SIEMENS GE L&T CROMPTON
53.	BATTERY CHARGER	SU-KAM AMCO SINETRAC EXIDE BCH
54.	LEAD ACID BATTERIES	AMARON STANDARD

**PARTICULAR SPECIFICATION (CONTD...../-)**  
**MAKES OF PRODUCTS TO BE INCORPORATED IN WORKS APPENDEX `E`**

		EXIDE TATA GREEN MICROTEK
55.	FLAME PROOF LIGHT FITTINGS& FANS	BAJAJ CROMPTON GREAVES SUDHIR
56.	SOLAR STREET LIGHT FITTINGS	BAJAJ PHILIPS CG TATA PHOTAN
57.	STREETS LIGHT TIMERS	L&T LEGRAND BAJAJ SIEMENES ABB AE GE HAVELLS
58.	AVIATION OBSTRUCTION LIGHT	BAJAJ CROMPTON GREAVES PHILIPS WIPRO
59.	SHADOWLESS LIGHT	PHILIPS CG WIPRO CROMPTON GREAVES GEC HALONIX
60.	UNDER WATER LIGHT	WIPRO PHILIPS SURYA BAJAJ CROMPTON GREAVES
61.	GI PIPES	JINDAL PIPES TATA BST PRAKASH SURYA
62.	HDPE/UPVC/DWC PIPES	FINOLEX SFMC PIPE JAIN PIPE RELIANCE (RPPPL) SWASTIK KISAN
63.	CI PIPES	ELECTRO STEEL KESORAM (BIRLAGP) KAPILANSH TATA
64.	DI PIPES	ELECTRO STEEL JINDAL KESORAM TATA
65.	MS PIPES	TATA GST BST

**PARTICULAR SPECIFICATION (CONTD...../-)**  
**MAKES OF PRODUCTS TO BE INCORPORATED IN WORKS APPENDEX `E`**

		JINDAL PRAKASH SURYA
66.	PPR PIPES	SFMC SAFE SUPREME FINOLEX ASTRAL RELIANCE
67.	AIR RELEASE VALVES	KIRLOSKAR LEADER ZOLOTO L&T (AUDCO) TATA
68.	SLUICE VALVES /NON RETURN VALVES/BUTTERFLY/ CHECK/GLOB VALVES	KIRLOSKAR LEADER ZOLOTO L&T (AUDCO) KARTAR
69.	CI PIPE FITTINGS	SKF SRIF JINDAL SAW NECO (JAYAWAL) KAPILANSH TATA
70.	GI PIPE FITTINGS	JINDAL TATA UNCO INDUS BHARAT STEEL TUBE DELHI
71.	PUMP SETS MONO BLOCK	KIRLOSKAR CROMPTON BEACON MATHER & PLANT GRANDFOS KSB JYOTI HAVELLS
72.	CENTRIFUGAL PUMPS	KIRLOSKAR BEACON MATHER & PLANT GRANDFOS JYOTI
73.	SUBMERSIBLE PUMP	CALMA KIRLOSKAR BEACON KSB GRADFOS JYOTI HAVELLS
74.	NON CLOG SEAWAGE PUMP	KIRLOSKAR BEACON KSB CROMPTON JYOTI
75.	VERTICAL TURBINE PUMP	KSB KIRLOSKAR WASP GRANDFOS

**PARTICULAR SPECIFICATION (CONTD...../-)**  
**MAKES OF PRODUCTS TO BE INCORPORATED IN WORKS APPENDEX `E`**

		JOHNSON MATHER & PLANT
76.	MOTOR STATERS	L& T BCH SIEMENS C&S ELECTRIC ABB GE
77.	ELECTRIC MOTOR	BHARAT BIJLEE KIRLOSKAR ENGLISH ELECTRIC CROMPTON GREAVES ABB SIEMENS GE
78.	SUBMERSIBLE CABLE	FINOLEX PLAZA HAVELLS ASIAN POLYCAB
79.	SINGLE PHASE PREVENTER	L& T INDO ASIAN HPL LEGRAND
	AIR CONDITIONING	
80.	CHILLERS/CHLLING UNITS	DAIKIN CARRIER VOLTAS
81.	ALLUMINUM EXTRUDED ALUMINIUM GRILL/DIFFUSER /FIRE DAMPER	DYNA CRAFT RAVISTAR MAPRO CARRYAIRE SERVEX GREEN HECK BRIGHTFLOW RUSKIN
82.	AIR HANDLING UNIT COOLING COIL FOR AHU	VOLTAS CARRRIER DAIKIN KIRLOSKER
83.	COOLING TOWERS	MIHIR PAHARPUR VOLTAS DELTA
84.	FRANCTIONAL HP MOTORS	ALUE SIEMENS JYOTI ABB
85.	VARIABLE FREQUENCY DRIVES (VFD)	DANFOSS SIEMENS ABB
86.	INSULATION (PUF) FOR PIPES	OMKAR TWIGA LLOYD MALANPUR
87.	PRESSURE GAUGE/DIA TYPE THERMOMETERS	FIEBIG H GURU EMERALD ANERGY

88.	INSULATION (EXPANDED POLYETHYLENE)	MATTUR BEARDSSELL TOSHIBA STYRENE PACKAGING LLOYD
89.	INSULATION (CROSS POLYETHYLENE FOAM)	SUPREME THERMOFLEX TROCELLONE BASF LLOYED ARMAFLEX
90.	INSULATION (INITRILE RUBBER)	ARMAFLEX AROFLES LLOYED
91.	CONTROLS (3 WAY VALVES) THERMOSTATS	ANERGY SIEMENS HONYWELL
92.	GI SHEETS FOR DUCTING (COMMERCIAL)	SAIL TATA JINDAL
93.	ACTUATOR	JEVENTA BELIMO SIEMENS ADVANCES
94.	CENTRIFUGAL FANS (AHUs)	NICOTRA KRUGER AIRFLOW GREENHECK
95.	STRIP HEATERS	RAYCOLD DASSPASS AUE HONEYBEE
96.	STRIP HEATERS	PENN DANFOSS HONEY WELL SIEMENS JOHNSON RAPIDCOOL ANERGY
97.	AIR FILTER/HEPAN FILTER	TENACITY PUROLATOR LLYOD MIHIR DANFOSS INDFOSS KLENZOID JOHN FOWLERS
98.	DUCT FLANGE	ZECO ROLSTAR ECODUCT
99.	EXPANSION VALVE	DANFOSS HONEYWELL

		RAPID CONTROL SIEMENS
100.	FLOW SWITCH	RAPID COOL SIEMENS BCH L&T
101.	AUTOMATIC AIR VENT	RAPID CONTROL ANERGY
102.	3-WAY MODULATING VALVE	HONEYWELL SIEMENS ANERGY SUZLON INDFOSS DANFOSS
103.	ROOM THERMOSTATE/AHU THERMOSTAT	HONEYWELL SIEMENS DASPASS ESCORTS INDFOSS
104.	HP/LP CUTOUTS/ CONTROLS	HONEYWELL PENN DANFOSS INDFOSS
105.	AIR WASHERS	BREEZE AIR NICOTRA PECMA AIREF AIRFLOW
106.	BUTTERY VALVE	AUDECO ADVANCE DEEPAK ZOLOTO
107.	FIRE HYDRENT	MINIMAX FIREX SAFEX FLAME GUARD
108.	RRL HOSE PIPE	NEWAGE DUNLOP COSMOS FLAME GUARD MINIMEX
109.	FIRE PANEL	MATHER & PLATT MINIMAX SAFEX AGNI HONEY WELL SYSTEM SENSOR FIREX NOTEFIRE
110.	HOOTER/SIREN	MINIMAX MELTRON AHUJA PHILIPS AGNI
111.	MANUAL CALL BELL POINT	AGNI SURKSHA MINI MAX FIREX

**PARTICULAR SPECIFICATION (CONTD...../-)**  
**MAKES OF PRODUCTS TO BE INCORPORATED IN WORKS APPENDIX `E`**

112.	SMOKE/HEAT/ IONISATION/DETECTOR	APPOLO EDWARDS HONEY WELL SYSTEM SENSER
113.	WATER SPRINKER HEAD	TYCO CEASEFIRE SAFEX MINIMAX
114.	FIRE EXTINGUISHER	MINIMAX FIREX NEWAGE GODREJ & BOYC CEASEFIRE
115.	FIRE DAMPER	DYAN CRAFT RAVISTAR MAPRO CARRY AIR AIRFLOW RUSKIN
116.	WINDOW TYPE/ SPLIT TYPE AIR CONDITIONERS	VOLTAS HITACHI DAIKAN CARRIER FEDDERS LLYOD WHIRPOOL
117.	REFRIGERATOR	WHIRLPOOL LG SAMSUNG VOLTAS
118.	DESERT COOLERS	SYMPHONY KHAITAN KENSTAR
119.	DEEP FREEZER	BLUE STAR VOLTAS SHRI RAM (USHA)
120.	AIR CURTAIN	CROMPTON GREAVES ALMONARD VOLTAS CARRIER
121.	WATER COOLER	VOLTAS BLUE STAR SHRIRAM (USHA)
122.	HOT WATER GENERATOR ELECTRIC FIRED	RAPIDCOOL BRASCH
		INDEECO DYNAFLOW SUNTEC
123.	HOT WATER GENERATOR (OIL FIRED)	THERMAX MAKTEK RAPIDTHERM ECOFLAME REILLO ZENITH WESTERN

(Signature of Contractor)

Dated: \_\_\_\_\_

Dir/AAD (Contracts)  
for Accepting Officer



**LIST OF DRAWINGS**

<b><u>Srl No</u></b>	<b><u>Drawing No</u></b>	<b><u>Sheet No</u></b>	<b><u>Drawing date</u></b>	<b><u>Revised date</u></b>	<b><u>Description</u></b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>
<b><u>REFERENCE TO DRAWINGS</u></b>					
1.	CEUZ/LOD- 05 /2026	1/3	18.03.2026	-	Reference to Drawings (Arch drg)
2.	CEUZ/LOD- 05 /2026	2/3	18.03.2026	-	Reference to Drawings (Strl Drgs)
3.	CEUZ/LOD- 05 /2026	3/3	18.03.2026	-	Reference to Drawings (TD Drgs)
<b><u>SITE PLAN</u></b>					
4.	CEUZ/SP-05/2026	1/3	18.03.2026	-	Site Plan (B/R)
5.	CEUZ/SP-05/2026	2/3	18.03.2026	-	Site Plan (E/M)
6.	CEUZ/SP-05/2026	3/3	18.03.2026	-	Site Plan (W/S)
<b><u>ARCHITECTURAL DRAWINGS</u></b>					
7.	CEUZ/WD-05A/2026	1/5	18.03.2026	-	Plan
8.	CEUZ/WD-05A/2026	2/5	18.03.2026	-	Roof Plan
9.	CEUZ/WD-05A/2026	3/5	18.03.2026	-	Elevations & Detail at z
10.	CEUZ/WD-05A/2026	4/5	18.03.2026	-	Sections
11.	CEUZ/WD-05A/2026	5/5	18.03.2026	-	Toilet details & details at R
<b><u>OFFICERS MESS FOR SERVICE OFFICERS (19-28) FOR 20 OFFICERS</u></b>					
12.	CEUZ/WD-05B/2026	1/5	18.03.2026	-	Plan
13.	CEUZ/WD-05B/2026	2/5	18.03.2026	-	Roof Plan
14.	CEUZ/WD-05B/2026	3/5	18.03.2026	-	Elevations
15.	CEUZ/WD-05B/2026	4/5	18.03.2026	-	Sections
16.	CEUZ/WD-05B/2026	5/5	18.03.2026	-	Toilet & Kitchen details

**LIST OF DRAWINGS**

<b><u>Srl No</u></b>	<b><u>Drawing No</u></b>	<b><u>Sheet No</u></b>	<b><u>Drawing date</u></b>	<b><u>Revised date</u></b>	<b><u>Description</u></b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>
<b><u>SINGLE LIVING ACCN FOR SERVICE OFFICERS (07 NOS)</u></b>					
17.	CEUZ/WD-05C/2026	1/4	18.03.2026	-	Plan
18.	CEUZ/WD-05C/2026	2/4	18.03.2026	-	Roof Plan
19.	CEUZ/WD-05C/2026	3/4	18.03.2026	-	Elevations
20.	CEUZ/WD-05C/2026	4/4	18.03.2026	-	Sections & Typical details of toilet and dress
<b><u>SINGLE LIVING ACCN FOR SERVICE OFFICERS (FOR BDE CDR ACCN), SERVANT QTR SERVICE OFFICERS &amp; SINGLE LIVING ACCN FOR GUARD AT OFFICERS RESIDENCES</u></b>					
21.	CEUZ/WD-05D/2026	1/3	18.03.2026	-	Plan & Roof Plan
22.	CEUZ/WD-05D/2026	2/3	18.03.2026	-	Elevations & Sections
23.	CEUZ/WD-05D/2026	3/3	18.03.2026	-	Toilet & kitchen
<b><u>SCHEDULE OF FINISHES</u></b>					
24.	CEUZ/WD-05/SF/2026	1/3	18.03.2026	-	Schedule of finishes
25.	CEUZ/WD-05/SF/2026	2/3	18.03.2026	-	Schedule of finishes
26.	CEUZ/WD-05/SF/2026	3/3	18.03.2026	-	Schedule of finishes
<b><u>INTERNAL E/M PLANS</u></b>					
<b><u>OFFICE AND ADMINISTRATIVE ACCOMMODATION</u></b>					
27.	CEUZ/WD-05A/EM/2026	1/1	18.03.2026	-	Internal E/M Plan
<b><u>OFFICE MESS FOR SERVICE OFFICERS ( 19-28) FOR 20 OFFICERS</u></b>					
28.	CEUZ/WD-05B/EM/2026	1/1	18.03.2026	-	Internal E/M Plan
<b><u>SINGLE LIVING ACCN FOR SERVICE OFFICERS (07 NOS)</u></b>					
29.	CEUZ/WD-05C/EM/2026	1/1	18.03.2026	-	Internal E/M Plan

**LIST OF DRAWINGS**

<b><u>Srl No</u></b>	<b><u>Drawing No</u></b>	<b><u>Sheet No</u></b>	<b><u>Drawing date</u></b>	<b><u>Revised date</u></b>	<b><u>Description</u></b>
1	2	3	4	5	6
<b><u>SINGLE LIVING ACCN FOR SERVICE OFFICERS (FOR BDE CDR ACCN), SERVANT QTR SERVICE OFFICERS &amp; SINGLE LIVING ACCN FOR GUARD AT OFFICERS RESIDENCES</u></b>					
30.	CEUZ/WD-05D/EM/2026	1/1	18.03.2026	-	Internal E/M Plan
<b><u>STRUCTURAL DRAWINGS</u></b>					
31.	CEUZ/WD-05/ST/2026	1/3	18.03.2026	-	RCC notes (applicable for all buildings)
32.	CEUZ/WD-05/ST/2026	2/3	18.03.2026	-	RCC notes (applicable for all buildings)
33.	CEUZ/WD-05/ST/2026	3/3	18.03.2026	-	Common typical RCC details (applicable for all buildings)
<b><u>OFFICE AND ADMINISTRATIVE ACCOMMODATION</u></b>					
34.	CEUZ/WD-05A/ST/2026	1/6	18.03.2026	-	RCC footing plan and schedule of footings
35.	CEUZ/WD-05A/ST/2026	2/6	18.03.2026	-	Plinth beam plan, schedule of plinth beams and details
36.	CEUZ/WD-05A/ST/2026	3/6	18.03.2026	-	RCC roof plan, schedule of roof beams, roof slabs and details
37.	CEUZ/WD-05A/ST/2026	4/6	18.03.2026	-	Plan of isolated column footing, x-section and schedule of RCC columns
38.	CEUZ/WD-05A/ST/2026	5/6	18.03.2026	-	Footing plan and sections
39.	CEUZ/WD-05A/ST/2026	6/6	18.03.2026	-	Footing plan and sections
<b><u>OFFICE MESS FOR SERVICE OFFICERS (19-28) FOR 20 OFFICERS</u></b>					
40.	CEUZ/WD-05B/ST/2026	1/7	18.03.2026	-	RCC footing plan, schedule of isolated column footing, schedule of column and details of column footing

**LIST OF DRAWINGS**

<b><u>Srl No</u></b>	<b><u>Drawing No</u></b>	<b><u>Sheet No</u></b>	<b><u>Drawing date</u></b>	<b><u>Revised date</u></b>	<b><u>Description</u></b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>
41.	CEUZ/WD-05B/ST/2026	2/7	18.03.2026	-	RCC plinth beams plan, schedule of plinth beams and details
42.	CEUZ/WD-05B/ST/2026	3/7	18.03.2026	-	RCC roof beams plan, schedule of roof beams, roof slabs and details
43.	CEUZ/WD-05B/ST/2026	4/7	18.03.2026	-	Footing plan and section
44.	CEUZ/WD-05B/ST/2026	5/7	18.03.2026	-	Footing plan and section
45.	CEUZ/WD-05B/ST/2026	6/7	18.03.2026	-	Footing plan and section
46.	CEUZ/WD-05B/ST/2026	7/7	18.03.2026	-	Footing plan and section
<b><u>SINGLE LIVING ACCN FOR SERVICE OFFICERS (07 NOS)</u></b>					
47.	CEUZ/WD-5C/ST/2026	1/4	18.03.2026	-	RCC footing plan, schedule of footings, schedule of columns, footing plan and x-section
48.	CEUZ/WD-05C/ST/2026	2/4	18.03.2026	-	RCC plinth beams plan, schedule of plinth beams and details
49.	CEUZ/WD-05C/ST/2026	3/4	18.03.2026	-	RCC beams, roof slabs, schedule of roof beams, roof slab and details
50.	CEUZ/WD-05C/ST/2026	4/4	18.03.2026	-	RCC footing plans and section
<b><u>SINGLE LIVING ACCN FOR SERVICE OFFICERS (FOR BDE CDR ACCN), SERVANT QTR SERVICE OFFICERS &amp; SINGLE LIVING ACCN FOR GUARD AT OFFICERS RESIDENCES</u></b>					
51.	CEUZ/WD-05D/ST/2026	1/3	18.03.2026	-	RCC footing plan, schedule of isolated column footing, schedule of columns, isolated column footing plan and x-sec
52.	CEUZ/WD-05D/ST/2026	2/3	18.03.2026	-	RCC plinth beams plan, schedule of plinth beams and details
53.	CEUZ/WD-05D/ST/2026	3/3	18.03.2026	-	RCC roof plan, schedule of roof beams, roof slabs and details

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<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>
<b><u>TYPICAL DETAIL DRAWINGS</u></b>					
54.	MISC-CPT-01/2011	1/1	08.09.2011	-	Standard roads
55.	CEUZ/STD-447/2024	1/2	01.02.2024		Typical details for garages
56.	CEUZ/STD-447/2024	2/2	01.02.2024		Typical details for garages
57.	CEUZ/STD-447/ST/2024	1/5	01.02.2024		Typical details for garages
58.	CEUZ/STD-447/ST/2024	2/5	01.02.2024		Typical details for garages
59.	CEUZ/STD-447/ST/2024	3/5	01.02.2024		Typical details for garages
60.	CEUZ/STD-447/ST/2024	4/5	01.02.2024		Typical details for garages
61.	CEUZ/STD-447/ST/2024	5/5	01.02.2024		Typical details for garages
62.	CEUZ/STD-447/SF/2024	1/1	01.02.2024		Typical details for garages
63.	CE/TD-1025/1990	1/1	12.05.1990	25.06.2003	Internal water supply & internal electrification
64.	CE/TD-1135/1997	1/1	14.03.1997	27.06.2003	Steel gate - (2700-7000) & Wicket Gate - (900-1500)
65.	CE/TD/1056/1992	1/1	28.03.1992	25.05.1995	Typical details of road and PCC drain type A & B
66.	CE/TD/1058/1992	1/1	03.04.1992	17.07.2025	Typical details of retaining wall stone construction
67.	CE/TD/1117/1995	1/1	27.06.1995	30.09.2003	RCC Culverts 60/96cm span (brick masonry)
68.	CE/TD-1123/1995	1/1	28.09.1995	29.09.2021	Typical Detail of Leakage/ Seepage and Dampness (Prevention And Cure)
69.	CE/TD-1129/1996	1/2	11.04.1996	25.06.2003	Typical Details of Electrical Fittings (External)
70.	CE/TD-1129/1996	2/2	11.04.1996	25.06.2003	Typical Details of Electrical Fittings (External)
71.	CE/TD-1142/1997	1/1	14.03.1997	23.04.2015	Typical Details of flag staff with base and alarm post
72.	CE/TD-1186/2002	1/3	31.12.2002	-	Additional notes on ductile detail.

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<b><u>Srl No</u></b>	<b><u>Drawing No</u></b>	<b><u>Sheet No</u></b>	<b><u>Drawing date</u></b>	<b><u>Revised date</u></b>	<b><u>Description</u></b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>
73.	CE/TD-1186/2002	2/3	31.12.2002	-	Additional notes on ductile detail.
74.	CE/TD-1186/2002	3/3	31.12.2002	-	Additional notes on ductile detail.
75.	CE/TD-1187/2002	1/1	31.12.2002	-	Details of internal/ external plaster grooves at junctions of wall/ col /beam.
76.	CE/TD/1191/2002	1/3	31.12.2002	03.07.2010	Typical RCC details of lintels, chajjas, shelves and crumple section etc.
77.	CE/TD/1191/2002	2/3	31.12.2002	06.02.2015	Typical RCC details of lintels, chajjas, shelves and crumple section etc.
78.	CE/TD/1191/2002	3/3	31.12.2002	-	Typical RCC details of lintels, chajjas, shelves and crumple section etc.
79.	CE/TD-1202/2003	1/2	09.10.2003	14.10.2014	Typical details of septic tank (UP to 500 users) & soakage well pit
80.	CE/TD-1202/2003	2/2	09.10.2003	11.05.2007	Typical details of septic tank (UP to 500 users) & soakage well pit
81.	CEUZ/TD-1238/2006	1/3	21.08.2006	09.01.2007	Typical details of PVC door
82.	CEUZ/TD-1238/2006	2/3	21.08.2006	14.11.2006	Plan, elevation, section & details of (PD-2)
83.	CEUZ/TD-1250/2007	1/1	30.03.2007	17.09.2013	Typical foundation details.
84.	CEUZ/TD-1251/2007	1/1	30.03.2007	-	Typical RCC details.
85.	CEUZ/TD/1252/2007	1/11	30.03.2007	21.12.2012	General Notes For RCC Works
86.	CEUZ/TD/1252/2007	2/11	30.03.2007	21.12.2012	General Notes For RCC Works

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87.	CEUZ/TD/1252/2007	3/11	30.03.2007	21.12.2012	General Notes For RCC Works
88.	CEUZ/TD/1252/2007	4/11	30.03.2007	21.12.2012	General Notes For RCC Works
89.	CEUZ/TD/1252/2007	5/11	30.03.2007	21.12.2012	General Notes For RCC Works
90.	CEUZ/TD/1252/2007	6/11	30.03.2007	21.12.2012	General Notes For RCC Works
91.	CEUZ/TD/1252/2007	7/11	30.03.2007	21.12.2012	General Notes For RCC Works
92.	CEUZ/TD/1252/2007	8/11	30.03.2007	21.12.2012	General Notes For RCC Works
93.	CEUZ/TD/1252/2007	9/11	30.03.2007	21.12.2012	General Notes For RCC Works
94.	CEUZ/TD/1252/2007	10/11	30.03.2007	21.12.2012	General Notes For RCC Works
95.	CEUZ/TD/1252/2007	11/11	30.03.2007	21.12.2012	General Notes For RCC Works
96.	CEUZ/TD/1257/2008	1/1	01.10.2008	-	Typical detail boundary wall/compound wall
97.	CEUZ/TD/1264/2008	1/4	31.10.2008	23.04.2015	Paneled Door With Pressed Frame
98.	CEUZ/TD/1264/2008	2/4	31.10.2008	23.04.2015	Paneled Door With Pressed Frame
99.	CEUZ/TD/1264/2008	3/4	31.10.2008	11.11.2013	Paneled Door With Pressed Frame
100.	CEUZ/TD/1264/2008	4/4	31.10.2008	-	Schedule of fittings
101.	CEUZ/TD/1279/2008	1/1	31.10.2008	-	Detail of P.C.C platform & fixing arrangements for HDPE water tank
102.	CEUZ/TD/1280/2008	1/3	31.10.2008	-	Misc typical details-2
103.	CEUZ/TD/1280/2008	2/3	31.10.2008	-	Misc typical details-2
104.	CEUZ/TD/1280/2008	3/3	31.10.2008	-	Misc typical details-2

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105.	CEUZ/TD/1293/2008	1/2	31.10.2008	15.04.2009	Typical Detail of Road, Crossing Bricks & Stone Masonary Drains
106.	CEUZ/TD/1293/2008	2/2	31.10.2008	-	Typical Detail of Hume Pipe culvert type A & B (Bricks & Stone)
107.	CEUZ/TD/1295/2008	1/2	31.10.2008	-	Details of cup board
108.	CEUZ/TD/1295/2008	2/2	31.10.2008	-	Details of cup board & loft door
109.	CEUZ/TD/1300/2009	1/2	30.06.2009	18.12.2012	PVC partition
110.	CEUZ/TD/1300/2009	2/2	30.06.2009	-	Typical details of PVC flap door & partition for toilet
111.	CEUZ/TD/1302/09	1/3	22.10.2009	-	Steel Box Windows, Ventilators & Fixed Glazings
112.	CEUZ/TD/1302/09	2/3	22.10.2009	21.11.2016	Steel Box Windows, Ventilators & Fixed Glazings
113.	CEUZ/TD/1302/09	3/3	22.10.2009	02.06.2012	Steel Box Windows, Ventilators & Fixed Glazings
114.	CEUZ/TD/1327/2012	1/2	02.02.2012	-	Rain water harvesting
115.	CEUZ/TD/1327/2012	2/2	02.02.2012	-	Rain water harvesting
116.	CEUZ/TD/1500/2015	1/1	12.01.2015	-	Water meter box & valve pit.
117.	CEUZ/TD/1502/2015	1/1	12.01.2015	-	Detail of RWP//Channel with bk parapet & plinth protection
118.	CEUZ/TD/1522/2015	1/2	12.01.2015	-	Detail of Manhole Sewer Appurtenances
119.	CEUZ/TD/1522/2015	2/2	12.01.2015	-	Detail of Manhole Sewer Appurtenances
120.	CEUZ/TD/1523/2015	1/1	12.01.2015	-	Provn of hard standing



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121.	CEUZ/TD/1527/15	1/1	12.01.2015	-	Detail of RCC Jali type A,B,C
122.	CEUZ/TD/1532/15	1/2	12.01.2015	-	Detail of cup board
123.	CEUZ/TD/1532/15	2/2	12.01.2015	-	Detail of cup board and loft door
124.	CEUZ/TD/1538/2015	1/2	12.01.2015	-	Switch Box and Meter Box
125.	CEUZ/TD/1538/2015	2/2	12.01.2015	-	Switch Box and Meter Box
126.	CEUZ/TD/1540/2015	1/1	12.01.2015	-	WHB/Soap Nitches, Sunken Slab And Skirting /Dado (Details)
127.	CEUZ/TD/1541/2015	1/1	12.01.2015	28.04.2015	Detail of wall pegs, curtain rod & pelmet box
128.	CEUZ/TD/1544/2015	1/3	12.01.2015	-	Misc Typical Details-2
129.	CEUZ/TD/1544/2015	2/3	12.01.2015	-	Misc Typical Details-2
130.	CEUZ/TD/1544/2015	3/3	12.01.2015	-	Misc Typical Details-2
131.	CEUZ/TD/1545/2015	1/2	12.01.2015	-	Architectural Norms And General Notes
132.	CEUZ/TD/1545/2015	2/2	12.01.2015	-	Architectural Norms And General Notes
133.	CEUZ/TD/1547/2015	1/2	12.01.2015	-	Typical detail for black board, looking glass duplicate key box, notice board, display board & display window
134.	CEUZ/TD/1547/2015	2/2	12.01.2015	-	Typical detail of black board, pin up board
135.	CEUZ/TD/1550/2015	1/1	12.01.2015	-	Detail of floor trap, nahani trap & gully trap
136.	CEUZ/TD/1584/2021	1/5	01.04.2021	-	Typical Details For Seismic Provisions
137.	CEUZ/TD/1584/2021	2/5	01.04.2021	-	Typical Details For Seismic Provisions

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138.	CEUZ/TD/1584/2021	3/5	01.04.2021	-	Typical Details For Seismic Provisions
139.	CEUZ/TD/1584/2021	4/5	01.04.2021	-	Typical Details For Seismic Provisions
140.	CEUZ/TD/1584/2021	5/5	01.04.2021	-	Typical Details For Seismic Provisions
141.	CEUZ/TD/1585/2021	1/4	23.04.2021	-	Typical Detail of Soakage Well Pit & Septic Tank (Upto 300 User)
142.	CEUZ/TD/1585/2021	2/4	23.04.2021	-	Typical Detail of Soakage Well Pit & Septic Tank (Upto 300 User)
143.	CEUZ/TD/1585/2021	3/4	23.04.2021	-	Typical Detail of Soakage Well Pit & Septic Tank (Upto 300 User)
144.	CEUZ/TD/1585/2021	4/4	23.04.2021	-	Typical Detail of Soakage Well Pit & Septic Tank (Upto 300 User)

\_\_\_\_\_  
Signature of Contractors

Dir/AAD (Contracts)  
for Accepting Officer

**GENERAL CONDITION OF CONTRACTS (IAFW-2249-1989 PRINT)**

**LUMP SUM CONTRACT (IAFW-2159)\***

**TERM CONTRACTS FOR ARTIFICERS WORK (IAFW-1821)\***

**MEASUREMENT CONTRACTS (IAFW-1778 AND 1779A)\***

1. A copy of the General Conditions of Contracts (IAFW-2249-1989 Print) with errata 1 to 20 and amendments 1 to 49 has been supplied to me/us is in my/or possession. I/we have read and understood the Provisions contained in the aforesaid GENERAL CONDITIONS OF CONTRACTS before submission of the 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.
2. It is hereby further agreed and declared by me/us, that GENERAL CONDITIONS OF CONTRACTS (IAFW-2249-1989 Print) including Condition 70 thereof pertaining to settlement of disputes by arbitration, containing 33 pages (Serial Page Nos. 258 to 290 with errata 1 to 20 and amendments No 1 to 49 form part of these tender documents.
3. My/our signature hereunder is in token of my/Our having acceptance the aforesaid General Conditions of Contracts together with errata and amendments IAFW-2249 (1989 Print).
4. It is agreed that in the event of discrepancy in the English and Hindi version of IAFW-2249, the contents in English will prevail.

(Signature of Contractor)

Dated: \_\_\_\_\_

Dir/AAD (Contracts)

for Accepting Officer

**SCHEDULE OF MINIMUM FAIR WAGES**

A copy of the latest Schedule of minimum fare wages has been supplied to me/us and is in my possession. I/we have read and understood the provisions contained in the aforesaid Schedule of minimum fare wages before submission of these tender documents.

It is further agreed and declared by me/us that Schedule of minimum fare wages form part of these tender document. The latest revised wages of labour as fixed by the State Govt/ Govt of India/ Union Territory as applicable to the work whichever is higher will only be applicable in the Contract.

(Signature of Contractor)

Dated: \_\_\_\_\_

Dir/AAD (Contracts)

for Accepting Officer