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JAIPUR MIL STATION**

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Signature of Contractor

For Accepting Officer

Tele fax : 0141-2202517
Tele : 0141-2207174

Military Engineer Services
Headquarters
Chief Engineer Jaipur Zone
Power House Road, Bani Park
Jaipur - 302006

80948/C/46/E8

08 Jun 2026

M/S -----

**CA NO CEJZ/JPR- OF 2026-27: PROVISION OF SHOPPING COMPLEX AT
JAIPUR MIL STATION**

Dear Sir,

1. Tender documents in respect of above work are uploaded on the site www.defproc.gov.in. The tender is on single stage two cover e-tendering system. The contents of Cover I & Cover II are specified in NOTICE OF TENDER.
2. Bids will be received online by ACCEPTING OFFICER upto the date and time mentioned in the **NOTICE INVITING TENDER (NIT)**. No tender/bid will be received in physical form and any tender/bid received in such manner will be treated as non bonafide.
3. Bid will be opened on line on a due date fixed for opening as per critical dates given in the portal. Cover 1 will be opened first. Tenderers may see the result of the opening of Cover 1 on the tender portal. Date of opening of Cover 2 shall be decided after technical evaluation of Cover 1 keeping in view the various eligibility criteria given in the NIT and the same will be intimated to the tenderers while uploading the technical evaluation on the tender portal.
4. Your attention is also drawn to instruction on filling and submission of tender attached herewith. You may forward your points on tender documents through 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 Prebid meeting on the date given in tender.
5. Unenlisted contractors are required to submit the scanned copies (in pdf file) of documents required as per eligibility criteria mentioned in instructions for filling the tender documents and Appendix 'A' to **NIT** along with EARNEST MONEY DEPOSIT (EMD) and tender fee on e-procurement portal mentioned above and submit the physical documents in the office of Chief Engineer Jaipur Zone, Jaipur within time limit specified in NIT. Inadequacy/deficiency of documents shall make the bid liable for rejection resulting in disqualification for opening of finance bid.
6. Enlisted contractors of MES shall submit the scanned copies (pdf file) of enlistment letter, tender fee and such other documents as mentioned in Appx 'A' to NIT on e-procurement portal and submit physical documents in the office of HQ Chief Engineer Jaipur Zone, Jaipur before date and time fixed for this purpose.
7. The contractor must ensure that the tender/bid is uploaded on the tender portal using the authorized DSC in time as the Accepting Officer will take no cognizance of any quotations/offer received in any other electronic or physical form like email/fax/by hand /through post from tenderer/bidder.

Signature of Contractor

for Accepting officer

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

9. General Conditions of Contracts (IAFW-2249) (1989 Print) and errata and amendments thereto, Schedule of Minimum Fair Wages and MES SSR (Part –I and Part –II) are not enclosed with these documents. These are available for perusal in the office of GE 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** :-See condition (19 of IAFW - 2249). An amount equivalent to 5% of the contract sum shall be deposited by contractor (either enlisted or unenlisted) within 28 days of receipt of the letter of acceptance in prescribed format as specified in condition 19 of IAFW-2249 on receipt of performance security, thereafter work order will be placed, failing which, the contract shall be cancelled and EMD submitted by unenlisted contractor shall be forfeited. In case of enlisted contractor the amount equal to earnest money as mentioned under para 11 above shall be deposited by contractor through MRO in Government treasury. Issue of tender to such tenderer shall remain suspended till the aforesaid amount equal to earnest money is deposited in government treasury. In case, enlisted Contractor fails to deposit the money through MRO with in notified time frame, same shall be recovered from security deposit held with the deptt or any dues held with the Deptt.(For other details the tender be referred) .

11. 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 un-enlisted Contractors. In case of MES enlisted contractor, issue of tenders shall remain suspended till deposit of EMD or six months from date of cancellation whichever is later.

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

13. The delay in encashment of DDs towards cost of tender occurred normally due to procedural requirement, therefore DD shall be got revalidated as ask by GE by the contractor own his cost.

Yours faithfully,
(_____)

For Accepting Officer

Encls:- (As above)

Signature of Contractor

Signature of Contractor

for Accepting officer

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

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

(a) Deposit at Call Receipt from a Scheduled Bank in favour of 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. GENERAL INSTRUCTIONS FOR COMPLIANCE

2.1 The bids received only in the electronic form will be considered. All bids shall be submitted on 'defproc.gov.in' portal. Documents should be scanned and forwarded in 'pdf' format and 'xls' form as indicated. Bids shall be uploaded on 'defproc.gov.in' portal on or before the bid closing date mentioned in the tender. No tender/bid in any other electronic or physical form like date email/fax/by hand/through post will be considered.

2.2 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.

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

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

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

3. BOQ :-

3.1 The tenderer shall quote his rates on the BOQ EXCEL FILE only as per guide line of e-procure web portal. No alteration to the format will be accepted and such bid will be disqualified.

Signature of Contractor

for Accepting officer

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

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

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

4. 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.

5. 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.

6. The contractor shall employ Indian Nationals after verifying their antecedents and loyalty. Attention is also drawn to relevant provisions in Special Condition 4 referred hereinbefore and also Conditions 24&25 of IAFW-2249 (General conditions of contract).

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

7.1 The projected planning for work covers in the scope of tender is based on CPM.

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

7.3 The tenderer's/bidder's attention drawn to special condition of the tender regarding preparation of the detailed network analysis and the 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 tender for future works.

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

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

MILITARY ENGINEER SERVICES
NOTICE INVITING E-TENDERS

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 rough guide and if the work costs 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 after two weeks after the date of submission of amount of performance security deposit by the tenderer.
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 eligibility 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/bid shall be submitted/uploaded by one contractor/firm. Under no circumstances, will a father and his son(s) or their close relations who have business dealing with one another be allowed to tender/bid for the same contract as separate competitor. 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 parties liable for rejection.
5. The Office of Chief Engineer Jaipur Zone, Power house road, Bani Park Jaipur-302006 will be the Accepting Officer herein after referred to as such for the purpose of this contract.
6. Not more than one tender/bid shall be submitted/uploaded by one bidder firm. Under no circumstances will a father and his son(s) or other close relations who have business dealing with one another be allowed to tender/bid for the same tender as separate competitors. A breach of this condition will render the tenders/bids of both the parties liable for rejection.
7. The Technical Bid and Financial Bid (Cover-1 and Cover-2) shall be uploaded by the tenderer/bidder on or before the date & time mentioned in NIT or as amended subsequently. A scanned copy of DD with enlistment details and other documents as specified in Appendix 'A' shall be uploaded as Cover-1 ('T' bid) of the tender/bid on e-tendering portal. DD is refundable in case the contractor is not considered eligible in technical evaluation of Cover-1 resulting in non opening of Cover-2. The applicant contractor shall bear the cost of bank charges for procuring and en-cashing the DD including revalidation of DDs and shall not have any claim from Government whatsoever on this account.
8. Tender form and conditions of contract and other necessary documents shall be available on website defproc.gov.in for download and shall form part of contract agreement in case the tender/bid is accepted.

Signature of Contractor

for Accepting officer

MILITARY ENGINEER SERVICES
NOTICE INVITING E-TENDERS (Contd...)

9 In Case of MES enlisted contractor who has not executed the Standing Security Bond or declared as unenlisted by enlisting authority and unenlisted contractor, the Cover-1 shall be accompanied with Earnest Money for the amount as mentioned in Appendix 'A' in the form of deposit at call receipt issued in favour of concerned GE (see Appendix 'A') by a Scheduled Bank or in receipted treasury Challan the amount being credited to the revenue deposit of the concerned GE (see Appendix 'A'). The GE will return the Earnest Money, wherever applicable, to all unsuccessful tenderers/bidders by endorsing an authority on the deposit at call receipt for its refund, on receipt of intimation from the Accepting Officer to do that.

10 In case of successful contractor i.e. the lowest contractor having submitted EMD, he shall have the option of converting the EMD instrument into part of the Performance Security to be deposited by him within 28 days from the receipt of intimation of acceptance of tender from Accepting Officer.

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

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

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

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

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

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

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

Signature of Contractor

for Accepting officer

APPENDIX 'A' TO NOTICE INVITING TENDER (NIT)

| | | |
|---|---|---|
| 1 | Name of work | PROVISION OF SHOPPING COMPLEX AT JAIPUR MIL STATION |
| 2 | Estimated Cost | Rs 1075.00 lakh (At Par Market) |
| 3 | Period of completion | 730 days |
| 4 | Cost of tender documents | Rs 3000.00 in the form of DD/ Bankers cheque from any schedule Bank in favour of GE JAIPUR and payable at JAIPUR . (Note : In case of retendering the contractor, who had quoted in the previous call is not reqd to submit the cost of tender) |
| 5 | Website/portal address | www.defproc.gov.in |
| 6 | Type of contract | The tender shall be based on drawings and specifications (IAFW-2159) and GCC (IAFW-2249) with Schedule 'A' (list of items of work) partially pre priced by MES and partially to be priced by tenderer. The tenderers are required to quote lump sum amount for pre priced parts of schedule 'A' and quote rate against items of other parts of schedule 'A'. |
| 7 | Timeline Details: | |
| | (a) Bid submission start date | Refer critical dates on the website www.defproc.gov.in |
| | (b) Bid submission end date | |
| | (c) Date of bid opening | |
| 8 | Eligibility Criteria | |
| | (a) For MES enlisted contractors | Contractors shall be enlisted with MES in Class ' S ' and above and category a (i) subject to satisfactory remarks wrt performance in respect of works in hand as reflected in Work Load Return (WLR) or any other report circulated by competent engineer authority |
| | (b) For contractors not enlisted with MES | (i) Contractor not enlisted with MES should meet the enlistment criteria of Class ' S ' & category a (i) contractor with regard to satisfactory completion of requisite value works with Central/State Government/Central/StatePSUs/AWHO/AFNHB/CGEWHO/DGMAP, annual turnover, bank solvency, working capital and other requirements given in Para 1.4 & 1.5 of Section 1 of MES Manual of Contracts 2020 as available in all MES formations as well as MES website (www.mes.gov.in). (ii) Not carrying adverse remarks in Work Load Report (WLR) or any other similar report circulated by any competent authority, if already working in MES. (iii) Not suspended/debarred/black listed (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. |

Signature of Contractor

for Accepting officer

APPENDIX 'A' TO NOTICE INVITING TENDER (NIT) contd...

| | | | | | | | | |
|---------|--------------------------------------|--|----------------------|-----------------------|-----------------------------|----------------------|--------------------|-----------------------------|
| | | <p>(iv) Details of works completed and under progress in MES be submitted in the following format</p> <table><tr><td>Srl No.</td><td>CA No. & Name of Work</td><td>Value of CA</td><td>Date of Commencement</td><td>Date of Completion</td><td>Extended Date of Completion</td></tr></table> <p>(v) Un-enlisted Contractor who have secured two works in MES should get themselves registered in the appropriate designated Class with any Registering Authority, else the firm will not be eligible for participation in the tender unless until the firm is enlisted with the MES.</p> | Srl No. | CA No. & Name of Work | Value of CA | Date of Commencement | Date of Completion | Extended Date of Completion |
| Srl No. | CA No. & Name of Work | Value of CA | Date of Commencement | Date of Completion | Extended Date of Completion | | | |
| 9 | Tender issuing and Accepting Officer | <p>Name :- Sh Dayanand Arya, IDSE, Chief Engineer Phone No :- 0141-2202517 Address :- Military Engineer Services, HQ Chief Engineer Jaipur Zone, Power house road, Bani Park Jaipur-302006 Email Id : dircontcejpr2-mes@nic.in</p> | | | | | | |
| 10 | Executing agency | GE BHARATPUR | | | | | | |
| 11 | Earnest Money | Rs 8,62,500.00 in favour of GE JAIPUR 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 are less than 7 (Seven), applications in respect of MES contractors of one class 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 may also bid for this tender. Such contractor's (contractors of one class 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 fulfill the criteria of up-gradation to the stipulated eligible class based on past experience of completed works (individual work experience and/or average annual turnover, as applicable) and financial soundness (solvency/financial soundness and working capital), the ceiling of present residual work will not apply and they will be considered for issue of tender. Such bidders shall upload in their Cover-1 bid details related to residual work in hand like details of works in hand showing names of work, names of Accepting Officers, Contract amounts, dates of commencement and completion (stipulated) and progress as on bid submission date. Such contractors, if claim to fulfill the criteria of up-gradation shall also upload the requisite information/documents in support of up-gradation. 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 legibility 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 upgrading 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.

Signature of Contractor

for Accepting officer

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 toward cost of tender and EMD instrument in case SSD bond is not signed at the time of registration.
 - (d) Duly signed Integrity Pact and
 - (e) Any other document required as described in this Appendix.
5. Contractors not enlisted with MES will be required to upload following documents in Cover-I for checking eligibility.
- (a) Application for tender on Firm's letterhead
 - (b) Scanned copy of DD/Bankers cheque toward cost of tender and EMD instrument.
 - (c) Copy of Police Verification Report/Police Clearance Certificate/Character Certificate from the Police Authority of the area where the registered office of the firm is located/notarized copy of valid passport of Proprietor/each Partner/each Director.
 - (d) All documents required for enlistment in MES for the class mentioned in Para 8 (b) above as per Para 1.5 of section 1 of MES Manual on Contracts 2020.
 - (e) Details of works being executed in MES, if any.
 - (f) Duly signed Integrity Pact and
 - (g) Any other document required as described in this Appendix.
6. Tenders not accompanied by scanned copies of requisite DD/Bankers Cheque towards cost of tender and earnest money (as applicable) in cover-1 shall not be considered for validation of 'T' bid and their Financial Bids will not be opened.
7. Contractors should ensure that their original physical DDs and Earnest Money Deposit (EMD) instruments (as applicable) and ink signed copy of Integrity Pact(refer para 15 here-in-after) reach the office of Accepting officer within 07(Seven) days of bid submission end date, failing which following action shall be taken.

Signature of Contractor

for Accepting officer

APPENDIX 'A' TO NOTICE INVITING TENDER (NIT) contd...

(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 be considered as willful negligence of the tenderer with ulterior motives and such tenderer shall be banned from bidding for a period of six months commencing from the date of opening of Financial Bid cover-2

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

(c) In case of tenders from enlisted and un-enlisted contractors, where scanned copies of instruments for Earnest Money Deposit (as applicable) have been uploaded in Cover-1 but the same are not received in physical form within stipulated period, such tenders shall not qualify for opening of financial bid (cover-2).

8. Contractors 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/daughter/spouse of Proprietor/Partner/Director and firms own employees, director, project manager **provided they are not having a separate enlisted firm in MES in their name as Proprietor/Partner/Director.**

9. After opening of Cover-1 and during its technical evaluation, in case any deficiency is noticed in the documents required to be uploaded by the tenderers as per NIT, a communication in the form of e-mail/SMS/Speed Post etc shall be sent to the contractor to rectify the deficiency within a period of seven days from date of communication failing which their financial bid (Cover-2) shall not be opened and contractor shall not have any claim on the same

10. Invitation for e-tender does not constitute any guarantee for validation of Technical bid and subsequent opening of financial bid of any applicant/bidder merely by virtue of enclosing DD. Accepting officer reserves the right to reject the Technical bid and not to open the financial bid of any applicant/bidder. Technical bid validation shall be decided by the accepting officer based on eligibility of the firm as per criteria given in this Appendix. Tenderer/bidder will be informed regarding non validation of his Technical bid assigning reasons therefore through tender evaluation report which shall be uploaded on the website, Such tenderer, if desires, may appeal to the next higher Engineer Authority (NHEA) Viz **Chief Engineer SWC Jaipur** on email id sswceengrijl-mes@nic.in (Fax No:- 01412249365 /01412249112 / 01412249483) 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 07 working days from the date of receipt of appeal. The decision of the NHEA shall be final and binding. The tenderer/bidder shall not be entitled for any compensation whatsoever for rejection of his bid.

Signature of Contractor

for Accepting officer

APPENDIX 'A' TO NOTICE INVITING TENDER (NIT) contd...

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

12. In case the BOQ is revised through the corrigendum and the bidder has failed to quote on revised BOQ (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.

13. Revoking the offer or revising the rates upward or offering voluntary reduction by the lowest tenderer after opening of cover 2 shall be considered as a willful default. For this default a penalty of an amount equal to Earnest Money shall be levied. In case of an un-enlisted tenderer, Earnest Money deposited by him shall be forfeited. In case of MES enlisted tenderer having deposited the Standing Security Bond, an amount equal to the earnest money stipulated in the NIT, shall be notified to the tenderer for depositing through MRO and consideration of such tenderer in tender evaluation for future works shall remain suspended till the aforementioned amount is deposited in the Govt Treasury. No other disciplinary/administrative action shall be taken against such tenderers. In such a situation, the next lowest offer shall not be considered for acceptance. Instead, retendering shall be resorted to in a transparent and fair manner and the defaulting tenderer and his related firm if any, shall not be eligible for this tender in second call or subsequent calls.

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

15. **INTEGRITY PACT**: - Refer Annexure I to Appendix 'A' to Notice of Tender. The Bidder is required to download & take printout of the integrity pact provided at Annexure-I to notice of tender and scanned copy of same shall be upload duly signed on each page by the Bidder(s) as part of technical bid (cover I) and hard copy of this original Integrity Pact signed on each page shall be forwarded by post along with demand draft. Bidder (s) who do not upload duly signed scanned copy of Integrity Pact provided at Annexure-I to notice of tender, shall be intimated of the same alongwith intimation of other such deficient documents, through option of 'Short Fall Documents' (in e-tendering portal) before 'T' Bid evaluation. Any bidder who fails to forward the copy of Integrity Pact duly signed even after this communication shall be disqualified in the Technical Bid (Cover-1).

16. **PERFORMANCE SECURITY**:- See condition (19 of IAFW - 2249).An amount equivalent to 5% of the contract sum shall be deposited by contractor (either enlisted or un-enlisted) within 28 days of receipt of the letter of acceptance in prescribed format as specified in condition 19 of IAFW-2249 on receipt of performance security, thereafter work order will be placed, failing which, the contract shall be cancelled and EMD submitted by un-enlisted contractor shall be forfeited. In case of enlisted contractor the amount equal to earnest money as mentioned under para 11 above shall be deposited by contractor through MRO in Government treasury. Issue of tender to such tenderer shall remain suspended till the aforesaid amount equal to earnest money is deposited in government treasury. In case, enlisted Contractor fails to deposit the money through MRO with in notified time frame, same shall be recovered from security deposit held with the deptt or any dues held with the Deptt.(For other details the tender be referred).

Signature of Contractor

for Accepting officer

APPENDIX 'A' TO NOTICE INVITING TENDER (NIT) contd...

17. 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 un-enlisted Contractors. In case of MES enlisted contractor, issue of tenders shall remain suspended till deposit of EMD or six months from date of cancellation whichever is later.

18. If renewal of firm has not been done by the competent authority and the name of firm shall be removed from enlistment list of E-in-C branch/CE command/ADG. Tall contractors who have forwarded appeal to E-in-c, the appellate Authority shall be allowed to continue to participate in tendering after last date of validity of their current enlistment. Such contractor will be treated as un-enlisted and their bids will be evaluated similar to un-enlisted contractor, except that they will not be required to submit Earnest Money till disposal of their appeals. Further such contractors should fulfill the criteria of work experience, turn over, financial soundness etc.

Sdxxxxxxxxx...

(Signature of Contractor)

(Kuldeep Katnawal)
AE (QS&C)
AAD (Contracts)
For Accepting Officer

File No 80948/C/04/E8
HQ Chief Engineer Jaipur Zone
Power House Road Bani Park,
Jaipur-302006

Dated : 24 Apr 2026

Signature of Contractor

for Accepting officer

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

| Ser No | Location on Appendix 'A' to Notice Inviting Tender (NIT), Serial Page No. 9 | Errata/Amendment |
|---------------|--|--|
| 1. | Serial No. 10, Executing agency | For : "GE BHARATPUR" Read : "GE JAIPUR" |

(Signature of Contractor)

(Kuldeep Katnawal)
AE (QS&C)
AAD (Contracts)
For Accepting Officer

Signature of Contractor

for Accepting officer

BLANK

INTEGRITY PACT**GENERAL: -**

1. Whereas the President of India, represented by Chief Engineer Jaipur Zone, referred to as Principal/Owner and the first part, has floated the TENDER and intends to award, under laid down organizational procedure, contract for **"PROVISION OF SHOPPING COMPLEX AT JAIPUR MIL STATION (Tender ID: 2026_MES_762188_2)"** 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 Jaipur Zone, Jaipur 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, organization or third party related to the contract, in exchange for an advantage, in the bidding process, bid evaluation, 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.

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

SIGNATURE OF CONTRACTOR


FOR ACCEPTING OFFICER

INTEGRITY PACT

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, organization 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 dis favour 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 construed as a violation of Integrity Pact.

7. PREVIOUS TRANSGRESSION: -

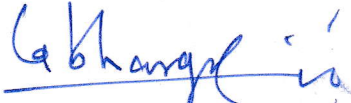
7.1. The Bidder declares that no previous transgression occurred in the last three years immediately before signing of this Integrity Pact with any other company in respect of any corrupt practices envisaged hereunder or with any Public Sector Enterprise in India or any Government Department in India.

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 behavior) and a compliance program for the implementation of the code of conduct throughout the country.

SIGNATURE OF CONTRACTOR


FOR ACCEPTING OFFICER

INTEGRITY PACT**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 one 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 therefore. 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.
- (xi) 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 Bidders 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.

SIGNATURE OF CONTRACTOR

FOR ACCEPTING OFFICER

INTEGRITY PACT

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: -

| SI No | Name of IEM | e-mail id |
|-------|--|--|
| 1 | Shri Narayan Murthy Ganapathy, IFoS (Retd) | gana_narayan@yahoo.com |
| 2 | Shri Lalatendu Mohanti, IPS (Retd) | L.mohanti@gmail.com |

10.2. Details of Nodal officer nominated by E-in-C's Branch are as follows:-

Name : Shri P K S Senger, Dir (Contracts)
Address : Room No. 158, Dte of Contract Management
Engineer-in-Chief's Branch, Kashmir House,
Rajaji Marg New Delhi-110011
Tel No. (Office): 011-23019154
e-mail id : dircont1einc-mes@nic.in
Mobile No. :9131948501

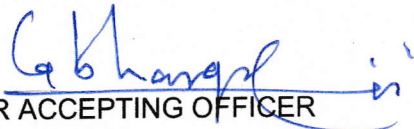
10.3. In case of any complaint with regard to violation of Integrity Pact, either party can approach IEMs with copy to the Nodal Officer and the other party. If any such complaint from bidder is received by the Principal/Owner, the Principal/ Owner shall refer the complaint to the Independent External 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 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) /MoD in cases involving vigilance angle.

SIGNATURE OF CONTRACTOR


FOR ACCEPTING OFFICER

INTEGRITY PACT**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.

14. SIGNING OF INTEGRITY PACT ON BEHALF OF BIDDER :-

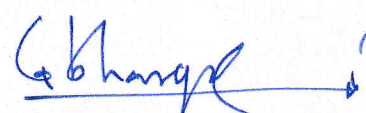
- (a) Proprietorship Concern – The Integrity Pact must be signed by the proprietor or by an authorized signatory holding power of attorney signed by the proprietor.
- (b) Partnership firm – The Integrity Pact must be signed by all partners or by one or more partner holding power of attorney signed by all 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 are presentative duly authorized 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 Defect 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.

SIGNATURE OF CONTRACTOR


FOR ACCEPTING OFFICER

INTEGRITY PACT

To,

M/s _____

_____**SUB: TENDER AND INTENDS TO AWARD, UNDER LAID
DOWN ORGANIZATIONAL PROCEDURE, CONTRACT FOR "PROVISION OF SHOPPING
COMPLEX AT JAIPUR MIL STATION (Tender ID: 2026_MES_762188_2)"**

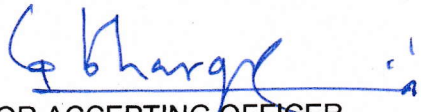
Dear Sir,

1. It is hereby declared that MES is committed to follow the principle of transparency, equity and competitiveness in public procurement.
2. 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 tenderer/bidder will stand disqualified from the tendering process and the bid of the bidder would be summarily rejected.
3. 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 Jaipur Zone, Jaipur

SIGNATURE OF CONTRACTOR


FOR ACCEPTING OFFICER

INTEGRITY PACT

To,

Headquarters
Military Engineer Services
Chief Engineer Jaipur Zone
Power House Road, Bani Park
Jaipur – 302006

**SUB: TENDER AND INTENDS TO AWARD, UNDER LAID
DOWN ORGANIZATIONAL PROCEDURE, CONTRACT FOR "PROVISION OF SHOPPING
COMPLEX AT JAIPUR MIL STATION (Tender ID: 2026_MES_762188_2)**

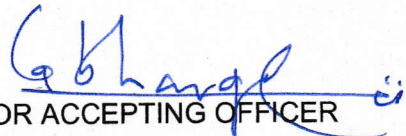
Dear Sir,

1. I/We acknowledge that MES is committed to follow the principles thereof as enumerated in the Integrity Pact enclosed with the tender/bid document.
2. 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.
3. 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 into 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.
4. 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 authorized signatory of the Bidder)

SIGNATURE OF CONTRACTOR


FOR ACCEPTING OFFICER

SCHEDULE 'A' (LIST OF WORK AND PRICES) NOTES

IN LIEU OF IAFW-2159

**(TO BE USED AND READ IN CONJUNCTION WITH GENERAL CONDITIONS
OF CONTRACT IAFW-2249 (1989 PRINT)
MILITARY ENGINEER SERVICES**

Tele : 0141-2202517
Mail Id: dircontcezhpr2-mes@nic.in

Military Engineer Services
Headquarters
Chief Engineer Jaipur Zone
Power House Road, Bani Park
Jaipur - 302006

80948/C/46/E8

08 Jun 2026

**LUMP SUM E-TENDER AND CONTRACT FOR: PROVISION OF SHOPPING COMPLEX AT
JAIPUR MIL STATION**

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

(SIGNATURE OF THE CONTRACTOR)

(SIGNATURE OF THE OFFICER
ISSUING TENDER DOCUMENTS)
APPOINTMENT: ADD (Contracts)
DATED:

SCHEDULE 'A' (LIST OF WORK AND PRICES) NOTES**A. GENERAL**

1.1 Schedule "A" of this contract is divided in to 12 (Twelve) parts as under:-

| | | | |
|-----|------------------------|---|---|
| (a) | SCHEDULE 'A' PART-I | : | BUILDING WORKS |
| (b) | SCHEDULE 'A' PART-II | : | INTERNAL WATER SUPPLY |
| (c) | SCHEDULE 'A' PART-III | : | INTERNAL ELECTRIFICATION |
| (d) | SCHEDULE 'A' PART-IV | : | HARDSTANDING AND PARKING TILES |
| (f) | SCHEDULE 'A' PART-V | : | SEWAGE DISPOSAL |
| (g) | SCHEDULE 'A' PART-VI | : | AREA DRAINAGE |
| (h) | SCHEDULE 'A' PART-VII | : | BOUNDARY WALL AND STEEL GATE |
| (h) | SCHEDULE 'A' PART-VIII | : | EXTERNAL WATER SUPPLY |
| (j) | SCHEDULE 'A' PART-IX | : | EXTERNAL ELECTRIFICATION |
| | SCHEDULE 'A' PART-X | | DEMOLITION AND DISMANTLING WORK |
| (l) | SCHEDULE 'A' PART-XI | : | SITE CLEARANCE, SITE DEVELOPMENT AND EARTH WORK |
| (m) | SCHEDULE 'A' PART-XII | : | MISC ITEMS (TO BE QUOTED BY CONTRACTOR) |

1.2 Schedule "A" Part-I is firm. The quantities (Approx No. of Units required) for all items of Schedule "A" Part-II to XII as indicated under respective Col of Sch 'A'/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.

1.3 (a) Schedule "A" Part-I to Part- XI have been pre-priced by MES. However, the tenderers are required to work out their own lump sum price for each schedule 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 lump sum in BoQ . The percentage above/below the amount inserted by MES against each part of Sch 'A' shall be derived by the system automatically.

(b) Schedule "A" Part- XII has not been pre-priced by MES. Tenderers are required to work out their item rate for schedule item independently based on description of the item in BOQ, Particular Specifications and Special Conditions of the Contract in the manner set out in Condition 6 of IAFW-2249 and quote the same in respective column.

Signature of Contractor

For Accepting Officer

SCHEDULE 'A' (LIST OF WORK AND PRICES) NOTES (Contd.../-)

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

1.5 (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) 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 and decision of GE should be final. In case the details of reinforcement of any members required for completion of work are missing in contract drawings, the same shall be supplied by the department as per codal provisions and the quoted rates shall be deemed to include for this providing this reinforcement also without any extra cost.

1.6 PERIOD OF COMPLETION:

The entire work under this contract as described in Schedule 'A' along with connected services catered in General Summary/BOQ (Schedule of works) shall be completed within **730 days** from the date of commencement of work as indicated in first work order No. 1 in two phases as under:-

Phase-I: Demolition of building Nos. P-288 & P-289 and BLOCK-I i.e. Construction of Shopping Complex (D/S) serial item No 01 of Schedule 'A' Part-I, including internal services as catered in respective schedules A shall be completed at least 12 months

Phase-II: Demolition of building Nos. P-241 & P-305, Construction of Central Court Yard and BLOCK -II i.e. Construction of Shopping Complex (D/S) serial item No 02 of Schedule 'A' Part-I, including all services as catered in respective schedules A shall be completed at least 12 months

1.6.1 Final bill shall be submitted by Contractor after physically completion of work i.e. both Phase-I & Phase-II.

1.7 DEFECTS LIABILITY PERIOD: (See Condition 46 of IAFW-2249): The "Defects Liability Period" for the complete work shall be 24 (Twenty-Four) Calendar Months from actual date of completion of work.

1.8 Layout of internal/external services is tentative and may be changed as per the site requirement at the discretion of the GE. No claim on this account shall be entertained and contractor quoted rates shall be deemed to cater for the same.

1.9 Layout of buildings indicated in the site plan is tentative and this may be changed at the discretion of the GE before physical commencement of work in question. No claim what so ever on this account shall be entertained and admissible and contract rates shall be deemed to cater for any such eventuality.

1.10 The under mentioned remarks shall be deemed to have been inserted at respective places in Schedule 'A': -

Signature of Contractor

For Accepting Officer

SCHEDULE 'A' (LIST OF WORK AND PRICES) NOTES (Contd.../-)

| S No | Column No | Heading | Remarks |
|------|-----------|---|---|
| (a) | Column 3 | Drg No | Refer list of drawings |
| (b) | Column 8 | Period of completion for individual item from date of handing over the site | Refer Note No A.1.6 of Schedule 'A' notes |
| (c) | Column 9 | Remarks | Refer Schedule 'A' Notes |

1.11 Wooden gutties as specified in SSR shall not be used in this work. In lieu of wooden gutties, PVC sleeves of appropriate sizes shall be provided for fixing of fittings/fixtures to the entire satisfaction of GE.

1.12 Where specifications for any item of work are not given in MES schedule or in particular specifications, specification given in relevant Indian Standard or code of practice shall be followed.

1.13 The rates quoted by tenderer shall be inclusive of all type of taxes, levies, octroi, excise, cess, service tax, GST etc as prevailing on the date of submission of tender i.e 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. However, in this connection attention is invited to Special Condition No 33.

1.14 The contractor shall submit PSMB/PRB of all buildings, duly recorded all measurement in details for finishes provided thereon. The PSMB/PRB shall be binded and also in digital form in CD. These shall be signed by Engineer-in-charge and GE in token of their check. Performa/pattern of PSMB/PRB shall be as given by the GE. The cost of the same shall be deemed to be included in the unit rates of respective buildings.

1.15 The contractor shall submit completion drawings (record drgs) for structural duly incorporating changes, if any and provision of respective TD drawings. The drawings so prepared on computer based AUTOCAD software, shall be submitted in print copy duly signed in laminated form and also in digital form in CD with total 5 sets each. These shall be signed by Engineer-in-charge and GE in token of their check. The completion certificate shall be issued only after satisfactory completion of above activities. The cost of the same shall be deemed to be included in the unit rates of respective buildings.

1.16 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.

1.17 Tenderers are advised to quote their rate keeping all the factors in view. No claim what so ever 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 Start date of bid submission 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.

Signature of Contractor

For Accepting Officer

SCHEDULE 'A' (LIST OF WORK AND PRICES) NOTES (Contd.../-)

1.18 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 meter", "Running meter", "Kilogram" and "Quintal" respectively.

B. NOTES APPLICABLE TO SCHEDULE "A" PART-I

1.1 The lump sum quoted by the tenderers 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 contract drawings and notes thereon complete for entire completion of works except those covered in Sch "A" Part-II to XI and/or unless otherwise specifically stated elsewhere in the tender documents.

1.2 Lump sum cost of building in Schedule 'A' Part-I shall include cost of any cutting, leaving/forming holes, chases etc in the walls, floors and ceilings including for internal electrification, internal water supply and other Schedule/BOQ 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. No adjustment shall however, be made on variations in quantities of cuttings, leaving/forming holes, chases etc, on this account for pricing of any deviations in respect of items listed in Schedule 'A' Part-I and due to variation in quantities indicated as PROVISIONAL in the tender documents.

1.3 The unit cost of building(s) of Schedule "A" Part-I shall be based on foundation for Safe Bearing Capacity of soil as indicated in concerned drawings.

1.4 Excavation in any type of soil shall be considered in lump sum quoted cost of item of schedule 'A' Part-I. If soft/disintegrated rock or hard rock met with during excavation, same shall be measured and paid separately as a deviation. Hard rock shall become the property of contractor and recovery at the rate of Rs 1192.13 per CUM subject to applicable percentage quoted above or below SSR. The contractor shall be responsible for its removal from site (from time to time) all as directed by Engineer-in-Charge.

1.5 BLANK

1.6 In the event of discrepancy in the provision given in drawing of schedule of finishes and other drawings forming part of the tender, the provisions in the schedule of finishes drawings shall take precedence over the provisions in the other drawings.

1.7 In the event of discrepancy in the details/dimensions given in various drawings, the details/dimensions as per breakup details drawing and enlarge scale drawing shall take precedence over the provisions in the small scale drawings.

1.8 In case of discrepancies between the provisions / details given in architectural and structural drawings, the architectural details shall be followed from architectural drawing and structural details shall be followed from structural drawings & shall be read in conjunction with relevant notes as structural drawings & drawing of structural notes.

1.9. In the event of any discrepancy in the total inner dimension as per room sizes and outer dimensions of building/structure, the inner dimensions shall be maintained and outer dimension of the building shall be deemed corrected accordingly without any extra cost to the Govt.

1.10 Contractor's quoted lump sum in General Summary shall be deemed to include for all minor details, processes and operations which may not have been specifically mentioned or

Signature of Contractor

For Accepting Officer

SCHEDULE 'A' (LIST OF WORK AND PRICES) NOTES (Contd.../-)

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 lump sum, the decision of the Accepting Officer shall be final, conclusive and binding.

1.11 The lump sum quoted against items of buildings under Sch A part-I shall include all works as shown on drawings and/or mentioned in notes thereon and/or specified in Schedule "A" and/or particular specifications except for items of works catered for in Schedule 'A' Part-II to Part- XII complete, for entire completion of work unless any item of work is specifically/ categorically excluded from scope of work. For illustration purpose, following items which are deemed to be included in the unit rate of building items under sch A part-I are mentioned. The list is an illustration for guidance purpose and is not meant to be exclusive list of items included in the lump sum rate quoted. No claim shall be entertained on the reason that other items shown on drawings and/or specified in particular specifications, merely because these have not been included in this list, are not covered in the unit rate of the item. Unit rate against items of Schedule 'A' part –I also includes the following: -

- (i) All built in furniture items as listed in drawing i.e, wardrobe, cupboard, drapery rod, SS railing, mirror, RCC jali, RCC shelf etc and all other items as shown in drawings elsewhere, including electrical fittings and electrical accessories. Location of items if not shown in main plan shall be as decided by GE.
- (ii) Plinth protection, ramp, staircase railings, steel ladder, steel rungs, cooler rest, water proofing treatment etc wherever shown in drawings.
- (iii) Fan hooks with box, electric switchboard and boxes, niches for housing MCB-DBs and cutting chases for concealed pipe.
- (iv) Pre-construction anti-termite treatment, Roof slab water proofing treatment and Sunken treatment for toilet portion for bldgs at ser item No. 1 & 2 of Sch 'A' Part-I.
- (v) Overhead service water tank of capacity & wherever shown in drawing including PCC platform under water tank, Inlet/Outlet tank nipple, 20mm dia overflow pipe upto nearest rain water pipe inlet, float valve 25mm size to the extent specified. Capacity of tank if not shown in drawing shall be treated as 500 ltrs.
- (vi) All internal sanitary appliances, soil/waste/vent pipes, vent cowl, and rain water pipe, fittings as required and including nahani traps, floor traps, bottle traps for all WHB with pillar tap, PVC connection, waste fittings, water closet with flushing cistern, bend pipe, gully traps and inspection chambers and manholes all as shown in drawings. Exact location and position of GT (Gully Trap) and IC (Inspection Chamber/first manhole) if not shown on drawings, shall be considered as 30cm and 200cm respectively from the external face of buildings.
- (vii) Unit rate of lump sum of Schedule 'A' Part-I is also includes the cost of first manholes for waste water, sewage and rain water disposal as shown in drgs.
- (viii) All strengthening measures as per respective IS and SP as applicable for seismic Zone as per structural drawings and notes there on.
- (ix) PVC Rain Water Pipe, WPC Doors, Rolling Shutters, Aluminium Windows and Crumple Joints etc. wherever shown in drawings.

1.12 Excavation and earth work shall be done by Mechanical means or manually. Excavation specifically specified here-in-after such as for last 150mm depth of raft/footing shall be done manually. The lump sum unit rate quoted by the tenderer shall deemed to be included cost of excavation by these means. Deviation shall be priced at the rates applicable for mechanical means in SSR rate Part-II.

Signature of Contractor

For Accepting Officer

SCHEDULE 'A' (LIST OF WORK AND PRICES) NOTES (Contd.../-)

1.13. The lump sum for buildings under schedule 'A' Part-I shall also be deemed to include the cost of the all excavation and earth work as required unless mentioned otherwise in description of item.

1.14 Before commencement of work, levels of existing ground shall be recorded at distance as approved by GE and shall be kept on record. Initial and final levels of the surface shall be recorded and level sheets shall be maintained and kept on record duly signed by both the parties.

C. NOTES APPLICABLE TO SCHEDULE "A" PART-II TO PART- XII

1.1 All items and quantities are provisional. These shall, however not be varied beyond the limits laid down in Condition 7 of General Conditions of Contracts (IAFW-2249).

1.2 Unless otherwise specified, unit rate of each item of work is inclusive of materials and labour or supplied and fixed including testing as specified complete.

1.3 Specifications in MES SSR Part-I and preambles to items given in MES SSR Part-II under respective trades shall be applicable. If any provision in the description of items of Schedule 'A' and / or in particular specifications is at variance with the provisions in specification in MES SSR Part-I and preambles to MES Schedule items of SSR Part-II the provision of description of item of Schedule 'A' and provision of particular specifications shall take precedence there over.

1.4 Hard rock met with during excavation shall become the property of contractor and recovery at the rate of rubble stone from approved quarries for hand packing (item 06123 of MES SSR Part-II) shall be made subject to applicable percentage over SSR. The contractor shall be responsible for its removal from site time to time all as directed by Engineer-in-charge.

1.5 Excavation and earthwork items included in the respective parts of schedule 'A' shall be applicable for the items for which excavation and earth work not included in the description of items of respective schedule 'A'. Wherever excavation & earth work are specified by mechanically means in relevant item but excavation by mechanically means not feasible as per site condition, Contractor will carry excavation & earthwork manually without any extra payment.

1.6 If the layout of the proposed services / structure overlaps over the layout of the existing demolished buildings / structures and the contractor has to excavate in other than in soft & loose soil no extra payment shall be admissible irrespective to actual materials met with as site. Contractor's quoted rates deemed inclusive of this provision and no extra payment shall be admissible to the contractor on this account.

1.7 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.

1.8 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 the same at his own expense and realign adjacent to the proposed buildings as directed by GE.

Signature of Contractor

For Accepting Officer

SCHEDULE 'A' (LIST OF WORK AND PRICES) NOTES (Contd.../-)**2. MAKES OF ITEMS**

- (a) In case Sch "A" item(s) indicate makes then same shall be any one of the makes specified there in at the option of contractor.
- (b) Makes to be incorporated in the work shall be from those as listed in Appendix "B" to Particular Specifications [B/R & E/M]. Group- 'X'.
- (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 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/ AGE(I) concerned. In case ISI marked material /items are not manufactured then same shall confirm to relevant IS amended up to date.
- (d) For material / item not covered in para (a) to (c) here-in-before, the same shall be of best quality available in market and approved by GE.
- (e) Contractor will intimate in writing to GE/AGE (I) the name of make of material, brand, model No/Cat Part No, etc, which he intends to procure. GE/AGE(I) will approve the same within 10 days of receipt of such request after due verification of documents supplied by contractor with his request letter.

3. 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 or before 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 or before incorporation of steel in work.

4. MACHINE FOUNDATIONS:

Foundations of machine/panel shall be provided all as per manufacturer's instructions and shall be deemed to be included in rates if otherwise not mentioned quoted by the tenderer for these items.

5. PERIODIC PERFORMANCE EVALUATION:

Tenderer to note that Periodic Performance Evaluation of the contract shall be done as stipulated by E-in C Branch vide their letter No A/37696/05 DPL/POVE2W(PPC) dated 13 Aug 2014. This policy letter can be seen in office of any MES formation, the same is also available in MES website.

6. IS wherever mentioned in the tender documents shall be with Latest revisions & number Up to date of receipt of tender documents. No extra shall be admissible on this account.

7. The layout of all bldgs, roads & ground levels shall be carried out with "Total station" survey. Contractor shall carried out topographical survey of the land after site clearance upto minimum 3m beyond boundary wall/ compound wall of the proposed bldgs and along the alignment of proposed road, sewage line, rain water harvesting lines, cable route, drainage line etc before carryout excavation. This aspect shall be considered by the contractor and no claim, whatsoever shall be entertained on this account. Survey sheets shall be signed by Engr-in-Charge and GE.

Signature of Contractor

For Accepting Officer

SCHEDULE 'A' (LIST OF WORK AND PRICES) NOTES (Contd.../-)

8. **PERFORMANCE SECURITY DEPOSIT**: Bidder's attention is invited for submission of Performance security deposit in terms of condition No. 19 of IAFW-2249 incorporated through amendment No. 47 of IAFW-2249.

9. **RELEASE OF PERFORMANCE SECURITY DEPOSIT**: The performance security deposit

will be released in terms of condition No. 68 of IAFW-2249 amended through amendment No. 45 of IAFW-2249 after expiration of defects liability period of works covered under phase-I or after payment of final bill of Phase-I whichever is later.

10. **YARDSTICK DETAILS (SCHEDULE "A" PART-I) :-**

Yard sticks % ages in respect of buildings catered in Schedule 'A' Part-1 Ser Item No 1 & 2 has not been included in the tender documents. The same shall be prepared by Contractor/ JE(Civil)/AGE concerned immediately after acceptance of contract and technically checked by AGE(Contracts)/JE(QS&C) of GE office and approved by CWE after technical check of DCWE(Contracts) of CWE office. Copy of approved yardstick shall be forwarded to accepting officer for record and comments. On account, the payment made as per yard stick is based on stage wise actual assessment of value of work done.

11. **INTEGRITY PACT**:- Integrity Pact (IP) is an integral part of contract and both the parties are bound by its provisions

12. **QUOTATION ON LATEST REVISED BOQ**: The attention of the tenderers is drawn to the expressed condition that if BOQ is revised, then the tenderers shall quote their rates only on revised BOQ. In case the tenderer quote his rates on earlier (cancelled) BOQ then his tender (financial bid) shall be summarily rejected and his tender shall be considered non bonafide. Similarly if the BOQ is revised multiple times the tenderer shall quote his rates on latest BOQ failing which his tender shall be considered non bonafide and summarily rejected. No representation by the tenderer on this matter shall be entertained by the department.

13. Contractor will be required to strictly ensure engagement of Engineers and deployment of T&P, Machinery & Transport are stipulated in this work. Inadequate engagement of engineers/ deployment T&P, Machinery & Transport' as per contract conditions shall be considered as serious lapse attracting ban/removal/downgrading/debarment of the Firm/Company.

14. No minor should be employed during the execution of the work.

15. **GUARANTEE**:- All plant/equipment's/machineries installed/commissioned shall be guaranteed /carry warranty (as per applicability of guarantee/warranty given in general as well as particular specifications for each plant/equipment's/machinery) for a period of Twenty four (24) months (minimum) from the date of taking over of the installation by MES against unsatisfactory performance and/or breakdown due to defective design, material, manufacture, workmanship or installation. The guarantee/warranty period given above is the minimum period for which a plant/ equipment's/ machinery is required to be covered under guarantee/warranty. However, if the guarantee/warranty period in general as well as particular specification or as provided by the manufacturer (s) is more than 24 months for any plant/equipment's/machinery from the date of taking over of the installation by MES; then the higher period will be the required period of guarantee/warranty for that particular plant/ equipment's /machinery. The

SCHEDULE 'A' (LIST OF WORK AND PRICES) NOTES (Contd.../-)

defect liability period as mentioned in other parts of the tender documents shall be deemed to be modified to this extent for such plants/ equipment's/ machineries installed/ commissioned. The plant/ equipment's/ machinery or component or any part thereof so found defective during the guarantee/warranty period shall be repaired or replaced free of cost to the satisfaction of the Engineer in-charge. In case it is felt by MES that undue delay is being caused by the Contractor in doing this, the same will be got done by MES at the risk and cost of the contractor.

15A. DISMANTLING / DEMOLITION / TAKING DOWN

(a) Refer section 21 of MES schedule Part I for demolition and dismantling. The demolition / dismantling shall generally proceed systematically in the descending order. The contractor shall take down / demolish / dismantle the work to the extent all as mentioned in BOQ and as specifically ordered by GE/ Engineer-in-charge.

(b) Dismantled / Demolished material indicated in schedule of credit shall become the property of the contractor and contractor shall give credit for it at the rates mentioned in Schedule of credit. The rates given for credit are fixed and no variation on this amount shall be admissible on account of quality/conditions of the materials obtained from dismantling / demolition. The contractor at his own expense shall carry out transportation of old materials outside MOD Land & site without any extra cost by Department. Materials retrieved from dismantling / demolition shall not be used in the new work. All retrieved materials obtained from demolition/dismantling which are not mentioned in schedule of credit shall become Govt. property and contractor shall deposit the same in MES store yard of GE. Such materials shall be stacked properly by contractor at his own arrangements and own cost at MES store all as directed and the same shall be recorded in MB for record purpose only duly signed by GE, Engineer-in-Charge and contractor and necessary RV thereof shall be obtained by the contractor from Engineer-in-Charge. Contractor is advised to 'visit' the site with Engineer-in Charge/ GE before quoting the lump sum prices against credit Schedule. The Govt does not guarantee for the value of the materials that will naturally accrue to the contractor. The contractor shall be deemed to have visited the site of work and have made himself conversant with present state of materials before tendering for the purpose of assessing their quality, condition and money value of materials that would be obtained from dismantling/demolition etc. and no extra cost whatsoever shall be entertained on this account.

(c) Refer condition 10, 47 and 48 of IAFW-2249, General Conditions of Contracts and Para 21.1 to 21.3 stipulated on page 21-1 to 21-3 of MES SSR' 2009 Part I. All materials shall be sorted out, stacked at site for joint measurements and recorded in the measurement book. Both parties will sign entries. Govt. property shall be removed and handed over to Engineer-in- Charge through proper receipt in proper manner as described above at the MES store yard. Site shall Debris / unserviceable materials obtained from demolition, taking down, dismantling, etc shall be thrown away outside MOD land as directed without any extra cost to the Govt.

Signature of Contractor

For Accepting Officer

SCHEDULE 'A' (LIST OF WORK AND PRICES) NOTES (Contd.../-)

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Signature of Contractor

For Accepting Officer

SCHEDULE 'A' (LIST OF WORK AND PRICES) NOTES (Contd.../-)

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Signature of Contractor

For Accepting Officer

SCHEDULE 'A' (LIST OF WORK AND PRICES) NOTES (Contd.../-)**16 TOOL & PLANT/MACHINERY, TRANSPORT REQUIREMENT & Site Engineer Staff:-**

The following minimum T&P MACHINERY & TRANSPORT shall be deployed by contractor for execution of this work at appropriate stage as decided by GE and contractor jointly.

| SER No. | BRIEF DESCRIPTION OF T&P MACHINERY & TRANSPORT | QTY |
|------------|--|-----|
| 1 | 2 | 3 |
| (A) | <u>FOR B/R WORKS</u> | |
| (i) | DG Sets 5/10KVA | 2 |
| (ii) | Concrete mobile weigh batchers | 3 |
| (iii) | Drilling machines | 3 |
| (iv) | Welding set | 4 |
| (v) | TDS Meter | 2 |
| (B) | <u>For E/M Works</u> | |
| (i) | Steel/Aluminum ladder 1.5m to 6m in height | 10 |
| (ii) | Chase cutting Machines | 3 |
| (iii) | Torque wrench for nuts, bolts/screws | 3 |
| (iv) | Conduit Die Set | 3 |
| (v) | Pipe vice | 3 |
| (vi) | Bench vice | 3 |
| (vii) | LT meggar 500 volt | 3 |
| (viii) | HT meggar 500 volt | 3 |
| (ix) | Tong Tester | 3 |
| (x) | Hydraulically operated & hand operated crimping machines | 3 |
| (xi) | Earth tester including testing kit | 3 |
| (xii) | Portable drilling machine | 3 |
| (xiii) | Test bench for light fittings | 3 |
| (xiv) | Multimeter | 3 |

Signature of Contractor

For Accepting Officer

SCHEDULE 'A' (LIST OF WORK AND PRICES) NOTES (Contd.../-)

| (C) | Engineer Staff | |
|-------|---|--|
| (i) | 02 Nos Degree holder Engineers with minimum 5 years practical experience (Civil Engineer from an Institute approved by AICTE). | |
| (ii) | 02 Nos Diploma holder Engineers with minimum 8 years practical experience (Civil Engineer from an Institute approved by AICTE). | |
| (iii) | 01 No Diploma holder Engineers with minimum 8 years practical experience (Electrical/ Mechanical Engineer from an Institute approved by AICTE). | |

Note:-(i) These Engineers will work full time on site from the date of commencement till date of completion. In case any of these Engineers are on leave or absent for any reasons, contractor shall provide substitute of such Engineer with approval of GE. In no case, any Engineer shall be absent on a working day. This provision shall take precedence over provisions under condition 25 Ser No (a) to (g).

(ii) Register required for attendance of engineers shall be provided and maintained by contractor without any extra cost. The attendance register shall be checked by Engineer-in Charge

17. Contractor shall make arrangement of photographic record for the items of work mandated in the particular specification. Photographs in higher resolution shall be taken and submitted to Engr-in-Charge for the record for each stage as per specifications. This aspect shall be considered while quoting rates for all items under Schedule Part-I to X. Nothing extra shall be paid on this account.

18. Before commencement of work. Entire construction site to be covered all round by fixing of CGI sheets/fibre sheets including necessary framing work as wall cladding with 0.5mm PPGI sheets up to height 5m by the contractor and no any extra amount will be paid for this account.

19. After completion of work the entire sheets including framing work shall be removed by the contractor and the complete site to be cleared by removal of debris, iron material including filling of holes, levelling work etc.

20. **INSTRUCTIONS ON APPROVAL OF SPECIAL (STAR) RATES: -**

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

Signature of Contractor

For Accepting Officer

SCHEDULE 'A' (LIST OF WORK AND PRICES) NOTES (Contd.../-)

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

(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 the contractor.

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

(f) 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.

21. FACTORY INSPECTION:

Inspection of HT/LT/APFC panels, transformers, DG Set, Compact Sub-station, HT cable above 500 RM in length, will be carried out at factory outlet by rep of Accepting Officer before dispatch of these items from factory or manufacturing unit and arrangement for the same will be made by the Contractor at his own expenses and cost of the same shall be deemed to be included in the unit rates quoted by the tenderer for these items

SCHEDULE 'A' (Contd...)
PART- I :BUILDING WORKS

| 1 | 2 | 3 | 4 | 5 | 6 | | 7 | | 8 | 9 |
|---|--|----------------------------------|------------|----------------------|-------------|-----|-------------|-----|-----------------------------------|-----------------------------------|
| SI No | Description of item of work | Drg No | Unit | No of units required | Rs. | Ps. | Rs | Ps. | Period of completion | Remarks |
| 1 | Construction of BLOCK-I of Shopping Complex, RCC framed PCC block construction, etc complete all as specified and shown on drawings and directed. | Refer List of drgs for all items | Each Block | 1.00 | 35000000.00 | | 35000000.00 | | Refer Sch 'A' Notes for all items | Refer Sch 'A' Notes for all items |
| 2 | Construction of BLOCK-II of Shopping Complex, RCC framed PCC block construction, etc complete all as specified and shown on drawings and directed. | | Each Block | 1.00 | 35000000.00 | | 35000000.00 | | | |
| Total of Sch A Part-I carried over to BOQ | | | | | | Rs. | 70000000.00 | | | |

SIGNATURE OF CONTRACTOR

FOR ACCEPTING OFFICER

SCHEDULE 'A' (Contd...)
PART -II: INTERNAL WATER SUPPLY

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|-------|-----------------------------|--------|------|----------------------|-----------------|-----------------------|--|---------|
| SI No | Description of item of work | Drg No | Unit | No of units required | Rate Rs. Ps. | Total in Rs Ps. | Period of completion of individual items after date of handing over the site | Remarks |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

- 1.0 Supply, jointing & testing steel water tubing, medium grade, galvanised with and including necessary pipe fittings/accessories like sockets, unions tees, elbows etc and fixed to or concealed in walls and ceiling or laid in floors complete all as specified and directed of following size :-

(a) 15 mm bore

(b) 20 mm bore

(c) 25 mm bore

Refer List of drgs for all items

| | | | |
|----|--------|--------|----------|
| RM | 120.00 | 143.00 | 17160.00 |
| RM | 190.00 | 169.00 | 32110.00 |
| RM | 240.00 | 196.00 | 47040.00 |

Refer Sch 'A' Notes for all items

Refer Sch 'A' Notes for all items

- | | | | | | |
|-----|---|------|-------|--------|----------|
| 2.0 | S & F 15mm bore bip taps, fancy type cast copper alloy long body/short body chrommium plated with crutch or butterfly handles, screwed down screwed for iron pipe or brass ferrule and fixed complete all as specified and directed | Each | 16.00 | 607.57 | 9721.12 |
| 3.0 | M&L 15mm bore, Angle/Stop valves, cast copper alloy, fancy type chromium plated screwed down, high pressure, with crutch or butterfly handle, screwed both ends for iron pipe or for unions and fixed complete all as specified and directed. | Each | 50.00 | 682.03 | 34101.50 |
| 4.0 | S & F Gun-metal, globe or gate valves, painted finish with forged brass handle and iron wheel head, screwed both ends internally IS:778 class 2 for iron pipe or for unions of size 25 mm dia complete all as specified and directed. | Each | 14.00 | 587.24 | 8221.36 |

SIGNATURE OF CONTRACTOR

FOR ACCEPTING OFFICER

SCHEDULE 'A' (Contd...)
PART -II: INTERNAL WATER SUPPLY

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|-----|--|---|------|-------|--------|---------|---|---|
| 5.0 | S&F Health faucet (ABS Body) mild steel chromium plated suitable for 15 mm dia pipe with 1.25 metre long flexible tube and ABS wall hook including making connections and fixed in position complete in all respect as specified & directed. | | Each | 12.00 | 441.15 | 5293.80 | | |

Total amount of Sch 'A' Part-II carried over to BOQ

Rs. 153647.78

Note :-

- (1) Pillar taps (Hot & Cold) for WHB, all PVC connections for WHB, Cistern are not included in above schedule. The cost & provision of same may be included with concerned items such as WHB, Cistern, EWC etc.
- (2) Angle Cocks for WHB and Health faucet are considered in above schedule.

SCHEDULE 'A' (Contd...)**PART -III : INTERNAL ELECTRIFICATION**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|-------|---|----------------------------------|-----------|----------------------|-----------------|--------------------|--|-----------------------------------|
| SI No | Description of item of work | Drg No | Unit | No of units required | Rate Rs. Ps. | Total in Rs Ps. | Period of completion of individual items after date of handing over the site | Remarks |
| 1.00 | Material and labour for concealed point wiring for one light point controlled by one switch (using red, black and green colour wires as colour coding) complete with 1.5 sqmm (nominal cross section area) single core FRLSH PVC Insulated unsheathed and multi strand copper conduct cable 1100 Volt (ISI Marked) drawn through and including PVC conduit not less than 20 mm dia (medium duty, ISI Marked) with all fittings and all accessories i.e pipe band, pipe hook, elbow, junction boxes etc, Including pressed steel powder coated sunken terminal box suitable for modular switch socket (minimum 50 mm deep and 1.6 mm thick sheet, suitable size) concealed in wall, including inner and outer plates (cover plate) suitable for fixing the modular switches/ sockets / regulators etc, including provn of 1.5 sqmm single core FRLSH PVC insulated multi strand copper conductor wire continuous as earth wire connected to earth dolly etc. including cutting chases in wall and making good disturb surfaces of wall / ceiling / floor etc by using CM (1:3), including fixing of switch / socket / regulator etc complete all as specified as directed by Engr-in-Charge. | Refer List of drgs for all items | Per Point | 450.00 | 992.75 | 446737.50 | Refer Sch 'A' Notes for all items | Refer Sch 'A' Notes for all items |
| 1.10 | Notes: i) Wiring from DB to switch shall be deemed inclusive in the quoted rates. ii) Sunken modular flush sheet metal enclosures shall be deemed inclusive in the quoted rates. iii) Modular cover plates shall be deemed inclusive in the quoted rates. | | | | | | | |
| 2.00 | All as per item No 1.00 (here-in-before) but One fan/Ext Fan point controlled by one nos, one way switch complete all as specified and directed. | | Per Point | 108.00 | 992.75 | 107217.00 | | |

SIGNATURE OF CONTRACTOR

FOR ACCEPTING OFFICER

SCHEDULE 'A' (Contd...)**PART -III : INTERNAL ELECTRIFICATION**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|-------|--|-----------|--------|---------|-----------|---|---|---|
| 3.00 | All as per item No 1.00 (here-in-before) but One three pin 5/6 Amp socket outlet point on independent board controlled by one no, one way switch on independent board, complete all as specified and directed. | Per Point | 136.00 | 1070.40 | 145574.40 | | | |
| 4.00 | All as per item No 1.00 (here-in-before) but One three pin 5/6 Amp socket outlet point on Same board controlled by one no, one way switch complete all as specified and directed. | Per Point | 64.00 | 284.10 | 18182.40 | | | |
| 5.00 | All as per item No 1.00 (here-in-before) but One light point controlled by two nos, 2- way switches complete all as specified and directed. | Per Point | 8.00 | 1397.96 | 11183.68 | | | |
| 6.00 | All as per item No 1.00 above but point wiring with 4 sq mm single core FRLSH wire and earth continuity wire with 4 Sq mm single core wire (3 runs of wire for phase, earth and neutral), One 3 pin 15/16 amps socket outlet on independent board, complete all as specified and directed. (For AC, Geyser point and instant geyser) | Per Point | 80.00 | 1930.50 | 154440.00 | | | |
| 7.00 | S&F of Modular switch 2 way 10A, 1 module, 230 volts complete all as specified and directed. | Each | 16.00 | 307.30 | 4916.80 | | | |
| 8.00 | S&F of Modular switch 1 way 6A, 1 module, 230 volts complete all as specified and directed. | Each | 758.00 | 260.50 | 197459.00 | | | |
| 9.00 | S&F of Modular switch 1 way 16A, 1 module, 230 volts complete all as specified and directed. | Each | 96.00 | 343.70 | 32995.20 | | | |
| 10.00 | S&F of Modular Socket, 6A - 2/3 pin combined 2 module 230 volts AC complete all as specified and directed. | Each | 200.00 | 340.54 | 68108.00 | | | |
| 11.00 | S & F Socket 6A/16A - 2/3 pin combined 2 module complete all as specified and as directed. | Each | 96.00 | 528.40 | 50726.40 | | | |

SIGNATURE OF CONTRACTOR

FOR ACCEPTING OFFICER

SCHEDULE 'A' (Contd...)**PART -III : INTERNAL ELECTRIFICATION**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|-------|--|---|------|--------|---------|-----------|---|---|
| 12.00 | Supply and fixing ceiling fans complete with blades, down rods, electronic regulator and accessories, 230 V, 1400 mm sweep. Min air delivery 245 CFM with service value 6.00 BEE. Five star rated with brushless direct current motor (BLDC) and electrical connections from ceiling rose to fan terminal including writing the MES Number with synthetic enamel paint complete all as specified and as directed. | | Each | 80.00 | 2649.47 | 211957.60 | | |
| 13.00 | S&F of exhaust fan made of sturdy Engineering plastic complete with louvers shutter, voltage 230V, 50 Hz, RPM 1200, Copper winding of sweep 300mm etc complete all as specified and directed. | | Each | 28.00 | 2535.38 | 70990.64 | | |
| 14.00 | Supply and fixing LED light fitting mirror type with high out put diffuser 2 feet, 10 watt 220 V AC decorative type with driver holder and LED lamp including connecting up with three core flexible copper conductor cable of suitable size complete all as specified and directed. | | Each | 32.00 | 1354.81 | 43353.92 | | |
| 15.00 | Supply & Fixing energy efficient LED light Fitting 20 watt tubelight with led batten fitting providing high brightness and excellent illumination, better lumens and long life, high efficiency and lower power consumption No UV or IR radiation extended aluminium heat sink provided for efficient heat dissipation & integrated electronic driver complete including copper cable 23/0076 for electric connection for fitting from ceiling rose and complete all as specified and as directed by Engr-In-Charge. | | Each | 340.00 | 1305.40 | 443836.00 | | |
| 16.00 | Supply and fixing LED flood light 70 watt 230 V AC outdoor type with thermal management in multiple optics and equipped with IP66 protection, with impact and corrosion resistant complete with driver and lamp and complete all as specified and as directed by Engr-In-Charge. | | Each | 18.00 | 6263.82 | 112748.76 | | |

SCHEDULE 'A' (Contd...)**PART -III : INTERNAL ELECTRIFICATION**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|-------|--|---|------|--------|---------|-----------|---|---|
| 17.00 | Supply and fixing of LED Building Security Light energy efficient 35 Watt environmental friendly long life pressure die cast aluminium IP 66 protection luminous flux 3500lumen with high power leds as light source and electronic driver pre-wired complete with all necessary fittings and fixed on wall with suitable dia bend shape GI pipe light grade of approx length 1.0 mtr with clamp bolts & nuts etc and complete all as specified and as directed by Engr-In-Charge. | | Each | 40.00 | 2966.25 | 118650.00 | | |
| 18.00 | S&F of ceiling rose surface bakelite 65mm x 50mm, 3 terminals with back plate etc complete all as specified and directed. | | Each | 440.00 | 65.70 | 28908.00 | | |
| 19.00 | S&F of Modular Fan step regulator, 2 module 230V as per suitable for BLDC fan and suitable for 1200/1400 mm sweep ceiling fan etc and complete all as specified and as directed by Engr-In-Charge. | | Each | 80.00 | 1017.95 | 81436.00 | | |
| 20.00 | S&F of single pole and neutral enclosure with a two pin and earth plug and socket complete with one single pole and neutral MCB 20 Amps and complete all as specified and as directed by Engr-In-Charge. (for AC point & Geyser point) | | Each | 80.00 | 1817.80 | 145424.00 | | |
| 21.00 | S&F of Sheet metal enclosure distribution board SP&N, 8 way, double door powder coated, protection class IP-42 suitable for mounting MCB DBs confirming to IS-13032, IS-8632,BS5484 with min 200 Amp rating copper bus bar and complete all as specified and as directed by Engr-In-Charge. | | Each | 44.00 | 1912.70 | 84158.80 | | |
| 22.00 | S&F of Sheet metal enclosure distribution board SP&N,4 way, double door powder coated, protection class IP-42 suitable for mounting MCB DBs confirming to IS-13032, IS-8632,BS5484 with min 200 Amp rating copper bus bar and complete all as specified and as directed by Engr-In-Charge. | | Each | 1.00 | 1544.40 | 1544.40 | | |

SIGNATURE OF CONTRACTOR

FOR ACCEPTING OFFICER

SCHEDULE 'A' (Contd...)**PART -III : INTERNAL ELECTRIFICATION**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|-------|---|---|------|--------|---------|----------|---|---|
| 23.00 | S&F of Sheet metal enclosure distribution board TP&N,4 way, double door powder coated, protection class IP-42 suitable for mounting MCB DBs confirming to IS-13032, IS-8632,BS5484 with min 200 Amp rating copper bus bar complete all as specified and directed by Engr-In-Charge. | | Each | 18.00 | 2642.70 | 47568.60 | | |
| 24.00 | Supply and fixing TP 25 To 63 Amps rating 415V, 10KA 'B' curve rupturing capacity, sliding bottom clamp, colour coded on/off indication on dolly, bi-connect IP 20 protected lower terminals and sliding shutters, IS 732: 2019 complete all as specified and directed. Note : (a) Make of the MCB should be the same as that of DB. | | Each | 16.00 | 1697.60 | 27161.60 | | |
| 25.00 | Supply and fixing TPN 40 To 100 Amps rating 415V, 10KA 'B' curve rupturing capacity, sliding bottom clamp, colour coded on/off indication on dolly, bi-connect IP 20 protected lower terminals and sliding shutters, IS 732: 2019 complete all as specified and directed. Note : (a) Make of the MCB should be the same as that of DB. | | Each | 18.00 | 1721.04 | 30978.72 | | |
| 26.00 | Supply and fixing SP 6 to 32Amps rating 240V, 10KA 'C' curve rupturing capacity,sliding bottom clamp, colour coded on/off indication on dolly, bi-connect IP 20 protected lower terminals and sliding shutters, IS 732: 2019 complete all as specified and directed. Note : (a) Make of the MCB should be the same as that of DB. | | Each | 318.00 | 294.00 | 93492.00 | | |
| 27.00 | Supply and fixing SPN 6 to 32Amps rating 240V, 10KA 'C' curve rupturing capacity,sliding bottom clamp, colour coded on/off indication on dolly, bi-connect IP 20 protected lower terminals and sliding shutters, IS 732: 2019 complete all as specified and directed. Note : (a) Make of the MCB should be the same as that of DB. | | Each | 45.00 | 851.20 | 38304.00 | | |

SCHEDULE 'A' (Contd...)**PART -III : INTERNAL ELECTRIFICATION**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|-------|--|---|----|--------|--------|-----------|---|---|
| 28.00 | M&L for M & L for submain wiring using 1.1 kV grade single core FR-LSH flexible cable conforming to IS 694: 2010, having multi-drawn thin strands of electrolytic copper conductors of size 4x6.0 sq. mm +1x6.0 sq. mm earth wire and insulation for phase, neutral and earth continuity conductor connecting to earth dolly, colour-coded as per IS 11353: 1985, drawn in medium grade PVC surface / recessed conduits, conforming to IS 9537 (Part- 3): 1983, of size not less than 25 mm NB, including making good of disturbed surfaces of wall / ceiling / floor as specified in IS 732: 2019 etc complete all as specified and directed by Engineer-in-Charge. Note: Four run of 6 Sqmm copper cable, one run of 6 Sqmm copper cable for earth wire & one run of 25mm dia PVC conduit pipe shall be deemed to be included in the unit rate . | | RM | 280.00 | 392.66 | 109944.80 | | |
| 29.00 | M&L for M & L for submain wiring using 1.1 kV grade single core FR-LSH flexible cable conforming to IS 694: 2010, having multi-drawn thin strands of electrolytic copper conductors of size 2x6.0 sq. mm +1x6.0 sq. mm earth wire and insulation for phase, neutral and earth continuity conductor connecting to earth dolly, colour-coded as per IS 11353: 1985, drawn in medium grade PVC surface / recessed conduits, conforming to IS 9537 (Part- 3): 1983, of size not less than 25 mm NB, including making good of disturbed surfaces of wall / ceiling / floor as specified in IS 732: 2019 etc complete all as specified and directed by Engineer-in-Charge. Note: Two run of 6 Sqmm copper cable, one run of 6 Sqmm copper cable for earth wire & one run of 25mm dia PVC conduit pipe shall be deemed to be included in the unit rate . | | RM | 880.00 | 259.20 | 228096.00 | | |

SCHEDULE 'A' (Contd...)**PART -III : INTERNAL ELECTRIFICATION**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|-------|--|---|------|--------|---------|-----------|---|---|
| 30.00 | M & L for earthing complete with galvanized steel earth plate electrode 60 cm x 60 cm x 6 mm thick buried directly in ground vertically (earth pit not less than 2.25m deep below ground level) with top edge of the plate not less than 1.50 mtr deep below normal ground level, connecting to GI earth wire 4mm dia by means of bolts, nuts, check nuts, and washers of galvanized iron or steel including 15 mm dia. medium grade protection pipe for earth lead complete with charcoal and common salt including watering arrangement with galvanized iron pipe light grade 20 mm dia, PCC Chamber, CI frame and cover, MS funnel with wire mesh all as shown in electrical plate no 3 of SSR part I including excavation and earthwork in any type of soil/strata and testing on completion all as specified and as directed by Engr-In-Charge. | | Each | 41.00 | 6688.40 | 274224.40 | | |
| 32.10 | Note :- i) GI earth wire 4 mm dia and 15 mm dia protection pipe upto 7.5 mtr from earth plate is deemed to be included in rate quoted. ii) Earthing test result must be below 5 ohms and the test result sheet submitted by the contractor to the Engr in Charge. | | | | | | | |
| 31.00 | M&L for earth continuity conductor or main earthing lead fixed to wall on batten or recess or chases or buried in ground or drawn in conduit/pipe or fixed to poles or any other indicated situation for loop earthing etc as required 4mm dia galvanised iron or steel wire complete all as specified and directed. | | RM | 410.00 | 60.20 | 24682.00 | | |

Total of Schedule 'A' Part-III C/O to BOQ

Rs. 3455000.62

SCHEDULE 'A' (Contd...)
PART -III : INTERNAL ELECTRIFICATION

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|

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SCHEDULE 'A' (Contd...)
PART -III : INTERNAL ELECTRIFICATION

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|

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SCHEDULE 'A' (CONTD.....)
PART -IV: HARDSTANDING AND PARKING TILES

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|-------|-----------------------------|--------|------|----------------------|-----------------|--------------------|--|---------|
| SI No | Description of item of work | Drg No | Unit | No of units required | Rate Rs. Ps. | Total in Rs Ps. | Period of completion of individual items after date of handing over the site | Remarks |

Note :- Earth work required for this schedule shall be measured & paid separately under respective part of schedule 'A' Part Part XI

| | | | | | | | | |
|---|---|----------------------------------|-----|---------|---------|------------|-----------------------------------|-----------------------------------|
| 1 | M&L for 100 mm thick, PCC (1:4:8), type D-2, using 40mm graded aggregate crushed stone aggregates as in sub base of floor/pavements, finished fair and even complete all as specified and directed. | Refer List of drgs for all items | Sqm | 7150.00 | 533.00 | 3810950.00 | Refer Sch 'A' Notes for all items | Refer Sch 'A' Notes for all items |
| 2 | M&L for 80mm thick Rubber moulded Machine pressed precast concrete interlocking paver block, any size conforming to IS 15658-2006 of M- 40 grade with gray cement and pigment over sand cushioning, complete, all as specified & directed. Note: Sand Cushioning shall be measured and paid separately under respective item. | | Sqm | 5310.00 | 955.00 | 5071050.00 | | |
| 3 | Sand filling under floors or in foundations and underground cable including watering and consolidation complete all as specified and as directed. Note: Punned thickness only shall be measured and paid. | | Cum | 132.75 | 1974.30 | 262088.33 | | |
| 4 | Providing and laying at or near ground level factory made of size 300x200x450mm kerb stone of M-25 grade cement concrete in position to the required line, level and curvature, jointed with cement mortar 1:3 (1 cement: 3 coarse sand), including making joints with or without grooves (thickness of joints except at sharp curve shall not to more than 5 mm), including making drainage opening wherever required complete all as specified and as directed. | | Cum | 22.50 | 8514.90 | 191585.25 | | |
| 5 | M&L Preparation of new surface of concrete any description over 10cm in width or girth not otherwise described and applying two coats of synthetic enamel paint over a primer etc complete all as specified and as directed. | | SQM | 150.00 | 135.60 | 20340.00 | | |
| 6 | M & L for 150mm dia, reinforced concrete pipes, class NP2, laid and jointed complete with collars complete all as specified and as directed. | | RM | 50.00 | 364.00 | 18200.00 | | |

SIGNATURE OF CONTRACTOR

FOR ACCEPTING OFFICER

SCHEDULE 'A' (CONTD.....)**PART -IV: HARDSTANDING AND PARKING TILES**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|--|---|----|-------|--------|----------|---|---|
| 7 | M&L for 110mm bore PVC (SWR) pipes double socketed, in any length with rubber ring joints, laid in trenches or in floors complete all as specified & directed. | | RM | 50.00 | 430.96 | 21548.00 | | |

Total amount of Sch 'A' Part-IV carried over to BOQ

Rs. 9395761.58

SCHEDULE 'A' (CONTD.....)
PART -V: SEWAGE DISPOSAL

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|-------|-----------------------------|--------|------|----------------------|-----------------|--------------------|--|---------|
| SI No | Description of item of work | Drg No | Unit | No of units required | Rate Rs. Ps. | Total in Rs Ps. | Period of completion of individual items after date of handing over the site | Remarks |

Note :- Earth work required for this schedule shall be measured & paid separately under respective part of schedule 'A' Part Part XI

| | | | | | | | | |
|---|---|----------------------------------|--------------|--------|---------|----------|-----------------------------------|-----------------------------|
| 1 | M & L for 150mm dia, reinforced concrete pipes, class NP2, laid and jointed complete with collars complete all as specified and as directed. | Refer List of drgs for all items | RM | 196.60 | 364.00 | 71562.40 | Refer Sch 'A' Notes for all items | Refer Sch 'A' Notes for all |
| 2 | M&L for plain cement concrete (1:4:8) type D2 (Using 40 mm graded crushed stone aggregate) as in bed to drain pipes including packing under and haunching against the sides of pipe after they are laid and tested for 150 mm bore pipe complete all as specified and directed. | | RM | 196.60 | 455.02 | 89456.93 | | |
| 3 | M&L for PCC (1:4:8) type D2 using 40mm grade stone aggregate in foundation, filling and mass concrete including necessary form work complete all as specified & directed. | | Cum | 2.65 | 5483.10 | 14530.22 | | |
| 4 | M&L for brick work with sub class 'B' old size bricks, straight or curved on plan exc 6m mean radius, built in CM 1:4, complete, all as specified and directed. | | Cum | 11.70 | 5370.50 | 62834.85 | | |
| 5 | S & F for Mild steel 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 0.9mm dia or securing with clips complete all as specified and directed. | | Kg | 137.71 | 82.60 | 11374.85 | | |
| 6 | Cutting into existing manholes for connecting new drains of 150mm, making good to pipe and rendering, cutting out existing benching for and forming branch channel (1/2 round or 3/4 section) in cement concrete 1:2:4 type B-1 smooth finished, and reforming benching as required complete all as specified and directed. | | Each Pipe | 4.00 | 1120.00 | 4480.00 | | |

SIGNATURE OF CONTRACTOR

FOR ACCEPTING OFFICER

SCHEDULE 'A' (CONTD.....)
PART -V: SEWAGE DISPOSAL

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|--|---|-------|--------|----------|----------|------------------|---|---|
| 7 | M & L for precast cement concrete (1:2:4) type B-1 using 20 mm nominal size graded crushed stone aggregate in landings, cover slabs (for man holes etc.) chullah hoods, chajjas, water troughs, mangers, shelves and similar articles with plain faces etc in cement mortar 1:4, complete all as specified & directed Note:- Reinforcement shall be measured and paid separately under respective item of this schedule. | Cum | 0.76 | 11053.80 | 8400.89 | | | |
| 8 | M&L for rendering 15 mm thick on fair faces of brick work or concrete surfaces in cement mortar 1:4 finished even and fair without using extra cement complete all as specified and as directed. | Sqm | 68.85 | 304.24 | 20946.92 | | | |
| 9 | M & L for Extra for forming fair finished drain or channel 30 cm inner girth in cement concrete, using ex- tra cement, including forms, moulds, mired/stopped ends etc complete all as specified and as directed. Note:- For payment purpose only Inner girth shall be measured. | RM | 16.00 | 43.35 | 693.60 | | | |
| 10 | S & F Hand rails, half round or other steel section or core for wind ties for roof including securing bolts; posts and struts in fencing including cutting tops to shape as directed, drilling holes, notching for wire, etc.; flat iron fillets (for securing wire mesh etc.) including all necessary drilling, bolting or riveting, etc., and similar work conforming to Fe-290 Gde E-165, complete all as specified and as directed. | Kg | 150.00 | 103.18 | 15477.00 | | | |
| 11 | M&L Preparation of new steel surfaces of any description, n. exc 10cm in width or girth when unconnected with other painting or when painted in a different tint and applying two coats of synthetic enamel paint over a coat of red oxide primer, complete all as specified and as directed. | 10 RM | 9.40 | 144.10 | 1354.54 | | | |
| 12 | M & L for providing, cement concrete (1:2:4) type B-1 using 20 mm nominal size graded crushed stone aggregate, in roof kerbs or mud stops, rounded or chamfered on edges, complete all as specified and as directed. | Cum | 0.73 | 8369.30 | 6109.59 | | | |
| Total amount of Sch 'A' Part-V carried over to BOQ | | | | | Rs. | <u>307221.78</u> | | |

SCHEDULE 'A' (CONTD.....)
PART -VI :AREA DRAINAGE

| 1 | 2 | 3 | 4 | 5.00 | 6 | 7 | 8 | 9 |
|-------|-----------------------------|--------|------|----------------------|--------------|-----------------|--|---------|
| SI No | Description of item of work | Drg No | Unit | No of units required | Rate Rs. Ps. | Total in Rs Ps. | Period of completion of individual items after date of handing over the site | Remarks |

Note :- Earth work required for this schedule shall be measured & paid separately under respective part of schedule 'A' Part Part XI

| | | | | | | | | |
|---|---|----------------------------------|-----|----------|---------|------------|-----------------------------------|-----------------------------------|
| 1 | M&L for PCC (1:4:8) type D2 using 40mm grade stone aggregate in foundation, filling and mass concrete including necessary form work complete all as specified & directed. | Refer List of drgs for all items | Cum | 60.48 | 5483.10 | 331617.89 | Refer Sch 'A' Notes for all items | Refer Sch 'A' Notes for all items |
| 2 | M&L for providing PCC (1:3:6) type C-2 using 40 mm graded crushed stone aggregate as in surface channels and drains, complete, all as specified and directed. | | Cum | 21.60 | 5924.20 | 127962.72 | | |
| 3 | M&L for brick work with sub class 'B' old size bricks, straight or curved on plan exc 6m mean radius, built in CM 1:4, complete, all as specified and directed. | | Cum | 209.76 | 5370.50 | 1126516.08 | | |
| 4 | M & L for PCC (1:2:4), type B-1, using 20mm graded aggregate crushed stone aggregates in lintels upto 1.5 m clear span, cills, steps; seismic and other similar bands, plinth courses, string courses, lacing courses, parapets and railings railings upto 60 cm in height, copings, kneelers, apex stones, bed plates, kerbs not provided for in Item 04028 of SSR Par-II (2020), water troughs and the like including weathering, slightly rounded or chamfered angles and throating, complete all as specified and directed. | | Cum | 11.04 | 8629.40 | 95268.58 | | |
| 5 | M&L for rendering 15 mm thick on fair faces of brick work or concrete surfaces in cement mortar 1:4 finished even and fair without using extra cement complete all as specified and as directed. | | Sqm | 792.00 | 304.24 | 240958.08 | | |
| 6 | M & L for Extra for forming fair finished drain or channel 30 cm inner girth in cement concrete, using extra cement, including forms, moulds, mired/stopped ends etc complete all as specified and as directed. Note:- For payment purpose only Inner girth shall be measured. | | RM | 480.00 | 43.35 | 20808.00 | | |
| 7 | S&F 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; railings; framework of water tanks and similar work conforming to Fe.290.Gde-E-165 complete all as specified and as directed. | | Kg | 11910.00 | 164.86 | 1963482.60 | | |
| 8 | S & F for Mild steel Square bars 10mm dia and over, cut to length, bent to shape required and conforming to Gde-I, IS-432(Part-I), complete all as specified and directed. | | Kg | 9750.00 | 78.95 | 769762.50 | | |
| 9 | M&L Preparation of new steel surfaces of any description, over 10cm in width or girth not otherwise described and applying two coats of synthetic enamel paint over a coat of red oxide primer, complete all as specified and as directed. | | Sqm | 528.00 | 141.30 | 74606.40 | | |

Total amount of Sch 'A' Part-VI carried over to BOQ

Rs.

4750982.84

SIGNATURE OF CONTRACTOR

FOR ACCEPTING OFFICER

SCHEDULE 'A' (CONTD.....)
PART -VII :BOUNDARY WALL AND STEEL GATE

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|-------|-----------------------------|--------|------|----------------------|-----------------|--------------------|--|---------|
| SI No | Description of item of work | Drg No | Unit | No of units required | Rate Rs. Ps. | Total in Rs Ps. | Period of completion of individual items after date of handing over the site | Remarks |

Note :- Earth work required for this schedule shall be measured & paid separately under respective part of schedule 'A' Part Part XI

| | | | | | | | | |
|---|---|----------------------------------|-----|---------|---------|------------|-----------------------------------|-----------------------------------|
| 1 | M&L for PCC (1:4:8) type D2 using 40mm grade stone aggregate in foundation, filling and mass concrete including necessary form work complete all as specified & directed. | Refer List of drgs for all items | Cum | 48.84 | 5483.10 | 267794.60 | Refer Sch 'A' Notes for all items | Refer Sch 'A' Notes for all items |
| 2 | M&L for brick work with sub class 'B' old size bricks, straight or curved on plan exc 6m mean radius, built in CM 1:4, complete, all as specified and directed. | | Cum | 345.49 | 5370.50 | 1855454.05 | | |
| 3 | M & L for PCC (1:2:4), type B-1, using 20mm graded aggregate crushed stone aggregates in lintels upto 1.5 m clear span, cills, steps; seismic and other similar bands, plinth courses, string courses, lacing courses, parapets and railings railings upto 60 cm in height, copings, kneelers, apex stones, bed plates, kerbs not provided for in Item 04028 of SSR Par-II (2020), water troughs and the like including weathering, slightly rounded or chamfered angles and throating, complete all as specified and directed. | | Cum | 35.39 | 9259.40 | 327690.17 | | |
| 4 | S&F for 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; railings; framework of water tanks and similar work conforming to Fe.290.Gde-E-165 | | Kg | 6174.16 | 164.86 | 1017872.02 | | |
| 5 | M&L for rendering 15 mm thick on fair faces of brick work or concrete surfaces in cement mortar 1:4 finished even and fair without using extra cement complete all as specified and as directed. | | Sqm | 1900.66 | 304.24 | 578256.80 | | |

SIGNATURE OF CONTRACTOR

FOR ACCEPTING OFFICER

SCHEDULE 'A' (CONTD.....)**PART -VII :BOUNDARY WALL AND STEEL GATE**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|----|---|---|-----|--------|---------|----------|---|---|
| 6 | M&L Preparation of new steel surface of any description over 10cm in width or girth not otherwise described and applying two coats of synthetic enamel paint over a coat of red oxide primer zinc chrome primer complete all as specified and as directed. | | Sqm | 258.72 | 141.30 | 36557.14 | | |
| 7 | M & L for 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 flat rough finished surface complete all as specified and as directed. | | Sqm | 8.00 | 316.72 | 2533.76 | | |
| 8 | M & L for formwork to sides of pillars, posts, struts, piers, columns and stanchions complete all as specified and as directed. | | Sqm | 56.00 | 598.08 | 33492.48 | | |
| 9 | M&L for RCC M-25 (Design Mix) using 20mm graded crushed stone aggregate as in foundations, including rafts, footings, foundation beams; plinth beams; bases for columns, etc.; basement slabs, underreamed piles and mass concrete complete all as specified and directed. | | Cum | 4.00 | 7640.60 | 30562.40 | | |
| 10 | M&L for RCC M-25 (Design Mix) using 20mm graded crushed stone aggregate as in Columns, pillars, piers, posts and struts complete all as specified and directed. | | Cum | 6.64 | 8650.20 | 57437.33 | | |
| 11 | S & F for Mild steel 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 0.9mm dia or securing with clips complete all as specified and directed. | | Kg | 400.00 | 82.60 | 33040.00 | | |
| 12 | M&L Mild steel TMT bars 5mm dia and over upto and including 10mm dia in stirrups, spacers and binders complete all as specified and directed. | | Kg | 600.00 | 85.18 | 51108.00 | | |

SIGNATURE OF CONTRACTOR

FOR ACCEPTING OFFICER

SCHEDULE 'A' (CONTD.....)**PART -VII :BOUNDARY WALL AND STEEL GATE**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|----|--|---|-----|---------|---------|-----------|---|---|
| 13 | S&F Framed work for ornamental gate work or 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; railings; framework of water tanks and portions framed and hung as gates, including pintle hinges, stops, hand-made sliding bolts, and similar work conforming to Fe.290.Gde-E-165 and for ornamental and intricate design | | Kg | 3600.00 | 244.47 | 880092.00 | | |
| 14 | M & L for cement concrete, (1:3:6) type C-1, using 20mm graded aggregate crushed stone aggregates in n roof kerbs or mud stops, rounded or chamfered on edgescomplete all as specified and directed. | | Cum | 0.04 | 7656.00 | 306.24 | | |
| 15 | M & L for 20mm 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 rendering in mortar 15 mm thick CM (1:6) for wall surfaces, complete all as specified and directed. | | Cum | 33.60 | 5427.07 | 182349.55 | | |
| 16 | Material & Labour for applying Two or more coats of 100% Premium acrylic emulsion paint having VOC less than 50 gm/litre and UV resistance as per IS 15489:2004, Alkali & fungal resistance, dirt resistance exterior paint of required shade (Company Depot Tinted) with silicon additives @ 1.43 litre/ 10 sqm over and including priming coat of exterior primer applied @ 0.90 litre/ 10sqm over new surfaces. | | Sqm | 1900.66 | 138.11 | 262500.15 | | |

Total amount of Sch 'A' Part-VII carried over to BOQ

Rs. 5617046.68

Signature of Contractor

For Accepting Officer

SCHEDULE 'A' (Contd...)
PART -VIII :EXTERNAL WATER SUPPLY

| 1 | 2 | 3 | 4 | 5 | 6.00 | 7 | 8 | 9 |
|-------|-----------------------------|--------|------|----------------------|-----------------|--------------------|--|---------|
| SI No | Description of item of work | Drg No | Unit | No of units required | Rate Rs. Ps. | Total in Rs Ps. | Period of completion of individual items after date of handing over the site | Remarks |

Note :- Earth work required for this schedule shall be measured & paid separately under respective part of schedule 'A' Part Part XI

| | | | | | | | | |
|---|---|----------------------------------|------|--------|---------|-----------|-----------------------------------|-----------------------------------|
| 1 | Supply & laying steel water tubing medium grade with all fittings laid in trenches in new position as directed of 80 mm bore | Refer List of drgs for all items | RM | 150.00 | 760.45 | 114067.50 | Refer Sch 'A' Notes for all items | Refer Sch 'A' Notes for all items |
| 2 | Supply & laying steel water tubing medium grade with all fittings laid in trenches in new position as directed of 50 mm bore | | RM | 220.00 | 421.20 | 92664.00 | | |
| 3 | Supply & laying steel water tubing medium grade with all fittings laid in trenches/wall in new position as directed of 25 mm bore | | RM | 80.00 | 184.60 | 14768.00 | | |
| 4 | Supply & laying steel water tubing medium grade with all fittings laid in trenches/wall in new position as directed of 20 mm bore | | RM | 80.00 | 158.60 | 12688.00 | | |
| 5 | Supply and fixing of sluice valve of 80mm dia, type PN-1.6 double Flanged cast iron type with brass spindle and iron wheel iron nuts, bolts & washers and rubber insertion sheet conforming to IS specification etc complete and all as specified and directed. | | Each | 1.00 | 9500.00 | 9500.00 | | |
| 6 | Supplying & fixing gun metal gate valves with iron wheel head,screwed both ends for iron pipe, ISI Marked, as per IS: 778 of size 50 mm complete all as specified and as directed. | | Each | 1.00 | 979.08 | 979.08 | | |

SIGNATURE OF CONTRACTOR

FOR ACCEPTING OFFICER

SCHEDULE 'A' (Contd...)
PART -VIII :EXTERNAL WATER SUPPLY

| 1 | 2 | 3 | 4 | 5 | 6.00 | 7 | 8 | 9 |
|---|--|---|------|------|--------|---------|---|---|
| 7 | Supplying & fixing gun metal gate valves with iron wheel head,screwed both ends for iron pipe, ISI Marked, as per IS: 778 of size 25 mm complete all as specified and as directed. | | Each | 5.00 | 587.24 | 2936.20 | | |
| 8 | Supplying & fixing gun metal gate valves with iron wheel head,screwed both ends for iron pipe, ISI Marked, as per IS: 778 of size 20 mm complete all as specified and as directed | | Each | 5.00 | 540.11 | 2700.55 | | |

Total amount of Schedule 'A' Part-VIII carried over to BOQ

Rs. **250303.33**

SCHEDULE 'A' (Contd...)
PART-IX : EXTERNAL ELECTRIFICATION

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|-------|-----------------------------|--------|------|----------------------|-----------------|--------------------|--|---------|
| SI No | Description of item of work | Drg No | Unit | No of units required | Rate Rs. Ps. | Total in Rs Ps. | Period of completion of individual items after date of handing over the site | Remarks |

Note :- Earth work required for this schedule shall be measured & paid separately under respective part of schedule 'A' Part Part XI

| | | | | | | | | |
|---|--|----------------------------------|---------|-------|----------|----------|----------------------------------|----------------------------------|
| 1 | M & L Factory fabricated, pre-stressed concrete poles 11 metre long, 152 mm x 152 mm at top and 152 mm x 260 mm at bottom, class-9 complying with requirements of IS-1678-1978 including necessary painting complete all as specified and directed. | Refer List of drgs for all items | Each | 2.00 | 7060.30 | 14120.60 | Refer List of drgs for all items | Refer List of drgs for all items |
| 2 | M & L for Plain cement concrete in foundation filling type C-2 (1:3:6) (using 40mm graded aggregate) as in foundation filling and mass concrete complete all as specified and directed. | | Cum | 1.18 | 5862 | 6917.16 | | |
| 3 | M & L for Plain cement concrete in type B-1 (1:2:4) (20 mm graded aggregate) as in copings complete all as specified and directed. | | Cum | 0.02 | 9259.40 | 185.19 | | |
| 4 | M & L Lightning arrestor HT 11KV 65 kA Non linear expulsion type transmission class complete with standard fittings conforming to IS-3070 (Part-I) 1985 complete all as specified and directed. | | Per Set | 1.00 | 10694.90 | 10694.90 | | |
| 5 | M & L for Pin type, porcelain, vitreous, white, brown insulator including one galvanised mild steel spindle, two galvanised iron washers and one galvanised iron nut, 150mm height, 150mm dia for 11000 volts grade, complete all as specified and directed. | | Each | 3.00 | 298.40 | 895.20 | | |
| 6 | M&L for 80mm bore Galvanised iron tubing, light grade including accessories such as socket and bend for protection of under ground cable on poles/walls/trench etc, complete all as specified and directed. | | RM | 10.00 | 705.00 | 7050.00 | | |

SIGNATURE OF CONTRACTOR

FOR ACCEPTING OFFICER

SCHEDULE 'A' (Contd...)
PART-IX : EXTERNAL ELECTRIFICATION

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|----|---|---|----------|-------|----------|----------|---|---|
| 7 | Supply , installing ,testing and commissioning of 200 amp rating complete with carriers and HT fuse elements , air break , gang oprated , triple pole switch, outdoor , vertical mounting type (ISI) marked) , mechanically oprated , mounted on insulators and frame work with operating mechanism worked from ground level with locking arrangement including Godrej pattem 65mm pad locks with 2 keys , complete suitable for 11 KV , 50 Hz AC aupply including necessary electric connections, complete all as specified and directed. | | Each Set | 1.00 | 9435.10 | 9435.10 | | |
| 8 | M&L for Cross arms bracings, supports, clamps and back plates fabricated from structural steel sections including nuts, bolts, washer, welding, bending cold or hot, drilling holes for bolts, in any shape or size as indicated or directed and inclusive of one primer coat, one under coat and one finishing coat of paint, complete all as specified and directed. | | Quintal | 1.93 | 11931.40 | 23027.60 | | |
| 9 | M&L Danger notice plate of 1.6 mm thick mild steel sheet vitreous enamelled white, with letters, figures and conventional skull and bones in signal red colour and fixed with MS clamps, bolts and nuts of approved size for HT 11 KV of size 25 x 20 cm. | | Each | 4.00 | 223.80 | 895.20 | | |
| 10 | M&L for 100mm bore Galvanised iron tubing, light grade including accessories such as socket and bend, laid in trenches, complete all as specified and directed. | | RM | 24.00 | 880.00 | 21120.00 | | |
| 11 | M&L for 50mm bore Galvanised iron tubing, light grade including accessories such as socket and bend, for cable protection on pole/wall/trench, complete all as specified and directed. | | RM | 60.00 | 402.00 | 24120.00 | | |
| 12 | Supply & laying in trenches/ duct/ fixing on pole/ STR with suitble size of GI clamp made of GI strip 32 mm x 6 mm and testing cable XLPE insulated, screened, PVC bedded, galvanized steel strip or wire armoured, electric power cable (heavy duty) with aluminium conductor suitable for 11 KV grade of size 3 x 95 Sqmm, cross sectional area. Note:- (a) Earth work, EHV cable cover, sand cushioning & GI pipe will be measured and paid seperately. (b) High voltage test to be conducted at site with suitable voltage before and after laying of HT cable and reading shall be recorded jointly and test report to be submitted in triplicate to the Engineer-in-Charge. The cost of the same shall be deemed to be included in the unit rate quoted above. | | RM | 50.00 | 1067.97 | 53398.50 | | |

SIGNATURE OF CONTRACTOR

FOR ACCEPTING OFFICER

SCHEDULE 'A' (Contd...)
PART-IX : EXTERNAL ELECTRIFICATION

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|----|--|---|----------|------|----------|----------|---|---|
| 13 | Supply and fix cable jointing kit for 11 KV (Earthed) grade for outdoor termination, cold shrink type joint complete with jointing material and accessories suitable for 3 core XLPE, armoured aluminium conductor cable of size 95 Sqmm, complete all as specified and directed. | | Each | 1.00 | 18387.10 | 18387.10 | | |
| 14 | Supply and fix cable jointing kit for 11 KV (Earthed) grade for indoor termination, cold shrink type joint complete with jointing material and accessories suitable for 3 core XLPE, armoured aluminium conductor cable of size 95 Sqmm, complete all as specified and directed. | | Each | 1.00 | 17513.10 | 17513.10 | | |
| 15 | M & L for Earthing complete with galvanised steel earth plate electrode 60cm×60cm× 6mm thick, buried directly in ground (earth pit not less than 2.25 metres deep below ground level) with top edge of the plate not less than 1.5 metres below normal ground level, connected to galvanised earth lead wire 4.0mm dia by means of bolts, nuts, check nuts and washers of galvanised iron or steel all as shown in electrical plate No. 3 SSR Part-I 2009 and specified or indicated including excavation and earth work in any type of soil PCC (1:3:6) type C1 in chamber, precast RCC 50mm thick in cement concrete (1:2:4) type B1, reinforced with welded steel wire fabric or XPM (Weight not less than 4.00 Kg/Square metre) with PCC frame, funnel with wire mesh, 20mm bore medium grade GI watering pipe, lugs, 15mm mm bore medium grade GI protection pipe, test point etc complete all as specified and directed. Note:- (i) Item includes the cost of 7.5 metre GI pipe for protection of earth lead. (ii) Item includes the cost of 7.5 metre GI earth lead. | | Each Set | 3.00 | 6688.40 | 20065.20 | | |

SCHEDULE 'A' (Contd...)
PART-IX : EXTERNAL ELECTRIFICATION

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|----|---|---|------|--------|---------|-----------|---|---|
| 16 | Material & labour in repairs earthing complete with galvanised steel earth electrode 60cmx60cmx6mm buried directly in ground vertically to depth not less than 2.25m below normal ground level with top edge of the earth plate at a depth not less than 1.5m below ground level connected to and including GI earth strip 32mm x 6 mm, by means of nuts, bolts, check nuts and washer etc, made of GI and connected to test point and earth dolly all as shown in electrical plate No. 3 SSR Part-I 2009 and specified or indicated including excavation and earthwork in any type of soil PCC (1:3:6) Type C1 in chamber, precast RCC 50 mm thick in cement concrete (1:2:4) type B1, reinforced with welded steel wire fabric or XPM (Weight not less than 4.00 Kg/Square metre) with cast iron frame, funnel with wire mesh, 20mm bore medium grade GI watering pipe, lugs, 40 mm bore medium grade GI protection pipe, test point etc. complete all as specified and directed. NOTE :- The rate of above Item includes the cost of earth lead and GI protection pipe up to 7.5 Metres. | | Each | 14.00 | 7572.90 | 106020.60 | | |
| 17 | S&F Earth continuity conductor or main earthing lead fixed to wall on batten or recess or chases or buried in ground or drawn in conduit/pipe or fixed to poles or any other indicated situation for loop earthing etc. as required, GI strip 32 x 6 mm, complete all as specified and directed. | | RM | 30.00 | 230.80 | 6924.00 | | |
| 18 | Supply and lay XLPE insulated, armoured heavy duty electric cable with aluminium conductor, 1100 volts grade, of size 240 sqmm 3.5 core, complete all as specified and directed. | | RM | 20.00 | 1168.69 | 23373.80 | | |
| 19 | Supply and lay XLPE insulated, armoured heavy duty electric cable with aluminium conductor, 1100 volts grade, of size 185 sqmm 3.5 core, complete all as specified and directed. | | RM | 200.00 | 937.13 | 187426.00 | | |
| 20 | Supply and lay XLPE insulated, armoured heavy duty electric cable with aluminium conductor, 1100 volts grade, of size 70 sqmm 3.5 core, complete all as specified and directed. | | RM | 420.00 | 443.89 | 186433.80 | | |
| 21 | Supply and lay XLPE insulated, armoured heavy duty electric cable with aluminium conductor, 1100 volts grade, of size 50 sqmm 3.5 core, complete all as specified and directed. | | RM | 240.00 | 337.52 | 81004.80 | | |
| 22 | Supply and lay XLPE insulated, armoured heavy duty electric cable with aluminium conductor, 1100 volts grade, of size 35 sqmm 3.5 core, complete all as specified and directed. | | RM | 360.00 | 269.75 | 97110.00 | | |

SCHEDULE 'A' (Contd...)
PART-IX : EXTERNAL ELECTRIFICATION

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|----|--|---|------|---------|---------|-----------|---|---|
| 23 | Supply and lay XLPE insulated, armoured heavy duty electric cable with aluminium conductor, 1100 volts grade, of size 25 sqmm 4 core, complete all as specified and directed. | | RM | 240.00 | 249.04 | 59769.60 | | |
| 24 | Supply and lay XLPE insulated, armoured heavy duty electric cable with aluminium conductor, 1100 volts grade, of size 16 sqmm 4 core, complete all as specified and directed. | | RM | 360.00 | 193.50 | 69660.00 | | |
| 25 | Sand filling under floors or in foundations and underground cable including watering and consolidation complete all as specified and as directed. Note: Punned thickness only shall be measured and paid. | | Cum | 127.30 | 1974.30 | 251328.39 | | |
| 26 | Supplying and laying un-reinforced precast concrete cable cover, Class LV, Type I, flat, size 250mm x 150mm x 40mm confirming to IS -5820, complete all as specified and as directed. | | Each | 9800.00 | 44.20 | 433160.00 | | |
| 27 | Supplying and laying un-reinforced precast concrete cable cover, Class HVP, Type I with peak, size 300mm x 180mm x 40mm, complete all as specified and directed. | | Each | 139.00 | 85.40 | 11870.60 | | |
| 28 | Supply and fixing LED street light fitting 65 Watt 230 V AC outdoor type with high pressure die cast aluminum hosing and heat resistant complete with driver, lamp bracket with impact and corrosion resistant including thermal management in multiple optics complete with IP 65/66 protection complete all as specified and directed. | | Each | 18.00 | 5459.53 | 98271.54 | | |

Total amount of Schedule 'A' Part-IX carried over to BOQ

Rs. **1840177.98**

SCHEDULE 'A' (CONTD.....)**SCHEDULE 'A' PART -X: DEMOLITION AND DISMANTLING WORK**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|--------|----------|----------------------|--------------|-----------------|----------------------|---------|
| SI No | Description of item of work | Drg No | Unit | No of units required | Rate Rs. Ps. | Total in Rs Ps. | Period of completion | Remarks |
| <u>UNDER SITE CLEARANCE & AREA DEVELOPMENT</u> | | | | | | | | |
| 1.0 | Demolition of cement concrete/ bituminous road/WBM/Soiling layer etc of any description and in any position not otherwise specifically provided for complete including removal from site all as specified and directed. | | Cum | 210.00 | 1631.30 | 342573.00 | | |
| 2.0 | Demolition of reinforced cement concrete/Pre cast RCC articles or as in lintel band/ cantilever, chajjah, pillars and other suspended work etc of any description and in any position not otherwise specifically provided for complete including removal from site all as specified and directed. | | Cum | 12.00 | 2886.80 | 34641.60 | | |
| 3.0 | Demolition of Stone slabs and tiles of any description or thickness in floors, aprons etc., laid, bedded and pointed in any mortar including removal from site complete all as specified and directed | | X SQM | 100.00 | 616.30 | 61630.00 | | |
| 4.0 | Dismantling of Stone slabs and tiles of any description or thickness in floors, aprons etc., laid, bedded and pointed in any mortar, complete all as specified and directed | | X SQM | 60.00 | 695.60 | 41736.00 | | |
| 5.0 | Demolition of Brickwork or stone/boulder masonry, built in cement mortar including all quoins, arches, pillars, etc, but excluding ashlar facings, dressed stonework and precast concrete articles including removal from site complete all as specified and directed | | Cum | 176.00 | 1641.94 | 288981.44 | | |
| 6.0 | Dismantling wrought iron or mild steel work of any description not otherwise provided for including removal from site complete all as specified and directed | | Qtl | 5.00 | 574.90 | 2874.50 | | |
| <u>UNDER EXTERNAL ELECTRIFICATION</u> | | | | | | | | |
| 7.0 | Dismantling existing old u/s steel tubular LT pole including disconnection of cables, junction box and connected accessories as specified and directed by Engg-in-Charge | | Each | 23.00 | 882.60 | 20299.80 | | |
| 8.0 | Dismantling of old u/s concrete poles/struts any size including disconnection of old cables, junction box and connected accessories or conductor all as specified and directed by Engg-in-Charge | | Each | 3.00 | 1300.60 | 3901.80 | | |
| 9.0 | Dismantling of old unsv cross arms of MS channel or angle sections etc all as specified and directed by Engg-in-Charge | | Qtl | 0.80 | 130.10 | 104.08 | | |

SCHEDULE 'A' (CONTD.....)**SCHEDULE 'A' PART -X: DEMOLITION AND DISMANTLING WORK**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|--|---|-----------|--------|---------|----------|---|---|---|
| 10.0 | Disconnection and dismantling and taking down of any wattage or size street light fitting and its accessories and deposit to MES Store yard. | Each | 26.00 | 235.60 | 6125.60 | | | |
| <u>UNDER DEMOLITION OF BUILDING NO. P-241</u> | | | | | | | | |
| 11.0 | Taking down Chowkhats or frames exc 1.5 sq. m but n exc 4 sq. m each with shutters (without taking off shutters from the frames) complete all as specified and directed | Each | 4.00 | 357.30 | 1429.20 | | | |
| 12.0 | Dismantling of Stone slabs in roofs, suspended floors, chajjas, landings, etc., any thickness, jointed in any mortar | Sqm | 98.00 | 91.20 | 8937.60 | | | |
| 13.0 | Demolition of Brickwork or stone/boulder masonry, built in cement mortar including all quoins, arches, pillars, etc, but excluding ashlar facings, dressed stonework and precast concrete articles, complete all as specified and directed | Cum | 54.00 | 1641.94 | 88664.76 | | | |
| 14.0 | Demolition of Concrete (unreinforced) in ground floors and pavings n exc 15 cm thickness (below or above ground level), complete all as specified and directed | Cum | 14.50 | 1379.50 | 20002.75 | | | |
| 15.0 | Taking down copper/aluminium point wiring (light, fan, socket or power) complete, including fixture and fittings such as switches, ceiling roses, pendants, regulators, sockets, light fitting, bell ding dong etc. removing materials to store for keeping in safe custody or for taking credit (credit for above items should be made as per conditions separately) and making good disturbed surfaces of walls, floors, etc., complete all as specified and directed | Per Point | 115.00 | 152.00 | 17480.00 | | | |
| <u>UNDER DEMOLITION OF BUILDING NO. P-288</u> | | | | | | | | |
| 16.0 | Dismantling of PVC/Cement water storage tanks capacity exc 250 litre but not exc 500 litre, complete all as specified and directed | Each | 4.00 | 752.24 | 3008.96 | | | |
| 17.0 | Taking down steel tubing and connections of 15mm bore, complete all as specified and directed | RM | 14.00 | 30.25 | 423.50 | | | |
| 18.0 | Taking down steel tubing and connections of 20mm bore, complete all as specified and directed | RM | 45.20 | 36.62 | 1655.22 | | | |
| 19.0 | Dismantling of Cast Iron pipes, complete all as specified and directed | RM | 14.00 | 55.00 | 770.00 | | | |
| 20.0 | Taking down Chowkhats or frames n exc 1.5 sqm each with shutters (without taking off shutters from the frames) complete all as specified and directed | Each | 28.00 | 178.60 | 5000.80 | | | |

SCHEDULE 'A' (CONTD.....)**SCHEDULE 'A' PART -X: DEMOLITION AND DISMANTLING WORK**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|--|---|---|-----------|--------|---------|-----------|---|---|
| 21.0 | Taking down Chowkhats or frames exc 1.5 sq. m but n exc 4 sq. m each with shutters (without taking off shutters from the frames) complete all as specified and directed | | Each | 32.00 | 357.30 | 11433.60 | | |
| 22.0 | Demolition of reinforced cement concrete/Pre cast RCC articles or as in lintel band/ cantilever, chajjah, pillars and other suspended work etc of any description and in any position not otherwise specifically provided for complete including removal from site all as specified and directed. | | Cum | 61.47 | 2886.80 | 177451.60 | | |
| 23.0 | Demolition of Brickwork or stone/boulder masonry, built in cement mortar including all quoins, arches, pillars, etc, but excluding ashlar facings, dressed stonework and precast concrete articles, complete all as specified and directed | | Cum | 206.50 | 1641.94 | 339060.61 | | |
| 24.0 | Demolition of Concrete (unreinforced) in ground floors and pavings n exc 15 cm thickness (below or above ground level), complete all as specified and directed | | Cum | 45.78 | 1379.50 | 63153.51 | | |
| 25.0 | Taking down copper/aluminium point wiring (light, fan, socket or power) complete, including fixture and fittings such as switches, ceiling roses, pendants, regulators, sockets, light fitting, bell ding dong etc. removing materials to store for keeping in safe custody or for taking credit (credit for above items should be made as per conditions separately) and making good disturbed surfaces of walls, floors, etc., complete all as specified and directed | | Per Point | 312.00 | 152.00 | 47424.00 | | |
| <u>UNDER DEMOLITION OF BUILDING NO. P-305</u> | | | | | | | | |
| 26.0 | Taking down Chowkhats or frames n exc 1.5 sqm each with shutters (without taking off shutters from the frames) complete all as specified and directed | | Each | 3.00 | 178.60 | 535.80 | | |
| 27.0 | Demolition of reinforced cement concrete/Pre cast RCC articles or as in lintel band/ cantilever, chajjah, pillars and other suspended work etc of any description and in any position not otherwise specifically provided for complete including removal from site all as specified and directed. | | Cum | 60.00 | 2886.80 | 173208.00 | | |
| 28.0 | Demolition of Brickwork or stone/boulder masonry, built in cement mortar including all quoins, arches, pillars, etc, but excluding ashlar facings, dressed stonework and precast concrete articles, complete all as specified and directed | | Cum | 81.00 | 1641.94 | 132997.14 | | |

SCHEDULE 'A' (CONTD.....)**SCHEDULE 'A' PART -X: DEMOLITION AND DISMANTLING WORK**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|--|---|-----------|--------|---------|-----------|---|---|---|
| 29.0 | Dismantling of Wall and ceiling boards (fibre, pulp, insulation, etc.) or insulation boards/ slabs/ blankets, any thickness, including cover fillets, complete all as specified and directed | Cum | 400.00 | 41.60 | 16640.00 | | | |
| 30.0 | Demolition of Concrete (unreinforced) in ground floors and pavings n exc 15 cm thickness (below or above ground level), complete all as specified and directed | Cum | 60.00 | 1379.50 | 82770.00 | | | |
| 31.0 | Taking down copper/aluminium point wiring (light, fan, socket or power) complete, including fixture and fittings such as switches, ceiling roses, pendants, regulators, sockets, light fitting, bell ding dong etc. removing materials to store for keeping in safe custody or for taking credit (credit for above items should be made as per conditions separately) and making good disturbed surfaces of walls, floors, etc., complete all as specified and directed | Per Point | 47.00 | 152.00 | 7144.00 | | | |
| <u>UNDER DEMOLITION OF BUILDING NO. P-289</u> | | | | | | | | |
| 32.0 | Dismantling of PVC/Cement water storage tanks capacity exc 250 litre but not exc 500 litre, complete all as specified and directed | Each | 4.00 | 752.24 | 3008.96 | | | |
| 33.0 | Taking down steel tubing and connections of 15mm bore, complete all as specified and directed | RM | 14.00 | 30.25 | 423.50 | | | |
| 34.0 | Taking down steel tubing and connections of 20mm bore, complete all as specified and directed | RM | 45.20 | 36.62 | 1655.22 | | | |
| 35.0 | Dismantling of Cast Iron pipes, complete all as specified and directed | RM | 14.00 | 55.00 | 770.00 | | | |
| 36.0 | Taking down Chowkhats or frames n exc 1.5 sqm each with shutters (without taking off shutters from the frames) complete all as specified and directed | Each | 28.00 | 178.60 | 5000.80 | | | |
| 37.0 | Taking down Chowkhats or frames exc 1.5 sq. m but n exc 4 sq. m each with shutters (without taking off shutters from the frames) complete all as specified and directed | Each | 32.00 | 357.30 | 11433.60 | | | |
| 38.0 | Demolition of reinforced cement concrete/Pre cast RCC articles or as in lintel band/ cantilever, chajjah, pillars and other suspended work etc of any description and in any position not otherwise specifically provided for complete including removal from site all as specified and directed. | Cum | 61.47 | 2886.80 | 177451.60 | | | |

SCHEDULE 'A' (CONTD.....)**SCHEDULE 'A' PART -X: DEMOLITION AND DISMANTLING WORK**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|-----------|--------|---------|-----------|---|---|---|
| 39.0 | Demolition of Brickwork or stone/boulder masonry, built in cement mortar including all quoins, arches, pillars, etc, but excluding ashlar facings, dressed stonework and precast concrete articles, complete all as specified and directed | Cum | 206.50 | 1641.94 | 339060.61 | | | |
| 40.0 | Demolition of Concrete (unreinforced) in ground floors and pavings n exc 15 cm thickness (below or above ground level), complete all as specified and directed | Cum | 45.78 | 1379.50 | 63153.51 | | | |
| 41.0 | Taking down copper/aluminium point wiring (light, fan, socket or power) complete, including fixture and fittings such as switches, ceiling roses, pendants, regulators, sockets, light fitting, bell ding dong etc. removing materials to store for keeping in safe custody or for taking credit (credit for above items should be made as per conditions separately) and making good disturbed surfaces of walls, floors, etc., complete all as specified and directed | Per Point | 312.00 | 152.00 | 47424.00 | | | |
| <u>UNDER EXTERNAL WATER SUPPLY</u> | | | | | | | | |
| 42 | Taking out cast iron/ductile iron Bore of 100 mm dia pipe to water mains (including all fittings), complete all as specified and as directed. | RM | 100.00 | 45.00 | 4500.00 | | | |
| 43 | Taking out cast iron/ductile iron Bore of 150 mm dia pipe to water mains (including all fittings), complete all as specified and as directed. | RM | 20.00 | 90.00 | 1800.00 | | | |
| 44 | Taking out GI pipe up to 50 mm dia steel tubing and connections, including cleaning for re fixing or removal to store complete all as specified and as directed. | RM | 100.00 | 49.20 | 4920.00 | | | |

Total amount of Sch 'A' Part-X carried over to Schedule of Works (BOQ)

2662660.67

Signature of Contractor

For Accepting Officer

SCHEDULE 'A' (CONTD.....)**SCHEDULE 'A' PART -XI: SITE CLEARANCE, SITE DEVELOPMENT AND EARTH WORK**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|-------|-----------------------------|--------|------|----------------------|--------------|-----------------|--|---------|
| SI No | Description of item of work | Drg No | Unit | No of units required | Rate Rs. Ps. | Total in Rs Ps. | Period of completion of individual items after date of handing over the site | Remarks |

Note:- This schedule is applicable for schedule 'A' Part IV, V, VI, VII, VIII & IX

| | | | | | | | | |
|---|---|--|-----|---------|--------|-----------|--|--|
| 1 | Surface dressing not exc 15 cm deep in soft and loose soil, complete all as specified & directed | | Sqm | 8650.00 | 26.90 | 232685.00 | | |
| 2 | Rough excavation not exceeding 1.5 m deep and getting out in soft/ loose soil, complete all as specified & directed | | Cum | 180.00 | 179.10 | 32238.00 | | |
| 3 | Earth work in excavation (All kind of Soil) by mechanical means (Hydraulic excavator) means over areas (exceeding 30 cm in depth, 1.5 m in width as well as 10 sqm on plan) including getting out and disposal of excavated earth lead upto 50 m and lift upto 1.5m, acomplete all as specified and directed | | Cum | 180.00 | 166.62 | 29991.60 | | |
| 4 | Earth work in excavation by mechanical means (Hydraulic excavator)/ in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan), including dressing of sides and ramming of bottoms, lift upto 1.5 m, including getting out the excavated all kind of soil and disposal of surplus excavated soil as directed, within a lead of 50 m complete all as specified and as directed. | | Cum | 1626.20 | 228.55 | 371668.01 | | |
| 5 | Removing excavated soil/material n exc. 50m and depositing where directed at a level n exc. 1.5 m above the starting point in soft/ loose soil, complete all as specified and directed. | | Cum | 1361.80 | 320.40 | 436320.72 | | |
| 6 | Removing excavated soil/material exc. 1.5 km but n. exc 5km and depositing where directed, complete all as specified and directed. | | Cum | 286.69 | 684.60 | 196267.97 | | |
| 7 | Removing excavated soil/material exc. 250m but n. exc 500m and depositing where directed at a level n exc. 1.5 m above the starting point complete all as specified and directed. | | Cum | 867.13 | 582.60 | 505189.94 | | |

SIGNATURE OF CONTRACTOR

FOR ACCEPTING OFFICER

SCHEDULE 'A' (CONTD.....)**SCHEDULE 'A' PART -XI: SITE CLEARANCE, SITE DEVELOPMENT AND EARTH WORK**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|----------|---------|---------|-----------------------|---|---|
| 8 | Returning, filling in, including spreading, levelling, watering and well ramming in layers not exceeding 25 cm in any type of soil complete all as specified and as directed. | | Cum | 247.50 | 139.10 | 34427.25 | | |
| 9 | Forming embankments including raising (or lowering) earth, spreading in layers n exc. 30 cm thick; watering, ramming/rolling and finishing to required size, shape, etc., n exc. 1.5 m high from base, including removing excavated material n exc. 50m and depositing where directed at a level n exc. 1.5 m above the starting point complete all as specified and as directed. | | Cum | 270.00 | 488.50 | 131895.00 | | |
| 10 | M & L for hardcore (broken stone or boulders) of gauge not exceeding 63 mm, deposited, spread and levelled in layers not exceeding 15 cm thick, watered and rammed to a true surface complete all as specified and as directed. | | Cum | 1072.50 | 2070.80 | 2220933.00 | | |
| 11 | Removal of debris outside MD land in low lying area upto a distance of 2km | | Per load | 4.00 | 130.00 | 520.00 | | |
| Total amount of Sch 'A' Part-XI carried over to BOQ | | | | | | Rs. 4192136.49 | | |

(SCHEDULE OF CREDIT)

1. All the unserviceable items/materials included in this schedule shall become property of the contractor and shall not be allowed to re-use in the work and be removed for the site of work after affecting the recovery from the RAR's only with prior permission of the Engineer-in-Charge.
2. The rates inserted by the Department under column 5 are after assessing the value of dismantled materials and shall be treated as firm. However the contractor shall no have any claim whatsoever if the actual value of dismantled materials works out to be different than inserted by the Department.
3. This schedule shall be treated as firm for the purpose of acceptance of tender. However, actual quantity of items obtained during execution of work will be measured and paid. No claim, what-so-ever, on such variation in quantities will be entertained from the contractor.
4. Credit for the materials obtained will be deducted for the ensuring RARs and amount in excess of the credit only will be paid through RARs.
5. All the serviceable/ valuable materials/items obtained during execution of the work, other than that included in this schedule, shall be handed over to the Engineer-in-Charge at his store yard situated at GE Hisar
6. Weight for recovery purposes shall be considered standard weight as per IS / hand book / MES SSR.

| S. No | Description of Item/Material | Unit | Qty | Rate | Total in Rs | Remarks |
|-------|--|---------|---------|------------|------------------|---------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| | UNDER SITE CLEARANCE & AREA DEVELOPMENT | | | | | |
| 1 | Old unserviceable reinforcement bars/ round bars, iron scrap | Kg | 1000.00 | 20.00 | 20000.00 | |
| 2 | Old unserviceable block/stone masonry or brick bats | Cum | 176.00 | 250.00 | 44000.00 | |
| 3 | Old unserviceable interlocking paver blocks/ chequered tiles any size | Sqm | 500.00 | 20.00 | 10000.00 | |
| | UNDER EXTERNAL ELECTRIFICATION | | | | | |
| 4 | Old unserviceable GI wire of any size/type | Per Qtl | 0.10 | 1200.00 | 120.00 | |
| 5 | Old unserviceable cross arms of any size/type | Per Qtl | 0.80 | 1500.00 | 1200.00 | |
| 6 | Old unserviceable Insulator of any size | Each | 10.00 | 5.00 | 50.00 | |
| 7 | Old unserviceable stay assembly of any size/type | Each | 1.00 | 500.00 | 500.00 | |
| 8 | Old unserviceable cable of any size/type | RM | 500.00 | 25.00 | 12500.00 | |
| 9 | Old unserviceable MCCB of any size/type | Each | 10.00 | 100.00 | 1000.00 | |
| 10 | Old unserviceable Earthing | Each | 23.00 | 200.00 | 4600.00 | |
| 11 | Old unserviceable LT Panel | Each | 6.00 | 1000.00 | 6000.00 | |
| 12 | Old unserviceable Steel LT Pole 9mtr | Each | 23.00 | 6525.00 | 150075.00 | |
| 13 | Old unserviceable RCC Pole | Each | 3.00 | 200.00 | 600.00 | |
| | UNDER DEMOLITION OF BUILDINGS (P-241, P-288, P-305, P-289) | | | | | |
| 14 | Old Scrap Iron | Kg | 1400.00 | 25.00 | 35000.00 | |
| 15 | Old Bricks/ Stone boulder | Cum | 548.50 | 500.00 | 274250.00 | |
| 16 | Old chowkhats with shutter without taking off shutter n exc 1.50 Sqm each complete | Each | 56.00 | 250.00 | 14000.00 | |
| 17 | Old chowkhats with shutter without taking off shutter exc 1.50 Sqm n exc 4.0 sqm each complete | Each | 75.00 | 350.00 | 26250.00 | |
| 18 | Old GI tubes 15mm bore | RM | 28.00 | 40.00 | 1120.00 | |
| 19 | Old GI tubes 15mm bore | RM | 90.20 | 50.00 | 4510.00 | |
| 20 | Old cupboard shutter | Each | 32.00 | 1000.00 | 32000.00 | |
| 21 | Old PVC tanks capacity 500 litres | Each | 8.00 | 550.00 | 4400.00 | |
| 22 | Old CP fittings | Each | 20.00 | 10.00 | 200.00 | |
| 23 | Old Stone Patti | Sqm | 98.00 | 50.00 | 4900.00 | |
| 24 | Old Ceiling Board | Sqm | 400.00 | 15.00 | 6000.00 | |
| 25 | Old unserviceable point wiring | Each | 786.00 | 20.00 | 15720.00 | |
| 26 | Old unserviceable switches | Each | 786.00 | 2.00 | 1572.00 | |
| 27 | Old unserviceable sockets | Each | 71.00 | 5.00 | 355.00 | |
| 28 | Old unserviceable ceiling rose | Each | 229.00 | 2.00 | 458.00 | |
| 29 | Old unserviceable ding dong bell | Each | 8.00 | 13.00 | 104.00 | |
| 30 | Old unserviceable tube light fittings | Each | 200.00 | 40.00 | 8000.00 | |
| 31 | Old unserviceable DBs | Each | 37.00 | 50.00 | 1850.00 | |
| 32 | Old unserviceable MCBs | Each | 219.00 | 5.00 | 1095.00 | |
| 33 | Old unserviceable submain wiring | RM | 1700.00 | 5.00 | 8500.00 | |
| | UNDER EXTERNAL WATER SUPPLY | | | | | |
| 34 | Old unserviceable cast iron/ ductile iron pipe of 100mm dia | RM | 100.00 | 150.00 | 15000.00 | |
| 35 | Old unserviceable cast iron/ ductile iron pipe of 150mm dia | RM | 20.00 | 200.00 | 4000.00 | |
| 36 | Old unserviceable GI pipe of upto 50mm dia | RM | 100.00 | 70.00 | 7000.00 | |
| | Total amount of schedule of Credit | | | Rs. | 716929.00 | |
| | Note :- This amount shall be deducted from the amount quoted by the contractor in Schedule of works | | | | | |

Signature of contractor

For Accepting officer

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

| Ser No | Particulars | Rates at which stores will be issued to the contractor | | Place of issue (by name for all items) | Remarks |
|--------|-------------|--|------|--|---------|
| | | Unit | Rate | | |
| 1 | 2 | 3 | 4 | 5 | 6 |

-----NIL-----

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)

| S. No. | Qty | Particulars | Details of MES crew supplied | Hire charges per unit per working day | Stand by charges per unit per off day | Place of issue (by name) | Remarks |
|--------|-----|-------------|------------------------------|---------------------------------------|---------------------------------------|--------------------------|---------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |

-----NIL-----

SCHEDULE 'D'**TRANSPORT TO BE HIRED TO THE CONTRACTOR**
(See condition 16 & 35 of IAFW-2249)

| SN | Qty | Particulars | Rate per unit per working day | Place of issue (by name) | Remarks |
|----|-----|-------------|-------------------------------|--------------------------|---------|
| 1 | 2 | 3 | 4 | 5 | 6 |

----- NIL -----

SIGNATURE OF CONTRACTOR

FOR ACCEPTING OFFICER

TENDER

To

The President of India

Having examined and perused the following documents

1. Specifications signed by the AD (Contracts).
2. Drawings detailed in particular specifications.
3. Schedule 'A', 'B', 'C' & 'D' attached hereto.
4. MES Standard Schedule of Rates 2009 (Part-I) 'Specifications' together with amendments No 1 to 3 and Standard Schedule of Rates 2020 (Part-II) 'Rates' together with amendments No 1 to 122 for Part-II here in after referred as the MES Schedule.
5. General Conditions of Contracts IAFW-2249 (1989 Print) together with amendments No 1 to 49 and errata 1 to 20
6. Refer water condition 31 of IAFW-2249 General Conditions of Contracts. :-
Water will be supplied by the MES.
7. Should this tender be accepted:-

I/We agree:-

- (a)* That the sum of **Rs 8,62,500.00** (Rupees **Eight lakh sixty two thousand five hundred only**) forwarded as earnest money shall be retained as part of performance security deposit or be refunded by the Government on receipt of the appropriate amount of Performance security deposit all as per condition 19 of IAFW-2249
- (b) To execute all the works referred to in said documents upon the terms and conditions contained or referred to therein at the item rates contained in the aforesaid Schedule 'A' or at such other rates as may be fixed under the provisions of Condition 62 of IAFW-2249 and to carry out such deviations as may be ordered vide condition 7 of IAFW-2249 up to a maximum of 10 (TEN) present and further agree to refer all disputes, as required by Condition 70 to the sole arbitration of an serving Officer having degree in Engineering or equivalent or having passed final/direct final examination of sub division II of Institution of Surveyor (INDIA) recognised by the Government of India to be appointed by Engineer-in-Chief or in his absence the officer officiating as Engineer-in-Chief or Director General of works, if specifically delegated in writing by Engineer-in-Chief, Army Headquarters, New Delhi, whose decision shall be final, conclusive and binding.

* To be deleted which is not applicable

SIGNATURE OF CONTRACTOR

FOR ACCEPTING OFFICER

Signature _____ Name _____ in the capacity of _____
_____duly authorised to sign the
tender for and on behalf of _____ (IN BLOCK CAPITAL).

Witness -----

Dated -----

Address -----

Postal Address -----

Telephone No -----

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 initialled by the contractor and _____

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

The above tender is accepted by me on behalf of the President of India for the contract sum of Rs. _____ (Rupees _____)
_____)

On the _____ day of _____.

Appointment

Chief Engineer Jaipur Zone,
Power House Road, Bani Park
Jaipur-302006

FOR AND ON BEHALF OF THE PRESIDENT OF INDIA

GENERAL CONDITIONS OF CONTRACTS
FOR
LUMPSUM CONTRACTS (IAFW-2159)

1. A copy of the General Conditions of Contracts (IAFW-2249-1989 Print) with errata 1 to 20 and amendments No 1 to 49 as been supplied to me/us and is in my/our possession. I/We have read and understood the provisions contained in the aforesaid general conditions of contracts before submission of this tender and I/We agree that I/We shall abide by the terms and conditions therefore, as modified, if any, elsewhere in these tender documents.
2. It is hereby further agreed and declared by me/us, that the General Conditions of Contracts (IAFW-2249-1989 Print) including Condition 70 thereof pertaining to settlement of disputes by arbitration, containing 33 pages, with errata 1 to 20 and amendments No 1 to 49 form part of these tender documents.

Note:-

- (i) The documents mentioned above can also be seen in the office of the Chief Engineer, Jaipur Zone, Jaipur – 302 006 or in any other MES (CWE/GE) office during working hours.
3. The existing description of condition 70 of IAFW-2249 shall be substituted by the revised description as mentioned in tender pages 128 & 129 here-in-after.

SIGNATURE OF CONTRACTOR

FOR ACCEPTING OFFICER

Condition 70 of IAFW 2249**1. Arbitration.****(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.

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 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'.

SIGNATURE OF CONTRACTOR

FOR ACCEPTING OFFICER

(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 finalized 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, exparte, if either party, inspite 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.

The Arbitral Tribunal shall make the award within the period as provided in the Arbitration & Conciliation Act 1996 (as amended upto the date of 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 along with 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 venue of Arbitration shall be such 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.

- (d). **Refer condition 70 of IAFW 2249.:-** 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 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

SIGNATURE OF CONTRACTOR

FOR ACCEPTING OFFICER

SCHEDULE OF MINIMUM FARE WAGES

It is hereby agreed that the "Schedule of Minimum Fair Wages" (SMFW) as published by the Government of India Notification dated 19Jan 2017 forms part of these documents.

My/our signature here under attests to my/our having read and understood the provisions contained therein and I/we shall abide by the same and that aforesaid documents forms part of this tender.

It is expressly mentioned here that although the notification of labour wages as available with the Dept has been included in the tender, in case the Government has further revised the wages, the latest revised wages shall be taken as minimum wages in place of wages mentioned in above notification.

Note: "Schedule of Minimum Fair Wages" referred to above is available for reference in the office of Accepting Officer.

Signature of Contractor
Dated:

AAD (Contracts)
For Accepting Officer

SPECIAL CONDITIONS**1. GENERAL**

These special conditions shall be read in conjunction with the general conditions of contracts (IAFW-2249) and IAFW-1779A including errata and amendments thereto. Any provision in these special conditions if at variance with the provision in the above mentioned documents the provisions made hereinafter shall be deemed to take precedence there over.

2. INSPECTION OF SITE BY THE TENDERER

Reference condition 4 of IAFW-2249.

(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 tenderer shall also make himself 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 tenderer 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.

3. COORDINATION WITH OTHER AGENCIES

Contractor's attention is invited to the fact that during the currency of this contract, works on other services which are outside the scope of work of this contract may be entrusted for execution to 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 shall not be allowed any extra payment on this account and no compensation shall be admissible to the contractor on this account.

4. 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 no person of doubtful antecedents and nationality is, in any way, associated with the work. 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. In case the GE desires, contractor will have the police verification done of personnel employed by him. 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.

(b) The GE shall have 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.

Signature of Contractor

for Accepting officer

SPECIAL CONDITIONS (CONTD.../-)

(c) In this connection, the contractor's attention is also drawn to condition 25 of IAFW-2249.

(d) Verification of antecedents of contractor's representative / 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.

5. **SECURITY OF CLASSIFIED DOCUMENTS**

Contractor's special attention is drawn to condition 2-A and 3 of General Conditions of Contracts (IAFW-2249). The contractor shall not communicate any classified information regarding 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 works and he shall return all documents on completion of the works or on earlier determination of the 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. **ACCEPTANCE OF TENDER**

The tender shall remain open for acceptance for a period of 60 days from the next day subsequent to bid submission end date.

7. **CRITICAL PATH METHOD CPM NETWORK**

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

(b) During the currency of the work the contractor is expected to adhere to the time schedule and this adherence will be a part of the contractor's performance under the contract. During the execution of 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 orders or amendments. Any revision of the schedule as a result of the review will be submitted by the contractor to the GE within a week who will approve it after due scrutiny. The contractor will adhere to the revised schedule thereafter. In case of contractor disagreeing with 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 a completion date beyond the stipulated date of completion shall not automatically amount to a grant of extension of time. Extension of time shall be considered and decided by the appropriate authority mentioned in condition 11 of IAFW-2249 and separately regulated.

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(c) The Contractor shall mobilise and employ sufficient resources to achieve the detailed schedule within the broad framework of the accepted methods of working and safety.

(d) 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.

8. **RECORD OF MATERIALS AND PURCHASE VOUCHERS: -**

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

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

(C) **MATERIALS TO BE PROCURED BY CONTRACTOR: -**

(a) Vouchers in respect of cement, steel, major E/M equipment like transformers, DG Sets, Pumps , Motors , AC and Lift equipment will be submitted invariably. Contractor shall produce vouchers/invoices from the manufacturers and/or their authorised agents for the full quantity of the following additional items/materials, as applicable as a pre-requisite before submitting claims for payment for advances on account of materials collected in accordance with condition 64 of General Conditions of contracts IAFW-2249.

- (i) Water proofing compound, Water proofing treatment items.
- (ii) PVC (SWR) pipes and fittings.
- (iii) GI pipes and fittings, CI/DI pipe and fittings, Sluice valve for water supply.
- (iv) Electrical and water supply fittings/fixtures where names of manufacturers/brands are specified or approved.
- (v) Ceramic tiles, vitrified tile, PCC tiles, Granite, Kota stone and Interlocking paver block
- (vi) Cables/Wire/MCB/MCCB/DBs.
- (vii) Cement.
- (viii) Steel.
- (ix) UPVC Door /UPVC Window/Ventilator and Wooden Door/Flush door/Glaze and Skeleton door shutter
- (x) PVC Door /Steel door /Steel window/steel ventilator/Cupboard/HDPVC shutter/ window/Aluminium doors
- (xi) Bathroom fittings, Sanitary Fittings, Sink, Plate rack and HDPE water tank
- (xii) Modular kitchen items
- (xiii) Paints

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- (xvi) LED Light fittings, Street lights.
- (xvii) Transformer, LT panels, Lift, DG set & Steel tubular poles
- (xviii) Kitchen chimney
- (xix) Water heater.

(b) Original purchase vouchers shall be defaced by the Engineer-in- Charge and photocopies shall be kept in record. Genuineness of purchase voucher shall be verified by the Engineer in Charge before considering the same for making payment. Initially JE may verify the vouchers after taking confirmation on phone or through e mail. The contractor shall ensure that the materials are brought to site in original sealed containers/ packing, bearing manufacturer's marking except in the cases of the requirement of materials being less than smallest packing.

(D) Bitumen shall be purchased directly from main manufacturers only. In case of small quantity, the Accepting Officer may allow procurement of Bitumen from authorised dealers of main manufacturers. Purchase vouchers for the same shall be defaced by the Engineer-in-Charge, indicating reference to the Contract number under his dated signature and photocopies thereof shall be kept on record so as to avoid their being used again.

(E) The vouchers will clearly indicate the Contract number and the IS No and specific alternative to which the material conforms in case of various alternatives in IS. In case the contractor procures the Bitumen mix from Hot Mix Plant, the copy of voucher of Bitumen provided by the main manufacturer to the Hot Mix Plant shall be submitted by the contractor.

9. **APPROVAL OF SAMPLE OF WORKMANSHIP IN BUILDING.**

(a) To determine the acceptable standard of workmanship, one quarter/block preferably with sanitary annex (to be decided by the GE) shall be completed by the contractor well in advance as directed by GE under close supervision of the Engineer-in-Charge and shall be got approved from the GE. The workmanship of various trades and finishes of this quarter/block shall serve as guiding samples for work in the remaining quarters/ blocks/ buildings.

(b) The Sample Quarter/block/buildings shall be completed in all respects as per time of completion specified for the same in Schedule 'A' notes or as directed by GE.

10. **MATERIALS AND SAMPLES**

(a) Refer condition 10 of IAFW-2249.

(b) The materials and articles, which have been specified from certain makes/manufacturers, shall be of makes/manufactures as specified. If the manufacturers specified in tender documents make both ISI marked and conforming to IS specifications, the materials/articles shall be ISI marked.

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(c) The materials and articles, which have not been specified in tender documents by makes/manufacturers, shall be as under :-

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

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

(d) Materials of local origin shall be as specified and conforming to samples kept in GE's office. The tenderer is advised to inspect sample of materials which are displayed in the office of GE before submitting his tender. The tenderer shall be deemed to have inspected the samples and satisfied himself as to the nature and quality of materials he is required to incorporate in the work irrespective of whether he has actually inspected them or not.

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

11. HANDING OVER OF SITE

Site for execution of work will be available as soon as the work is awarded. In case it is not possible to make the entire site available on the award of work, the contractor will have to arrange his working programme accordingly. No claim whatsoever, for not giving the entire site on award of work and for giving site gradually, will be tenable. However Work Order No. 1 shall specifically indicate phased handing over of site as proposed in consultation with users.

12. DAMAGE TO THE EXISTING STRUCTURES

Due care shall be taken by the contractor to protect any existing assets or structure during execution of work. Any damage to the existing structures, any 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, conforming to the materials and workmanship originally provided and to the satisfaction of the Engineer-in-Charge as soon as possible. In case of any dispute on this account, the decision of the GE shall be final, binding and conclusive.

13. APPROACHES

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

14. QUARRIES ON DEFENCE LAND

Reference to condition 14 of IAFW-2249. Quarries are not available on Defence land for use by the contractor to remove materials for use in the works.

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SPECIAL CONDITIONS (CONTD.../-)**15. --BLANK--****16. ADVANCES ON ACCOUNT AGAINST MATERIALS**

{ Applicable for tenders whose estimated cost at market rate exceeds Rs. 50 Lakhs (Rupes fifty Lakhs)}

Refer condition 64 of IAFW-2249 – Advance on account: - Add the following in continuation of Para 8

(a) Provided further, the Contractor may be paid advance on account to the full value of only the under mentioned materials only, **brought on the site**, on his furnishing Guarantee Bond (s) from a scheduled bank for the amount of the retention money which should otherwise be recoverable from him under Contract.

(i) GI pipes and fittings, CI/DI pipe and fittings & Sluice valve.

(ii) Electrical and water supply fittings/fixtures where names of manufacturers/brands are specified or approved.

(iii) MCB/MCCB/DBs.

(iv) UPVC Door /UPVC Window/Ventilator and Wooden Door/Flush door/Glaze and Skeleton door shutter

(v) PVC Door /Steel door /Steel window/steel ventilator/Cupboard/HDPVC shutter/window/Aluminium doors

(vi) Bathroom fittings, Sanitary Fittings, Sink, Plate rack and HDPE water tank

(vii) LED Light fittings & Street lights.

(viii) Transformer, LT panels, Lift, DG set & Steel tubular poles

(ix) Kitchen chimney

(x) Water heater.

(xi) Steel reinforcement

(b) Advance on account to the full value to materials brought on the site is permissible only in respect of fittings and fixtures and other manufactured items which do not lose their identity after incorporation in the work. Materials like bricks, pre-cast concrete articles etc shall not be taken in the list.

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

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SPECIAL CONDITIONS (CONTD.../-)**17. AVAILABILITY OF LAND FOR STORAGE OF MATERIALS INCLUDING TEMPORARY SHEDS**

(Refer condition 24 of IAFW-2249)

Delete the following in Para 1 of condition 24 of IAFW-2249, "In the event ofareas of land allotted to him" and following shall be read in conjunction with condition 24 of IAFW-2249. The contractor shall be permitted to store his materials including erecting temporary sheds therefore at the areas of land marked on site plan or as shown by GE free of rent if it is on class A1 land. For other types of land he shall pay a licence fee of Re 1/- per year or part thereof in respect of each and every separate area of land allotted to him.

18. AVAILABILITY OF LAND FOR ACCOMMODATION OF LABOUR, CANTEEN, FABRICATING WORKSHOP ETC

(Refer condition 24 of IAFW-2249).

The Contractor shall be permitted to erect his labour camp, temporary workshops, and the like at the area of land marked for this purpose on the site plan or as shown by GE and he shall pay a licence fee Re 1/- per year or part thereof in respect of each and every separate area of land allotted to him

19. MINIMUM WAGES PAYABLE

Refer condition 58 of IAFW-2249

(a) The Contractor shall not pay wages lower than minimum wages for labour as fixed by the Government of India/State Govt/Union territory, whichever is higher.

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

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

(d) Schedule of minimum wages are not enclosed along with tender documents. However, the contractor shall be deemed to have verified the minimum fair wages payable as on the bid submission end date.

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

20. ELECTRIC SUPPLY

(a) In case the contractor desires to buy electricity from the MES, he shall be charged for the electric energy consumed at the rate of Rs 14.13 per kilowatt hour for lightening and power each.

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(b) Electric supply required for works up to maximum of 5 KVA shall be made available by the MES at the incoming terminal of the main switch marked on the site plan as shown by GE. The main switch and KWH meters to register to electric energy supplied shall be provided and installed by the MES. The contractor shall provide all necessary cables fittings, etc., from the main switch in order to ensure a proper and suitable supply of electricity for the execution of work.

(c) The MES do not guarantee for continuity of supply and no compensation whatsoever shall be allowed for supply becoming intermittent or for breakdown in the system.

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

21. WATER

Refer to condition 31 of IAFW-2249.

(a) Water will be supplied by MES to the contractor at point shown on site plan from piped system and shall be paid by the contractor @ Rs 3.75 per 1000/- worth of work done priced at contract rates. The contractor shall arrange at his own expense for storage of water and lifting, pumping, carrying of conveying water to the site of work and making adequate storage of water at the locations as required. In case water points are not marked on the site plan, the water shall be supplied at one point at decided by GE.

(b) The supply of water may not be continuous. The contract shall be deemed to have ascertained the hours of availability of water before submitting his tender. The MES do not guarantee the continuity of water supply and no compensation shall be allowed for intermittent or inadequate water supply and break down in the system. If the supply is not sufficient the contractor shall make his own arrangement to supplement the water supply at his own cost. For this purpose, the contractor shall be allowed to install hand pumps or tube wells at the site of work at places as directed by the Engineer-in-Charge without any charges from the contractor on this account. However, the water shall be got tested before incorporation in the work for its suitability at Contractor's cost. The contractor shall remove the hand pumps as and when asked to do so by Engineer-in-Charge or GE and in any case on completion of work. No compensation whatsoever shall be admissible to the contractor if the GE requires him to remove the pumps before completion of work.

22 to 24 BLANK**25. QUALIFIED TRADESMEN (APPLICABLE FOR WORKS COSTING RUPEES ONE CRORE OR MORE)**

In compliance with condition 26 of IAFW-2249 (General Conditions of Contracts), the contractor shall employ skilled/semi skilled tradesmen who are qualified and possessing

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certificate in particular trade from Industrial Training Institute (ITI)/National Institute of Construction Management and Research (NICMAR)/ National Academy of Construction (NAC) Hyderabad/Construction Industry Development Council (CIDC) and similar reputed and recognized Institutes by State/Central Government, to execute the works of their respective trades. The number of such qualified tradesmen shall not be less than 25% of total skilled/semiskilled tradesmen required in each trade.

The contractor shall submit a 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 the nature of work, shall be final and binding. No compensation whatsoever on this account shall be admissible.

25A. **QUALIFIED ENGINEERS TO SUPERVISE THE WORKS AND TO RECEIVE INSTRUCTIONS FROM THE ENGINEER-IN-CHARGE.**

The contractor shall appoint Engineers as per Sch 'A' Notes to supervise the work. These Engineers shall be in capacity to receive instructions and orders from Engr- in-Charge.

26. **CONDITION FOR WORKING IN UNRESTRICTED AREA**

(a) The work lies in UNRESTRICTED AREA. However, the contractor, his agents, servants, workmen and vehicles pass through the unit lines, in which case, the Engineer-in-Charge at his discretion has the right to issue passes, control their admission to the site of work or any part thereof. The contractor shall, on demand by the Engineer-in-Charge submit a list of personnel etc, concerned and any other information called for by the Engr-In-Charge and shall satisfy the Engineer-in-Charge as to the bonafides of such people. Passes shall be returned at any time on demand by Engineer-in-Charge and in any case on completion of work. Routine security checks can be carried out including checks at the time of entry/exit through Military Stn gates or enroute inside Military Stn.

(b) The contractor and his work people shall observe all the rules promulgated from time to time by the authority controlling the area where the work is to be carried out eg prohibition of smoking, lighting and fire precaution, restricted hours of working etc. Any person found violating the security rules laid down by the controlling authority, shall be immediately expelled from the area without assigning any reasons whatsoever and the contractor shall have no claim on this account. Nothing shall be admissible for any man hours lost on this account.

27. **LOCATION OF BUILDINGS AND WORKS**

There may be some changes in location/siting of buildings shown in site (layout) plan(s) to suit local conditions and/or departmental requirements. The contractor shall have no claim what -so- ever consequent to such changes in the location/siting of works.

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SPECIAL CONDITIONS (CONTD.../-)**27A. 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, watchmen etc., during the progress of work and as directed by the Engineer-in-Charge.

28. BLANK**29. CLEANING DOWN**

Refer condition 49 of IAFW-2249

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

30. OUTPUT OF ROAD ROLLERS

Refer condition 15 of IAFW-2249.

30.1 Where road rollers are hired by the Department to the contractor, a logbook for each road roller shall be maintained by the Department recording hours of working of the road roller. However, when the contractor procures road rollers from sources other than the Department, a logbook 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 authorised representative and by the Engineer-in-Charge.

30.2 To ensure proper consolidation, roller must work for at least the number of days assessed on the basis of output given here-in-after. If the roller has not worked for the number of days so assessed, recovery shall be effected from the contractor for the number of days falling short of the days so assessed on the basis of output stipulated. The recovery shall be effected as under:-

(i) Where a road roller is hired out only by the Department to the contractor, at rates given in Schedule 'C'

(ii) Where a road roller is hired by the contractor from sources other than the Department at rate of Rs 2000/- per working day of 8 hours for static power roller and at the rate of Rs 4000/- per working day of 8 hours for tandem vibratory roller.

(iii) Where a road roller is hired by the contractor from the Department as also from sources other than the Department, at higher of the two rates given in Schedule 'C' of the contract and para (ii) above.

30.3 The above provisions shall, however, not absolve the contractor of his responsibility of properly consolidating surface as required under the provisions of contract.

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SPECIAL CONDITIONS (CONTD.../-)**OUTPUT PER DAY OF 8 HOURS WORK**

| | | | |
|--------|---|---|----------|
| (i) | Consolidation of formation surface/sub grade | - | 1850 Sqm |
| (ii) | Consolidation of stone soling 23 cm thick with 8 to 10 Tonne Roller | - | 518 Sqm |
| (iii) | Consolidation of stone soling 15 cm thick - ditto | - | 800 Sqm |
| (iv) | Consolidation of stone soling 20 cm thick in two layers (10cm each layer) - ditto | - | 980 Sqm |
| (v) | Consolidation of stone soling 10 cm thick - ditto | - | 530 Sqm |
| (vi) | Compacting 150mm thick compacted thickness in two layers 75mm thick each | - | 260 Sqm |
| (vii) | Consolidation of single coat surface dressing | - | 774 Sqm |
| (viii) | Ditto but two coat surface dressing | - | 558 Sqm |
| (ix) | Consolidation of premix carpet including seal coat - | | |
| | (a) 2 cm thick | - | 744 Sqm |
| | (b) 2.5 cm thick | - | 600 Sqm |
| | (c) 4 cm thick | - | 372 Sqm |
| (x) | Consolidation of bituminous mixture 2 parts of broken stone metal and one part of sand and bitumen, consolidated thickness 4 cm | - | 372 Sqm |
| (xi) | Consolidation of 50mm consolidated thickness bituminous macadam | - | 375 Sqm |
| (xii) | Consolidation of 40mm consolidated thickness asphaltic semi dense concrete | - | 435 Sqm |
| (xiii) | Consolidation of 30mm consolidated thickness asphaltic semi dense concrete | - | 375 Sqm |

NOTE:- Regarding output of Road roller in respect of other items catered in CA, GE shall order a board of officers and ascertain the required output of road roller to achieved the desired/specified compaction over a trial area which will be the basis for the reaming corresponding works.

30.4 Road roller shall not be issued by the Department under Schedule 'C' and shall be arranged by the contractor under his own arrangements. Provision of condition here-in-before shall be deemed amended accordingly.

31. TESTING OF MATERIALS

(i) **'A' Level Tests for works Costing Rs 100 Lakh and Above:-** The contractor shall set up a 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 equipment/machines for the tests specified in Annexure-I as 'A' level tests at his own cost with prior approval of

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GE. This cost shall be included in the lump sum cost and unit rates quoted by the contractor. The contractor shall employ a competent technical representative as approved by the GE for the purpose of testing and all such tests shall be carried out in the presence of Engineer-in-Charge. The successful tests results thereof shall be recorded and signed jointly by the contractor and the Engineer-in-Charge. The charges for these tests i.e. 'A' level tests carried out in the site laboratory of the contractor shall not be recovered. In case, the contractor has not set up the site laboratory and the tests are carried out side department the recovery shall be actual payment made by GE to the concerned laboratory. However if the tests are carried out in departmental laboratory the recovery rate shall be at the rates as applicable i.e. as given in Annexure-I. The following tools / equipments are mandatory for site laboratory for 'A' level test:-

- (a) Electronic balance 10 Kg cap-01 No (0.1 gram accuracy)
- (b) Weighing scale with weight set of 5gm to 20.00kg.
- (c) Sieve set 300mm dia for Coarse aggregate (size 80mm, 50mm, 40mm, 31.5mm or 25mm, 20mm, 16mm or 12.5mm, 10mm, 6.3mm, 4.75mm, 3.35mm)-01 No
- (d) Sieve set 200mm dia for fine aggregate (size 4.75mm, 2.36mm, 1.18mm, 600micron, 300micron, 150micron, 75micron)-01 No
- (e) Concrete sampling cube mould (size 150mm x 150mmx150mm) – 24 Nos (min)
- (f) Steel tamping rod 16mm dia 300mm long-02 Nos
- (g) Slump cone with steel tamping rod of 16mm dia 0.6m long- 02Nos
- (h) Steel ruler 300mm long – 01 No
- (j) Glass/porcelain or glazed stone ware dish (square) size 300mmx450mm x40mm – 03 Nos
- (k) Sprit level good quality – 01No
- (l) Plumb bob – 02 Nos
- (m) Metal gauge to determine flakiness Index – 01 No
- (n) Metal gauge to determine Elongation Index-01 No
- (o) Acrylic graduated Jar, different capacities-04 Nos
- (p) Ventilated Electric oven up to 200°C temp – 01 No
- (q) Digital veneer calliper – 01 No
- (r) Digital micrometer – 01 No
- (s) Sheet metal gauge – 01 No
- (t) Concrete rebound hammer – 01 No
- (u) Steel tapes 3m, 5m, 15m -01 No each
- (v) Field moisture meter for wood-01 No

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- (w) Sand paper of different grade (Topped up as required)-12 Nos
- (x) Nitrol (Nitric acid 2% & alcohol 98%) – 01 Ltr (Topped up as required)
- (y) Necessary NDT tools- 01 Set
- (z) Total Station-01 No (with qualified surveyor)
- (aa) Cube testing machine – 01 No
- (ab) Le Chatelier Equipment – 01 No
- (ac) Digital automatic cube testing machine shall be kept by the contractor in site laboratory

“Relevant IS code shall be kept by the contractor in site laboratory”.

Note : Any other equipment required for ‘A’ level test though not mentioned in the above list shall also be provided by contractor at site lab.

(ii) **‘A’ level Tests for Works costing upto Rs 100 Lakh:** The contractor may set up a site laboratory at his option for works costing upto Rs 100 lakh. Other stipulations will be the same as specified in preceding Para (i). However in case the contractor has not set up the site laboratory and tests are carried out side department the recovery rate shall be actual payment made by GE to the concerned laboratory. However if the tests are carried out in department laboratory the recovery rate shall be double the rates as applicable i.e. as given in Annexure-I.

(iii) **‘B’ and ‘C’ Level Tests:** For tests of ‘B’ and ‘C’ level as indicated in Annexure-II and III, the contractor shall provide all facilities for testing of materials at Command testing lab (CTL)/ NABL Govt. approved laboratories or test house/Govt.Engg. Colleges/IITs at his own cost. The rates quoted by the contractor shall deemed to be inclusive of these tests. The rates of various tests conducted in Laboratory of MES are indicated in Annexure-II. 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-III.

Wherever it is convenient to get ‘B’ level test done at NABL approved test house/Govt 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.

(iv) 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 tests or whenever the test is due whichever is earlier.

32. RETENTION MONEY/COMPENSATION FOR DELAY

Refer condition 64 and 50 of IAFW-2249.

For the purpose of calculating retention money under condition 64 of IAFW-2249, and compensation for delay under condition 50 of IAFW-2249, the value of contract as revised by price variation shall be taken in to account.

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SPECIAL CONDITIONS (CONTD.../-)**33. REIMBURSEMENT/REFUND ON VARIATION IN "TAXES DIRECTLY RELATED TO CONTRACT VALUE"**

(a) The rates quoted by the contractor shall be deemed to be inclusive of GST as notified by the Government upto bid submission end date. No reimbursement/refund for variation in rates of taxes shall be made except as provided in sub Para (b) herein below.

(b)(i) The taxes which are levied Government at certain percentage rates of Contract Sum/Amount shall be termed as "taxes directly related to contract value" i.e GST 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 prevailing on the 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 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 contractors shall within a reasonable time of his becoming aware of variation in percentage rates and/ or imposition of any further "taxes directly related to contract value" give written notice thereof to the GE stating that the same is given pursuant to this Special Condition, together with all information relating there to which he may be in a position to supply. The Contractors shall also submit 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 authorised representative of Government, and shall further, at the request of the GE furnish, verified in such a manner as the GE may require, any documents so kept and such other information as the GE may require.

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

34. QUALITY OF WORK IN PROJECT

34.1 Quoted rate of buildings as listed in sch. A part-I shall also include provision of two Nos white marble slabs each of size not less than 45cm x 30cm x 18mm thick duly embedded in locations as directed by GE. The following information shall be engraved and painted with black paint:-

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SPECIAL CONDITIONS (CONTD.../-)

- | | |
|--|------------------------------------|
| (a) Job No | (b) CA No & Year |
| (c) Name of Work | (d) Name of Contractor |
| (e) Name of GE | (f) Name of Engineer-in-Charge |
| (g) Date of Commencement. | (h) Date of completion phase –wise |
| (j) Date of expiry of defects liability period | |
- Dates of expiry of guarantee period given against ATT, water proofing treatment etc.
- (Note : The contractor's rate shall be deemed to include for the above item)

35. **FEES CHARGEABLE BY POLICE AUTHORITIES FOR VERIFICATION OF ANTECEDENTS**

35.1 Verification of antecedents of Proprietor/partner/Directors of the firm in connection with issue of tender and of Enlistment shall be Govt responsibility and accordingly payment to police authorities towards verification of antecedents shall be borne by Govt.

35.2 Verification of antecedents of Contractor's representatives/labour deployed at site in connection with execution of work under the contract, as per security requirement of User Unit/Installation shall be the responsibility of the contractor and all expenses in connection with verification of antecedents by Police Authority/Security Agency shall be borne by the contractor.

36. **REFUND OF PERFORMANCE SECURITY**

The Performance Security Deposit mentioned in condition 19 of IAFW-2249 may be refunded to the contractor after the expiration of the defects liability period (vide condition 46 of IAFW-2249) by the GE provided always that the contractor shall first have been paid the final bill and have rendered a No-Demand Certificate (I.A.F.W.-451).

37. **YARDSTICK:-**

Yard sticks % ages in respect of buildings catered in Schedule 'A' Part-1 Ser Item No 1 & 2 has not been included in the tender documents. The same shall be prepared by Contractor/JE(Civil)/AGE concerned immediately after acceptance of contract and technically checked by AGE(Contracts)/JE(QS&C) of GE office and approved by CWE after technical check of DCWE(Contracts) of CWE office. Copy of approved yardstick shall be forwarded to accepting officer for record and comments. On account, the payment made as per yard stick is based on stage wise actual assessment of value of work done.

Signature of Contractor

for Accepting officer

SPECIAL CONDITIONS (CONTD.../-)**ANNEXURE-I****MATERIALS AND THEIR TESTS IN SITE LAB (A- LEVEL)**

| S N | Material | Test | Method of testing | Frequency of tests | | | Rate (in Rs) | Remarks |
|--------|------------------|---|----------------------|--|-------------|--------------------------------------|-----------------|---|
| 1 | 2 | 3 | 4 | 5 | | | 6 | 7 |
| 1 | Bricks | (i) Compressive strength | IS-3495 (Part-I) | As per IS 5454 as given under | | | 330 | Checks for visual and dimensional characteristics Shall also be carried out as per IS-5454 |
| | | (ii) Water absorption | IS-3495 (Part-II) | Lot size | Sample size | Permissible %age of defective bricks | 330 | |
| | | (iii) Efflorescence | IS-3495 (Part-III) | 1001 to 10000 | 5 | 0 | 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 aggregate or part thereof brought to site | | | 660 | |
| | | (ii) Flakiness Index | --DO-- | --DO-- | | | 250 | |
| | | (iii) Estimation of deleterious materials | IS-2386 (Part-II) | One test for every 100 Cum of aggregate or part thereof | | | 600 | |
| | | (iv) Moisture content | IS-2386 (Part-III) | Regularly as required | | | 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 | | | 660 | |
| | | (ii) Test for clay silt and impurity | IS-2386 (Part-II) | -do- | | | 500 | |
| | | (iii) Moisture content | IS-2386 Part-III | Regularly as required | | | 330 | |
| 4 | Cement | (i) Setting time Test | IS-4031 | One test for each lot/consignment or as and when required | | | 350 | |
| | | (ii) Compressive strength test | -do- | -do- | | | 690 | |

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SPECIAL CONDITIONS (CONTD.../-)ANNEXURE-I (Contd..)MATERIALS AND THEIR TESTS IN SITE LAB (Contd...)

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|----|--|---|-------------------------|--|----------------|--|
| 4A | (a) PCC Blocks for Walling (Hollow blocks) | Compressive strength test | | | 900 | |
| | (b) PCC solid Blocks for Walling | Compressive strength test | | | 900 | |
| 5 | Structural concrete (M-15 Grade and above) or quality concrete design for flexural concrete | (i) Slump test or compacting factor test or Vee-Bee time (ii) Compressive strength | IS-1199 IS-516 | The minimum frequency of sampling of concrete of each grade shall be as under Qty of concrete in the work (Cum) 1-5 1 6-15 2 16-30 3 31-50 4 51 and above 4+1 for each additional 50 Cum or part thereof | 300 900 | (i) Random sampling shall be carried out conveyer/at mixing unit (ii) Refer IS-456 (1978) clause 14.2 for frequency of sampling (iii) One sample constitute 7 Cubes/beams, 03 to be tested at 7 days, 3 at 28 days and balance 1 shall be preserved at least one year after the completion of work (iv) Cubes/ beams shall be marked with sample number and date of casting Samples 12 tiles from each source of supply selected at random |
| 6 | Burnt clay roofing tiles (hand made) as per IS 2690 (Part-II) length 150-250 mm width 100-200 mm | Compressive strength | IS-3495 (Part-II) | 6 tiles out of 12 | 350 | |
| 7 | Welding of steel work | Visual inspection test | IS 8280-1970 clause 7.1 | 100% by visual inspection | 690 | Specialised test, their method and frequency to be decided or consideration or thereof |

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SPECIAL CONDITIONS (CONTD.../-)ANNEXURE-I (Contd..)MATERIALS AND THEIR TESTS IN SITE LAB (Contd...)

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|----|---|--|-------------------------|--|-----|---|
| 8 | Timber | Moisture content | IS-1708 1960 | Maximum three samples from a lot of 4 Cum or 250 pieces of seasoned timber | 230 | |
| 9 | Timber panelled and glazed door wooden 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 Lot size Sample size 26-50 5 51-100 8 101-150 13 151-300 20 301-500 32 501-1000 50 1001 and above 80 | 350 | |
| | | (b) Strength test | | | | |
| | | (i) Slamming | IS 1303-1990 | From each lot 5% of the factory made shutters shall be tested for strength tests | | |
| | | (ii) Impact indentation | -DO- | -DO- | | |
| | | (iii) Shock resistance | -DO- | -DO- | | |
| | | (iv) Edge Loading | -DO- | -DO- | | |
| 10 | Wood particle board (Medium density) | (a) Density | IS 2380 1977 (Part-III) | Three test specimens from each sample (size 150x75 mm) | 120 | Sample shall be as per IS 3087-1983 with moisture meter |
| | | (b) Moisture Content | -DO- | -DO- | 120 | |
| | | (c) Water absorption | -DO- Part-16 | -DO- (Size 300x300 mm) | 120 | |
| | | (d) Swelling due to surface absorption | -DO- Part-17 | -DO- (Size 125x100 mm) | 120 | |
| | | (e) Swelling in Water | -DO- | -DO- (Size 200x100 mm) | 120 | |
| 11 | Aggregates of al sizes for WBM. BM/AC etc for roac and pavement work | (a) Flakiness | IS: 2386 (Pt II) | One test per 100 cubic metre | 230 | |
| | | (b) Water Absorption | IS:2386 (Pt III) | One test per 100 cubic metre | 230 | |

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SPECIAL CONDITIONS (CONTD.../-)**ANNEXURE-II****MATERIALS AND THEIR TESTS IN CTL (B-LEVEL)**

| Ser No | Material | Test | Method of testing | Frequency of tests | Rate (in Rs) | Remarks |
|--------|---|---|---------------------|--|--------------|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 1 | Coarse aggregate | (i) Specific gravity | IS- 2386 (Part-II) | One test for each source of supply | 330 | |
| | | (ii) Organic Impurities | | | 275 | |
| 2 | Fine aggregate | (i) Specific gravity | IS- 2386 (Part-III) | One test for each source of supply | 330 | |
| | | (ii) Test for Organic Impurities | | | 275 | |
| 3 | Burnt clay roofing (Hand made) as per IS 2690 (Part-II) break line length 150 to 250 mm width 100 to 200 mm thickness 35 to 50 mm | Water absorption | IS 3495 (Part-II) | 6 tiles out of 12 | 420 | Sample 12 tiles from each source of supply selected at random |
| 4 | Timber | Specific gravity and weight | IS 1708-1960 | Maximum three sample from a lot of 4 Cum or 250 pieces of seasoned timber | 230 | |
| 5 | Water for construction purpose | (a) Test for acidity | IS 456 and 3025 | Once at the stage of approval of source of water and subsequently at three months interval | 500 | Also refer clause 43 of IS-456 and its subsequent sub clause regarding suitability of water |
| | | (b) Test for alkalinity | IS 456 and 3015 | Once at the stage of approval of source of water and subsequently at three months interval | 500 | |
| | | (c) Test for total dissolved solids (TDS) content | | | 500 | |

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SPECIAL CONDITIONS (CONTD.../-)**ANNEXURE-II (Contd..)****MATERIALS AND THEIR TESTS IN CTL (Contd..)**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|----|---|--|--------------------------|---|------|--|
| 6. | Ply wood | Moisture contents | IS-1734 (1983) Part-I | Six tests pieces out from each of the boards selected as per table shall be subjected to tests. | 230 | |
| 7 | Wood particle board (Medium density) IS 3097-1085 | (a) Modulus of rupture | IS 2380 of 1977 (Part-4) | Three test specimens as per IS-2380-1977 | 180 | Sample shall be as per IS 3087-83 class with moisture meter. |
| | | (b) Moisture content | --DO-- (Part-III) | Three test specimen from each sample (size 150x75 mm) | 120 | ---- DO---- |
| 8 | Cement | (i) Setting time | IS 4031 | One test for each lot/consignment or as and when required | 500 | |
| | | (ii) Soundness | | | 550 | |
| | | (iii) Compressive strength test | IS 4031 | One test for each lot/consignment or as and when required | 550 | |
| 9 | (a) PCC Blocks for Walling (Hollow blocks) | (iv) Fineness | | | 275 | |
| | | (i) Water Absorption | | | 330 | |
| | | (ii) Density | | | 330 | |
| | (b) PCC solid Blocks for Walling | (i) Water Absorption | | | 330 | |
| 10 | Cement flooring tiles/ Terrazzo tiles | (ii) Density | | | 330 | |
| | | (i) Water Absorption | | | 330 | |
| | | (ii) Wet transverse strength | | | 660 | |
| 11 | Reinforcement Steel | (i) Physical test upto 16mm dia (normal mass, tensile elongation, bend and rebend) | | | 2500 | |
| | | (ii) more than 16mm dia | | | 2750 | |

ANNEXURE-III

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SPECIAL CONDITIONS (CONTD.../-)**MATERIALS AND THEIR TESTS IN NATIONAL TEST
HOUSE/SEMT WING/ENGG COLLEGE (C-LEVEL)**

| Ser No | Material | Test | Method of testing | Frequency of tests | Rate (in Rs) | Remarks |
|--------|--|---|---------------------------|---|--------------|---|
| 1 | Coarse aggregate | Organic impurities | IS- 2386 (Part-II) | One test for each source of supply | 230 | |
| 2 | Fine aggregate | Test for organic impurities | IS- 2386 (Part-II) | One test for each source of supply | 350 | |
| 3 | Cement | a)Soundness | IS 4031-63 Reaffirms 1988 | One for each consignment as and when required | 230 | |
| | | b) Fineness | --DO-- | --DO-- | 230 | |
| 4 | Water for construction purpose | Test for solid content | IS 456 and 3025 | Once at the stage of approval of source of water and subsequently at three months interval | 560 | Also refer clause 4.3 of IS-456 and sub clause regarding suitability of water |
| 5 | Wood particle board (medium density) IS 3097 | Screw withdrawal strength | IS 2360 (Part-14) | Three test specimens as per IS 2385 | 230 | Sampling shall be as per IS 7533 (1975) tables |
| 6 | Plywood (IS-303-1989) | Water resistance test | IS-1734 1983 (Part VI) | Six tests pieces out from each of the boards selected as per table shall be subjected to tests. | 460 | |
| 7 | Aggregate for all sizes for WBM,BM,AC, PMC etc for road and pavement | (a)Impact | IS:2386 (Pt-IV) | One test per 100m ³ | 350 | |
| | | (b) crushing value | IS:2386 (Pt-IV) | One test per source | 350 | |
| | | (c)Loss angles abrasion value | IS:2386 (Pt-IV) | One test per source | 350 | |
| | | (d) Specific Gravity | IS:2386 (Pt-III) | One test per source | 350 | |
| | | (e) Density | IS:2386 (Pt-III) | One test per source | 350 | |
| | | (f)Stripping value of aggregate for BM/AC | IS:2386 (Pt-I) | One test per source | 460 | |
| 8 | Bitumen for road work | (a)Penetration value | IS:73 | One test per batch of bitumen supplied in bulk or drum | 560 | |
| | | (b) Softening points | IS:73 | -do- | 560 | |
| | | (c) Elongation | IS:73 | -do- | 560 | |
| | | (d)Wax content | IS:73 | -do- | 560 | |
| | | (e)Flash point/ fire point | IS:73 | -do- | 560 | |
| | | (f) Ductility | IS:73 | -do- | 560 | |
| 9 | Cement flooring tiles/ terrazzo tiles | (a) Resistance to wear | | | 1000 | |

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YARD STICK DETAILS

BLANK

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for Accepting officer

PARTICULAR SPECIFICATIONS**1. GENERAL**

1.1 The following specifications shall be read in conjunction with SSR Part-I of 2009 and Part-II of 2020 (herein after called MES Schedule). The term 'General Specifications' referred to herein after as well as referred to in IAFW-2249 (General conditions of contracts) shall mean the specifications contained in the MES Schedule. General Rules, specifications, special conditions and all preambles in the MES Schedule shall be deemed to apply to the work under this contract, unless mentioned otherwise in these documents, in which case, the provision in these documents shall take precedence over the aforesaid provisions in the MES Schedule.

1.2 Rate quoted for a particular item and/or lump sum quoted by the tenderer shall be deemed to include for any minor details/items of work and /or construction 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 the work.

1.2.1 Decision of the Accepting Officer as to whether any minor details of work and/or construction is obviously and fairly intended to be included in the contract or not, shall be final, conclusive and binding. However, some minor details, items which shall be deemed to be essential for execution and entire completion of work are detailed as under:-

- (i) Reinforcement for any RCC member not indicated in the drawings but required as per structural or codal requirement.
- (ii) Dwarf wall or plinth beam in situations like verandah, passage, ramp, platform etc not indicated in drawings.
- (iii) Lintels over doors, windows, ward robe/cup board and opening not indicated in drawings.
- (iv) Fittings to doors, windows, ward robe/cup board and such other built-in furniture
- (v) Items not shown.
- (v) PCC benching at the junction of chajjas and walls not shown in drawings.
- (vi) Finishing of concrete surfaces after removal of form work with 5mm thick cement plaster in cement and sand mortar (1:3) wherever surfaces to be white washed/colour washed/distempered/painted.

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

1.3 The contractor shall quote his rates considering the provisions in Schedule 'A', Particular Specifications, Special Condition, drawings etc reading them as mutually explanatory to each other. However, the contractor and the GE shall ensure economy in construction (but not on the cost of structural safety), safety of men, material and works

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PARTICULAR SPECIFICATIONS (CONTD...)

and execution of work as per best engineering practice and local practices. For this, contractor and GE shall initiate requisite changes to contract provisions for approval of competent authority well in advance during currency of contract so as to ensure that progress is not hampered on this account.

- 1.4 Irrespective whether shown on drawing or not built in furniture items shall be provided as shown in drawings. Location of items if not shown in main plan, location shall be as decided by GE.

2. **SAMPLES OF MATERIALS AND INDIAN STANDARDS**

- 2.1 In case where materials are specified to conform to samples the tenderer is advised to inspect samples of the materials which are displayed in the office of the GE before submitting his tender. The tenderer shall be deemed to have inspected the samples and satisfied himself about the nature and quality of materials he is required to incorporate in the work irrespective of whether he has actually inspected them or not. The materials to be incorporated in the work by the contractor, shall conform to or shall be superior in quality to the sample displayed and shall comply with the specifications given herein after.
- 2.2 The contractor shall produce sample of materials and get them approved by the GE before commencement/incorporation in the work.
- 2.3 The contractor shall procure materials from following sources:-
- | | | | |
|-----|---|---|--|
| (a) | Local materials | - | Materials as listed in Appendix 'A' to particular specifications. |
| (b) | ISI marked materials | - | From any make / brand listed in Appendix 'B' to particular specifications. |
| (c) | Items not covered in Appendix 'A' and 'B' to Particular Specifications and BIS certification. | - | Written approval of GE shall be obtained. |
- 2.4 For obtaining sample approval, contractor will download list of BIS marked manufacturers from BIS site www.bis.org.in. He will select manufacturer (s) meeting contract specifications criteria and handover the report with a request letter to Engineer-in-charge with his signatures. The Engineer-in-charge will verify its correctness by visiting the BIS site and process it to GE with his recommendations. AE/JE (Q.S and C) of GE will recheck the same from online/website, endorse his recommendation and put up for approval of GE.
- 2.5 The printout having signature of all concerned including GE will be kept on record and approval will be conveyed within 7 days of contractor's request.
- 2.6 After sample approval GE shall send an e-mail to manufacturer (not the authorized dealer) intimating him name of firm, approx quantity of material being procured by the contractor and request the manufacturer to ensure that his product only is purchased by the contractor from proper authorised source. A printout of the e-mail sent to manufacturer shall be kept on record duly signed by the GE and a copy thereof will be sent by post to the manufacturer.

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2.7 In cases involving suspected procurement of spurious material purchase vouchers shall be verified through the manufacturer and proof of payment shall be obtained from the contractor by Engineer-in-charge.

2.8 Where no licensee exists for a particular item as per BIS web site, GE will permit procurement of materials confirming to IS from manufacturer to be decided by GE.

3. **EXCAVATION AND EARTH WORK**

3.1 **EXCAVATION IN GENERAL**

3.1.1 Excavation and earthwork involved in Schedule 'A' Part-I has been priced at the rate **soft/loose soil** (without the use of timbering). Cost of all excavation and earthwork shall be deemed to be included in the lump sum cost of items listed in Schedule 'A' Part-I. In case during excavation soft/hard rock is met with, shall be ordered through deviation.

3.1.2 In case hard rock is met with, the contractor shall immediately notify the same to GE under intimation to Accepting Officer and prior approval of Accepting Officer shall be obtained by the GE before ordering work of excavation in hard rock on the contractor. Where hard rock is met with during the excavation, foundation design is likely to be changed which may entail delay in finalisation of drawings. The contractor shall mobilise his resources accordingly in consultation with GE and shall have no claims of what so ever nature for delay in finalisation of revised details shall be entertained. CEs decision in this regard will be final and binding.

3.1.3 Hard rock met during excavation shall be entered (in stacks) in the measurement book duly signed by the GE and the contractor and the same shall become the property of contractor for which recovery at the rate rubble stone from approved quarries for hand packing (Item 06123) of MES SSR Part-II) shall be made subject to applicable percentage over SSR from contractors advance on account payment.

3.1.4 The hard rock so obtained may be allowed to be used in the work by the GE provided it meets the specified requirements, location (s) etc where it is to be used shall also be as decided by the GE. If hard rock obtained from excavation is not fit to use in the work the contractor shall remove the same outside MD land without any extra cost to the Government with approval of AO.

3.1.5 Surplus excavated soil shall be removed to a distance exceeding 250 metre but not exceeding 500 metres deposited, spread and levelled as directed. Lump sum cost quoted by the contractor shall include for cost of this lead and removal.

3.2 **SITE CLEARANCE, SURFACE EXCAVATION AND SURFACE DRESSING**

3.2.1 Before commencement of excavation or earth filling, the representative of the GE and the contractor will be required to take the levels jointly of existing ground surface at intervals decided by the GE (The decision of the GE shall be final and binding in this respect) and plot the same on longitudinal and cross sections to be prepared by the contractor as directed by Engineer-in-Charge and approved by GE considering the adjacent road levels and levels of other buildings. These cross sections shall also show the proposed formation level after cutting and shall be signed by the GE and the

PARTICULAR SPECIFICATIONS (CONTD...)

contractor in token of their acceptance and sent to CE Office for record within one month from the date of commencement.

3.2.2 Before the work is started, Site clearance shall be carried out for the area covered by the building as per clause 3.6 of MES SSR Part I. Further Surface excavation for averaging depth shall be carried out for the area covered by the buildings as per clause no 3.3.2 of MES SSR Part I. Prior to completion of work surface dressing up to 3 metre around the building from the external walls including apron/hard standing (except road side portion of apron) shall be carried out as per clause 3.6 and 3.10 of MES SSR Part-I. All rubbish and spoil obtained from site clearance, surface excavation and surface dressing shall be removed, spread and levelled as directed by Engineer-in-Charge to a distance exceeding 250 metre but not exceeding 500 metre from external face of building.

3.2.3 Depth of foundation shown in drawings for the buildings is depth after surface excavation. GL/NGL marked on the drawings shall be average GL/NGL as fixed by GE after surface excavation.

3.3 **EXCAVATION IN TRENCHES AND OVER AREAS**

3.3.1 Excavation in trenches and over area shall be carried out as described in clause 3.13 of MES SSR Part-I. Bailing and pumping of water, if required will be done as described in clause 3.17 of MES SSR Part-I. No extra payment shall be admissible for the above-mentioned operation. If however, an inflow of water in to excavation is caused by powerful springs or river seepage, broken water mains or drains and the like (other than those broken through the contractors negligence) the contractor shall inform the GE. If in the opinion of the GE the inflow is due to any of these causes, he shall issue instructions in writing as to the method to be employed in clearing the excavation of water and additional payment shall be allowed as deviation order.

3.4 **FILLING IN TRENCHES, PLINTH, UNDER FLOORS APRON/RAMP ETC.**

3.4.1 Filling in foundation trenches, plinth, under floors, and in other situations shall be done with approved earth. It shall be ensured that turf, peat vegetable and other organic and deleterious matter is removed from the soil used for filling. Black cotton soil shall not be used for filling. Filling shall be done as specified in clause 3.19 of MES SSR Part-I, and filling in trenches for pipes, drains, cables etc shall be done as per clause 3.20 of MES SSR Part-I. Earth filling in embankments and earthen traverses shall be done all as specified in clause 3.22 of MES SSR Part-I.

3.4.2 **COMPACTION OF FILLED EARTH**

The compaction of filled earth under floors inside the plinth area and foundation trenches etc. of the building shall be done with diesel operated earth Compactor/Rammer in layers not exceeding 25cm thick duly watered. Each layer shall be approved by GE after compaction and photographic record to be maintained. Compaction of each layers shall be entered in stage passing register and shall be approved by GE.

3.4.2 (a) Earth obtained from excavation shall be used for filling only after approval of Engineer-in-Charge.

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(b) For the purpose of unit rate of building/structure in schedule 'A' Part-I the whole soil (except soil obtained from surface dressing and surface excavation and black cotton soil) obtained from excavation of item of schedule 'A' Part-I shall be considered suitable for filling. No charges shall be levied from contractor for use of soil obtained from excavation for filling.

(c) If soil obtained from excavation is not adequate for filling in trenches, plinth, under floor etc additional approved earth required for filling shall be obtained by the contractor from outside MOD land at his own resources and no extra payment on this account shall be admissible.

3.5 In case of deviation, the approved earth obtained shall be priced at the rate applicable for rough excavation in any type of soil not exceeding 1.5 metre in depth and getting out and removal to a distance exceeding 500 metre but not exceeding 1.5 Km adjusted by the contractor percentage as applicable irrespective of actual lead/cost involved.

3.6 **HARD CORE**

Refer clause 3.27 of MES SSR Part-I.

3.6.1 The material for hard core shall be broken hard stone approved by GE, obtained from the source as per Appendix 'A' to particular specifications.

3.6.2 The hard core shall be watered and rammed. The thickness of hard core shown in drawings or specified in particular specifications is the consolidated thickness.

3.7 **PRECONSTRUCTION ANTITERMITE CHEMICAL TREATMENT**

Anti-termite treatment shall be carried out to (buildings as per clause 3.7.1 here in below) all as specified in clause 3.26 of MES SSR Part-I except that termite mound treatment if required to be provided shall be ordered as deviation.

3.7.1 The work of ant termite treatment to the buildings in against serial item No 1 & 2 of Schedule 'A' Part-I shall be carried out through a specialist firm. The firm shall meet the following requirements to be approved by the GE before anti termite treatment work is taken in hand: -

(a) The firm executing the work shall have valid licence for carrying anti termite treatment as per insecticide act 1962 (as amended from time to time).

(b) The firm shall be a member of IPCA or shall have a satisfactory record of performance.

(c) The person carrying out anti termite treatment shall be qualified as per rule 10 promulgated under insecticide rule 1971.

3.7.2 Daily record shall be maintained duly signed by the contractor and Engineer-in-Charge giving the following details:-

(i) Location of work done

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(ii) Name of chemical and its concentration used

(iii) Items of the treatment work done (bottom and sides of excavation of masonry wall, back fill, under plinth protection, top of filling and along external perimeter of building/plinth protection) and area covered under each item.

(iv) Quantity of chemical required for work done during the day and quantity of chemical actually used.

3.7.3 The contractor shall give a guarantee of 10 years for the anti-termite treatment. The aforesaid guarantee period of 10 years shall reckon from the certified date of completion of work.

3.7.4 The amount so calculated as per table given below shall be retained 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 the guarantee period satisfactorily. Alternatively, contractor may give a separate interest bearing security deposit or bank guarantee bond to GE valid for 10 years for the sum mentioned above. Security deposit/bank guarantee bond shall be released after expiry of defects liability period of 10 years as specified. The contractor may at his discretion furnish fixed deposit receipt for the above amount in lieu of the security for guarantee period as mentioned:-

| Srl No | Amount of anti-termite treatment work at contract rate | Amount to be retained from contractor's dues rounded to nearest thousand rupees |
|--------|--|---|
| 1 | 2 | 3 |
| (i) | Up to Rs 50 Lakh | 2% of amount subject to minimum of Rs 5000/- and enhanced by 25%. |
| (ii) | Over Rs 50Lakh and upto Rs 100 Lakh | Rs 100000/-+ 1.5% of amount exceeding Rs 50 Lakh and enhanced by 25%. |
| (iii) | Over Rs 100 Lakh | Rs 175000/-+ 1 % of amount exceeding Rs 100 Lakh and enhanced by 25%. |

3.7.5 Should the GE at any time during construction or prior to the expiration of the guarantee period of 10 years find that the buildings have been infested with termites, the contractor shall on demand in writing from GE, specifying the building(s) complained of, notwithstanding that 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 the guarantee period of 10 years and in event of his failing to do so within a period to be specified by the GE in his demand aforesaid, the GE may undertake such treatment at the risk and expense, in all respect, of the contractor. The liability of the contractor under this condition shall not extend beyond the guarantee period of 10 years unless the GE had previously given notice to the contractor. The security deposit referred to in condition 3.7.4 herein before may be refunded to the contractor after the expiry of the period of ten years 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). Condition 10, 46 and 68 of the General Conditions of Contracts (IAFW-2249) shall be deemed to be amended to the extent mentioned above.

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- 3.7.6 Chemicals for anti-termite treatment shall be purchased by the contractor from the manufacturers or their authorised agents only and brought to site in manufacturer's sealed containers. Name of the authorised agent shall be verified from the manufacturer by the GE before approval.
- 3.7.7 Regarding chemical for anti-termite treatment, provisions of special condition No 8 (Record of materials) shall strictly be complied with.
- 3.7.8 The chemical for anti-termite treatment brought to site shall be inspected by the Engineer-in-Charge and the quantity brought to site shall be recorded in the measurement book and signed by the contractor and the Engineer-in-Charge as a check to ensure that the required quantity has been brought to site for incorporation in the work.
- 3.7.9 The chemical brought to site shall be stored as directed by the Engineer-in-Charge and those already recorded in the MBs shall be marked for identification.
- 3.7.10 Refer clause 3.26.1 of MES SSR Part-I. Chemical for anti-termite treatment shall be Chloropyriphos (20% EC) ISI 8944 marked.

4. CEMENT

- 4.1.1 **GENERAL** : Cement required for the work under the contract shall be procured, supplied and incorporated in the works by the contractor under his own arrangement. Cement shall be of tested quality and shall comply with the requirements mentioned in the drawings, MES SSR, IS specifications as amended and particular specifications given here-in-after.
- 4.1.2 **TYPE OF CEMENT** : Type of cement for subject work shall be Portland Pozzolana Cement (PPC) (IS:1489 Part I) unless otherwise mentioned in structural drawings forming part of the tender documents.
- 4.1.3 **USE OF PPC** : Following requirements are to be ascertained before using the PPC :-
- (a) PPC meets the strength criteria of 43 Grade OPC as laid down in IS-8112-1989.
 - (b) The minimum period before striking formwork given in clause 11.3.1 of IS-456-2000 is to be suitably modified at site by the GE.
 - (c) Mixing of OPC and PPC shall not be allowed for use in the same building
 - (d) While procuring PPC, the following requirements are to be ensured and certificate to that effect is to be rendered by the contractor for each batch from the manufacturer:-
 - (i) The quality of fly ash is strictly as per IS-14989 (Part-I).
 - (ii) Fly ash is inter-ground with clinker not mixed with clinker.
 - (iii) Dry fly ash is transported in closed containers and stored in silos. Only pneumatic pumping should be used.
 - (iv) The fly ash is received from thermal power plants using high temperature combustion above 1000⁰ C.

PARTICULAR SPECIFICATIONS (CONTD...)

(v) The fly ash content in PPC shall be as per IS 1489 (Pt-I).

(e) PPC shall not be used for water retaining structures.

4.2 SOURCE OF PROCUREMENT

4.2.1 Cement shall be procured by the contractor from any approved main producers of cement listed in Appendix 'B' to particular specifications and other manufacturer of cement approved by E-in-C's Branch (up to schedule date of receipt of tender) and not from their authorised dealers. However if the quantity of cement required in a work is less than 1200 bags, same can be procured from the authorised distributors/ dealers of the main producer but the contractor will have to submit test certificates of the batch issued by the main producers.

4.2.2 GE shall verify the valid BIS certification of the firm before giving approval of manufacturer/firm and CTC copy thereof shall be kept on record.

4.2.3 The contractor shall furnish particulars of the manufacturer of cement along with date of manufacture to the GE for every lot of cement separately. The cement so brought shall be fresh and in no case older than 60 days from the date of manufacturing. The documents in support of the purchase of the cement shall be verified by the Engineer-in-Charge and GE. Before placing the order for supply of cement by the contractor, he shall obtain written approval from the GE regarding name of manufacturer, quantity of cement etc. Cement shall be procured for minimum requirement of one month and not exceeding the requirement of the same for more than two months at a time. The cement shall be consumed in the work within three months after receipt. Cement shall conform to the requirement of the Indian Standard Specifications and each bag of cement shall bear ISI mark and date of manufacture. The weight of each consignment shall be verified by the Garrison Engineer and recorded. The content of cement shall be checked at random to verify the actual weight of cement per bag. However, the content of cement per bag shall be 50 Kg only, subject to tolerance given in clause 9.2 of IS-8112.

4.3 TESTING OF CEMENT

4.3.1 The manufacturer is to carry out inspections and testing of cement in accordance with the relevant BIS provisions. The contractor shall submit the manufacturer's test certificate in original along with test sheets giving the results of each physical test as applicable in accordance with relevant IS provisions and the chemical composition of cement or authenticated copy thereof duly signed by the manufacturer with each consignment, as per the following IS provisions:

- (a) Method of sampling hydraulic cement as per IS-3535
- (b) Methods of physical test for hydraulic cement as per IS-4031
- (c) Method of chemical analysis of hydraulic cement as per IS-4032

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

PARTICULAR SPECIFICATIONS (CONTD...)**FORMAT FOR CEMENT SUPPLY AND ACCEPTANCE REGISTER**

1. CA No and Name of Work
2. Control No*
3. Name of Manufacturer/Brand Name/Gde of Cement :
(a) Manufacture __ (b) Brand __ (c) Grade __
4. Qty of cement and 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)

| | Physical Requirements (As per IS-4031) | | | | | | | | | | Chemical Requirements (As per IS-4032) | | | | | | | |
|--|--|----------------------------|-------------------------|--------------------------------|------------------------------|-----------------------------|---------|---------|---------------------------|--------------------------|--|------------------------------|-------------------------|---------------|-------------------------|----------------------|--------------|---------------|
| | Specific Surface Area (M ² /Kg) | Soundness by Le Chatellier | Soundness by Auto Clave | Initial Setting Time (Minutes) | Final Setting Time (Minutes) | Compressive Strengths (Mpa) | | | Temp during testing 20 °C | Standard Consistency (%) | Lime Saturation Factor (Ratio) | Alumina Iron Ratio (Ratio) O | Insoluble Residue (%) O | 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 Signature

Accepted / Rejected

Contractor

Junior Engineer

Engineer-in-Charge

Garrison Engineer

Remarks of BOO / Inspecting Officer / CWE

*To be allotted serially by GE consignment wise

Signature of Contractor

For Accepting Officer

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- 4.3.2 The contractor shall, however, organise setting time and a compressive strength test of cement through designated laboratory on samples collected from the lot brought at site before incorporation in the work. The contractor will be allowed to use the cement only after satisfactory compressive strength of 7 days. To meet this requirement, contractor is required to keep minimum 10 days stock before any new lot brought at site which can be used in the work. The contractor shall be required to remove the cement not meeting the requirement from site within 24 hours. 7 days strength test will be relied upon to accept the lot of cement to commence the work. 28 days compressive strength test will be the final criteria to accept /reject the lot.
- 4.3.3 The GE shall also carry out independent testing as per the tests mentioned in the 'FORMAT FOR CEMENT SUPPLY AND ACCEPTANCE REGISTER' of random samples of cement drawn from various lots if sample fails in 7 days compressive strength. The testing shall be carried out through National Test House, SEMT, CME, Regional Research Laboratories, NABL laboratories, IITs, Government Engineering colleges, National Institutes of Tech Government approved laboratories as approved by GE as per IS-3535 (Method of sampling hydraulic cement), IS-4031 (Method of physical test for hydraulic cement) and IS-4032 (Method of chemical analysis of hydraulic cement) referred to above. The decision as to where the testing of cement is to be done shall be taken by GE. In case the cement is not of requisite standard despite manufacturers test certificate, the contractor shall remove the total consignment from the site at his own cost after written rejection order of the consignment by the GE. The cost of test shall be borne by the contractor irrespective of the results of testing.
- 4.3.4 Cost of transportation of samples to the approved laboratory / test house and all testing charges including cost of samples shall be borne by the contractor.
- 4.3.5 The random samples as per relevant IS shall be selected by GE before carrying out testing. The record of such samples selected by the GE for testing shall be properly maintained in the cement testing register giving cross reference to relevant consignment of cement and quantity received etc.
- 4.3.6 The contractor shall be required to set up adequate testing facilities at site to the entire satisfaction of GE for conducting setting time test and compressive strength test as per IS codes referred to here-in-before for the samples collected from the lot brought at site. These tests shall be carried out within 7 days of receipt of cement at site. The test can alternatively be carried out at the Command testing laboratory (CTL), or any other recognised laboratory so designated by GE.
- 4.3.7 The contractor shall submit original purchase vouchers 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 to ensure the requirements as mentioned here-in-before, before acceptance. The original purchase vouchers and the test certificates shall be verified for subject contract and defaced by the Engineer-in-Charge and kept on record in the office of the GE duly authenticated and with cross reference to the consignment / control number recorded in the cement acceptance register. The cement acceptance register shall be signed by the JE (Civil), Engineer-in-Charge, GE and the contractor. The contractor shall maintain schedule of supply of cement for each consignment.

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

4.4 **STORAGE / ACCOUNTING / PRESERVATION OF CEMENT**

4.4.1 Cement bags shall be stored in covered godown over dry platform at least 20cm high in such a manner as to prevent deterioration due to moisture or intrusion of foreign matter. In case of store room, the stack should be at least 20 cm away from floors and walls. The stacking of cement shall be done as specified in relevant IS. The storage accounting and preservation of cement supplied by the contractor shall be done as per standard engineering practice till the same is incorporated in the work and the cost of the same shall be deemed to be included in the unit rate/amount quoted by the tenderer. The Engineer-in-Charge shall inspect once a week to verify that cement lying at site is stored, accounted, preserved and maintained as per the norms. The cement shall be stored so as to differentiate each tested and untested consignment separately with distinct identification. If the GE is not satisfied with the storage/preservation of cement, he may order for any test(s) of cement as applicable for that consignment to ensure its conformity to the quality mentioned in the manufacturer's test certificate. The contractor shall bear the cost of necessary testing(s) in this regard and no claim whatsoever shall be entertained.

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

- (i) Each cement consignment shall be stacked separately and removal shall be made on the basis of 'First in First out'.
- (ii) Adequate top cover will be provided.
- (iii) Stacks in no case shall be higher than 10 bags. The maximum width of each stack shall be 3metre. If the stack is to be more than 7 or 8 bags high, the bags shall be arranged in header and stretcher fashion i.e alternatively length wise and cross wise so as to tie the piles together and avoid damage or topping over.
- (iv) Adequate space shall be kept between two stacks.

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

4.4.4 Cement shall be removed from the store only according to daily requirement with the knowledge of both the parties and daily consumption of cement shall be recorded in cement consumption register which shall be signed by the Engineer-in-Charge and the contractor. Calculation of cement consumption will be as per the quantity of cement approved in design mix for RCC works. For other items of work, cement constants given in Appendix 'A' to E-in-C's Branch letter No 19280/E8 dated 03 May 1976 shall be the basis of consumption of cement.

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

4.5 SCHEDULE OF SUPPLY

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

4.6 MEASUREMENT AND PAYMENT OF CEMENT

4.6.1 The entire quantity of cement as brought at site, from time to time 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.

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

4.6.3 For the purpose of pricing deviation for the items involving cement, the rates given in MES SSR shall be applicable.

4.7 CONCRETE

4.7.1 All plain and reinforced cement concrete shall be as per IS-456 (2000)

4.7.2 AGGREGATE

Coarse aggregate for all cement concrete work shall be crushed or broken and graded hard stone. Coarse aggregate and fine aggregate (sand) shall be from the source as mentioned in Appendix 'A' to particular specifications as approved by the GE and shall conform to IS-383 and to the sample kept in GEs office.

4.7.3 WATER

Quality of water to be used for mixing and curing of concrete work shall conform to the requirement of clause No 5.4 of IS-456 (2000). The GE and contractor will ensure that testing of water is carried out in any government approved NABL laboratory/government college at three months interval to ensure that the water used for making concrete or mortar and for curing conform to IS-456.

4.7.4 CEMENT CONCRETE

4.7.4.1 Type of cement concrete required for works in various situation shall be as follows unless otherwise indicated on drawings or specially specified here-in-after:-

PARTICULAR SPECIFICATIONS (CONTD...)

| SI No | <u>LOCATION</u> | <u>THICKNESS AND TYPE OF MIX</u> |
|-------|---|---|
| 1 | 2 | 3 |
| (a) | Lean concrete below RCC column footing/plinth beam. | PCC (1:4:8) type D-2 using 40 mm graded crushed stone aggregate. |
| (b) | Foundation concrete for masonry walls/pillars | PCC (1:4:8) type D-2 using 40 mm graded crushed stone aggregate. |
| (c) | Sub base to floor | 75/100 mm thick PCC (1:4:8) type D-2 using 40mm graded crushed stone aggregate. |
| (d) | RCC works (Except water retaining structure) | M-25 grade (Design mix concrete) as per IS 456- 2000 using graded crushed stone aggregate. |
| (e) | RCC works in water retaining structure (Irrespective of any grade specified in drawings.) | M-30 grade (Design mix concrete) as per IS: 3370 and IS: 456-2000 using graded crushed stone aggregate. |

(f) PCC in floors work shall be as follows :-

| | | |
|-------|---|---|
| (i) | 75 mm thick and above | PCC (1:2:4) type B-2 using 40 mm graded crushed stone aggregate |
| (ii) | 40 mm thick and above but less than 75 mm | PCC (1:2:4) type B-1 using 20 mm graded crushed stone aggregate |
| (iii) | Thickness less than 40 mm | PCC (1:2:4) type B-0 using 12.5 mm graded crushed stone aggregate |
| (iv) | PCC bed blocks | PCC (1:2:4) type B-1 using 20 mm graded crushed stone aggregate of size as technically required |
| (v) | PCC coping and benching | PCC (1:3:6) type C-1 using 20 mm graded crushed stone aggregate |
| (vi) | Surroundings to surface of gully traps, padding under nahani traps/floor traps/deep seal traps/surrounding of WC seats/Sunken portion etc | Lean concrete PCC (1:5:10) type E-2 using 40 mm graded brick aggregate |

4.7.5 SPECIFICATION FOR DESIGN MIX CONCRETE**4.7.5.1 CEMENT**

Cement shall be as per clause 4.1.2 here in before.

Signature of Contractor

For Accepting Officer

PARTICULAR SPECIFICATIONS (CONTD...)**4.7.5.2 AGGREGATE**

(a) Aggregate shall conform to IS 383 and shall be of type basalt/trap/sand stone. Aggregate shall be non-porous, hard, strong, durable, clean and free from various impurities and adherent coating and shall not contain any deleterious materials exceeding the limits specified in the above referred IS. When required by the Engineer-in-Charge, the contractor shall at his own expense carry out any test laid down in IS: 383 and IS:2386 to verify that the aggregate complies with the requirements of the IS. The test will be carried out in any laboratory approved by the GE.

(b) Coarse aggregate shall consist of crushed stone aggregates.

(c) Fine aggregate shall consist of naturally occurring coarse sand or crushed stone sand (M-sand) can be used in case of non-availability of naturally occurring, coarse sand as per clause no. 4.4.7.2, 5.4 of SSR Part-I. Fine aggregate shall conform to Zone-II and Zone-III of table IV of IS-383.

(d) Samples of the aggregate proposed to be used shall be approved by GE, prior to bulk delivery of the same at site of work. Field tests for determining the contents of silt, clay etc for fine aggregate shall be carried out by the Engineer-in-Charge from time to time to ensure that material brought to site are in conformity with the samples approved by the GE.

(e) **GRADING OF AGGREGATE**

The grading of coarse and fine aggregate shall be as per MES Schedule. Fine aggregate shall have grading as per grading Zone-II or zone III. The grading of coarse and fine aggregate shall be checked as frequently as possible. The frequency for the aggregate testing shall be as per Annexure – I to special condition here-in-before, which may be increased at cost to contractor by Engineer-in-Charge to ensure that the specified grading is being maintained.

4.7.5.2. A MANUFACTURED SAND (FINE AGGREGATE)

(I) Contractor can use MANUFACTURED SAND (fine aggregate) as per following provision of IS Code:-

(a) IS 383:2016 Salient provisions to be followed are as under:-

(i) Table1 (Clause 4.2.1): utilization in lean, plain and reinforced concrete to the extent as a percent of total mass of fine aggregates.

(ii) Clause 5.7: Additional requirement for all Manufactured Aggregates as per Table 3 to 6

(iii) Clause 6.3 & Table 9: Gradation requirement of Manufactured Sand.

(b) IS 2430 Method of sampling of fine aggregates.

(c) IS2383 (Part 1 to Part 8) Testing of aggregates.

(d) IS 4032 & IS 14959 Chemical tests for aggregates.

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(II) Where Manufactured Sand is used, Instead of Natural Sand, BIS certification will be insisted from the supplier and following information shall be obtained from the manufacturer/supplier and kept on record:-

- (a) Source of parent material and brief manufacturing process.
- (b) Special characteristics having bearing on concrete properties such as presence of adhered coating in case of Recycled Concrete Aggregate
- (c) Service history if any especially name of projects where used and performance.
- (d) Special precautions to be observed during concrete production.

(III) The manufactured sand can be used for all locations except following: - (i) OHT (ii) SWT (iii) swimming pool (iv) Auditorium (v) larger span buildings as decided by the Accepting officer (vi) prestressed concrete.

(IV) In case of non-availability of Natural River sand during progress of work, contractor shall procure the manufactured sand as specified without any extra cost. No delay in work on this account shall be acceptable.

(V) it shall be mandatory to use the M-sand/P-sand for the plastering and masonry. River sand shall not be incorporated for masonry work and plaster work.

4.7.5.3 BATCHING

(a) The mixing of cement and aggregate for cement concrete for all grades and type of RCC work shall be done by weigh batching.

(b) The batching shall be as per clause 10.2 of IS 456:2000 and clause 4.11.3 (Excluding provision vide sub clause 4.11.3.1) of MES SSR Part-I.

(c) CONCRETE WEIGH BATCHING PLANT

The concrete will be mixed in automatic concrete weigh batching plant. The plant will have a capacity of 12-13 cum/hr (Approximate) with auto feeding system of cement and aggregate. It will have handle for manual ejection in case of power failure. However smaller / bigger capacity plant manufactured by any reputed company capable of giving required output to commensurate the desired progress will be brought by contractor at his own cost. The contractor shall furnish his request in advance to GE for the site of batching plant and the same shall be decided by GE in consultation with station authority.

(D) USE OF RMC (READY MIX CONCRETE)

The contractor shall have the option to use RMC in the project without any extra cost.. The grade of RMC shall be same for all concrete and RCC work as mentioned in Para 4.7.4 here in before. The design mix of RMC as per IS code for each grade of concrete shall produced by the contractor for approval prior to execution of work. The RMC shall be procured from one of the manufacturer from approved list of E-IN Cs branch as approved by GE. The transportation of RMC to site of work shall be carried out using transit mixture (TM) and poring of concrete at site of work shall be carried out using

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mechanical concrete pump of appropriate capacity. The entire scheme for RMC shall be got approved as per latest IS codes applicable on the date of execution of work.

4.7.5.4 MIX PROPORTION AND STRENGTH

| | | |
|--------|---|---|
| (i) | Strength to be achieved | As per IS-456-2000 |
| (ii) | Type of cement | As per clause 4.1.2 herein before |
| (iii) | Target mean strength of cement concrete | To be taken as per mix designed as per IS-10262 clause 2.2 |
| (iv) | Aggregate/cement ratio by weight | As per mix design based on IS 10262 and IS-456-2000 |
| (v) | Workability | As per clause 7.1 of IS-456-2000 slump shall be 25 mm to 75 mm compaction factor 0.85 to 0.92 |
| (vi) | Water cement ratio | As per mix design based on IS-10262 and IS-456-2000 |
| (vii) | Degree of quality control | Good (Refer Appendix 'A' of IS-10262) |
| (viii) | Durability | Exposure - Moderate for M-25 and severe for M-30 |
| (ix) | Cement content | As per IS-456-2000 but not less than quantity given below in NOTE. |
| (x) | Type of aggregate | Crushed stone aggregate |
| (xi) | Maximum nominal size of aggregate | 20mm or as specified. |

NOTES :

- (i) The minimum quantity of cement for M-25 (design mix) and M-30 (design mix) shall be as per IS: 456. In case quantity of cement as per actual design mix is more than the above quantity, the actual quantity as per design mix shall be used in the work without any extra cost to Govt. The contractor will take into account this aspect while quoting the tender.
- (ii) The rates given in MES schedule for design mix shall be applicable irrespective of the quantity of cement approved/used in the execution of design mix work. The contractor is required to keep this aspect in mind while quoting his rates.
- (iii) Mix design shall be prepared based on SP-23, handbook on concrete mixes and IS-10262 Recommended guide lines for concrete mix design. No element of wastage of cement shall be allowed while working out the cement consumption details for design mix concrete work.

PARTICULAR SPECIFICATIONS (CONTD...)**4.7.5.5 APPROVAL OF DESIGN MIX**

(a) Soon after commencement of work, contractor shall arrange the design mix for concrete of applicable grade. Design mix concrete shall be got carried out from National Test House, SEMT, CME, and Regional Research Laboratories or from any Govt labs such as IIT Delhi, NIT Kurushetra, MNIT Jaipur, Engineering College Kota, MBM Engineering College Jodhpur command testing lab and shall be got approved from GE before implementation in the work. In case contractor fails to submit the samples of design mix soon after commencement of work, the delay shall solely be attributable to the contractor and no claim of whatsoever nature shall be admissible on this account.

(b) As soon as possible after receiving the design mix from the above agency same shall be verified at site by casting and testing the final cubes by GE.

(c) For each design mix seven numbers of preliminary test cubes of size 15x15x15 cm shall be made as per clause 2.8, 2.9 and 2.10 of IS-516. The concrete cube shall be tested as per IS-516 at site laboratory. Out of seven cubes three will be tested after seven days (on 8th day) from the date of casting, three cubes after 28 days from the date of casting and remaining one cube shall be preserved by the GE for one year after certified date of completion of the work for any subsequent check.

(d) The test after seven days (i.e on 8th days) is intended only to give an early indication of the strength likely to be achieved. The strength thus achieved should be comparable with the above design mix report with specified design parameter as specified in clause 4.7.5.4

(e) Frequency of sampling shall be as per clause 15 of IS-456. On the result of the above test the mix actually to be used shall be agreed to and approved by the GE. The approval of the GE shall not relieve the contractor of his responsibility for obtaining the required minimum strength of concrete in the work.

4.7.5.6 ACCEPTANCE CRITERIA.

(a) The contractor shall be deemed to comply with the strength requirement as per clause 16 of IS- 456.

(b) Whenever there is any change in the type of grading of material, the mix shall be rechecked and modified suitably to the desired compressive strength.

(c) Actual standard deviation for each grade of concrete is to be calculated after collecting the test results of actual concrete work (compressive strength actually achieved at site for 1st 30 samples) as laid down in IS-456-2000 (Table-II) to review the Design Mix.

4.7.6 Testing of cubes shall be carried out at the site laboratory as per Annexure-I of special condition.

4.7.7 MIXING AND COMPACTION OF CEMENT CONCRETE

4.7.7.1 Design mix concrete at site shall be done by using semi-automatic batching plant. The contractor shall provide batching plant with printing facilities to ensure proper quality control and maintenance of record of the concreting done per day. The plant shall be installed at the location as directed by GE.

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4.7.7.2 All cement concrete except design mix concrete may be mixed in approved mechanical mixer. The mixer must also have a water container with a water meter for adding measured quantity of water in each batch. Mixing of concrete shall be as per clause 4.11.5 of MES SSR Part-I.

4.7.7.3 All RCC work shall be consolidated with approved mechanical vibrators except where not practicable in the opinion of the Engineer-in-Charge, RCC in slabs shall be compacted with plate/surface type vibrator and in beams/columns with needle/pin vibrator.

4.7.8 **HOT WEATHER CONCRETING**

Para 14.1 of IS-456 specifies that during hot and cold weather, the concreting should be done as per the procedure set out in IS 7861 (Part-I) and IS 7861 (Part-II). Provision contained in IS 7861, reaffirmed 1990 shall be taken into account and the Dept shall pay nothing extra on this account. The procedure/combination of procedures to be followed for bringing down the temperature of concrete shall be decided by the GE as per site requirement.

4.7.9 **CILL TO WINDOWS/VENTS**

Provide 18 to 20 mm thick or of thickness as specified in drawing, polished Kota stone cill (Single piece to full length and width) having 05 cm (min) bearing on either side of opening to all windows/vents, bedded in 15 mm thick cement and sand mortar (1:4). Cill shall be projected 25mm from wall and rounded edges on both side with 5mmx5mm grooves drip mould. The portion between two frame shall be filled with cement and sand mortar (1:3).

4.7.10 **PRECAST ARTICLES/RCC LINTELS**

- (a) RCC lintels over door, windows and clear openings up to 1.5 metre clear span may be precast or cast in situ at the discretion of the contractor
- (b) All precast articles shall be set in the cement and sand mortar (1:3)
- (c) In the event of deviation, pricing shall be done at SSR rates for cast in situ work, adjusted by applicable contractor's percentage.

4.7.11 **FINISH TO CONCRETE SURFACE**

4.7.11.1 Exposed surfaces of concrete (other than in contact with casing and of precast concrete) shall be finished to a fair and even surface without using extra cement.

4.7.11.2 Exposed faces of RCC/concrete surfaces (except surfaces of overhead reservoirs) which are ultimately required to be finished by application of white/colour washing/ distempering/ painting etc in the drawings of schedule of finishes or in particular specifications here in after, shall be plastered with a thin layer of cement and sand mortar (1:3), 5 mm thick and finished even and smooth without using extra cement after removal of form work.

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- 4.7.11.3 Exposed surfaces of RCC lintels, beams, and columns etc, which are continuous with the plastered surfaces of walls, shall be finished as for adjoining walls.
- 4.7.11.4 Exposed surfaces of concrete other than those referred to in clause 4.7.11.2 and 4.7.11.3 above, shall be finished even and fair without application of any plaster after removing irregularities and protruding formwork marks and stopping air holes with cement and sand mortar (1:3) (refer clause 4.11.16.2(a) and (c) of MES SSR Part I).
- 4.7.11.5 Top surface of PCC ramp shall be finished with chequered finish achieved by making impressions of expanded metal, while concrete is green.
- 4.7.11.6 Use of mortar/plaster shall not be permissible for correcting levels, unevenness or elevation etc.

4.7.12 **PLASTIC COVER BLOCKS**

Contractor may use at his discretion plastic cover blocks in lieu of cement and sand mortar for concrete cover blocks to ensure proper cover for the reinforcement. In the event of deviation, the rates given in the MES SSR Part-II for reinforced cement concrete shall be applicable without any adjustment for the type of cover blocks.

4.7.13 **BEARING PLASTER AND POLYTHENE SHEET**

(a) All RCC lintel bearing shall be provided as specified in Drg No CEJZ/2004/TD/S-12 sheet No 2/2.

(b) Two layer of 100 micron thick polythene sheet shall be provided over the floor band/roof band as shown in the Drawing No CEJZ/2004/TD/S-7 sheet 1/6 to 6/6.

(c) Two layers of stout waterproofing paper type I weighing not less than 100 Grams per Sqm conforming to IS-1308 shall be provided over 20mm thick rendering in cement and sand mortar (1:3) under the bearing of slabs, beams and the like in contact with surfaces of brick masonry.

4.7.14 **MASONRY STEPS/ RCC STAIR CASE**

(a) At places where no finishes for masonry steps / RCC stair case are mentioned, the finish of steps (treads / risers) shall be as that of the respective building / room / varandah / corridor adjacent to steps / stair case shown on drawing.

(b) Sides of masonry step shall be finished with 10 mm thick plaster in cement and sand mortar (1:4).

(c) In case Granite stone finishes is specified in Schedule of Finishes drawing in Treads and Risers of RCC stair case/masonry step, the same shall be provided with 18 to 20 mm thick polished 'Z' black Granite stone in single piece to full length and width. The nosing of treads shall be rounded off and two parallel grooves 2mm x 2mm immediately behind the nosing edge shall be provided to avoid skidding. In Treads polished 'Z' black Granite stone slab shall be laid over 20mm thick screed in cement and sand mortar [1:3] and in Risers, same shall be provided over 10mm thick plaster in cement and sand mortar [1:3]. Holes shall be made carefully to accommodate balusters in position where railing is to be provided.

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(d) The granite stone finishes shall be provided over landings shall be the same as specified for treads in stair case.

(e) Irrespective of whatever shown and specified in Schedule of finishes drawing, skirting of RCC stair case shall be provided with 12mm thick 'Z' black granite stone, 100mm high over 10mm thick screed in cement mortar 1:3.

4.7.15 PCC RAMP

PCC ramp shall be provided all as shown on drawings at the location marked on drawings. All exposed surfaces of masonry shall be plastered to match the finish of adjoining wall of the buildings. Whether shown on drawings or not the top surface of ramp shall be provided with chequered finish achieved by making impression of expanded metal/IRC fabric as decided by GE, while concrete is green.

4.7.16 COPING

50 mm thick PCC coping as specified herein before shall be provided on top of masonry parapet walls if shown on drawings.

4.8 SEISMIC STRENGTHENING MEASURES:

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.

5 BRICK WORK

(All work for building work below plinth beam level and work below GL for services as in provisional schedules shall be carried out through normal brick work as under)

- 5.1 The thickness of the brick wall indicated as 11.5 cm shall be taken as half brick wall. 23 cm thick brick wall shall be taken as one brick wall and constructed from locally available bricks. Bricks shall be sub class 'B' bricks, old size, with class designation 75 (75 Kg/cm² compressive strength).
- 5.2 One brick wall shall be built in cement and sand mortar (1:6) and half bricks wall shall be built in cement and sand mortar (1:4).
- 5.3 Chases and recesses in walls where required or where directed by Engineer-in-Charge shall as far as possible be provided during construction to avoid cutting afterwards.
- 5.4 Half brick wall shall rest on plinth beams as specified in structural drawing, in case plinth beam is not specified in structural drawing, half brick thick walls in ground floor shall rest on sub base of the floor and on RCC floor slab/beam in other than ground floor except in sunken portion. In sunken portion wall shall rest on lean concrete filled for water proofing treatment.

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- 5.5 In case of variation in dimension of wall thickness indicated in drawings and thickness obtained from locally available bricks, centre line dimension shall be maintained without any financial adjustment.
- 5.6 10 cm thick wall (other than RCC walls) wherever shown on drawings, shall be amended to read as half brick wall using bricks.
- 5.7 In the event of deviation involving brick work the rates for brick work, with sub class 'B' bricks given in MES SSR shall be applicable subject to applicable contractor's percentage.
- 5.8 RCC bands shall be provided at lintel level for entire length and width of half brick thick wall (including over opening). Unless otherwise shown on drawings, the RCC bands shall be of size 115 x 150mm with 4 Nos of 10 mm dia TMT steel bars longitudinal bars and 8 mm dia TMT bars stirrups at 100 mm C/C.
- 5.9 2 Nos 8 mm dia TMT bars at every fourth course shall be provided (to the full length of wall) in half brick thick wall. The bars shall be provided 150 mm bearing at each end into adjoining wall/columns.
- 5.10 If length of brick wall exceeds 4 metre in plan which is unsupported in perpendicular direction, the vertical RCC band of size 230x250 or 115x250 mm reinforced with 4 Nos 10 mm dia TMT steel bars as longitudinal bars and 8 mm dia TMT steel bars stirrups at 150 mm centre to centre shall be provided. This band shall be anchored in slab/beam/sub base.
- 5.11 At partition walls resting over RCC slabs shall be provided concealed beam if partition wall is provided without any beam underneath in RCC slab along the direction of wall as per drawing No CEJZ/2015/TD/S-1 Sheet No 2/4.

5A. PCC BLOCK MASONRY:

PCC blocks masonry shall be factory made with C (5.0) grade PCC Blocks with minimum compressive strength of 5N/mm² having thickness 200mm/100mm, 200mm PCC block wall shall be built in CM 1:6 and 100mm PCC block wall shall be built in CM 1:4. PCC Block conforming to the IS Code- IS 2185 (Part-1) 2005 shall be used. The manufacturer's of the PCC block shall be from Appx "B" or any other manufacturer approved by CWE subject to compliance of specifications of PCC block as mentioned above. The Contractor may also be allowed to cast the PCC block at site, if the quality of the manufactured at site is meeting the standard and specifications as mentioned above. The sample of PCC block manufactured at site shall be approved by GE before casting in bulk quantity.

5A.1 DIMENSIONS & TOLERANCES :

- 5A.1.1 Plain Cement Concrete Block shall be made in standard size 400mm x 200mm x 200mm/ 100mm
- 5A.1.2 The maximum variation in the length of the Plain Cement Concrete Block shall not be more than plus/minus 5mm and maximum variation in the height and width of Autoclave Plain Cement Concrete Block, not more than plus/minus 3mm.

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- 5A.1.3 The faces of Plain Cement Concrete Block shall be flat & rectangular, opposite faces shall be parallel and all arises shall be square. The bedding surfaces shall be at right angle to the face of the Blocks. The Plain Cement Concrete Block with special faces shall be manufactured and supplied if so required.
- 5A.1.4 All Plain Cement Concrete Block shall be sound, free of cracks or other defects which interfere with the proper placing of block units and impair the strength or performance of the construction. The face of faces that are to be exposed shall be free of chips, cracks or other imperfections except that if not more than 5% of a consignment contains slight cracks or small chippings not larger than 25mm, this shall not be deemed ground for rejection.
- 5A.2 **BLOCK DENSITY**. The block density shall conform to the requirement specified in IS 2185 (Part- 1)-2005 and shall be greater than 1800 kg/m³ when tested as per Annex 'C' of specified IS.
- 5A.3 **COMPRESSIVE STRENGTH**. The minimum compressive strength being the average of eight block and minimum compressive strength at 28 days of individual units, when tested in the manner described in Annex 'D' of IS code 2185 (Part-1)-2005
- 5A.4 **DRYING SHRINKAGE**. The dry shrinkage shall be not more than 0.05% when tested in accordance with IS 2185 (Part-1) - 2005.
- 5A.5 **NUMBER OF TEST**. A sample of 20 blocks shall be selected at random. All the 20 Blocks shall be checked for dimensions and inspected for visual defects. Out of the 20 blocks, 08 blocks shall be subjected to the test for compressive strength, 3 blocks to the test for density, 3 blocks to the test for water absorption and 3 blocks to the test for drying shrinkage. The remaining 3 blocks shall be reserved for re-test for drying shrinkage and water absorption, if a need arises
- 5A.5.1 The sample of PCC blocks (each sample consisting of 5 specimen) shall be chosen randomly from the lot procured and tested for various parameters specified as above. One samples shall be tested for every **25000 Nos as per IS 15658:2021** or part of thereof. However, minimum one sample shall be tested from each lot received at site if the quantity procured in the lot is less than 10000 Nos. If required, Engineer-in-Charge or his authorized representative shall inspect the factory during production of the material for this work and also collect samples (of materials used for making PCC blocks and precast PCC blocks) from the factory itself. The contractor shall consider this contingency also while placing the order with one of the approved firms. Nothing extra shall be payable on this account.
- 5A.6 **CRITERIA FOR CONFORMITY**: The number of blocks with dimensions outside the tolerance limit and or with visual defects, among those inspected, shall not be more than two. For block density, the mean value determined shall be greater than or equal to the minimum limit of 1800 kg/m³. For compressive strength average value and minimum individual value shall be determined. The test value shall be greater than or equal to the value specified in 9.4 IS 2185-1 (2005). For drying shrinkage, all the test specimens shall satisfy the requirements of the test. If one or more specimens fail to satisfy the requirements, the remaining 3 blocks shall be subjected to these tests. All these blocks

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shall satisfy the requirements. For water absorption, the mean value shall be equal or less than the maximum limit of 10% by mass.

5A.7 **MANUFACTURER'S CERTIFICATE**. The manufacturer shall satisfy himself that the masonry units conform to the requirements of this standard and, if requested, shall supply a certificate to this effect to the purchaser or his representative.

5A.8 **MARKING**. Concrete masonry units manufactured in accordance with this standard shall be marked permanently with the following information: -

- (i) The identification of the manufacturer.
- (ii) Grade of the unit (for example C (5.0)).
- (iii) Year of manufacturer, if required by the purchaser.

5A.9 On external/internal surfaces of masonry wall the plaster shall be applied as specified.

5A.10 RCC band shall be provided at lintel level for entire length of wall (including over opening). Unless otherwise shown on drawings, the RCC bands shall be of size 200/100 x 150mm with 4 Nos of 10mm dia TMT steel bars longitudinal bars and 98mm dia TMT bars stirrups at 100mm C/C.

5A.11 2 Nos 9 mm dia TMT bars at every fourth course shall be provided (to the full length of wall) in half block wall. The bars shall be provided 150mm bearing at each end into adjoining wall/columns. Full block (one block thick) wall shall be provided with FI 25 X 3 mm as dowel bars 375 mm long on both ends at a vertical distance of 400mm starting from FFL anchored in RCC columns 150mm deep at the time of casting.

6. **DAMP PROOF COURSE**

6.1 DPC shall be provided over full width of internal wall and external walls except dwarf wall and partition wall resting on the floor sub base. DPC shall be provided to all openings as specified in clause 5.42 of MES SSR Part-I. **DPC shall not be provided where RCC band at Plinth level/plinth beams is provided.**

6.2 Damp proof course shall be of 40mm thick PCC 1:2:4 type B0 using 12.5mm graded stone aggregate with integral water proofing compound as per manufacturer's instructions over a layer of 150 micron virgin quality polythene film over bitumen primer blown type conforming to IS-703-1988 on horizontal wall surfaces.

6.3 For structures where top of plinth beam is below the floor level by 150mm min, 40mm thick rough dressed kota stone slab embedded in 20mm thick cement & sand mortar 1:3 shall be provided as DPC. In this connection also refer note 18 of drawing number CEJZ/2015/TD/S-1 sheet No 1/4(R).

6.2 **SCAFFOLDING**: - Only double scaffolding shall be used for entire work for all items. The scaffolding shall be strong and sound. No holes in the masonry for supporting scaffolding will be allowed

7. **WOOD WORK**

7.1 **TIMBER**

7.1.1 Timber required for all the items of work under this contract except factory made door shutters shall be first class hard wood 'TEAK' (Tectona grandis) well-seasoned and conforming to the sample kept in the GE's office.

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7.1.2 Timber for all wood work shall be as per specifications given in clause 7.3 of MES SSR Part-I and shall be within the permissible limits of defects as defined in clause 7.4 and 7.5 of MES SSR Part-I.

7.1.3 Timber shall be well seasoned (whether air or kiln dried at the discretion of the contractor but without any price adjustment). Maximum permissible moisture content in timber for various purposes shall be as stipulated in clause 7.7 of MES SSR Part-I. For clarification of zones for the moisture content, this contract shall be deemed to fall under climatic Zone-I and II.

7.1.4 PRESERVATION OF TIMBER

Preservation/anti-termite treatment shall be carried out to all wood work and joinery fabricated by the contractor at site. Factory made ply/boards are not to be treated with any chemical at site. Chemical used for anti-termite treatment to wood work and joinery shall be COPPER NEPTHENATE or any other chemical specified in the IS-401 applied in any one of the manners specified in the IS.

7.2 TOLERANCE

7.2.1 All wood work both carpenter and joinery, shall hold full dimensions shown on drawings except that an allowance of ± 1.5 mm 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 size of the doors etc as shown on drawings.

7.2.2 Timber members up to 3.0 metre length shall be in one piece

7.3 SURFACE FINISH

Surface finish of timber in contact with or buried in masonry/concrete/plaster and surfaces of timber hidden from the view shall be clean sawn. All other surface shall be wrought.

7.4 PELLETING

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

7.5 PLUGGING

Plugging to walls shall be as per Clause 7.29 of MES SSR Part-I.

7.6 SCREWING ETC

Use of nails is prohibited. To fix planks/shelves, fillets, moulding and the like with screws, the minimum length of screws and their material shall be as specified in Clause 7.21 of MES SSR Part-I. The wood screws shall be bright finished. The size and designation shall be as specified in IS/MES SSR. Wherever it is not specified the same shall be as directed by the Engineer-in-Charge.

PARTICULAR SPECIFICATIONS (CONTD...)**7.7 .FORM WORK**

7.7.1 Form work shall be as per clause 7.15 of MES SSR Part-I and shall comply with requirement of clause 4.11.6 of MES SSR Part-I and notes given in drawing No CEJZ/2004/TD/S-8 sheet 1/6 to 6/6. However, period of striking off formwork using PPC shall be as under and if required GE shall increase the striking off form work period as per site requirement: -

| SI No | Location | Minimum striking period |
|-------|----------|-------------------------|
| 1 | 2 | 3 |

- (i) Striking off formwork from walls, columns and vertical sides of beams. 3 to 4 days
- (ii) Striking off formwork from Slabs (Props left under) 14 days
- (iii) Striking off formwork from Beams soffits (Props left under) 14 days
- (iv) Striking off formwork, Removal of props to slab/beam
 - (aa) Spanning up to 6 m 21 days
 - (bb) Spanning beyond 6 metre to 10 metre (excluding 10 metre) 28 days
- (v) Striking off formwork from for cantilever portion of slab, form work with support shall be retained until the completion of the casting of the entire frame work of the building

7.7.2 **Only steel formwork** both vertical props and other surfaces shall be used.

7.7.3 Deviation with regards to form work shall however be based on timber form work rates given in MES SSR Part II as applicable for rough finished surfaces.

8. JOINERY

8.1 (a) Dimensions of various parts of joinery as shown on drawings shall supersede those stipulated in MES SSR. However, rates for joinery (except for factory made fly proof shutters) as given in MES SSR shall apply to the joinery as shown in drawings in the event of deviations.

(b) Use of nails in joinery work, unless otherwise specified or shown on drawings is prohibited. Wooden screws of appropriate size shall be used.

(c) Thickness of any wooden door shutters where not shown on drawings or specified shall be minimum 35 mm.

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- (d) Only hammer marked doors as specified in IS shall be used in the work.
- (e) Primer shall be applied at site and shutters shall be procured without primer being applied in factory to facilitate visual check of timber species and inserts.
- (f) Panelled and fly proof door shutters shall be factory made second-class hard wood (Non coniferous) Bonsum (Phoebe species)/ Chap lash (Artocarpus chaplasha)/Hollock (Terminalia myriocarpa) kiln seasoned and chemically treated.

8.2 FACTORY MADE FLY PROOF DOOR SHUTTERS

Factory made fly proof door shutters shall be 35mm thick made of kiln seasoned as per IS-1141 and chemically treated as per IS-401 second class hard wood (Non coniferous) Bonsum (Phoebe species)/ Chaplash (Artocarpus chaplasha)/Hollock (Terminalia myriocarpa) fixed with stain less steel wire cloth as specified hereinafter as well as in MES SSR Part-1.

- 8.2.1 The overall sizes and dimensions of door shall be as indicated on drawings for wooden doors.
- 8.2.2 The overall door shutters shall conform to the IS-1003
- 8.2.3 Factory made wooden doors shutter shall be obtained from any of the manufacturer given in Appendix 'B' to particular specifications. Contractor will produce manufacturer's test certificate as per BIS code and original purchase vouchers along with each consignment

NOTE :- In the event of deviation arising for fly proof factory made doors shutters, the pricing shall be done at the rate decided in terms of condition 62(G) of IAFW-2249.

8.3 FACTORY MADE FLUSH DOOR SHUTTER

- (a) Wooden door shutters shall be factory made flush shutters 35mm thick solid core construction, with particle board core and plywood face panels, commercial type on both sides for JCOS accommodation and in servant quarters. The door shutters for officer's accommodation shall be flush door shutter 35mm thick solid core construction, with block board core and plywood face panels, commercial type on both sides covered with decorative face veneer with lipping / frame to match on both faces of the shutters all as specified in MES SSR part-1 and part-II.
- (b) The shutters shall be as per clause 8.25 of SSR part-I. The overall sizes and dimensions of door shall be as indicated on drawings.
- (c) The shutters shall be ISI marked IS No. IS 2202 (Part I) - 1999, Specification for wooden flush door shutters (solid core type) Part I plywood face panels;
- (d) Factory made wooden doors shutter shall be obtained from one of the manufacturer given in Appendix 'C'. Contractor will produce manufacturer's test certificate as per BIS code along with each consignment.
- (e) Plugging to walls shall be done with wooden plugs as per clause 7.29 of MES Schedule Part-I.

PARTICULAR SPECIFICATIONS (CONTD...)

(f) In the event of deviation arising for fly proof factory made doors shutters, the pricing shall be done at the rate decided in terms of condition 62(G) of IAFW-2249.

(g) Fixing of shutters shall be all as shown in drawing and as per clause 8.26 of SSR part-I.

8.4 VENEERED PARTICLE BOARD

All veneered particle board shall be ISI marked conform to the requirement of IS 3097 all as specified in Clause 8.9 of MES SSR Part I The board shall be exterior grade (Grade-I) bonded with BWP synthetic resin. Particle board shall be procured from any of the manufacturers listed in Appendix 'B' to particular specifications.

8.5 PLYWOOD

All plywood except for paneled door/panels shall be BWP grade conforming to IS-303 and shall be ISI marked. Plywood shall be procured from any manufactures listed in Appendix 'B' to particular specification.

8.6 PARTICLE BOARD

Particle board shall conform to requirements of IS-3087(specification for wood particle boards (medium density) for general purpose) and all as specified in Clause 8.8 of MES SSR Part I. Adhesive used for bonding shall be BWP type synthetic resin. Particle board shall be procured from any of the manufacturers listed in Appendix 'B' to particular specifications.

8.7 PRELAMINATED PARTICLE BOARD

Where pre-laminated particle board or particle board with laminated sheet is shown on drawings, pre-laminated particle board of thickness as specified in drawings. BWP grade (exterior grade) bonded with phenol formaldehyde synthetic resin shall be used. Particle board shall be procured from any of the manufacturers listed in Appendix 'B' to particular specifications.

8.8 TEAK WOOD EDGING

8.8.1 All sides of the particle board shall be provided with the teak wood edging (except panel of doors). Thickness of edging shall be as specified in respective drawing if not specified same shall be 6mm.

8.8.2 Edging shall be fixed by using the synthetic resin adhesive and with appropriate size of headless mild steel nails@ 300mm c/c dipped in synthetic resin adhesive.

8.9 FACTORY MADE SOLID WPC DOOR SHUTTERS AND FRAMES**8.9.1 GENERAL**

(a) Workmanship of Door Frame and Shutters shall be as per manufacturers instructions.

(b) The solid WPC frame and shutter laminate shall be self pigment in colour as approved by GE.

PARTICULAR SPECIFICATIONS (CONTD...)

(c) The contractor shall produce the manufacturers test certificate and original purchase vouchers along with the supply of shutters to Engineer-in-Charge.

(d) Size of shutter and builders hardware (except hinges) shall be as per the respective drawing. Hinges shall be of stainless steel (S-304 grade)

8.9.2 WPC DOOR SHUTTER

Shutter shall be provided all as specified in respective drawings and as specified in clause 8.34 of MES SSR Part I.

8.9.3 SOLID WPC DOOR FRAMES

Solid PVC door frame of size 75 x 50 mm shall be as specified in clause 8B.3.1 of MES SSR Part-II and Clause 8.34.3.1 of MES SSR Part I.

8.9.4 Factory made shutter and frame shall be obtained from any of the manufacturers listed in Appendix 'B' to Particular Specifications.

9. BUILDERS HARDWARE

9.1 Unless otherwise specified in the particular specifications or indicated in the drawings, butt hinges shall be cold rolled mild steel of medium weight conforming to IS-1341 and all as specified in clause 9.7.2 of MES SSR Part-I (except for PVC and Aluminium doors/windows). Stainless steel (S-304 grade) butt hinges shall provided to PVC and Aluminium doors/ windows. Spring hinges shall be of mild steel stove enamelled black regulating type with steel coil/spring ISI marked all as per clause 9.7.7 of MES SSR Part-I.

9.2 Hardware fittings shall be provided according to the schedule of fittings (mongery) on the relevant drawings read in conjunction with notes appearing on particular drawings.

9.3 Aldrop bolt shall be 300 mm long.

9.4 All builders hardware's shall be fixed with screws/bolts to match the fittings. However anodised aluminium fittings shall be fixed with cadmium plated steel screws.

9.5 Shoot of aldrop bolt shall be not less than 19 mm and shall be provided on external panelled door shutters one on each door even if not is shown marked on drawings.

9.6 Hasp and staples required in the work shall be safety type all as specified in clause 9.10 of MES SSR Part-I.

9.7 Catch ball spring required in the work shall be of brass and all as specified in clause 9.14 of MES SSR Part-I.

9.8 All builders hardware shall conform to relevant IS and shall be of make as specified in Appendix 'B' to particular specifications. Builder hardware's except hinges unless otherwise specified shall be as under:-

(a) Garages/Repair bays/Storage Accn (except PVC doors):- Mild Steel/Stove enamelled black.

(b) Other than (a) above & PVC door:-Aluminium anodized.

PARTICULAR SPECIFICATIONS (CONTD...)**10 STEEL AND IRON WORK**

10.1 **QUALITY AND GRADE OF STEEL:** - The steel to be used in the work shall be of quality and grade as specified in drawings and here in after.

10.1.1 REINFORCEMENT STEEL

Irrespective to whatever grade has been mentioned in drawings and/or in tender documents, reinforcement steel shall be high strength deformed steel bars produced by Thermo Mechanical Treatment (TMT) process and of grade Fe 500D meeting all other requirement of IS: 1786 and the elongation shall be minimum 18%.

10.1.2 STRUCTURAL STEEL E-250 (FOR DYNAMIC LOADING)

Definition of structural steel as given in clause 10.4.1 of MES SSR Part-I shall be applicable. Steel shall be Grade E 250 (Fe - 410W) quality 'A' or 'B' ISI marked (IS-2062). Hollow structural steel sections shall be as per IS-4923 and structural Steel tubes shall be as per IS-1161.

10.1.3 STRUCTURAL STEEL E-165

Structural steel Grade E165 (Fe-290) ISI marked (IS-2062) shall be used for general purpose such as chowkhat, guard bars, hold fasts, gate, grills, hand rails, fencing posts, tie bars etc all as specified in clause No 10.4.2 of MES SSR Part-I.

10.1.4 GI SHEETS AND FABRIC REINFORCEMENT

(a) GI sheets (plain and corrugated) shall be ISI marked (IS: 277-2003 : Sixth Revision). GI sheets shall be of Gde 'O' (classified based on grade of raw material). Unless otherwise specified, thickness and grade of zinc coating shall be 0.63mm and 275 gm/sqm (minimum) respectively. For CGI sheets, the depth of corrugation shall be 12.5mm and pitch of corrugation 75mm (Grade 'B' as per IS-277: 2003 – Sixth Revision).

(b) Fabric reinforcement for concrete shall be ISI marked (IS- 1566).

10.2 PROCUREMENT OF STEEL**10.2.1 REINFORCEMENT STEEL**

TMT steel bars of all sizes shall directly be procured from storage depots of manufacturers as approved by E-in-C's branch as amended time to time latest upto schedule date of receipt of tender and not from their authorized dealers. GE shall verify and ensure that the steel is procured only from the approved manufacturers.

10.2.2 STRUCTURAL STEEL E-250

Structural steel sections shall directly be procured from the storage depot of SAIL/RINL/TISCO/TATA STEEL/M/s Jindal Steels and power Ltd Gurgaon/other primary structural steel producers approved by E-in-C's Branch (up to the bid submission end date) & not from their authorised agent/dealers.

PARTICULAR SPECIFICATIONS (CONTD...)

10.2.3 **STRUCTURAL STEEL E-165** Steel sections for railing, gate, fencing, guard bars, grills, steel chowkhat, holdfast, hand rails, tie bars etc which do not constitute structural members, can be procured from main producers listed in Appendix 'B' to particular specifications or their authorised dealers or BIS marked manufacturers at the option of contractor.

10.2.4 **GALVANISED STEEL SHEETS and FABRIC REINFORCEMENT FOR CONCRETE:-**

These shall be procured directly from main producers/BIS marked manufacturers at the option of contractor without any minus price adjustment.

10.3 **TESTING**

10.3.1 All the test as per clause 10.3.5 to 10.3.9 here in after shall be carried out at the cost of the contractor.

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

10.3.3 In both the above cases, the contractor at his cost shall provide all facilities required for the testing and cost of materials consumed in tests shall also be borne by the contractor.

10.3.4 Tests shall not be insisted upon for non structural steel.

10.3.5 Frequency for normal mass, tensile, bend and rebend test of steel shall be as under :-

STEEL FOR REINFORCEMENT

- | | | |
|-----|--|--|
| (a) | Bars size (nominal size) less than 10 mm | 1 sample (3 specimen) for each test for every 25 tonne or part thereof |
| (b) | Bar size (nominal size) 10 mm to 16 mm | 1 sample (3 specimen) for each test for every 35 tonne or part thereof |
| (c) | Bar size (nominal size) more than 16 mm | 1 sample (3 specimen) for each test for every 45 tonne or part thereof |

STRUCTURAL STEEL

- | | | |
|-----|--------------|--|
| (a) | Tensile test | 1 test for every 25 tonne of steel or part thereof |
| (b) | Bend test | 1 test for every 10 tonne of steel or part thereof |

NOTE

- (i) For various test, acceptance criteria, tolerances etc refer to relevant BIS codes and steel supply and acceptance register.
- (ii) Samples from each lot should be tested for quality and elongation. The elongation shall not be less than 18%.

PARTICULAR SPECIFICATIONS (CONTD...)

- (iii) For TMT bars bend dia shall be 2D up to and including 20 mm bars and 3D for over 20 mm dia bars.
- (iv) For TMT bars rebend dia shall be 4D up to and including 10 mm dia bars and 6D for over 10 mm dia bars.

10.3.6 High strength deformed TMT steel bars which are brought at site in coils shall be got checked by a board of officers appointed by GE in the presence of contractor to determine the actual weight per unit length by getting a suitable length (not less than three metre) from each coil of respective section weighed which shall be recorded in the MB.

10.3.7 No consignment or part thereof shall be allowed to be incorporated in the work until and unless 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 authentication copy these of, fully signed by the manufactures are obtained and the consignment is passed by GE. Schedule of procurement shall be prepared keeping in view the time lost for testing etc.

10.3.8 Three samples of pieces (3.0 metre long) of each section of each consignment shall be retained at the project site till completion of the work. These samples shall be suitably marked and properly preserved.

10.3.9 Besides above TMT steel will be tested by GE/CWE in person, before incorporation in the work by simple field test and record shall be maintained. Simple field test involves sand papering the cross section of the TMT bar and dipping the same in chemical solution (Nitral) (consisting of Nitric acid 2% and Alcohol 98%) to give a clearly defined annular ring of tempered steel.

10.4 **DOCUMENTATION**

10.4.1 The following documents shall be maintained in addition to the routine

documents maintained as per contract provisions :-

- (a) Certified true copy of the defaced original vouchers shall be kept in a file serially numbered and to be kept in GE's office.
- (b) Test certificates of each steel consignment shall be kept in a file, serially numbered, and to be kept in GE's office.
- (c) Steel supply and acceptance register as under shall be maintained by the GE:-

STEEL SUPPLY AND ACCEPTANCE REGISTER

- 1. CA No and Name of Work :
- 2. Contract No :
- 3. Name of Manufacturer's T.C. No :
- 4. Manufacturer

Signature of Contractor

For Accepting Officer

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5. Random Test Details (a) Physical test report from _____ vide their letter No
Name of NABL approved Lab /Government Engg College)
- (b) Chemical test report from _____ vide their letter No
(Name of NABL approved Lab / Government Engg College)
6. Type of Steel, Dia and Qty (a) Type : TMT/CRS (b) Dia: ____mm
(c) Actual Wt: __ MT (d) Conversion Wt: __ MT

| | Chemical Test | | | | | | Mechanical Test | | | | | | |
|---------------------------------------|---------------|-----------|--------------|-------------|-----------|-----------------------------|-----------------|--|---------------------------------------|------------------------------|-----------|--------------|---------|
| | Carbon % | Sulphur % | Phosphorous% | Manganese % | Silicon % | Corrosion Resistant element | Wt per meter | Stress (N/mm ²) 0.2% proof | Tensile Strength (N/mm ²) | Percent Elongation (min 18%) | Bend Test | Re-band Test | Remarks |
| As per IS-1786 | | | | | | | | | | | | | |
| As per Manufacture's test certificate | | | | | | | | | | | | | |
| As per independent test | | | | | | | | | | | | | |

Remarks with Signatures**Accepted / Rejected**

Contractor Junior Engineer Engineer-in-Charge Garrison Engineer

Remarks of Inspecting Officer / CWE

(d) In/Out Register for details of receipt, acceptance/rejection and consumption of steel shall be maintained as under :-

IN / OUT STEEL REGISTER

| Sl No | Date | Steel IN | | | Steel OUT | | | Qty Balance |
|-------|------|------------|---------|------------|------------|---------|----------|-------------|
| | | Qty (Tons) | Section | Control No | Qty (Tons) | Section | Reasons* | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

***Note** :- The following reasons may be mentioned for taking out steel from storage :-

- (a) For testing purpose.
- (b) For use in work.
- (c) Rejected steel taken out of site.

Signature of Contractor

For Accepting Officer

PARTICULAR SPECIFICATIONS (CONTD...)

- (d) Register containing results of Independent and additional testing by GE.
- (e) Register containing records of surprise checks.
- (f) Inspection register.

10.4.2 In addition to the above documents, the following points shall be kept in view while maintaining the documents:-

10.4.2.1 The original vouchers and the test certificates shall be defaced by the Engineer-in-Charge indicating the contract agreement number and other particulars of work for which used and certified true copies of all such documents shall be maintained by the Engineer-in-Charge with cross reference to the control No recorded in the steel Acceptance register as referred hereinbefore. Original defaced vouchers shall be returned to the contractor. However certified true copy of the vouchers shall be kept on record as stated above.

10.4.2.2 All entries in steel Acceptance Register shall be signed by JE (Civil), Engineer-in-Charge, Garrison Engineer and the contractor.

10.4.2.3 The entire quantity of steel shall also be suitably recorded in the measurement Book (MB) for record purpose as 'Not to be abstracted' before incorporation in the work and shall be signed by the Engineer-in-Charge and the contractor duly checked by the GE.

10.5 PROCEDURE FOR MAKING PAYMENT FOR STEEL INCLUDING MEASUREMENTS CONVERSION WEIGHT DEVIATION ETC :-

10.5.1 The requirement of steel shall be worked out section wise and shall be recorded in a separate Register jointly maintained by contractor and Engineer-in-Charge. Day to day record shall also be signed by the contractor as well as Engineer-in-Charge. The register should contain different sheets for each steel section indicating reference to drawing number, location, number of bars, sketch of each length of bar with dimensions, length of waste and off cuts and the quantity thereof by multiplying the length of bars with the conversion factors given in MES SSR Part-II. For sections not listed in MES SSR, the IS conversion table shall be followed. The contractor shall not have any claim in case the actual weight of steel items works out to be more than the weight obtained by standard conversion factor.

10.5.2 On completion of work, the Register will be in the custody of the Engineer-in-Charge and contractor may keep a copy for his record if he so desires.

10.6 STORAGE AND SAFETY OF STEEL

10.6.1 Steel of different grades and sizes shall be stacked separately. For each classification of steel separate areas shall be earmarked. Steel shall be marked with distinct painting marks for easy identification,

10.6.2 Steel shall be stored in a manner that it is always at least 15cm above GL, so as to prevent distortion and corrosion. Any section that has deteriorated and corroded or if considered defective for any other reason the same shall be removed from site by contractor at his cost.

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10.6.3 Steel sections which are not likely to be used before onset of monsoon shall be given cement slurry wash so as to ensure steel free from scale and rust. Also steel sections which are procured during monsoon and are not likely to be used within a week from the date of procurement shall be given cement slurry wash immediately.

10.6.4 It shall be responsibility of contractor to make sure that all possible arrangements are made for safe custody of the steel. In case of any loss of steel, only contractor will be responsible and the loss shall be made good without any delay or claim what so ever.

10.7 WELDING

10.7.1 Welding of iron and steel work shall be metal arc welding and shall be done as specified in clause 10.15 of MES SSR Part-I and in approved manner with electricity. Special attention is drawn to clause 10.15.13.2 of MES SSR Part-I with regard to qualification tests for welder as well as test for approval of electrodes which will be of Oxygen Ltd or Advanic or Linkon makes. Gas welding however may be allowed by GE in case of structural steel without any price adjustment.

10.7.2 Welding of stainless steel works shall be done either the electric process or by the oxy-acetylene method.

10.11 PRESSED STEEL DOOR FRAMES

10.11.1 Pressed steel door frames shall be fabricated with 1.25 mm thick MS plain sheet. Pressed steel door frames shall conform to IS-4351. Tolerance over profile shall be ± 2 mm.

10.11.2 Pressed steel door frames shall be procured from any of the manufacturers given in Appendix 'B' to particular specifications.

10.11.3 Space in pressed steel door frames shall be filled with PCC (1:3:6) type C-0 using 10/12.5 mm graded crushed stone aggregate.

10.11.4 Frames shall be supplied by manufacturers with a shop coat of zinc chrome primer.

10.11.5 12 mm square mild steel bar shall be welded horizontally at the bottom of frame. The 12mm square bar shall be embedded in floors. In case of double shutter i.e panelled door and gauzed door shutter, two Nos 12 mm square bar shall be provided at bottom of frame.

10.12 HOLDFAST/LUGS

10.12.1 Flat iron holdfast/lug shall be provided by welding as and where shown on drawings except those to be provided to wooden chowkhat, which shall be fixed with screws as per details shown on drawings.

10.12.2 Flat iron holdfast shall be embedded in PCC (1:3:6) type C-1 block of size 15 cm (height of block) x 30 cm (length of block) x width of masonry wall.

10.12.3 Hold fast/lug shall be hot tarred and sanded before fixing.

10.12.4 Wherever door frame and window frame side coming in contact with RCC column, dash fasteners shall be provided in lieu of holdfast.

10.13 STEEL WINDOW AND VENTILATOR (BOX SECTION)

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10.13.1 The term steel windows used in the particular specifications shall mean 'Steel windows & Ventilators. **The windows and ventilators wherever specified to be provided as per drawing No. TD/2013/01 Sheet 1/3 to 3/3**, windows/ventilators shall be factory made and shall be procured from any of the manufacturer listed in Appendix 'B' to particular specifications.

10.13.2 Windows, Ventilators shall be fabricated from roll formed sections made of Galvanised steel colour coated/powder coated (Base steel as per IS 513 "D" quality, Galvanised as per IS 277 with zinc of minimum 1209 grams/Sq metre) **with total coated thickness of 0.60 mm.**

10.13.3 Coated section shall be with primer coat of epoxy primer of 5-7 microns thick, finish painted with polyester paint of 12-16 microns thick and back coated with Alkyd backer of 5-7microns, or pure polyester powder coated up to 50-60 micron thick.

10.13.4 Section for frame, glazed shutter and mesh shutter shall be cut to length and mitred, joined with Polypropylene corner brackets, Mullion section should be joined with frame/mullion using mullion cap.

10.13.5 Ethyl propylene Demine Monomer (EDPM) gasket shall be provided all around glass and fly proof mesh in shutter.

10.13.6 Each Glazed shutter and mesh shutter shall be provided with Pivot hinges, handle, tower bolt and Peg stay as specified in drawings.

10.13.7 Glazed shutter and fixed glass portion should be provided with 4mm thick plain float glass.

10.13.8 Mesh shutter shall be provided with stainless steel wire cloth as specified in clause 9.9 herein before.

10.13.9 Window & Ventilator frame shall be fixed to brick/concrete masonry by using Nylon self- expanding cap and driving mild steel electroplated 80mm long screws into the caps through frames.

10.13.10 Type of window shall be provided as shown on drawings.

10.14. **GRILL AND BARS TO STEEL WINDOWS AND VENTILATORS (BOX SECTION)**

10.14.1 Window & Vent shall be provided with grill made of 10mm square mild steel bars welded at 150mm centre to centre on 6mm x 12mm mild steel flat. Grill unit shall be powder coated (pure polyester)(minimum thickness 50 micron) and fixed to frame with screws.

10.15 **STEEL WINDOWS AND VENTILATORS (USING 'Z' SECTIONS)**

10.15.1 The term steel window use in the particular specifications shall mean 'steel windows and ventilators'. Steel window shall be factory made ISI marked IS-1038-1983. Reaffirmed 1996 (IIIrd revision) and all as specified as clause 10.25 of MES SSR Part-I.

10.15.2 Steel windows (glazed) shall be provided with horizontal glazing bars as shown in drawings. Fixing and glazing of windows shall be in accordance with IS 1081 and shall be tennoned and riveted to the frame

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- 10.15.3 Hinges for side-hung shutters (glazed) shall be friction hinges, projecting type and hinges for gauzed shutters shall be non-projecting type hinges (box type) with peg stay. Non projecting type hinges (box type) shall be provided in all side/top hung shutters for windows and ventilators, except windows opening directly into corridor/passage/verandah, for which projecting type friction hinges to be provided.
- 10.15.4 Steel windows shall be fixed to concrete/masonry with lugs. Lugs shall not be provided for fixing to lintels and cills even though shown in the drawings.
- 10.15.5 Centre hung windows shall be mounted on antifriction brass pivots.
- 10.15.6 Steel windows shall be procured from any of the manufacturers listed in Appendix 'B' to particular specifications factory made ISI marked (IS-1038-1983). Peg stay shall be of mild steel as per IS, specification. Handle to fly proof windows shall be pressed type.
- 10.15.7 All factory made steel windows / Vents shall be provided with manufacturers name tag as per IS-1038.

10.16 GUARD BARS TO STEEL WINDOWS AND VENTILATORS

- 10.16.1 The term 'window' used in the particular specifications shall mean 'windows/ventilators'.
- 10.16.2 All steel windows shall be provided with guard bars/grills as shown on drawings. However, in case of double windows in the same opening guard bars shall be provided to glazed windows only.
- 10.16.2.1 Guard bars to steel windows unless otherwise shown on drawings shall be 12 mm mild steel square bars. The guard bars shall be integrated during the manufacture of the windows.

10.17 ALUMINIUM DOORS, WINDOWS, VENTILATORS AND FIXED GLAZING

- 10.17.1 Aluminium doors, windows, vents, fixed glazing and partition shall be provided at location shown on drawings and all as specified in clause 10.37 of MES SSR Part-I and as specified/shown on drawings. In case the thickness of aluminium section is not indicated in drawing, same shall be minimum 2.5mm thick.
- 10.17.2 Aluminium section for doors/windows/ventilators/fixed glazing /partition shall be heavy duty and be procured by the contractor from one of the manufacturers as listed in Appendix 'B' to particular specifications.
- 10.17.3 Aluminium windows shall be provided with aluminium grill weight not less than 3.776 kg per square metre with outer frame.
- 10.17.4 Thickness and type of glass panes for doors and windows / fixed glazing/partition shall be as specified /shown in respective drawings. If thickness of glass panes for doors and windows/fixed glazing/partition is not specified in the drawing same shall be 8 mm thick and 6 mm thick respectively of selected quality.
- 10.17.5 Glass panes shall be provided with rubber packing and beading of standard glazing clip as per manufacturer's instructions.

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- 10.17.6 All aluminium doors/ windows/ ventilators/fixed glazing/partition section, grills and builder's hardware (except hinges) shall be powder coated in approved colour. Thickness of coating if not specified in respective drawings same shall not be less than 60 micron.
- 10.17.7 Double action floor door spring hydraulically regulated (ISI marked) shall be provided to each openable door shutters.
- 10.17.8 Each door shall be provided with necessary locking arrangement as specified in drawings.

10.18 **GUARD BARS TO STEEL WINDOWS AND VENTILATORS**

10.18.1 The term 'window' used in the particular specifications shall mean 'windows/ventilators'.

10.18.2 All steel windows shall be provided with guard bars/grills as shown on drawings. However, in case of double windows in the same opening guard bars shall be provided to glazed windows only.

10.18.3 Guard bars to steel windows unless otherwise shown on drawings shall be 12 mm mild steel square bars. The guard bars shall be integrated during the manufacture of the windows.

10.19 **STEEL DOOR (SDS-1)**: Steel door shall be provided all as per details shown in drg No.TD/2004/18 sheet 1/5 to 5/5

10A. **FRP SHEET** : 4mm heavy duty, UV resistant FRP sheet having density greater than 1.5 gm/cm³ , glass fibre content greater than 25%, colour/opacity- Translucent (diffused lighting) as approved by GE.

10B. **POLY CARBONATE SHEET**: Poly carbonate sheet shall be as per IS 14443:1997.

11 **ROOF COVERING**

11.1 **RCC SLAB**

11.1.1 Intermediate slab shall be laid to level.

11.1.2 RCC roof slab shall be laid to slope as indicated in drawings.

11.1.3 Roof slab shall be projected as shown in respective drawings.

11.1.4 Exposed surfaces of soffit of RCC slabs shall be plastered in cement and sand mortar (1:3), 5 mm thick and finished even and smooth.

11.1.5 RCC slab shall be provided with full bearing.

11.1.6 RCC roof slab shall be prepared as described in clause 11.39.3 of MES SSR Part-I.

11.1.7 After the RCC slab are laid, cured and fully set. Ponding shall be done over RCC roof slab by filling water to a depth of minimum 75mm. It shall be kept for 48 hours and the process of water proofing treatment shall be started if no seepage or leakage is observed. In case of even slightest indication of seepage/leakage the same shall be rectified before application of further treatment.

PARTICULAR SPECIFICATIONS (CONTD...)**11.2 WATER PROOFING TREATMENT**

11.2.1 Otherwise not shown in Schedule of finishes drawing, Water proofing treatment to RCC roof slab of building/structure at serial No. 1 & 2 of Schedule 'A' Part-I shall be carried out as follows :-

BITUMINOUS POLYMERIC MEMBRANE LAYER

(a) The surface shall be painted with one coat of cold applied bituminous primer conforming to IS:3384, @ 0.40 kg per sqm.

(b) APP based polymeric membrane not less than 3 mm thick, weighing not less than 3.5 kg/sqm, reinforced with polyester non-woven fabric (weighing not less than 150gm/sq m) and upper side of membrane thermally insulated with white mineral gravel finish, uniformly embedded during manufacturing process, shall only be used. It shall be laid by torch application. Side overlaps shall be 75 mm and the ends shall be 100 mm and all overlaps and joints shall also be sealed by torch application. For parapets, membrane shall be taken to a height of min 60 cm and then inserted inside the parapet in a groove. The same shall be finished by a membrane flashing.

(c) 10mm thick anti skid SRI (Solar Reflectance Index Cool Roof Tiles) of size 300mm x 300mm, of make Johnson (Endura) or equivalent product in Kajaria/Somany or make as specified in Appendix 'B', shall be laid over 15mm thick screed bed in cement mortar 1:4, joints grouted and flush pointed in approved grout as per manufacturers instruction. The tiles shall be laid through authorised applicator and strictly as per manufacturer's instructions.

(d) Coved fillet in PCC (1:2:4) type B-0 of radius 75mm shall be provided at the junction of roof and parapet wall/chimney/other vertical surface and surface painted with hot paving bitumen grade 30/40, conforming to IS-73, applied @1.20 kg/sq m over a coat of bituminous primer, conforming to IS-3384, applied 0.30 litre per square metre.

11.2.1A WATER PROOFING TREATMENT TO SUNKEN FLOORS

Water proofing treatment to sunken floor slabs of schedule 'A' Part-I (where applicable) shall be as under:-

(a) The top of sunken floor slabs shall be laid to a slope of 1:40. The surface of RCC slab shall be made even and smooth using extra cement, while the concrete is still green. Coved fillet in PCC (1:2:4) type B-0 using 12.5 mm graded crushed stone aggregate of radius 75 mm shall be provided at the junctions of RCC slab and adjoining walls.

(b) Floor and side walls up to the finished floor level shall be plastered with 15 mm thick in cement and sand mortar (1:4), mixed with water proofing compound at the rate of 3% by weight of cement.

(c) One coat of cold applied bituminous primer @0.40litres/Sqm shall be applied on plastered surfaces including sidewalls. Thereafter a layer of APP based polymeric membrane reinforced with polyester non woven fabric (weighing not less than 150 gm/Sqm), weighing 3 Kg/Sqm (minimum) and 3 mm (minimum) thickness shall be laid on primed surface by torch

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application. Side over laps shall be 75 mm and at the ends overlaps shall be 100 mm. All overlaps and the joints shall be sealed properly as per manufacturer's instructions. A cushion layer of coarse sand of thickness 25 mm shall be provided to protect polymeric membrane.

(d) The sunken portion shall be filled with PCC (1:5:10) type E-2 using 40 mm brick aggregate after carrying out satisfactory testing of CI pipes/joints and slab/walls by filling water for 72 hours. Sunken portion of Nahani/floor trap and pipe joints shall be embedded in PCC (1:3:6) type C-1 blocks.

(e) 32 mm bore GI spout (light grade) shall be provided 30 cm beyond wall surface to drain out leakage if any. The mouth of GI pipe shall have gravel to avoid chocking. Top of sunken portion of RCC slab to be finished such that its slope is towards spout.

NOTE

(i) Water tightness to be tested by ponding water (for 72 hours) before filling the sunken floor.

(ii) Water proofing treatment as above shall be carried out only after laying plumbing /water supply/soil waste pipes.

(i) Application of membrane shall be done by the authorised applicator of the specialized firm / manufacturer listed in Appendix 'B' to Particular Specifications.

11.2.2 TESTING OF WATER PROOFING TREATMENT

11.2.2.1 After the water proofing treatment is completed, leak proof tests shall be done by ponding. For this purpose in roof, mud, mortar, fillet ponds shall be made longitudinally one meter apart over entire treated surface of roof to form pond of suitable size as directed by the Engineer-in-Charge. (These ponds shall be filled with potable water so that an average 50 mm (minimum 25mm and maximum 75mm) height of water is maintained during the test period.

11.2.2.2 Tests shall be carried out continuously for a period of 48 hours. Any seepage notified shall be rectified by the contractor and making good the defective portion to entire satisfaction of the GE, who will pass this stage.

11.2.2.3 All mud fillet bends shall be removed and surface made clear and tidy after completion of satisfactory testing.

11.2.2.4 Satisfactory completion of test shall not absolve the contractor from his responsibility of rectification of defects, which may arise during defect liability period.

11.3 SECURITY DEPOSIT TOWARDS WATER PROOFING TREATMENT TO ROOF COVERED UNDER 11.2.1 AND 11.2.2 HERE IN BEFORE

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11.3.1 Should the GE at any time during constructions or reconstruction or prior to the expiration of a period of Six Years(for PS Clause Nos. 11.2.1) after the certified date of completion of buildings or group of buildings find that the building shown leakage dampness or any sign of defective water proofing treatment the contractor shall on demand in writing from the GE specifying the building complained of notwithstanding the fact 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 buildings water proof at his own expense for a period of Six Years(for PS Clause Nos. 11.2.1) from the certified date of completion of said buildings and in the event of his failing to do so within a period to be specified by the GE, in his demand as aforesaid the GE may undertake such treatment at his risk and expense in all respects of the contractor, the liability of the contractor under the condition shall not extend beyond the period of Six Years(for PS Clause Nos. 11.2.1) from the certified date of completion unless the GE had previously given the notice to the contractor.

11.4.2 The amount so calculated as per table given below shall be retained from the contractors final bill amount as security deposit for the water proofing treatment and the same shall be released after satisfactory completion of guarantee period as stated above. The contractor may alternatively submit fixed deposit receipt for the said sum from a scheduled Bank in lieu of the sum to be retained out of the final bill :-

| Amount of water proofing treatment to roof at contract rate | | Amount to be retained from contractors dues rounded to nearest thousand rupees |
|---|---------------------------------------|--|
| 1 | | 2 |
| (i) | Up to Rs 50 lakh | 2% of amount subject to minimum of Rs 5000/- and enhanced by 25% |
| (ii) | Over Rs 50 lakh and up to Rs 100 lakh | Rs 100000/- +1.5% of amount exceeding Rs50 Lakhs and enhanced by 25% |
| (iii) | Over Rs 100lakh | Rs 175000/- +1.0% of amount exceeding Rs100 Lakhs and enhanced by 25% |

11.4.3 The security deposit referred to in clause 11.4.2 herein before may be refunded to the contractor after expiry of the period of Six Years(for PS Clause Nos. 11.2.1) 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 'No demand certificate' IAFA-451 condition 10, 46 and 68 of General Conditions of Contracts (IAFW-2249) shall be deemed to be amended to the extent mentioned above.

11.5 Materials required for waterproofing shall be purchased by the contractor from the manufacturers listed in Appendix 'B' to Particular Specifications or their authorised agent only and brought to site. The GE before approval shall verify name of authorised agent from the manufacturer.

Signature of Contractor

For Accepting Officer

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PARTICULAR SPECIFICATIONS (Contd../-)**13 FLOORING****13.1 GENERAL**

13.1.1 Floors shall be laid to levels and to falls as indicated in drawings and as directed by Engineer-in-Charge. Floors shall be sunk to required depth where shown in drawings.

13.1.2 Floors shall be carried out through threshold of all openings in walls ie in case of Kota stone flooring thresholds of all openings in walls shall be finished with Kota stone floors.

13.1.3 In case of first floor, flooring as indicated in drawing shall be laid directly over RCC slab after applying cement slurry as specified in MES SSR Part-I.

13.1.4 Type and pattern of flooring shall be as per drawing of schedule of finishes, respective TD drawing and as specified. If type of flooring is not indicated for any location it shall be same as in other similar locations. No extra claim shall be admissible to the contractor on this account.

Signature of Contractor

For Accepting Officer

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13.1.5 Before placing the concrete mix for topping, neat cement slurry as specified in clause 13.32.5.2.2 of MES SSR Part I shall be brushed on hardened concrete base/surface.

13.2 SUB BASE TO FLOOR

13.2.1 Bay system of use of glass dividing strips not to be adopted in case of PCC sub base. Thickness of PCC sub base shall be 75 mm or 100 mm or 150mm thick as specified in schedule of finishes drawings.

13.2.2 Where hardcore has been shown on drawings to sub base of floor, the same shall be provided as specified herein before. Thickness of hardcore sub base where not shown /specified shall be 150 mm compacted thickness.

13.3 CEMENT CONCRETE FLOOR

13.3.1 PCC floor up to 50 mm thick shall be laid adopting panel dimension not exceeding 1200 mm x 1200 mm with 3 mm thick (nominal thickness) sheet glass as dividing strips. The width of strips shall be 2 mm less than the thickness of the floor and these strips shall be visible in the finished floor.

13.3.2 Wherever 75 mm PCC (1:2:4) type B-1 using 20 mm graded crushed stone aggregate in flooring is shown in schedule of finishes drawing with aluminium dividing strip, the panel dimension shall not be exceeding 1200 mm x 1200 mm with 1.5 mm thick (nominal thickness) aluminium strip. The width of strip shall be 2 mm less than the thickness of floor and those strips shall be visible in finished floor.

13.3.3 Where specification of floor is not shown on drawing the same shall be 40 mm thick PCC (1:2:4) type B-1

13.3.4 Unless otherwise specified / shown on drawings, top of PCC floor shall be finished even and smooth without using extra cement while PCC is still green. Plaster is prohibited.

13.3.5 PCC floor except 13.3.1 and 13.3.2 here in before shall be laid in alternate bay system with panel dimension not exceeding 2 m x 2 m. Glass dividing strips shall not be provided.

13.4 CEMENT CONCRETE FLOOR

13.4.1 PCC floor wherever shown in drg shall be 50 mm thick laid in panel not exceeding 1200 mm x 1200 mm with chequered finish or finished even and smooth without using extra cement as shown in drg over sub base of 75 mm thick PCC (1:4:8) type D2 using 40mm graded stone aggregates over rammed earth as directed by the Engineer-in-Charge.

13.4.2 PCC flooring shall be provided all as specified in clause 13.32 of MES SSR Part-I.

13.5 VITRIFIED TILE FLOORING.

13.5.1 Vitrified tile shall be laid over 10 mm screed in cement and sand mortar (1:4) over 30 mm thick PCC (1:2:4) type B0 using 10/12.5 mm graded crushed stone aggregate laid in alternate bays over 75 mm thick PCC (1:4:8) type D2 sub base over rammed approved earth wherever indicated in schedule of finishes drawings all as specified in clause 13.41 of MES SSR Part-I. Tiles shall be jointed / pointed in white cement using pigment to match the colour of tiles. In case of first floor and above, tiles shall be laid over 10 mm thick bedding layer in

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cement and sand mortar (1:4) over 30mm thick PCC 1:2:4 type B0 using 10/12.5 mm graded crushed stone aggregate over RCC slab.

13.5.2 Quality of tiles shall conform to minimum international standard ISO-13006/European standard EN:176 Group B1a first quality all as specified in clause 13.15 of MES SSR Part-I. Make of double charged vitrified tile shall be of make vitrified tiles as listed in Appendix 'B' to particular specifications. However the make (out of Appendix 'B' to particular specifications) decided by GE shall be final.

13.5.3 Vitrified tiles shall be provided of size and thickness as specified in schedule of finishes drawing. Colour/texture of tiles shall be as approved by GE. Size of tiles if not specified in Schedule of finishes drawing same shall be 600x1200 mm (minimum) and thickness shall not be less than 10mm.

13.5.4 Floor pattern with boarder tiles as specified in Drawing No TD/2004/86 Sheet No 1/1 shall be followed. However no extra payment shall be admissible for change in floor pattern

13.5.5 Tiles shall be provided all as specified in Clause 13.41 of MES SSR Part I.

13.6 NON SKID CERAMIC COLOURED TILE FLOORING

13.6.1 Non-skid ceramic tiles wherever shown in schedule of finishes drawing shall be got approved from GE before incorporation in the work. Quality of tiles shall conform to IS-15622 (2006) (Group B II). Make of tile shall be as listed in Appendix 'B' to particular specifications.

13.6.2 In case of ground floor tiles shall be laid over 10 mm thick bedding layer in cement and sand mortar (1:4) over 30 mm thick in PCC (1:2:4) type B-0 using 10/12.5 mm graded crushed stone aggregate laid in alternate bays without using glass dividing strip over 75 mm thick sub base PCC (1:4:8) type D-2 using 40 mm graded crushed stone aggregate over rammed approved earth. In case of first floor and above (except sunken portion of toilet) tiles shall be laid over 10 mm thick bedding layer in cement and sand mortar (1:4) over 30 mm thick in PCC (1:2:4) type B-0 using 10/12.5 mm graded crushed stone aggregate laid in alternate bays without using glass dividing strip over RCC slab. In sunken portion of toilet floor tiles shall be laid over 10 mm thick bedding layer in cement and sand mortar (1:3) over 30 mm thick in PCC (1:2:4) type B-0 using 10/12.5 mm graded crushed stone aggregate over WPT all as specified.

13.6.3 Tiles shall be provided all as specified in clause 13.40 of MES SSR Part-I.

13.6.4 Size and thickness of tile shall be all as specified in schedule of finishes drawings, if not specified, the size of tile shall be 600x600 mm and thickness shall not be less than 7mm.

13.6.5 Shade of tiles wherever not indicated in schedule of finishes drawings shall be as approved by GE.

13.6.6 Floor pattern as specified in drawing TD/2004/86 Sheet No 1/1 shall be followed. However no extra payment shall be admissible for change of floor pattern.

PARTICULAR SPECIFICATIONS (CONTD...)**13.7 POLISHED KOTA STONE SLAB TILE FLOORING**

13.7.1 Kota stone slab/tile flooring shall be laid all as specified in clause 13.47 of MES SSR Part-I and as directed by the Engineer-in-Charge. Thickness of stone slab shall be 20 to 25 mm if not specified anywhere in the tender documents.

13.7.2 In ground floor Kota stone tile/slab of size 450 x 550mm shall be laid over 20 mm thick bedding (screed) layer in cement and sand mortar (1:3) over 30mm thick PCC 1:2:4 over 75 mm thick sub base of PCC (1:4:8) type D-2 using 40 mm graded crushed stone aggregate over rammed approved earth. In case of first floor and above, tiles/slab shall be laid over 20 mm thick screed (bedding) in cement and sand mortar (1:3) over RCC slab. The grinding and polishing shall be done after laying of tiles / slab also.

13.7.3 MIRROR POLISHING

Wherever mirror polishing to Kota Stone /Udaipur green marble slab have been mentioned in schedule of finishes drawings same shall be carried out as under in addition to clause 13.47.4 of MES SSR Part-I. Mirror polishing shall be all as specified here under:-

- | | |
|--|------------|
| (a) Ist Cutting with carborundum stone | 60 Grit |
| (b) IInd Cutting with carborundum stone | 120 Grit |
| (c) IIIrd Cutting with carborundum stone | 320 Grit |
| (d) IVth Cutting with carborundum stone | 600 Grit |
| (e) Vth Cutting with carborundum stone | 1200 Grit. |
| (f) VIth cutting with carborundum stone | 0 Grit |

Floor pattern with Jaisalmer stone border wherever mentioned in schedule of finishes drawing same shall be followed as shown / specified in drawing No TD/2004/76 sheet 1/2. However for change of floors pattern no extra amount shall be payable.

13.8 PLINTH PROTECTION

13.8.1 Plinth protection (750 mm wide if not shown otherwise in drawings) shall be provided to the buildings as shown (except open to court yard area) in main plan or any drawing without drain. However in court yard portion of building where plinth protection with drain is specified same shall be provided with the drain as per drawing: TD/2004/35, Sheet No 3/4. Surface of drain shall be even and smooth using extra cement.

13.8.2 The plinth protection shall be with 50 mm thick PCC (1:3:6) type C-1 using 20 mm graded crushed stone aggregate over 75 mm thick hard core over rammed earth. Plinth protection laid to slope 1 in 30 in bays not exceeding 2 metre in length. Exposed surfaces shall be finished even and fair without using extra cement.

13.8.3 Joints of 6 mm wide and 10 mm deep shall be provided along the wall and bays and same shall be filled with bitumen mastic (1:3).

PARTICULAR SPECIFICATIONS (CONTD...)**13.9 PRECAST INTERLOCKING PAVERS BLOCK (TILES)**

13.9.1 Precast concrete inter locking paver blocks (tiles) flooring wherever specified in Schedule of finishes drawing shall be rubber moulded ISI marked provided minimum with 80 mm thick inter locking paver blocks of compressive strength not less than 400 Kg/Sqcm (M-40 grade concrete). Block shall be placed over 25 mm thick dry screened sand over 100 mm thick PCC (1:4:8) type D2 using 40mm graded crushed stone aggregates over rammed earth. Pavers shall confirm to IS:15658 and all as specified in clause 13.18 of MES SSR Part I. Make of Paver shall be as given in Appendix 'B' to particular specifications.

13.9.2 Pavers shall be placed over screened compacted sand layer one by one. The pavers shall be packed by hammering and placed at proper angle so that gap at interfaces is kept minimum. After placing the pavers put vibrating plate on them and add sieved fine aggregate to fill the gaps.

13.9.3 Shape, size and colour of inter locking pavers block shall be as approved by GE and edges shall be chamfered with smooth finish.

13.9.4 Inter locking pavers block shall be factory made and cast under desired hydraulic pressure

14. PLASTERING**14.1 GENERAL**

14.1.1 Prepare surface to be plastered, wet the surface thoroughly.

14.1.2 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 due to impact of splicing water.

14.1.3 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 require removal and redoing.

14.1.4 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. All the internal plastered surface of wall where distemper is to be provided shall be rough finish and surface shall be finished with approved wall care putty in appropriate coat to make the surface smooth to receive the primer and distemper.

14.1.5 The thickness of plaster/dado/skirting is the finished thickness (exclusive of dubbing) over proudest portion.

14.1.6 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.

14.1.7 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.

PARTICULAR SPECIFICATIONS (CONTD...)

14.1.8 Sand for plastering shall be from the source mentioned in Appendix 'A' to particular Specifications as approved by the GE. The sand for plaster and masonry work shall be P-sand/M-Sand as approved by GE. Use of River sand shall not be permitted for masonry work and plastering work and is strictly prohibited.

14.1.9 Proper 'V' shape grooves, shall be provided in plaster (external/internal) at the junction of column/ wall / beams / and masonry wall at external and internal faces as per SP-25 of bureau of Indian standards.

14.1.10 External plastering shall be carried out up to 150 mm below the ground level.

14.1.11 Joint of masonry to be plastered shall be raked out as the work proceeds as specified in the MES SSR Part I.

14.1.12. **TWO COAT PLASTER WORK**

14.1.12.1. **FIRST COAT** : The first coat of the specified thickness shall be applied in a manner similar to one coat plaster work. Before the first coat hardens, the surface of the cement plaster shall be scored to provide key for second coat. The rendering coat shall be kept damp for at least two days. It shall then be allowed to become thoroughly dry.

14.1.12.2 **SECOND COAT**: Before starting to apply second coat, the surface of the rendering coat shall be damped evenly. The second coat shall be completed to the specified thickness in exactly the same manner as the one coat plaster work.

14.2 **CEMENT PLASTER (INTERNAL)**

Internal plaster unless otherwise indicated on drawings shall be 5mm thick in cement and sand mortar (1:3) on ceiling including RCC beam and 10 mm thick in cement and sand mortar (1:6) on brick surfaces and finished even and smooth without using extra cement.

14.3 **CEMENT PLASTER (EXTERNAL)**

External plaster unless otherwise indicated in drawings shall consist of 10 mm thick plaster in cement and sand mortar (1:6) without using water proofing compound followed by top layer of 5 mm thick plaster in cement and sand mortar (1:4) using water proofing compound ISI marked and mixed in proportion as per manufacturer's instructions. For the purpose of deviation water proofing compound shall be taken @ 3% by weight of cement. Cement plaster shall be finished fair and even.

14.3.1 Unless otherwise shown in drawings, vertical exposed surfaces of parapet walls both side shall be provided with finish as that for external walls and internal surface of wall towards roof shall be plastered as specified in clause 14.3 here-in-before.

14.4 **CEMENT PLASTER IN SKIRTING**

Cement plaster in skirting shall consist of 15 mm thick in two layers of 10 mm thick rendering coat in cement and sand mortar (1:4) and 5 mm thick setting coat in cement and sand mortar (1:3) troweled to a smooth and even finish using extra cement. It shall be in line with plastering and separated with groove. Junction of floor and skirting shall be rounded to minimum radius of 5 mm.

PARTICULAR SPECIFICATIONS (CONTD...)**14.5 POLISHED KOTA STONE TILES IN SKIRTING/DADO**

(a) Kota stone tiles finish wherever indicated in drawings shall be laid all as specified in MES SSR Part-I of thickness not less than 12 mm and as directed by Engineer-in-Charge. Mirror polished skirting/dado shall be provided wherever mirror polished flooring is specified.

(b) Kota stone slab/ tiles of specified size shall be provided over 10 mm thick cement screed/rendering in cement and sand mortar (1:3) length of stone slab shall be match with the joint of floor tile/slab.

14.6 CERAMIC TILES SKIRTING/DADO

(a) Tiles as specified in schedule of finishes drawings shall be provided over cement and sand mortar screed in cement and sand mortar (1:3) 10 mm thick. Size and thickness of tile if not specified in schedule of finishes drawings, the size of tile shall be 300 x 450 mm and thickness shall not be less than 7 mm.

(b) Quality of tiles shall conform to IS-15622 (2006) (Group II). Make of tiles shall be as specified in Appendix 'B' to particular specifications.

(c) Shade and colour of tiles shall be as shown in drawing and as approved by GE. Dark colour tiles shall be provided as shown in drawing.

14.7 SKIRTING / DADO

(a) If heights of skirting/dado have not been shown in drgs the same shall be as under:-

| | | |
|-------|--------------------------|---|
| (i) | Skirting | -100mm |
| (ii) | Dado in Toilet/Bath room | -Up to lintel level |
| (iii) | Dado in WC | -Up to lintel level |
| (iv) | Dado in Kitchen | -up to 600mm above platform |
| (v) | Acid resistance work | - Dado up to to cill level including over platforms |

(b) Colour of ceramic / vitrified tiles shall be light/dark as shown in drawing and as approved by GE.

NOTE: APPLICABLE TO WHOLE WORK

(i) Dado/skirting shall be carried out to full width of Jambs of doors/windows unless otherwise shown on drawing.

(ii) Kota stone/Marble stone/Granite stone wherever shown in Drawing shall be machine cut, polished as specified in MES SSR Part-I. Mirror polishing shall be provided wherever specifically mentioned in drawings or elsewhere.

PARTICULAR SPECIFICATIONS (CONTD...)

(iii) Joints in floor and skirting shall be match each other and accordingly length of tiles/slab shall be adjusted. If the specification of Dado / Skirting not shown same shall be as per floor finish.

(iv) Ceramic / vitrified tiles shall be premium quality (First quality).

15. **WHITE WASHING/COLOUR WASHING/CEMENT PAINT/DRY DISTEMPER/ OIL EMULSION DISTEMPER ETC**

- 15.1 Surface finishes visualising white wash, colour wash etc shall be provided all as indicated in respective schedule of finishes drawings.
- 15.2 Where whitewash is indicated in drawings, apply three coat of whitewash including preparation of surfaces. Where colour washing is indicated in drawings, apply two coats of colour wash over a coat of white wash. Tint of colour wash shall be approved by GE.
- 15.3 White washing and colour washing shall be applied with proper brushes as specified in clause 15.12 of MES SSR Part-I, contractor may, at his discretion, do the same by means of spray pump without any extra cost to the Government.
- 15.4 Where oil emulsion distemper and/or dry distemper is indicated in drawing, apply two coats of oil emulsion distemper and/or dry distemper (as the case may be) of the tint approved by the GE. Prepare surfaces and apply primer as per clause 15.13 and 15.14 of MES SSR Part-I before applying two coats of distemper. Make of distemper shall be as specified in Appendix 'B' to particular specifications.
- 15.5 Where cement based paint is indicated on drawings, apply two coats of cement based paint over priming coat. The tint shall be approved by GE. Preparation, application and other instructions shall be followed as stipulated in clause 15.15 of MES SSR Part-I. Make of paint and primer shall be as specified in Appendix 'B' to particular specifications.
- 15.6 At places where no finish has been shown in drawings, internal plastered surfaces and ceiling shall be provided with three coats of white wash and external plastered surfaces shall be provided with two coats of cement paint or acrylic emulsion paint for the respective building.
- 15.7 Where plastic emulsion paint indicated on drawing, shall be suitable for interior use as per IS 5411(Part I). Apply two coats of acrylic paint interior of the tint approved by GE. Preparation of surface and apply primer as specified in MES Schedule Part-I. Preparation, application and other instructions shall be followed as stipulated in clause MES Schedule Part-I.
- 15.8 **EXTERIOR ACRYLIC EMULSION PAINT:** - Exterior emulsion paint (weather coat) wherever specified in sch of finishes shall be exterior acrylic emulsion paint as per clause 17.17 of SSR part-I. Two coats of exterior acrylic emulsion paint shall be applied of approved tint over priming coat for external walls as per manufacturer's instructions as per clause 17.17 of SSR part-I. The make of the exterior acrylic emulsion paint shall be either of 1st quality as approved by GE from specified make.

PARTICULAR SPECIFICATIONS (CONTD...)

- 15.9 **WALL CARE PUTTY**:- White cement based wall care putty shall be provided wherever shown on drawing of make as approved by GE. Thickness of wall care putty shall be as shown in sch of finish. 3 mm thick putty wherever shown in drawing shall be provided in two layers of 1.50 mm thick each.
16. **GLAZING TO STEEL WINDOWS/VENTILATORS (Z SECTION)**
- 16.1 Unless otherwise specified or indicated in the drawing, glazing shall be of plain sheet glass (selected glazing quality), 4mm thick (nominal thickness) except toilet/ bath/ WC windows/ vents where 4mm thick figured glass, pin head type shall be used.
- 16.2 Glazing to metal frames shall be with putty conforming to IS-419 and steel clips and as specified in clause 16.5 to 16.10 of MES SSR Part-I.
- 17 **PAINTING**
- 17.1 **TARRING**
- Prepare surface and apply Two coats of tar mixture to the mild steel and timber surface in contact with or buried in ground / masonry work / concrete / plaster.
- 17.2 **PAINTING GENERAL**
- 17.2.1 Members specified to be painted shall first be passed by the Engineer-in-Charge and marked as such before commencement of painting work. Each coat of paint shall be passed by the Engineer-in Charge before successive coat is applied.
- 17.2.2 If the under coat of paint is not executed within 06 months after applying the priming coat, the priming coat shall be redone by the contractor without any extra cost to the Government.
- 17.2.3 Surface inaccessible for applying further coats shall be painted before fixing.
- 17.2.4 Make and specific brand of paint (of manufacturer) as specified in Appendix 'B' to Particular Specifications shall be used in the work.
- 17.2.5 The primer and paint shall be of the same manufacturer. Pink primer shall be used for wooden surfaces and red oxide zinc chrome for steel surface.
- 17.3 **PAINTING TO IRON AND STEEL WORK**
- 17.3.1 Unless otherwise shown on drawings all exposed steel work and E/M exposed steel items shall be painted with two coats of synthetic enamel paint over a coat of zinc chrome primer after preparation of surface.
- 17.3.2 All galvanised iron articles (except CGI sheet in fire point) and reinforcement bars shall not be painted.
- 17.3.3 Priming coat shall be applied before fixing in position.

PARTICULAR SPECIFICATIONS (CONTD...)**17.4 PAINTING TO TIMBER SURFACES**

17.4.1 Unless otherwise shown of schedule of finishes or specified in these specifications, prepare surfaces and apply two coats of synthetic enamel paint over one coat of pink wood primer all as specified in clause 17.6 of MES SSR Part-I.

17.4.2 Priming coat shall be applied before fixing.

17.4.3 All surfaces of timber exposed to view and for which type of finish is not specifically catered for either in drawings or in these particular specifications shall be treated with three coats of paints as mentioned in clause 17.4.1 here in before.

17.5 CREOSOTING

Surfaces of timber hidden from view (such as wood work below flooring/above ceiling/ back side of wall panelling) shall be treated with two coats of creosoting all as specified in clause 17.11 of MES SSR Part-I.

17.6 FRENCH POLISHING

French polish wherever indicated on drawings shall be provided all as per clause 17.7.4 of MES SSR Part-I.

18. PLUMBING AND SANITARY FITTINGS

The lump sum tendered by the tenderer for the buildings shall include for the cost of supplying, fixing and testing as specified of the following sanitary fittings/fixtures for the respective buildings as shown in drawings including all accessories and plumbing to the extent mentioned herein after. All sanitary fittings shall be white glazed vitreous china, first quality, ISI marked. Make of fittings shall be as per Appendix 'B' to particular specifications: -

- (a) Water closet squatting pattern, pedestal pattern with plastic seat and cover, low level flushing cistern.
- (b) Urinal with flush valve and urinal partition
- (d) Flush valve 40 mm bore (wheel type)
- (e) Wash hand basin with pillar tap and bottle trap.
- (f) Mirrors (Counter lengthx600mm high) embedded in 300mm marble platform fixed by angle iron frame finished with 20mm thick polished granite top & sides with half round finish at edge.
- (g) Soil , waste, vent and rain water pipes
- (h) Gully traps, nahani traps and floor traps
- (j) Water tanks
- (k) Soap niche
- (l) Towel rail
- (m) Toilet paper holder
- (n) All other fixtures/fittings as shown on drgs.

PARTICULAR SPECIFICATIONS (CONTD...)**18.01 WATER CLOSET (PEDESTAL PATTERN) .**

Pedestal pattern wash down apparatus shall be of pattern 2 of IS-2556 Part-II (2004) and shall comprise of the following:-

- (a) Wash down water closet pan complete with integral 'P' or 'S' trap. The closet shall be fixed to floor all as specified in clause 18.87.1 of MES SSR Part -1.
- (b) Closet seat and cover shall be moulded synthetic material as specified in clause 18.36.2 of MES SSR Part -1. The underside of seat shall be recessed type with chromium plated brass hinges.
- (c) Low level flushing cistern 10 litre capacity with dual partition of 7 Litres and 3 litres, body moulded from virgin quality high impact polystyrenes all as specified in clause 18.99 of MES SSR Part 1 of make as per Appendix 'B' to Particular Specifications complete.
- (d) 40 mm (nominal diameter) PVC flush pipe with necessary fittings
- (e) 15 mm bore PVC connection heavy duty 600 mm long with brass union at both ends.
- (f) Chromium plated brass angular valve, fancy type suitable for connection from 15mm bore GI pipe water mains.

18.02 WATER CLOSET ORISSA PATTERN

- (a) Squatting pan Orissa pattern size 580 mm x 440 mm with integral foot rest, vitreous china front or back inlet with P or S trap with long outlet so that joints falls out of building. The trap shall be of cast iron.
- (b) Low level flushing cistern 10 litre capacity with dual partition of 7 Litres and 3 litres, body moulded from virgin quality high impact polystyrenes all as specified in clause 18.99 of MES SSR Part 1 of make as per Appendix 'B' to Particular Specifications complete.
- (c) 40 mm (nominal diameter) PVC flush pipe with necessary fittings
- (d) 15 mm bore PVC connection heavy duty 600 mm long with brass union at both ends
- (e) Chromium plated brass angular valve, fancy type suitable for connection from 15mm bore GI pipe water mains.

18.03 WASH HAND BASIN :-

- (a) Wash hand basin shall be vitreous china glazed ware, size and pattern shall be as shown on drawing. Size of flat back wash hand basin and oval type wash hand basin if not specified in drawing shall be 550 x 400 mm (normal size) and 480 x 375 mm (normal size) respectively. Oval type wash hand basin shall be provided with 20 mm thick polished granite (telephone black) platform as shown in drawing number TD/2004/86/ sheet 1/1 or as specified in respective drawing.

PARTICULAR SPECIFICATIONS (CONTD...)

(b) Wash basin shall have the following :-

- (i) Single trap hole with brass grating and coupling and comprising of CP brass with check nut with internal over flow.
- (ii) Chromium plated brass chain and plug and waste fittings.
- (iii) Chromium plated brass coupling with check nut fixed to brass chromium plated bottle trap.
- (iv) One pair of stout, painted cast iron brackets screwed to and including wooden plugs.
- (v) For waste pipe connecting from wash hand basin refer PS clause 18.13.4 hereinafter.
- (vi) 15mm bore PVC pipe connection, white 45 cm long with 2 Nos brass coupling for each pillar tap and mixture valve
- (vii) Pillar tap shall be fancy type conforming to IS-8934 and clause 18.16.1 of MES SSR Part I (ISI marked) chromium plated (In case of officers mess and single officers accommodation in toilet hot and cold water mixture valve shall be provided).
- (viii) Chromium plated brass angular valve, fancy type suitable for connection from 15mm bore GI pipe water mains.

18.04 URINALS :- urinal shall comprises the following :-

- (a) Urinal pot shall be flat back of size 430 x 260 x 350mm (minimum) vitreous china, all as specified in clause 18.32.7 of MES SSR Part-I.
- (b) Each urinal shall be provided with 15mm bore brass chromium plated half turn flushing valve ISI marked, CP waste coupling, 32mm bore GI light grade waste pipe upto outlet drain and 15mm bore GI medium grade flush pipe.
- (c) Urinal pot shall be fixed with brass screws on wooden plugs embedded on wall in CM (1:2).
- (d) Partition wall required in between the two consecutive urinal and at end urinals if not specified in drawings, same shall be of 15-17 mm thick marble (Makrana Dungri) (white) both side polished of size 1000 mm x 750 mm embedded in the wall.
- (e) Channel and platform shall be finished with same finished as specified for adjoining floor.

18.05 TOILET PAPER HOLDER

One toilet paper holder for which pedestal type WC shall be provided whether shown on drawings or not. Toilet paper holder shall be of vitreous china of 150mm x 150mm recessed roll type.

PARTICULAR SPECIFICATIONS (CONTD...)

- 18.06 **NAHANI TRAPS** :- Nahani traps shall be provided in locations as shown on drawings. Nahani trap shall be of cast iron as per IS-3989 and shall have outlet of nominal diameter of 75 mm. Traps which are adjacent to outer wall shall be provided with long outlet so that joints falls out of buildings.
- 18.07 **GULLY TRAPS** :- Gully traps shall be salt glazed stone ware quality rebated top square body size 150 mm trap type 'P' round mouth 100 mm bore outlet jointed to drain pipe in cement and sand mortar (1:1) including cement concrete (1:5:10) type E-2 bedding square RCC cover with 50 mm projection on either side as shown on the drawings.
- 18.08 **TOWEL RAIL**
- (a) Towel rail shall be of 18mm dia brass chromium plated. Towel rail shall be screwed with brass chromium plated bracket and aluminium anodised towel rail shall be screwed with steel chromium plated brackets fixed with PVC sleeve of appropriate size with brass chromium plated screws. The length of towel rail shall be 600 mm unless otherwise shown on drawings.
- (b) Towel rail shall be provided with each wash hand basin. The exact location where towel rails are to be provided, shall be decided by GE at site
- 18.09 **MIRROR FULL SIZE**
- (a) Mirrors shall be 5.5 to 6 mm thick polished sheet glass flawless firmly mounted on 6 mm thick plywood backing in PVC frame of approved quality shape moulded and shade or aluminium anodised frame as specified in respective drawings. The edge of plywood shall be finished smooth by sand paper.
- (b) Vitreous china wash hand basin shall be provided with mirror as under:-
- (i) In case of Oval type WHB :-
Length equal to length of platform and 600 mm in height, if not specified in respective drawings.
- (ii) In case of flat back WHB :-
450X 600 mm.
- 18.10 **PILLAR TAPS**
- Pillar taps shall be of fancy type conforming to IS-8934 (1978) and clause 18.16.1 of MES SSR Part-I brass chromium plated. The water supply installation shall be tested hydraulically at a pressure of 2.5 Kg/sq cm in the presence of the Engineer-in-Charge for at least 24 hours continuously to ensure leak proof connections. All arrangements for testing shall be made by the contractor at his own cost. Any defects noticed shall be rectified to the entire satisfaction of Engineer-in-Charge.
- 18.11 **SOIL WASTE AND VENT PIPES**
- 18.11.1 Unit rate for the building of Schedule 'A' Part-I shall be deemed to include for cost of the soil, waste and vent pipes along with requisite fittings such as bends, junctions, inspection and all plumbing work complete.

PARTICULAR SPECIFICATIONS (CONTD...)

18.11.2 Soil, vent and waste pipe including their fittings in all location (except waste pipes), in location shall be cast iron 100 mm bore and 75mm bore with lead joint. Soil pipe shall be extended 90 cm above roof level to serve as vent pipe and shall be provided with CI cowl at top.

18.11.3 Waste pipe from sanitary fittings, like sinks/WHBs (without bottle trap) up to Nahani traps shall be 40/32 mm PVC pipe except where the pipe is embedded in the wall/floor. Waste pipe embedded in the floor/walls shall be 40 mm dia GI pipe medium grade and shall run along the walls and not across the floor.

18.11.4 Waste pipe from Nahani trap/floor trap up to gully trap shall be CI 75 mm bore with cement joint except joints embedded under floor or masonry which shall be with lead. Drain pipe from gully trap shall be 100 mm bore SGSW pipe grade 'A' ISI marked duly embedded packed and haunched against the sides of pipe in PCC (1:4:8) type D-2 using 40 mm graded crushed stone aggregate.

18.11.5 Soil pipe up to 2.0 metre from external face of the wall and waste pipe up to gully trap and drain pipe up to 2.0 metre length from gully trap as specified above shall be deemed to be included in the unit rate of buildings under Schedule 'A' Part-I. Any variation in length of pipe shall be adjusted through deviation order.

18.11.6 All cast iron pipe and pipe fittings shall be spun centrifugally cast as per IS : 3989 (ISI marked).

18.11.7 Whether indicated on drawings or not, soil pipe to take sludge from water closets and waste pipes to take water from Nahani traps shall be provided all as specified herein before.

18.11.8 CI accessories such as bends, pieces (single/double) etc shall be provided as required and / or as shown on drawings. All exposed accessories above ground level shall have oval access door (single pattern) to enable access to each straight section of the joints.

18.11.9 Where CI pipe are taken down ward through RCC slab at pre-decided location a CI pipe piece of suitable length with collar shall be placed in situ during casting of slab instead of keeping hole or putting wooden gutka etc. The soil, waste and vent pipes for first floor and above shall hang on RCC slab ceiling on proper MS stack clamps/ hangers on as approved by GE. The spacing of clamps should not exceed 60cm.

18.11.10 Each and every joint of soil/waste pipe being embedded in to floor/walls shall be tested with smoke test as laid down in the MES SSR-Part I in presence of Engineer-in-Charge and than he will certify that the joints are satisfactory and no leakage was noticed. A copy of this certificate shall be forwarded to the GE and CWE for records.

18.11.11 All CI pipe shall have 30 mm clearance from the finished face of wall and shall be fixed with MS clamp and as specified in MES SSR Part-I.

18.11.12 All cast iron pipe shall be without ear.

18.12 **SOAP NICHE** :- Provide soap niche as per details shown on drawings with same finish on all the surfaces as that for adjoining dado. In case the dado is to be of glazed tiles the soap niche shall be finished with glazed tiles with same specifications as that of dado.

PARTICULAR SPECIFICATIONS (CONTD...)**18.13 GI SPOUTS**

300 mm long spouts of GI pipe 50 mm bore (light grade) shall be provided as shown in drawing. Free end of spout shall be cut at 45-degree angle.

18.14 RAIN WATER PIPE (RWP)

(a) Rain water pipe and fittings shall be of UPVC (Un-plasticised PVC) conforming to IS : 13592 all as specified in clause 18.27A of MES SSR Part-I. Size and location of RWP shall be as shown on respective drawings. Jointing of pipe shall be carried out as per manufacturer's instructions. Pipe and fittings shall be secured to walls using PVC clamps as per manufacturer's instructions at all joints. Size of rain water pipe shall be 160mm dia if not specified anywhere in the tender documents.

(b) Grating and shoe shall be provided at inlet and outlet of RWP.

19. SUNDRIES**19.01 SWITCH/METER BOX**

(a) Whether shown in drawing or not, buildings under Schedule 'A' Part-I shall be provided with switch/meter box (steel including niche as shown in drawing).

(b) The size of switch/meter box shall be suitable so as to accommodate the DBs with MCBs and meters as specified.

(c) All surfaces of steel exposed to view shall be treated all as specified in particular specification here in before.

19.02 HDPE WATER TANK

19.02.1 Water tanks shall be provided as shown on drawing.

19.02.2 Water tank shall be single piece rotational moulded polyethylene, (cylindrical vertical with top closed) double layered construction of HDPE as per IS-12701. The outer surface of the tank shall be painted with suitable heat protective paint (white in colour).

19.02.3 The lump sum shall also include for the following :-

(a) Galvanised steel tube medium grade 10cm long projected inside and outside of tank with bore as indicated in drawing for inlet and outlet including high pressure brass ball valve with polythene float brass rod and fly nut conforming to IS-1703.

(b) Galvanised steel tube for inlet of size shown on drawing medium grade 10 cm long projected inside and outside for wash out.

(c) Galvanised steel water tube medium grade projecting 10 cm inside and outside the tank for over flow.

(d) Galvanised steel tube medium grade projected 10 cm inside and outside of tank for vent.

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19.02.4 Capacity and number of water tank shall be provided as shown on roof plan drawing. Water tank shall be placed over PCC platform (1:2:4) type B-1, with minimum thickness of concrete 200 mm. Bottom surface of tank shall be horizontal and tank shall be fixed in position all as shown on drawing No: - ADG D&C Pune 2002/TD/001/sheet No 1/1.

19.02.5 If capacity of water tank is not shown in roof plan drawing, 500 litres capacity water tank shall be provided for each toilet.

19.03 **BUILT IN WARDROBE**

Wardrobe shall be provided all as specified and as per details shown in typical drawing.

19.04 **CUP BOARD**

Cup boards shall be provided all as specified and as per details shown in typical drawing.

19.05 **DRAPERY ROD (DR)**

(a) DR wherever mentioned in plan, stainless steel drapery rod 20mm outer dia of weight not less than 340gm with heavy duty brackets and fancy type finials will be provided as approved by GE.

(b) Drapery rod shall be supported on the stainless steel heavy duty bracket fixed with rawl plug or screw on walls/beam. Drapery rod shall be provided with finial at ends as approved by Garrison Engineer.

(c) Colour of drapery rod, rings, finial and bracket shall be as approved by Garrison Engineer.

(d) Rings for hanging the curtain shall be as per manufacturer's instructions and shall be provided at the rate of one ring per 10 cm length of rod.

(e) Make of drapery rod, finial shall be as specified in Appendix "A" or as approved by GE.

19.06 **COOLER REST**

Cooler rest shall be provided along with cooler window as per details given in drawing No TD/2004/47 Sheet No 3/5. Size of cooler rest platform shall as specified in relevant drawing if not specified same shall be 650 x 650 mm, however length of lintel/beam shall be as per drawing mentioned herein before i.e with bearing at both end of opening.

19.07 **STAINLESS STEEL SINK WITH DRAINAGE BOARD**

(a) It shall be of stainless steel (S-304) (Salem steel) made out of 1 mm thick sheet of overall size 915mmx460mm with bowl size 410mmx330mmx160mm (minimum). Sink shall be anti scratch quality and to be provided with single trap hole with brass chromium plated grating and coupling and comprising of CP brass with check nut with internal over flow and

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15mm bore PVC waste pipe with chromium plated brass coupling with check nut. All fixing arrangement shall be carried out all as directed by Engr-In-Charge.

19.08 REINFORCED CEMENT MORTAR JALLI

19.08.1 Reinforced cement mortar jaali with RCC post shall be provided at the locations as shown on drawing and as specified.

19.08.2 Reinforced cement mortar jallies shall be procured from market and not be cast at site. Jalli shall be best locally available and of size 30 x 35 cm as directed by the GE. The mix of mortar shall be in cement and sand mortar (1:3) (1 cement: 3 coarse sand), reinforced with 3mm dia GI wire. Thickness of jalli if not specified in drawings same shall be 50 mm. The pattern shall be as approved by GE and set and jointed in cement and sand mortar (1:4) and at every third unit 6mm dia mild steel wire shall be provided all as directed by Engineer-in-Charge.

19.09 THREE/TWO TIER RCC SHELIVING

19.09.1 These shall be provided as shown on drawing. The surface shall be finished fair and smooth with using extra cement.

19.09.2 Bottom, top and front edge shall be provided with 5 mm thick rendering in cement mortar (1:3) finished even and smooth without using extra cement.

19.09.3 Bottom surface of shelves shall be treated with three coats of white washing all as specified hereinbefore.

19.10 to 19.16 --BLANK--**19.17 NUMBER PLAQUE**

All building / structures shall be provided with a diamond square 30 cm x 30 cm x 20 mm thick plaster plaque in cement and sand mortar (1:2) finished smooth using extra cement duly painted in black (three coats) of synthetic enamel paint including priming coat and number letter (each of 12 cm height) as directed by Engineer-in-Charge. The number of each quarter on main entrance door shall also be painted as directed by Engineer-in-Charge.

19.18 PLAQUE OF PRIDE

The contractor shall provide black (telephone black) granite slab 20 mm thick, 750 mm x 600 mm size in one building of the project as directed by GE. Plaque of pride will bear name of work with date of commencement and actual date of completion, name of CWE, GE, Senior Architect associated with the project and contractor/firm who were associated with the project as per dgt No TD/2012/15 sheet No 1/1.

19.19 INFORMATION PLAQUE (TABLET)

19.19.1 Building /structure specified in clause 3.7.1 & 11.2.1 here in before shall be provided with plaque (tablet) furnishing the following information in plaster engraving in and painted as directed by GE :-

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- (a) Job No, CA No, Year and name of work
- (b) Name of contractor, GE and Engineer-in-Charge
- (c) Date of commencement, completion phase wise and expiry of maintenance period.
- (d) Date of expiry of warranty period against ATT and water proofing treatment.

19.22.2 Plaster shall be 20 mm thick in cement and sand mortar (1:4).

19.22.3 Location and size of plaque shall be as decided by the GE.

19.23 HOOK/PEGS SET OF THREE/SIX

Hook/pegs shall be 4 mm square anodised aluminium and fixed with cadmium plated screws. The size of hook shall be 125 mm if not shown on drawing and shall be fixed on wooden plank as specified in respective drawing.

19.24 EXPANSION AND CRUMPLE JOINTS

19.24.1 Expansion/crumple section shall be provided where indicated on drawings as per the details given in the drawings. The portion where aluminium sheet is to be fixed on walls, the surfaces below the sheet shall be plastered 15 mm thick in cement and sand mortar (1:4) in lieu of keyed pointing.

19.24.2 Gap shall be filled with compressible material as specified in respective drawings.

19.24.3 Filling material shall be non-extruding and resilient type (bitumen impregnated fibre) preformed bituminous filler conforming to IS 1838, ISI marked.

19.24.4 PVC water bar or sealant shall be provided to prevent rain water penetration as directed by Engineer-in-Charge..

19.25 OPENING FOR EXHAUST FAN

Opening for exhaust fan shall be provided all as specified and shown on drawings with arrangement of mosquito proofing.

19.26 RAILING AND HAND RAIL OF STAIR CASES

- (a) Railing and hand rails wherever shown on drawing shall be all as shown on respective drawings and shall be painted (except stainless steel railing) all as specified here-in-before.
- (b) Stainless steel railing shall be of grade (S-304) and thickness of pipe shall be minimum 2mm up to 19 mm outer dia metre and 2.3mm for above 19mm outer dia.
- (c) Mild steel pipe specified in railing shall be of made out of medium grade.
- (d) Galvanized surfaces wherever specified in respective drawings shall having zinc coating type heavy as laid down in IS , hot dipped galvanized coating.

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20. **-BLANK-**

21. **SEWAGE DISPOSAL**

21.1 **GENERAL:** Items of sewage disposal work shall be carried out all as specified in description of relevant items, as specified in relevant clauses of SSR Part-I and as directed by Engr-in-Charge.

22. **AREA DRAINAGE**

The work of area drainage shall be executed all as specified in items of respective schedule 'A' and as shown on drawings. Level sheet for complete area shall be prepared clearly showing the location of drains proposed and same shall be submitted duly signed by GE/AGE(I) and contractor for approval of Accepting officer before execution of work under provisional schedule of area drainage

23. **SITE CLEARANCE**

Before commencement of excavation or earth filling, the representative of the GE/AGE(I) and the contractor will be required to take the levels jointly of existing ground surface at intervals decided by the GE/AGE(I) (The decision of the GE/AGE(I) shall be final and binding in this respect) and plot the same on longitudinal and cross sections to be prepared by the contractor as directed by Engineer-in-Charge and approved by GE/AGE(I) considering the adjacent road levels and levels of other buildings. These cross sections shall also show the proposed formation level after cutting and shall be signed by the GE/AGE(I) and the contractor in token of their acceptance and sent to CE Office for record within one month from the date of commencement.

24. **CHAIN LINK FENCING**

24.1 Chain link fencing shall be provided as specified in schedule 'A'. Galvanised steel wire conforming to IS 280 having zinc coating type heavy as laid down in IS 4826, hot dipped Galvanised coatings steel wires. Tensile strength of the wire shall within 500 to 500 MPa. All as specified in clause 10.34 of MES SSR Part-I

24.2 Chain link fencing shall be fixed to the fencing post as specified in Sch 'A'

24.3 For payment purpose weight of chain link fencing shall be ascertained through board of the officers as ordered by Accepting Officer and finding of board officer shall be forwarded to accepting officer.

25. **INTERNAL WATER SUPPLY**

25.1 Pipes and pipe fittings shall be provided by the contractor for approval of GE/AGE(I) before orders for supply.

25.2 Pipe and pipe fittings shall be galvanised steel medium grade.

25.3 Screw down bib taps and stop cocks shall be of brass polished body bright finish.

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- 25.4 The water supply installation shall be tested hydraulically at a pressure of 2.5 Kg/Sq cm in the presence of Engineer-in-Charge for at least 24 hours continuously to ensure leak proof connections. All arrangements for testing shall be made by the contractor at his own cost. Any defects noticed shall be rectified to the entire satisfaction of Engineer-in-Charge.
- 25.5 The mounting height of various fittings shall be as directed by Engineer-in-Charge.
- 25.6 As far as possible joints shall be avoided in the pipes laid under floor.
- 25.7 (a) As far as possible water supply pipe line shall be run exposed on external face of walls of the buildings. Water supply pipe line inside the buildings in toilets, bath, WC and kitchen for all type of accommodation shall be concealed.
- (b) Necessary cuttings/leaving/ forming holes, chases etc in walls, floor and ceiling and making good involved shall be deemed to have been included in the unit rate quoted by the contractor for respective buildings under Schedule 'A' Part-I. No adjustment shall however, be made on this account for pricing any deviation in quantities indicated as provisional items under Schedule 'A' Part-II (Internal water supply).
- 25.8 Make of materials shall be as given in Appendix 'B' to particular specifications.

26. **INTERNAL ELECTRIFICATION**

26.1 **SCOPE OF WORK**

The scope of work includes internal electrification to buildings all as described in Schedule 'A', shown on relevant drawings, specified in the particular specifications here-in-after including testing and commissioning and also includes any other connected items of work required for entire completion including testing and commissioning but not specifically mentioned.

26.2 **GENERAL**

- 26.2.1 Particular specifications given here-in-after are brief and are only to particularise, amend and emphasize the specifications of MES Schedule (where are not repeated).
- 26.2.2 The IS mentioned in the MES Schedule and in the tender documents shall be deemed to be changed/modified as per latest amendments issued to IS upto date of receipt of tender.
- 26.2.3 The installation shall strictly comply with the provisions contained in the latest edition of the Indian Electricity Rules and Code of practice and IS-732 for electrical wiring and fittings in buildings (as applicable to these works) except where such regulations and rules are modified by these specifications.

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- 26.2.4 All electrical works shall be executed properly by skilled and licensed electricians under the supervision of suitable, qualified electrical supervisors. The contractor shall produce to GE/AGE(I) evidence of such qualifications of his workmen and supervisor(s) at the time of commencement of the work and if required by the department at any time thereafter during contract period, on demand by Engineer-in-Charge.
- 26.2.5 The layout of internal electrification network and system shown in plants/drawings are tentative and may need modification on ground. The work shall finally be executed as per approval of GE/AGE(I) in writing and no price-adjustment what so ever shall be admissible to the contractor on this account.
- 26.2.6 The wire runs shall be marked on the walls and soffits of roofs/floors slabs and approval of the Engineer-in-Charge shall be obtained in writing before fixing plugs, cables and fittings etc.
- 26.2.7 All electrical fittings and wiring shall be laid/fixed clear of doors and windows and other openings.
- 26.2.8 Wiring shall be done strictly in conformity with IS rules, specifications and lay outs shall be in conformity with modern engineer practice. Loop-in type of wiring shall invariably be adopted throughout the installation.
- 26.2.9 No twisting/jointing in earth wire is allowed. All continuous earth wires shall be connected to main earth/switch boxes/DBs/MCCB, socket outlets, fitting etc by use of suitable size lugs/sockets and application of crimping tools only.
- 26.2.10 Cables shall be connected to a terminal only by crimped lugs using suitable sleeve, lugs or ferrules and application of proper crimping tools. In case where this is not feasible, the ends may be soldered together. Cables in each circuit shall be bunched together.
- 26.2.11 Proper phase identification code should clearly be provided at the main in-coming switch.
- 26.2.12 The name of functions of each distribution board like 'POWER' 'LIGHT' or 'SUB MAIN DB' as applicable shall be clearly and neatly painted on the distribution boards with white synthetic enamel paint.
- 26.2.13 The height of the incoming and distribution switch boards and various electrical fittings/sockets outlets/switch boards etc shall be as per E-in-C's TI. However, the height of the distribution boards shall not be less than one metre. Socket outlets may be installed at the height of one metre from the finished floor level.
- 26.2.14 The contractor shall submit, within two weeks from the date of placement of work order to commence the work, the wiring diagram to the Engineer-in-Charge for his approval. Approval of the Engineer-in-Charge shall be obtained in writing for the purposed run of wires and exact positions of fittings before resorting to the fixing of conduits, cable, fittings etc.

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26.2.15 General conditions and specifications as given in clause 19.2 of MES SSR (Part-I) shall be complied.

26.2.16 The main supply in the buildings shall be LT AC –50 Hz single phase (230V) or three phase (415 V).

26.3 **MATERIAL AND SAMPLES**

26.3.1 The main items to be incorporated in work like cables, switches, sockets, fittings, MCBs. DBs etc shall invariably be ISI marked. Where ISI marked products are not available in the country, these shall conform to relevant BS specifications.

26.3.2 Approval of GE/AGE(I) referred to in clause 19.2 of MES SSR (Part-I) shall be in writing.

26.3.3 Samples of all materials, fittings and fixtures to be supplied by the contractor shall be submitted to GE/AGE(I) for his approval. The contractor shall procure the items in bulk and commence the work only after the samples are approved in writing by the GE/AGE(I). The contractor shall ensure that all the materials incorporated in the work are identical in all respects. Samples approved and samples destroyed in testing shall be returned to the contractor after completion of contract. No payment shall be made for samples destroyed in testing.

26.3.4 Make of materials shall be as given in Appendix 'B', to particulars specifications.

26.3.5 All manufactured articles required for incorporation in work shall be brought to site in the manufacturer's original packing with the seal intact. The materials shall be procured from the manufacturers or their authorised dealers only and original purchase vouchers (duly machine numbered and bearing the ST/CST/TIN number) and manufacture's test certificates shall be submitted by the contractor to the deptt for inspection and perusal before approval of material. Incorporation shall be done after material is approved by GE/AGE(I) in writing.

26.3.6 Executives and the contractor are to clearly understand the "sample approval" and "material approval" are two distinct activities and phase and proper record for both these activities in a proper sample and material approval register is to be kept.

26.3.7 Notwithstanding, the fact that an equipment has passed the inspection carried out during the stage of manufacture, the contractor is not relieved from his obligations to conform to the quality, workmanship, guarantee of performance etc.

26.3.8 Any defective materials, equipment or workmanship which may come to the notice of the GE/AGE(I) or his representative after installation shall be liable for rejection and the contractor shall to replace such materials, equipments etc or rectify the defects at his own cost.

26.4 **WIRING.**

26.4.1 **SCREWS AND NAILS ETC :-**

All screws and nails used in the point/sub main wiring work shall be cadmium plated steel. Screws which are visible such as over switch boxes, laminated sheet top covers etc shall be of brass chromium plated.

PARTICULAR SPECIFICATIONS (CONTD...)**26.4.2 SYSTEM OF WIRING**

- 26.4.2.1 Wiring shall be of the type with conductor size as described in Schedule 'A'.
- 26.4.2.2 Cables used for point and sub main wiring shall be of FRLS variety with multi standard copper conductors and invariably be IS : 694 marked.
- 26.4.2.3 Wiring shall be done without any junction or connection boxes on line.
- 26.4.2.4 Special attention is drawn to termination of cable ends of point and sub main wiring cables. All exposed ends of multistranded cables, whether terminating at MCBs or switches (including piano switches) or at electrical fittings shall be crimped together with suitable lugs using proper crimping tools. In exceptional cases where the Engineer-in-Charge is convinced that crimping/provision of lugs is not possible these ends shall be soldered together.
- 26.4.2.5 Proper colour coding viz red/yellow/blue wire for phases, black wire for neutral and green wire for earthing shall be adopted strictly in point wiring.
- 26.4.2.6 The conduits shall be ISI marked and proper accessories at junctions, bends and successive lengths shall be provided. For fixing of conduits and their accessories etc, PVC sleeves and cadmium plated screws shall invariably be used.
- 26.4.2.7 Joint between conduits and accessories shall be securely made to ensure earth continuity.
- 26.4.2.8 All the fan boxes shall be covered with 3mm thick plastic laminated sheet white and contractor's rate for the point wiring for fan shall include this provisions.

26.5 CIRCUITS

- 26.5.1 Each circuit shall have its separate neutral conductor originating from neutral bus bar in DBs.
- 26.5.2 IS-732 provides that in a lighting circuit not more than 10 points shall be connected and maximum load shall be 800 watts. Similarly, two power lugs may be connected to one circuit with a maximum load of 2 Kw and power and light sub-circuits should be separate.
- 26.5.3 (a) All circuits and sub-circuits shall be designed by making a provision of 20 percent increase in load due to any future modification.
- (b) Not more than 8 light/fan points (etc) shall be connected to one circuit within the maximum load ceiling. This will allow scope of extension without over-loading and piecemeal changes. The incoming MCB should be a closely graduated one instead of indiscriminately putting a 6 Amps SP MCB in a lighting circuit. A spare way shall be kept in the DB to cater for extension.
- (c) The power circuits with 2 normal power plugs be controlled by a 10 Amps SP MCB, thereby limiting the load to 2 kw approximately.

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- (d) In case of equipment like geyser, air-conditioners, water coolers etc only one power plug shall be connected to the circuit and protected by a suitable graded MCB.
- (e) Lights and fans may be wired on a common circuit. In installations requiring the use of group control for switching operations, circuits for socket-outlets shall be kept separate from lights and fans. Even these may be wired to separate circuits if further separate group control is required on ground.

26.5.4 Cable markers/identification sleeves shall be provided in DBs to identify the cable leading to a particular circuit to avoid trial and error method for circuit identification during fault rectification. Proper colour code shall be followed so that phase, neutral and earth conductors can easily be identified.

26.5.5 In case of single phase circuits, it shall be ensured that the phase conductor is taken on the single pole switches so that with switches in 'OFF' position there should be no live conductor at the outlet controlled by that switch.

26.5.6 Power circuit and lighting circuit which have three pin type socket outlets shall have a separate earth wire for each circuit brought up to the earth terminals on the control boards from where the circuit originate.

26.5.7 Sub bus bar chambers shall be connected with two distinct cables with lugs and nuts/bolts.

26.5.8 All circuits shall be planned in advance and got approved from the Engineer-in-Charge before execution and fixing the controls and fittings

26.5.9 PVC insulated copper conductor cable as mentioned in Schedule shall be run in the conduit as continuous earthing and connected to all light fittings, ceiling fans, sockets points and regulators. The cost of the same shall be deemed to be included in the unit rates of point wiring.

26.5.10 **TERMINAL BOXES**

The terminal points for switches, sockets outlets etc for all wiring shall terminate in sunk type mild steel sheet terminal boxes (made as per IS 5133), fixed flush with wall surface and covered with 3 mm thick plastic laminated sheet (white) with brass screws. The cost of the above arrangement is deemed included in rates for respective items of point wiring.

26.6. **LIGHT FITTINGS/FIXTURES.**

26.6.1 Light fittings as specified in schedule 'A'.

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- 26.6.2 Fittings shall be procured from the manufacturers or their authorised dealer only. GE/AGE(I) shall verify the name of authorized dealer from the manufacture before incorporating into the works.

26.7 **SWITCHES, SOCKET-OUTLETS, BUZZER/BELL PUSH**

Switches, socket-outlet, bell push and buzzer shall be flush piano type, white finish and shall be of the makes specified in the tender. Switches shall have marking for 'LIGHT', 'FAN' 'BELL' etc and shall invariably be ISI marked.

26.8 **EARTHING**

- 26.8.1 Earthing shall be provided of the types as mentioned in Schedule 'A' and shall be executed as per IS-3043 and clause 19.137 to 19.146 of MES SSR Part-I. The overall earth resistance of the earthing system (electrode) shall not exceed one ohm. Earthing shall be done in a manner that the inner edge of earth pit is at least 2 metre from the building foundation (extreme outside end) and the minimum distance between two earth electrodes shall be regulated as per IS-3043. All pipes used shall be of medium grade. IS-1239 marked.

- 26.8.2 It shall be ensured that as per NEC-85, the size of earth continuity conductor shall not be less than half the size of main current carrying conductor subject to a minimum of 1.5 sq mm for copper and 2.5 sqmm for aluminium.

- 26.8.3 For checking the efficiency of earthing, the following test shall be carried out :-

- (a) The earth resistance of each electrode is measured.
- (b) The earth resistance of earthing grid is measured.
- (c) All electrodes are connected to the grid and the earth resistance of the entire earthing system is measured.

These tests shall preferably be done during the summer months.

26.8.4 **RCC COVER FOR EARTH PIT**

- 26.8.4.1 RCC cover for earth pit shall be 40 mm thick mix of concrete for cover shall be (1:2:4) type B-1 using 20 mm graded crushed stone aggregate and reinforced with 8 mm dia high strength TMT steel bars @ 150 mm c/c both ways. Handle shall be of 8 mm dia high strength deformed TMT steel bars and shall be fixed in such a way that the gap between cover and handle is at least 150 mm. Cover shall be placed on cast iron frame embedded in concrete.
- 26.8.4.2 Concrete chamber shall be PCC (1:3:6) type C-1 using 20 mm graded crushed stone aggregate. All internal surfaces of the chamber shall be given 15 mm thick plaster in cement and sand mortar (1:4). Funnel in chamber shall be made out of CI. It shall be leak proof and provided with wire gauge duly soldered.
- 26.8.4.3 Charcoal dust and salt filling shall be done in layers as shown in electrical plate. Surplus soil shall be disposed off and site left clean and tidy on completion.

PARTICULAR SPECIFICATIONS (CONTD...)**26.9 MCBs and DBs**

MCBs shall be of 10 KA breaking capacity, curve 'C' duly IS-8828 marked. DBs shall be manufacturer's factory made and shall be of the same make as the MCB.

26.10 SWITCH DISCONNECTOR FUSE

These shall be of standard construction and makes as per tender.

26.11 TESTING ON COMPLETION

On completion, the electrical installation shall be tested jointly by the contractor and the Engineer-in-Charge as per IS-732 and the results, duly signed by both shall be submitted to GE/AGE(I) for approval. Completion shall not be issued till testing is done and results approved by GE/AGE(I). The following tests shall invariably be done:-

- (a) Insulation resistance.
- (b) Earth resistance.
- (c) Testing of earth continuity path.
- (d) Testing of polarity of non-linked, single pole switches.

All arrangements including labour, material and equipment required for testing shall be made by the contractor and no extra shall be admissible to him on this account since his quoted rates are deemed to include for these.

26.12 RECORDS DRAWINGS.

The contractor shall, after successful completion and testing, submit record drawings prepared by Auto CAD software (2 CDs + 2 hard copies (A2 size) indicating the complete electrical network and circuitry to facilitate reference and maintenance.

27 ROAD, PATH AND CULVERT**27.1 EXCAVATION AND EARTH WORK**

Before commencement of excavation or earth filling, the representative of the GE/AGE(I) and the contractor will be required to take the levels jointly of existing ground surface at intervals decided by the GE/AGE(I) (The decision of the GE/AGE(I) shall be final and binding in this respect) and plot the same on longitudinal and cross sections to be prepared by the Engineer-in-Charge. These cross sections shall also show the proposed formation level after consolidation and shall be signed by the GE/AGE(I) and the contractor in token of their acceptance and sent to CWE Office for record within two months from the date of commencement.

PARTICULAR SPECIFICATIONS (CONTD...)**27.2 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 feasible, prior permission of GE/AGE(I) shall be obtained in writing for hand ramming. The laying of base course will commence only after the earth formation is approved by the GE/AGE(I).

27.3 DRAINAGE OF EARTH FORMATION :-

At all times, the formation surface 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.

27.4 SOLING & WATER BOND MACADAM

27.4.1 Stone metal for soling & WBM shall be from the sources as per Appendix 'A' to particular specifications and as approved by GE/AGE(I).

27.4.2 The grading of crushed or broken stone aggregate for WBM shall conform to grading No 2 as specified in clause 20.A.3 of MES SSR Part-I.

27.4.3 Screening for WBM shall be of grading 'B'

27.5 SOLING

Stones for soling shall be of hard rock obtained from approved quarries and shall be broken to a size ranging from 100mm to 50mm all as specified in clause 20.A.2 of MES SSR Part-I. Thickness of broken stone soling shall be as specified in Schedule of works, laid in layers as indicated, leveled, watered and rolled to required surface and camber all as specified in clause 20. A.20.1 of MES SSR Part-I.

27.6 WATER BOUND MACADAM

27.6.1 Stone aggregate, screenings and binding materials for water bound macadam shall be as specified in clause 20-A.3 of MES SSR Part-I and conform to the samples kept in GE's office and approved by the GE before incorporation in the work.

27.6.2 Water bound macadam shall be constructed with broken stone aggregate of grading 2 as indicated in Schedule 'A'. WBM shall be constructed to a compacted thickness of 150mm, in two layers, each layer shall be 75 mm compacted thickness. Screening for WBM shall be of grading 'B' Preparation of surface, spreading, rolling, applying of screening, watering application of binding material quantity of materials etc., shall be as specified in clause 20.A.21. of MES SSR Part-I.

27.7 **BITUMEN**:: Binder for tack coat and bituminous semi dense asphaltic concrete shall be paving bitumen (VG-10) and VG-30 as specified in schedule 'A' as per IS-73-2006. Bitumen shall not be issued under Schedule 'B'. Paving bitumen VG-10/VG-30 shall be procured by contractor at his own from manufacturers or their authorised outlets and shall be brought at site of work in manufacturer's sealed containers all as per clause 20A.11.4 of MES SSR Part-

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- 27.8 Workmanship shall be in accordance with relevant clauses of MES SSR Part-I.
- 27.9 Measurement of material and finished work shall be done in accordance with clause 20.A.21.13 of MES SSR Part-I.

27.10 **PRE-MIXED SEMI DENSE ASPHALTIC CONCRETE**

- 27.10.1 Material, for semi dense asphaltic concrete shall be all as described in clause 20.B.2 of MES SSR Part-I.
- 27.10.2 Preparation of under lying course, application of tack coat, job mix formula, spreading of mix and quality control shall be all as specified in clause 20 B.4 of MES SSR Part-I.
- 27.10.3 Filler shall be of 43 grade cement.

27.10.4 **RATE:-**

For the purpose of tendering, the contractor may base his rate on the assumption that the bitumen content of the mixture shall be 5.5% for semi dense asphaltic concrete by weight of total mix compacted to 100% density in Marshall mould. If the actual quantity of bitumen required to be used as a result of the laboratory test is found to be less than the quantity of bitumen i.e. assumed above, necessary minus adjustment in the cost of less bitumen used shall be made at the rate quoted in schedule A. However if the bitumen content required to be used as a result of the laboratory test is found to be more than the specified content, the same shall be provided without any extra cost to the Govt. Except adjustment in cost due to variation in bitumen consumption as stated above, no other factor whatsoever shall be considered for adjustment in quoted rates.

- 27.10.5 Contractor shall submit their job mix formula obtained from CRR/IIT/NIT/Govt Engineering College to GE/AGE(I) giving following details :-
- (a) Source and location of all materials.
 - (b) Proportion of all materials expressed as follows where each in applicable :-
 - (a) Binder : As percentage of weight of total mix.
 - (b) Coarse Aggregate :As percentage by weight of fine aggregate and total aggregates.
 - (c) Test results of physical characteristics of the aggregates in the form of parameters specified.
 - (d) A single definite percentage passing each sieve for the mixed aggregate.
 - (e) The results of test for job mix formula in the form of parameters specified.
- 27.10.6 Based on this mix, design samples will be prepared and checked for there practical feasibility at site and most appropriate and practical design will be approved by GE/AGE(I).

PARTICULAR SPECIFICATIONS (CONTD...)

- 27.10.7 In the event of change in materials available at site due to unforeseen agencies, a fresh job mix formula shall be arrived at within the specified limits in the laboratory as approved by GE/AGE(I). Nothing extra is payable due to this.
- 27.10.8 Laboratory charges for the job mix formula design, cost of materials, it's cartage and other incidental expenses shall be borne by the contractor and nothing extra shall be paid on this account.

28. **EXTERNAL WATER SUPPLY**

- 28.1 **SCOPE OF WORKS** scope of work in this tender covers external water supply to various buildings included in the tender, includes all items of work like pipeline network, valves, and their related panels etc all as specified in Schedule 'A', Particulars Specifications and as shown on drawings.

28.2. **GENERAL**

- 28.2.1 The layout of various water supply pipelines, valves, equipment and fittings/ accessories etc shown on various drawings attached with this tender are tentative. The exact layout shall be as directed/approved by GE/AGE(I) in writing to suit the site requirements. Contractor shall obtain written approval before taking up work in hand. No price adjustment, whatsoever, shall be admissible to the contractor on this account.
- 28.2.2 Specifications of materials and workmanship in these external water supply services shall be as specified in MES SSR except where specifically mentioned in Schedule 'A' and these documents. General Rules, preambles to various section rates, special conditions, method of measurements etc given in MES SSR shall apply to this contract unless otherwise specified in these documents.
- 28.2.3 Particular specifications given hereinafter are brief and are only to particularise, amend or emphasize, the aforesaid specifications which are not repeated here. In case of any discrepancy between the two, specifications mentioned herein shall taken precedence over SSR.
- 28.2.4 The tenderer shall be responsible for supplying, installing/laying, connecting, testing and commissioning of the items covered in the tender all as specified and directed by Garrison Engineer. The work shall be of high standard and executed as per code of practice, SSR/IS/Manual on Water Supply and Treatment of Min of Wks and Housing and sound engineering practice. IS-3114 and IS-2065 shall specifically be read and adopted strictly. The tendered rates shall be deemed to include all connected works required for supplying, erecting, testing and commissioning of the entire equipments, fittings and items like foundation for equipments, supplying laying and connecting of water pipelines, various valves, fittings, hydrants etc. Minor connected items of work for proper execution and functioning of equipments though not specifically mentioned in the tender are deemed to be included in the rates quoted. The joints shall be tested before burying and as the work progress.

PARTICULAR SPECIFICATIONS (CONTD...)

- 28.2.5 The water supply work shall be carried out by properly skilled and licensed fitters/plumbers under the supervision of qualified supervisors/engineers. The contractor shall produce to GE/AGE(I) evidence of such qualifications of his workmen/supervisors/engineers at the time of commencement of work and if required by the deptt, at any time thereafter/during the currency of work on demand by Engineer-in-Charge.
- 28.2.6 Before laying the pipes, detailed map of the area showing pipe alignment, sluice valves, scour valves, air valves and fire hydrants along with the existing intercepting sewers, telephone and electric cables and gas pipes will have to be studied. Care should be taken to avoid the existing sewer, telephone and electric cable and gas pipes. The pipe lines shall be laid on the side of the street where the population is dense.
- 28.2.7 All the pipes to be laid will be cleaned thoroughly before being lowered into trenches with the help of chain-pully block, taking care to see that earth does not get into the pipe.

28.3 **PROTECTION AGAINST POLLUTION NEAR SEWERS AND DRAINS**

- 28.3.1 Para 9.11.1 of the Manual of Water Supply and Treatment of the Min of Wks and Housing shall be referred to and adopted.
- 28.3.2 Unless otherwise specified, civil engineering works required for installation of the equipments such as grouting of panels and equipments, trench cutting and back filling in ground and in road crossing etc, shall be deemed as included.
- 28.3.3 Wherever the pipe line crosses the existing path/road, the contractor shall dig only half the width of path/road at a time. If required, necessary diversion shall be provided. Proper warning sign and red lights shall be displayed and watchmen posted to prevent any accident at crossing and diversions. After the pipes are laid, tested and trenches refilled, the road/path disturbed shall be made good to conform to the original specifications. No extra payment shall be made to the contractor for the aforesaid incidents. The contractor shall be deemed to have visited the site of works and made himself familiar.
- 28.3.4 The items covered in this tender and incorporated in work shall be capable of delivering satisfactory service/operation without detriment to its life under the climate conditions of site.
- 28.3.5 Before taking up any items of work of this tender in an area not belonging to Min of Def, the contractor shall give adequate notice to the local authorities through MES. He shall be responsible for making adequate arrangements for lighting, watching and guarding excavation which might be a source of danger to the public.

28.4 **SAMPLES AND MATERIALS**

- 28.4.1 All the materials (equipments, pipes, valves, fittings, accessories etc) to be incorporated in the work shall invariably be ISI marked and of the makes specified in Appendix 'B' to particular specifications. Material shall be procured of the best available make as approved by GE/AGE(I) in writing. In case any ISI marked item is not available in the country, this shall be of the make approved by GE/AGE(I).

PARTICULAR SPECIFICATIONS (CONTD...)

- 28.4.2 Amendments to IS issued till the date of receipt of tender are deemed included.
- 28.4.3 In case IS does not exist for any item, it shall conform to current BS/DIN/ASTM specifications, in which case a copy of relevant standard shall be submitted by tenderer.
- 28.4.4 Samples of all materials, fittings and fixtures to be supplied by the contractor shall be submitted to GE/AGE(I) for his approval. The contractor shall procure the items in bulk and commence the work only after the samples are approved in writing by the GE/AGE(I). The contractor shall ensure that all the materials incorporated in the work are identical in all respects. Samples approved and samples destroyed in testing shall be returned to the contractor after completion of contract. No payment shall be made for samples destroyed in testing.

28.5 SLUICE VALVES

- 28.5.1 These shall be of CI body (flanged and drilled ends), non-rising type, with high tensile forged brass spindle and nut and bronze face rings. These shall be class PNI/PN 1.6 as specified in Schedule 'A' and be IS-14846 marked.

28.5.2 TESTING SLUICE VALVE

- 28.5.3 The sluice valve shall be tested by the contractor hydraulically to withstand, without, leakage, pressure equivalent to double the maximum working pressure. The testing may be carried out in stretches as directed by Engineer-in-Charge. All defects in joints and leakage, if any, shall be rectified by the contractor to the satisfaction of the GE and the sluice valves retested if ordered. GE's approval shall be final and binding on the contractor.
- 28.5.4 Materials, labour and equipments required for the test shall be provided by the contractor at his own cost and the rates in the schedule 'A' are deemed include for the same.

28.6 REFLUX VALVE

Reflux valve for rising mains shall be of the specified makes and as described in Schedule 'A' and unit rate of the item shall include two flanged joints complete. The valve shall with stand hydraulic pressure test as per relevant class of pipe.

28.7 GATE VALVE/BIB COCKS

Gate valves shall be IS-778 marked and bib cock shall be IS-781 marked.

28.8 GI PIPES FITTINGS

These shall invariably be ISI marked suitable for the class/grade of the pipe.

28.9 BRICK MASONRY VALVE PIT

- 28.9.1 Cement concrete required for foundation shall be PCC (1:4: 8), type D-2, using 40 mm graded crushed stone aggregate and for coping shall be PCC (1:2:4) B-1 using 20mm graded crushed stone aggregate.

PARTICULAR SPECIFICATIONS (CONTD...)

- 28.9.2 Brick walls of valve chamber shall be built in cement and sand mortar (1:4) using sub class 'B' Bricks.
- 28.9.3 Internal and external (exposed) surfaces of valve chamber as specified in MES SSR Part-I. (Concrete and brick masonry surfaces) shall be plastered with cement and sand mortar (1:4), 15mm thick, finished even and smooth without using extra cement.
- 28.9.4 MS sheet cover with MS angle iron frame work for valve chamber shall be provided all as shown on drawings. The thickness of MS sheet for cover shall be 3 mm. Frame shall be 40x40x6mm thick (withhold fasts) and given a thick coat of bitumen/tar before embedding in concrete. Cover shall be painted all as specified hereinafter for iron and steel works.
- 28.9.5 Excavation and earth work shall be in any type of soil and removed to a distance not exceeding 50 metres all as directed by Engineer-in-Charge.
- 28.9.6 Thickness of walls of brick masonry shall be as per drawings.

28.10 **WORKMANSHIP OF STEEL WATER TUBING (GI PIPES).**

The contractor shall use proper bends, elbows, tees at turning/corners. Bending of pipes is not permitted except where the pipe has to follow the contour masonry/brick work or where a fitting cannot be inserted. The bends shall be gradual and firm with the written permission of the Engineer-in-Charge.

28.11 **TYTON RUBBER GASKETS AND JOINTING**

Tyton rubber gaskets shall be made of SBR and conform to IS-5382. Jointing of pipes shall be done strictly as per manufacturer's instructions. The joints and surface of each pipe shall be neatly dressed and treated as necessary to make them smooth for accurate jointing. Gasket shall be procured from the pipe/pipe fitting manufacturers only.

28.12 **JOINTING OF PIPE FITTINGS/VALVES ETC WITH FLANGED ENDS**

The pipes and fittings shall be aligned and jointed as specified in MES SSR (Part I) using approved neoprene rubber rings/gaskets, high tensile bolts and nuts (all supplied by the contractor).

28.13 **WORKMANSHIP OF STEEL WATER TUBING (GI PIPES).**

The contractor shall use proper bends, elbows, tees at turning/corners. Bending of pipes is not permitted except where the pipe has to follow the contour masonry/brick work or where a fitting cannot be inserted. The bends shall be gradual and firm with the written permission of the Engineer-in-Charge.

28.14 **ANCHORAGES/THRUST BLOCKS**

- 28.14.1 Thrust blocks of the shape, size and design as directed by GE shall be provided at abrupt changes in direction/gradient. Location of thrust blocks shall be as ordered by GE in writing.

PARTICULAR SPECIFICATIONS (CONTD...)

28.14.2 Anchorages for valves/fittings shall be provided as per design/size approved/ordered by GE.

28.15 **CHALK LEAD**

Pig lead and wool shall conform to IS-782.

28.16 **STEEL AND IRON WORK FOR EXTERNAL WATER SUPPLY**

28.16.1 All structural steel shall conform to Gde E-250 (Fe 410W) quality 'A' ISI marked (IS – 2062) and shall be cut to length as required. Workmanship shall be as stipulated in MES SSR (Part-I).

28.16.2 All exposed surfaces of steel/iron work shall be painted with two coats of bituminous paint, unless stated otherwise in the description of the Schedule 'A' item.

28.17 **CAST IRON PIPES AND PIPE FITTINGS/SPECIALS**

28.17.1 CI pipes socket and spigot type shall be centrifugally cast (spun) type, of class mentioned in Schedule 'A', suitable for tyton joints and shall be IS –1536 marked.

28.17.2 All CI pipe fittings/specials shall conform to grade to match the pipe and bear ISI mark.

28.18 **TESTING**

28.4.1 The contractor will be responsible for the arrangement and carrying out of testing. All the equipment, testing material etc will be arranged by the contractor at no extra cost.

28.4.2 During the currency of work and also on completion of work, testing shall be carried out for all items and installation as a whole as per SSR/IS/Manual on Water Supply and Treatment of Min of Wks and Housing to the entire satisfaction of GE/AGE(I) and a record shall be maintained, duly signed by the Engineer-in-Charge and the contractor. For testing of pipe lines para 5.4 and Appendix 10 of Manual on Water Supply and Treatment of Min of Wks and Housing shall strictly be followed.

28.4.3 The entire installation shall be run continuously for 72 hours under normal operating conditions and contractors engineer, fully familiar with the system and equipment, shall be available at the site during this period for proper rectifications of any defects.

28.4.4 Completion shall be issued only after satisfactory testing and commissioning and approval of the same by the GE/AGE(I).

28.19 **RECORD DRAWINGS**

The contractor shall, after successful completion and testing, submit record drawings prepared by Auto CAD software (2 CDs + 2 hard copies (A2 size) indicating the complete water supply network and circuitry to facilitate reference and maintenance, as under and as applicable to the scope of work :-

PARTICULAR SPECIFICATIONS (CONTD...)

- (a) Actual position of pipe lines, valves etc with details.
- (b) The following record for all buried pipelines :-
 - (i) Position and depth of all cables, sewers, ducts etc which are met as obstructions to the pipe routes.
 - (ii) Size and type of the pipe.
 - (iii) Location of the pipe in relation to buildings, roads etc with depth.
 - (iv) Cross section showing where pipes are laid in culverts or ducts giving their sizes, type and depth.
 - (v) Location of other pipes which run along with or across the pipe route

29 to 32 BLANK**33. EXTERNAL ELECTRIFICATION****33.1 SCOPE OF WORK**

The scope of work includes external electrification to buildings all as described in Schedule 'A', shown on relevant drawings and specified in the particular specifications here-in-after including testing and commissioning and also includes any other connected items of work required for entire completion, testing and commissioning, but not specifically mentioned.

33.2 GENERAL

33.2.1 Particular specifications given here-in-after are brief and are only to particularise, amend and emphasize the specifications of MES Schedule (which are not repeated). General Rules, preambles to various section rates, special conditions, method of measurements etc given in SSR shall apply to this tender unless otherwise specified in these documents.

33.2.2 The IS mentioned in the MES Schedule and in the tender documents shall deemed last changed/modified as per latest amendments issued to IS up to date of receipt of tender.

33.2.3 The installation shall strictly comply with the provisions contained in the latest edition of the Indian Electricity Rules, Code of Practice for electrification and IS-732 (as applicable to these works) excerpt where such regulations and rules are modified by these specifications.

33.2.4 All electrical works shall be executed properly by skilled and licensed electricians under the supervision of suitable, qualified electrical supervisors and engineer. The contractor shall produce to GE, evidence of such qualifications of his workmen and supervisors (s)/engineer at the time of commencement of the work and if required by the department, at any time thereafter during contract period, on demand by Engineer-in-Charge.

PARTICULAR SPECIFICATIONS (CONTD...)

- 33.2.5 The layout of external electrification network and system shown in plans/drawings is tentative and may need modification on ground. The work shall finally be executed as per approval of GE in writing and no price-adjustment what so ever shall be admissible to the contractor on this account.
- 33.2.6 The tenderer shall be responsible for supplying installing, laying, connection, testing and commissioning of the items covered in the tender all as specified and directed by Engineer-in-Charge.
- 33.2.7 (a) The tenderer shall include all requisite components, accessories like cable glands, cables, CTs selector switches, shrouds, indication lamps, auxiliary relays contractors, toggle switches, handles, cable indicating disc, brackets and clamps of all kinds, instrument wiring, instrument fuses, interlocks and all such other requirements for completion of the entire work though not specifically brought out in Schedule 'A' and in these specifications. The tenderer rates shall be deemed to include all connected works required for supplying, erecting, testing and commissioning of the entire equipment's fittings and items like foundation for equipment's supplying and connecting of cables in ducts etc.
- (b) Unless otherwise specified, civil engineering works required for installation of the equipment's such as grouting of poles and equipment's, trench cutting and back filling in ground and in road crossings etc shall be deemed as included.
- (c) Wherever the cable crosses the existing path/road, the contractor shall dig only half the width of path/road at a time. If required, necessary diversion shall be provided. Proper warning signs and red lights shall be displayed and watchman posted to prevent any accident at crossing and diversions. After the cables are laid, tested and trenches refilled, the road/path disturbed shall be made good to conform to the original specifications. No extra payment shall be made to the contractor for the aforesaid incidentals. The contractor shall be deemed to have visited site of works made himself familiar.
- 33.2.8 (a) The entire installation shall run continuously for 24 hours under normal operating conditions and contractor's engineer, fully familiar with the system and equipment, shall be available at the site during this period for proper setting of relays, instruments etc and rectification of any defect.
- (b) All arrangements and equipment's required for testing of individual equipment's and the installation as a whole, shall be the responsibility of the contractor. His quoted rates are deemed to include for the same and no extras shall be admissible to him on this account.
- 33.2.9 Before laying of cables or excavating for poles/earthing etc, the detailed map of the area showing existing underground services alignment of water/gas/sewage pipes, telephone and electric cable shall be studied. Care shall be taken to avoid infringing on or intercepting the existing network and damage thereto.
- 33.2.10 The items covered in this tender and incorporated in work shall be capable of delivering satisfactory service/operation without detriment to its life under the climatic conditions of the proposed site.

PARTICULAR SPECIFICATIONS (CONTD...)

- 33.2.11 Before taking up any item of work of this tender in an area not belonging of Min of Defence, the contractor shall give adequate notice to the local authorities through MES. He shall be responsible for making adequate arrangements for lighting, watching and guarding the excavation etc which might be a source of danger to the public.

33.2.12 **TIMELY PLANNING/PROCUREMENT ACTION BY CONTRACTORS**

The contractor shall submit catalogues/pamphlets/drgs of major equipment like transformers, VCBs, LT/HT poles, LT/HT cables, ACSR, Lightning Arrestors, Luminaries etc to the GE for approval within one month of placing of work order. GE would give his decision within two weeks and thereafter procurement would be organised by contractor and within twelve weeks after acceptance of tender the contractor shall procure documents/evidence to the effect that he has placed orders for various equipments of makes specified in the tender on the manufacturer or his authorised dealers, to the Garrison Engineer and Accepting Officer.

33.2.13 **SAFETY PROCEDURES AND PRACTICES**

In all major electrical installations such as sub-stations, workshops, transmission and distribution lines and cable networks, safety procedures and instructions for working on low, medium and high voltage mains and apparatus and safety practices listed in IS-5216 (Guide for safety procedures and practices in electrical works) shall be followed to the extent applicable. The contractor shall provide his workmen with all requisite safety devices and appliances.

33.2.14 **FIRE SAFETY**

All electrical equipment shall satisfy the requirements laid down in IS 1446 'Code of practice for fire safety of buildings (general) electrical installations' and IS-3034 'Code of practice for fire safety of industrial buildings, electrical generating and distributing stations' to the extent applicable.

33.2.15 **PHASE SEQUENCE**

Proper phase sequence will be ensured in the entire LT electrical system during and by testing for commissioning. Proper phase sequence and colour coding/markings will be maintained throughout the installation and suitable marking/pointing (cable markers) will be provided.\

33.3 **SAMPLES AND MATERIALS**

- 33.3.1 The main items to be incorporated in work like transformers, panels, cables, ACSR conductors, switch gear, insulators, lightning arrestors etc shall invariably be ISI marked. Where ISI marked products are not available in the country, these shall conform to relevant BIS specifications.

- 33.3.2 Approval of GE referred to in clause 19.2 of MES SSR (Part-I) shall be in writing.

PARTICULAR SPECIFICATIONS (CONTD...)

- 33.3.3 Samples of all materials, fittings, and fixtures to be supplied by the contractor shall be submitted to GE for his approval. The contractor shall procure the items in bulk and commence the work only after the samples are approved in writing by GE. The contractor shall ensure that all the materials incorporated in the work are identical in all respects. Samples approved and samples destroyed in testing shall be returned to the contractor after completion of contract. No payment shall be made for samples destroyed in testing.
- 33.3.4 Out of the makes specified in the Appendix 'B' to particular specifications, materials shall be arranged of the best available make as approved by the GE
- 33.3.5 Amendments to IS issued till the date of issuing of tender are deemed to be included.
- 33.3.6 All manufactured articles required for incorporation in work shall be brought to site in the manufacturer's original packing with the seal intact. The materials shall be procured from the manufacturer(s) or their authorized dealer(s) only and original purchase vouchers duly machine numbered and bearing the ST/SC number and manufacture's test certificates (duly cross linked in the purchase voucher) shall be submitted by the contractor to the deptt for inspection and perusal before approval of material. Incorporation shall be done after material is approved by GE in writing.
- 33.3.7 In addition to the above, the contractor shall have to produce the following for verification :-
- (a) Excise gate passes (bearing eqpt Nos) for items like transformers, VCB, LT/ HT panels, cables and ACSR conductors (if qty is more than a drum).
 - (b) Type test certificate for the prototype of transformer, LT/HT panels as per IS.
 - (c) Routine test certificates, for the transformers, LT/HT panels, cables, ACSR, GOD, lightning arrestors.
- 33.3.8 Executives and the contractor are to clearly understand that "sample approval" and "material approval" are two distinct activities and phases and proper record for both these activities in a proper sample and material approval register is to be kept.
- 33.3.9 No foreign exchange shall be made available by the deptt.
- 33.4 **CROSS ARM**
- 33.4.1 MES SSR Pt-I, clauses 10.9, 19.9 and 19.53.3 shall be referred and followed.
- 33.4.2 Mild steel sections for manufacturing of cross-arms shall conform to IS-2062.

PARTICULAR SPECIFICATIONS (CONTD...)

33.4.3 Cross arms shall be made of rolled MS sections suitable to withstand the load of the conductors drawn over it and shall be min ISMC-100 for HT lines and min ISMC-75/ISMA-75 for LT lines. Clamps shall be made to shape out of 50x6mm mild steel flat and 16mm dia bolt, nuts and washers shall be used for fitment. Steel shall be E-250 / Fe 410 quality 'A'. The edges of cross-arms and flat iron shall be filed smooth. Holes for insulators etc shall be drilled. MS round 6mm dia hook made to shape for suitable clamp shall be provided for running earths.

33.4.4 All exposed surfaces of cross-arms, channels, angles and the clamps, bolts, nuts washers shall be painted with two coats of aluminium paint over one coat of red oxide primer. The cost of this treatment shall be deemed to be included in unit rates and no extra payment shall be allowed on this account.

33.5 **'D' IRON CLAMPS**

33.5.1 Refer para 19.9.1 of SSR Part-I.

33.5.2 'D' iron clamps shall be made out of MS flat iron 50x6mm having of specified dimensions and shall be painted with two coats of aluminium paint over one coat of red oxide primer. The cost of painting also shall be deemed included in unit rates. Clamps shall be of suitable size to hold the shackle insulators and shall be complete with pole clamps, necessary bolts, nuts, washers and insulator bolt holes.

33.6 **OVER HEAD LINES**

33.6.1 Refer para 19.10, 19.53.2, 19.56 to 19.66 and 19.96 of MES SSR Part-I.

33.6.2 Aluminium conductor steel reinforced (ACSR) shall be IS-398 marked. The various fittings for these conductors to be laid in overhead lines shall conform to IS-2121.

33.6.3 The design (incl sag) of over head lines shall be calculated on the basis of ground data subject to a min of the following :-

- | | | |
|-----|-------------------|---------------------|
| (a) | Max wind pressure | : 15 lbs/sq ft. |
| (b) | Max temperature | : 60 degree Celsius |
| (c) | Min temperature | : 5 degree Celsius |

33.6.4 While straining the conductors, it should be ensured that no kinking occurs. The conductors should be secured to the insulators by means of solid aluminium binding wire.=

33.6.5 The following accessories shall be used/provided without any extra cost to the department, wherever required :-

(a) **Sleeves (Compression/twisting)**: These shall be used for splicing/jointing the conductors. The size of these sleeves shall be as recommended by the manufacturer and as approved by the GE.

PARTICULAR SPECIFICATIONS (CONTD...)

(b) **Dead end clamps.** These shall be used to seize the end of a piece of conductor or to hold it without injury against full tension, which may be ensured/necessary to permit attachment to the insulators in supporting structures.

(c) **Connectors/parallel/groove clamps.** These shall be designed for heavy duty service and shall be used to connect aluminium conductors to copper and shall be made of aluminium. Every care shall be taken to avoid use of improperly designed tools and it shall be ensured that special tools, as specified by the manufacturers, are used while installing twisted sleeves and compression type splices. The use of sub-standard sleeves, either too short or made of under gauged material, shall not be permitted

It is of utmost importance that these are installed exactly as per the manufacturer's recommendations, both for the size and type of devices and application of specifically recommended tools. This splice/joint shall not be located within 3 meters of a point of support and the splice/joint shall be aligned properly with conductor to avoid bending stresses in conductor at the end of splice.

33.6.6 A good jointing compound shall be used on electrical connections to aluminium, regardless of the metals. This shall also be used in all joints provided in the over head conductors. The jointing compound shall be liberally applied on the surface of conductors.

33.6.7 Trimming of branches of trees, wherever required to ensure a 1.5 metre clear area all around the overhead lines, shall be carried out as directed by Engineer-in-Charge. No extra amount shall be payable on this account.

33.7 **POWER CABLES**

33.7.1 (a) HT cables shall be XLPE insulated and PVC sheathed with multistranded aluminium conductors, heavy duty armoured and IS-7098 marked.

(b) LT cables PVC insulated and PVC sheathed shall be with multistranded aluminium conductors, heavy duty armoured and IS-1556 marked.

(c) LT cables, XLPE insulated and PVC sheathed shall be with multistranded aluminium conductors, heavy duty armoured and IS-7098 marked.

(d) LT copper cables shall be PVC insulated, FRLS, IS-694 marked.

PARTICULAR SPECIFICATIONS (CONTD...)

- 33.7.2 The tenderer shall submit the manufacturer's test certificates giving full particulars/specifications of cable, the drum number etc (which shall be co-related with details in the purchase voucher), constructional details and maximum continuous current carrying capacities in ground, air and in duct along with standard design conditions. It shall be guaranteed by the tenderer that the cables offered by him shall be of specified sizes/makes and shall carry normal load as well as short circuit current in the event of any fault at ground conditions.
- 33.7.3 All cables shall be as mentioned in Schedule 'A' and shall be laid/fixed and tested strictly in accordance as specified in clause 19.73 to 19.86, 19.88 and 19.95 of MES SSR Part-I
- 33.7.4 Wherever cables will be crossing or running parallel to existing telephone cables, suitable measures will be taken and inter-separating distance will be as per latest IS on the subject.
- 33.7.5 The cable shall be tested before laying and also after laying and jointing, as specified in clause 19.93 of MES SSR Part-I. All the expenses incurred on tests shall be borne by the contractor without any extra cost the the Government. If the result of tests are not found satisfactory, the contractor shall at his own expense, rectify/replace the defective equipments/materials or any part thereof as directed by the Engineer-in-Charge. The decision of the Accepting Officer shall be final, conclusive and binding.
- 33.7.6 Cable path indicators shall be provided at distance of every 100 metre and at cable joints and turning of all cables and cables sizes and voltage written on it. The CI path indicator 100mm dia, 6mm thick duly embossed with lettering "MES HT cable or MES LT cable (as applicable) shall be fixed on MS round bar 20mm dia, 1000 mm long embedded in concrete block 300x300x300 mm type C-1 using 20mm graded stone aggregate. The cable path indicators shall be erected at the time of refilling the trenches and the cable path indicator shall be painted "BROWN" for HT 11 KV cables and "BLUE" for LT cables. Cost of cable path indicator shall be deemed to be included in the quoted rate/amount of respective items of schedule "A" if separate item is not included in schedules.
- 33.7.7 HT/LT underground cables of quantity more than 500 metre of one size, inspection & testing by representative of the accepting officer shall be carried out in the premises of the manufacturer's factory premises before dispatch. Contractor shall be responsible for intimation to the accepting officer and GE well in advance so that representative of the accepting officer can be detailed timely.
- 33.7.8 **CABLE TERMINATION AND STRAIGHT THROUGH JOINTS**
- Joints shall be all as specified in schedule 'A'. Contractor shall produce the test certificates as specified in clause 19.85.2.5 of MES SSR Part I to GE before incorporating in the work.

PARTICULAR SPECIFICATIONS (CONTD...)**33.8 MCCB's**

33.8.1 These shall be provided all as specified in schedule 'A' and clause 19.100.14.1 of MES SSR Part I

33.8.2 The tripping mechanism, overload release and short circuit release of MCCBs shall be as specified in clause 19.1000.14.5 of MES SSR Part I

33.9 INSULATOR AND INSULATOR FITTINGS

33.9.1 Clause 19.6 and 19.54 of MES SSR Part-I shall be referred and followed. All insulators shall invariably be ISI marked.

33.9.2 Insulators used on HT shall be brown in colour and that on LT shall be white in colour.

33.9.3 These shall comply with the requirement of IS-731, IS-1465, IS-2486 and IS-3188.

33.10 ANTI-CLIMBING DEVICE.

33.10.1 These shall be provided as mentioned in. The clamp shall be made out of flat iron 50x6mm of required shape and size to suit the pole. The spikes shall be of mild steel round bars of 12 mm dia.

33.11 DANGER NOTICE BOARDS

These shall be provided as mentioned in Schedule 'A' and all as specified in clause 19.18 of MES SSR Part-I. The danger notice plate shall comply with IS-2551.

33.12 CABLE PROTECTION COVERS

33.12.1 LT cable protection shall be as specified in Schedule 'A'. Bricks shall be provided as mentioned in Schedule 'A' and as specified in chapter 5 of MES SSR Part-I.

33.12.2 For HT cable protection only PCC covers of sizes as specified in Schedule 'A' shall be provided. These shall conform to IS-5820.

33.13 MILD STEEL GALVANISED TUBING.

33.13.1 These shall be provided as mentioned in Schedule 'A' and as directed by the Engineer-in-Charge. Mild steel galvanised pipes and also their fittings shall be marked.

33.13.2 Ends of pipes shall be properly sealed with wooden bush and bitumen Compound after drawing the cable through pipes.

33.13.3 Where cables are to be fixed alongwith poles there shall be drawn through pipes. The pipes shall be fixed to poles by providing proper clamps.

33.14 BLANK

PARTICULAR SPECIFICATIONS (CONTD...)**33.15 PCC/POLES STRUTS AND STAY ASSEMBLES**

- (a) The poles shall be erected with due care so that they are truly vertical and shall be suitably stayed till the concrete in foundation is set.
- (b) The contractor shall produce certificate from the manufacturer to establish that the poles conform to and have been produced as per the IS specifications.
- (c) Unless otherwise specified in Schedule 'A' the concrete in foundation of pole/strut shall be at bottom PCC (1:4:8) type D-2 and PCC (1:3:6) type C-2, using 40 mm graded crushed stone aggregate surrounding the plant depth of pole and above GL muffs/plinth PCC (1:3:6) type C-1 using 20 mm graded crushed stone aggregate. The plinth blocks/muffs shall be finished even and smooth without using extra cement.
- (d) Location of poles and strut shall be decided by Engineer-in-Charge but average distance between the two poles shall not exceed 40 metres in case of LT and 50 metres in case of HT. In any case the distance between the poles and strut shall not be less than 1.8 metres at ground level.

33.15A STAY ASSEMBLY

33.15A.1 Clause 19.8 and 19.55 of MES SSR Part-I shall be referred and followed.

33.15A.2 Stay assembly shall be consisting of the following items :-

- (a) Stay clamp
- (b) Stay wire
- (c) Stay insulator
- (d) Stay grips
- (e) Thimble stay bow
- (f) Stay rod
- (g) Stay plate etc.

33.15A.3 All iron fittings of stay assembly shall be class-3 galvanised. Stay plates and stay rods shall be mild steel E-250 (Fe 410 quality 'A').

- (a) For HT, the stay plate shall be 300x300x6mm thick and stay rod shall be 20mm dia, 1.8 metre long.
- (b) For LT, the stay plate shall be 230x230x6mm thick and stay rod shall be 16mm dia, 1.8 metre long.

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- 33.15A.4 The stay plate and rod shall be embedded in PCC (1:3:6) type C-2 using 40mm graded stone, at a depth as specified in Schedule 'A' and directed by EIC. The top of the concrete block shall be well below the ground level to prevent uprooting of the stay rod. Stay rod shall project approx 45 cm beyond ground level.
- 33.15A.5 The stay wire shall conform to IS-2141 and shall have a minimum tensile strength of 70 kg per sq cm. Breaking strength for 7/8 gauge stay wire shall not be less than 25 Kg per Sq cm
- 33.15A.6 The stay wire shall be fixed to the stay rod at bottom and to the stay clamps at poles by means of well spliced joints with a porcelain guy insulator and a turn buckle inserted in the middle and top respectively. Stay clamps shall be located near about the centre of gravity of the pole of overhead conductor. Clamps shall be made out of steel flat iron of E-250 (Fe 410 quality 'A'), size 50x6mm fixed with 16mm dia bolts, nuts and washers etc.
- 33.15A.7 Stay rod thimble shall be in proper alignment with stay wire. Thimble shall conform to IS-2315. Double stays shall be provided at all dead ends and at any other place, if required and as directed by Engineer-in-Charge.
- 33.15A.8 The stay shall make as large as angle, as possible, with the pole and the minimum angle shall be 30 degree or as directed by Engineer-in-Charge.
- 33.15A.9 The length of stay wire shall be as required at site and directed by Engineer-in-Charge. But the length of the stay wire from stay insulators shall not be less than 3.05 meters from ground level.

33.16 **LIGHTNING ARRESTORS**

- 33.16.1 These shall be provided as specified in Schedule 'A' and as laid down in clause 19.12 and 19.67 of MES SSR Part-I. Only non-linear resistor type Las, IS 3070 marked shall be used. Expulsion type lightning arrestors shall not be used.

33.17 **AIR BREAK GANG OPERATED SWITCHES.**

- 33.17.1 These shall be provided as mentioned in Schedule 'A' and as specified in clause 19.69 of MES SSR Part-I. A Godrej (Freedom) 65 mm, 7 lever lock shall also be provided by the contractor, cost of which is deemed to be included in quoted rates.

33.18 **HT INSULATORS**

HT insulators shall be porcelain vitreous brown in colour free from any defects and shall conform to IS-731. They shall bear the certifications marks of the IS as regards their quality and soundness in all respects. Dimensions of parts of insulators shall conform to IS-2486 (Part-I and II). Disc insulators shall conform to IS-3188. Manufacturers test certificate shall be provided for approval.

PARTICULAR SPECIFICATIONS (CONTD...)**33.19 LT INSULATORS**

These shall be vitreous white in colour and shall conform to IS-1445 and shall be free from any defects

33.20 PAINTING OF STEEL WORKS

33.20.1 All steel part and other accessories shall have undergone a rigorous rust proofing process before painting.

33.20.2 They shall be treated with high corrosion resistant primer and finally painted with synthetic enamel paint of grey tint for panels etc.

33.20.3 Exposed surfaces of the steel works in cross arms and OH line network shall be painted with two coats of aluminium paint over a coat of red oxide Zinc Chromate primer.

33.21 BLANK**33.22 EARTHING**

33.22.1 Earthing shall be provided of the types as mentioned in Schedule 'A' and shall be executed as per IS-3043 and clause 19.137 to 19.146 of MES SSR Part-I. The overall earth resistance of the earthing system (electrode) shall not exceed one ohm. Earthing shall be done in a manner that the inner edges of earth pit is at least 2 metre from the foundation (extreme outside end) of building/poles etc and the minimum distance between any two earth electrodes shall be regulated as per IS-3043. All pipes used in earthing shall be of medium grade.

33.22.2 Concrete pit chamber, RCC cover and charcoal shall be as specified in PS clause No 24.9.4 here in before. Surplus soil shall be disposed off and site left clean and tidy on completion.

33.22.3 For checking the efficiency of earthing, the following test shall be carried out, preferably during the summer months :-

(a) The earth resistance of each electrode is measured.

(b) The earth resistance of earthing grid is measured.

(c) All electrodes are connected to the grid and the earth resistance of the entire earthing system is measured.

33.24 LT PANELS (Indoor and Outdoor)

33.24.1 These shall be factory made and CPRI type tested and shall be cubicle type, front opening type. Manufacturer's name plate, danger boards and feeder details shall be provided. Neoprene rubber gasket shall be provided for proper sealing. The internal wiring shall be min 4 Sq mm thick solid copper conductor FRLS cables. The outdoor panel shall be mounted on platform with 150mm

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PCC (1:4:8) type D2 using 40mm graded crushed stone aggregate in foundation concrete with brick work below NGL (minimum 600mm) and above NGL shall be in cement sand mortar (1:6). Wall shall be provided with 15mm thick plaster in cement and sand mortar (1:4) with PCC (1:3:6) type C1 using 20mm graded crushed stone aggregate 40mm thick coping on top with MS foundation bolts. The platform height shall be such made that bottom of panel is at least 450mm above road level. The indoor panel shall be floor mounted on 40mm thick PCC 1:2:4 (type B1) using 20mm graded crushed stone aggregate padding with foundation bolts.

- 33.24.2 The panel shall be suitable for 415 volts 3 phase 4 wire 50 Hz supply and having rupturing capacity as specified in schedule 'A'. These shall have epoxy polyester powder coating finish all as specified in clause 19.100.11 of MES SSR Part I. Thickness of powder coating shall not be less than 50 micron.
- 33.24.3 The outdoor panels shall be factory fabricated, fully weather proof, leak proof and vermin proof, protection class as specified in schedule 'A' and MS angle 40 x 40 x 6mm thick. The top of the outdoor panel shall have a slope of 1:2 and have an over hang of at least 20 cm clear from the ground level and shall be provided with suitable apron and cable glands for entry/exit. Shutters shall be provided to open in the front and shall have locking arrangements. Each shutter shall be hinged at minimum 3 points. Danger boards in English, Hindi and predominant vernacular language indicating the voltage shall be provided. Internal dimension shall be such that generous clearances are available for all electrical components
- 33.24.4 LT indoor panel shall be factory fabricated, dust and vermin proof, front opening type protection class as specified in schedule 'A' and 40 x 40 x 6mm thick MS angle. Danger boards in English, Hindi and predominant vernacular language, indicating the voltage shall be fixed at the front. Internal dimension shall be such that generous clearances are available for all electrical components.
- 33.24.5 The bus bars and their electrical connections shall be of electrolytic and copper. The air insulated bus bars, connections and their insulated bus bars, connections and their insulated supports shall be of standard construction, mechanically strong and shall withstand all the stresses which may be imposed upon them in ordinary working due to fixing vibrations, fluctuations in temperature, short circuit or other causes. The ends of the bus bars should be drilled to facilitate future expansion/extension of the switch board.
- 33.24.6 Panel shall be tested for the following and test result for the same from manufacturer shall be submitted by contractor to GE :-
- (a) Electrical and Mechanical operation test.
 - (b) Insulation test at 2.5 KV for one minute.
 - (c) Heat run test at rated current.
 - (d) Megger test by 1000V megger.

PARTICULAR SPECIFICATIONS (CONTD...)**33.25 HT 11 KV SWITCH GEAR (HT VACCUM CIRCUIT BREAKER)**

- 33.25.1 VCB shall be all as specified in schedule 'A' and clause 19.99 of MES SSR Part I.
- 33.25.2 Tripping/protection system of HT VCB ie relays shall be tested by secondary injection system at site after installation, before commissioning, at the contractor's cost which is deemed to be included in rates quoted. Relay setting would be done to provide proper discrimination down stream i.e between VVNL/GEB and MES panel and main incoming, all as directed by GE.
- 33.25.3 Testing & setting of relays of HT panels. VCBs/RMU shall be done by original Equipment Manufacturer (OEM) and inspection by the representative of the accepting officer shall be carried out. Contractor shall be responsible for intimation to the accepting officer & GE well in advance so that representative of the accepting officer can be detailed timely

33.26 TESTING OF COMPLETE INSTALLATION BEFORE COMMISSIONING

The complete installation including Power transformer, VCB, RMU etc shall be inspected and tested by SEI of HQ SWC before it will be charged (i.e. Pre commissioning). The contractor shall intimate the department well in advance. All T&P required for testing shall be arranged by contractor.

33.27 RECORD DRAWINGS

The contractor shall, after successful completion and testing, submit record drawings prepared by Auto CAD software (2 CDs + 2 hard copies (A2 size) indicating the complete electrical network and circuitry to facilitate reference and maintenance, as under and as applicable to the scope of work :-

- (a) Actual position of transformers, cable runs, HT/LT poles, overhead lines, External electric supply, External water supply, fire alarm system, fire fighting system, lift , internal electric wiring diagram etc with details.
- (b) Detailed schematic diagram and S/S layouts, with equipment details.
- (c) Schematic circuit and control wiring diagram for LT panels.
- (d) The following record for all buried cables:-
 - (i) Size and type of cable and manufacturer's drum number.
 - (ii) Location of the cables in relation to buildings, roads etc with depth.
 - (iii) Cross section showing where cables are laid in pipes or ducts giving their sizes, type and depth together with and indication of any spare ways available.
 - (iv) Position and type of all joints.
 - (v) Location of other cables which run alongwith or across the cable route.
 - (vi) Position and depths of all pipes, ducts etc which are met as obstruction to the cable route.

PARTICULAR SPECIFICATIONS (CONTD...)

- (vii) Accurate lengths from joint to joint.
- (e) Record of service lines as per clause 19.96 of MES SSR Part-I.

34.0 QUALITY ASSURANCE

Adequate quality control at every stage of work is essential and the contractor shall establish a field laboratory which shall be suitable staffed and headed by a material Engineer having sufficient experience in conducting, day to day quality control tests as enumerated in succeeding clauses. The laboratory in-charge shall work under the direction of GE and Engineer-in-Charge and tests to be conducted as per their approval. Sufficient number of machines and equipment shall be installed by the contractor so that all control tests could be performed at plant site. This shall be in addition to any other tests which will be required by the GE and Engineer-in-Charge through approved laboratory/test house. Expenses on all tests, procurement of machines or equipments etc shall be borne by the contractor. Quality control tests on the materials, the method and frequency shall be as indicated below:-

| SN | Test | Test Method | Frequency |
|----|---|------------------|---|
| 1. | Sieve analysis | IS:2386 (Pt-I) | One test for every 300 cum aggregate |
| 2. | Flakiness Index | IS:2386 (Pt-I) | -do- |
| 3. | Aggregate crushing value | IS:2386 (Pt-IV) | -do- |
| 4. | Aggregate impact value | -do- | -do- |
| 5. | Soundness | IS:2386 | One test after every 500 cum of aggregate or whenever there is a change in quarry / aggregate. |
| 6. | Stripping test | IS:2386 (Pt-IV) | -do- |
| 7. | Sieve test | IS:2386 (Pt-III) | For each consignment of cement used as filler or for every 25 cum of other types of fillers. |
| 8. | Mix grading | IS:2386 | One set of test on individual consignment and mixed aggregate for each 100 T or mix subject to a minimum of two sets per plant per day. |
| 9. | Control of temp of the binder in boiler aggregates in drier and mix at the time of paving and rolling | | Periodic check. The difference of temp between aggregates and binder not to exceed 14 degree centigrade. The aggregate shall not be heated to more than 163 deg centigrade. The temp of the mix shall not exceed 160 deg and shall not less than 120 degrees at the time of laying. Rolling operation shall be completed before mix tem falls below 100 degree Celsius. |

Signature of Contractor

For Accepting Officer

PARTICULAR SPECIFICATIONS (CONTD...)

| | | | |
|-----|---|-----------------------------|---|
| 10. | (a) Stability of mix (b) Flow value (c) Void content (d) Bitumen content (e) Sieve analysis of aggregates after extraction of bitumen | Marshall (ASTM 1559) | At least one sample for every 100 T of asphaltic concrete/ bituminous macadam mix discharge at the plant chute shall be collected and 3 Marshall samples prepared to determine these values. At least 2 sets shall be tested per plant per day. |
| 11. | Thickness and density of compacted layer of asphaltic concrete and bituminous macadam. | | One test per 500 m ² . The bulk density achieved shall not be less than 98% of lab density. |
| 12. | Water absorption for aggregates | IS : 2386 | One test for (paved) 1500 cubic metre of aggregate. |
| 13. | Test of clay, silt and impurities in aggregates. | IS:383 IS:2386 (Part-II) | One test for 300 cum. |

(LIST OF DRAWINGS)

| SR NO | DESCRIPTION OF DRAWING | DRAWING NO. | SHEE NO. | DATE OF DRAWING | DATE OF LAST REVISION | REMARKS |
|--|---|----------------|----------|-----------------|-----------------------|---------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 1 | LIST OF DRAWING | WD/JPR/A-1414 | 1R/13 | 19.05.26 | 20.05.26 | |
| <u>SITE PLAN</u> | | | | | | |
| 2 | EXTERNAL B&R SERVICES | LP/JPR/232 | 1R/3 | 19.05.26 | - | |
| 3 | EXTERNAL E/M SERVICES | LP/JPR/232 | 2R/3 | 20.05.26 | | |
| 4 | EXTERNAL W/S SERVICES | LP/JPR/232 | 3/3 | 24.04.26 | - | |
| <u>SHOPPING COMPLEX</u> | | | | | | |
| 5 | GROUND FLOOR PLAN | WD/JPR/A-1414 | 2R/13 | 19.05.26 | - | |
| 6 | FIRST FLOOR PLAN | WD/JPR/A-1414 | 3R/13 | 19.05.26 | | |
| 7 | ROOF PLAN | WD/JPR/A-1414 | 4R/13 | 19.05.26 | - | |
| 8 | ELEVATIONS | WD/JPR/A-1414 | 5R/13 | 19.05.26 | | |
| 9 | SECTIONS | WD/JPR/A-1414 | 6R/13 | 19.05.26 | - | |
| 10 | OTHER DETAILS | WD/JPR/A-1414 | 7R/13 | 19.05.26 | - | |
| 11 | GENERAL NOTES | WD/JPR/S-1414R | 1/12 | 15.05.26 | 16.05.26 | |
| 12 | FOUNDATION PLAN | WD/JPR/S-1414R | 2/12 | 15.05.26 | | |
| 13 | PLINTH BEAM PLAN | WD/JPR/S-1414R | 3/12 | 15.05.26 | | |
| 14 | FIRST FLOOR BEAM & SLAB PLAN | WD/JPR/S-1414R | 4/12 | 15.05.26 | | |
| 15 | ROOF FLOOR BEAM & SLAB PLAN | WD/JPR/S-1414R | 5/12 | 15.05.26 | | |
| 15A | ENTRANCE AND CENTRAL LOBBY TRUSS PLAN | WD/JPR/S-1414R | 6/12 | 15.05.26 | | |
| 16 | SCH OF COLUMN FOOTING, SCH OF RCC BEAM, SCH OF RCC SLAB | WD/JPR/S-1414R | 7/12 | 15.05.26 | | |
| 17 | COLUMN DETAILS AND STAIRCASE DETAILS | WD/JPR/S-1414R | 8/12 | 15.05.26 | | |
| 18 | MISC DETAILS-01 | WD/JPR/S-1414R | 9/12 | 15.05.26 | | |
| 19 | MISC DETAILS-02 | WD/JPR/S-1414R | 10/12 | 15.05.26 | | |
| 20 | MISC DETAILS-03 | WD/JPR/S-1414R | 11/12 | 15.05.26 | | |
| 20A | MISC DETAILS-04 | WD/JPR/S-1414R | 12/12 | 15.05.26 | | |
| <u>SPACE FRAME TRUSS COURT YARD</u> | | | | | | |
| 21 | PLAN, ROOF PLAN & SECTION AT 'A'- 'A' | WD/JPR/A-1414 | 8R/13 | 19.05.26 | | |
| <u>SCHEDULE OF FINISHES</u> | | | | | | |
| 22 | SHOPPING COMPLEX, SPACE FRAME TRUSS COURT YARD | WD/JPR/A-1414 | 9R/13 | 19.05.26 | | |
| <u>INTERNAL E/M AND SCHEMATIC DIAGRAM</u> | | | | | | |

SIGNATURE OF CONTRACTOR

FOR ACCPETING OFFICER

(LIST OF DRAWINGS) (Contd...)

| SR NO | DESCRIPTION OF DRAWING | DRAWING NO. | SHEET NO. | DATE OF DRAWING | DATE OF LAST REVISION | REMARKS |
|---|--|---------------|-----------|-----------------|-----------------------|---------|
| 23 | GROUND FLOOR PLAN | WD/JPR/A-1414 | 10/13 | 24.04.26 | - | |
| 24 | FIRST FLOOR PLAN | WD/JPR/A-1414 | 11/13 | 24.04.26 | | |
| 25 | SPACE FRAME TRUSS COURT YARD | WD/JPR/A-1414 | 12/13 | 24.04.26 | | |
| <u>INTRENAL WATER SUPPLY AND SCHEMATIC DIAGRAM</u> | | | | | | |
| 26 | INTRENAL WATER SUPPLY | WD/JPR/A-1414 | 13/13 | 07.05.26 | - | |
| <u>TD DRAWINGS</u> | | | | | | |
| 27 | HT POLE STRUCTURAL AND STAY ASSEMBLY DETAILS | TD/2004/01 | 1/4 | 08.04.04 | 01.02.07 | |
| 28 | HT POLE STRUCTURAL AND STAY ASSEMBLY DETAILS | TD/2004/01 | 2/4 | 08.04.04 | - | |
| 29 | LT POLE STRUCTURAL AND STAY ASSEMBLY DETAILS | TD/2004/01 | 3/4 | 08.04.04 | - | |
| 30 | LT POLE STRUCTURAL AND STAY ASSEMBLY DETAILS | TD/2004/01 | 4/4 | 08.04.04 | - | |
| 31 | STEEL GATE (4.0/5.0/5.5) M WIDE & WICKET GATE (1.2/1.5 M WIDE) | TD/2008/101 | 1/3 | 08.09.08 | 23.06.09 | |
| 32 | STEEL GATE (4.0/5.0/5.5) M WIDE & WICKET GATE (1.2/1.5 M WIDE) | TD/2008/101 | 2/3 | 08.09.08 | 23.06.09 | |
| 33 | STEEL GATE (4.0/5.0/5.5) M WIDE & WICKET GATE (1.2/1.5 M WIDE) | TD/2008/101 | 3/3 | 08.09.08 | 23.06.09 | |
| 34 | STEEL GATE (7000 MM TO 9000 MM WIDE) | TD/2004/14 | 1/4 | 08.04.04 | - | |
| 35 | STEEL GATE (7000 MM TO 9000 MM WIDE) | TD/2004/14 | 2/4 | 08.04.04 | 03.06.11 | |
| 36 | STEEL GATE (7000 MM TO 9000 MM WIDE) DETAILS | TD/2004/14 | 3/4 | 08.04.04 | 29.11.05 | |
| 37 | STEEL GATE (7000 MM TO 9000 MM WIDE) DETAILS | TD/2004/14 | 4/4 | 08.04.04 | - | |
| 38 | TYPICAL DETAIL OF VALVE PIT, PLAN FOR TYPE C, D,E & F & SECTION A-A | TD/2004/26 | 1/3 | 08.04.04 | 01.02.07 | |
| 39 | TYPICAL DETAIL OF VALVE PIT, SECTION B-B, DETAILS & SCHEDULE | TD/2004/26 | 2/3 | 08.04.04 | - | |
| 40 | TYPICAL DETAIL OF VALVE PIT PLAN FOR TYPE AB & SECTION AT C-C | TD/2004/26 | 3/3 | 08.04.04 | 01.02.07 | |
| 41 | TYPICAL MAIN ROAD DETAILS (TWO WAY) | TD/2004/69 | 1/1 | 08.04.04 | - | |
| 42 | TYPICAL DETAILS OF DRAIN, RCC HUME PIPE CULVERT & SECTION THROUGH ROAD IN CUTTING PLANS, ELEVATIONS, SECTIONS, DETAIL OF ROAD SIDE DRAIN | TD/2004/51 | 1/2 | 08.04.04 | - | |

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(LIST OF DRAWINGS) (Contd...)

| SR NO | DESCRIPTION OF DRAWING | DRAWING NO. | SHEET NO. | DATE OF DRAWING | DATE OF LAST REVISION | REMARKS |
|-------|---|--------------------|-----------|-----------------|-----------------------|---------|
| | AND SAUCER DRAIN | | | | | |
| 43 | TYPICAL DETAILS OF DRAIN, RCC HUME PIPE CULVERT & SECTION THROUGH ROAD IN CUTTING PLANS, ELEVATIONS, SECTIONS, DETAIL OF ROAD SIDE DRAIN AND SAUCER DRAIN | TD/2004/51 | 2/2 | 08.04.04 | - | |
| 44 | DETAILS OF HARD STANDING | TD/2004/63 | 1/1 | 08.04.04 | - | |
| 45 | DETAILS OF WATER HARVESTING PIT. PLAN, SECTION & OTHER DETAILS. | TD/2008/98 | 1/1 | 16.06.08 | - | |
| 46 | DETAILS OF SOAKAGE PIT | TD/521 | 1/2 | 29.07.88 | - | |
| 47 | DETAILS OF SOAKAGE PIT | TD/521 | 2/2 | 29.07.88 | 04.09.03 | |
| 48 | DETAILS OF SOAKAGE PIT | TD/521 | 2R/2 | 09.05.96 | - | |
| 49 | CHAIN LINK FENCING ON ANGLE IRON POST | TD/657 | 1/1 | 24.02.03 | 23.10.08 | |
| 50 | DETAILS OF SEPTIC TANK BRICK/PCC CONST. | CEJZ/2002/TD/S-2 | 1/1 | 19.03.02 | 16.06.10 | |
| 51 | DETAILS FOR DISPOSAL OF SEPTIC TANK EFFLUENT THROUGH FILTER BED/ DISPERSION TRENCH/ SEEPAGE PIT | CEJZ/2004/TD-S-17 | 1/4 | 11.05.04 | - | |
| 52 | DETAILS FOR DISPOSAL OF SEPTIC TANK EFFLUENT THROUGH FILTER BED/ DISPERSION TRENCH/ SEEPAGE PIT | CEJZ/ 2004/TD-S-17 | 2/4 | 11.05.04 | - | |
| 53 | DETAILS FOR DISPOSAL OF SEPTIC TANK EFFLUENT THROUGH FILTER BED/ DISPERSION TRENCH/ SEEPAGE PIT | CEJZ/ 2004/TD-S-17 | 3/4 | 11.05.04 | - | |
| 54 | DETAILS FOR DISPOSAL OF SEPTIC TANK EFFLUENT THROUGH FILTER BED/ DISPERSION TRENCH/ SEEPAGE PIT | CEJZ/ 2004/TD-S-17 | 4/4 | 11.05.04 | - | |
| 55 | TYPICAL GUIDE PLAN OF STATIC TANK FOR FIRE FIGHTING SERVICE | CEJZ/ 2004/TD-S-22 | 1/2 | 11.05.04 | 06.02.09 | |
| 56 | TYPICAL GUIDE PLAN OF STATIC TANK FOR FIRE FIGHTING SERVICE | CEJZ/ 2004/TD-S-22 | 2/2 | 11.05.04 | - | |
| 57 | DETAILS OF RCC SLAB TYPE CULVERT UP TO 900 SPAN FOR 2700/3650/4570 WIDE ROAD (IRC CLASSES -B) | CEJZ/ 2004/TD-S-24 | 1/2 | 11.05.04 | - | |
| 58 | DETAILS OF RCC SLAB TYPE CULVERT UP TO 900 SPAN FOR 2700/3650 WIDE ROAD (IRC CLASSES -B) | CEJZ/ 2004/TD-S-24 | 2/2 | 11.05.04 | - | |
| 59 | DETAILS OF MANHOLES. CIRCULAR TYPE MAN HOLE IN BRICK MASONRY (FOR DEPTH 1650 TO 2300). | CEJZ/2004/TD-S-28 | 1/5 | 11.05.04 | - | |

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(LIST OF DRAWINGS) (Contd...)

| SR NO | DESCRIPTION OF DRAWING | DRAWING NO. | SHEET NO. | DATE OF DRAWING | DATE OF LAST REVISION | REMARKS |
|-------|--|---------------------|-----------|-----------------|-----------------------|---------|
| 60 | DETAILS OF MANHOLES. CIRCULAR TYPE MAN HOLE IN BRICK MASONRY (FOR DEPTH 2300 TO 5000). | CEJZ/2004/TD-S-28 | 2/5 | 11.05.04 | - | |
| 61 | DETAILS OF MANHOLES. ARCH TYPE MAN HOLE (BRICK/PCC BLOCK MASONRY) FOR DEPTH 2501 TO 5000. | CEJZ/2004/TD-S-28 | 3/5 | 11.05.04 | - | |
| 62 | DETAILS OF MANHOLES. RECTANGULAR MAN HOLE (BRICK/PCC BLOCK MASONRY) 1. FIRST MAN HOLE 2. MAN HOLE 601 TO 900 DEEP. | CEJZ/2004/TD-S-28 | 4/5 | 11.05.04 | - | |
| 63 | DETAILS OF MANHOLES. RECTANGULAR MAN HOLE (BRICK/PCC BLOCK MASONRY) FOR DEPTH 900 TO 2500 & DETAILING PRECAST MAN HOLE COVERS. | CEJZ/2004/TD-S-28 | 5/5 | 11.05.04 | - | |
| 64 | FIXING DETAILS OF STEEL LADDER | CEJZ/2004/TD/S-26 | 1/1 | 11.05.04 | - | |
| 65 | ARCHITECTURAL NORMS AND GENERAL NOTES | TD/2004/36 | 1/2 | 08.04.04 | | |
| 66 | ARCHITECTURAL NORMS AND GENERAL NOTES | TD/2004/36 | 2/2 | 08.04.04 | 10.10.11 | |
| 67 | MISC. TYPICAL DETAILS –1 | TD/2004/35 | 1/4 | 08.04.04 | | |
| 68 | MISC. TYPICAL DETAILS –1 | TD/2004/35 | 2/4 | 08.04.04 | | |
| 69 | MISC. TYPICAL DETAILS –1 | TD/2004/35 | 3/4 | 08.04.04 | 02.04.07 | |
| 70 | MISC. TYPICAL DETAILS – 1 | TD/2004/35 | 4/4 | 08.04.04 | 02.04.07 | |
| 71 | MISC. TYPICAL DETAILS –2 | TD/2004/47 | 1/5 | 08.04.04 | | |
| 72 | MISC. TYPICAL DETAILS – 2 | TD/2004/47 | 2/5 | 08.04.04 | | |
| 73 | MISC. TYPICAL DETAILS – 2 | TD/2004/47 | 3/5 | 08.04.04 | | |
| 74 | MISC. TYPICAL DETAILS – 2 | TD/2004/47 | 4/5 | 08.04.04 | 04.04.09 | |
| 75 | MISC. TYPICAL DETAILS – 2 | TD/2004/47 | 5/5 | 08.04.04 | | |
| 76 | MISC. TYPICAL DETAILS –3 | TD/2004/49 | 1/3 | 08.04.04 | | |
| 77 | MISC. TYPICAL DETAILS – 3 | TD/2004/49 | 2/3 | 08.04.04 | | |
| 78 | MISC. TYPICAL DETAILS – 3 | TD/2004/49 | 3/3 | 08.04.04 | | |
| 79 | MISC. TYPICAL DETAILS –4 | TD/2004/64 | 1/4 | 08.04.04 | 01.02.07 | |
| 80 | MISC. TYPICAL DETAILS –4 | TD/2004/64 | 2/4 | 08.04.04 | | |
| 81 | MISC. TYPICAL DETAILS –4 | TD/2004/64 | 3/4 | 08.04.04 | 01.02.07 | |
| 82 | MISC. TYPICAL DETAILS –4 | TD/2004/64 | 4/4 | 08.04.04 | | |
| 83 | TYP DET OF HDPE WATER TANK | ADG D&C 2002/TD/001 | 1/1 | 13.03.02 | - | |

SIGNATURE OF CONTRACTOR

FOR ACCEPTING OFFICER

(LIST OF DRAWINGS) (Contd...)

| SR NO | DESCRIPTION OF DRAWING | DRAWING NO. | SHEET NO. | DATE OF DRAWING | DATE OF LAST REVISION | REMARKS |
|-------|---|-------------------|-----------|-----------------|-----------------------|---------|
| 84 | DETAILS OF STAINLESS-STEEL RAILING, STONE JALI AND DETAIL OF ARCH | TD/2012/10 | 1/1 | 04.07.12 | | |
| 85 | DETAILS OF ALUMINUM WINDOWS | TD/2012/17 | 1/1 | 30.10.12 | | |
| 86 | STEEL WINDOW & VENTILATOR (BOX SECTION) | TD/2013/01 | 1/3 | 30.03.13 | - | |
| 87 | STEEL WINDOW & VENTILATOR (BOX SECTION) | TD/2013/01 | 2/3 | 30.03.13 | 30.11.13 | |
| 88 | STEEL WINDOW & VENTILATOR (BOX SECTION) | TD/2013/01 | 3/3 | 30.03.13 | 16.06.14 | |
| 89 | LEGENDS AND NOTES OF E/M SERVICES | TD/2004/53 | 1/1 | 08.04.04 | | |
| 90 | FACTORY MADE PIPE SUPPORTING SYSTEM | TD/2024/02 | 1/1 | 25.05.24 | | |
| 91 | FACTORY MADE PIPE SUPPORTING SYSTEM | TD/2022/01 | 1/4 | 18.10.22 | | |
| 92 | FACTORY MADE PIPE SUPPORTING SYSTEM | TD/2022/01 | 2/4 | 18.10.22 | | |
| 93 | FACTORY MADE PIPE SUPPORTING SYSTEM | TD/2022/01 | 3/4 | 18.10.22 | | |
| 94 | FACTORY MADE PIPE SUPPORTING SYSTEM | TD/2022/01 | 4/4 | 18.10.22 | | |
| 95 | NOTES & REFERENCES TO DRGS | CEJZ/2015/TD/S-1 | 1/4(R) | 07.10.15 | 12.01.19 | |
| 96 | TYPICAL DETAILS OF BEAM COL JUNCTION & OTHER DETAILS. | CEJZ/2015/TD/S-1 | 2/4 | 07.10.15 | 12.01.19 | |
| 97 | DETAILS ON RCC STRUCTURE, RCC COL FOOTING AND OTHER DETAILS. | CEJZ/2015/TD/S-1 | 3/4(R) | 07.10.15 | 12.01.19 | |
| 98 | TYPICAL DETAILS OF BEAM COL & JOINTS. | CEJZ/2015/TD/S-1 | 4/4 | 10.07.15 | 12.01.19 | |
| 99 | TYPICAL DETAILS RCC LINTEL AND CHAJJA'S | CEJZ/2019/TD/S-6 | 1/1 | 18.09.19 | - | |
| 100 | TYPICAL RCC DETAILS & NOTES | CEJZ/2004/TD/S-08 | 1/6 | 08.04.04 | 11.05.05 | |
| 101 | TYPICAL RCC DETAILS & NOTES | CEJZ/2004/TD/S-08 | 2/6 | 08.04.04 | 26.06.08 | |
| 102 | TYPICAL RCC DETAILS & NOTES | CEJZ/2004/TD/S-08 | 3/6 | 08.04.04 | 11.05.05 | |
| 103 | TYPICAL RCC DETAILS & NOTES | CEJZ/2004/TD/S-08 | 4/6 | 08.04.04 | - | |
| 104 | TYPICAL RCC DETAILS & NOTES | CEJZ/2004/TD/S-08 | 5/6 | 08.04.04 | - | |
| 105 | TYPICAL RCC DETAILS & NOTES | CEJZ/2004/TD/S-08 | 6/6 | 08.04.04 | 11.05.05 | |
| 106 | SOLID WPC DOOR SHUTTER, WPC WIRE MESH DOOR SHUTTER WITH WPC DOOR FRAMES | TD/2025/04 | 1/2 | 18.03.25 | | |

SIGNATURE OF CONTRACTOR

FOR ACCEPTING OFFICER

(LIST OF DRAWINGS)

| SR NO | DESCRIPTION OF DRAWING | DRAWING NO. | SHEE NO. | DATE OF DRAWING | DATE OF LAST REVISION | REMARKS |
|-------|--|-------------|----------|-----------------|-----------------------|---------|
| 107 | SOLID WPC DOOR SHUTTER,WPC WIRE MESH DOOR SHUTTER WITH WPC DOOR FRAMES | TD/2025/04 | 2/2 | 18.03.25 | | |
| 108 | DETAIL OF ORNAMENTAL GATE | SK/11 | 1/1 | 19.05.26 | | |

Note: Site Plan drawings sheets i.e. Serial No. 2 to 4 under list of drawings is not being uploaded on defence e-procurement portal. However, contractor can visit site as per special condition No. 02 on page No. 131 of the tender documents.

SIGNATURE OF CONTRACTOR

FOR ACCPETING OFFICER

APPENDIX 'A' TO PARTICULAR SPECIFICATIONS
SOURCES OF MATERIALS : LOCAL ORIGIN

| SER NO | NAME OF MATERIALS | NAME OF SOURCES |
|--------|--|----------------------------------|
| 1 | 2 | 3 |
| 1. | Coarse aggregate for cement concrete and hardn core | Harmara /Kalwar |
| 2. | Coarse stone aggregate for soiling & W.B.M | Harmara /Kalwar |
| 3. | Bricks | Class 'B' best locally available |
| 4. | Fine aggregate (Sand) for plastering/pointing | Banas/Mashi/ M-sand |
| 5. | Fine aggregate (Sand) for cement concrete, mortar for masonry. | Banas/Mashi |
| 6. | Stone for stone masonry | Harmara /Kalwar |
| 7. | Stone for Kerb / Edging | Harmara /Kalwar |

NOTES

- 1 Sources of materials shall be as given in Srl No 1 to 7 above or in the vicinity thereof. The tenderer shall ascertain the actual position/exact location of source before submitting his tender and no additional payment shall be made on account of misunderstanding or its distance from site of works.
- 2 The tenderer shall amongst other things also ascertain all information such as royalties, taxes, duties and other charges etc, on the materials and no additional payment shall be made on account of the foregoing.
- 3 However, if due to any ban imposed by the state Govt authority on obtaining the materials from the sources specified above and or specified materials is not available at the sources mentioned above these materials conforming to specifications as given in particular specifications will be procured from any other place/source after getting the same approved from GE in writing and without any extra cost to Govt.
- 4 In case of any ban or non-availability of river sand from specified sources or any other source as approved by GE the contractor shall procure M sand and incorporate, the same in the work. The source shall be got approved from GE. Nothing extra or DO shall be admissible on this account. The M sand shall be got tested from GE CTL or any other NABL accredited lab before incorporating in work..
- 5 THE SOURCE OF M SAND SHALL BE APPROVED FROM GE IN COMPLIANCE TO E-IN-C'S BRANCH POLICY LETTER NO. 22749/MISC/1072/E2 DES-3 DT. 01 AUG 2017.

SIGNATURE OF CONTRACTOR

FOR ACCPETING OFFICER

APPENDIX 'B' TO PARTICULAR SPECIFICATIONS
ITEM PREFERRABLY BEARING BIS CERTIFICATION MARK AND
TO BE PROCURED FROM ONE OF THE LISTED MANUFACTURER /
PRODUCERS AS PER CHOICE OF CONTRACTOR

| Ser No | Material | Name of manufacturers/ Brand name | | Cement Grades |
|--------|----------------------|-----------------------------------|---|-----------------------|
| 1 | 2 | 3 | | 4 |
| 1 | CEMENT MANUFACTURERS | 1 | THE ASSOCIATED CEMENT COMPAINIES LTD, BRAND : ACC | All |
| | | 2 | ULTRA TECH CEMENT LTD, BRAND : ULTRATECH | All |
| | | 3 | THE INDIA CEMENT | All |
| | | 4 | DALMIA CEMENT (BHARAT) LTD, BRAND: DALMIA INFRA PRO | All |
| | | 5 | CENTURY CEMENTS, BRAND : CENTURY | All |
| | | 6 | SAURASHTRA CEMENT, BRAND : SAURASHTRA | All |
| | | 7 | THE RAMCO CEMENTS LTD, BRAND : RAMCO | All |
| | | 8 | MANGALAM CEMENT LTD, BRAND : MANGALAM | All |
| | | 9 | BIRLA CORPORATION LTD, BRAND : BIRLA | All |
| | | 10 | ORIENT CEMENT, BRAND : ORIENT | All |
| | | 11 | NUVOCO VISTAS CORPORATION LTD, BRAND : NUVOCO | All |
| | | 12 | SHREE CEMENT, BRAND : SHREE | All |
| | | 13 | J K CEMENT, BRAND : JK | All |
| | | 14 | J K LAKSHMI CEMENT LTD, BRAND : J K LAKSHMI | All |
| | | 15 | JAYPEE REWA CEMENT, BRAND : JAYPEE | All |
| | | 16 | AMBUJA CEMENT LTD, BRAND : AMBUJA | All |
| | | 17 | M/S SHREE GURU KRIPA CEMENT (PVT) LTD, BRAND : SARTAJ | OPC43 & PPC |
| | | 18 | M/S PARASAKTI CEMENTS LTD, BRAND : PRASAKTI CEMENT | OPC43 & PPC |
| | | 19 | M/S MY HOME INDUSTRIES LTD, BRAND : MAHA CEMENT | PSC |
| | | 20 | M/S CHETTINAD CEMENT CORPORATION LTD, BRAND : CHETTINAD CEMENT | OPC43 & PPC |
| | | 21 | M/S KESORAM INDUSTRIES LTD, BRAND : BIRLA SHAKTI | OPC43, 53 & PPC |
| | | 22 | M/S JSW CEMENT LTD,A.P BRAND : JSW PSC (Portland slag cement), BRAND : JSW OPC 53, BRAND: JSW OPC 43. | OPC43, 53 & PSC |
| | | 23 | M/S SAGAR CEMENT LTD, BRAND : SAGAR | OPC43, 53 , PPC & PSC |
| | | | | |

Signature of Contractor

for Accepting officer

APPENDIX 'B' TO PARTICULAR SPECIFICATION (CONTD...)

| Ser No | Material | Name of manufacturers | | Steel Grade/ Sizes |
|--------|--------------------------------|-----------------------|---|--|
| 1 | 2 | 3 | | 4 |
| 2 | TMT STEEL MANUFACTURERS | 1 | RASHTRIYA ISPAT NIGAM LIMITED (RINL), BRAND : RINL | All |
| | | 2 | TATA IRON & STEEL COMPANY (TISCO OR TATA STEEL), BRAND: TATA | All |
| | | 3 | STEEL AUTHORITY OF INDIA LIMITED(SAIL), BRAND: SAIL | All |
| | | 4 | M/S JAI BALAJI INDUSTRIES LTD, BRAND: BALAJI SHAKTI | TMT bars of grade Fe 500, & Fe 500D, CRS sizes (8-40mm) |
| | | 5 | M/S SHYAM STEEL INDUSTRIES LTD, BRAND: SHYAM | TMT bars of grade Fe 500D & CRS |
| | | 6 | M/S STEEL EXCHANGE INDIA LTD BRAND: SIMHADRI TMT | TMT bars of grade Fe 500, Fe 500D & HSCRM |
| | | 7 | M/S JSW STEEL LTD, BRAND: NEOSTEEL | TMT bars of grade Fe 500D, Fe 550D, CRS sizes (8-40mm) |
| | | 8 | M/S SHYAM METALICS & ENERGY LTD, BRAND: SEL | TMT bars of grade Fe 500, Fe 500D sizes (8-32mm) |
| | | 9 | M/S KAMACHI INDUSTRIES LTD, BRAND: KAMACHI | TMT bars of grade Fe 500, Fe 500D, Fe 550, Fe 550D & HCRM sizes (8-40mm) |
| | | 10 | M/S REAL ISPAT & POWER LTD, BRAND: G K TMT | TMT bars of grade Fe 500, Fe 500D |
| | | 11 | M/S SUPER SMELTERS LTD, KOLKATA, BRAND: SUPER SHAKTI | TMT bars of grade Fe 500D & Fe 550 sizes (8-32mm) |
| | | 12 | M/S ELECTROTHERM (INDIA) LTD, BRAND : ET TMT | TMT bars of grade Fe 500, Fe 500D & CRS sizes (8-32mm) |
| | | 13 | M/S Incredible Industries Limited (Formerly ADHUNIK INDUSTRIES LTD) BRAND : ADHUNIK Fe 500 SD | TMT bars of grade Fe 500D with sizes (8-32mm) |
| | | 14 | M/S GALLANTT METAL LTD BRAND : GALLANTT TMX | TMT bars of grade Fe 500, Fe 500D& CRS sizes (8-32mm) |
| | | 15 | M/S RASHMI METALIKS LTD BRAND : RASHMI TMT | TMT bars of grade Fe 500 (size 8-32mm), Fe 500D, Fe 550D (sizes 8-25 mm) |
| | | 16 | M/S Tulsyan NEC Limited Brand : TULSYAN TMT | TMT bars of grade Fe 500, Fe 500D & Fe550 (8-32mm) |
| 3 | STRUCTURAL STEEL MANUFACTURERS | 1 | RASHTRIYA ISPAT NIGAM LIMITED (RINL), BRAND: RINL | Structural Steel (Angle, Beam, Column, Channel & Plate) |
| | | 2 | TATA IRON AND STEEL COMPANY (TISCO), BRAND: TATA | -Do- |
| | | 3 | STEEL AUTHORITY OF INDIA LIMITED (SAIL), BRAND: SAIL | -Do- |
| | | 4 | M/S JINDAL STEELS AND POWER LTD, BRAND: JINDAL | -Do- |

Signature of Contractor

for Accepting officer

APPENDIX 'B' OF PARTICULAR SPECIFICATIONS (CONTD.....)

| Sr No. | Products | Name of Firm/ Grand Group 'X' | Name of Firm/ Grand Group 'Y' |
|--------|----------|----------------------------------|----------------------------------|
|--------|----------|----------------------------------|----------------------------------|

Notes:

1. List of Approved makes Contains the makes of items approved by HQ CE South Western command and HQ CE Jaipur Zone. The approved makes of Group- 'X' for (Married Accn, OTM Accn and other than bldgs specified in Group 'Y') & Group 'Y' for (Storage Accn / Garages/Sentry Post/ Watch tower) given in Appendix 'B' of particular specification shall be applicable to this contract but contractor can provide items of superior group ie Group 'X' in lieu of group 'Y' without any extra cost. In addition to these makes, as per Pan-India policy other additional makes approved by E-in-C's Branch/CE Command/ADG/CE Jaipur Zone in Group 'X' & 'Y' category and not included in the Appendix B' but exists in list of approved makes of E-in-C's Branch/CE Command/ADG/ CE Jaipur Zone as on last date of submission of bid, shall also be applicable for this contract.
2. In case of single make in Group 'Y', Contractor can provide the items of Group 'X' without price adjustment.
3. The materials/items which are being manufactured as ISI marked and are readily available in the market shall be ISI marked only
4. Before placing the bulk supply order on any of the above listed firms/manufactures prior approval of sample shall be obtained by the contractor from the GE.

**APPROVED LIST OF HQ SWC JAIPUR
CIVIL CONSTRUCTION PRODUCTS**

| Sr No. | Products | Name of Firm/ Grand Group 'X' | Name of Firm/ Grand Group 'Y' |
|--------|----------|----------------------------------|----------------------------------|
|--------|----------|----------------------------------|----------------------------------|

Section 1 : PIPES

| | | | |
|---|--|---------------------------------|---------------------------------|
| 1 | UPVC PIPES & FITTINGS | ASTRAL | ASTRAL |
| | | TRUFLO (HINDWARE) | TRUFLO (HINDWARE) |
| | | HIL | HIL |
| | | PRINCE | PRINCE |
| | | FINOLEX | FINOLEX |
| | | FUSION | FUSION |
| | | SENTINE PLOPIPIPES | SENTINE PLOPIPIPES |
| | | JAIN PIPES | JAIN PIPES |
| | | PRAYAG | PRAYAG |
| | | APL APOLLO TUBE LTD | APL APOLLO TUBE LTD |
| | | BALCO (SOLVE PLASTIC PRODUCT) | BALCO (SOLVE PLASTIC PRODUCT) |
| 2 | CPVC (CHLORINATED POLYVINYL CHLORIDE) PIPES AND FITTINGS | SUPREME | SUPREME |
| | | FINOLEX | FINOLEX |
| | | ASHIRVAD | ASHIRVAD |
| | | SUPREME | SUPREME |
| | | ASTRAL | ASTRAL |
| | | TRUFLO (HINDWARE) | TRUFLO (HINDWARE) |
| | | HIL | HIL |
| | | PRINCE | PRINCE |
| | | JAIN PIPES | JAIN PIPES |
| | | DUTRON | DUTRON |
| | | FUSION | FUSION |
| | | DHAWAN SANITARY UDYOG (PRIMA) | DHAWAN SANITARY UDYOG (PRIMA) |
| | | SENTINI FLOPIPIPES | SENTINI FLOPIPIPES |
| | | PRAYAG | PRAYAG |
| 3 | GALVANISED IRON (GI) PIPES & FITTINGS | APL APOLLO TUBES LTD | APL APOLLO TUBES LTD |
| | | SFM | SFM |
| | | TATA | TATA |
| | | JINDAL | JINDAL |
| | | SWASTIK | SWASTIK |
| | | NEZONE | NEZONE |
| | | FORTUNE | FORTUNE |
| 4 | MS PIPES & FITTINGS | APL APOLLO TUBES LTD | APL APOLLO TUBES LTD |
| | | SURYA PRAKASH | SURYA PRAKASH |
| | | TATA | TATA |
| | | JINDAL | JINDAL |
| | | SWASTIK | SWASTIK |
| | | CRYSTAL SANITARY FITTINGS (ARK) | CRYSTAL SANITARY FITTINGS (ARK) |
| | | FORTUNE | FORTUNE |
| 5 | DI PIPE & FITTINGS | NEZONE | NEZONE |
| | | APL APOLLO TUBES LTD | APL APOLLO TUBES LTD |
| | | SURYA PRAKASH | SURYA PRAKASH |
| | | JINDAL SAW | JINDAL SAW |
| | | ELECTROSTEEL | ELECTROSTEEL |
| | | TATA METALICKS, KOLKATA | TATA METALICKS, KOLKATA |
| | | KEJRIWAL | KEJRIWAL |
| | | JAI BALAJI | JAI BALAJI |

Signature of Contractor

For Accepting Officer

| APPENDIX 'B' OF PARTICULAR SPECIFICATIONS (CONTD.....) | | | |
|--|--|---------------------------------------|---------------------------------------|
| Sr No. | Products | Name of Firm/ Grand Group 'X' | Name of Firm/ Grand Group 'Y' |
| 6 | HDPE PIPES & FITTINGS | FINOLEX | FINOLEX |
| | | SUPREME | SUPREME |
| | | ASTRAL | ASTRAL |
| | | PRINCE | PRINCE |
| | | KIRAN INFRA TECH (GEMINI) | KIRAN INFRA TECH (GEMINI) |
| | | PREMIER IRRIGATION ADRITECH | PREMIER IRRIGATION ADRITECH |
| | | JAIN PIPES (JAIN IRRIGATION SYS) | JAIN PIPES (JAIN IRRIGATION SYS) |
| | | SBM GOLD | SBM GOLD |
| | | APL APOLLO TUBES LTD | APL APOLLO TUBES LTD |
| 7 | PVC SOIL, WASTE, RAINWATER (SWR) & DRAINAGE PIPES | FINOLEX | FINOLEX |
| | | SUPREME | SUPREME |
| | | ASHIRVAD | ASHIRVAD |
| | | HIL | HIL |
| | | ASTRAL | ASTRAL |
| | | SENTINI FLOPIPIPES | SENTINI FLOPIPIPES |
| | | PRINCE | PRINCE |
| 8 | PPR PIPES & FITTINGS | FINOLEX | FINOLEX |
| | | SUPREME | SUPREME |
| | | SFMC | SFMC |
| | | PRINCE | PRINCE |
| | | EUROAQUA | EUROAQUA |
| | | FUSION | FUSION |
| | | APL APOLLO TUBES LTD | APL APOLLO TUBES LTD |
| | | KPT (KANHA PLASTIC PVT LTD) | KPT (KANHA PLASTIC PVT LTD) |
| | | SHK | SHK |
| 9 | PVC PIPES & FITTINGS | FINOLEX | FINOLEX |
| | | SUPREME | SUPREME |
| | | HIL | HIL |
| | | ASHIRVAD | ASHIRVAD |
| | | JAIN PIPES | JAIN PIPES |
| | | CCAL (CHEMFAB ALKALIS LTD) | CCAL (CHEMFAB ALKALIS LTD) |
| | | APL APOLLO TUBES LTD | APL APOLLO TUBES LTD |
| | | KPT (KANHA PLASTIC PVT LTD) | KPT (KANHA PLASTIC PVT LTD) |
| | | PRINCE | PRINCE |
| 10 | AC SOIL WASTE RAINWATER (SWR) & DRAINAGE PIPES | EVEREST ASBESTOS HYDERBAD | EVEREST ASBESTOS HYDERBAD |
| | | VISHAKHA | VISHAKHA |
| | | HYDERABAD ASBESTOS (CHARMINAR) | HYDERABAD ASBESTOS (CHARMINAR) |
| | | RAMCO | RAMCO |
| 11 | CI (CAST IRON) PIPES & FITTINGS | NECO | NECO |
| | | KESORAM | KESORAM |
| | | ELECTRO STEEL | ELECTRO STEEL |
| | | RAJ PATTERN MAKERS (RPMF) | RAJ PATTERN MAKERS (RPMF) |
| | | KEJRIWAL | KEJRIWAL |
| | | NECO | NECO |
| 12 | CI SOIL, WASTE & RAINWATER (SWR) & DRAINAGE PIPES | RAJ PATTERN MAKERS (RPMF) | RAJ PATTERN MAKERS (RPMF) |
| | | SINGHAL IRON FOUNDRY MATHURA (SKF) | SINGHAL IRON FOUNDRY MATHURA (SKF) |
| | | NECO | NECO |
| 13 | HUBLESS CENTRIFYGALLY CAST IRON PIPES & FITTINGS | SINGHAL IRON FOUNDRY MATHURA (SKF) | SINGHAL IRON FOUNDRY MATHURA (SKF) |
| | | RAJ PATTERN MAKERS (RPMF) | RAJ PATTERN MAKERS (RPMF) |
| | | EVEREST | EVEREST |
| 14 | RCC PIPES, DRAIN PIPES | HIMALAYA | HIMALAYA |
| | | KB SPUN PIPES | KB SPUN PIPES |
| | | KALOHA SPUN PIPE | KALOHA SPUN PIPE |
| | | SVRCC (SHREE VISHWAKARMA) | SVRCC (SHREE VISHWAKARMA) |
| | | INDIAN HUME PIPES | INDIAN HUME PIPES |
| | | ELECTRICAL PRODUCTS | |
| SECTION 1 : LIFT/ELEVATORS | | | |
| 15 | LIFTS | KONE | KONE |
| | | OTIS | OTIS |
| | | SCHINDLER | SCHINDLER |
| | | MITSUBISHI | MITSUBISHI |
| | | ESCON | ESCON |
| | | FUJITECH INDIA PVT LTD. | FUJITECH INDIA PVT LTD. |

Signature of Contractor

For Accepting Officer

| APPENDIX 'B' OF PARTICULAR SPECIFICATIONS (CONTD.....) | | | |
|--|---|--------------------------------|--------------------------------|
| Sr No. | Products | Name of Firm/ Grand Group 'X' | Name of Firm/ Grand Group 'Y' |
| 16 | ELEVATORs | THYSSEN KRUPP | THYSSEN KRUPP |
| | | FUJITECH INDIA PVT LTD. | FUJITECH INDIA PVT LTD. |
| | | ESCON | ESCON |
| SECTION 2 : DG SETS | | | |
| 17 | DG SET (ENGINE) | CUMMINS | CUMMINS |
| | | KIRLOSKAR (KOEL) | KIRLOSKAR (KOEL) |
| | | GREAVES -COTTON | GREAVES -COTTON |
| | | ASHOK LEYLAND | ASHOK LEYLAND |
| | | MAHINDRA | MAHINDRA |
| | | CATERPILLAR | CATERPILLAR |
| 18 | DG SET (ALTERNATOR) | CROMPTON GREAVES | CROMPTON GREAVES |
| | | KIRLOSKAR (KOEL) | KIRLOSKAR (KOEL) |
| | | CUMMINS | CUMMINS |
| | | STAMFORD | STAMFORD |
| | | JYOTI | JYOTI |
| | | BHARAT BIJLEE | BHARAT BIJLEE |
| 19 | DG SET ASSEMBLED WITH SOUND PROOF CANOPY | SUDHIR | SUDHIR |
| | | JAKSON & COMPANY | JAKSON & COMPANY |
| | | STERLING GENERATORS | STERLING GENERATORS |
| | | GREAVES -COTTON | GREAVES -COTTON |
| | | MAHINDRA | MAHINDRA |
| | | CUMMINS | CUMMINS |
| SECTION 3 : CRANES | | | |
| 20 | EOT/HOT CRANES | TIB CRANES | TIB CRANES |
| | | 3 TECH (3 TECH CRANES & LIFTS) | 3 TECH (3 TECH CRANES & LIFTS) |
| | | AACCESS EQUIPMENTS | AACCESS EQUIPMENTS |
| | | NATIONAL ENGG WKSP | NATIONAL ENGG WKSP |
| SECTION 4 : TRANSFORMERS | | | |
| 21 | TRANSFORMER, 22/11 KV, 33/11 KV, 66/11 KV, 22/0.433 KV & 33/0.433 KV COPPER WOUND (POWER TRANSFORMER) | BHEL | BHEL |
| | | SIMENS | SIMENS |
| | | BHARAT BIJLEE | BHARAT BIJLEE |
| | | CROMPTON GREEVES | CROMPTON GREEVES |
| | | SCHENIDER | SCHENIDER |
| | | ABB | ABB |
| | | ITE GURGAON | ITE GURGAON |
| | | VOLTAMP | VOLTAMP |
| | | ANDREW YULE | ANDREW YULE |
| | | ESENNAR | ESENNAR |
| | | JAYBEE BTI | JAYBEE BTI |
| | | RASITECH | RASITECH |
| | | MUSKAAN | MUSKAAN |
| | | SAI ELECTRICALS (POWER WARE) | SAI ELECTRICALS (POWER WARE) |
| 22 | TRANSFORMER 11/0.433 KV UPTO ALL CAPACITY (DISTR TRANSFORMER) | ITE GURGAON | ITE GURGAON |
| | | TRANSTRON ELECTRICALS PVT | TRANSTRON ELECTRICALS PVT |
| | | VOLTAMP | VOLTAMP |
| | | ABB | ABB |
| | | SCHENIDER | SCHENIDER |
| | | CROMPTON GREEVES | CROMPTON GREEVES |
| | | BHARAT BIJLEE | BHARAT BIJLEE |
| | | UNITED | UNITED |
| | | SAI ELECTRICALS (POWER WARE) | SAI ELECTRICALS (POWER WARE) |
| | | NATIONAL | NATIONAL |
| | | ANMOL TRANSFORMER | ANMOL TRANSFORMER |
| | | MEGAWIN | MEGAWIN |
| | | HARTEK | HARTEK |
| | | INSTRUMENTS & EQPT (IECO) | INSTRUMENTS & EQPT (IECO) |
| | | JAYBEE BTI | JAYBEE BTI |
| | | POWER STAR | POWER STAR |
| | | AIREN POWER | AIREN POWER |
| | | RESITECH | RESITECH |
| | | MUSKAAN | MUSKAAN |
| MSC TRANSFORMERS PVT LTD. | MSC TRANSFORMERS PVT LTD. | | |
| 23 | CURRENT & POTENTIAL TRANSFORMERS 11KV, 22KV & 33 KV | ESENNAR | ESENNAR |
| | | LARSEN & TUBRO | LARSEN & TUBRO |
| | | ABB | ABB |
| | | SIEMENS | SIEMENS |

| APPENDIX 'B' OF PARTICULAR SPECIFICATIONS (CONTD.....) | | | |
|--|--|--------------------------------|--------------------------------|
| Sr No. | Products | Name of Firm/ Grand Group 'X' | Name of Firm/ Grand Group 'Y' |
| 24 | ISOLATION TRANSFORMER | SCHENIDER | SCHENIDER |
| | | STRATON ELECTRICALS PVT LTD. | STRATON ELECTRICALS PVT LTD. |
| | | CROMPTON GREEVES | CROMPTON GREEVES |
| | | VINTEK ELECTRONICS (VOLINA) | VINTEK ELECTRONICS (VOLINA) |
| | | ITE GURGAON | ITE GURGAON |
| | | INSTRUMENTS & EQPT (IECO) | INSTRUMENTS & EQPT (IECO) |
| | | VINITEC | VINITEC |
| | | AIREN POWER | AIREN POWER |
| | | NUMMERIC | NUMMERIC |
| 25 | PACKAGED/ UNIFIED/COMPACT SUB STATION (PSS/USS/CSS) | SCHNIEDER | SCHNIEDER |
| | | ABB | ABB |
| | | SIEMENS | SIEMENS |
| | | ITE GURGAON | ITE GURGAON |
| | | MUSKAAN | MUSKAAN |
| | | CORONET | CORONET |
| | | CGPISL(CG POWER & IND SOLN) | CGPISL(CG POWER & IND SOLN) |
| | | C SEC | C SEC |
| | | PSC (POWER SYSTEM & CONTROLES) | PSC (POWER SYSTEM & CONTROLES) |
| | MEGAWIN | MEGAWIN | |
| SECTION 5 CENTRAL AC PLANT AND AIR CONDITIONERS | | | |
| 26 | AIR HANDING EQUIPMENT/AIR HANDLING UNIT (DOUBLE SKIN) | VOLTAS | VOLTAS |
| | | BLUE STAR | BLUE STAR |
| | | DAIKAIN | DAIKAIN |
| | | HITACHI | HITACHI |
| | | O-GENERAL | O-GENERAL |
| 27 | COOLING TOWERS | PAHARPUR | PAHARPUR |
| | | MIHIR | MIHIR |
| | | DELTA | DELTA |
| 28 | CENTRIFUGAL CHILLERS & SCREW CHILLERS | CARRIER | CARRIER |
| | | VOLTAS | VOLTAS |
| | | DAIKIN | DAIKIN |
| | | BLUESTAR | BLUESTAR |
| | | KIRLOSKAR CHILLERS | KIRLOSKAR CHILLERS |
| | | HITACHI | HITACHI |
| 29 | SPLIT TYPE AIR CONDITIONER | DAIKIN | DAIKIN |
| | | HITACHI | HITACHI |
| | | BLUESTAR | BLUESTAR |
| | | O- GENERAL | O- GENERAL |
| | | CARRIER | CARRIER |
| | | VOLTAS | VOLTAS |
| | | HAVELLS (LLOYD) | HAVELLS (LLOYD) |
| | | | |
| SECTION 6 : HT CIRCUIT BREAKERS | | | |
| 30 | VACCUM CIRCUIT BREAKER (VCB) SUITABLE FOR 12, 24 & 36 KV SYSTEM | SIEMENS | SIEMENS |
| | | CROMPTON GREAVES | CROMPTON GREAVES |
| | | ABB | ABB |
| | | BHEL | BHEL |
| | | SCHNEIDER | SCHNEIDER |
| | | LARSEN & TURBO | LARSEN & TURBO |
| | | ITE GURGAON | ITE GURGAON |
| | | CORONET | CORONET |
| | | CGPISL(CG POWER & IND SOLN) | CGPISL(CG POWER & IND SOLN) |
| | | C SEC | C SEC |
| | | PASCAL SWITCHCARE (I) PVT LTD | PASCAL SWITCHCARE (I) PVT LTD |
| | | MEGAWIN | MEGAWIN |
| | | | |
| 31 | RING MAIN UNIT (RMU) | LARSEN & TURBO | LARSEN & TURBO |
| | | ABB | ABB |
| | | SCHNEIDER | SCHNEIDER |
| | | C SEC | C SEC |
| | | SIEMENS | SIEMENS |
| | | CGPISL(CG POWER & IND SOLN) | CGPISL(CG POWER & IND SOLN) |
| | | MEGAWIN | MEGAWIN |
| | | | |
| 32 | HT SWITCH GEAR 66/33/11KV 3 PHASE, GAS CIRCUIT BREAKER SF-6 TYPE | CROMPTON GREAVES | CROMPTON GREAVES |
| | | ABB | ABB |
| | | SIEMENS | SIEMENS |
| | | BHEL | BHEL |
| | | TRANSGUARD | TRANSGUARD |

| APPENDIX 'B' OF PARTICULAR SPECIFICATIONS (CONTD.....) | | | |
|--|--|-----------------------------------|-----------------------------------|
| Sr No. | Products | Name of Firm/ Grand Group 'X' | Name of Firm/ Grand Group 'Y' |
| 33 | HT 11 KV, 3 PH AUTOMATIC SWITCH FUSE UNIT | SCHNEIDER | SCHNEIDER |
| | | CROMPTON GREAVES | CROMPTON GREAVES |
| | | SCHNEIDER | SCHNEIDER |
| | | ABB | ABB |
| | | ITE GURGAON | ITE GURGAON |
| 34 | GANG OPERATED AIR BREAK SWITCH (33 KV/22KV/11 KV) / ISOLATOR | C&S ELECTRIC (C&S) | C&S ELECTRIC (C&S) |
| | | JAIPURIA BROTHERS | JAIPURIA BROTHERS |
| | | CROMPTON GREAVES | CROMPTON GREAVES |
| | | BHEL | BHEL |
| | | HEI | HEI |
| | | MYSORE ELECTRICAL INDUSRIES (MEI) | MYSORE ELECTRICAL INDUSRIES (MEI) |
| | | SOUTHERN SWITH GEAR | SOUTHERN SWITH GEAR |
| | | ANDREW YULE | ANDREW YULE |
| | | ADINATH INDUSTIRIES (AD) | ADINATH INDUSTIRIES (AD) |
| 35 | LIGHTENING ARRESTERS HT | PACTIL | PACTIL |
| | | BHEL | BHEL |
| | | CROMPTON & GREAVES | CROMPTON & GREAVES |
| | | JAIPURIA BROTHERS | JAIPURIA BROTHERS |
| | | OBLUM | OBLUM |
| | | ADINATH INDUSTIRIES (AD) | ADINATH INDUSTIRIES (AD) |
| | | TIRUMALA (COLUMBO ELECTRICALS) | TIRUMALA (COLUMBO ELECTRICALS) |
| 36 | GIS | GEC-ELPRO | GEC-ELPRO |
| 37 | NUMERICAL RELAY | CGPISL(CG POWER & IND SOLN) | CGPISL(CG POWER & IND SOLN) |
| 38 | HT CONTROL PANELS | CORONET | CORONET |
| | | HARTEK | HARTEK |
| | | PHEONIX CONTACT | PHEONIX CONTACT |
| | | CORONET | CORONET |
| | | ELECTRO ALLIED PRODUCT (EAP) | ELECTRO ALLIED PRODUCT (EAP) |
| | | PSC (POWER SYSTEM & CONTROLES) | PSC (POWER SYSTEM & CONTROLES) |
| 39 | COMPOSIT POLYMER INSULATORS 11 KV TO 132 KV | CHANDEL & CO | CHANDEL & CO |
| 40 | 11 KV TO 33 KV COMPOSITE POLYMER DO FUSE UNIT | ADINATH INDUSTIRIES (AD) | ADINATH INDUSTIRIES (AD) |
| SECTION 7 : APFC PANELS | | | |
| 41 | APFC panel | C & S ELECTRIC (C&S) | C & S ELECTRIC (C&S) |
| | | UNIVERSAL SWITCH GEAR CONTROL | UNIVERSAL SWITCH GEAR CONTROL |
| | | SCHNEIDER | SCHNEIDER |
| | | CONZERV | CONZERV |
| | | LARSEN & TUBRO | LARSEN & TUBRO |
| | | SIEMENS | SIEMENS |
| | | ABB | ABB |
| | | EPCOS | EPCOS |
| | | ITE GURGAON | ITE GURGAON |
| | | SHALABH | SHALABH |
| | | INSTRUMENTS & EQPT (IECO) | INSTRUMENTS & EQPT (IECO) |
| | | CORONET | CORONET |
| | | CGPISL(CG POWER & IND SOLN) | CGPISL(CG POWER & IND SOLN) |
| | | HARTEK | HARTEK |
| | | SUPERTECH POWER CONTROL PVT LTD | SUPERTECH POWER CONTROL PVT LTD |
| | | NEPTUNE SYSTEMS PVT LTD | NEPTUNE SYSTEMS PVT LTD |
| | | HARK POWER CONTROLS | HARK POWER CONTROLS |
| | | HAVELLS | HAVELLS |
| | | ELITE PANELS | ELITE PANELS |
| | | SAI ELECTRICALS (POWER WARE) | SAI ELECTRICALS (POWER WARE) |
| 42 | POWER IMPROVEMENT FACTOR CAPACITOR BANKS | LARSEN & TUBRO | LARSEN & TUBRO |
| | | SIEMENS | SIEMENS |
| | | SCHNEIDER | SCHNEIDER |
| | | EPCOS | EPCOS |
| | | CROMPTON & GREAVES | CROMPTON & GREAVES |
| SECTION 8 : HT CABLE | | | |
| 43 | CABLE JOINTING KIT FOR 11 | ABB | ABB |
| | | RAYCHEMS | RAYCHEMS |

| APPENDIX 'B' OF PARTICULAR SPECIFICATIONS (CONTD.....) | | | |
|--|--|----------------------------------|----------------------------------|
| Sr No. | Products | Name of Firm/ Grand Group 'X' | Name of Firm/ Grand Group 'Y' |
| | KV/22 KV /33 KV | DENSONS | DENSONS |
| | | M-SEAL | M-SEAL |
| | | BIRLA -3M | BIRLA -3M |
| | | MS-SEAL (VISHWA ELECTRICALS) | MS-SEAL (VISHWA ELECTRICALS) |
| | | SIEMEN | SIEMEN |
| 44 | HT XLPE, PVC INSULATED ALUMINUM CONDUCTOR FOR 33KV/22KV/11 KV SYSTEM | CABLE CORPORATION OF INDIA (CCI) | CABLE CORPORATION OF INDIA (CCI) |
| | | UNIVERSAL CABLES (UCL) | UNIVERSAL CABLES (UCL) |
| | | GEMSCAB | GEMSCAB |
| | | RPG | RPG |
| | | GLOSTER | GLOSTER |
| | | POLYCAB | POLYCAB |
| | | FINOLEX | FINOLEX |
| | | HAVELLS | HAVELLS |
| | | KEI | KEI |
| | | DIAMOND POWER (DICABS) | DIAMOND POWER (DICABS) |
| | | GRANDLAY | GRANDLAY |
| | | LS CABLE | LS CABLE |
| | | V-MARC | V-MARC |
| | | SBEE (SBEE CABLES) | SBEE (SBEE CABLES) |
| | | RALLISON (LKB ENGG PVT LTD) | RALLISON (LKB ENGG PVT LTD) |
| 45 | HT CONTROL CABLES | KEI | KEI |
| | | NICCO | NICCO |
| | | FINOLEX | FINOLEX |
| | | CABLE CORPORATION OF INDIA (CCI) | CABLE CORPORATION OF INDIA (CCI) |
| | | POLYCAB | POLYCAB |
| | | HAVELLS | HAVELLS |
| | | GLOSTER | GLOSTER |
| UNIVERSAL CABLES | | | |
| SECTION 09 : FIRE DETECTION, FIRE ALARM AND MEDICAL GAS NETWORK. | | | |
| 46 | FIRE ALARM | NOTOFIRE | NOTOFIRE |
| SECTION 10 : VOLTAGE STABILIZER SERVO TYPE | | | |
| 47 | SERVO VOLTAGE STABILIZER | NUMERIC | NUMERIC |
| | | VINITEC | VINITEC |
| | | SAI ELECTRICALS (POWER WARE) | SAI ELECTRICALS (POWER WARE) |
| | | POWER STAR | POWER STAR |
| | | AIREN POWER | AIREN POWER |
| | | SELVON | SELVON |
| | | INSTRUMENTS & EQPT (IECO) | INSTRUMENTS & EQPT (IECO) |
| | | ITE GURGAON | ITE GURGAON |
| | | VINTEK ELECTRONICS (VOLINA) | VINTEK ELECTRONICS (VOLINA) |
| | | MUSKAAN | MUSKAAN |
| 48 | HT AVR UPTO 10 MVA 11 KV/33 KV | SAI ELECTRICALS (POWER WARE) | SAI ELECTRICALS (POWER WARE) |
| | | AIREN POWER | AIREN POWER |
| | | MUSKAAN | MUSKAAN |
| CIVIL WORK FINISHES | | | |
| SECTION - 1 : FLOOR & WALL TILES | | | |
| 49 | CERAMIC WALL & FLOOR TILES INCLUDING NON-SKID TILES | JOHNSON | JOHNSON |
| | | KAJARIA | KAJARIA |
| | | ASIAN GRANITO INDIA (AGL TILES) | ASIAN GRANITO INDIA (AGL TILES) |
| | | SOMANY | SOMANY |
| | | HINDWARE/QUEO | HINDWARE/QUEO |
| | | EXXARO | EXXARO |
| | | APARNA ENTERPRISES LTD | APARNA ENTERPRISES LTD |
| | | SIMPOLO | SIMPOLO |
| | | SIMERO VITRIFIED PVT LTD | SIMERO VITRIFIED PVT LTD |
| | | SUNHEARRT (SUNSHINE TILES) | SUNHEARRT (SUNSHINE TILES) |
| 50 | VITRIFIED TILES | JOHNSON | JOHNSON |
| | | KAJARIA | KAJARIA |
| | | ASIAN GRANITO INDIA (AGL TILES) | ASIAN GRANITO INDIA (AGL TILES) |
| | | SOMANY | SOMANY |
| | | HINDWARE/QUEO | HINDWARE/QUEO |
| | | SEGA GRANITO LLP | SEGA GRANITO LLP |
| | | EXXARO | EXXARO |
| | | SIMPOLO | SIMPOLO |
| APARNA ENTERPRISES LTD | | APARNA ENTERPRISES LTD | |
| SIMERO VITRIFIED PVT LTD | | SIMERO VITRIFIED PVT LTD | |

Signature of Contractor

For Accepting Officer

| APPENDIX 'B' OF PARTICULAR SPECIFICATIONS (CONTD.....) | | | |
|---|---|-------------------------------|-------------------------------|
| Sr No. | Products | Name of Firm/ Grand Group 'X' | Name of Firm/ Grand Group 'Y' |
| | | SUNHEARRT (SUNSHINE TILES) | SUNHEARRT (SUNSHINE TILES) |
| 51 | ACID RESISTANT TILES | JOHNSON | JOHNSON |
| | | KAJARIA | KAJARIA |
| | | SOMANY | SOMANY |
| 52 | PVC SHEET AND TILE FLOORING | ARMSTRONG | ARMSTRONG |
| | | SQUARE FOOT | SQUARE FOOT |
| | | ECOCELL/ECHON | ECOCELL/ECHON |
| 53 | CLAY EXTRUDED TERRACOTTA/CLAY FACADE TILE | CLAYTON | CLAYTON |
| 54 | LEAD FREE RADIATION SHIELDING (WALL TILES FOR HOSP) | ASSURAYS | ASSURAYS |
| SECTION-2 : PAINTS | | | |
| 55 | DISTEMPER OIL-EMULSION/OIL BOUND | NEROLAC | NEROLAC |
| | | JENSON & NICHOLSON | JENSON & NICHOLSON |
| | | ASIAN PAINTS | ASIAN PAINTS |
| | | BERGER PAINTS | BERGER PAINTS |
| | | SHALIMAR PAINTS | SHALIMAR PAINTS |
| | | BIRLA WHITE | BIRLA WHITE |
| | | ANUPAM PAINTS | ANUPAM PAINTS |
| | | JSW PAINTS | JSW PAINTS |
| | | NIPPON PAINT INDIA PVT LTD | NIPPON PAINT INDIA PVT LTD |
| | | JK MAXX PAINTS | JK MAXX PAINTS |
| 56 | PLASTIC EMULSION PAINT & EXTERIOR EMULSION PAINT | DULUX (AKZO NOBEL) | DULUX (AKZO NOBEL) |
| | | NEROLAC | NEROLAC |
| | | JENSON & NICHOLSON | JENSON & NICHOLSON |
| | | ASIAN PAINTS | ASIAN PAINTS |
| | | BERGER PAINTS | BERGER PAINTS |
| | | SHALIMAR PAINTS | SHALIMAR PAINTS |
| | | NIPPON PAINT INDIA PVT LTD | NIPPON PAINT INDIA PVT LTD |
| | | ANUPAM ENTERPRISES | ANUPAM ENTERPRISES |
| 57 | CEMENT BASE PAINT | JK MAXX PAINTS | JK MAXX PAINTS |
| | | DULUX (AKZO NOBEL) | DULUX (AKZO NOBEL) |
| | | BERGER PAINTS | BERGER PAINTS |
| | | SUPER SNOWCEM | SUPER SNOWCEM |
| | | DURACEM | DURACEM |
| 58 | PRIMER | AQUACEM | AQUACEM |
| | | SHALIMAR | SHALIMAR |
| | | BIRLA WHITE | BIRLA WHITE |
| | | JSW PAINTS | JSW PAINTS |
| | | ANUPAM PAINTS | ANUPAM PAINTS |
| 59 | PUTTY | JK MAXX PAINTS | JK MAXX PAINTS |
| | | SHALIMAR PAINTS | SHALIMAR PAINTS |
| | | ASIAN PAINTS | ASIAN PAINTS |
| | | NEROLAC | NEROLAC |
| | | BERGER PAINTS | BERGER PAINTS |
| | | BIRLA WHITE | BIRLA WHITE |
| | | JK WHITE | JK WHITE |
| | | SHALIMAR PAINTS | SHALIMAR PAINTS |
| | | NIPPON PAINT INDIA PVT LTD | NIPPON PAINT INDIA PVT LTD |
| | | JK MAXX PAINTS | JK MAXX PAINTS |
| 60 | SYNTHETIC ENAMEL PAINT | GOLDEN MOHAR | GOLDEN MOHAR |
| | | ASIAN PAINTS | ASIAN PAINTS |
| | | NEROLAC PAINTS | NEROLAC PAINTS |
| | | BERGER PAINTS | BERGER PAINTS |
| | | JENSON & NICHOLSON PAINTS | JENSON & NICHOLSON PAINTS |
| | | SHALIMAR PAINTS | SHALIMAR PAINTS |
| | | ANUPAM ENTERPRISES | ANUPAM ENTERPRISES |
| | | JSW PAINTS | JSW PAINTS |
| 61 | ROAD MARKING PAINT(THERMOPLASTIC PAINT) | NIPPON PAINT INDIA PVT LTD | NIPPON PAINT INDIA PVT LTD |
| | | DULUX (AKZO NOBEL) | DULUX (AKZO NOBEL) |
| | | RELIANCE THERMOPLAST | RELIANCE THERMOPLAST |

| APPENDIX 'B' OF PARTICULAR SPECIFICATIONS (CONTD.....) | | | |
|--|--|-------------------------------------|-------------------------------------|
| Sr No. | Products | Name of Firm/ Grand Group 'X' | Name of Firm/ Grand Group 'Y' |
| SECTION-3 : FACTORY MADE DOORS/WINDOWS | | | |
| 62 | FIRE RATED DOORS | CACTUS | CACTUS |
| | | HORMANN (SHAKTI HORMANN) | HORMANN (SHAKTI HORMANN) |
| | | AACCESS TOUGH DOORS | AACCESS TOUGH DOORS |
| | | DODIA ENTERPRISES | DODIA ENTERPRISES |
| 63 | FACTORY MADE PANELLED/GLAZED WIRE GAUGE SHUTTERS/FRAMES WOODEN | PIONEER TIMBER, CHANDIGARH | PIONEER TIMBER, CHANDIGARH |
| | | JAIN DOORS HARYANA | JAIN DOORS HARYANA |
| | | BLACK COBRA (PUNJAB PLYWOOD) | BLACK COBRA (PUNJAB PLYWOOD) |
| | | A1 TEAK PRODUCTS, INDORE | A1 TEAK PRODUCTS, INDORE |
| | | PARSHOTAM STEEL (PSI) | PARSHOTAM STEEL (PSI) |
| | | JAYNA (JAIN WOOD IND) | JAYNA (JAIN WOOD IND) |
| | | MP WOOD PRODUCTS | MP WOOD PRODUCTS |
| | | EVEREST | EVEREST |
| | | RAJSHRI | RAJSHRI |
| 64 | FACTORY MADE PVC/FRP SHUTTERS AND FRAMES | SINTEX | SINTEX |
| | | DURO PLAST | DURO PLAST |
| | | ACCUCEL (ACCURA POLYTECH) | ACCUCEL (ACCURA POLYTECH) |
| | | JAYNA (JAIN WOOD IND) | JAYNA (JAIN WOOD IND) |
| | | ECOCELL/ECHON (KUMAR ARCH TECH) | ECOCELL/ECHON (KUMAR ARCH TECH) |
| | | BLACK COBRA (PUNJAB PLYWOOD) | BLACK COBRA (PUNJAB PLYWOOD) |
| | | BLACK COBRA (YAMUNA INTERIORS) | BLACK COBRA (YAMUNA INTERIORS) |
| | | MAICA | MAICA |
| | | HR ENTERPRISES | HR ENTERPRISES |
| | | SMP-MAGMA (SMP IMPEX) | SMP-MAGMA (SMP IMPEX) |
| | | ALEX (ALEXIA PANELS) | ALEX (ALEXIA PANELS) |
| | | KIT PLY INDUSTRIES | KIT PLY INDUSTRIES |
| | | CENTURY PLY WOOD | CENTURY PLY WOOD |
| | | DURIAN | DURIAN |
| 65 | WOODEN FLUSH DOOR SHUTTERS | JAYNA (JAIN WOOD IND) | JAYNA (JAIN WOOD IND) |
| | | A1 TEAK PRODUCTS (INDORE) | A1 TEAK PRODUCTS (INDORE) |
| | | GREENLAM (MIKASA) | GREENLAM (MIKASA) |
| | | ARCHID PLY | ARCHID PLY |
| | | MP WOOD PRODUCTS | MP WOOD PRODUCTS |
| | | BLACK COBRA (PUNJAB PLYWOOD) | BLACK COBRA (PUNJAB PLYWOOD) |
| | | H2O SOLUTION | H2O SOLUTION |
| | | MADHU INDUSTRIES | MADHU INDUSTRIES |
| | | FENESTA | FENESTA |
| | | NCL VEKA | NCL VEKA |
| | | AIS | AIS |
| | | MAICA | MAICA |
| | | PROFINE INDIA (KOMMERLING ALUPURE) | PROFINE INDIA (KOMMERLING ALUPURE) |
| | | RAJSHRI | RAJSHRI |
| 66 | UPVC DOORS, WINDOWS AND VENTILATOR | YASHPOLY | YASHPOLY |
| | | HR ENTERPRISES | HR ENTERPRISES |
| | | APARNA ENTERPRISES LTD | APARNA ENTERPRISES LTD |
| | | SMP-MAGMA (SMP IMPEX) | SMP-MAGMA (SMP IMPEX) |
| | | AMD OVERSEAS IMPEX (I) PVT LTD | AMD OVERSEAS IMPEX (I) PVT LTD |
| | | CHANDNI INDUSTRIES(CI) | CHANDNI INDUSTRIES(CI) |
| | | RAJSHRI | RAJSHRI |
| | | YASHPOLY | YASHPOLY |
| | | GIZA | GIZA |
| | | ECOCELL/ECHON | ECOCELL/ECHON |
| | | ALEX (ALEXIA PANELS) | ALEX (ALEXIA PANELS) |
| | | ALSTONE | ALSTONE |
| | | ALDEKO PANELS PVT LTD | ALDEKO PANELS PVT LTD |
| | | HR ENTERPRISES | HR ENTERPRISES |
| 67 | WPC BOARDS, DOORS & WINDOWS | SMP-MAGMA (SMP IMPEX) | SMP-MAGMA (SMP IMPEX) |
| | | BLACK COBRA (YAMUNA INTERIORS) | BLACK COBRA (YAMUNA INTERIORS) |
| | | HI WOOD PLASTOTECH | HI WOOD PLASTOTECH |
| | | MADHU INDUSTRIES, BANGARORE | MADHU INDUSTRIES, BANGARORE |
| | | CHANDHI INDUSTRIES (CI) | CHANDHI INDUSTRIES (CI) |
| | | TRISUL | TRISUL |
| | | PARSHOTAM STEEL (PSI) | PARSHOTAM STEEL (PSI) |
| | | ANOOP INDUSTRIES | ANOOP INDUSTRIES |
| | | ANOOP INDUSTRIES | ANOOP INDUSTRIES |
| | | ANOOP INDUSTRIES | ANOOP INDUSTRIES |
| | | ANOOP INDUSTRIES | ANOOP INDUSTRIES |
| | | ANOOP INDUSTRIES | ANOOP INDUSTRIES |
| | | ANOOP INDUSTRIES | ANOOP INDUSTRIES |
| | | ANOOP INDUSTRIES | ANOOP INDUSTRIES |
| | | ANOOP INDUSTRIES | ANOOP INDUSTRIES |
| 68 | STEEL DOORS, WINDOWS, VENTILATORS & PS FRAMES | MADHU INDUSTRIES, BANGARORE | MADHU INDUSTRIES, BANGARORE |
| | | CHANDHI INDUSTRIES (CI) | CHANDHI INDUSTRIES (CI) |
| | | TRISUL | TRISUL |
| | | PARSHOTAM STEEL (PSI) | PARSHOTAM STEEL (PSI) |

| APPENDIX 'B' OF PARTICULAR SPECIFICATIONS (CONTD.....) | | | |
|--|--|---------------------------------|---------------------------------|
| Sr No. | Products | Name of Firm/ Grand Group 'X' | Name of Firm/ Grand Group 'Y' |
| | | DODIA ENTERPRISES | DODIA ENTERPRISES |
| | | ELIXIR MET FORM PVT LTD | ELIXIR MET FORM PVT LTD |
| | | AACCESS TOUGH DOORS | AACCESS TOUGH DOORS |
| | | HORMANN (SHAKTI HORMANN) | HORMANN (SHAKTI HORMANN) |
| | | SHIVAM METAL | SHIVAM METAL |
| | | | TEE PEE ENTERPRISES |
| | | FRIEENDS MANUFACTURING COY | |
| SECTION-4 : PLY/VENEERS, LAMINATES/FALSE CEILING/PARTICLE BOARDS/WOODEN BOARD SHEETS/ WOODEN FLOOR | | | |
| 69 | PLYWOOD | CENTURY PLY WOOD | CENTURY PLY WOOD |
| | | KITPLY | KITPLY |
| | | ARCHID PLY | ARCHID PLY |
| | | NATIONAL PLYWOOD | NATIONAL PLYWOOD |
| | | JAYNA (JAIN WOOD IND) | JAYNA (JAIN WOOD IND) |
| | | ANCHOR | ANCHOR |
| 70 | VENEERED PARTICLE BOARD/ BLOCK BOARD | BLACK COBRA (PUNJAB PLYWOOD) | BLACK COBRA (PUNJAB PLYWOOD) |
| | | | WROWN (UNITED TIMBER IND) |
| | | CENTURY PLYWOOD | CENTURY PLYWOOD |
| | | ANCHOR | ANCHOR |
| | | BLACK COBRA (PUNJAB PLYWOOD) | BLACK COBRA (PUNJAB PLYWOOD) |
| | | JAYNA (JAIN WOOD IND) | JAYNA (JAIN WOOD IND) |
| 71 | LAMINATED SHEETS | KITPLY | KITPLY |
| | | | WROWN (UNITED TIMBER IND) |
| | | ARCHID PLY | ARCHID PLY |
| | | FORMICA | FORMICA |
| | | SUNGLOSS | SUNGLOSS |
| | | SUNMICA | SUNMICA |
| 72 | REINFORCED FIBRE CEMENT BOARD FALSE CEILING INCL MEMBERS | DELTA LAMINATES | DELTA LAMINATES |
| | | GLOBE PANEL INDUSTRIES | GLOBE PANEL INDUSTRIES |
| | | ALEX (ALEXIA PANELS) | ALEX (ALEXIA PANELS) |
| | | BACKLITE HYLUM | BACKLITE HYLUM |
| | | ARMSTRONG | ARMSTRONG |
| | | GYPROC (SAINT GOBAIN) | GYPROC (SAINT GOBAIN) |
| 73 | PERFORATED PARTICLE BOARD/TILES FOR INSULATION AND ACCOUSTIC | DIAMOND CEILING | DIAMOND CEILING |
| | | EVEREST | EVEREST |
| | | ARM STRONG | ARM STRONG |
| | | GYPROC (SAINT GOBAIN) | GYPROC (SAINT GOBAIN) |
| | | GYPTech | GYPTech |
| | | AEROLITE INDUSRIES PVT LTD | AEROLITE INDUSRIES PVT LTD |
| 74 | PVC/UPVC FALSE CEILING, WALL LINING & SOLID PARTITONS | ANCHOR CEILING TILES | ANCHOR CEILING TILES |
| | | ECOCELL/ECHON (KUMAR ARCH TECH) | ECOCELL/ECHON (KUMAR ARCH TECH) |
| | | YASHPOLY | YASHPOLY |
| | | DIAMOND CEILING | DIAMOND CEILING |
| | | MAICA | MAICA |
| | | BLACK COBRA (YAMUNA INTERIORS) | BLACK COBRA (YAMUNA INTERIORS) |
| 75 | METAL FALSE CEILING WITH GRID SYSTEM | RAJSHRI | RAJSHRI |
| | | NEW AGE | NEW AGE |
| | | ROYAL CRAFT (MANRAJ CEILINGS) | ROYAL CRAFT (MANRAJ CEILINGS) |
| | | AEROLITE INDUSRIES PVT LTD | AEROLITE INDUSRIES PVT LTD |
| | | DIAMOND CEILING | DIAMOND CEILING |
| | | BIRLA WHITE | BIRLA WHITE |
| 76 | GYPSUM CEILING | DIAMOND CEILING | DIAMOND CEILING |
| | | DIAMOND CEILING | DIAMOND CEILING |
| 77 | GRG WALL PANELLING/GRG FALSE CEILNG WITH GI GRID | BIRLA WHITE | BIRLA WHITE |
| | | CENTURY PLYWOOD | CENTURY PLYWOOD |
| 78 | PLAIN/PRE-LAMINATED PARTICLE BOARD INCLUDING MDF/HDF BOARD | KITPLY | KITPLY |
| | | ACTION TESA | ACTION TESA |
| | | ANCHOR | ANCHOR |
| | | BLACK COBRA (YAMUNA INTERIORS) | BLACK COBRA (YAMUNA INTERIORS) |
| 79 | PVC BOARD IN ALL THICKNESS | JAIN PIPES | JAIN PIPES |
| | | RAJSHRI | RAJSHRI |
| | | ALEX (ALEXIA PANELS) | ALEX (ALEXIA PANELS) |
| | | ACTION TESA | ACTION TESA |
| 80 | WOODEN FLOORING | ARMSTRONG | ARMSTRONG |

| APPENDIX 'B' OF PARTICULAR SPECIFICATIONS (CONTD.....) | | | |
|--|---|----------------------------------|----------------------------------|
| Sr No. | Products | Name of Firm/ Grand Group 'X' | Name of Firm/ Grand Group 'Y' |
| | | A-1 TEAK PRODUCTS INDOOR | A-1 TEAK PRODUCTS INDOOR |
| | | PERGO | PERGO |
| SECTION-5 : SANITARY FITTINGS/FITURES | | | |
| 81 | CHROMIUM PLATED(CP)/ BRASS ALLOY BIB TAPS, PILLAR TAPS, STOP VALVES, ANGLE VALVES, WALL MIXER, SHOWER, DIVERTER WASTE COUPLING, HEATH FAUCET, JET SPRAY, ETC. | KOHLER | KOHLER |
| | | GROHE | GROHE |
| | | JAUAR | JAUAR |
| | | CERA | CERA |
| | | JOHNSON | JOHNSON |
| | | HINDWARE QUEO | HINDWARE QUEO |
| | | STATUS SANITECH Pvt Ltd (PLAYER) | STATUS SANITECH Pvt Ltd (PLAYER) |
| | | BLUE STAR (SILVER SHINE) | BLUE STAR (SILVER SHINE) |
| | | DHAWAN SANITARY UDYOG (PRIMA) | DHAWAN SANITARY UDYOG (PRIMA) |
| | | PRAYAG | PRAYAG |
| | | AJANTA SANITARYWARE (MILLENNIUM) | AJANTA SANITARYWARE (MILLENNIUM) |
| | | SOMANY | SOMANY |
| | | FOLORA STEELS (XEN) | FOLORA STEELS (XEN) |
| | | CRYSTAL SANITARY FITTINGS (ARK) | CRYSTAL SANITARY FITTINGS (ARK) |
| | | VAALVE | VAALVE |
| | | JAYNAM | JAYNAM |
| | | GRAVITY | GRAVITY |
| | | DEXOVIT INTERNATIONAL PVT LTD | DEXOVIT INTERNATIONAL PVT LTD |
| | | PARKOVIC (PRAKASH INDUSTRIES) | PARKOVIC (PRAKASH INDUSTRIES) |
| | | ESSEL BATH FITTINGS | ESSEL BATH FITTINGS |
| | | TOPSAN (MACHINOO TECH) | TOPSAN (MACHINOO TECH) |
| | | PLASTOCRAFT SANITARY (I) PVT LTD | PLASTOCRAFT SANITARY (I) PVT LTD |
| | | ARGENT INDUSTRIES (ARGENT) | ARGENT INDUSTRIES (ARGENT) |
| 82 | PVC/PTMT BATHROOM FITTINGS, BIB TAPS, PILLAR TAPS, ANGLE VALVE AND STOP VALVES (ISI MARKED) | R S INDUSTRIES (POLYTUF) | R S INDUSTRIES (POLYTUF) |
| | | PRAYAG | PRAYAG |
| | | ZOLOTO | ZOLOTO |
| | | JAYNAM | JAYNAM |
| | | BLUE STAR (SILVER SHINE) | BLUE STAR (SILVER SHINE) |
| | | FLORA STEELS (XEN) | FLORA STEELS (XEN) |
| | | DHAWAN SANITARY UDYOG (PRIMA) | DHAWAN SANITARY UDYOG (PRIMA) |
| | | PARKOVIC (PRAKASH INDUSTRIES) | PARKOVIC (PRAKASH INDUSTRIES) |
| | | AJANTA SANITARYWARE (MILLENNIUM) | AJANTA SANITARYWARE (MILLENNIUM) |
| | | CERA | CERA |
| 83 | LOW LEVEL FLUSHING CISTERN (PVC) (ISI MARKED) | HINDWARE/QUEO | HINDWARE/QUEO |
| | | PARRYWARE | PARRYWARE |
| | | KAJARIA | KAJARIA |
| | | JOHNSON | JOHNSON |
| | | KOHLER | KOHLER |
| | | PRAYAG | PRAYAG |
| | | JAUAR | JAUAR |
| | | DHAWAN SANITARY UDYOG (PRIMA) | DHAWAN SANITARY UDYOG (PRIMA) |
| | | BLUE STAR (SILVER SHINE) | BLUE STAR (SILVER SHINE) |
| | | TOPSAN (MACHINOO TECH) | TOPSAN (MACHINOO TECH) |
| | | AJANTA SANITARYWARE (MILLENNIUM) | AJANTA SANITARYWARE (MILLENNIUM) |
| | | PLASTOCRAFT SANITARY 9I) PVT LTD | PLASTOCRAFT SANITARY 9I) PVT LTD |
| | | CERA | CERA |
| | | HINDWARE/QUEO | HINDWARE/QUEO |
| 84 | VITREOUS CHINA SANITARY WARE (WHB, WATER CLOSET & URINALS) | PARRYWARE | PARRYWARE |
| | | JAUAR | JAUAR |
| | | KOHLER | KOHLER |
| | | JOHNSON | JOHNSON |
| | | PRAYAG | PRAYAG |
| | | BLUE STAR (SILVER SHINE) | BLUE STAR (SILVER SHINE) |
| | | SOMANY | SOMANY |
| | | FLORA STEELS (XEN) | FLORA STEELS (XEN) |
| | | DEXOVIT INTERNATIONAL PVT LTD | DEXOVIT INTERNATIONAL PVT LTD |
| | | DOLPHY INDIA PVT LTD | DOLPHY INDIA PVT LTD |
| | | TOPSAN (MACHINOO TECH) | TOPSAN (MACHINOO TECH) |
| | | SUNHEARRT CERAMIK | SUNHEARRT CERAMIK |
| | | CERA | CERA |
| | | HINDWARE/QUEO | HINDWARE/QUEO |
| 85 | PVC TOILET SEAT COVERS | PARRYWARE | PARRYWARE |
| | | PARRYWARE | PARRYWARE |

| APPENDIX 'B' OF PARTICULAR SPECIFICATIONS (CONTD.....) | | | |
|--|--|-------------------------------------|-------------------------------------|
| Sr No. | Products | Name of Firm/ Grand Group 'X' | Name of Firm/ Grand Group 'Y' |
| | | KAJARIA | KAJARIA |
| | | NEYCER | NEYCER |
| | | PRAYAG | PRAYAG |
| | | BLUE STAR (SILVER SHINE) | BLUE STAR (SILVER SHINE) |
| | | JAQUAR | JAQUAR |
| | | AJANTA SANITARYWARE (MILLENNIUM) | AJANTA SANITARYWARE (MILLENNIUM) |
| 86 | GUN METAL GLOBE/ GATE VALVE/ ANGLE VALVE | LEADER | LEADER |
| | | ZOLOTO | ZOLOTO |
| | | KIRLOSKAR | KIRLOSKAR |
| | | FLORA STEELS (XEN) | FLORA STEELS (XEN) |
| | | DHAWAN SANITARY UDYOG (PRIMA) | DHAWAN SANITARY UDYOG (PRIMA) |
| | | | PLASTOCRAFT SANITARY (I) PVT LTD |
| 87 | CI/BRASS BALL COCKS (FLOAT VALVES) | LEADER | LEADER |
| | | PRAYAG | PRAYAG |
| | | DHAWAN SANITARY UDYOG (PRIMA) | DHAWAN SANITARY UDYOG (PRIMA) |
| | | JAYNAM | JAYNAM |
| | | ZOLOTO | ZOLOTO |
| | | | PLASTOCRAFT SANITARY (I) PVT LTD |
| 88 | MIRROR/MIRROR CABINET | TOPSAN (MACHINOO TECH) | TOPSAN (MACHINOO TECH) |
| | | CERA | CERA |
| 89 | STAINLESS STEEL KITCHEN SINKS (ISI MARKED), STAINLESS STEEL PLATE RACKS & DRAINING BOARD | NIRALI | NIRALI |
| | | NEELKANTH | NEELKANTH |
| | | CERA | CERA |
| | | PRAYAG | PRAYAG |
| | | PARRYWARE | PARRYWARE |
| | | BLUE STAR (SILVER SHINE) | BLUE STAR (SILVER SHINE) |
| | | MILLENNIUM | MILLENNIUM |
| | | FLORA STEELS (XEN) | FLORA STEELS (XEN) |
| | | JAYNAM | JAYNAM |
| | | TOPSAN (MACHINOO TECH) | TOPSAN (MACHINOO TECH) |
| | | SHRI NAVKAR METALS LTD | SHRI NAVKAR METALS LTD |
| | | PLASTOCRAFT SANITARY (I) PVT LTD | PLASTOCRAFT SANITARY (I) PVT LTD |
| | | DHAWAN SANITARY UDYOG (PRIMA) | DHAWAN SANITARY UDYOG (PRIMA) |
| SECTION-6 : BUILDING HARDWARE/JOINERY | | | |
| 90 | BUILDING HARDWARES | ALLUMINIUM UDYOG | ALLUMINIUM UDYOG |
| | | ARGENT INDUSTRIES (ARGENT) | ARGENT INDUSTRIES (ARGENT) |
| 91 | STEEL WARDROBES/CUPBOARDS/LOCKERS | GODREJ INTERIO | GODREJ INTERIO |
| | | DURIAN | DURIAN |
| | | NEELKAMAL | NEELKAMAL |
| 92 | ALUMINIUM SECTION FOR FRAMES & DOOR/WINDOW/ VENTIALATOR SHUTTER | HINDALCO | HINDALCO |
| | | JINDAL | JINDAL |
| | | FENESTA | FENESTA |
| | | AIS | AIS |
| | | NALCO | NALCO |
| | | PROFINE INDIA (KOMMERLING ALUPURE) | PROFINE INDIA (KOMMERLING ALUPURE) |
| | | CHANDNI INDUSTRIES,(CI) | CHANDNI INDUSTRIES,(CI) |
| | | HALCO | HALCO |
| | | BHAGWATI SAI | BHAGWATI SAI |
| | | DODIA ENTERPRISES | DODIA ENTERPRISES |
| ELCTRICAL FINISHES | | | |
| SECTION-1 : SWITCHES/SOCKETS | | | |
| 93 | MODULAR SWITCHES & SOCKETS | HAVELLS | HAVELLS |
| | | PANASONIC | PANASONIC |
| | | GM MODULAR | GM MODULAR |
| | | LEGRAND | LEGRAND |
| | | HONEYWELL | HONEYWELL |
| | | POLYCAB | POLYCAB |
| | | LARSEN & TUBRO | LARSEN & TUBRO |
| | | V-GUARD | V-GUARD |
| | | HPL | HPL |
| | | GOLD MEDAL | GOLD MEDAL |
| | | ORIENT ELECTRIC | ORIENT ELECTRIC |
| | | BENLO/BENTECH | BENLO/BENTECH |
| | | | PRESSFIT PIPES & PROFILES |

| APPENDIX 'B' OF PARTICULAR SPECIFICATIONS (CONTD.....) | | | |
|--|---|----------------------------------|----------------------------------|
| Sr No. | Products | Name of Firm/ Grand Group 'X' | Name of Firm/ Grand Group 'Y' |
| SECTION-2 : FANS | | | |
| 94 | CEILING FANS (5 STAR RATING) | KHAITAN | KHAITAN |
| | | ORIENT ELECTRIC | ORIENT ELECTRIC |
| | | CROMPTON GREAVES | CROMPTON GREAVES |
| | | HAVELLS | HAVELLS |
| | | USHA | USHA |
| | | BAJAJ | BAJAJ |
| | | POLAR | POLAR |
| | | V GUARD | V GUARD |
| | | PANASONIC | PANASONIC |
| | | GOLD MEDAL | GOLD MEDAL |
| | | HALONIX | HALONIX |
| | | CGPISL (CG POWER & IND SOLN) | CGPISL (CG POWER & IND SOLN) |
| | | LUKER | LUKER |
| | | ATOMBERG TECH PVT LTD | ATOMBERG TECH PVT LTD |
| | | POLYCAB | POLYCAB |
| | | VENUS | VENUS |
| 95 | EXHAUST FAN / WALL MOUNTED FAN / AIR CIRCULATOR | CROMPTON GREAVES | CROMPTON GREAVES |
| | | KHAITAN | KHAITAN |
| | | USHA | USHA |
| | | BAJAJ | BAJAJ |
| | | ALMONARD | ALMONARD |
| | | PANASONIC | PANASONIC |
| | | HAVELLS | HAVELLS |
| | | V-GUARD | V-GUARD |
| | | GOLD MEDAL | GOLD MEDAL |
| | | HALONIX | HALONIX |
| | | CGPISL (CG POWER & IND SOLN) | CGPISL (CG POWER & IND SOLN) |
| | | LUKER | LUKER |
| | | ATOMBERG TECH PVT LTD | ATOMBERG TECH PVT LTD |
| | | POLYCAB | POLYCAB |
| | | ORIENT ELECTRIC | ORIENT ELECTRIC |
| | | 96 | AIR CURTAINS |
| CROMPTON GRAVES | CROMPTON GRAVES | | |
| DOLPHY INDIA PVT LTD | DOLPHY INDIA PVT LTD | | |
| AIRCON | AIRCON | | |
| | | | |
| SECTION-3 : LIGHTS AND LIGHT FITTINGS | | | |
| 97 | SOLAR STREET LIGHT FITTINGS (LED) | PHILLIPS | PHILLIPS |
| | | ORIENT ELECTRIC | ORIENT ELECTRIC |
| | | SURYA ROSHNI | SURYA ROSHNI |
| | | BHEL | BHEL |
| | | TATA | TATA |
| | | CROMPTON GREAVES | CROMPTON GREAVES |
| | | HAVELLS | HAVELLS |
| | | BAJAJ | BAJAJ |
| | | JILCO | JILCO |
| | | BENLO/BENTECH | BENLO/BENTECH |
| | | GOLD MEDAL | GOLD MEDAL |
| | | HPL | HPL |
| | | LUKER | LUKER |
| | | HALONIX | HALONIX |
| | | | |
| | | 98 | STREET LIGHT FITTINGS (LED) |
| WIPRO | WIPRO | | |
| JAQUAR | JAQUAR | | |
| BAJAJ | BAJAJ | | |
| CROMPTON GREAVES | CROMPTON GREAVES | | |
| C & S ELECTRIC (C&S) | C & S ELECTRIC (C&S) | | |
| HAVELLS | HAVELLS | | |
| ORIENT ELECTRIC | ORIENT ELECTRIC | | |
| POLYCAB | POLYCAB | | |
| SURYA ROSHNI | SURYA ROSHNI | | |
| PANASONIC | PANASONIC | | |
| LUKER | LUKER | | |
| GOLD MEDAL | GOLD MEDAL | | |
| PRIMA NX (PRIMA GLOW IND) | PRIMA NX (PRIMA GLOW IND) | | |
| HPI | HP | | |

Signature of Contractor

For Accepting Officer

| APPENDIX 'B' OF PARTICULAR SPECIFICATIONS (CONTD.....) | | | |
|---|--|-------------------------------|-----------------------------------|
| Sr No. | Products | Name of Firm/ Grand Group 'X' | Name of Firm/ Grand Group 'Y' |
| | | GBH ELECTRICALS PVT LTD | GBH ELECTRICALS PVT LTD |
| | | HALONIX | HALONIX |
| | | BENLO/BENTECH | BENLO/BENTECH |
| | | | HQ LAMPS MANUFACTURING CO PVT |
| 99 | LED LIGHT FITTING INCLUDING AVIATION LIGHTS, UNDER WATER LIGHTS, FOOT LIGHTS, WALK OVER LIGHTS, FLOOD LIGHTS, PANEL LIGHTS, DOWN LIGHTS, BOLLARDS, FAÇADE LIGHTS, LANDSCAPE LIGHTS | PHILLIPS | PHILLIPS |
| | | OSRAM | OSRAM |
| | | WIPRO | WIPRO |
| | | BAJAJ | BAJAJ |
| | | CROMPTON GREAVES | CROMPTON GREAVES |
| | | ORIENT ELECTRIC | ORIENT ELECTRIC |
| | | HAVELLS | HAVELLS |
| | | LUKER | LUKER |
| | | JAQUAR | JAQUAR |
| | | SURYA ROSHNI | SURYA ROSHNI |
| | | GOLD MEDAL | GOLD MEDAL |
| | | JILCO | JILCO |
| | | OREGENAL | OREGENAL |
| | | POLYCAB | POLYCAB |
| | | EVEREADY | EVEREADY |
| | | HPL | HPL |
| | | PRIMA NX (PRIMA GLOW IND) | PRIMA NX (PRIMA GLOW IND) |
| | | HALONIX | HALONIX |
| | | MCB ELECTRO CONTROLS | MCB ELECTRO CONTROLS |
| | | GBH ELECTRICALS PVT LTD | GBH ELECTRICALS PVT LTD |
| | | ASCENTECH | ASCENTECH |
| | | KCSAD LIGHT (I) PVT LTD | KCSAD LIGHT (I) PVT LTD |
| | | SHAKTI FIXTURES PVT LTD | SHAKTI FIXTURES PVT LTD |
| | | BENLO/BENTECH | BENLO/BENTECH |
| | | | HQ LAMPS MANUFACTURING CO PVT LTD |
| 100 | FLAME PROOF FITTINGS (ISI) MARKED | CROMPTON GREAVES | CROMPTON GREAVES |
| | | ORIENT ELECTRIC | ORIENT ELECTRIC |
| | | SUDHIR SWITCHGEARS | SUDHIR SWITCHGEARS |
| | | BALIGA | BALIGA |
| | | PHILIPS | PHILIPS |
| | | BAJAJ | BAJAJ |
| 101 | HIGH MAST | BAJAJ | BAJAJ |
| | | ORIENT ELECTRIC | ORIENT ELECTRIC |
| | | PHILIPS | PHILIPS |
| | | SURYA ROSHNI | SURYA ROSHNI |
| | | COMPTON GREAVES | COMPTON GREAVES |
| | | HPL | HPL |
| | | JILCO | JILCO |
| | | HAVELLS | HAVELLS |
| | | | UTKARSH INDIA LTD |
| 102 | OT SHADOW LESS LIGHT | PHILIPS | PHILIPS |
| | | CROMPTON GREAVES | CROMPTON GREAVES |
| | | WIPRO | WIPRO |
| | | JOLLY TECHNOCRATS | JOLLY TECHNOCRATS |
| SECTION-4 : STANDALONE AIR CONDITIONERS, GEYSERS | | | |
| 103 | WINDOW TYPE AIR CONDITIONER | BLUESTAR | BLUESTAR |
| | | VOLTAS | VOLTAS |
| | | HITACHI | HITACHI |
| | | CARRIER | CARRIER |
| | | O-GENERAL | O-GENERAL |
| | | DAIKIN | DAIKIN |
| 104 | GEYSER/WATER HEATER | CGPISL (CG POWER & IND SOLN) | CGPISL (CG POWER & IND SOLN) |
| | | CROMPTON GREAVES | CROMPTON GREAVES |
| | | HAVELLS | HAVELLS |
| | | GOLD MEDAL | GOLD MEDAL |
| | | ORIENT ELECTRIC | ORIENT ELECTRIC |
| | | CERA | CERA |
| | | LUKER | LUKER |
| CE JZ APPROVED LIST | | | |
| B/R ITEM | | | |
| 105 | BUILDERS HARDWARE | | |

| APPENDIX 'B' OF PARTICULAR SPECIFICATIONS (CONTD.....) | | | |
|--|---|--|--|
| Sr No. | Products | Name of Firm/ Grand Group 'X' | Name of Firm/ Grand Group 'Y' |
| | (A) HYDRAULIC DOOR CLOSER | UNIVERSAL | UNIVERSAL |
| | | DYANA | DYANA |
| | | EVEREST | EVEREST |
| | | GODREJ | GODREJ |
| | | DROMA | DROMA |
| | | HARDWYN | HARDWYN |
| | | EVERITE | EVERITE |
| | (B) FLOOR SPRING | PRABHAT DOOR KING | |
| | | EVEREST | EVEREST |
| | | UNIVERSAL | UNIVERSAL |
| | (C) ALUMINIUM MONGERY (ISI MARKED) | GODREJ | GODREJ |
| | | JINDAL | JINDAL |
| | | ALUTRAC | ALUTRAC |
| | | DORMA INDIA PVT LTD | DORMA INDIA PVT LTD |
| | | CROWN | CROWN |
| | | ALUMINIUM UDYOG (BRAND - GLOBAL) | ALUMINIUM UDYOG (BRAND - GLOBAL) |
| | (D) IRON MONGERY (ISI MARKED) | CLASSIC | CLASSIC |
| | | CROWN | CROWN |
| | | HETTICH | HETTICH |
| | | OZONE | OZONE |
| | | PRAJAPAT | PRAJAPAT |
| | (E) LOCKS | OXFORD | OXFORD |
| | | GODREJ | GODREJ |
| | | HARRISON | HARRISON |
| | | LINK | LINK |
| | (F) DOOR CONTROL, AUTOMATIC DOOR, GLASS FITTINGS, ENTRY SYSTEMS & MOVABLE WALL | JOHNSON | JOHNSON |
| | | DORMA INDIA PVT LTD | DORMA INDIA PVT LTD |
| | | OZONE | OZONE |
| | (G) PVC DOORS (PRELAM DOORS, MOULDED DOORS & PVC INTERNAL FLUSH DOORS) & PVC WINDOWS | RAJSHRI PLASTIWOOD | RAJSHRI PLASTIWOOD |
| | (H) PVC WALL LINING, FALSE CEILING & PVC PARTITION | | RAJSHRI PLASTIWOOD |
| | (J) PVC KITCHEN CABINETS/ CUP BOARDS | RAJSHRI PLASTIWOOD | RAJSHRI PLASTIWOOD |
| 106 | SECTION 4 : ROOF COVERINGS, PVC , GALVANIZED SHEETS, PANELLING, PARTITIONS, HUTS & BATHROOMS | | |
| | (A) CGI SHEETS : | TATA | TATA |
| | | RASTRIYA ISPAT | RASTRIYA ISPAT |
| | | SAIL | SAIL |
| | | JINDAL | JINDAL |
| | | NIPPON DENRO | NIPPON DENRO |
| | | INDIAN STEEL CORPORATION LTD (ULTRATUFF) | INDIAN STEEL CORPORATION LTD (ULTRATUFF) |
| | (B) GALVANISED COLOUR/POWDER COATED STEEL WINDOWS, DOORS, PARTITION & SHEETS | NCL ALLTEK & SECCOLOR LTD | |
| | | TRISUL INDUSTRIES, MEERUT | |
| | | ASHWANI & SONS, GHAZIABAD | |
| | | KAMDHENU STEEL LTD | |
| | (C) ALUMINIUM COMPOSITE PANEL | ALSTONE INTERNATIONAL | ALSTONE INTERNATIONAL |
| | | VIVA | VIVA |
| | | ARMSTRONG | ARMSTRONG |
| | | ALUCOBOND | ALUCOBOND |
| | | ALUMINIUM UDYOG | ALUMINIUM UDYOG |
| | (D) CALCIUM SILICATE PARTITION | RAMCO INDUSTRIES LTD | |
| | | AEROLITE | |
| | | PROMAT | |

| APPENDIX 'B' OF PARTICULAR SPECIFICATIONS (CONTD.....) | | | |
|---|---|---|---|
| Sr No. | Products | Name of Firm/ Grand Group 'X' | Name of Firm/ Grand Group 'Y' |
| | (E) FRP/GRP CORRUGATED AND FLAT SHEETS, SKY LIGHTS | EPP COMPOSITE PVT LTD | EPP COMPOSITE PVT LTD |
| | (F) PREFAB/PORTABLE TOILET BLOCKS, SECURITY CABINS, SITE OFFICE & SHEDS | EPP COMPOSITES PVT LTD | EPP COMPOSITES PVT LTD |
| | | SINTEX | SINTEX |
| | | MACRO INTERPRISES | MACRO INTERPRISES |
| | (G) PRE FABRICATED PVC HUT & BATHROOMS | KUMAR ARCH TECH PVT LTD | KUMAR ARCH TECH PVT LTD |
| | | SINTEX | SINTEX |
| | (H) FIBRE CEMENT BOARD | EVEREST | EVEREST |
| | | | VISAKA INDUSTRIES LTD (BRAND- V BOARD) |
| | (J) ZINCALUME/COLOR BOND (HIGH TENSILE PROFILE SHEETS FOR ROOF & WALL), SMARTDEK 51 (STRUCTURAL) DECKING GALVANIZED STEEL SHEET), PE BITE (COMPONENTS MADE OF PREMIUM QUALITY STEEL/GALVANIZED ROLL FRAMES), LYSAGHT SUBTLE, SQUARE FLUTED STEEL CLADDING | TATA BLUSCOPE STEEL LTD | TATA BLUSCOPE STEEL LTD |
| | | JSW STEEL COATED PRODUCT LTD | JSW STEEL COATED PRODUCT LTD |
| | | JINDAL | JINDAL |
| 107 | (K) COLOUR COATED PROFILE / TRAPEZOIDAL ROOF SHEETS | INDIAN STEEL CORPORATION (ULTRASHINE) | INDIAN STEEL CORPORATION (ULTRASHINE) |
| | (L) ROOFING PRODUCTS & ACCESSORIES | EVEREST INDUSTRIES LTD | EVEREST INDUSTRIES LTD |
| | (M) TOP GUARD BRAND ROOFING / CLADDING SHEETS/PANELS (PPGI & PPGL), PURLIN & ACCESSORIES | | M/S METCO ROOF PRIVATE LIMITED |
| | SECTION 10 : WATER SUPPLY, PLUMBING, DRAINS AND SANITARY FITTINGS | | |
| | (A) DUCTILE IRON MANHOLE COVERS, FRAMES AND GRATING AS PER EN-124 | JAYASWAL NECO INDUSTRIES LIMITED (BRAND NECO) | JAYASWAL NECO INDUSTRIES LIMITED (BRAND NECO) |
| | | ELECTRO STEEL | ELECTRO STEEL |
| | (B) AIR RELEASE VALVES | KIRLOSKAR | KIRLOSKAR |
| | | L&T | L&T |
| | | JINDAL | JINDAL |
| | | TATA | TATA |
| | | ZOLOTO | ZOLOTO |
| | | BIR | BIR |
| | | VENUS | VENUS |
| | | SANT | SANT |
| | (C) FOOT VALVES | KIRLOSKAR | KIRLOSKAR |
| | | L&T | L&T |
| | | JINDAL | JINDAL |
| | | TATA | TATA |
| | | ZOLOTO | ZOLOTO |
| | | VENUS | VENUS |
| | | BIR | BIR |
| | | | LEADER |
| | | | AUDCO |
| | | | NORMEX VALVES PVT LTD, PUNE |
| | (D) WATER METER | DASHMESH | DASHMESH |
| | | CAPITAL | CAPITAL |
| | | ZOLOTO | ZOLOTO |
| | | MECO | MECO |

| APPENDIX 'B' OF PARTICULAR SPECIFICATIONS (CONTD.....) | | | |
|---|---|---|---|
| Sr No. | Products | Name of Firm/ Grand Group 'X' | Name of Firm/ Grand Group 'Y' |
| | | | DHAWAN SANITARY UDYOG (PRIMA) |
| | (E) PVC WATER TANKS | SINTEX | SINTEX |
| | | POLYCON, JAIPUR | POLYCON, JAIPUR |
| | | ROTEX | ROTEX |
| | | ASHISH PLAST | ASHISH PLAST |
| | | | INFRA |
| | | | GANGA |
| | | | KAVERI |
| | | | JS POLYPLAST |
| | | | ERGEN PLASTIC INDUSTRIES, JODHPUR |
| | (F) GRP SECTIONAL /ROTATIONAL MOULDING WATER STORAGE TANKS | SINTEX | SINTEX |
| | | | MEHAAI POLYMERS |
| | (G) CENTRIFUGAL PUMP | KIRLOSKAR | KIRLOSKAR |
| | | CROMPTON GREAVES | CROMPTON GREAVES |
| | | KSB | KSB |
| | | MATHER & PLATT | MATHER & PLATT |
| | | BEACON | BEACON |
| | | WASP | WASP |
| | (H) SUBMERSIBLE PUMP | KIRLOSKAR | KIRLOSKAR |
| | | CROMPTON GREAVES | CROMPTON GREAVES |
| | | KSB | KSB |
| | | MATHER & PLATT | MATHER & PLATT |
| | | WASP | WASP |
| | | | MBH PUMPS (GUJARAT) PVT LTD (MBH) |
| | (J) FLOAT VALVES/ BALLCOCKS, COCKROACH TRAPS, GLASS SHELFs | PRAYAG POLYMER PVT LTD | PRAYAG POLYMER PVT LTD |
| | | SUPREME | SUPREME |
| | | WILSON | WILSON |
| | (K) VERTICLE TURBINE PUMPS | KIRLOSKAR | KIRLOSKAR |
| | | KSB | KSB |
| | | MATHER & PLATT | MATHER & PLATT |
| | | WASP | WASP |
| | (L) NON CLOG SEWAGE SUBMERSIBLE PUMPS | KIRLOSKER | KIRLOSKER |
| | | KSB | KSB |
| | | MATHER & PLATT | MATHER & PLATT |
| | | WASP | WASP |
| | | | MBH PUMPS (GUJARAT) PVT LTD |
| | (M) PUMPS FOR FIRE FIGHTING | KIRLOSKAR | KIRLOSKAR |
| | | MATHER & PLATT | MATHER & PLATT |
| | | ABB | ABB |
| | | AREVA | AREVA |
| | | SIEMENS | SIEMENS |
| | | CROMPTON MOTOR | CROMPTON MOTOR |
| | | BHARAT BIJLEE | BHARAT BIJLEE |
| 108 | FURNITURE | | |
| | (A) MODULAR OFFICE FURNITURE SYSTEM, CHAIR & OTHER FURNITURE RELATED TO OFFICE PURPOSE (INCLUDING STEEL FUR). | GODREJ INTERIO | GODREJ INTERIO |
| | | DURIAN | DURIAN |
| | | GEEKAN | GEEKAN |
| | | WIPRO | WIPRO |
| | | NEEMAN SEATING SOLUTION | NEEMAN SEATING SOLUTION |
| | | | AMARDEEP DESIGN INDIA (P) LTD |
| 109 | INTERLOCKING PAVING TILES/PAVER BLOCK (IS 15658 : 2021) | SWASTIK TILES | SWASTIK TILES |
| | | MEHTAB TILES | MEHTAB TILES |
| | | LUCKY CEMENT BLOCK WORKS | LUCKY CEMENT BLOCK WORKS |
| | | MAYUR DYNAMIC TILES & PAVERS | MAYUR DYNAMIC TILES & PAVERS |
| | | MAHESH TILES & IRON IND | MAHESH TILES & IRON IND |
| 110 | PLUMBING PIPE SUPPORT SOLUTIONS | SHAIMI ENTERPRISE | SHAIMI ENTERPRISE |
| 111 | SYNTHETIC ATHLETIC TRACK | DESAN INTERNATIONAL SPORTS INFRA DEVELOPERS | DESAN INTERNATIONAL SPORTS INFRA DEVELOPERS |
| 112 | KERB STONE (MINIMUM : M 30) | MAYUR DYNAMIC TILES & PAVERS | MAYUR DYNAMIC TILES & PAVERS |

| APPENDIX 'B' OF PARTICULAR SPECIFICATIONS (CONTD.....) | | | |
|---|--|---|---|
| Sr No. | Products | Name of Firm/ Grand Group 'X' | Name of Firm/ Grand Group 'Y' |
| | | SWASTIK TILES | SWASTIK TILES |
| 113 | TERRAZZO TILES (IS 1237 : 2012) | SWASTIK TILES | SWASTIK TILES |
| 114 | PCC BLOCKS | MAYUR DYNAMIC TILES & PAVERS | MAYUR DYNAMIC TILES & PAVERS |
| 115 | COOL ROOF TILES | MAYUR DYNAMIC TILES & PAVERS | MAYUR DYNAMIC TILES & PAVERS |
| 116 | PRECAST CABLE COVER (IS 5820 : 1970) | LUCKY CEMENT BLOCK WORKS | LUCKY CEMENT BLOCK WORKS |
| | | MEHTAB TILES | MEHTAB TILES |
| 117 | PLAIN CEMENT CONCRETE TILE (IS 1237 : 1980) | MEHTAB TILES | MEHTAB TILES |
| 118 | AUTOCLAVED AERATED CONCRETE (AAC) BLOCKS IS 2185 : PART 3 : 1984 | ORILITE | ORILITE |
| 119 | AAC BLOCK MORTAR | ORILITE | ORILITE |
| E/M ITEMS | | | |
| 120 | POLE - PRE-STRESSED CONCRETE | M/S CEMENT FABRIC INDIA, JODHPUR | M/S CEMENT FABRIC INDIA, JODHPUR |
| | | M/S HINDUSTAN PRESTRESSED CONCRETE, FARIDABAD | M/S HINDUSTAN PRESTRESSED CONCRETE, FARIDABAD |
| | | M/S INDIAN PCC POLES | M/S INDIAN PCC POLES |
| | | MA PRE-STRESSED WORKS JODHPUR | MA PRE-STRESSED WORKS JODHPUR |
| | | PRE-STRESSED CONCRETE LTD CHANDIGARH, | PRE-STRESSED CONCRETE LTD CHANDIGARH, |
| | | M/S SANKHLA UDYOG JODHPUR | M/S SANKHLA UDYOG JODHPUR |
| | | PRECTO, CHANDIGARH | PRECTO, CHANDIGARH |
| | | BETON CONCRETE PRODUCT, AURANGABAD | BETON CONCRETE PRODUCT, AURANGABAD |
| 121 | POLE - STEEL TUBLAR | | CEMENT FABRIC INDIA LTD CHANDIGARH PUNJAB |
| | | INDIA TUBE AND CO | INDIA TUBE AND CO |
| | | M/S JINDAL STEEL PRODUCTS, KANPUR, | M/S JINDAL STEEL PRODUCTS, KANPUR, |
| | | THE NATIONAL TUBING COMPANY, KANPUR | THE NATIONAL TUBING COMPANY, KANPUR |
| | | BHARAT CONDUIT AND STEEL WKS KANPUR | BHARAT CONDUIT AND STEEL WKS KANPUR |
| | | INDIA ELECTRIC POLES MFG CO, MAHARASHTRA | INDIA ELECTRIC POLES MFG CO, MAHARASHTRA |
| | | QUALITY STEEL PRODUCTS LTD, KANPUR | QUALITY STEEL PRODUCTS LTD, KANPUR |
| | | BOMBAY TUBES | BOMBAY TUBES |
| | | M/S ANIL ENGINEERING CORPORATION KANPUR, | M/S ANIL ENGINEERING CORPORATION KANPUR, |
| | | | M/S, BHARAT STEEL TUBES, HARYANA |
| 122 | INSULATORS HT/LT DISC/PIN/SHACKLE/LOOP/STRING TYPE | | M/S SOHANLAL, GAZIABAD |
| | | | SWASTIK PIPE LTD |
| | | BHEL | BHEL |
| | | JAYSHREE | JAYSHREE |
| | | JAIPURA BROTHERS | JAIPURA BROTHERS |
| | | PACTIL | PACTIL |
| 123 | HT/LT INSULATOR / COMPOSITE INSULATORS | MYSORE | MYSORE |
| | | | RASHTRIYA ELECTRICALS |
| | | JAIPURA BROTHERS | JAIPURA BROTHERS |
| | | JAISHREE | JAISHREE |
| 124 | ARRESTERS LIGHTENING LT / HT | BHEL | BHEL |
| | | | BHEL |
| | | CROMPTON & GREAVES | CROMPTON & GREAVES |
| | | AREVA T&D | AREVA T&D |
| | | ATLAS | ATLAS |
| | | JAIPURIA BROTHERS | JAIPURIA BROTHERS |
| | | OBLUM | OBLUM |
| | | GEC-ELPRO | GEC-ELPRO |

| APPENDIX 'B' OF PARTICULAR SPECIFICATIONS (CONTD.....) | | | |
|--|---|--|---|
| Sr No. | Products | Name of Firm/ Grand Group 'X' | Name of Firm/ Grand Group 'Y' |
| | | ALSTOM | ALSTOM |
| | | | RASHTRIYA |
| 125 | LT SWITCH BOARD PANEL, LT PANEL, FEEDER PILLAR BOX, AMF PANEL, APFC PANEL (CPRI TESTED) | C & S ELECTRIC LIMITED (C&S) | C & S ELECTRIC LIMITED (C&S) |
| | | UNIVERSAL SWITCH GEAR CONTROL | UNIVERSAL SWITCH GEAR CONTROL |
| | | POWERTECH SWITCHGEARS (I) PVT LTD (POWERTECH) | POWERTECH SWITCHGEARS (I) PVT LTD (POWERTECH) |
| | | RAJEEV ASSOCIATES | RAJEEV ASSOCIATES |
| | | HENSEL ELECTRIC INDIA PVT LTD | HENSEL ELECTRIC INDIA PVT LTD |
| | | OSIAN SWITCHGEAR AND CONTROL | OSIAN SWITCHGEAR AND CONTROL |
| | | SHALABH (INDIA) INDUSTRIES | SHALABH (INDIA) INDUSTRIES |
| | | MAK ENGINEERS INC | MAK ENGINEERS INC |
| | | BHANDARI ENGINEERING CO.PVT.LTD, BATHINDA | BHANDARI ENGINEERING CO.PVT.LTD, BATHINDA |
| | | ELECTRO CONTROL SYSTEMS INDIA PVT LTD | ELECTRO CONTROL SYSTEMS INDIA PVT LTD |
| | | INDIAN TRANSFORMERS & ELECTRICALS PVT LTD | INDIAN TRANSFORMERS & ELECTRICALS PVT LTD |
| | | POWER SYSTEM & CONTROL | POWER SYSTEM & CONTROL |
| | | HPL ELECTRIC & POWER LTD. | HPL ELECTRIC & POWER LTD. |
| | | NOVATEUR ELECTRICALS & DIGITAL SYSTEMS PVT LTD (INDOASIAN) | NOVATEUR ELECTRICALS & DIGITAL SYSTEMS PVT LTD (INDOASIAN) |
| | | HANSON ENTERPRISES PVT LTD (HANSON) | HANSON ENTERPRISES PVT LTD (HANSON) |
| | | POWERWARE | POWERWARE |
| | | ESS ESS KAY | ESS ESS KAY |
| | | JOHN ELECT CO PVT LTD (BRAND : JOHNS) | JOHN ELECT CO PVT LTD (BRAND : JOHNS) |
| | | BCH ELECTRIC LIMITED | BCH ELECTRIC LIMITED |
| | | YASHI ELECTRICALS | YASHI ELECTRICALS |
| | | EXPERT ENGINEERS | EXPERT ENGINEERS |
| | | C S ENTERPRISES | C S ENTERPRISES |
| | | | SOMBANSI ENVIOR ENGG PVT LTD (SEEPL) |
| | | | STANDARD |
| | | | UPS INTERNATIONAL |
| | | | SHIV SHAKTI ENGINEERS |
| | | | ENGINEERS & ENGINEERS (ELECTRICALS) PVT LTD, JAIPUR (ENGINEERS & ENGINEERS) |
| | | | RAMP TECHNOMATION PVT LTD (RAMP) (ONLY FOR CE (AF) GZ) |
| | | | DYNAMIC CONTROL SYSTEMS, AHMEDABAD (BRAND - DYNAMIC) |
| | | | NEPTUNE |
| 126 | GEYSER | CROMPTON GREAVES | CROMPTON GREAVES |
| | | RACOLD | RACOLD |
| | | V GUARD | V GUARD |
| | | JAQUAR & COMPANY PVT LTD | JAQUAR & COMPANY PVT LTD |
| | | BAJAJ | BAJAJ |
| | | USHA | USHA |
| | | HAVELLS | HAVELLS |
| | | VENUS | VENUS |
| | | | MARC ENTERPRISES PVT LTD (MARC) |
| 127 | UG LT XLPE , PVC INSULATED ALUMINUM CONDCTOR FOR 1100 VOLTS | CABLE CORPORATION OF INDIA, MUMBAI | CABLE CORPORATION OF INDIA, MUMBAI |
| | | UNIVERSAL CABLES LTD, SATNA | UNIVERSAL CABLES LTD, SATNA |
| | | ASIAN CABLES (RPG) | ASIAN CABLES (RPG) |
| | | GLOSTER | GLOSTER |
| | | POLYCAB WIRES PVT LTD (POLY CAB) | POLYCAB WIRES PVT LTD (POLY CAB) |
| | | RPG CABLES | RPG CABLES |
| | | FINOLEX | FINOLEX |
| | | VIN POWER | VIN POWER |
| | | PLAZA | PLAZA |

Signature of Contractor

For Accepting Officer

| APPENDIX 'B' OF PARTICULAR SPECIFICATIONS (CONTD.....) | | | |
|---|--|---|---|
| Sr No. | Products | Name of Firm/ Grand Group 'X' | Name of Firm/ Grand Group 'Y' |
| | | HAVELLS INDIA LTD | HAVELLS INDIA LTD |
| | | | VIN POWER ELECTRO PRODUCT |
| 128 | PVC CASING CAPING (ISI MARKED) | PRESTO PLAST | PRESTO PLAST |
| | | FINOLEX | FINOLEX |
| | | PRECISION | PRECISION |
| | | MODI | MODI |
| | | SUPREME | SUPREME |
| | | POLYCAB WIRES PVT LTD (POLY CAB) | POLYCAB WIRES PVT LTD (POLY CAB) |
| | | AREVA ABB | AREVA ABB |
| | | SIEMENS | SIEMENS |
| | | BHAGYALAXMI PLASTIC INDUSTRIES (BLP) | BHAGYALAXMI PLASTIC INDUSTRIES (BLP) |
| | | PRINCE | PRINCE |
| | | | KALINGA |
| | | | AKG |
| | | | RICHA CABLE PVT LTD (RICHA) |
| 129 | AMMETER / VOLTMETER / POWER FACTOR / FREQUENCY METERS | AUTOMATIC ELECTRICAL | AUTOMATIC ELECTRICAL |
| | | L&T | L&T |
| | | MECO | MECO |
| | | BHEL | BHEL |
| | | ABB | ABB |
| | | SIEMENS | SIEMENS |
| | | HPL ELECTRIC & POWER LTD. | HPL ELECTRIC & POWER LTD. |
| | | IMP | IMP |
| | | HAVELLS INDIA LTD | HAVELLS INDIA LTD |
| | | | CONZERV |
| 130 | DIGITAL METERS WITH BUILT IN SELECTOR SWITCHES FOR VOLTMETER, AMMETER, FREQUENCY, ENERGY, KW, POWER ANALYSER | LARSEN & TUBRO | LARSEN & TUBRO |
| | | AE | AE |
| | | L&T(RISHAB) | L&T(RISHAB) |
| | | SECURE METER | SECURE METER |
| | | TRINITY | TRINITY |
| | | AUTOMATIC ELECTRICAL | AUTOMATIC ELECTRICAL |
| | | HPL SOCOMEC | HPL SOCOMEC |
| | | ENERCON | ENERCON |
| | | HAVELLS | HAVELLS |
| | | CONTROL AND SWITCHGEAR | CONTROL AND SWITCHGEAR |
| | | C&CMECO | C&CMECO |
| | | HAGER | HAGER |
| | | IMP | IMP |
| | | | CONSERV |
| | | | HPL |
| 131 | ELECTRONIC ENERGY METERS | | |
| (a) | SMART STATIC ENERGY METER (IS-16444 : 2015) | SECURE METER | SECURE METER |
| | | HPL Electric & Power Ltd. | HPL Electric & Power Ltd. |
| | | BENITEC INDIA LIMITED (BENITEC/BENLO) | BENITEC INDIA LIMITED (BENITEC/BENLO) |
| (b) | Prepayment Static Energy Meter (IS 15884 : 2015) | SECURE METERS | SECURE METERS |
| | | HPL Electric & Power Ltd. | HPL Electric & Power Ltd. |
| (c) | Static Energy Meter (IS13779 : 2020) | SECURE METERS | SECURE METERS |
| | | Trinity Energy Systems Pvt Ltd | Trinity Energy Systems Pvt Ltd |
| | | Larsen and Toubro | Larsen and Toubro |
| | | GE | GE |
| | | AREVA | AREVA |
| | | HPL Electric & Power Ltd. | HPL Electric & Power Ltd. |
| | | BENITEC INDIA LIMITED (BENITEC/BENLO) | BENITEC INDIA LIMITED (BENITEC/BENLO) |
| | | HAVELLS | HAVELLS |
| | | Jaipuria meter and equipments (maxcell) | Jaipuria meter and equipments (maxcell) |
| | | | ACCUMET SOLUTIONS |
| | | | Anchor |
| 132 | PVC CONDUIT (FLEXIBLE) | FINOLEX | FINOLEX |

| APPENDIX 'B' OF PARTICULAR SPECIFICATIONS (CONTD.....) | | | |
|--|-------------------------|---|---|
| Sr No. | Products | Name of Firm/ Grand Group 'X' | Name of Firm/ Grand Group 'Y' |
| | | SUPREME | SUPREME |
| | | POLYCAB WIRES PVT LTD (POLY CAB) | POLYCAB WIRES PVT LTD (POLY CAB) |
| | | PLAZA | PLAZA |
| | | BHAGYALAXMI PLASTIC INDUSTRIES (BLP) | BHAGYALAXMI PLASTIC INDUSTRIES (BLP) |
| | | KALINGA CABLE & CONDUIT CO. (KALINGA PREMIUM) | KALINGA CABLE & CONDUIT CO. (KALINGA PREMIUM) |
| | | GRANDLAY WIRES AND CABLES | GRANDLAY WIRES AND CABLES |
| 133 | PVC CONDUITS (RIGID) | PRECISION | PRECISION |
| | | FINOLEX | FINOLEX |
| | | SUPREME | SUPREME |
| | | PRESTO PLAST | PRESTO PLAST |
| | | POLYCAB WIRES PVT LTD (POLY CAB) | POLYCAB WIRES PVT LTD (POLY CAB) |
| | | AKG | AKG |
| | | PLAZA | PLAZA |
| | | BHAGYALAXMI PLASTIC INDUSTRIES (BLP) | BHAGYALAXMI PLASTIC INDUSTRIES (BLP) |
| | | TIRUPATI | TIRUPATI |
| | | KALINGA CABLE & CONDUIT CO. (KALINGA PREMIUM) | KALINGA CABLE & CONDUIT CO. (KALINGA PREMIUM) |
| 134 | MS CONDUIT | PRECISION | PRECISION |
| | | RICHA CABLES PVT LTD | RICHA CABLES PVT LTD |
| | | BHARAT | BHARAT |
| | | TATA | TATA |
| | | JINDAL | JINDAL |
| | | AKG | AKG |
| | | PLAZA | PLAZA |
| | | BHAGYALAXMI PLASTIC INDUSTRIES (BLP) | BHAGYALAXMI PLASTIC INDUSTRIES (BLP) |
| | | BEC INDUSTRIES | BEC INDUSTRIES |
| | | KALINGA | KALINGA |
| | | BEC | BEC |
| | | PRAKASH SURYA | PRAKASH SURYA |
| | | TIRPUTI | TIRPUTI |
| | | NIC | NIC |
| 135 | RELAY ELECTROMECHANICAL | PRECISION | PRECISION |
| | | AREVA T&D | AREVA T&D |
| | | LARSEN & TUBRO | LARSEN & TUBRO |
| | | SCHNIEDER | SCHNIEDER |
| | | SIEMENS | SIEMENS |
| | | CROMPTON, | CROMPTON, |
| | | AE | AE |
| | | HAGER | HAGER |
| 136 | RELAY NUMERICAL, STATIC | INDOASIAN | INDOASIAN |
| | | SIEMENS | SIEMENS |
| | | ABB | ABB |
| | | AREVA T&D | AREVA T&D |
| | | LARSEN & TUBRO | LARSEN & TUBRO |
| | | CROMPTON | CROMPTON |
| | | SCHNIEDER | SCHNIEDER |
| | | AE | AE |
| 137 | UPS | HAGER | HAGER |
| | | TATA-LIEBERT | TATA-LIEBERT |
| | | APLAB | APLAB |
| | | PIXELS | PIXELS |
| | | POWER CONVERSION TECH | POWER CONVERSION TECH |
| | | MICROTEK | MICROTEK |
| | | LUMINOUS | LUMINOUS |
| 138 | INDUCTION MOTORS | SINETRAC | SINETRAC |
| | | CROMPTON GREAVES | CROMPTON GREAVES |
| | | KIRLOSKAR ELECTRIC | KIRLOSKAR ELECTRIC |
| | | SIMENS | SIMENS |
| | | ABB | ABB |

| APPENDIX 'B' OF PARTICULAR SPECIFICATIONS (CONTD.....) | | | |
|--|--|---|---|
| Sr No. | Products | Name of Firm/ Grand Group 'X' | Name of Firm/ Grand Group 'Y' |
| 139 | LT CIRCUIT BREAK, MCCB, RCCB,RCBOs, MCB ELCB ,ISOLATER. | BHARAT BIJLEE | BHARAT BIJLEE |
| | | JYOTI LTD | JYOTI LTD |
| | | MATHER & PLATT | MATHER & PLATT |
| | | AREVA T&D | AREVA T&D |
| | | NGEF | NGEF |
| | | LEGRAND / MDS | LEGRAND / MDS |
| | | L&T | L&T |
| | | SCHNEIDER, | SCHNEIDER, |
| | | ABB | ABB |
| | | SIMENS | SIMENS |
| | | NOVATEUR ELECTRICAL & DIGITAL SYSTEMS PVT LTD (INDOASIAN) | NOVATEUR ELECTRICAL & DIGITAL SYSTEMS PVT LTD (INDOASIAN) |
| | | HPL Electric & Power Ltd. | HPL Electric & Power Ltd. |
| | | HAVELLS INDIA LTD | HAVELLS INDIA LTD |
| | | HAGER | HAGER |
| | | POLYCAB WIRES PVT LTD (POLY CAB) Wires Pvt Ltd | POLYCAB WIRES PVT LTD (POLY CAB) Wires Pvt Ltd |
| | | BCH Electric Limited | BCH Electric Limited |
| | | BENTEC INDIA LIMITED (BENTEC/BENLO) | BENTEC INDIA LIMITED (BENTEC/BENLO) |
| | | | C&S ELECTRIC LIMITED (C&S) |
| | | | UNIVERSAL SWITCH GEAR CONTROL |
| | | | SHALABH (INDIA) LTD (SHALABH SWITCHGEAR) |
| | | | INDO-ASIAN |
| 139(A) | Distribution BoX | LEGRAND / MDS | LEGRAND / MDS |
| | | L&T | L&T |
| | | SCHNEIDER, | SCHNEIDER, |
| | | ABB | ABB |
| | | SIMENS | SIMENS |
| | | NOVATEUR ELECTRICAL & DIGITAL SYSTEMS PVT LTD (INDOASIAN) | NOVATEUR ELECTRICAL & DIGITAL SYSTEMS PVT LTD (INDOASIAN) |
| | | HPL Electric & Power Ltd. | HPL Electric & Power Ltd. |
| | | HAVELLS INDIA LTD | HAVELLS INDIA LTD |
| | | HAGER | HAGER |
| | | POLYCAB WIRES PVT LTD (POLY CAB) Wires Pvt Ltd | POLYCAB WIRES PVT LTD (POLY CAB) Wires Pvt Ltd |
| | | BCH Electric Limited | BCH Electric Limited |
| | | | C&S ELECTRIC LIMITED (C&S) |
| | | | UNIVERSAL SWITCH GEAR CONTROL |
| | | | SHALABH (INDIA) LTD (SHALABH SWITCHGEAR) |
| | | | INDO-ASIAN |
| | | | |
| | | | |
| | | | |
| 140 | FLEXIBLE WIRES AND CABLES (PVC) UP TO 1100 VOLTS (IS 694 :2010) (ISI MARKED) | NICCO | NICCO |
| | | FINOLEX | FINOLEX |
| | | L&T | L&T |
| | | RR KABEL Ltd | RR KABEL Ltd |
| | | GRANDLAY ELECTRICALS (INDIA) | GRANDLAY ELECTRICALS (INDIA) |
| | | KEI INDUSTRIES LTD | KEI INDUSTRIES LTD |
| | | HPL Electric & Power Ltd. | HPL Electric & Power Ltd. |
| | | BENTEC INDIA LIMITED (BENTEC/BENLO) | BENTEC INDIA LIMITED (BENTEC/BENLO) |
| | | S S CABLE INDUSTRIES | S S CABLE INDUSTRIES |
| | | HAVELLS | HAVELLS |
| | | PLAZA CABLES | PLAZA CABLES |
| | | POLYCAB WIRES PVT LTD (POLY CAB) WIRES PVT LTD (POLYCAB WIRES PVT LTD (POLY CAB)) | POLYCAB WIRES PVT LTD (POLY CAB) WIRES PVT LTD (POLYCAB WIRES PVT LTD (POLY CAB)) |
| | | RICHA CABLES PVT LTD (RICHA) | RICHA CABLES PVT LTD (RICHA) |
| | | GLOSTER CABLES LIMITED | GLOSTER CABLES LIMITED |
| | | VIN POWER ELECTRO PRODUCT | VIN POWER ELECTRO PRODUCT |
| | | SEEWEL POWER INDUSTRIES | SEEWEL POWER INDUSTRIES |
| | | | KALINGA CABLE & CONDUIT CO. (KALINGA PREMIUM) |
| | | | |

| APPENDIX 'B' OF PARTICULAR SPECIFICATIONS (CONTD.....) | | | |
|--|--|----------------------------------|--|
| Sr No. | Products | Name of Firm/ Grand Group 'X' | Name of Firm/ Grand Group 'Y' |
| | | | BONTON CABLES INDIA PVT LTD (BONTON) |
| | | | DNEO CABLES PVT LTD (DCAB) |
| | | | Anchor |
| | | | BCH ELECTRIC LIMITED |
| | | | ALCON WIRES & CABLES |
| | | | BENLO WIRES & CABLES |
| | | | RADICAB CABLES AND LIGHTING INDUSTRIES PVT LTD |
| 141 | LT XLPE CABLES POWER (IS 7098 : Part 1 : 1993) & CONTROL CABLES (ISI MARKED) | FINOLEX | FINOLEX |
| | | L&T | L&T |
| | | NICCO | NICCO |
| | | RR KABEL LTD | RR KABEL LTD |
| | | KEI INDUSTRIES LTD | KEI INDUSTRIES LTD |
| | | S S CABLE INDUSTRIES | S S CABLE INDUSTRIES |
| | | HAVELLS INDIA LTD | HAVELLS INDIA LTD |
| | | PLAZA CABLES | PLAZA CABLES |
| | | ANCHOR | ANCHOR |
| | | POLYCAB WIRES PVT LTD (POLY CAB) | POLYCAB WIRES PVT LTD (POLY CAB) |
| | | RICHA CABLES PVT LTD (RICHA) | RICHA CABLES PVT LTD (RICHA) |
| | | VIN POWER ELECTRO PRODUCT | VIN POWER ELECTRO PRODUCT |
| | | SEEWEL POWER INDUSTRIES | SEEWEL POWER INDUSTRIES |
| | | | DIAMOND POWER INFRASTRUCTURE LTD (DIATRON) |
| | | | PARAGON |
| | | | KALINGA CABLE & CONDUIT CO. (KALINGA PREMIUM) |
| | | | BONTON CABLES INDIA PVT LTD (BONTON) |
| | | | HPL ELECTRIC & POWER PVT LTD |
| | | | HPL |
| | | | GLOSTER CABLES LIMITED |
| | | | RAMCO |
| 142 | AERIAL BUNCHED CABLES (IS: 14255:1995) | KEI INDUSTRIES LTD | KEI INDUSTRIES LTD |
| | | HAVELLS INDIA LTD | HAVELLS INDIA LTD |
| | | VIN POWER ELECTRO PRODUCT | VIN POWER ELECTRO PRODUCT |
| 143 | VOLTAGE STABILIZER | | |
| | (A) UPTO 5 KVA | V GUARD | V GUARD |
| | | AE | AE |
| | | GODREJ | GODREJ |
| | | VINTEK ELECTRONICS (VOLINA) | VINTEK ELECTRONICS (VOLINA) |
| | | | VINITEC ELECTRONIC LABORATORY (VINITEC) |
| | | | POWER TECH |
| | | | BLUE LINE |
| | (B) 5 KVA TO 25 KVA | V GUARD | V GUARD |
| | | CG | CG |
| | | AE | AE |
| | | VINTEK ELECTRONICS (VOLINA) | VINTEK ELECTRONICS (VOLINA) |
| | | MICROTEX | MICROTEX |
| | | APLAB | APLAB |
| | | | VINITEC ELECTRONIC LABORATORY (VINITEC) |
| | (C) ABOVE 25 KVA | SINETRAC | SINETRAC |
| | | APLAB | APLAB |
| | | AE | AE |
| | | GODREJ | GODREJ |
| | | | M/S VINTEK ELETRONICS (VOLINA) |
| | | | POWERWARE |
| | | | VINITEC ELECTRONIC LABORATORY (VINITEC) |
| 144 | WINDING WIRES FOR SUBMERSIBLE MOTORS (IS | FINOLEX | FINOLEX |
| | | POLYCAB WIRES PVT LTD (POLY CAB) | POLYCAB WIRES PVT LTD (POLY CAB) |

| APPENDIX 'B' OF PARTICULAR SPECIFICATIONS (CONTD.....) | | | |
|--|---------------------------|-------------------------------|----------------------------------|
| Sr No. | Products | Name of Firm/ Grand Group 'X' | Name of Firm/ Grand Group 'Y' |
| | 8783 Part 4) | RR KABEL | RR KABEL |
| | | KEI INDUSTRIES LTD | KEI INDUSTRIES LTD |
| | | PLAZA | PLAZA |
| | | HAVELLS | HAVELLS |
| | | BCH | BCH |
| | | | HPL ELECTRIC & POWER PVT LTD |
| | | | RALLISON |
| 145 | CHOLORONOME PLANT, | ION EXCHANGE | ION EXCHANGE |
| | | CHLOROMAX | CHLOROMAX |
| | | MAIC(INDAI) | MAIC(INDAI) |
| | | | CAPITAL CONTROL |
| | | | M/S SOMBANSI ENVIOR ENGG PVT LTD |
| 146 | BLEACHING DOZER | CHLOROMAX | CHLOROMAX |
| | | ION EXCHANGE | ION EXCHANGE |
| | | MAIC-INDIA | MAIC-INDIA |
| | | | RAMCO |
| | | | M/S SOMBANSI ENVIOR ENGG PVT LTD |
| 147 | RUBBER MATS | JYOTI | JYOTI |
| | | ELECTROMAT | ELECTROMAT |
| | | JAIPURIA | JAIPURIA |
| | | SINTEX | SINTEX |
| 148 | BATTERY / BATTERY CHARGER | EXIDE | EXIDE |
| | | AMRON | AMRON |
| | | AMCO | AMCO |
| | | MICROTEX | MICROTEX |
| | | SUKAM | SUKAM |
| 149 | BATTERY MAINTANENCE FREE | EXIDE | EXIDE |
| | | AMCO | AMCO |
| | | AMRON | AMRON |
| | | NICCO | NICCO |
| | | OKAYA | OKAYA |
| | | | STANDRED |
| | | | AMARA RAJA |
| 150 | CAPACITORS INCL RELAY | ABB | ABB |
| | | L&T | L&T |
| | | GE | GE |
| | | EPCOS | EPCOS |
| | | HPL | HPL |
| | | HAVELLS INDIA LTD | HAVELLS INDIA LTD |
| | | | DUCATI |
| | | | NEPTUNE |
| 151 | MEASURING INSTRUMENTS | ABB | ABB |
| | | L&T | L&T |
| | | AE | AE |
| | | SIEMENS | SIEMENS |
| | | SECURE | SECURE |
| | | HPL | HPL |
| | | HAVELLS | HAVELLS |
| | | IMP | IMP |
| | | | MECO |
| 152 | REFRIGERATORS & FREEZERS | VOLTAS | VOLTAS |
| | | HITACHI | HITACHI |
| | | BLUE STAR | BLUE STAR |
| | | DAIKAIN | DAIKAIN |
| | | LG | LG |
| | | GODREJ | GODREJ |
| | | SAMSUNG | SAMSUNG |
| 153 | WATER COOLERS | BLUE STAR | BLUE STAR |
| | | VOLTAS | VOLTAS |
| | | HITACHI | HITACHI |
| | | USHA SHRIRAM | USHA SHRIRAM |
| 154 | FIRE HOSE REEL | MINIMEX | MINIMEX |
| | | SAFEX | SAFEX |
| | | GODREJ & BOYCE | GODREJ & BOYCE |
| 155 | STAND POST TYPE HYDRANT | MINIMEX | MINIMEX |

| APPENDIX 'B' OF PARTICULAR SPECIFICATIONS (CONTD.....) | | | |
|--|---|-------------------------------|-------------------------------|
| Sr No. | Products | Name of Firm/ Grand Group 'X' | Name of Firm/ Grand Group 'Y' |
| 156 | SPRINKLER HEAD | SAFEX | SAFEX |
| | | GODREJ & BOYCE | GODREJ & BOYCE |
| | | TYCO | TYCO |
| 157 | ALARM VALVE | SAFEX | SAFEX |
| | | MINIMAX | MINIMAX |
| | | HD | HD |
| 158 | FAN COIL UNITS (LOW STATIC) | TYCO | TYCO |
| | | HITACHI | HITACHI |
| | | BLUE STAR | BLUE STAR |
| 159 | FAN COIL UNITS (HIGH STATIC) | DAIKAIN | DAIKAIN |
| | | ZECO | ZECO |
| | | ZECO | ZECO |
| 160 | BUTTERFLY VALVES (WATER DUTY) | AUDCO | AUDCO |
| | | KIRLOSKAR | KIRLOSKAR |
| | | ZOLOTO | ZOLOTO |
| | | L&T | L&T |
| | | TATA | TATA |
| | | LEADER | LEADER |
| | | C & R | C & R |
| | | | NORMEX VALVES PVT LTD |
| | | | CASTLE |
| | | | BELIMO |
| 161 | CHECK VALVES (WATER DUTY) | | AIP |
| | | | SANT |
| | | TYCO | TYCO |
| | | DANFOSS | DANFOSS |
| | | AUDCO | AUDCO |
| | | KIRLOSKAR | KIRLOSKAR |
| | | SIM | SIM |
| | | | NORMEX VALVES PVT LTD |
| | | | CASTLE |
| | | | LEADER |
| 162 | BALL VALVES (WATER DUTY) | | ADVANCE |
| | | CIM | CIM |
| | | RB | RB |
| | | AUDCO | AUDCO |
| | | L&T | L&T |
| | | ZOLOTO | ZOLOTO |
| | | ADVANCE | ADVANCE |
| | | TYCO | TYCO |
| | | | NORMEX VALVES PVT LTD, PUNE |
| | | | |
| 163 | BALANCING VALVES (WATER DUTY) | AUDCO | AUDCO |
| | | ADVANCE | ADVANCE |
| | | TYCO | TYCO |
| | | BELIMO | BELIMO |
| | | CIM | CIM |
| | | SIMENS | SIMENS |
| | | ZOLOTO | ZOLOTO |
| | | LEADER | LEADER |
| | | C & R | C & R |
| | | SANT | SANT |
| 164 | TWO WAY MOTORIZED MODULATING VALVES (WATER DUTY) FOR AHUS | AIP | AIP |
| | | | CASTLE |
| | | DANFOSS | DANFOSS |
| | | SIEMENS | SIEMENS |
| | | SCHNIEDER | SCHNIEDER |
| | | JOHNSON CONTROL | JOHNSON CONTROL |
| | | BELIMO | BELIMO |
| 165 | PRESSURE GAUGE | HONEY WELL | HONEY WELL |
| | | ENERGY | ENERGY |
| | | FIGDIG | FIGDIG |
| | | HGURU | HGURU |
| 166 | INDUSTRIAL THERMOMETERS | EMERALD | EMERALD |
| | | EMERALD | EMERALD |

| APPENDIX 'B' OF PARTICULAR SPECIFICATIONS (CONTD.....) | | | |
|--|--|-------------------------------|-------------------------------|
| Sr No. | Products | Name of Firm/ Grand Group 'X' | Name of Firm/ Grand Group 'Y' |
| 167 | GLOBE VALVES | FIGDIG | FIGDIG |
| | | HGURU | HGURU |
| | | DS ENGG | DS ENGG |
| | | ADVANCE | ADVANCE |
| | | AUDCO | AUDCO |
| | | KIRLOSKAR | KIRLOSKAR |
| 168 | TWO WAY VALVES FOR FAN COIL UNITS | L&T | L&T |
| | | SIEMENS | SIEMENS |
| | | SCHNIEDER | SCHNIEDER |
| | | DANFOSS | DANFOSS |
| | | HONEYWELL | HONEYWELL |
| | | JOHNSON CONTROL | JOHNSON CONTROL |
| 169 | ACTUATOR FOR TWO WAY VALVES & FIRE DAMPERS | ENERGY | ENERGY |
| | | BELIMO | BELIMO |
| | | BELIMO | BELIMO |
| | | SIEMENS | SIEMENS |
| 170 | WATER FLOW SWITCH | DANFOSS | DANFOSS |
| | | DANFOSS | DANFOSS |
| | | HONEYWELL | HONEYWELL |
| | | SIEMENS | SIEMENS |
| 171 | MODULATING MOTORS | RAPIDCOOL | RAPIDCOOL |
| | | EMERALD | EMERALD |
| | | SIEMENS | SIEMENS |
| | | SCHNIEDER | SCHNIEDER |
| | | DANFOSS | DANFOSS |
| | | HONEYWELL | HONEYWELL |
| 172 | FLEXIBLE COUPLING FOR PIPES | JOHNSON CONTROL | JOHNSON CONTROL |
| | | ENERGY | ENERGY |
| | | BELIMO | BELIMO |
| | | DANFOSS | DANFOSS |
| 173 | ROOM THERMOSTAT | RESISTOFLEX | RESISTOFLEX |
| | | EASYFLEX | EASYFLEX |
| | | SIEMENS | SIEMENS |
| | | SCHNIEDER | SCHNIEDER |
| | | DANFOSS | DANFOSS |
| | | HONEYWELL | HONEYWELL |
| 174 | HUMIDISTAT & AIRSTAT | JOHNSON CONTROL | JOHNSON CONTROL |
| | | ENERGY | ENERGY |
| | | BELIMO | BELIMO |
| | | SIEMENS | SIEMENS |
| | | SCHNIEDER | SCHNIEDER |
| | | DANFOSS | DANFOSS |
| 175 | SAFTEY THERMOSTATE FOR HEATER | HONEYWELL | HONEYWELL |
| | | JOHNSON CONTROL | JOHNSON CONTROL |
| | | ENERGY | ENERGY |
| | | BELIMO | BELIMO |
| | | SIEMENS | SIEMENS |
| | | SCHNIEDER | SCHNIEDER |
| 176 | DIAL THERMOMETER CAPILLARY TYPE | DANFOSS | DANFOSS |
| | | HONEYWELL | HONEYWELL |
| 177 | AUTO AIR VENT | JOHNSON CONTROL | JOHNSON CONTROL |
| | | ENERGY | ENERGY |
| 178 | MICRO PROCESSOR BASED CONTROLERS | BELIMO | BELIMO |
| | | PENN | PENN |
| | | TADINGTOON | TADINGTOON |
| | | ANERGY | ANERGY |
| | | RAIPD COOL | RAIPD COOL |
| | | RB | RB |

Signature of Contractor

For Accepting Officer

| APPENDIX 'B' OF PARTICULAR SPECIFICATIONS (CONTD.....) | | | |
|--|---|---|---|
| Sr No. | Products | Name of Firm/ Grand Group 'X' | Name of Firm/ Grand Group 'Y' |
| 179 | GI SHEETS | SAIL | SAIL |
| | | TATA | TATA |
| | | RASTRIYA ISPAT | RASTRIYA ISPAT |
| | | JINDAL (HISAR) | JINDAL (HISAR) |
| 180 | EXTRUDED ALUMINIUM CRILLES / DIFFUSERS | KAMDHENU | KAMDHENU |
| | | RAVISTAR | RAVISTAR |
| | | SYSTEMAIR | SYSTEMAIR |
| | | TROSS | TROSS |
| 181 | COMBINED FIRE / SMOKE DAMPERS | RAVISTAR | RAVISTAR |
| | | MAPRO / AIRFLOW | MAPRO / AIRFLOW |
| | | SYSTEMAIR | SYSTEMAIR |
| | | TROSS | TROSS |
| 182 | VENTILATION / EXHAUST AIR GRILLES | CARYIRE | CARYIRE |
| | | TRISTAR | TRISTAR |
| | | RAVISTAR | RAVISTAR |
| | | SYSTEMAIR | SYSTEMAIR |
| 183 | JET NOZZLES | TROSS | TROSS |
| | | TRISTAR | TRISTAR |
| | | RAVISTAR | RAVISTAR |
| | | SYSTEMAIR | SYSTEMAIR |
| 184 | EXPANDED POLYSTYRENE (TF QAULITY) | TROSS | TROSS |
| | | TRISTAR | TRISTAR |
| | | RAVISTAR | RAVISTAR |
| | | SYSTEMAIR | SYSTEMAIR |
| 185 | PRELAMINATED GALSS WOOL BLANKETS | METTUR-BEARDSELL | METTUR-BEARDSELL |
| | | LLOYAD INSULATION | LLOYAD INSULATION |
| | | DEBS PRODUCTS | DEBS PRODUCTS |
| | | UPTWIGA | UPTWIGA |
| 186 | GLASS WOOL BLANKETS | OWENS CORNING | OWENS CORNING |
| | | UPTWIGA | UPTWIGA |
| | | OWENS CORNING | OWENS CORNING |
| | | OWENS CORNING | OWENS CORNING |
| 187 | EXTRUDED POLYSTYRENE | OWENS CORNING | OWENS CORNING |
| | | UPTWIGA | UPTWIGA |
| | | SUPREME | SUPREME |
| | | PARAMOUNT | PARAMOUNT |
| 188 | ELASTOMERIC / CROSS LINKED POLYETHYLENE FOAM | ARMALEX | ARMALEX |
| | | SUPREME | SUPREME |
| | | KELEX | KELEX |
| | | KEI INDUSTRIES LTD | KEI INDUSTRIES LTD |
| 189 | NIRTILE RUBBER FOAM | AFLEX | AFLEX |
| | | ALP AEROFLEX INDIA PVT LTD | ALP AEROFLEX INDIA PVT LTD |
| | | MALANPUR | MALANPUR |
| | | LLOYAD | LLOYAD |
| 190 | PREMOULDED PUF SECTION FOR PIPE SUPPORTS | POLYBOND | POLYBOND |
| | | ARMACELL | ARMACELL |
| | | PARAMOUNT | PARAMOUNT |
| | | HILTI | HILTI |
| 191 | PROTECTIVE COATING OVER CLOSED CELL ELASTROMETIC (EXPOSED DUCT) | BIRLA 3 M | BIRLA 3 M |
| | | SIEMENS | SIEMENS |
| | | SCHNIDER | SCHNIDER |
| | | DANFOSS | DANFOSS |
| 192 | FIRE SEALANT | ABB | ABB |
| | | EDGE TECH | EDGE TECH |
| | | ZECO | ZECO |
| | | VTS | VTS |
| 193 | VFD | DRY AIR | DRY AIR |
| | | EDGE TECH | EDGE TECH |
| | | ZECO | ZECO |
| | | VTS | VTS |
| 194 | AIR WASHER / SCRUBBER | ADVANCE INTERNATIONAL (MODELS- AERIAL, FRAT NOVITA) | ADVANCE INTERNATIONAL (MODELS- AERIAL, FRAT NOVITA) |
| | | DRY AIR | DRY AIR |
| | | EDGE TECH | EDGE TECH |
| | | ZECO | ZECO |
| 195 | CHEMICAL DEHUMIDIFIERS | VTS | VTS |
| | | DRY AIR | DRY AIR |
| | | EDGE TECH | EDGE TECH |
| | | ZECO | ZECO |
| 196 | AIR WASHERS | VTS | VTS |
| | | DRY AIR | DRY AIR |
| | | EDGE TECH | EDGE TECH |
| | | ZECO | ZECO |
| | | BLUE STAR | BLUE STAR |
| | | | |
| | | | |
| | | | |

| APPENDIX 'B' OF PARTICULAR SPECIFICATIONS (CONTD.....) | | | |
|--|---|--|--|
| Sr No. | Products | Name of Firm/ Grand Group 'X' | Name of Firm/ Grand Group 'Y' |
| 197 | ACCOUSTIC ENCLOSURE AND CONOPIES FOR | JAKSONS | JAKSONS |
| | | SUDHIR GENSET | SUDHIR GENSET |
| | | POWERIKA | POWERIKA |
| 198 | THIMBLES / STUDS / LUGS | DOWELLS | DOWELLS |
| | | COMET | COMET |
| | | HEX | HEX |
| | | | JAIPURIA AXIX |
| 199 | ELECTRIC HOOTER / SIREN | KHAIRAJ (BELL) ONLY | KHAIRAJ (BELL) ONLY |
| | | NOTI FIRE | NOTI FIRE |
| | | ADWARD | ADWARD |
| | | BOSCH | BOSCH |
| | | | AHUJA |
| 200 | DESERT COOLERS (ROOM COOLER PVC BODY) | SYMPHONY | SYMPHONY |
| | | CROMPTON | CROMPTON |
| | | USHA | USHA |
| 201 | NON CHEMICAL SCALE PREVENTORS | SCALE GUARD | SCALE GUARD |
| 202 | GUN METAL VALVES | KIRLOSKER | KIRLOSKER |
| | | ZOLOTO | ZOLOTO |
| | | AUDCO | AUDCO |
| | | TYCO | TYCO |
| | | DANFOSS | DANFOSS |
| | | SIM | SIM |
| 203 | HOOTER | PHILIPS | PHILIPS |
| | | BOSCH | BOSCH |
| | | NOTI FIRE | NOTI FIRE |
| | | ADWARD | ADWARD |
| | | AGNI | AGNI |
| 204 | AIR CURTAINS | ALMONARD | ALMONARD |
| | | CROMPTON GREAVES | CROMPTON GREAVES |
| | | CARRIER | CARRIER |
| | | VOLTAS | VOLTAS |
| | | ADWARD | ADWARD |
| | | AIR CON | AIR CON |
| 205 | THERMOMETERS/ PRESSURE GUAGE | HGURU | HGURU |
| | | FIGDIG | FIGDIG |
| | | EMRALD | EMRALD |
| | | DS ENGG | DS ENGG |
| 206 | HEATERS & SOLAR WATER SYSTEM | TATA BP SOLAR SYSTEM | TATA BP SOLAR SYSTEM |
| | | BHEL | BHEL |
| | | M/S RACOLD THERNO LTD, PUNE. | M/S RACOLD THERNO LTD, PUNE. |
| | | M/S BOSCH LTD, BANGALORE. | M/S BOSCH LTD, BANGALORE. |
| | | | SOLAR EQUIPMENT MANUFACTURING, NOIDA |
| OTHER CATEGORIES OF CABLES | | | |
| 207 | AIR BUNDLED CABLES / TELEPHONE CABLES, SUBMERSIBLE CABLES | KEI INDUSTRIES LTD | KEI INDUSTRIES LTD |
| | | | DIAMOND POWER INFRASTRUCTURE LTD (DIATRON) |
| BOXES | | | |
| 208 | ACOUSTIC INSULATION (NITRILE RUBBER) | | ARMACELL INDIA PVT LTD (BRAND ARMASOUND) |
| 209 | ADHESIVES | | ARMACELL INDIA PVT LTD (BRAND - ARMAFLEX) |
| 210 | INSULATION COVERING SYSTEM | | ARMACELL INDIA PVT LTD (BRAND - ARMACHECK)) |
| 211 | THERMAL INSULATION | | ARMACELL INDIA PVT LTD (BRAND - ARMAFLEX) |
| 212 | SMART ENERGY METERING SYSTEM | | SUMERU VERDE TECHNOLOGIES PVT LTD |
| ELECTROMAGNETIC FLOWMETER | | | |
| 213 | ELECTROMAGNETIC FLOWMETER | SHREE SIYARAM SWITCHGEARS PVT LTD (Brand - Atlantch) | SHREE SIYARAM SWITCHGEARS PVT LTD (Brand - Atlantch) |
| MISCELLANEOUS | | | |
| 214 | CABLE TRAYS | POWER SYSTEM & CONTROL | POWER SYSTEM & CONTROL |

| APPENDIX 'B' OF PARTICULAR SPECIFICATIONS (CONTD.....) | | | |
|---|--|---|--------------------------------------|
| Sr No. | Products | Name of Firm/ Grand Group 'X' | Name of Firm/ Grand Group 'Y' |
| | | BHAGYALAXMI PLASTIC INDUSTRIES (BLP) | BHAGYALAXMI PLASTIC INDUSTRIES (BLP) |
| 215 | LT PVC (HEAVY DUTY) CABLE (IS 1554 : Part 1) | HPL ELECTRIC & POWER PVT LTD | HPL ELECTRIC & POWER PVT LTD |
| | | HAVELLS INDIA LTD | HAVELLS INDIA LTD |
| | | PLAZA CABLES | PLAZA CABLES |
| | | VIN POWER ELECTRO PRODUCT | VIN POWER ELECTRO PRODUCT |
| | | DIAMOND POWER INFRASTRUCTURE LTD | DIAMOND POWER INFRASTRUCTURE LTD |
| 216 | POWER CONTRATORS | HPL ELECTRIC & POWER LTD. | HPL ELECTRIC & POWER LTD. |
| | | HAVELLS INDIA LTD | HAVELLS INDIA LTD |
| 217 | CHANGE OVER SWITCH | HPL ELECTRIC & POWER LTD. | HPL ELECTRIC & POWER LTD. |
| 218 | MOTOR STARTER | HPL ELECTRIC & POWER LTD. | HPL ELECTRIC & POWER LTD. |
| 219 | POLYCARBONATE PANELS/STREET LIGHT KIOSK BOX | UNIVERSAL SWITCH GEAR CONTROL | UNIVERSAL SWITCH GEAR CONTROL |
| 220 | LT Elastomer Insulated cables IS 9968 Part I:1988 | KEI INDUSTRIES LTD | KEI INDUSTRIES LTD |
| 221 | Evacuated Glass Tube Based Solar Water Heater (Upto 1000 Ltrs Capacity) IS 16544 : 2016 | REDREN | REDREN |
| 222 | Flat Plate Collector Based Solar Water Heater (Upto 1000 Ltrs Capacity) IS 12933 : PART 1 : 2003 | REDREN | REDREN |
| 223 | LT Fuses (IS 60269 : Part 2 : 2016 | HAVELLS INDIA LTD | HAVELLS INDIA LTD |
| 224 | LT HFFR Cable (IS 17048 : 2018) | HAVELLS INDIA LTD | HAVELLS INDIA LTD |
| 225 | ATS (Automatic Transfer Switch) (IS 60947-6-1 : 2005 | HAVELLS INDIA LTD | HAVELLS INDIA LTD |
| | <u>E-in-C approved Makes</u> | | |
| 226 | APP Membrane. | M/s STP LIMITED, NEW DELHI | |
| | | M/s IWL INDIA LIMITED | |
| | | M/s ASIAN PAINTS LIMITED | |
| | | M/s TORCHTAR MEMBERS & BITUMEN PRODUCTS PVT LTD (TORCHTAR) | |
| | | M/s TIKI TAR DANOSA (INDIA) PVT LTD (HYDROSTOP WATER PROOFING MEMBRANE) | |