

**MILITARY ENGINEER SERVICES**

**NAME OF WORK: PROVN OF CERTAIN TOILET AND ADDN/ ALTN TO EXISTING TOILET AT VARIOUS LOCATION AND PROVISION OF CHEMICAL EARTHING IN HANGER II & ASV HANGER AND 3 PHASE ELECTRIC SUPPLY TO TECH BUILDING OF VISITING SQN IN TECH AREA AT AF STN ADAMPUR.**

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Sign of Contractor

For Accepting officer

**NAME OF WORK: PROVN OF CERTAIN TOILET AND ADDN/ ALTN TO EXISTING TOILET AT VARIOUS LOCATION AND PROVISION OF CHEMICAL EARTHING IN HANGER II & ASV HANGER AND 3 PHASE ELECTRIC SUPPLY TO TECH BUILDING OF VISITING SQN IN TECH AREA AT AF STN ADAMPUR .**

Dear Sir,

1. Tender documents in respect of above work are uploaded on the site [www.defproc.gov.in](http://www.defproc.gov.in). The tender is based on single stage two cover/two stage three cover e-tendering system. The contents of Cover I & Cover II are specified in NOTICE OF TENDER.
2. Bids will be received online by ACCEPTING OFFICER upto the date and time mentioned in the **NOTICE INVITING TENDER (NIT)**. No tender/bid will be received in physical form and any tender/bid received in such manner will be treated as non bona fide.
3. Bid will be opened 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 piecemeal points and forward your points duly consolidated in one go. You may also attend the pre bid meeting on the date given in the tender.
5. Un-enlisted contractors are required to submit the scanned copies (in pdf file) of documents required as per eligibility criteria mentioned in instructions for filling the tender documents and Appendix 'A' to NIT along-with EARNEST MONEY DEPOSIT (EMD) and tender fee on procurement portal mentioned above and submit the physical documents in the office of **GE(AF) Adampur** 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 **GE(AF) Adampur** before date & time fixed for this purpose.
7. The contractor must ensure that the tender/bid is uploaded on the tender portal using the authorised DSC in time as the Accepting Officer will take no cognizance of any quotations/offer received in any other electronic or physical form like email/fax/by hand/through post from tenderer/bidder.
8. Keeping in view delays due to system failure or other communication related failures, it is suggested that tender/bid may be uploaded sufficiently in advance of the last due date and time fixed on the portal.
9. General Conditions of Contracts (IAFW-2249) (1989 Print) and errata and amendments thereto, Schedule of Minimum Fair Wages and MES SSR (Part-I and Part-II) are not enclosed with these documents. These are available for perusal in the Office of **GE(AF) Adampur**. Tenderer is also requested to keep the copy of these documents with him as same are available in the market.
10. **PERFORMANCE SECURITY DEPOSIT: After acceptance of the Tender, the contractor will be required to lodge with the Accepting Officer PERFORMANCE SECURITY DEPOSIT @ 5% of contract amount. The amount is required to be lodged within 28 (Twenty eight) days of the receipt by the contractor of notification of acceptance of tender/bid, failing which action as stipulated in Condition 19 of General Conditions of Contracts (IAFW-2249) shall be taken.**
11. ANY TENDERER, WHICH PROPOSES ALTERATIONS TO ANY OF THE CONDITIONS, SPECIFICATIONS LAID DOWN IN THE TENDER DOCUMENTS OR ANY NEW CONDITION, WHATSOEVER, IS LIABLE TO BE REJECTED.

Sign 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 concerned.

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

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

**2. 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 initialled. 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.

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

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

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

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

**MILITARY ENGINEER SERVICES**  
**NOTICE OF TENDER IAFW-2162**  
**APPLICABLE FOR LUMP SUM/ MEASURABLE CONTRACTS**

1. A tender is invited for the work as mentioned in Appendix 'A' to Notice of Tender.
2. The work is estimated to cost as indicated in aforesaid Appendix 'A' to Notice of Tender. This estimate, however, is not a guarantee and is merely given as a rough guide and if the work costs more or less, a tenderer will have no claim on that account.
3. The work is to be completed within the period as indicated in aforesaid Appendix 'A' to Notice of Tender (in accordance with phasing, if any, indicated in the tender) from the date of handing over of site, which will be on or about two weeks after the date of Acceptance of tender.
4. Contractors whose names are on the MES approved list and within whose financial category the estimated amount would fall and un-enlisted contractors may submit tender/bid subject to other criteria mentioned in Appendix 'A'. However in case of term contracts, enlisted contractors of Class 'SS' to 'E' may submit tender. Not more than one tender shall be submitted/uploaded by one contractor/ firm. Under no circumstances will a father and his son(s) or other close relations who have business dealing with one another be allowed to tender/bid for the same contract as separate competitors. Two firms shall be deemed to have business dealing if any of the partners/proprietor/director is common among both of them. A breach of this condition will render the tenders/bids of both the parties liable for rejection.
5. The office of **GE (AF) Adampur** will be the Accepting Officer here-in-after referred to as such for purpose of the contract.
6. Not more than one tender/bid shall be submitted/uploaded by one bidder firm. Under no circumstances will a father and his son(s) or other close relations who have business dealing with one another be allowed to tender/bid for the same tender as separate competitors. A breach of this condition will render the tenders/bids of both the parties liable for rejection.
7. The Technical Bid and Financial Bid (Cover-1 and Cover-2) shall be uploaded by the contractor on or before the date & time mentioned in **NIT**. A scanned copy of DD with enlistment details and other documents as specified in Appendix A shall be uploaded as Cover-1 (Technical bid) of the tender on e-tendering portal. DD is refundable in case the contractor is not considered eligible in technical evaluation of Cover 1 resulting in non-opening of Cover1. The applicant contractor shall bear the cost of bank charges for procuring and encashing the DD including revalidation of DDs and shall not have any claim from Government whatsoever on this account.
8. Tender form and conditions of contract and other necessary documents shall be available on [defproc.gov.in](http://defproc.gov.in) site for download and shall form part of contract agreement in case the tender/bid is accepted.

**NOTICE OF TENDER IAFW-2162 (CONTD.)**  
**APPLICABLE FOR LUMP SUM/ MEASURABLE CONTRACTS**

9. In case of MES enlisted contractor who has not executed the Standing Security Bond and an enlisted contractor, the Cover-I shall be accompanied by Earnest Money for the amount mentioned in Appendix 'A' in the form of deposit at call receipt in favour of concerned GE (see Appendix 'A') by a Scheduled Bank or in received 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 during working hours. The bidder is advised to visit the site of work by making prior appointment with GE, who is the Executing Agency of the work (see Appendix 'A'). The bidder shall be deemed to have full knowledge of all relevant documents, samples, site etc whether he has inspected them or not.
12. Any bid which proposes any alteration to any of the conditions laid down or which proposes any other condition or prescription 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 work to be done and of the conditions and rates at which stores (as applicable) etc., will be issued to him and local conditions and other factors having bearing on the execution of the work.
14. The bidder must be in possession of a copy of the MES Standard Schedule of Rates (Part-I & Part-II of latest edition) including amendments and errata thereto.
15. Accepting Officer does not bind himself to accept the lowest or any tender/bid or to give any reason for not doing so.
16. The Accepting Officer reserves the right to accept a tender submitted by a Public Undertaking/Small & Medium Enterprises (SMEs), giving a price preference/purchase preference over other tender(s)/bids which may be lower, as are admissible under the Government Policy. No claim for any compensation or otherwise shall be admissible for such tenderer/bidder whose tender/bid is rejected.
17. This Notice Inviting Tender (NIT) including Appendix 'A' and annexure(s) thereto, if any, shall form part of the contract.

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

1.	Name of work	:	PROVN OF CERTAIN TOILET AND ADDN/ ALTN TO EXISTING TOILET AT VARIOUS LOCATION AND PROVISION OF CHEMICAL EARTHING IN HANGER II & ASV HANGER AND 3 PHASE ELECTRIC SUPPLY TO TECH BUILDING OF VISITING SQN IN TECH AREA AT AF STN ADAMPUR.																
2.	Estimated Cost of Work	:	Rs 47.47 Lakh (At Par Market)																
3.	Period of Completion	:	180 Days																
4.	Cost of tender documents	:	Rs 500.00 in the form of DD/Bankers cheque from any Scheduled Nationalized bank in favour of <b>GE (AF) Adampur, payable at Adampur</b> (NOTE: In case of retendering the contractor who had quoted in the previous call is not required to submit the cost of tender)																
5.	Website/portal address	:	www.defproc.gov.in																
6.	Type of contract	:	Tender shall be based on item rates contract IAFW-1779 A Revised and GCC IAFW-2249 with Schedule 'A'/BoQ (List of Works) to be priced by the tenderer. The tenderer are required to quote rates against all items of Schedule 'A'/BoQ																
7.	Timeline details	:	Refer critical dates on the website.																
	(a) Bid submission start date	:																	
	(b) Bid submission end date	:																	
	(c) Date of bid opening	:																	
8.	<u>Eligibility Criteria</u>																		
	(a) <b><u>For MES enlisted contractors</u></b>	:	Contractor shall be enlisted with MES in <b>Class 'D' and above</b> and <b>category a (i) &amp; b (i)</b> subject to satisfactory remarks wrt performance in r/o works in hand as reflected in Work Load Return (WLR) or any other report circulated by competent Engineer Authority.																
	(b) <b><u>For Contractors not enlisted with MES</u></b>	:	<p>(i) Contractor not enlisted with MES should meet the enlistment criteria of <b>'D' Class &amp; a (i) &amp; b (i)</b> Category contractor with regard to satisfactorily completion of requisite value works with Central/ State Government/ Central/ State PSUs/ AWHO/ AFNHB/ CGEWHO/ DGMAP, annual turnover, bank solvency, working capital and other requirements given in Para 1.4 &amp; 1.5 of section-1 of MES Manual on Contracts- 2020 as available in all MES formations as well as MES website (www.mes.gov.in).</p> <p>(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.</p> <p>(iii) Not suspended/debarred/blacklisted (either permanently or temporarily) from participating in any bid or for business dealing 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.</p> <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 &amp; 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><tr><td></td><td></td><td></td><td></td><td></td><td></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														

Sign of Contractor

For Accepting officer

**APPENDIX 'A' TO NOTICE INVITING e – TENDER (CONTD.)**

9.	Tender Issuing and Accepting Officer	:	Sachin Kumar, IDSE, EE, GE (AF) Adampur, PIN-144103 c/o 56 APO Tele: 0181-2753353, e-mail : <a href="mailto:admpraf4-mes@nic.in">admpraf4-mes@nic.in</a>
10.	Executing agency	:	GE (AF) Adampur
11.	Earnest money	:	<b>Rs. 94,940.00</b> in favour of <b>GE (AF) Adampur</b> in form of Deposit at call receipt. (FDR not acceptable).

**NOTES:-**

1. In case after opening of Cover 1, the number of MES enlisted contractor of eligible class as well as un-enlisted contractor, if any, fulfilling the other eligibility criteria given in NIT is less than 7 (Seven), applications in respect of MES contractors of one class or two classes (in case of remote and difficult areas to be decided as per list circulated by CE Command/ADG) below the eligible class shall also be considered subject to fulfillment of other eligibility criteria given in the NIT. Therefore, MES contractor one class below (two classed below in case of remote and difficult areas) may also bid for this tender. Such contractors (Contractors of one/two classes below the eligible class) shall not be considered in case their present residual works 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 bidder shall upload in their Cover-I bid details related to residual works 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 contractor of eligible class as well as un-enlisted contractor, if any, fulfilling the other eligibility criteria given in NIT, are 7 (Seven) or more, applications of only those one class below the eligible class bidders shall be considered, who have previously completed similar works satisfactorily and are meeting the criteria of up gradation in respect of past experience of completed works (individual work experience and or average annual turnover as applicable) and financial soundness (solvency/financial soundness and working capital) as per details given in Manual on Contracts. Therefore such contractors shall upload the requisite information/documents in the Cover-1.

3. Un-enlisted contractor shall be considered provided he meets the criteria. Foreign firms shall not be eligible for this tender. However Indian Firms having foreign national/Indian nationals staying abroad/Indian national having taken foreign citizenship, as director(s) shall be considered subject to security clearance from the concerned authorities.

4. Contractors enlisted with MES will upload following documents in 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 bid securing declaration in case SSD bond is not signed at the time of registration.
- (d) Any other document required as described in this Appendix.

5. Contractors not enlisted with MES will be required to upload following documents in Cover-1 for checking eligibility:

Sign of Contractor

For Accepting officer



**APPENDIX 'A' TO NOTICE INVITING e – TENDER (CONTD.)**

- (a) Application for tender on Firm's letterhead
  - (b) Scanned copy of DD/Bankers Cheque toward cost of tender and Earnest Money Deposit (EMD) instrument.
  - (c) Copy of police verification Report/Police Clearance Certificate/Character certificate from the Police Authority of the area where the registered office of the firm is located /notarized copy of valid passport of Proprietor /each Partner/each Director
  - (d) All documents required for enlistment in MES for the class mentioned in Para 8 (b) above as per Para 1.5 Section 1 of MES Manual on Contract 2020.
  - (e) Details of works being executed in MES, if any.
  - (f) Any other document required as described in this Appendix.
6. Tender not accompanied by scanned copies of requisite DD/Bankers Cheque towards cost of tender and earnest money (as applicable) in Cover I shall not be considered for validation of 'T' bid and their Financial Bids will not be opened.
7. Contractors should ensure that their original physical DDs and Earnest Money Deposit (EMD) instrument) (as applicable) reach the office of Accepting Officer within 07 days of bids submission end date failing which following action shall be taken :-
- (a) In case of tenders from an enlisted contractor of MES, where scanned copies of requisite DD/Bankers cheque towards cost of tender have been uploaded in Cover I but physical copies are not received within the stipulated period, their financial bids (Cover 2) will be opened. However non-submission of physical copies of cost of tender shall be considered as willful negligence of the tenderer with ulterior motives and such tenderer shall be banned from biddings 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 tender have been uploaded in Cover I 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 tender shall not qualify for opening of finance bid (Cover 2).
8. Contractor will not be allowed to execute the work by subletting or through power of attorney to a third party/another firm on his behalf. However a contractor can execute the work through power of attorney to sons/daughters/spouse of Proprietor/Partner/Director and firm's own employees, Director, Project Manager provided they are not having a separate enlisted firm in MES in their names 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 tenderer 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.

Sign of Contractor

For Accepting officer

**APPENDIX 'A' TO NOTICE INVITING e – TENDER (CONTD.)**

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 this Technical bid assigning reasons therefore through tender evaluation report which shall be uploaded on the website. Such tenderer, if desires may appeal to the next higher Engineer Authority (NHEA) viz HQ CWE (AF) Chandigarh on email id chdaf3-mes@nic.in with copy to the Accepting Officer on email before the scheduled date of opening of Cover 2. NHEA shall decide the matter within a period of seven working days from the date of receipt of appeal. The decision of the NHEA shall be final and binding. The tenderer/bidder shall not be entitled for any compensation whatsoever for rejection of his bid.

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

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

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

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

\_\_\_\_\_  
Signature of contractor

(Sachin Kumar, IDSE)  
EE  
Garrison Engineer  
for Accepting Officer

File No. 8124/ADM/C/T-39/02/E8  
Military Engineer Services  
**GE (AF) Adampur-144103**

Dated: 15 Oct 2024

Sign of Contractor

For Accepting officer

**IAFW-1779/1779-A**  
**(TO BE USED IN CONJUNCTION WITH-IAFW 2249( GENERAL CONDITIONS OF CONTRACTS)**

**MILITARY ENGINEER SERVICES**

Tele: 01812753353  
Fax: 01812753353  
E-Mail id [admpraf4-mes@nic.in](mailto:admpraf4-mes@nic.in)

Garrison Engineer (AF)  
Military Engineer Services  
Adampur-144103

8124/ADM/C/T-39/03/E8

15 Oct 2024

**TENDER AND ITEM RATE CONTRACT FOR WORKS REQUIRED FOR: PROVN OF CERTAIN TOILET  
AND ADDN/ ALTN TO EXISTING TOILET AT VARIOUS LOCATION AND PROVISION OF CHEMICAL  
EARTHING IN HANGER II & ASV HANGER AND 3 PHASE ELECTRIC SUPPLY TO TECH BUILDING OF  
VISITING SQN IN TECH AREA AT AF STN ADAMPUR.**

Dear Sir(s),

1. You are hereby authorized to tender for the above work. The tender shall be uploaded by the bidder from [www.defproc.gov.in](http://www.defproc.gov.in) Web site on the date and time as per NIT or amendment subsequently. The quoted tender shall be opened on or after the date and time as per NIT or subsequent amendment at the office of GE (AF) Adampur, Pin – 144103.
2. All correspondence concerning this tender shall be addressed as indicated at the top of this sheet quoting the reference as given above.

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

Yours faithfully

SIGNATURE OF OFFICER  
ISSUING THE DOCUMENTS  
APPOINTMENT: GARRISON ENGINEER

Sign of Contractor

For Accepting officer

**SCHEDULE 'A'****NOTES: -**

1. The entire works covered under this contract shall be completed within the period mentioned in Appendix 'A' to NIT from the date of commencement of work/date of handing over of the site to be mentioned in work order No. 1 which shall be issued by the GE after acceptance of the tender.
2. The items and quantities indicated in various sections of Schedule 'A' are provisional and inserted for guidance only and may be varied as per actual requirements. However these shall not be varied beyond the limits laid down in condition 7 of IAFW-2249 (General Conditions of the contracts).
3. The Unit rate(s) in column 6 of Schedule 'A'/BoQ are required to be filled in by the tenderer in figures only.
4. The amount arrived at the end of BoQ is not firm but shall be treated as "Contract-Sum" as defined in IAFW-2249 (General conditions of the contracts).
5. Unit rate quoted by the tenderer shall deemed to be inclusive of: -
  - a) Provision of necessary materials & labour, supply & fixing, laying, jointing, fabrication, assembling and testing etc. (as applicable) unless mentioned specifically as fixing only or hanging only or supply only or laying only and the like required for entire completion of the work all as specified and directed.
  - b) All statutory levies/duties, construction labour welfare tax, service tax, Octroi etc including sales tax on works contracts as applicable. It may be noted that conditional tender regarding "SALES TAX ON WORKS CONTRACTS" or containing any other condition will not be considered and shall be liable to be REJECTED.
  - c) The unit rates quoted by the tenderers shall be deemed to allow for "minor extras" which are not specifically specified but are essentially required for the execution of work in a workman like manner and sound engineering practice. In case of difference of opinion as whether, a certain item of works constitute as "minor extra or not", the decision of the Accepting Officer shall be final, conclusive and binding.
  - d) DISPOSAL OF MATERIALS OBTAINED AFTER DEMOLITION/DISMANTLING : All the materials obtained from dismantling/demolition/taking down except materials taken in credit schedule shall become the property of Govt. Unserviceable materials as declared by GE shall be disposed off as directed by Engineer-in-Charge outside MD land at authorized dumping site declared by Local Administration. All serviceable material shall be deposited in MES store yard of GE/AGE and receipt of this effect shall be obtained from the Engineer-in-Charge
6. The descriptions of items of works mentioned in Schedule 'A' are in brief. These are deemed to be amplified and shall be read in conjunction with the special conditions, particular specifications, specifications for materials and workmanship, conditions and preambles in relevant trade section of MES Schedule and all these documents taken as mutually explanatory of one another.
7. Special conditions and preambles given in MES Schedule Part-II under respective trade 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 special conditions in MES Schedule Part-II and preambles to MES Schedule items, the provisions in descriptions of Schedule 'A' and provisions in particular specifications shall take precedence there over.
8. The items/materials for which makes have been specified in Schedule 'A', such items/materials shall be of makes mentioned in Schedule 'A' (subject to approval of make by GE where-ever specifically mentioned in the description of the relevant item). The other materials/items shall be of makes mentioned in the particular specifications. In case of conflicting provision with regard to makes mentioned in "particular specifications" in comparison to the makes mentioned in "Schedule 'A'" the makes mentioned in particular specifications shall prevail. However, the items/materials to be provided under this contract shall be in conformity with the provisions and specifications contained in this contract subject to the approval of GE.
9. The works included in these tender documents are to be executed as per Schedule 'A' at the location mentioned in the name of work. However the tenderers are advised to visit the site in consultation with the GE for ascertaining the actual location, nature, scope and quantum of the works involved against various items of Schedule "A" and about approach to site etc. It is however clarified that no claim whatsoever whether the tenderer (s) visit(s) the site or not shall be entertained at any stage on account of above.

**SCHEDULE 'A' (CONTD.)**

10. The contractor should keep in mind while quoting their/his tender, the fact that the site/buildings were the repair/work is to be carried out are under occupation and shall remain under occupation while carrying out the work. The contractor will carry out the work in phased manner in consultation with Engineer-in-Charge. It will be the responsibility of the contractor to submit in writing his planning programme of work; minimum seven days in advance to take over site/commence the work or any other requirements. No compensation or extra shall be admissible on this account.
11. All cutting chases made during execution of work shall be made good to match the adjoining finished surface without any extra cost to the department. Unit rate quoted against each item of Schedule 'A' shall deemed to include this aspect.
12. As per government of India, Ministry of Labour and Employment New Delhi circular No 35025/02/2014-SS II dated 15 Jul 2015, it is mandatory to the contractor that all the workers deployed by him are enrolled as members of provident fund and shall have the Universal Account Number(UAN).
13. Contractor will render a certificate that all workers employed by him directly or indirectly are registered for EPF and the due contributions have been deposited. While claiming the bills/ payments (RAR). Contractor will give a certificate that minimum fair wages are paid to employee as per latest notification issued by State Govt/Govt of India.).
14. No payment to contractor shall be made unless proof of payment of wages to the workmen is submitted by the contractor/firm. In case the payments are made in current coins or currency notes, certificate will be submitted by the contractor/firm along-with undertaking by the concerned workmen asking for payment other than by cheque or by crediting in the bank account of the employee/workmen. Any delay in payment on this account shall solely be rest upon the Contractor and nothing extra shall be admissible on this account.
15. Contractor will deposit the entire material required under this work store provided by the Engineer-in-Charge. The store shall be provided with two locks on each door. The key of one lock of each door shall remain with the Engineer-in-Charge or his representative and that of other lock with the contractor or his authorized agent at site of work so that material is removed from the store only according to the daily requirement with the knowledge of both parties
16. **NOTES FOR SCHEDULE OF CREDIT:-**
  - (a) The quantities of dismantled material given in list of credit are provisional. However, rate of credit is firm and amount of recovery shall be worked out accordingly.
  - (b) Material retrieved from demolition / dismantling shall not be allowed for reuse in the work except otherwise specified to be re-used as per relevant items of Schedule 'A'/BoQ.
  - (c) Material retrieved during demolition other than those catered in Credit Schedule shall become Govt. property and contractor shall deposit the same in the store yard of concerned AGE.
  - (d) Tenderers are advised to visit the site of work before quoting their rates of Schedule 'A' to ascertain the condition/ quality of material likely to be retrieved from work.
  - (e) Old material shall be removed by the contractor only after the same has been declared un-serviceable by Engineer-in-Charge after inspecting the same.
  - (f) Any material retrieved during demolition which is re-useable in the opinion of Engineer-in-Charge shall be used in the work as per CA provisions or alternatively deposited in the store yard of concerned Engineer-in-Charge without any extra cost to the Govt. on this account. Only un-serviceable material shall be allowed to be removed from the site that too after recovery for the same would have been affected from the contractor's dues.

**SCHEDULE OF CREDIT(Cond..)**

Refer Schedule 'A' Note 16 here in before

Ser No.	Description of retrieved old unserviceable materials	Ref. to ser. item No. of Sch. 'A'	Unit	Approx. Unit/ Quantity	Unit Rate in Rupees	Amount in Rupees	REMARKS
1	2	3	4	5	6	7	8
<b>B/R Portion</b>							
1	Chowkhats or frame with shutter n exc. 1.50 sqm	129	Each	10	500.00	5500.00	
2.	Chowkhats or frame with shutter exc 1.50 but n exc. 4.00 sqm	130	Each	12	600.00	7200.00	
3.	GI / SteelTube 15mm bore	133	Running Metre	30	35.00	1050.00	
4.	GI / SteelTube 20mm bore	134	Running Metre	10	40.00	400.00	
5.	Demolished brick work	135	Cubic Metre	20	500.00	10000.00	
6.	Demolished PCC	136	Cubic Metre	4	20.00	80.00	
7.	Demolished RCC work including reinforcement	137	Cubic Metre	1	500.00	500.00	
8.	Steel sheet	138	Square Metre	29	25.00	725.00	
9.	Scrap iron various items		Kilogram	100	20.00	2000.00	
<b>E/M portion</b>							
10	Old U/S Earthing	101	Each	2	200	400.00	
11	Old U/S Point wiring including switch socket	139	Each Point	48	20.00	960.00	
12	Old U/S Sub main wiring	140	Running Metre	32	10.00	320.00	
13	Old U/S cast iron mains upto 40mm bore	141	Running Metre	255	25.00	6375.00	
14	Old U/S cable of any description	142	Running Metre	398	25	9950.00	

**Total Rs. 45,460.00**

Sign of Contractor

For Accepting officer

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

Ser No.	Particulars	Rate at which material etc will be issued to the contractor <u>Unit</u> <u>Rate Rs.</u>		Place of issue by name	Remarks
1	2	3	4	5	6

-----NIL-----

**SCHEDULE 'C'****LIST OF TOOLS AND PLANTS (OTHER THAN TRANSPORT) WHICH  
WILL BE HIRED TO THE CONTRACTOR  
(Refer conditions 15 and 35 of IAFW-2249)**

Srl. No.	Quantity	Particulars	Details of MES crew supplied	Hire charges per unit per working days	Standby charges per unit per on 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  
(Rer conditions 16 and 35 of IAFW-2249)**

Srl. No.	Quantity	Particulars	Rate per unit per working day (Rs.)	Place(s) of issue (By name)	Remarks
1	2	3	4	5	6

-----NIL-----

Sign of Contractor

For Accepting officer

**TO THE PRESIDENT OF INDIA**

Having examined and perused the following documents: -

1. Specifications signed by AGE(Contracts).
2. Schedule 'A', 'B', 'C and 'D' attached hereto.
3. MES Standard Schedule of Rates 2009 (Part-I – Specification) and MES Standard Schedule of Rates 2020 (Part-II) (Rates) (here-in-after and in IAFW-2249 referred to as the MES Schedule) together with errata/ amendments as under: -

Part-I:	Errata/ amendments-	1 to 3
Part-II:	Errata/ amendments-	1 to 122

4. General Conditions of Contracts IAFW-2249 (1989 Print) together with amendment No. 1 to 49 and errata 1 to 20.
5. **Water:** - Condition 31 of General Conditions of contracts IAFW-2249., water will be supplied by the MES and contractor shall be charged @ Rs. 3.75 per thousand rupees worth of work done.
6. Should this tender be accepted I/We agree :-

\*(a) That the sum of Rs------(Rupees\_\_\_\_\_only) forwarded as earnest money shall either be retained as part of performance guarantee amount or refunded by the Government in receipt of the appropriate amount of performance security as per condition 19 of IAFW2249.

(b) To execute all the works referred to in the said documents upon the terms and conditions contained or referred to therein and as detailed in General Summary on the subsequent pages and to carry out such deviations as may be ordered vide Condition 7 of IAFW-2249 upto a maximum **10% (Ten percent)** and further agree to refer all disputes as required vide Condition 70 of IAFW-2249 to the sole Arbitration of serving Officer having degree in Engineering or equivalent or having passed final/direct final examination of sub Division-II of Institution of Surveyors (India) recognized by the Govt. of India, to be appointed by Chief Engineer (AF) WAC, Palam, Delhi Cantt or in his absence the officer officiating as Chief Engineer (AF) WAC, Palam, Delhi Cantt if specifically authorized in writing by Chief Engineer (AF) WAC, Palam, Delhi Cantt whose decision shall be final, conclusive and binding.

\*Delete whichever is not applicable

Contd...



**IN LIEU OF IAFW-1779-A (REVISED 1955)**

Signature \_\_\_\_\_ Name \_\_\_\_\_ in the capacity of  
\_\_\_\_\_ duly authorized to sign the tender for and on behalf of  
M/s \_\_\_\_\_ (IN BLOCK LETTERS).

Witness \_\_\_\_\_ Postal Address \_\_\_\_\_  
Address \_\_\_\_\_ Telegraphic Address \_\_\_\_\_  
\_\_\_\_\_ Phone No \_\_\_\_\_

**ACCEPTANCE**

\_\_\_\_\_ alterations have been made in these documents and as evidence that these alteration(s) were made before execution of the contract agreement; they have been initialed by the contractor and **Shri Parmod Kumar Tariyal, AGE (Contracts)**. The said Officer(s) is/ are hereby authorized to sign and initial on my behalf the documents forming part of the contract.

The above tender is/ was accepted by me on behalf of THE PRESIDENT OF INDIA for the item rates contained therein Schedule "A" for the contract sum of Rs \_\_\_\_\_  
(Rupees \_\_\_\_\_  
\_\_\_\_\_) on the \_\_\_\_\_ day of \_\_\_\_\_ 2024.

Signature \_\_\_\_\_ dated the \_\_\_\_\_ day of \_\_\_\_\_ 2024.

Appointment: Accepting Officer  
Garrison Engineer (AF) Adampur  
(For and on behalf of The President of India)

Sign of Contractor

For Accepting officer

**GENERAL CONDITIONS OF CONTRACTS**

**(IAFW- 2249 (1989 PRINT)**

**FOR**

**MEASUREMENT CONTRACTS (IAFW-1779 & 1779-A)**

1. It is hereby agreed by me/ us that the following documents shall form an integral part of the tender documents:-

(a) General Conditions of Contracts IAFW-2249 (1989 Print) and Errata 1 to 20 containing 33 pages (Serial page No. 35 to 67).

(b) Amendment No. 1 to 49 IAFW-2249 in 25 pages (Serial page No. 68 to 92).

2. This tender submitted by me/ us is subject to the aforesaid documents and copy of which is in my / our possession and which I / We have read fully and understood before submission of this tender.

3. My/ Our signature here-in-under is in token of my/ our having accepted the aforesaid documents as forming an integral part of this tender.

**Notes:-**

(i) The document mentioned above can be seen in the office of the Garrison Engineer Adampur during working hours.

(ii) In case of difference of interpretation due to wording of English and Hindi versions, the English version will prevail as per article 348 of Constitution of India.

**SCHEDULE OF MINIMUM FAIR WAGES**

It is hereby agreed that the "Schedule of Minimum Fair Wages" (SMFW) as published vide Government of India Notification dated 10 Mar 92 (Revised upto date) comprising 10 pages, form part of these tender documents.

My/Our signature hereunder amounts to my/our having read and understood the provisions contained therein and I/We agree that I/We shall abide by the same and that aforesaid documents form part of this tender.

**NOTES: -**

- (i). "Schedule of Minimum Fair Wages" referred to above is available for reference, in any MES Office at CWE (AF) Chandigarh.
- (ii) The Schedule of Minimum Fair Wages as enclosed is for reference only. However, minimum Fair Wages mean the minimum wages of laborers as fixed by Govt of India and State Govt, whichever is higher.

**SPECIAL CONDITIONS****1. GENERAL**

- 1.1 The following special conditions shall be read in conjunction with General Conditions of Contracts (IAFW-2249) and IAFW-1779A including upto date Errata/Amendments thereto. If any provision in these special conditions is at variance with that of the aforesaid documents, the former shall be deemed to take precedence there over.
- 1.2 The work under this contract shall be carried out in accordance with Schedule 'A', Particular specifications and general specifications and other provisions in MES schedule read in conjunction with each other
- 1.3 The term "General Specifications" referred to here-in-before as well as referred to in IAFW-2249 General Conditions of Contract) shall mean the 'Specifications' contained in the MES Schedule.
- 1.4 General rules, specifications, special conditions and all preambles in the MES Schedule shall be deemed to apply to the works under this contract. In case of any discrepancy, the provisions made in these documents shall take precedence over the aforesaid provisions in the MES Schedule.

**1.5 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 program accordingly. No claim whatsoever, for not giving the entire site on award of work and giving the site gradually, will be tenable.

**2. ADMISSION TO SITE BY CONTRACTOR & RESPONSIBILITY TO ASCERTAIN HIS OWN INFORMATION**

- 2.1 The tenderers shall contact the Garrison Engineer for the purpose of inspection of site(s) and relevant documents other than those sent herewith, who will give reasonable facilities for this purpose. The tenderers shall also make themselves familiar with working conditions, accessibility of site(s) availability of materials and other cogent conditions which may affect the entire completion of work under this contract.
- 2.2 The tenderers shall be deemed to have visited the site(s) and made themselves familiar with the working site conditions, whether they actually inspect the site(s) or not.

**3. EMPLOYMENT OF PERSONNEL INCLUDING SECURITY AND PASSES:**

- 3.1 Refer condition 25 of IAFW-2249. The contractor shall employ only Indian National as his representative, 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 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.
- 3.2 The GE shall have full power and without giving any reason to order the contractor immediately to cease to employ, in connection with his 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.

**SPECIAL CONDITIONS (CONTD.)****3.3 SECURITY AND PASSES**

- 3.3.1 The Contractor shall on demand by the Engineer-in-Charge submit list of his agents, employees and work people concerned and shall satisfy the Engineer-in-Charge as to the bonafide of such people.
- 3.3.2 The Engineer-in-Charge, at his discretion, has the right to forward the list of personnel to CO of unit/Authority Controlling the area, for issuing the passes as per rules and regulations of the area in force to control the admission of the contractor, his agents, employees and work people to the site of the work or any part thereof. Passes should be returned at any time on demand by the Engineer-in-Charge and or the authorities concerned and in any case on completion of work.
- 3.3.3 The Contractor and his agents, employees and work people shall observe all the rules promulgated by the authority controlling the installation/area in which the work is to be carried out e.g. prohibition of smoking and lighting, fire precautions, search of persons on entry and exit, keeping to specific routes, observing specified timing etc. Nothing extra shall be admissible for any man-hours etc lost on this account.

**4. CONDITIONS OF WORKING IN RESTRICTED AREA**

- 4.1 **VISIT TO SITE WITHIN THE RESTRICTED AREA:** Permission to enter the restricted area at the time of submission of tenders can be obtained through the Garrison Engineer. Tenderers are advised to send prior intimation of their agent, representative etc. If any, dates and time of their proposed visit so that necessary arrangements may be made by GE to secure admission. Whether tenderer visit the site or not he shall be deemed to have full knowledge of the restrictions of entering into/exit from and within the "Restricted Area".
- 4.2 **ENTRY AND EXIT:** The Contractor, his agent(s), representatives, workmen etc and his materials, carts trucks, or other means of transports etc, will be allowed to enter through and leave from such gate or gates and at such times as the GE or authorities in charge of the restricted area may at their sole discretion permit to be used. The Contractor's authorized representative is required to be present at the place of entry and exit for the purpose to identifying his carts, truck etc to the personnel in charge of the security of Restricted Areas.
- 4.3 **IDENTITY OF WORKMEN:** Every workman shall be in possession of an identity card. The identity card will be issued after thorough investigation of the antecedents of the labourers by the contractors and attested by the Officer-in-Charge of the unit concerned in accordance with the standing rules and regulations of the units/Authority controlling the area.
- 4.3.1 **IDENTITY CARDS OR PASSES:** The Contractors, his agents and representatives are required individually to be in possession of an identity card or pass duly verified by the Police Department. The Identity card or pass will be examined by the security staff at the time of entry into or exit from the restricted area and also at any time or number of times inside the Restricted Area.
- 4.3.2 Contractor shall be responsible for the conduct and action of his workmen agents of representatives.
- 4.4 **SEARCH:** Thorough search of all persons and transport shall be carried out at each gate and for as many times as a gate is used for entry or exit and may also be carried out at any time or any number of times at the work site.

**SPECIAL CONDITIONS (CONTD.)**

- 4.5 **FEMALE SEARCHER:** If the contractor desires to employ female labour on works to be carried out inside the area and a female searcher is not borne on the authorized strength at the time of submission of the tender, he shall be deemed to have allowed in his tender for pay and allowances etc, for a female searcher ( Class IV servant/Gp `D' Servant), calculated for the period, female labour is employed by him inside that area. If more than one contractor has/have to be employed, in addition to the authorized strength, the salary and allowances may be paid on an equitable basis between the contractors employing female labour taking into consideration the value and period of completion of their contracts. The GE's decision in regard to the amount recoverable on this account from any contractor shall be final and binding.

4.6 **WORKING HOURS**

- 4.6.1 The units controlling Area, usually work during six days in the week and remain closed on the 7<sup>th</sup> day. The working hours available to contractor's labour and staff are however, appreciably reduced because of the time taken in security checks observed at the time of entry, exit and during working hours. The exact working hours, days and non working days observed for the restricted area, where works are to be carried out shall be deemed to have been ascertained by the contractor before submitting his tender. The tenderer's attention is invited to the fact that the total number of working hours for a unit are prescribed in regulations and they cannot be increased by the Garrison Engineer. The definition of working days as given under condition 1(t) of IAFW-2249 does not apply in cases where the works are carried out in Restricted Area.

- 4.6.2 Contractor's materials, transport etc, shall normally be permitted to go in & out of the area between 0830 hours to 1700 hours only..

- 4.6.4 Contractor may also be allowed to carry out the work beyond 5.00 PM and upto 08.30 AM ( day & night) but however no movements of materials and transport out of the site of work shall be permitted during night unless special permission is obtained from the Garrison Engineer.

- 4.7 **WORKING ON HOLIDAYS:** The Contractor shall not carry out any work on 22authori holidays weekly holidays and other non working days except when he is specially authorized in writing to do so by the GE. The GE may at his sole discretion declare any day as holiday or non working day without assigning any reason for such declaration.

4.8 **FIRE PRECAUTIONS**

- 4.8.1 The Contractor, his agents, representatives, workmen etc, shall strictly observe the orders pertaining to fire precautions as prevailing within the restricted area.

- 4.8.2 Motor transport vehicles, if any, allowed by authorities to enter the restricted area, and shall be fitted with serviceable fire extinguishers.

5. **MINIMUM WAGES PAYABLE:** Refer condition 58 of IAFW-2249 (General Conditions of Contract)

- 5.1. The contractor shall not pay wages lower than minimum wages for labour as fixed by the Govt of India/State Govt/Union Territory whichever is higher.

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

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

**SPECIAL CONDITIONS (CONTD.)**

6. **ROYALTIES:** Reference condition 14 of General Conditions of Contracts (IAFW-2249). No quarries on defence land are available.

7. **LAND FOR TEMPORARY WORKSHOP, SITE LABORATORY, STORES ETC**

Delete the following from lines 5 to 9 of Sub para 1 of condition 24 of IAFW-2249 reading "In the event of ..... land allotted to him" and insert as under :-

"Separate land will be allotted to the contractor for the storage of materials, temporary workshop and offices, for which he shall pay the nominal rent of Rupee 1/- per year or part of a year as mentioned in condition 24 of IAFW 2249. The land/open space available within vicinity of site of work as directed by GE may also be used by the contractor for these purposes but free of charge. No land for accommodation of Labour will be allotted".

8. **WATER** (Refer condition 31 of IAFW- 2249)

- 8.1 Water will be supplied by MES at the point(s) as decided by GE. As the water supply by MES is likely to be intermittent the contractor shall make his own arrangement for storing the water required for the works, labour and workmen etc, at his own expense. Water shall be paid for by the contractor at rates mentioned under para 5 of tender page.
- 8.2 Water used whether in process of making materials or in execution of work or for cleaning etc, shall be clean and fresh, and free from deleterious matter.

9. **ELECTRIC SUPPLY**

- 9.1 Electric supply required for the work upto a maximum of 2 kW single phase 230 volts shall be made available by the MES at points shown on site plan or as decided by GE. KWH meters to register the electric energy supplied and main switch shall be provided and installed by the MES. Contractor shall provide all necessary cables, fittings etc, from the tapping point in order to ensure a proper and suitable supply of electricity for execution of work. The contractor will be charged for the electric energy consumed for execution of works at the prevailing rate per unit for lighting/power.
- 9.2. MES do not guarantee continuity of supply and no compensation whatsoever shall be allowed for supply becoming intermittent or for break down in the system.
- 9.3. GE or his representative shall be free to inspect all the power consuming devices or any electrical lines provided by the contractor. Any devices or electric lines provided by the contractor, which is not to the satisfaction of GE shall be disconnected from the supply, if so directed by him. Electricity provided for this contract shall not be made use for carrying out other works. Electric charges shall be recovered from the final bill or various work orders. In case, however, no electric connection is taken by the contractor no recovery of electric charges shall be affected.

10. **MATERIALS & SAMPLES:** (Refer condition 10 of IAFW- 2249)

- 10.1 The materials and articles, which have been specified from certain makers/manufacturers, shall be of makes/manufactures as specified. If the manufacturers specified in tender documents make both ISI marked and conforming to ISI, the materials/articles shall be ISI marked.
- 10.2 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 a list of ISI marked manufacturers refer to the website of BIS ie [www.bis.org.in](http://www.bis.org.in).

**SPECIAL CONDITIONS (CONTD.)**

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

10.3 Materials of local origin shall be as specified and conforming to samples kept in GE's office. The tenderer is advised to inspect samples 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 satisfy 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.

10.4 **The contractor shall not procure materials and articles unless the samples are first got approved by the GE.**

10.5 **SAMPLES**

(a) If any specific makes/manufacturers names are specified in BoQ or Particular Specifications or in **Appendix 'B'** or Appendices to Particular Specifications, materials shall be of these specific makes/manufacturers only. ISI marking will not be mandatory for such items where makes/manufacturers have been specified unless the items of makes/manufacturers specified are available both with IS marking and without ISI marking. If any material is not manufactured with IS certifications mark in the country, it shall be conforming to relevant IS and other specifications specified elsewhere and shall also conform to samples displayed in CWE's/GE's office as applicable. However the materials/items listed in Appendix 'B' shall be of makes specified in Appendix 'B' to these particular specifications and conforming to relevant IS (IS marking is not mandatory).

(b) In case of conflicting provisions regarding makes in Schedule of Works, particular specifications, **Appendix 'B'**, the following order of precedence shall be followed:-

- (i) Schedule of Works
- (ii) Particular specifications
- (iii) Appendix 'B'

10.5.1 The materials to be incorporated in the work by the contractor shall be equal or superior in quality to sample displayed and shall comply with the specifications given in these tender documents.

10.5.2 For obtaining sample approval, contractor will download list of BIS marked manufacturers from BIS site [www.bis.org.in](http://www.bis.org.in). He will select manufacturer(s) (the items/materials shall be one of the makes/manufacturers mentioned in these tender documents and for other items/materials, the contractor shall select manufacturer/materials) 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 site and process it to GE with his recommendations for approval.

11. **RECORD OF MATERIALS & PURCHASE VOUCHERS**

11.1 The quantity of materials, such as cement, steel, water proofing compound, chemicals for ATT & water proofing treatment as directed by the Engineer-in-Charge (the quantity of which cannot be checked after incorporation in the works), shall be recorded in 'Measurement Books' and signed by the Contractor and the Engineer-in-Charge as a check to ensure that the required quantity has been brought to site for incorporation in the work.

11.2 Materials brought to site shall be stored as directed by the Engineer-in-Charge and those already recorded in 'Measurement Books' shall be suitably marked for identification.



**SPECIAL CONDITIONS (CONTD.)**

- 11.3 The original purchase vouchers/invoices so produced by the contractor shall be verified and defaced by Engineer-in-Charge indicating Contract Number and photocopy of the same shall be kept in his record. Genuineness of purchase vouchers shall be verified by the Engineer-in-Charge before considering the same for making payment. The contractor shall ensure that the materials are brought to site, in original sealed containers/packing, bearing manufacturer's marking except in the case of the requirement of material(s) being less than smallest packing.
- 11.4 Production of purchase vouchers for these items is also mandatory. Contractor shall produce vouchers/invoices from the manufacturers and/or their authorized agents for the full quantity of the following materials, as applicable as a prerequisite before submitting claims for payment for any advance on account of the work done and/or materials collected in accordance with Condition 64 of IAFW-2249 (General Conditions of Contracts) : -
- (a) Factory made shutters.
  - (b) Windows/ventilators of any description
  - (c) Fittings/fixtures of door and windows/Iron Mongery
  - (d) Floor/Wall tiles, PCC tiles, Paving blocks, kerb stones, etc
  - (e) Cables/wires and other electrical and Water Supply fittings/fixtures.
  - (f) For any other items/materials as directed by the GE.
12. **CO-ORDINATION WITH OTHER AGENCIES:** The contractor shall permit free access and generally afford reasonable facilities to other agencies or departmental workmen engaged by the Govt to carry-out their part of the work, if any, under separate arrangements.
13. **PERIOD FOR KEEPING THE TENDER OPEN:** The tender shall remain open for acceptance for a period of 60 (Sixty days) from the next date subsequent to bid submission end date.
14. **CONTRACTOR'S REPRESENTATIVES AND WORKMEN:** Refer condition 25 of IAFW-2249. The contractor shall employ only Indian Nationals as his representatives, servants and workmen and verify their antecedents and loyalty before employing them for the works. He shall ensure that no person of doubtful antecedents and nationality is, in any way, associated with work. If for reasons of technical collaboration or other consideration, the employment of any foreign national is unavoidable, the contractor shall furnish full particulars to this effect to the Accepting Officer at the time of submission of his tender.
15. **SECURITY OF CLASSIFIED DOCUMENTS:** Refer Condition 2-A and 3 of IAFW-2249.
- The contractor shall not communicate any classified information regarding the work either to Sub contractors or others without the prior written approval of the Engineer-in-Charge. The contractor shall also not make copies of the design/ drawing and other documents furnished to him in respect of work, and shall return all documents on completion of the work or earlier on determination of the contract. The contractor shall along with the final bill attach a receipt of his having returned the classified documents as per Condition 3 of IAFW-2249 (General Conditions of Contract).
16. **CONTRACTOR'S PLANT/EQUIPMENT AT SITE : SECURITY AGAINST LOSS OR DAMAGE**
- 16.1 The contractor shall furnish to the Engineer-in-Charge every morning distribution return of his plants/equipment on the site of work stating the following particulars:-
- (i) Particulars of plants/equipment's, their make manufacture Model No. if any, registration No. if any, capacity, year of manufacture and year of purchase etc.
  - (ii) Total No. (quantity) on site of work.
  - (iii) Location, indication Nos., quantity at each location of site of work.

**SPECIAL CONDITIONS (CONTD.)**

- (iv) Purchase value on the date of purchase. For the purpose of the condition, plant/equipment, shall be given vehicle No. i.e. trucks and lorries but neither the workman's tools nor any manually operated tools/equipment. The Engineer-in-Charge shall record the particulars supplied by the contractor in the works diary and send the return to the GE for record in his office.

**Note:** - However this will not absolve the contractor of his responsibility for safe custody of plants, equipments etc even though the work is to be executed in restricted area.

16.2 **LOSS OR DAMAGE ON ACCOUNT OF ENEMY ACTION:** If as a result of enemy action, the Contractor suffers any loss or damage, the Government shall reimburse to the Contractor such loss or damage to the extent and in the manner hereinafter provided: -

- (i) The loss suffered by him on account of any damage or destruction of his plant/ equipment (as defined in special condition (a) above) or materials or any part or parts thereof. (The amount of loss assessed by the Accepting Officer of the Contract or the CWE in case of contracts accepted by GE, on this account shall be final and binding).
- (ii) The compensation paid by him under any law for the time being in force to any workman employed by him for any injury caused to him or to the workman's legal successors for loss of the workman's life.
- (iii) Payment of compensation for loss or damage to any work or part of work carried out (The amount of compensation shall be determined in accordance with condition 48 of General Conditions of Contracts IAFW-2249). No reimbursement shall be made nor shall any compensation be payable under the above provision unless the Contractor had taken Air Defence Precautions ordered in writing by the GE/OC concerned or in the absence of such orders, reasonable precautions. No reimbursement shall be payable nor shall any compensation be payable for any plant/equipment or materials not lying on site of work at the time of enemy action.

**17. FORCE MAJEURE**

- 17.1 Should any force majeure circumstances arise, each of the contracting party shall be excused for the non-fulfillment or for the delayed fulfillment of any of its contractual obligations, if the affected party within 15 days of its occurrence informs the other party in writing.
- 17.2 Force majeure shall mean fires, floods, natural calamities or other acts such as war, turmoil, strikes (as not limited to be establishment of the seller), sabotage, explosions, quarantine, restrictions beyond the control of either party.
- 17.3 It is understood and agreed between the parties hereto that the rights and obligations of the parties shall be deemed to be in suspension during the continuance of the force majeure event(s) as aforesaid and the said rights and obligations shall automatically revive upon the cessation of intervening force majeure event(s). The period within which the rights and obligations of the parties shall be in suspension due to the force majeure event(s) shall not be considered as a delay with respect to the period of delivery and/or acceptance of delivery under the contract or otherwise the determinant of either party.
- 17.4 Notwithstanding the provisions of the immediately foregoing clause(s), it is further understood and agreed between the parties hereto that in the event(s) of any force majeure persisting for an uninterrupted period exceeding 06 (six) months, either party hereto reserves the right to terminate this contract upon giving prior written notice of 30 (thirty) days to the other party of the intention to terminate without any liability other than reimbursement on the terms provided in this agreement of the goods received.

**SPECIAL CONDITIONS (CONTD.)**

18. **OFFICIAL SECRET ACT:** The Contractor shall be bound by the official secret Act 1923.
19. **CLEANING DOWN :** Refer Condition 49 of IAFW-2249, General Conditions of Contract. The Contractor shall clean all floors, walls remove cement/lime/paint marks/drops etc, clean the joinery glass panes etc touch up all painters work and carryout all other necessary items of work in connection there with and leave the whole premises clean and tidy before handing over the building(s).
- 20 **TESTING OF MATERIALS:** Refer condition 10 of IAFW-2249 (General Conditions of Contract)
- 20.1 No material will be incorporated in the work unless it has been tested, found fit and approved by the GE. Testing of various materials shall be carried out as per frequency & 'various level of testing' mentioned in **Appendix 'D'** to the tender documents and /or given in relevant IS/MES Schedule /elsewhere mentioned in tender documents.
- 20.2 **'A' & 'B' LEVEL TESTS:** 'A' & 'B' level tests as described in Appendix 'D' shall be carried out in Command Testing Lab (CTL) established by MES at 'N' area Airport Road Chandigarh and charges for the same shall be recovered from the contractor as mentioned in Appendix 'D'.
- 20.3 **'C' LEVEL TESTS:** 'C' level tests as described in Appendix 'D' shall be carried out in National Test House/ SEMT Pune /IIT/REC/Govt Engineering College/Govt Laboratory & Laboratory accredited by NABL as nominated by the GE in writing. The charges for 'C' level tests shall be recovered from contractor as given in Appendix 'D', when these tests are carried out in SEMT Pune. Whereas, no recovery shall be made and charges as per actual shall be borne by the Contractor when these tests are carried out in labs other than SEMT Pune.
- 20.4 The contractor shall provide at his own expenses all facilities including labour, material, equipments, tools and plants etc for carrying out tests including material/tests cubes, beams etc required to be preserved by GE as specified in the Contract including relevant IS. The cost of materials and labour consumed in test and the cost/charges of test shall be borne by the contractor in all cases.
- 20.3 In case the Engineer-in-Charge desires to carryout additional test(s) which are not covered by the contract including relevant IS, the contractor shall provide all facilities required for the purpose shall be borne by the contractor. In case the test results are found at variance from the site laboratory, then the results obtained from the above mentioned labs will be final and binding and charges thereof shall also be borne by the contractor.
- 20.4 Charges for tests which are conducted at the CTL/SEMT Pune shall be borne by contractor and shall be recovered from contractor during payment of RARs/Final Bill whereas, charges & other expenses for tests conducted through other labs (other than CTL/SEMT Pune) shall be borne by the contractor and shall be payable directly.
- 21 **CONSTRUCTION LABOUR WELFARE TAX:** The quoted rates in the tender by the contractor shall be deemed to be inclusive of construction labour welfare tax & cess and no extra payment shall be admissible to the contractor on this account.
22. **RE-IMBURSEMENT/REFUND ON VARIATION IN "TAXES DIRECTLY RELATED TO CONTRACT VALUE"**
- 22.1 The rates quoted by the contractor shall be deemed to be inclusive of all taxes /cesses viz GST, duties, Royalties, Octroi & other levies payable under the respective Statues. No reimbursement/refund for variation in rates of taxes, duties, Royalties, Octroi & other levies, and/or imposition/abolition of any new/existing taxes/ cesses, duties, Royalties, Octroi & other levies shall be made except as provided in sub Para 22.2 here-in-below.

**SPECIAL CONDITIONS (CONTD.)**

- 22.2 The taxes/ cesses which are levied by Govt at certain percentage rates of Contract Sum/Amount shall be termed as "taxes directly related to Contract value" such as GST, labour Welfare Cess/Tax and like, as applicable but excluding Income Tax. The tendered rates shall be deemed to be inclusive of all taxes directly related to Contract value" with existing percentage rates prevailing on last due date for receipt of tenders. Any increase in percentage rates of "taxes directly related to Contract value: with reference prevailing rates on last due date for receipt of tender shall be reimbursed to the contractor and any decrease in percentage rates of "taxes directly related to Contract value" with reference to prevailing rates on last due date for receipt of tenders shall be refunded by the Contractor to the Govt/deducted by the Govt from any payments due to the Contractor. Similarly imposition of any new "taxes directly related to Contract value" after the last due date for receipt of tenders shall be reimbursed to the Contractor and abolition of any "taxes directly related to Contract value" prevailing on last due date of receipt of tenders shall be refunded by the contractor to the Govt/deducted by the Govt from the payment due to the Contractor.
- 22.3 The contractor shall, within a reasonable time of his becoming aware of variation in percentage rates and/or imposition of any further "taxes directly related to Contract value", give written notice thereof to the GE stating that the same is given pursuant to this Special Condition, together with all information relating thereto which he may be in a position to supply. The contractor shall submit the other documentary proof/information's as the GE may require.
- 22.4 The contractor shall, for the purpose of this condition keep such books of account and other documents as are necessary and shall allow inspection of the same by a duly authorized representative of Govt and shall further, at the request of the GE furnish, verified in such a manner as the GE may require, any documents so kept and such other information as the GE may require.
- 22.5 Reimbursement for increase in percentage rate/imposition of "taxes directly related to Contract value" shall be made only if the contractor necessarily & properly pays additional "taxes directly related to contract value" to the Govt without getting the same adjusted against any other tax liability or without getting the same refunded from the concerned Govt authority and submits documentary proof for the same as the GE may require.
23. **LABOUR REGULATION AND ABOLITION ACT:** Contract labour (Regulation and Abolition) Act 1970 is applicable to MES contracts. Rates quoted by the contractor shall be deemed to take into account the cost etc, required to comply with the provisions contained in the said act and the rules framed under the said act.
24. **INDEMNITY BOND FOR PAYMENT OF LABOUR, WORKMEN EMPLOYED ON WORKS OR OTHER MONEYS OF TENDER PAYMENTS:** The contractor shall execute indemnity bond with the GE for enforcement of various enactments like wages Act 1936, Minimum wages Act 1948, employees liability Act 1938 workmen's compensation Act 1923 or any other Act or enactment's related to indirectly and directly labour employed on works and rules framed there under from time to time for the time being enforce. In case of non compliance of any of the enactment's by the contractor, the GE shall be empowered to exercise the powers vested in him as the principal employer and the amount so not paid to the labour/workman to be deducted from the sum become due under this contract or from other contracts in terms of condition 67 of IAFW-2249, General Condition of Contracts.
25. **RECORD OF CONSUMPTION OF CEMENT**
- 25.1 The contractor shall maintain a pucca bound register with serially numbered pages with all pages initialed by Engineer-in-Charge against numbering showing quantities of cement received, issued in work and balance at the end of each day. The form of record shall be as approved by Engineer-in-Charge. The register shall be signed daily by representatives of MES and the contractor in token of verification of its correctness and will be checked by Engineer-in-Charge, at least once a week and on the day cement is received at site.

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25.2. The register shall be kept at site in safe custody of the contractor's representative during the progress of work and shall be produced on demand for verification to the inspecting officer(s).

25.3. On completion of the work, the contractor shall deposit the cement register with the Engineer-in-charge for record.

26 **NET WORK ANALYSIS** (Applicable for works costing to Rs. 25 lakh & above)

26.1 Time and progress chart to be prepared as per condition 11 of IAFW-2249 shall consist of detailed net work analysis and a time schedule. The critical path net work will be drawn jointly by the GE and contractor soon after acceptance of tender. The time schedule of the activities will be done by the contractor so as to finish the work within the stipulated time. On completion of the time schedule a firm calendar date schedule will be prepared and submitted by the contractor to GE, who will approve it after due scrutiny.

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

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

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

27. **DEFECTS LIABILITY PERIOD: (REFER CONDITION 46 OF IAFW-2249).**

Defects Liability Period for this work shall be 24 (Twenty Four) months.

28. **ENLISTMENT IN ADJOINING COMMAND AND FACILITY FOR WORKING FOR OTHER SERVICES AT SAME STATION**

With introduction of provision for Performance Security for each contract, these facilities are no more applicable. Accordingly, the contractor will be recognized by the Index No of his **Parent Command** and there will be no reference to his enlistment under any Adjoining Command Facility / Parallel Enlistment Facility".

**PARTICULAR SPECIFICATIONS****1 GENERAL**

- 1.1 Work under this contract shall be carried out in accordance with Schedule 'A', Particular Specifications, drawings (where applicable) and general specifications and other provisions in MES Standard Schedule of Rates (here-in-after called MES Schedule), read in conjunction with each other.
- 1.2 Term "General Specifications" referred to here in after as well as referred to in IAFW-2249 (General Conditions of Contracts) shall mean the specifications contained in the MES Schedule Part-I.
- 1.3 General rules, specifications special conditions and preambles in the MES Schedule shall be deemed to be applicable to the work under this contract, unless specifically stated otherwise in these documents in which case the provision in these documents shall take precedence over the aforesaid provisions in the MES Schedule. The terms as specified wherever appear in tender documents and drawings (where applicable) related to relevant particular specifications and in its absence general specifications. All references to MES Schedule in these specifications relate to SSR Part-I of MES Schedule unless otherwise mentioned. References to some paragraphs of MES Schedule have been made in these particular specifications but other paragraphs and provisions as applicable are also to be followed for all sections/parts of Schedule 'A' even though not particularly mentioned here-in-after e.g. reference to Paras pertaining to general workmanship for brickwork, iron and steel work etc. have not been made but provision therein as required for work are applicable.
- 1.4 Where specifications for any item of work are not given in MES Schedule or in these particular specifications, specifications as given in relevant Indian Standard or as per code of practice shall be followed.
- 1.6 Rates quoted for a particular item by the tenderer shall be deemed to include for any minor details/items of work and/or constructions which are obviously and fairly intended and which may not have been included in these documents but which are essential for the execution and entire completion of the work. Decision of the Accepting Officer as to whether any minor details/items of work and/or construction is obviously and fairly intended to be included in the contract or not shall be final, conclusive and binding.
- 1.8 Where specifications/provisions given in these particular specifications are at variance with the provision/specifications given in MES Schedule, specifications/ provision given in these particular specifications shall be followed.

**2 CEMENT**

- 2.1 **TYPE OF CEMENT**: The cement shall be Ordinary Portland Cement (OPC) grade 43 (IS-8112-2013). Contractor may use Portland Pozzolana Cement(PPC) (IS: 1489-1991) in case it shall meet the strength criteria of 43 Grade OPC as laid down in IS 8112-1989, subject to precautions/conditions as described under PS clause 2.10 here-in-after.
- 2.2 **SOURCE OF PROCUREMENT**: Cement shall be procured by the contractor under his own arrangement and at his own cost from main producers of cement as specified in **Appendix 'B'**. The particulars of the Manufacturer of Cement along-with the date of manufacture shall be submitted by the contractor separately for each lot of cement procured. Each lot of cement procured by the contractor shall be recorded in the measurement book as "Not to be abstracted" and shall be supported with authentic original purchase vouchers highlighting the makes, batch Nos & quantity etc.

**PARTICULAR SPECIFICATIONS(CONTD.)**

- 2.3 **IDENTIFICATION:** Marking of each cement bag shall be as per relevant IS Code.
- 2.4 **SCHEDULE OF SUPPLY:** Schedule of supply of cement shall be 31 authorize by the contractor with GE and shall be incorporated in CPM Chart so that supply of cement is monitored in a way so as to avoid any delay in completion of the work. The complete requirement of cement will be worked out before making any RAR payments and procurement of cement by the contractor will be completed sufficiently in advance of the date of completion. No extension of time will be considered for non-availability of cement. Every cement godown shall be provided with two locks on each door. The key of one lock of each door shall remain with Engineer-in-Charge or his representative and that of the other lock with the contractor's 31 authorized agent at site of work so that cement is removed from the godown only according to daily requirement with the knowledge of both the parties. Cement for purpose of accounting shall be on the basis of number of bags. Minor variations in cement not more than 2% by weight of cement in a bag will be permissible for purpose of accounting of cement bags. However cement shall be incorporated in the work on actual weight basis where specified without any additional cost.
- 2.5. **TESTING**
- 2.5.1. **TESTING OF CEMENT:** The contractor shall submit the manufacturer's original vouchers and test certificate along with the test sheet giving the result of physical test as applicable and the chemical composition of the cement or authenticated copy thereof, duly signed by the manufacturer with each consignment. The Engineer-in-Charge shall record these details in the cement Acceptance Register after due verification. The GE shall also organize independent testing at random samples of cement drawn from various lots from the National Test House, SEMT CME, Regional Research Laboratories, Govt/NABL approved Laboratory, Zonal Laboratory, Govt. Engineering College laboratory as per IS-3535-1986 (method of sampling hydraulic cement) IS-4031 (Method of physical test for hydraulic cement.) and IS-4032 1985(Method of chemical analysis of hydraulic cement). In case cement test result does not fall within acceptable limit, respective lot of cement shall be rejected and shall be removed by the contractor within 24 hours from the site. The cost of tests shall be borne by the contractor irrespective of status of the results and no claim shall be entertained on this account & condition -10 of IAFW-2249 shall deem to be amended accordingly.
- 2.5.2 **ADDITIONAL TESTS TO BE CONDUCTED FOR CA VALUING MORE THAN 1 CRORE**
- 2.5.2.1 Following additional test for chemical composition (as per IS-269-1989) and IS 4032-1985 from the recognized laboratories given in Para 2.1.8.1 above will be conducted for OPC cement:-
- (a) Initial and final setting time.
  - (b) Soundness test.
  - I Compressive strength test at 3, 7 and 28 days as specified in the relevant IS Code.
  - Chemical composition and fineness test.
- 2.5.2.2 Sample of cement from each lot should be collected by the Engineer-in-Charge and GE in accordance with IS-3535-1986.
- 2.6 **STORAGE:** The cement shall be stored and stacked properly. Precautions in storage shall be observed as per SSR (Part-I). Inspection shall be carried out once a day by the rep of GE associated with the work and rep of contractor. It shall be ensured that tested and untested cement are segregated and stored separately with distinct identification. Cement for not more than 3 months requirement should be procured and held in stock to avoid its deterioration.

**PARTICULAR SPECIFICATIONS(CONTD.)**

- 2.7 **DOCUMENTATION:** The contractor shall submit original vouchers from the manufacturer for the total quantity of cement supplied under each consignment to be incorporated in the work. All consignment received at the work site shall be inspected by GE and documents verified before acceptance. The original vouchers and the Test Certificates shall be defaced by the Engineer-in-Charge, signed by contractor and kept on record in the office of GE duly authenticated and with cross reference to the control number recorded in the Cement Acceptance Register. This register will be signed by JE, Engineer-in-Charge, GE and the contractor. The Accepting Officer may order a board of officers for random check of cement and verification of connected documents. The entire quantity of cement shall also be suitably recorded in the Measurement Book (Not to abstract) for record purposes before incorporation in the work and shall be signed by the Engineer-in-Charge and the contractor.
- 2.8 In case of any dispute relating to the interpretations arising out of the above referred provisions, the decision of the Accepting officer shall be final, conclusive and binding.
- 2.9 **RECORD OF CONSUMPTION OF CEMENT.**
- 2.9.1 For the purpose of keeping a record of the cement used, the contractor shall maintain properly bounded registers for cement serially numbered (all pages, initialed against the numbering by the Engineer-in-Charge) in the form approved by the Engineer-in-Charge, showing daily receipt, quantity used in the work and balance in hand at the end of each day. The registers shall be maintained with daily entries duly authenticated by the contractor or his authorized representative and the Engineer-in-Charge.
- 2.9.2 The registers shall be kept at site in the safe custody of the Engineer-in-Charge during the progress of the work and shall on demand be produced for verification to the Inspecting Officer. On completion of the work, the cement register shall be deposited with the GE along with the final bill.
- 2.10 **PRECAUTIONS/PRE-CONDITIONS TO USE PORTLAND POZZOLANA CEMENT(PPC):** The contractor shall submit following test certificate from the manufacturer of the cement for every batch of cement:-
- (i) The quality of fly ash is strictly as per IS 1489 (Part I)-2002.
  - (ii) Fly ash is inter-ground with clinker and not mixed with clinker.
  - (iii) Dry fly ash is transported in closed containers and stored in silos. Only pneumatic pumping shall be used.
  - (iv) The fly ash is received from thermal power plant using high temperature combustion above 1000<sup>0</sup> C should be used.
  - (v) The fly ash content in PPC shall not exceed 25% to ensure consistency.
- 3 **EXCAVATION AND EARTH WORK**
- 3.1 **CLASSIFICATION OF SOIL:** Unless otherwise specifically mentioned in BoQ, excavation and earth work under this contract shall be considered as Soft/loose soil. The measurement of excavation shall be as given in MES Schedule (Part-II).
- 3.2 If hard rock is met at site, contractor shall immediately notify the fact to the GE in writing, who will after due verification, regularize the change through a proper deviation order. Hard rock boulders if obtained from excavation shall become the property of the contractor and a recovery @ Rs.600/- per cubic metre shall be deducted from contractor's running account receipt. However contractor may use hard rock so obtained in the work after breaking them in to required size in case approved by GE in writing.

Sign of Contractor

For Accepting officer



**PARTICULAR SPECIFICATIONS(CONTD.)**

- 3.4 In case timbering to excavation is required and specifically ordered by the GE in writing, it shall be paid separately through a deviation order.
- 3.5 Bailing/pumping of water where required shall be carried out as described in Para 3.17 of MES Schedule (Part-I). The cost of such work as may be necessary shall be deemed to be included in the contractor's lump sum. No additional payment as stipulated in Special Condition 3.11 of MES Schedule Part-II will be admissible. In the event of deviation no price adjustment shall be made for cost of bailing/pumping etc.
- 3.6 **FILLING IN TRENCHES, PLINTH AND UNDER FLOOR ETC:** Refer paras 3.19.1 to 3.19.3 of MES Schedule Part-I. All filling will be spread in layers not exceeding 25 cm thick. Each layer will be watered and well rammed. Thickness of filling mentioned above is after consolidation.
- 3.7 The contractor shall excavate to the specified depths as shown on the drawings and/or as directed by the Engineer-in-Charge. Excavation made to depths more than the required levels shall be made good by the contractor at his own expense with approved earth by ramming, watering, in 250 mm thick layers. No extra payment shall be made for extra depth excavated and filled by the contractor. The cost of any shoring/ boarding and de-watering shall be deemed to be included in the cost of excavation and no extra payment shall be made.
- 3.8 **HARD CORE:** Hard core shall be as mentioned in Schedule 'A'. Unless otherwise specifically mentioned in Schedule 'A' the thickness of the hard core shall be considered as consolidated thickness.
4. **CEMENT CONCRETE**
- 4.1 **MATERIALS**
- 4.1.1 **CEMENT:** Refer Particular Specifications clause 2 and other sub clauses here-in-above.
- 4.1.2 **COARSE AND FINE AGGREGATE FOR CEMENT CONCRETE (PCC & RCC):** Refer Paras 4.4.1 to 4.4.7 of MES Schedule Part-I.
- 4.1.2.1 Coarse aggregate for lime concrete shall be broken bricks as per Paras 4.5, 4.5.1, 4.5.2 of MES Schedule Part-I. The fine aggregate shall be natural sand as for cement concrete.
- 4.1.2.2 Grading of fine aggregate (sand) shall be as per Para 4.4.7.2 of MES Schedule Part-I for grading Zone-III. Coarse aggregate up to 20 mm shall be machine-crushed stone and aggregate of size 40 mm and above shall be manually broken or machine crushed at the option of contractor. Fine aggregate (sand) shall be obtained from natural source approved by EIC.
- 4.1.3 **WATER:** Refer clause 4.9, 4.9.2 of MES Schedule Part-I.
- 4.1.4 **Water Proofing Compound:-** Integral water proofing compound shall conform to the requirements of IS 2645: 2003 -Specification for Integral Cement Waterproofing Compounds.
- 4.2 **FORM WORK:** Refer clause 11 of IS-456:2000. Form work on all exposed surfaces shall be as described in clause 4.11.6 of MES Schedule Part-I and shall be of steel. Contractor shall use only properly designed steel form work (Both props and surfaces). Props of adjustable type shall be used. However, for deviation if any, rates in MES standard schedule of rates for timber form work (Rough finished surface) shall only be applicable. Steel shuttering for form work shall be hole and gap free else 4 mm thick plywood shall be used over complete steel plates to make formwork hole and gap free. This aspect shall be inclusive of the unit rate quoted against the items.

**PARTICULAR SPECIFICATIONS(CONTD.)****5. BRICK WORK****5.1 PULVERIZED FUEL ASH-LIME BRICKS:**

5.1.1 GENERAL QUALITY: - Pulverized fuel ash-lime bricks shall be of class designation 7.5 all as per IS-12894-2002 (amended upto date). Bricks shall be sound, compact, and uniform in shape, free from visible cracks, warpage and organic matter. The bricks shall have smooth rectangular faces with sharp corners and shall be uniform in shape and colour. Pulverized fly ash used in the process making bricks should confirm to IS-15648-2006.

5.1.2 DIMENSIONS AND TOLERANCE: - Dimensions of bricks shall be non modular (230 mm x 110 mm x 70 mm) as specified in clause 5.1.2 of IS-12894-2002. The tolerance on dimension will be taken as per clause 5.2 of IS-12894:2002.

**5.1.3 PHYSICAL REQUIREMENTS: -**

5.1.3.1 COMPRESSIVE STRENGTH: - Average wet compressive strength not less than 75 kg/Sq. cm when tested as per procedure laid down in IS-3495 (Part-I).

5.1.3.2 WATER ABSORPTION: -Not more than 15% by mass when tested as per procedure laid down in IS-3495 (Part-II) after immersion in cold water for 24 hours.

5.1.3.2 EFFLORESCENCE: - All as specified in clause 7.3 of IS-12894:2002.

5.1.4 PROCUREMENT: Bricks shall be procured from any of manufacturers mentioned in Appendix 'B' and as approved by the GE.

5.1.5 TESTING: Testing of bricks shall be carried out as per IS-3495 of 1992. Frequency of tests as given for burnt clay bricks in **Appendix 'D'** to the tender documents shall be applicable for testing of Pulverized fuel ash-lime bricks.

**5.2 BURNT CLAY BRICKS: - Refer paras 5.6.1 to 5.6.8 of MES Schedule Part-I.**

5.2.1 CLASS DESIGNATION: - Irrespective of whatever is mentioned elsewhere in the tender documents and indicated on the drawings, burnt clay bricks shall be of non modular size (Sub class 'B', old size bricks) of class designation 7.5 all as per IS-1077-1992 (amended upto date).

5.2.2 GENERAL QUALITY: - Bricks shall be free from cracks, flaws and nodules of free lime, uniform in colour, smooth rectangular faces with sharp corners.

5.2.3 DIMENSIONS AND TOLERANCE: -Irrespective of whatever mentioned in MES Schedule Part-I, dimensions of bricks shall be 230 mm x 110 mm x 70 mm. The permissible tolerance on the dimensions of the bricks shall be as per IS: 1077-1992.

**5.2.4 PHYSICAL REQUIREMENTS: -**

5.2.4.1 COMPRESSIVE STRENGTH: - Average compressive strength shall not be less than 75 kg/Sq. cm when tested as per procedure laid down in IS-1077-1992.

5.2.4.2 WATER ABSORPTION: - Not more than 20% by weight.

5.2.4.3 EFFLORESCENCE: Slight ("The common burnt clay building bricks shall have efflorescence not more than slight i.e. not more than 10% of the exposed area of the brick is covered with a thin deposit of salts when tested as per IS -3495 (Part-3) latest version.")

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- 5.2.5 **TESTING:** - Testing of bricks shall be carried out as per IS-3495-1992.
- 5.3 **CEMENT:** Refer clause 2 of particular specifications and other sub clauses here in before.
- 5.4 **SAND:** - Sand for mortar shall be as specified in clause 5.4 of MES Schedule.
- 5.5 **BRICK WORK-WORKMANSHIP**
- 5.5.1 **LAYING AND BOND** Bricks shall be laid and bonded all as specified in clauses of MES Schedule as applicable to old size brick (FPS convention brick).
- 5.5.2 Mortar bed joints shall be such that four course of brickwork and three joints taken consecutively shall measure 3 cm to 4 cm in addition to the combined height of bricks themselves. The provision regarding above made in Para 5.27 of MES Schedule Part-I shall be deemed to be modified accordingly and no price adjustment shall be done on this account.
- 6-7 BLANK
8. **JOINERY**
- 8.1 **WOODEN OR WOOD BASED SHUTTERS**
- 8.1.1 **GENERALLY:** Refer to Para 8.20 of MES Schedule Part-I. Shutters shall be hammer marked as specified in IS and of approved make as specified. Shutter shall be procured from factory without any primer or painting coat or polishing. Independent tests on species/class of wood and moisture content shall be carried out as per IS when specifically ordered by the GE. Sample of shutter shall be got approved from the GE before placing the bulk order.
- 8.1.2 **FLUSH DOOR (WOODEN) SHUTTERS:** Refer clause 8.25 of MES Schedule Part-I. Flush door shutters shall be solid core type with block board core conforming to IS-2202 Part-I. Battens for core shall be of 2<sup>nd</sup> class hard wood kiln seasoned glued each other and bonded with phenol formaldehyde synthetic resin BWR grade. Shutters shall be procured from any one of the manufacturers mentioned in Appendix 'B'.
- 8.1.3 **FACTORY MADE FULLY PANELLED/GLAZED/PARTLY GLAZED/ WIRE GAUDED SHUTTERS:** Refer clause 8.21 of MES Schedule Part-I. All fully 35uthori/glazed/partly glazed/wire gauged shutters shall be factory made conforming to IS-1003 (Part -I). Styles and rails shall be kiln seasoned and chemically treated (under various pressure with suitable preservative treatment) and manufactured from second class hard wood. Shutters shall be procured from any one of the manufacturers mentioned in Appendix 'B'.
- 8.2 **WOODEN CHOWKHATS/ FRAMES:** Where wooden chowkhats are shown to be provided on drawings the same shall be of timber second class hard wood as specified in PS-II clause 7.2(e) her-in-before.
- 8.3 **BLANK**
- 8.4 **PVC DOOR FRAMES & SHUTTERS**
- 8.4.1 **GENERAL:** Refer para 8.34 of MES Schedule Part-I.
- 8.4.2 **PVC DOOR FRAMES & SHUTTERS:** Refer relevant item of BoQ and para 8.34.3.1 of MES Schedule Part-I.

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9. **BUILDERS HARDWARE:** Hardware fittings shall be provided all as per Schedule 'A'. All articles of builder's hardware shall bear ISI marking. In case any item/fittings with ISI mark is not manufactured, then it shall conform to the relevant IS specifications and the specifications given in MES Schedule for the relevant item. Screws used for fixing items of builder's hardware shall be as specified in clause 9.2.6 of MES Schedule. For workmanship refer Para 9.27 to 9.34 of MES Schedule Part-I as applicable.
10. **STEEL IRON & ALUMINIUM WORK**
- 10.1 **GENERAL:** All steel for entire completion of work shall be procured by the contractor at his own cost.
- 10.2. **PROCUREMENT**  
The structural steel shall be procured from primary producers as referred in **Appendix 'B'**. In case of non availability with primary producer, the structural steel can be procured from approved secondary producers given in tender documents with a reduction of 5 %(Five percent) of the accepted rate of structural steel. Accepted rates shall be rates given in MES Schedule (Part-II) enhanced by percentage given in Schedule 'A'/BoQ. In case the desired section of structural steel is not rolled/ manufactured by primary producers there shall be no price adjustment in use of structural steel procured from approved secondary producers.
- 10.2.2 High strength deformed steel bars for reinforcement shall be procured directly from main producers as mentioned in **Appendix 'B'**.
- 10.2.3 The 36th authorized iron steel sheets and fabric reinforcement for concrete shall be ISI marked and shall be procured from main producers as mentioned in **Appendix 'B'**.
- 10.2.4 Steel section for railings, gates, fencing, guard bars, grills, steel chowkhat, hold fasts etc, which do not constitute structural member can be procured from main producers/ secondary producers/ BIS marked manufacturers or their 36th authorized dealers at the option of contractor without any minus price adjustment. Tests will not be insisted upon for such steel sections.
- 10.2.5 Reinforcement steel, Structural steel, Galvanised steel sheets and Fabric reinforcement for concrete may be permitted from 36th authorized dealers of main producers in case small contracts of value not exceeding Rs.7.5 Lakhs
- 10.3 **TESTING OF STEEL** The manufacturer is to carry out inspection and testing of steel in accordance with relevant BIS provisions. The contractor shall submit the manufacturer's Test Certificate in original along with the test sheet giving the result of each mechanical test as applicable and the chemical composition of the steel or authenticated copy thereof duly signed by the manufacturer with each consignment. The site staff and GE shall verify the original documents in support of the purchase of steel and keep true copy certified by GE. The Engineer-in-Charge shall record these details in a steel acceptance register, as given at **Appendix 'F'** after due verification and send a certified true copy of test sheet to GE for his records. The GE shall also organize independent testing of random samples of steel drawn from various lots from National Test House, SEMT wing. CME, Regional Research Labs, NABL approved Lab, Zonal Labs as indicated in PS-I clause 10 here-in-above as per the minimum frequency shown in table below. Sample from each lot should be tested for quality and elongation. The minimum elongation shall be as per IS 1786. Cost of samples, transportation and testing shall be borne by the contractor. Record of such checks shall be maintained in steel test register. Table for frequency for normal mass, tensile, bend and rebend test of steel: -

Srl No	Nominal Size Steel for Concrete Reinforcement	Quantity
1.	Bars size less than 10 mm	1 sample (3 specimens) for each test for every 25 tonne of steel or part thereof.
2.	Bars size 10 mm to 16 mm	1 sample (3 specimens) for each test for every 35 tonne of steel or part thereof.

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- |    |                      |   |
|----|----------------------|---|
| 3. | Bars size over 16 mm | 1 sample (3 specimens) for each test for every 45 tonne of steel or part thereof. |
| 4. | Tensile Test         | 1 test for every 25 tonne of steel or part thereof.                               |
| 5. | Bend Test            | 1 test for every 25 tonne of steel or part thereof.                               |

**NOTES:**

(i). For various tests acceptance criteria, tolerance etc refer to **Appendix 'F'** & relevant BIS Codes.

(ii). Testing by the GE as per above frequency is mandatory before payment is released to the contractor or steel is incorporated in the work and testing charges for the same shall be borne by the contractor irrespective of the outcome of test results. However, tests will not be insisted upon for the steel required for guard bars, holdfasts, grills, and such other allied items. Any items of steel, not meeting the requirements, shall be rejected and the particular consignment removed from the site by the contractor at his own cost. The contractor shall have no claim on this account. The contractor at his cost shall provide all facilities required for the testing and cost of materials consumed in the test and transportation charges etc. shall be borne by the contractor.

(iii). The GE may also increase frequency and number of samples/tests for his satisfaction. The cost of these additional tests shall be governed as per condition 10(A) of IAFW-2249. However cost of samples, transportation and other overheads shall be borne by the contractor irrespective of the test results.

(iv). The TMT steel shall be tested by GE, before incorporation in the work, by simple field tests also and records shall be maintained. Simple field test involves sand papering the X-Section of the TMT bar and dipping the same in chemical solution to give a clearly defined annular ring of tempered steel. The contractor at his cost shall arrange facilities for such tests.

10.4 **DOCUMENTATION:** The contractor shall submit original machine numbered purchase vouchers from the main manufacturer for the total quantity of steel supplied under each consignment to be incorporated in the work. All consignments received at the work site shall be inspected by the GE along with the relevant documents before acceptance. The original purchase vouchers and the test certificates shall be defaced by the Engineer-in-Charge and kept on record in the office of the GE duly authenticated and with cross-reference to the control number recorded in the steel acceptance register. The steel acceptance register shall be signed by JE (Civil), Engineer-in-Charge, GE and contractor. The entire quantity of all steel items shall also be suitably recorded in the Measurement Book for record purposes as "not to be abstracted" before incorporation in the work and shall be signed by the Engineer-in-Charge and the contractor.

10.5 **STEEL IN COILS ETC.** : Any bar of any diameter for reinforcement may be procured in round; bundles or coils and the cost of straightening the same shall be borne by the contractor. When bars are procured in bundles, the length of each bundle shall be worked out on the basis of unit weight pre determined by the GE by getting suitable length (not less than 3 metre) out of each consignment(s) received, getting it straightened, length measured and weighed in presence of contractors accredited representative. The said length(s) and the weight (s) shall be recorded from which unit weight (Weight per unit length) shall be calculated. The length of bars worked out on the basis of unit weight determined as above shall form the basis for the purpose of calculating quantity of steel used/to be used in work and making payment of materials lying at site. However if the unit weight works out more than the unit weight given in MES SCHEDULE then unit weight given in MES SCHEDULE shall be followed for computing weight of steel for the purpose of making payment of steel lying at site.

10.6 **QUALITY OF STEEL**

10.6.1 **REINFORCEMENT STEEL:** High strength deformed steel bars produced by thermo mechanical treatment process (TMT) of Fe 500D and conforming to IS-1786. The reinforcing steel shall have minimum elongation as per IS-1786-2006.

**PARTICULAR SPECIFICATIONS(CONTD.)****10.6.2 STRUCTURAL STEEL:**

Standard quality- confirming to IS 2062.

Ordinary quality – confirming to IS 1977.

**10.6.3 GALVANISED STEEL SHEET:** Galvanised steel sheets (plain and corrugated) shall be conforming to IS-277 with medium coating of zinc, nominal 180 g/Sq. m.

**10.6.4 FABRIC REINFORCEMENT:** Fabric reinforcement for concrete shall be conforming to IS-1566.

**10.7 STORAGE**

**10.7.1** Steel of different sizes shall be stacked separately for each classification of steel. Separate area shall be earmarked. Steel shall be marked with distinct painting marks for easy identification.

**10.7.2** All steel shall be as stored at least 30 cm above the GL Steel shall be stored in a manner so as to prevent distortion and corrosion. Any section that has deteriorated and corroded or if considered defective by Engineer-in-Charge shall not be used in the work and shall be removed by the contractor without any extra cost. It shall be the responsibility of the contractor to make sure that all possible arrangements are made for the safe custody of the steel. In case of any loss of steel, contractor shall only be responsible and the loss shall be made good without any delay and no claim shall be admissible on this account.

**10.8 SCHEDULING OF SUPPLY:**

**10.8.1** Schedule of supply of steel shall be finalized by contractor with GE and shall be incorporated in CPM chart so that supply of steel is monitored in a way to avoid any delay in completion of the work.

**10.8.2** The complete requirement of steel of various sizes will be worked out before making any RAR payment and procurement of steel by the contractor will be completed sufficiently in advance of the date of completion. No extension of time will be considered for non-availability of any section of steel.

**10.8.3 STEEL REINFORCEMENT:WORKMANSHIP**

**10.8.3.1** Reinforcement shall be provided as shown on drawings and in the absence, provisions of IS: 456 and IS: 1786-1985 shall be followed. Refer clause 10.18 to 10.21 of MES Schedule Part-I

**10.8.3.2 WELDING OF REINFORCEMENT:** - Refer Para 10.22 of MES Schedule, Part-I. Welding of reinforcement is not permitted. However where due to congestion of reinforcement the welding is required, then necessary permission shall be obtained by the contractor from the GE.

**10.9 WELDING: GENERAL:** - Welding wherever shown on drawings shall be done by metal arc process in accordance with IS-816 and IS: 823, unless specifically indicated otherwise on drawings. Running welding shall be done unless otherwise specified.

**10.10 WINDOWS AND VENTILATORS**

**10.10.1 STEEL BOX WINDOWS AND VENTILATORS:** Steel Window & ventilators shall be factory made of make as mentioned in **Appendix 'B'**. Irrespective of whatever is indicated in MES Schedule Part-I, Steel Windows & ventilator shall be made out of 'P' tube having the profiles / details as shown in Drg No.CEAF/STD-170/07 sheet 1/4 to 4/4, CEAF/STD-171/07 sheet 1/4 to 4/4 and 172/7 sheet no 1/4 to 4/4.

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- 10.10.2 **GUARD BARS/GRILLS TO WINDOWS AND VENTILATORS:** - Guard bars/Grills to the windows and vents shall be provided all as per design approved by Engineer-In-Charge.
- 10.10.3 **PRESSED STEEL FRAMES:** Refer clause 10.27 of MES Schedule Part-I. Pressed steel frames shall be factory made of make as mentioned in **Appendix 'B'**, complying with requirements of IS:4351-1976. Size of PCC blocks for fixing lugs shall be length of lug + 5 cm x width of wall x 15 cm. Unless otherwise specially ordered steel frames shall be pressed out of cold rolled mild steel sheet of 1.25 mm thickness.
- 11 **ROOFING**
- 11.1 **GENERAL**
- 11.1.1 **PREPARATION OF RCC ROOF SLAB(S):** RCC roof slab shall be prepared as described in Paras 11.44.3 of MES Schedule Part-I before carrying out any treatment.
- 11.1.2 **WATER PROOFING COMPOUND:** Refer PS-II clause 4.1.4 here-in-before.
- 11.3 **MATERIALS**
- 11.3.1 **BITUMEN PRIMER:** Refer paras 11.44.2.1 of MES Schedule Part-I.
- 11.3.2 **ATACTIC POLYPROPYLENE POLYMER (APP) MODIFIED PRE-FABRICATED MEMBERANE:** Atactic polypropylene polymer (APP) modified prefabricated membrane shall be minimum 3 mm thick and minimum weighing 3 kg/Sq.m with non woven polyester matt (weight not less than 150 gm/ Sq.m) and all as described in Para 11.44.2.2 of MES Schedule Part-I and shall be make mentioned in **Appendix 'B'**.
- 11.3.3 **BRICK TILES:** Refer paras 5.6 & 11.7 of MES Schedule Part-I.
- 11.4 **RAIN WATER PIPES & FITTINGS:** Unless otherwise indicated in BoQ, uPVC shall be of type 'A' all as described in para 11.20 & 11.20.6 of MES Schedule Part-I and of make as mentioned in the **Appendix 'B'**. Pipes and fittings shall be secured to wall just below all joints with PVC clamps. Pipes and fittings shall be jointed all as described in para 11.20.4 & 11.20.5 of MES Schedule Part-I.
- 11.5 **GUARNTTEE & DEFECT LIABILITY PERIOD OF ROOF / SUNKEN PORTION (WATER PROOFING) TREATMENT**
- 11.5.1 The defect liability period of water proofing treatment to RCC slabs including sunken floors shall be 10 years and the contractor shall be responsible to keep the entire buildings free from leakage/seepage for a period of 10 years after certified date of completion.
- 11.5.2 Security deposit for this treatment shall be with-held from the contractor's payments during the guarantee period. The amount of security deposit for this contract shall be calculated as per the scale laid down by the MES for calculating individual security deposit as applicable on the date of receipt of tender on the total amount of provision of **waterproofing treatment at contract rates**. The security deposit shall be refunded to contractor after expiry of this period. Alternatively, the contractor may give a separate interest bearing term deposit receipt to GE valid for the guarantee period for the above-mentioned amount..
- 11.5.3 If the GE, at any time during the construction or prior to the expiry of said Guarantee period of 10 years, find that the buildings have been found leaked/seeped, the contractor, on demand in writing from the GE, will forthwith undertake to carry out such treatment which may be necessary to render the buildings free from leakage/seepage at his own expense.

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- 11.5.4 In the event of contractor's failure to comply with the GE's direction within the stipulated period, the work shall be got carried out at the risk and cost of the contractor. The liability of the contractor under this condition shall not however be extended beyond the period of 10 years from the certified date of completion unless the notice was served on the contractor previously to rectify such defects.
- 11.5.5 The contractor shall indicate the Contract No., name of contractor, the date of completion of the work and the date of expiry of the guarantee period by engraving and painting black with synthetic enamel paint on the plaster (1:4) plate on the location as decided by the GE.
- 11.6 **PRE ENGINEERED GALVALUME SHEETS ROOFING & TRUSS**
- 11.6.1 **GENERAL:** Various component of the steel structure such as steel trusses in shall be fabricated, assembled and erected carefully by the contractor as directed by Engineer-in-Charge.
- 11.6.2 **PRE ENGINEERED GALVALUME SHEET:** Galvalume sheet shall be all as specified in Para 11.3 of MES Schedule Part-I. Unless otherwise indicated I BoQ, thickness of Galvalume sheet shall be 0.50 mm (total coated thickness). The painting system shall comprise 20 micron colour coating of super polyester/silicon modified polyester or fluoro copolymer on exposed surface over a priming coat of 5 micron and on reverse side alkyd back coat of 5 micron over 5 micron primer. The profile shall confirm to IS: 513, 277 and 14246. The sheet shall be in profile depth of 28 mm to 32 mm at 195-200 mm pitch with steps. The fixing shall be carried out as per manufacturer's instructions. Make of Galvalume sheet shall be as mentioned in the **Appendix 'B'**.
- 11.6.3 **RIDGE:** Ridge shall be of section as mentioned in BoQ and shall be made of pre engineered galvalume sheet and shall be fixed to purlins all as specified Para 11.3.2 of MES Schedule Part-I.
- 12 **CEILING & LININGS**
- 12.1 **FALSE CEILING:** False ceiling shall be provided all as described in BoQ indicated/shown on drawings. Unless otherwise indicated in BoQ frame work for false ceiling shall be mild steel powder coated
- 13 **FLOORING**
- 13.1 **GENERAL:** Refer Para 13.25 of MES Schedule Part-I. Sub base or sub floor shall be laid at a stretch without forming panels over well rammed earth filling in ground floor and no adjustment shall be made for form work on this account. Cement concrete in the sub base or sub floor and top stretch coat shall be laid separately and not monolithically.
- 13.2 **MATERIALS**
- 13.2.1 **CEMENT:** Cement shall be as specified in Clause 2 of Particular Specifications.
- 13.2.2 **AGGREGATE**
- 13.2.2.1 **BRICK AGGREGATE:** - Refer clause 13.6 and 13.7 of MES Schedule Part-I.
- 13.2.2.2 **STONE AGGREGATES AND SAND:** Stone aggregates and sand shall be as specified for concrete work, here in before. For source of sand refer PS clause 4.1.2.2 here in before.
- 13.2.3 **KOTA STONE SLABS:** Refer clause 13.47.1 of MES Schedule part-I.
- 13.2.4 **MARBLE STONE SLAB AND TILE:** Refer clause 13.12.1 of MES Schedule part-I.



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- 13.2.5 **CERAMIC TILES FOR FLOORS AND SKIRTINGS**: Refer clause 13.14.2 of MES Schedule part-I.
- 13.2.6 **CERAMIC WALL TILES FOR DADO**: Refer clause 13.14.1 of MES Schedule part-I.
- 13.2.7 **VITRIFIED PORCELAIN TILES**: Refer clause 13.15 of MES Schedule part-I.
- 13.2.8 **PLAIN CEMENT CONCRETE TILES**: Refer clause 13.16 of MES Schedule part-I.
- 13.2.9 **CHEQUERED CEMENT CONCRETE TILES**: Refer clause 13.17 of MES Schedule part-I.
- 13.2.10 **PRECAST INTERLOCKING PAVER BLOCKS**: Refer clause 13.18 of MES Schedule part-I. Unless otherwise mentioned in schedule 'A' the grade of concrete for paver blocks shall be M-35.
- 13.3 **WORKMANSHIP**:
- 13.3.1 **PCC FLOORS**: Refer Clauses 13.25 and 13.32 of MES Schedule, Part-I.
- 13.3.2 **CERAMIC, VITRIFIED TILES**
- 13.3.2.1 **GENERAL**:
- (a) The surface on which the tiles are to be laid shall be free from dirt, dust and not be smooth.
  - (b) Tiles shall be soaked in water before laying as recommended by the manufacturers.
  - (c) The size and shade variation is inherent characteristics of ceramic tiles. To achieve pleasant & natural effect of shade tiles of various boxes shall be mixed before laying.
  - (d) Provide adequate gap as recommended by the manufacturers between the tiles to allow floor base moisture to escape.
  - (e) Joints should be leave open for 1 to 3 days depending upon the humidity before grouting. The sealing of joints should not be carried out before 24 hrs, after fixing of tiles.
- 13.3.2.2 **BEDDING, LAYING, JOINTING & FINISHING** : Refer clause 13.40 of MES Schedule, Pt-I.
- 13.3.3 **VITRIFIED PORCELAIN TILES**: Refer clause 13.41 of MES Schedule part-I.
- 13.3.4 **KOTA STONE FLOORING**: Refer clause 13.47 of MES Schedule part-I.
- 13.3.5 **GRANITE FINSH OF MARBLE/ KOTA STONE FLOORING**: To have a granite type finish of Marble/Kota stone flooring 7 cutting method is to be used. Grit blocks of 0, 1, 2, 2 ½, 3, 4, 5 and 6 number are used for this finish. Water shall be used as lubricant during cutting operations. The first four operations are known as cutting and grinding while the next three operations are for polishing of floors. After the first cutting, wash the surface thoroughly and cover it with cement grout of appropriate colour to fill pinholes appearing after first cutting. Cure it for three days and then allow second cutting. Apply the repair again after the second cutting. Further cutting may be done if pinholes are still noticed.
- 13.4 **PLINTH PROTECTION** Plinth protection shall be laid in 1:20 slope. The concrete shall be laid at stretch not exceeding 3.00 metre in length. Joints/gaps between adjoining slabs, at corners and along junction of walls shall not exceed 10 mm in width and shall be sealed with bituminous sealing compound. Top surface of concrete shall be finished even and smooth. Joints shall be provided at not more than 3.00 metre interval and also along corners and at junctions of walls.

**PARTICULAR SPECIFICATIONS (CONTD)****14 PLASTERING AND POINTING****14.1 GENERAL**

14.1.1 The thickness of plaster mentioned in schedule 'A' is finished thickness exclusive of dubbing coat. Plastering & dubbing coat shall, however be done in one operation with plaster.

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

14.1.3 Contractor's attention is invited to local practices and the local availability of materials like bricks, form work etc., and cater for any extra dubbing required for touching up properly and for smooth and even surfaces. This shall be deemed to have been included in the item rate quoted for plasterwork, as applicable.

**14.2 MATERIALS**

14.2.1 **CEMENT**: - Cement shall be as specified in clause 2 of Particular Specification.

14.2.2 **SAND**: - Refer clause 1 & 5 of MES Schedule Part-I. For source refer PS clause 4.1.2.2 here in before.

14.3 **WORKMANSHIP**: Refer clause 14.12 to 14.20 of MES Schedule Part-I.

**15 FINISHES****15.1 GENERAL**

15.1.1 **PREPARATION OF SURFACES**: Refer clause 15.12.1 to 15.12.2.5, 15.13.1 to 15.13.2.2, 15.14.1 to 15.14.2.2 and 15.15.2 of MES Schedule Part-I as applicable.

15.1.2 **COAT**: Operation of each coat shall consist of a stroke of the brush given from the top downwards, another from the bottom upwards over the first stroke and similarly one stroke horizontally from the right and another from the left before it dries.

**15.2 WHITE/COLOUR WASHING**

15.2.1 **MATERIALS**: Lime used for white washing shall be freshly burnt fat lime (Class C) or magnesium lime (Class D or F), white in colour, conforming to IS-712-1984 specification for building limes.

**15.2.2 WORKMANSHIP**

15.2.2.2 **PREPARATION OF WHITE WASH**: Refer clause 15.12.3 of MES Schedule Part-I.

15.2.2.3 **APPLICATION OF WHITE WASH**: Refer clause 15.12.5 of MES Schedule Part-I. Unless otherwise indicated, minimum three coats shall be applied so that the surface presents a smooth and uniform finish through which the plaster does not show. The finished dry surface shall not show any signs of cracking and peeling and the whitewash shall not come off readily on the hand, when rubbed. For white wash on ceiling adequate quantity of zinc oxide shall be added to lime wash for achieving pure white shade.

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- 15.3 **DISTEMPER OIL EMULSION (OBD)/ INTERIOR ACRYLIC DISTEMPER AND EXTERIOR ACRYLIC EMULSION PAINT**
- 15.3.1 **WORKMANSHIP GENERAL:**
- 15.3.1.1 The work shall be got executed through paint manufacturer/ authorized applicators of manufacturer's only. Authorized applicator shall have valid authorization letter from manufacturers (minimum regional HQs) issued not earlier than 30 days from start date of said finishing work.
- 15.3.1.2 Preparation of surfaces shall be done with mechanized sander having suction vacuum bag using smart periodical methodology including removal of vegetation growth, bushes and the like to the entire satisfaction of Engineer-in-Charge.
- 15.3.1.3 After preparation of surfaces, approval shall be obtained from Engineer-in-Charge before applying primer and further treatment/coat. Building-wise stage passing mechanism will be maintained at site and entered in measurement book.
- 15.3.1.4 Paint shall be applied using airless spray technology and capable of operating single spray gun with a suitable hose length. The spray machine should be of reputed manufacturer with pro-guard technology and capability of tracking pressure as well as material usage and shall be certified by approved manufacturers.
- 15.3.1.5 The accessories for applying the finishes shall be able to spray in hard to reach areas and penetration on the surface so as to achieve uniform application and quality surface finish.
- 15.3.1.6 Also refer 15.14, 15.21 & 17.17 of MES Schedule Part-I as applicable.
- 15.3.2 **WHITE CEMENT BASED PUTTY:** Refer Para 15.19 of MES Schedule Part-I.
- 15.3.3 **DISTEMPER OIL EMULSION (OBD)/ INTERIOR ACRYLIC DISTEMPER:** Refer clause 15.6 of MES Schedule Part-I and shall be of make as mentioned in Appendix 'B'.
- 15.3.4 **EXTERIOR ACRYLIC EMULSION PAINT:** Refer clause 17.17.1 of MES Schedule Part-I and shall be of make as mentioned in Appendix 'B'.
- 15.3.5 **DEFECT LIABILITY PERIOD AGAINST DETERIORATION OF EXTERIOR ACRYLIC EMULSION**
- 15.3.5.1 The defect liability (guarantee) period against deterioration of exterior acrylic emulsion shall be **05** years and the contractor shall be responsible to keep the painting surface free from deterioration for the guarantee period after certified date of completion. The contractor may obtain a similar guarantee from the specialist firm/authorized applicator (if any) engaged by him for the purpose.
- 15.3.5.2 Security deposit for this treatment shall be with-held from the contractor's payments during the guarantee period. The amount of security deposit for this contract shall be calculated as per the scale laid down by the MES for calculating individual security deposit as applicable on the date of receipt of tender on the total amount of provision of Exterior acrylic emulsion paint **at contract rates**. The security deposit shall be refunded to contractor after expiry of this period. Alternatively, the contractor may give a separate interest bearing term deposit receipt to GE valid for the guarantee period for the above-mentioned amount..
- 15.3.5.3 If the GE, at any time during the construction or prior to the expiry of Guarantee period, found that the painted surfaces have been deteriorated, the contractor, on demand in writing from the GE, will forthwith undertake to carryout rectification work to the entire satisfaction of GE.
- 15.3.5.4 In the event of contractor's failure to comply with the GE's direction within the stipulated period, the work shall be got carried out at the risk and cost of the contractor. The liability of the contractor under this condition shall not however be extended beyond the guarantee period from the certified date of completion unless the notice was served on the contractor previously to rectify such defects.

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**PARTICULAR SPECIFICATIONS (CONTD)**

- 15.3.5.5 The contractor shall indicate the Contract No., name of contractor, the date of completion of the work and the date of expiry of the guarantee period by engraving and painting black, on the same plaster plate as specified here in before.
- 16 **GLAZING**
- 16.1 **MATERIALS:**
- 16.1.1 **SHEET GLASS:** Refer Para 16.2 of MES Schedule part-I
- 16.1.2 **PUTTY:** Refer Para 16.5 of MES Schedule, Part-I.
- 16.2 **WORKMANSHIP:** Refer clause 16.7.1, 16.7.2 ,16.7.4 & 16.10 of MES Schedule, Part-I.
17. **PAINTING**
- 17.1 **PAINTS AND ALLIED MATERIALS:** Refer Para 17.2 of MES Schedule, Part-I. Painting work-generally-refer Para 17.3 of MES Schedule, Part-I. Paint and primer shall be of same make/manufacturers.
- 17.2 **SYNTHETIC ENAMEL PAINT & PRIMER:** All synthetic enamel paint and primer shall be of first quality manufactured by the standard firms and shall be of make as mentioned in Appendix 'B'.
- 17.3 **WORKMANSHIP**
- 17.3.1 **PAINTING-WOODWORK:** - Refer clause 17.6 of MES Schedule, Part-I.
- 17.3.2 **PAINTING-STEEL & IRON WORK:** - Refer clause 17.8 of MES Schedule, Part-I.
- 18 **WATER SUPPLY, PLUMBING WORK, SANITARY AND TOILET FITTINGS**
- 18.1 **MATERIALS:**
- 18.1.2 **MILD STEEL GALVANISED TUBES & FITTINGS:** Refer clause 18.4 of MES Schedule Part-I. Tubes and fittings shall be ISI marked.
- 18.1.3 **uPVC PIPES FOR POTABLE WATER:** Refer clause 18.7 of MES Schedule Part-I.
- 18.1.4 **CAST IRON SOIL, WASTE, VENT PIPES, FITTINGS AND ACCESSORIES:** Refer clause 18.23 of MES Schedule Part-I. These shall be of cast iron centrifugally cast (spun pipes) conforming to IS-3989-1984, ISI marked, spigot and socket ends.
- 18.1.5 **uPVC PIPES FOR SOIL WASTE & DRAINAGE PURPOSE:** Refer clause 18.27A of MES Schedule Part-I.
- 18.1.6 **RCC PIPES:** Refer clause 18.29 of MES Schedule Part-I.
- 18.1.8 **WATER STORAGE TANKS:** Storage capacity of tanks shall be all as mentioned in BoQ / Schedule A. Water storage tank shall be of rotational moulded, 'HDPE, ISI marked Triple layered & having threaded lid'.
- 18.2 **WORKMANSHIP:** Refer relevant clause of MES Schedule Part-I

**PARTICULAR SPECIFICATIONS (CONTD)**

18.3 **TESTING:** Cost of testing as specified above shall be deemed to have been included in the rates/amount quoted by the contractor and nothing extra shall be paid for carrying out tests. If any pipe burst during testing the same shall be replaced & made good by the contractor without any extra cost to Govt.

18.3.1 **TESTING OF SOIL WASTE & VENT PIPES:** - All soil waste & Vent pipes and all fittings shall be tested as specified in Clause 18.67.7 of MES Schedule.

18.3.2 **TESTING OF GI PIPES:** - Refer Paras 18.50.4 and 18.55 of MES Schedule Part-I.

19 **INTERNAL ELECTRIFICATION**

19.1 **GENERAL:** - Refer clause 19.2 of MES Schedule Part-I.

19.1.1 Before the execution of the work in internal wiring, the contractor is to submit complete layout plan of each building showing the location of main/sub-main switch boards, distribution board/Sub-distribution board's with complete wiring circuit diagram to the entire satisfaction of the GE.

19.1.2 After the execution of the work and testing of the Internal Electric Installation, the contractor shall furnish complete certificate as per Performa approved by the GE. 10% of the amount of Internal electrification is to be kept reserved in addition to other than permissible retention money from the running RAR's till the submission of completion certificates as per approved performa given to the department.

19.1.3 No price adjustment in prices shall be made on account of change in location of fittings and accessories.

19.1.4 **SAMPLE APPROVAL:** - All suitable/sockets/Data sockets, light fixing to be incorporated in the work shall be of highest standard quality as specified and shall confirm to IS specifications.

19.2 **MATERIALS:**

19.2.1 **GENERAL:** The materials shall be as follows: -

Srl. No	MATERIAL	Refer to Paras of MES Sch., Part-I
(a)	Cables, Cords and Earthing leads.	19:24
(b)	Cables for internal wiring for light power & sub-mains	19:25
(c)	Flexible Cords, Twisted with Copper Conductors	19:27
(d)	PVC Conduit and conduit fittings.	19:29
(e)	Ceiling rose	19:32
(f)	Tumbler Switches	19:37
(g)	Socket outlets	19:40
(h)	Lamp holder	19:41

19.2.2 **CABLE FOR POINT/SUB MAIN WIRING:** Cable for wiring shall be multi-stranded copper conductor PVC un-sheathed, flame retardant low smoke (FRLS), PVC insulated and unsheathed, 1100 volt grade ISI 694 marked, TEC and FIA approved, any of the make mentioned in Sch 'A'.

19.3 **WORKMANSHIP**

**PARTICULAR SPECIFICATIONS (CONTD)**

- 19.3.1 **INTERNAL WIRING:** - Refer clause 19.125 to 19.132 of MES Schedule Part-I. Wiring shall be done using approved colour coding as per IS. 'Power' wiring shall kept separate and distinct from 'Light' wiring as per Para 19.102.1 of MES Schedule Part-I. Terminal points of light and power plugs (Socket outlets) Switches, regulators, fittings etc shall terminate in recessed mild steel/pressed steel boxes fixed flush to the walls. Not more than 8, (eight) light points and not more than two power points shall be connected on one circuit. All terminal boxes shall be properly earthed and connected to earth dolly.
- 19.3.2 **CONDUIT AND CONDUIT FITTINGS:** - Refer clause 19.29 and 19.125 of MES Schedule Part-I. PVC conduit shall be fire retardant type and any one of make as mentioned in schedule 'A'.
- 19.4 **TESTING:** - On completion of the internal wiring, testing for each building shall be carried out as per clause 19.146 of MES Schedule Part-I and signed both by contractor and Engineer-in-Charge. The installation shall be accepted on satisfactory performance of the tests mentioned in MES Schedule, Part-I.
- 19.4.1 **INSULATION TEST OF WIRING:** On completion of installation, the insulation resistance of wiring shall be measured as specified in clause 19.146.1 of MES Schedule. The insulation resistance & earth should not be less than 25 Mega ohms divided by the number of outlets for PVC insulated cables. The records tests shall be signed by contractor and Engineer-in-charge.
- 19.4.2 **TESTING OF EARTH CONTINUITY:** The earth continuity conductor including metal conduits shall be tested for electric continuity and the electrical resistance of the same alongwith the earthing lead but excluding any added resistance or earth leakage circuit breaker measured from the connection with the earth electrode to any point in the earth continuity conductor in the completed installation shall not exceed one ohm. The record sheets be signed by contractor and Engineer-in-charge.
- 19.4.3 **TESTING POLARITY OF SWITCHES:** In a two-wire installation, a test shall be made to verify that all switches in every circuit have been fitted in the same conductor throughout and such conductor shall be labeled or marked for connection to the phase conductor.
- 19.4.4 **CIRCUIT DIAGRAM:** - Circuit diagram for each building shall be prepared by Contractor in duplicate and deposited with Engineer-in-Charge.
- 19.5 **EXTERNAL ELECTRIFICATION WORKS**
- 19.5.1 **SAMPLE AND MATERIALS**
- 19.5.1.1 All materials fittings appliances etc. to be incorporated in this work shall be of highest standard and unless otherwise specified here in after shall strictly comply with the relevant IS and BSS for which no IS has been issued. The contractor will supply the samples of all the items/materials to GE for approval.
- 19.5.1.2 The material and the equipment to be supplied and installed under this contract shall be of indigenous make. In case tenderer offers any imported materials, he may do so out of his existing stock. No foreign exchange will be given by the department to the tenderer for importing any equipment for this job.
- 19.5.1.3 For steel and iron articles refer relevant items of BoQ and MES Schedule 'A' Part-I
- 19.5.1.4 The contractor after obtaining written approval of samples from the GE shall obtain material and equipment from the approved firms or through their authorized agents only. As a proof that a particular material obtained from the firm/their authorized agents the contractor shall produce such evidence to the satisfaction of GE when asked for. With regard to quality the materials shall be brought to the site with maker's original packing with seal intact.

**PARTICULAR SPECIFICATIONS (CONTD)**

- 19.5.1.5 **PRODUCTION OF TEST CERTIFICATE:** Manufacturer's test certificate in respect of cables, transformers, poles, HT/LT cables, gang operated air break switches and other materials, items or equipments as directed by GE are to be submitted to the GE by the contractor.
- 19.6 **CROSS ARMS, 'D' CLAMPS AND BRACING:** - Refer clauses 19.9 and 19.53 of MES Schedule Part-I. 'D' clamps; MS cross arms, bracing and MS brackets shall be of steel section shown on drawings. Where size of any section of steel is not indicated, this shall be as directed the Engineer-in-Charge. These shall be painted with one coat of aluminium paint over a coat of red oxide primer after fixing in position.
- 19.7 **HDPE PIPES AND FITTINGS:** Refer clause 18.6 of MES Schedule Part-I. HDPE pipe shall be conforming to IS4984-1995. Unless otherwise indicated in the relevant item of BoQ, HDPE pipe shall be class 1.
- 19.8 **GI PIPES AND FITTINGS:-** GI pipes and fittings shall be laid in trenches, fixed to walls/floor/ceiling/poles and jointed all as specified in clause 18.50 and 18.50.3 and 18.51.1 to 18.51.5 of MES Schedule Part-I.
- 19.9 **LIGHTENING ARRESTOR:** Lightning arrestor shall be provided as specified in Para 19.12, 19.13 and 19.67 of MES Schedule Part-I, specifications and as per IE Rules-1992. The earth lead for any lightning arrestor shall not pass through any iron steel pipe but shall be taken as directly as possible from lightning arrestor to a separate earth electrode subject avoidance of bend & wherever practical.
- 19.10 **CABLES**
- 19.10.1 LT cables shall be XLPE insulated screened, bedded, galvanized strip & shall conform to IS-7098, Part-I. HT cable shall be as per relevant item of Schedule 'A' conforming to IS-7098: Part-II. Laying generally shall conforming to clause 19.75 of MES Schedule Part-I. However, cable protection cover shall be as per relevant item of BoQ. Sand cushioning in trenches shall extend 8 cm beyond outer edge of cable on both sides. Cables shall not be laid in ashes and organic refuses or any other materials, which may injure the cable. Cables shall be brought in standard drum length. No straight through joints shall be permitted except where length of the cable is more than the standard drum length or where considered inescapable.
- 19.10.2 The portion of cables running under road, along poles or on walls through nallah shall pass through galvanized pipe all as described in Schedule 'A' and as directed by the Engineer-in-Charge.
- 19.10.3 The seal of cables shall not be removed until preparations for jointing are complete.
- 19.10.4 Trenches for cables shall be as per clause 19.74 and 19.74.1 of MES Schedule Part-I. Trenches will be filled in after the cable has been tested by the Engineer-in-Charge satisfactorily IR test for all underground cables shall be conducted during and after physical completion. The tests should be recorded and signed by the contractor and Engineer-in-Charge and kept on record.
- 19.11 **EXPULSION FUSES, LINE CONNECTORS, POWER CABLE:-** Refer clause 19.16, 19.17 and 19.19 of MES Schedule Part I.
- 19.12 **CABLE ROUTE INDICATOR:-** These shall be fixed along the route of cable at 30 meter interval & on every turning & cable joint.
- 19.13 **DISTRIBUTION BOXES:** - Refer clause 19.21 of MES Schedule Part-I.
- 19.14 **CABLE TERMINATION & JOINT BOXES:** - Refer clause 19.22 of MES Schedule Part-I.

**PARTICULAR SPECIFICATIONS (CONTD)****19 ELECTRIFICATION WORKS****19.1 EARTHING**

19.1.1 Rates quoted by contractor in BoQ/Schedule 'A' against serial item No. **1 to 3** of earthing shall include the following: -

(a) Earth electrode shall be all as mentioned in respective item of BoQ. Electrode shall be surrounded by mixture of charcoal and salt in alternate layers, buried directly in ground vertically in a pit of depth not less **2.25 metre** below ground level with top edge of earth plate at a depth of not less than 1.50 metre below ground level, connected with & including galvanized iron wire or strip mentioned in BoQ/Schedule 'A' as earthing lead by means of GI bolts, nuts, check nuts and washers.

(b) 15 mm/40 mm bore "Medium grade" GI pipe for protection of earthing lead as specified in clause 19.144 of MES Schedule Part-I and 20 mm bore 'medium grade' GI pipe for watering with funnel & wire mesh.

(c) Factory fabricated precast PCC pit with cover.

(d) Necessary excavation & earth work.

19.1.2 Rates quoted by contractor in BoQ against serial item No. **4** of earthing shall include the following: -

(a) Earth electrode shall be all as mentioned in respective item of BoQ. Electrode shall be surrounded by mixture (of magnesium sulphate 100 kg, charcoal dust 300 kg, common salt 200 kg and bentonite not more than 25 kg with water in alternate layers), buried directly in ground vertically in a pit of depth not less than 3.50 meter below ground level with top edge of earth plate at a depth of not less than 1.50 meter below ground level, connected with & including copper strip of size mentioned in BoQ/ Schedule 'A' as earthing lead by means of oxyacetylene copper brazing and other end connected to main switch board or main control board or test point or equipment.

(b) 40 mm bore "Medium grade" GI pipe for protection of earthing lead as specified in clause 19.144 of MES Schedule Part-I and 20 mm bore 'medium grade' GI pipe for watering with funnel & wire mesh.

(c) Factory fabricated precast PCC pit with cover.

(d) Necessary excavation and Earthwork

19.1.3 **GENERAL:** - Refer clause 19.137 to 19.145 of MES Schedule Part-I. The contractor's special attention is drawn to Para 19.140 MES Schedule Part-I, according to which, in case, the desired earth electrode resistance cannot be obtained on completion of test result of earthing and there is no other option of site, then the ARTIFICIAL TREATMENT OF SOIL shall be done by the contractor, as specified in MES Schedule Part-I, without any additional cost to the Govt.

19.1.4 The contractor shall execute installation of earth plate in the presence of Engineer-in-charge. Charcoal dust and salt and return filling shall be done in layers not exceeding 20cm depth, properly watered and rammed. Surplus spoil shall be removing to a distance not exceeding 250 meter and the site left clean and tidy.

Sign of Contractor

For Accepting officer



**PARTICULAR SPECIFICATIONS (CONTD.)**

- 19.1.5 **PERFORMANCE GUARANTEE FOR EARTHING PROVIDED AGAINST SERIAL ITEM 5 to 8 (BoQ).**
- 19.1.5.1 Contractor shall give 10 years "Performance Guarantee" for efficient functioning of Earthing from certified date of completion. In this connection amount equal to 5% of the amount paid under the item shall be retained from his final bill.
- 19.1.5.2 This amount shall only be released to the contractor after satisfactory expiry of guarantee period. The GE may accept Bank Guarantee Bond from Schedule Bank or a fixed deposit receipt (Pledged in his favour) from an approved Bank for the amount for the guarantee period. In such event, no further amount will be recovered from the final bill on this account. "Performance Guarantee"/Defects liability period under condition 46 of General conditions of contracts (IAFW-2249) shall be deemed to be amended to the extent mentioned above for earthing work under the item(s). The contractor may give a separate interest bearing FDR or BGB approved by the department valid for the security deposit against the guarantee for the earthing work.
- 19.1.5.3 Should GE at any time during construction or reconstruction or prior to the expiry of the guarantee period, finds that the earthing provided under this item is not functioning properly, the contractor shall, on demand in writing from the GE specifying the earthing complained of notwithstanding that the same may have been inadvertently passed, certified and paid for, undertake to carry out such treatment as may be necessary forthwith to render the earthing functioning efficiently at his own expense, till expiry of the guarantee period. In the event of his failure to do so, within the specified period to be specified by the GE in his aforesaid demand, the GE may undertake such job at the cost and expense in all respects of the contractor. The liability of the contractor under this condition shall not extend beyond the period of ten years from the certified date of completion, unless the GE has previously given notice to the contractor to rectify the defects.
- 19.1.5.4 The contractor shall provide a plate of adequate dimensions engraved in cement and sand mortar (1:4) to indicate the CA No, Name of the contractor and the date of expiry of guarantee period of efficient functioning of Earthing at place directed by the Engineer-in-Charge. The plaster plate shall be painted with three coats of synthetic enamel, paint (Including the priming coat as directed by GE after preparing the surfaces).
- 19.2 **MILD STEEL GALVANISED TUBES (PIPES) & FITTINGS):** - Refer Para 18.4 of MES Schedule Part-I. Pipes and fittings shall be ISI marked and shall be of make mentioned in **Appendix 'B'**.
- 19.3 **TESTING:** All repaired equipments shall be tested for minimum 24 hours run by the Engineer-in-Charge before issue completion of that item.

**PARTICULAR SPECIFICATIONS (CONTD)****19.18.2 REPLACEMENT WARRANTY FOR LED LIGHTS**

19.18.2.1 Contractor has to furnish a replacement warranty of 05 years for LED Light fitting complete including lamp from the date of completion of CA. the product will be replaced free of cost in the following case: -

- (i) Manufacturing defects.
- (ii) Failure due to mechanical and electrical impact.
- (iii) Drop in lumen (or lux at 1 m ) below 90% of claimed values of lumen ( or lux at 1m) of the LED / Luminaries.

19.18.2.2 The amount of security deposit to be held from the contractor's running bill against the guarantee / warranty for LED lights for the specified period at 5% (Five percent) of the contract value of the items. This shall be worked out by Engineer-in-charge and be intimated to the contractor. This amount shall be refunded to him after the expiry of warranty period.

19.18.2.3 Alternative the security deposit, the contractor may give a separate interest bearing security deposit in favour of GE valid for 5 years for this amount. Should the GE at any time during execution or prior to the expiration of the warranty period, finds that the LED lights are not working, the contractor shall on demand in writing from the GE specifying the defects of not -with-standing that the same may have been inadvertently passed / certified and paid for under take to carry out the defect / replace the LED lights as may be necessary forthwith at his own expense, till expiry of the warranty period. In the event of his failure to do so within the specified period ( to be specified by the GE in his demand) the GE may undertake the same at the risk and expense in all respects of the contractor.

19.18.2.4 The liability of the contractor under this condition shall not extend beyond the period of 05 years from the certified date of completion unless the previously given notice to the contractor to rectify the defects.

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**21 DEMOLITION/DISMANTLING: Refer section 21 of MES Schedule Part-I.**

21.1 During demolition or dismantling, every precaution shall be taken by the contractor to prevent damage to any part of the structure and also to any adjacent structures which are to be left intact. Any damage caused to the structures, due to the carelessness and negligence of the contractor shall be made good by him at his own expense.

21.2 The workmanship and other specifications of the work not covered above shall be as specified in the relevant Para of MES Schedule or otherwise if the same is not available in SSR, then the same shall be at par with the relevant latest Indian standards all as directed by the GE.

**Appendix-A****SOURCES OF MATERIALS**

SER NO.	DESCRIPTION OF MATERIAL	SOURCE OF MATERIAL
1	Coarse aggregate for all RCC and PCC works	Chandigarh/Pathankot
2	Fine aggregate(coarse sand) for all RCC and PCC works	Chandigarh/ Pathankot
3	Sand for plastering, pointing and brick work	Chandigarh/ Pathankot
4	Sand for filling under floors, cushioning under interlocking blocks, underground electric cables	Nasrala Choe/Chandigarh/ Pathankot/Sutlej
5.	Stone for WBM and Soling (sub base) and premix carpet	Chandigarh/Pathankot/Randhisar
6.	Stone aggregate for hard core	Chandigarh/Pathankot/Randhisar
7.	Stone chipping for road works	Chandigarh/Pathankot/Randhisar
8.	Burnt clay bricks, Brick tiles & Pulverized fuel ash-lime bricks	From the nearest source conforming to specified quality

**NOTE:** Sources of materials shall be as given above or in vicinity thereof. The tenderer shall however ascertain the actual position/exact location of sources before submitting his tender and nothing extra shall be admissible on account of any misunderstanding due to their distance from site of works.

Sign of Contractor

For Accepting officer

**APPENDIX 'B'****LIST OF MAKES/MANUFACTURERS TO BE INCORPORATED IN WORK**

SER NO.	MATERIAL	NAME OF MANUFACTURERS/ BRAND NAME ETC.			
1	2	3			
1	<b>GENERAL NOTES :</b> Contractor can also procure the materials/products from the manufacturers, names of those are not included in the Appx ‘B’, with prior approval of Accepting Officer in case the same are approved by the competent authority i.e. CE WC or HQ E-IN-C Br in equivalent category (i.e.GP-I).				
2.	BLANK				
3.	Chloro-pyriphos emulsifiable concentrate (20 EC)	(i)	Pest Control (India) Pvt.Ltd	(ii)	Pest Control Services, Delhi
		(iii)	JS Pest Control Chandigarh	(iv)	Montari Industrial Ltd, New Delhi
4.	CONCRETE				
	(A) CEMENT OPC and PPC	(i)	THE ASSOCIATED CEMENT COMPANIES LTD (Brand ACC)		
		(ii)	AMBUJA CEMENT LTD (Brand AMBUJA)		
		(iii)	BIRLA CORPN LTD (Brand BIRLA)		
		(iv)	CENTURYCEMENT (Brand CENTURY)		
		(v)	DALMIA CEMENT(Bharat) LTD (Brand DALMIA CEMENT)		
		(vi)	THE RAMCO CEMENTS LIMITED		
		(vii)	J K LAKSHMI CEMENT LTD (Brand JK LAKSHMI		
		(viii)	J K CEMENT (Brand J K)		
		(ix)	JAYPEE REWA CEMENT (Brand JAYPEE)		
		(x)	ORIENT CEMENT (Brand ORIENT)		
		(xi)	MANGALAM CEMENT LTD (Brand MANGALAM)		
		(xii)	SAURASHTRA CEMENT (Brand SAURASHTRA)		
		(xiii)	THE INDIA CEMENT		
		(xiv)	ULTRA TECH CEMENTLTD (Brand ULTRATECH)		
	(B) WATER PROOFING COMPOUND	(i)	ACC	(ii)	FOSROC
		(iii)	L&T	(iv)	PIDILITE
		(v)	STP	(vi)	SIKKA
	(C) CONCRETE ADDITIVES/ PLASTICIZERS	(i)	STP		
		(ii)	FOSROC		
		(iii)	PIDILITE	(iv)	SIKKA
5.	<b>BRICK WORK:</b> For Bricks of any description & type refer <b>Appendix ‘A’</b>				
6-7	BLANK				
8.	<b>JOINERY</b>				
	(a) FACTORY MADE PANELLED/GLAZED/ GAUGED WOODEN SHUTTERS FOR DOORS & WINDOWS	(i)	M/s MP Wood Product Indore		
		(ii)	M/s Jainwood Industires (Jayana Board) Delhi		
		(iii)	M/s Jain Doors Pvt Ltd Sonipat		
		(iv)	Chandigarh timber products, patiala		
		(vi)	Shri Krishna industries, Panchkula.		
		(vii)	M/s Laxmi Doors.		

Sign of Contractor

For Accepting officer

**APPENDIX 'B'****LIST OF MAKES/MANUFACTURERS TO BE INCORPORATED IN WORK**

1	2	3			
	(b) FACTORY MADE PVC DOOR SHUTTERS AND FRAMES/ PVC CB SHUTTERS	(I)	SINTEX	(ii)	RAJSHRI PLASTIWOOD LTD
		(iii)	DURA PLAST EXTRACTION	(iv)	KUMAR ARCH TECH PVT LTD.
		(v)	FENESTA	(vi)	ECOCCELL
	(c) WOODEN FLUSH DOOR SHUTTERS	(I)	GREEN PLY INDUSTRIES	(ii)	MYSORE CHIP BOARD, ARCHID
		(iii)	CENTUARY PLY	(iv)	SWASTIK PLY WOOD
		(v)	JAIN WOOD INDUSTRIES (JAYANA BRAND)	(vi)	DURA PLY
		(vii)	JAIN DOORS PVT LTD SONIPAT HARYANA		
9.	<b>BUILDERS HARDWARE</b>				
	(A) HYDRAULIC DOOR CLOSER	(i)	EVEREST	(ii)	UNIVERSAL
		(iii)	GODREJ	(iv)	AMAR
	(B) DOOR SPRING/ FLOOR SPRING	(i)	EVEREST	(ii)	UNIVERSAL
		(iii)	GODREJ		
	(C) STAINLESS STEEL FITTINGS	(i)	ARGENT INDUSTRIES	(ii)	GODREJ
		(iii)	PRAYAG	(iv)	UNIVERSAL
	(D) ALUMINIUM FITTINGS	(i)	ARGENT INDUSTRIES	(ii)	CROWN
		(iii)	MOWJEE	(iv)	CLASSIC
	(E) IRON MONGERY	(i)	MOWJEE	(ii)	RS INDUSTRIES
		(iii)	M/S KITCH ARCHITECTURAL PRODUCT PVT LTD		
	(F) LOCKS	(i)	GODREJ	(ii)	HARRISON
		(iii)	LINK		
10	<b>STEEL ALUMINIUM AND IRON WORK</b>				
	<b>(A) MAIN PRODUCERS FOR TMT STEEL FOR REINFOCRMENT:</b>				
	(i)	SAIL			
	(ii)	TATA			
	(iii)	RINL			
	(iv)	Jai Balaji Industries Ltd 5 Bentinck Street 1 <sup>st</sup> Floor, Kolkata-700001			
	(v)	Shyam Steel Industries Ltd. Shyam Towers, EN-32, Sector-V, Salt Lake, Kolkata-700091			
	(vi)	SPS Steel Rolling Mills Ltd. Elegant Towers 68A, Ballygunge circular Road, Kolkata-700019			
	(vii)	STEEL EXCHANGE INDIA LTD. MY HOME LAXMINIVAS APARTMENTS, AMEERPET, HYDERABAD-500016 (AP)			
	(viii)	Jindal Steels and Power Ltd, Hissar, Haryana, Pin-125005			
	(ix)	SRMB Srijan Ltd, SRMB house, 7 Khetra Das Lane Kolkata 700012			
	(x)	Shri Bajrang Power & Ispat Ltd, Village Borjhara, Urla Industrial Area Raipur-493221, Chhatisgarh			
	(xi)	Gallantt Metal Ltd. Gujrat, Survey No.175/1 Village-Samkhiyali Taluka-Bhachau, Kutch Gujrat, Pin 370150			
	(xii)	M/S Real Ispat & Power Ltd Brand : 'G K TMT' Vrindavan, Near IDBI Bank Civil Lines Raipur-492001			
	(xxi)	SUPER SMELTERS LTD, Premlata, 39 Shakespeare Sarani 3 <sup>rd</sup> Floor Kolkata-700017			

Sign of Contractor

For Accepting officer

**APPENDIX 'B'****LIST OF MAKES/MANUFACTURERS TO BE INCORPORATED IN WORK**

1	2	3
	<b><u>(B) SECONDRY PRODUCERS OF STEEL (OTHR THAN TMT STEEL FOR REINFORCEMENT)</u></b>	
	(i)	Shyam Steel Industries Ltd, White Towers, 115 College Street, 1st Floor, Kolkata – 12
	(ii)	K L Steel Pvt Ltd, Post Box No 61, Lal Kuan, Bulandshahar Road, Ghaziabad (UP)
	(iii)	Kashi Vishwanath Steel Ltd, Narain Nagar Bazpur Road, Kashipur – 244713, Distt – US Nagar (Uttaranchal)
	(iv)	M/s Doaba steel Rollings Mills, Amloh road, Mandi Gobind Garh (Punjab)
	(v)	Amba Shakti Ispat Ltd, Plot No 6, Ph-II, Industrial Area, Kala Amb, Distt Sirmor-173030 (HP)
	(vi)	SRMB Srijan Pvt Ltd, 07 No Khetra Das Lane, Kolkata, 700012
	(vii)	Tata Steel Ltd, Tata Steel Structural, Tata Seel –Tube Division, Jeevan Tara Building, 1 <sup>st</sup> Floor, 5 Sansad Marg, New Delhi-110001
	(viii)	MADHAV UDYOG PVT LTD, Talwara Rd, Sirhind Side, MANDI GOBINDGARH– 147301 (Pb)
	(ix)	SRMB Udyog Ltd, 46 B.B Ganguly Street, Kolkata-700012
	(x)	Shree Parashnath Re-rolling Mills Ltd, 4C Maharshi Devendra Road, 3 <sup>rd</sup> Floor, Kolkata-700007
	(xi)	KL Concast Pvt Ltd.
	(xii)	Karam Steel Corporation, Narsali Road PO Box No 56 Mandi Gobindgarh-147301
	<b><u>(C) STRUCTURAL STEEL</u></b>	
	(i)	SAIL
	(ii)	TATA
	(iii)	RINL
	(iv)	JINDAL STEELS AND POWER LTD, HISSAR, HARYANA, PIN-125005
	<b><u>(D) IRON MONGERY</u></b>	
	(i)	MOWJEE
	(ii)	M/S KITCH ARCHITECTURAL PRODUCT PVT LTD
	(iii)	RS INDUSTRIES,
	<b><u>(E) STEEL WINDOWS &amp; VENTILATORS, PRESSED STEEL, DOOR FRAMES SHUTTER FOR CUPBODRDS / WARDROBES AND STEEL LOCKERS</u></b>	
	(i)	M/S SK STEEL FABRICATORS LUDHIANA
	(ii)	M/S SEHGAL DOORS NEW DELHI
	(iii)	M/S BHAWANI STEEL FABRICTION GAZIABAD
	(iv)	M/S INDIA MART INTERMESH LTD
	(v)	M/S STEELMAN INDUSTRIES, JALANDHAR
	(vi)	ASHISH INDUSTRIES
	(vii)	HYAT INTERIORS
	<b><u>(F) WELDED WIRE MESH/FABRIC</u></b>	
	(i)	MULTIWELD WIRE CO LTD, MUMBAI
	(ii)	JAINSONS SALES CROP Delhi
	(iii)	JAISON'S INDUSTRIES

**APPENDIX 'B'****LIST OF MAKES/MANUFACTURERS TO BE INCORPORATED IN WORK**

1	2	3
	<b><u>(F) BOX TYPE MILD STEEL WINDOW (OTHER THAN 'Z' SEC) (MANUFACTURERS SHOULD HAVE EFFECTIVE BIS LICENCE ONLY ISI MARKED SECTIONS TO BE USED FOR WINDOWS)</u></b>	
	(i)	M/s S K STEEL FABRICATORS LUDHIANA.
	(ii)	M/s STEELMANS INDUSTRIES, JALANDHAR
	(iii)	M/s BHAWANI STEEL FABRICATION GAZIABAD
	(iv)	M/s INDIA MART INTERMESH LTD,
	(v)	M/s SEHGAL DOORS, NEW DELHI
	<b><u>(G) ALUMINIUM SECTION OF SHUTTERS/FRAMES FOR DOOR/WINDOW/VENTILATOR</u></b>	
	(i)	HINDALCO
	(ii)	JINDAL
	(iii)	INDAL
	<b><u>(H) STEEL ROLLING SHUTTERS/ GRILLS &amp; COLLAPSIBLE GATES</u></b>	
	(i)	SWASTIK ROLLING SHUTTERS & MANUFACTURING WORKS MUMBAI,
	(ii)	HERCULES ROLLING SHUTTERS BANGALORE
	(iii)	STANDARD INDUSTRIES PUNE
	(iv)	M/S STEELMAN INDUSTRIES ,JALANDHAR
	(v)	CHABRA STEEL UDYOG
	(vi)	DAHIYA INDUSTRIES PUNCHKULA
	<b><u>(J) PUNCHED TAPES CONCERTINA COILS AND FLATWRAPWELD MESH FOR FENCING</u></b>	
	(i)	GLOBAL TECHNOCRATS PVT LTD or EQUIVALENT APPROVED BY GE
	<b><u>(K) UPVC DOORS, CHOWKHATS, WINDOWS/VENTILATORS</u></b>	
	(i)	H2O SOLUTIONS
	(ii)	KUNDLI INDUSTRIAL ESTATE, SONIPAT,
	(iii)	FENESTA
	(iv)	VEKA INDUSTRIES PVT LTD MUMBAI
	<b><u>(L) PVC DOORS, FRAME / SHUTTER</u></b>	
	(i)	SINTEX
	(ii)	RAJSHRI PLASTIWOOD LTD
	(iii)	M/S DURA PLAST EXTRACTION PVT LTD
	(iv)	M/S FENESTA,
	<b><u>(M) ALUMINIUM SHEETS</u></b>	
	(i)	NALCO PVT LTD
	(ii)	CRIL
	(ii)	JINDAL
	(iii)	BALCO
	<b><u>(N) ALUMINIUM COMPOSITE PANELS</u></b>	
	(i)	ALCO Bond
	(ii)	Aluminium Clad
	(iii)	Alstrong
	(iv)	Armstrong

Sign of Contractor

For Accepting officer

**APPENDIX 'B'****LIST OF MAKES/MANUFACTURERS TO BE INCORPORATED IN WORK**

1	2	3			
11	<b><u>ROOF COVERINGS</u></b>				
	(A) GALVANISED STEEL SHEETS & COLOUR COATED GALVANIZED STEEL SHEETS	(i)	TATA	(ii)	RASTRIYA ISPAT
		(iii)	SAIL	(iv)	BHUSHAN
		(v)	JINDAL	(vi)	
	(B) POLYCARBONATE SHEETS	(i)	DURATUFF	(ii)	VMT PLASTE LTD
		(iii)	COXWELL DOMES ENGG PVT LTD	(iv)	LEXAN
	(C) GALVALUME SHEETS	(i)	INDIAN ISPAT	(ii)	BHUSHAN
		(iii)	TATA BLUE SCOPE	(iv)	GALVACOLOR
		(v)	JSW	(vi)	DISCO
	(D) AC SHEETS /AC BOARDS (CORRUGATED, SEMI CORRUGATED)	(i)	CHARMINAR	(ii)	EVEREST
		(iii)	RAMCO		
	(E) APP MODIFIED MEMBRANE FOR WATER PROOFING AND DAMP PROOFING	(i)	Asian Paints Ltd. (Smart-care)	(ii)	Bengal Bitumen
		(iii)	IWL India Limited	(iv)	Modern Bitumen Pvt Ltd
		(v)	Tikitar	(vi)	Multi-plas-M/s Texas
		(vii)	Torch Tar	(viii)	STP Ltd
		(ix)	Pidilite Ind Ltd (Torch Shield)	(x)	Shalimar Tar Products
12.	<b><u>CEILINGS AND LININGS</u></b>				
	(A) PLYWOOD	(i)	DURA PLY	(ii)	ARCHID PLY
		(iii)	BHUTAN BOARD	(iv)	CENTURY
	(B) PARTICLE BOARD (VENEERED & UNVENEERED LAMINATED)	(i)	KITPLY	(ii)	ARCHID
		(iii)	GREEN	(iv)	NATIONAL PLY WOOD
		(v)	BHUTAN BOARD		
	(C) DECORATIVE LAMINATES	(i)	ARCHID LAM	(ii)	SUNMICA
		(iii)	MERINO	(iv)	GREELAM
	(D) FIBRE BOARD (MEDIUM DENSITY)	(i)	NOVAPAN	(ii)	BHUTAN BOARD
		(iii)	KITPLY	(iv)	ARCHID
		(v)	GREEN FLOORMAX	(vi)	VENEERED MDF
	(E) GYPSUM BOARD	(i)	INDIA GYPSUM	(ii)	LAFARGE
		(iii)	SON INDUSTRIES KANPUR		
	(F) FALSE CEILING TILES/ BOARD (GYPSUM BOARD/ POP/ MINERAL FIBRE)	(i)	LAFARGE	(ii)	BORAL
		(iii)	GYPROC	(iv)	ARMSTRONG
		(v)	DIAKEN	(vi)	LLOYDS
		(vii)	LUXALONG	(viii)	V-BOARD
	(G) FALSE CEILING	(i)	GYPBOARD	(ii)	ARMSTRONG
		(iii)	ANCHORLAM	(iv)	ANCHOR
	(H) PVC/WPC PLY/BOARD	(i)	ECOCCELL	(ii)	RAJSHREE
		(iii)	JAIN IRRIGATION	(iv)	ARMSTRONG
	(J) PRE FAB PANEL BOARDS / WALL LINING CEILING TILES	(i)	BORAL	(ii)	AEROLITE
		(iii)	ARMSTRONG	(iv)	LAFARGE
		(v)	HILUX	(vi)	V BOARD

Sign of Contractor

For Accepting officer



**APPENDIX 'B'****LIST OF MAKES/MANUFACTURERS TO BE INCORPORATED IN WORK**

1	2	3			
13.	<b><u>FLOOR FINISHES &amp; PAVINGS</u></b>				
	(A) GLAZED CERAMIC WALL TILES & NON-SKID CERAMIC FLOOR TILES	(i)	KAJARIA	(ii)	JOHNSON
		(iii)	CERA	(iv)	ORIENT BELL
		(v)	NITCO	(vi)	SOMANY
	(B) VITRIFIED TILES	(i)	KAJARIA	(ii)	NITCO
		(iii)	JOHNSON	(iv)	ORIENT BELL LIMITED
		(v)	VARMORA	(vi)	SOMANY
	(C) GLASS MOSAIC TILES	(i)	NITCO	(iii)	CORAL MOSAIC
		(ii)	ITALIA	(iv)	JOHNSON
	(D) TERRAZZO TILES / PCC PLAIN/ CHEQUERED TILES	(i)	NTC	(ii)	NITCO
		(iii)	EUROCON	(iv)	DURACRETE
		(v)	SS TILES		
	(E) INTERLOCKING TILES/EXTERIOR TILES/PAVER BLOCKS	(i)	UNISTONE	(ii)	NTC
(ii)		SS TILES	(iii)	ULTRA	
(iv)		MOHINDRA INDUSTRIES PKT	(v)	SURYA K	
(F) PVC SHEET AND PVC TILE FLOORING	(i)	PRIMER POLYFILM LTD	(II)	ARMSTRONG	
	(iii)	WONDER FLOOR			
(G)DECORATIVE TEXTURES / COATINGS	(i)	APEX (DURACAST)	(ii)	BAKELITE HYLAM (HERITAGE)	
	(iii)	BRITISH (XTRACEM 76)	(iv)	UNITILE	
	(v)	DULUX (ACRATEX)	(vi)	NCL ALTEK SECCOLOR	
(H) METTALIC FLOOR	(i)	IRONITE	(ii)	HARDONITE	
14.	<b><u>BLANK</u></b>				
15.	<b><u>WHITE WASHING, COLOURING &amp; DISTEMPERING</u></b>				
	(A) CEMENT BASED PAINTS	(i)	ASIAN	(ii)	ACROCEM
		(iii)	BERGER	(iv)	DURACEM
		(v)	JENSON & NICHOLSON	(vi)	SNOWCEM
	(B) OIL BOUND DISTEMPER/ INTERIOR ACRYLIC EMULSION PAINT	(i)	ASIAN (TRACTOR),	(ii)	BERGER (BISON)
		(iii)	NEROLAC (BEAUTY)		
	(C) PLASTIC EMULSION PAINT / EXTERIOR EMULSION	(i)	ASIAN (ROYALE, APCOLITE ADVANCE)	(ii)	BERGER (SILK, RANGOLI EASY CLEAN)
		(iii)	NEROLAC (IMPRESSION ECOCLEAN		
	(D) EXTERIOR ACRYLIC EMULSION PAINT	(i)	ASIAN (APEX SUPREMA),	(ii)	BERGER (WEATHER COAT ANTI DUST)
		(iii)	NEROLAC (EXCEL ANTI PEEL)		

Sign of Contractor

For Accepting officer

**APPENDIX 'B'****LIST OF MAKES/MANUFACTURERS TO BE INCORPORATED IN WORK**

1	2	3			
	(E) EXTERIOR PRIMER WATER BASED	(i)	ASIAN	(ii)	BERGER
		(iii)	NEROLAC		
	(F) WHITE CEMENT BASE WALL PUTTY	(i)	ASIAN PAINTS	(ii)	BERGER
		(iii)	BIRLA WHITE	(iv)	JK WHITE
16.	<b><u>GLAZING</u></b>				
	(A) SHEET GLASS PLAIN/FIGURED	(i)	SAINT GOBAIN	(ii)	MODI FLOAT
		(iii)	MODIGUARD	(iv)	ATUL GLASS INDUSTRIES
		(v)	TRIVENI FLOAT GLASS		
	(B) TOUGHENED GLASS/ ROUGH CAST WIRED GLASS/ HEAT ABSORBING GLASS & REFLECTIVE SOLAR CONTROL FILM	(i)	HINDUSTAN PILKINGTON GLASS WORKS		
		(ii)	SAINT GOBAIN	(iii)	MODI FLOAT
		(iv)	MODIGUARD	(v)	ATUL GLASS INDUSTRIES
		(vi)	GOLD FISH	(vii)	TRIVENI FLOAT GLASS
	(F) OIL PUTTY	(i)	ASIAN PAINTS LTD.	(ii)	BIRLA WHITE
		(iii)	JK WHITE	(iv)	SHALIMAR HARDWARE
		(v)	DR FIXIT	(vi)	JENSON & NICHOLSON
17.	<b><u>PAINTING</u></b>				
	(A) SYNTHETIC ENAMEL PAINT/ PRIMER	(i)	ASIAN PAINTS	(ii)	GOODLESS NEROLAC
		(iii)	BERGER PAINTS	(iv)	ICI DULUX
	(B) PREMOULDED JOINT FILLER	(i)	TIKTAR INDUSTRIES LTD	(ii)	STP LTD
		(iii)	CAPITAL STEEL & CHEMICAL	(iv)	M/S GARLICK & CO PVT LTD
18.	<b><u>WATER SUPPLY, PLUMBING, DRAINS AND SANITARY FITTINGS</u></b>				
	(A) CI PIPES AND FITTINGS	(i)	ELECTRO-STEEL	(ii)	LANCO
		(iii)	JINDAL SAW	(iv)	RASHMI
		(v)	KESORAM	(vi)	TATA METALIC
		(vii)	TATA KUBOTA	(viii)	ELECTROTHERM
	(B) DI PIPES & FITTINGS	(i)	ELECTRO-STEEL	(ii)	LANCO
		(ii)	TATA METALIKS	(iii)	TATA KUBOTA
		(iv)	KESORAM	(v)	JINDAL
		(vi)	SRIKALAHASTHI		
	(C) MS PIPES & FITTINGS	(i)	TATA	(ii)	JINDAL PIPES
		(iii)	BST	(iv)	PRAKASH TUBES
		(v)	BHUSHAN		
	(D) GALVANISED STEEL PIPES & TUBES	(i)	TATA	(ii)	JINDAL PIPES
		(iii)	BST	(iv)	PRAKASH TUBES
		(v)	APPOLO	(vi)	BHUSHAN
	(E) CPVC PIPES AND FITTINGS	(i)	DUTRON	(ii)	DUPLON (RELIANCE)
		(iii)	FINOLEX	(iv)	ASHIRVAD

Sign of Contractor

For Accepting officer

**APPENDIX 'B'****LIST OF MAKES/MANUFACTURERS TO BE INCORPORATED IN WORK**

1	2	3			
	(F) uPVC SOIL, WASTE, RAINWATER (SWR) & DRAINAGE PIPES, HDPE PIPES, PVC PIPES	(i)	FINOLEX	(ii)	PRINCE
		(iii)	SUPREME	(iv)	SFMC
		(v)	SINTEX	(vi)	PRAYAG
		(vii)	RELIANCE INDUSTRIES	(viii)	ASHIRVAD
	(Q) HDPE/PVC WATER STORAGE TANKS	(i)	SINTEX	(ii)	POLYCON
		(iii)	SHEETAL	(iv)	IROTEX
		(v)	DIPLAST PLASTIC		
	(R) CAST COPPER ALLOY CP BATH FITTINGS LIKE BIB TAPS, ANGLE/STOP VALVES, PILLAR TAPS, WALL/ SINK MIXERS, SHOWERS, HEALTH FAUCET, JET SPRAY, WASTE FITTING, TOILET PAPER HOLDER, TOWEL RAIL/ RACK, GLASS SHELVES, GRATINGS ETC.	(i)	PRAYAG	(ii)	JAQUAR
		(iii)	ESS ESS	(iv)	ESSCO
		(v)	KEROVIT (KAJARIA)	(vi)	JAINKO
	(S) BRASS/GUN METAL STOP COCK AND BIB COCK, BALL VALVE	(i)	JAYPEE	(ii)	GMP
		(iii)	NETA	(iv)	ZOLOTO
		(v)	JAINKO	(vi)	PRAYAG
	(T) PTMT BATH FITTINGS LIKE BIB TAPS, PILLAR TAPS, ANGLE/ STOP VALVE, FLOAT VALVES/ BALL COCKS, GRATING AND PVC CONNECTION	(i)	PRAYAG		
		(ii)	POLYTUF		
		(iii)	SHAKTI ENTERPRISES (SHAKTI)		
	(U) PVC LOW LEVEL FLUSHING CISTERN	(i)	PRAYAG	(ii)	NEYCER
		(iii)	PARRYWARE	(iv)	CERA
		(v)	JOHNSON PEDAR	(vi)	JAQUAR
		(vii)	HINDWARE		
	(V) VITREOUS CHINA SANITARY APPLIANCES LIKE WC, WHB, URINAL FLUSHING CISTERN & PLASTIC TOILET SEAT COVERS ETC	(i)	CERA	(ii)	JAQUAR
		(iii)	PARRYWARE	(iv)	SOMANI
		(v)	NEYCER	(vi)	PRAYAG
		(vii)	KEROVIT (KAJARIA)		
	(W) STAINLESS STEEL ITEMS LIKE KITCHEN SINK WITH OR WITHOUT DRAINING BOARD, LAB SINK, PLATE RACKS	(i)	NIRALI	(ii)	KOBRA
		(iii)	KOBRA	(iv)	NEELKANTH
		(v)	JAYNA	(vi)	BLUE STAR
		(vii)	SHAKTI ENTERPRISES	(viii)	PRAYAG
	(X) LOOKING MIRROR/ BATH CABINET	(i)	PRAYAG	(ii)	KEROVIT
		(iii)	JOHNSON PEDAR	(iv)	JAQUAR
		(v)	JAINKO	(vi)	POLYTUF

Sign of Contractor

For Accepting officer

**APPENDIX 'B'****LIST OF MAKES/MANUFACTURERS TO BE INCORPORATED IN WORK**

SER NO.	MATERIAL	NAME OF MANUFACTURERS/ BRAND NAME ETC.			
1	2	3			
19	(A) PVC COPPER WIRES 650/ 1100 VOLTS FOR ELECTRIC WIRING, SUB MAIN WIRING ETC.	(i)	ANCHOR BY PANASONIC	(ii)	FINOLEX
		(iii)	GRANDLAY	(iv)	HAVELLS
		(v)	POLYCAB	(v)	PLAZA
	(B) PVC RIGID CONDUIT	(i)	DIPLAST	(ii)	KAMPLAST
		(iii)	FINOLEX	(iv)	PRINCE
		(v)	SUPREME	(vi)	PLAZA
	(C) MS CONDUIT/ ERW CONDUIT PIPE	(i)	BHARAT STEEL	(ii)	JINDAL
		(iii)	TATA	(iv)	PRAKASH TUBES
		(v)	TIRUPATI	(vi)	AKG
	(D) PIANO TYPE SWITCH/ SOCKETS/ CEILING ROSES/ LAMP HOLDER FAN REGULATORS	(i)	ANCHOR	(ii)	LEGRAND
		(iii)	SCHNEIDER	(iv)	HAVELLS
		(v)	STANDARD		INDOASIAN
	(E) LAMINATED SHEET COVER	(i)	HYLUM	(ii)	FORMICA
		(iii)	GREEN LAMINATED BOARDS		
	(F) MODULAR SWITCHES/ SOCKETS/ FAN REGULATORS	(i)	ABB	(ii)	ANCHOR BY PANASONIC
		(iii)	HAVELLS	(iv)	INDOASIAN
		(v)	LEGRAND	(vi)	SCHNEIDER
	(G) LED LIGHT FITTINGS	(i)	BAJAJ	(ii)	CROMPTON
		(iii)	HAVELLS	(iv)	PHILIPS
		(v)	SURYA		
	(H) FLAME PROOF SWITCH SOCKET, DBs & LIGHT FITTINGS	(i)	BAJAJ	(ii)	BALIGA
		(iii)	CROMPTON	(iv)	FCG
		(v)	SHYAAM	(vi)	SUDHIR
	(J) MCB/ ELCB/ RCCB/ ROCB/ ISOLATORS/ MCB AND DIST BOARDS / MCCB's	(i)	ABB	(ii)	HAVELLS
		(iii)	INDOASIAN	(iv)	LEGRAND
		(v)	SCHNEIDER	(vi)	SIEMENS
	(K) BALL BEARING FOR FANS	(i)	NBC	(ii)	TATA
		(iii)	SKF		
	(L) FAN (CEILING, EXHAUST)	(i)	BAJAJ	(ii)	KHAITAN
		(iii)	HAVELLS	(iv)	USHA
	(M) STORAGE WATER HEATER	(i)	BAJAJ	(ii)	CROMPTON
		(iii)	RAMCO	(iv)	USHA
	(N) TAMPER PROOF METER	(i)	ABB	(ii)	L&T
		(iii)	NEPTUNE	(iv)	SECURE
	(O) LT CABLES, 1100 VOLTS, XLPE	(i)	GRANDLAY	(ii)	GLOSTER
		(iii)	HAVELLS	(iv)	KEI INDUSTRIES
		(v)	POLYCAB	(vi)	UNIVERSAL CABLE

Sign of Contractor

For Accepting officer

**LIST OF MAKES/MANUFACTURERS**

SER No.	PRODUCT NAME	GROUP OF PRODUCTS BASED ON MAKES/ BRANDS			
1	2	3			
20.	<b>LIGHTING ARRESTERS</b>	(i)	BHEL	(ii)	CROMPTON
		(iii)	SCHEINDER	(iv)	PACTIL
		(v)	JMV	(vi)	OBLUM ELECTRICAL
21.	<b>EARTHING/ LIGHTING PROTECION SYSTEM</b>	(i)	JMV	(ii)	RASTARIA
		(iii)	JAIPURIA	(iv)	TIRUPATI
22.	<b>EARTH PLATE &amp; CONNECTED MATERIALS</b>	(i)	JAIPURIA	(ii)	RASHTRIYA
		(iii)	HEX	(iv)	TRUE POWER
23.	<b>CHEMICAL EARTHING</b>	(i)	JMV	(ii)	JMB
		(iii)	OBO	(iv)	TIRUPATI
		(v)	ENOV	(vi)	POWERTRAK
24.	<b>GALVANISED STEEL PIPES &amp; TUBES</b>	(i)	TATA	(ii)	JINDAL PIPES
		(iii)	BST	(iv)	PRAKASH TUBES
		(v)	APPOLO	(vi)	BHUSHAN
25.	<b>PVC COPPER WIRES 650/ 1100 VOLTS FOR ELECTRIC WIRING, SUB MAIN WIRING ETC.</b>	(i)	POLYCAB	(ii)	KEI
		(iii)	FINOLEX,	(iv)	GLOSTER
		(v)	GRANDLAY	(vi)	HAVELLS

**NOTE:** Contractor can also procure the materials/products from the manufacturers, names of those are not included in the Appx 'B', with prior approval of Accepting Officer in case the same are approved by the competent authority i.e. CE WC or HQ E-IN-C Br in equivalent category (i.e.GP-I).

**APPENDIX 'C'****LIST OF ISI CERTIFIED PRODUCTS TO BE USED IN THE WORKS**

- (a) Ceiling Roses: (Second Revision) (IS-371-1979).
- (b) Three pin plugs and socket outlets: (Third Revision) (IS-1293-1988).
- (c) Switch fuses (main and switch): (IS-4064-1978- Part-I & II)
- (d) Rigid steel conduit: (IS-9537-Part-II-1988) with amendment No. 1 superseding (IS-1653-1972).
- (e) Plain rigid conduit of insulating material: (IS-9537(Part-III)-1983) (With amendment No. 1) superseding (IS-1653-1972 & 2509-1973).
- (f) Polyethylene insulated cables for working voltages up to and including 1100 volts: (IS-1596-1977) (Second revision)
- (g) LT XLPE cable: (IS-7098/1/88)
- (h) Distribution boards: (IS-8828 & IEC898)
- (i) Pre-stressed Concrete Poles (IS-2713 Part –I to III)
- (j) Steel tubular poles: (IS-2713-Part-I to III -1980), (Second Revision)
- (k) Lightning Arresters: (IS-3070-Part –I-1985).
- (l) RCBO, RCCB: (IS-12640 Pt-II of 1988).
- (m) MCB: (IS-8828 of 1996).
- (n) House wiring (Copper wire): IS-694 (Part-II)

**NOTE:-** The items which are not included here in before shall be referred from MES Schedule & website of the BSI.

**APPENDIX 'D'****TESTING OF MATERIALS**

Ser. No.	Material	Tests	Method of Testing	Frequency of Tests	Level of test	Rate in Rs.	Remarks																
1	2	3	4	5	6	7	8																
1	Bricks	(i) Compressive Strength	IS:3495 (Part-II)	<b>AS PER IS:5454-1978</b> <table><tr><th>Lot Size</th><th>Sample Size</th><th>Permissible No. of defective bricks</th></tr><tr><td>1001 to 10000</td><td>5</td><td>0</td></tr><tr><td>10001 to 35000</td><td>10</td><td>0</td></tr><tr><td>35001 to 50000</td><td>15</td><td>1</td></tr></table>	Lot Size	Sample Size	Permissible No. of defective bricks	1001 to 10000	5	0	10001 to 35000	10	0	35001 to 50000	15	1	'A'	330.00	Checks for4 visual and dimensional characteristics shall also be carried out as per IS-5454				
Lot Size	Sample Size	Permissible No. of defective bricks																					
1001 to 10000	5	0																					
10001 to 35000	10	0																					
35001 to 50000	15	1																					
		(ii) Water Absorption	IS:3495 (Part-II)	-Do- -Do- -Do-	'A'	330.00																	
		(iii) Efflorescence	IS:3495 (Part-I)	-Do- -Do- -Do-	'A'	330.00																	
2	Coarse Aggregate	(i) Particle size and shape (Sieve analysis)	IS:2386-1963 (Part-I)	One test for every 15 Cum of aggregate or part thereof, brought at site	'A'	660.00																	
		(ii) Flakiness Index	-Do-	-Do-	'A'	250.00																	
		(iii) Estimation of deleterious materials	IS:2386-1963 (Part-I)	One test for every 100 cum of aggregate or part thereof brought to site.	'A'	600.00																	
		(iv) Organic impurities	-Do-	One test per source of supply	'C'	275.00																	
		(v) Moisture Contents	-Do- (Part-II)	Regularly as required	'A'	330.00																	
		(vi) Specific gravity	-Do-	One test per each source of supply	'B'	330.00																	
3	Fine Aggregate	(i) Particle size and shape (Sieve analysis)	IS: 2386-1963 (Part - I)	One test for every 15 Cum of fine aggregate or part when brought at site	'A'	660.00																	
		(ii) Estimation of deleterious materials (Test for clay, silt & impurities)	-Do- (Part-II)	-Do-	'A'	500.00																	
		(iii) Specific Gravity	-Do- (Part-II)	One for each source of supply.	'B'	330.00																	
		(iv) Moisture Contents	-Do-	Regularly as required subject to 2 tests for each source of supply	'A'	330.00																	
		(v) Organic impurities	-Do- (Part-II)	<b>One test for each source of supply</b>	'C'	275.00																	
4	Cement	(i) Setting time	IS: 4031-63 Affirmed 1980	One for each consignment as and when required	'B'	500.00																	
		(ii) Soundness	-Do-	-Do-	'B'	550.00																	
		(iii) Compressive strength	-Do-	-Do-	'B'	550.00																	
		(iv) Fineness (By Blaine Air Permeability Method)	-Do-	-Do-	'B'	275.00																	
5	Structural Concrete (M-25 Grade & above)	(i) Slump test or compacting factor test or vee-bee time	IS:1199-1959	<table><tr><td colspan="2">The minimum frequency of sampling of concrete of each grade shall be as under:-</td></tr><tr><td>Qty of conc in the work</td><td>No. of Samples</td></tr><tr><td>1 to 5 cum</td><td>1</td></tr><tr><td>6 to 15 cum</td><td>2</td></tr><tr><td>16 to 30 cum</td><td>3</td></tr><tr><td>31 to 50 cum</td><td>4</td></tr><tr><td>51 cum &amp; above</td><td>4 plus 1 additional sample for each 50 cum or part thereof.</td></tr><tr><td colspan="2"><b>* Clause 15.2 of IS-456-2000</b></td></tr></table>	The minimum frequency of sampling of concrete of each grade shall be as under:-		Qty of conc in the work	No. of Samples	1 to 5 cum	1	6 to 15 cum	2	16 to 30 cum	3	31 to 50 cum	4	51 cum & above	4 plus 1 additional sample for each 50 cum or part thereof.	<b>* Clause 15.2 of IS-456-2000</b>		'A'	300.00	(i) Random sampling shall be carried out to cover all mix units. (ii) Refer IS 456-2000 clause 14 for frequency of sampling
The minimum frequency of sampling of concrete of each grade shall be as under:-																							
Qty of conc in the work	No. of Samples																						
1 to 5 cum	1																						
6 to 15 cum	2																						
16 to 30 cum	3																						
31 to 50 cum	4																						
51 cum & above	4 plus 1 additional sample for each 50 cum or part thereof.																						
<b>* Clause 15.2 of IS-456-2000</b>																							
		(ii) Compressive Strength	IS: 516-1959	-Do-	'A'	900.00	-Do-																

Sign of Contractor

For Accepting officer

**APPENDIX 'D'****TESTING OF MATERIALS**

1	2	3	4	5	6	7	8
6	(a) PCC block for walling (Hollow blocks)	(i) Compressive strength (ii) Water absorption (iii) Density	IS:2156-1984 ( Appendix 'B' ) -do- (Appendix E ) IS:2156-1984 (Appendix 'A' )	8 block out of 14 3 blocks out of 14 3 blocks out of 14	'A' 'B' 'B'	900.00 330.00 330.00	Samples:14 blocks for consignment of every 5,000 blocks or part thereof.
	(b) PCC solid block for walling	(i) Compressive strength (ii) Water absorption (iii) Density	IS: 2185-1979 (Part II) -Do- -Do-	12 blocks out of 18 3 blocks out of 18 3 blocks out of 18	'A' 'B' 'B'	900.00 330.00 330.00	Sample:18 blocks from each consignment of every 1,000 blocks or part thereof. These blocks to be checked for dimension and weight
7	Cement Flooring tiles/ Terrazzo tiles	(i) Water absorption (ii) Wet transverse strength (iii) Resistance to wear	IS:1237-1980 (Appendix 'D' ) -Do- (Appendix 'E' ) -Do-(Appendix 'F' )	6 tiles out of 18 -Do- -Do-	'A' 'B' 'B'	330.00 660.00 1000.00	Samples of 18 tiles from each source of supply selected at random.
8	Burnt clay roofing tiles (Hand made)	(i) Water absorption (ii) Compressive strength	IS:3495-1992 (Part-II) -Do- -Do-	6 tiles out of 12	'B' 'A'	216.00 180.00	Sample : 12 tiles from each source of supply selected at random. As per IS:2620 (Part II) Length 150 mm to 250 mm, Width 100 mm to 200 mm Thickness 35 mm to 50 mm
9	Mangalore Pattern roofing tiles	(i) Water absorption (ii) Breaking Load	IS: 654- (Appendix 'A') IS: 654- (Appendix 'C')	6 tiles out of 32 -Do-	'A' 'B'	- 180.00	Sample: 32 tiles from each consignment of 3,000 tiles or part thereof. These tiles shall be checked for dimension
10	Timber	(i) Specific gravity and weight (ii) Moisture content	IS:1708-1986 (Part II) -Do- (Part I)	Minimum 3 samples from lot of 4 Cum or 250 pieces of seasoned timber. -Do-	'B' 'A'	120.00 120.00	
11	Water for construction purposes	(i) Test for Acidity (ii) Test for Alkalinity (iii) Test for solid contents	IS:456, 3015 -Do- -Do-	Once at the stage of approval of source of water. -Do- -Do-	'B' 'B' 'C'	500.00 500.00 500.00	Also refer clause 4.3 of IS:456 and its subsequent sub clauses regarding suitability of water
12	Welding of steel work	Visual inspection test	IS-822-1970 Clause 7.1	100% by visual inspection	Work site	360.00	Specialised tests their method & frequency to be decided on consideration of their importance by the Accepting Officer.

Sign of Contractor

For Accepting officer



**APPENDIX 'D'****TESTING OF MATERIALS**

1	2	3	4	5	6	7	8																		
13	Timber panelled and glazed door/window and shutters	(a) Dimensions ,sizes, workmanship and finish	IS:1003 (Part-I)	<table><tr><th>Lot Size</th><th>Sample Size</th></tr><tr><td>26 to 50</td><td>5</td></tr><tr><td>51 to 100</td><td>8</td></tr><tr><td>101 to 150</td><td>13</td></tr><tr><td>151 to 300</td><td>20</td></tr><tr><td>301 to 500</td><td>32</td></tr><tr><td>501 and 1000</td><td>50</td></tr><tr><td>1001 and above</td><td>80</td></tr><tr><td colspan="2">As per Table 1 of IS:4020-1998</td></tr></table>	Lot Size	Sample Size	26 to 50	5	51 to 100	8	101 to 150	13	151 to 300	20	301 to 500	32	501 and 1000	50	1001 and above	80	As per Table 1 of IS:4020-1998		'A'	180.00	
Lot Size	Sample Size																								
26 to 50	5																								
51 to 100	8																								
101 to 150	13																								
151 to 300	20																								
301 to 500	32																								
501 and 1000	50																								
1001 and above	80																								
As per Table 1 of IS:4020-1998																									
		(b) STRENGTH TEST (i)Slamming (ii) Impact indentation (iii) Shock resistance (iv) Edge loading	IS:1303	From each lot, 5% of the factory made shutters shall be manufacturer tested for strength tests	'C'	As per actual rate																			
14	Plywood (IS:303)	(i) Moisture Content	IS:1734-1983 (Part-I)	Six test pieces cut from each of the boards selected as per table shall be subject to tests.	'C'	-																			
15	Wood Particle Board (Medium density IS: 303)	(i) Density	IS:2360 (Part-III)	Three test specimen from each sample (size 150mm x 75 mm)	'A'	60.00	Sampling shall be as per IS: 3487 with moisture meter																		
		(ii) Moisture content	-Do-	-Do-	'A' & 'B'	60.00																			
		(iii) Water absorption	-Do- (Part-16)	-Do- (Size 300 mm x 300 mm)	'A'	60.00																			
		(iv) Swelling due to surface absorption	-Do- (Part-17)	-Do- (Size 125 mm x 100 mm)	'A'	60.00																			
		(v) Swelling in water	-Do-	-Do- (Size 200 mm x 100 mm)	'A'	60.00																			
		(vi) Modulus of rupture	-Do- (Part-4)	Three tests specimen as per IS-2380	'B'	90.00																			
		(vii) Screw and nail withdrawal strength	-Do- (Part-4)	As per IS-2385	'C'	120.00																			
16	Reinforcem ent Steel	(i) Physical tests upto 16mm dia(normal mass, tensile elongation, bend & rebend)			'B'	2500.00																			
		(ii) More than 16mm dia			'B"	2750.00																			

**NOTES: -**

1. Refer Special Condition No 20.
2. In case the tests are conducted in national Test House/ CME, Pune / Engineering college Labs /any other Govt. approved Lab, contractors shall have to pay the actual amount of test charges levied by these test house, Labs etc. This shall apply to all levels i.e. level A, B and C tests
3. In case of site laboratories established by the contractor for 'A' level tests, no recovery shall be made.

Sign of Contractor

For Accepting officer

**APPENDIX 'E'****CEMENT SUPPLY/ACCEPTANCE REGISTER**

1. CA No. & Name of work.
2. Control No \*
3. Name of Manufacturer/Brand Name/Gde of Cement  
(A) Manufacture\_\_\_\_\_ (b) Brand\_\_\_\_\_ (c) Grade
4. Qty of cement & lot No/Week No ( in Bags): (Qty\_\_\_\_\_ (b) Lot No/Week No.\_\_\_\_\_
5. Manufacturer's test Certificate No.\_\_\_\_\_
6. Random Test Details  
(a) Physical test report from\_\_\_\_\_ vide their letter No.\_\_\_\_\_  
( Name of approval Lab/Engg College)  
(b) Chemical test report from\_\_\_\_\_ vide their letter No.\_\_\_\_\_  
( Name of approval Lab/Engg College)
7. Details of Physical & Chemical properties: -

Srl No	Details	Physical requirements ( As per IS 4031)													Chemical requirements (As per IS-4032)				
		Specific surface area (M <sup>2</sup> /Kg)	Soundness by Le chatellear Expansion	Soundness by Auto Clave	Initial setting Time (Minutes)	Final setting time (Minutes)	Compressive strength			Temp during testing °C	Standard Consistency(%)	Lime saturation factor (Ratio)	Alumina Iron Ratio (Ratio)	Insoluble residue (%)	Magnesia(%)	Sulphuric Anhydride(%)	Loss on ignition(%)	Alkalis(%)	Chlorides(%)
							03 Days(Mpa)	07 Days(Mpa)	28 Days(Mpa)										
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1	AS per relevant IS																		
2	As per manufacture's test certificate																		
3	As per random test certificate																		

Remarks with Signature

Accepted/Rejected

Contractor

JE

Engineer-in-Charge

GE

Remarks of BOO/Inspecting Officer/CWE

\*To be allotted serially by GE consignment wise

Sign of Contractor

For Accepting officer

**APPENDIX 'F'****STEEL SUPPLY/ACCEPTANCE REGISTER**

1. CA No. & Name of work.
2. Contract No.
3. Name of Manufacturer's TC No.
4. Manufacturer
5. Random Test Details
  - (a) Physical test report from \_\_\_\_\_ vide letter No.\_\_\_\_  
(Name of NABL approved Lab/Govt Engg College)
  - (b) Chemical test report from \_\_\_\_\_ vide letter No.\_\_\_\_  
(Name of NABL approved Lab/Govt Engg College)
6. Types of steel, Dia & Qty
  - (a) Type : TMT/CRS
  - (b) Dia -----mm
  - (c) Actual Wt \_\_\_\_\_ MT
  - (d) Conversion wt \_\_\_\_\_ MT

Srl No.	Particulars	Chemical Test							Mechanical Test						
		Carbon %	Sulphur%	Phosphorous%	Sulphur + phosphorus	Manga-nese %	Silicon%	Corrosion resistant element	Wt per Metre	Yield Stress (N/mm2)	Tensile strength (N/mm2)	Percent Min Elongation 18 %	Bend test	Rebend Test	Remarks
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	AS per IS 1786- 2008														
2	As per manufacture's test certificate														
3	As per independent test														

Remarks with Signature

Accepted/Rejected

Contractor

JE

Engineer-in-Charge

GE

Remarks of BOO/Inspecting Officer/CWE

Sign of Contractor

For Accepting officer